

# Metro Outer Development Assessment Panel Agenda

Meeting Date and Time: Meeting Number: Meeting Venue: Wednesday, 9 April 2025; 9:30am MODAP/72 140 William Street, Perth

A live stream will be available at the time of the meeting, via the following link: MODAP/72 – 9 April 2025 – City of Swan

# PART A – INTRODUCTION

- 1. Opening of Meeting, Welcome and Acknowledgement
- 2. Apologies
- 3. Members on Leave of Absence
- 4. Noting of Minutes

## PART B – CITY OF SWAN

- 1. Declarations of Due Consideration
- 2. Disclosure of Interests
- 3. Form 1 DAP Applications
  - 3.1 Part Lot 900 Chittering Road, Lot 9501 Fairchild Street & Lot 9013 Tigermoth Boulevard, Bullsbrook – Proposed Lifestyle Village (Park Home Park) – DAP/24/02776
  - 3.2 Part Lot 9502 Squadron Boulevard, Bullsbrook Proposed Service Station and Fast Food Outlet DAP/24/02822
  - 3.3 Lot 5002 Squadron Boulevard, Bullsbrook Proposed Child Care Premises – DAP/24/02849
- 4. Form 2 DAP Applications
- 5. Section 31 SAT Reconsiderations

# **PART C – OTHER BUSINESS**

- 1. State Administrative Tribunal Applications and Supreme Court Appeals
- 2. Meeting Closure

Please note, presentations for each item will be invited prior to the items noted on the agenda and the presentation details will be contained within the related information documentation



# ATTENDANCE

ATTENDANCE	
Specialist DAP Members	DAP Secretariat
Dale Page (Presiding Member)	Claire Ortlepp
Eugene Koltasz (Deputy Presiding Member)	Ashlee Kelly
Andrew Howe	
Part B – City of Swan	
Cr Rod Henderson (Local Government DAP N	Member, City of Swan)
Cr Dave Knight (Local Government DAP Men	nber, City of Swan)



# PART A – INTRODUCTION

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# PART B – CITY OF SWAN

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  - 3.3 Lot 5002 Squadron Boulevard, Bullsbrook Proposed Child Care Premises – DAP/24/02849

#### 4. Form 2 DAP Applications

Nil.

#### 5. Section 31 SAT Reconsiderations

Nil.



# PART B – CITY OF SWAN

# Item 3.1 – Part Lot 900 Chittering Road, Lot 9501 Fairchild Street & Lot 9013 Tigermoth Boulevard, Bullsbrook

The Responsible Authority Report (RAR) originally submitted by the City of Swan and published within this agenda contained a Responsible Authority Recommendation that was provide by City officers. It has since been confirmed that, in accordance with the City of Swan delegations, the Council are the relevant authority for a recommendation on this matter.

Accordingly, this agenda has been updated on 3 April 2025 to retain the original Council authorised recommendation of refusal from the Ordinary Council Meeting of 12 February 2025. The alternate officer recommendation for approval can now be found at the end of the RAR, starting on page 14. The planning assessment within the body of the RAR remains consistent with the originally published RAR.

## Part B – Item 3.1 – PART LOT 900 CHITTERING ROAD, LOT 9501 FAIRCHILD STREET & LOT 9013 TIGERMOTH BOULEVARD, BULLSBROOK – PROPOSED LIFESTYLE VILLAGE (PARK HOME PARK)

DAP Name:	Metro Outer	
Local Government Area:	City of Swan	
Applicant:	Planning Solutions	
Owner:		
Owner:	Amex Bullsbrook Pty Ltd, Sacri Association	
Value of Developments	Inc, Tre Fontane Group Pty Ltd	
Value of Development:	\$20 million	
Responsible Authority:	City of Swan	
Authorising Officer:	Philip Russell – Manager Statutory Planning	
LG Reference:	DA-692/2024	
DAP File No:	DAP/24/02776	
Application Received Date:	11 September 2024	
Report Due Date:	16 April 2025	
Application Statutory Process	90 Days with an additional 52 days	
Timeframe:		
Attachment(s):	<ol> <li>Location Plan</li> <li>Development Plans         <ul> <li>a) Site Plan – A001</li> <li>b) Easement Plan – A001</li> <li>c) Clubhouse Floor Plan – Rev A</li> <li>d) House Type A Plan</li> <li>e) House Type B Plan</li> <li>f) House Type C Plan</li> <li>g) House Type D Plan</li> <li>h) Street Elevations</li> <li>i) E-W Elevations</li> <li>j) N-S Elevations</li> <li>k) Clubhouse Elevation – Rev A</li> <li>l) BBQ Plan – A3.01</li> <li>m) Lookout Plan – A3.02</li> <li>n) Workshop Plan</li> </ul> </li> </ol>	
	<ul> <li>Other reports not subject of approval</li> <li>3. Planning Report – September 2024</li> <li>4. Transport Impact Assessment – 10 September 2024</li> <li>5. Bushfire Management Plan – 10 September</li> <li>6. Updated BAL Contour Map – 6 January 2024</li> <li>7. Sustainability Statement</li> <li>8. Landscape Concept Plan – Rev D</li> <li>9. Engineering Service Report – September 2024</li> </ul>	

## Form 1 – Responsible Authority Report (Regulation 12)

	10.		ironmental Assessment – 9
			tember 2024
	11.		ste Management Plan – 10
			tember 2024
	12.	Eros	sion, Sediment and Drainage
		Con	trol Plan – Rev1, 9 September
		2024	4
	13.	Urba	an Water Management Plan –
		Rev	0, 5 September 2024
	14.	3D F	Perspectives
	15.	DW	ER Referral Response dated 11
		Dec	ember 2024
	16.	DBC	CA Referral Comments dated 16
		Dec	ember 2024
	17.	Mair	n Roads Referral Comments dated
		12 E	December 2024
	18.	End	orsed Design Review Report
		date	ed 1 October 2024
	19.	End	orsed Design Review Report
		date	d 12 November 2024
	20.	End	orsed Design Review Report
		date	d 18 October
	21.	Арр	licants Response to FIR dated 6
			uary 2025
	22.		licants Response to FIR dated 16
			ember 2024
	23.		licants Response to Submissions
	24.		itional Information in Response to
			P Deferral
	25.		ER Referral Comments - 11 March
		202	
	26.		CA Referral Comments - 18 March
		202	5
Is the Responsible Authority	🗆 Y	es	Complete Responsible Authority
Recommendation the same as	$\Box$ N	/A	Recommendation section
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			and Officer Recommendation
			sections

### **Responsible Authority Recommendation**

That the Metro Outer Development Assessment Panel resolves to:

**Refuse** DAP Application reference DAP/24/02776 and accompanying plans in accordance with clause 68 of Schedule No.2 (Deemed Provisions) of the *Planning and Development (Local Planning Schemes) Regulations 2015*, and the provisions of clause 10.3 of the City of Swan Local Planning Scheme No.17. Pursuant to clause 26 of the Metropolitan Region Scheme, this application is deemed to be a refusal under clause 24(1) of the Metropolitan Region Scheme, for the following reasons:

#### <u>Reasons</u>

1. The proposed access road and vehicle crossing would have an undue impact on Ki-It Monger Brook through the removal of remnant vegetation and earthworks within the waterway.

#### Details: outline of development application

Region Scheme	Metropolitan Region Scheme
Region Scheme - Zone/Reserve	Urban
Local Planning Scheme	Local Planning Scheme No.17
Local Planning Scheme - Zone/Reserve	Residential Development
Structure Plan/Precinct Plan	Bullsbrook Townsite District Structure Plan Bullsbrook Central Local Structure Plan Kingsford Town Centre Precinct Plan
Structure Plan/Precinct Plan - Land Use Designation	Residential
Use Class and permissibility:	Use Not Listed
Lot Size:	Lot 900 Chittering Road – 13.4496ha Lot 9501 Fairchild Street – 1.4403ha Lot 9013 Tigermoth Boulevard – 0.4212ha
Existing Land Use:	Vacant
State Heritage Register	No
Local Heritage	⊠ N/A
	Heritage List
	Heritage Area
Design Review	□ N/A
	Local Design Review Panel
	State Design Review Panel
	□ Other
	N/
Bushfire Prone Area	Yes

#### **History**

The City of Swan received a Development Assessment Panel application on 11 September 2024 for a proposed Lifestyle Village (Park Home Park) over parts of Lot 900 Chittering Road, Lot 9501 Fairchild Street & Lot 9013 Tigermoth Boulevard, Bullsbrook.

The City of Swan, at its ordinary meeting of council held on the 17 February 2025 resolved to refuse the application in accordance with the officer's recommendation. The reason for this decision was largely due to the applications failing to sufficiently demonstrate the vehicle crossing would not significantly impact the Ki-It Monger Brook through the removal of remnant vegetation and earthworks within the waterway.

The Metro Outer Development Assessment Panel resolved to defer the application on 27 February 2024 for the following reasons:

- To allow for the extra information provided by the applicant (dated 6 February 2025), and any additional information required by the City of Swan, to be reviewed and provided to the Department of Biodiversity, Conservation and Attractions and the Department of Water and Environmental Regulations for comment and feedback.
- Clarification of the existing crossovers and treatments, including photographic information.

The applicant has since amended the proposed access way to better utilise an existing access track located outside of the Ki-It Monger Brook in order to minimise the impact on riparian vegetation. Additionally, the applicant has provided details of the proposed crossing design which incorporates a combination of retaining and battering across the brook to minimise impacts to the waterway. Only one flooded gum tree is proposed to be removed as part of the crossing upgrade.

It should be noted that there is an existing crossing point over the Ki-It Monger Brook which is constructed with two 1.0m diameter pipe culverts. This existing crossing point will be used and upgraded to service the development. No new crossing point is proposed.

The amended proposal has sufficiently addressed City staff's reasons for recommending to the JDAP that the application been refused. Whilst City staff are now satisfied that the application has sufficiently demonstrated the proposed access road and crossing will have a negligible impact on the environmental qualities of the Ki-It Monger Brook the formal recommendation of Council made at its meeting of 12 February 2025 remains the same.

#### **Proposal**

The City of Swan has received a Development Assessment Panel application from Planning Solutions on behalf of their client for a proposed Lifestyle Village (Park Home Park) over parts of Lot 900 Chittering Road, Lot 9501 Fairchild Street & Lot 9013 Tigermoth Boulevard, Bullsbrook. In total, the development comprises an area of 15.0111ha which has been calculated using the relevant portions of Lot 900, Lot 9501, and Lot 9013. The remaining portions of each respective lot will be subject to future development.

The development is for a Lifestyle Village (Park Home Park) comprised of 227 single storey park homes and communal facilities which include a clubhouse, reception centre, toilets, change rooms and communal gardens.

A total of 470 residential car parking bays are provided on site as well as 40 visitor and 30 caravan/boat bays. Main vehicle access to the subject site is proposed off Chittering Road. Crossovers onto Tigermoth Boulevard and Fairchild Street are also proposed which will be used for bushfire emergency access and cars with caravans/boats respectively.

#### **Background**

The subject site includes Lot 900 Chittering Road, Lot 9501 Fairchild Street, and Lot 9013 Tigermoth Boulevard, Bullsbrook. The portions of each respective lot comprising this application are currently vacant and are largely cleared. The sites are generally bound by residential development to the south & east and abuts a recreation reserve to the north. The Ki-it Monger Brook creek line traverses the northern boundary of the subject site and bisects a portion of the subject site towards its western boundary.

The development site is largely identified as 'Residential' R20-R40 within the Bullsbrook Central Local Structure Plan. Furthermore, the structure plan identifies a portion of Lot 900 Chittering Road as reserved for 'recreation' comprised of areas of 'Public Open Space' and the 'Ki It Monger Brook'.

### Legislation and Policy

#### Legislation

- Planning & Development Act 2005
- Metropolitan Region Scheme (MRS)
- Planning and Development (Local Planning Schemes) Regulations 2015
- Planning and Development (Development Assessment Panels) Regulations 2011
- Local Planning Scheme No.17
- Caravan & Camping Grounds Act 1995
- Caravan Park and Camping Grounds Regulations 1997

#### State Government Policies

- State Planning Policy 3.7 Bushfire
- State Planning Policy 5.4 Road and Rail Noise
- State Planning Policy 7.0 Design of the Built Environment
- State Planning Policy 7.3 Residential Design Codes Volume No.1

#### Structure Plans/Activity Centre Plans

- Bullsbrook Townsite District Structure Plan
- Bullsbrook Central Local Structure Plan
- Kingsford Town Centre Precinct Plan

#### Local Policies

- POL-LP-1.10 Provision of Public Art
- POL-LP-1.13 Design Review

#### **Consultation**

#### Public Consultation

The application was advertised for a period of 28 days in accordance with the requirements for a 'Complex Application' outlined in Clause 64a, Advertising Applications of the *Planning and Development (Local Planning Schemes) Regulations 2015,* Schedule No.2 Deemed Provisions. The consultation period commenced on 24 October 2024 and concluded on 22 November 2024. Letters were sent to owners and

occupiers within a 200m radius, a notice was placed on the City's website and a sign was placed on-site.

During the public consultation period, a total of 50 submissions were received, comprising of 31 objections, 13 non-objections and six (6) submissions of conditional support.

All matters raised in the submissions received during the consultation period have been summarised in the table below. The Applicant has also addressed the matters raised in Attachment 24.

Issue Raised	Officer comments
Inappropriate land use that does not comply with the local planning scheme	Whilst the proposed land use is defined under the provisions of Local Planning Scheme No.17, it is not listed in the zoning table. In accordance with Clause 18(4)(b) of the <i>Planning and Development (Local Planning Schemes) Regulations 2015</i> the City has discretion to issue development approval in respect of a use not listed provided that use is consistent with the objectives of a particular zone.
	The subject site is zoned 'Residential' with a density code of R20 – R40 in accordance with the Bullsbrook Central Structure Plan. The proposed 227 Park Home lots are consistent with density requirements with what the Structure Plan envisaged. This gross density is considered to be compatible with future surrounding residential development and will not adversely impact the amenity of adjoining landowners.
	As the subject land is being developed essentially for urban residential purposes, City staff are satisfied the proposal is consistent with the objectives of the 'Residential Zone' and the structure plan which aims to provide diverse housing options, improve housing supply, and enhance affordability through urban development.
Environmental impacts on Ki- It Monger Brook	The management of the Ki-it Monger Brook has been addressed through the Foreshore Wetland Management Plan and Sediment & Drainage control Plan. Further, should the development be approved, a condition will be recommended requiring the preparation of an Urban Water Management Plan, Stormwater Management Plan as well as the installation of fencing around the brook.
Adverse impact of traffic on the surrounding road network	The proposed number of park homes is consistent with the intended lot yield for the site and forms part of the anticipated traffic generation of the Kingsford Town Centre Precinct which was planned for as part of the approved structure plan. The Traffic Impact Assessment prepared and submitted in support of the application

	concludes the development will have negligible impact on the surrounding road network.
Increased bushfire safety risks	The Bushfire Attack Level (BAL) assessment concludes the development achieves an acceptable BAL rating of BAL-29.
Inadequate infrastructure & community resources within the Bullsbrook area	The provision of sufficient community infrastructure was planned for as part of the approved structure plan.
Adversely impact the areas rural character	The subject site is identified as 'Residential' in accordance with the approved structure plan and is intended to be developed for residential purposes. The surrounding area has already been developed into residential lots.
Reduced Property Value	Impact on property values of itself is not a valid planning consideration.

### Referrals/consultation with Government/Service Agencies

The original application was referred to the following public agencies for comment:

- Main Roads Western Australia (MRWA);
- Department of Biodiversity, Conservation and Attractions (DBCA); and
- Department of Water and Environmental Regulation (DWER)

Both the Department of Biodiversity, Conservation and Attractions and the Department of Water and Environmental Regulation did not support the proposal due to the impact the vehicle crossing would have on the Ki-It Monger Brook through the removal of remnant vegetation and earthworks within the waterway.

As instructed by the Development Assessment Panel, following the provision of the required information, the application was re-referred to both the DBCA and DWER for comment. Both agencies had no objections to the proposal. This has been addressed further in the report.

#### Planning Assessment

#### Zoning and Use Class Permissibility:

The subject site is zoned 'Urban' under the MRS and 'Residential Development' under the City of Swan's Local Planning Scheme No.17. The Zoning Table of Local Planning Scheme No.17 states that for land zoned 'Residential Development' development and the use of land is to be in accordance with an approved Structure Plan.

The land is subject of an approved Structure Plan – being the Bullsbrook Central Structure Plan approved by the Western Australian Planning Commission on 14 May 2019 and amended on 8 August 2024. This Structure Plan designates the majority of the land as 'Residential' (R20-R40) with a small portion reserved for 'Recreation'. Clause 4.1 of the structure plan states:

*'Land Use permissibility within the Structure Plan area shall be in accordance with the Structure Plan Map (Plan 1) and the corresponding Zones and Reserves under the City of Swan Local Planning Scheme No.17.'* 

For the purposes of determining the permissibility of land uses, reference must be made to the 'Residential' zone set out in the Zoning Table of Local Planning Scheme No.17. The application seeks approval for a 'Park Home Park' which is defined under Local Planning Scheme No.17 as:

**"Park Home Park"** has the same meaning as in the Caravan Parks and Camping Grounds Regulations 1997.

In accordance with the *Caravan Parks and Camping Grounds Regulations* 1997 a 'Park Home Park' is defined as:

**"Park Home Park"** means a caravan park at which park homes, but not any other caravans or camps, are situated for habitation'.

A 'Park Home' is defined under the *Caravan Parks and Camping Grounds Act* 1995 as:

**"Park Home"** means a vehicle of a prescribed class or description that is fitted or designed for habitation.

The Caravan Parks and Camping Grounds Regulations 1997 further details the meaning of a 'Park Home'

"A caravan in respect of which a vehicle licence is not required under the Road Traffic (Vehicles) Act 2012 section 4, because it could not be drawn by another vehicle on a road due to its size, is a vehicle of a prescribed class or description for the purposes of the definition of "park home" in section 5(1) of the Act."

It is important to note, a 'Caravan Park' is identified as a separate land use class in Local Planning Scheme No.17 and means:

**"Caravan Park"** has the same meaning as in the Caravan Parks and Camping Grounds Act 1995."

A 'Caravan Park' is defined under the *Caravan Parks and Camping Grounds Act* 1995 as:

"Caravan Park" means an area of land on which caravans, or caravans and camps, are situated for habitation."

The key difference between a 'Caravan Park' and 'Park Home Park' is the use of caravans and tents as well as the duration of the stay. Caravan Parks are generally used by people with caravans or tents for short-stay accommodation and are not occupied for longer than three (3) consecutive months. In contrast, a 'Park Home Park' generally consists of prefabricated buildings (Park Homes) occupied as permanent homes.

Although a 'Park Home Park' is defined under Schedule No.1 of Local Planning Scheme No.17, the use is not included in the Zoning Table. For this reason, the proposed development has been considered a 'Use Not Listed'.

In accordance with Clause 18(4) of the *Planning and Development (Local Planning Schemes) Regulations 2015,* the local government may, in respect of a use that is not specifically referred to in the Zoning Table and that cannot reasonably be determined as falling within a use class referred to in the Zoning Table:

a) determine that the use may be consistent with the objectives of a particular zone and advertise under clause 64 of the deemed provisions before considering an application for development approval for the use of the land

Therefore, to determine if the land use is appropriate within the 'Residential' zone, the application has been assessed against the objectives of the nominal zoning and having due regard to the matters set out in Regulation 67 of Schedule No.2 (Deemed Provisions) of the *Planning and Development (Local Planning Scheme) Regulations 2015* inclusive of submissions from the public and government agencies.

The objectives of the 'Residential' zone are to:

- a) Provide for a range of forms and densities of residential development to meet the needs of the wide variety of households which make up the community;
- b) Promote a residential environment in each locality consistent with the form and density of residential development permissible in the locality, so as to enhance a sense of place and community identity;
- c) Preserve and enhance those characteristics which contribute towards residential amenity, and to avoid those forms of development which have the potential to prejudice the development of a safe and attractive residential environment;
- d) Provide for a limited range of ancillary development compatible with the form and density of residential development and complementary to the needs of local communities, but which will not compromise residential amenity;
- e) Avoid development of land for any purpose or in any manner that would detract from the viability or integrity of development in either the Strategic Regional Centre or the Commercial Zones.

During the public consultation period, the City of Swan received nine (9) objections stating that the development was an inappropriate use of the site and would be incompatible with the surrounding residential areas. A further seven (7) objections raised concerns with a lack of infrastructure and facilities within the area to service the development.

Profile ID statistics highlight that Bullsbrook has a higher proportion of residents aged 60+ (19.4%) compared to the City of Swan (16.7%). In the 2023-2024 LAP consultation, "opportunities for seniors" ranked as the 7th most popular theme out of 12, with feedback indicating a need for aged care or retirement village options to support the aging population in staying within the area. The proposed 'Park Home Park' will contribute to providing seniors with a downsizing option. Furthermore, the development will provide diverse housing options, improve housing supply, and enhance affordability through urban development. Therefore, the development is considered to comply with objective a).

With regards to objective b) the approved Bullsbrook Central Structure Plan identifies the subject site has a nominal zoning of 'Residential' R20-40. Based on the minimum and average site area requirements applicable to the R20 density, the number of

residential lots that could be created through conventional subdivision is 237. Furthermore, the structure plan projects a yield of 22 dwellings per site hectare across the Kingsford Estate. Based on this, the proposed 227 park homes align with the residential density envisioned for the site under the structure plan and satisfies objective b).

The development proposes 227 park homes as well as ancillary community infrastructure throughout the site. The entire landholding will be on one (1) title – there will only be one (1) lot. The sites will have boundaries, shown by fence lines but they just identify the lease boundaries for each park home. As the project is land lease and the homes are park homes, they are covered by the *Caravan & Camping Grounds Act 1995* and the *Caravan Park and Camping Grounds Regulations 1997*. The proposal is considered to comply with the built form requirements of the *Caravan Park and Camping Grounds Regulations 1997* with regards to building heights and internal road widths.

Seven (7) submissions raised concerns about a lack of community infrastructure to service the development. Planning for the provision of sufficient community infrastructure was undertaken as part of the approved structure plan and was largely based on the anticipated lot yield for the area. Given the proposed number of park home are consistent with the intended lot yield for the site, the development will not place an undue burden on the availability of community infrastructure within the area.

The development is considered a residential typology that will not compromise the amenity and can preserve and enhance those characteristics which contribute towards residential environment that can be measured against proposed traffic generation. The proposed number of park homes is consistent with the intended lot yield for the site and forms part of the anticipated traffic generation of the Kingsford Town Centre Precinct which was planned for as part of the approved structure plan.

Furthermore, the Traffic Impact Assessment (TIA) prepared and submitted in support of the application concludes the development will have negligible impact on the surrounding road network.

It is noted that 17 submissions raised concerns with the development's impact on the rural character and amenity of the area. Notwithstanding, the subject site is identified as 'Residential' in accordance with the approved structure plan and is intended to be developed for residential purposes. The surrounding area has already been developed into residential lots and the 227 single storey park homes are consistent with the current built form characteristics of the area.

### State Planning Policy 7.0 – Design of the Built Environment

The development has been considered against State Planning Policy 7.0 – Design of the Built Environment. State Planning Policy 7.0 outlines the 10 principles for good design and establishes the framework for integrating design review as a part of the evaluation process. The City of Swan's Local Planning Policy POL-LP-1.13 Design Review requires all Development Assessment Panel applications be subject to the design review process.

The development was presented at the City of Swan's Design Review Panel meeting on 1 October 2024 and again on 12 November 2024. A further Chair Review was undertaken by the Design Review Panel Chairperson on 18 December 2024. The final Design Review comments conclude support for the development, with comments regarding recommended conditions of approval in respect to the provision of a landscape plan as well as details, colours and materials of the selected house types. City of Swan staff consider conditions will address the remaining concerns raised by the Design Review.

#### **Environmental Considerations**

The original application was referred to both the Department of Biodiversity Conservation and Attractions (DBCA) and the Department of Water and Environmental Regulations (DWER) due to the proposed crossing over Ki-It Monger Brook. Initially, both departments did not support the proposal. Their primary concerns have been summarised and addressed below.

However, following a review of the submitted additional information, both departments provided no objections to the proposal.

#### Management

Both DBCA and DWER are concerned the development will prevent the appropriate management of the Ki-it Monger Brook and foreshore area. The DBCA requested the Applicant/Landowner prepare a Foreshore Management Plan to ensure the protection and rehabilitation of the brook.

Notwithstanding, the City of Swan have approved 'The Ki-it Monger Brook Foreshore and Wetland Management Plan' which sets out management strategies to ensure the preservation of the Ki-It Monger Brook. This plan is currently being used to manage other areas of the Ki-It Monger Brook within the Kingsford Estate. Taking this into consideration, City of Swan staff are satisfied the Ki-it Monger Brook can be appropriately protected and managed.

Should the application be approved, a condition will be recommended requiring the development to be managed in accordance with the approved Foreshore Wetlands Management Plan and include a requirement for the landowner to enter into a maintenance agreement with the City of Swan. Furthermore, as per advice from DBCA, a condition requiring fencing to restrict pedestrian access into the foreshore reserve will also be recommended.

#### Crossing

The primary concern initially raised by both DBCA and DWER was the impact the vehicle crossing would have on the Ki-It Monger Brook through the removal of remnant vegetation and earthworks within the waterway. Additionally, both agencies concurred the crossing over the Ki-It Monger Brook should be realigned to avoid clearing of native vegetation and prevent filling or other impacts to the waterway.

The applicant has since amended the proposed access way to better utilise an existing access track located outside of the Ki-It Monger Brook in order to minimise the impact on riparian vegetation. Additionally, the applicant has provided details of the proposed crossing design which incorporates a combination of retaining and battering across the brook to minimise impacts to the waterway. Only one flooded gum tree is proposed to be removed as part of the crossing upgrade.

Both the Department of Biodiversity, Conservation and Attractions and the Department of Water and Environmental Regulation have reviewed the amended alignment of the crossing, and the additional information provided and advise that the crossing can be supported in accordance with the information provided.

In light of the above, City staff are now satisfied that the application has sufficiently demonstrated the proposed access road and crossing will have a negligible impact on the environmental qualities of the Ki-It Monger Brook.

#### **Bushfire**

The subject site is bushfire prone with the greatest exposure to radiant heat experienced from the north and west of the development site which abuts the Ki-It Monger Brook.

The Applicant has submitted a Bushfire Management Plan in support of the proposal. City of Swan staff are satisfied that the submitted Bushfire Management Plan demonstrates that each individual park home lot can achieve a BAL-29 rating, and that the bushfire risk to the development can be adequately managed in accordance with State Planning Policy 3.7.

Should the development be approved, conditions will be recommended where the development site is to be maintained in accordance with the submitted Bushfire Management Plan.

### Traffic & Access

Principle vehicle access to the Park Home Park is achieved from Chittering Road via an internal road that crosses the Ki-It Monger Brook. Secondary access for caravan and boat parking is proposed from Amelia View and there is an emergency egress point onto Boomerang Road.

The Bullsbrook Central Structure Plan has identified the subject site for broad residential purposes. Given the proposed number of park homes is consistent with the nominal density, City of Swan staff concur that the number of vehicle trips generated by the development is consistent with the level of traffic generation expected and assessed as part of the preparation of the approved Bullsbrook Central Structure Plan.

Furthermore, the Traffic Impact Assessment (TIA) prepared and submitted in support of the application details that the proposed development is expected to generate approximately 128 vehicle trips (61 in / 67 out) during peak AM periods and 140 vehicle trips (75 in / 65 out) during peak PM hours, 70% of which will be right hand turns onto Chittering Road. The TIA concludes the traffic generated by the development will have a negligible impact on the surrounding road network.

Originally, the City was unable to support access from Chittering Road as the application failed to demonstrate that the vehicle crossing would not adversely impact the Ki-It Monger Brook.

The applicant has since provided a sufficient level of detail demonstrating the proposed access arrangements will have a negligible impact on the environmental values of the

Ki-it Monger Brook. City staff are now supportive of the ingress and egress arrangements.

#### **Developer Contributions**

The proposed development is on land that is subject to an approved Development Contribution Plan for contributions to the cost of the provision of transport and community infrastructure for the Bullsbrook Central Structure Plan area and is within Development Contribution Area No.7 (DCA7 - Precinct 2).

The subject site contains land zoned 'Recreation' under the provisions of the Kingsford Local Structure Plan. Conservation Areas and Public Open Space are listed as a deduction from the gross subdivisible area in accordance with DCA7. The portion of the subject site that is zoned 'Recreation' will be excluded accordingly from any cost contribution.

Should the development be approved, a condition will be recommended requiring the Applicant contributing towards development infrastructure provisions pursuant to the City of Swan Local Planning Scheme No.17 based on the lot size at a rate per hectare.

#### Public Open Space (POS)

A minimum of 10% of the gross subdivisible area within the Structure Plan needs to be provided as POS and ceded to the Crown. The Bullsbrook Central Structure Plan has provided 21.7ha of POS which is 11.39% of the gross subdivisible area.

The Structure Plan identifies 1.16ha of the subject site as POS which is going to be retained in private ownership and used for recreational purposes by the residents of the Park Home Park.

Keeping the 1.16ha of Lot 900 Chittering Road in private ownership will not reduce the total amount of POS within the structure plan area below the required 10%.

Excluding the 1.16ha of POS on the subject site, the overall provision of POS within the structure plan area would be recalculated at 10.06% (20.09ha) still exceeding the 10% minimum requirement.

In light of the above, City of Swan staff are satisfied the retention of that part of the subject site identified as POS will not impact the overall POS availability in the structure plan area.

#### State Planning Policy 5.4 - Road and Rail Noise

The south western aspect of the subject site is within an area subject to State Planning Policy 5.4 - Road and Rail Transport Noise and Freight Considerations in Land Use Planning, due to its proximity to Great Northern Highway, a 'strategic freight/ major traffic route'. Table No.1 of State Planning Policy 5.4 identifies the State's transport corridors and the trigger distances to which the policy applies.

Great Northern Highway, in proximity to the subject site, is a two (2) lane road with Table No.2 of State Planning Policy 5.4 identifying that no further measures are

required for sensitive premises located in excess of 150m from the edge of the road carriageway. The Park Homes located in the south western aspect of the subject site are located more than 250m from the edge of the Great Northern Highway Road carriageway. In light of this information, no noise mitigation measures are required.

#### Local Planning Policy POL-LP-1.10 Provision of Public Art

The City of Swan's Provision of Public Art Policy requires the proponent to make a contribution to Public Art. This can be either a cash-in-lieu contribution of \$170,000 (being 1% of the estimated \$20 million development cost inclusive of the applicable 15% discount per the Policy), or the provision of Public Art onsite to the value of \$200,000. This is recommended as a condition of approval should the development be approved.

#### **Conclusion**

The City of Swan has received a Development Assessment Panel application for a proposed Park Home Park over parts of Lot 900 Chittering Road, Lot 9501 Fairchild Street, and Lot 9013 Tigermoth Boulevard, Bullsbrook. The proposed development has been considered a 'Use Not Listed' under the City of Swan's Local Planning Scheme No.17.

The original application was recommended for refusal for the following reason:

• The proposed access road and vehicle crossing would have an undue impact on the Ki-It Monger Brook through the removal of remnant vegetation and earthworks within the waterway.

The Metro Outer Development Assessment Panel resolved to defer the application on 27 February 2024 for the following reasons:

- To allow for the extra information provided by the applicant (dated 6 February 2025), and any additional information required by the City of Swan, to be reviewed and provided to the Department of Biodiversity, Conservation and Attractions and the Department of Water and Environmental Regulations for comment and feedback.
- Clarification of the existing crossovers and treatments, including photographic information.

The applicant has since amended the proposed access way to minimise the impact on riparian vegetation and the waterway. Both the Department of Biodiversity, Conservation and Attractions and the Department of Water and Environmental Regulation have no objections to the amended alignment of the crossing.

In light of the above, City staff are satisfied the amended proposal has sufficiently addressed the issues that were the grounds for deferring the matter, and that sufficient information is now available for a decision to be made.

#### Officer Recommendation

That the Metro Outer Development Assessment Panel resolves to:

**Approve** DAP Application reference DAP/24/02776 and accompanying Plans in accordance with Clause 68 of Schedule No.2 (Deemed Provisions) of the *Planning and Development (Local Planning Schemes) Regulations 2015*, and the provisions of Clause 10.3 of the City of Swan Local Planning Scheme No.17, subject to the following conditions:

- 1. Pursuant to clause 26 of the Metropolitan Region Scheme, this approval is deemed to be an approval under clause 24(1) of the Metropolitan Region Scheme.
- 2. This decision constitutes planning approval only and is valid for a period of 4 years from the date of approval. If the subject development is not substantially commenced within the specified period, the approval shall lapse and be of no further effect.
- 3. This approval is for a 'Park Home Park' as defined under the City of Swan Local Planning Scheme No.17 and the subject land may not be used for any other use without prior approval of the City of Swan.
- 4. The approved development is to comply in all respects with the attached approved plans, as dated, marked and stamped. The plans approved as part of this application form part of the development approval issued.
- 5. **Prior to the lodgement of a building approval**, the Owner/Applicant must prepare and have approved, a Schedule of External Materials and Colours for the selected house types.
- 6. The colours, materials and finishes of the development shall be in accordance with the details and annotations as indicated on the approved plans/ approved schedule of materials and colours which form part of this approval.
- 7. **Prior to the lodgement of an occupancy permit**, the landowner/applicant contributing towards development infrastructure provisions pursuant to the City of Swan Local Planning Scheme No. 17.
- 8. **Prior to the lodgement of a building approval**, a detailed landscaping shall be submitted, and approved by the City of Swan, and must include the following:
  - a) The location, number and type of proposed trees and shrubs including planter and/or tree pit sizes and planting density;
  - b) Any lawns to be established;
  - c) Any existing vegetation and/or landscaped areas to be retained; and
  - d) Any verge treatments.
- 9. The approved landscaping plan must be implemented within the first available planting season after the initial occupation of the development, and maintained thereafter, to the satisfaction of the City of Swan. Any species that fails to establish within the first two (2) planting seasons following implementation must be replaced in consultation with, and to the satisfaction of, the City of Swan.

- 10. **Prior to the lodgement of an occupancy permit**, the proponent must contribute a sum of 1% of the total development construction value toward Public Art in accordance with the City of Swan Local Planning Policy for the Provision of Public Art (POL-LP-1.10), by either:
  - a) Payment to the City of Swan a cash-in-lieu amount equal to the sum of the 1% contribution amount (\$170,000 with the applicable 15% discount). This must be paid to the City of Swan prior to the date specified in an invoice issued by the City of Swan, or prior to the issuance of an occupancy permit for the approved development, whichever occurs first; or
  - b) Provision of Public Art on-site to a minimum value of the 1% contribution amount (\$200,000). The following is required for the provision of Public Art on-site:
    - i. the landowner or applicant on behalf of the landowner must seek approval from the City for a specific Public Art work including the artist proposed to undertake the work to the satisfaction of the City in accordance with POL-LP-1.10 and the *Developers' Handbook for Public Art* (as amended). The City of Swan may apply further conditions in regard to the proposed Public Art;
    - ii. no part of the approved development may be occupied or used until the Public Art has been installed in accordance with the approval granted by the City of Swan; and,
    - iii. the approved Public Art must be maintained in compliance with the approval granted by the City of Swan and any conditions thereof, to the satisfaction of the City of Swan.
- 11. Prior to occupation or use of the development, 32 visitor parking bays must be provided on the lot in accordance with the approved plans. The design of vehicle parking and access must comply with AS/NZ 2890.1 (as amended). Accessible parking bays must comply with AS/NZ 2890.6 (as amended).
- 12. Vehicle parking, access and circulation areas must be sealed, kerbed, drained and maintained to the satisfaction of the City of Swan, in accordance with the approved plans.
- 13. All crossovers must be built and maintained in accordance with the City of Swan's specifications.
- 14. Prior to occupation or use of the development, the development must be connected to the Water Corporations sewer or otherwise connected to an offsite effluent disposal system approved by the Department of Health
- 15. **Prior to the lodgement of an occupancy permit**, a fence limiting pedestrian access is to be constructed around the Ki-It Monger Brook to the satisfaction of the City of Swan.
- 16. The Kit-It Monger Brook and associated foreshore area shall be managed in accordance with the approved Foreshore and Wetland Management Plan prepared by Rps Australia West Pty Ltd (Reference: EEL15193.003 Rev 0) dated

27 September 2018 for the life of the development, unless otherwise approved to the satisfaction of the City of Swan.

- 17. The Kit-It Monger Brook and associated foreshore area shall be managed in accordance with the approved Erosion, Sediment and Drainage Control Plan prepared by Pentium Water (Reference: EWP18047.003 Rev 1) dated 9 September 2024 for the life of the development, unless otherwise approved to the satisfaction of the City of Swan
- 18. **Prior to the lodgement of a building approval**, an Urban Water Management Plan must be submitted to and approved by the City of Swan. The approved measures contained therein shall be implemented in the construction and ongoing use of the land to the satisfaction of the City.
- The approved Waste Management Plan prepared by Ptg Consulting (Reference: PTG00593 Rev B) dated 10 September 2024 is to be implemented for the life of the development, unless otherwise approved to the satisfaction of the City of Swan
- 20. **Prior to the lodgement of an occupancy permit**, the owner of Lot 9017 Chittering Road and Lot 9501 Fairchild Street, Bullsbrook, ("the Land") must enter into a deed of indemnity with the City of Swan ("the City") whereby the owner:
  - a) Indemnifies the City against any loss or damage caused to the property, any person or property of any person arising out of the use of the property by the City or its agents, employees or contractors in the course of its waste disposal service; and
  - b) Acknowledging that damage may occur to the property in the course of the provision of waste collection services by the City or its agents, employees or contractors.

The deed must be prepared by the City's solicitors to the satisfaction of the City and enable the City to lodge an absolute caveat over the Land. The owner shall be responsible to pay all costs associated with the City's solicitors' cost of and incidental to the preparation (including drafts) and stamping of the deed and lodgement of the caveat.

- 21. Prior to occupation or use of the development, an Asset Protection Zone (APZ) of sufficient size to ensure the potential radiant heat impact of a bushfire does not exceed 29kW/m2 (BAL-29) in all circumstances must be established on the land surrounding the 'Park Home Park' in accordance with the submitted Bushfire Management Plan (BMP) prepared by Allerding & Associates (Dated 10 September 2024, Version 2) or as amended and Element 2 of the Guidelines for Planning in Bushfire Prone Areas (the Guidelines). The APZ must thereafter be maintained on the land in accordance with the BMP and Guidelines to the satisfaction of the City of Swan for the life of the development.
- 22. Prior to occupation or use of the development all requirements outlined in the submitted Bushfire Management Plan (BMP), prepared by Allerding & Associates (Dated 10 September 2024, Version 2) or as amended must be implemented and maintained thereafter to the satisfaction of the City of Swan.

- 23. **Prior to the lodgement of an occupancy permit**, information is to be provided to demonstrate that the measures contained in Section 7 of the Bushfire Management Plan (BMP) (Dated 10 September 2024, Version 2) have been implemented to the satisfaction of the City of Swan. This information should include a completed 'Certification of Compliance' completed by a suitably qualified Bushfire Consultant.
- 24. Prior to occupation or use of the development the Owner/Applicant shall lodge a Notification Under Section 70A of the *Transfer of Land Act 1893* on the Certificate of Title of the subject lot/s advising current and future land owners that the property is located in a Bushfire Prone Area and is subject to a Bushfire Management Plan. The notifications shall read as follows:

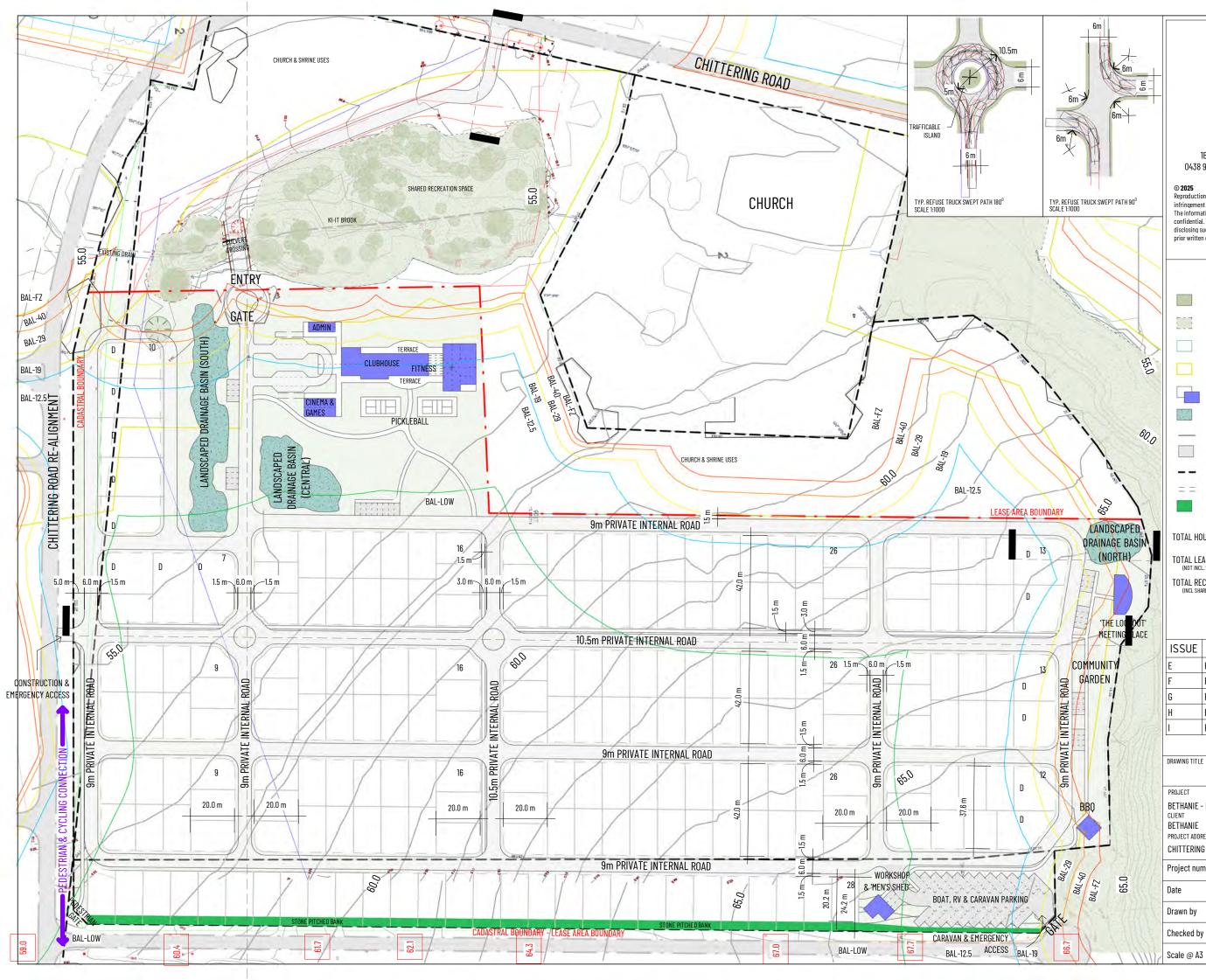
"This land is within a bushfire prone area as designated by an Order made by the Fire and Emergency Services Commissioner and is subject to a Bushfire Management Plan. Additional planning and building requirements may apply to development on this land".

- 25. **Prior to the lodgement of an occupancy permit**, a right of carriageway easement specifying reciprocal access rights is to be created between the owners of Lot 9017 Chittering Road and Lot 9501 Fairchild Street, Bullsbrook, to the satisfaction of the City of Swan. Notice of the easement is to be placed on the Certificate of Title of both properties.
- 26. **Prior to the lodgement of a building approval** detailed design drawings and specifications for the proposed vehicle crossing over the Ki-it Monger Brook shall be submitted to the City and approved, including the extent of fill within the waterway.
- 27. The proposed park home site and administration building which are exposed to a bushfire attack level rating exceeding BAL-29 as depicted in the BAL Contour Map prepared by Allerding & Associates, dated 6 January 2025, are not to be developed until it can be demonstrated to the satisfaction of the City of Swan that these areas can achieve a Bushfire Attack Level (BAL) rating not in excess of BAL-29.
- 28. External lighting shall comply with the requirements of AS 4282 Control of Obtrusive Effects of Outdoor Lighting.



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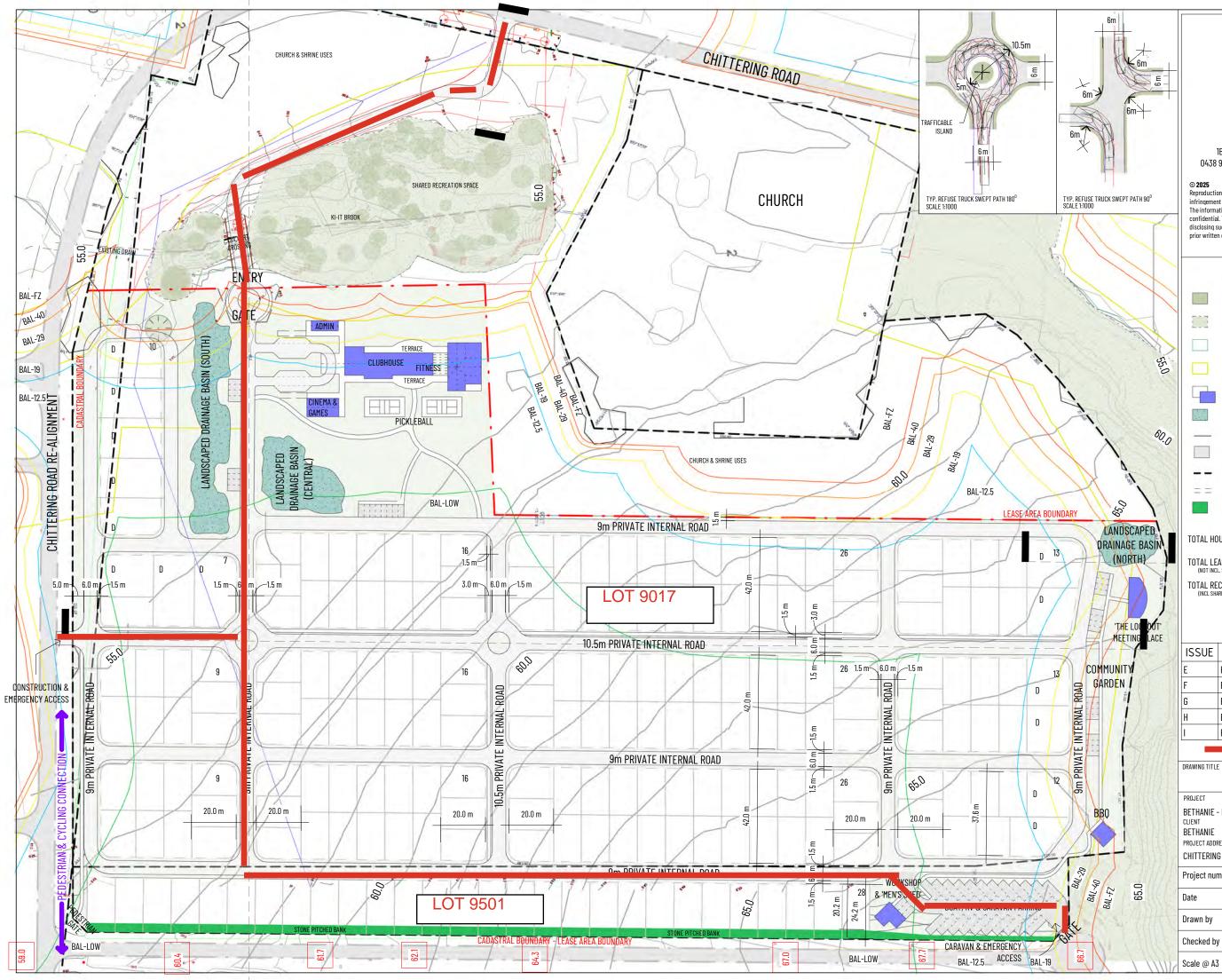
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	LEGEND	
	LANDSCAPING	
111	'RECREATION' ZONED AREA	
	CORE CREEK AREA	
	AREA SUBJECT TO FORESHOR	RE & WETLAND
	MANAGEMENT PLAN	
	VILLAGE AMENITIES	
	LANDSCAPED DRAINAGE BASI	NS
-	FENCE/GATE	
	ROADWAY	
	CADASTRAL BOUNDARY	
= =	LEASE AREA BOUNDARY	
	STONE PITCHED BANK	
TOTAL HO	USE SITES - 227	
	ASE SITE AREA - 106,988m <sup>2</sup> . Shared Rec. Area)	
TOTAL RE	CREATION AREA - 35,286m <sup>2</sup>	
(INCL SHA	RED REC. AREA)	
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ISSUE	DESCRIPTION	DATE
	HOUSE-LOT ALLOCATION	02.09.2024
	REVISED MASTERPLAN	09.10.2024
;	ROAD & LOT LAYOUT REVISED	
	BAL & AERIAL ADDED	14.01.2025
	FEATURE SURVEY	05.03.2025
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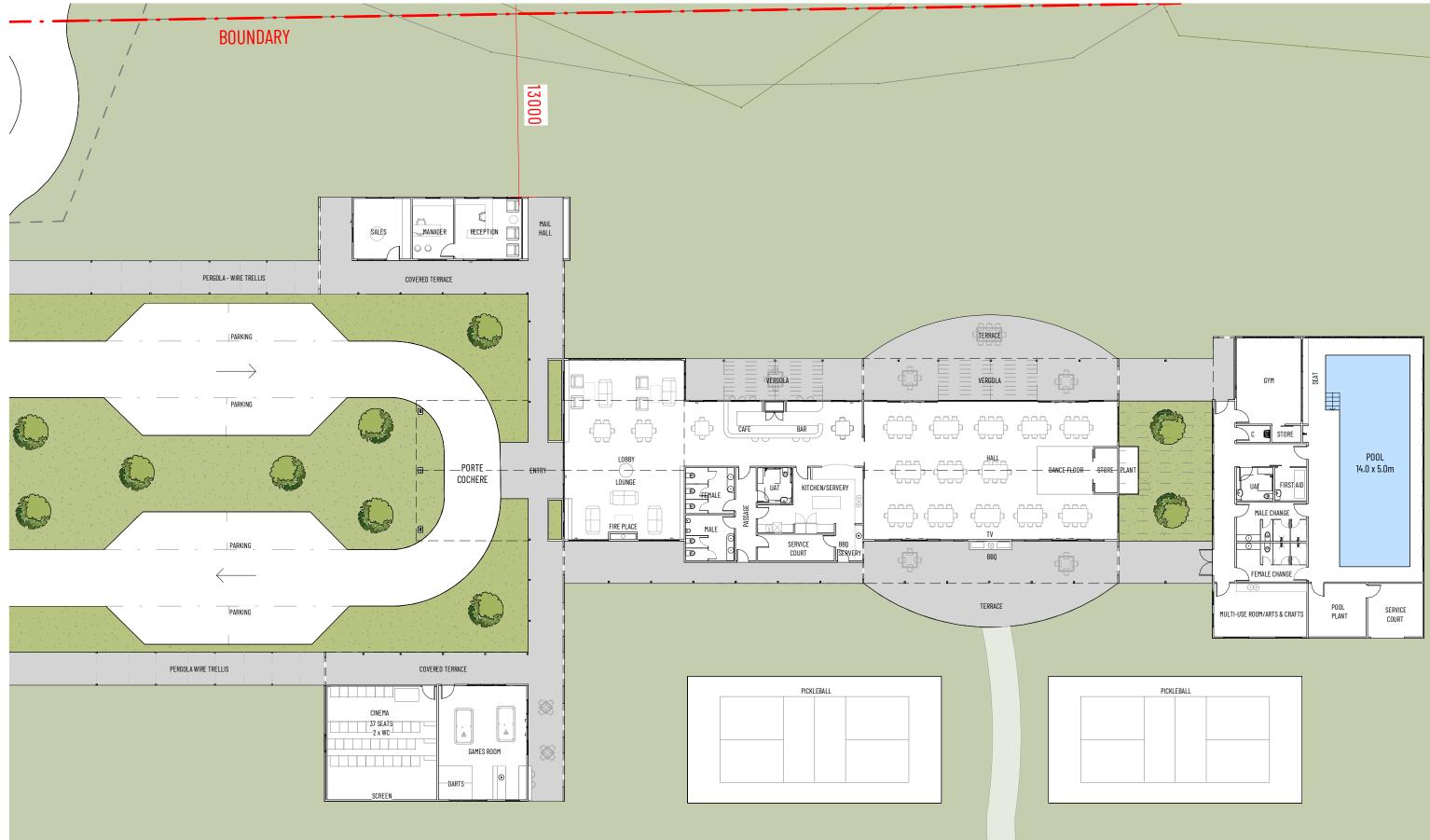
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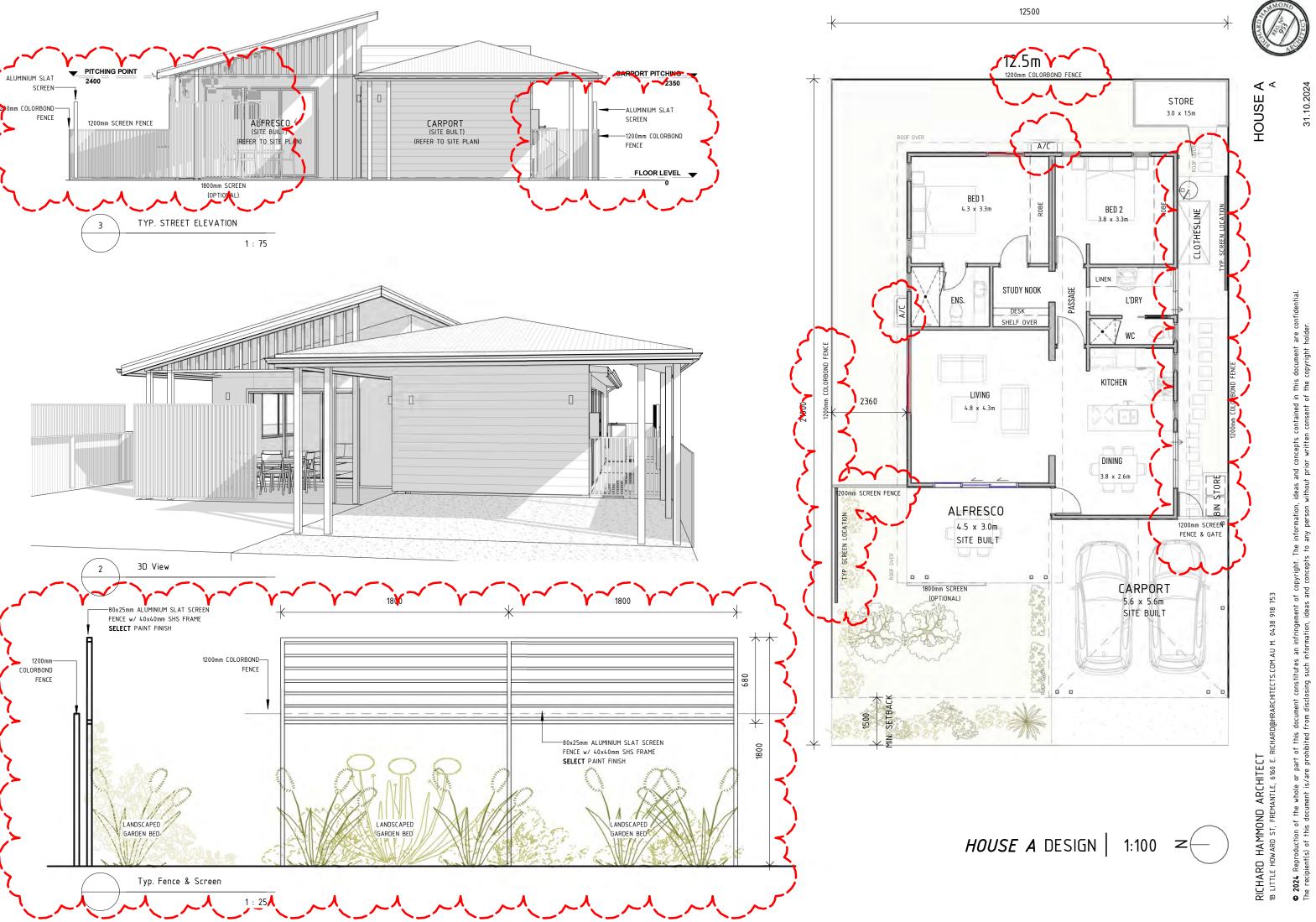
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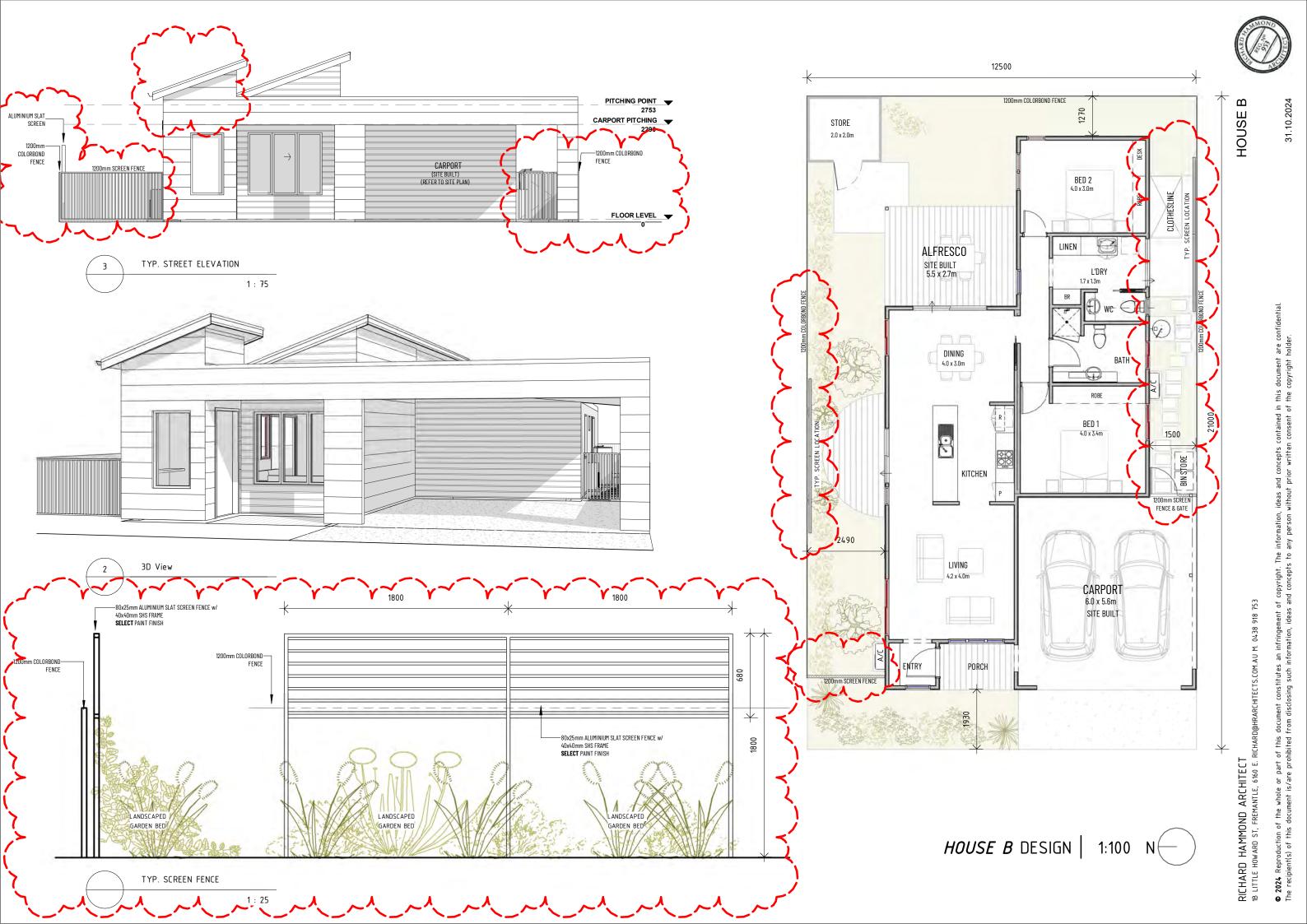
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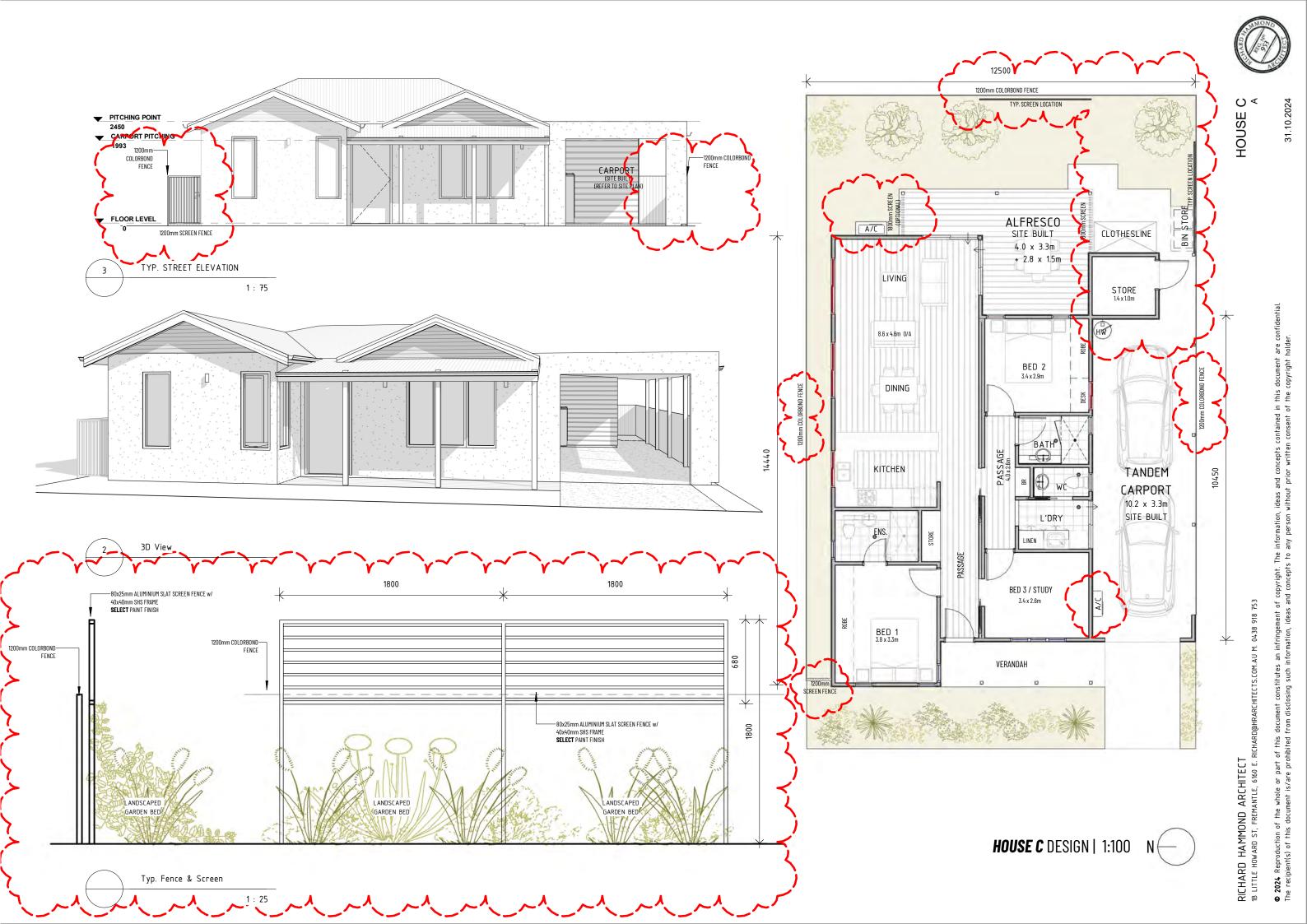


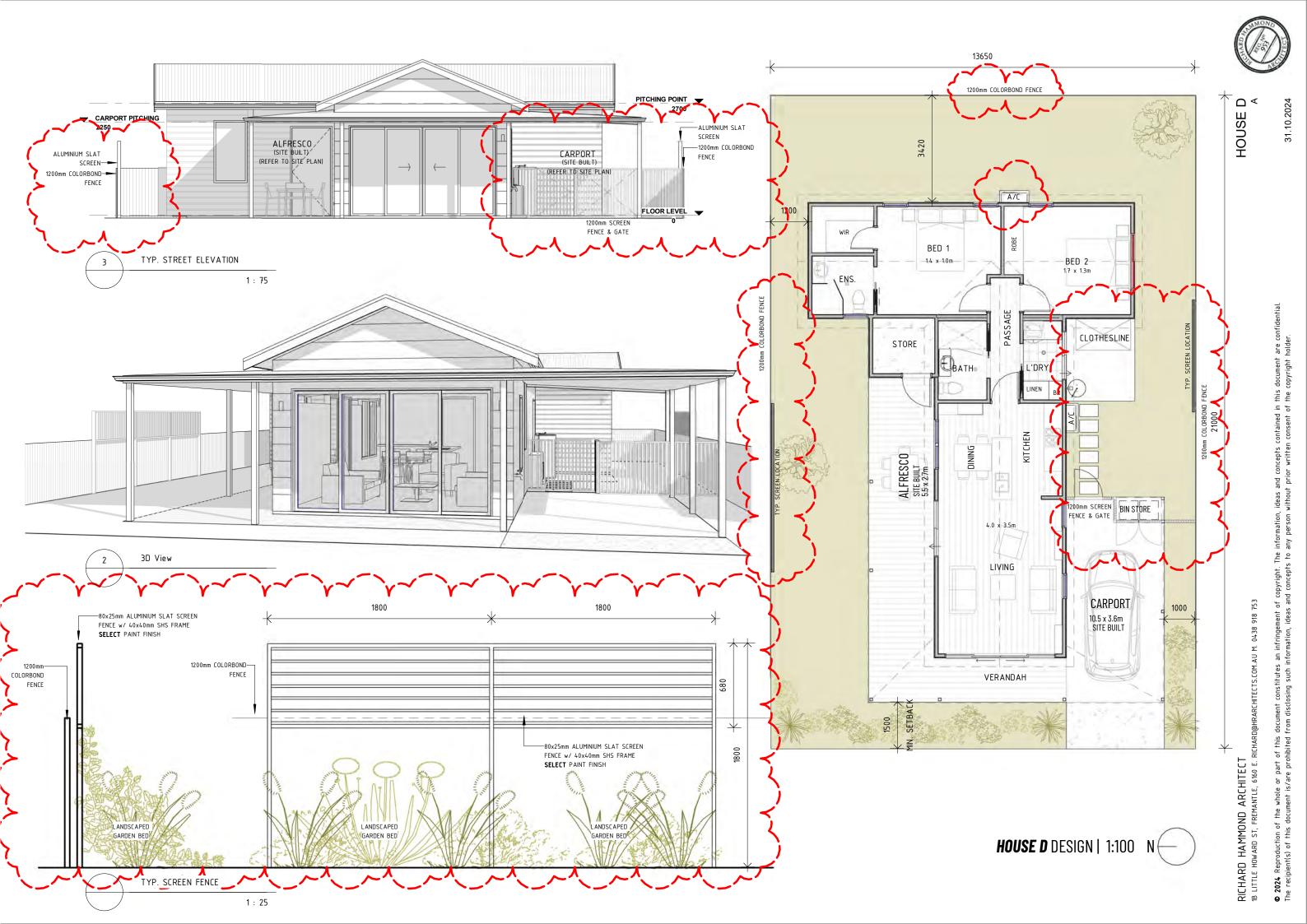
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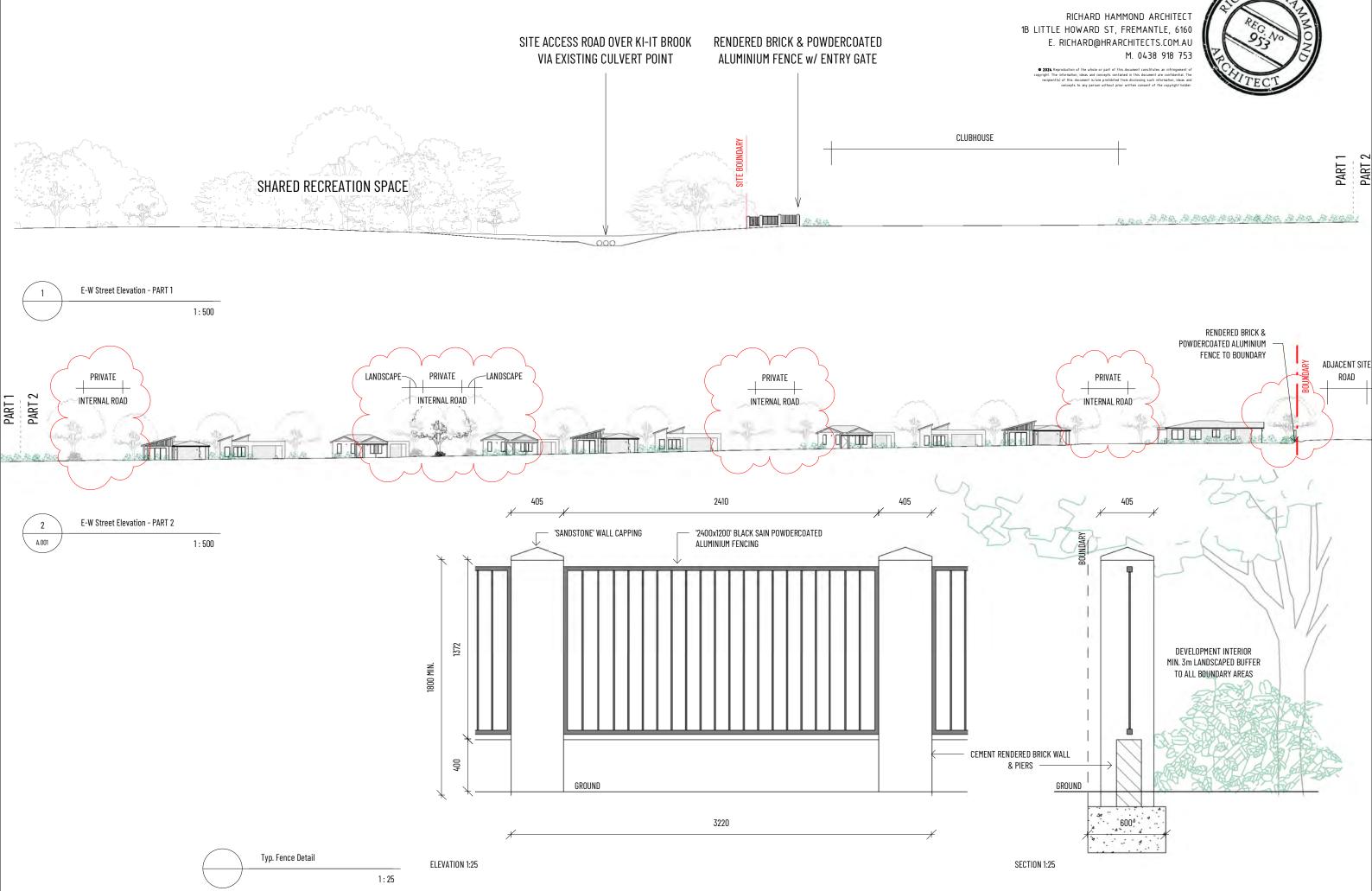




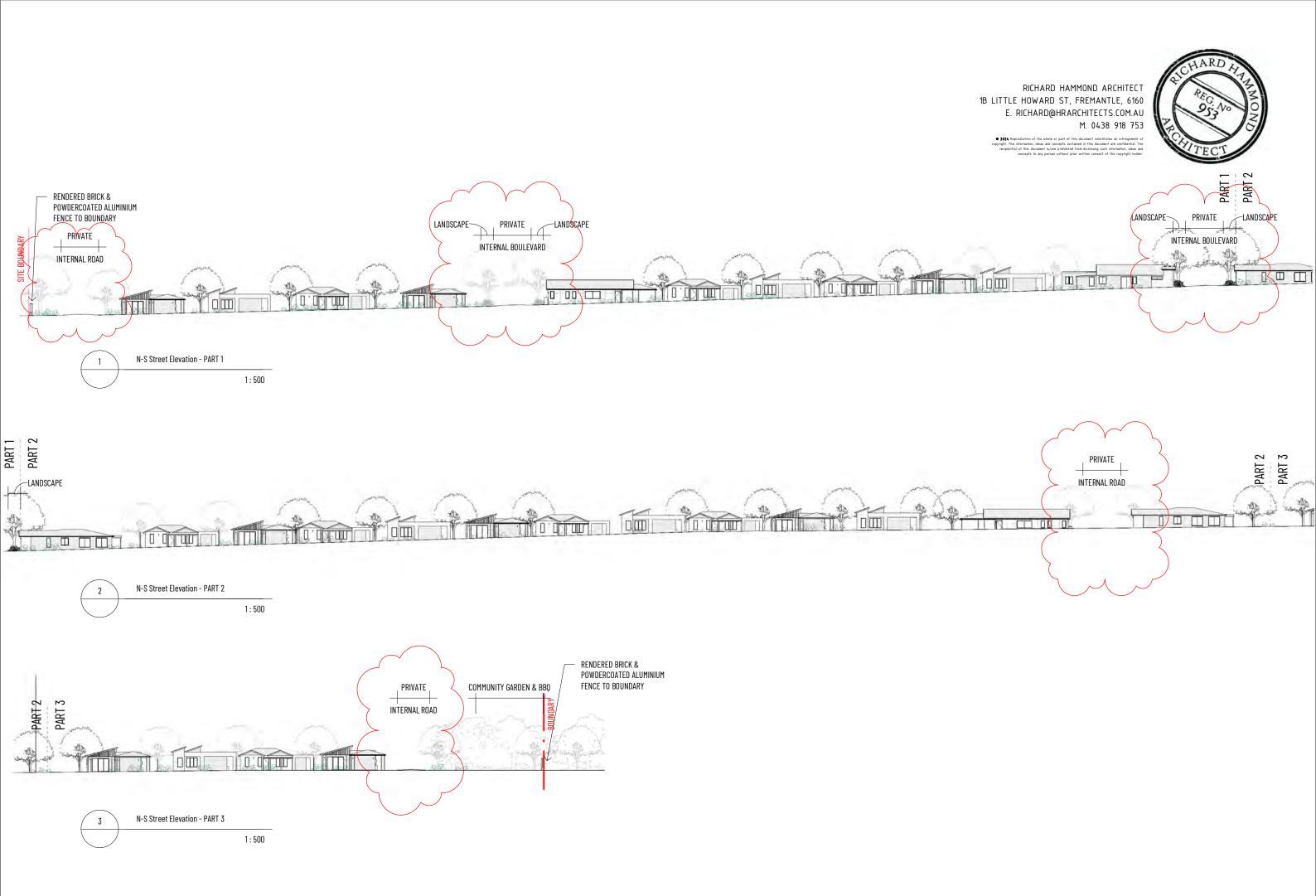


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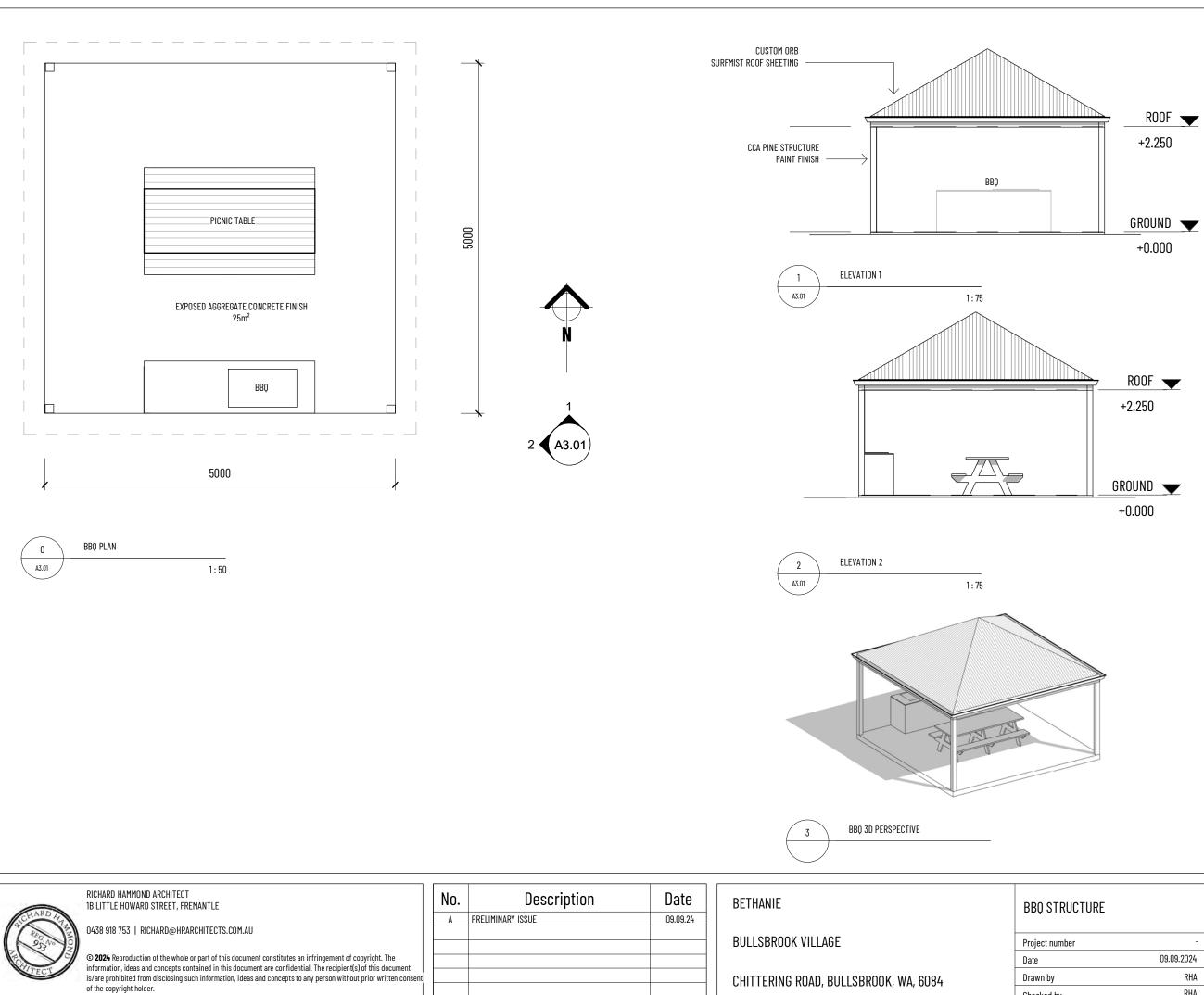






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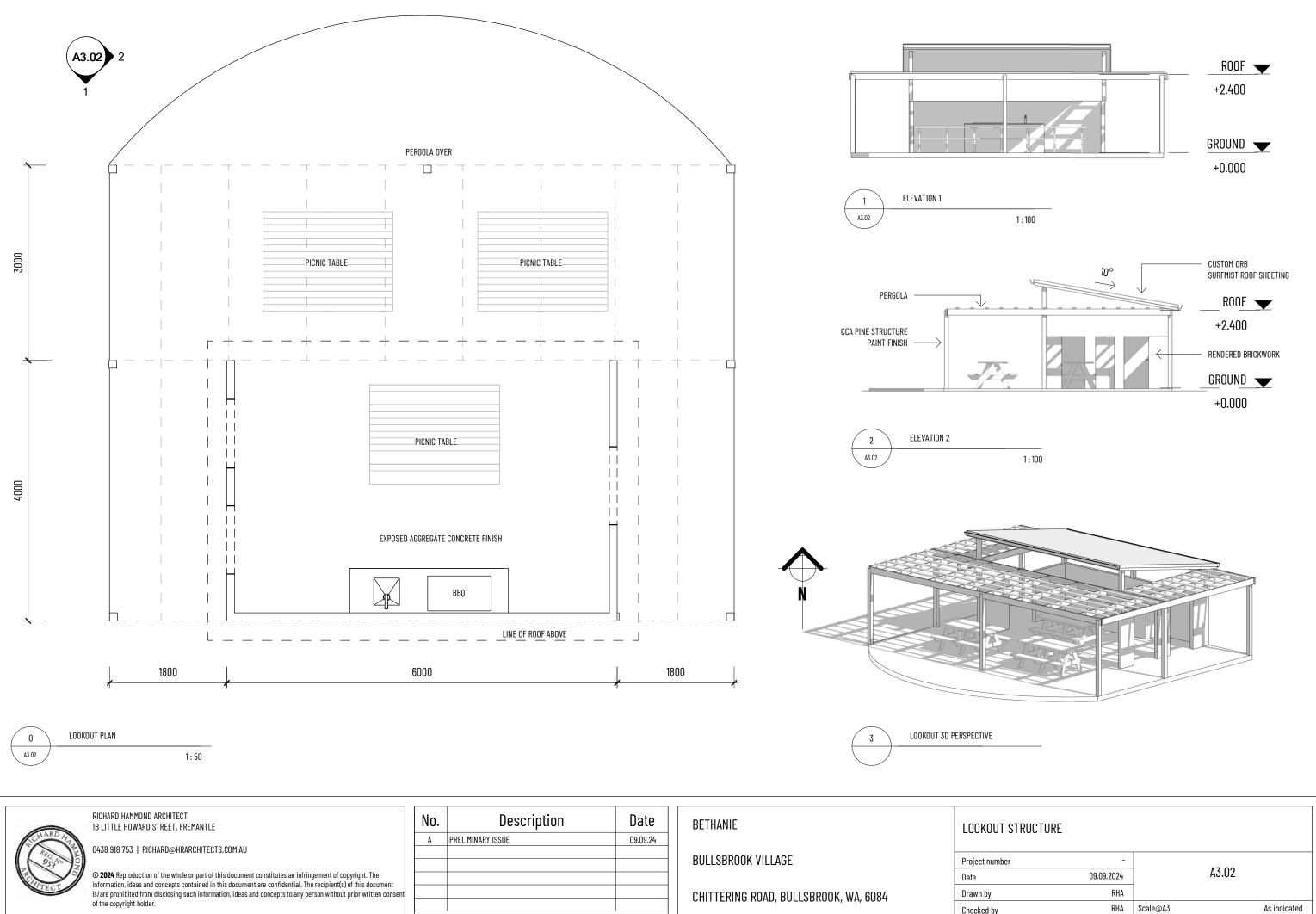
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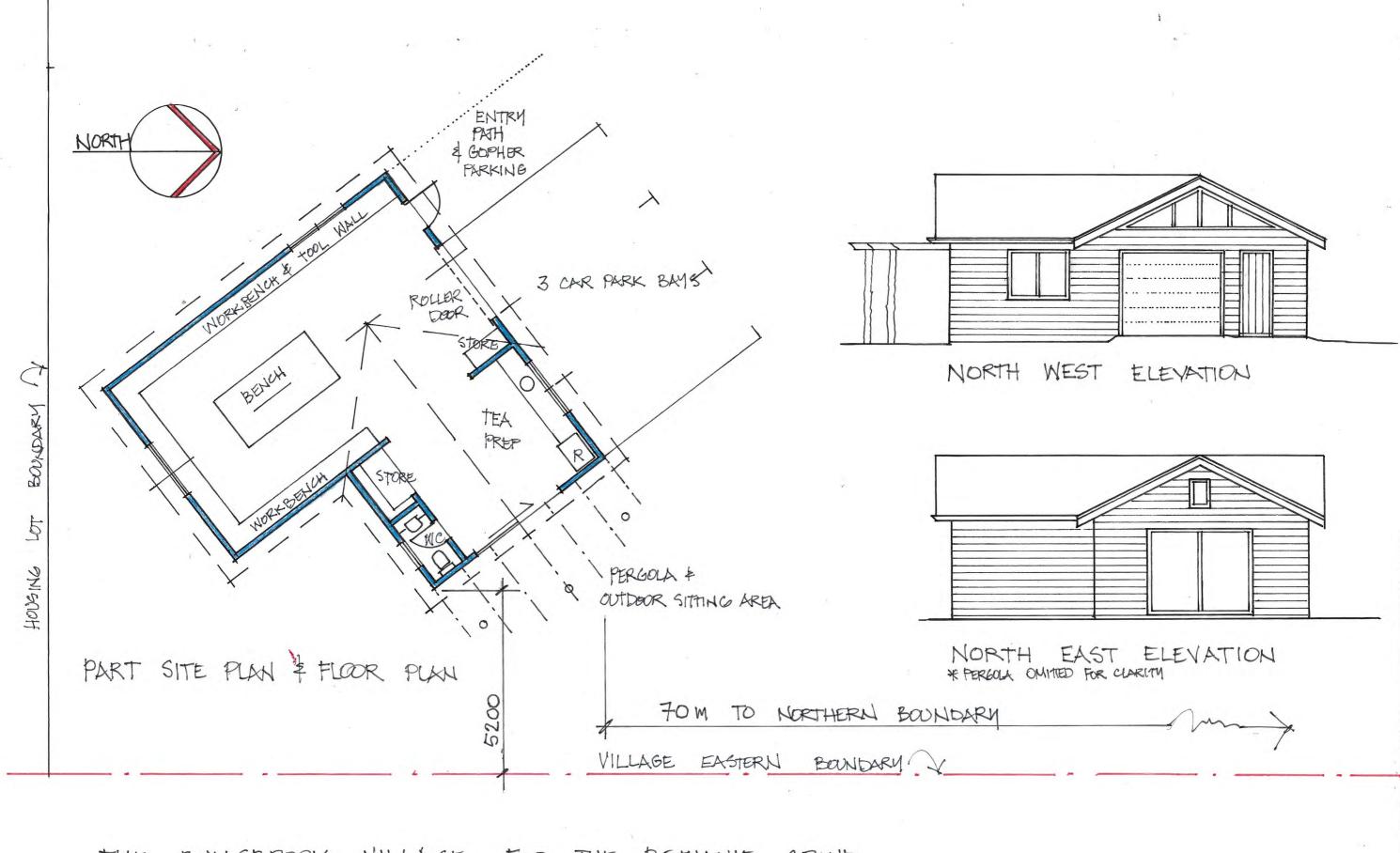
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THE BULLSBROOK VILLAGE FOR THE BETHANIE GROUP CHITTERING ROAD BULLSBROOK RESIDENTS' WORKSHOP 1:100 @ A3 JANUARY 2025

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# PLANNING SOLUTIONS URBAN & REGIONAL PLANNING

# **Development Application Report**

# Bullsbrook Lifestyle Village (Park Home Park)

Lots 900, 9501 and 9013 Chittering Road, Bullsbrook

> Prepared for Bethanie Group September 2024

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- the Client's implementation, or application, of the strategies recommended in this report.

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**Planning Solutions** Level 1, 251 St Georges Terrace Perth WA 6000

All correspondence to: Planning Solutions GPO Box 2709 CLOISTERS SQUARE PO WA 6850

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# **Project Details**

Job number	8799					
Client	Bethanie Group					
Prepared by	Planning Solutions					
Consultant Team	Town Planning	Planning Solutions				
	Architecture, Drafting and Design	Richard Hammond Architect				
	Traffic Engineering	PTG Consulting				
	Landscaping Plan Plan E Landscape Architects					
	Bushfire management Allerding & Associates					
	Urban Water and Stormwater management Pentium Water					
	Environmental management	Pentium Water				
	Sustainability / design	Richard Hammond Architect				
	Civil engineering and servicing	Cossill & Webley Consulting Engineers				
	Waste Management	PTG Consulting				

# Document Control

Revision number	File name	Document date	Prepared by	Checked by
Rev 0	240911 8799 DA Report - Bullsbrook Lifestyle Village	11 September 2024	OB	TE

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- Appendix 3: Environmentally Sustainable Design Element statement
- Appendix 4: Traffic Impact Assessment
- Appendix 5 Landscaping Plan
- Appendix 6: Bushfire Management Plan
- Appendix 7: Engineering Services Report
- Appendix 8: Preliminary Environmental Assessment
- Appendix 9: Urban Water Management Plan
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- Appendix 12: Lavan Letter
- Appendix 13: Park Home Information

1 PRELIMINARY

# 1.1 Introduction

Planning Solutions acts on behalf of Bethanie Group, the proponent of the development of Lot 900, Lot 9501 and a portion of Lot 9013 Chittering Road, Bullsbrook (**subject site**) as a 'Lifestyle Village' (Park Home Park).

Planning Solutions has prepared the following report in support of an application for development approval. This report will discuss various matters pertinent to the proposal, including:

- Background.
- Site details.
- Proposed development.
- Statutory planning framework.

The application seeks approval to develop the subject site with 237 Park Homes and associated communal facilities, access, car parking and landscaping. The Park Homes are designed to a high standard and will contribute positively to the locality, catering for the demand for downsizers and over 50's living in the locality.

We respectfully request the Metro Outer Development Assessment Panel (DAP) grants approval to the proposed development.

## **1.2 Pre-lodgement consultation**

Representatives of Planning Solutions, Bethanie Group, Richard Hammond Architects and the landowner met with officers of the City of Swan (City) on 29 May 2024. The purpose of the meeting was to present and receive initial feedback on the development of the subject site. The land use definition of the proposed development was discussed in detail, with the City's officers advising that it was their opinion the land use was defined as a 'Park Home Park' under the provisions of the City's Local Planning Scheme No.17 (LPS17).

Additional feedback was sought from the City's officers on the level of detail required to support of the proposed development, which was used to inform and finalise this development application.

# 2 SITE DETAILS

# 2.1 Land description

Refer to **Table 1** below for the lot details and a description of the subject site at the time of lodging this development application. We understand a subdivision has been progressed, with the new Lot 9017 proposed.

Table 1 - Lo	ot details
--------------	------------

Lot	Deposited Plan	Volume	Folio	Registered Proprietor	Area (m²)
900	407242	2914	546	Sacri Association Inc	131,496
9501	76923	4035	49	Tre Fontane Group Pty Ltd	14,403
9013	425780	4049	419	Amex Bullsbrook Pty Ltd	4,212*
				Total	150,111

\*For the purposes of calculating the total lot area subject to this development application, only the relevant 4,212m<sup>2</sup> of Lot 9013 has been in incorporated (total lot area of Lot 9013 is 18.7871 hectares).

Refer Appendix 1 for a copy of the Certificates of Title and Deposited Plans, and the proposed Deposited Plan.

**PS** 

# 2.2 Location

## 2.2.1 Regional context

The subject site is located in the municipality of the City of Swan and in the suburb of Bullsbrook. The site is located approximately 34km north east of the Perth CBD, approximately 26km north of Midland, approximately 26km north east of Joondalup and approximately 9m north east of The Vines, Ellenbrook.

The Walyunga National Park and Avon River are located approximately 6.5km to the south east of the subject site. The Ellen Brook is located approximately 2.7km to the south west. Pearce Air Base is located 800m to the west of the subject site.

Great Northern Highway is located 100m to the west of the subject site's western lot boundary, providing a connection from Roe Highway in the south, to Tonkin Highway, Brand Highway and Great Northern Highway in the north.

# 2.2.2 Local context, land use and topography

The subject site fronts Chittering Road at its western lot boundary and is currently vacant, with existing vegetation located in its south western aspect. The adjoining land to the east in undergoing residential subdivision as park of the 'Kingsford at Bullsbrook' estate.

The subject site has historically been cleared for agricultural purposes and consists largely of cattle grazing paddocks, with limited environmental value. The scattered Eucalyptus rudis (Flooded Gums) which align with the Ki-it Monger Brook creek line represent the key environmental asset within the current Lot 900 (proposed Lot 9017). The Ki-it Monger Brook is a seasonal flowing creek line which traverses the northern boundary of the subject site and bisects a portion of the subject site towards its western boundary.



Figure 1: Aerial photograph of the subject site and surrounds (Source: Nearmap 2024)



In terms of topography, the subject site has a gentle slope from the north-east to the south-west, sloping downwards from a height of 65m Australian Height Datum (AHD) in the north east to 52m AHD in the south west. The Ki-it Monger Brook to the west and north of the subject site has levels between approximately 55m AHD and 63m AHD.

# **3 PROPOSED DEVELOPMENT**

# 3.1 Development Summary

The proposal involves the development of the subject site to accommodate the 'Park Home Park' dwellings, access, landscaping and the communal facilities (clubhouse). The subject site is currently held in private ownership and the Lifestyle Village operator has secured a long-term lease arrangement with the landowner.

The overall development configuration has been carefully and holistically considered to ensure internal operation and site functionality are maximised, while ensuring the facility is designed responsively to the site's location. Specifically, the proposed development comprises:

- 237 single storey Park Homes being constructed on 237 leasehold lots, with dimensions of 12.5m wide x 21m long (262.5m<sup>2</sup>). Four housing typologies (House Designs A, B, C and D) to encourage a diversity of residents;
- Each Park Home is provided with a carport, containing space for two (2) car parking bays for each house design, resulting in 470 residential car parking bays. House Design C has a carport for tandem parking;
- A communal facilities building (clubhouse), with an internal floor area of 890m<sup>2</sup> and maximum height of 5.85m is located in the western aspect of the site, set back 13m from the Ki-It Monger Brook foreshore boundary;
- Clubhouse car parking (four visitor bays) and porte cochere entry point is provided for accessible pick up and drop offs;
- Internal clubhouse amenities including a lobby, lounge, café and bar, dining area and communal landscaping areas, including covered terraces and pergola wire trellis' over pedestrian footpaths and vergolas over the outdoor terrace areas;
- Amenities within and adjacent to the clubhouse, including a 37-seat cinema, games room with pool and darts, two outdoor pickleball courts, swimming, fitness centre/gym and arts and craft room;
- A community garden, BBQ area and social meeting place area located in the northern aspect of the subject site;
- Lifestyle Village and clubhouse services including sales office, managers office, reception, mail hall, kitchen, toilets, changerooms first aid room, stores and plant rooms;
- Three landscaped drainage basins for stormwater retention;
- 30 caravan, RV and boat parking bays located in the south western aspect of the subject site;
- 40 visitor parking bays;
- Internal access via a network of 6m wide and 10m wide private internal roads;
- Main vehicular access via a 10m wide crossover to Chittering Road with a meandering road following historical access across the Ki-it Monger Brook;
- Emergency access in the north eastern aspect of the subject site for bushfire safety purposes; and
- An access point in the southern aspect of the subject site caravan, construction and emergency access.

Please refer to Appendix 2 for the development plans prepared by Richard Hammond Architect.



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Figure 2: Perspective of the Clubhouse driveway and entry



Figure 3: Perspective of one of the internal Clubhouse living areas

# 3.2 Built form, urban design and sustainability

The built form, bulk, scale and choice of materials have been considered in response to the character of the Bullsbrook locality. The single storey scale and size of the Park Homes is consistent with expectations for a Lifestyle Village. The proposed development utilises a materials and colour palette that is sympathetic to its historical rural context and emerging residential setting and urban context.

The combined use of both contemporary and traditional/natural materials results in a high quality of built form that is softened by landscaping throughout the subject site. Design features and materials implemented include weatherboard cladding, custom orb roof sheeting (Surfmist colour), double glazed aluminium doors and features, feature gables and timber gable structures.

The proposed Lifestyle Village (Park Home Park) has been designed to include a significant number of environmentally sustainable elements, with the aim of producing high quality, comfortable accommodation with economical running and management costs.



#### The design elements include:

- Solar orientation: the lot and road layout are designed to provide the Park Homes with good solar access. The floor plans oriented east-west and generous northern aspect provides screening from the summer sun whilst allowing the penetration of winter sun.
- **Solar Energy:** photovoltaic panels and battery storage (with main grid back-up) are proposed to minimise reliance on mains energy consumption.
- Energy Efficiency: carefully designed floor plans and home orientation provides good levels of natural lighting and ventilation, reducing energy use for artificial lighting and air conditioning. The homes will be fully electric for cooking, space heating and hot water supply. We understand all appliances will have a minimum 5 star energy rating. The village will include EV chargers for resident's electric vehicles and there will be an electric car available for residents' use on a small rental fee basis.
- Waste Management: a recycling facility is proposed to enable residents to stream recyclable waste into the appropriate containers, minimising waste stream contamination. The community gardens will contain a worm farm and composting facilities for organic waste. The compost will be distributed to fruit trees and vegetable gardens cared for by village residents, reducing waste to landfill.
- Water Management: Three drainage basins are proposed to retain and filter stormwater before it enters the Ki-It Monger Brook.
- Site Development: The Bethanie Village is designed to maintain the existing natural topography and reduce reliance on retaining walls and cut/fill.
- **Modular Homes:** the homes will be factory built modular construction, reducing the environmental footprint with the efficient use of resources, reduced waste and reduced transport costs.

Please refer to **Appendix 2** for the development plans prepared by Richard Hammond Architect and to **Appendix 3** for the Environmentally Sustainable Design Element statement prepared by Richard Hammond Architect.

# 3.3 Technical reporting

# 3.3.1 Traffic Impact Assessment

A Traffic Impact Assessment (**TIA**) prepared by traffic engineers GTA Consulting, provides a traffic analysis of the proposed development, specifically in relation to the potential number of vehicles movements generated by the Park Homes.

A summary of the TIA is provided below, with the investigation concluding that:

- The estimated number of trips generated by the proposed development is approximately 130 trips during the AM peak period and 144 trips during the PM peak period.
- Public transport within the surrounding area is considered to be below average as only a single low frequency service operates near the site. TransWA services are also available within the surrounding area though these routes only provide a single service per day.
- The pedestrian/bike network is below average within the surrounding area. While there are shared paths present along Great Northern Highway and Chittering Road.
- A sight distance assessment was conducted at the proposed access points and showed that the modified Chittering Road alignment had a negligible impact on sight visibility.
- The traffic impact of the proposal on the surrounding road network will be insignificant.

In summary, GTA Consulting consider that the proposed development will not result in any negative impact on the surrounding road network. Refer **Appendix 4** for a copy of the TIA prepared by GTA Consulting.



# 3.3.2 Landscaping

The proposed development includes substantial areas of landscaping over the subject site, ensuring the development provides green spaces for residents of the village, and complements the streetscape. Landscaping strips are located along the lot boundaries, providing native shrubs, groundcovers and shade trees. The landscaping along the lot boundaries is deemed low threat bushfire treatment adjacent to the Ki-It Monger Brook.

The landscaping planting palette includes twelve species of trees, twelve species of native shrubs and ground covers, and twelve species of feature shrubs and ground covers. Feature planting and trees are located along the Central Road and are proposed to enhance the amenity and provide a prominent entrance statement. Street trees are proposed within the landscaping areas at the front of each of the Park Homes.

Refer to **Figure 4** below for the proposed landscape tree planting palette prepared by Plan E Landscape Architects.



Figure 4: Extract of tree planting palette from the landscape plan prepare by Plan E Landscape Architects

Key landscaping elements and features include:

- Feature planting around the Clubhouse and key communal areas, with open turf kickabout spaces, shade trees, Pickleball courts.
- 'The Lookout' meeting place, with table settings and bench seating and a community garden in the northern aspect of the subject site.
- Three landscaped drainage basins, proposed to become landscaped wetlands to detain stormwater and provide native fauna habitat.
- The footpaths throughout the facility provide residents with opportunities for mobility, with seating provided adjacent to the footpath and landscaping strips for residents to sit and admire the landscaping area. Within the key communal landscaping area there are informal stabilised gravel paths through the landscape to provide walking trail opportunities and landscape interaction.

Refer to **Appendix 5** for the conceptual landscaping plans prepared by Plan E Landscape Architects. A detailed landscaping plan illustrating the specific location of plant species and sizes can be prepared as an appropriately worded condition of development approval.

# 3.3.3 Bushfire management

The subject site is located within a designated 'bushfire prone area' in accordance with the Department of Fire and Emergency Services Map of Bushfire Prone Areas. Accordingly, a Bushfire Attack Level (**BAL**) assessment was undertaken over the subject site by Allerding & Associates, with the development (Park Homes) achieving a maximum BAL rating of BAL-29.

A subsequent Bushfire Management Plan (**BMP**) was prepared, concluding that the proposed development satisfies the intent, aims and objectives of *State Planning Policy 3.7 Planning in bushfire prone areas* (**SPP3.7**) and the guidelines, and is recommended for approval, with bushfire risk able to be appropriately managed. The BMP acknowledges that the proposed land use is not a vulnerable land use, given it differs significantly from residential aged care facilities and nursing homes.

This BMP demonstrates that the proposal can fully comply with the acceptable solutions of the Guidelines, subject to:

- The ongoing management of low threat landscaping surrounding the clubhouse and community garden in a minimal fuel condition in accordance with the provisions set out in this BMP;
- The creation and ongoing maintenance of an Asset Protection Zone (APZ) within Plot 14 to the west of the development area in accordance with the provisions set out in this BMP;
- The construction and maintenance of the internal vehicular movement network, inclusive of internal private driveways, access routes and vehicle gates in accordance with the provisions set out in this BMP;
- The installation and maintenance of a reticulated water supply to service the development in accordance with the provisions set out in this BMP;
- The construction of nominated buildings to the relevant standards under AS3959;
- The placement of notifications on title to advise on bushfire risk management implementation measures; and
- The ongoing compliance with the City of Swan Fire Hazard Reduction Notice.

Please refer to Appendix 6 for the BMP prepared by Allerding & Associates.

# 3.3.4 Civil engineering, site works, utilities and servicing

Expert civil engineering inputs detailing the engineering, civil infrastructure and drainage works have been undertaken by Cossill & Webley Consulting Engineers and incorporated into the development plans, in support of the proposed development of the subject site.

The existing topography and proposed civil design has been considered in a holistic manner to enable the development of the proposed Lifestyle Village (Park Home Park). The existing topography of the subject is largely maintained, retaining the current land form of the place.

The future development of the subject site will have access to services and utilities in the normal manner including a connection to reticulated sewer and water. Internal sewer reticulation from the subject site will discharge to the gravity sewer in Tigermoth Boulevard. It is anticipated the water supply to come from Chittering Road/Tigermoth Boulevard with a single property connection to the subject site.

In summary, the proposed civil arrangements are site responsive, addressing and respecting the natural topography of the site in an appropriate manner. Refer to **Appendix 7** for the Engineering Servicing Report prepared by Cossill & Webley Consulting Engineers.



# 3.3.5 Environmental and foreshore management

Pentium Water was commissioned to undertake a Preliminary Environmental Assessment in support of the proposed Lifestyle Village (Park Home Park). We understand the subject site has historically been cleared for agricultural purposes and consists largely of cattle grazing paddocks, with limited environmental value. The scattered Eucalyptus rudis (Flooded Gums) which align with the Ki-it Monger Brook creek line represent the key environmental asset within current Lot 900 (proposed Lot 9017).

The Ki-it Monger Brook is a seasonal flowing creek line which traverses the northern boundary of the subject site and bisects a portion of the subject site towards its western boundary. The portion of the Ki-it Monger Brook within and adjacent to the subject site has historically been modified, including the infilling of the creek and the installation of culverts.

The flooded gums trees within the Ki-it Monger Brook creek line will be maintained within the defined setback from the Brook, which was established in the approved 2021 Ki-it Monger Brook Foreshore Management Plan (FMP) (RPS 2021) for the purposes of conservation, flood protection, better urban water management and open space.

Refer to Appendix 8 for the Preliminary Environmental Assessment prepared by Pentium Water.

# 3.3.6 Urban Water, Stormwater and erosion management

A Local Water Management Strategy (LWMS) was prepared by RPS (RPS, 2018) and approved by the Department of Water and Environmental Regulation to support the Kingsford Local Structure Plan.

A site specific preliminary Urban Water Management Plan (**UWMP**) has been prepared for the Bethanie Bullsbrook Lifestyle Village, in accordance with the strategies and commitments discussed in the LWMS. The UWMP provides an overview of the subject site's existing physical and hydrological conditions, and drainage design which will be implemented for the proposed development. The UMWP defines the stormwater management framework and the detailed bioretention swales design and landscape response, with stormwater runoff to be contained onsite to the extent possible.

Stormwater will be managed through vegetated swales/tree pits within the Lifestyle Village area and larger bioretention swales will be incorporated into open space areas adjacent to Ki-it Monger Brook, which we understand is consistent with the approved Local Water Management Strategy that was prepared for the neighbouring Kingsford Estate.

Refer to **Appendix 9** for the Urban Water Management Plan prepared by Pentium Water and to **Appendix 10** for the Erosion, Sediment and Drainage Control Plan prepared by Pentium Water.

#### 3.3.7 Waste management

A Waste Management Plan (**WMP**) has been prepared by PTG Consulting in support of the proposed development. Waste collection of refuse and recycling will be collected on site by the City's waste management services, similar to a regular residential neighbourhood. Residents will be required to sort and prepare their waste based on the collection schedule for the area.

The WMP demonstrates that the proposed development makes sufficient provision for general waste, recyclable waste, and FOGO based on the estimated waste generation.

Refer to Appendix 11 for the Waste Management Plan prepared by PTG Consulting.

# 4 STATUTORY PLANNING FRAMEWORK

# 4.1 State Planning Policies

## 4.1.1 State Planning Policy 3.7 – Planning in Bushfire Prone Areas

State Planning Policy 3.7 – Planning in Bushfire Prone Areas (SPP3.7) and its associated Guidelines seek to guide the implementation of effective risk-based land use planning and development to preserve life and reduce the impact of bushfire on property and infrastructure. The BMP prepared by Allerding & Associates has been prepared to demonstrate that future development can meet the relevant requirements of SPP3.7.

# 4.1.2 State Planning Policy 7.0 - Design of the Built Environment

*State Planning Policy 7.0 – Design of the Built Environment* (**SPP7.0**) addresses the importance of design quality, and sets out the principles, processes and considerations which apply to the design of the built environment in Western Australia, across all levels of planning and development.

SPP7 establishes a set of ten 'design principles', providing a consistent framework to guide the design, review and decision-making process for planning proposals. An assessment of the proposed development against the design principles of SPP7.0 is provided in **Table 2** below.

#### Table 2: SPP7.0 Design Principles Statement

SPP7 design principle and design response

#### 1. Context and character

Good design responds to and enhances the distinctive characteristics of a local area, contributing to a sense of place.

The surrounding area is best characterised as a developing semi-rural area on the outer fringe of the metropolitan region, characterised by relatively modern new builds to create an 'Urban Village' feel within the semi-rural locality, and areas of yet-to-be developed land.

The Park Homes and Clubhouse feature modern designs with the use of pitched roofs and weatherboard cladding to have some resemblance to the types of residential buildings within a semi-rural area. The external colours, finishes and materials of the building are consistent with the building materials in the area and assist in creating a soft impression within the landscape.

Retention of the natural topography is an important characteristic of this development. Having the main access across an existing and historical crossing over the Ki-It Monger Brook, adds considerably to the character and context of the development within the locality.

The built form of the Lifestyle Village, the provision of landscaping and the land use itself will contribute to a sense of place, resulting in a development that is recognisable within the Bullsbrook locality.

#### 2. Landscape quality

Good design recognises that together landscape and buildings operate as an integrated and sustainable system, within a broader ecological context.

A concept landscape plan has been prepared by Plan E Landscape Architects to ensure the proposed landscaping is implemented to the highest standard, with landscape design paramount to the design of the Lifestyle Village.

An array of native flora species is proposed to be provided, including landscaping of the drainage swale to create future wetland habitats and enhance the amenity of the Ki-It Monger Brook and complement existing brook vegetation. The landscape design encourages Lifestyle Village residents to walk outside, interact with the gardens and socialise with other residents. Refer to **Appendix 5** for the landscape plan.

#### 3. Built form and scale

Good design provides development with massing and height that is appropriate to its setting and successfully negotiates between existing built form and the intended future character of the local area.



#### SPP7 design principle and design response

The single-storey scale of the Park Homes maximize the benefits of solar access between the individual leasehold lots. The maximum pitched roof height of 5.8m of the Clubhouse is considered entirely acceptable within its context as a Lifestyle Village within a low-rise developing fringe area.

#### 4. Functionality and build quality

Good design meets the needs of users efficiently and effectively, balancing functional requirements to deliver optimum benefit and performing well over the full life-cycle.

The homes will be factory built modular construction, ensuring a consistent and functional build quality. The selected materials for the Park Homes and Clubhouse are contemporary in nature, while being sympathetic to the semi-rural locality and creating a rural village feel.. There will be a consistent built form theme to maintain a continuity of architecture across the site.

The materials have been selected with build quality in mind and are common materials for Park Homes, which can be relocated. The proposed development includes ample amenities to meet the needs of residents and visitors, ensuring functionality and longevity for the Lifestyle Village.

#### 5. Sustainability

Good design optimises the sustainability of the built environment, delivering positive environmental, social and economic outcomes.

The Park Homes and Clubhouse incorporate a number of sustainability and eco-friendly initiatives, with passive solar design. Such design include the orientation of rooms and external shading devices to minimise reliance on mechanical heating and cooling. Further sustainability initiatives are discussed in **section 3.2** of this report.

#### 6. Amenity

Good design optimises internal and external amenity for occupants, visitors and neighbours, contributing to living and working environments that are comfortable and productive.

The design of the Lifestyle Village (Park Home Park) considers the following:

- Maintaining self-identity and individuality (e.g. three housing options to provide variety and housing diversity, and cater for individual needs of residents);
- Personal enjoyment (e.g. liveable internal spaces within the Park Homes and Clubhouse, attractive outdoor landscaped areas, activities and amenities);
- Designing for family and community (e.g. a homely and secure village environment in which family members can be involved in everyday and multigenerational activities);

The principles of resident comfort, privacy, security and mobility are primary factors in the design.

#### 7. Legibility

Good design results in buildings and places that are legible, with clear connections and memorable elements to help people find their way around.

The building orientation and gable feature entry of the Clubhouse building creates a legible entry point to the development. The entrances to the Park Homes are clearly identifiable from the streets, with the garages located as the front of the homes, and architectural features used for legibility (i.e. gables and skillions roofs).

#### 8. Safety

Good design optimises safety and security, minimising the risk of personal harm and supporting safe behaviour and use.

The Lifestyle Village design creates a close and secure sense of community, with the orientation and layout of the Park Homes allowing for passive surveillance. The internal roads and their widths have been designed as a low speed environment for safety, given the roads are intended as a shared space for resident/visitor cars, cyclists and pedestrians.

#### 9. Community

Good design responds to local community needs as well as the wider social context, providing buildings and spaces that support a diverse range of people and facilitate social interaction.

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#### SPP7 design principle and design response

Social interaction is promoted as part of the Lifestyle Village, with its communal facilities which will become a social hub. The Park Homes themselves and the layout of the Lifestyle Village creates a secure sense of community, with landscaping providing ample opportunities for interaction. Other design elements which encourage social interaction include the variety of amenities offered within and around the Clubhouse, and the community garden.

#### 10. 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.

This will be a high-quality community development, designed to have a residential and homely feel. Park Homes and the internal lot layouts have been designed with solar passive design principles in mind. Housing materials are contemporary, while respecting the semi-rural nature of the locality and the character of the historic Bullsbrook town centre. The Lifestyle Village incorporates substantial landscaped areas to encourage residents to walk outside, interact with landscaping areas and gardens, and socialise with other residents.

The proposed development suitably responds to the SPP7 design principles and warrants approval.

#### 4.1.3 State Planning Policy 5.4 – Road and Rail Noise

The south western aspect of the subject site is within an area subject to *State Planning Policy 5.4 Road and Rail Transport Noise and Freight Considerations in Land Use Planning* (**SPP5.4**), due to its proximity to Great Northern Highway, a 'strategic freight / major traffic route'. Table 1 of SPP5.4 identifies the State's transport corridors and the trigger distances to which the policy applies.

Great Northern Highway in proximity to the subject site is a 2 lane road, with Table 2 of SPP5.4 identifying that no further measures are required for sensitive premises located in excess of 150m from the edge of the road carriageway. The Park Homes located in the south western aspect of the subject sire are located more than 250m from the edge of the Great Northern Highway Road carriageway, with no acoustic reporting required.

# 4.2 Metropolitan Region Scheme

Under the provisions of the Metropolitan Region Scheme (**MRS**) the subject site is zoned 'Urban'. The proposed development is consistent with the intent of the Urban zone and may be approved accordingly.

Great Northern Highway and the southern portion of Chittering Road are reserved 'Primary Regional Roads' under the provisions of the MRS. Access to the subject site is proposed from the part of Chittering Road that is not reserved by the MRS. The subject site is not affected by land reserved by the MRS, nor is it subject to any resolution or declaration made under the MRS.

# 4.3 City of Swan Local Planning Scheme No.17

The City of Swan *Local Planning Scheme No.*17 (LPS17) applies to the subject site. LPS17 is supplemented by the 'Deemed Provisions' in Schedule 2 of the *Planning and Development (Local Planning Schemes) Regulations 2015.* Where a deemed provision is inconsistent with a provision of LPS17, the deemed provision prevails to the extent of the inconsistency.

#### 4.3.1 Zoning and objectives

Under the provisions of LPS17, the subject site is zoned 'Residential Development'. Refer to **Figure 5** below for an extract of the LPS17 Zoning Map.

Schedule 4 stipulates that land uses should be guided by an approved structure plan, with conditions that the approved structure plan shall apply to the area to guide subdivision and/or development.

An approved Structure Plan applies to the site and guides subdivision and development (the Kingsford Local Structure Plan). The effect of the Structure Plan is discussed in **section 4.4** of this report.



Figure 5: Extract of LPS17 zoning map

# 4.3.2 Land use classification and permissibility

The land use of 'Park Home Park' is defined in Schedule 1 of LPS17 as having the same meaning as in the Caravan Parks and Camping Grounds Regulations 1997 (WA) (CPCG Regs):

*Park Home Park* means a caravan park at which park homes, but not any other caravans or camps, are situated for habitation;

A 'Park Home' is defined under the CPCG Act as:

*Park Home:* A vehicle of a prescribed class or description that is fitted or designed for habitation.

The CPCG Regs provide a further definition of the meaning of a Park Home:

A caravan in respect of which a vehicle licence is not required under the Road Traffic (Vehicles) Act 2012 section 4, because it could not be drawn by another vehicle on a road due to its size, is a vehicle of a prescribed class or description for the purposes of the definition of "park home" in section 5(1) of the Act.

The proposed development is considered to fit within the definition of 'Park Home Park' as defined in Schedule 1 of LPS17 (and relevantly the CPCG Regs and CPCG Act), as the relocatable, independent dwellings (Park Homes):

- a. are capable of being propelled or drawn on wheels;
- b. are fitted or designed for habitation; and
- c. will be situated at a caravan park where no other caravans or camps are situated for habitation.

While the proposed land use is defined under the provisions of LPS17, it is not listed in the zoning table. The City has discretion to assess the proposed development as a 'Use Not Listed – Park Home Park'.



In accordance with Clause 18 (4)(b) of the *Planning and Development (Local Planning Schemes)* Regulations 2015 (LPS Regulations):

(4) The local government may, in respect of a use that is not specifically referred to in the zoning table and that <u>cannot reasonably be determined as falling within a use class</u> referred to in the zoning table –

(b) determine that the use may be <u>consistent with the objectives of a particular zone</u> and give notice under clause 64 of the deemed provisions before considering an application for development approval for the use of the land; **[emphasis added]** 

Accordingly, the proposed unlisted use of 'Park Home Park' should be assessed against the objectives of the Residential Development zone of LPS17.

Refer to **Appendix 12** for the letter containing land use classification advice prepared by Lavan.

# 4.3.3 Residential Development zone objectives and merit assessment

The objectives of the Residential Development zone under the provisions of LPS17 are to:

- a) provide for the coordinated development of future residential areas through the application of a comprehensive plan to guide subdivision and development to be known as a "Structure Plan";
- b) provide for predominantly residential development, but including also a range of compatible services, consistent with the needs of an integrated neighbourhood, and planned so as to minimise adverse impacts on amenity;
- c) avoid the development of land for any purposes or at a time when it is likely to compromise development elsewhere in the district or prejudice the future development of land in the Residential Development zone for more appropriate purposes;
- d) take account of the need to protect the amenity and on-going use of adjacent property owners as well as to provide for the needs of future residents.

The 'Park Home Park' land use involves dwellings, which are entirely compatible with the adjoining residential development to the east of the subject site. The housing typology offered by the Park Home Park dwellings caters for a different age demographic, allowing for an integrated community and neighbourhood.

The proposed development does not prejudice the future development of land in the Residential Development zone, instead offering an opportunity for convenient and much needed housing supply. The Kingsford Local Structure Plan does not propose any public roads through the subject site. Therefore, we consider the Structure Plan contemplates the singular coordinated development of the subject site, which is being proposed as part of this Lifestyle Village development.

The Recreation zoned land within the subject site will be held in private ownership and maintained in accordance with the provisions of the approved Foreshore Management Plan.

The proposed development and layout of the subject site has been designed in such a way to ensure the protection of existing amenity for adjoining landowners. Substantial areas of landscaping are proposed at the lot boundaries. The proposed development is consistent with the objectives of the Residential Development zone, warranting approval.

# 4.3.4 LPS17 Development standards and requirements

Part 5 of LPS17 contains general development requirements for the scheme area. Clause 5.5. allows for the application of discretion for the City to approve variations to development requirements where the R-Codes do not apply and where there is no adverse amenity impact resulting from the variation.

Part 5A of LPS17 relates to Structure Planning Areas. An assessment against the relevant development requirements and provisions of LPS17 has been completed in **Table 4** below.

Fable 4: A	ssessment against the relevant Development Requireme	ents of LPS17
Clause		Comment
5A.1 Str	ucture Planning Areas	
5A.1.3 Sı	bdivision and Development in Structure Planning Areas	
5A.1.3.1	The subdivision and development of land within a Structure Planning Area is to be generally in accordance with any structure plan that applies to that land.	An assessment against the key provisions of the Kingsford Local Structure Plan is provided in section 4.4 below. The proposal is generally consistent with the objectives and zoning.
5A.1.4 St	ructure Plan required	
5A.1.4.1	The local government is not to: (a) consider recommending subdivision; or (b) approve development of land within a Structure Planning Area unless there is a structure plan for the area or for the relevant part of that area that adequately defines the comprehensive planning detail required to guide orderly subdivision and development for urban land use.	The Kingsford Local Structure Plan has been prepared and applies to the subject site, providing guidance for development and land uses within the Structure Plan area. The environmental investigations and reporting enclosed within the submission have all been prepared to facilitate the appropriate and orderly development of the subject site, without prejudicing
5A.1.4.2	Notwithstanding clause 5A.1.4.1, a local government may recommend subdivision or approve the development of land within a Structure Planning Area prior to a structure plan coming into effect in relation to that land, if the local government is satisfied that this will not prejudice the specific purposes and requirements of the Structure Planning Area.	the existing structure plan. Further commentary on the appropriateness of the proposed Lifestyle Village (Park Home Park) in the context of the Structure Plan and its Residential zoning is provided throughout this report.

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In accordance with the provisions of LPS17, the development of the subject site does not undermine the intent of the Structure Plan. An assessment against the development provisions of the Structure Plan is provided in section 4.4.

#### **Residential Design Codes Volume 1** 4.3.5

The Residential Design Codes Volume 1 (R-Codes) provides a basis for control of residential development throughout Western Australia. Part B applies to all single houses R40 and below and grouped dwellings R25 and below. Although the proposed Lifestyle Village (Park Home Park) is neither a single house or a grouped dwelling, the key provisions of the R-Codes have been used as a guide.

An assessment against the key deemed-to comply (DTC) provisions applicable to the R40 density code is provided in Table 3 below, based on the metrics of the proposed leasehold lots.

DTC provision	Required		Proposed	Compliance		
5.1.1 Site area						
C1.1 and C1.2 – Site	Minimum lot area:	180m²				
area requirements (R40)	Average lot area:	220m²	Minimum 262.5m <sup>2</sup>	Yes		
5.1.2 Street setba	5.1.2 Street setback					
C2.1 – Primary street	Minimum setback:	4m	1.93m	Design Principle Assessment		

#### Table 3: Deemed-to-comply assessment

5.1.4 Open space	2				
C4 – Open space	Minimum 45% of site	118m²		Approx 118m <sup>2</sup> (45%)	Yes
5.1.6 Building he	eight				
	Top of wall (roof above)		7m		
C6 – Building height	Pitched/hipped roof		10m	Maximum building height of	Yes
	Top of wall (concealed, g	gable, skillion)	8m 5.855m (Clubhouse).		

The following commentary is provided with respect to the variation to Street setback (Element 5.1.2) which does not meet the deemed-to-comply requirement (set back 1.93m in lieu of 4m). The following justification is provided in consideration of the Design Principles:

- 1. The Park Home street setbacks are to internal private roads as part of the Lifestyle Village.
- 2. There is currently no established streetscape which the lessor setback would conflict with. The proposed setbacks contribute to the consistency of the future streetscape.
- 3. The Park Homes are designed to provide an adequate privacy and open space for residents.
- 4. Site planning requirements such as parking, landscape and utilities aren't impacted by the lessor setback.
- 5. The Park Homes are an appropriate single storey scale. Proposed design elements, materials and landscaping soften any perceived impact on the Park Home providing a lessor setback to the street (private internal road).

The proposed street setbacks are therefore warranted.

In terms of the internal road widths, a variation to deemed-to-comply requirements C5.7 of 5.3.5 Vehicular access is proposed. The widths of the internal communal roads are 6m and 10m in lieu of 12m. The proposed road widths have been designed in consideration of the Lifestyle Village and its low speed environment and shared roads. The reduced road widths allow for more landscaping while maintaining safety and legibility.

# 4.3.6 Matters to be considered

Clause 67(2) of the Deemed Provisions sets out the matters for which due regard is to be given when considering a development application. Refer **Table 5** below for an assessment of the relevant matters.

Table 5: Matters to be considered

Matter to be considered	Provided
(a) the aims and provisions of this Scheme (including any planning codes that are read, with or without modifications, into this Scheme) and any other local planning scheme operating within the Scheme area;	The aims and provisions of LPS17 are considered and addressed throughout this report.
(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;	The development application has been prepared consistent with the provisions of the approved Structure Plan and the requirements of orderly and proper planning.
(c) any approved State planning policy	Refer to section 4.1 of this report for consideration of the relevant State Planning Policies.

Matter to be considered	Provided
(d) any environmental protection policy approved under the Environmental Protection Act 1986 section 31(d)	The technical reports prepared by Pentium Water in support of this application have either considered or addressed the environmental considerations of the proposed development.
(e) any policy of the Commission	The WAPC's Position Statement: Residential accommodation for ageing persons is considered in section 4.6 of this report.
(f) any policy of the State	The Caravan Parks and Camping Grounds Act 1995 and Caravan Parks and Camping Grounds Regulations 1997 are considered in section 4.6 of this report.
(g) any local planning policy for the Scheme area;	Refer to section 4.5 of this report for consideration of the City's relevant local planning policies.
(h) any structure plan or local development plan that relates to the development	The Kingsford Local Structure Plan applies to the subject site and has been considered in Section 4.4 of this report.
(j) in the case of land reserved under this Scheme, the objectives for the reserve and the additional and permitted uses identified in this Scheme for the reserve	The subject site is not reserved under the provisions of LPS17. The Structure Plan's 'Recreation' zoning of the Ki-It monger Brook has been considered as part of this development application and the approved Foreshore Management Plan.
<ul> <li>(l) the effect of the proposal on the cultural heritage significance of the area in which the development is located;</li> </ul>	Aboriginal Cultural Heritage Place 3583 (Ki-It Monger Brook 2) is mapped over the subject site and surrounds. We understand the subject site is of mythological significance and was considered in the Ethnosciences desktop Aboriginal heritage assessment in support of the Kingsford Local Structure Plan.
<ul> <li>(m) the compatibility of the development with its setting, including –</li> <li>(i) the compatibility of the development with the desired future character of its setting; and</li> <li>(ii) the relationship of the development to development on adjoining land or on other</li> </ul>	Strong emphasis has been placed on the design and layout of the Park Homes and ancillary Clubhouse, ensuring the built form is sympathetic to the prevailing semi-rural and emerging residential character of the locality. Overall, the scale, height, orientation and appearance of the
land in the locality including, but not limited to, the likely effect of the height, bulk, scale, orientation and appearance of the development;	development is consistent with the character of the locality.
<ul> <li>(n) the amenity of the locality including the following <ul> <li>(i) environmental impacts of the development;</li> <li>(ii) the character of the locality;</li> <li>(iii) social impacts of the development;</li> </ul> </li> </ul>	The proposed development responds to the character of the area through the use of various façade treatments, materials and textures. The development also provides substantial landscaping areas throughout the Lifestyle Village. The proposal will not affect the amenity of the locality.
	There will be no detrimental social impacts resulting from the proposed development. Conversely, the proposal will positively contribute to the locality, through the introduction of new residents and creation of a community.
(o) the likely effect of the development on the natural environment or water resources and any means that are proposed to protect or to mitigate impacts on the natural environment or the water resource	A UWMP has been prepared by Pentium Water in support of the proposal - refer to <b>Appendix 9.</b>
(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;	A concept landscape plan is provided in <b>Appendix 5</b> (Prepared by Plan E Landscape Architects) which demonstrates high quality landscaping will be provided throughout the subject site.

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Matt	ter to be considered	Provided
tı tı	he suitability of the land for the development aking into account the possible risk of flooding, idal inundation, subsidence, landslip, bushfire, soil rosion, land degradation or any other risk	A Bushfire Management Plan has been prepared, demonstrating the proposed development is sound from a bushfire risk and management perspective- refer to <b>Appendix</b> <b>6</b> .
		A UWMP and Erosion, Sediment & Drainage Control Plan have been prepared by Pentium Water - refer to <b>Appendices 9 and 10</b> .
t	he suitability of the land for the development aking into account the possible risk to human health or safety	A Bushfire Management Plan has been prepared, demonstrating the proposed development is sound from a bushfire risk and management perspective- refer to <b>Appendix</b> <b>6</b> .
(i	he 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;	A TIA has been prepared, demonstrating the proposed development is sound from a traffic and access point of view – refer to <b>Appendix 4</b> . The development provides sufficient spaces for resident parking, with each Park Home comprising a two car garage. Visitor car parking has been provided in proximity to the Clubhouse.
d C	he amount of traffic likely to be generated by the levelopment, particularly in relation to the apacity of the road system in the locality and the robable effect on traffic flow and safety;	A TIA has been prepared, demonstrating the proposed development is sound from a traffic and access point of view – refer to <b>Appendix 4</b> .
0 (1 (1 (1 (1	<ul> <li>he availability and adequacy for the development of the following –</li> <li>i) public transport services;</li> <li>ii) public utility services;</li> <li>iii) storage, management and collection of waste;</li> <li>iiv) access for pedestrians and cyclists (including end of trip storage, toilet and shower facilities);</li> <li>v) access by older people and people with disability;</li> </ul>	Availability of transport options near the subject site is considered in the TIA prepared for the proposed development - refer <b>Appendix 4</b> . Utility services is considered by the Engineering Services Report prepared by Cossill & Webley – refer to <b>Appendix 7</b> . Waste Management is expected to be undertaken in the normal manner, with the City's waste collection services collecting rubbish once per week from the individual Park Homes. Refer <b>Appendix 11</b> for the Waste Management Plan. The internal road layout and widths are designed as a shared space for cars, cyclists and pedestrians. The Lifestyle Village is designed for over 50's living and ageing in place, with accessible design principles considered in the design.
b p	he potential loss of any community service or penefit resulting from the development other than potential loss that may result from economic ompetition between new and existing businesses;	The proposed development will not result in the loss of a community service. Contrary, the proposed development will contribute to housing diversity and supply within the Bullsbrook locality. The 237 Park Homes will result in a community that are likely to support local businesses.
	he history of the site where the development is to he located;	The subject site has historically been cleared for rural purposes. The semi-rural character of the locality has been considered in the design of the Lifestyle Village and the Park Homes.
а	he impact of the development on the community is a whole notwithstanding the impact of the levelopment on particular individuals;	The proposed development will contribute to the delivery of important housing diversity and supply.
(y) a	iny submissions received on the application;	Submissions will be considered during the assessment of the application.
	he comments or submissions received from any iuthority consulted under clause 66;	Noted.
	ny other planning consideration the local overnment considers appropriate.	No other planning considerations have been identified.



Having regard to **Table 5** above, it is considered that all relevant matters to be considered have been satisfactorily addressed within this report, demonstrating the proposed development warrants approval.

# 4.3.7 Developer contributions

LPS17 identifies the subject site as being within a Development Contribution Area for the purposes of sharing infrastructure costs. The Bullsbrook Residential Townsite – Development Contribution Plan applies, with the subject site located in Precinct 2. In calculating both the area of an Owner's land and the total area of land in a Development Contribution Area, LPS17 stipulates that existing public open space is excluded from the area subject to the contribution.

The subject site contains land zoned 'Recreation' under the provisions of the Kingsford Local Structure Plan. The land comprises the Ki-It Monger Brook and its foreshore will held in private ownership and will generally be used for recreation purposes. This area will be managed in accordance with the approved Foreshore Management Plan.

Conservation Areas are listed as a deduction from the gross subdivisible area. The portion of the subject that is zoned Recreation is shown as Conservation/Reserve by the DCP. Accordingly, the area of the subject site zoned by the Structure Plan for Recreation is free from trigging a development contribution calculation.

# 4.4 Kingsford Local Structure Plan

The Kingsford Local Structure Plan (**Structure Plan**) applies to the subject site. The subject site is predominantly zoned as 'Residential (R20-R40)' by the Structure Plan. A 'Recreation' zone applies to the south western aspect of the subject site (south of the church and fronting Chittering Road) and generally aligns with the Ki-It Monger Brook. Refer to **Figure 6** below for an extract of the Structure Plan map.



Figure 6: Extract of the structure plan map



# 4.4.1 Residential Zoned land and permissibility

The R20 density code applies as the base code. The R40 density code applies to Residential zoned lots where the lot is created within a 400m walkable catchment of the town centre. The southern aspect of the subject site is within 400m of the Commercial zone under the provisions of the Structure Plan.

Land Use permissibility within the Structure Plan area is in accordance with the Structure Plan map and the corresponding zones and reserve under the provisions of the City's LSP17. Accordingly, land use permissibility within the portion of the subject sized zoned 'Residential R20-R40' is in accordance with the Residential zone.

Given the proposed land use of 'Park Home Park' is a 'Use Not Listed' within the zoning table of LPS17, an assessment against the objectives of the Residential zone is required. The Residential zone objectives are to:

a) provide for a range of forms and densities of residential development to meet the needs of the wide variety of households which make up the community;

b) promote a residential environment in each locality consistent with the form and density of residential development permissible in the locality, so as to enhance a sense of place and community identity;

c) preserve and enhance those characteristics which contribute towards residential amenity, and to avoid those forms of development which have the potential to prejudice the development of a safe and attractive residential environment;

d) provide for a limited range of ancillary development compatible with the form and density of residential development, and complementary to the needs of local communities, but which will not compromise residential amenity;

*e*) avoid development of land for any purpose or in any manner that would detract from the viability or integrity of development in either the Strategic Regional Centre or the Commercial zones.

The proposed development is consistent with these objectives for the following reasons:

- 1. A Lifestyle Village (Park Home Park) is by nature inherently a residential land use. The overall density of development is consistent with the underlying R40 density code, meeting the key DTC requirements of the R-Codes (with the exception of the primary street setback). The area of the subject site proposed to accommodate the Park Homes equates to approximately 28.2 dwellings per hectare.
- 2. The proposed development will create additional housing stock , housing diversity and affordable housing options for over 50's living for aged care and aged living. This form of residential development will meet the needs of the wide variety of households which make up the community;
- 3. The proposal development represents a residential environment consistent with the Bullsbrook locality, with the form and density of the Park Homes consistent with the R20-R40 residential density code outlined by the Structure Plan.
- 4. The internal layout of the Park Homes, Clubhouse and landscaping will create a sense of place and community identity within the Lifestyle Village;
- 5. The proposal seeks to preserve and enhance the characteristics of the subject site by a site responsive design of floor levels and existing topography. The Ki-It monger Brook and its associated foreshore boundaries and foreshore management plan have been considered as part of the proposal.
- 6. Proposed landscaping seeks to enhance the existing characteristics of the subject site and future residential amenity.
- 7. The proposal features an ancillary Clubhouse with amenities that is compatible with the form and density of residential development associated with the Park Homes. The ancillary amenities are complementary to the Park Home residents and the needs of the Lifestyle Village as a local community. The Clubhouse and amenities are located and designed to not compromise residential amenity; and
- 8. No commercial development is proposed. The proposed Lifestyle Village does not undermine any Strategic Regional Centre or Commercial zone within the municipality.



The Perth and Peel @ 3.5 million framework indicates that new urban areas are to use a minimum average residential target of 15 dwellings per gross hectare of Urban zoned land. The proposed development provides 237 Park Homes across approximately 15 hectares of the subject site. This equates to approximately 15.6 dwellings per gross hectare.

The area of the subject site proposed to accommodate the Park Homes and internals roads comprises an area of approximately 8.32 hectares, equating to approximately 28.2 dwellings per hectare. This complies with the Liveable Neighbourhood target of 22 dwellings per site hectare.

In consideration of the above, the proposed Lifestyle Village (Park Home Park) is consistent with the objectives of the Residential zone and residential density expected for the subject site, warranting approval.

# 4.4.2 Recreation zoned land

The portion of the subject site zoned 'Recreation' and comprising the Ki-It Monger Brook and its foreshore will be held in private ownership. The land will be used for conservation and recreation purposes.

The remnant trees within the Ki-It Monger Brook will be retained through the establishment of foreshore buffer areas, development setbacks, drainage retention and open space areas.

The access road from Chittering Road will cross the Ki-It Brook at the location of the existing culverts, minimising any potential impact on the environment or the Brook. The various technical and environmental reporting confirms the suitability of this access.

# 4.5 Local Planning Policies

# 4.5.1 Local Planning Policy POL-LP-1.10 Provision of Public Art

The City's Local Planning Policy POL-LP-1.10 Provision of Public Art states that a public art contribution will be required where a prescribed development will cause at least 20 people to become part of, or to interact with, the locality in which the prescribed development will be located, and who will therefore benefit from the public art.

# 4.5.2 Local Planning Policy POL-C-061 Filling of Land

Local Planning Policy POL-C-061 Filling of Land seeks to ensure that applications for the filling of land are dealt with in a consistent manner; and ensure that issues of amenity, drainage management, and environmental protection are given appropriate consideration in the development control process.

The natural topography of the subject site and drainage management have been considered in the proposed civil design of the subject site. The extent of required earthworks (cutting/filling) has been minimised to ensure the natural topography and slop of the land is maintained.

# 4.6 Other relevant policies and/or guidelines

# 4.6.1 WAPC Position Statement: Residential accommodation for ageing persons

The WAPC Position Statement: Residential accommodation for ageing persons outlines the WAPC's requirements to support the provision of residential accommodation for ageing persons within Western Australia. It encourages the provision of an appropriate supply and diversity of options for residential accommodation. The proposed Lifestyle Village (Park Home Park) provides housing diversity and supply for over 50's persons, therefore meeting the overarching intent of the Position Statement.



## 4.6.2 Caravan Parks and Camping Grounds Regulations 1997

Schedule 5, Division 2 of the *Caravan Parks and Camping Grounds Regulations 1997* (CPCG Regs) provides the standards applying to Park Homes. Table 6 below provides an assessment against the relevant provisions.

Table 6: Assessment against the relevant provisions of the CPCG Regs

Provision	Provided	Met
2. Park homes to be of one storey		
A park home is to have only one storey.	Each of the proposed 237 Park Homes are single storey in height.	~
3. Park home to have chassis, wheels, tie down points of	etc.	
(1) A park home, or where the park home is assembled from components, each component of the park home, is to have a chassis with an axle and wheel assembly attached at all times.	A heavy-duty fabricated steel castor is bolted to the perimeter edge beam of the precast concrete floors. Once the Park Home is located on site, the castors are removed. A stock of castors and a tow bar are	
(2) A park home, or where the park home is assembled from components, each component of the park home is to have a draw bar which need not be attached at all times.	kept on site should they ever be required. Once delivered to site, the Park Homes are installed by a low loader in position, or unloaded and positioned with a crane. Please refer to <b>Appendix 13</b> for additional Park Home information, demonstrating compliance with the CPCG Regs.	*
(3) A park home is to have tie down points, chains or similar devices and a device to provide and adjust tension so that the park home can be attached to permanent anchor blocks in the ground.	Biscuit/Pad Footings are proposed to secure and anchor the Park Homes.	1
4. Park home stabilised and secured		
(1) A park home is to be stabilised as approved.	The Park Homes will be stabilised, consistent with any future statutory approval.	~
(2) A park home is to be secured to anchor points at the site where it is parked.	Biscuit/Pad Footings are proposed to secure and anchor the Park Homes.	~
5. Corrosion protection		
Metal coverings and exposed metal on a park home are to be of corrosion resistant materials, or are to be treated to resist corrosion.	This is a consideration that will be incorporated in the detailed design of the Park Homes, as required by the CPCG Regs.	1
15. Facility roads in facilities other than nature based	parks	•
(1) A facility entrance road is to be at least 6 m wide.	The proposed internal entrance road to the development is 10m wide.	✓
(3) A facility road which is a 2 way road is to be at least 6 m wide, or such shorter distance as is approved under subclause (3a).	The north/south oriented private internal roads are a minimum width of 6m	1
34. Park home parks		
If a park home park serviced by a fire brigade constituted under a written law of the State has a water supply, which in the opinion of the officer in charge of that brigade, is adequate for fire fighting then a fire hydrant is to be installed in the park home park to the satisfaction of that officer.	Noted. Bushfire considerations have also been considered in the Bushfire Management Plan prepared by Allerding & Associates.	•

Separate to the requirements of the applicable town planning framework, the requirements of the CPCG Regs and Act provide specific legislative requirements for Park Homes. The assessment in **Table 6** above demonstrates compliance with the relevant provisions of the CPCG Regs.

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# **5** CONCLUSION

The proposed development of the Lifestyle Village (Park Home Park) is entirely acceptable for development on the subject site and warrants approval for the following reasons:

- 1. The proposed development will provide essential housing diversity and housing supply to cater for the growing Bullsbrook community, which is currently undergoing residential subdivision and development. This development will cater for the shortage of over 50's living and housing options in the locality.
- 2. The development has been designed to a high standard, with a sympathetic built form and use of materials that are consistent with the existing and future character of the locality.
- 3. The facility incorporates an array of internal and external amenities for residents, resulting in a community development that has a homely and social feel for residents and visitors alike.
- 4. Substantial landscaping is provided throughout the development for additional amenity and softening of the development to the public realm. High quality landscaping is provided within the development to increase the amenity and liveability for residents.
- 5. The development and land use of Park Home Park is consistent with and does not undermine the intent of the Structure Plan. The land use is capable of being approved in the Residential Development zone without the need for an amendment to the structure plan.
- 6. It has been demonstrated that the proposal meets the objectives of both the Residential Development and Residential zones.
- 7. Expert technical reporting has been prepared to demonstrate the proposal is satisfactory from a bushfire risk and management, traffic generation, stormwater management, engineering and environmental perspective.

For the above reasons, it is respectfully requested the Metro Outer Development Assessment Panel grant approval to the proposed development.

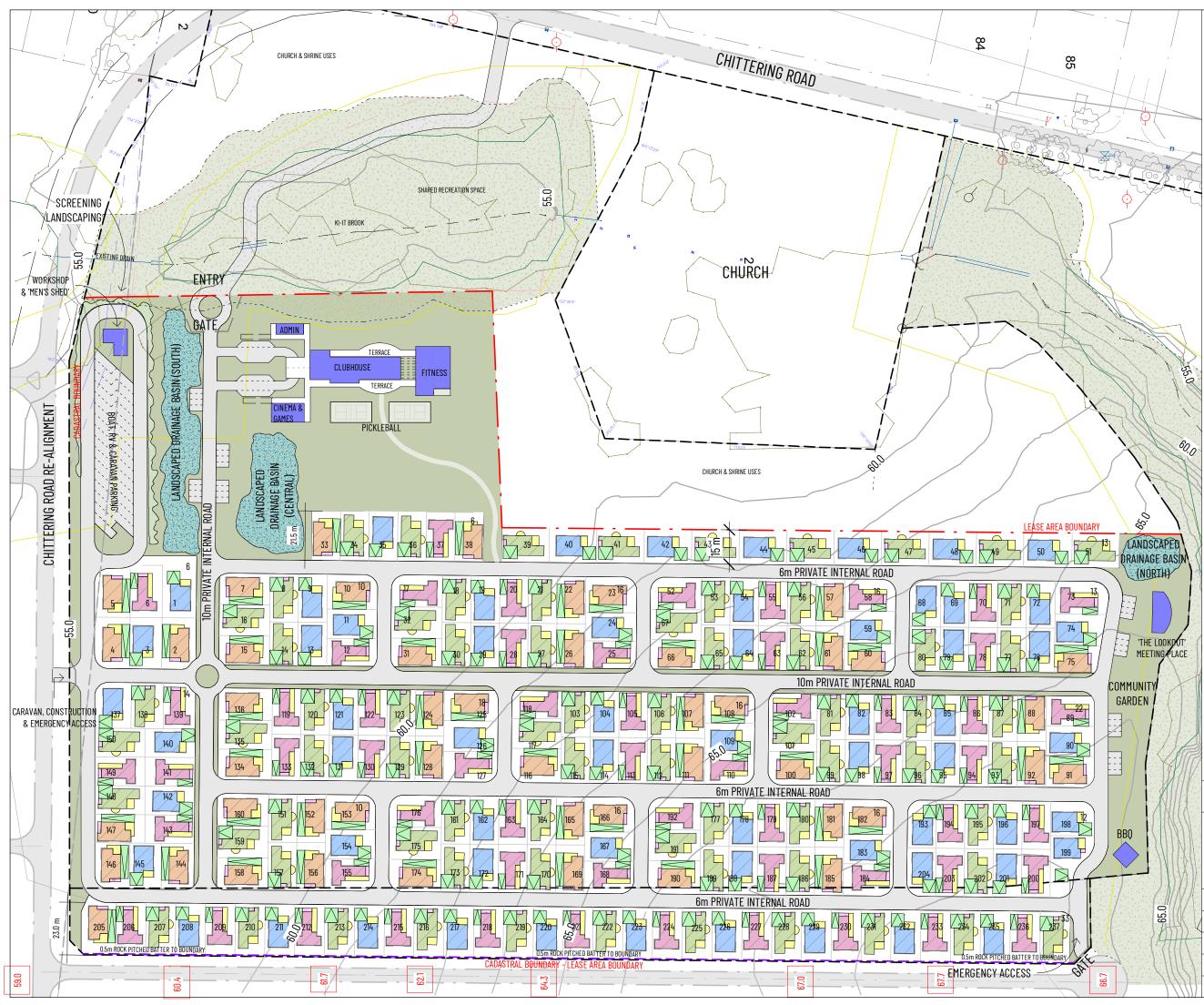
# BULLSBROOK LIFESTYLE VILLAGE





Village Streetscape - Artists Impression





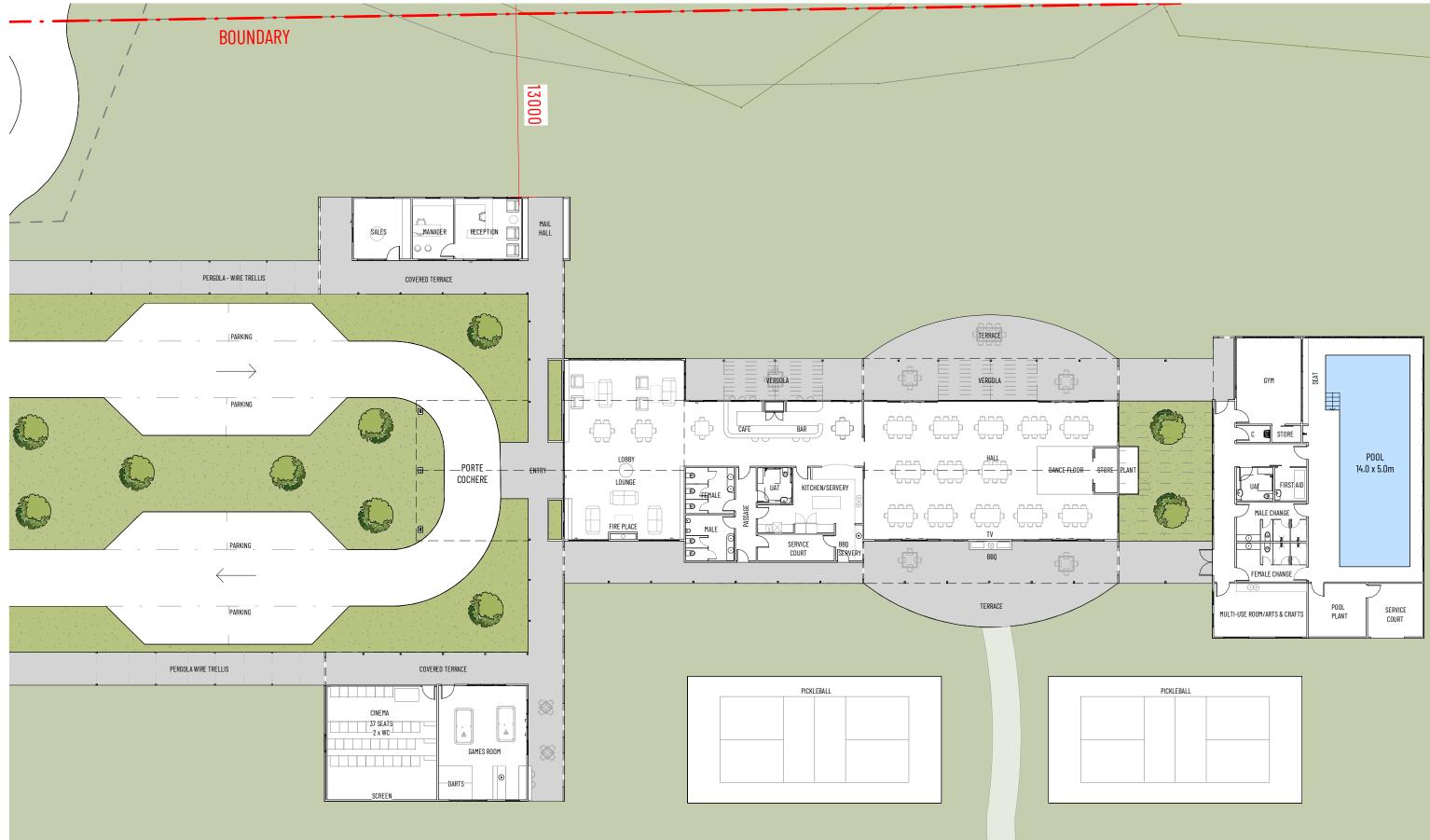


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	'RECREATION' ZONED AREA								
CORE CREEK AREA									
	AREA SUBJECT TO Management pla		E & WETLAND						
	VILLAGE AMENITIE	S							
	LANDSCAPED DRA	INAGE BASI	INS						
	FENCE/GATE								
	ROADWAY								
— — CADASTRAL BOUNDARY									
= =	LEASE AREA BOUNDARY       TYPE A (62)								
	TYPE A (62)		TYPE C (47)						
	TYPE A (62)     TYPE C (47)       TYPE B (71)     TYPE D (57)								
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TOTAL LE	ASE SITE AREA - 1( L. SHARED REC. AREA)	PE A (62) TYPE C (47) PE B (71) TYPE D (57) SITES - 237 SITE AREA - 106,988m <sup>2</sup> TION AREA - 35,095m <sup>2</sup> C AREA) DA TE LIMINARY MASTERPLAN 28.05.2024							
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В	REVISED MASTERP	LAN	12.08.2024						
С	REVISED MASTERP	LAN	16.08.2024						
D	ENTRY MOVED, LOT ADDED	ſ NUMB.	19.08.2024						
E	HOUSE-LOT ALLOC	ATION	02.09.2024						
DRAWING TITL		erplan							
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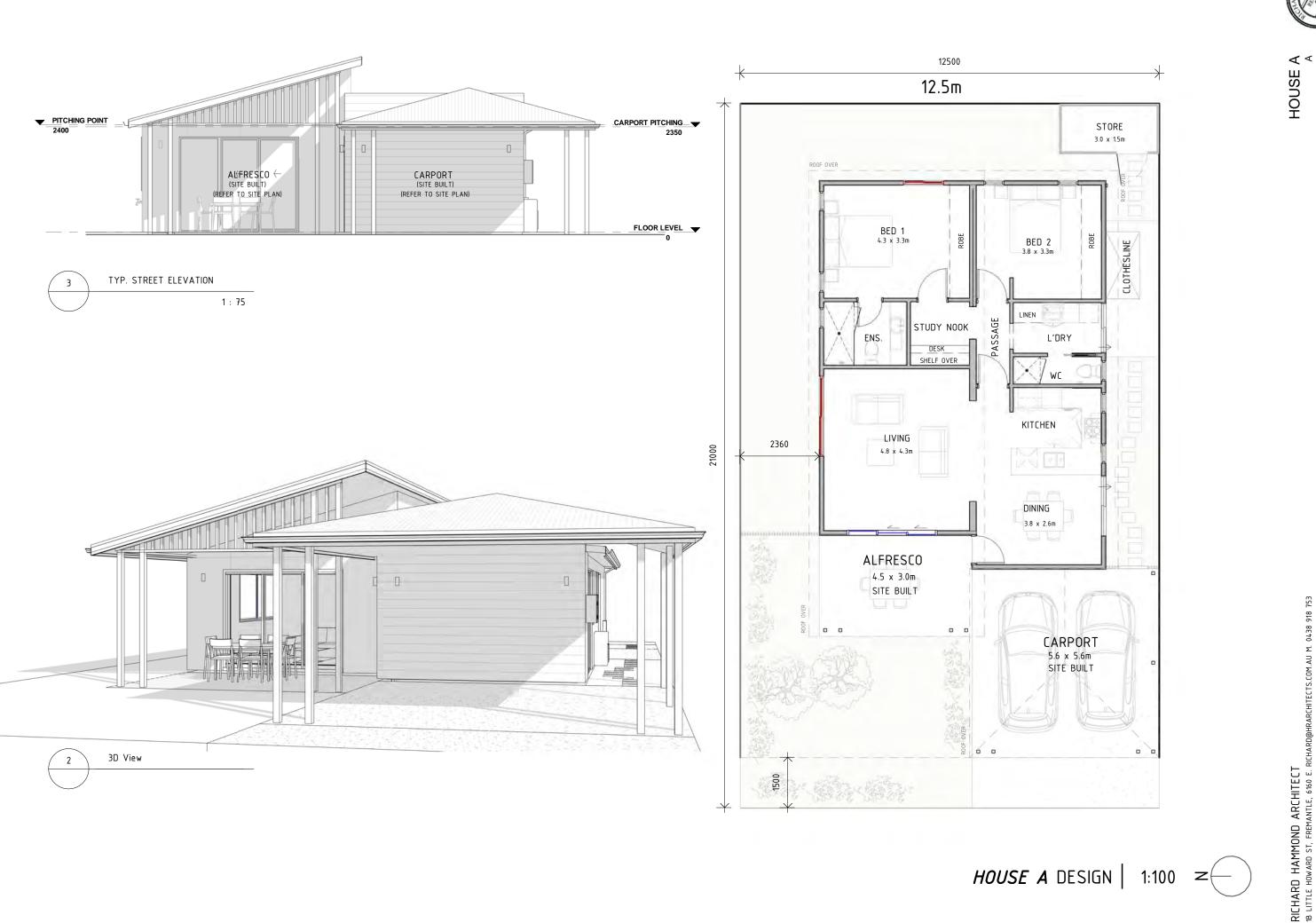
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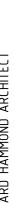
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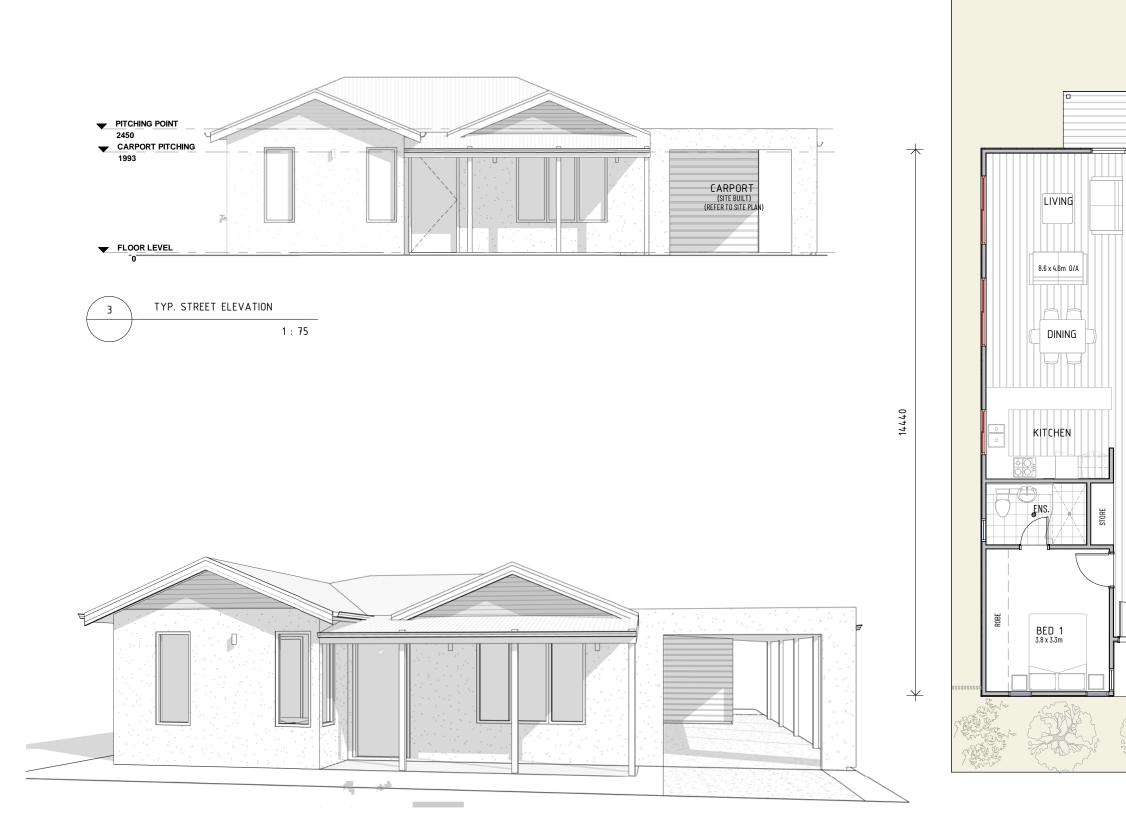




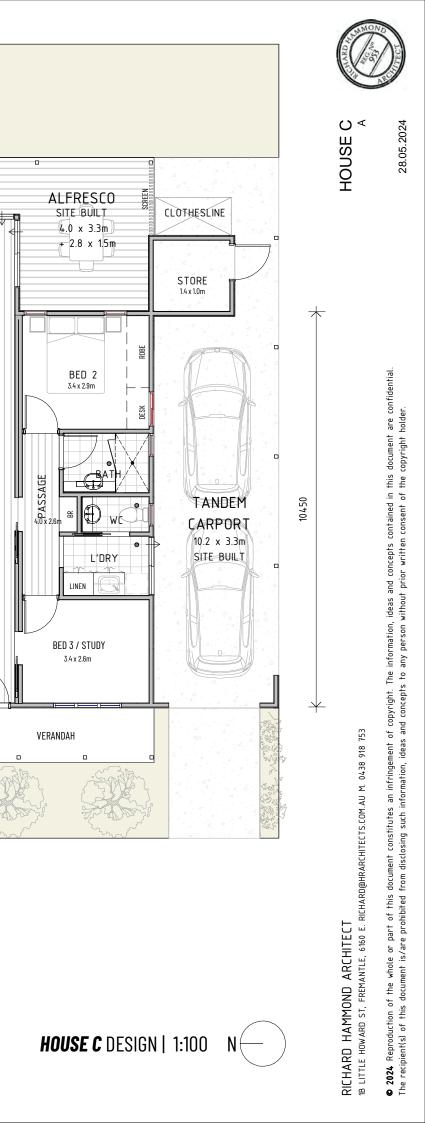
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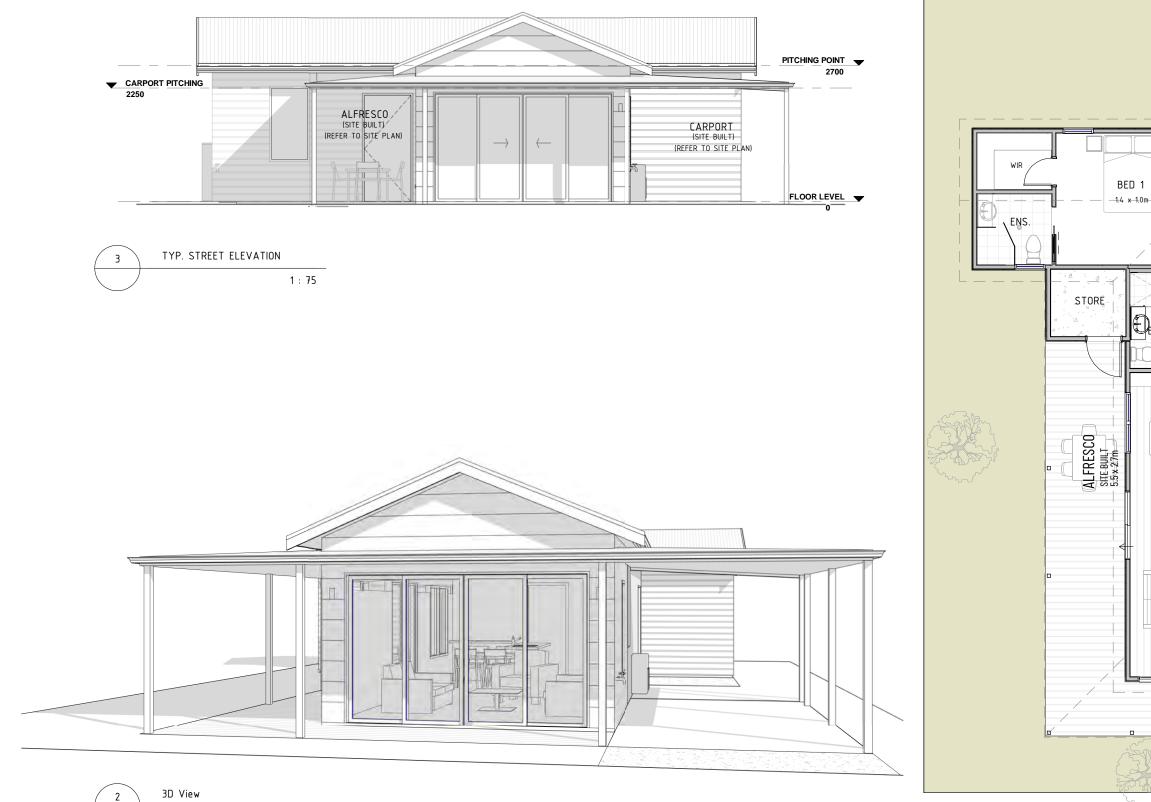


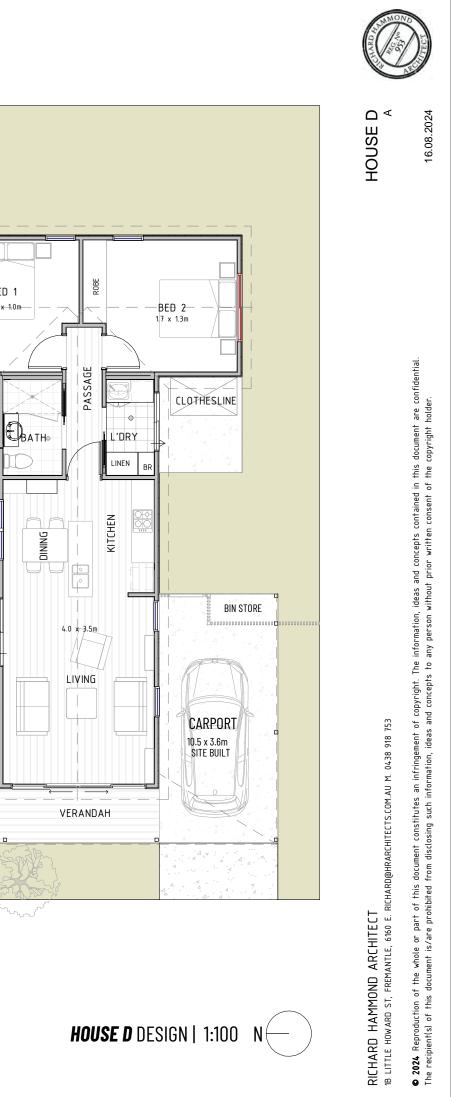


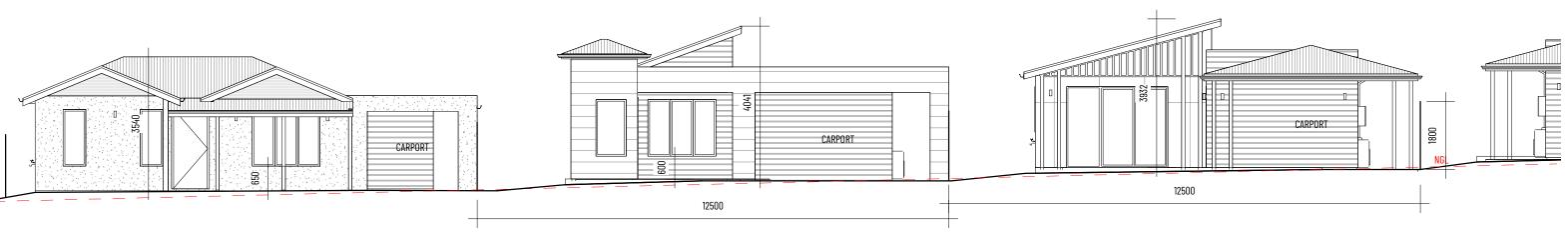
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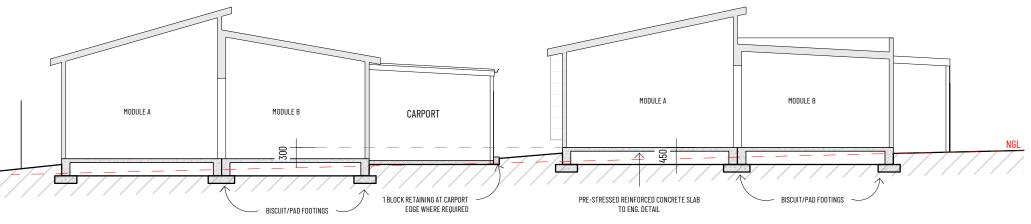
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TYP. STREET ELEVATION



TYP. SITE SECTION

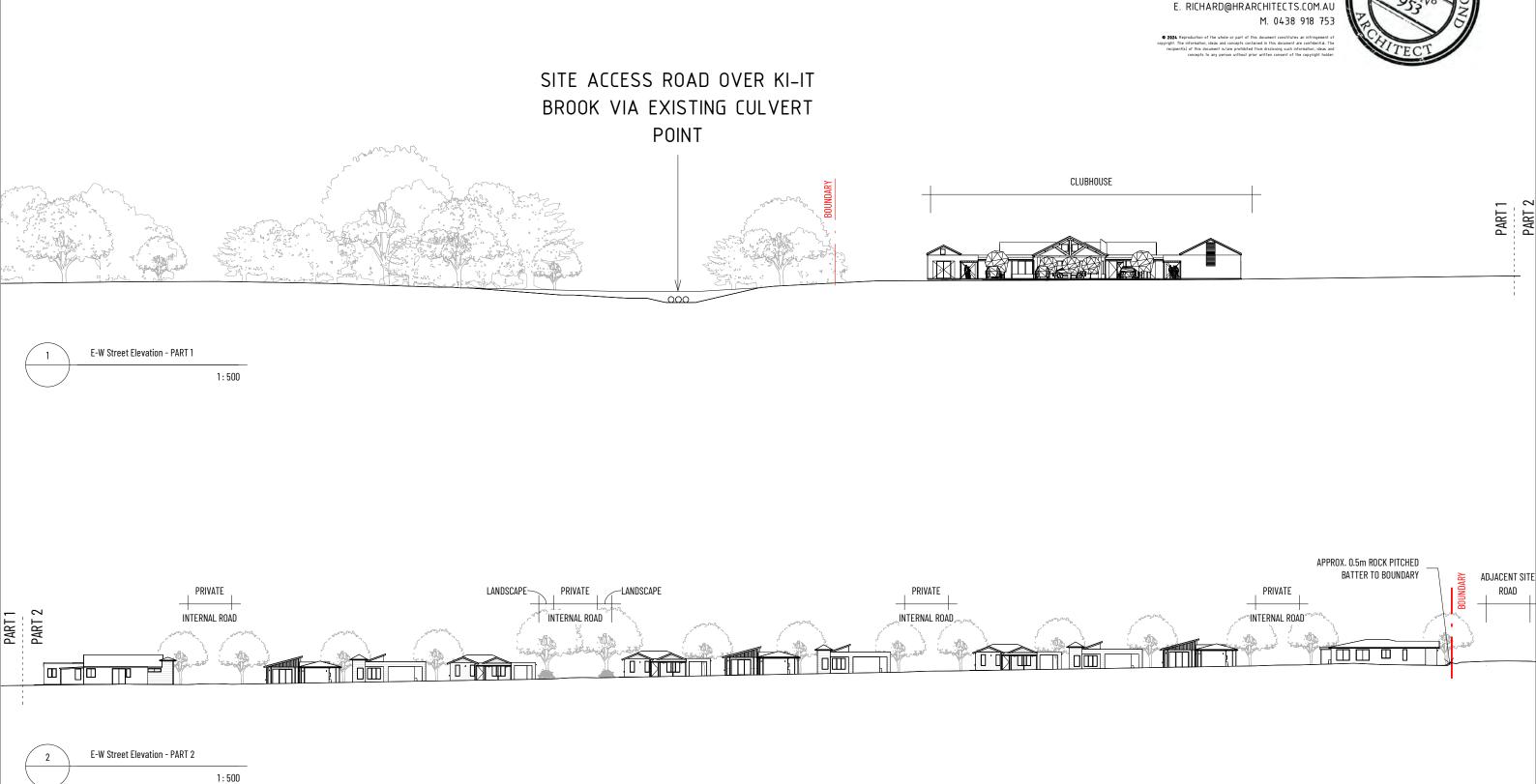
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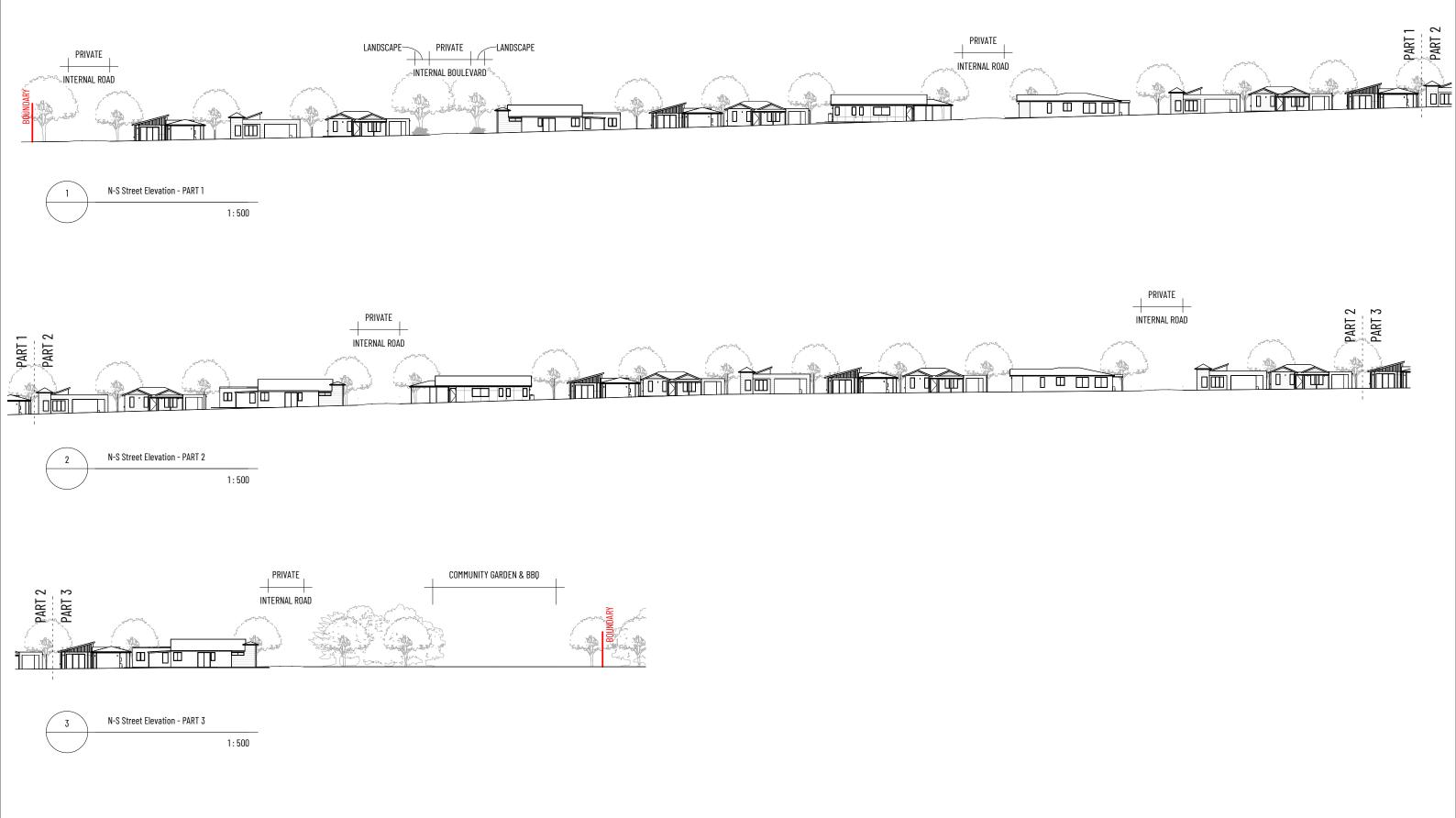
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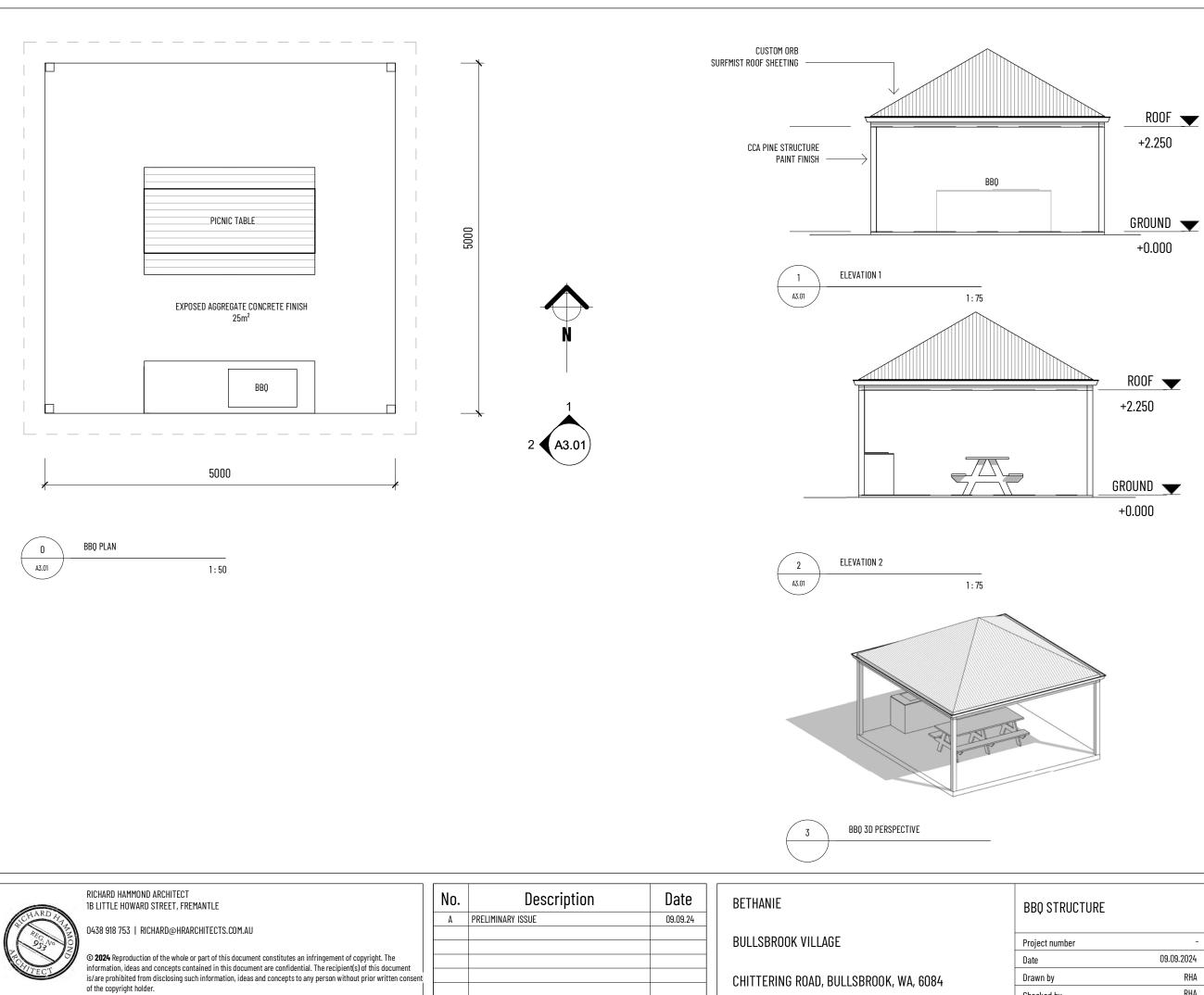
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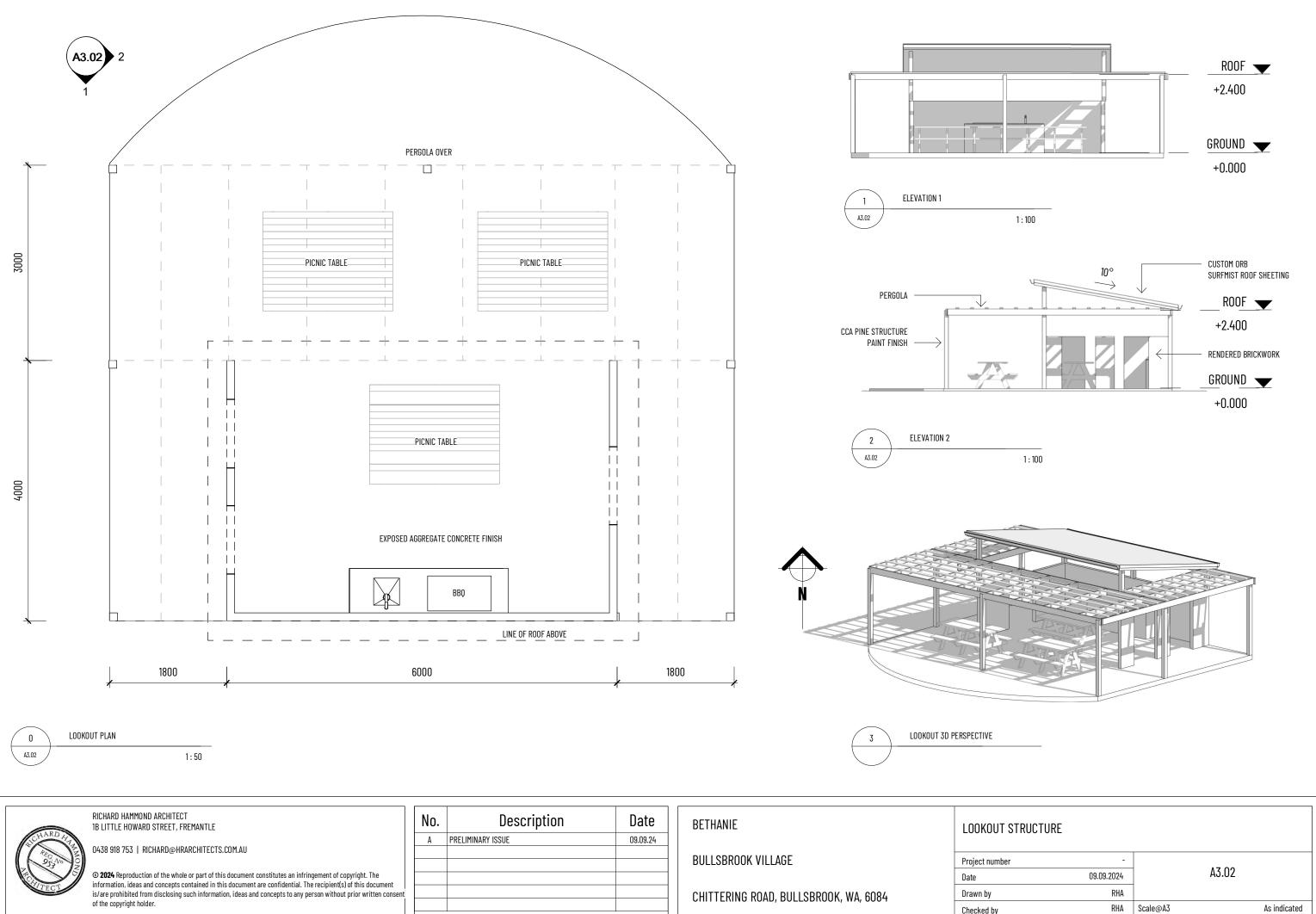
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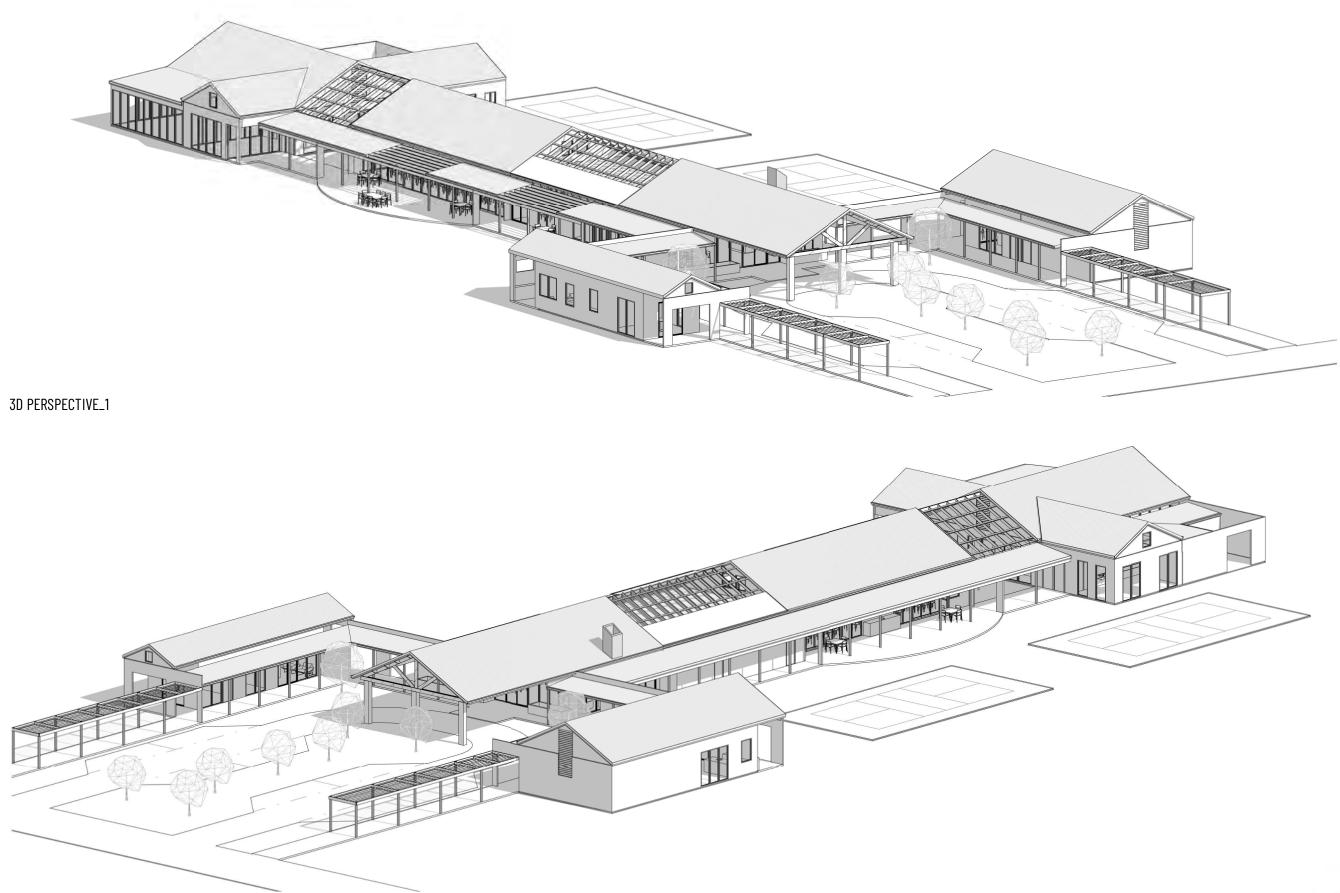
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3D PERSPECTIVE\_2

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3D PERSPECTIVE\_ENTRY ROAD



3D PERSPECTIVE\_ENTRY LOUNGE

RICHARD HAMMOND ARCHITECT BETHANIE BULLSBROOK CLUBHOUSE CONCEPT DESIGN RevA 22.08.2024





3D PERSPECTIVE\_EXTERNAL TERRACE THROUGH TO HALL

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# PTG00593

# **Transport Impact Assessment Bullsbrook Bethanie Village**

10<sup>th</sup> September 2024 | Revision B

Prepared for Bethanie Group

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# **REPORT DETAILS**

#### **Unique Document Identification**

Document Title	Transport Impact Assessment – Bullsbrook Bethanie Village
Project Number	PTG00593
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#### **Document Approval**

Author Edmond Hoang Approved By Andreas Wang

# **1 INTRODUCTION**

#### 1.1 Background

**PTG Consulting** (PTG) has been commissioned by **Bethanie Group** to prepare a Transport Impact Assessment (TIA) for the proposed lifestyle village (Park Home Park) located at Lots 900, 9501 and 9013 Chittering Road, Bullsbrook.

This report has been prepared in accordance with the Western Australian Planning Commission (WAPC) Transport Assessment Guidelines for Developments: Volume 4– Individual Developments (2016) and the Transport Impact Assessment (TIA) Checklist is included at **Appendix A**.

Specifically, this report aims to assess the operations of the proposed development internally and its connections to the adjacent road network, with a focus on traffic volumes, access and accessibility.

This report also outlines the requirements and opportunities associated with traffic and transport within the development, referencing relevant Council and WAPC policies and guidelines as well as best-practice planning within Western Australia.

# **2 EXISTING SITUATION**

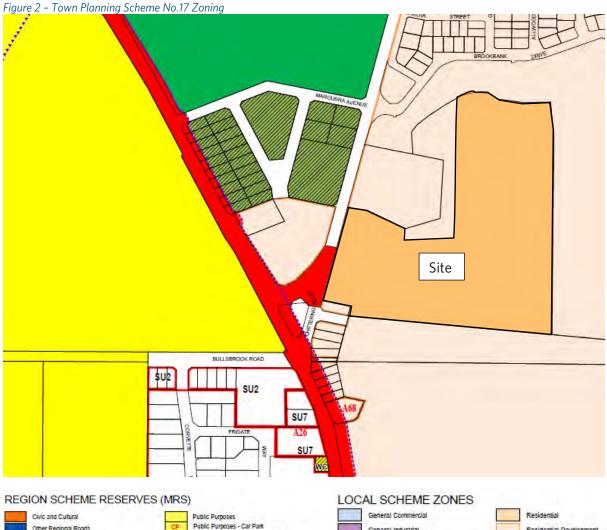
## 2.1 Existing Site Use

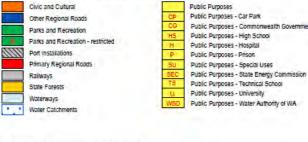
**Figure 1** shows the location of the proposed development which is located near the corner of the Great Northern Highway and Chittering Road intersection. The Site is bounded by Chittering Road to the west and undeveloped land and public open space to the north and south, while residential development is underway to the east.

Source: Nearmap

#### 2.1.1 Town Planning Scheme No.17

The City of Swan Town Planning Scheme No.17 zones the Site as "Residential Development" as shown in **Figure 2**. Under this scheme, the surrounding land uses consists of residential development.







Source: City of Swan Town Planning Scheme No.17





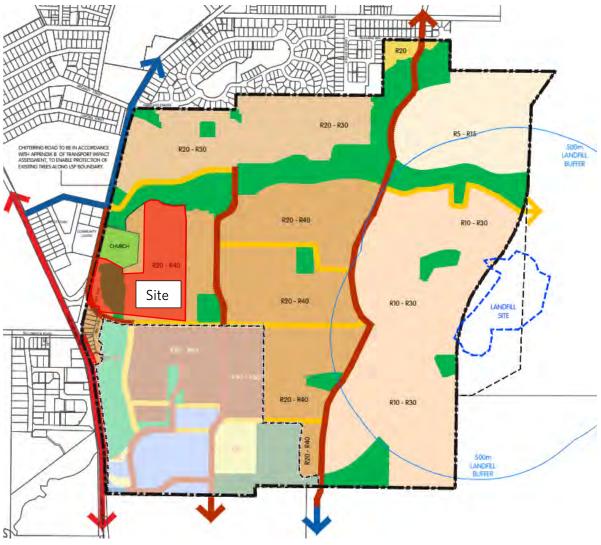
### 2.1.2 Kingsford Local Structure Plan

Under the Kingsford Local Structure Plan, the Site is zoned as "R2O-R4O residential" with the surrounding area comprising of various residential densities as described below:

- » R20-R30 to the north
- » R20-R40 to the east
- » R40-60 to the south

Figure 3 shows Kingsford Local Structure Plan area.

#### Figure 3 - Kingsford Local Structure Plan



Source: City of Swan

#### 2.2 Existing Parking and Demand

The Site is currently vacant and contains no parking spaces and generates no parking demand.

#### 2.3 Existing Access Arrangements

The Site is currently vacant and does not contain any existing access points.

### 2.4 Existing Site Traffic

The Site is currently undeveloped and therefore does not generate any existing traffic.

#### 2.5 Existing Road Network and Traffic Management

The road network within Western Australia is defined by Main Roads WA road hierarchy which describes the function, characteristic and management of each type of road. A description of each road type as per Main Roads WA Road Hierarchy criteria is summarised in **Table 1** below.

Table 1 – Road Hierarchy Description

Road Type	Description
Primary Distributors	Provide for major regional and inter-regional traffic movement and carry large volumes of generally fast moving traffic. Some are strategic freight routes and all are State Roads. They are managed by Main Roads Western Australia.
District Distributor A	Carry traffic between industrial, commercial and residential areas and generally connect to Primary Distributors. These are likely to be truck routes and provide only limited access to adjoining property. They are managed by local government.
District Distributor B	Perform a similar function to type A District Distributors but with reduced capacity due to flow restrictions from access to and roadside parking alongside adjoining property. These are often older roads with a traffic demand in excess of that originally intended. District Distributor A and B roads run between land-use cells and generally not through them, forming a grid which would ideally space them around 1.5 kilometres apart. They are managed by local government.
Regional Distributor	Roads that are not Primary Distributors but which link significant destinations and are designed for efficient movement of people and goods within and beyond regional areas. They are managed by local government.
Local Distributor (Urban)	Roads that carry traffic within a cell and link District Distributors or Regional Distributors at the boundary, to access roads. The route of Local Distributors should discourage through traffic so that the cell formed by the grid of District Distributors only carries traffic belonging to, or serving the area. These roads should accommodate buses, but discourage trucks. Urban Local Distributor roads are managed by local government.
Local Distributor (Rural)	Connect to other Rural Distributors and to Rural Access Roads. Not Regional Distributors, but which are designed for efficient movement of people and goods within regional areas. Rural Local Distributor roads are managed by local government.
Access Roads	Provide access to abutting properties with amenity, safety and aesthetic aspects having priority over the vehicle movement function. These roads are bicycle and pedestrian friendly. They are managed by local government.

**Figure 4** shows the road hierarchy network and **Table 2** provides a summary of the road characteristics of surrounding road network.

Figure 4 – Road Hierarchy



Source: Main Roads Road Information Mapping

Road Name	Road Hierarchy	Jurisdiction	No. of Lanes	No. of Footpaths	Road Pavement Width (m)	Speed Limit
Great Northern Highway	Primary Distributor	MRWA	2	0-1	~12m	60km/h
Chittering Road	Regional Distributor	Local Government	2	1	~9.5m	60km/h

#### Table 2 - Surrounding Network Road Hierarchy

#### 2.6 Traffic Flows on Surrounding Roads

Existing traffic volumes were obtained from Main Roads WA Traffic Map for the road summarised in **Table 3.** 

Table 3 – Existing Traffic Volumes

Road Name	Source	Date	Weekday	AM Peak	PM Peak	HV%
Chittering Road (east of Great Northern Highway)	MRWA	2020/21	6,079	552	583	13.6%
Great Northern Highway (south of Bullsbrook Road)	MRWA	2020/21	7,723	647	726	19.9%

### 2.7 Existing Pedestrian/Cycle Networks

While there is no cycling/pedestrian path map available, a shared path is present along the western edge of Great Northern Highway and along the northern/western edge of Chittering Road.

#### 2.8 Existing Public Transport Services

Only a single Transperth service operates within the surrounding area which is route 311. The nearest bus stop to the Site is located on the western frontage of the Site.

Two TransWA services are also within a reasonable distance from the Site (approximately 250m from the Site) and described below:

- » N1 East Perth to Kalbarri and Geraldton via Eneabba
- » N2 East Perth to Geraldton and Kabarri to East Perth via Moora

**Figure 5** shows the surrounding are bus routes and bus stops including the service frequency summarised in **Table 4**.

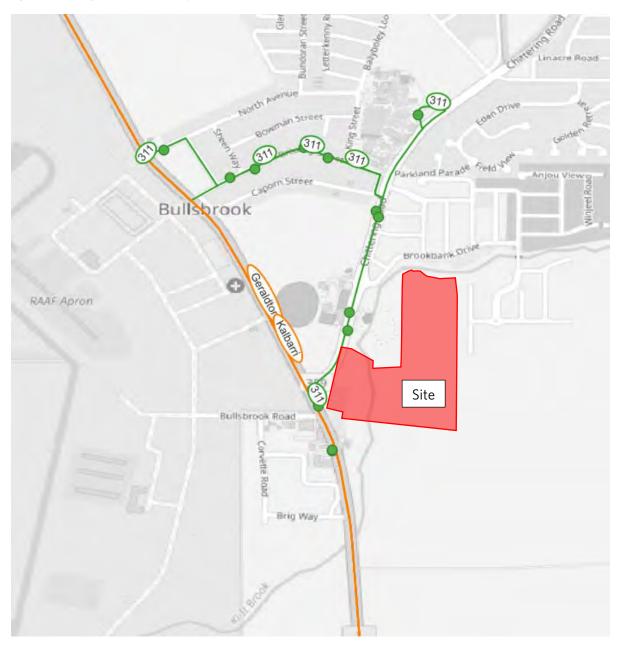


Figure 5 – Existing Bus Routes and Stops

Source: Transperth

Bus Route	Route Description	Service Frequencies					
		Weekdays	Saturdays	Sundays & Public Holidays			
311 (Transperth)	Midland Stn – Bullsbrook via Great Northern Hwy	11 services per day	3 services per day	4 services per day			
N1 (Transwa)	East Perth to Kalbarri and Geraldton via Eneabba	1 service per day (Mon to Fri)	1 service per day	No services			
N2 (Transwa)	East Perth to Geraldton and Kalbarri to East Perth via Moora	1 service per day (Tue, Thur)	1 service per day	1 service per day			

#### Table 4 – Bus Service Routes and Frequencies

#### 2.9 Crash Data

A review of the existing crash data from Main Roads WA Traffic Map for the period between 1<sup>st</sup> January 2019 to 31 December 2023 was conducted for the following intersections and road sections:

- » Great Northern Highway/Chittering Road intersection
- » Chittering Road midblock (between Great Northern Highway and Maroubra Avenue)

The crash locations are illustrated in Figure 6 and the crash details summarised in Table 5.



#### Source: Main Roads WA Traffic Map

Crash Nature	Fatal	Hospital	Medical	PDO Major	PDO Minor	Total Crashes
Rear End	-	-	1	2	3	6
Right Angle	-	-	-	-	1	1
Total Crashes	0	0	1	2	4	7

 Table 5 - Great Northern Highway/Chittering Road Intersection Crashes

# **3 PROPOSED DEVELOPMENT**

#### 3.1 Proposed Land Use

The proposed development consists of the following elements:

- » 237 retirement living residential lots
- » Community garden
- » Clubhouse and pickleball courts
- » Boat, RV and caravan parking

#### The Site masterplan is shown in Figure 7.

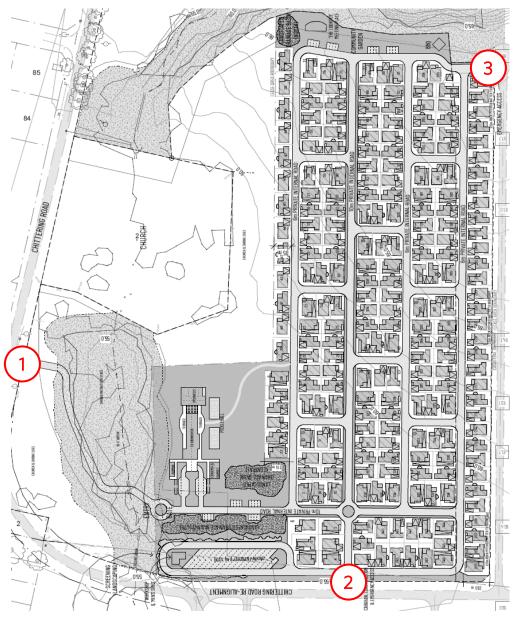


### **3.2 Access Arrangements**

Three accesses are provided to the masterplan site as shown in **Figure 8** and described below:

- » Access 1 Main vehicle access to the lifestyle village (Park Home Park)
- » Access 2 Caravan, construction and emergency access only
- » Access 3 Emergency access only

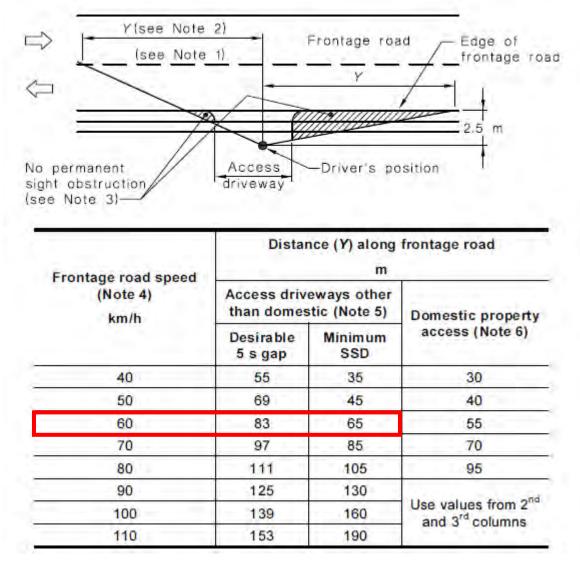
Figure 8 – Access Arrangements





#### **3.2.1 Sight Distance Assessment**

A desktop sight distance assessment was conducted at Access 1 and 2 based on the requirements specified in AS2890.1 (excerpt provided in **Figure 9**). The purpose of this assessment is to ensure that sight visibility is not compromised by the road bend along the future Chittering Road alignment.



#### Figure 9 – Sight Distance Requirements at Access Driveways

#### Source: AS2890.1

Assuming that the speed limit remains unchanged along Chittering Road at 60km/h, a minimum sight distance of 65m is required with a desirable sight distance of 83m. **Figure 10** and **Figure 11** show the sight distance requirements for Access 1 and 2 respectively. Overall, both accesses met the minimum SSD as well as the desirable 5s gap, assuming the verges are kept free of any obstacles that would impair sight-lines.



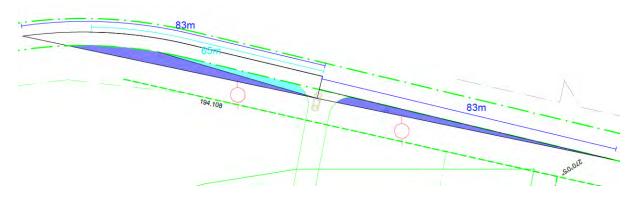




Figure 11 – Access 2 Sight Distance Requirements

#### **3.3 Parking Provision**

Though the individual dwellings for each lot have not been finalised, it is expected that each of the proposed Park Homes will contain a garage for 2 cars, as guided by the Residential Design Codes (R-codes) Volume 1.

#### 3.4 End of Trip Facilities

As the masterplan consists mostly of residential lots, no end-of-trip facilities are provided. However, the provision of bike racks at the community garden and clubhouse would be beneficial to encourage cycling to these destinations.

#### 3.5 Road Network

The proposed road reserve widths for the main north-south and east-west roadways are 10m which would be classified as Access Road D in accordance with Liveable Neighbourhoods (example provided in **Figure 14**). The rest of the internal roadway network will consist of 6m wide roadways as illustrated in **Figure 13**.

The internal road network also contains several long uninterrupted roadways and the provision of traffic management devices such as slow points and/or speed humps/cushions will help to discourage speeding along these straight sections.

Furthermore, the roadway that leads to and from the boat, RV and caravan parking area should be designed to accommodate the circulation movement of these vehicles. **Figure 12** shows recommended modifications to the crossover and roadways to accommodate boat, RV and caravan vehicles.

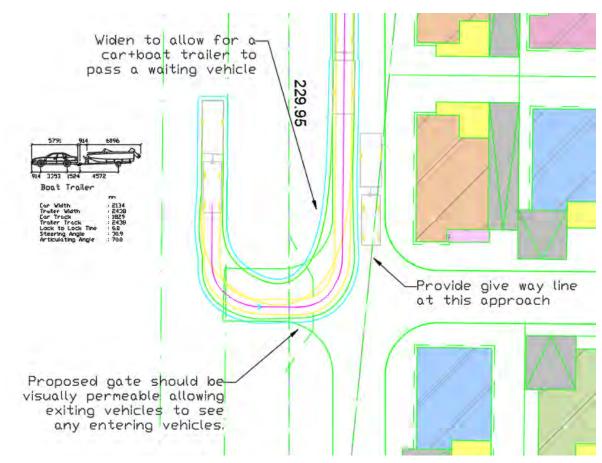


Figure 12 - Recommended Modifications to the Crossover and Roadway for Car + Boat, RVs and Caravans.

Figure 13 – Road Hierarchy

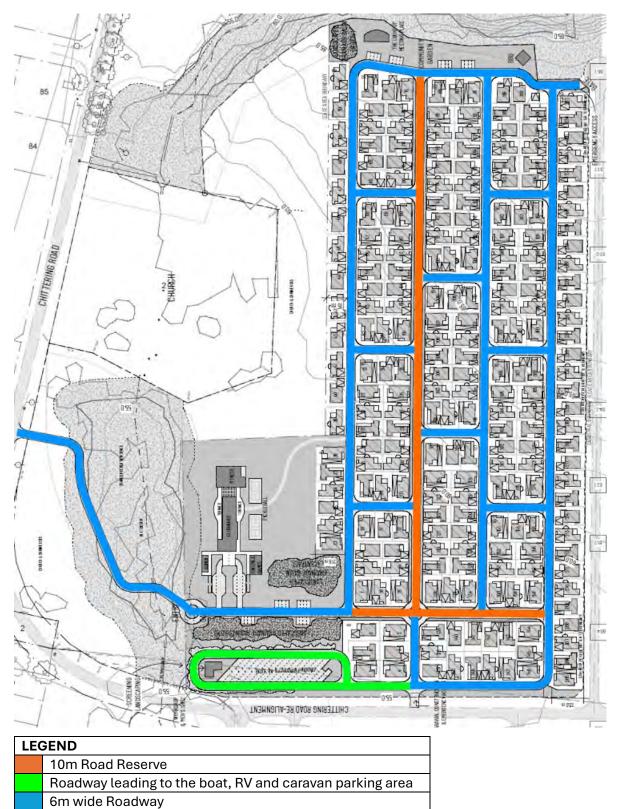


Figure 14 - Example of an Access Road D



#### **3.6 Intersection Layouts and Controls**

A combination of roundabouts and t-intersections will by used as intersection controls within the internal road network.

#### 3.7 Pedestrian/Cycle Networks and Crossing Facilities

No pedestrian and/or cycling paths are provided within the masterplan site. The internal roadways are intended to be low volume, low speed zones for shared use between drivers, cyclists and pedestrians.

#### 3.8 Public Transport Services

Not applicable as there is no internal public transport services operating within the Site.

# **4 INTERGRATION WITH SURROUNDING AREA**

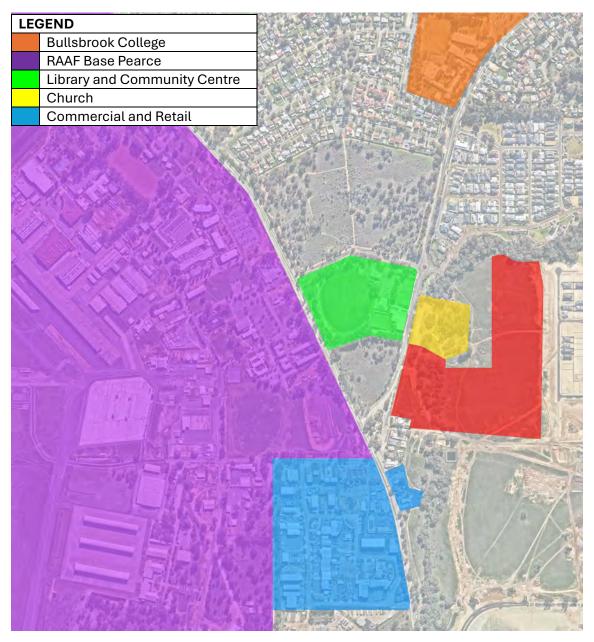
#### 4.1 Surrounding Major Attractors/Generators

Major attractors and generators within the surrounding area of the Site are listed below:

- » Bullsbrook College
- » RAAF Base Pearce
- » Bullsbrook Public Library
- » Ethel Warren Bullsbrook Community Centre
- » Shrine of Virgin of the Revelation, Mother of the Church
- » Various commercial and retail

Figure 15 illustrates the major attractors/generators within the surrounding area of the Site.

Figure 15 – Key Attractors/Generators



#### 4.2 Committed Development and Transport Proposals

#### 4.2.1 Kingsford Local Structure Plan

The Kingsford Local Structure Plan provides guidance for the future development within the surrounding locality. The structure plan comprises of a range of different residential densities anticipated to accommodate up to 2,355 residential dwellings.

The structure plan also shows significant changes to the road network, especially Chittering Road with the following modifications:

- » The Great Northern Highway/Chittering Road intersection will be closed and changed to a culde sac.
- Maroubra Avenue is proposed to be extended west creating a new intersection with Great Northern Highway. This will replace Great Northern Highway/Chittering Road intersection as the main junction for access onto the main arterial road (i.e. Great Northern Highway).
- » Chittering Road will be realigned and extend to the east continuing on into the structure plan area.

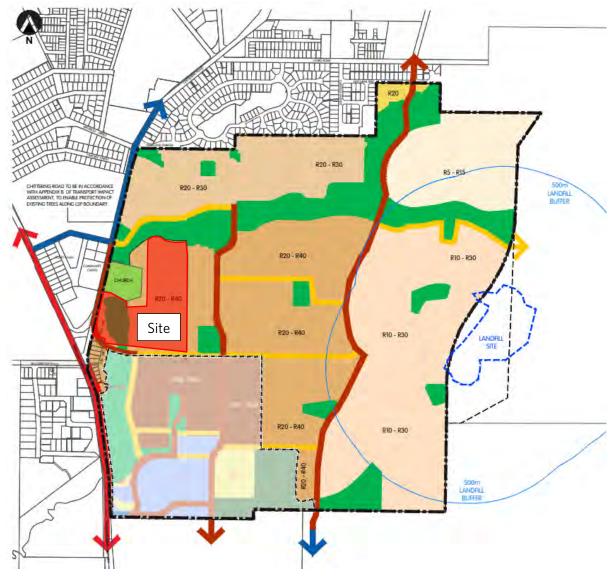
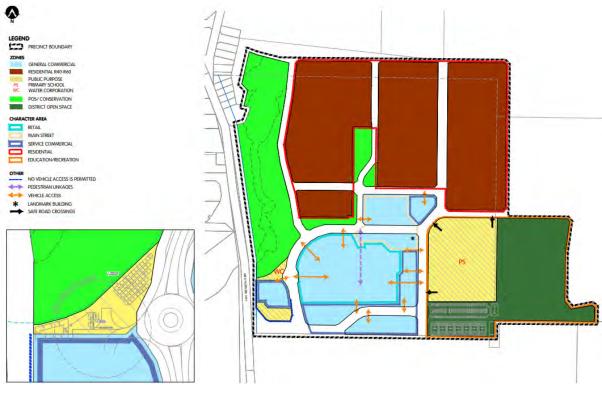


Figure 16 - Kingsford Local Structure Plan

Source: City of Swan

## 4.2.2 Kingsford Town Centre Precinct Plan

The Kingsford Town Centre Activity Centre Plan covers the area south of the Kingsford Local Structure Plan and bounded by Great Northern Highway to the west. The area consists of retail, service commercial, a future primary school, public open space and residential dwellings. **Figure 17** shows the structure plan area for the precinct.





Source: City of Swan

### 4.3 Proposed Changes to Land Uses within 1200 metres

There are no planned changes to the land uses within the surrounding area of the Site other than indicated in Section 4.2.

#### 4.4 Travel Desire Lines from development to the Attractors/Generators

While the church, library school and community centre are easily accessible from Chittering Road, the future modifications to the surrounding road network significantly change travel behaviour for vehicles accessing the air force base and commercial/retail areas located on Great Northern Highway. A future intersection is proposed at Great Northern Highway/Maroubra Avenue and vehicles will likely redirect to this intersection to access Great Northern Highway.

#### 4.5 Adequacy and Deficiencies of the Existing Transport Network

The public transport amenity within the surrounding area is considered to be poor due to the infrequency of public transport services operation within the surrounding area.

The pedestrian and cycling network within the surrounding area of the Site is also considered to be poor as there are no immediate pedestrian and cycling paths or routes that lead to the site due to the lack of demand for such facilities within the undeveloped surrounding area.

# **5 ANALYSIS OF TRANSPORT NETWORK**

#### **5.1 Assessment Years and Time Periods**

The network peak periods as per Main Roads WA Traffic Map are as follows:

- » AM Peak: 8:00am 9:00am
- » PM Peak: 4:00pm 5:00pm

The WAPC Transport Assessment Guidelines Volume 4 specifies the following years for assessment:

- » Opening year of the proposed development
- » 10 years after the opening of the proposed development

For this Site, the anticipated opening year for the proposed development is 2026 and the future year horizon assessment will be for 2036 (10 years after the opening of the proposed development).

Therefore, the assessment scenarios are listed as follows:

- » Scenario 1 Existing 2026 including development traffic
- » Scenario 2 Background 2036 including development traffic

#### **5.2 Development Generated Traffic**

The traffic generation rates used to calculate the traffic generated by the proposed development were sourced from the *Institute of Transport Engineers (ITE) Trip Generation Manual 11th Edition* and from the RTA Guide to Traffic Generating Developments – Updated traffic surveys.

Table 6 shows the trip generation rates for the proposed land uses, **Table 7** shows the directional distribution and **Table 8** shows the total traffic generated be the Site.

Land Use	Source	Yield	AM Peak	PM Peak
Retirement Village	RTA	237 dwellings	*0.4 trips per dwelling	0.4 trips per dwelling
Recreational Centre	ITE 495	1,570m <sup>2</sup>	1.99 trips per 100m <sup>2</sup>	2.72 trips per 100m <sup>2</sup>

Table 6 – Trip Generation Rates

\*The RTA Guide to Traffic Generating Developments – Updated traffic surveys does not provide a trip generation rate for the AM peak (as morning site peak hour does not generally coincide with the network peak hour). Therefore, the PM peak rate was used in lieu for the purpose of a robust assessment.

Table 7 – Trip Distribution

Land Use	AM	Peak	PM Peak		
	IN	OUT	IN	OUT	
Retirement Village	43%	57%	56%	44%	
Recreational Centre	63%	37%	47%	53%	

Land Use	AM Peak		PM Peak		
	IN	OUT	IN	OUT	
Retirement Village	41	55	54	42	
Recreational Centre	20	12	21	23	
Total	61	67	75	65	
	12	28	140		

#### Table 8 – Trip Generation Summary

The development traffic is estimated to be 128 trips in the AM peak period and 140 trips in the PM peak period.

#### 5.3 Distribution of Generated Traffic

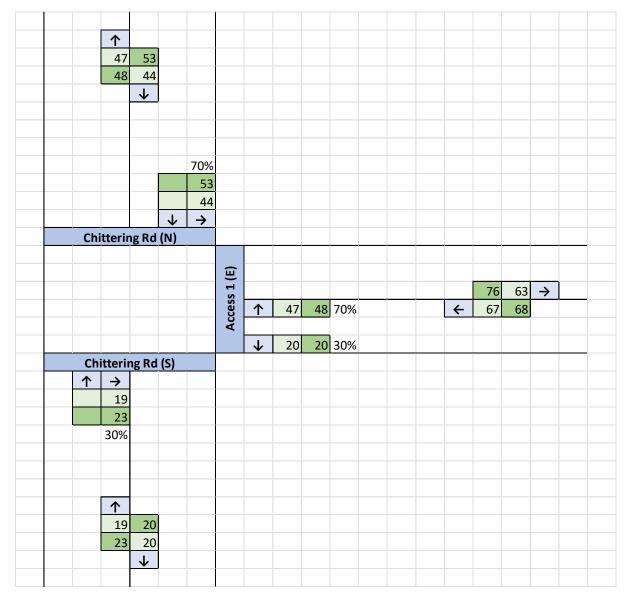
The distribution of development traffic is shown in **Figure 18** and assumes that all traffic will arrive/leave the Site via the main access (Access 1). No traffic will be using Access 2 or 3 as these accesses will be gated and only used for emergency access or other authorised vehicles.

As Access 2 also allows for caravan access, additional traffic management measures (such as the provision of signage, separate key/fob for access through this gate and/or intercom and camera system) will be required to ensure that other residents are not using this access for general access.



#### Figure 18 – Development Traffic Distribution

Figure 19 shows the development traffic volumes distributed within the surrounding road network.

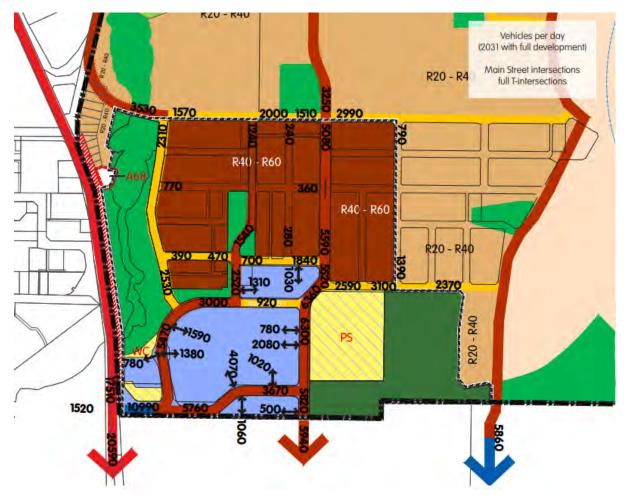


### Figure 19 - Development Traffic Volumes

### 5.4 Key Assumptions

The key assumptions used for the trip generation and SIDRA assessment are as follows:

- The existing road network has not been assessed as the Kingsford Local Structure Plan mentions future road network modifications which will alter the Chittering Road alignment as well as the intersection arrangement in the surrounding area. These road upgrades will likely be completed prior to the construction of the masterplan development area. Thus, the existing road network arrangement will have no impact on the masterplan site and only the future road arrangement has been considered.
- The background volumes for both assessment years are based on the volumes provided in the Transport Impact Assessment conducted for the Kingsford Town Centre Precinct. An excerpt of the projected traffic volumes is provided in Figure 20.



### Figure 20 - Kingsford Town Centre Projected Traffic Volumes

### Source: Kingsford Town Centre Precinct Plan

- In addition to the projected traffic volumes, the following assumption were derived to obtain the volumes used in the SIDRA assessment:
  - Only daily projected volumes are provided. To estimate the peak period traffic volumes, the current traffic volumes along Chittering Road was taken and the proportion of AM and PM peak period traffic relative to the daily traffic volumes was determined and summarised in table below.
  - The AM and PM peak period percentages that were determined were applied to the future volumes to estimate the peak period traffic for the future assessment scenarios.
  - With regards to the direction split along Chittering Road, it is assumed that 70% of traffic will be travelling northbound and 30% of traffic will be travelling southbound. This accounts for the road alignment modification where, under this arrangement, a large proportion of traffic will be travelling north to reach Great Northern Highway and a small proportion heading south to reach the future Kingsford Town Centre.
  - **Table 9** provides a summary of the projected volumes derived for the SIDRA assessment.

Road	Daily Volumes	AM Peak	PM Peak	AM Peak %	PM Peak %
Chittering Road (existing)	5,990	522	580	8.7%	9.7%
Chittering Road	3.530	308	342	_	_
(future)	3,330	(215 NB/92 SB)	(239 NB/103 SB)		

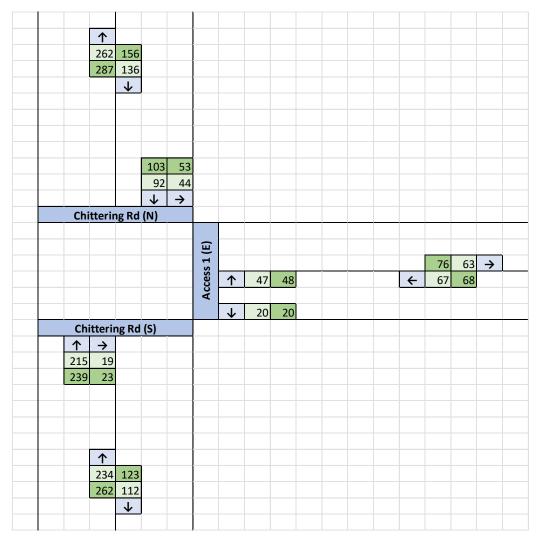
### Table 9 – Summary of Projected Traffic Volumes

>> The site is assumed to be fully developed for all scenarios for the purposes of a conservative assessment.

### 5.5 Background and 'With Development' Traffic Flows

Figure 21 and Figure 22 shows the background volumes with the inclusion of development traffic.





<sup>»</sup> Heavy vehicle volumes were based on the existing heavy vehicle proportions along Chittering Road obtained from Main Roads WA traffic map.

Access 2 and 3 will not be assessed as this is intended to be a for emergency vehicles and authorised vehicles only.

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### Figure 22 – Scenario 2 – Background 2036 with Development

### 5.6 Analysis of Development Accesses

To determine the traffic impacts of the proposed development on the surrounding network, a SIDRA intersection assessment was conducted for the intersection of Chittering Road / Access Road 1.

The following section provides a summary of the analysis.

### 5.7 Impact on Surrounding Roads and Intersections

A description of the SIDRA outputs are as follows:

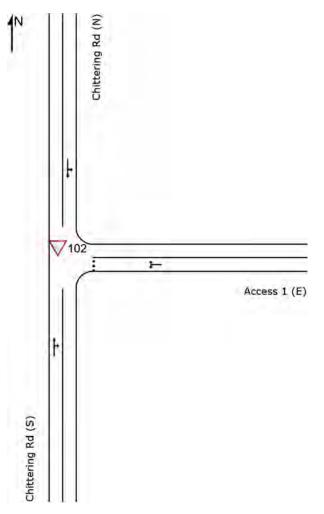
- Degree of Saturation is defined as the ratio of arrival flow to capacity. Degrees of Saturation above 1.0 represent oversaturated conditions (demand flow exceeds capacity) and degrees of saturation below 1.0 represent undersaturated conditions (demand flow is below capacity).
- Delay is the additional (excess) travel time experienced by a vehicle or pedestrian relative to a base travel time. The delay estimated in SIDRA is average for all vehicles, queued and unqueued.
- Level of Service as defined in the HCM is a quality measure describing operational conditions within a traffic stream, and in the case of SIDRA, a function of the average delay thresholds. A description of the level of service thresholds are as follows.
  - o LOS A represents completely unconstrained free flow conditions.
  - o LOS B represents free flow conditions.
  - o LOS C represents reduced free flow conditions.
  - o LOS D represent restricted traffic flow conditions.
  - o LOS E represents operations at or near capacity.
  - o LOS F represents forced breakdown or breakdown of traffic flow.
- 95<sup>th</sup> Percentile Queue is the value below which 95% of all observed cycle queue lengths fall or 5% of all observed queue lengths exceed.

### 5.7.1 Chittering Road/Access 1

The SIDRA layout for Chittering Road/Access 1 intersection is shown in **Figure 23** with the results summarised in **Table 10** and **Table 11**.

The results indicate the intersection will operate satisfactorily.

Figure 23 - SIDRA Layout for Chittering Road/Access 1 Intersection



Intersection			AM	Peak			PM	Peak	
Approach	Turn	DOS	Delay	LOS	95% Queue (m)	DOS	Delay	LOS	95% Queue (m)
Chittering Rd	Т	0.147	0.1	A	1.2	0.165	0.1	A	1.5
(S)	R	0.147	5.1	A	1.2	0.165	5.2	A	1.5
Access 1 (E)	L	0.07	3.7	A	1.8	0.075	3.8	A	1.9
	R	0.07	5.2	А	1.8	0.075	5.5	А	1.9
Chittering Rd	L	0.083	4.6	A	0	0.095	4.6	A	0
(N)	Т	0.083	0	А	0	0.095	0	А	0
Total		0.147	1.5	A	1.8	0.165	1.5	A	1.9

Table 10 - SIDRA Results for Chittering Road/Access 1 Intersection - Scenario 1

Table 11 - SIDRA Results for Chittering Road/Access 1 Intersection - Scenario 2

Intersection			AM	Peak			PM	Peak	
Approach	Turn	DOS	Delay	LOS	95% Queue (m)	DOS	Delay	LOS	95% Queue (m)
Chittering Rd	Т	0.161	0.1	A	1.2	0.18	0.1	A	1.5
(S)	R	0.161	5.2	A	1.2	0.18	5.3	A	1.5
Access 1 (E)	L	0.073	3.8	A	1.9	0.078	3.8	A	2
	R	0.073	5.4	A	1.9	0.078	5.7	A	2
Chittering Rd	L	0.089	4.6	A	0	0.101	4.6	A	0
(N)	Т	0.089	0	A	0	0.101	0	A	0
Total		0.161	1.4	A	1.9	0.18	1.4	A	2

### **6 ROAD SAFETY AND ACCESIBILITY IMPACT**

### 6.1 Impact on Neighbouring Areas

The SIDRA results show that the Chittering Road/Access 1 intersection operate at an acceptable level of service for all assessment scenarios.

### 6.2 Road Safety

A summary of the crash data are as follows:

- A single crash was recorded at the Chittering Road/Maroubra Avenue intersection which required hospitalisation. This crash was the result of a driver losing control of their vehicles and colliding with a pedestrian.
- > 7 crashes were recorded at the Great Northern Highway/Chittering Road intersection with one crash requiring medical attention and the remaining 6 crashes being property damage crashes.

Note that the Great Northern Highway/Chittering Road intersection will be cul-de saced as part of the future road upgrades which will likely reduce the risk of crashes.

### 6.3 Public Transport Access

The impact of the proposed development on the public transport network is expected to be negligible.

### 6.4 Pedestrian/Cycle Access Amenity

No additional pedestrian/cycle infrastructure is planned within the masterplan Site. However, provision of bicycle parking at recreational areas such as the community garden and clubhouse may be beneficial to encourage people to cycling.

### 6.5 Analysis of Pedestrian/Cycle Network

The internal roadway network is intended to be a low volume, low speed zone for shared use between drivers, cyclists and pedestrians. This low speed zoning arrangement is typical of many retirement villages.

### 6.6 Safe Walk/Cycle to School

Not applicable as proposal is for a lifestyle village.

### 6.7 Traffic Management Plan (where appropriate)

Not applicable as proposal is for a lifestyle village.

## **7 SUMMARY AND CONCLUSIONS**

This report has been prepared in accordance with the Western Australian Planning Commission (WAPC) *Transport Assessment Guidelines for Developments: Volume 4 – Individual Developments* (2016); the checklist is included at **Appendix A**.

### The following conclusions can be drawn from this TIA:

- >> The proposed development consists of a retirement village containing approximately 237 dwellings and various recreational facilities.
- >> The estimated number of trips generated by the proposed development is approximately 128 trips during the AM peak period and 140 trips during the PM peak period.
- Public transport within the surrounding area is considered to be below average as only a single low frequency service operates near the site. TransWA services are also available within the surrounding area though these routes only provide a single service per day.
- >> The pedestrian/bike network is below average within the surrounding area. While there are shared paths present along Great Northern Highway and Chittering Road.
- » A sight distance assessment was conducted at the proposed access points and showed that the modified Chittering Road alignment had a negligible impact on sight visibility.
- Proposed parking provisions within the site should be guided by the residential design codes (R-codes).



# Appendix A

WAPC CHECKLIST FOR INDIVIDUAL DEVELOPMENT - TRANSPORT IMPACT STATEMENT





# **APPENDIX A - WAPC CHECKLIST**

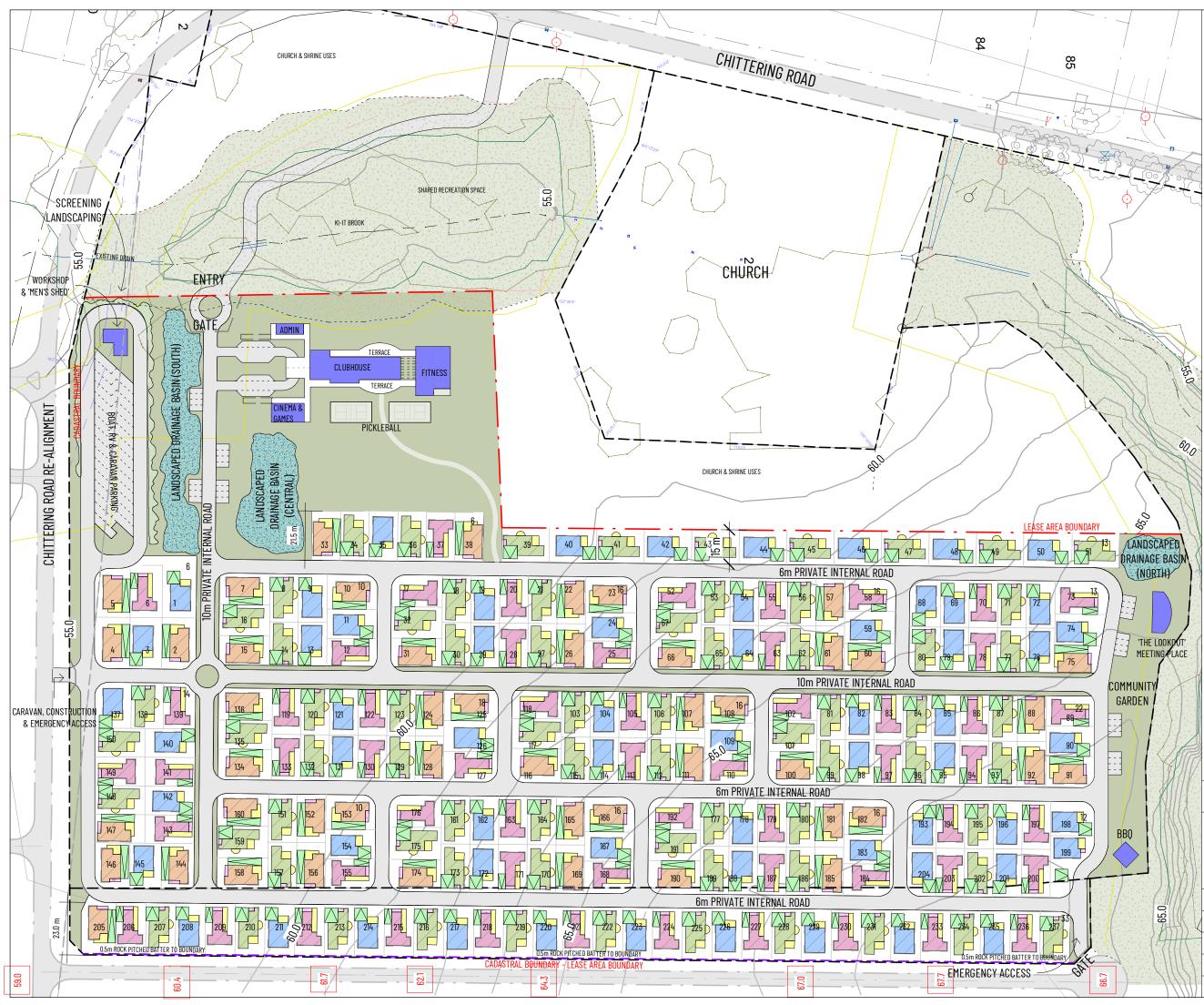
Item	Provided	Comments/Proposals
Summary		
Introduction/Background		
Name of Applicant and Consultant	Section 1	
Development Location and Context	Section 1	
Brief Description of Development Proposal	Section 3	
Key Issues	N/A	
Background Information	Section 1	
Existing Situation		
Existing Site Uses (If Any)	Section 2	
Existing Parking and Demand (If Appropriate)	Section 2	
Existing Access Arrangements	Section 2	
Existing Site Traffic	Section 2	
Surrounding Land Uses	Section 2	
Surrounding Road Network	Section 2	
Traffic Management on Frontage Roads	Section 2	
Traffic Flows on Surrounding Roads (Usually AM and PM Peak Hours)	Section 2	
Traffic Flows at Major Intersections (Usually AM and PM Peak Hours)	Section 2	
Operation of Surrounding Intersections	Section 2	
Existing Pedestrian/Cycle Networks	Section 2	
Existing Public Transport Services Surrounding the Development	Section 2	
Crash Data	Section 2	
Development Proposal		
Regional Context	Section 3	
Proposed Land Uses	Section 3	
Table of Land Uses and Quantities	Section 3	
Access Arrangements	Section 3	
Parking Provision	Section 3	
End of Trip Facilities	Section 3	
Any Specific Issues	N/A	
Road Network	Section 3	
Intersection Layouts and Controls	Section 3	
Pedestrian/Cycle Networks and Crossing Facilities	Section 3	
Public Transport Services	Section 3	
Integration With Surrounding Area		

Surrounding Major Attractors/Generators	Section 4
Committed Developments and Transport Proposals	Section 4
Proposed Changes to Land Uses Within 1200 Metres	Section 4
Travel Desire Lines from Development to These Attractors/Generators	Section 4
Adequacy of Existing Transport Networks	Section 4
Deficiencies in Existing Transport Networks	Section 4
Remedial Measures to Address Deficiencies	Section 4
Analysis Of Transport Networks	
Assessment Years	Section 5
Time Periods	Section 5
Development Generated Traffic	Section 5
Distribution of Generated Traffic	Section 5
Parking Supply & Demand	Section 5
Base and "With Development" Traffic Flows	Section 5
Analysis of Development Accesses	Section 5
Impact on Surrounding Roads	Section 5
Impact on Intersections	Section 5
Impact on Neighbouring Areas	Section 6
Traffic Noise and Vibration	Section 6
Road Safety	Section 6
Public Transport Access	Section 6
Pedestrian Access/Amenity	Section 6
Cycle Access/Amenity	Section 6
Analysis of Pedestrian/Cycle Networks	Section 6
Safe Walk/Cycle to School (For Residential and School Site Developments Only)	N/A
Traffic Management Plan (Where Appropriate)	N/A
Conclusions	Section 7



# Appendix B







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		LEGEND	
	LANDSCAP	ING	
	'RECREATIO	N' ZONED AREA	
	CORE CREE	EK AREA	
	AREA SUBJ Manageme	ECT TO FORESHOR NT PLAN	E & WETLAND
	VILLAGE AI	1ENITIES	
1840 1840	LANDSCAP	ED DRAINAGE BAS	INS
	FENCE/GAT	E	
	ROADWAY		
	CADASTRAL	. BOUNDARY	
==	LEASE ARE	A BOUNDARY	
	TYPE A (62	2)	TYPE C (47)
	TYPE B (71		TYPE D (57)
TOTAL H	HOUSE SITES	- 237	
TOTAL L	LEASE SITE ARE	A - 106,988m <sup>2</sup>	
TOTAL F	RECREATION AR	EA - 35,095m <sup>2</sup>	
			<b>Z</b>
ISSUE	DES	CRIPTION	DATE
А	PRELIMINAF	Y MASTERPLAN	28.05.2024
В	REVISED MA	STERPLAN	12.08.2024
C	REVISED MA		16.08.2024
D	ENTRY MOV ADDED	ED, LOT NUMB.	19.08.2024
E	HOUSE-LOT	ALLOCATION	02.09.2024
DRAWING TIT		1asterplan	
PROJECT			
BETHANII CLIENT BETHANII PROJECT AD		K VILLAGE	
		SBROOK, WA, 6084	4
Project n	umber		-
Date			02.09.2024
Drawn by		RHA	DRAWING NO.
Checked	by	RHA	A3.01
Scale @	A3	1 : 1500	

РМ 09/2024 1:46:32











# **Bushfire Management Plan Coversheet**

This Coversheet and accompanying Bushfire Management Plan has been prepared and issued by a person accredited by Fire Protection Association Australia under the Bushfire Planning and Design (BPAD) Accreditation Scheme.

Bushfire Management Plan and Site Details			
Site Address / Plan Reference: Lots 900, 9501 and Portion of	f 9013 Chittering Road		
Suburb: Bullsbrook		State: WA	P/code: 6084
Local government area: City of Armadale			
Description of the planning proposal: Park Home Park (Lifes	tyle Village)		
BMP Plan / Reference Number: BET BUL ZB/2409	Version: 2	Date of Is	ssue: 10/09/2024
Client / Business Name: Bethanie			

Reason for referral to DFES	Yes	No
Has the BAL been calculated by a method other than method 1 as outlined in AS3959 (tick no if AS3959 method 1 has been used to calculate the BAL)?		X
Have any of the bushfire protection criteria elements been addressed through the use of a performance principle (tick no if only acceptable solutions have been used to address all of the BPC elements)?		
Is the proposal any of the following special development types (see SPP 3.7 for definitions)?		
Unavoidable development (in BAL-40 or BAL-FZ)		$\boxtimes$
Strategic planning proposal (including rezoning applications)		$\boxtimes$
Minor development (in BAL-40 or BAL-FZ)		
High risk land-use		
Vulnerable land-use		$\boxtimes$

If the development is a special development type as listed above, explain why the proposal is considered to be one of the above listed classifications (E.g. considered vulnerable land-use as the development is for accommodation of the elderly, etc.)?

N/A

Note: The decision maker (e.g. local government or the WAPC) should only refer the proposal to DFES for comment if one (or more) of the above answers are ticked "Yes".

BPAD Accredited Practitioner Details and Declaration							
Name	Accreditation Level	Accreditation No.	Accreditation Expiry				
Tom Hockley	Level 2	BPAD39692	31/05/2025				
Company		Contact No.					
Allerding & Associates		9382 3000					

I declare that the information provided within this bushfire management plan is to the best of my knowledge true and correct

Signature of Practitioner

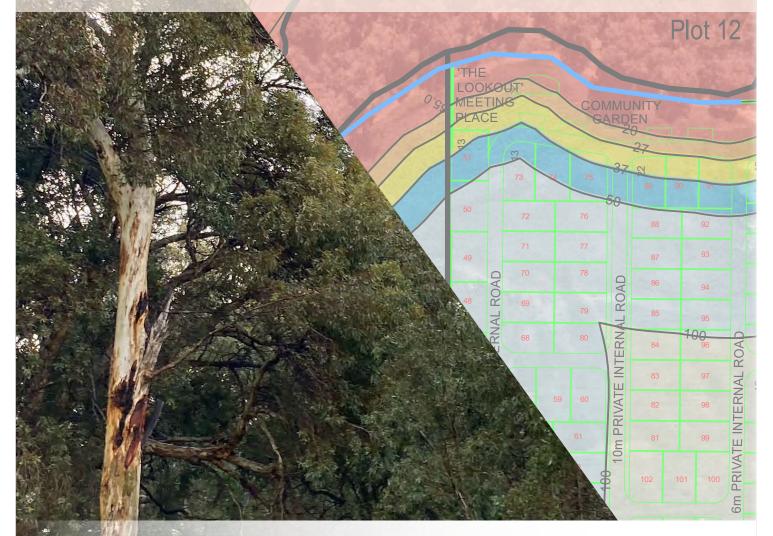
Madle

Date 10/09/2024

# Bushfire Management Plan Proposed Lifestyle Village (Park Home Park) Development

Lot 900, 9501, and portion of Lot 9013 Chittering Road, Bullsbrook

City of Swan



Prepared for: Bethanie Prepared by: Allerding and Associates

September 2024



Plot 1(

Town Planners, Advocates and Subdivision Designers ABN 24 044 036 646

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FIGURE 2 – MAP OF BUSHFIRE PRONE AREAS
FIGURE 3 – MASTERPLAN
FIGURE 4 –VIEW NORTH-WEST ALONG CHITTERING
ROAD ADJACENT TO SUBJECT SITE
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FIGURE 9 – BAL CONTOUR MAP

FIGURE 10 – BUSHFIRE MANAGEMENT STRATEGIES MAP

APPENDIX 1 – SUPPORTING PLANS APPENDIX 2 – BMP MAPPING APPENDIX 3 –CITY OF SWAN FIRE HAZARD REDUCTION NOTICE APPENDIX 4 – STANDARDS FOR ASSET PROTECTION ZONES APPENDIX 5 – VEHICULAR ACCESS TECHNICAL REQUIREMENTS

Document ID: BET BUL ZB/2409									
Issue	Date	Status	Prepared by		Approved by				
			Name	Initials	Name	Initials			
1	29.08.24	DRAFT	Tom Hockley	TH					
2	10.09.24	FINAL	Tom Hockley	TH	Tom Hockley	TH			
3									
4									
Site Inspection:		25 July 2024							

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### 1.0 EXECUTIVE SUMMARY

This Bushfire Management Plan (BMP) has been prepared to accompany an Application for Development Approval to the City of Swan (the City) for the development of a Lifestyle Village comprising 237 dwellings and associated community and recreational facilities at Lots 900, 9501 and a portion of 9013 Chittering Road, Bullsbrook. The purpose of the BMP is to assess whether the proposal complies or can be made compliant with the relevant planning controls based on assessed bushfire risk.

The subject site is located within an area designated as bushfire prone due to the nature of vegetation within 100m of the site. *State Planning Policy 3.7 – Planning in Bushfire Prone Areas* (SPP3.7) requires that planning proposals on land designated as bushfire prone must be accompanied by an assessment (in the form of a BMP) under the provisions of Clause 6.5 (for development applications) where a Bushfire Attack Level (BAL) rating above BAL-LOW applies. In this instance, due to the presence of classified vegetation within and surrounding the subject site, a BAL rating above BAL-LOW will apply. As the BAL ratings exceed BAL-LOW an assessment against the provisions of SPP3.7 and the *Guidelines for Planning in Bushfire Prone Areas version 1.4* (the Guidelines) has been undertaken.

This BMP demonstrates that the proposal can fully comply with the acceptable solutions of the Guidelines, subject to the requirements set out in Table 5 and Sections 6.0 and 7.0, including:

- The ongoing management of low threat landscaping surrounding the clubhouse and community garden in a minimal fuel condition in accordance with the provisions set out in this BMP;
- The creation and ongoing maintenance of an Asset Protection Zone (APZ) within Plot 14 to the west of the development area in accordance with the provisions set out in this BMP;
- The construction and maintenance of the internal vehicular movement network, inclusive of internal private driveways, access routes and vehicle gates in accordance with the provisions set out in this BMP;
- The installation and maintenance of a reticulated water supply to service the development in accordance with the provisions set out in this BMP;
- The construction of nominated buildings to the relevant standards under AS3959;
- The placement of notifications on title to advise on bushfire risk management implementation measures; and
- The ongoing compliance with the City of Swan Fire Hazard Reduction Notice.

A BAL Contour Map has been prepared to determine the level of construction required for future dwellings within 100m of classified vegetation pursuant to Australian Standard AS3959-2018 *Construction of buildings in bushfire-prone areas* (AS3959). The applicable BAL ratings are set out as part of this BMP as a guideline for future construction standards having regard to the other management measures to be implemented as part of this plan. In preparing the BAL Contour Map, a post development scenario has been assessed on the basis that the classified vegetation within the portions of the subject site to be developed will either be removed or managed in a low threat state. Existing vegetation outside the developed areas but forming part of the overall subject site has also been considered in assessing the post development scenario. All other classified vegetation outside of the subject site will remain the same as the pre-development assessment.

This BMP sets out the immediate and longer term management strategies for bushfire hazards within and surrounding the subject site and provides a basis for an ongoing commitment by the landowner to undertake bushfire risk management measures for the life of the development. When implemented, the management measures contained within this BMP will assist in the preservation of life and the reduction in the impacts of bushfire on property and infrastructure.

### 2.0 PROPOSAL DETAILS

### 2.1 Purpose of the BMP

This BMP has been prepared to accompany an Application for Development Approval to the City for the development of a Lifestyle Village comprising 237 dwellings and associated community and recreational facilities at Lots 900, 9501 and a portion of 9013 Chittering Road, Bullsbrook (subject site).

As the ultimate form of the development is known, the purpose of the BMP is to assess whether the proposed park home development at the subject site currently complies, or can be made compliant with the relevant planning controls based on the assessed bushfire risk.

The BMP has been prepared to identify the areas within and surrounding the subject land which may present potential bushfire risk to the proposed development based on the BAL ratings across the subject land as demonstrated within the BAL Contour Map and provides additional management measures to address identified risks. In addition, this BMP identifies bushfire hazard issues arising from the BAL Contour Map, as well as an assessment against the bushfire protection criteria requirements contained within the Guidelines demonstrating compliance within the boundary of the development site.

### 2.2 Location

The subject site is situated in the suburb of Bullsbrook, approximately 35km north-east of the Perth CBD and approximately 26km east of Joondalup.

A location plan is included at **Figure 1** which identifies the site as being on the eastern side of Chittering Road.

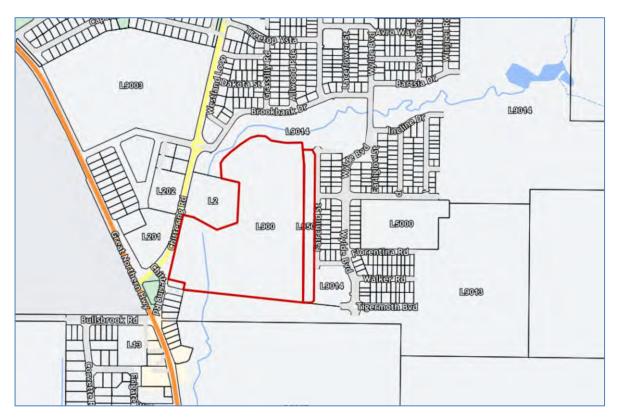


Figure 1 – Location Plan (Source: MNG 2024)

### 2.3 Zoning and Land Use

The subject site is presently zoned 'Residential Development' under the City of Swan Local Planning Scheme No. 17 (LPS17). The subject site is identified under the Kingsford Bullsbrook Central Revised Local Structure Plan (LSP) as 'Residential (R20-R40)'. Land Use permissibility within the LSP area is to accord with the corresponding zone under LPS17 and therefore, the proposed Lifestyle Village is being progressed as a "Park Home Park" use.

The proposal does not represent a vulnerable or high-risk land use. When consulted on a similar lifestyle community proposal in 2019, DFES acknowledged that the proposal was not a vulnerable land use and the Bushfire Policy Team at the Department of Planning, Lands and Heritage have also separately confirmed that lifestyle communities are not vulnerable land uses.

Section 5.5.1 of the Guidelines provide examples of vulnerable land uses, which include aged or assisted care and nursing homes. The proposed Lifestyle Village will cater for an average age at entry of 65 years and the facilities provided within the development cater for active adult living including a clubhouse with pool and gym, pickleball courts, cinema, games room, BBQ areas, boat and caravan storage which are facilities supporting an active lifestyle and reflect the interests of the residents who live there. As the proposal does not involve a nursing home or an aged or assisted care, it has not been designed to those standards and is not considered to be a vulnerable land use.

As outlined on the Department of Fire and Emergency Services (DFES) Western Australian Map of Bush Fire Prone Areas, the entire site is designated as bush fire prone (refer **Figure 2**).

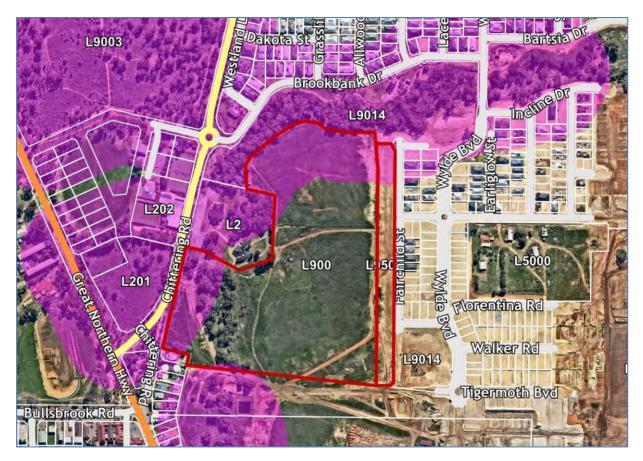


Figure 2 – Map of Bushfire Prone Areas (Source: DFES 2024)

The subject site is currently held in private ownership and the Lifestyle Village operator has secured a long term lease arrangement with the landowner for the use of the land for the proposed development.

The portion of the subject site to be developed for the Lifestyle Village is predominantly cleared pasture. Existing vegetation which follows the Ki-It Monger Brook around the western and northern boundaries will be retained as part of the development. The existing tree line within the boundaries of the subject site to the immediate west of the proposed clubhouse may require limited pruning to facilitate bushfire separation, however no tree removal is proposed to occur to facilitate the development.

### 2.4 Overview of Proposal

A Masterplan depicting the proposed development layout is included at **Figure 3**, with a copy of the supporting plans also included at **Appendix 1**. The design provides for the following:

- 237 dwellings with an average lot area of approximately 260m<sup>2</sup>;
- A Clubhouse building providing facilities for the exclusive use of residents in the Lifestyle Village comprising sales, management and reception, a cinema and games room, main lobby with lounge, café, bar, hall and an indoor fitness area comprising a pool, gym, multiuse room and changerooms;
- A Community Garden containing BBQ areas, a meeting place and pickleball courts;
- Landscaped wetlands to the north and south of the subject site;
- A Boat and Caravan Parking area adjacent to the southern boundary of the subject site;
- A permeable grid road network connecting the subject site to Chittering Road to the west via a main entry gate and driveway; and
- Secondary access via Amelia View to the north-east for emergency access and the future Chittering Road re-alignment to the south providing future caravan, construction and emergency access to the site.

The subject site currently comprises three separate lots including Lots 900, 9501 and a small portion of 9013 Chittering Road, Bullsbrook. It is understood that the lots will shortly be amalgamated into a single parcel (Lot 9017).

This BMP has been prepared to accompany the Application for Development Approval to the City prepared by Planning Solutions, dated August 2024.

A BMP dated 13 September 2021 was prepared to accompany the Kingsford Bullsbrook Central Revised LSP pursuant to Clause 6.3 of SPP3.7 relating to strategic planning proposals. The purpose of the current BMP is to assess the development application against Clause 6.5 of SPP3.7 to consider site specific bushfire hazard issues and bushfire protection criteria in relation to the proposed development at the subject site.

### 2.5 Access

Proposed vehicle access will include a new crossover and entry statement from Chittering Road to the west. Chittering Road currently comprises a sealed two-way undivided carriageway of approximately 8m in width with a total road reservation of approximately 20m. The road is constructed to an urban standard with drainage and curbing (refer **Figure 4**).

The proposal also includes two alternative emergency access points, including to the south via the future Chittering Road re-alignment providing access for caravan, construction and emergency purposes. At the time of writing, the Chittering Road re-alignment has not been completed, however the Kingsford Bullsbrook Central Revised LSP identifies the road as a sealed two-way undivided carriageway of approximately 7m in width (Neighbourhood Connector B) plus verge.

The second alternative emergency access point is provided in the north-eastern portion of the site via Amelia View. Amelia View is a local access road servicing the residential estate to the immediate east of the subject site. Amelia View is a sealed two-way undivided carriageway of approximately 5.5m in width with a total road reservation of approximately 16m. The road is constructed to an urban standard with drainage and curbing (refer **Figure 5**).

As the subject site will be retained in private ownership with the Lifestyle Village operating on a long term lease arrangement for the life of the development, the grounds and infrastructure throughout the site will be internally managed and maintained on an ongoing basis by the developer. As such, this development model does not provide public access connections through the development to surrounding local road networks and all vehicle access points will be secured with gates once the Lifestyle Village is occupied. The main entrance gate will remain open during the day, but will be closed during the evening hours. The secondary access gates to Amelia View and the future Chittering Road realignment will remain locked at all times. Residents will be provided with access cards providing afterhours access to the Lifestyle Village via the main entrance gate as well as future access to the caravan and boat storage area via the future Chittering Road realignment once constructed. In an emergency event if an evacuation response is triggered, residents will be able to egress through the main gate and future southern gate using access cards. A breakglass will be installed at the exit to Amelia View for residents egressing to the north-east. Emergency services and/or local government will be provided with a master key providing access to Lifestyle Village via the emergency access gates and the main village gate in the event that internal access is required.

### 2.6 Water and Power Supply

Reticulated water supply exists adjacent to the subject site in the Chittering Road road reserve to the west and the Amelia View road reserve to the east. The proximity of reticulated water in the locality provides opportunities for connection as part of the future redevelopment of the subject site.

Below ground power distribution cables exist within the road reserves to the north-west and east of the subject site providing capacity for power connection to the subject site.

### 2.7 Bushfire Response Capability

The Bullsbrook Volunteer Fire and Emergency Service stationed at the intersection of Maroubra Avenue and Chittering Road, located approximately 100m to the west of the subject site, is the closest responder and will provide the best-case emergency suppression response time of 30 minutes should a bushfire threaten lives or buildings on or adjacent to the site.





Figure 3 – Masterplan



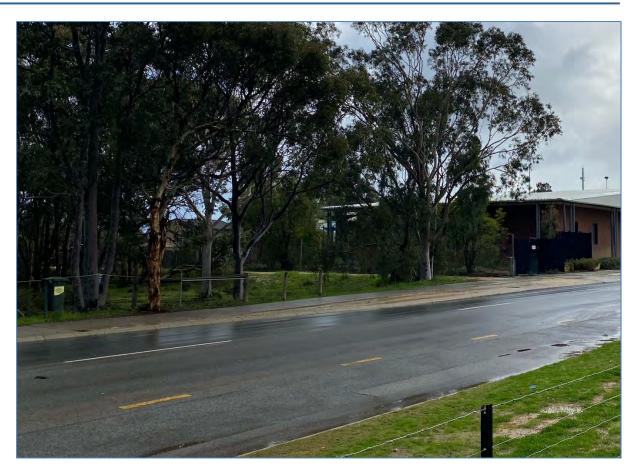


Figure 4 – View north-west along Chittering Road adjacent to subject site



Figure 5 – View south along Amelia View adjacent to subject site

### 3.0 ENVIRONMENTAL CONSIDERATIONS

The subject site contains a combination of cleared pasture and existing native vegetation which follows the Ki-It Monger Brook.

### 3.1 Native Vegetation – Modification and Clearing

The portion of the subject site to be developed for the Lifestyle Village is predominantly cleared pasture. The existing tree line within the boundaries of the subject site to the immediate west of the proposed clubhouse may require limited pruning to facilitate bushfire separation, however no tree removal is proposed to occur to facilitate the development.

### **3.2** Revegetation and Landscape Plans

The land will be landscaped as part of the proposed Lifestyle Village. However given the density of development, there is limited potential for any future landscaping to result in any significant increase in bushfire threat to dwellings within the subject site. As demonstrated in the Landscape Plan provided as part of the Development Plan package at **Appendix 1**, targeted landscaping is proposed around the communal spaces surrounding the clubhouse and the open space to the north of the village and will comprise a low threat managed native shrubs, groundcovers and tree planting adjacent to the brook and open turf spaces. The landscaped gardens will be retained under the management of the operator in perpetuity.

### 4.0 BUSHFIRE ASSESSMENT RESULTS

A Method 1 procedure in accordance with AS3959 has been undertaken to inform this bushfire assessment.

### 4.1 Assessment Inputs

### 4.1.1 Vegetation Classification

The vegetation classification has been determined within and surrounding the development site in accordance with Clause 2.2.3 of AS3959. Each distinguishable vegetation plot with the potential to determine the BAL is identified in **Table 1** below with the plots mapped in **Figure 6** in their current predevelopment (existing) condition. **Figure 7** contains the vegetation plots for the post-development scenario which have been used to develop the BAL Contour Map at **Figure 9**. A copy of the bushfire mapping is also contained within **Appendix 2**.



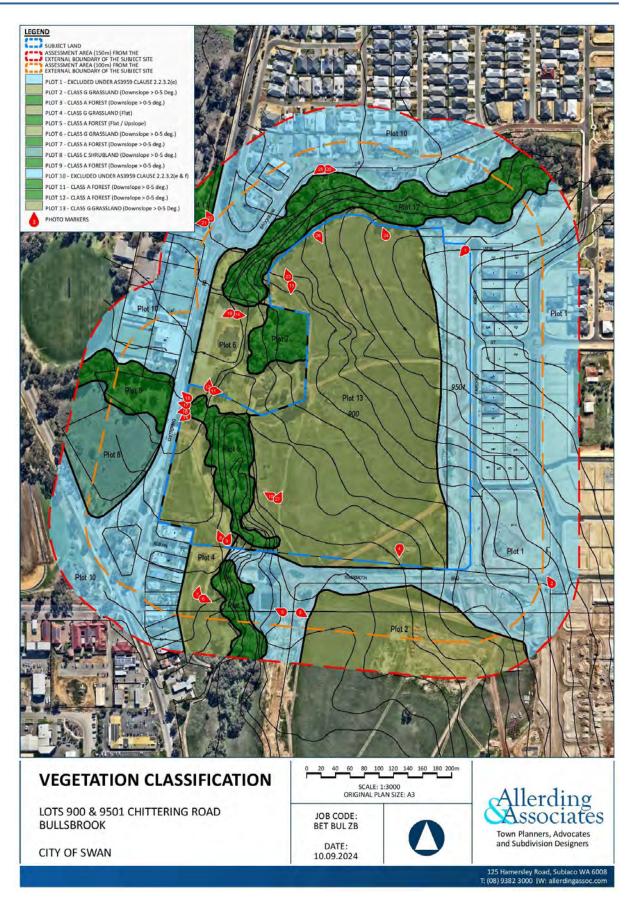


Figure 6 – Vegetation Classification



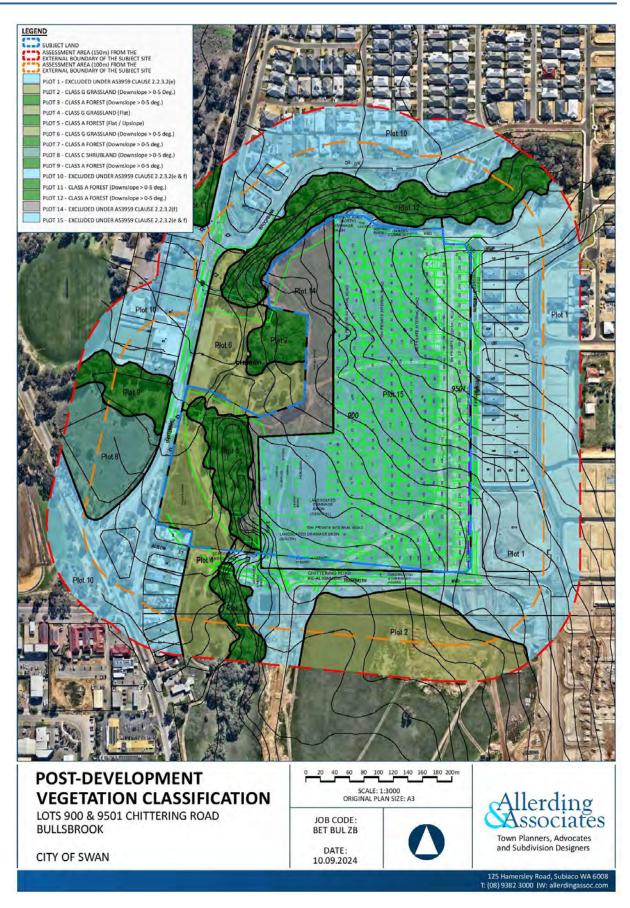
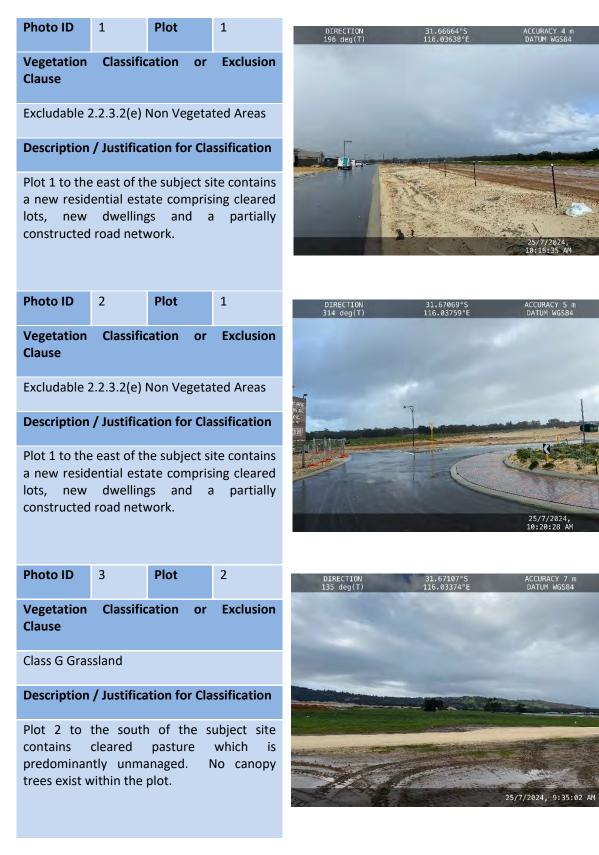


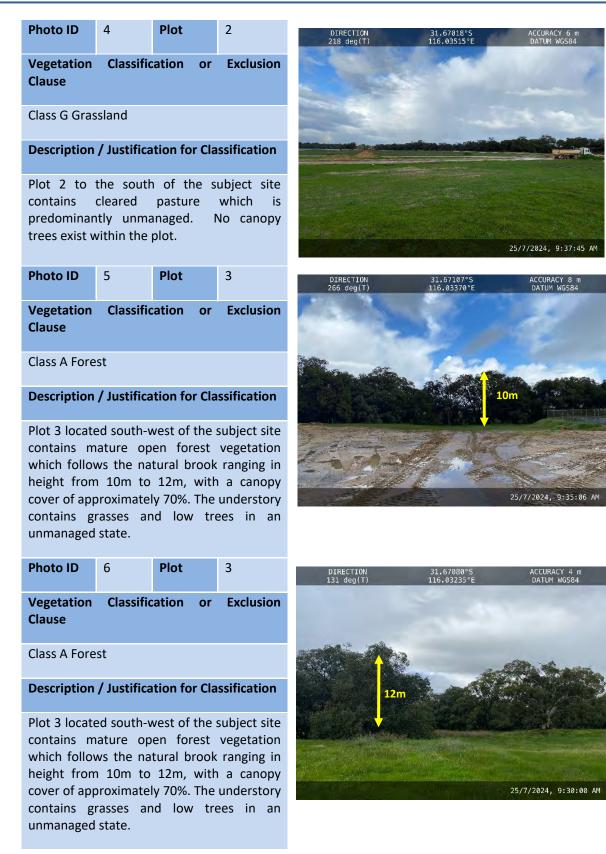
Figure 7 – Vegetation Classification (Indicative Post Development Scenario)



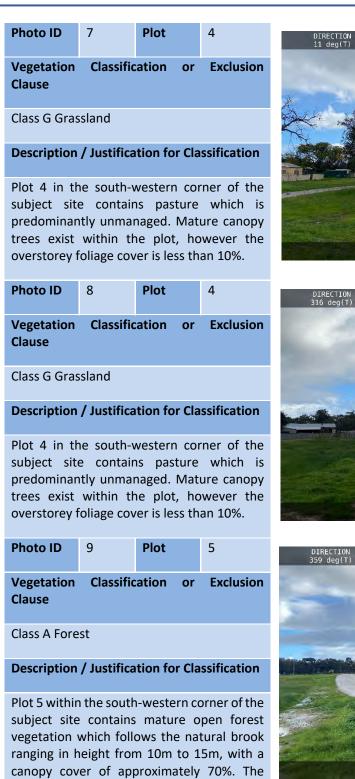
### **Table 1: Vegetation Classification**











understory contains grasses and low trees in





an unmanaged state.

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**Class A Forest** 

### **Description / Justification for Classification**

Plot 5 within the south-western corner of the subject site contains mature open forest vegetation which follows the natural brook ranging in height from 10m to 15m, with a canopy cover of approximately 70%. The understory contains grasses and low trees in an unmanaged state.

Photo ID	11	Plot	6

Vegetation Classification or Exclusion Clause

Class G Grassland

### **Description / Justification for Classification**

Plot 6 to the immediate west of the subject site contains an existing church with grassed areas and associated car parking. The grassed areas appear in a generally managed condition, with some unmanaged areas throughout the plot. Mature canopy trees exist within the plot, however the overstorey foliage cover is less than 10%.

Photo ID	12	Plot	6
Vegetation	Classific	ation or	Exclusion

Class G Grassland

**Description / Justification for Classification** 

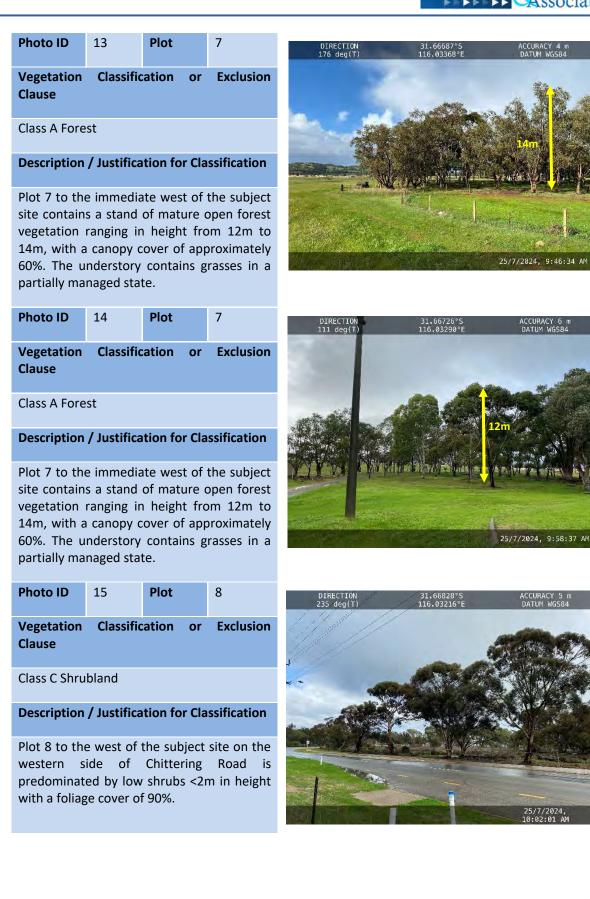
Plot 6 to the immediate west of the subject site contains an existing church with grassed areas and associated car parking. The grassed areas appear in a generally managed condition, with some unmanaged areas throughout the plot. Mature canopy trees exist within the plot, however the overstorey foliage cover is less than 10%.



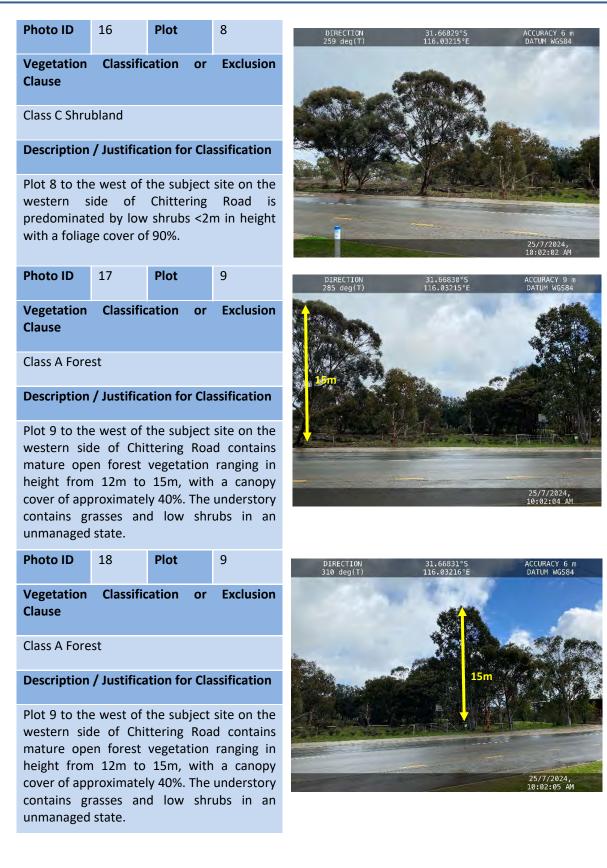




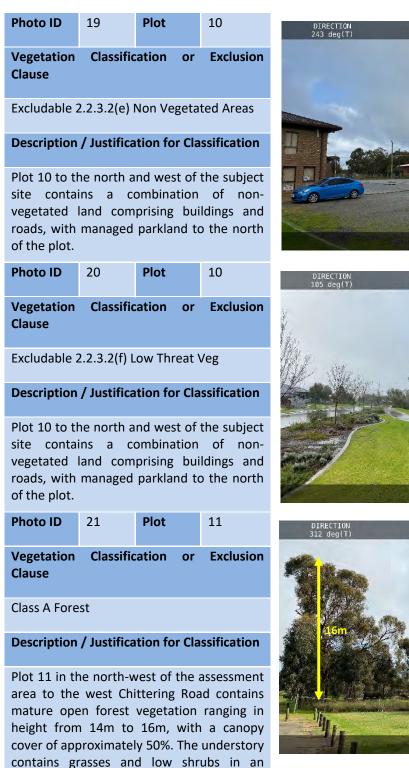


















unmanaged state.





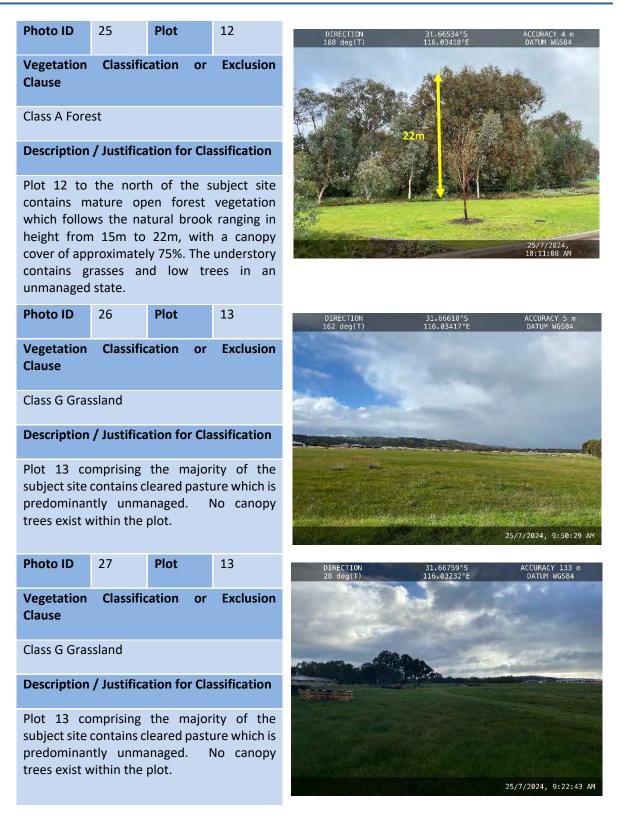




unmanaged state.

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#### 4.1.2 Site Topography and Slope

Based on site observations and available topographical mapping for the broader locality beyond 100m from the edge of the subject site, it has been verified that the majority of the subject site and surrounding land is relatively flat and level with a gradual south-westerly fall across the site. A topographical plan is included at **Figure 8**.



Figure 8 – Topographical Plan

#### 4.1.3 Summary of Vegetation Classifications and Effective Slope

**Table 2** provides a summary of the vegetation classification and effective slope as provided within theVegetation Classification maps in **Figures 6** and **7**, and **Appendix 2**.

Table 2: Summary of Vegetation Classification and Effective Slope					
Vegetation Plot	Vegetation Classification	Effective Slope	Comments		
Plot 1	Excluded Clause 2.2.3.2(e)	NA	Residential subdivision to the east and south of the subject site currently under construction and permanently cleared of vegetation.		
Plot 2	Class G Grassland	Downslope >0 to 5°	Open paddock containing pasture and scattered trees.		
Plot 3	Class A Forest	Downslope >0 to 5°	Existing bushland to the south- west of the subject site following the Ki-It Monger Brook.		
Plot 4	Class G Grassland	Flat	Cleared land containing pasture and scattered trees.		
Plot 5	Class A Forest	Flat / Upslope	Existing bushland in the western portion of the subject site following the Ki-It Monger Brook.		
Plot 6	Class G Grassland	Downslope >0 to 5°	Cleared grassland and scattered trees surrounding church and associated structures and parking areas.		
Plot 7	Class A Forest	Downslope >0 to 5°	Existing stand of canopy trees to the immediate east of the church with parkland cleared understorey.		
Plot 8	Class C Shrubland	Downslope >0 to 5°	Low shrubs with scattered trees within public reserve to the west of Chittering Road.		
Plot 9	Class A Forest	Downslope >0 to 5°	Existing bushland within public reserve to the west of Chittering Road.		
Plot 10	Excluded Clauses 2.2.3.2(e)&(f)	NA	Existing residential development and maintained public reserves and recreational facilities to the north and west of the subject site.		

Table 2: Summary of Vegetation Classification and Effective Slope



	Table 2. Summary of Vegetation classification and Effective Slope							
Vegetation Plot	Vegetation Classification	Effective Slope	Comments					
Plot 11	Class A Forest	Downslope >0 to 5°	Existing bushland within public reserve to the north-west of Chittering Road.					
Plot 12	Class A Forest	Downslope >0 to 5°	Existing bushland to the north of the subject site following the Ki-It Monger Brook.					
Plot 13	Class G Grassland	Downslope >0 to 5°	Open paddock within the subject site containing pasture and access tracks.					
Plot 14	Excluded Clause 2.2.3.2(f)	NA	Land to be maintained as low threat vegetation (lawn, gardens etc) within the subject site to the immediate west of the proposed development.					
Plot 15	Excluded Clauses 2.2.3.2(e)&(f)	NA	Land to be modified to non- vegetated elements (roads, paths, buildings, infrastructure) or low threat vegetation (lawn, gardens etc), as part of proposed development.					

#### Table 2: Summary of Vegetation Classification and Effective Slope

#### 4.2 Assessment Outputs

#### 4.2.1 Bushfire Attack Level (BAL) Assessment

The BAL Assessment was undertaken in accordance with AS3959 Methodology 1 to determine the potential worst case scenario radiant heat impact on the prospective development. **Table 3** below outlines the worst-case BAL for each of the vegetation plots based on separation distance to the proposed habitable buildings within the development. **Table 4** below provides the BAL for each of the new habitable buildings based on the assessed separation distance from the vegetation plots. The vegetation plots referenced in **Table 3** are based on the post-development scenario as demonstrated in **Figure 7** (and **Appendix 2**).

Table 2.1 of AS3959-2018 identifies a Fire Danger Index (FDI) of 80 for Western Australia. Therefore, Table 2.4.3 of AS3959-2018 has been used to develop the BAL Contour Map (refer **Figure 9** and **Appendix 2**) to calculate the BAL for the proposed residential lots and inform the standard of building construction required for future habitable buildings on those proposed lots to withstand such impacts.



Table 3: Worst Case BAL Table for Proposed Development					
Vegetation Plot	Applied Vegetation Classification	Effective Slope Under Classified Vegetation (degrees)	Minimum Separation Distance to Classified Vegetation (m)	Bushfire Attack Level	
Plot 2	Class G Grassland	Downslope >0 to 5°	32m	12.5	
Plot 3	Class A Forest	Downslope >0 to 5°	95m	12.5	
Plot 5	Class A Forest	Flat	21m	29	
Plot 6	Class G Grassland	Downslope >0 to 5°	41m	12.5	
Plot 7	Class A Forest	Downslope >0 to 5°	35m	29	
Plot 12	Class A Forest	Downslope >0 to 5°	27m	29	
			Worst case BAL	29	

Table 4: Indicative BAL Ratings for Proposed Park Homes						
Dwelling Number	Bushfire Attack Level					
1-3, 6-20, 26-38, 81-83, 97-136, 138-145, 151-192, 204-232.	Low					
4, 5, 21-25, 39-41, 49, 50, 52-72, 76-80, 84-87, 93-96, 137, 146-150, 193-196, 200-203, 233-236.	12.5					
42-48, 73, 74, 88, 92, 197, 237.	19					
51, 75, 89, 90, 91, 198, 199.	29					
Nil	40/FZ					



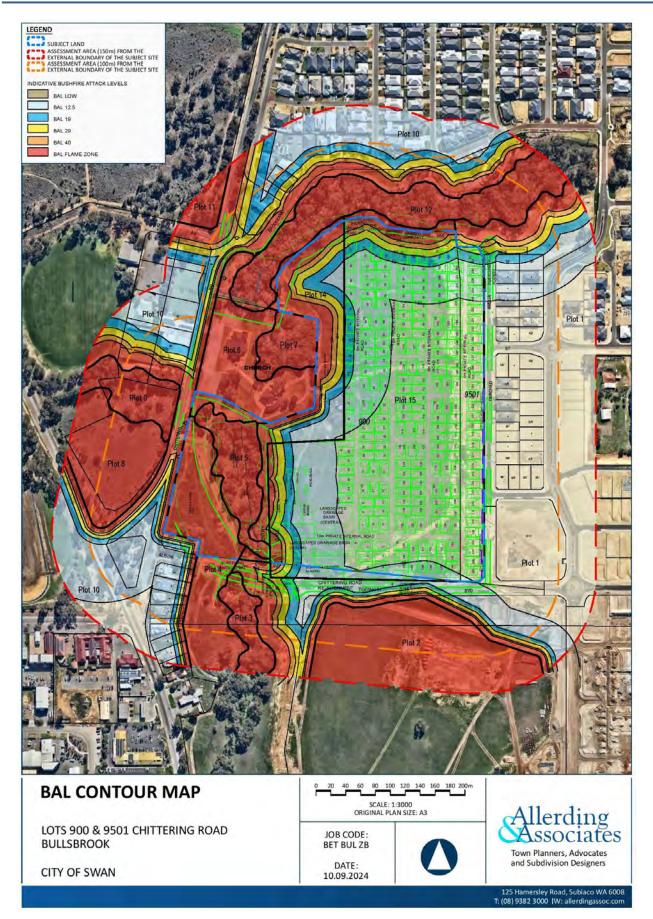


Figure 9 – BAL Contour Map

#### 5.0 IDENTIFICATION OF BUSHFIRE HAZARD ISSUES

#### 5.1 Overview

Based on the BAL assessment undertaken as part of this BMP, the highest determined BAL associated with those areas within the subject site where new development is planned to occur is BAL29. It is noted that these areas are associated with the existing classified Class A Forest vegetation which follows the Ki-It Monger Brook along the northern boundary (Plot 12) and through the western portion of the subject site (Plot 5). It is anticipated that the future urban development of the neighbouring land to the south of the subject site (within Plot 2) will reduce the BAL rating for the proposed dwellings located at the interface with this boundary. Having regard to the other proposed dwellings within the subject site with indicative BAL ratings of BAL29 or lower, it is likely that physical separation from bushfire prone vegetation will be the most effective management measure due to the extent of non-vegetated land within the central portion of the site and in surrounding areas to the immediate east and west.

#### 5.2 Consideration of Landscaping and Management Arrangements

Targeted plantings and landscaping throughout the site, particularly surrounding the clubhouse and open space to the north will improve both environmental values and public recreational values. Given the proposed maintenance arrangements for these spaces involving mulching beneath trees and around ground covers adjoining maintained grassed play areas, the landscaped areas will be capable of management to a low threat state and will not contribute to increased bushfire risk.

#### 5.3 Consideration of Broader Context

On completion of the Lifestyle Village development, the classified vegetation within and immediately surrounding the subject site to the north and west along the Ki-It Monger Brook and adjacent to the church (Plots 3, 5, 7 and 12) will represent areas of fragmented vegetation which are interspersed with the adjacent local road networks, existing and establishing urban areas, public recreation facilities and cleared farmland. The combined effect of these unmanaged vegetated areas may present opportunities for extended fire runs, particularly noting the extent of Forest vegetation within the plots. However, the fragmented nature of these immediately surrounding classified vegetation plots is likely to reduce the bushfire risk and intensity, particularly in milder conditions. These existing areas of classified vegetation will be separated from the proposed residential development on the subject site by perimeter roads which will be accessible for fire suppression from different directions during a bushfire event. These presence of this vegetation therefore does not pose a significant threat to the development.

Further, surrounding landowners will be required to conform to the City of Swan Fire Hazard Reduction Notice issued annually. For surrounding land to the west and south, land owners/occupiers are required to maintain 3m wide firebreaks with a 4m vertical height clearance within 5m of all external boundaries. Properties containing dwellings, assembly buildings and other public buildings must also install and maintain Asset Protection Zones (APZs) around building in accordance with the requirements of the Fire Hazard Reduction Notice.

The subject site is well serviced by the existing road network. The site is proposed to be serviced by Chittering Road to the west which connects to the regional road network further west via Great Northern Highway providing access to locations north and south of the Bullsbrook locality. To the immediate east of the subject site, Amelia View connects to the establishing urban areas to the east and north of the subject site.

Pursuant to Clause 6.5 of SPP3.7, the proposal has been assessed against the bushfire protection criteria requirements contained within the Guidelines. Sections 6.0 and 7.0 of this report demonstrate that the proposal complies with the bushfire protection criteria of the Guidelines and it is therefore considered that the bushfire hazard issues can be effectively managed and mitigated.

#### 6.0 ASSESSMENT AGAINST THE BUSHFIRE PROTECTION CRITERIA

An assessment of the proposal against the bushfire protection criteria of the Guidelines in contained in **Table 5** which demonstrates that the development meets all acceptable solutions.

These strategies have been recommended for guiding future planning and development stages associated with the proposal. These strategies are based on best practice in bushfire protection and reflect the guidance provided by SPP3.7 and the Guidelines.

#### 6.1 Bushfire Management Strategies

#### 6.1.1 Maintain Asset Protection Zones Throughout Site (A2.1 Asset Protection Zones)

The proposed APZ areas are spatially demonstrated in the Bushfire Management Strategies map (refer **Figure 10** and **Appendix 2**). The standards for APZs are included at **Appendix 4**.

Pursuant to the standards for APZs (refer **Appendix 4**), the following measures shall be applied to the land contained within Plot 14 to the west of the development area between the outer edge of the retained vegetation within Plots 5, 6 and 7:

- Existing grass is to be maintained to a height of 100 millimetres or less at all times.
- Any fine fuel load is to be managed and removed on a regular basis from the APZ area to maintain a low threat state and achieve <2 tonnes per hectare (on average).
- For existing and proposed canopy trees >6m in height, development is to be positioned to be a minimum distance of 6m from any trunks with branches not overhanging buildings. Pruning will also be undertaken to ensure that lower branches are removed below 2m from the ground and appropriate canopy separation can be achieved.

As demonstrated in **Figure 10** (and **Appendix 2**), habitable buildings will require minimum separation from existing classified vegetation within the subject site as follows:

- Buildings separated by a minimum of 21m from the Class A Forest vegetation within Plot 5.
- Buildings separated by a minimum of 27m from the Class A Forest vegetation within Plot 7.
- Buildings separated by a minimum of 27m from the Class A Forest vegetation within Plot 12.

#### 6.1.2 Maintain Landscaping in Minimal Fuel Condition

The proposed landscaped areas within the community garden in the northern portion of the Lifestyle Village and surrounding the clubhouse to the west shall be established and maintained in a low threat state for the life of the development. The low threat landscaped areas are spatially demonstrated in the Bushfire Management Strategies map (refer **Figure 10** and **Appendix 2**) and shall be maintained as follows:

- Grass is to be maintained to a height of 100 millimetres or less at all times and reticulated to increase moisture content.
- Any fine fuel load is to be managed and removed on a regular basis to maintain a low threat state and achieve <2 tonnes per hectare (on average).

- Mulches should be non-combustible such as stone, gravel or crushed mineral earth or wood mulch >6 millimetres in thickness.
- Ground covers <0.5 metres in height can be planted under trees but must be maintained to remove dead plant material. Ground covers can be located within two metres of a structure, but much be separated by 3m (min.) from windows or doors if >100 millimetres in height.
- For proposed canopy trees which, at maturity, will establish to >6m in height, development is to be positioned to be a minimum distance of 6m from any trunks with branches not overhanging buildings. Pruning will also be undertaken to ensure that lower branches are removed below 2m from the ground and appropriate canopy separation can be achieved.

#### 6.1.3 Vehicular Access

The subject site is proposed to be serviced by an internal private driveway exceeding 70m in length. The private driveway servicing the development site has a total length of approximately 600m measured from the entry gate to the most distant extent of the development to the north-east. The subject site is serviced from Chittering Road to the west and an emergency access to the north-east via Amelia View, with an additional emergency access road to the south planned once the Chittering Road realignment is constructed as shown in **Figure 10** (and **Appendix 2**).

The proposed development is to include the following vehicular access:

- The private driveway network within the development is to comply the private driveway specifications of the Guidelines (refer to **Appendix 5**), including the requirements of Table 6, Column 4.
- The private driveway being designed with a permeable grid network to avoid dead-ends.
- The subject site providing two-way access to Chittering Road via the main village entrance.
- The internal road network with a minimum trafficable surface of 6m, with a minimum horizontal clearance of 6m and a minimum vertical clearance exceeding 4.5m, as shown in **Figure 10** (and **Appendix 2**).

#### 6.1.4 Emergency Access Gates

In addition to the internal driveway network and main entrance gate from Chittering Road, the subject site will provide emergency access to Amelia View to the north and the future Chittering Road realignment to the south which form part of the public road network (refer **Figure 10** and **Appendix 2**). The following standards shall apply to locked gated emergency access points as well as the main Lifestyle Village gate which will remain closed during evening hours:

- The Amelia View emergency access point shall be signposted as "emergency access only", as agreed with the local government.
- The future Chittering Road realignment emergency access point shall be signposted as "fire access", as agreed with the local government.
- All gates must open the whole trafficable width of 6m.
- The main entrance gate and future Chittering Road realignment access must be operable internally for residents and staff via access cards, or an alternative system as agreed with the local government.
- The exit to Amelia View must be operable internally for residents and staff via a breakglass, or an alternative system as agreed with the local government.
- Access to the Lifestyle Village for emergency services via the emergency access gates and the main village shall be provided via a master key held by emergency services and/or local government, or an alternative system as agreed with the local government.

#### 6.1.5 **Provision of Water for Firefighting Purposes**

The subject site is serviced by a reticulated water supply which will enable the installation of hydrants throughout the site in accordance with the Water Corporation Design Standard DS 63 (refer to **Figure 10**), generally located in accordance with the following requirements:

- so that the maximum distance between a hydrant and the rear of a building envelope, (or in the absence of a building envelope the rear of the lot) shall be 120m;
- so that spacing (as measured by hose-run)between hydrants in residential areas with lots per dwelling;
- centrally along the frontage of a lot to avoid being under driveways, unless the lot features a frontage 6m or less, in which case it shall be placed to the side opposite the driveway;
- at lots that have the widest frontage in the local area;
- where appropriate at the truncation of road junctions or intersections so that they can serve more than one street and can be readily located;
- hydrants should be located at least 20m from traffic calming devices i.e. median slow points or chokers, chicanes, mini traffic circles, and intersection 'pop-outs' to ensure traffic is not impeded;
- in a position not less than 10m from any high voltage main electrical distribution equipment such as transformers and distribution boards, liquefied petroleum gas or other combustible storage; and
- *directly on top of the main using a tee unless proved to be impractical.*

#### 6.1.6 Building Construction Standards

The Building Code of Australia contains bushfire construction requirements that are applied to residential classes of development, being Class 1, 2, 3 buildings in designated bushfire prone areas, or Class 10a buildings or decks associated with Class 1, 2 or 3 buildings in designated bushfire prone areas. The Building Code of Australia references AS3959 as a deemed to satisfy solution that provides one way of demonstrating compliance with the bushfire performance requirements of the Building Code.

In this instance, the form of development for park home park dwellings is akin to a Class 1 building under the Building Code of Australia and it has been assumed for the purposes of this BMP that this building class will be applied.

The bushfire construction provisions of the Building Code of Australia do not apply to Class 4 to Class 8 buildings, and some Class 9 buildings. In these instances the applicant has the discretion to utilise any or all of the elements of AS 3959 in the construction of the building that they deem appropriate.

#### 6.1.7 Notification(s) on Title

Pursuant to SPP3.7, in instances where land is assessed with a BAL rating above BAL-LOW, it is recommended that notifications be placed on title to advise on bushfire risk management implementation measures, including:

- To advise that the site is located in a bushfire prone area; and
- To advise that the site is subject to a Bushfire Management Plan.

#### 6.1.8 Staging

In the event that Lifestyle Village development occurs in a staged manner, it will be necessary to ensure that appropriate interim bushfire management measures are provided, including:

- Interim access or emergency access routes;
- Creation of additional low fuel zones / cleared areas to ensure that the intended BAL ratings can be applied; or
- The provision of boundary firebreaks especially on any balance lot.

It is recommended that for any proposed stage of the future development, a statement and plan of the proposed interim fire management strategies be submitted and approved by the City to guide the management of the site until such a time that the complete suite of management measures can be implemented pursuant to **Figure 10**.

#### 6.1.9 Compliance with City of Swan Fire Hazard Reduction Notice

The City of Swan Fire Hazard Reduction Notice (included at **Appendix 3**) contains the land management practices for properties during the period from 1<sup>st</sup> November to 30<sup>th</sup> April. The remaining areas of the subject site outside the Lifestyle Village development area are to be managed by the landowner /operator to comply with the Fire Hazard Reduction Notice. The provisions relevant to the subject site include:

- 3. All land with an area greater than 25,000m2 (2.5 Hectares or 6.2 Acres)
  - 1) Install and maintain an asset protection zone in accordance with the requirements specified in clause 13 of this notice.
  - 2) Install firebreaks as close as practicable inside of, but no more than 5m from, the property's external boundaries. Firebreaks need to be 3 metres wide with a 4 metre vertical height clearance free from flammable materials and overhanging branches (see section 10 in this notice for further details). a) Properties over 100 hectares require additional firebreaks to divide the land into areas not exceeding 100 hectares.
  - 3) Maintain all grass immediately adjacent to one side of any firebreak to a height of no greater than 10cm and a minimum width of 3 metres.
    - a) If the land is stocked, this grass must be reduced and maintained to a height of no greater than 10cm by the 1st day of December.
  - 4) Natural vegetation within 100 metres of buildings including attached and adjacent structures and essential infrastructure shall be maintained at or below 8 tonnes per hectare, by passive methods of fuel reduction that does not permanently remove or reduce the quantity or occurrence of the native plants, shrubs and trees within the subject area.
  - 5) Where a property is affected by an approved bushfire management plan, property owners must still comply with all requirements in this notice and with any additional requirements outlined within that plan.

#### 13. Asset Protection Zones Specification

Asset protection zones must be installed around relevant buildings (see section 17) and must meet the following requirements:

- 1) Extends 20 metres out from any external walls of the building, attached structures, or adjacent structures within 6 metres of the habitable building, unless varied under an approved bushfire management plan.
- 2) On sloping ground, the asset protection zone distance shall increase with 1 metre for every degree in slope on the sides of the building/structure that are exposed to down slope natural vegetation.
- 3) Asset protection zone requirements only apply within the boundaries of the lot on which the asset is located and cannot be enforced across boundaries.
- 4) The average fuel loads must be reduced and maintained at two tonnes per hectare or lower.
- 5) It is recommended asset protection zones predominantly contain vegetation of low-flammability, reticulated lawns and gardens and other non-flammable features.
- 6) All grass is maintained to or under 10cm.
- 7) The crowns of trees are to be separated where possible to create a clear separation distance between adjoining or nearby tree crowns. Clearing or thinning trees to create distances greater than 10 metres separation between tree crowns is not required or supported by this.
- 8) A small group of trees within close proximity to one another may be treated as one crown provided the combined crowns do not exceed the area of a large or mature crown size for that species.
- 9) Trees are to be low pruned (or under pruned) to at least a height of 2 metres from ground.
- 10) No tree, or shrub over 2 metres high is planted within 3 metres of a building, especially adjacent to windows.
- 11) There are no tree crowns or branches hanging over buildings.
- 12) Clear and prune scrub to reduce to a sparse density (able to walk through vegetation with relative ease with minimal deviation around trees and shrubs).
- 13) Install paths or clear flammable or dry vegetation, debris and materials immediately adjacent to the building.
- 14) Wood piles and flammable materials stored a safe distance from buildings.

#### 17. Definitions

*(Relevant building'* is classified under the Building Code as one of the following:

- single dwelling such as a detached house, duplex, villa or townhouse (Class 1a);
- small boarding house, guest house or hostel (Class 1b);

- dwellings such as apartments and flats in a building containing two or more units (Class 2);
- accommodation for unrelated people such as hotel, motel, residential part of a school, accommodation for the aged, children or people with disabilities (Class 3);
- building of a public nature such as a health care building (9a), an assembly building such as a school (9b) or an aged care building (9c);
- private bushfire shelters associated with a single dwelling (Class 10c); or
- non-habitable building including sheds, carports and private garages (Class 10a) when within six metres of a class 1a, 1b, 2, 3 or 9 building.



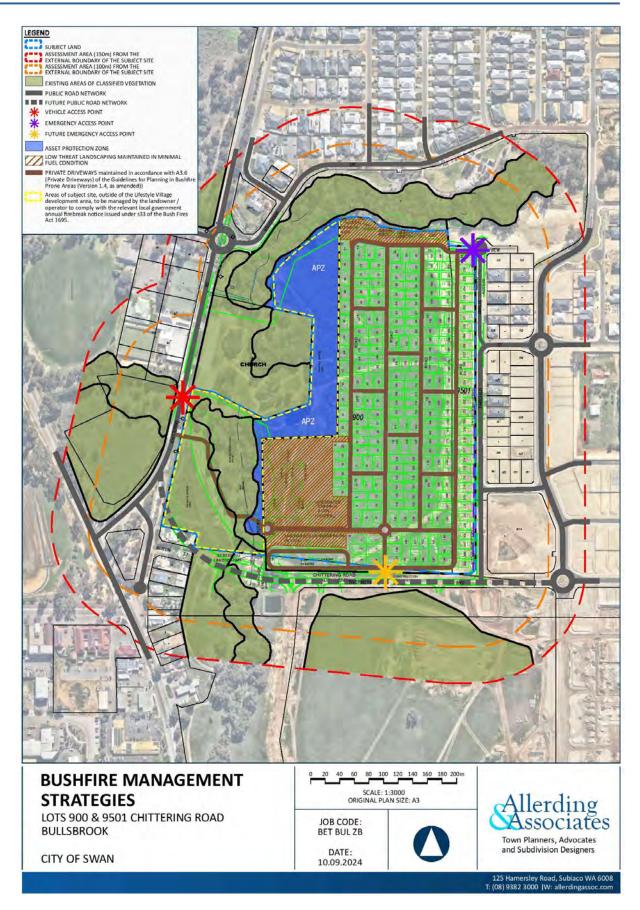


Figure 10 – Bushfire Management Strategies



#### 6.2 Compliance Table

Table 5: Assessment Against the Bushfire Protection Criteri	а
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Bushfire Protection	Intent	Method of Compliance	Proposed Bushfire Management Strategies	Response
Criteria		Acceptable Solutions		
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 The strategic planning proposal, subdivision and development application is located in an area that is or will, on completion, be subject to either a moderate or low bushfire hazard level, or BAL– 29 or below.	The BAL Contour Map at <b>Figure 9</b> demonstrates that the proposed habitable dwellings will be capable of separation from the adjacent bushfire hazard to achieve a BAL of BAL29 or lower. Accordingly, the development will be appropriately located.	The proposal meets the intent of Element 1 and achieves acceptable solution A1.1.
Element 2: Siting and Design of Development	To ensure that the siting and design of development minimises the level of bushfire impact.	<ul> <li>A2.1 Asset Protection Zone (APZ)</li> <li>Every habitable building is surrounded by, and every proposed lot can achieve, an APZ depicted on submitted plans, which meets the following requirements:</li> <li>Width: Measured from any external wall or supporting post or column of the proposed building, and of sufficient size to ensure the potential radiant heat impact of a bushfire</li> </ul>	As demonstrated in the BAL Contour Map at <b>Figure 9</b> above, future habitable buildings on proposed lots will be appropriately sited to achieve a BAL rating of BAL29 or lower due to the separation provided to the surrounding classified vegetation and the maintenance of an APZ to	The proposal meets the intent of Element 2 and achieves acceptable solution A2.1.



Bushfire Protection Criteria	Intent	Method of Compliance Acceptable Solutions	Proposed Bushfire Management Strategies	Response
		<ul> <li>does not exceed 29kW/m<sup>2</sup> (BAL-29) in all circumstances.</li> <li>Location: the APZ should be contained solely within the boundaries of the lot on which the building is situated, except in instances where the neighbouring lot or lots will be managed in a low-fuel state on an ongoing basis, in perpetuity (see explanatory notes).</li> <li>Management: the APZ is managed in accordance with the requirements of 'Standards for Asset Protection Zones'. (see Schedule 1).</li> </ul>	the standards as outlined in this BMP. The proposed APZ areas are spatially demonstrated in <b>Figure</b> <b>10</b> . The standards for APZs are included at <b>Appendix 4</b> .	
Element 3: Vehicular Access	To ensure that the vehicular access serving a subdivision / development is available and safe during a bushfire event.	<ul> <li>To achieve the intent, <u>all applicable</u> 'acceptable solutions' must be addressed:</li> <li>* The acceptable solutions do not apply at every stage of the planning process. Refer to the annotations next to each acceptable solution to determine if they apply. The annotations are outlined below.</li> <li>SP – Strategic planning proposal and structure plan where the lot layout is not known</li> <li>Sb – Structure plan where the lot layout is known and subdivision application</li> <li>Dd – Development application for a single dwelling, ancillary dwelling or minor development</li> </ul>	NA	The provisions for "Do" will be considered as part of this assessment.



Bushfire Intent Protection	Method of Compliance	Proposed Bushfire Management Strategies	Response
Criteria	Acceptable Solutions		
	<b>Do</b> – Development application for any other development		
	A3.1 Public roads (SP Sb <b>Do</b> ) The minimum requirements under this acceptable solution are applicable to all proposed and existing public roads. Public roads are to meet the minimum technical requirements in Table 6, Column 1. The trafficable (carriageway/pavement) width is to be in accordance with the relevant class of road in the Local Government Guidelines for Subdivisional Development (IPWEA Subdivision Guidelines), Liveable Neighbourhoods, Austroad standards and/or any applicable standards for the local government area.	Chittering Road and Amelia View which represent the connecting public roads to the subject site form part of the existing road network and are understood to comply with the standards contained within Appendix 4, Table 6, Column 1 of the Guidelines (refer <b>Appendix 5</b> ). The internal road network will be retained under the ownership and management of the future Lifestyle Village operator and therefore the roads will be maintained as private driveways. Notwithstanding the future internal road classification, the indicative Lifestyle Village Masterplan (refer <b>Appendix 1</b> ) provides for an internal road network comprising 6m (minimum) wide roads which achieve the horizontal and vertical clearance requirements under Figure 20 of the Guidelines.	The proposal me the intent of Element 3 and achieves acceptable soluti A3.1 though compliance with the vehicular access technical requirements of Table 6.



Bushfire I Protection	Intent Meti	Method of Compliance	Proposed Bushfire Management Strategies	Response
Criteria		Acceptable Solutions		
		<ul> <li>A3.2a Multiple access routes (SP Sb Do) Public road access is to be provided in two different directions to at least two different suitable destinations with an all-weather surface (two-way access).</li> <li>If the public road access to the subject site is via a no-through road which cannot be avoided due to demonstrated site constraints, the road access is to be a maximum of 200 metres from the subject lot(s) boundary to an intersection where two-way access is provided.</li> <li>The no-through road may exceed 200 metres if it is demonstrated that an alternative access, including an emergency access way, cannot be provided due to site constraints and the following requirements are met:</li> <li>the no-through road travels towards a suitable destination; and</li> <li>the balance of the no-through road, that is greater than 200 metres from the subject site, is wholly within BAL-LOW, or is within a residential built-out area – Figure 23.</li> </ul>	The subject land gains vehicular access from Chittering Road to the west and Amelia View to the north-east (via an emergency exit). Both Chittering Road and Amelia View provide safe access and egress via the public road network in two different from the subject land to at least two different suitable destinations with an all-weather surface. Once the future access to the Chittering Road realignment is established to the south of the subject site, connections to the future residential areas to the south and east providing additional safe access and egress via the public road network with an all-weather surface. The proposed access arrangements are spatially demonstrated in <b>Figure 10</b> . The term "suitable destination" is defined in Appendix One (Definitions) of the Guidelines as follows:	The proposal meets the intent of Element 3 and achieves acceptable solution A3.2a.



Bushfire Protection Criteria	Intent		Proposed Bushfire Management Strategies	Response
		Acceptable Solutions		
			An area that can provide shelter during a bushfire event and is either:	
			- not classified as bushfire prone on the Map of Bushfire Prone Areas; or	
			- greater than 100m from classifiable vegetation.	
			To the north and north-east of the subject site, the existing urban areas of Bullsbrook and its surrounds include residential built out areas not mapped as bushfire prone on the Map of Bushfire Prone Areas. These areas include larger parcels of land and several facilities and amenities.	
		<ul> <li>A3.2b Emergency access way (SP Sb <b>Do</b>)</li> <li>Where it is demonstrated that A3.2a cannot be achieved due to site constraints, or where an alternative design option does not exist, an emergency access way can be considered as an acceptable solution.</li> <li>An emergency access way is to meet all the following requirements:</li> <li>requirements in Table 6, Column 2;</li> </ul>	The subject site will ultimately be provided three points of direct public road access via Chittering Road to the west, Amelia View to the north-east and the future Chittering Road realignment to the south. The proposal therefore achieves the Acceptable Solution A3.2a and does not require	The proposal meet the intent of Element 3 and achieves acceptable solution A3.2b.



Bushfire Protection Criteria	Intent	Method of Compliance Acceptable Solutions	Proposed Bushfire Management Strategies	Response
		<ul> <li>provides a through connection to a public road;</li> <li>be no more than 500 metres in length; and</li> <li>must be signposted and if gated, gates must open the whole trafficable width and remain unlocked.</li> </ul>	<ul> <li>assessment against Acceptable Solution A3.2b (Emergency Access Way).</li> <li>Notwithstanding, Amelia View is intended to operate as an emergency access and the Chittering Road realignment connections will ultimately provide access for caravans, construction and emergency access.</li> <li>Both Amelia View and the Chittering Road realignment will be under the control of the City of Swan. The existing section of Amelia View to the north-east of the subject site is construction and currently services existing residential development. The use of this road as an emergency access from the subject site, with the primary vehicle entrance provided via Chittering Road, represents a logical outcome providing for functional and safe emergency access to the subject site once developed. Once the future access to the Chittering</li> </ul>	



Bushfire Intent Protection Criteria	Method of Compliance Acceptable Solutions	Proposed Bushfire Management Strategies	Response
		Road realignment is established to the south of the subject site, connections to the future residential areas to the south and east will provide additional evacuation options for residents of the Lifestyle Village. The location of proposed emergency access points is spatially demonstrated in <b>Figure</b> <b>10</b> .	



Bushfire Protection	Intent	Method of Compliance	Proposed Bushfire Management Strategies	Response	
Criteria		Acceptable Solutions			
		<ul> <li>A3.6 Private driveways (Dd Do)</li> <li>There are no private driveway technical requirements where the private driveway is:</li> <li>within a lot serviced by reticulated water;</li> <li>no greater than 70 metres in length between the most distant external part of the development site and the public road measured as a hose lay; and</li> <li>accessed by a public road where the road speed limit is not greater than 70 km/h.</li> <li>In circumstances where all of the above conditions are not met, or the private driveway is in a non-reticulated water area, the private driveway is to meet all the following require:</li> <li>requirements in Table 6, Column 4;</li> <li>passing bays every 200 metres with a minimum length of 20 metres and a minimum additional trafficable width of two metres (i.e. the combined trafficable width of the passing bay and constructed private driveway to be a minimum six metres); and</li> <li>turn-around area as shown in Figure 28 and within 30 metres of the habitable building.</li> </ul>	The indicative internal road network within the Lifestyle Village development (as demonstrated in the Masterplan at <b>Appendix 1</b> ) meets the requirements of Acceptable Solution A3.6 and Table 6, Column 4 of the Guidelines.	The proposal meets the intent of Element 3 and achieves acceptable solution A3.6.	
Element 4: Water	To ensure that water is available to enable people, property and infrastructure to	To achieve the intent, all applicable 'acceptable solutions' must be addressed: SP – Strategic planning proposal and structure plan where the lot layout is not known <b>Sb</b> – Structure plan where the lot layout is known and subdivision application	NA	The provisions for "Sb" will be considered as part of this assessment.	



Bushfire Protection	Intent	Method of Compliance	Proposed Bushfire Management Strategies	Response
Criteria		Acceptable Solutions	Ŭ	
	be defended from bushfire.	Dd – Development application for a single dwelling, ancillary dwelling or minor development Do – Development application for any other development that is not a single dwelling, ancillary dwelling or minor development		
		A4.1 Identification of future water supply (SP) Evidence that a reticulated or sufficient non- reticulated water supply for bushfire fighting can be provided at the subdivision and/or development application stage, in accordance with the specifications of the relevant water supply authority or the requirements of Schedule 2. Where the provision of a strategic water tank(s) is required a suitable area within a road reserve or a dedicated lot the location should be identified, should be identified on the structure plan, to the satisfaction of the local government.	NA	NA
		A4.2 Provision of water for firefighting purposes ( <b>Sb</b> Dd Do) Where a reticulated water supply is existing or proposed, hydrant connection(s) should be provided in accordance with the specifications of the relevant water supply authority. Where these specifications cannot be met, then the following applies:	The subject site is serviced by a reticulated water supply which will enable the installation of hydrants throughout the site in accordance with the Water Corporation Design Standard DS 63 (refer to <b>Figure 10</b> ).	The proposal meets the intent of Element 4 and achieves acceptable solution A4.2.



Bushfire Protection	Intent	Method of Compliance	Proposed Bushfire Management Strategies	Response
Criteria		Acceptable Solutions		
		<ul> <li>The provision of a water tank(s), in accordance with the requirements of Schedule 2; and</li> <li>Where the provision of a strategic water tank(s) is applicable, then the following requirements apply: <ul> <li>land to be ceded free of cost to the local government for the placement of the tank(s);</li> <li>the lot or road reserve where the tank is to be located is identified on the plan of subdivision;</li> <li>tank capacity, construction, and fittings, provided in accordance with the requirements of Schedule 2; and</li> <li>a strategic water tank is to be located no more than 10 minutes from the subject site (at legal road speeds).</li> </ul> </li> <li>Where a subdivision includes an existing habitable building(s), in accordance with the requirements listed above.</li> </ul>		
Element 5: Vulnerable Tourism Land Uses	To provide bushfire protection for tourism land uses relevant to the	Not applicable as vulnerable tourism land uses are not proposed.	NA	NA



Bushfire Intent Protection Criteria	Method of Compliance Acceptable Solutions	Proposed Bushfire Management Strategies	Response
characteristics of the occupants and/or the location, to preserve life and reduce the impact of bushfire on property and infrastructure.			

#### 7.0 RESPONSIBILITIES FOR IMPLEMENTATION AND MANAGEMENT

The following tables set out the responsibilities of the developer, landowner, and local government with regard to the initial implementation and ongoing maintenance of the required actions as contained within this BMP.

		Implementation		Management	
No.	Action	Responsible	Timing	Responsible	Timing
1	Construction of buildings to AS3959.	Landowner / Developer	Prior to the occupation of development	NA	NA
2	Install and maintain vehicular access routes and private driveways to the required surface condition and clearances as stated in the BMP.	Landowner / Developer	Prior to the occupation of development	Landowner / Operator	Ongoing
3	Install and maintain emergency access gates to the required standards as stated in the BMP.	Landowner / Developer	Prior to the occupation of development	Landowner / Operator	Ongoing
4	Install and maintain reticulated water supply to the required standards as stated in the BMP.	Landowner / Developer	Prior to the occupation of development	Landowner / Operator	Ongoing
5	Establish and maintain Plot 14 as an Asset Protection Zone to the required standards as stated in the BMP	Landowner / Developer	Prior to the occupation of development	Landowner / Operator	Ongoing
6	Establish and maintain the landscaped areas within the Lifestyle Village in a low threat state to the required standards as stated in the BMP.	Landowner / Developer	Prior to the occupation of development	Landowner / Operator	Ongoing
7	Notification on Title notifying that the site/lot is located in a bushfire prone area and is subject to a BMP.	Landowner / Developer	Following development approval	NA	NA
8	Comply with the relevant local government annual firebreak notice issued	Landowner	Ongoing	Landowner / Operator	Ongoing



		Implementation		Management		
No.	Action	Responsible	Timing	Responsible	Timing	
	under s33 of the Bush Fires Act 1954.					
9	Inspection and compliance action.	NA	NA	Local Government	Ongoing	
10	Future revisions / amendments to BMP.	NA	NA	Landowner / Developer	Prior to any future development outside the scope of this BMP.	

#### 8.0 **REFERENCES**

Department of Fire and Emergency Services 2024, *Mapping standard for bush fire prone areas*, Government of Western Australia,

<https://www.dfes.wa.gov.au/waemergencyandriskmanagement/obrm/Documents/OBRM-Mapping-Standard-for-Bush-Fire-Prone-Areas.pdf>.

City of Swan 2023, Fire Hazard Reduction Notice,

<https://www.swan.wa.gov.au/awcontent/Web/Documents/Services%20and%20Community/Emerg ency%20management/Hazard-Reduction-Notice-2023-24.pdf>.

Standards Australia Online 2018, Construction of buildings in bushfire-prone areas, AS 3959:2018.

Western Australian Planning Commission 2021, *Guidelines for planning in bushfire prone areas version* 1.4,

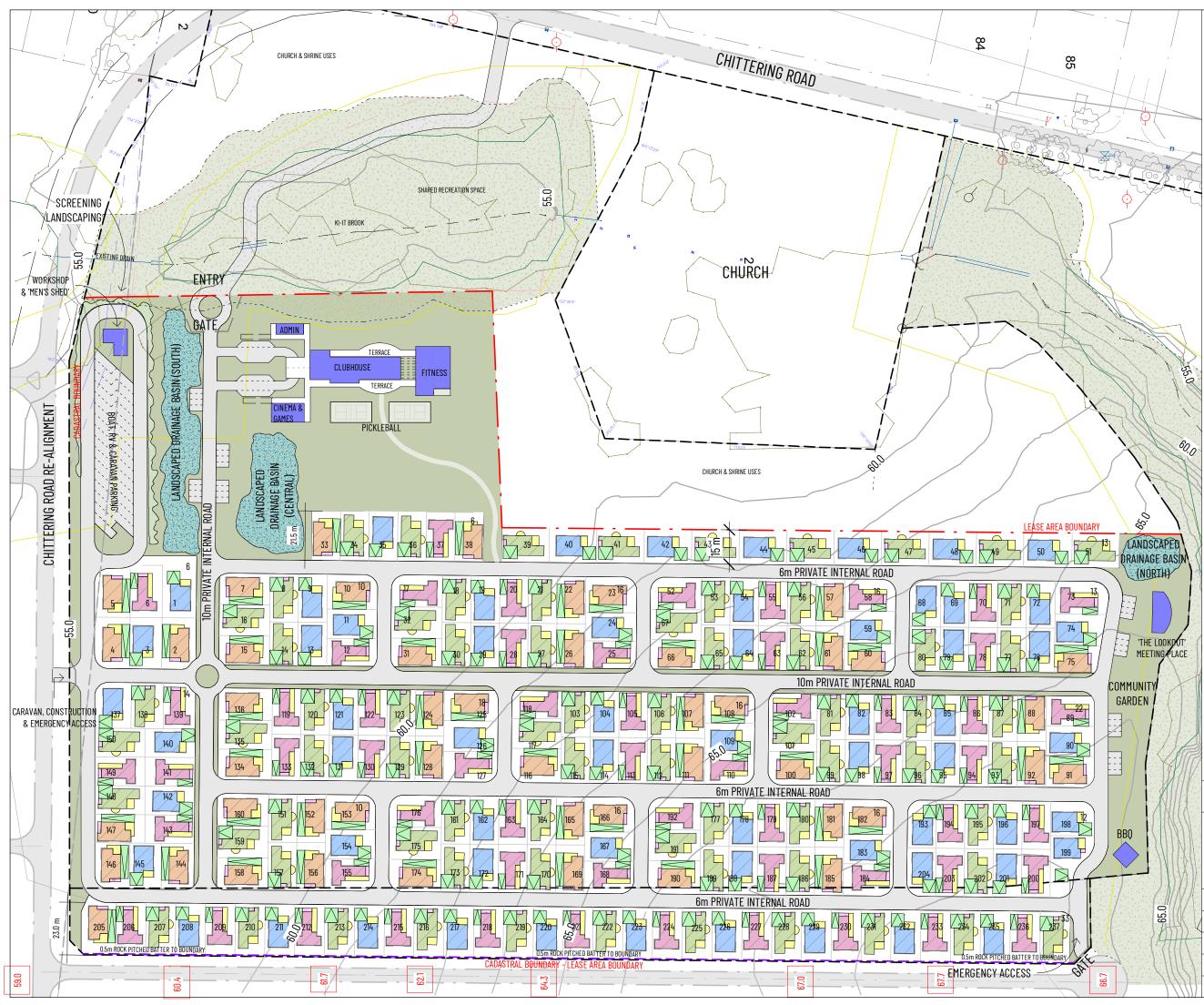
<https://www.wa.gov.au/system/files/2021-12/Guidelines-for-planning-in-bushfire-prone-areas-version-1.4.pdf>.

Western Australian Planning Commission 2015, *State planning policy 3.7 planning in bushfire prone areas,* 

<a>https://www.planning.wa.gov.au/dop\_pub\_pdf/SPP\_3.7\_Planning\_in\_Bushfire\_Prone\_Areas.pdf>.</a>



#### APPENDIX 1 – SUPPORTING PLANS





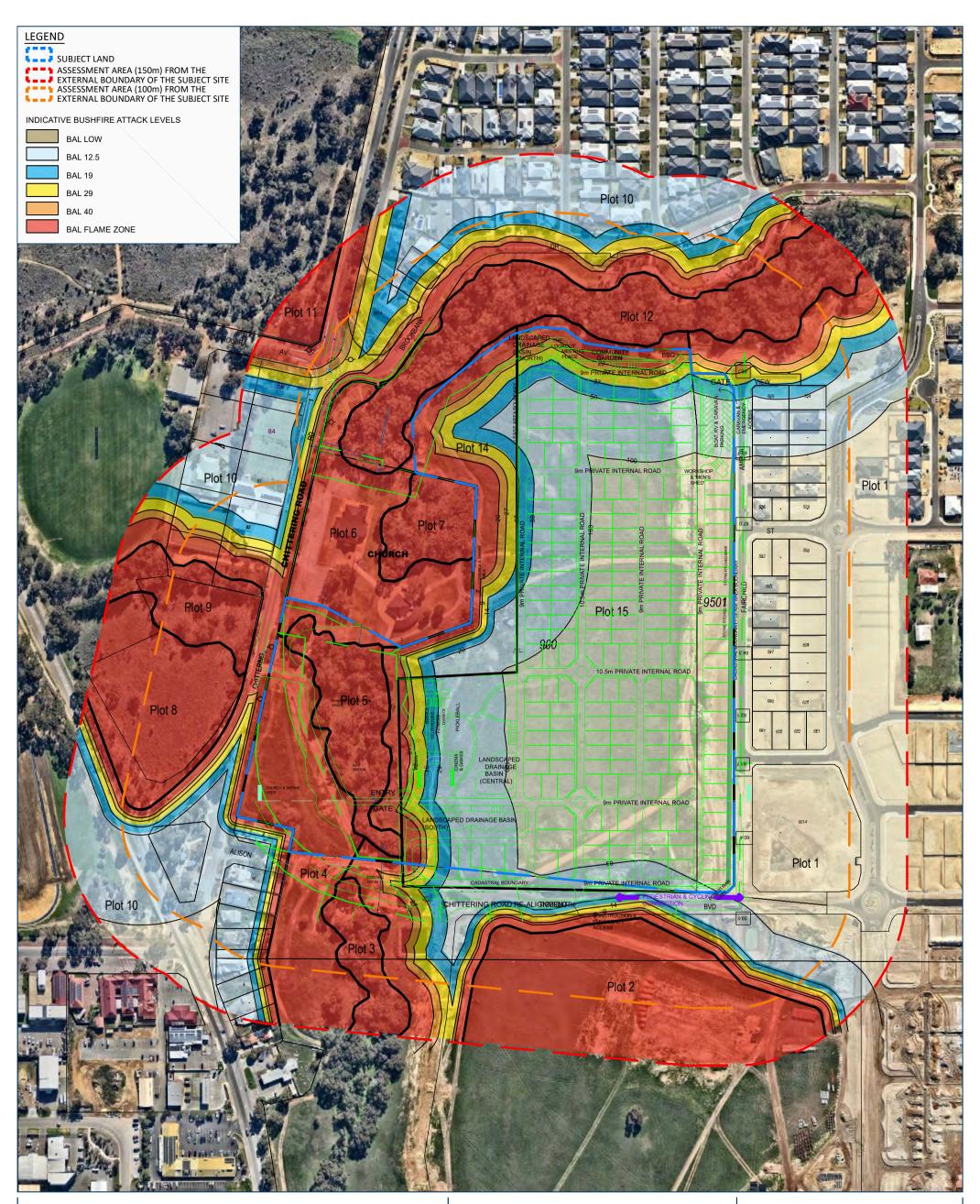
RICHARD HAMMOND ARCHITECT 1B LITTLE HOWARD STREET, FREMANTLE 0438 918 753 | RICHARD@HRARCHITECTS.COM.AU

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LEGEND								
	LANDSCAPING							
	RECREATION' ZONED AREA							
Ιc	CORE CREEK AREA							
		AREA SUBJECT Management f		E & WETLAND				
		VILLAGE AMEN	ITIES					
		LANDSCAPED [	)RAINAGE BASI	NS				
-		FENCE/GATE						
[		ROADWAY						
-		CADASTRAL BO	UNDARY					
	= =	LEASE AREA BO	UNDARY					
		TYPE A (62)		TYPE C (47)				
		TYPE B (71)		TYPE D (57)				
TO	TAL HO	IUSE SITES	- 237					
TO	TOTAL LEASE SITE AREA - 106,988m <sup>2</sup>							
ТО		CREATION AREA	- 35,095m <sup>2</sup>					
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Α		PRELIMINARY M	ASTERPLAN	28.05.2024				
В		REVISED MASTE	RPLAN	12.08.2024				
C		REVISED MASTE		16.08.2024				
D		ENTRY MOVED, ADDED	LOT NUMB.	19.08.2024				
E		HOUSE-LOT ALL	OCATION	02.09.2024				
drawing title Masterplan								
PROJECT								
BETHANIE - BULLSBROOK VILLAGE client BETHANIE project address								
CHITTERING ROAD, BULLSBROOK, WA, 6084								
Project number _								
Date	Date 02.09.2024							
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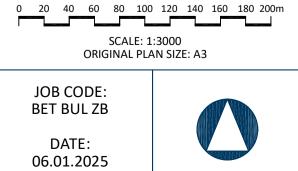
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### **BAL CONTOUR MAP**

LOTS 900 & 9501 CHITTERING ROAD BULLSBROOK

**CITY OF SWAN** 





Town Planners, Advocates and Subdivision Designers

125 Hamersley Road, Subiaco WA 6008 T: (08) 9382 3000 IW: allerdingassoc.com



#### Bullsbrook Village for the Bethanie Group

#### **Environmentally Sustainable Design Elements**

The proposed Bullsbrook Village has been designed to include a significant number of environmentally sustainable elements, with the aim of producing high quality, comfortable accommodation with economical running and management costs.

The design elements include:

**Solar orientation:** the cadastral pattern is designed to provide the homes with good solar access – with the majority of roads running north – south, and the home floor plans running east-west, the long axis of the homes provides good northern aspect allowing screening from summer sun and winter sun access to the buildings. As demonstrated with the typical home floor plans, this allows passive solar gain to the living areas and main bedroom, facing a north facing garden the full length of the floor plan.

**Solar Energy:** all the homes will have appropriately sized photovoltaic panel installations, complete with battery storage and main grid back-up. Experience in similar projects has demonstrated that residents can maximise energy consumption during the main electricity generation times – for example with use of washing machines at mid-day – and minimise costs.

The communal buildings – the clubhouse, workshop and meeting place will similarly include photo-voltaic installations, minimising mains energy consumption.

**Energy Efficiency:** the use of carefully designed floor plans with appropriate orientation provides good levels of natural lighting and ventilation. This minimises energy use for artificial lighting and air conditioning. The provision of thermal mass in the homes, with pre-cast concrete floors, provides climate moderation and acoustic separation.

The homes will be fully electric for cooking, space heating and hot water supply. All appliances will have a minimum 5 star energy rating and energy saving luminaires will be used throughout.

The village will include EV chargers for resident's electric vehicles and there will be an electric car available for residents' use on a small rental fee basis.

**Waste Management:** the village will provide a recycling facility which will enable residents to stream recyclable waste into the appropriate containers, minimising waste stream contamination. The community gardens will contain a worm farm and composting facilities for organic waste. The compost will be distributed to fruit trees and vegetable gardens cared for by village residents. Use of these systems in previous villages has demonstrated a significant reduction in waste to landfill.

**Water Management:** As illustrated on the master plan, there will be three significant basins for the retention of surface water. Well vegetated, these basins will enable the cleaning of storm water from roofs and roads, prior to dispersal in the Ki It Brook.

While the site soil conditions seem that it may prevent the use of grey water systems from the homes, further investigations are ongoing, with the research aim of using treated grey water for sub surface garden reticulation – with the overall principle of minimising the use of potable water outside the home.

**Site Development:** Traditional residential developments require extensive site development work with the use of retaining walls and fill to produce flat sites. The Bethanie Village is designed to maintain the topography and to work with it – the establishment of homes on sites allows for undulation and minimises site works – as demonstrated in the site section drawings.

**Landscape Species Selection:** The landscape design will feature the use of indigenous "Waterwise" species, to provide a lush, vegetated environment while minimising the use of water, fertiliser and insecticides.

**Modular Homes**: all of the dwellings in the village will be factory built modular construction. This method of construction has demonstrated a reduced environmental footprint for the following reasons:

**Speed of construction** – far less time than site-built homes, resulting in more efficient use of resources and reduced costs.

**Reduced Waste** – inherent in the factory process is the designed use of construction materials and consequent minimisation of construction waste. The factory setting reduces weather damage, vandalism and theft inherent in site-built construction.

**Reduced Transport** – as the homes are built in a factory setting and are far quicker than site built, there is a measurable reduction in materials delivery and worker transportation to sites. **Improved Quality** – site built homes have low levels of supervision – 1 supervisor may be responsible for 20 homes. In the factory setting, supervisors are in the homes, inspecting construction several times a day – maximising quality and minimising re-works.

## **BETHANIE BULLSBROOK**

# Landscape Concept (REV D) prepared for The Bethanie Group SEPTEMBER 2024





#### LANDSCAPE ARCHITECTS

L1.278 RAILWAY PARADE WEST LEEDERVILLE T: (08) 9388 9566 E: mail@plane.com.au

## landscape design



#### BETHANIE BULLSBROOK

PREPARED FOR THE BETHANIE GROUP

LANDSCAPE CONCEPT SEPTEMBER 2024 JOB NO. 2410001 1:750 @ A1

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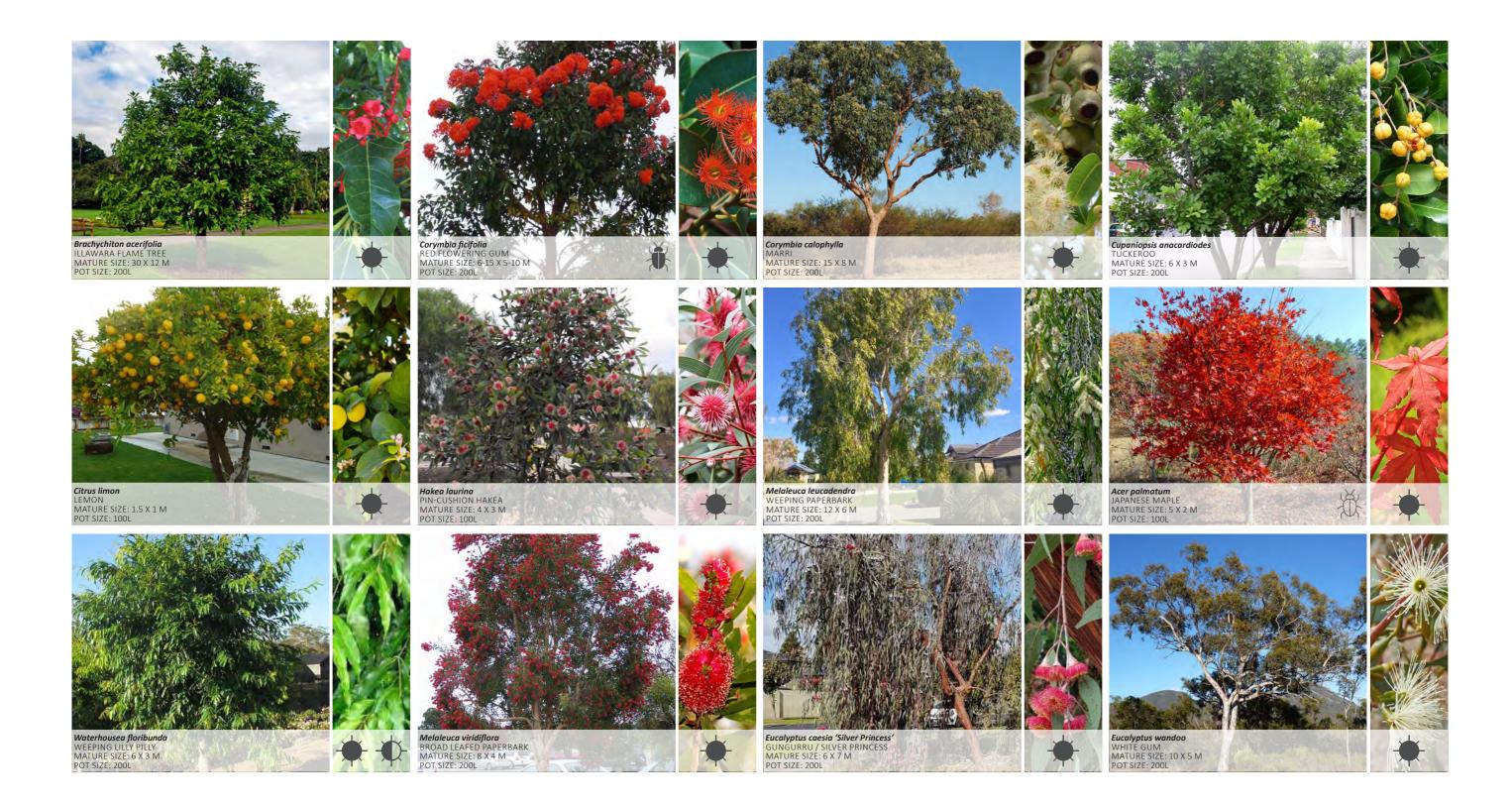
#### LEGEND

- 01 NATIVE SHRUBS, GROUNDCOVERS AND TREE PLANTING TO LOT BOUNDARY. LOW THREAT BUSHFIRE TREATMENTS ADJACENT BROOK
- 02 FEATURE PLANTING TO CLUBHOUSE AND KEY COMMUNAL LANDSCAPE AREAS
- 03 OPEN TURF KICKABOUT SPACES WITH SHADE TREES
- 04 PEDESTRIAN PATH NETWORK TO PROVIDE UNIVERSAL ACECSSIBILITY TO COMMUNAL LANDSCAPE AREAS
- 05 LANDSCAPED WETLAND TO TAKE STORMWATER DRAINAGE AND PROVIDE NATIVE FAUNA HABITAT
- 06 'THE LOOKOUT' MEETING PLACE, WITH SHADE STRUCTURE, TABLE SETTINGS AND BENCH SEATING
- 07 INFORMAL STABILISED GRAVEL PATHS THROUGH LANDSCAPE TO PROVIDE WALKING TRAIL AND LANDSCAPE INTERACTION
- 08 COMMUNITY GARDEN WITH INFORMAL PATHWAYS, SEATING OPPORTUNITIES AND SHADE TREE PLANTING
- 09 BBQ MEETING NODE WITH COOKING FACILITIES, SHADE STRUCTURE AND SEATING
- 10 STREET TREES TO THE FRONT OF EACH RESIDENTIAL LOT
- 11 FEATURE PLANTING AND TREES TO CENTRAL ROAD, CAPABLE OF TAKING A PORTION OF STORMWATER DRAINAGE FROM INTERNAL ROADS
- 12 PICKLEBALL COURTS
- 13 WORKSHOP WITH BREAKOUT SPACE
- 14 CLUBHOUSE TERRACE



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# planting palette - trees



### **BETHANIE BULLSBROOK**

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# planting palette - native shrubs & ground covers











Eremophila Kalbarri Carpet EMU BUSH MATURE SIZE: 0.2 X 2 M SPACING: 2/M<sup>2</sup> POT SIZE: 140 MM

SPACING: 1/M<sup>2</sup> POT SIZE: 140 MM



Grevillea crithmifolia 'Little crith' LITTLE CRITH MATURE SIZE: 1 X 1 M SPACING: 1/M<sup>2</sup> POT SIZE: 140 MM



GREVILLEA MATURE SIZE: 3.5 X 3 M SPACING: 1/M<sup>2</sup> POT SIZE: 200 MM









PREPARED FOR THE BETHANIE GROUP









#### LANDSCAPE ARCHITECTS

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# planting palette - feature shrubs & ground covers



### **BETHANIE BULLSBROOK**

PREPARED FOR THE BETHANIE GROUP







#### LANDSCAPE ARCHITECTS

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# 1. INTRODUCTION

This report has been prepared by Cossill & Webley (CW) to support Bethanie's Development Application for the development of a 237-dwelling village located at Bullsbrook. The extent and location of The Site is defined in Figure 1 below.

This report summarises our assessment of the engineering aspects of the proposed development of the village (referred to herein as The Site).



Figure 1 – Locality Plan (Aerial: Metromap)

# 2. SITE DESCRIPTION

The Site is located at Bullsbrook, within the City of Swan Local Government Area.

The Site has an area of 10.6 hectares and sits on land currently described as:

- Lot 900
- Lot 9501
- Lot 9013 Part Lot

The Site is bound by the existing Sacri Church to the west and Fairchild Street to the east. Adjacent to the southern boundary will be the future Chittering Road re-alignment. The northern boundary is bound by Lot 9014 consisting of existing vegetation. The Site is currently vacant.



# 3. PROPOSED DEVELOPMENT

The proposed development consists of:

- 237 residential dwellings;
- A Clubhouse for residents;
- A meeting place 'The Lookout'
- Leisure facilities consisting of pickleball courts, community garden and BBQ; and
- Landscaped drainage swales



The proposed development layout of The Site is shown in Figure 2 below.

Figure 2 - Development Layout (Source: Richard Hammond Architect – Bethanie Bullsbrook Village Masterplan)



### 3.1 Geology and Landform

### 3.1.1 Geology

The Geological Survey of Western Australia indicates that the Site is characterized by the following soil types:

- Pebbly Silt on the southern portion of the site; and
- Sandy Silt on the northern portion of the site.

Figure 3 below shows the extent of each soil type identified on the Geological Survey of Western Australia.

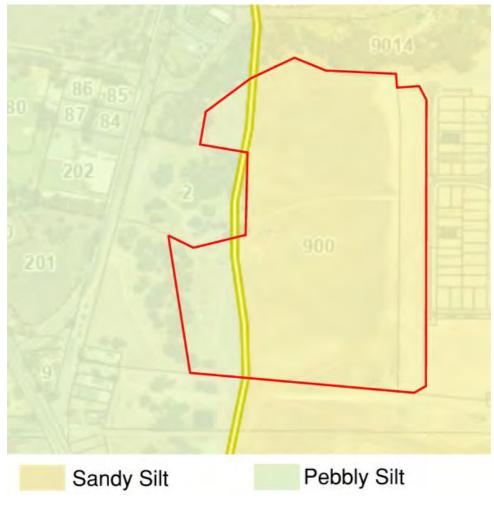


Figure 3 – Geology of The Site (Source: Geological Survey of WA)



### 3.1.2 Landform

The Site grades from northeast to southwest with an average gradient of 3%. The highest point of The Site is located around the northeast boundary towards Fairchild St located at RL68m AHD. The lowest point of The Site is located on the south-western boundary at RL54m AHD, as shown in Figure 4 below. There is a fill batter along the edge of Fairchild Street that extends into The Site that will be graded out with the future development levels.



Figure 4 - Existing Surface Contours (mAHD) (Source: MNG Access)



### 3.2 Groundwater

The groundwater levels that have been determined from the Groundwater Atlas shown on the Perth Groundwater Map indicate that the maximum groundwater level is at 32mAHD and the minimum is at 31mAHD across The Site. The natural surface levels across The Site vary between RL55m AHD to RL68m AHD as defined in Figure 5 below. The groundwater will therefore not be impacted by the proposed works on The Site.



Figure 5 - Existing Maximum & Minimum Groundwater Levels (Source: MNG Access)

### 3.3 Acid Sulfate Soils

The Site is classified as low risk of encountering Acid Sulfate Soils within 3m of the natural surface as published on the Acid Sulfate Soils Risk Map, Swan Coastal Plain (DWER-055). It is recommended that on site testing be conducted prior to development to confirm no presence of acid sulfate soils.



### 3.4 PFAS

The Site is located near the RAAF Base Pearce (Bullsbrook). Former air base activities involved fire training and disposing of PFAS in the soil and therefore PFAS has been detected in the bore water of some residents. As part of the soil remediation works, Water Corporation has commissioned to construction of a water pipeline to supply water to the affected area for water supply. Bethanie Bullsbrook Village is not in the affected area as shown in 6 below.



Figure 6 – Existing PFAS-affected Site boundary with The Site (Source: Department of Defence)

# 4. EARTHWORKS

It is proposed to undertake earthworks across The Site to create suitably sloped building sites for each dwelling in the development and to cater for road grading, stormwater management and services installation. A grading plan for the site has been prepared and in included in Appendix A.

The extremities of the site tie into the existing ground levels. A rock pitched batter is proposed along the rear of the lots adjacent to Fairchild Street to reduce the gradients across the site and to facilitate level changes within lot cells to be taken up by the built form.



# 5. ROADWORKS & FOOTPATHS

## 5.1 Connection to Existing Roads

Access to The Site is proposed from Chittering Road as shown on the Bethanie Bullsbrook Village Masterplan, in Figure 2. The Site access road will be constructed as part of the Stage 1 development and will cross the Ki-It Brook at the location of the existing culverts.

The Kingsford Local Structure Plan shows Chittering Road to be-realigned and run parallel to the southern boundary of The Site. Chittering Road is classified as Neighbourhood Connector A and Neighbourhood Connector B as shown in Figure 7 below. An emergency access and caravan access is shown on the Masterplan to connect to the Neighbourhood Connector B section of Chittering Road re-alignment. This section is proposed as a 3.5m carriageway with no median which is suitable to cater for the proposed secondary access point to The Site.

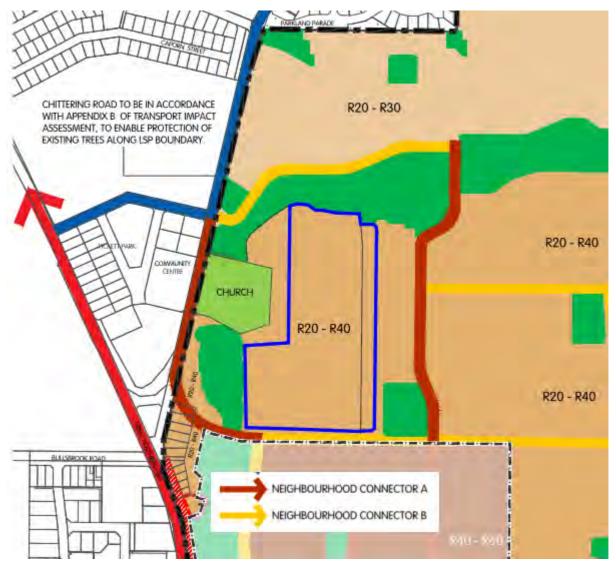


Figure 7 – Kingsford Local Structure Plan (HATCH Roberts Day)



### 5.2 Internal Road Network

The internal road network is intended to be privately owned and maintained by the operators of the Bethanie Bullsbrook Village. The internal road network consists of the entrance road, dwelling access roads and carparks for boat, recreational vehicle, caravan and visitor parking. The internal road network is illustrated on drawing Bethanie Bullsbrook Village Masterplan shown in Figure 2.

### 5.2.1 Entrance Road

The entrance road, as shown in Figure 8 below, consists of a roundabout and a divided road that serves the following purposes:

- Access to visitor car parking;
- Access to lots; and
- Turn-around area for errant drivers.

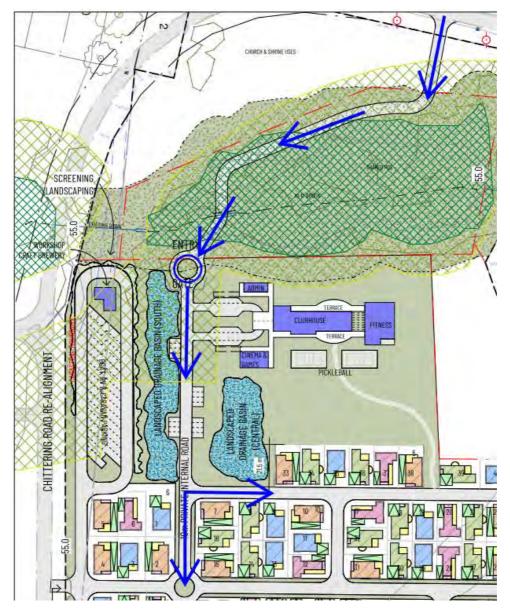


Figure 8 - Entrance Road Arrangement



### 5.2.2 Dwelling Access Roads

Internal access roads are proposed to be shared vehicle and pedestrian zones, with a speed limit of 10km/h. The carriageway varies in width, typically 5.5m to 6.0m width, and is proposed to be constructed from asphalt pavement.

A typical carriageway cross section is shown in Figure 9 below.

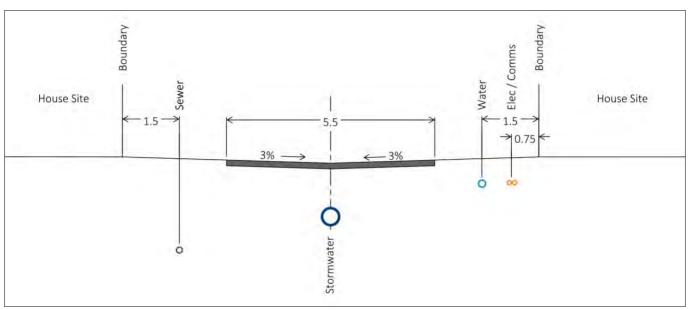


Figure 9 - Typical Dwelling Access Road Cross Section

### 5.2.3 Parking Bays

Parking bays are proposed for boat, recreational vehicle & caravans, located adjacent to the proposed clubhouse, entry gate, and landscaped drainage basins, as shown on the Bethanie Bullsbrook Village Masterplan. A total of 30 parking spaces, designed to AS/NZS 2890.1:2004 Australian Standard are proposed to be provided.

There are a further 32 additional car spaces in groups of 4 adjacent to the landscaped basins, community gardens, BBQ and lookout areas making the total parking bays for all vehicles 62.

### 5.3 Refuse Collection

It is intended that the residential dwellings, along with the clubhouse will be serviced by general waste and recycling bins, collected by a garbage truck operated by the City of Swan.

Turning movements for a typical garbage truck have been undertaken for The Site which demonstrate that a City of Swan garbage truck can have full access to The Site for the purposes of garbage collection.

# 6. STORMWATER DRAINAGE

Pentium Hydrologists have prepared a technical note summarising the proposed drainage strategy for The Site, that is consistent with the approved Local Water Management Strategy.

The general stormwater strategy for the site is to:

- Manage, retain and treat stormwater runoff generated by the first 15 mm of rainfall at-source as much as practical (e.g., in potential roadside swales, storage basins), with no discharge into the Ki-it Monger Brook.
- Provide adequate conveyance (e.g., roadside swales or piped drainage etc.) for the critical 20% AEP rainfall event to maintain serviceability of roads and pedestrian areas.
- Provide adequate flood detention storage to maintain pre-development flow rates downstream of the site



(i.e., limited discharge into Ki-it Monger Brook in accordance with existing peak flow rates).

The Bethanie Bullsbrook Masterplan shows the locations of landscaped drainage basins within the site to accommodate the various rainfall events up to and including the 1% AEP. Pit and pipe drainage will be designed within the road carriageways suitable to cater for the critical 20% AEP rainfall with larger events accommodated overland on the road pavements. Stormwater drainage infrastructure within the Bethanie village will be privately owned and operated by the owner.

# 7. WATER RETICULATION

## 7.1 Point of Supply

The Site is surrounded by potable water as shown in Figure 10 below. There is a DN300 water distribution watermain in Chittering Road, a DN100 reticulation main in Amelia Way and Fairchild Street and a DN100 watermain in Tigermoth Boulevard. It is anticipated the water supply to come from Chittering Road/Tigermoth Blvd with a single property connection to the site.



Figure 10 – Water Mains Surrounding the Site (Source: MNG Access)



### 7.2 Internal Water Reticulation

From the point of connection, water reticulation will continue through The Site, servicing every dwelling, the clubhouse and gym. This water reticulation will also provide fire fighting coverage through the provision of fire hydrants.

Beyond the point of connections, the water reticulation will be owned and maintained, by the operators of the Bethanie village.

# 8. SEWER RETICULATION

### 8.1 Point of Connection

Internal sewer reticulation from The Site will discharge to the  $\phi$ 225 gravity sewer in Tigermoth Boulevard as shown in Figure 11 below and in accordance with JDSi's sewer catchment plan for the area. The gravity sewer along Tigermoth Boulevard have been designed to capture the overall sewer from the Site.

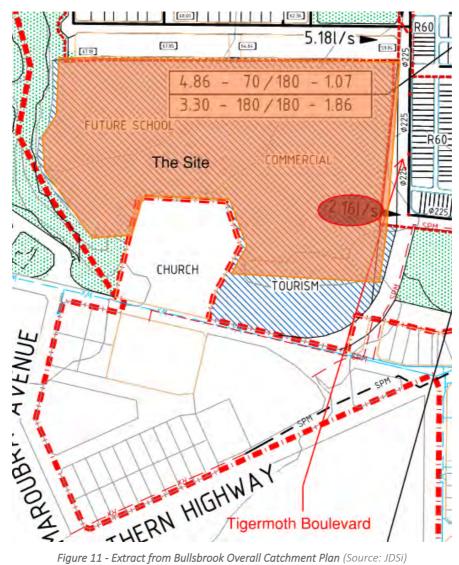


Figure 11 - Extract from Bullsbrook Overall Catchment Plan (Source: JDSi)



### 8.2 Internal Sewer Reticulation

From the point of connection, as shown in Figure 11, internal private sewer reticulation will continue through The Site, servicing every dwelling, the clubhouse and gym. Beyond the point of connection, the gravity sewer will be owned and maintained, by the operators of the Bethanie village.

# 9. POWER SUPPLY

## 9.1 Point of Supply

According to Western Power's Networks Mapping Tool, the site is serviced by power from the Muchea Zone substation, with spare capacity of approximately 20MVA. There is an existing High Voltage (HV) network along Chittering Road to which the Site would connect via a HV switchgear that is interconnected to that existing HV. From the HV switchgear, it is anticipated that 2x1MVA sole use transformers would extend into the site, as close to the clubhouse as possible. The internal HV cables will be protected by an easement vested to Western Power.

### 9.2 Internal Power Network

From the point of Western Power supply, the internal power network is intended to be a privately owned and operated AS3000 compliant network with servicing through distribution boards located throughout the site.

# **10. COMMUNICATIONS NETWORK**

## 10.1 Point of Supply

There is existing optic fibre reticulation within the subdivision to the east, and a trunk connection will be obtained from this network to service the overall development.

### **10.2 Internal Communications Network**

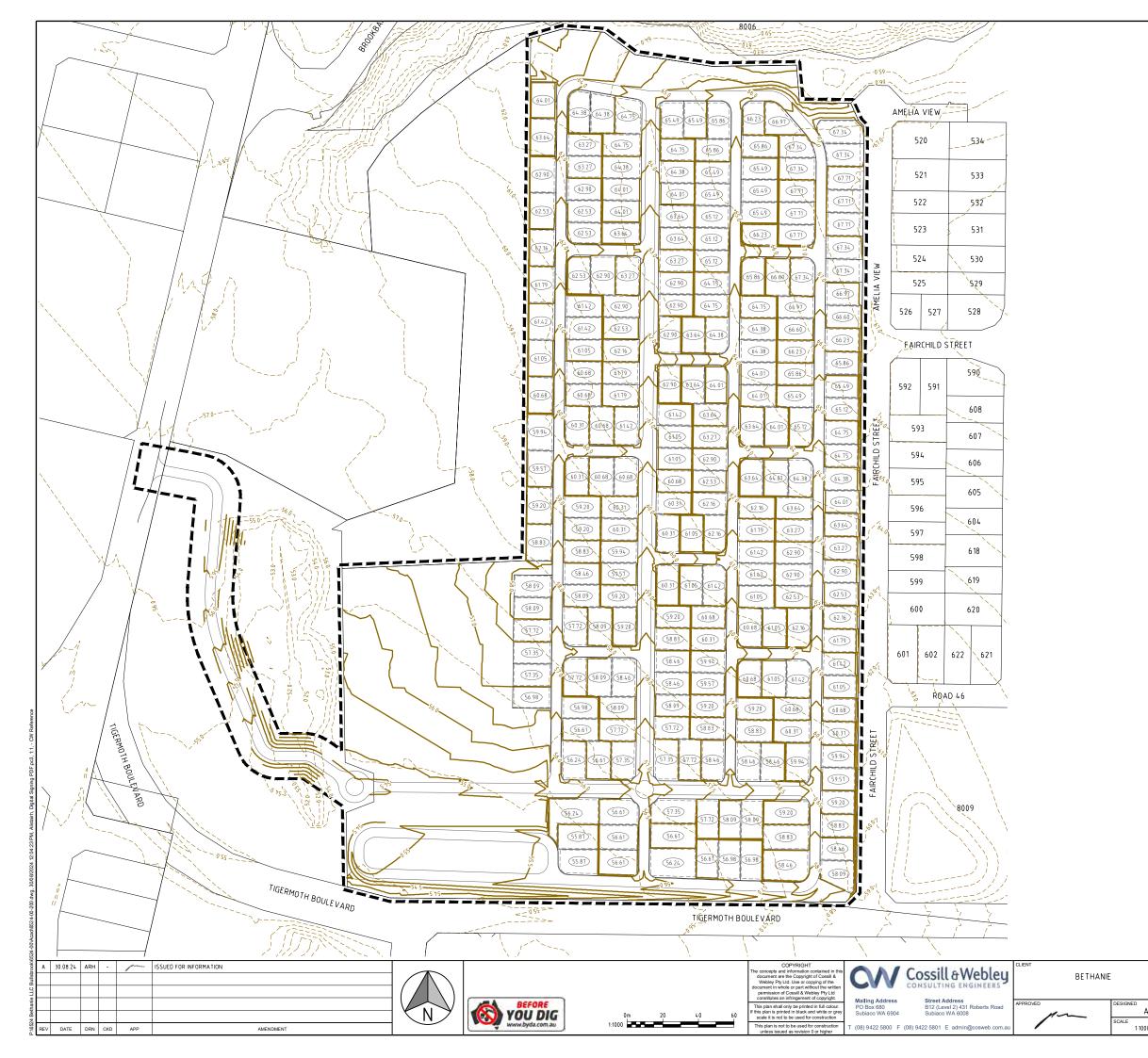
The internal communication network will be designed for network fiber serviced either via NBN or Opticomm, to allow for a fibre connection to each dwelling. The pit and pipe will be owned and operated by the network operator. Discussion will need to be had with the operators to take advantage of any smart community infrastructure to allow for CCTV/Gate Controls within the site, coupled onto the fibre network.

# **11. CONCLUSION**

This Engineering Services Report demonstrates that Bethanie Bullsbrook Village can be suitably accommodated, as it can be provided with points of connection for water reticulation, sewer reticulation, electrical reticulation, and communications. This Engineering Services Report also affirms that stormwater runoff from The Site, generated by the Bethanie Bullsbrook Village can be suitably managed.



# APPENDIX A – SITE GRADING PLAN



#### NOTES

- 1. ALL LEVELS IN METRES TO AHD. SURVEY BY xxx.
- 2. BATTERS TO EXISTING SURFACE AT 1:3 (CUT) 1:4 (FILL) UNLESS NOTED OTHERWISE
- BATTER POSITION FOR FUTURE WALLS TO ENSURE CUT TO FILL EARTHWORKS BALANCE.
- ALL UNSUITABLE MATERIAL TO BE REMOVED BY THE CONTRACTOR TO APPROVED TIPPING SITE PRIOR TO COMMENCEMENT OF CONSTRUCTION. ALL FEES TO BE PAID BY CONTRACTOR.
- 5. EXTENT OF CLEARING AND EARTHWORKS TO BE LIMITED TO THE STAGE CLEARING BOUNDARY UNLESS AGREED WITH THE SUPERINTENDENT.
- 6. ALL CLEARED MATERIAL TO BE MULCHED AND STOCKPILED ON SITE AS DIRECTED BY THE SUPERINTENDENT.
- CONTRACTOR TO LOCATE ALL EXISTING SERVICES PRIOR TO COMMENCEMENT OF WORKS ON SITE.
- CONTRACTOR TO GRADE EVENLY BETWEEN DESIGN CONTOURS AND MATCH INTO EXISTING SURFACE AT LIMIT OF EARTHWORKS BOUNDARY WHERE APPROPRIATE.
- 9. EXCESS CUT FROM EARTHWORKS SHALL BE PLACED ON SITE AS DIRECTED BY THE SUPERINTENDENT.
- 10. WHERE LIMESTONE IS WITHIN 600mm OF THE FINAL SURFACE LEVEL THE CONTRACTOR SHALL TREAT THE SITE IN ACCORDANCE WITH THE SPECIFICATION.
- 11. DESIGN LEVELS SHOWN SHALL BE ON THE FINISHED SURFACE INCLUDING TOPSOIL WHERE SPECIFIED.
- THE CONTRACTOR SHALL LIMIT THE MOVEMENT OF EQUIPMENT AND MANPOWER TO THE MINIMUM AREA NECESSARY AND PROTECT ALL VEGETATION AND EXISTING SERVICES ON SITE.
- 13. ADJACENT RESIDENTS TO BE NOTIFIED OF THE WORKS AT LEAST TWO WEEKS IN ADVANCE. CONTRACTOR TO PROVIDE MOBILE NUMBER FOR SUPERVISOR AS PART OF NOTIFICATION.

LEGEND		
DESCRIPTION	SYMBOL	
LIMIT OF WORKS BOUNDARY		
FINISHED SURFACE CONTOUR MAJOR	25.0	
EXISTING SURFACE CONTOUR		
FINISHED LOT PAD LEVEL	25.00	
PROPOSED RETAINING WALL		
EXISTING RETAINING WALL	1.42 X 10.30 X 10.30 X 10.30 X	
FUTURE RETAINING WALL	Contractor and the	
BUILDING SETBACK LINE		
EXISTING TREE TO BE RETAINED	$\odot$	
EXISTING TREE TO BE REMOVED	0	

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A

NOTICE TO CONTRACTOR

IT IS THE CONTRACTOR'S RESPONSIBILITY TO INVESTIGATE



### **Technical Memo**

Date: 09 September 2024 To: Bethanie Group Ltd – David Lorimer From: John Halleen

### Preliminary Environmental Assessment – Bethanie Bullsbrook Village Lot 900 Chittering Road, Bullsbrook.

### **Overview**

Pentium Water has been engaged by 'The Bethanie Group Ltd' (Bethanie) to complete a technical, environmental summary memo for Lot 900, Chittering Road, Bullsbrook Western Australia ('the site') to support the Bethanie Bullsbrook Village Development Application (DA).

Bethanie proposes constructing and operating a contemporary lifestyle community village (the Bethanie Bullsbrook Village) to provide accommodation for over-50s who want to downsize and/or seek more affordable accommodation options.

The Bullsbrook Village consists of the following elements:

- Residential dwellings (or group dwellings)
- Internal roads
- Open space areas for village residents & visitors
- Stormwater bio-retention swales
- Bowls club
- Community garden and BBQ areas.

The Bethanie Bullsbrook Village will be entirely managed (onsite by Bethanie), including security, grounds building maintenance and landscape services.

The Bethanie Bullsbrook Village concept plan is provided in Appendix A.

### Site Context

Lot 900 covers a total area of approximately 13.15 hectares (ha). The Ki-it Monger Brook separates the lot (towards the western boundary).

The land used adjacent to Lot 900 includes the Kingsford residential estate to the east and the Bullsbrook Our Lady of the Revelation Church (owned and operated by the SACRI Association).

Regionally, the site is located approximately:

- 35 kilometres (km) northeast of the Perth CBD
- Less than 1 km northeast of Bullsbrook town centre
- 1 km east of RAAF Pearce air base.

Outside the core Ki-it Monger Brook creek line, the 13.15 ha site has been historically cleared and primarily used as cattle paddocks. The cleared cattle paddock area (east and south of Ki-it Monger Brook) totals approximately 10 ha. This cleared paddock area is the focus of the Bethanie Bullsbrook Village development. Temporary uses within

the site include a construction access road that services the Kingsford residential estate development via Chittering Road.

### Key environmental asset – Ki-it Monger Brook

Historically, the site has been extensively cleared for agricultural purposes and consists mainly of cattle grazing paddocks; therefore, it has limited environmental value. The scattered *Eucalyptus rudis* (flooded gums) trees within the Ki-it Monger Brook creek line represent the key ecological asset within Lot 900.

The Ki-it Monger Brook is a seasonal flowing creek line that traverses the northern boundary and dissects a portion of the site towards the western boundary. The portion of the Ki-it Monger Brook within and adjacent to the site has historically been modified, including the infilling of the creek and the installation of culverts.

The flooded gum trees within the Ki-it Monger Brook creek line will be maintained within the defined setback from the brook, which was established in the approved 2021 Ki-it Monger Brook Foreshore Management Plan (FMP) (RPS 2021) for conservation, flood protection, better urban water management and open space.

Figure 1 illustrates the site boundary, the Ki-it Monger Brook, the adjacent Kingsford residential estate subdivision and the Our Lady of the Revelation Church.



Figure 1: Site Boundary of Lot 900 and adjacent land uses

2

### Objective

The objective of this memo is to support the preparation and implementation of the Bethanie Bullsbrook Village Development Application through:

- An assessment of the synthesis of environmental and planning information from various sources regarding the site's critical environmental attributes and values.
- Define the critical management actions that will be implemented to mitigate risks to the key environmental asset throughout the construction and post-construction phase of the Bethanie Bullsbrook Village.

This assessment is based upon:

- Perform a desktop assessment of the landholding, including the existing planning and environmental approvals.
- Desktop assessment of the key environmental elements, including the Ki-it Monger Brook.
- Kingsford Residential Estate LSP (Hatch 2022) which included:
  - Environmental Assessment Report (RPS 2018)
  - Vegetation and Flora survey (Ecologia 2016)
  - o Local Water Management Strategy (RPS 2018)
  - Ki-it Monger Brook Foreshore Management Plan (RPS 2021)

### Surrounding Land Uses

The landholdings surrounding the site include:

- Kingsford residential estate
- RAAF Pearce airbase
- Bullsbrook town centre
- Bush Forever Site No.89
- Playing fields/football oval

Table 1 presents a summary of the main land uses within approximately 1 km of the site, as identified from the site walkover and a review of available geographic information systems.

Site	Land Use	Distance
Ki-it Monger Brook	Ki-it Monger Brook is an ephemeral creek which traverses across the north of Lot 900	Within & adjacent to Lot 900
Kingsford Residential Estate	Kingsford residential estate is currently under development. and expected to contain 2,355 dwellings	Adjacent to Lot 900
Existing Bullsbrook town centre	The Bullsbrook central shopping area	500 m south- west
Great Northern Hwy	The highway is the main north-south route between Perth and northern WA	90 m west
Bush Forever Site 89	EPA threatened or poorly reserved Plant Communities, subject to protection under EPBC	40 m west
Pearce RAAF Base	ce RAAF Base Pearce RAAF base is the primary Air Force base in WA and one of the busiest RAAF bases in the country	
Our Lady the Revelation Church (Sacri Church)	Lot 2 Chittering Road which is owned and managed by the SACRI Association as a place of worship within the Our Lady of the Revelation Church and surrounds	Adjacent to Lot 900
Chittering Rd	A main road within Bullsbrook that connects with Great Northern Hwy	Adjacent to Lot 900

 Table 1:
 Land uses, structures and/or sensitive receptors within 1 km of the site

These are illustrated in Figure 2.

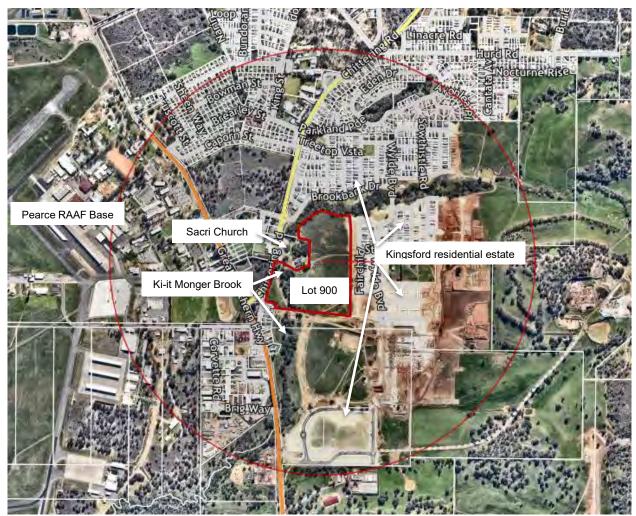


Figure 2: The main land uses within 1 km of Lot 900 site

### Planning and Environmental Approval Status

#### Land use zoning

Lot 900 Bullsbrook Village is zoned 'Urban' under the Metropolitan Region Scheme (MRS) and 'Urban Development' under the City of Swan Local Planning Scheme No. 17 (Figure 3).

Lot 900 benefited from the planning and environmental approvals underpinning the Kingsford residential development land use re-zoning, local structure plan and management plans. Specifically, Lot 900 (and therefore Bethanie Bullsbrook Village DA) benefits from the following historical planning (and environmental) approvals:

- 1. Lot 900 was identified for 'Urban' development within the Bullsbrook Townsite District Structure Plan (City of Swan 2018).
- 2. 'Urban' land use under the Metropolitan Region Scheme (MRS) & 'Residential' under the City of Swan Local Planning Scheme No. 17.
- 3. The planning and land use approvals were supported by:
  - a. District Water Management Strategy (DWMS) (RPS 2016)
    - b. Local Water Management Strategy (LWMS) (RPS 2018)
    - c. Ki-it Monger Brook Foreshore Management Plan (FMP) (RPS 2021)
  - d. Landscape masterplan or concept plan (Richard Hammond 2024)

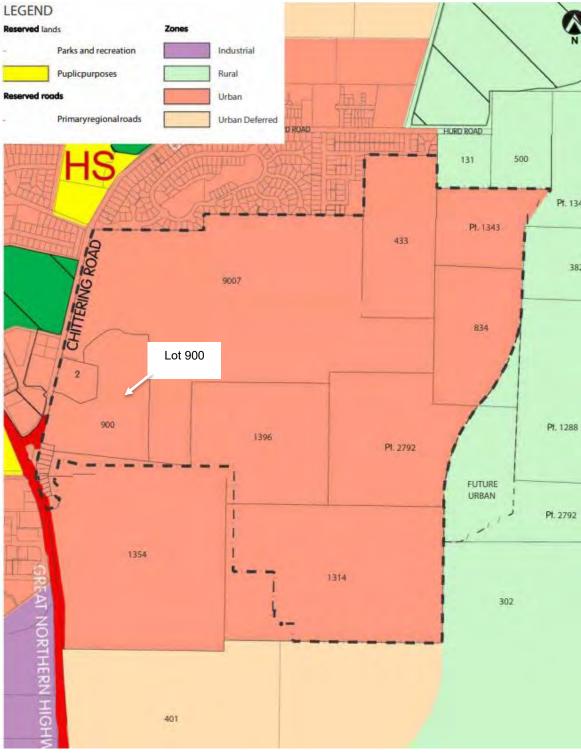


Figure 3: MRS land use zoning (Urban)

A detailed summary of the site's planning and lot title status Table 2.

Table 2: Site Summary				
Element	Lot 900 Bullsbrook			
Address	Lot Suburb		Suburb	
Lot 900 Bullsbrook Village				Bullsbrook
Lot details	Deposited Plan	C/T		Area
900	P407242	2914/546		13.15 ha
Local Government Area	City of Swan			
Zoning	Metropolitan Region Scheme (MRS)		Local Planning Scheme (LPS) No. 17	
Lot 900	Urban – 13.15 ha		Residential – 13.15 ha	
District Structure Plan	Bullsbrook Townsite District Structure Plan (City of Swan 2018).			
Local Structure Plan	Kingsford Bullsbrook Central (Hatch 2022)			

### **Bethanie Bullsbrook Village**

Bethanie Bullsbrook Village development area is predominantly confined to the historical cattle paddock area as illustrated in Appendix 1.

The Bethanie Bullsbrook Village development includes the establishment of approximately 3 ha open spaces areas and landscape plantings adjacent to the Ki-it Monger Brook.

Stormwater will be managed through vegetated swales/tree pits within the village area and larger bioretention swales will be incorporated into open space areas adjacent to Ki-it Monger Brook consistent with the approved Local Water Management Strategy (LWMS) neighbouring the village development. A site-specific Urban Water Management Plan (UWMP) has been prepared specifically for the Bethanie Bullsbrook Village. The UWMP defines the stormwater management framework, including the detailed bioretention swales design and landscape response.

The internal road network provides access to the village from Chittering Road and the adjacent Kingsford residential estate. The entry road from Chittering Road will traverse a historically infilled portion of the Ki-it Monger Brook. The construction of the entry road will be subject to a specific management framework defined in the Department of Water and Environmental Regulation (DWER) permit to interfere with bed and banks and an Erosion, Sediment and Drainage Control Plan (ESDCP).

### **Historical and Current Land Use**

The area of Lot 900 comprises largely cleared land, historically used for agricultural purposes, namely cattle and sheep grazing with limited environmental value. Site historical aerial photography from 1965 to 2024 shows that most of the site has been cleared of native vegetation since pre-1965 (Figures 4, 5 and 6).



Figure 4: Aerial photography of the site in 1965

The 1965 image identifies portions of the Ki-it Monger Brook that were cleared and infilled, with pipes and culverts installed. The land adjacent to the brook was cleared of native vegetation and used as livestock paddocks.



Figure 5: Aerial photography of the site in 1983

7

The 1983 image shows that the creek line remained cleared and infilled. The dominant land use was a rural cattle paddock. An internal track crosses the brook, providing access to Chittering Road.



Figure 6: Aerial photography of the site in 2024

The aerial image of the 2024 (or current) site shows that the dominant land use remains an open paddock. Additional flooded gum trees (< 20) have grown on the eastern side of the brook. A temporary access track that traverses Ki-it Monger Brook is evident along the southern boundary of Lot 900.



Figure 6: Lot 900 and the adjacent Kingsford residential development

### **Key Environmental Elements**

#### **Bush Forever**

Bush Forever sites within 1 km of Lot 900 are shown in Figure 7.

Bush Forever Site 89 is located approximately 30 m – 40 m (at the closest point) to Lot 900. Bush Forever Site 89 is separated from Lot 900 by the Chittering Road Reserve. The Bethanie Bullsbrook Village is located on the eastern side of Ki-it Monger Brook. The distance from Bush Forever Site 89 to the Bullsbrook Village will be over 100 m.



Figure 7: Bush Forever Locations

#### Ki-it Monger Brook

The Ki-it Monger Brook is an ephemeral waterway that runs west of the site. Its catchment area is approximately 5.2 km<sup>2</sup> upstream of the Great Northern Highway. The Ki-it Monger Brook creek line was historically formalised (infilled in areas) and cleared with culverts installed, as seen in historical images above in Figures 4 and 5.

An informal track that traverses the Ki-it Monger Brook was constructed and used (prior to 1960) to access Chittering Road.

No significant flora species have been recorded or are likely to occur along the Ki-it Monger Brook. The site was historically cleared of native vegetation and the land used for agricultural purposes. The fauna habitat values are limited to the flooded gum trees.

The modelled 1% Annual Exceedance Probability (AEP) stormwater flows (which define the 1 in 100-year flood event) show that stormwater in a 100-year event is contained within the brook channel (or 5 m—10 m either side of the brook).

Figure 8 illustrates the flood levels within a 1 in 100-year stormwater event.

There are no mapped Resource Enhancement Wetlands or Conservation Category Wetlands within Lot 900.

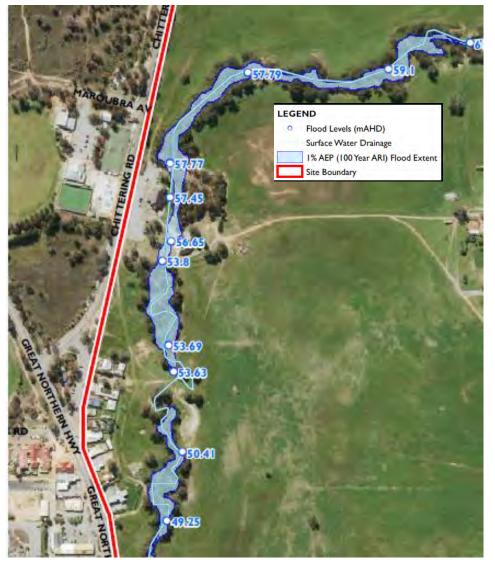
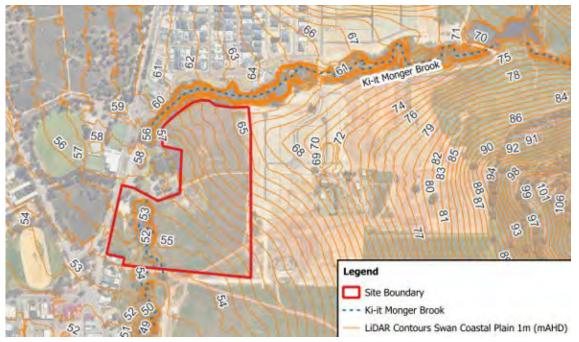


Figure 8: Pre-development 1% AEP Flood Levels (RPS 2018)

### Topography & Geology

The site gently slopes from the northeast to the southwest. Topographically, it slopes from the northeast with a 65 m Australian Height Datum (AHD) height to 52 m AHD in the southwest. The Ki-it Monger Brook to the north of the site has elevations between approximately 56 m AHD and 63 m AHD.

Figure 9 details the topography of the site.



#### Figure 9: 1m contour lines

The environmental geological mapping (Gozzard, 1986) is shown in Figure 3. This mapping indicates two surficial geological units within the site:

**Sandy silt (Msg)**: underlying the majority of the site, described as brown solid, firm, friable, dispersive in part, occasional pebbly horizons with a little matrix containing quartzite, quartz, granite, laterite, of colluvial origin.

**Pebbly silt (Mgs1)**: underlying the southwestern corner of the site, described as solid brown silt with common fine to occasionally coarse-grained, sub-rounded laterite quartz, heavily weathered granite pebbles, some fine to medium-grained quartz sand, of alluvial origin.

Figure 10 shows the site is predominantly sandy silt (Msg), while the western portion is dominated by pebbly silt (Mgs1).

#### **Geotechnical Assessment**

A geotechnical investigation was undertaken by Structerre in 2024 for Lot 900. This comprised 17 boreholes to a depth of 2.1m, 15 Dynamic Cone Penetration Tests (DCP) to a depth of 1 m and six permeability tests to a depth of 1 m. The main results from the investigation include:

- Soil permeability ranging from 0.5 to 3.1 m/day.
- Lot 900 generally consist of:
  - Topsoil 0.2 m overlaying Sandy Clay with gravel to the investigated depth of 2.5 m.
  - Pockets of Sand / Gravelly Sand encountered (Bores 8 15) to 1.9 m, which overlayed the Sandy Clay material to a target depth of 2.5 m.
- Water table not encountered.
- Localised surface ponding and water perching on cohesive soils may occur during periods of rainfall.

• The site investigation results are consistent with the regional surface geology (Figure 3), which identifies most of the site as Msg (Sandy silt) and the western portion of the site as Mgs1 (pebbly silt).





### Social Surrounds

The Pearce RAAF Base is located approximately 1 km west of Lot 900. The assessed and mapped Australian Noise Exposure Forecast (ANEF) 20 contour for the Pearce RAAF Base is located outside Lot 900 and, therefore, the Bethanie Bullsbrook Village. No specific or additional noise amelioration specific to aircraft is required.

Great Northern Highway is approximately 90 m (at the closest point) to Lot 900. Chittering Road is directly adjacent to Lot 900's western boundary.

Bethanie Bullsbrook Village, located on the eastern side of Ki-it Monger Brook, is separated from the Great Northern Highway and Chittering Road by approximately 100 m.

#### Aboriginal Heritage

Ki-it Monger Brook 2—Bullya Spring 22669 is associated with mythological and natural features and is a water source. The Aboriginal heritage report (Ethnoscience 2017) confirmed that Bullya Spring 22669 is in Lot 2 (near the eastern boundary).

The Bullya Spring 22669 site is outside Lot 900 and the Bethanie Bullsbrook Village development area. Figure 11 illustrates its location within Lot 2.



### Figure 11: Aboriginal Heritage Site

### **Environmental Management**

### Identification of Key Environmental Risks

The site, since pre-1965, has been cleared and used for cattle livestock paddocks.

The sole environmental asset within Lot 900 is the Ki-it Monger Brook. The brook has been historically modified (pre-1960), including the clearing of native vegetation and the infilling of the creek line, the installation of informal track crossings, and the use of the creek area by livestock.

The construction of the Bethanie Bullsbrook Village (including the internal entry road across the brook) presents limited risks to the Ki-it Monger Brook during the construction phase (specific to earthworks, dust, road crossing, and drainage management).

The critical focus is post-construction, stormwater management, and the Ki-it Monger Brook FMP implementation.

Table 3 defines the management framework applied across the construction and post-construction work phases.

Element	Management Responses
<ul> <li>Earthworks:</li> <li>Site earthworks are required to install civil infrastructure and</li> </ul>	<ul> <li>Construction Phase</li> <li>Prepare and implement an Erosion, Sediment and Drainage Control Plan (ESDCP) throughout the earthworks/village development stage. The ESDCP includes the following elements:</li> </ul>
construct roads, group dwelling sites, community (resident) assets, and bio-retention drainage basins.	<ul> <li>Erosion, sediment and drainage risk assessment Erosion and Sediment Control Policy and Guidelines for Local Government (EMRC 2008).</li> <li>Erosion, sedimentation, drainage control measures objectives and management actions.</li> <li>Monitoring program.</li> <li>Implementation strategy and responsibilities.</li> </ul>

#### Table 3: Bethanie Bullsbrook Village Management Framework

Element	Management Responses
<ul> <li>Entry Road Crossing:</li> <li>An entry road crossing will be constructed across the Ki-it Monger Brook to enable access to the development area.</li> <li>The location of the road crossing will be within a historically cleared area.</li> </ul>	<ul> <li>Implement the DWER-approved permit to interfere with beds and banks for the Ki-it Monger Brook entry road crossing. ESDCP will complement the permit.</li> <li>The permit will address the following elements:         <ul> <li>Spatially define the entry road crossing traversing the brook.</li> <li>The detailed engineering design of the road crossing.</li> <li>Define the management action(s) to be implemented that mitigate the disturbance risks (i.e., primarily erosion &amp; sedimentation) to the Ki-it Monger Brook watercourse. The management actions include:</li></ul></li></ul>
<ul> <li><b>Dust:</b></li> <li>The removal of the livestock grazing pasture layer will expose loosened soil. This poses a dust generation risk, particularly during the summer period.</li> </ul>	<ul> <li>ESDCP outlines prescriptions of risk management actions for dust control. The key dust management actions include:         <ul> <li>Dust/wind fences.</li> <li>Dust suppression measures (i.e., via water carts/sprinklers).</li> <li>Weather (and precisely wind direction &amp; speed) assessment.</li> <li>Addressing dust complaints.</li> </ul> </li> </ul>
<ul> <li>Drainage management during the construction phase:</li> <li>Stormwater runoff during construction may pose a risk to the Ki-it Monger Brook.</li> </ul>	<ul> <li>The UWMP details the size and location of the bioretention and stormwater management swales, including the engineering design and landscape design.</li> <li>The ESDCP addresses the specific management actions, including:         <ul> <li>Sediment fencing.</li> <li>Temporary drainage areas.</li> <li>Stockpile management.</li> </ul> </li> </ul>
	Post Construction phase
<ul> <li>Stormwater management post- development:</li> <li>The site's development will see an increased level of impervious surfaces, which may increase runoff.</li> <li>Due to the Kingsford development being uphill from Lot 900, this may slightly increase the site's flood risk.</li> <li>Management addressed through future UWMP and existing FMP incorporating flood management controls.</li> </ul>	<ul> <li>Stormwater from roofed, paved and driveway areas be collected and detained within the bio-retention stormwater basin to reduce peak flow rates before discharging into the Kit-it Monger Brook.         <ul> <li>UWMP will address the abovementioned aspects and Water quality trigger levels for post-development monitoring.</li> <li>Floodways to be maintained concerning their ecological value and hydraulic capacity.</li> </ul> </li> </ul>
<ul> <li>Foreshore management:</li> <li>Landscaping of open space areas and people management adjacent to the Ki-it Monger Brook.</li> </ul>	<ul> <li>The City of Swan approved Foreshore Management Plan (RPS 2021), which will be implemented through detailed landscape plans and civil engineering designs. The critical management outcomes include:         <ul> <li>Landscape, including tree planting within open space areas and the location of pedestrian paths, will be by the FMP and City of Swan.</li> <li>Design of bioretention swales in POS adjacent to Ki-it Monger Brook.</li> </ul> </li> </ul>

### **Key Management Outcomes**

**Permit to interfere with bed and banks for the Ki-it Monger Brook entry road crossing:** Approved by DWER prior to the commencement of the entry road construction.

**Erosion, Sediment and Drainage Control Plan (ESDCP):** Approved by the City of Swan as a component of the Bethanie Bullsbrook Village DA before the commencement of construction works.

**Urban Water Management Plan (UWMP):** Approved by the City of Swan as a component of the Bethanie Bullsbrook Village DA before the commencement of construction works.

### **Complementary Management Plan**

#### Ki-it Monger Brook Foreshore Management

The approved Ki-it Monger Brook FMP (RPS 2021) includes the portion of the brook within Lot 900. The FMP outlines the management actions for the interface area along the Ki-It Monger Brook, inclusive of:

- Rehabilitation of the brook foreshore area.
- Passive recreation opportunities and formalised open space areas for picnics and informal gatherings.
- The pedestrian path system will extend, where possible, along the length of the interface area to define the public use area.
- The landscaping of the bioretention swales areas adjacent to the Ki-it Monger Brook.

### Conclusion

The Bethanie Bullsbrook Village is located within a historically cleared open paddock area. The key environmental attribute, Kit-it Monger Brook (and associated values), has been accommodated within the Bethanie Bullsbrook Village DA. The construction and operation of the village within a former paddock area represents negligible environmental risk. The identified risk(s) are focused on Ki-it Monger Brook (the sole environmental asset) and are primarily short-term through the construction phase.

The management plans, defined in Table 3, address the environmental risks to the Kiit Monger Brook throughout the village construction and operational phases. Implementing the management plan(s) and associated actions will ensure no significant impact(s) on the Ki-it Monger Brook.



### **Appendix A: Proposed Bethanie Bullsbrook Village**

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# PTG00593

# Waste Management Plan Bullsbrook Bethanie Village

Date 10<sup>th</sup> September 2024 | Revision B

Prepared for Bethanie Group

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www.ptgconsulting.com.au

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# **REVISION SCHEDULE**

Revision No.	Date	Description	Prepared by	Quality Reviewer	Independent Reviewer	Project Manager Final Approval
Α	22/08/2024	For issue	KC	AW	AW	AW
в	10/09/2024	For issue	KC	AW	AW	AW

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# **1 INTRODUCTION**

## 1.1 Background

PTG has been commissioned by <u>Bethanie Group</u> ("the Client") to prepare a Waste Management Plan (WMP) in support of proposed residential village (the Development) located at Lots 900, 9501 and 9013 Chittering Road, Bullsbrook (the Site).

The scope of this WMP is limited to the estimation of general, recycling and Food Organics and Garden Organics (FOGO) waste generated by the proposed Development and includes recommendations for the appropriate collection, storage, handling and transportation of waste and recycling, in accordance with the requirements outlined by the City and the WALGA's Commercial and Industrial Waste Management Plan Guidelines.

## **1.2 Site Description**

The Development is located at Lots 900, 9501 and 9013 Chittering Road, Bullsbrook as illustrated in Figure 1.

Figure 1 Existing Site Location



Source: Nearmap (2024)

The proposed development is an aged care facility that will comprise of 237 dwellings and a recreational centre as shown in **Figure 2** and summarised in **Table 1**.





Source: Richard Hammond Architect

Table 1 Proposed Development Yields

Land Use	Yield
Retirement Village	237 dwellings
Clubhouse, administration, fitness and cinema/games room	1,570m <sup>2</sup>

# **2 WASTE SERVICES AND SPECIFICATIONS**

# 2.1 Waste and Recycling Collection Services

While the City of Swan has introduced a three-bin kerbside collection system in 2024, as described in Section 3.7.1, the FOGO system will not be rolled out for the Site until the winter of 2026. However, as the proposed development will be unlikely to open prior to winter 2026, the waste calculations and recommended bin arrangements include the FOGO waste and bins.

Based on information from the City of Swan website (City of Swan - Waste and recycling services), the current collection schedule per type of waste is summarised in Table 2.

Table 2 Schedule of Waste Collection

Type of Waste	Bin Colour	Schedule
Recyclables	Yellow	Fortnightly
General Waste	Red	Fortnightly
FOGO	Green	Weekly

# 2.2 Bin Specifications

Each household will have three Mobile Garbage Bins (MGBs), one for each type of waste. The MGBs should be provided by the local government or adhere to the Australian Standard for Mobile Waste Containers (AS 4213), which requires bins to be fitted with permanent lids and two wheels.

# 2.3 Bin Configuration

The bins will be placed on the verges in front of the individual properties for kerbside collection and should be 0.5 meter apart from one another and have a 1-meter clearance from any obstructions such as trees, posts, walls, etc.

# **3 WASTE GENERATION AND MANAGEMENT**

To ensure that the waste from the development is properly managed, it is necessary to estimate the volume of waste that is likely to be generated on the premises.

The waste generation rates outlined in the WALGA Multiple Dwelling Waste Management Plan Guidelines have been adopted for these calculations. Using these general, recycling and FOGO waste generation rates, a broad estimation of daily waste generation for the development has been calculated.

# 3.1 Waste Streams

# 3.1.1 General, Recycling and FOGO

Waste will be sorted by the residents into the respective bins according to the following types:

- General Waste.
- Recycling, which includes clean aluminium foil and trays, glass bottles and jars, milk and juice cartons, cardboard, plastic containers, tins, cans, etc.
- Food organics and garden organics (FOGO), which includes food and green waste, uncontaminated wood waste, forestry residues and other biodegradable organic residues. The City will dictate what can be included in these bins.

# 3.2 Other Streams

The City provides an on-demand service collection for bulk goods, e-wastes, and white goods (major appliances), as well as general junk.

In addition to the above, the Red Hill Waste Management Facility, Malaga Recycling Centre, Bullsbrook Recycling Centre, The Green Room, accept both e-waste and hazardous waste, while some libraries also accept e-waste.

Moreover, the City has two recycling centres that allow residents to recycle items such as furniture, mobile phones and more at no cost. The facilities are located at Bullsbrook Recycling Centre and Malaga Recycling Centre.

# 3.3 Waste Streams Estimates

Each residential unit is assumed to have 2 bedrooms. As the Development is an aged care facility, residents are not expected to have any children living with them.

The waste generation and bin requirements have been calculated using the waste generation rates detailed in **Table 3**.

Table 3 Waste Generation Rates

Premises	Yields	General Waste	Recycling	FOGO
Residential (2 Bedrooms)	237 dwellings	120 L/unit/week	80L/fortnight = 40L/week	80L/fortnight = 40L/week

A summary of the estimated weekly waste generated for each waste stream is provided in **Table 4** which were obtained by multiplying the number of dwellings to the weekly waste generated per unit.

### Table 4 Weekly Waste Generation

Premises	Weekly General Waste	Weekly Recycling	Weekly FOGO
237 Residential Dwellings	28,440 L	9,480 L	9,480 L
(2 Bedrooms each)			

Proposed Residential Subdivision, Lots 900, 9501 and 9013 Chittering Road, Bullsbrook, City of Swan

## 3.4 Bin Requirements

A summary of the breakdown of the anticipated MGB requirements for the proposed development, the proposed bin sizes, and the proposed collection frequencies are provided in **Table 5**.

Table 5 Bin Requirements for Proposed Site

Type of Waste	Size (L)	Collection	Number of Bins
Recyclables	240	Fortnightly	237
General Waste	240	Fortnightly	237
FOGO	240	Weekly	237

## 3.5 Transfer of Waste and Recycling

## 3.5.1 Waste Transfer

The residents will transfer waste to the their allocated bins, which are to be moved to the verge areas in front of each of the individual properties the day before their allocated bin collection days.

## 3.6 Collection of waste and recycling

## 3.6.1 Waste Collection

The collection and waste will be facilitated by the local government. Information on waste collection for the Site are shown in **Figure 3**.

Figure 3 Waste Collection Information



Source: City of Swan (2024)

## **3.6.2** Provision of Service Vehicle

Swept path analysis for a 10.1 m waste collection vehicle was undertaken as illustrated in **Figure 4**, **Figure 5** and **Figure 6**.

The swept paths for the roundabouts indicate that the waste collection vehicles will encroach on some sections of the central islands of the roundabouts. As such, these sections of the roundabouts will need to be designed to be mountable, which will be resolved as part of the detailed design process.

The swept paths for the internal roads suggest that the waste collection vehicle is able to traverse the internal roads, although it will not be able to turn in a lane-correct manner at the intersections. However, as the roads will not be used by any external traffic, as well as the low-speed environment within the Site, this is considered to be an acceptable arrangement.



Figure 4 Swept Path - Waste Vehicle Collection (Entry Gate)

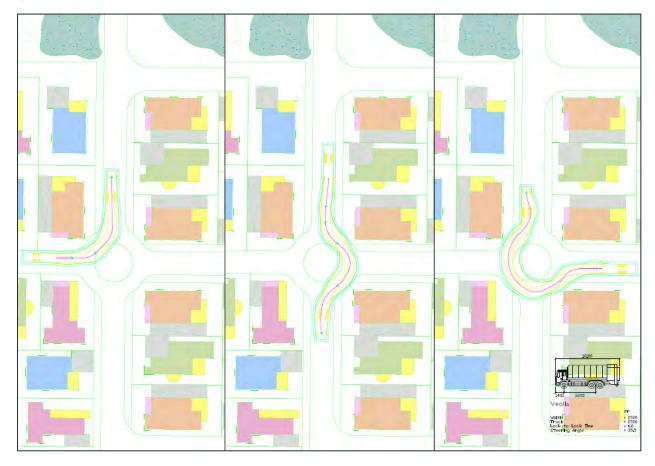


Figure 5 Swept Path - Waste Collection (Roundabout)

### Figure 6 Waste Collection Vehicle - Internal Roads

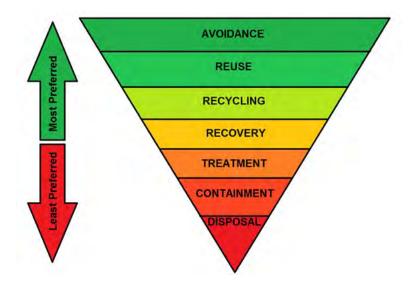


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# **4 WASTE REDUCTION AND MANAGEMENT STRATEGY**

This waste management plan has been developed with the strategic approach of reducing waste through best practices and education of residents. The waste hierarchy is demonstrated below in **Figure 4-1**.

Figure 4-1 Waste Hierarchy



## **4.1 Provision of Information**

Information dissemination is essential in order to communicate well the best practices of waste management. Suitable types of information which can be provided includes:

- Online information;
- Marketing materials such as posters and leaflets demonstrating procedures of waste segregation and waste collection days; and
- Sufficient labelling of bins to reinforce waste separation.

However, information on its own is not enough and it must be paired with initiatives to be effective.

# 4.2 Engagement

A regular engagement between all the stakeholders of the development should take place in order to remind the residents the proper and best practices of waste management. The engagement should include:

- Demonstration of waste management systems pertinent to an individual's role; and
- An explanation of the benefits of waste separation and recycling.

In the event that waste generation rates for the Development change, a waste audit may be required by the Shire or other regulatory bodies. Similarly, should a change to the waste regulations be implemented by the Shire or other regulatory bodies, a waste audit may be required in addition to further waste stream separation.

# **5 CONCLUSION**

This Waste Management Plan demonstrates that the proposed Development provides sufficient provision for general waste, recyclable waste, and FOGO based on the estimated waste generation.

Waste collections will be undertaken on-site by the local government and residents will be required to sort and prepare their waste based on the collection schedule for the area.

# **6 REFERENCES**

WALGA (n.d.), Multiple Dwelling Waste Management Plan Guidelines: A Resource for Western Australian Local Government and Developers, Perth.

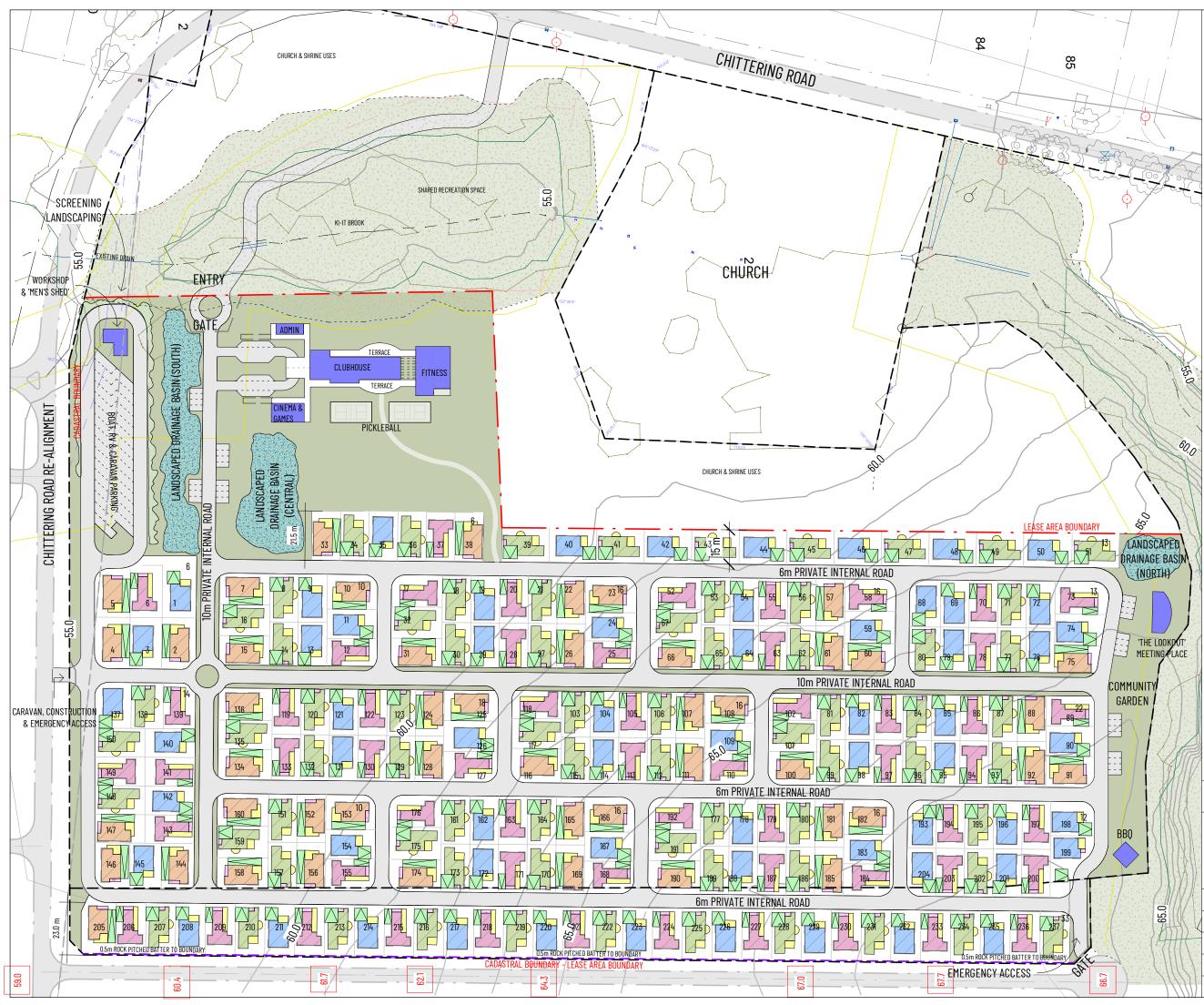
Bullsbrook Bethanie Village, Lot 900 Chittering Road, Bullsbrook





# Appendix A Site Plan







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LEGEND						
LANDSCAPING						
	'RECREATION' ZONED AREA					
	CORE CREE	EK AREA				
	AREA SUBJ Manageme	ECT TO FORESHOR NT PLAN	E & WETLAND			
	VILLAGE AI	1ENITIES				
1840 1840	LANDSCAP	ED DRAINAGE BAS	INS			
	FENCE/GAT	E				
	ROADWAY					
	CADASTRAL	. BOUNDARY				
==	LEASE ARE	A BOUNDARY				
	TYPE A (62	2)	TYPE C (47)			
	TYPE B (71		TYPE D (57)			
TOTAL H	HOUSE SITES	- 237				
TOTAL L	LEASE SITE ARE	A - 106,988m <sup>2</sup>				
TOTAL F	RECREATION AR	EA - 35,095m <sup>2</sup>				
			<b>Z</b>			
ISSUE	DES	CRIPTION	DATE			
Α	PRELIMINAF	Y MASTERPLAN	28.05.2024			
В	REVISED MA	STERPLAN	12.08.2024			
C	REVISED MA		16.08.2024			
D	ENTRY MOV ADDED	ED, LOT NUMB.	19.08.2024			
E	HOUSE-LOT	ALLOCATION	02.09.2024			
DRAWING TIT		1asterplan				
PROJECT	PROJECT					
BETHANIE – BULLSBROOK VILLAGE client BETHANIE project address						
CHITTERING ROAD, BULLSBROOK, WA, 6084						
Project n	Project number _					
Date	Date 02.09.2024					
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# BETHANIE BULLSBROOK VILLAGE

# **Erosion, Sediment and Drainage Control Plan**



# **Document Status**

Version	Purpose of document	Authorised by	Reviewed by	Review Date
Rev 0	Draft for Review	Myles Leaming	John Halleen	08/8/2024
Rev 1	Draft for Review	Myles Leaming	John Halleen	09/9/2024

# **Approval for Issue**

Name	Signature	Date
John Halleen		09/09/2024

This report was prepared by Pentium Water and in direct response to a scope of services. This report is supplied for the sole and specific purpose for use by Pentium Water' client. The report does not account for any changes relating the subject matter of the report, or any legislative or regulatory changes that have occurred since the report was produced and that may affect the report. Pentium Water does not accept any responsibility or liability for loss whatsoever to any third party caused by, related to or arising out of any use or reliance on the report.

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Date: 09 September 2024



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# 1. Introduction

# 1.1. Background

Bethanie Group Ltd (Bethanie) is proposing to construct and operate a contemporary lifestyle community village (referred to as the Bethanie Bullsbrook Village) to provide accommodation for over-50s who want to downsize and/or seek more affordable accommodation options.

The Bullsbrook Village consists of the following elements:

- Residential dwellings (or group dwellings)
- Internal roads
- Open space areas for village residents & visitors
- Stormwater bio-retention swales
- Bowls club
- Community garden and BBQ areas.

Bethanie Bullsbrook Village will be entirely managed (onsite), including security, grounds building maintenance and landscape services.

The Bethanie Bullsbrook Village concept plan is provided in Appendix A.

The Bethanie Bullsbrook Village is located within Lot 900 Chittering Road, Bullsbrook ("the site"), within the municipality of the City of Swan. Lot 900 covers a total area of approximately 13.15 hectares (ha).

Lot 900 is generally bound by Chittering Road, the Bullsbrook Our Lady of the Revelation Church (which is owned and operated by the SACRI Association) and private landholdings to the west, and the Kingsford residential estate to the north, east, and south. The Ki-it Monger Brook traverses the northern boundary and inside the western boundary of Lot 900.

Lot 900 location and local context is provided in Figure 1.





### **Figure 1: Site Location**

#### 1.2. **Purpose of this Document**

Bethanie has engaged Pentium Water to prepare an Erosion, Sediment, and Drainage Control Plan (ESDCP) to specifically manage drainage, erosion, and sedimentation risks from the construction of the Bethanie Bullsbrook Village to the Ki-it Monger Brook.

Accordingly, this ESDCP incorporates the following elements:

- Erosion control measures
- Sediment control measures
- Drainage control measures

This ESDCP has been prepared consistent with the following:

- Development Design Specification Erosion Control and Stormwater Management (City of Swan 2002).
- Policy and Guidelines for Local Government 5.1.2 Erosion and Sediment Control (EMRC 2008).

#### **Supporting Information** 1.3.

Previous works and underlying approvals used to inform both the Development Application and this ESDCP include:

Bethanie Bullsbrook Masterplan (Richard Hammond Architect 2024)



- Geotechnical Investigation Lot 900 Chittering Road, Bullsbrook (Structerre Consulting 2024)
- Geotechnical Study Various Lots Great Northern Highway Bullsbrook (Galt Geotechnics 2014)
- Kingsford Bullsbrook Central Local Structure Plan (Revised) (Hatch 2022)
- Ki-it Monger Brook Foreshore Management Plan (FMP) (RPS 2021)
- Local Water Management Strategy (RPS 2018)
- Environmental Summary Report Bullsbrook Landholding Structure Plan (RPS 2021)
- Specification 211 Control of Erosion and Sedimentation (City of Swan 2001)
- Erosion Control and Stormwater Management (City of Swan 2002)
- Erosion and Sediment Control Policy and Guidelines for Local Government (EMRC 2008)



# 2. Site Context

#### 2.1. **Planning Approvals**

Regionally, the site is located approximately 40 km northeast of the Perth Central Business District and approximately 25 km north of the Midland Strategic Metropolitan Centre.

The site is:

- 13.15 ha in size.
- Zoned 'Urban' under the Metropolitan Region Scheme (MRS).
- Zoned 'Residential' under the Swan City Local Planning Scheme (LPS) No. 17.

#### 2.2. **Existing Land Uses**

The site consists of cleared cattle paddocks and the Ki-it Monger Brook. A temporary access road linking Chittering Road with the Kingsford residential estate traverses the southern portion of the site.

Outside of the Ki-it Monger Brook creek, the balance of the site was historically cleared (pre-1960) and used as cattle/livestock grazing paddocks. The cleared former cattle paddock area (east and south of Ki-it Monger Brook) totals approximately 10 ha (or 76% of the site). This cleared paddock area is the focus of the Bethanie Bullsbrook Village development. This area has negligible environmental values.

The remnant native vegetation within the site is limited to mature *Eucalyptus rudis* (flooded gums) trees within the Ki-it Monger Brook creek line. The flooded gum trees within the Kiit Monger Brook will be maintained within the defined setback from the brook, which was established for the purposes of conservation, flood protection, better urban water management and open space in the 2021 City of Swan-approved Ki-it Monger Brook Foreshore Management Plan (FMP) (RPS 2021).

The key (and only) environmental asset within Lot 900 is the Ki-it Monger Brook. The brook is a seasonal flowing creek that traverses the northern boundary and dissects the site towards the western boundary. Bethanie Bullsbrook Village development area is consistent with the setback and stormwater management requirements established under the approved:

- Ki-it Monger Brook FMP (RPS 2021).
- Local Water Management Strategy (LWMS) (RPS 2018).

#### **Climate and Rainfall** 2.1.

2024

The site experiences a Mediterranean climate with cool, wet winters and hot, dry summers. Peak rainfall periods are usually between May and September. The nearest Bureau of Meteorology (BoM) weather station to the site is the Pearce RAAF weather station (Station Number 009053), located approximately 1.5 km from the site. Based on the rainfall data collected from 1937 to 2024 at this station, the local area experiences an average of 651 mm of rainfall annually (Bureau of Meteorology 2024).

Summer is generally hot, with average minimum and maximum temperatures of 16 OC and 32.5 OC, respectively. Conversely, the average minimum and maximum temperatures in winter are 8.5 °C and 18.5 °C, respectively (BOM 2024).

Table 1 summarises the average monthly temperature in the local Bullsbrook area.

Table 1. Average Monthly Mean Temperature ( C) (Fearce Station No 54612)													
Statistic	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean rainfall	9.9	12.8	16.3	33.6	82.4	129.5	134.0	105.6	67.6	36.6	22.0	10.5	651.2
Mean max temp	33.6	33.4	30.6	26.5	22.1	19.1	17.9	18.5	20.2	23.6	27.4	30.7	25.3

## Table 1: Average Monthly Mean Temperature (°C) (Pearce Station No 94612)

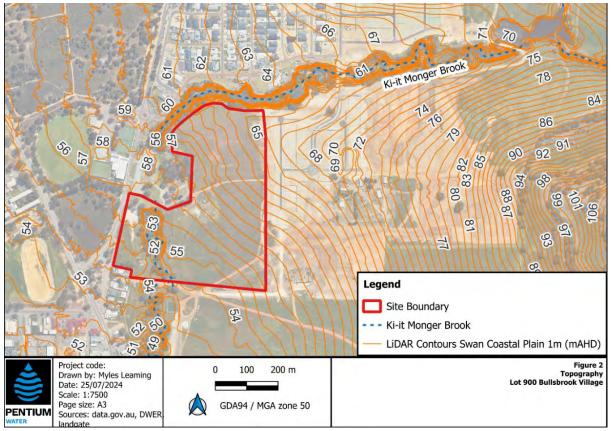


Statistic	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean min temp	17.0	17.6	16.1	13.3	10.7	9.3	8.4	8.2	8.8	10.2	12.6	14.7	12.2
Mean evaporation	297	257	224	123	87	59	60	69	106	154	203	259	1,898

## 2.2. Topography

Topographically, the site slopes from 65 m Australian Height Datum (AHD) in the northeast to 52 m AHD in the southwest. The Ki-it Monger Brook to the north of the site has elevations between approximately 56 m AHD and 63 m AHD.

Figure 2 details the topography of the site.





## 2.3. Soil and Geology

## 2.3.1. Land systems

The mapping describes and groups the land with a recurring topography, soil type, and vegetation pattern. The site, according to the soil landscape mapping data published by the Department of Primary Industries and Regional Development (DPIRD), is underlain by two land systems:

- Forrestfield System (213Fo): underlying the majority of the site, described as the undulating foot slopes of the Darling and Whicher Scarps. It comprises duplex sandy gravels, pale deep sands and grey deep sandy duplexes. Most of the vegetation consists of woodland of E. Marginata, calophylla and wandoo, and some B. Grandis.
- **Pinjarra System (213Pj):** underlying the site's southwestern corner, described as the Swan Coastal Plain from Perth to Capel. It comprises a poorly drained coastal plain with variable alluvial and aeolian soils. The vegetation is highly variable, but the majority of the vegetation consists of the following tree species jarrah, marri, wandoo, paperbark sheoaks and rudis.

## 2.3.2. Geological units

The environmental geological map provided in Figure 3 indicates the site is dominated by two surficial geological units (Gozzard 1986):

- **Sandy silt (Msg):** underlying the majority of the site, described as strong brown, firm, friable, dispersive in part, occasional pebbly horizons with little matrix containing quartzite, quartz, granite, laterite, of colluvial origin.
- **Pebbly silt (Mgs1):** underlying the southwestern corner of the site, described as strong brown silt with common fine to occasionally coarse-grained, sub-rounded laterite quartz, heavily weathered granite pebbles, some fine to medium-grained quartz sand, of alluvial origin.

### 2.3.3. Geotechnical Assessment

Structerre undertook a geotechnical investigation for Lot 900 in 2024. This comprised 17 boreholes to a depth of 2.1m, 15 Dynamic Cone Penetration Tests (DCP) to a depth of 1 m, and 6 permeability tests to a depth of 1 m.

The main results from the investigation include:

- Soil permeability ranging from 0.5 to 3.1 m/day
- Lot 900 generally consist of:
  - Topsoil 0.2 m overlaying Sandy Clay with gravel to the investigated depth of 2.5 m.
  - Pockets of Sand / Gravelly Sand encountered (Bores 8 15) to 1.9 m, overlaying the Sandy Clay material to a target depth of 2.5 m.
- Water table not encountered.
- Localised surface ponding and water perching on cohesive soils may occur during periods of rainfall.

The geotechnical investigation conclusions is broadly consistent with the regional surface geology (Figure 3).

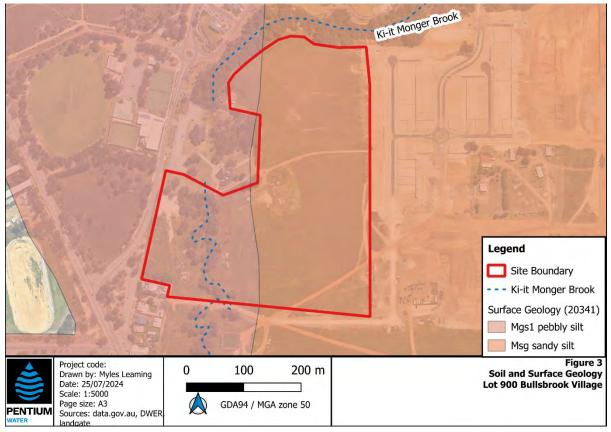


Figure 3: Soil and Surface Geology



## 2.3.4. Acid Sulphate Soils

Acid Sulphate Soil (ASS) is naturally occurring soil containing iron sulphides, which when oxidised, can lead to acidification of soils and groundwater and, consequently, extensive environmental damage. The entire site has not been assigned a risk of ASS occurring within 3m of the natural soil surface.

## **2.4. Contaminated sites**

A search of the DWER Contaminated Sites database has been undertaken and no recorded contaminated sites were identified within the site boundary.

## 2.5. Groundwater

Groundwater resource mapping available from the Water Register (DWER 2024) indicates the site is underlain by the following aquifer resources:

- Perth Superficial Swan aquifer (Swan groundwater area Bandy Spring subarea)
- Perth Leederville aquifer (Swan groundwater area Swan Confined subarea)

The regional groundwater contours show water flowing in westerly direction towards the Kiit Monger Brook.

### 2.5.1. Regional groundwater levels

Regional groundwater mapping indicates groundwater flows is in a south-south-westerly direction towards the Ellen Brook, located approximately 2.5 km southwest of the site.

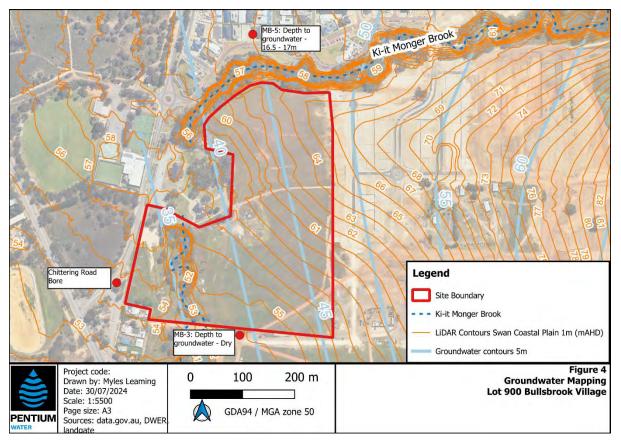
According to the Perth Groundwater Map (Department of Water and Environmental Regulation, 2023), the Gnangara Jandakot Maximum Water Table elevation contours at the site indicate the water table elevations range from approximately 32.75 m AHD in the north to 30.5 m AHD in the south. These elevations correspond to maximum groundwater levels ranging from approximately 23.5 to 34.25 meters below ground level (mbgl) across the site.

### 2.5.2. Site-specific groundwater levels

The site-specific groundwater levels range from approximately 32 m AHD at the south western boundary to 48 m AHD at the north eastern boundary, corresponding to depths to groundwater between 19 mbgl and 22 mbgl.

Figure 4 shows the groundwater contour mapping across Lot 900.





### Figure 4: Groundwater Mapping

## 2.6. Surface Water Hydrology

The main hydrological feature of the site is the Ki-it Monger Brook, which traverses the north boundary of the site and down the west of the site. The seasonal Ki-it Monger Brook water flows towards the south west before crossing via a culvert under the Great Northern Highway.

Historically, the Ki-it Monger Brook has been considerably modified including within Lot 900 the infilling and installation of culverts which restrict flows.

Flood level assessment for the Ki-it Monger Brook modelled 1% Annual Exceedance Probability (AEP) (or 100-year storm event) ranges from approximately 63.06m AHD to 61.15 m AHD within Lot 900. The 1% AEP flows are contained within (or approximately 5 m to 10 m either side) of the brook channel area. The flood event does not extend into adjacent open space areas or the residential development area.

The historical modifications of the Ki-it Monger Brook creek line and the use of the brook and adjacent areas as cattle paddocks have resulted in:

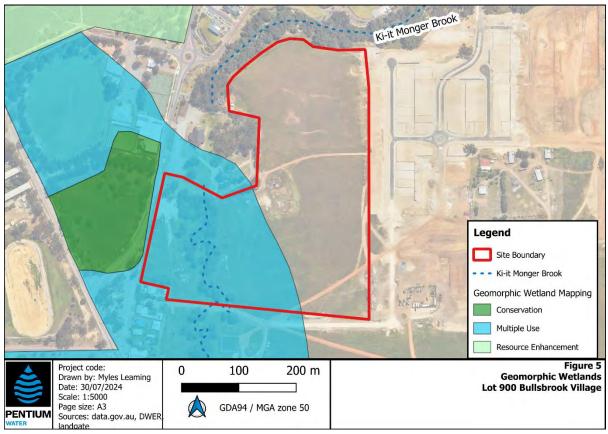
- A cleared creek line with no native understorey and scattered stands of flooded gum trees.
- No significant flora species occur along or in the vicinity of the creek line.
- No Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) listed species, or WA Biodiversity Conservation Act 2016 listed species of significance occur within the Ki-it Monger Brook.

### 2.6.1. Wetlands

Figure 5 provides the geomorphic wetland mapping, which shows the southwest of the site is mapped as Multiple Use Wetland. The presence of Conservation Category Wetland (CCW) and Resource Enhancement Wetland (REW) are also highlighted in Figure 5. However, these mapped wetlands are located outside of Lot 900, separated by Chittering Road. Neither of



these wetlands will be affected by the proposed Bethanie Bullsbrook Village, which is located on the eastern side of the Ki-it Monger Brook.



**Figure 5: Geomorphic Wetlands** 



# 3. Erosion, Sediment & Drainage Risk

The Ki-it Monger Brook is the sole environmental asset within Lot 900. The management actions are focused on the associated village construction phase risks and operation risks to the Ki-it Monger Brook.

An assessment of the erosion risks during the development of the site is outlined below.

## **3.1. Assessment Methodology**

An erosion risk assessment has been undertaken for the site based on the methodology outlined in the *Erosion and Sediment Control Policy and Guidelines for Local Government* (EMRC 2008).

The risk assessment factors outlined in Table 2 were used to determine the total erosion potential (or risk) score, which was primarily driven by construction activities.

The total erosion potential score rankings are based on the following ranges:

- High 15 to 20 points
- Moderate 10 15 points
- Low 5 to 10 points

As per the EMRC (2008) guidelines:

- A 'High' score requires careful site-specific planning and a variety of management measures to address the erosion potential at several locations within the site.
- A 'Moderate' score requires site-specific management controls for erosion.
- A 'Low' score may only require a basic level of erosion control.

Assessment factor	High (four points)	Moderate (two points)	Low (one point)
Slope	1 in 5	1 in 5 – 1 in 10	< 1 in 10
Area of disturbance	>5000 m <sup>2</sup>	1000 m <sup>2</sup> – 5000 m <sup>2</sup>	< 1000 m <sup>2</sup>
Remnant vegetation down slope of development site	Lacking cover	Some shrub and grass cover, 1 – 5 m wide, intermittent	Continuous cover >5 m wide
Distance to drains / watercourses	<50m	50 m – 200 m	>200m
Land capability	High	Moderate	Low

### Table 2: Erosion Risk Assessment Factors and Ratings (EMRC 2008)

## **3.2. Erosion Risk Assessment**

The site's erosion risk assessment was conducted using the methodology outlined in the *Erosion and Sediment Control Policy and Guidelines for Local Government* (EMRC 2008).

The assessment utilised the risk assessment factors detailed in Table 3 to calculate construction activities' total erosion potential (or risk) score.

As per the EMRC (2008) guidelines:

- A 'High' score will require careful site-specific planning and a variety of management measures to address the erosion potential at several locations within the site.
- A 'Moderate' score will require management controls for erosion.
- A 'Low' score may only require a basic level of erosion control.

### Table 3: Erosion Risk Assessment Factors and Ratings for site (EMRC 2008)

Assessment factor	Comments	Risk
Slope	<ul> <li>The site slopes roughly 2.2% across the site.</li> <li>Highest point of 65 m AHD in the north-eastern portion of Lot 900 and the lowest point of 55 m AHD in the south-western corner towards the Ki-it Monger Brook.</li> </ul>	Low (1)





Area of disturbance	<ul> <li>The Lot is approximately 13.15 ha</li> <li>Approximately 10 ha will be subject to earthworks, installation of civil infrastructure and associated development works including the construction of internal roads, group house dwellings, community facilities and biofiltration swales.</li> <li>The open space areas adjacent to the Ki-it Monger Brook will be minimally impacted and will be subject to re-planting, landscaping, walking paths and biofiltration swales.</li> </ul>	High (4)
Remnant vegetation down slope of development site	<ul> <li>The development area is within a former cattle paddock and is completed cleared of native vegetation.</li> <li>Scattered alignment of flooded gum trees along the Ki-it Monger Brook creek line are the key environmental assets. These trees will be retained within the brook's foreshore area.</li> </ul>	Low (1)
Distance to drains / watercourses	<ul> <li>The Ki-it Monger Brook is located approx. 40 m to 100 m from the south west boundary of Lot 900.</li> <li>The majority of the Bethanie Bullsbrook Village will be at least 50 m from the brook separated by an open space area.</li> </ul>	High (4)
Land capability	<ul> <li>Geotechnical testing completed by Structerre confirmed areas of near surface Sandy &amp; Clay Sand / Gravelly Sand present across the site.</li> <li>The near surface clay area presents a construction management risk (i.e., sedimentation source).</li> </ul>	High (4)



# 4. Erosion, Sediment & Drainage Controls

# 4.1. Aims and Objectives

Based on the risk assessment, the cumulative erosion risk score was 14, which categorises the erosion risk as 'moderate'.

Accordingly, site-specific erosion, sediment and drainage management controls have been defined to manage these risks. The key seasonal risks requiring management applicable throughout the construction phase include:

- Dust control across the summer, particularly during strong easterly winds.
- Stormwater runoff (as associated with sedimentation) during winter rain events.

## 4.2. Controls

The application of best practice erosion and sediment control is based upon the appropriate integration of:

- **Erosion controls:** are source controls that aim to prevent or limit site erosion and keep topsoil on site (EMRC 2008).
- Sediment controls: aim to capture eroded (mobile) sediment, including soil, sand, and dust, and minimise its movement from the site (ERMC 2008).
- **Drainage controls** aim to manage stormwater during the earthworks and construction phase. Drainage controls should be considered a basic component of effective erosion and sediment control (IECA 2008).

The recommended management actions are based on the local topography and geology, seasonal weather conditions, and the Bullsbrook Bethanie Village projected civil engineering construction activities.

Contingency responses relating to the management controls are presented in Table 4.

## 4.2.1. Planning / Pre-Development of Site

The following controls are recommended before the development of the site.

### 4.2.1.1. Site Management

- Develop and implementation of an ESDCP (i.e. this document).
- Install required management controls (i.e., sediment and/or dust fencing) before any ground disturbance occurs and other controls as soon as practical (refer to Section 4.2.2).
- The civil contractor will need to plan for additional or contingency measures and/or adjust existing controls to remain effective throughout all stages of the development.

## 4.2.1.2. Training

- Civil contractor site inductions and training ensure the ESDCP risks and controls are wellunderstood by all personnel.
- The ESDCP document is to be provided to the civil contractor and kept on-site for the duration of the civil construction program.

### 4.2.2. Development of Site

The following sections detail the erosion, sediment, and drainage controls to be implemented during the subdivision works.

### 4.2.2.1. Site Preparation, Earthworks and Construction

- No earthworks will be undertaken until a pre-start meeting and a review of the erosion, sediment, and drainage control measures have been conducted.
- Before earthworks, a sediment fence and/or dust fence will be installed along the boundary of the civil construction area and the Ki-it Monger Brook foreshore. The civil contractor can use a single fence with dual management purposes or two separate fences installed in winter and summer.
- The sediment fence will use geotextile material (or similar) to prevent sediment from passing underneath the fence. The sediment geotextile material will be buried ~ 200 mm

below the surface. Hay bales may be employed as an additional measure with a sediment fence.

- The location of the sediment/dust fencing is shown in Figure 6.
- The Ki-it Monger Brook foreshore area will be approximately demarcated using the fencing.
- Existing flooded gum trees (and associated understorey vegetation) will be preserved within the foreshore reserve. This minimises the erosion risks within the brook.
- No earthworks are required within the foreshore area during the rehabilitation phase of the development. Management of the foreshore area is addressed in the approved Ki-it Monger Brook FMP (RPS 2021).
- Open space areas will be landscaped, and the bioretention swales will be constructed as soon as practicable after earthworks. If there is a delay between clearing/earthworks and landscaping, the area will be hydro mulched to minimise erosion if necessary.
- Site access is to be established and controlled to prevent sediment from being tracked onto roads.

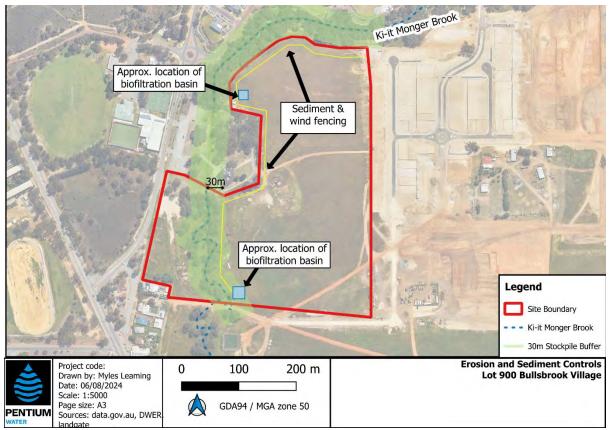
### 4.2.2.2. Stockpile Management

- Stockpiles must be located a minimum of 30 m from the Ki-it Monger Brook.
- Signs advising construction workers of this requirement will be installed on the temporary fencing installed at the edge of the open space and foreshore reserve.
- The stockpiles are not to be located immediately adjacent to constructed stormwater drains or roads (i.e., ensure the stockpile is not within 2 m of the stormwater inlet pit).
- Stockpiles are to be designed with slopes no greater than 2:1 (horizon : vertical).
- During earthworks, civil contractor personnel will conduct regular visual inspections of the sediment/dust fence line, stockpile areas and any pooled water area(s) to assess need for:
  - Additional erosion controls on stockpiles (e.g. mulch, soil binders, tarps).
  - Additional sediment controls on stockpiles (e.g. installing further sediment fencing around high risk sediment areas).
- The stockpiles will be subject to regular watering to prevent dust during the summer period.

### 4.2.2.3. Dust Management

- The proposed erosion and sediment controls will also benefit dust management; for example, installing wind fencing will help trap wind-borne dust.
- Dust suppression using water:
  - Water carts
  - Sprinklers
  - Hand-held hoses
- Areas to be targeted for dust suppression include:
  - Haul roads or other trafficked areas
  - Areas of earthworks
  - Stockpiles
- Regular monitoring of the Bureau of Meteorology weather forecasts is recommended to consider predicted conditions that may present an increased risk for potential dust generation on and off-site.
- In extreme weather conditions (hot, dry, and windy—easterly winds in particular), construction activities that generate dust will need to be halted or stopped until the weather conditions subside.
- Any dust complaints will be directed to the Site Manager and recorded. Rectification (dust suppression) will occur as soon as practicable or within 12 hours.





### Figure 6: Erosion and Sediment Controls

### 4.2.2.4. Waste Management

- Establish waste collection areas in fenced compound area. The waste control area must be located as far as practical, or at least 20 m, from the Ki-it Monger foreshore.
- Ensure sufficient materials and equipment are available on-site for site clean-up.
- All fill material placed on site must comprise only natural earth and rock. It must also be free-draining and free of contaminants.
- Site entries and surrounding streets are to be swept at least monthly, and debris removed.
- The frequency of street sweeping events is to be increased if notable sediment is present on the streets and/or at the request of Swan City.

## 4.2.2.5. Drainage / Stormwater Management

Rainfall events can mobilise sediment. Surface water runoff generated across the site due is unlikely to generate significant volumes. A portion of the surface water runoff will be recharged into the superficial aquifer. In recognition of the surface water runoff and associated sedimentation risk the following actions will be implemented:

- Regularly monitoring the weather forecasts to forecast storm events that present an increased risk for potential stormwater runoff.
- Installation of sedimentation fencing along the Ki-it Monger Brook foreshore area.
- If required, install an additional sedimentation fence adjacent to topsoil/soil stockpile areas.
- If required, install temporary drainage basins within the construction area to control and manage surface flow rates (and sediment) within the site.

The earthwork grades will grade towards stormwater swales/biofiltration basin. The biofiltration basin will be sized and landscaped with native wetland vegetation to manage the stormwater flow rates before discharging into the Ki-it Monger Brook.



### **Monitoring Program** 5.

Monitoring undertaken during the civil construction phase of the works identifies the effectiveness of the management controls and if the controls need adjusting to maintain the performance standard which minimise erosion, sediment and drainage risk to the Ki-it Monger Brook.

#### 5.1. Contingencies

In the instance of erosion and sediment runoff, the ESDCP should be reviewed and amended. The guidelines below are recommended to reduce further risk:

- Identify the source: where erosion has occurred, where the sediment is leaving the site.
- Fix the cause of the erosion and /or sediment runoff.
- Check the rest of the site to eliminate or reduce all erosion, sediment and drainage risks.
- Sweep/clean up builder's sand, soil, silt and mud and return it to the site. Do not hose it into the gutter or down the drain.
- Keep stakeholders informed (where relevant).

The monitoring program to be undertaken is outlined in Table 4 and includes reference to monitoring methods, monitoring frequency, triggers for change and remedial actions / contingencies.



Des	cription of Controls	Monitoring Method		Ionitoring Trequency	Trig	ger for Change		nedial Actions / tingency	Responsibility
Site	e Preparation, Earthworks and Cons								
	Ensure no earthworks are undertaken until a pre-start meeting and a review of the ESDCP. Install a sediment and/or wind fence along the boundary of the Ki-it Monger Brook foreshore area. This fence will remain in place for the subdivision construction activities. Demarcation (using fencing and signage) to restrict access to the foreshore area. Preserve existing vegetation within the foreshore reserve. Minimise time between clearing/earthworks and construction purposes. Keep cleared areas to a minimum. Disturb only ground where necessary for construction purposes. Promptly stabilise cleared areas that are not directly subject to earthworks. Control site access to prevent sediment from being tracked onto roads, both within and outside the site. Limit vehicle movements to existing tracks where possible. Restrict speed limits on site.	<ul> <li>Visual inspection of controls</li> </ul>		<ul> <li>Daily – by the contractor.</li> <li>Quarterly – by Developer during construction.</li> </ul>	•	Breach in the site perimeter sediment fencing. Signs of uncontrolled access – e.g. vehicle tracks in no-go zones. Runoff from the site, causing scouring along the foreshore area.	•	Repair existing or install additional sediment fencing. Report signs of uncontrolled access. Improve site access management (e.g. fencing, signage) if necessary. Hay bales (with no seed) or coir logs are to be added along the development side of the sediment fencing.	Civil Contractor.
Sto	ockpile Management								
	_ocate stockpiles >30m from the Ki-it Monger foreshore.	<ul> <li>Visual inspection controls.</li> </ul>	of	Daily (or after a large storm event).	• \	Stockpile slopes > 2:1 Waste from stockpile eroding; movement	•	Repair or install erosion controls as required.	Civil Contractor.

## Table 4: ESDCP Implementation and Responsibilities



Description of Controls	Monitoring Method	Monitoring Frequency	Trigger for Change	Remedial Actions / Contingency	Responsibility
<ul> <li>Ensure stockpiles are not located adjacent to constructed stormwater drains or roads.</li> <li>Stockpiles are to be designed with slopes no greater than 2:1 (horizontal: vertical).</li> <li>Water stockpiles regularly</li> <li>During earthworks, assess the need for:         <ul> <li>Stockpile erosion control (e.g. mulch, soil binders, tarps).</li> <li>Sediment controls on stockpiles (e.g. sediment fencing).</li> </ul> </li> </ul>		<ul> <li>Quarterly – by Developer during construction.</li> </ul>	outside of stockpile area.	<ul> <li>Additional sediment fencing adjacent to stockpiles.</li> </ul>	
Dust Management					
<ul> <li>Install sediment and wind fencing to manage dust.</li> <li>Implement regular street sweeping.</li> <li>Monitor weather forecasts to anticipate adverse weather events.</li> <li>Cessation of works in adverse (high wind) weather conditions.</li> <li>Re-schedule dust-generating activities to avoid adverse weather conditions.</li> <li>Any dust complaints should be directed to the site manager and recorded. Rectification is to occur as soon as possible (or within 18 hours).</li> <li>Areas to target for dust suppression:         <ul> <li>Haul roads or other trafficked areas</li> <li>Areas of earthworks</li> </ul> </li> </ul>	<ul> <li>Visual inspection of controls.</li> <li>Complaint register (dust).</li> </ul>	<ul> <li>Daily.</li> <li>Extra monitoring in anticipation of adverse weather.</li> </ul>	<ul> <li>Dust and sediment clearly visible: airborne or on work surfaces.</li> <li>Complaints regarding dust emissions received.</li> </ul>	<ul> <li>Undertake dust monitoring if required.</li> <li>Additional dust suppression via water carts.</li> <li>Install additional wind fencing.</li> </ul>	Civil Contractor.

Description of Controls	Monitoring Method	Monitoring Frequency	Trigger for Change	Remedial Actions / Contingency	Responsibility
<ul> <li>Stockpiles</li> <li>Dust to be suppressed using water, sprayed via:         <ul> <li>Water carts</li> <li>Sprinklers</li> <li>Hand-held hoses</li> </ul> </li> </ul>					
Waste Management					
<ul> <li>Establish waste collection areas at least 20 m from the Ki-it Monger Brook foreshore area.</li> <li>Ensure sufficient materials are available for site cleanup.</li> <li>Regular inspection of waste across site (and appropriate disposal)</li> </ul>	inspection of waste areas and rest of site	<ul> <li>Daily.</li> <li>Extra inspections following adverse weather.</li> </ul>	<ul> <li>Waste collecting outside designated areas or within the foreshore region.</li> <li>Occurrences of litter.</li> </ul>	<ul> <li>Collect waste across the site and dispose of it appropriately (off-site).</li> <li>Additional training to ensure waste is managed effectively.</li> </ul>	Civil Contractor.
Drainage / Stormwater Management					
<ul> <li>Monitoring of weather forecasts to anticipate adverse wet weather events.</li> <li>Sediment and wind/dust fencing.</li> </ul>	<ul> <li>Visual inspection controls.</li> <li>Monitoring of weather conditions.</li> </ul>	<ul> <li>Weekly (or after a large storm event).</li> </ul>	<ul> <li>Evidence of significant water runoff.</li> <li>Occurrences of sediment deposition (on-site or off-site).</li> </ul>	<ul> <li>Remove gross pollutants and / or sediments from receptors.</li> <li>Repair or install additional sediment and wind/dust fencing.</li> <li>Installation of hay bales of coir logs on the development site of the sediment fence.</li> </ul>	Civil Contractor.



#### **Post-Development Management Roles and Responsibilities** 5.2.

A summary of the post-development roles and responsibilities for implementing the ESDCP is provided in Table 6.

Controls	Description of Controls	Responsibility						
Post-Developm	Post-Development of Subdivision							
Dust Control	<ul> <li>Remove all temporary erosion, sediment and drainage control works before the end of the Contract.</li> <li>All materials used for the temporary control works should be removed from the site (to the satisfaction of the site Superintendent).</li> </ul>	Civil Contractor						
On-going drainage management	<ul> <li>Regular inspections and maintenance of drainage infrastructure.</li> </ul>	Bethanie						
On-going landscape management	<ul> <li>Regular inspections and maintenance of open space and foreshore areas (i.e. vegetation condition)</li> <li>Once the development site is established, implement temporary soil and erosion management. E.g. hydro-mulch or soil binding.</li> </ul>	Bethanie						

Table 5: Post-development of the ESDCP Roles and Responsibilities



## 6. References

Bureau of Meteorology (BOM). July 2024. Website: <u>http://www.bom.gov.au</u>

City of Swan. March 2001. Western Australia Specification 211 – Control of Erosion and Sedimentation

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International Erosion Control Association (IECA) Australasia. November 2008. Best Practice Erosion & Sediment Control. Books 1 - 3. Picton, NSW.

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# Appendix A: Development Plan

**Proposed Bethanie Bullsbrook Village** 









# PRELIMINARY URBAN WATER MANAGEMENT PLAN

**Bethanie Bullsbrook Village** 

Rev 0 05/09/2024



## **Document status**

Version	Purpose of document	Authored by	Reviewed by	Review Date
Rev 0	Final for issue	J. Hollander	D. Williams	05/09/2024

## **Approval for issue**

Name	Signature	Date
Daniel Williams		05/09/2024

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## **Executive summary**

This Preliminary Urban Water Management Plan (UWMP) has been prepared for Bethanie to support the Bethanie Bullsbrook Village (herein referred to as the 'site') development application (DA) submission and approval. The site falls within the City of Swan and is located approximately 35 km northeast of the Perth CBD. The site comprises an area of approximately 10.7 hectares (ha) consisting of a significant portion of Lot 900. The site is proposed to be developed into a 237-dwelling village with associated clubhouse and landscaped areas.

A Local Water Management Strategy (LWMS) was prepared by RPS (RPS, 2018) and approved by DWER to support the Local Structure Plan submission of various lots in Bullsbrook. This Preliminary UWMP has been prepared in accordance with the strategies and commitments discussed in the LWMS. This Preliminary UWMP provides an overview of the site's existing physical and hydrological conditions as well as a drainage design which will be implemented for the development in line with Better Urban Water Management (BUWM) principles (Department of Planning and Infrastructure, 2008). The key design and compliance objectives of the UWMP are summarised in Table 1.

Key LWMS elements	Details
	Bethanie is seeking development application (DA) approval for a 10.7 ha parcel located in Bullsbrook, within the City of Swan.
Introduction	The site is currently zoned "Residential Development" under the City of Swan Local Planning Scheme No. 17 Map 02.
(Section 1)	The development of the site is in accordance with the Bullsbrook Local Water Management Strategy (RPS, 2018).
	The site has been predominantly cleared of vegetation and historically used for semi- rural and agricultural purposes.
<b>Climate</b> (Section 2.2)	The site is characterized by a Mediterranean climate, experiencing an average annual rainfall of 651 mm, with the majority being received between May and September. The site experiences monthly mean maximum temperatures between 17.9 °C and 33.6 °C and monthly mean minimum temperatures between 8.2 °C and 17.6 °C.
<b>Topography</b> (Section 2.3)	Surface elevations within the site range from approximately 67 mAHD at the northeastern boundary to 54 mAHD at the southwestern boundary of the site.
Geology	The majority of the site is underlain by the Forrestfield System, with the southwestern corner being underlain by the Pinjarra System. The surface geology of the majority of the site is identified as sandy silt, with the southwestern corner being identified as pebbly silt. Permeability of the natural soils is generally low with permeability across the site ranging from 0.5 m/day to 3.1 m/day.
(Section 2.4)	Several geotechnical investigations have been undertaken across the site which generally encountered surficial material overlaying sandy clay.
	The entire site has not been assigned a risk of acid sulphate soils occurring within 3m of the natural soil surface.
	The site is underlain by a multi-layered aquifer system; the Perth - Superficial Swan aquifer and the Perth - Leederville aquifer.
Groundwater (Section 2.7)	Groundwater underlying the site generally has a south-south-westerly flow direction towards the Ellen Brook. A groundwater monitoring program has been completed across the development area, which estimated the maximum groundwater level across the site from groundwater level data monitored at locations within and adjacent to the site.
	The estimated site-specific groundwater levels across the site range from approximately 36 mAHD at the southwestern boundary to approximately 48 mAHD at the northeastern

#### **Table 1: Design objectives and strategies**



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	boundary, with groundwater separation distances ranging from approximately 18 to 19
Surface hydrology (Section 2.8)	mbgl across the site. The Ki-it Monger Brook flows east to west, north to south along the northern and western part of the site, respectively, before crossing under the Great Northern Highway. A number of smaller drainage tributaries contribute to the Ki-it Monger Brook. Although the Ki-it Monger Brook has been identified as a "Conservation Area", it has been modified significantly over time, including the construction of dams and installation of culverts on the site which restrict flows, as well as the clearing of riparian vegetation.
	A site-specific XPSWMM model was used to simulate the flow rates discharging from the site into the Ki-it Monger Brook in existing conditions. This model indicated a total discharge rate from the site into Ki-it Monger Brook of approximately 0.20 m <sup>3</sup> /s.
Wetlands (Section 2.9)	A small part of the site is classified as a 'Multiple Use Wetland' (MUW). The nearest 'Conservation Category Wetland' (CCW) is located approximately 150 m to the west of the site.
Non-potable water servicing (Section 3.3)	One existing groundwater license has been issued to landholdings within the site for an allocation of 142,961 kL. Opportunities for securing groundwater resources are currently being investigated, including the potential for this groundwater licence to be used for permanent irrigation purposes across the site, via a connection to the City's irrigation network within the Kingsford development. Alternatively, scheme water could be utilised to satisfy the permanent irrigation water demand.
Water conservation (Section 4)	The use of water efficient fixtures and fittings within households will be promoted to reduce household potable water use. Additionally, waterwise landscaping and gardening principles will be implemented within all landscaped areas across the development area, which include incorporating waterwise native plants to reduce irrigation demand and limiting turf to areas of active recreation.
Stormwater management (Section 5)	<ul> <li>The following design criteria are adopted in the drainage strategy and drainage design:</li> <li>Maintain existing peak flow rates from the site</li> <li>Manage, retain and/or detain, and treat stormwater run-off from constructed impervious surfaces generated by the first 15 mm of rainfall at-source as much as practical, with no discharge into the Ki-it Monger Brook</li> <li>Provide adequate conveyance for the critical 20% AEP rainfall event to maintain serviceability of roads and pedestrian areas, allowing for limited discharge into Ki-it Monger Brook at a controlled rate</li> <li>Provide adequate flood detention storage to maintain existing flow rates downstream of the site</li> <li>The stormwater drainage demonstrates that the land is capable of managing stormwater for all events up to and including the 1% AEP event.</li> <li>Stormwater runoff from constructed impervious surfaces generated by storms up to and including the 1% AEP event will be managed at source as much as practical. Runoff will be collected and conveyed to the northern or southern bioretention basins for larger rainfall events. These basins have been designed to retain, treat, and infiltrate lot and road reserve runoff generated from the first 15 mm of rainfall, as well as from larger events up to and including the 1% AEP storm event, while allowing limited discharge into the Ki-it Monger Brook for larger events in accordance with existing discharge rates.</li> <li>Structural and non-structural controls will be used to improve stormwater quality. The use of native vegetation where possible, minimal fertiliser application, and soil amendment will assist with the management of groundwater and surface water quality. Native vegetation will be maintained in all suitable stormwater management areas to remove nutrient through plant uptake prior to infiltrating to the groundwater.</li> </ul>
Groundwater management (Section 6)	Due to the significant clearance to groundwater over the site, the development is not expected to impact on groundwater levels and no active management of groundwater levels (i.e., subsoil drains) is expected to be required. However, if a system of subsoil



drains is required to control groundwater levels, the Controlled Groundwater Level (CGL) would be set according to DoW Water Resource Considerations when Controlling Groundwater Levels.

Underlying groundwater resources will be protected by minimising nutrient export to maintain or improve the quality of groundwater leaving the site through:

- encouraging infiltration of stormwater as close to source as possible (e.g., roadside swales) to prevent mobilisation of contaminants to downstream drainage / infiltration areas.
- utilising waterwise gardening and landscaping practices to minimise fertiliser use and irrigation. Amended soil with a PRI >10 will be used beneath bioretention areas.



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## **1. Introduction**

## 1.1. Project background

This Preliminary Urban Water Management Plan (UWMP) has been prepared for Bethanie to support the Bethanie Bullsbrook Village (herein referred to as the 'site') development application (DA) submission and approval. This report describes the site conditions and the proposed integrated water management strategies to be implemented in the proposed development. Preliminary drainage design information is provided herein for the purpose of demonstrating that the proposed development is cognisant of the stormwater management requirements and that adequate site area has been identified for the purpose of stormwater management. However, the ultimate design of stormwater management infrastructure is subject to further detailed civil and landscape design and it is acknowledged that the drainage design will be subject to further assessment and review following DA approval. It is anticipated that an update or addendum to this Preliminary UWMP will be prepared to document the detailed civil, drainage, and landscape design in the future.

The site falls within the City of Swan and is located approximately 35 km northeast of the Perth CBD. The site comprises an area of approximately 10.7 hectares (ha) consisting of a significant portion of Lot 900. The site location and surrounding area are shown on Figure A. The site is proposed for the creation of a 237-dwelling village.

A Local Water Management Strategy (LWMS) was prepared by RPS (RPS, 2018) and approved by DWER to support the Local Structure Plan submission of various lots in Bullsbrook. This Preliminary UWMP has been prepared in accordance with the strategies and commitments discussed in the LWMS. The proposed master plan for the site is illustrated in Appendix A. This Preliminary UWMP provides an overview of the site's existing physical and hydrological conditions as well as a drainage design which will be implemented for the development in line with Better Urban Water Management (BUWM) principles (Department of Planning and Infrastructure, 2008).

## **1.2.** Planning background

The Bethanie Bullsbrook Village area is zoned as "Residential Development" under the City of Swan Local Planning Scheme (LPS) No. 17 Map 02 (Department of Planning, Lands and Heritage, 2022), and "Urban" under the Metropolitan Region Scheme (MRS).

### **1.3. Design objectives**

This UWMP is prepared in accordance with State Planning Policy 2.9: Water Resources (Government of Western Australia, 2007) and has been developed with reference to the following guidance documents:

- Western Australia State Water Plan (Government of Western Australia, 2007)
- Decision Process for Stormwater Management in WA (Department of Water and Environmental Regulation, 2017)
- Urban Water Management Plans: Guidelines for Preparing Plans and for Complying with Subdivision Conditions (Department of Water, 2008)
- Better Urban Water Management (Department of Planning and Infrastructure, 2008)
- Stormwater Management Manual for Western Australia (Department of Water, 2004-2007)
- Liveable Neighbourhoods (Western Australian Planning Commission, 2015b)
- Water resource considerations when controlling groundwater levels in urban development (Department of Water, 2013)
- Specification Separation Distances for Groundwater Controlled Urban Development (IPWEA, 2016)
- Water monitoring guidelines for better urban water management strategies and plans (Department of Water, 2012)



The UWMP details the integrated water management principles and strategies to facilitate future urban water management planning for the site. The UWMP will achieve integrated water management through the following design objectives:

- Effectively manage the risk to human life, property damage and environmental degradation from water contamination, flooding, and waterlogging.
- Maintain and if possible, improve water quality (surface and groundwater) within the development in relation to pre-development water quality.
- Reduce potable water consumption within both public and private spaces using practical and cost-effective measures.
- Implement best management practices in regard to stormwater and groundwater management.
- Incorporate where possible, low maintenance, cost-effective landscaping, and stormwater treatment systems.
- Reduce the use of natural resources (e.g., sand fill) where possible.

### **1.4. Previous studies**

Lot 900 is immediately adjacent to the Kingsford residential development and as such, Lot 900 benefitted from the planning and environmental approvals which underpinned the Kingsford residential development land use re-zoning, local structure plan and management plans. Specifically, a number of on-site investigations and environmental reports have previously been completed for the site to support the proposed land use planning changes. The documents that have been referred to for the preparation of the UMWP include:

- Regional Water Management Strategy Report for Bullsbrook Townsite Area (GHD, 2012)
- District Water Management Strategy Bullsbrook Landholding (RPS, 2016)
- Local Water Management Strategy Bullsbrook Landholding (RPS, 2018)
- Ki-it Monger Brook Foreshore Management Plan Bullsbrook Landholding (RPS, 2017)
- Geotechnical Investigation Proposed Bethanie Bullsbrook Village and Vehicle Bridge (Structerre Consulting Engineers, 2024)



## 2. Existing environment

## 2.1. Site location and existing land use

The site is located in the suburb of Bullsbrook, within the City of Swan, approximately 35 km northeast of Perth CBD. The site has been predominantly cleared of vegetation and historically used for semi-rural and agricultural purposes. The site is bound by:

- north: Ki-it Monger Brook is located directly north of the site, with residential land use located further north.
- east: residential land use, part of which is associated with the Kingsford development, is located directly east of the site.
- south: semi-rural land use is located to the south of the site.
- west: an Aboriginal Heritage site is located to the west of the site, which includes the Sacri church.

## 2.2. Climate

The site experiences a Mediterranean climate with cool, wet winters and hot, dry summers. Peak rainfall periods are usually between May and September. The nearest Bureau of Meteorology (BoM) weather station to the site is the Pearce RAAF weather station (Station Number 009053), located approximately 1.5 km from the site. Based on the rainfall data collected from 1937 to 2024 at this station, the local area experiences an average of 651 mm rainfall annually (Bureau of Meteorlogy, 2024).

Other climate data has also been taken from the Pearce RAAF station. Based on climate data collected from 1937 to 2024, the local area experiences monthly mean maximum temperatures between 17.9 °C and 33.6 °C and monthly mean minimum temperatures between 8.2 °C and 17.6 °C (Bureau of Meteorlogy, 2024). The monthly mean climatic data for rainfall and temperature is summarised in Table 2 below.

Evaporation data estimated from The Department of Agriculture and Food (Luke, Burke, & O'Brien, 1987) indicates that evaporation generally exceeds rainfall annually at the site. On average there are three months of the year (June to August) where the rainfall exceeds the evaporation.

Statistic	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean rainfall	9.9	12.8	16.3	33.6	82.4	129.5	134.0	105.6	67.6	36.6	22.0	10.5	651.2
Mean max temp	33.6	33.4	30.6	26.5	22.1	19.1	17.9	18.5	20.2	23.6	27.4	30.7	25.3
Mean min temp	17.0	17.6	16.1	13.3	10.7	9.3	8.4	8.2	8.8	10.2	12.6	14.7	12.2
Mean evaporation	297	257	224	123	87	59	60	69	106	154	203	259	1,898

#### Table 2: BoM monthly temperature, rainfall, and evaporation

## 2.3. Topography

The regional topographic contours show that the site has a gradient from northeast to southwest. Elevations across the site range from approximately 67 m Australian Height Datum (mAHD) at the northeastern boundary to 54 mAHD at the southwestern boundary of the site. The Ki-it Monger Brook to the north of the site has elevations between approximately 56 mAHD and 63 mAHD. Regional topographic contours are presented in Figure B.



## 2.4. Geology

#### 2.4.1. Land systems

Regional land systems have previously been mapped over the site and surrounding area. The mapping describes and groups the land with a recurring pattern on topography, soil type, and vegetation. Land systems mapping provides an indication of variability of the soils present over the survey area. According to the Soil Landscape Mapping data published by the Department of Primary Industries and Regional Development, the site is underlain by two land systems:

**Forrestfield System (213Fo)**: underlying the majority of the site, described as the undulating foot slopes of the Darling and Whicher Scarps. It consists of duplex sandy gravels, pale deep sands and grey deep sandy duplexes. The majority of the vegetation consists of woodland of E. Marginata, calophylla and wandoo, and some B. Grandis.

**Pinjarra System (213Pj)**: underlying the southwestern corner of the site, described as the Swan Coastal Plain from Perth to Capel. It consists of a poorly drained coastal plain with variable alluvial and aeolian soils. The vegetation is highly variable, but the majority of the vegetation consists of jarrah, marri, wandoo, paperbark sheoaks and rudis.

#### 2.4.2. Surface geology units

Environmental geological mapping (Gozzard, 1986) is provided in Figure C and indicates the site is dominated by two surficial geological units:

**Sandy silt (Msg)**: underlying the majority of the site, described as strong brown, firm, friable, dispersive in part, occasional pebbly horizons with little matrix containing quartzite, quartz, granite, laterite, of colluvial origin

**Pebbly silt (Mgs1)**: underlying the southwestern corner of the site, described as strong brown, silt with common fine to occasionally coarse grained, sub-rounded laterite quartz, heavily weathered granite pebbles, some fine to medium-grained quartz sand, of alluvial origin.

#### 2.4.3. Site investigations

A geotechnical investigation was undertaken by Structerre in 2024 (Structerre Consulting Engineers, 2024) to carry out soil testing and to provide advice on site preparation works. The investigation included 17 sample retrieval boreholes to a refusal depth of 2.1 m over the site for material assessment and soil profiling, 15 dynamic cone penetration tests to a maximum depth of 1.0 m or refusal for measurement of the strength and compressibility of the upper soil layers, and 6 in-situ percolation tests to determine the permeability of the materials within the upper 1.0 m. The main results from the Structerre investigation include:

- The subsurface soil profile generally consisted of topsoil surficial material to a maximum depth of 2.0 m overlaying sandy clay with gravel.
- Soil permeability across the entire investigation area ranged from 0.5 m/day to 3.1 m/day. As such, the existing ground conditions are not suitable for on-site disposal of stormwater runoff using shallow soakwells.

The geotechnical report prepared by Structerre is included as Appendix B.

#### 2.4.4. Acid Sulphate Soils

Acid Sulphate Soil (ASS) is naturally occurring soil containing iron sulphides, which when oxidised, can lead to acidification of soils and groundwater and, consequently, extensive environmental damage. Department of Water and Environmental Regulation (DWER) broad-scale Acid Sulphate Soil (ASS) risk mapping is based on surface geology mapping and provides a broad-scale indication of the risk of occurrence of ASS. The entire site has not been assigned a risk of acid sulphate soils occurring within 3m of the natural soil surface.

### **2.5. Contaminated sites**

A search of the DWER Contaminated Sites database has been undertaken and no recorded contaminated sites were identified within the site boundary. A contaminated area (Lot 1 on Diagram 9938) has been identified approximately 200m southwest of the site. This area is



classified as "remediated for restricted use" due to the presence of hydrocarbon-impacted soils beneath the building and forecourt area of a former service station. However, given the flow direction of groundwater according to regional groundwater mapping, this contaminated area is not anticipated to negatively impact the site.

## 2.6. Public Drinking Water Source Areas

The Perth Groundwater Map (Department of Water and Environmental Regulation, 2023) indicates the site is not located within a Public Drinking Water Source Protection Area (PDWSA). The nearest PDWSA is the P1 Gnangara Underground Water Pollution Control Area located approximately 8 km to the west of the site. No well head protection zones were identified on-site or within the immediate site surrounds.

Priority 1 areas are usually assigned over crown land covered with native vegetation and are managed to avoid water quality risks. These areas are defined to ensure that there is no degradation of the drinking water source through the principle of risk avoidance.

## 2.7. Groundwater

#### 2.7.1. Aquifers

Groundwater resource mapping available from the DoW Water Register (Department of Water and Environmental Regulation, 2022) indicates that the site is underlain by a multilayered aquifer system comprising the following resources:

- Perth Superficial Swan aquifer (Swan groundwater area Bandy Spring subarea)
- Perth Leederville aquifer (Swan groundwater area Swan Confined subarea)

#### 2.7.2. Groundwater levels

#### 2.7.2.1. Regional groundwater levels

Although the Gnangara Jandakot Maximum Water Table contours do not fully extent into the site, regional groundwater mapping by DWER still provides an indication of the groundwater flows across the site; groundwater flows in a south-south-westerly direction towards the Ellen Brook, located approximately 2.5 km southwest of the site. According to the Perth Groundwater Map (Department of Water and Environmental Regulation, 2023), the Gnangara Jandakot Maximum Water Table elevation contours at the site indicate the water table elevations range from approximately 32.75 mAHD in the north to 30.5 mAHD in the south. These elevations correspond to maximum groundwater levels ranging from approximately 23.5 to 34.25 m below ground level (mbgl) across the site.

#### 2.7.2.2. Site-specific groundwater levels

As part of the hydrogeological assessment undertaken by RPS and documented in the Local Water Management Strategy for the Kingsford Estate, six monitoring bores (MB1 - MB6) were installed across the entire LSP area and groundwater levels were measured from these bores, as well as from three existing bores (MW1 - MW3) in September 2015, October 2015, and November 2016. Groundwater levels monitored from all bores ranged from 30.49 mAHD to 77.89 mAHD. Although none of the monitoring bores are located within the subject site, bores MB3 and MB5 are located within 150 m of the site.

#### 2.7.2.3. Groundwater contours

Groundwater contours were generated by RPS from the October 2015 monitoring event for the entire LSP area, ranging from approximately 75 mAHD to 30 mAHD, as illustrated by Figure D. The site-specific groundwater levels across the site range from approximately 36 mAHD at the southwestern boundary to 48 mAHD at the northeastern boundary, with depths to groundwater ranging between 18 mbgl and 19 mbgl.

Due to the significant depth to groundwater over the majority of the site, a complete 18month groundwater monitoring program covering two winter peaks has not been undertaken.



#### 2.7.3. Groundwater quality

Groundwater quality sampling within the Bullsbrook Landholdings Local Structure Plan area was undertaken by RPS (RPS, 2016) on two occasions. These monitoring efforts included the collection of groundwater samples from several groundwater bores in the entire LSP area, one of which (MB5) in close proximity to the subject site. All samples were sent to a NATA accredited laboratory to be analysed for a suite of nutrients. Physico-chemical parameters were also measured in the field as part of the monitoring events.

The average results for the measured bores by RPS and the relevant guidelines for wetlands in southwest Western Australia (ANZECC, 2000) and for the Swan Canning Water Quality Improvement Plan (SCWIP) (Swan River Trust, 2009) targets for total nitrogen (TN) and total phosphorous (TP) are summarised in Table 3, with the monitoring locations shown in Figure F.

Bore	Ph	ysic-chen	nical						
	Temp (°C)	рН	EC (μS/cm)	TN (mg/L)	TKN (mg/L)	NH₄-N (mg/L)	NO <sub>x</sub> -N (mg/L)	TP (mg/L)	FRP (mg/L)
ANZECC FWG 2000	-	7 - 8.5	-	1.50	-	0.040	0.10	0.06	0.03
SCWIP 2009	-	-	-	1.00	-	-	-	0.10	-
MB1	21.9	6.30	1705	1.75	1.75	0.02	0.03	8.58	0.01
MB2	22.1	5.50	1365	0.83	0.73	0.02	0.09	3.74	0.02
MB3	-	-	-	-	-	-	-	-	-
MB4	-	-	-	-	-	-	-	-	-
MB5	27.1	6.68	1556	-	-	-	-	-	-
MB6	19.9	6.02	1174	1.60	1.55	0.04	0.09	3.10	0.03
MW1	19.2	5.50	582	3.70	0.95	0.02	2.75	0.52	0.01
MW2	22.7	4.68	153	5.60	0.75	0.02	4.83	0.16	0.01
MW3	23.9	5.16	890	1.45	1.25	0.03	0.22	0.96	0.04
Mean	21.6	5.53	969	2.49	1.16	0.02	1.33	2.84	0.02

#### Table 3: Summary of average groundwater quality monitoring results (RPS, 2016)

Note: Orange and yellow shading indicates guideline exceedance. Results below the limit of reporting (LOR) have been assigned half the LOR for the calculation of the mean. Bores MB3 & MB4 were dry during all monitoring events, bore MB5 was either dry or had insufficient water to sample.

The groundwater quality data reflects the historical agricultural land uses within the catchment and the elevated nutrient concentrations that would be expected to occur as a result. The groundwater was generally found to be acidic (average pH of 5.53), with all of the monitoring events registering pH levels outside of the ANZECC freshwater guidelines range. The salinity (measured as electrical conductivity) was generally found to be marginally brackish (average EC of 969  $\mu$ S/cm), although slightly elevated salinity values (up to EC of 1766 µS/cm) were monitored as well. Moderately elevated nutrient concentrations were observed across the site, with total nitrogen (TN) concentrations exceeding both ANZECC freshwater guidelines as well as SCWIP targets on most occasions. Total phosphorous (TP) concentrations exceeded ANZECC guidelines and SCWIP targets at all locations, and NO<sub>x</sub>-N concentrations were generally found to be exceeding ANZECC freshwater guidelines values at the eastern part of the LSP area.

### **2.8.** Surface hydrology

The site falls within the subarea of the Ellen Brook, with the Ellen Brook located approximately 2.5 km to the west of the site. The Ki-it Monger Brook flows east to west, north to south along the northern and western part of the site, respectively, before crossing



under the Great Northern Highway. The confluence of Ki-it Monger Brook with Ellen Brook occurs approximately 2.5 km to the southwest of the site.

The pre-development hydrological regime is likely to consist of infiltration through the sandy surface soils followed by runoff generated during more intense or longer precipitation events when the infiltration capacity of the soils is exceeded. Runoff will flow with the grade of the site towards the Ki-it Monger Brook to the west or southwest.

#### 2.8.1. Ki-it Monger Brook

The Ki-it Monger Brook has an approximate catchment area of 5.2 km<sup>2</sup> upstream of the Great Northern Highway (RPS, 2013). A number of smaller drainage tributaries contribute to the Kiit Monger Brook. Although the Ki-it Monger Brook has been identified as a "Conservation Area" within previous foreshore management planning undertaken to support Local Structure Planning, the watercourse has been modified significantly over time, including the construction of dams and installation of culverts on the site which restrict flows, as well as the clearing of riparian vegetation. The pre-development surface water features are illustrated in Figure 1.



Figure 1: Pre-development surface water features and flood extent

RPS has undertaken a flood level assessment for the Ki-it Monger Brook as part of the previous water management reporting stages for the project. The modelled 1% AEP flood level of the Ki-it Monger Brook ranges between approximately 57.79 and 59.1 mAHD (northeastern corner of the site) and 53.6 m AHD (southwestern corner of the site) and is illustrated in Figure 1. The 1% AEP flows are contained within the brook channel which is deeply incised adjacent to and within the site and do not impact on overbank areas where development is to occur. A biophysical assessment of the Ki-it Monger Brook was completed during the Structure Plan process to define a suitable foreshore area for the brook.

#### 2.8.2. Pre-development discharge rates

RPS completed flood modelling for the Ki-it Monger Brook which included developing a hydrological and hydraulic model in the XPSWMM modelling package. The modelling incorporated surveyed cross sections and invert levels of the Ki-it Monger Brook watercourse



along with inverts and dimensions of all culverts. It was determined that the 1% AEP flood event is generally contained within the well-defined and deeply incised channel of the brook. However, both modelling exercises indicated that surcharge of floodwaters above the top of the banks of the brook may occur at the upstream end of the culvert west of the site during the critical 1% AEP flood event (RPS, 2018).

A key output of the pre-development modelling is the peak flow rates within the Ki-it Monger Brook which are to be maintained by the post-development drainage design. The modelling determined the critical design storm is the 6-hour rainfall event and that the peak 1% AEP pre-development flow rate at the discharge point from the site beneath Great Northern Highway is 12 m<sup>3</sup>/s (RPS, 2018).

Additionally, site-specific hydrological (rainfall-runoff) modelling was undertaken by Pentium Water in XPSWMM, to simulate the flow rates discharging from the subject site into the Ki-it Monger Brook in existing conditions. This model indicated a total discharge rate from the site into Ki-it Monger Brook of approximately 0.20 m<sup>3</sup>/s in the 1% AEP event.

#### 2.8.3. Surface water quality

There are no surface water quality monitoring sites located within the site boundary recorded in the DWER Water Information Reporting database. Two DWER monitoring sites are located west of the site, however, these have minimal water quality readings. The average conductivity at these sites was recorded between values of 2,590  $\mu$ S/cm and 1,014  $\mu$ S/cm.

A surface water monitoring program was undertaken for the Ki-it Monger Brook by RPS (RPS, 2018), which consisted of four surface water monitoring sites in close proximity to the subject site; one at the major dam on the Ki-it Monger Brook (SW-1), one at the brook further downstream (west) of the dam (SW-2), another at the brook further upstream (SW-3), and the last one south of the subject site (SW-4). These sites were sampled between November 2016 and October 2018. All samples were sent to a NATA accredited laboratory to be analysed for a suite of nutrients. Physico-chemical parameters were also measured in the field as part of the monitoring events.

The average results for the measured bores by RPS and the relevant guidelines for wetlands in southwest Western Australia (ANZECC, 2000) and for the Swan Canning Water Quality Improvement Plan (SCWIP) (Swan River Trust, 2009) targets for total nitrogen (TN) and total phosphorous (TP) are summarised in Table 4, with the monitoring locations shown in Figure E.

Bore	Ph	ysic-chen	nical						
	Temp (°C)	рН	EC (µS/cm)	TN (mg/L)	TKN (mg/L)	NH₄-N (mg/L)	NO <sub>x</sub> -N (mg/L)	TP (mg/L)	FRP (mg/L)
ANZECC FWG 2000	-	7 - 8.5	-	1.50	-	0.040	0.10	0.06	0.03
SCWIP 2009	-	-	-	1.00	-	-	-	0.10	-
SW-1	24.6	7.77	2197	0.93	0.70	0.02	0.38	0.05	0.01
SW-2	32.3	7.47	2310	0.83	1.00	0.02	0.23	0.04	0.01
SW-3	-	-	-	0.80	-	0.05	0.29	0.03	0.01
SW-4	-	-	-	1.25	-	0.03	0.69	0.04	0.01
Mean	28.5	7.62	2254	0.94	0.85	0.03	0.40	0.04	0.01

#### Table 4: Summary of average surface water quality monitoring results (RPS, 2016)

Note: Orange and yellow shading indicates guideline exceedance. Results below the limit of reporting (LOR) have been assigned half the LOR for the calculation of the mean.

The surface water quality was generally found to be consistent across the area. The salinity (measured in electrical conductivity) was generally found to be saline (average EC of 2254  $\mu$ S/cm) (NHMRC & NRMMC, 2011), and the average pH was measured at 7.62. The majority of



nutrient concentrations were found to be within ANZECC freshwater guidelines and SCWIP targets, however, elevated concentrations of  $NO_X$ -N were found at all surface water monitoring locations.

### 2.9. Wetlands and GDEs

The Department of Biodiversity Conservation and Attractions (Department of Biodiversity, Conservation and Attractions, 2018) *Swan Coastal Plain Geomorphic Wetland Mapping* has identified several wetlands within and around the site. The wetland mapped partially within the site (UFI 15282) is classified as 'Multiple Use Wetland' (MUW). Several wetlands have been identified in close proximity to the site, consisting of several 'Conservation Category Wetlands' (CCW) to the west and southwest. The nearest CCW (UFI 15143) is located approximately 150 m to the west of the site. The mapped geomorphic wetlands within and in close proximity to the site are presented in Figure F.

### 2.10. Sewage Sensitive Areas

Sewage Sensitive Areas (SSAs) are proclaimed under the *Government Sewerage Policy* (GSP) (Department of Planning, Lands and Heritage, 2019) to protect groundwater and surface water systems. A review of the GSP online data set (Geoscience Australia, 2023) maps the entire site as an estuary catchment on the Swan and Scott Coastal Plains as well as being within 1 km of significant wetlands.

### 2.11. Bush Forever

Bush Forever areas are locally significant natural areas that require conservation. There are no Bush Forever sites located within the proposed development boundary, however, several Bush Forever sites are located within 1 km of the site; the nearest of which is Bush Forever site No. 89 located approximately 150 m west of the site.

### 2.12. Heritage

#### 2.12.1. Aboriginal Heritage

A search of the Department of Planning Lands and Heritage (DPLH) Aboriginal Heritage Inquiry System (AHIS) database identified three registered aboriginal heritage sites directly within the development area or its immediate surroundings (at a distance <1 km); the Ellen Brook Upper Swan, the Ki-it Monger Brook 2, and Bullya Spring (associated with the Sacri church).

# 2.13. Summary of constraints and opportunities from the existing environment

The previous sections have identified the following key constraints and opportunities for development at the site in regard to the current existing environment:

- Surface elevations across the site range from approximately 67 m Australian Height Datum (mAHD) at the northeastern boundary to 54 mAHD at the southwestern boundary of the site.
- Groundwater underlying the site generally has a south-south-westerly flow direction towards the Ellen Brook. The estimated site-specific groundwater levels across the site range from approximately 36 mAHD at the southwestern boundary to approximately 48 mAHD at the northeastern boundary, with groundwater separation distances ranging from approximately 18 to 19 metres below ground level across the site.
- The majority of the site is underlain by the Forrestfield System, with the southwestern corner being underlain by the Pinjarra System. The surface geology of the majority of the site is identified as sandy silt, with the southwestern corner being identified as pebbly silt. Permeability of the natural soils is generally low with permeability across the site ranging from 0.5 m/day to 3.1 m/day.
- The entire site has not been assigned a risk of acid sulphate soils occurring within 3m of the natural soil surface.



- The Ki-it Monger Brook flows east to west, north to south along the northern and western part of the site, respectively, before crossing under the Great Northern Highway. The brook has been modified including installation of culverts at several locations (including adjacent to the subject site).
- Hydrological modelling has been undertaken to estimate flow rates discharging from the site into the Ki-it Monger Brook in existing conditions. This model indicated a total discharge rate from the site into Ki-it Monger Brook of approximately 0.20 m<sup>3</sup>/s in the 1% AEP event.
- A small part of the site is classified as a 'Multiple Use Wetland' (MUW). The nearest 'Conservation Category Wetland' (CCW) is located approximately 150 m to the west of the site.
- The site has been predominantly cleared of vegetation and historically used for semirural and agricultural purposes.

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## 3. Water servicing

The water servicing and sewer reticulation servicing have been designed by Cossill & Webley (Cossill & Webley, 2024), the details of which are summarised below with the full report available as Appendix C.

## **3.1.** Potable water supply

Potable water supply for the site will be via a connection to the existing Water Corporation water supply scheme. It is anticipated that the water supply will come from a DN300 water distribution watermain in Chittering Road/Tigermoth Blvd to the west with a single property connection to the site. (Cossill & Webley, 2024).

### 3.2. Wastewater servicing

Wastewater servicing for the site is proposed to be realised through a connection to the existing Water Corporation sewerage network. Sewer reticulation from the site will discharge to the gravity sewer in Tigermoth Blvd, which has been designed to capture the overall sewer from the site (Cossill & Webley, 2024).

## 3.3. Non-potable water supply - Irrigation

An estimate of the permanent irrigation demand for the site is provided in Table 5 below, based on the landscape concept plan (Appendix D). Based on a typical irrigation rate of 6,750 kL/ha/yr, the irrigation water demand for the site equates to approximately 5,800 kL/yr.

Area	Irrigated area (ha)	Irrigation rate (kL/ha/yr)	Total water demand (kL/yr)
Turf	0.43	6,750	2,903
Feature planting	0.43	6,750	2,903
Total	1,538		5,806

#### Table 5: Irrigation water demand

#### 3.3.1. Groundwater licences

There has been one groundwater licence issued to landholdings within the site, as summarised in Table 6 (Department of Water and Environmental Regulation, 2022).

Opportunities for securing groundwater resources are currently being investigated, including the potential for this groundwater licence to be used for permanent irrigation purposes across the site, via a connection to the City's irrigation network within the Kingsford development. Alternatively, scheme water could be utilised to satisfy the permanent irrigation water demand. It is anticipated that an update to this Preliminary UWMP will be prepared to document the detailed long-term irrigation demand and water source.

#### Table 6: Summary of existing groundwater licence holders

Licence number	Adress	Parties	Aquifer	Volume (kL/yr)
177269	Lot 3 on Diagram 61059, Lot 834 on Plan 246328, Lot 1165 on Plan 246222, et al.	City of Swan	Perth - Superficial Swan	142,961



## 4. Water conservation

Conservation of water through fit-for-purpose use and best management practices is encouraged to minimize the waste of water. Fit-for-purpose describes the use of water that is of a quality suitable for the required use of the water. Fit-for-purpose principles have been utilised in the water conservation strategy for the site.

## 4.1. Proposed strategy

The State Water Plan (Government of Western Australia, 2007) is a strategic policy and planning framework to meet the state's water demands to the year 2030. One of the key targets is to reduce scheme water consumption to 40 kL - 60 kL per person per year. Water conservation measures will be adopted to create a "Waterwise" development and minimise water-servicing requirements. The water conservation strategy will aim to reduce water demand through incorporating a variety of effective initiatives, which are described in more detail below. Furthermore, the development will comply with the following objectives:

- No potable water should be used outside the homes and buildings and achieve efficient use of scheme water, where alternative water sources are available.
- Waterwise landscaping techniques should be employed, and irrigation should be restricted during the day.

Methods that will be utilised to achieve these criteria include:

- Water efficient fixtures and fittings (WEFA) installed in households
- Waterwise landscaping design incorporating waterwise native plants to reduce irrigation demand and limiting turf to areas of active recreation

#### 4.1.1. Household water conservation

The Building Code of Australia sets minimum standards of efficiency for water using fixtures and fittings in homes. These include:

- All tap fittings, except bath outlets, garden taps and toilets must be a minimum 4-star WELS rated.
- All showerheads must be a minimum of 3-star WELS rated.
- An outdoor private swimming pool or spa associated with a Class 1 building must be supplied with a cover or blanket.
- All internal hot water outlets (such as taps, showers and washing machine water supply fittings) must be connected to a hot water system or a recirculating hot water system with pipes installed and insulated in accordance with AS/NZS 3500.
- Lot owners will be encouraged to install grey water systems for the irrigation of individual household landscaping.
- Lot owners will also be encouraged to install rainwater tanks. Rainwater tanks can be connected to water using fixtures such as toilets, washing machines and external taps to reduce potable water demand as well as assisting in reducing stormwater run-off.

#### 4.1.2. Waterwise landscaping

The landscape treatments for the site will include a variety of passive and recreational areas. Additionally, the landscaping design will incorporate a number of measures to minimise the long-term irrigation requirement and create a waterwise urban development. These will include but are not limited to:

- Minimising areas of turf and selecting turf species endorsed by the UWA Turf Industries Research Steering Committee.
- Improving soil with conditioner certified to Australian Standard AS4454 to a minimum depth of 150 mm where turf is to be planted and a minimum depth of 300 mm for garden beds.
- Designing and installing the irrigation systems according to best water efficient practices:
  - Control systems must be able to irrigate different zones with different irrigation rates.
  - Emitters must disperse coarse droplets or be subterranean.
  - Utilise subsoil irrigation where appropriate.



- Mulching garden beds to 75 mm with a product certified by Australian Standard AS4454.
- Minimising the use of fertiliser pesticides and utilizing slow-release fertilizers.
- Hydro zoning irrigation to optimise water usage across different planting zones.
- Utilising planting sections for drainage and rain garden areas in accordance with Vegetation Guidelines for Stormwater Biofilters in the South-West of Western Australia (Monash University, 2014).

Waterwise landscaping and gardening principles will be implemented within all landscaped areas across the site. Additionally, low to no water requirement native vegetation is proposed to be used in most areas.



## 5. Stormwater management

## 5.1. Design criteria and objectives

The objectives and preliminary design criteria that will be used to guide the stormwater management strategy for this site were identified in the DWMS (RPS, 2016) and the LWMS (RPS, 2018) as well as relevant state policies and guidelines.

The objective for stormwater management at the site will be to effectively manage runoff generated from small, minor, and major events. The key principles for stormwater management at the site are to safely convey and contain runoff from major events to provide flood protection to infrastructure and people, and to promote opportunities for capture and infiltration close-to-source of runoff from first flush and small rainfall events. The engineering and drainage design will seek to implement water sensitive urban design (WSUD) principles and best management practices where possible. The key design criteria for the site are summarised below and have been established in accordance with the design objectives outlined in Section 1.3.

#### 5.1.1. Design criteria

#### 5.1.1.1. Small / common events (1 EY - one hour event)

The following criteria are adopted for the management of small rainfall events, defined as the one hour - one exceedance per year (one hour - 1 EY) rainfall event:

- Maintain the pre-development hydrological regime by encouraging infiltration close-tosource.
- Manage, retain and/or detain, and treat (if required) stormwater run-off from constructed impervious surfaces generated by the first 15 mm of rainfall at-source as much as practical.

#### 5.1.1.2. Minor events (20% AEP)

 Provide stormwater conveyance system capacity for the critical 20% AEP event to maintain serviceability of roads and pedestrian areas.

#### 5.1.1.3. Major events (1% AEP)

- Provide adequate flood detention storage to maintain pre-development flow rates downstream of the site.
- Habitable floor levels to be at least 0.3 m above the 1% AEP flood level of the urban drainage system and road reserve.
- Habitable floor levels at least 0.5 m above the 1% AEP flood level of major systems to protect people and property from flooding.

### 5.2. Drainage strategy

The stormwater drainage strategy of the development is consistent with the strategy set out in the LWMS (RPS, 2018) which involves retaining and infiltrating stormwater runoff generated by the first 15 mm of rainfall at source as much as practical, and detaining stormwater generated by larger rainfall events up to and including the 1% AEP event on-site, while allowing limited discharge into the Ki-it Monger Brook for larger events in accordance with existing discharge rates.

The preliminary drainage design comprises two stormwater catchments: a smaller catchment in the north and a larger catchment in the south. Each catchment incorporates a vegetated drainage basin (or basins) within landscaped areas to retain, treat, and infiltrate road reserve runoff generated from the first 15 mm of rainfall, as well as detain larger events up to and including the 1% AEP storm event with controlled discharge into the Ki-it Monger Brook in accordance with existing discharge rates.

### 5.3. Drainage design

Drainage calculations were undertaken to inform the drainage strategy and the proposed development layout. The calculations were used to simulate post-development drainage



design for the purpose of determining preliminary design dimensions of the drainage basins. The calculations demonstrated that the site allocates adequate land for all basins. It should be noted that the following assumptions have been applied:

- The basins are designed to contain the 1% AEP event on-site, inclusive of limited discharge into the Ki-it Monger Brook at a controlled rate for larger rainfall events.
  - the total permissible discharge for both catchments into the Ki-it Monger Brook is assumed to be 0.2 m<sup>3</sup>/s in the 1% AEP event, in accordance with hydrological modelling of the existing conditions.
- An infiltration rate of 1.5 m/d has been applied in the calculations, based on the geotechnical investigation.
- The basins were designed with preliminary geometry of 1:4 batters and a depth of 1.0 m.
- Lots / dwellings have been assumed to provide some degree of on-site retention/detention of stormwater (e.g., landscaped swales, rainwater tanks, etc.).
- The site has been assumed to be developed with at least some import of free-draining fill, allowing for infiltration of at least small events at-source (i.e., within inter-dwelling landscaped areas / yards).
- Potential exists for storage and infiltration within roadside swales; however, such losses have conservatively been excluded in these calculations (the inclusion of any roadside conveyance swales will be subject to detailed design and reflected in final design calculations / basin sizing).

Table 7 provides the breakdown of land uses within the site for all catchments whilst Table 8 provides the preliminary basin details for the northern and southern catchments. Figure G provides the stormwater catchments which have been delineated from the stormwater drainage catchment plan, as well as the stormwater management strategy. The locations for the drainage basins and the basin outlet infrastructure are indicative only.

Catchment	Roads (ha)	Dwelling sites / Lots (ha)	Amenities (ha)	Landscape (ha)	Drainage (ha)	Total (ha)
Northern catchment	0.26	1.11	-	0.31	0.04	1.72
Southern catchment	1.65	5.53	0.40	1.25	0.21	9.04

#### **Table 7: Catchment areas**

Table	8:	Storage	sizing	details
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Catchment	Design AEP	Maximum discharge (m³/s)	Storage depth (m)	Batter slopes	Base area (m²)	Top area (m <sup>2</sup> )	Volume (m³)
Northern basin	1% AEP	0.05	1.0	1:4	145	400	260
Southern upstream basin	10/ ΔΕΡ	% AEP 0.15	1.0	1:4	630	1110	860
Southern downstream basin	1% AEP		1.0	1:4	640	1410	1010

The runoff from the northern catchment is to be contained within a single basin, with limited discharge into the Ki-it Monger Brook for larger events. Given the size of the southern catchments and the required storage, the runoff from the southern catchment is currently



intended to be contained within two basins, similarly allowing limited discharge into the Kiit Monger Brook.

As per the basin sizing calculation, the northern basin preliminary sizing assumes a maximum discharge rate into the Ki-it Monger Brook of 0.05 m<sup>3</sup>/s and a storage volume of approximately 260 m<sup>3</sup>. The southern basins preliminary sizing assumes a combined maximum discharge rate into the Ki-it Monger Brook of 0.15 m<sup>3</sup>/s and a combined storage volume of approximately 1870 m<sup>3</sup>. These volumes are indicative only and subject to detailed drainage design.

### **5.4.** Structural controls

#### 5.4.1. Small drainage system (15 mm rainfall)

Retaining small rainfall events close to the source is particularly important for the management of water quality. Rainfall events up to 15 mm (equivalent to the 1 EY - 1 hour event) account for approximately 99% of all stormwater run-off and the majority of pollutants from road and roof surfaces. The objective for these events is to retain and infiltrate runoff as close to source and as high in the catchment as possible with the aim to maintain the pre-development hydrologic regime and maximise close-to-source treatment of stormwater. The strategy is to achieve this objective through detention of roof runoff close to dwellings via rainwater tanks and/or infiltration of first flush events within landscaped portions of dwelling allotments. In addition, the option to incorporate roadside conveyance swales will be explored to provide at-source infiltration opportunity for road pavement runoff.

#### 5.4.2. Minor drainage system (20% AEP event)

Stormwater conveyance will be via piped drainage and/or roadside swales to the drainage basins within the landscaped areas in the north and south of the site. This drainage system will be designed to ensure roads and pedestrian areas remain serviceable for the 20% AEP events.

#### 5.4.3. Major drainage system (1% AEP event)

The major drainage system design will comprise overland flow paths through the roads to ensure major events are able to be safely conveyed towards the drainage basins within landscaped areas adjacent to Ki-it Monger Brook.

The drainage basins will be constructed with a controlled outlet to the Ki-it Monger Brook. It is anticipated that these outlets will be in the form of pipes with headwall outlets to the bank of the brook. Outlets will be constructed with appropriate scour protection measures such as rock pitching.

Dwelling pad levels will be designed to ensure minimum 0.3 m freeboard from the local stormwater drainage system and 0.5 m freeboard from the adjacent flood level within the Ki-it Monger Brook.

### 5.5. Vegetation

Vegetation will be included in all suitable stormwater management areas to help prevent erosion, maintain soil infiltration, restrict water flows, and remove particulate and soluble pollutants, particularly nitrogen. The plants will mainly be associated with drainage basin areas and will be appropriately selected based on their intended function, using native species as much as possible.

### 5.6. Non-structural controls

Non-structural controls will be used to provide additional stormwater quality management and will include establishing operation and maintenance activities and controlling land use and management. The development will use the following non-structural controls to improve stormwater quality and reduce contamination.



#### 5.6.1. Nutrient control and landscaping

Appropriate landscape design and maintenance practices will provide improvement of stormwater quality through ensuring:

- Appropriate native plant species are continually used
- Drainage basin areas to contain an amended soil with a minimum PRI of 10
- Landscaped areas and drainage basins to be maintained
- Appropriate fertiliser, pesticide and irrigation regimes are followed

#### 5.6.2. Waste and construction management

Waste management plans will include provisions for stormwater protection through:

- Prompt removal of litter when discovered
- Discouraging waste dumping in drains and drainage swale through restricted access (i.e. bollards around POS) and signage
- Providing sufficient public facilities for rubbish disposal
- Construction activities will be subject to sediment and erosion control measures.



## 6. Groundwater management

The main principles of groundwater management are to protect underlying groundwater resources by minimising the export of nutrients and to protect infrastructure from groundwater inundation, as summarised in Table 9. The main objective to protect the underlying groundwater resources is defined as maintaining or improving the quality of groundwater leaving the site. Improvements to groundwater quality can be achieved by either reducing the total nutrient load received by groundwater, or by the treatment of surface water prior to infiltration to groundwater. The reduction of the nutrient and contaminant loads will be achieved by various methods, including infiltration at the source, vegetation and soil amendment, as well as management measures.

Principle	Objective	Approach / design criteria
Protect underlying groundwater resources by minimising nutrient export	Maintain or improve the quality of groundwater leaving the site	Encourage infiltration of stormwater as close to source as possible (e.g., use of soakwells where possible, road run-off directed to bioretention areas) to prevent mobilisation of contaminants to downstream drainage / infiltration areas Provide a minimum separation of 300 mm between bioretention and flood storage areas and underlying subsoil drainage / controlled groundwater level Utilise waterwise gardening practices to minimise fertiliser use and irrigation. Use amended soil (PRI >10) beneath bioretention areas
Protect infrastructure from groundwater inundation		Provide a minimum of 1.2 m between lot levels and MGL or CGL

## 6.1. Groundwater level management

There is significant clearance to groundwater levels at the site with pre-development monitoring determining groundwater to be at least 11 m below the natural surface. Due to the significant clearance to groundwater over the site, the development will not impact groundwater levels and no active management of groundwater levels (i.e., subsoil drains) is expected to be required, except perhaps for localised control of potential perching. Groundwater controls will be reviewed at detailed design stage when further information is available on the final earthworks levels and thickness of imported fill.

If a system of subsoil drains is required to control groundwater levels, the level at which subsoil drains are installed, the Controlled Groundwater Level (CGL), would be set in accordance with DoW Water Resource Considerations when Controlling Groundwater Levels in Urban Development (Department of Water, 2013). As specified in (Department of Water, 2013) the CGL would be set with consideration of:

- A free-flowing drainage outlet
- Infrastructure protection
- Groundwater quality
- Protection of water dependent ecosystems (WDEs) and water resources
- Catchment and nearby land use constraints

## 6.2. Groundwater quality management

#### 6.2.1. Infiltration close to source

The proposed stormwater management strategy includes a series of measures to facilitate the infiltration of stormwater run-off as close to the source as possible. These measures prevent the mobilisation of contaminants that are typically transported with higher loads during first flush rainfall events, which will instead be retained and infiltrated higher in the



catchment, providing further opportunity for nutrient uptake and attenuation through the soil profile.

#### 6.2.2. Vegetation and soil amendment

As discussed in Section 4.1.2, the development will utilise waterwise landscaping including the use of native vegetation and aim to minimise the use of turf and use appropriate turf. In addition to the conservation of water, the use of waterwise principles will also minimise the overall fertiliser requirements and therefore the nutrient load that could be transported to the groundwater via infiltration will be reduced.

#### 6.2.3. Management measures

Many of the stormwater management measures will improve the quality of infiltrated water through reducing flow velocities and scour potential, biological uptake of nutrients, phosphorus adsorption to soil and increasing infiltration/treatment areas. The stormwater management strategy is expected to provide a significant level of treatment of infiltrating stormwater. To further ensure groundwater quality protection the following additional measures will be adopted:

- Minimise and control the amount of fertilisers and pesticides applied to the site through appropriate plant selection and appropriate operation and maintenance protocols.
- Maintain healthy and well-established plants, particularly in vegetated drainage systems.



## 7. Management construction works

## 7.1. Construction and waste management

Construction work undertaken during development will be controlled and monitored by the proponent/development manager to ensure that the specified engineering drawings are followed, and the drainage system is not compromised and continues to function as intended. Management and control measures to be implemented during construction works include:

- Waste management measures will be put in place to prevent litter and construction wastes from collecting in the drainage system and polluting downstream receiving environments.
- Temporary fencing will be used during the earthworks/construction phase to prevent unauthorised access to the site.

## 7.2. Erosion and sediment control

Management of construction activities will include best management practices to minimise discharges of sediments and other contaminants into the drainage network. This will include:

- Regular street sweeping.
- The civil contractor will use groundwater and/or polymer dust suppression material for dust suppression and stabilisation of lots and verges during construction work.
- Placement of silt fencing where required adjacent to drains, waterways, etc.
- Further details will be provided by the civil contractor via a Construction and Environmental Management Plan.

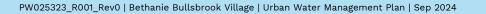


## 8. Monitoring

## 8.1. Pre-development monitoring

An updated UWMP to be prepared as a condition of the development application (DA) approval will detail the post-development monitoring commitments, including monitoring parameters, locations, frequency, and timeframes. These monitoring commitments will be consistent with those outlined in the approved Local Water Management Strategy.

This UWMP will also detail assessment criteria and trigger levels for the monitoring results to be assessed against, reporting requirements and contingency responses in the event that monitoring results identify any concerns around surface or groundwater quality of levels.



#### **Future UWMP Information** 9.

It is anticipated that this Preliminary UWMP will be updated following DA approval and subsequent completion of the detailed civil, drainage and landscape design process. The final UWMP will include (but not be limited to) the following additional information.

- An approved development layout •
- Earthworks design including road and dwelling pad levels
- Road and drainage design including pipe and/or swale alignments, dimensions and elevations
- Confirmed locations and design details for any at-source infiltration and treatment areas (e.g., roadside swales)
- Civil and landscape design for the drainage basins
- Any relevant landscape design details consistent with foreshore and bushfire management requirements
- Long-term irrigation demand and irrigation water source
- Post-development monitoring requirements
- UWMP implementation plan, including tasks, roles and responsibilities



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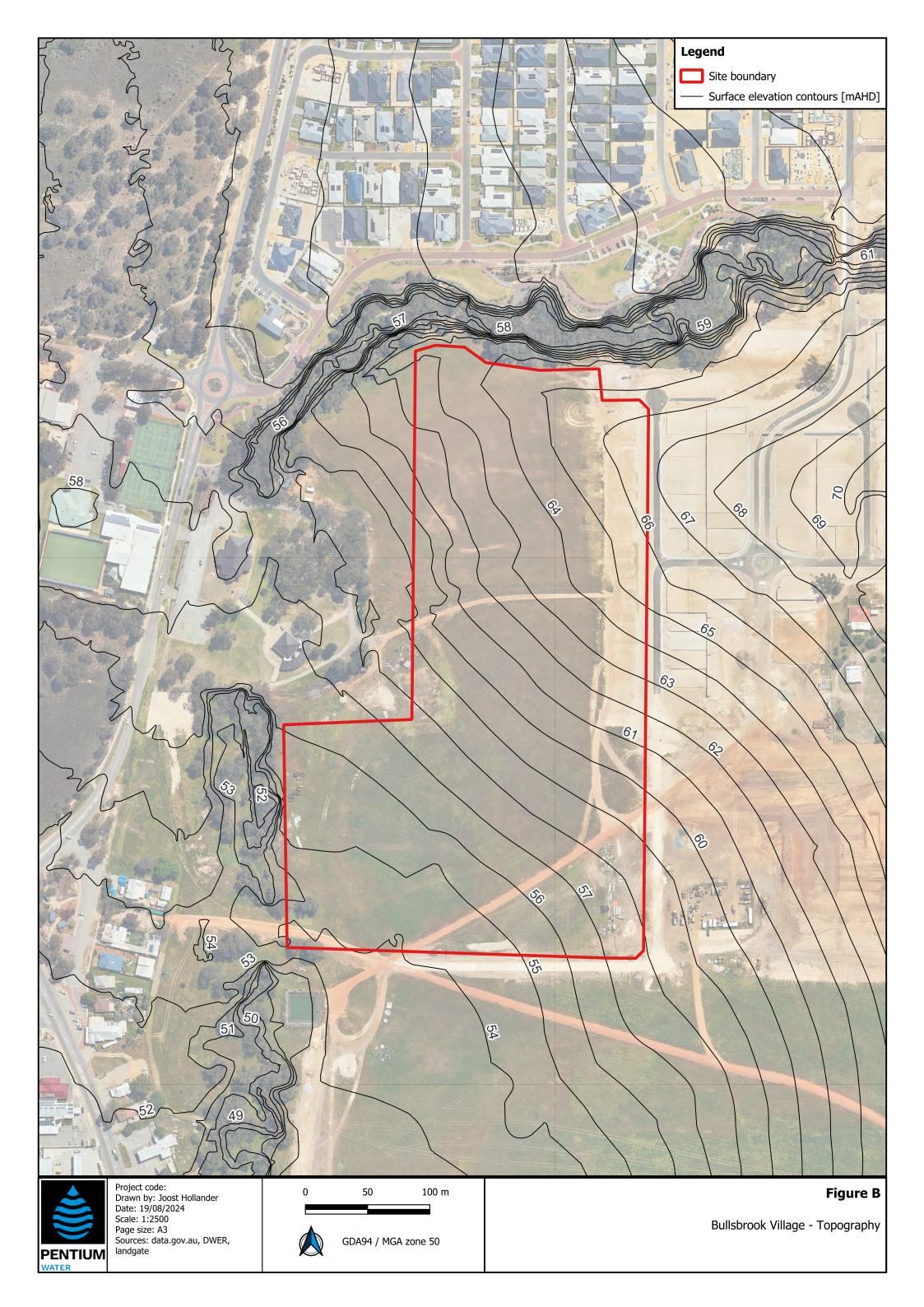


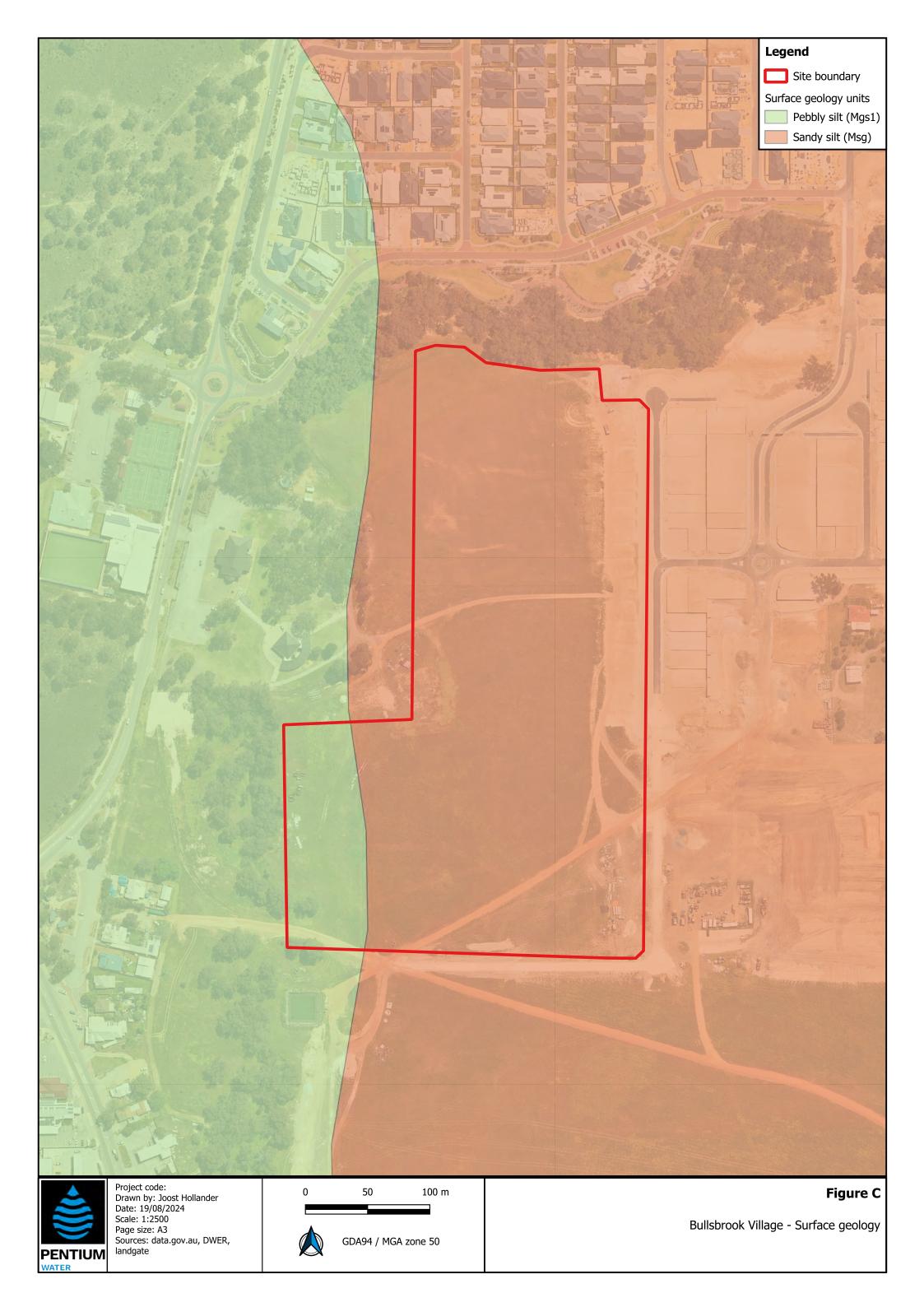
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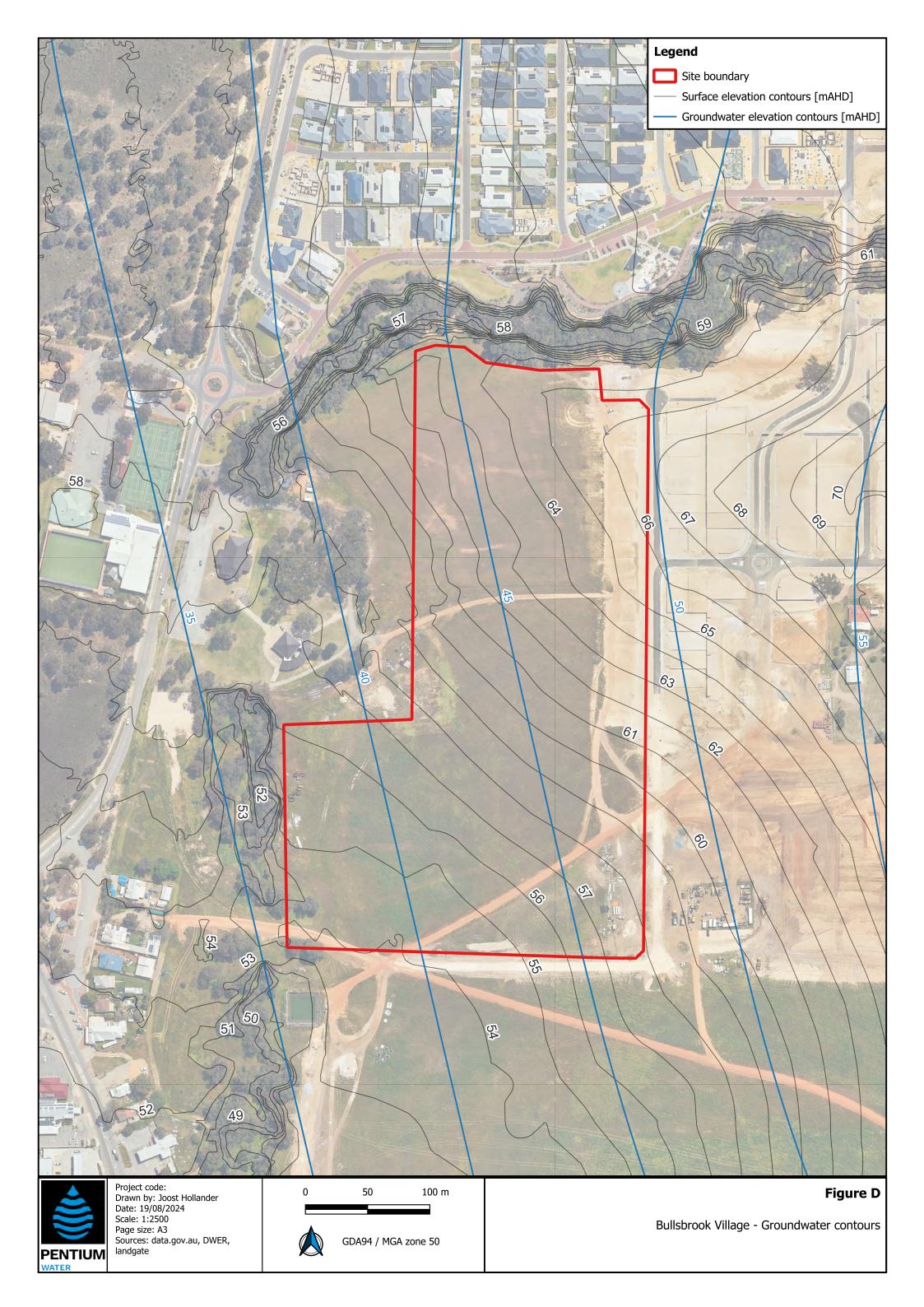




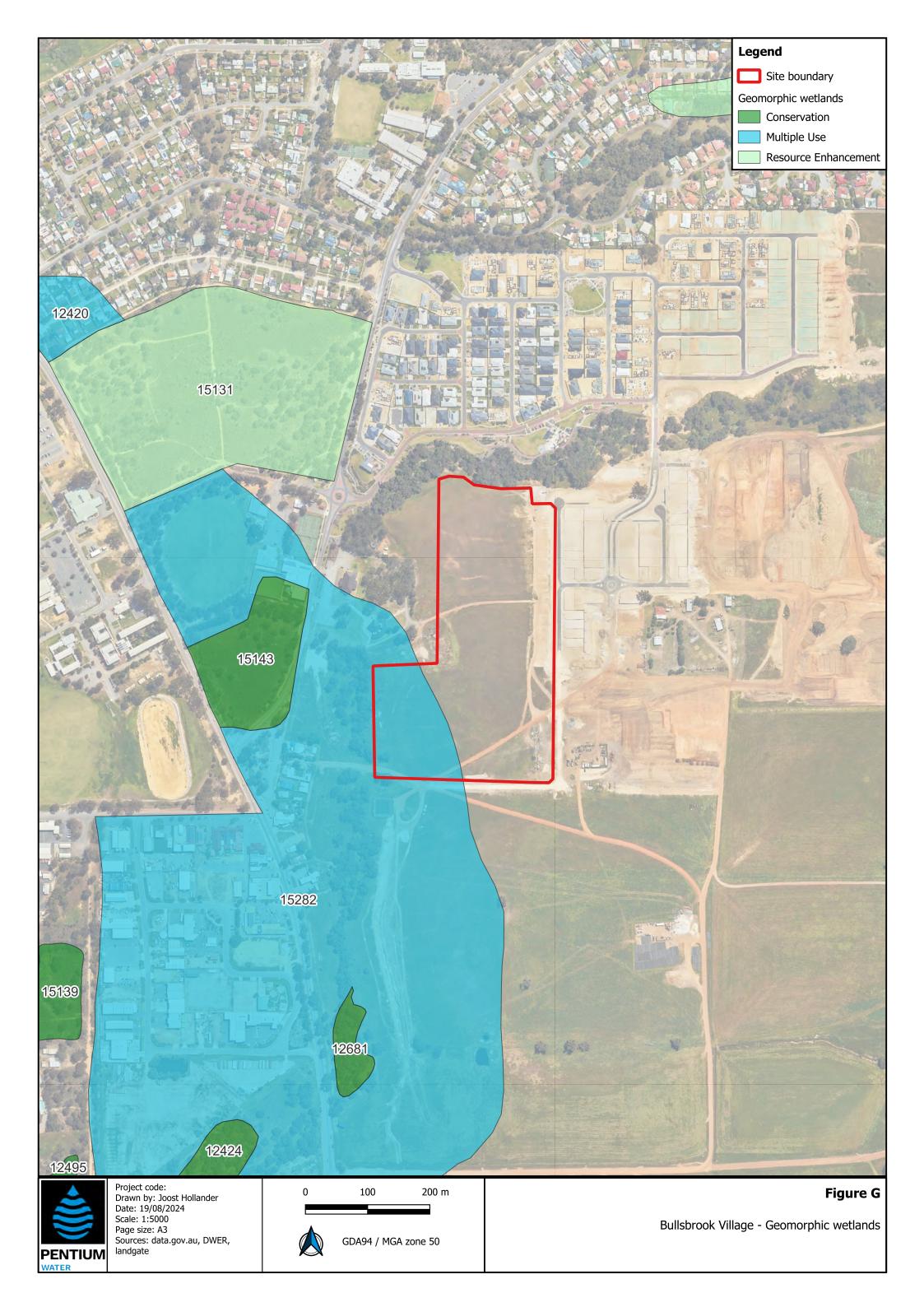


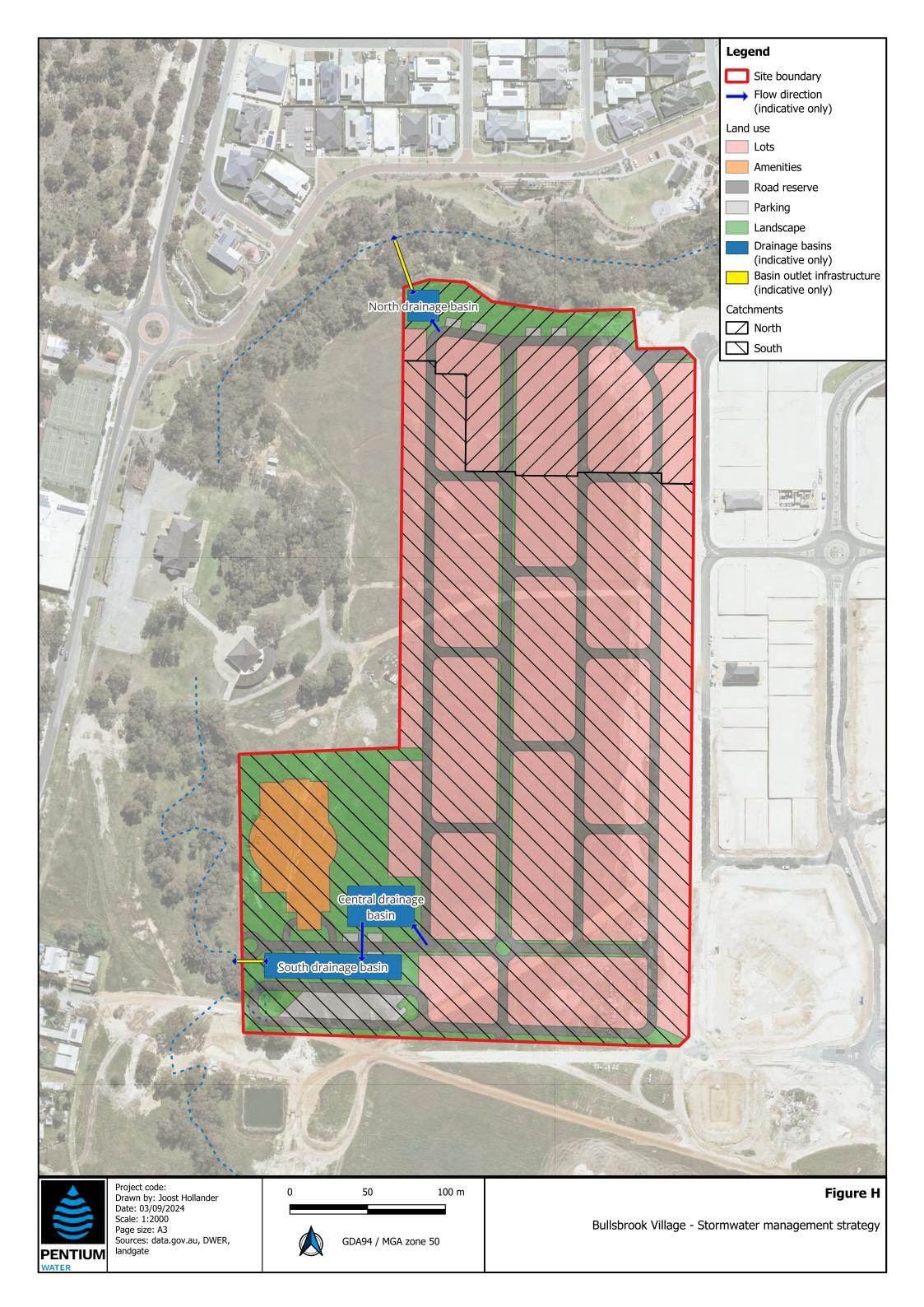






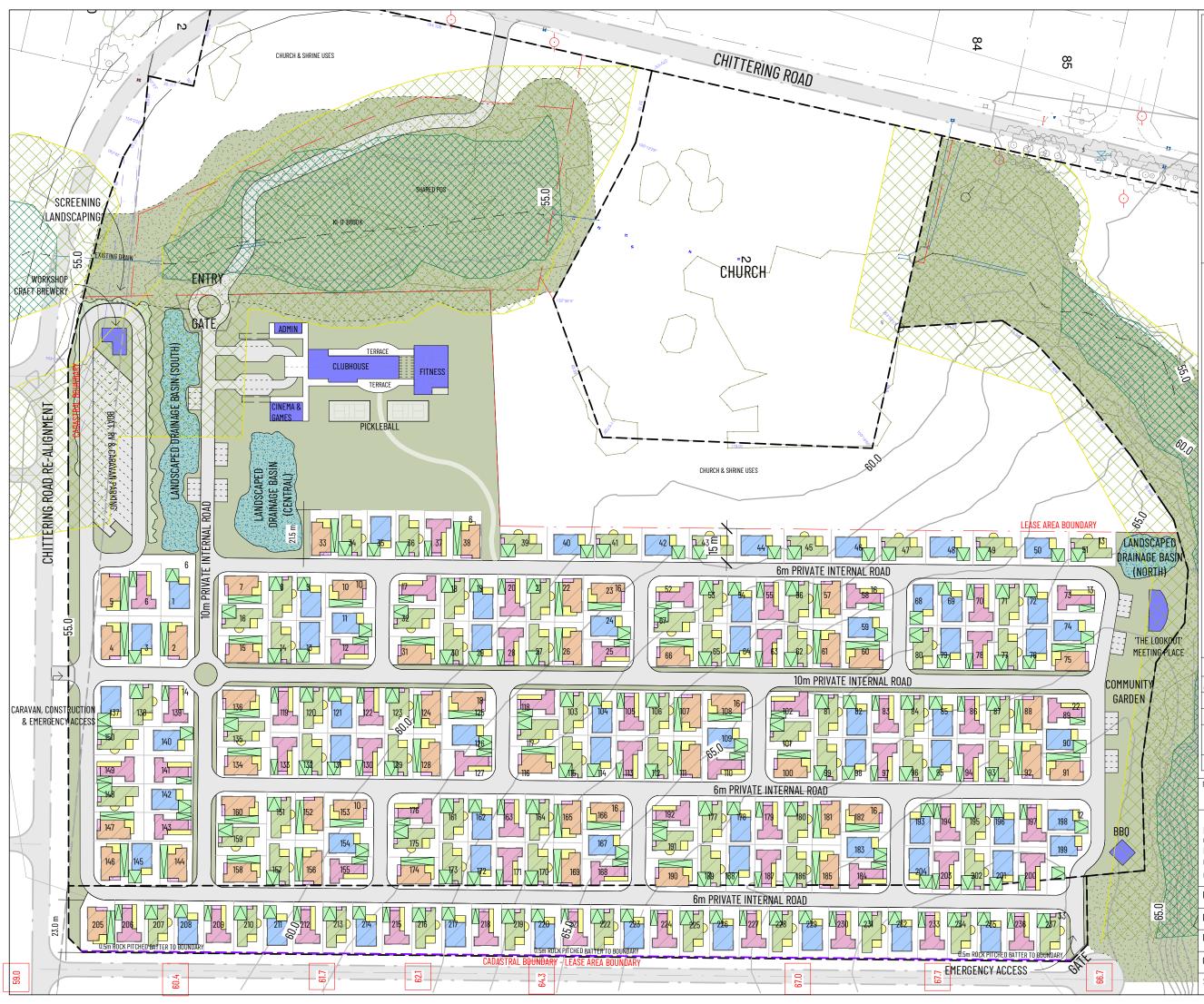






## Appendix A: Master Plan Richard Hammond Architect, 2024







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LEGEND				
	LANDSCAPING			
EXISTING VEGETATION				
	CORE CREEK AREA			
	KIT-MONGER BROOK POS	AREA		
	VILLAGE AMENITIES			
	LANDSCAPED DRAINAGE	BASIN	S	
	FENCE/GATE			
	ROADWAY			
	CADASTRAL BOUNDARY			
	LEASE AREA BOUNDARY			
	TYPE A (62)		TYPE C (47)	
	ТҮРЕ В (71)		TYPE D (57)	
	USE SITES - 237		11FE D (57)	
TOTAL SITE AREA - 106,520m <sup>2</sup> TOTAL RECREATION AREA - 31,350m <sup>2</sup> (INCL SHARED P.O.S.)				
ISSUE			DATE	
A	PRELIMINARY MASTERPLA	N	28.05.2024	
В	REVISED MASTERPLAN		12.08.2024	
С	REVISED MASTERPLAN		16.08.2024	
D	ENTRY MOVED, LOT NUME Added	3.	19.08.2024	
E	HOUSE-LOT ALLOCATION		02.09.2024	
DRAWING TITLE Masterplan				
PROJECT BETHANIE - BULLSBROOK VILLAGE CLIENT BETHANIE PROJECT ADDRESS CHITTERING ROAD, BULLSBROOK, WA, 6084				
Project number _				
Date 02.09.2024				
Drawn by	RHA	0	DRAWING NO.	
Checked by	r Rha		A3.01	
Scale @ A	3 1 : 1500	כ		

,09/2024

### Appendix B: Geotechnical Investigation

Structerre, 2024





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## GEOTECHNICAL INVESTIGATION

For: The Bethanie Group Ltd

Project: Proposed Bethanie Bullsbrook Village and Vehicle Bridge

Project Address: Lot 900 Chittering Road, Bullsbrook, WA

Project Number: D340179 Job Number: J460592 Revision Number: 0 Date: 01/08/2024

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#### WA | QLD | NSW | VIC

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#### 1. PROJECT DETAILS

#### 1.1. Introduction

At the request of David Lorimer of The Bethanie Group Ltd (The Client), Structerre Consulting (Structerre) have conducted a Geotechnical Investigation at Lot 900 Chittering Road, Bullsbrook, WA. The purpose of the investigation was to provide the following for the proposed development of a retirement community:

- Desktop study including a summary of geology, groundwater, site history (obtained from historical photographs) and potential presence of Acid Sulfate Soils (ASS).
- Summary of encountered ground and groundwater conditions.
- Site Classification in accordance with AS2870.
- Earthquake site factor in accordance with AS1170.4.
- Recommendations for stormwater drainage design.
- Site preparation requirements (earthworks), including site traffic, excavation, reuse of materials and batter slopes.
- Ground bearing capacity and estimated settlements for pad and strip footings founded at 0.3m and 0.5m.
- Geotechnical design parameters for retaining structures and or deep foundations.
- Preliminary pavement design parameter, indicative California Bearing Ratio (CBR) values determined from penetrometer results and ground conditions encountered.

This report details the scope of the geotechnical investigation, presents an interpretation of ground conditions and material properties across the site, provides geotechnical design parameters for the design of the proposed infrastructure, and evaluates the suitability of materials for use in earthworks. Interpretation of site conditions is based on the subsurface lithology revealed during the investigation programme, visual assessments of the in-situ materials and the results of in situ field tests.

Terms of reference for this investigation were presented in a Structerre Consulting proposal reference Q107273 (dated 25 June 2024), which was submitted to and accepted by The Client.

#### 1.2. Site Description & Proposed Development

The site is located at Lot 900 Chittering Road, Bullsbrook, within the City of Swan, WA. The site lies east of Chittering Road and south of Brookbank Park. The east of the site is under development as residential addresses, with the south currently vacant. A small (Ki-it Monger) brook is located on the western edge of the site with an existing church.

The site slopes gently downward from the northeast to the southwest, with a gradient different of approximately 12m. At the time of the field investigation the majority of the site was vacant unmaintained vegetation with trees along the western boundary.

We understand that the site is proposed for the development of a retirement community, including residential dwellings, clubhouse, bowls club, caravan parking, workshops, community garden, entry road, internal roadways and vehicle bridge over the existing brook.



#### 1.3. Field Investigation – Scope of Works

The field investigation was carried out on 28 June 2024 and comprised:

- Seventeen (17) Sample Retrieval Probe boreholes to a refusal depth of 2.1m over the site for material assessment and soil profiling.
- Fifteen (15) Dynamic Cone Penetration (DCP) Tests to a maximum depth of 1.0m or refusal for measurement of the strength and compressibility of the upper soil layers.
- Six (6) In-situ percolation tests to determine the permeability of the materials within the upper 1.0m

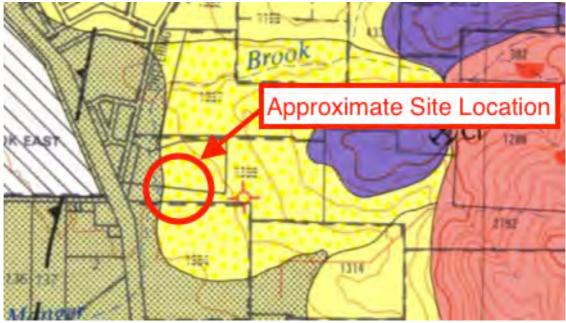
The test locations are shown on the attached site plan in Appendix 1.

Suitable qualified geotechnical personnel from Structerre supervised the fieldwork and all fieldwork, interpretation and terminology used in this report are in accordance with the guidelines presented in AS1726-2017 Geotechnical Site Investigations.

#### 2. DESK STUDY

#### 2.1. Geological Setting

The Muchea sheet 1: 50,000 Environmental Geology Series (Part Sheets 2034 I and 2134 IV, 1986) prepared by the Geological Survey of Western Australia indicates that the following geological layers underlie the site:





Sandy SILT – strong brown, firm, friable, dispersive in part, occasional pebbly horizons with little matrix containing quartzite, quartz, granite, laterite, of colluvial origin.



Pebbly SILT – strong brown silt, with common fine to occasionally coarse grained, sub-rounded laterite quartz, heavily weathered granite pebbles, some fine to medium-grained quartz sand, of alluvial origin.



#### 2.2. Ground Surface, Groundwater Level and Acid Sulfate Soils (ASS)

Publicly available topographic mapping service Landgate Map Viewer indicates the ground surface level at this site was approximately 67.0m – 55.0m Australian Height Datum (AHD).

Perth Groundwater Atlas indicates groundwater is expected to be encountered between 31.6m (maximum) and 30.4m (minimum) AHD. This is approximately 25.0m below existing levels.

Information from publicly available Landgate website indicates that the site lies within a zone of no known risk of ASS occurring within 3m of natural surface.

#### 2.3. Site History

Historical aerial photographs dating back to 1965 are publicly available through Landgate Map Viewer were assessed and a summary is presented in Table 1.

Date	Description
1965	The site is used for farming, with Chittering Road already developed. (unsealed)
1981	The site remains the same, with ongoing development surrounding (northern suburbs)
1985	The existing church located at #36 (western edge of the site) is developed.
2019	The start of development of the subdivision to the east of the site. (still ongoing at the time of investigation)
2021	Potential stock yard located between the site and church for the development of the neighbouring subdivision
2024	Stockyard is cleared and regrowth underway with the site remaining relatively unchanged until the current day.

#### Table 1 – Historical Site Information



#### 3. RESULTS OF THE INVESTIGATION

#### 3.1. Subsurface Soil Profile

The subsurface soil profile presented below was determined from the ground conditions encountered during the investigation and laboratory test results:

Depth to Strata Base (m)	Geological Setting	Material Description
0.1 – 0.2	SURFICIAL	TOPSOIL
1.1 – 2.5 +	NATURAL	Sandy CLAY (high plasticity) fine to medium grained, with gravel, red / brown, firm to stiff.

#### Table 2 – Subsurface Soil Profile (Boreholes: 01 - 07, 16 & 17)

Depth to Strata Base (m)	Geological Setting	Material Description
0.1 – 0.2	SURFICIAL	TOPSOIL
0.6 – 1.1		SAND (medium to coarse grained), non-plastic, with gravel, pale yellow medium dense to dense.
1.1 – 1.9	NATURAL	Gravelly SAND (medium grained), non-plastic, brown *BH11 & BH15 Refused on dense gravel
2.5 +		Sandy CLAY (high plasticity) fine to medium grained, with gravel, red / brown, firm to stiff.

#### Table 3 – Subsurface Soil Profile (Boreholes: 11 - 15)

Table 4 – Subsurface So	il Profile (Boreholes: 08 - 10)

Depth to Strata Base (m)	Geological Setting	Material Description
0.1 – 0.2	SURFICIAL	TOPSOIL
1.0 – 1.9	NATURAL	SAND (medium to coarse grained), non-plastic, with gravel, pale yellow medium dense to dense.
2.5 +		Sandy CLAY (high plasticity) fine to medium grained, with gravel, red / brown, firm to stiff.

The soils encountered are consistent with the expected site conditions as predicted from the Environmental Geology Map. It is important to note that there may be pockets of fill on site that were not encountered by the investigation boreholes. The subsurface soil conditions encountered are presented in the bore logs, within Appendix 3.



#### 3.2. Groundwater

Although groundwater was not encountered during the investigation, it should be noted water may perch above the cohesive material underlying the surficial material during the wetter seasons of the year (localised surface ponding may occur during heavy downpour events).

Previous history from earthworks conducted surrounding this site has intersected the presence of spring feeds, (subsurface water flows), which may be encountered during earthworks, and this should be taken into account when conducting service excavations and designing drainage systems for the proposed development.

#### 3.3. Percolation Testing

Percolation testing of the in-situ soils was undertaken in three locations. Results of the testing are summarised below:

Test Location	Testing Depth (m)	Soil Type	Permeability (m/day)
BH01		Sandy CLAY	1.3
BH05	-		
BH08	1.1	SAND / Sandy	2.2
BH10		CLAY	3.1
BH13		SAND / Gravelly	2.8
BH16		SAND	0.5

#### Table 5 – In Situ Percolation Test Results

#### 3.4. Laboratory Test Results

Samples were tested by Structerre's in-house NATA accredited laboratory for Particle Size Distribution as per AS1289.3.6.1, Plasticity Index / Linear Shrinkage as per AS1289.3.1.2 – 3.4.1, soil compaction via Modified Maximum Dry Density (MMDD) as per AS 1289 5.2.1-2003 and California Bearing Ratio (CBR) as per AS 1289.6.1.1-2017, and Organic Content as per ASTM D2974.

#### 3.4.1. Organic Content Testing

Results for organic content tests are summarised below:

#### Table 6 – Organic Content Test Results

Test Hole	Depth (m)	Organic Content (%)	Moisture Content (%)
BH19	0.1 - 0.2	1.6	0.0

Based on the above result the sample tested is considered suitable as structural fill (i.e. <2% organics), subject to screening / removal of vegetation, grasses, roots and coarse organic inclusions.



#### 3.4.2. Atterberg Limits

Results of the testing are presented in Appendix 4 summarised below:

Sample Identification	BH04 @ 1.4m - 1.8m	BH09 @ 1.5m - 1.9m
Liquid Limit (%)	55	42
Plastic Limit (%)	23	20
Plasticity Index (%)	32	22
Linear Shrinkage (%)	12	9.5
Material Passing 0.075mm (%)	66	47

#### Table 7 – Atterberg Limit Test Results

Test results indicate that the natural clayey soils, has moderate to high shrink swell capacity or degree of expansion.

#### 3.4.3. California Bearing Ratio (CBR)

The test certificates are presented in Appendix 4 and are summarised in Table 5 below.

Test Hole	Depth (m)	Soil Description	Optimum Moisture Content (%)	Maximum	Penetration (%)	
				Dry Density (t/m³)	2.5mm	5.0mm
BH17	0.2 – 0.4	Clayey SAND	8.0	2.10	-	30
BH18	0.2 0.4		SAND	SAND 8.5	1.96	35
	SAND : Natural o (Imported Fill) @ 95% MMDD*					12

#### Table 8 – CBR Results

\* Implies the maximum dry density ratio using Modified compaction in accordance with AS 1289 5.2.1-2003.

Based on the above results a conservative soaked CBR of 12% would be recommended for the design of pavement subgrade materials, which will incorporate a minimum of 500mm layer of sand (imported or natural) for subgrade materials.



#### 4. GEOTECHNICAL CONSTRUCTION CONSIDERATIONS

#### 4.1. Site Classification

AS 2870-2011 Residential Slabs and Footings provides guidance on site classification for residential slabs and footing design based on the expected ground surface movement and depth of expected moisture changes.

Based on results of this investigation the site can be classified as Class "S" provided that all unsuitable materials are removed and replaced with engineer-controlled sand fill materials in accordance with earthwork recommendations outlined in Section 4.4 in this report.

Footings suitable for this site should be adopted to accommodate expected ground surface movements of approximately  $y_s < 20$ mm associated with the presence of low to moderately reactive Sandy CLAY encountered.

#### 4.2. Drainage

The existing ground conditions are not suitable for on-site disposal of stormwater runoff using shallow soakwells. It is recommended that all stormwater from roofed, paved and driveway areas be collected and detained to reduce peak flow rates prior to discharging off site as per council requirements.

Alternative (onsite) options may include the design and installation of detention basins and or compensating swales, however these will be required to be designed and constructed in accordance with local council requirements for onsite stormwater drainage management.

#### 4.3. Seismic Site Subsoil Class

The seismic subsoil site class has been assessed in accordance with AS 1170.4-2007, using the results of this investigation and published information.

#### Table 9 – Summary of Seismic Parameters

Hazard Factor	Site Sub-soil Class
0.1	Class Ce –shallow soil site

#### 4.4. Earthworks

All earthworks shall be undertaken in accordance with AS 3798-2007 Guidelines on Earthworks for Commercial and Residential Developments and are to include the following:

- All unsuitable materials to be stripped and removed from the site. Unsuitable materials
  include vegetation, topsoils, uncontrolled filling if encountered and any deleterious and
  organic materials. The surficial strip is expected to be approximately 0.1 0.2m in depth.
- It is considered that the near surface materials may require improvement post surficial strip. Therefore, proof compaction of the exposed base is recommended. The compaction requirements are set out in the table below, as per AS 3798-2007:

# 

		Minimum relative compaction, %		
ltem	Application	Minimum density ratio (Standard Compaction Effort) (Cohesive soils)	Minimum density index (Cohesionless soils)	
2	Commercial – fills to support minor loadings, including floor loading of up to 20kPa and isolated pad or strip footings to 100kPa	98	75	
3	Fill to support pavements. a) General fill b) Subgrade (to a depth of 0.3m)	95 98	70 75	

#### Table 10 – Compaction Requirements

- After excavation and proof compaction, the exposed base is to be inspected and approved by a representative from this office prior to backfilling. At this stage it can be assessed whether any further materials need to be removed or whether further compaction of the base is required.
- The ground level should be built up to design levels with any suitable stockpiled materials and imported sand fill. If required, the imported fill should consist of free draining sand with not more than 5% passing a 75µm sieve and be free of organic matter and other deleterious materials. The fill sand materials should be placed in layers not exceeding 300mm loose thickness and compacted to achieve the values stated in the table above. As a guide a minimum of 7 PSP blows over the interval 150 – 450mm, 9 PSP blows over the interval 450 – 750mm and 11 PSP blows over the interval 750 – 1050mm should be achieved, however it is recommended that this be verified with appropriate laboratory testing.
- For design loadings above 100kPa additional compactive effort may be required over the base. Bearing capacities as outlined in Section 4.6 of this report can be achieved with compaction of the base of foundation to a minimum of 95% modified maximum dry density as determined by AS1289 5.2.1 and 5.4.1, to a minimum depth of 0.5m below the base of foundation.
- After remedial earthworks have been completed, the earthworks should be inspected and approved by a representative from this office.
- A minimum of 0.6m sand cover is to be placed / maintained above the reactive material to achieve a Class "S" site with y<sub>s</sub> = 20mm.
- A minimum of 0.8m sand cover is to be placed / maintained above the reactive material to achieve a Class "S" site with y<sub>s</sub> = 15mm.
- A minimum of 1.2m sand cover is to be placed / maintained above the reactive material to achieve a Class "S" site with y<sub>s</sub> = 10mm.
- A minimum of 1.5m sand cover is to be placed / maintained above the reactive material to achieve a Class "A" site with y<sub>s</sub> < 3mm.</li>



It is considered that standard small to medium sized earthmoving equipment would be appropriate for the proposed earthworks. The near surface ground is competent and should not pose an issue to site traffic movements.

The upper material encountered on site can be deemed as 'easy' to excavate with medium sized earthwork equipment (i.e., a 20t excavator). Some rock ripping and or breaking will be required in deeper excavations due to the presence of lateritic rock. Should excavations encounter groundwater, dewatering will be necessary.

Ideally, excavation earthworks should be conducted at the end of the dry season (February / March) to account for the seasonal variations of the groundwater or perching of water on the clayey materials close to surface at this location.

#### 4.5. Geotechnical Design Parameters

Based on the field investigation and test results, the interpreted geotechnical soil parameters of the encountered materials are presented in Table 11:

Soil Type	Depths (m)	Friction Angle Ø' (º)	Cohesion c' (kPa)	Density Ƴ (t/m³)	Elastic Modulus E (MPa)
Sandy CLAY with gravel	0.2 – 2.5 +	20	15	1.85	20
SAND	0.2 – 1.9	34	0	1.80	40
Gravelly SAND	0.2 – 1.9	38	5	1.90	60

Table 11 – Soil Parameters

#### 4.6. Shallow Footings – Allowable Soil Bearing Capacities

Based on the findings of the current preliminary geotechnical investigation, shallow pad and strip footings are considered appropriate for the proposed development. Allowable bearing capacities for shallow footings at the site have been calculated under the following assumptions:

- The site preparation procedures specified in Section 4.4 have been carried out.
- The specified level of compaction has been achieved below the base of each footing.
- Loads are vertical and not eccentric.
- Isolated footings (i.e., interaction of foundations has not been considered).
- The foundations are flexible.
- A factor of safety (FoS) of 3.0 against bearing capacity failure.
- Maximum allowable settlement of 20mm.

The tables below present the allowable bearing pressures for pad and strip footings of various dimensions, with embedment depths of 0.5m and 1.0m below finished surface levels.



Table 12	– Allowable Bearing (	Capacities for Pad Foc	otings

Minimum Depth of Embedment (m)	Minimum Plan Dimension (m)	Allowable Bearing Capacities (kPa)	Settlement (mm)
	0.5		
0.3	1.0	135	< 20
	1.5		
	2.0		
	0.5		
0.5	1.0	160	< 20
	1.5		
	2.0		

#### Table 13 – Allowable Bearing Capacities for Strip Footings

Minimum Depth of Embedment (m)	Minimum Plan Dimension (m)	Allowable Bearing Capacities (kPa)	Settlement (mm)
	0.5		
0.3	1.0	105	< 20
	1.5		
	0.5		
0.5	1.0	135	< 20
	1.5		

The actual allowable bearing capacity of a particular foundation will be dependent on its location, geometry and founding depth, as well as the founding horizon. Therefore, once specific foundation geometries have been determined and the earthworks completed, it is recommended that the allowable bearing capacity and associated settlements be verified.

Additionally, should undermining issue prevent the excavation of the near surface loose materials, it is recommended that the allowable bearing capacity be reviewed. However, this will likely result in lower allowable bearing capacities.

#### 4.7. Retaining Walls

Retaining walls proposed to be installed at the site will likely support sandy soils. Where imported granular backfill is to be used in conjunction with retaining walls, the geotechnical properties will vary depending upon the nature of the granular materials imported.

For cohesion-less free draining sand, the following parameters can be used as a guide for design purposes:

- Angle of internal friction,  $\emptyset = 32^{\circ}$
- Coefficient of active earth pressure  $K_a = 0.307$
- Coefficient of passive earth pressure  $K_p = 3.255$



- At rest coefficient of earth pressure  $K_0 = 0.470$
- Bulk density 18 kN/m<sup>3</sup>

Retaining structures should be designed in accordance with AS 4678-2002 Earth Retaining Structures. Guidance on allowable footing bearing pressures is provided in Section 4.6. Where significant eccentric and /or horizontal loading is applied, further assessment will be required.

Retaining wall design should ensure adequate drainage to the rear of the wall and that handheld compaction equipment is utilised within 2.0m of the walls, to reduce the potential increase in lateral pressure on the retaining wall.

Excavation immediately in front of retaining walls may cause movement to the wall to occur. This can lead to cracking of adjoining structures and needs to be accounted for in the design and construction sequencing of the new works.

#### 5. CONCLUSIONS

A site investigation was carried out at the proposed commercial development site to assess the geotechnical conditions. Parameter and design recommendations are incorporated in the body of the report. The following conclusions have been drawn from the site investigation:

- The subsurface soil profile encountered generally consisted of TOPSOIL surficial material to a maximum depth of 0.2m overlying a Sandy CLAY with gravel to the investigated depth of 2.5m. There were pockets of SAND /Gravelly SAND encountered (within BHs 08 – 15) to 1.9m, which were overlying the Sandy CLAY material to the target depth of 2.5m
- The water table was not encountered during the investigation, however localised surface ponding and water perching on the cohesive soils may occur in the winter months of the year, and there is a potential for sub surface spring feeds to be encountered on the site.
- The site classification can be upgraded to and equivalent Class "S" in accordance with AS 2870-2011 provided the recommended earthworks are undertaken and a minimum of 0.6m of non-reactive (sand) cover is placed (or maintained) and compacted above the natural cohesive materials encountered onsite.
- It is considered that the site is not suitable for on-site drainage in its current condition.
- Recommended earthworks include stripping of surficial materials, proof compaction of the base, placement of engineered fill and compaction of final level.
- Allowable bearing capacity for pad footings range from 135kPa to 160kPa and from 105kPa to 135kPa for strip footings. The estimation of settlement of the footings is limited to 20mm.



#### 6. LIMITATION OF FIELD INVESTIGATIONS

This report has been prepared in accordance with generally accepted consulting practice for The Client using information supplied at the time and for the project specific requirements as understood by Structerre. To the best of our knowledge the information contained in this report is accurate at the date of issue, however it should be emphasised that any changes to ground conditions and/or the proposed structures may invalidate the recommendations given herein.

The conclusions and recommendations in this report are based on the site conditions revealed through selective point sampling, representing the conditions of the site in total, although the area investigated represents only a small portion of the site. The actual characteristics may vary significantly between successive test locations and sample intervals other than where observations, explorations and investigations have been made.

The materials and their geotechnical properties presented in this report may not represent the full range of materials and strengths that actually exist on site and the recommendations should be regarded as preliminary in nature. Allowances should be made for variability in ground conditions and any consequent impact on the development. Structerre accepts no responsibility and shall not be liable for any consequence of variations in ground conditions.

If ground conditions encountered during construction are different to that described in this report, this office should be notified immediately.

For and behalf of

STRUCTERRE CONSULTING

Author: Luke Young Geotechnical Assistant Manager

BEng Civil (Hons)

# Mdy-CAL

Checked by: Mel Castle Geotechnical Manager

#### Disclaimer

This report is at the request of the addressee and no liability is accepted by Structerre Consulting to any third person reading or relying upon the report, notwithstanding any rule of law and/or equity to the contrary and that this report is strictly confidential and intended to be read and relied upon only be the addressee.

Job #	Revision	Authored	Checked	Authorised
J460592	0	LYG	MEC	MEC



#### 7. REFERENCES

Department of Water – Perth Groundwater Atlas

Landgate Map Viewer

Geological Survey of Western Australia 1:50,000 Environmental Geology Series

AS 1170.4-2007 Structural design actions - Earthquake actions in Australia

AS 1289.3.1.2-2009 Methods of testing soils for engineering purposes – Soil classification tests – Determination of the liquid limit of a soil

AS 1289.3.2.1-2009 Methods of testing soils for engineering purposes – Soil classification tests – Determination of the plastic limit of a soil

AS 1289.3.3.1-2009 Methods of testing soils for engineering purposes – Soil classification tests – Calculation of the plasticity index of a soil

AS 1289.3.4.1-2009 Methods of testing soils for engineering purposes – Soil classification tests – Determination of the linear shrinkage of a soil

AS 1289.5.1.1- 2017 Methods of testing soils for engineering purposes – Soil compaction and density tests – Determination of the dry density / moisture content relation of a soil using standard compactive effort.

AS 1289.5.2.1- 2017 Methods of testing soils for engineering purposes – Soil compaction and density tests – Determination of the dry density / moisture content relation of a soil using modified compactive effort.

AS 1289.6.1.1-2014 Methods of testing soils for engineering purposes – Soil strength and consolidation tests – Determination of the California Bearing Ratio of a soil – Standard laboratory method for a remoulded specimen.

AS 1289.6.3.1-2009 Soil classification tests – Determination of the particle size distribution of a soil – Standard method of analysis by sieving

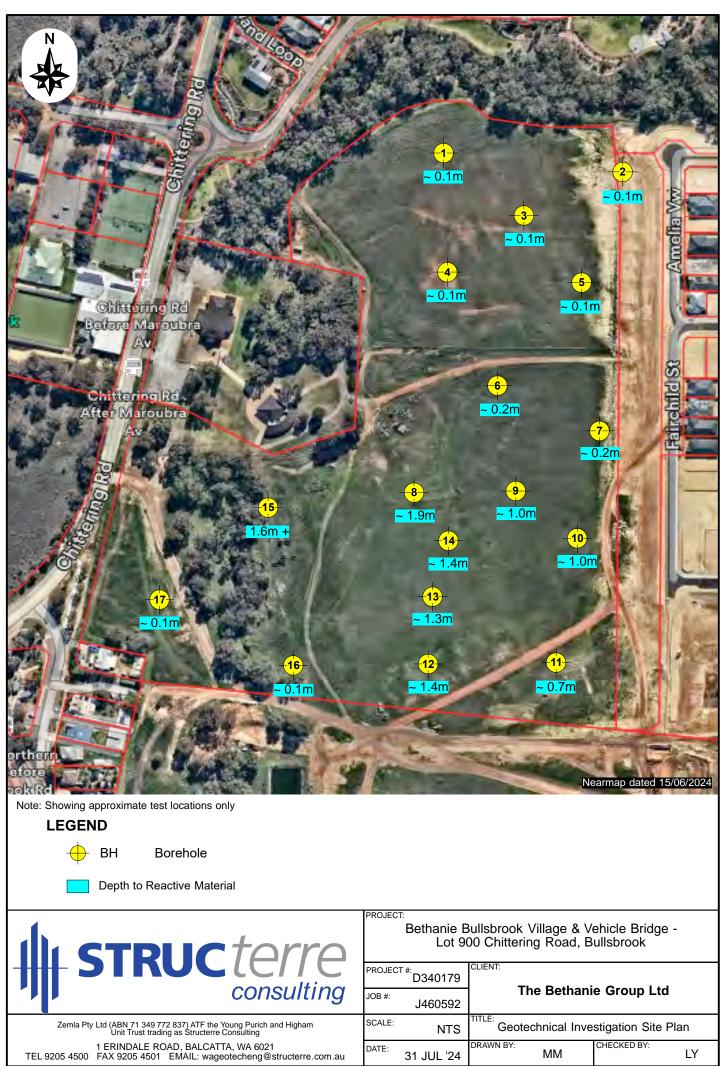
AS 1289.6.3.2-1997 Methods of testing soils for engineering purposes – Soil strength and consolidation tests – Determination of the penetration resistance of a soil – 9kg dynamic cone penetrometer test

AS 1726-2017 Geotechnical Site Investigation

AS 2870-2011 Residential Slabs and Footings

AS 3798-2007 Guidelines on Earthworks for Commercial and Residential Developments

#### **APPENDIX 1 – SITE PLAN**



**APPENDIX 2 – SITE PHOTOS** 



PHOTO 1 - Facing north from BH1 location



PHOTO 2 - Facing south from BH1 location



Zemla Pty Ltd (ABN 71 349 772 837) ATF the Young Purich and Higham Unit Trust trading as Structerre Consulting				
TEL 9205 4500	1 ERINDALE ROAD, BALCATTA, WA 6021 FAX 9205 4501 EMAIL: wageotecheng@structerre.com.a	au		

F	PROJECT: Bethanie Bullsbrook Village & Vehicle Bridge - Lot 900 Chittering Road, Bullsbrook					
F	PROJECT	<sup>#:</sup> D340179		ie Group Ltd		
J	OB #:	J460592				
S	SCALE:	NTS	Site Pho	otographs		
٥	DATE:	11 Jul '24	DRAWN BY: MM	CHECKED BY:	LY	



PHOTO 3 - Facing west from BH10 location



PHOTO 4 - Facing east from southwest corner



Zemla Pty L	Ltd (ABN 71 349 77 Unit Trust tradir	2 837) ATF the Young Purich and Higham g as Structerre Consulting
		AD, BALCATTA, WA 6021 EMAIL: wageotecheng@structerre.com.au

PROJEC	PROJECT: Bethanie Bullsbrook Village & Vehicle Bridge - Lot 900 Chittering Road, Bullsbrook					
PROJECT	D340179 CLIENT: D340179 The Bethanie Group Ltd					
JOB #:	J460592					
SCALE:	NTS	Site Pho	tographs			
DATE:	11 Jul '24	DRAWN BY: MM	CHECKED BY:	LY		



PHOTO 5 - Sample taken at BH1

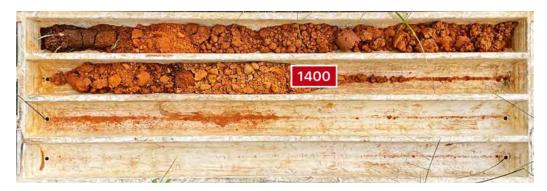


PHOTO 6 - Sample taken at BH6



PHOTO 7 - Sample taken at BH14



PHOTO 8 - Sample taken at BH17



1 ERINDALE ROAD, BALCATTA, WA 6021 TEL 9205 4500 FAX 9205 4501 EMAIL: wageotecheng@structerre.com.au

PROJECT: Bethanie Bullsbrook Village & Vehicle Bridge - Lot 900 Chittering Road, Bullsbrook					
PROJECT	<sup>#:</sup> D340179	The Bethanie Group Ltd			
JOB #:	J460592				
SCALE:	NTS	TITLE: Photographs - Borehole Samples			
DATE:	11 Jul '24	DRAWN BY:	MM	CHECKED BY:	LY

**APPENDIX 3 – BORELOGS & TERMINOLOGY** 



Inspect & Energy Investigate Assessment



Environmental

**BORELOG TERMINOLOGY** 

Pa	rticle Size Distribut	ion	-				Plas	sticity				
Major Division	Subdivision	Size	°- 40	<b></b>					_		<u> </u>	
Bould	ders	>200mm	, 40 ()							сн 🖊		
Cobl	oles	200 - 63mm	₩ 30		CL			CI				
Gravel	Coarse	63 - 20mm	20 x 30						Χ			
	Medium	20- 6mm								OH o	r MH	
	Fine	6 - 2.36mm	10 10					OL or I				
Sand	Coarse	2.36 - 0.6mm	Plasticity 0			or ML	~					
	Medium	0.6 - 0.2mm	ፈ	0	10	20	30	40	50	60	70	80
	Fine	0.2 - 0.075mm		Liq	uid Li	imit ('	W ),	%				

## Consistency of Cohesive Soils

Term	Undrained Strength Su (kPa)	Field Guide
Very Soft	< 12	Exudes between the fingers when squeezed in hand
Soft	12 - 25	Can be moulded by light finger pressure
Firm	25 - 50	Can be moulded by strong finger pressure
Stiff	50 - 100	Cannot be moulded by Fingers. Can be indented by thumb.
Very Stiff	100 - 200	Can be indented by thumb nail
Hard	> 200	Can be indented with difficulty by thumb nail.
Friable	-	Crumbles or powders when scraped by thumbnail

Consi	stency/Density of Nor	n-Cohesive Soils	Moisture Content
Term	Density Index (%)	SPT "N" Value Comparison	
Very Loose	< 15	0 - 4	D Dry
Loose	15 - 35	4 - 10	M Moist
Medium Dense	35 - 65	10 - 30	W Wet
Dense	65 - 85	30 - 50	S Saturated
Very Dense	> 85	> 50	

Minor	Components

Term	Assessment Guide	Proportion of Minor Component In:	
Trace	Presence just detectable by feel or eye, but soil	Coarse grained soils: < 5 %	
	properties little or no different to general properties	Fine grained soils: <15%	
	of primary component		
With	Presence easily detected by feel or eye, soil	Coarse grained soils: 5 - 12 %	
	properties little different to general properties	Fine grained soils: 15 - 30%	
	of primary component		

				Soil Lege	nd			
	FILL TOPSOIL		CLAY		GRAVEL		$\overline{\mathbf{X}}$	CONCRETE
	TOPSOIL		SILT	[		:	Ν	COMBINATIONS
	PEAT		SAND		BEDROCK			eg: Clay, Silty, Sandy
				USCS				
GW	Well graded gravel	SC	Clayey sand	OL	Organic low p	lasticity silt	CL	Low plasticity clay
GP	Poorly graded gravel	SM	Silty sand	ML	Low plasticity	silt	CI	Intermediate plasticity clay
SW	Well graded sand			MH	High plasticity	' silt	СН	High plasticity clay
SP	Poorly graded sand			OH	Organic high	plasticity silt	PT	Peat
					_			DOC:GE:3.003

## WA | QLD | NSW | VIC



Test No. **BH01** 

Client The Bethanie Group Ltd

Project	No. D	340179	Logged By	Ankush Rabadia	Machine	Soil Re	etrieval Prob	е	Easting	g 4	08478		
Job No	. J4	60592	Date	11/07/2024	Hole Dia.	65mm			Northi	<b>1g</b> 6	496141		
Depth	Graphic		St	tratum Description			Consistency		DCP s/150mm		ples	Moisture	Water Level
		Topsoil:						5 1	0 15 20	Depth	Туре	Š	
-		1		to modium anaised	high plactic	:4	F						
-	<u>pezz</u>	with gravel	, red/brown	to medium grained,	nign plastic	ity,							
-	<u> </u>	(Colluvium)	)				VS						
-		-											
-		-											
-													
-		-					St-VSt						
-													
-													
-		-											
1 -		trace gravel,	pale brown										
-	<u> </u>												
-		-											
-		-											
-													
-													
-													
-													
-													
-													
-													
2 -	<u> </u>									_			
-		-											
-													
-													
-													
-													
_			Te	erminated at 2.50 m									
-	-												
-	-												
-													
-	-												
-	-												
3 -													I

Remarks

1. Termination reason: Target depth

2. Hole stability: Hole stable

3. Samples taken: None

4. Co-ordinate system: WGS 84

## WA | QLD | NSW | VIC



Test No. **BH02** 

Client The Bethanie Group Ltd

Project	<b>No.</b> D3	40179	Logged	By Ankush Rabadia	Machine	Soil Re	etrieval Prot	be E	asting	<b>j</b> 4	08615		
Job No.	J4	60592	Date	11/07/2024	Hole Dia.	65mm		Ν	orthin	ng 6	6496118	3	
Depth	Graphic			Stratum Description			Consistency	DC Blows/1			nples	Moisture	Water Level
		Topsoil:						5 10	15 20	Depth	Туре	We	
-				ne to medium grained	d high plactic	sits /							
-		trace grave	el, red/bro	wn	a, nigri piasio	ity,			T I .				
-		(Colluvium)	)										
-													
_													
-							St-VSt						
-													
-													
-													
-													
1 -		pale brown											
-													
-													
-	<u>مرد مشارد شمیدن</u>			Terminated at 1.30 m									
-													
-													
-													
-													
-													
2 -										-			
-													
-													
-													
-													
-													
-													
-													
-													
3 Remark													

#### Remarks

1. Termination reason: Refusal - interpreted on stiff clay

2. Hole stability: Hole stable

3. Samples taken: None

4. Co-ordinate system: WGS 84

## WA | QLD | NSW | VIC



Test No. **BH03** 

Client The Bethanie Group Ltd

Job No.         J460592         Date         11/07/2024         Hole Dia.         65mm         Northing         6496087           Depth         Graphic         Stratum Description         Consistency         Blows/150mm         Samples         9/000           Topsoil:         Topsoil:         CH: Sandy CLAY: fine to medium grained, high plasticity, with gravel, red/brown (Colluvium)         CH: Sandy CLAY: fine to medium grained, high plasticity, with gravel, red/brown         Image: Chi i i i i i i i i i i i i i i i i i i
Topsoil:       CH: Sandy CLAY: fine to medium grained, high plasticity, with gravel, red/brown (Colluvium)         Colluvium       Colluvium         Image: state s
Topsoil:       CH: Sandy CLAY: fine to medium grained, high plasticity, with gravel, red/brown (Colluvium)         (Colluvium)       Image: state s
1       trace gravel, pale red/brown

Remarks

1. Termination reason: Refusal - interpreted on stiff clay

2. Hole stability: Hole partially stable

3. Samples taken: None

4. Co-ordinate system: WGS 84

## WA | QLD | NSW | VIC



Test No. **BH04** 

Client The Bethanie Group Ltd

Project	No.	0340179	Logged By	Ankush Rabadia	Machine	Soil Re	etrieval Prob	e	Eastin	g 4	08877		
Job No		460592	Date	11/07/2024	Hole Dia.	65mm			Northi	ng 6	6496042	2	
Depth	Graphi		0	tratum Description			Consistency	Blov	DCP vs/150mm	San	nples	Moisture	Water Level
Deptil	Graphi		0	addin Description			Consistency		10 15 20	Depth	Туре	Mois	Wa Le
-		Topsoil:											
-		CH: Sandy trace grav (Colluvium	el, brown	to medium grained,	, high plastic	ity,	S-F						
-													
-							St						
-													
-		pale brown											
1 -										_			
-	 												
-													
-													
-		red/brown											
-													
-													
-													
-													
-													
2 -										-			
-													
-													
-													
-													
	<u> </u>	-	Ţ	erminated at 2.50 m									
-	-												
-	-												
-													
-	_												
3													

#### Remarks

1. Termination reason: Target depth

2. Hole stability: Hole stable

3. Samples taken: None

4. Co-ordinate system: WGS 84

## WA | QLD | NSW | VIC



Test No.

**BH05** 

Client The Bethanie Group Ltd

Project	No. D	340179	Logged By	Ankush Rabadia	Machine	Soil Re	etrieval Prot	be	E	Easti	ng	6	48588		
Job No	. J4	60592	Date	11/07/2024	Hole Dia.	65mm			1	North	ning	6	496047	,	
Depth	Graphic		C+	ratum Description			Consistency	BI	D ows/	CP '150m	m	Sam	ples	Moisture	Water Level
Deptil	Graphic		01	ratum Description			Consistency			15 2		epth	Туре	Mois	Le Wa
		Topsoil:													
		CH: Sand	y CLAY: fine el, red/brown	to medium grained	d, high plastic	ity,									
		(Colluviun	n)												
		-													
-		-													
		-													
		-													
		-													
1 -		pale brown													
		-													
		-													
-															
		-													
							-								
	-		IE	erminated at 1.80 m											
2 -	-														
	-														
	-														
	-														
	1														
	1														
3 -		1													

#### Remarks

1. Termination reason: Refusal - interpreted on stiff clay

2. Hole stability: Hole partially stable

3. Samples taken: None

4. Co-ordinate system: WGS 84

## WA | QLD | NSW | VIC



Test No. **BH06** 

Client The Bethanie Group Ltd

Project N	<b>lo.</b> D3	40179	Logged	By Ankush Rabadia	Machine	Soil Re	etrieval Prob	e	Eastin	g	408513		
lob No.	J4	60592	Date	11/07/2024	Hole Dia.	65mm			Northi	ng	649559		
Depth	Graphic			Stratum Description			Consistency		DCP ws/150mm		nples	Moisture	Water Level
							_	5	10 15 20	Depth	Туре	δ	3-
		Topsoil: CI: Sandy (	CLAY: fin	e to medium grained,	medium plas	sticity,	S-F						
		with gravel (Colluvium)	, brown )										
							F-St						
1 										_			
1				Terminated at 1.40 m									
2													

#### Remarks

1. Termination reason: Refusal - interpreted on stiff clay

2. Hole stability: Hole stable

3. Samples taken: None

4. Co-ordinate system: WGS 84

## WA | QLD | NSW | VIC



Test No. **BH07** 

Client The Bethanie Group Ltd

Project Job No	No. D3	340179 60592	Logged By Date	Ankush Rabadia 11/07/2024	Machine Hole Dia.	Soil Re	etrieval Prob	e	Easting Northir		08605 495885		
		00592				oomm			DCP vs/150mm		nples		5 0
Depth	Graphic		S	ratum Description			Consistency		vs/150mm 10 15 20	Depth	Туре	Moisture	Water Level
-		Topsoil:					VS-S						
-		CI: Sandy trace grav	CLAY: fine to el, brown	o medium grained,	medium plas	sticity,							
							VSt						
1 -										_			
-													
- - -													
-													
2 -										-			
-													
			Т	erminated at 2.50 m									
3-	-												

#### Remarks

1. Termination reason: Target depth

2. Hole stability: Hole stable

3. Samples taken: None

4. Co-ordinate system: WGS 84

## WA | QLD | NSW | VIC



Test No. **BH08** 

Client The Bethanie Group Ltd

Project	<b>No.</b> D3	40179	Logged By	Ankush Rabadia	Machine	Soil Re	etrieval Prob	ре	Eastir	ng 4	108474		
Job No.	. J4	60592	Date	11/07/2024	Hole Dia.	65mm			North	ing (	6495887		
Depth	Graphic		St	ratum Description			Consistency		DCP /s/150mn		nples Type	Moisture	Water Level
		Topsoil:								Deptit	туре	2	
-		SP: SANE gravel, pa (Colluviun	le yellow	coarse grained, n	on-plastic, wit	h	MD-D						
							D-VD						
- - - 1 —										_			
-													
-				o medium grained	modium plac	tioitu							
2		trace grav	el, red/brown	neulun graneu	, meulum plas	ucity,							
			Te	rminated at 2.50 m									

#### Remarks

1. Termination reason: Target depth

2. Hole stability: Hole stable

3. Samples taken: None

4. Co-ordinate system: WGS 84

## WA | QLD | NSW | VIC



Test No. **BH09** 

Client The Bethanie Group Ltd

Project Job No.		40179 60592	Logged By Date	Ankush Rabadia 11/07/2024	Machine Hole Dia.	Soil Re	etrieval Prot	be		sting orthin		08524 6495861		
JOD NO.	. J4	00092	Date	11/07/2024	Hole Dia.	minco		1			1			Ι.
Depth	Graphic		St	ratum Description			Consistency		DCF ws/15 10 1		San Depth	nples Type	Moisture	Water Level
		Topsoil:									Doput	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
		SP: SANE gravel, pa (Colluviun	le yellow	coarse grained, n	ion-plastic, wii	h	L-MD							
-							D							
1 -		CI: Sandy trace grav	CLAY: fine to rel, red/brown	o medium grained	l, medium plas	sticity,	_				-			
			.,											
2 —											-			
			Τε	erminated at 2.50 m										

#### Remarks

1. Termination reason: Target depth

2. Hole stability:

3. Samples taken: None

4. Co-ordinate system: WGS 84

### WA | QLD | NSW | VIC



Test No.

**BH10** 

Client The Bethanie Group Ltd

Project	No. D3	40179	Logged By	Ankush Rabadia	Machine	Soil Re	etrieval Prot	be	Eastin	g 4	408588		
Job No.		60592	Date	11/07/2024	Hole Dia.	65mm			Northi		6495820	)	
									DCP s/150mm	Sar	nples	ure	e e
Depth	Graphic		St	ratum Description			Consistency		s/150mm 0 15 20		Туре	Moisture	Water Level
-		Topsoil:											
-							L						
-		SP: SAND gravel, pal	e yellow	coarse grained, no	on-plastic, wit	h							
-		(Colluvium	1)										
-													
-							MD-D						
-													
1 —													
-		CI: Sandy	CLAY: fine to el, red/brown	o medium grained,	medium plas	sticity,							
-		a dee gran	.,										
-													
-													
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_													
2 —										_			
-													
-													
-													
-													
			Te	erminated at 2.50 m			-						
-													
-													
-													
3-													

#### Remarks

1. Termination reason: Target depth

2. Hole stability: Hole stable

3. Samples taken: None

4. Co-ordinate system: WGS 84

## WA | QLD | NSW | VIC



Test No.
BH11

Client The Bethanie Group Ltd

roject	No. Da	340179	Logged By	Ankush Rabadia	Machine	Soil Re	etrieval Prob	e E	astin	<b>g</b> 4	08579		
ob No.	J4	60592	Date	12/07/2024	Hole Dia.	65mm		N	orthi	<b>ng</b> 6	08579		
Depth	Graphic		S	tratum Description			Consistency	DC Blows/1 5 10		Sam Depth	iples Type	Moisture	Water Level
		Topsoil:					VL				.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
		SP: SAND: (Colluvium)	fine to me	dium grained, non-	plastic, browr		MD - D						
- - - - - - - - - - - - - - - - - - -							VD						
		SP: Gravell	y SAND: m	iedium grained, no	on-plastic, bro	vn							
1 -			T	erminated at 1.10 m									
-													
-													
2 —										_			
-													
-													
-													
-													
-													

Remarks

1. Termination reason: Refusal - interpreted on dense gravel

2. Hole stability: Hole stable

3. Samples taken: None

4. Co-ordinate system: WGS 84

## WA | QLD | NSW | VIC



D340179

J460592

Graphic

Project No.

Job No.

Depth

Bethanie Bullsbrook Village & Vehicle Bridge - Lot 900 Chittering Project Road, Bullsbrook

Test No. **BH12** 

Vater evel

Client The Bethanie Group Ltd

			•								
Logged	By Ankush Rabadia	Machine	Soil Re	etrieval Prob	e		East	ing	4	08487	
Date	12/07/2024	Hole Dia.	65mm				Nort	hin	<b>g</b> 6	649574 <sup>-</sup>	1
	Stratum Description			Consistency		low	DCP s/150m 0 15 2		Sam	nples Type	Moisture
								-	Deptil	туре	~

SP: SAND: fine to medium grained, non-plastic, brown (Colluvium)     L	Depin	Graphic	Stratum Description	Consistency			~ ~		1	-ë	Le X
SP: SAND: fine to medium grained, non-plastic, brown Colluvium)  SP: Gravelly SAND: medium grained, non-plastic, brown  Collustic structure for the to medium grained, medium plasticity, trace gravel, red/brown  Terminated at 2.50 m					5 1C	) 15	20	Depth	Туре	Σ	
1       C: Sandy CLAY: fine to medium grained, medium plasticity.         1       C: Sandy CLAY: fine to medium grained, medium plasticity.         1       Terminated at 2.50 m	-		Topsoil:	L							
1       SP: Gravelly SAND: medium grained, non-plastic, brown         1       CI: Sandy CLAY: fine to medium grained, medium plasticity, trace gravel, red/brown         2       CI: Sandy CLAY: fine to medium grained, medium plasticity, trace gravel, red/brown	-		SP: SAND: fine to medium grained, non-plastic, brown (Colluvium)	-							
2 C: Sandy CLAY: fine to medium grained, medium plasticity, trace gravel, red/brown	-			D-VD							
2 Terminated at 2.50 m	-		SP: Gravelly SAND: medium grained, non-plastic, brown			Τ					
2 CI: Sandy CLAY: fine to medium grained, medium plasticity, trace gravel, red/brown Terminated at 2.50 m	-										
2	1 -										
2	-										
- Address - State - 1         - Construction - 1         - Constrent - 1         -			CI: Sandy CLAY: fine to medium grained, medium plasticity, trace gravel, red/brown	-							
- Address - Add											
- Contraction         - Contraction <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>											
Terminated at 2.50 m	2 -										
Terminated at 2.50 m	-										
			Terminated at 2.50 m	_							
3	-	-									
3	-	-									
Demonitor											

#### Remarks

1. Termination reason: Target depth

2. Hole stability: Hole stable

3. Samples taken: None

4. Co-ordinate system: WGS 84

## WA | QLD | NSW | VIC



Project No.

Job No.

Depth

Graphic

Bethanie Bullsbrook Village & Vehicle Bridge - Lot 900 Chittering Road, Bullsbrook

Test No. **BH13** 

Water Level

Client The Bethanie Group Ltd

D3	340179	Logged By	Ankush Rabadia	Machine	Soil Re	etrieval Prob	be		Е	as	ting	<b>y</b> 4	108479	
J4	60592	Date	12/07/2024	Hole Dia.	65mm				Ν	or	thin	ng 6	6495798	3
phic		St	ratum Description			Consistency	E	Blov	DC ws/1		mm	San	nples	Moisture
								5	10	15 I	20	Depth	Туре	ž
	Topsoil:													
	SP: SAND	: fine to med	ium grained, non-p	plastic, browr	1									
	(Colluvium	I)					-							
						VL-L								

	×///×/////			- h-	_		_	51	
		Topsoil:							
		SP: SAND: fine to medium grained, non-plastic, brown							
		(Colluvium)	VL-L						
-				_					
	-	SP: Gravelly SAND: medium grained, non-plastic, brown							
	-		MD-D						
1 -			MD-D						
				Γ					
	-								
		CI: Sandy CLAY: fine to medium grained, medium plasticity, trace gravel, red/brown							
-									
2 -									
-		Terminated at 2.50 m							
	-								
	-								
3	1								
Remar	ke								

#### Remarks

1. Termination reason: Target depth

2. Hole stability: Hole stable

3. Samples taken: None

4. Co-ordinate system: WGS 84

### WA | QLD | NSW | VIC



Logged By Ankush Rabadia

D340179

Project No.

Bethanie Bullsbrook Village & Vehicle Bridge - Lot 900 Chittering Road, Bullsbrook

Soil Retrieval Probe

Easting

408491

Test No. **BH14** 

Client The Bethanie Group Ltd

Machine

Job No.	. J40	60592	Date	12/07/2024		Hole Dia.	65mm		ľ	Nort	hin	g e	6495858	3	
Depth	Graphic		S	Stratum Descriptio	n			Consistency	ows	CP 150n 15 :		San Depth	nples Type	Moisture	Water Level
		(Colluvium	)	dium grained, no				VL-L							
1-		SP: Grave	IIY SAND: n	nedium grained,	non-ţ	plastic, drov	wn	D							
2 -		CI: Sandy trace grave	CLAY: fine el, red/brow	to medium grain 'n	ed, m	nedium plas	sticity,								
				Terminated at 2.50 n	ı										

#### 3 Remarks

1. Termination reason: Target depth

2. Hole stability: Hole stable

3. Samples taken: None

4. Co-ordinate system: WGS 84

## WA | QLD | NSW | VIC



Test No.

**BH15** 

Client The Bethanie Group Ltd

Project	No. D3	40179	Logged	By Ankush Rabadia	Machine	Soil Re	etrieval Prot	e	Eas	ting	4	08427		
Job No.		60592	Date	12/07/2024	Hole Dia.	65mm			Nor			495839	9	
Denth	Graphic			Stratum Description			Consistency	Blov	DCP vs/150	mm	Sam	ples	sture	ater vel
Deptil	Oraphic			Otratum Description			Consistency		10 15		Depth	Туре	Mois	Le Wa
Depth	Graphic	(Colluvium	1)	Stratum Description Hedium grained, non- medium grained, no			Consistency VL-L MD						Moisture	Water

#### Remarks

1. Termination reason: Refusal - interpreted on dense gravel

2. Hole stability: Hole stable

3. Samples taken: None

4. Co-ordinate system: WGS 84

## WA | QLD | NSW | VIC



Test No.

**BH16** 

Client The Bethanie Group Ltd

Project	<b>No.</b> D3	40179	Logged By	Ankush Rabadia	Machine	Soil Re	etrieval Prot	e	Easting	g 4	08381		
Job No.	. J40	60592	Date	12/07/2024	Hole Dia.	65mm			Northin	ng é	6495736	i	
								Blow	DCP vs/150mm	San	nples	ture	ler vel
Depth	Graphic		5	tratum Description			Consistency		10 15 20	Depth	Туре	Moisture	Water Level
-		Topsoil:											
-		CI: Sandy trace grav (Colluvium	el, pale red/b	o medium grained prown	, medium pla	sticity,	S-F						
		,	,				St						
1-										-			
		with gravel,	pale brown										
2		trace gravel								_			
-			Т	erminated at 2.20 m									

#### Remarks

1. Termination reason: Refusal - interpreted on stiff clay

2. Hole stability: Hole stable

3. Samples taken: None

4. Co-ordinate system: WGS 84

## WA | QLD | NSW | VIC



Test No.

**BH17** 

Client The Bethanie Group Ltd

Project	<b>No.</b> D3	40179	Logged By	/ Ankush Rabadia	Machine	Soil Re	etrieval Prot	e	Eastin	g 4	408292		
Job No.	. J4(	60592	Date	12/07/2024	Hole Dia.	65mm			Northi	ng e	6495770	)	
Depth	Graphic		S	tratum Description			Consistency		DCP s/150mm 0 15 20	San	nples Type	Moisture	Water Level
-		Topsoil:								Deptil	туре	2	
-		CI: Sandy trace grav (Colluviur	vel, pale yello	to medium grained	, medium pla	sticity,	S-F						
-							VSt						
-													
-													
-													
1 —										_			
-			1	Ferminated at 1.10 m									
-													
-													
-													
-	-												
-	-												
-													
2 —	-									-			
-													
-													
-	-												
-													
-	-												
-													
-													
-													
3 -							1		1 1		I		·

#### Remarks

1. Termination reason: Refusal - interpreted on stiff clay

2. Hole stability:

3. Samples taken: None

4. Co-ordinate system: WGS 84

## WA | QLD | NSW | VIC

**APPENDIX 4 – LABORATORY TEST RESULTS** 



Sample No.	39134	Client	Geotechnical				
Job No.	J460592	Project	Lot 900 CHITTERING RD, BULLSBROOK				
Laboratory testing corried out at Malaga Laboratory 44 Creaker Dr Malaga WA 6000							

Laboratory testing carried out at Malaga Laboratory 44 Crocker Dr Malaga WA 6090 SAMPLE DETAILS

BH No. / Depth BH4 1.4-1.8m Sample History 50°C Oven Dried Sampling Method Client Sample Preparation AS 1289 1.1

#### ATTERBERG LIMITS

Description	Method	Result (%)
Liquid Limit	AS 1289.3.1.2	55
Plastic Limit	AS 1289.3.2.1	23
Plasticity Index	AS 1289.3.3.1	32
Linear Shrinkage	AS 1289.3.4.1	12
Nature of Shrinkage		Flat

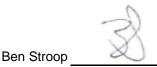
#### PARTICLE SIZE DISTRIBUTION

Method:AS 1289.3.6.1Description:Particle size distribution by sieve analysis

Sieve Size (mm)	% Passing
19.0	100
2.36	99
0.425	84
0.075	66

AS 1726:2017 Clause 6.1 Material Description: Sandy CLAY trace gravel AS Group Symbol: CH or OH





**Date:** 19-Jul-24

Authorized Signatory Senior Laboratory Technician

Accreditation Number 18742 Soils Analysis Workbook V 4.05 09-Oct-23 -

AS 1289.3.6.1 Report Feb 18

## WA | QLD | NSW | VIC



Sample No.	39135	Client	Geotechnical
Job No.	J460592	Project	Lot 900 CHITTERING RD, BULLSBROOK

Laboratory testing carried out at Malaga Laboratory 44 Crocker Dr Malaga WA 6090 SAMPLE DETAILS

BH No. / Depth BH9 1.5-1.9m Sample History 50°C Oven Dried Sampling Method Client Sample Preparation AS 1289 1.1

#### ATTERBERG LIMITS

Description	Method	Result (%)
Liquid Limit	AS 1289.3.1.2	42
Plastic Limit	AS 1289.3.2.1	20
Plasticity Index	AS 1289.3.3.1	22
Linear Shrinkage	AS 1289.3.4.1	9.5
Nature of Shrinkage		Flat

#### PARTICLE SIZE DISTRIBUTION

Method:AS 1289.3.6.1Description:Particle size distribution by sieve analysis

Sieve Size (mm)	% Passing
19.0	100
2.36	100
0.425	79
0.075	47

AS 1726:2017 Clause 6.1 Material Description: Sandy CLAY trace gravel AS Group Symbol: CI or OI





**Date:** 19-Jul-24

Authorized Signatory Senior Laboratory Technician

Accreditation Number 18742 Soils Analysis Workbook V 4.05 09-Oct-23

AS 1289.3.6.1 Report Feb 18

## WA | QLD | NSW | VIC



Malaga Laboratory 44 Crocker Drive, Malaga, WA 6090 Post: PO Box 792, Balcatta WA 6914 Ph : (08) 9205 4500 Email: wageotechlab@structerre.com.au Website: www.structerre.com.au ABN: 71 349 772 837 / ACN: 008 966 283 Report Number: CBR:24S-07234

Accreditation Number 18742

Approved Signatory: Ben Stroop

Accredited for compliance with ISO/IEC 17025

NAT

WORLD RECOGNISED

Date of Issue01/08/2024

**Issue Number: 1** 

## **California Bearing Ratio Test Report**

Client: The Bethanie Group Ltd

**Client Address:** Level 3 / 202 Pier Street Perth WA 6000

**BETHANIE BULLSBROOK VILLAGE & VEHICLE BRIDGE Project:** 

**Project No:** D340179

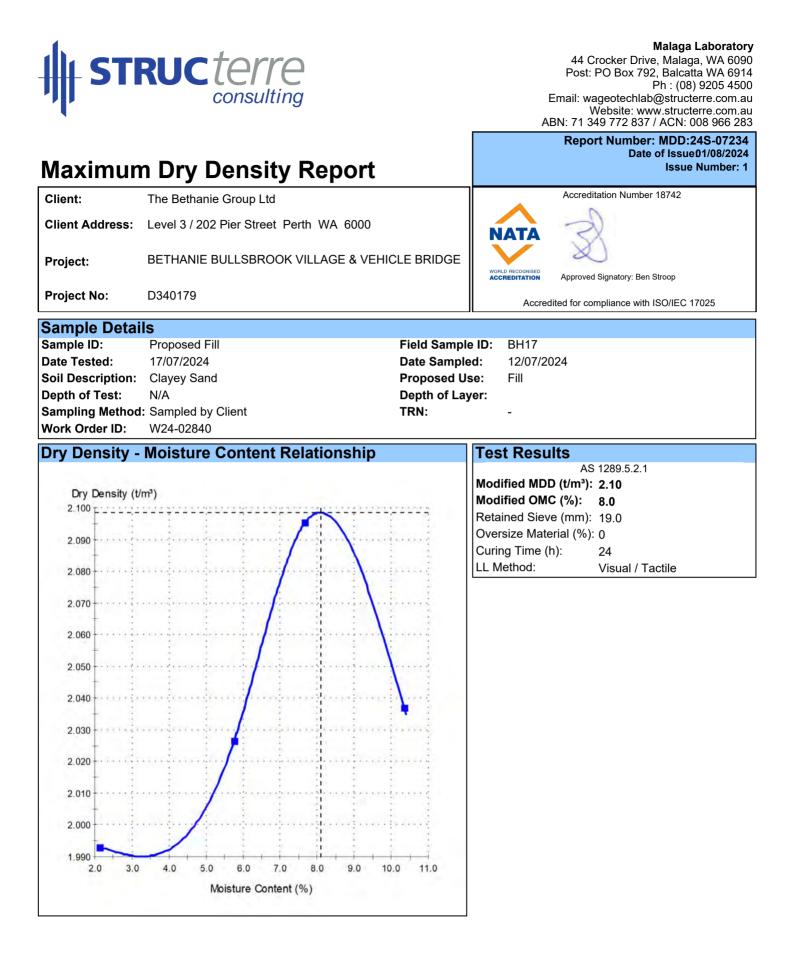
#### Sample Details

Sample ID: Proposed Fill Field Sample ID: BH17 Date Tested: 23/07/2024 **Date Sampled:** 12/07/2024 Soil Description: Clayey Sand **Proposed Use:** Fill Depth of Test: N/A Depth of Layer: Sampling Method: Sampled by Client TRN: Work Order ID: W24-02840 Load vs Penetration

#### 14.0 13.0 12 0 11.0 10.0 -oad on Piston (kN) 9.0 80 7.0 6.0 5.0 4 0 30 2.0 1.0 00 0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0 11.0 12.0 13.0 Penetration (mm)

#### **Test Results** AS 1289.6.1.1 CBR at 5.0mm (%): 30 Dry Density before Soaking (t/m<sup>3</sup>): 1.99 Density Ratio before Soaking (%): 95.0 Moisture Content before Soaking (%): 84 Moisture Ratio before Soaking (%): 103.5 Dry Density after Soaking (t/m<sup>3</sup>): 1.99 Density Ratio after Soaking (%): 95.0 Swell (%): 0.0 Moisture Content of Top 30mm (%): 10.7 Moisture Content of Remaining Depth (%): 10.2 Compaction Hammer Used: Modified AS 1289.5.2.1 Surcharge Mass (kg): 4.50 Period of Soaking (Days): 4 Retained on 19 mm Sieve (%): 0 CBR Moisture Content Method: AS 1289.2.1.1 Sample Curing Time (h): 24 Plasticity Determination Method: Visual/Tactile

#### Comments



### Comments



Malaga Laboratory 44 Crocker Drive, Malaga, WA 6090 Post: PO Box 792, Balcatta WA 6914 Ph : (08) 9205 4500 Email: wageotechlab@structerre.com.au Website: www.structerre.com.au ABN: 71 349 772 837 / ACN: 008 966 283

## California Bearing Ratio Test Report

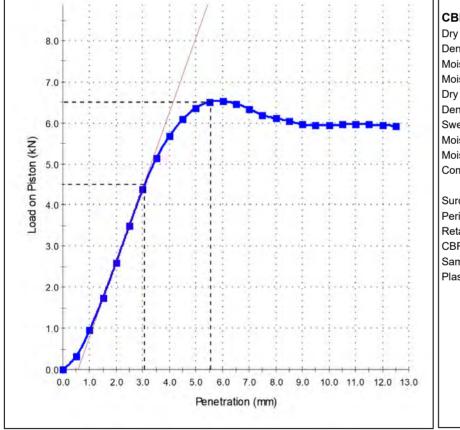
Client: The Bethanie Group Ltd

Client Address: Level 3 / 202 Pier Street Perth WA 6000

Project: BETHANIE BULLSBROOK VILLAGE & VEHICLE BRIDGE

Project No: D340179

Sample Details Sample ID: Field Sample ID: Proposed Fill BH18 Date Tested: 23/07/2024 **Date Sampled:** 12/07/2024 Soil Description: Sand **Proposed Use:** Fill Depth of Test: N/A Depth of Layer: Sampling Method: Sampled by Client TRN: Work Order ID: W24-02840 Load vs Penetration



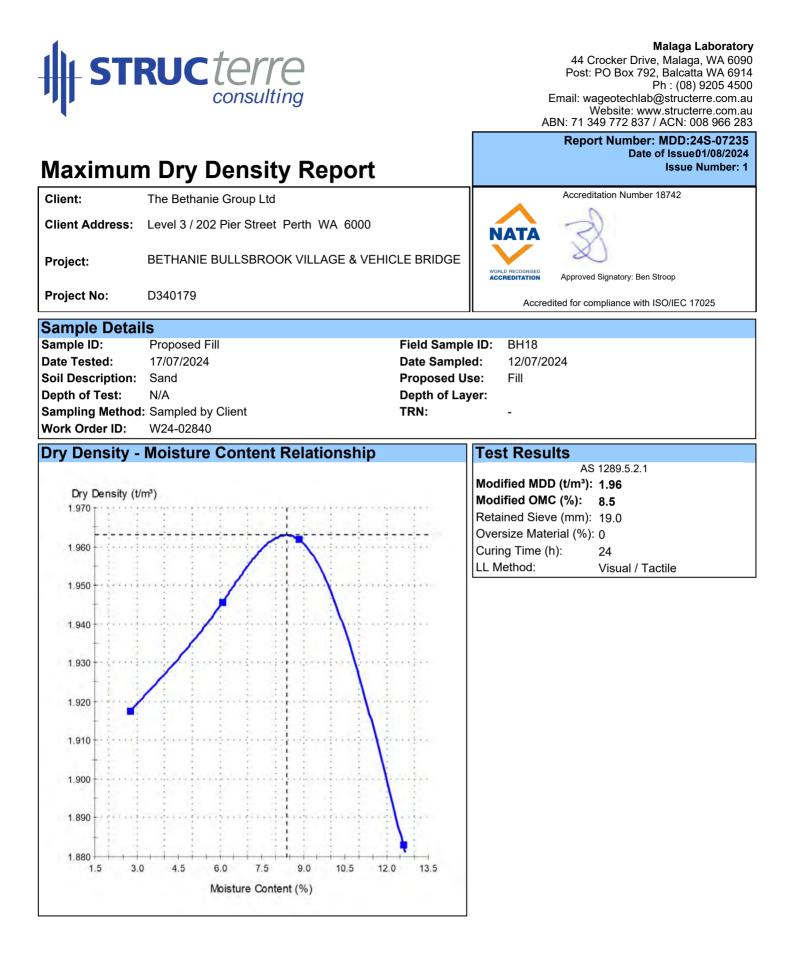
#### Report Number: CBR:24S-07235 Date of Issue01/08/2024 Issue Number: 1



Accredited for compliance with ISO/IEC 17025

Test Results	
AS 1289.6.1.1	
CBR at 2.5mm (%):	35
Dry Density before Soaking (t/m <sup>3</sup> ):	1.87
Density Ratio before Soaking (%):	95.5
Moisture Content before Soaking (%):	8.5
Moisture Ratio before Soaking (%):	101.0
Dry Density after Soaking (t/m³):	1.87
Density Ratio after Soaking (%):	95.5
Swell (%):	0.0
Moisture Content of Top 30mm (%):	11.4
Moisture Content of Remaining Depth (%):	11.8
Compaction Hammer Used:	Modified
	AS 1289.5.2.1
Surcharge Mass (kg):	4.50
Period of Soaking (Days):	4
Retained on 19 mm Sieve (%):	0
CBR Moisture Content Method:	AS 1289.2.1.1
Sample Curing Time (h):	24
Plasticity Determination Method:	Visual/Tactile

#### Comments



### Comments

Form No: 18995, Report No: MDD:24S-07235



Malaga Laboratory 44 Crocker Drive, Malaga, WA 6090 Post: PO Box 792, Balcatta WA 6914 Ph: (08) 9205 4500 Email: wageotechlab@structerre.com.au Website: www.structerre.com.au ABN: 71 349 772 837 / ACN: 008 966 283

#### Report Number: MAT:24S-07237 Date of Issue01/08/2024 Issue Number: 1

## **Material Test Report**

Client: The Bethanie Group Ltd Client Address: Level 3 / 202 Pier Street Perth WA 6000 **BETHANIE BULLSBROOK VILLAGE & VEHICLE BRIDGE Project:** Approved Signatory: Ben Stroop **Project No:** D340179 Accredited for compliance with ISO/IEC 17025

#### **Sample Details**

Sample ID Proposed Fill Field Sample ID BH19 Date Tested **Date Sampled Soil Description** Sand Proposed Use Fill Depth of Test N/A Depth of Layer Sampling Method TRN Work Order ID

22/07/2024 12/07/2024 Sampled by Client W24-02840

#### Test Results

Description	Method	Result	Limits
Ash Content (%)	ASTM D 2974	98.4	
Organic Content (%)		1.6	
Furnace Temperature (°C)		440	
Moisture Content (%)		0	
Moisture contents are proportioned by		as-received mass	
Moisture Content Method (A or B)		А	
Ash Content Method (C or D)		С	
Date Tested		22/07/2024	

#### Comments

ASTM D 2974 Not covered under scope of accreditation.

# Appendix C: Engineering Servicing Report

Cossill & Webley, 2024







Level 2, 431 Roberts Road, Subiaco WA 6008. PO Box 680 Subiaco, WA 6904 T (08) 9422 5800 E admin@cosweb.com.au W cosweb.com.au



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## 1. INTRODUCTION

This report has been prepared by Cossill & Webley (CW) to support Bethanie's Development Application for the development of a 235-dwelling village located at Bullsbrook. The extent and location of The Site is defined in Figure 1 below.

This report summarises our assessment of the engineering aspects of the proposed development of the village (referred to herein as The Site).



Figure 1 – Locality Plan (Aerial: Metromap)

## 2. SITE DESCRIPTION

The Site is located at Bullsbrook, within the City of Swan Local Government Area.

The Site has an area of 10.6 hectares and sits on land currently described as:

- Lot 900
- Lot 9501
- Lot 2 existing church
- Lot 9014 existing vegetation
- Lot 9013 Part Lot



The Site is bound by the existing Sacri Church to the west and Fairchild Street to the east. Adjacent to the southern boundary will be the future Chittering Road re-alignment. The northern boundary is bound by Lot 9014 consisting of existing vegetation.

The Site is currently vacant.

## 3. PROPOSED DEVELOPMENT

The proposed development consists of:

- 235 residential dwellings;
- A Clubhouse for residents;
- A meeting place 'The Lookout'
- Leisure facilities consisting of a lawn bowls green, pickleball courts, community garden and BBQ; and
- Landscaped drainage swales

The proposed development layout of The Site is shown in Figure 2 below.



Figure 2 - Development Layout (Source: Richard Hammond Architect – Bethanie Bullsbrook Village Masterplan)



## 3.1 Geology and Landform

### 3.1.1 Geology

The Geological Survey of Western Australia indicates that the Site is characterized by the following soil types:

- Pebbly Silt on the southern portion of the site; and
- Sandy Silt on the northern portion of the site.

Figure 3 below shows the extent of each soil type identified on the Geological Survey of Western Australia.

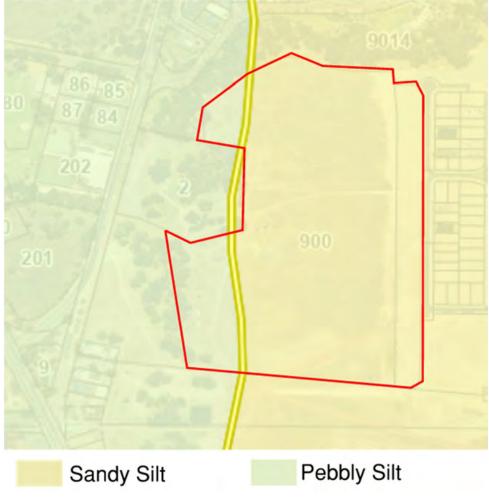


Figure 3 – Geology of The Site (Source: Geological Survey of WA)



### 3.1.2 Landform

The Site grades from northeast to southwest with an average gradient of 3%. The highest point of The Site is located around the northeast boundary towards Fairchild St located at RL68m AHD. The lowest point of The Site is located on the south-western boundary at RL54m AHD, as shown in Figure 4 below. There is a fill batter along the edge of Fairchild Street that extends into The Site that will be graded out with the future development levels.



Figure 4 - Existing Surface Contours (mAHD) (Source: MNG Access)



## 3.2 Groundwater

The groundwater levels that have been determined from the Groundwater Atlas shown on the Perth Groundwater Map indicate that the maximum groundwater level is at 32mAHD and the minimum is at 31mAHD across The Site. The natural surface levels across The Site vary between RL55m AHD to RL68m AHD as defined in Figure 5 below. The groundwater will therefore not be impacted by the proposed works on The Site.



Figure 5 - Existing Maximum & Minimum Groundwater Levels (Source: MNG Access)

## 3.3 Acid Sulfate Soils

The Site is classified as low risk of encountering Acid Sulfate Soils within 3m of the natural surface as published on the Acid Sulfate Soils Risk Map, Swan Coastal Plain (DWER-055). It is recommended that on site testing be conducted prior to development to confirm no presence of acid sulfate soils.



## 3.4 PFAS

The Site is located near the RAAF Base Pearce (Bullsbrook). Former air base activities involved fire training and disposing of PFAS in the soil and therefore PFAS has been detected in the bore water of some residents. As part of the soil remediation works, Water Corporation has commissioned to construction of a water pipeline to supply water to the affected area for water supply. Bethanie Bullsbrook Village is not in the affected area as shown in 6 below.



Figure 6 – Existing PFAS-affected Site boundary with The Site (Source: Department of Defence)

## 4. EARTHWORKS

It is proposed to undertake earthworks across The Site to create suitably sloped building sites for each dwelling in the development and to cater for road grading, stormwater management and services installation. A grading plan for the site has been prepared and in included in Appendix A.

The extremities of the site tie into the existing ground levels. A retaining wall is proposed along the rear of the lots adjacent to Fairchild Street to reduce the gradients across the site and to facilitate level changes within lot cells to be taken up by the built form.



## 5. ROADWORKS & FOOTPATHS

## 5.1 Connection to Existing Roads

Access to The Site is proposed from Chittering Road as shown on the Bethanie Bullsbrook Village Masterplan, in Figure 2. The Site access road will be constructed as part of the Stage 1 development and will cross the Ki-It Brook at the location of the existing culverts.

The Kingsford Local Structure Plan shows Chittering Road to be-realigned and run parallel to the southern boundary of The Site. Chittering Road is classified as Neighbourhood Connector A and Neighbourhood Connector B as shown in Figure 7 below. An emergency access and caravan access is shown on the Masterplan to connect to the Neighbourhood Connector B section of Chittering Road re-alignment. This section is proposed as a 3.5m carriageway with no median which is suitable to cater for the proposed secondary access point to The Site.

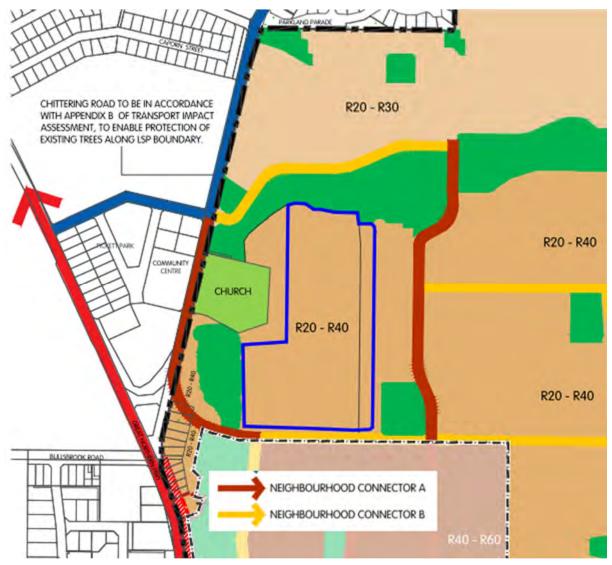


Figure 7 – Kingsford Local Structure Plan (HATCH Roberts Day)



### 5.2 Internal Road Network

The internal road network is intended to be privately owned and maintained by the operators of the Bethanie Bullsbrook Village. The internal road network consists of the entrance road, dwelling access roads and carparks for boat, recreational vehicle, caravan and visitor parking. The internal road network is illustrated on drawing Bethanie Bullsbrook Village Masterplan shown in Figure 2.

#### 5.2.1 Entrance Road

The entrance road, as shown in Figure 8 below, consists of a roundabout and a divided road that serves the following purposes:

- Access to visitor car parking;
- Access to lots; and
- Turn-around area for errant drivers.

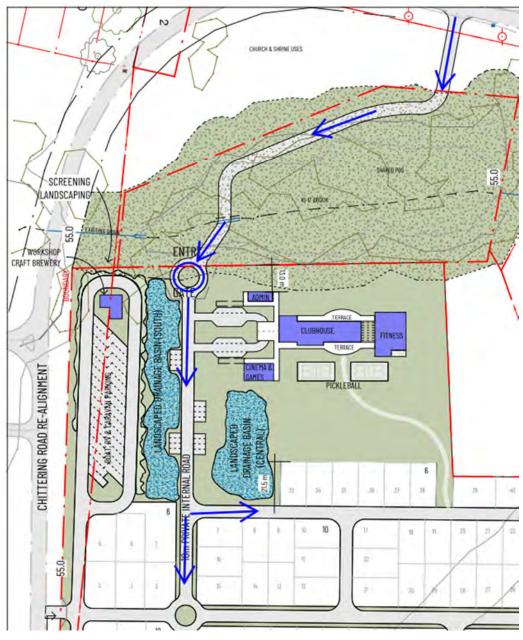


Figure 8 - Entrance Road Arrangement



#### 5.2.2 Dwelling Access Roads

Internal access roads are proposed to be shared vehicle and pedestrian zones, with a speed limit of 10km/h. The carriageway varies in width, typically 5.5m to 6.0m width, and is proposed to be constructed from asphalt pavement.

A typical carriageway cross section is shown in Figure 9 below.

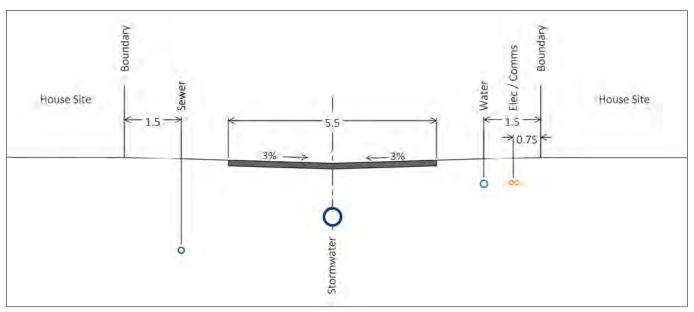


Figure 9 - Typical Dwelling Access Road Cross Section

#### 5.2.3 Parking Bays

Parking bays are proposed for boat, recreational vehicle & caravans, located adjacent to the proposed clubhouse, entry gate, and landscaped drainage basins, as shown on the Bethanie Bullsbrook Village Masterplan. A total of 30 parking spaces, designed to AS/NZS 2890.1:2004 Australian Standard are proposed to be provided.

There are a further 32 additional car spaces in groups of 4 adjacent to the landscaped basins, community gardens, BBQ and lookout areas making the total parking bays for all vehicles 62.

#### **5.3 Refuse Collection**

It is intended that the residential dwellings, along with the clubhouse will be serviced by general waste and recycling bins, collected by a garbage truck operated by the City of Swan.

Turning movements for a typical garbage truck have been undertaken for The Site which demonstrate that a City of Swan garbage truck can have full access to The Site for the purposes of garbage collection.

## 6. STORMWATER DRAINAGE

Pentium Hydrologists have prepared a technical note summarising the proposed drainage strategy for The Site, that is consistent with the approved Local Water Management Strategy.

The general stormwater strategy for the site is to:

- Manage, retain and treat stormwater runoff generated by the first 15 mm of rainfall at-source as much as practical (e.g., in potential roadside swales, storage basins), with no discharge into the Ki-it Monger Brook.
- Provide adequate conveyance (e.g., roadside swales or piped drainage etc.) for the critical 20% AEP rainfall event to maintain serviceability of roads and pedestrian areas.
- Provide adequate flood detention storage to maintain pre-development flow rates downstream of the site



(i.e., limited discharge into Ki-it Monger Brook in accordance with existing peak flow rates).

The Bethanie Bullsbrook Masterplan shows the locations of landscaped drainage basins within the site to accommodate the various rainfall events up to and including the 1% AEP. Pit and pipe drainage will be designed within the road carriageways suitable to cater for the critical 20% AEP rainfall with larger events accommodated overland on the road pavements. Stormwater drainage infrastructure within the Bethanie village will be privately owned and operated by the owner.

## 7. WATER RETICULATION

## 7.1 Point of Supply

The Site is surrounded by potable water as shown in Figure 10 below. There is a DN300 water distribution watermain in Chittering Road, a DN100 reticulation main in Amelia Way and Fairchild Street and a DN100 watermain in Tigermoth Boulevard. It is anticipated the water supply to come from Chittering Road/Tigermoth Blvd with a single property connection to the site.



Figure 10 – Water Mains Surrounding the Site (Source: MNG Access)



### 7.2 Internal Water Reticulation

From the point of connection, water reticulation will continue through The Site, servicing every dwelling, the clubhouse and gym. This water reticulation will also provide fire fighting coverage through the provision of fire hydrants.

Beyond the point of connections, the water reticulation will be owned and maintained, by the operators of the Bethanie village.

## 8. SEWER RETICULATION

### 8.1 Point of Connection

Internal sewer reticulation from The Site will discharge to the \$\phi225\$ gravity sewer in Tigermoth Boulevard as shown in Figure 11 below and in accordance with JDSi's sewer catchment plan for the area. The gravity sewer along Tigermoth Boulevard have been designed to capture the overall sewer from the Site.

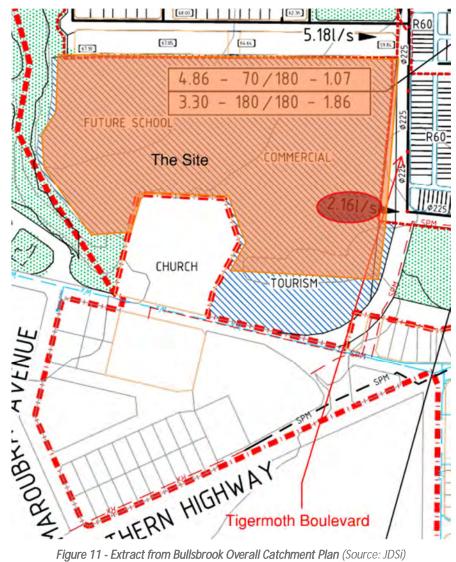


Figure 11 - Extract from Bullsbrook Overall Catchment Plan (Source: JDSi)

8.2 Internal Sewer Reticulation



From the point of connection, as shown in Figure 11, internal private sewer reticulation will continue through The Site, servicing every dwelling, the clubhouse and gym. Beyond the point of connection, the gravity sewer will be owned and maintained, by the operators of the Bethanie village.

## 9. POWER SUPPLY

## 9.1 Point of Supply

According to Western Power's Networks Mapping Tool, the site is serviced by power from the Muchea Zone substation, with spare capacity of approximately 20MVA. There is an existing High Voltage (HV) network along Chittering Road to which the Site would connect via a HV switchgear that is interconnected to that existing HV. From the HV switchgear, it is anticipated that 2x1MVA sole use transformers would extend into the site, as close to the clubhouse as possible. The internal HV cables will be protected by an easement vested to Western Power.

### 9.2 Internal Power Network

From the point of Western Power supply, the internal power network is intended to be a privately owned and operated AS3000 compliant network with servicing through distribution boards located throughout the site.

## **10. COMMUNICATIONS NETWORK**

## 10.1 Point of Supply

There is existing optic fibre reticulation within the subdivision to the east, and a trunk connection will be obtained from this network to service the overall development.

### **10.2 Internal Communications Network**

The internal communication network will be designed for network fiber serviced either via NBN or Opticomm, to allow for a fibre connection to each dwelling. The pit and pipe will be owned and operated by the network operator. Discussion will need to be had with the operators to take advantage of any smart community infrastructure to allow for CCTV/Gate Controls within the site, coupled onto the fibre network.

## **11. CONCLUSION**

This Engineering Services Report demonstrates that Bethanie Bullsbrook Village can be suitably accommodated, as it can be provided with points of connection for water reticulation, sewer reticulation, electrical reticulation, and communications. This Engineering Services Report also affirms that stormwater runoff from The Site, generated by the Bethanie Bullsbrook Village can be suitably managed.



## APPENDIX A – SITE GRADING PLAN

## **Appendix D: Landscape** Concept Plan Plan E, 2024



# **BETHANIE BULLSBROOK**

# Landscape Concept (REV B) prepared for The Bethanie Group

AUGUST 2024





#### LANDSCAPE ARCHITECTS

## landscape design



#### BETHANIE BULLSBROOK

PREPARED FOR THE BETHANIE GROUP

LANDSCAPE CONCEPT AUGUST 2024 JOB NO. 2410001 C1.102 1:750 @ A1 REV B 45 75m COPYRIGHT THIS DOCUMENT IS AND SHALL REMAIN THE PROPERTY OF PLAN E

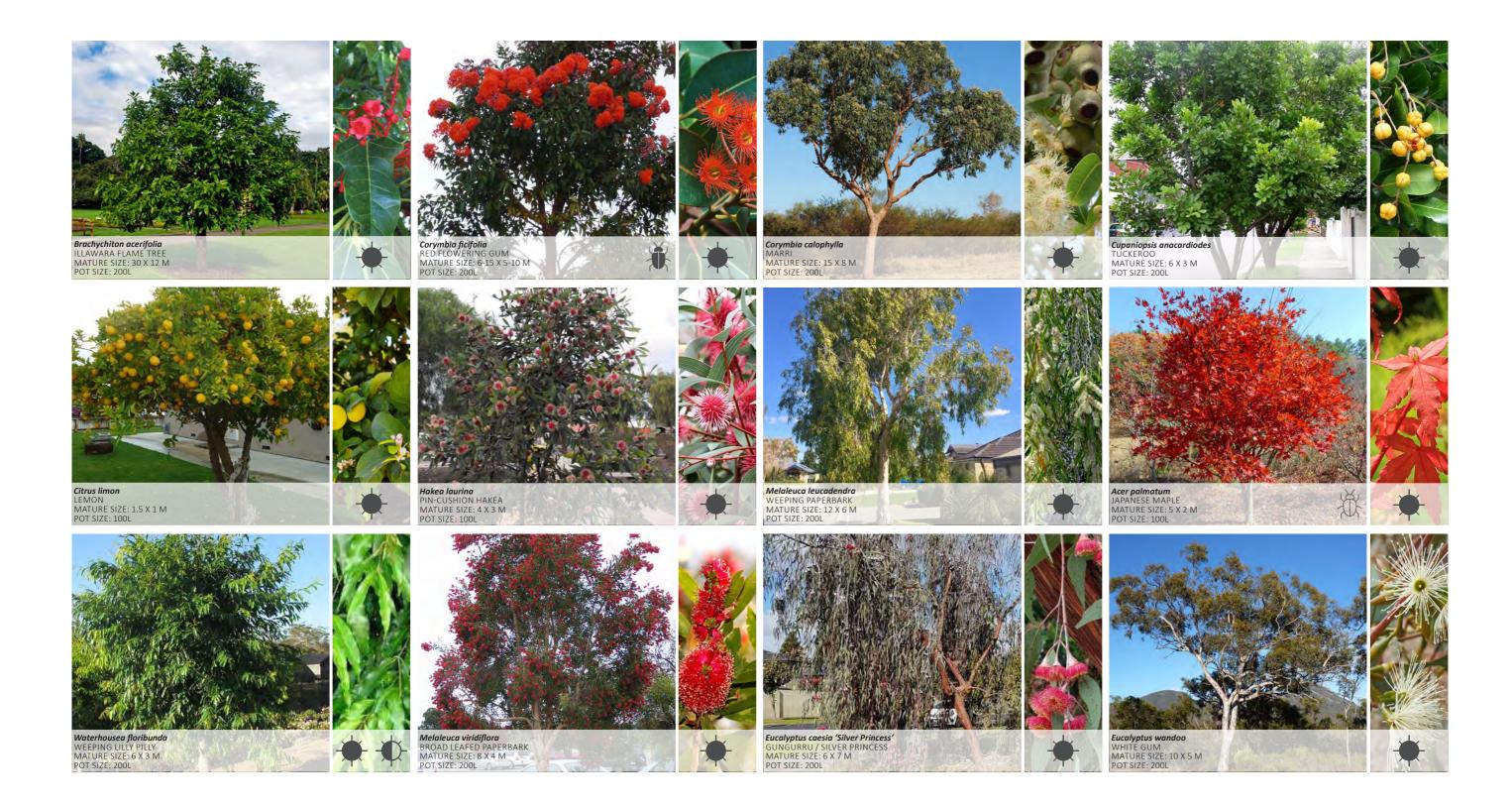
#### LEGEND

- 01 NATIVE SHRUBS, GROUNDCOVERS AND TREE PLANTING TO LOT BOUNDARY. LOW THREAT BUSHFIRE TREATMENTS ADJACENT BROOK
- 02 FEATURE PLANTING TO CLUBHOUSE AND KEY COMMUNAL LANDSCAPE AREAS
- 03 OPEN TURF KICKABOUT SPACES WITH SHADE TREES
- 04 PEDESTRIAN PATH NETWORK TO PROVIDE UNIVERSAL ACECSSIBILITY TO COMMUNAL LANDSCAPE AREAS
- 05 LANDSCAPED WETLAND TO TAKE STORMWATER DRAINAGE AND PROVIDE NATIVE FAUNA HABITAT
- 06 'THE LOOKOUT' MEETING PLACE, WITH SHADE STRUCTURE, TABLE SETTINGS AND BENCH SEATING
- 07 INFORMAL STABILISED GRAVEL PATHS THROUGH LANDSCAPE TO PROVIDE WALKING TRAIL AND LANDSCAPE INTERACTION
- 08 COMMUNITY GARDEN WITH INFORMAL PATHWAYS, SEATING OPPORTUNITIES AND SHADE TREE PLANTING
- 09 BBQ MEETING NODE WITH COOKING FACILITIES, SHADE STRUCTURE AND SEATING
- 10 STREET TREES TO THE FRONT OF EACH RESIDENTIAL LOT
- 11 FEATURE PLANTING AND TREES TO CENTRAL ROAD, CAPABLE OF TAKING A PORTION OF STORMWATER DRAINAGE FROM INTERNAL ROADS
- 12 PICKLEBALL COURTS
- 13 WORKSHOP / CRAFT BREWERY WITH BREAKOUT SPACE
- 14 CLUBHOUSE TERRACE

#### LANDSCAPE ARCHITECTS



## planting palette - trees



#### **BETHANIE BULLSBROOK**

PREPARED FOR THE BETHANIE GROUP

#### LANDSCAPE ARCHITECTS

## planting palette - native shrubs & ground covers











Eremophila Kalbarri Carpet EMU BUSH MATURE SIZE: 0.2 X 2 M SPACING: 2/M<sup>2</sup> POT SIZE: 140 MM

SPACING: 1/M<sup>2</sup> POT SIZE: 140 MM



Grevillea crithmifolia 'Little crith' LITTLE CRITH MATURE SIZE: 1 X 1 M SPACING: 1/M<sup>2</sup> POT SIZE: 140 MM



GREVILLEA MATURE SIZE: 3.5 X 3 M SPACING: 1/M<sup>2</sup> POT SIZE: 200 MM









PREPARED FOR THE BETHANIE GROUP

BANKSIA









#### LANDSCAPE ARCHITECTS

## planting palette - feature shrubs & ground covers



#### **BETHANIE BULLSBROOK**

PREPARED FOR THE BETHANIE GROUP







#### LANDSCAPE ARCHITECTS

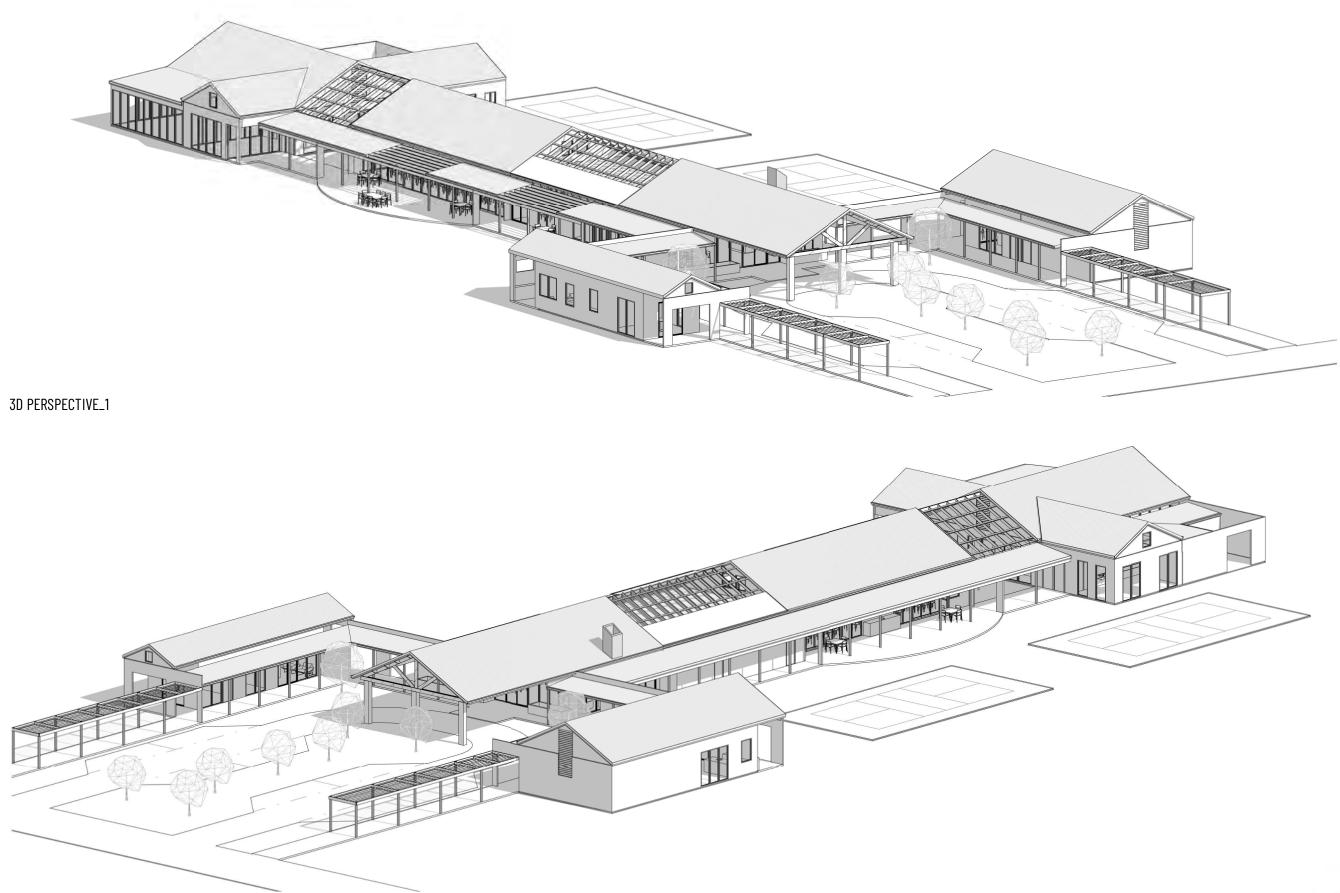
## BULLSBROOK LIFESTYLE VILLAGE





Village Streetscape - Artists Impression





3D PERSPECTIVE\_2

RICHARD HAMMOND ARCHITECT BETHANIE BULLSBROOK CLUBHOUSE CONCEPT DESIGN RevA SCALE | 1:250 @A3 22.08.2024





3D PERSPECTIVE\_ENTRY ROAD



3D PERSPECTIVE\_ENTRY LOUNGE

RICHARD HAMMOND ARCHITECT BETHANIE BULLSBROOK CLUBHOUSE CONCEPT DESIGN RevA 22.08.2024





3D PERSPECTIVE\_EXTERNAL TERRACE THROUGH TO HALL

RICHARD HAMMOND ARCHITECT BETHANIE BULLSBROOK CLUBHOUSE CONCEPT DESIGN RevA 22.08.2024





Government of Western Australia Department of Water and Environmental Regulation

 Your ref:
 DA-692/2024

 Our ref:
 DWERT950 PA068114

 Enquiries:
 Bree Lyons, Ph 6250 8035

David Tomkin City of Swan PO Box 196 MIDLAND DC WA 6936

Via email: <u>swan@swan.wa.gov.au</u>

Dear David,

## Proposed Park Home Park (Lifestyle Village) – Lot 900 Chittering Road, Bullsbrook – DA692/2024

Thank you for providing the above referral for the Department of Water and Environmental Regulation (Department) to consider.

The Department has identified that the proposal will impact on water values and management therefore the Department objects to the referral, and key issues and recommendations are provided below, and these matters must be addressed:

The proposed access road and creek crossing is inconsistent with the approved Local Water Management Strategy (LWMS) for the site. The proposed access road meandering through the foreshore reserve within the existing fringing vegetation of the Ki-it Monger Brook is not in keeping with the purpose of a foreshore reserve as outlined in *Operational Policy 4.3: Identifying and establishing waterways foreshore areas*.

The Department objects to the path of the access road through the creek reserve and advises that the applicant should negotiate with the City of Swan for a more appropriate route for the access road. The Department would support a more direct path through the foreshore area, minimizing the impact of the access road on the foreshore area and fringing vegetation.

It should be noted that the Department has not beeninvolved with the management of the foreshore area since the structure plan stage, and as such we have not seen the foreshore management plan. Therefore, the Department is unaware of what management measures are laid out by the foreshore management plan. If you would like more information regarding this matter, please contact Bree Lyons on 6250 8035 or <u>bree.lyons@dwer.wa.gov.au</u>.

Yours sincerely,

l

Jim Mackintosh Program Manager Planning Advice Swan Avon Region

11 December 2024



Department of **Biodiversity**, **Conservation and Attractions** 



Your ref: D Our ref: 2 Enquiries: Jo Phone: 9 Email: jo

DA-692/2024 24-4945 Josie Watson 9278 0910 josie.watson@dbca.wa.gov.au

Chief Executive Officer City of Swan PO Box 196 MIDLAND WA 6936

Dear Mr Cain

#### CLAUSE 30A(2)b(ii) – PARK HOME PARK (LIFESTYLE VILLAGE) – LOTS 900, 9501 & 9030 CHITTERING ROAD, BULLSBROOK

Thank you for providing the Department of Biodiversity, Conservation and Attractions (DBCA) with the opportunity to comment on the above development application received on 4 November 2024.

DBCA has reviewed the Development Application Report prepared by Planning Solutions (September 2024) along with supporting reports and plans, including the Bushfire Management Plan (Allerding & Associates, 2024), Urban Water Management Plan (Pentium, 2024), Preliminary Environmental Assessment (Pentium, 2024), the Foreshore Wetland Management Plan (RPS, 2018) and the Landscape Masterplan (Plan E, 2024).

As you are aware the subject land is located within the Ellen Brook Catchment. The Swan Canning Water Quality Improvement Plan (2009) identified the Ellen Brook catchment as the largest contributor of total nitrogen and total phosphorous loads to the Swan Canning estuary, and is experiencing significant land and water degradation as a consequence of extensive land use changes and development. It is important to ensure that the transition of this area from principally rural activities to urban activities occurs in a way that minimises impacts to the quality of ground water and surface water. Development should occur in line with the principles of water sensitive urban design and in particular focus on restoration of the naturally existing waterways.

DBCA has considered the proposal on behalf of the Trust against *State Planning Policy 2.10: Swan-Canning River System* and Swan Canning Development Control Area policies and has concerns regarding the appropriate management and development proposed around the Ki-it Monger Brook which traverses the site and flows into the Ellen Brook and ultimately the Swan River.

#### Foreshore Reserve and Ki-it Monger Brook

A section of the Ki-it Monger Brook approximately 110m long runs north-south within the privately owned Lot 900 immediately to the south of Lot 2 (Our Lady of the Revelation Shrine). The development application proposes to retain the land including this section of the brook in private ownership.

This area of the brook is classified as a 'Multiple Use' wetland and is zoned 'Recreation' under the Kingsford Bullsbrook Central Local Structure Plan (the Structure Plan). In accordance with the Structure Plan, public open space (POS) is to be provided adjacent to the Ki-it Monger Brook foreshore area to provide a buffer between the foreshore and development and to facilitate stormwater treatment, and is to be vested with the City of Swan for maintenance and management.

The Ki-it Monger Brook Foreshore and Wetland Management Plan (FWMP) (RPS, 2018) identifies the extent of the 'core creek area' of the brook and proposes a suitable POS area adjacent. The FWMP guides the retention and protection of the brook including remnant vegetation, through controlled access, prevention of weeds and regeneration of native vegetation in designated areas.

DBCA supports the protection and rehabilitation of the Ki-it Monger Brook and considers that in the context of extensive redevelopment proposed in the area, including the subject development proposal, the Ki-it Monger Brook and the associated identified POS area should be ceded and vested with the City of Swan for maintenance and management as part of the proposed development. This will provide future community benefit of public access and recreation and allow for environmental and water quality values of the Ki-it Monger Brook to be protected and enhanced.

#### Ki-it Monger Brook crossing

The proposal includes a new vehicular crossing of the Ki-it Monger Brook for access to the development. DBCA does not support the crossing in its current location because it will have a detrimental impact on the brook through the removal of existing fringing vegetation and require a substantial amount of fill being placed within the waterway. Existing, nearby crossings should be utlised if possible or more suitable alternatives explored to minimise or avoid environmental impacts.

#### Bushfire Planning

State Planning Policy 3.7 Planning in Bushfire Prone Areas (SPP 3.7), policy objective 5.4 recognises the need to consider bushfire risk management measures alongside environmental, biodiversity and conservation values. SPP 3.7 states that bushfire mitigation measures should be contained within the development area and must not place impositions on the future management of adjoining land.

As outlined above, DBCA supports the Ki-it Monger Brook and associated POS area within Lot 900 being vested with the City. Accordingly, it is expected that the resulting waterway and foreshore area be classified as 'Class A – Forest' to allow for future rehabilitation and revegetation, consistent with the FWMP (RPS, 2018). No vegetation within the waterway or foreshore POS should be pruned or managed to a low threat state, and the Bushfire Attack Level (BAL) ratings should be amended accordingly.

Similarly, no part of the Ki-it Monger Brook waterway or foreshore POS to the north of the proposed development should be pruned or managed to low threat. The foreshore area should be classified as 'Class A – Forest' and the Bushfire Attack Level (BAL) ratings amended accordingly to allow for future revegetation within the publicly owned foreshore land.

It is recognised that a substantial asset protection zone (APZ) has been provided for along two thirds of the western boundary, and the proposed APZ may allow for the relocation of a number of park homes away from the foreshore interfaces extending west where BAL ratings would allow.

#### Urban Water Management Plan

DBCA recommends that for small rainfall events, stormwater retention and/or detention should occur as high in the catchment and as close to the run-off source as possible, for the management of water quality. Opportunities to retain or detain stormwater runoff from small rainfall events (i.e. first 15mm) within individual lots and road reserves (i.e. tree pits, roadside swales and biofilters) should be considered. Maximising drainage opportunities in the road reserves will help to minimise the size and depth of proposed drainage basins, allowing for more usable and appealing open space areas adjacent to waterways.

The UWMP does not contain the level of detail necessary to demonstrate compliance with the requirements and objectives of Better Urban Water Management (DoW, 2008). DBCA is happy to provide comment on a more detailed UWMP and provides the following comments to assist:

- The UWMP should include a detailed description of the size, location and design of drainage basins, as well as commit to the implementation of any management or infiltration measures for stormwater within individual lots and within the road reserves.
- The plans provided do not appear to have sufficient space within the road reserve for the construction of any roadside drainage infrastructure, despite the UWMP referring to such structures.
- Stormwater for all events appears to be piped to the three drainage basins, in foreshore areas. This design is not consistent with the best practice water sensitive urban design.
- Details of proposed vegetation and soil types in bioretention area should be provided. Soils should be a minimum PRI of 15 and contain appropriate native species capable of nutrient uptake.
- It is recommended that the biofilters are designed in accordance with the: Adoption Guidelines for Stormwater Biofiltration Systems (Payne et al. 2015) and the Vegetation Guidelines for Stormwater Biofilters in the South-West of Western Australia (Monash University 2014).
- Details of outflows to the brook are required, particularly in the northern area of the development where the basin will be a number of meters higher than the base of the waterway adjacent.

#### Fencing and landscaping

DBCA understands the development is proposed to be a closed community and it is therefore expected that there will be fencing along the boundary of the private development with the public foreshore land to the north. Additionally, in anticipation of the ceding of the Ki-it Monger Brook land to the south of the development, fencing will be required along the boundary of the public and private land proposed.

Accordingly, DBCA suggests a condition of approval that the plans and design for any proposed boundary fencing be submitted for approval as part of a detailed Landscaping Plan prior to commencement of works.

The Landscaping Plan can also detail the proposed species within the development. DBCA recommends only locally native species be used for landscsaping throughout the development. Deciduous trees are not supported due to the proximity of the Ki-it Monger Brook and the potential for additional nutrient loads to the waterway.

#### **Recommendation**

In summary, **DBCA recommends that the following matters are addressed prior to approval** of the development proposal:

- The area of Lot 900 containing the Ki-it Monger Brook and the identified POS area adjacent is to be ceded and vested with the City of Swan.
- The Bushfire Management Plan is to be revised to classify the ceded area described in point 1 and any other foreshore areas as 'Class A Forest' to allow for the future revegetation and rehabilitation of the waterway, and to prevent the responsibility being placed on the City to manage vegetation to lot threat levels. BAL ratings should be reassessed accordingly.
- The proposed crossing of the Ki-it Monger Brook is to be removed from the plans or realigned to avoid clearing of native vegetation and prevent filling or other impacts to the waterway.
- A more comprehensive Urban Water Management Plan is to be prepared to demonstrate compliance with best practice water sensitive urban design.

Subject to these matters being suitably addressed, DBCA recommends the following conditions and advice.

#### CONDITIONS

- 1. A Sediment and Erosion Control Plan detailing how risk of drainage, erosion and sedimentation or other environmental impacts into nearby water bodies will be minimised during works is to be:
  - a. prepared by the landowner/applicant and approved prior to the commencement of works; and
  - b. implemented during works. (Department of Biodiversity, Conservation and Attractions Swan Canning Waterways Branch) (**Advice Note 1**)
- 2. A detailed Foreshore Management Plan for the adjacent Ki-it Monger Brook foreshore areas and public open space is to be submitted to and approved by the City of Swan, to the specification of the Department of Biodiversity, Conservation and Attractions prior to commencement of works. (Advice Note 2)
- 3. All works are to be undertaken in accordance with an amended Landscaping Plan which is to be submitted to and approved by the City of Swan, to the specification of the Department of Biodiversity, Conservation and Attractions prior to commencement of works. (Advice Note 3)
- 4. The development shall be connected to the reticulated sewerage system.

#### ADVICE TO APPLICANT

- 1. Regarding **Condition 1**, the Sediment and Erosion Control Plan should describe how the authorised works will be appropriately managed and implemented to minimise the risk of drainage, erosion and sedimentation on nearby water bodies and may include control measures such as:
  - a. daily recovery of sediment (including imported building sand) from outside the works area (e.g. end-of day sweeping).
  - b. perimeter controls such as sediment control fences.
  - c. sediment traps at stormwater drain inlets.
  - d. vehicle washdown and vibration grids at entry/exits.
  - e. containment of stockpiles.

For further guidance on best management practices for sediment and erosion control, refer to the *Erosion and Sediment Control Information sheets* found at: <u>https://www.perthnrm.com/resource/sediment-management/</u>

- 2. Regarding **Condition 2**, the detailed Foreshore Management Plan for the Ki-it Monger Brook foreshore areas should be consistent with the Ki-it Monger Brook Foreshore Wetland Management Plan (RPS, 2018) and include:
  - a. the location, details of planting densities and species composition proposed.
  - b. a schedule of works.
  - c. weed control, including target species and any chemicals to be used, and its management within a water sensitive environment.
  - d. stabilisation measures.
  - e. a reticulation plan, indicating type and location of sprinkler, bubbler, drippers and if bore or scheme water will be utilised.
  - f. ongoing monitoring and maintenance requirements.

- 3. Regarding **Condition 3**, the Landscape Plan should include details on:
  - a. the interface between the development and the public open space, including the height, style, colours and materials of structures/fencing visible from the reserve which complement the riverine environment.
  - b. details of any pedestrian access directly to the foreshore area from the development.
  - c. all landscaping to include locally native plant species only, suited to the soil type of the area to sustain local biodiversity and reduce fertiliser requirements.

If you have any queries regarding this matter, please contact the officer above. Please quote the above reference number in all correspondence.

Yours sincerely

Greg Comiskey Manager, Statutory Assessments As delegate of the Swan River Trust Under Section 28B(2) of the SCRM Act 2006

16 December 2024



Enquiries: Isabel Huston on (08) 9323 6232 Our Ref: 24/9718 (D24#1534005) Your Ref: DA-692/2024 DAP Ref: DAP/24/02776

12 December 2024

Chief Executive Officer City of Swan PO Box 196 MIDLAND WA 6936

Email: planning.submissions@swan.wa.gov.au (via email)

Dear Sir/Madam,

#### PROPOSED PARK HOME PARK (BULLSBROOK LIFESTYLE VILLAGE) – REF DA-692/2024 AND DAP/24/02776 - LOT 900, LOT 9501, LOT 9013 (CHITTERING ROAD), BULLSBROOK

In response to correspondence received on 12 November 2024, Main Roads supports the proposal and recommends that if development approval is granted, the following conditions being imposed:

#### **Conditions**

1. Stormwater shall not be discharged into the Great Northern Highway (GNH) Road Reserve or the future widened road reservation.

#### Justification for Non-Standard Condition

To ensure there is sufficient capacity in the GNH stormwater network to accommodate its requirements. This is a standard requirement for development adjacent to a State Road.

2. No works are permitted within the Great Northern Highway Road Reserve, unless Main Roads has issued a Working on Roads Permit.

<u>Justification for Non-Standard Condition</u> Public safety and reflects the approval process for works.

#### <u>Advice</u>

- a) The upgrading/widening of GNH is not in Main Roads current 4-year forward estimated construction program and all projects not listed are subject to change without notice, and Main Roads assumes no liability for the information provided.
- b) The applicant is required to submit an Application form to undertake works within the road reserve prior to undertaking any works within the road reserve. Application forms and supporting information about the procedure can be found on the Main Roads website > Technical & Commercial > Working on Roads.



#### General Comments

This development will increase traffic on the surrounding road network. The City of Swan's 'Bullsbrook Residential Townsite Contribution Plan' (September 2021) for Development Contribution Area No. 7 outlines several road infrastructure projects to modify or upgrade local road connections near Great Northern Highway (GNH). The City should consider the timing for delivering these projects due to the ongoing development in this area.

Main Roads encourages local government in liaising with applicants to promote and capitalise on our pre-lodgement consultation service, prior to lodgement of planning proposals, especially where development plans involve land adjacent to or have the potential to impact on the State road network.

Further information on the pre-lodgement consultation process can be found on Main Roads website at mainroads.wa.gov.au > Technical & Commercial > Planning & Development

Should the JDAP disagree with the above conditions or require further information please do not hesitate to contact Isabel Huston on (08) 9323 6232.

Please ensure a copy of the JDAP's final determination is sent to planninginfo@mainroads.wa.gov.au.

Yours sincerely

mthornely.

Maryanne Thornely Road Access and Planning Manager



## **Design Review Report**

Location/Venue:	City of Swan Council Chambers - Midland Town Hall -
	312 Great Eastern Highway Midland
Meeting Date:	Tuesday 1 <sup>st</sup> October 2024
Meeting Time:	3:00pm

Item 3 – Lifestyle Village (Park Home) – Lot 9015 Squadron Blvd, Lot 900 & Lot 9013 Chittering Road BULLSBROOK – DRP-25/2024 & DA- 692/2024 – 1st DRP Meeting Post DA

Design Review	Report
Subject	Item 3 - Lifestyle Village (Park Home) – Lot 9015 Squadron Blvd, Lot 900 & Lot 9013 Chittering Road BULLSBROOK
Design Reviewers	Malcolm Mackay - Chairperson (Mackay Urban Design)
	Brett Wood-Gush – Deputy Chairperson (Insight Urbanism)
	Wayne Dufty – Panel Member (DNA Architects)
	Peter Damen - Panel Member (Level 5 Design)
Proponent &	Richard Hammond – Richard Hammond Architect
Project Team	Tayne Evershed – Planning Solutions
	David Lorimer – Bethanie
	Oliver Basson – Planning Solutions
	David Lombardo - Landowner
Declarations	None.

Design quality evaluation	on	
Principle 1 Context and character		Good design responds to and enhances the distinctive characteristics of a local area, contributing to a sense of place.
Comments and Recommendation		<ul> <li>Strengths <ul> <li>a) Description of the context provided in the planning report and presentation.</li> <li>b) Simple traditional housing forms with a rural quality, that is arguably more relevant and appealing than the surrounding suburban housing.</li> <li>c) The entry sequence across the brook draws character from the natural environment.</li> <li>d) The response to the topography and avoidance of benched lots is supported.</li> </ul></li></ul>



	Areas for improvement
	<ul> <li>e) Provide more explanation on the forms, materials and colours with reference to the sense of place in the broader locality.</li> <li>f) Show pedestrian/bike connections and linkages beyond the site and nearby pedestrian/bike destinations.</li> <li>g) The communal vehicle area is a poor street interface and should be relocated to a less prominent location.</li> <li>h) Provide more information on the site edge conditions and fencing, both in elevation and through detailed cross sections.</li> <li>i) Provide more information (If known) about the intention for the southern portion of the Church land along the sites' northern border.</li> <li>j) There remains more opportunity in the site planning to respond to the rural and walkable character of the place than simply resorting to a repetitive orthogonal grid.</li> </ul>
	<ol> <li>Recommendations         <ol> <li>Provide more contextual analysis regarding local character.</li> <li>Provide a plan that defines the local pedestrian network, destinations, and connections.</li> <li>Review the use of the communal vehicle area as a street interface.</li> <li>Provide more information on the site edge conditions (fencing, landscape, levels, etc)</li> <li>Provide more information on the intent of the southern Church land.</li> <li>Break down the monotony of the grid to better create a sense of place.</li> </ol> </li> </ol>
Principle 2 Landscape quality	Good design recognises that together landscape and buildings operate as an integrated and sustainable system, within a broader ecological context.
Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) Early design input from a landscape professional is good.</li> <li>b) A well-considered landscape master plan, albeit requiring some more supporting detail.</li> </ul> </li> <li>Areas for improvement <ul> <li>c) Provide more details on hardscape materials, landscape furniture, as well as exemplar imaging that helps to explain the intent regarding the character and quality of landscape spaces.</li> <li>d) Provide street cross-sections and detailed plan vignettes to demonstrate how street trees are to be accommodated and how the landscaping of front</li> </ul> </li> </ul>



	<ul> <li>yards contributes to the streetscape.</li> <li>e) Provide more information on the drainage basins – whether they are permanent or ephemeral, the edge conditions, the integration of planting, etc.</li> <li>f) Provide more effective screening to the communal vehicle compound if retained in the current location.</li> <li>g) Develop a clear and diverse hierarchy of connected spaces – commons parkland, pocket parks, boulevards, streets, courtyards, etc</li> <li><i>Recommendations</i> <ol> <li>Provide detail on hardscape materials, landscape furniture and imagery that illustrates the general landscape intent.</li> <li>Provide street cross sections to show how landscape is integrated into the streetscape.</li> <li>Develop a clear hierarchy of diverse external spaces.</li> </ol> </li> <li>Provide more information on the detention basins, function and edge treatments.</li> <li>Review the screening to the communal vehicle area if retained in the current location.</li> </ul>
Principle 3 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.
Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) The site planning is simple and logical, albeit arguably too simple</li> <li>b) The building types, height, and scale are appropriate for the use, locality, and price point.</li> <li>c) The delivery of relatively affordable housing types using cost-effective modular construction.</li> <li>d) The use of car ports rather than garages, which creates a more open quality to the streetscape and improves visual interaction with the street.</li> <li>e) A well-considered form of the communal buildings – effectively creating a village of buildings within a village and maintaining an appealing balance of formality and informality.</li> </ul> </li> <li>Areas for improvement <ul> <li>f) Review the roof forms of house type B. The mix of</li> </ul> </li> </ul>
	<ul> <li>f) Review the root forms of house type B. The mix of pitched and skillion roofs is awkward and could be simplified to a single roof type as per the other house types.</li> <li>g) Being off centre the communal facilities should be either more central or better connected to the remainder of the development area via the pedestrian network - consider additional and more</li> </ul>



	<ul> <li>direct connections.</li> <li>h) Whilst it acknowledged that the houses may have strong market appeal, there remains opportunity for them to interpret the rural character of the places (i.e. simple timber-framed, barn-like, gabled structures rather than literal interpretations of traditional cottages.</li> <li>Recommendations <ol> <li>Review the roof forms of house type B.</li> <li>Review the location and/or the pedestrian connectivity to the communal facilities to make them more accessible to all the residents.</li> <li>Explore a simpler and more elegant interpretation of what a small rural-style house could be.</li> </ol> </li> </ul>
Principle 4 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.
Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) The internal planning of the houses and the communal facilities are generally functional.</li> <li>b) The house designs are generally well resolved and efficient in their use of space.</li> <li>c) Overall waste management has been considered. However, discreet bin locations need to be identified on the house plan.</li> <li>d) The provision of the communal vehicle compound (boat trailers, caravans etc) is good but the lack of screening and adjacency to the street is a concern. street</li> </ul> </li> <li>Areas for improvement <ul> <li>e) Nominate locations for bin storage.</li> <li>f) Nominate locations for bin storage and AC condensers in the house plans.</li> </ul> </li> </ul>
Principle 5 Sustainability	Good design optimises the sustainability of the built environment, delivering positive environmental, social and economic outcomes.
Comments and Recommendation	<ul> <li>Strengths</li> <li>a) Sustainability has been clearly considered in the design process.</li> <li>b) The use of lightweight modular construction is positive.</li> <li>c) The avoidance of benched lots and retaining is</li> </ul>



	<ul> <li>positive.</li> <li>d) Smaller than average dwellings reduce material input and energy costs and enables more landscape.</li> <li>e) The provision of affordable housing for older people is more socially sustainable.</li> <li>f) The provision of on-site amenities reduces travel demand to other places.</li> <li>Areas for improvement</li> <li>g) Flesh out the sustainability narrative into a more detailed strategy with identified and quantified commitments.</li> <li>h) Develop further narrative around reduction in embedded energy in the specification of materials.</li> <li>Recommendations</li> <li>1. Flesh out the sustainability narrative into a more detailed strategy with identified and quantified and quantified commitments.</li> </ul>
Principle 6 Amenity	Good design optimises internal and external amenity for occupants, visitors and neighbours, providing environments that are comfortable, productive and healthy.
Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) The provision of on-site communal amenities is good.</li> <li>b) The house types have a generosity of landscape compared to standard suburban practice.</li> <li>c) The provision of street trees and other landscape looks promising but needs to be clarified using street cross sections.</li> </ul> </li> <li>Areas for improvement <ul> <li>d) Review the street treatments to ensure that those streets without dedicated footpaths feel like slow-speed shared spaces where pedestrians feel safe and comfortable.</li> <li>e) Review the configuration of the communal amenities for opportunities to increase the extent of northern aspect.</li> <li>f) Optimise shade and shelter (predominately through street trees) to the pedestrian network.</li> </ul> </li> <li>Recommendations <ul> <li>Blah</li> </ul> </li> </ul>
Principle 7 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.



Comments and	Strengths
Recommendation	a) The simple logical grid layout has some inherent
Recommendation	legibility, albeit diminished by the offset
	intersections.
	b) The singular main entrance is clearly the way into
	the development.
	c) The use of a spinal boulevard(s) with footpaths is
	supported but consider a singular L-shaped
	boulevard that terminates on a landscape element
	rather than two with uneventful terminations.
	Areas for improvement
	d) Include opportunities for greater pedestrian
	connectivity with surrounding area through the
	inclusion of additional gateways and connectivity
	with the surrounding path network.
	e) The staggered T-intersections result in less legibility
	than 4 -ways intersections – review how to either
	create more 4-ways or how the introduction of
	pocket paths between T-intersections can allow
	continuity of pedestrian movement between them.
	f) Develop a pedestrian network diagram for the site
	and adjacent streets that shows the level of
	connectivity and clarifies the types of pedestrian
	connection.
	g) The 6 units facing the communal area create a
	barrier between the residential area and the
	communal facilities – consider how these could be
	relocated to open up the relationship between the
	residential area and the communal facilities.
	h) Strengthen the northern pedestrian connection to
	the communal area.
	i) Review how to break up the sameness of the grid
	with some bends, small parks, deflected vistas, and
	improve legibility in the process.
	j) Consider how the entry boulevard can be bent
	around into the N-S boulevard for continuity of
	, , , , , , , , , , , , , , , , , , ,
	passage, rather than introducing the roundabout.
	k) Provide pedestrian connectivity to the communal
	vehicle area.
	Recommendations
	1. Provide for better pedestrian connectivity to the
	surrounding area.
	intersections and how to break down the
	sameness of the grid.
	3. Develop a pedestrian network diagram for the
	site.
	4. Review the location of the 6 units backing onto
	the communal area.



	<ol> <li>Improve pedestrian connectivity between the housing and the communal area.</li> <li>Consider a singular L-shaped Boulevard with continual passage.</li> <li>Provide better pedestrian connectivity to the communal vehicle area.</li> </ol>
Principle 8 Safety	Good design optimises safety and security, minimising the risk of personal harm and supporting safe behaviour and use.
Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) The format of the development provides a good sense of security for residents.</li> <li>b) Bushfire risks appears to have been considered and addressed.</li> </ul> </li> <li>Areas for improvement <ul> <li>c) The degree of engagement with, and passive surveillance of, the adjacent streets from the houses is unclear and a matter of concern – ensure there is visual permeability and demonstrate In detailed cross sections.</li> <li>d) Reinforce the shared nature of those streets without dedicated footpaths using materials, changes of level, avoidance of raised kerbs, landscape, etc.</li> <li>e) Provide clearly demarcated crossing points where footpaths cross vehicle paths.</li> <li>f) Show swept paths for waste and service vehicles.</li> <li>g) Review and demonstrate the edge conditions of the detention swales so that safety can be achieved without recourse to fencing.</li> <li>h) Utilise subtle traffic calming measures to support the slow-speed shared streets.</li> </ul> </li> <li>Recommendations <ul> <li>Clarify through detailed cross-sections, plans and materials how the shared space streets can best favour pedestrians.</li> <li>Identify pedestrian crossing points along the boulevard(s).</li> <li>Show swept paths for waste and service vehicles.</li> </ul> </li> </ul>
Principle 9 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.



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Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) The provision of communal facilities is relatively generous.</li> </ul> </li> <li>Areas for improvement <ul> <li>b) Drop out a few units and/or redistribute open space to enable pocket parks at key intersections for localised engagement between residents and improved wayfinding and legibility.</li> <li>c) Review fencing treatments to adjacent streets to enable engagement and passive surveillance.</li> <li>d) Identify whether there is a public art requirement and, if so, the strategy.</li> </ul> </li> <li>Recommendations <ul> <li>Review the distribution of open space with a view to creating more localised landscape spaces for neighbourly interaction.</li> <li>Review and clarify feigning interfaces with the public realm.</li> <li>Identify whether there is a public art requirement and, if so, what the strategy will be.</li> </ul> </li> </ul>
Principle 10 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.
Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) Generally, the use of forms, elements and materials is positive and appropriate to a more rural context than it would be in a more metropolitan context.</li> </ul> </li> <li>Areas for improvement <ul> <li>b) Review the roof forms on house type B.</li> <li>c) Provide more information on the material and colour palette.</li> <li>d) Provide more information on the fencing treatments.</li> </ul> </li> <li>Recommendations <ul> <li>Review the roof forms on house type B.</li> <li>Provide more information on the fencing treatments.</li> </ul> </li> <li>Recommendations <ul> <li>Review the roof forms on house type B.</li> <li>Provide more information on colours and materials.</li> </ul> </li> <li>Provide more information on the fencing treatments.</li> </ul>



Design Review	progress.				
	Supported				
	Pending furt	her attention			
	Not yet supp	ported			
	Yet to be ad	dressed		<b></b>	
		DRP Meeting 1 01/10/24 Post DA	DRP Meeting 2	DRP Meeting 3	DRP Meeting 4
Principle 1 - Cor character	ntext and				
Principle 2 - Lar quality	ndscape				
Principle 3 - Bui scale	It form and				
Principle 4 - Fur and build quali					
Principle 5 - Sus	stainability				
Principle 6 - Am	enity				
Principle 7 - Leg	jibility				
Principle 8 - Saf	ety				
Principle 9 - Cor	nmunity				
Principle 10 - Ae	esthetics				

#### **Concluding Remarks**

The Panel thanks the Applicant for presenting to the DRP, although it would have been more efficient to come to the DRP earlier in the process. The Panel supports the overall intent of the project, which has the potential to deliver much needed affordable accommodation for older people. The architect is commended for embedding a consideration of sustainability into the design and the inclusion of a landscape professional on the team is good.

Whilst the overall intent is supported, there are matters that are of concern to the Panel, most of which relate to connectivity, both internally and externally, and the quality of the pedestrian environment, and the interface of the development with the surrounding public realm. Some of the logical solutions lie in the provision of more detail, whilst other relate to the configuration of the master plan. Most of the other issues raised by the DRP are matters of detail that can be readily addressed through more information and minor design changes.

The Applicant is strongly encouraged to consider the comments from the DRP, because the further changes arising from them could easily elevate the development to an exemplar to inspire others. The Panel looks forward to seeing the next iteration of the design in due course.



Is the proposal required to go back to a future Design Review Panel Meeting? Please tick one of the following: √ Yes – future full panel design review □ No – future chair review only □ No – supported – no further review required Is the proposal supported? Please tick one of the following: □ Yes - Supported √ Yes - Supported – pending further attention and/or conditions to be imposed □ No - Not supported		
Design Review Report endorsement & DRP Recommendation	Malcolm Mackay DRP Chair	



## **Design Review Report**

Location/Venue:	City of Swan Council Chambers - Midland Town Hall -
	312 Great Eastern Highway Midland
Meeting Date:	Tuesday 12 <sup>th</sup> November 2024
Meeting Time:	3:00pm

#### Item 3 – Lifestyle village (Park Home) – Lot 9501, 900 and 9013 Chittering Road BULLSBROOK – DRP-25/2024 & DA-692/2024 – 2nd DRP meeting Post DA

Design Review Report		
Subject	Lifestyle village ( Park Home) – Lot 9501, 900 and 9013 Chittering Road BULLSBROOK	
Design Reviewers	Malcolm Mackay - Chairperson (Mackay Urban Design)	
	Brett Wood-Gush – Deputy Chairperson (Insight Urbanism)	
	Wayne Dufty – Panel Member (DNA Architects)	
	Rachel Lewis - Panel Member (DWC Studio Pty Ltd)	
Proponent & Project Team	Richard Hammond – Richard Hammond Architect	
	Tayne Evershed – Planning Solutions	
	David Lorimer – Bethanie	
	Oliver Basson – Planning Solutions	
	David Lombardo – Landowner	
Declarations	None.	

Design quality evaluation		
Principle 1 Context and character	Good design responds to and enhances the distinctive characteristics of a local area, contributing to a sense of place.	
Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) Description of the context provided in the planning report and presentation.</li> <li>b) Simple traditional housing forms with a rural quality, that is arguably more relevant and appealing than the surrounding suburban housing.</li> <li>c) The entry sequence across the brook draws character from the natural environment.</li> <li>d) The response to the topography and avoidance of benched lots is supported.</li> </ul> </li> <li>Areas for improvement <ul> <li>e) Provide more explanation on the forms, materials</li> </ul> </li> </ul>	



	<ul> <li>and colours with reference to the sense of place in the broader locality – noting that whilst the approach is generally supported by the DRP, it may need explanation for others.</li> <li>f) Provide more information on the site edge conditions and fencing, both in elevation and through detailed cross sections.</li> <li><i>Recommendations</i> <ol> <li>Provide more contextual analysis regarding local character.</li> <li>Provide detailed cross sections of the typical site edge conditions (fencing, landscape, levels, etc)</li> </ol> </li> </ul>
Principle 2 Landscape quality	Good design recognises that together landscape and buildings operate as an integrated and sustainable system, within a broader ecological context.
Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) Early design input from a landscape professional is good.</li> <li>b) A well-considered landscape master plan.</li> <li>c) The use of landscape in the front setbacks is supported, and that it will be centrally managed by the operator rather than left to the tenants.</li> <li>d) The use of landscape t screen the 'toy park' from the public realm is supported.</li> </ul> </li> <li>Areas for improvement <ul> <li>e) It is noted that tree placement in the front setbacks will be dependent on the allocation of house types – ensure that this is coordinated in a timely manner along with tree types indicated on a landscape /canopy plan so there is clarity on which tree types go where.</li> <li>f)Provide a cross section of the streets that have a footpath.</li> </ul> </li> <li>Recommendations <ul> <li>Provide more detail on which tree types are located where (noting that this is partially dependant on allocation of house types and house type C is more challenging in respect to street tree provision).</li> <li>Provide a cross section of the streets that have a footpath.</li> </ul> </li> </ul>
Principle 3 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.



	Strengths
Comments and	a) The site planning has improved significantly and is
Recommendation	simple and logical, consistent with WA regional
	settlements.
	b) The building types, height, and scale are
	appropriate for the use, locality, and price point.
	c) The delivery of relatively affordable housing types
	using cost-effective modular construction is
	strongly supported.
	d) The use of carports rather than garages is good,
	which creates a more open quality to the
	streetscape and improves visual interaction with
	the street.
	e) The location and form of the communal buildings is
	well-considered – effectively creating a village of
	buildings within a village and maintaining an appealing balance of formality and informality.
	f) The issue with extensive back fences to streets and
	the community park/clubhouse has been resolved.
	g) The outlook from the clubhouse is across the
	landscape, and the relocation of the boat store
	seems less intrusive.
	h) The use of both N-S and E-W orientation to streets
	is good, and the extent of backing onto streets and
	landscape spaces has been reduced.
	i) The relocation of the toy park and men's shed
	provoked some debate, but on balance was
	supported.
	<ul> <li>j) The integration of stores in some (but, alas, not all house types) is supported.</li> </ul>
	k) The raked internal ceilings to the skillion roofs is
	supported, along with the use of operable
	clerestory windows.
	Areas for improvement
	<ol> <li>The southern internal roadway is inefficient – there may be some marit in soving the sout of the road</li> </ol>
	may be some merit in saving the cost of the road and using the saved space for deeper front
	setbacks through the site and providing a well-
	landscaped interface to the existing street.
	m) In the allocation of houses to lots, review the
	location of the free -standing stores to group them
	together where possible.
	n) The treatment of the carriageway and the allocation
	of landscape will be critical to the success of the
	shared streets.
	Recommendations
	1. Review the need for the southern internal
	roadway and whether a landscape interface
	may provide a better design outcome.



	2. Group free-standing stores together when the house types are allocated to the lots.
Principle 4 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.
Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) The internal planning of the houses and the communal facilities are generally functional.</li> <li>b) The house designs are generally well resolved and efficient in their use of space.</li> <li>c) Overall waste management has been considered. However, discreet bin locations need to be identified on the house plan.</li> <li>d) The provision of the communal vehicle compound (boat trailers, caravans etc) in a discreet location is supported.</li> </ul> </li> <li>Areas for improvement <ul> <li>e) Check the capacity for window positions to be refined for better solar orientation when a house type is reorientated.</li> </ul> </li> <li>Recommendations <ul> <li>Check the capacity for window positions to be refined for better solar orientation when a house type is reorientated.</li> </ul> </li> </ul>
Principle 5 Sustainability	Good design optimises the sustainability of the built environment, delivering positive environmental, social and economic outcomes.
Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) Sustainability has been clearly considered in the design process.</li> <li>b) The use of lightweight modular construction is positive.</li> <li>c) The avoidance of benched lots and retaining is positive.</li> <li>d) Smaller than average dwellings reduce material input and energy costs and enables more landscape.</li> <li>e) The provision of affordable housing for older people is more socially sustainable.</li> <li>f) The provision of on-site amenities reduces travel demand to other places.</li> </ul> </li> <li>Areas for improvement <ul> <li>g) Flesh out the sustainability narrative into a more detailed strategy with identified and quantified commitments.</li> </ul> </li> </ul>



	<ul> <li>h) Develop further narrative around reduction in embedded energy in the specification of materials.</li> <li><i>Recommendations</i></li> <li><i>Flesh out the sustainability narrative into a more detailed strategy with identified and quantified commitments.</i></li> </ul>
Principle 6 Amenity	Good design optimises internal and external amenity for occupants, visitors and neighbours, providing environments that are comfortable, productive and healthy.
Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) The provision of on-site communal amenities is good.</li> <li>b) The house types have a generosity of landscape compared to standard suburban practice.</li> <li>c) The provision of street trees and other landscape looks promising – a render of each typical street type would be useful for decision makers.</li> </ul> </li> <li>Areas for improvement <ul> <li>d) Check the performance of large, glazed area in the shoulder seasons.</li> <li>e) Consider ways of achieving more north-facing openings within the clubhouse.</li> <li>f) Ensure the placement or privacy screens is coordinated at the time of allocating the house types to the lots.</li> </ul> </li> <li>Recommendations <ul> <li>Test and fine tune solar access during the detailed design stage.</li> <li>Ensure the placement or privacy screens is coordinated at the time of allocating the house types to the lots.</li> </ul> </li> </ul>
Principle 7 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.
Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) The simple logical grid layout has inherent legibility.</li> <li>b) The singular main entrance is clearly the way into the development.</li> <li>c) The use of subtly different street treatments to the streets most likely to be used for circulation is supported but needs to be reinforced through the landscape treatment.</li> <li>d) The rationale for pedestrian path locations and the two wider streets is logical.</li> </ul></li></ul>



Principle 8	Areas for improvement e) None. <i>Recommendations</i> <i>1. None.</i> <i>Good design optimises safety and security,</i>
Safety	minimising the risk of personal harm and supporting safe behaviour and use.
Comments and Recommendation	<ul><li>Strengths</li><li>a) The format of the development provides a good sense of security for residents.</li><li>b) Bushfire risks appears to have been considered and addressed.</li></ul>
	<ul> <li>Areas for improvement</li> <li>c) Provide clearly demarcated crossing points where footpaths cross vehicle paths.</li> <li>d) Show swept paths for waste and service vehicles.</li> <li>e) Utilise subtle traffic calming measures to support the slow-speed shared streets.</li> <li>f) The treatment of the carriageway and the allocation of landscape will be critical to the success of the shared streets as safe environments.</li> <li><i>Recommendations</i></li> <li>1. Demarcate pedestrian crossing points along the boulevard(s) through changes in materials and levels.</li> <li>2. Show swept paths for waste and service vehicles.</li> </ul>
Principle 9 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.
Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) The provision of communal facilities is relatively generous.</li> <li>b) The provision of housing diversity and relative affordability is strongly supported.</li> </ul> </li> <li>Areas for improvement</li> </ul>
	<ul><li>c) Identify whether there is a public art requirement and, if so, what the strategy will be.</li></ul>
	Recommendations



	1. Identify whether there is a public art requirement and, if so, what the strategy will be.
Principle 10 <b>Aesthetics</b>	Good design is the product of a skilled, judicious design process that results in attractive and inviting buildings and places that engage the senses.
Comments and Recommendation	<ul> <li>Strengths</li> <li>a) Generally, the use of forms, elements and materials is positive and appropriate to a more rural context than it would be in a more metropolitan context.</li> </ul>
	<ul> <li>Areas for improvement</li> <li>b) Review the roof form on house type B to remove the small skillion roof at the front and, instead, to extrude the larger skillion behind it to the front of the house.</li> <li>c) Whilst the overall design intent of the house types is supported, provide more information on the material and colour palette (typical house type examples will suffice rather than allocating a colour palette to every lot) - refer to Context and Character above.</li> </ul>
	Recommendations 1. Review the roof forms on house type B. 2. Provide more information on colours and materials.

Design Review progress					
	Supported				
	Pending furt	her attention			
	Not yet supp	ported			
	Yet to be ad	dressed			
		DRP Meeting 1 01/10/24 Post DA	DRP Meeting 2 12/11/24 Post DA	DRP Meeting 3	DRP Meeting 4
Principle 1 - Cor character	ntext and				
Principle 2 - Landscape quality					
Principle 3 - <b>Bui</b> scale	It form and				
Principle 4 - Functionality and build quality					



Principle 5 - Sustainability		
Principle 6 - Amenity		
Principle 7 - Legibility		
Principle 8 - Safety		
Principle 9 - Community		
Principle 10 - Aesthetics		

#### Concluding Remarks

The Panel thanks the Applicant for presenting to the DRP. The Panel supports the overall intent of the project, which has the potential to deliver much needed affordable accommodation for older people. The architect is commended for embedding a consideration of sustainability into the design and the inclusion of a landscape professional on the team is good.

The design is getting close to the point that the Panel can support it as an acceptable response to the 10 design principles of SPP7, However, there remain a few areas for improvement, most of which are areas where further clarification or information is required rather than design changes per se.

The Applicant is strongly encouraged to consider the comments from the DRP, because this information will assist in the assessment and consideration of the DA and will help to elevate the development to the level of an exemplar to inspire others.

Given the degree of improvement, the design does not need to return to the DRP and a Chair review will suffice in respect to the next iteration of the design.

**Is the proposal required to go back to a future Design Review Panel Meeting?** Please tick one of the following:

□ Yes – future full panel design review

 $\sqrt{NO}$  – future chair review only

□ No – supported – no further review required

Is the proposal supported?

Please tick one of the following:

□ Yes - Supported

 $\sqrt{
m Yes}$  - Supported – pending further attention and/or conditions to be imposed

 $\Box$  No - Not supported

Design Review Report endorsement & DRP Recommendation

Malcolm Mackay Chairperson



## Design Review Report Chair Review Report

### Chair Review Date: Wednesday, 18 December 2024

### Item: Lifestyle village (Park Home) – Lot 9501, 900 and 9013 Chittering Road BULLSBROOK – DRP-25/2024 & DA-692/2024

Design Review Report		
	Lifestyle village (Park Home) – Lot 9501, 900 and 9013 Chittering Road BULLSBROOK	
Chairperson undertaking the Review	Malcolm Mackay - Chairperson (Mackay Urban Design)	

Design quality evaluation	on
Principle 1 Context and character	Good design responds to and enhances the distinctive characteristics of a local area, contributing to a sense of place.
Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) Description of the context provided in the planning report and presentation.</li> <li>b) Simple traditional housing forms with a rural quality, that is arguably more relevant and appealing than the surrounding suburban housing.</li> <li>c) The entry sequence across the brook draws character from the natural environment.</li> <li>d) The response to the topography and avoidance of benched lots is supported.</li> </ul></li></ul>
	<ul> <li>Areas for improvement</li> <li>e) More explanation on the forms, materials and colours with reference to the sense of place in the broader locality would be beneficial.</li> <li>f) Provide more information on the site edge conditions and fencing, both in elevation and through detailed cross sections.</li> <li>Recommendations</li> <li>1. The City should consider a condition of approval requiring a schedule of materials and colours for all building types, and a plan</li> </ul>



	locating the various colour combinations on site, to the satisfaction of the City prior to Building Permit.
Principle 2 Landscape quality	Good design recognises that together landscape and buildings operate as an integrated and sustainable system, within a broader ecological context.
Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) Early design input from a landscape professional is good.</li> <li>b) A well-considered landscape master plan.</li> <li>c) The use of landscape in the front setbacks is supported, and that it will be centrally managed by the operator rather than left to the tenants.</li> <li>d) The use of landscape t screen the 'toy park' from the public realm is supported.</li> </ul> </li> <li>Areas for improvement <ul> <li>e) It is noted that tree placement in the front setbacks will be dependent on the allocation of house types – ensure that this is coordinated in a timely manner along with tree types indicated on a landscape /canopy plan so there is clarity on which tree types go where.</li> <li>f) Provide a cross section of the streets that have a footpath.</li> </ul> </li> </ul>
	<ul> <li>Recommendations</li> <li>1. The City should consider a condition of approval requiring details of the selected house type, associated trees, the location of any free -standing external stores, free-standing screens and a schedule of materials and colours for each 'lot' to the satisfaction of the City prior to dwelling installation.</li> </ul>
Principle 3 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.
Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) The site planning has improved significantly and is simple and logical, consistent with WA regional settlements.</li> <li>b) The building types, height, and scale are appropriate for the use, locality, and price point.</li> <li>c) The delivery of relatively affordable housing types using cost-effective modular construction is strongly supported.</li> <li>d) The use of carports rather than garages is good, which creates a more open quality to the</li> </ul></li></ul>



	<ul> <li>streetscape and improves visual interaction with the street.</li> <li>e) The location and form of the communal buildings is well-considered – effectively creating a village of buildings within a village and maintaining an appealing balance of formality and informality.</li> <li>f) The issue with extensive back fences to streets and the community park/clubhouse has been resolved.</li> <li>g) The outlook from the clubhouse is across the landscape, and the relocation of the boat store seems less intrusive.</li> <li>h) The use of both N-S and E-W orientation to streets is good, and the extent of backing onto streets and landscape spaces has been reduced.</li> <li>i) The relocation of the toy park and men's shed provoked some debate, but on balance was supported.</li> <li>j) The integration of stores in some (but, alas, not all house types) is supported.</li> <li>k) The raked internal ceilings to the skillion roofs is supported, along with the use of operable clerestory windows.</li> </ul> Areas for improvement 1) In the allocation of houses to lots, review the location of the free -standing stores to group them together where possible. m) The treatment of the carriageway and the allocation of landscape will be critical to the success of the shared streets and should be further refined during the detailed design stage. <i>Recommendations</i> 1. The City should consider a condition of approval requiring details of the selected house type, associated trees, the location of any free -standing external stores, free-standing privacy screens, and a schedule of materials and colours for each 'lot' to the satisfaction of the clay prior to dwelling installation. 2. Continue to refine the landscape design, including hard surfaces, during the detailed design stage.
Principle 4 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.
Comments and Recommendation	Strengths a) The internal planning of the houses and the communal facilities are generally functional.



	<ul> <li>b) The house designs are generally well resolved and efficient in their use of space.</li> <li>c) Overall waste management has been considered. However, discreet bin locations need to be identified on the house plan.</li> <li>d) The provision of the communal vehicle compound (boat trailers, caravans etc) in a discreet location is supported.</li> <li>Areas for improvement <ul> <li>e) Review window positions to be refined, mirrored or reorientated for better solar orientation when a house type is selected for each 'lot'</li> </ul> </li> <li>Recommendations <ul> <li>2. Review whether window positions can be mirrored or reorientated for better solar orientation when a house type is selected for each 'lot'</li> </ul> </li> </ul>
Principle 5 Sustainability	Good design optimises the sustainability of the built environment, delivering positive environmental, social and economic outcomes.
Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) Sustainability has been clearly considered in the design process.</li> <li>b) The use of lightweight modular construction is positive.</li> <li>c) The avoidance of benched lots and retaining is positive.</li> <li>d) Smaller than average dwellings reduce material input and energy costs and enables more landscape.</li> <li>e) The provision of affordable housing for older people is more socially sustainable.</li> <li>f) The provision of on-site amenities reduces travel demand to other places.</li> </ul> </li> <li>Areas for improvement <ul> <li>g) The lack of documentation of the sustainability narrative is disappointing. However, the inherent sustainability benefits of the general development intent and the construction methodology are acknowledged and demonstrate a reasonable design response to the sustainably design principle.</li> </ul> </li> </ul>



	Recommendations 1. None.
Principle 6 Amenity	Good design optimises internal and external amenity for occupants, visitors and neighbours, providing environments that are comfortable, productive and healthy.
Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) The provision of on-site communal amenities is good.</li> <li>b) The house types have a generosity of landscape compared to standard suburban practice.</li> <li>c) The provision of street trees and other landscape looks promising – a render of each typical street type would be useful for decision makers.</li> </ul> </li> <li>Areas for improvement <ul> <li>d) Check the performance of large, glazed area in the shoulder seasons.</li> <li>e) Consider ways of achieving more north-facing openings within the clubhouse.</li> <li>f) Ensure the placement or privacy screens is coordinated at the time of allocating the house types to the lots.</li> </ul> </li> <li>Recommendations <ul> <li>Review whether window positions can be refined, or plans can be mirrored or reorientated for better solar orientation when a</li> </ul> </li> </ul>
	<ul> <li><i>house type is selected for each 'lot' during the detailed design process. The City may wish to apply a condition of approval to that effect, to ensure it is considered prior to dwelling installation.</i></li> <li>2. The City should consider a condition of approval requiring details of the selected house type, associated trees, the location of any free -standing external stores, free-standing privacy screens, and a schedule of materials and colours for each 'lot' to the satisfaction.</li> </ul>
Principle 7 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.
Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) The simple logical grid layout has inherent legibility.</li> <li>b) The singular main entrance is clearly the way into the development.</li> <li>c) The use of subtly different street treatments to the</li> </ul> </li> </ul>



	<ul> <li>streets most likely to be used for circulation is supported but needs to be reinforced through the landscape treatment.</li> <li>d) The rationale for pedestrian path locations and the two wider streets is logical.</li> <li>Areas for improvement</li> <li>e) None.</li> <li>Recommendations</li> <li>1. None.</li> </ul>
Principle 8 Safety	Good design optimises safety and security, minimising the risk of personal harm and supporting safe behaviour and use.
Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) The format of the development provides a good sense of security for residents.</li> <li>b) Bushfire risks appears to have been considered and addressed.</li> </ul> </li> <li>Areas for improvement <ul> <li>c) Provide clearly demarcated crossing points where footpaths cross vehicle paths.</li> <li>d) Show swept paths for waste and service vehicles.</li> <li>e) Utilise subtle traffic calming measures to support the slow-speed shared streets.</li> <li>f) The treatment of the carriageway and the allocation of landscape will be critical to the success of the shared streets as safe environments.</li> </ul> </li> <li>Recommendations <ul> <li>Demarcate pedestrian crossing points along the boulevard(s) through changes in materials and levels. The City may wish to apply a condition of approval to that effect, to ensure it is considered prior to building permit for the site civil works.</li> </ul> </li> <li>Show swept paths for waste and service vehicles. the city may wish to apply a condition of approval to that effect, to ensure it is considered prior to building permit for the site civil works.</li> </ul>
Principle 9 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.
Comments and Recommendation	<b>Strengths</b> a) The provision of communal facilities is relatively



	<ul> <li>generous.</li> <li>b) The provision of housing diversity and relative affordability is strongly supported.</li> <li>Areas for improvement <ul> <li>c) Identify whether there is a public art requirement and, if so, what the strategy will be.</li> </ul> </li> <li>Recommendations <ol> <li>The City should consider a condition of approval requiring details of any necessary public art to the satisfaction of the City prior to a suitable milestone (e.g. building permit for the communal building or installation of the first dwelling).</li> </ol></li></ul>
Principle 10 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.
Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) Generally, the use of forms, elements and materials is positive and appropriate to a more rural context than it would be in a more metropolitan context.</li> </ul> </li> <li>Areas for improvement <ul> <li>b) Review the roof form on house type B to remove the small skillion roof at the front and, instead, to extrude the larger skillion behind it to the front of the house. The DRP notes that the Applicant has declined to amend the design, but the DRP reiterates its position that it does not support the design of house type B in its current form</li> <li>c) Whilst the overall design intent of the house types is supported, provide more information on the material and colour palette for each dwelling.</li> </ul> </li> <li>Recommendations <ul> <li>The City may wish to consider a condition of approval that requires an amendment to the roof form of house type B to delete the small skillion roof on the front elevation to the satisfaction of the City prior to any type B dwelling installation.</li> </ul> </li> </ul>
	approval requiring a schedule of materials and colours for all building types, and a plan locating the various colour combinations on site, to the satisfaction of the City prior to Building Permit.



Design Review	/ progress				
	Supported				
	Pending furt	her attention			
	Not yet supported				
	Yet to be ad	dressed			
		DRP Meeting 1 01/10/24 Post DA	DRP Meeting 2 12/11/24 Post DA	Chair Review 1 18/12/2024	DRP Meeting 4
Principle 1 - Cor character	ntext and				
Principle 2 - Lan quality	ndscape				
Principle 3 - Bui scale	It form and				
Principle 4 - Fun and build quali					
Principle 5 - Sus	stainability				
Principle 6 - Am	enity				
Principle 7 - Legibility					
Principle 8 - Saf	ety				
Principle 9 - Cor	mmunity				
Principle 10 - Ae	esthetics				

#### Concluding Remarks

The Panel thanks the Applicant for presenting to the DRP. The Panel supports the overall intent of the project, which has the potential to deliver much needed affordable accommodation for older people. The architect is commended for embedding a consideration of sustainability into the design and the inclusion of a landscape professional on the team is good.

The design has reached the point that the Panel can support it as an acceptable response to the 10 design principles of SPP7. However, there remain a few areas for improvement, but these can be dealt with through further consideration at the detailed design stage and/or an appropriate condition of approval.

Is the proposal required to go back to a future Design Review Panel Meeting? Please tick one of the following:

□ Yes – future full panel design review

 $\sqrt{NO}$  – future chair review only

 $\sqrt{No}$  – no further review required

Is the proposal supported?

Please tick one of the following:



Yes - Supported → pending further attention and/or conditions to be imposed
 No - Not supported

Design Review Report endorsement & DRP Recommendation
Malcolm Mackay DRP Chair

PS ref: 8799 LG ref: DA-692/2024

6 January 2025

City of Swan 2 Midland Square MIDLAND WA 6056

Attention: David Tomkin, Senior Planning Officer

Dear David,

#### APPLICATION FOR DEVELOPMENT APPROVAL RESPONSE TO REQUEST FOR FURTHER INFORMATION PROPOSED PARK HOME PARK (LIFESTYLE VILLAGE)

We refer to the City of Swan (**City**) additional request for further information correspondence (**RFI**) dated 20 December 2024 related to the proposed Park Home Park (Lifestyle Village) development at Lot 900 Chittering Road, Lot 9501 Fairchild Street, Lot 9013 Tigermoth Boulevard, Bullsbrook (**subject site**).

We are pleased to provide the following information in response to the City's RFI. This submission includes responses to the City's comments, as well as a response to external referral submissions.

We are pleased to provide the following information in support of the proposed development application:

- 1. Ki-It Brook Crossing Indicative Design (refer Appendix 1)
- 2. Revised Bushfire Attack Level Assessment Contour Map (refer Appendix 3)
- 3. Indicative Workshop Concept Plan (refer Appendix 4)

#### **RESPONSE TO DESIGN REVIEW COMMENTARY**

It is noted that the revised development design was reviewed by the City's Design Review Panel Chair on 18 December 2024, and that overall, the proposed design is generally supported by the City's DRP subject to recommended conditions regarding submission of detail relating to the following:

- Final dwelling design
- Schedule of materials and colours
- Landscaping

The above matters are considered minor in nature and can be addressed by way of a suitably worded condition of approval.

#### **RESPONSE TO REFERRAL COMMENTS**

We understand the City has received formal responses from the following external stakeholder agencies:

- Department of Biodiversity Conservation and Attractions (DBCA)
- Department of Water and Environmental Regulation (DWER)
- Main Roads WA

Based on the referral commentary provided by each organisation, MRWA supports the proposed development application, whilst and DBCA and DWER do not support the development application.

As set out in the RFI correspondence dated 20 December 2024, the City is acceptable to supporting the proposed access road through the Ki-it Monger Brook subject to provision of additional information. Information required by the City in relation to the access road is addressed in **Table 1** below.

#### Table 1 - Response to RFI - Ki-It Monger Brook Crossing

Table 1 - Response to RT - RHC Monger brook crossing	
City Comment	Applicant Response
Details of the proposed crossing over the Ki-It Monger Brook as well as the location, number and details of any trees which are proposed to be removed (if any) within the conservation reserve to construct the access road are required. In the event a significant number of trees are being removed, changes to the access road may be required.	The project engineer (Cossill & Webley) has prepared a preliminary Ki-It Brook Crossing Plan demonstrating culvert crossing design and proposed water management strategy (refer <b>Appendix 1</b> ). In relation to tree removal, the consultant team has advised that at this stage in the design process, one tree may be removed to facilitate access, based on the current design.
Although the DBCA considers that the conservation reserve and identified POS area should be ceded and vested with the City of Swan, the City are happy to support these areas remaining in private ownership, subject to a condition of approval requiring these sections of the lot to be managed in accordance with the approved Foreshore Wetlands Management Plan and the landowner entering into a maintenance agreement with the City.	Noted. This matter can be addressed via a suitably worded condition of development approval.
To address the DBCA's concerns regarding water management, conditions requiring the submission of a detailed Urban Water Management Plan & Stormwater Management plan/calculations will be recommended.	Noted. This matter can be addressed via a suitably worded condition of development approval.
Despite the DBCAs recommendation to include a condition requiring the preparation of a foreshore wetland management plan, the City has previously approved a foreshore management plan in 2021 which has been used to clear numerous stages of subdivision within the Kingsford estate. Taking this into consideration, the City are satisfied with the current approved Foreshore Wetland Management Pan and contend an updated document is not required. As mentioned above, a condition will be recommended requiring the conservation reserve be managed in accordance with the approved FWMP.	Noted.
The City's Engineering Department support the Sediment & Drainage control plan submitted in support of the proposal and are satisfied the management strategies outlined in this document will mitigate the disturbance risks (i.e., primarily erosion & sedimentation) to the Ki-it Monger Brook watercourse. Despite DBCA's advice, the City will not be recommending a condition requiring the submission of a Sediment and Erosion Control Plan.	City's support for the Erosion, Sediment and Drainage Control Plan noted.
DBCA have recommended a condition requiring fencing be provided along the boundary of the foreshore reserve to prevent access into the area. Given this has been done for previous subdivisions within the Kingsford Estate, the City will be recommending this as a condition. Noting construction of fencing around that portion of the foreshore reserve abutting the site to the North will be undertaken by Amex.	Noted. This matter can be addressed via a suitably worded condition of development approval.

#### **RESPONSE TO OTHER MATTERS**

The City's RFI correspondence seeks further information in relation to several final matters, specifically bushfire assessment, design and function of the workshop, and updated consultant reporting. Additional information on each of these matters is provided below.

#### Bushfire

In response to the amended site layout, the BAL Contour Map (**BAL Map**) has been updated by Allerding & Associates (refer **Appendix 2**).

The revised BAL Map identifies two elements of the proposed development that encroach into areas designated BAL-40 and/or BAL-Flame Zone along the western boundary of the subject site. The specific elements of the proposed development include a minor portion of the administration building and portion of the western-most residential lot in the south-western corner of the subject site.

Both elements are minor in nature and are capable of modification through the detailed design process to ensure any future development is sited within areas identified BAL-29 or lower.

It is considered that this matter can be addressed via a suitably worded condition of approval requiring update to the development design prior to issue of a Building Permit.

The Bushfire Management Plan issued with the original development application will be updated postdevelopment approval to ensure consistency with the revised site layout. This can be addressed via a suitably worded condition of approval.

#### Workshop

The proposed development includes a small workshop building in the northeastern corner of the subject site. This building is an amenity/hobby space for future residents that provides a small workshop space, store, toilet and kitchenette. The workshop building is proposed to be constructed with timber framing, fibre cement weatherboard cladding and colorbond roof.

The proposed building is considered ancillary to the main development and land use.

An indicative concept floor and elevation plan has been prepared to show the proposed building form, layout and purpose (refer **Appendix 3**). Final building design detail will be included within the Building Permit and material issued to the City to address conditions of development approval.

#### **Consultant Reports**

The Development Application is supported by a range of consultant technical reports. Where required, these reports will be updated and issued to the City post-development approval to reflect final design and technical detail.

The following technical reports are intended to be updated and issued to the City following resolution of detailed design:

- Landscape Plan
- Bushfire Management Plan
- Waste Management Plan
- Urban Water Management Plan
- Stormwater Management Plan

Provision of the final updated consultant reports is appropriately addressed by way of suitably worded conditions of approval.

#### CONCLUSION

We trust the information provided above, and enclosed, addresses the matters raised in the City's request for further information correspondence dated 20 December 2024, as well as those matters raised by the City's DRP Chair and external referrals agencies.

Accordingly, we respectfully request the City finalise their assessment of the proposed development and submit a recommendation of approval to the DAP.

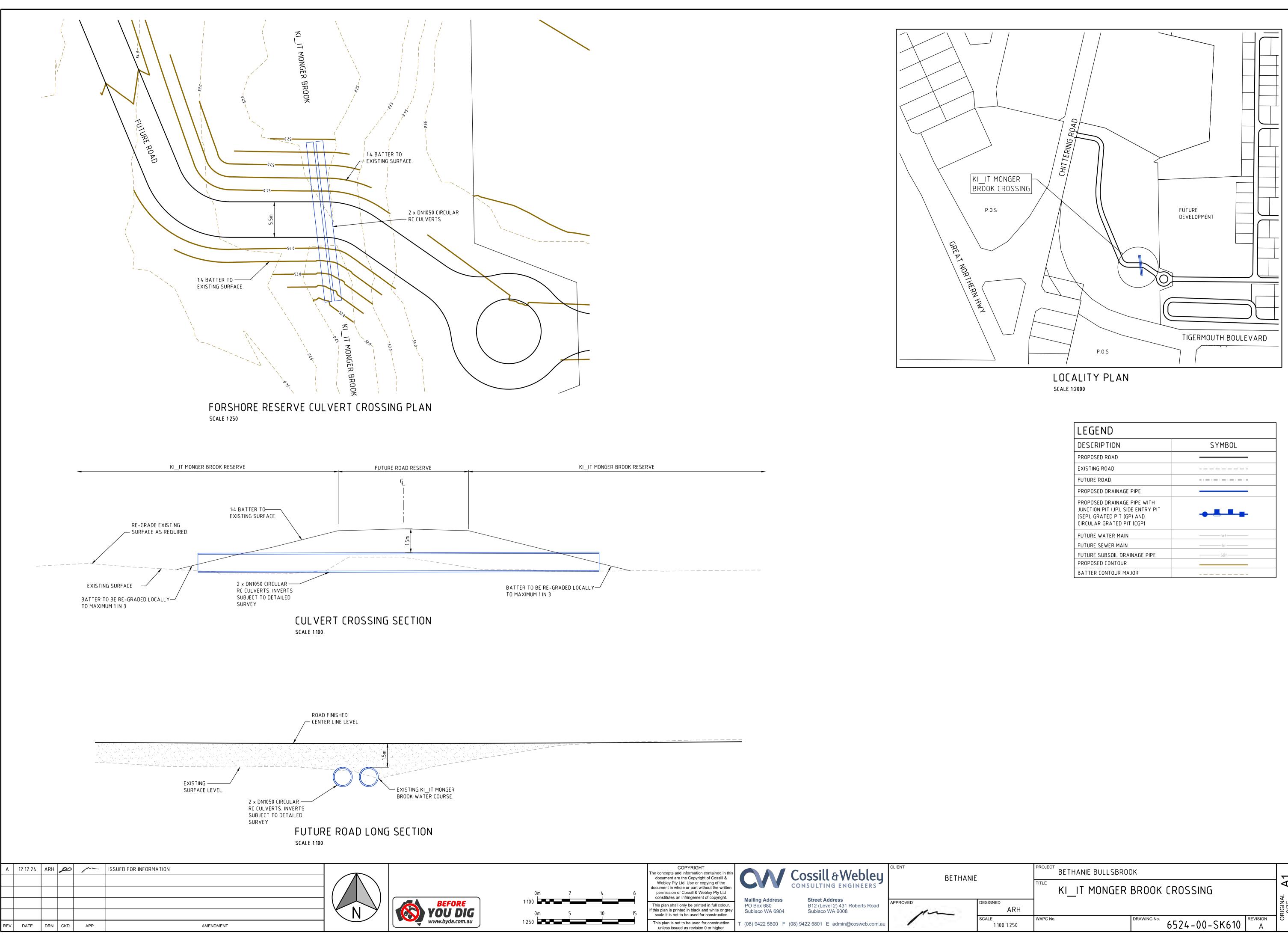
Should you have any queries or require further clarification in regard to the above matter please do not hesitate to contact the writer.

Yours faithfully,

M. HT. C.

MATTHEW CAIN ASSOCIATE

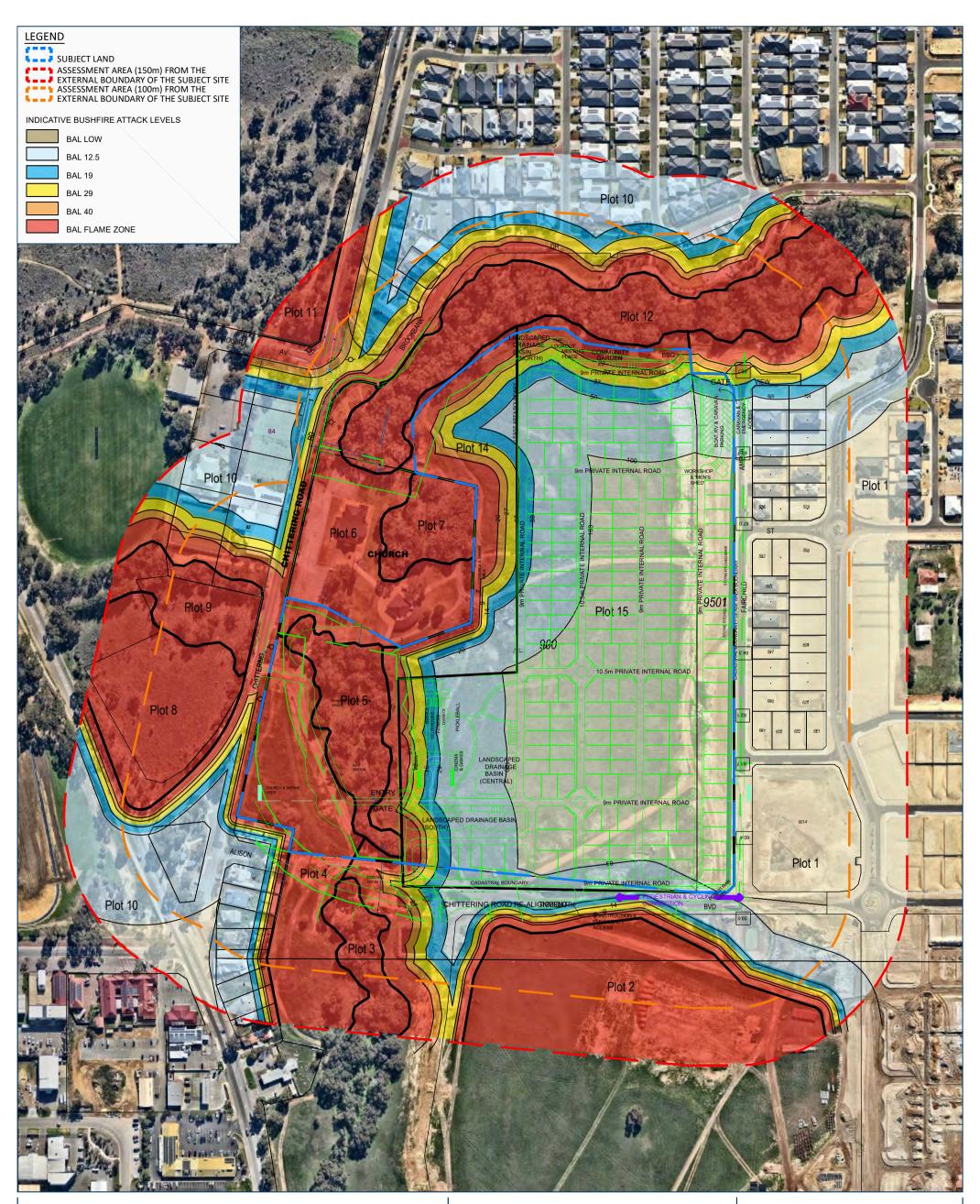
#### APPENDIX 1 KI-IT BROOK CROSSING DETAIL



LEGEND	
DESCRIPTION	SYMBOL
PROPOSED ROAD	
EXISTING ROAD	
FUTURE ROAD	= : = : = : = : = : = : =
PROPOSED DRAINAGE PIPE	
PROPOSED DRAINAGE PIPE WITH JUNCTION PIT (JP), SIDE ENTRY PIT (SEP), GRATED PIT (GP) AND CIRCULAR GRATED PIT (CGP)	<b>→ ┸ ┲</b> -
FUTURE WATER MAIN	W.F
FUTURE SEWER MAIN	Sf
FUTURE SUBSOIL DRAINAGE PIPE	
PROPOSED CONTOUR	
BATTER CONTOUR MAJOR	

BETHANIE BULLSBROOK			<u> </u>
KI_IT MONGER BROOK	CROSSING		A
ARH			RIGINA
WAPC No.         DRAWING No.           1:100 1:250         DRAWING No.	6524-00-SK610	REVISION A	ORI

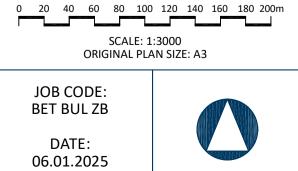
#### APPENDIX 2 REVISED BAL CONTOUR MAP



# **BAL CONTOUR MAP**

LOTS 900 & 9501 CHITTERING ROAD BULLSBROOK

**CITY OF SWAN** 

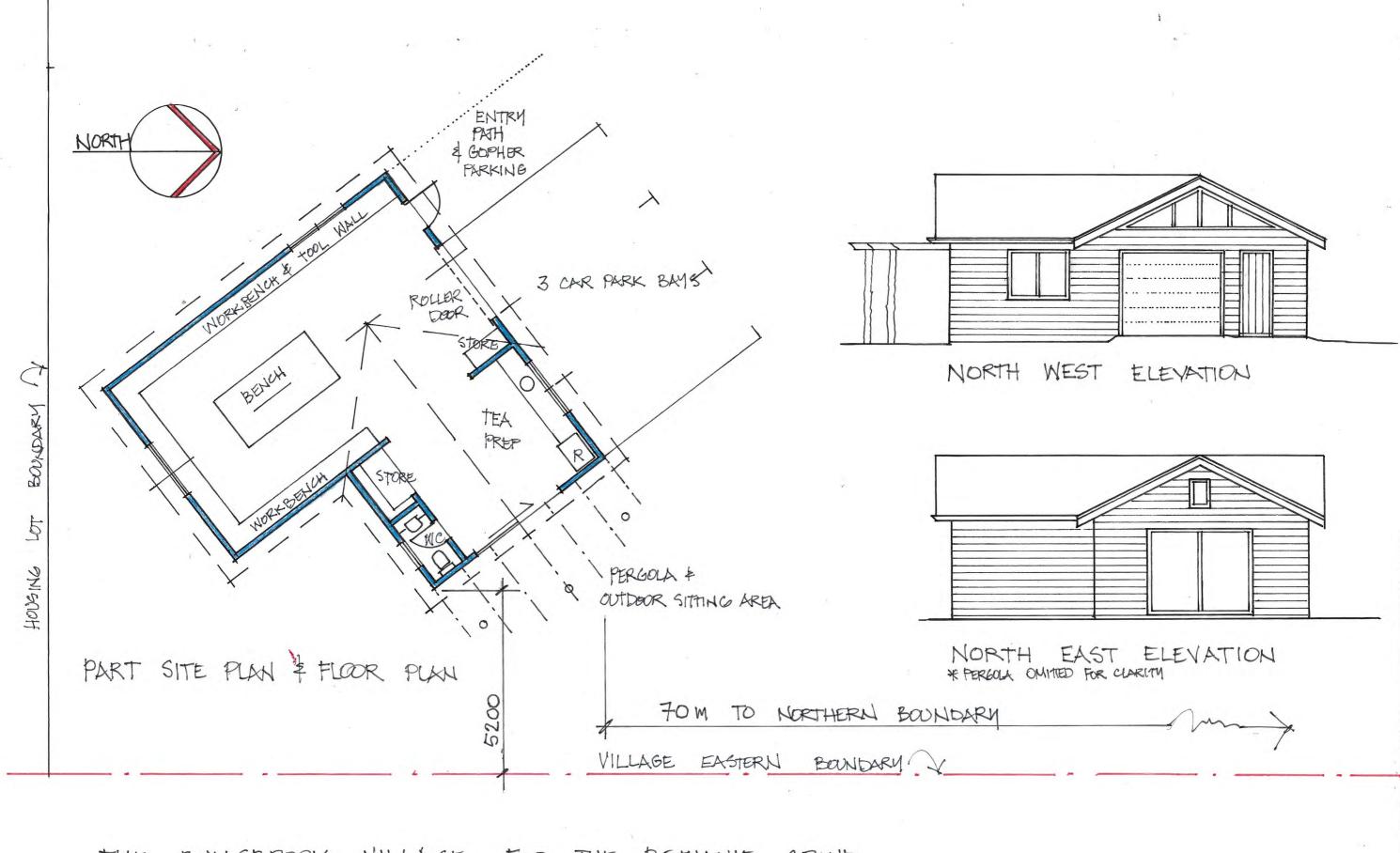




Town Planners, Advocates and Subdivision Designers

125 Hamersley Road, Subiaco WA 6008 T: (08) 9382 3000 IW: allerdingassoc.com

#### APPENDIX 3 WORKSHOP CONCEPT PLAN



THE BULLSBROOK VILLAGE FOR THE BETHANIE GROUP CHITTERING ROAD BULLSBROOK RESIDENTS' WORKSHOP 1:100 @ A3 JANUARY 2025

RICHARD UNMONIT ERCHITECT M 0438 918 753

•

PS ref: 8799 LG ref: DA-692/2024

16 December 2024

City of Swan 2 Midland Square MIDLAND WA 6056

Attention: David Tomkin, Senior Planning Officer

Dear David,

#### APPLICATION FOR DEVELOPMENT APPROVAL RESPONSE TO REQUEST FOR FURTHER INFORMATION PROPOSED PARK HOME PARK (LIFESTYLE VILLAGE)

We refer to the City of Swan (**City**) request for further information correspondence (**RFI**) dated 21 November and 3 December 2024 related to the proposed Park Home Park (Lifestyle Village) development at Lot 900 Chittering Road, Lot 9501 Fairchild Street, Lot 9013 Tigermoth Boulevard, Bullsbrook (**subject site**).

We are pleased to provide the following information in response to the City's RFI. This submission includes responses to the City's planning and technical comments, as well as a response to Design Review 2 commentary and public consultation submissions.

We are pleased to provide the following information in support of the proposed development application:

- 1. Amended Development Plans (refer Appendix 1)
- 2. Response to public submission (refer Appendix 2)

#### **RESPONSE TO PUBLIC SUBMISSIONS**

We understand that during the public consultation period the City received a total of 48 submissions on the proposed development.

A response to the key themes raised during the submission period is provided in Appendix 2.

#### **REFERRAL COMMENTS**

We understand the City is awaiting formal responses from the following external stakeholder agencies:

- Department of Biodiversity Conservation and Attractions.
- Department of Water and Environmental Regulation.
- Main Roads WA.

Referral responses are due on, or before, 16 December 2024. Upon receipt, the City will issue referral comments to the Applicant for review and response. This will be completed under separate cover.

#### **RESPONSE TO DESIGN REVIEW PANEL ADVICE**

The proposed development application was referred to the City's Design Review Panel (**DRP**) for a second design review on 12 November 2024.



Level 1, 251 St Georges Tce, Perth WA (08) 9227 7970 GPO Box 2709 Cloisters Square PO 6850



As set out in this submission, the Amended Development Plans have been modified to address comments raised through Design Review 2. Comments in response to DRP recommendations are provided below:

#### **Design Principle 1**

- It is considered sufficient character and contextual analysis has been provided throughout design review 1 and 2, noting the area is being developed with a largely residential suburban character with 'project homes'. A condition of approval requiring an agreed set of village colours and materials will ensure the character of the village addresses its context.
- Additional cross sections have been provided in the updated plans appended to this submission. These include sections through the revised eastern boundary treatment and internal street cross sections.

#### **Design Principle 2**

- Tree types will be selected based on the final arrangement of housing and can be included as a condition of development approval. Concerns regarding spacing for street trees have been partially addressed by increase the width of internal roads to 9.0m and 10.5m respectively which provides a greater opportunity for private street planting.
- Additional cross sections have been provided, noting the increased private street widths allow for greater opportunities for footpaths. Details will be provided at building permit / civil works drawing stage.

#### **Design Principle 3**

- The eastern (not southern) internal roadway has been deleted and replaced with landscaping. This has also allowed the street widths of north-south roads to be increased to improve opportunities for trees and pedestrian paths, whilst also improving access for rubbish trucks.
- Opportunities to group storerooms will be considered at dwelling installation stage.

#### **Design Principle 4**

• Opportunities to reposition windows will be considered at dwelling installation stage.

#### **Design Principle 5**

• No additional sustainability measures are proposed beyond those previously committed to.

#### **Design Principle 6**

• Principle supported by DRP. No further design amendments incorporated into the development design.

#### **Design Principle 7**

• Principle supported, no further DRP recommendations.

#### **Design Principle 8**

- Principle supported by DRP.
- Increased private street widths will improve swept path movement for trucks.

#### **Design Principle 9**

- The development will be subject to consideration with the City's Public Art Policy (POL-LP-1.10).
- This matter will be resolved through condition of approval and addressed in detailed design.

#### **Design Principle 10**

- Roof form to house type B has been amended from the lodged plans, however the DRP have suggested the small skillion over the entry portico be further amended. No change is proposed.
- Colours and materials can be addressed a s a condition of approval.

#### **RESPONSE TO REQUEST FOR CITY'S TECHNICAL ASSESSMENT**

A response to matters raised by the City in the RFI correspondence received 21 November 2024 is provided below. This information should be read in conjunction with the updated Development Plans (**Appendix 1**).

#### Land use

#### City's comment

• Given a 'Park Home Park' is a use not listed in the zoning table of the City's Local Planning Scheme nor is it included in the approved Bullsbrook Central Structure Plan (SWAN-SP/2017/5/B) as an addition use, please provide justification evaluating why the land use does not prejudice the objectives of the Bullsbrook Central Structure Plan or adversely impact the intended amenity of the Kingsford Estate. Furthermore, in addition to the advice provided by Lavan, please justify why the use does not warrant an amendment to the approved Structure Plan.

#### Applicant Response

The proposed land use of a 'Park Home Park' does not prejudice the objectives of the Structure Plan or impact the amenity of the locality for the following reasons:

- A Park Home is, for all intents and purposes, a type of residential development. The Park Homes are designed to have the appearance of dwellings and are provided with all the same amenities included within a typical suburban area including access to on-site rubbish collection, internal streets, communal areas for recreation and a clubhouse for resident use.
- Because of the nature of the development, it meets to objectives of the Residential zone and associated residential density assigned by the Structure Plan.
- The development will not negatively impact the implementation of the Structure Plan area which identified the subject site as a singular development site (no internal roads were proposed within the site). Designated 'recreation' areas on the Structure Plan will be retained for use by residents.
- Potential amenity concerns relating to waste collection, traffic, boundary treatments and environmental matters (retention of Ki-It Monger Brook) have been addressed by the development application. This ensures existing and future residents of the wider estate won't be affected by the development.
- A 'Park Home Park' land use, in the form of a Lifestyle Village, is a separate use to a 'Caravan Park' and is entirely appropriate in a Residential area. This is because a 'Park Home Park' is only permitted to have Park Homes and cannot accommodate caravans and tents. This ensures the development is compatible with the surrounding residential character.

#### **Waste Management**

The following further detail regarding waste collection and internal vehicle movements is provided:

- We understand the City's Waste Services are agreeable to collection of waste on-site from each house, subject to the proponent entering into a deed of indemnification against damage caused to private property from trucks accessing the site. The proponent is generally acceptable to this arrangement, and requests this matter be resolved through an appropriately worded condition of development approval.
- Revised swept path detail for proposed roundabout treatments has been included in the amended Development Plans (refer **Appendix 1**).
- If required, the Waste Management Plan can be updated through a condition of approval, to address:
  - Bin pad locations or typical bin collection location for each house.
  - $\circ$  ~ The City's waste collection process and vehicle movements on site.

#### Public open Space

#### City's comment

In accordance with the Bullsbrook Central Structure Plan Public Open Space (POS) Schedule, approximately
1.16 ha of the site, surrounding the Ki-It Monger Brook core creek area is identified as public open space.
Given this land is to remain in private ownership, please provide written justification as to why the proposal
will not adversely impact the availability of POS.

#### Applicant Response

In accordance with the Bullsbrook Central Structure Plan (**Structure Plan**), Table 2: Public Open Space Schedule (**POS Schedule**) sets out identified public open space provision (**POS**) for the Structure Plan area. The land on the subject site is identified as recreation reference number 18 (**figure 01**). The POS Schedule illustrates how the Structure Plan achieves compliance with the minimum 10% creditable POS requirement, consistent with the requirements of Liveable Neighbourhoods.

The Gross Subdivisible Area of the Structure Plan equates to 190.4ha. To achieve the requirements of Liveable Neighbourhoods, the minimum 10% contribution requires the Structure Plan to achieve a minimum of 19.04ha of POS. The POS Schedule identifies a POS surplus of 1.59% or 2.66ha.

Recreation area 18 contributes 1.16ha of POS to the structure plan area. Whilst this area will be excluded from being part of the public network of open space, it will be retained as a natural area and remain undeveloped (except for the access road) and will be available to the residents of the lifestyle village for recreation, primarily providing visual amenity to residents. This will be supplemented by additional communal recreation areas included in the overall development.

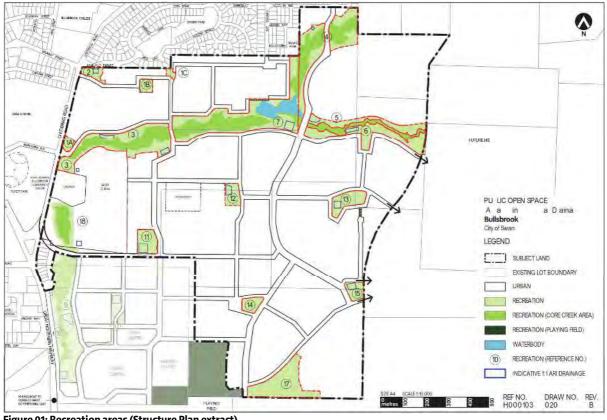


Figure 01: Recreation areas (Structure Plan extract)



Table 1 below provides an update to the Public Open Space schedule in the structure plan, confirming the overall amount of POS in the Structure Plan area remains compliant.

Gross Site Area			207.32 ha
DEDUCTIONS			1
Church	2.06 ha		
Recreation Area	13.20 ha		
1:1 Year Drainage	1.66 ha	16.92 ha	
Gross Subdivisible area			190.04 ha
Public Open Space @ 10%			19.04 ha
PUBLIC OPEN SPACE CONTRIBUTION			
May Comprise			
Minimum 80% unrestricted public open space		15.23 ha	
Maximum 20% restricted public open space		3.81 ha	19.04ha
UNRESTRICTED PUBLIC OPEN SPACE			
Local and Neighbourhood Parks (area minus 1:1 year o	drainage area)		
1A		0.30 ha	
1B		0.35 ha	
1C		0.16 ha	
1 (Total 1A + 1B + 1C)	Total		0.81 ha
2			0.47 ha
3			2.87 ha
4			1.45 ha
5			1.40 ha
6			2.12 ha
7			3.61 ha
8			0 ha
9			PP
10			PP
11			0.98 ha
12			0.67 ha
13			1.67 ha
14			0.72 ha
15			0.49 ha
16			PP
17			2.94 ha
18			<del>1.16 ha</del>
Total			20.02 ha
UNRESTRICTED PUBLIC OPEN SPACE			
Drainage filtration are between 1:1 and 1:5 year	0.70 ha		
TOTAL			20.09 ha
Public Open Space Provision			10.06%

As evidenced in **Table 1**, maintaining the site in private ownership does not diminish the overall provision of POS for the Structure Plan area, with the precinct still exceeding the 10% minimum requirement of Liveable Neighbourhoods.

#### Stormwater

A preliminary Urban Water Management Plan (**UWMP**) has been prepared by Pentium Water and was issued with the development application to outline the proposed stormwater drainage strategy and preliminary design detail (refer **Appendix 9** of original Development Application).

The preliminary UWMP provides preliminary detail regarding design requirements, drainage strategy and proposed drainage design.

<sup>241216 8799</sup>\_RFI 01 + 02\_Response Letter



The final UWMP will be addressed via an appropriate condition of development approval, and will include further detail detailed design and drainage calculations required by the City.

#### Access

#### City's comment

- It is noted the application is proposing its main vehicle access from chittering road across the Ki-it Monger Brook. The City's Engineering department have requested further information with relation to the proposed access road including details of the crossing over the Ki-It Monger Brook as well as the finishes and standard of the driveway itself. This will require amended plans and additional information.
- If vegetation is required to be removed to facilitate the construction of the access road through the Ki-It foreshore area, please provide details of the number and location of trees which are proposed to be removed.

#### Applicant Response

The project engineer is finalising a response. This will be provided under a separate cover.

#### **Groundwater Allocation**

#### City's comment

• Engineering have raised concerns around groundwater allocation to the site. It has been noted the groundwater license quoted belongs to the Kingsford Estate developer. Given the site is within a bushfire prone area, it is important the development has access to groundwater to ensure the proposed landscaping can be maintained in perpetuity to an exclusion standard. Please provide further information/clarification addressing this matter.

#### Applicant Response

The project engineer is finalising a response and understands the existing groundwater licence GWL177269 does not belong to the Kingsford Estate developer. The licence holder is the City of Swan. A response will be provided under a separate cover.

#### CONCLUSION

We trust the information provided above, and enclosed, addresses the matters raised in the City's request for further information correspondence, as well as those matters raised by the City's DRP and through public submissions.

The amendments to the development and further information are considered to provide a refined design outcome for the development.

Accordingly, we respectfully request the City finalise their assessment of the proposed development and submit a recommendation of approval to the DAP.

Should you have any queries or require further clarification in regard to the above matter please do not hesitate to contact the writer.

Yours faithfully,

TAYNE EVERSHED DIRECTOR

#### APPENDIX 1 AMENDED DEVELOPMENT PLANS

<sup>241216 8799</sup>\_RFI 01 + 02\_Response Letter

# BULLSBROOK LIFESTYLE VILLAGE





Document Set ID: 8403194 Version: 1, Version Date: 17/12/2024

Village Streetscape - Artists Impression





CHARD ART

RICHARD HAMMOND ARCHITECT 18 LITTLE HOWARD STREET, FREMANTLE 0438 918 753 | RICHARD@HRARCHITECTS.COM.AU

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### LEGEND LANDSCAPING 'RECREATION' ZONED AREA CORE CREEK AREA AREA SUBJECT TO FORESHORE & WETLAND MANAGEMENT PLAN VILLAGE AMENITIES LANDSCAPED DRAINAGE BASINS FENCE/GATE ROADWAY CADASTRAL BOUNDARY LEASE AREA BOUNDARY STONE PITCHED BANK TOTAL HOUSE SITES - 227 TOTAL LEASE SITE AREA - 106,988m<sup>2</sup> (NOT INCL. SHARED REC. AREA) TOTAL RECREATION AREA - 35,286m<sup>2</sup> (INCL SHARED REC. AREA) DESCRIPTION DATE 16.08.2024 REVISED MASTERPLAN ENTRY MOVED, LOT NUMB. 19.08.2024 HOUSE-LOT ALLOCATION 02.09.2024 REVISED MASTERPLAN 09.10.2024 ROAD & LOT LAYOUT REVISED 05.12.2024 Masterplan BETHANIE - BULLSBROOK VILLAGE CHITTERING ROAD, BULLSBROOK, WA, 6084 -05.12.2024 DRAWING NO. RHA RHA A.001 1:1500

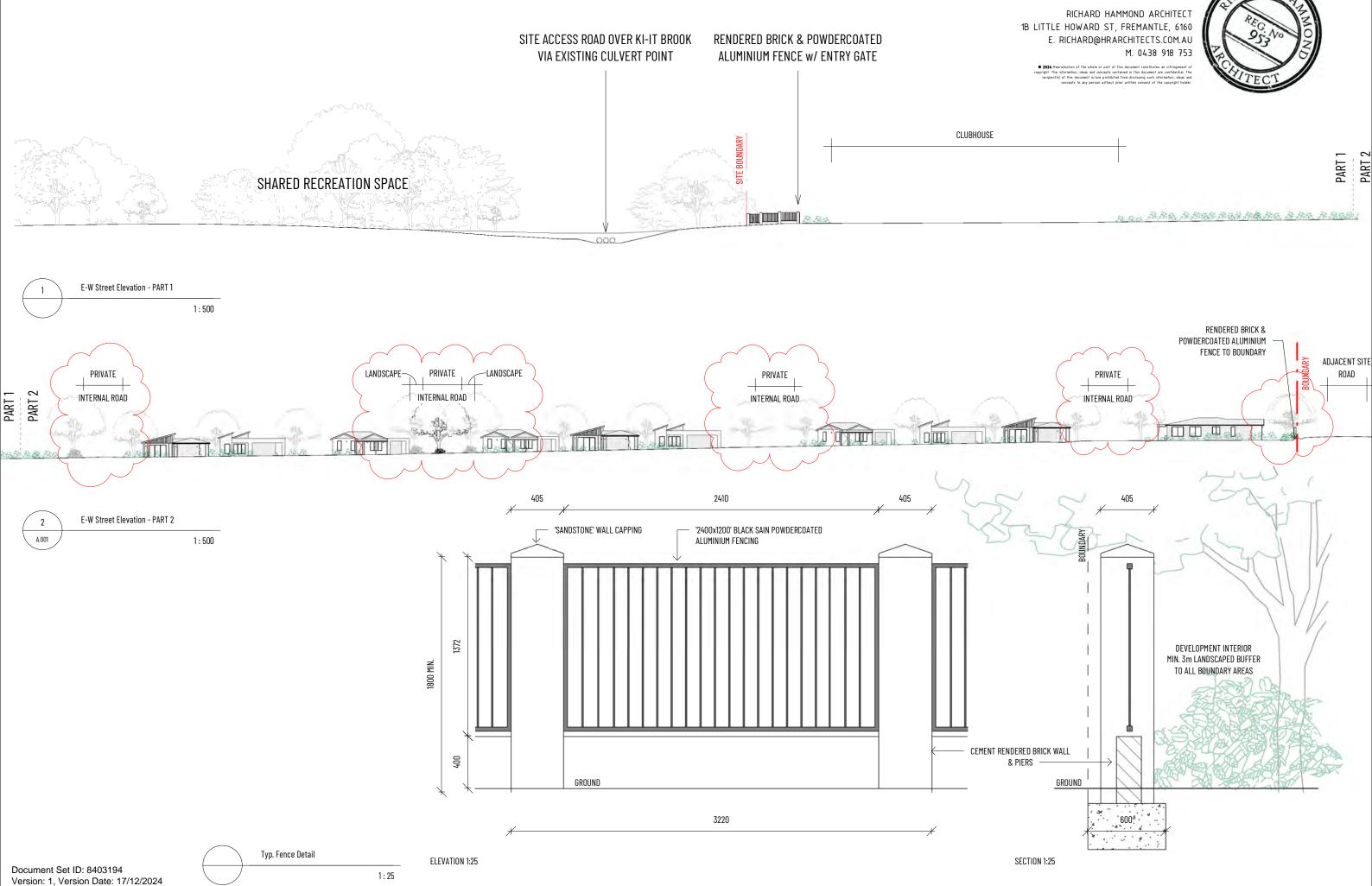
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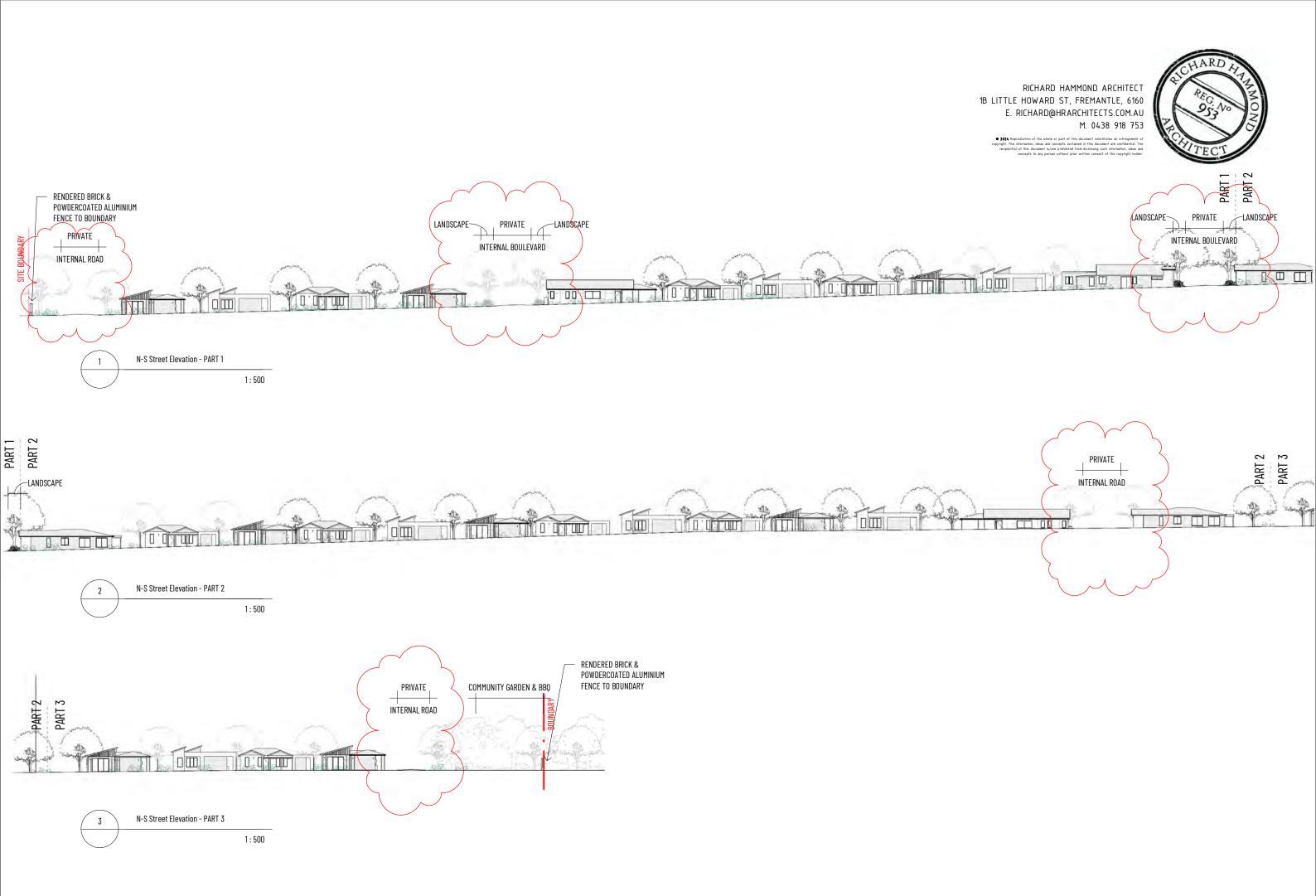


#### RICHARD HAMMOND ARCHITECT 1B LITTLE HOWARD ST, FREMANTLE, 6160 E. RICHARD@HRARCHITECTS.COM.AU M. 0438 918 753

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CLUBHOUSE INTERNAL AREA: 890m<sup>2</sup>

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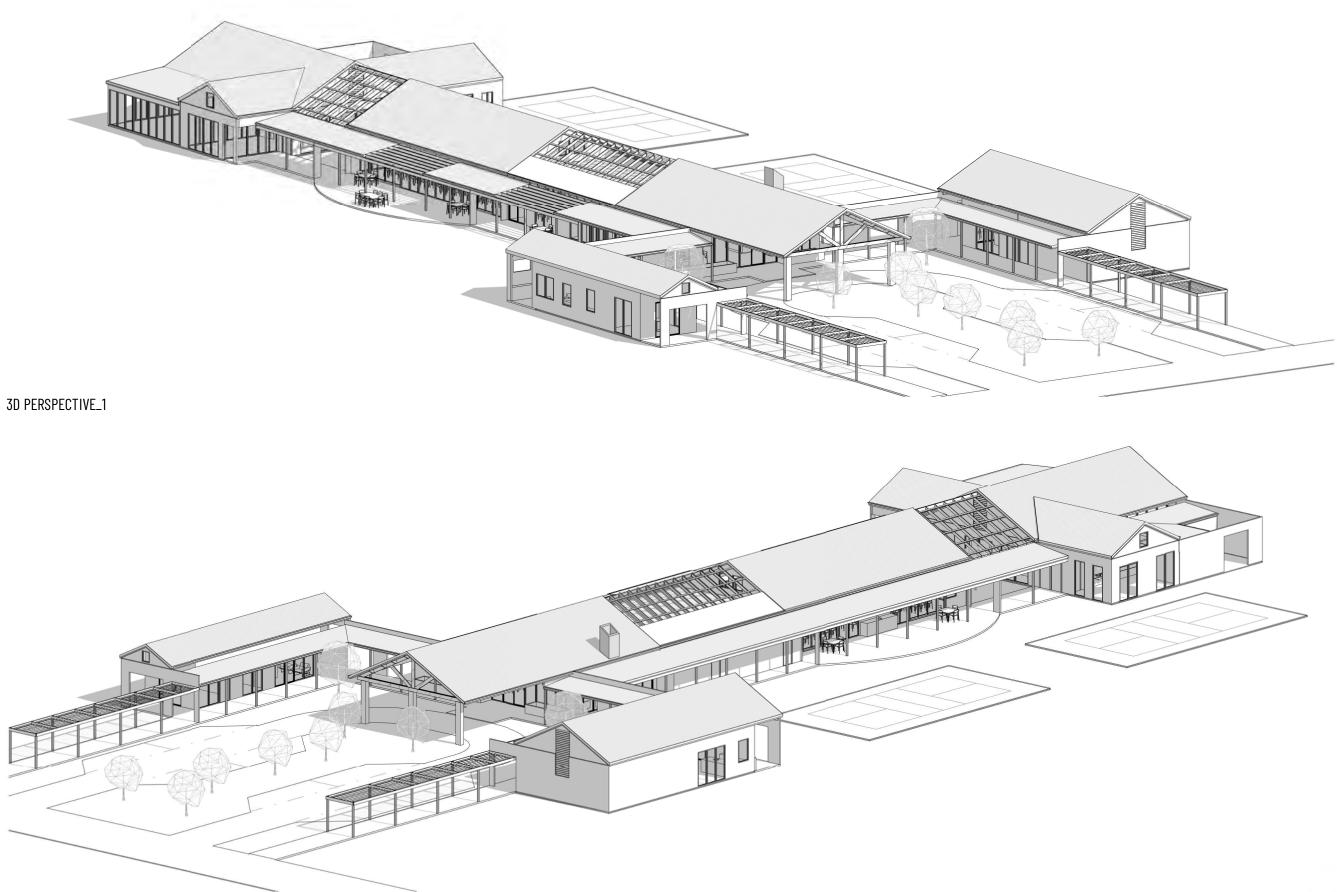
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3D PERSPECTIVE\_2

RICHARD HAMMOND ARCHITECT BETHANIE BULLSBROOK CLUBHOUSE CONCEPT DESIGN RevA SCALE | 1:250 @A3 22.08.2024





3D PERSPECTIVE\_ENTRY ROAD



3D PERSPECTIVE\_ENTRY LOUNGE

RICHARD HAMMOND ARCHITECT BETHANIE BULLSBROOK CLUBHOUSE CONCEPT DESIGN RevA 22.08.2024

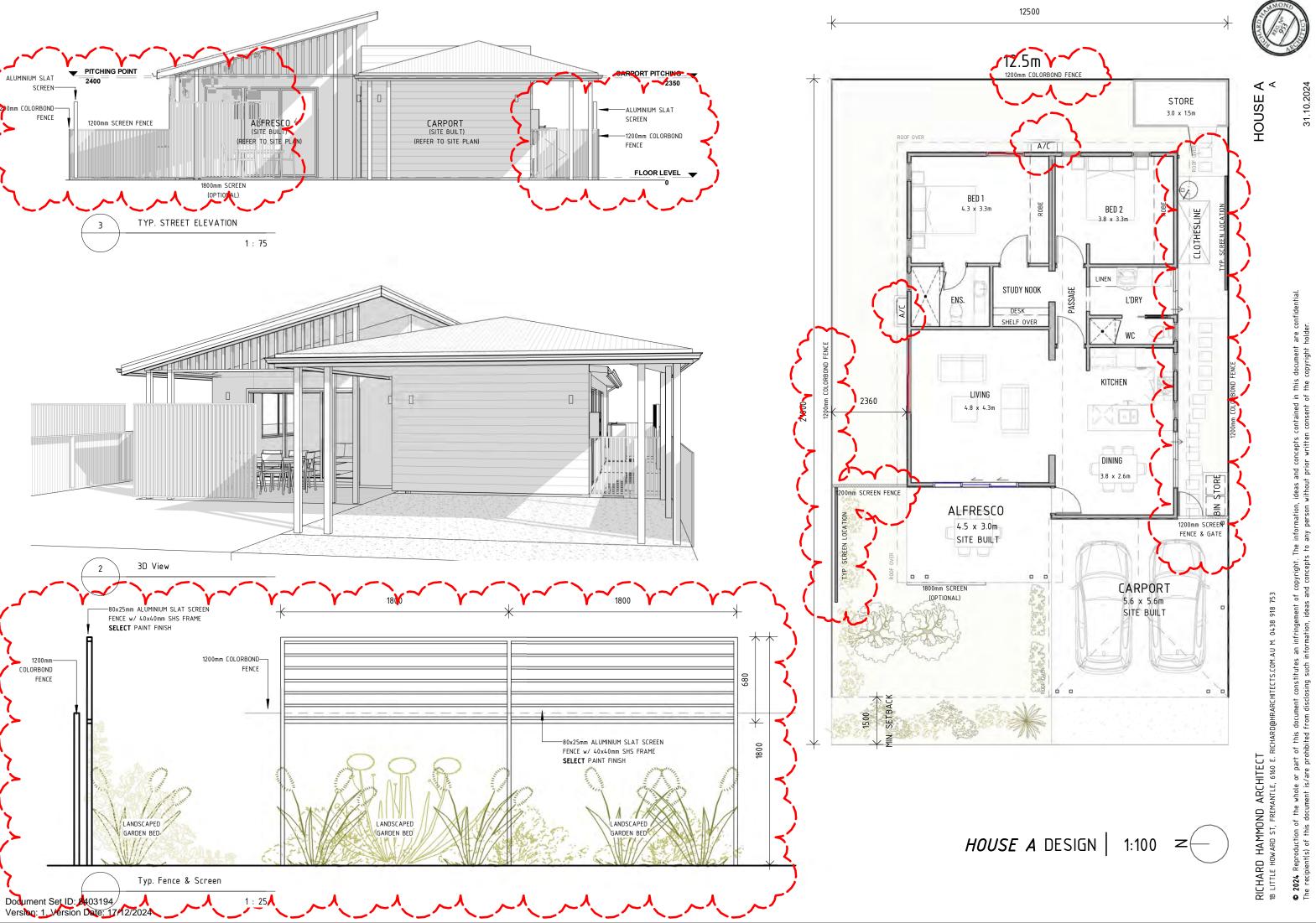




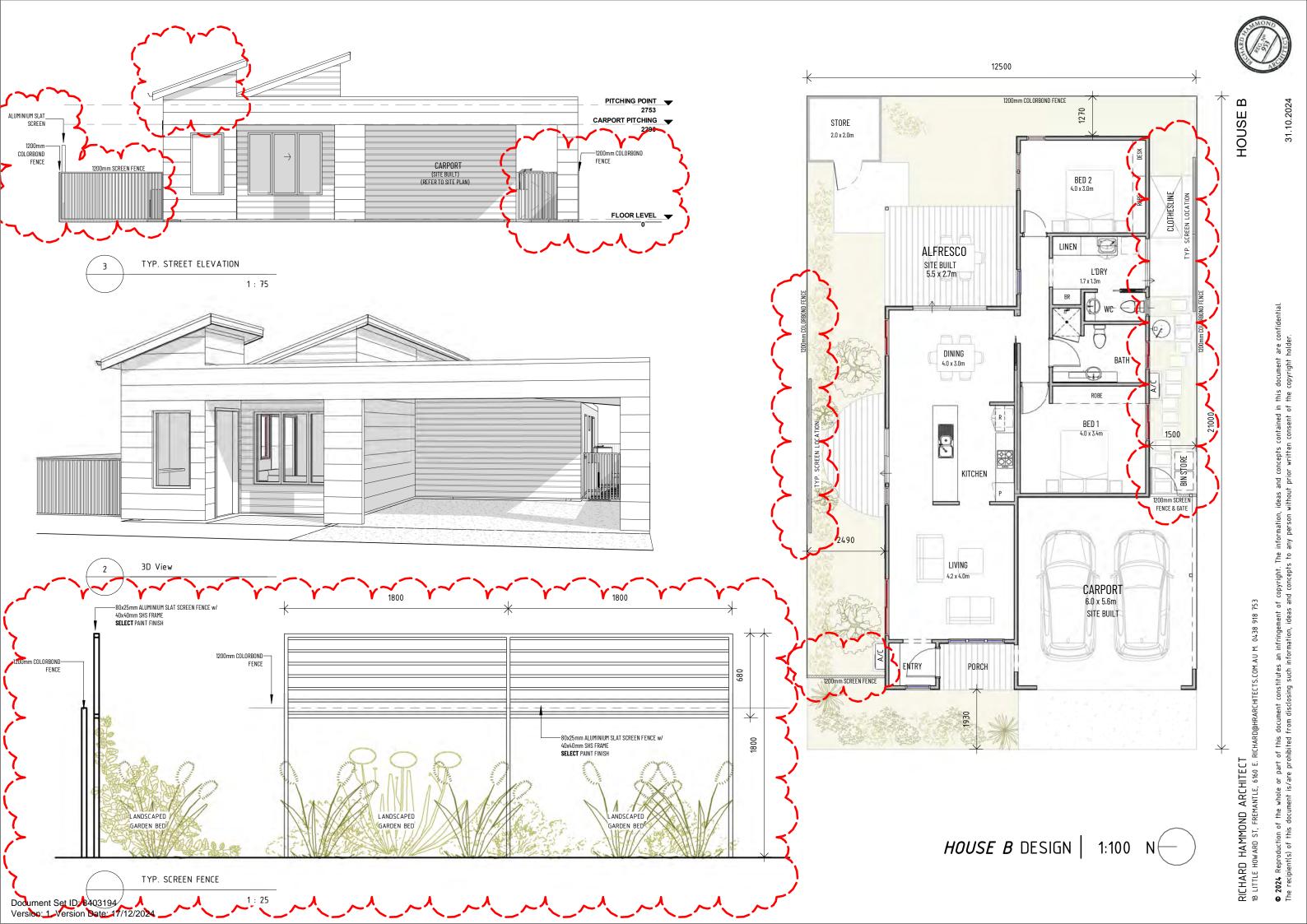
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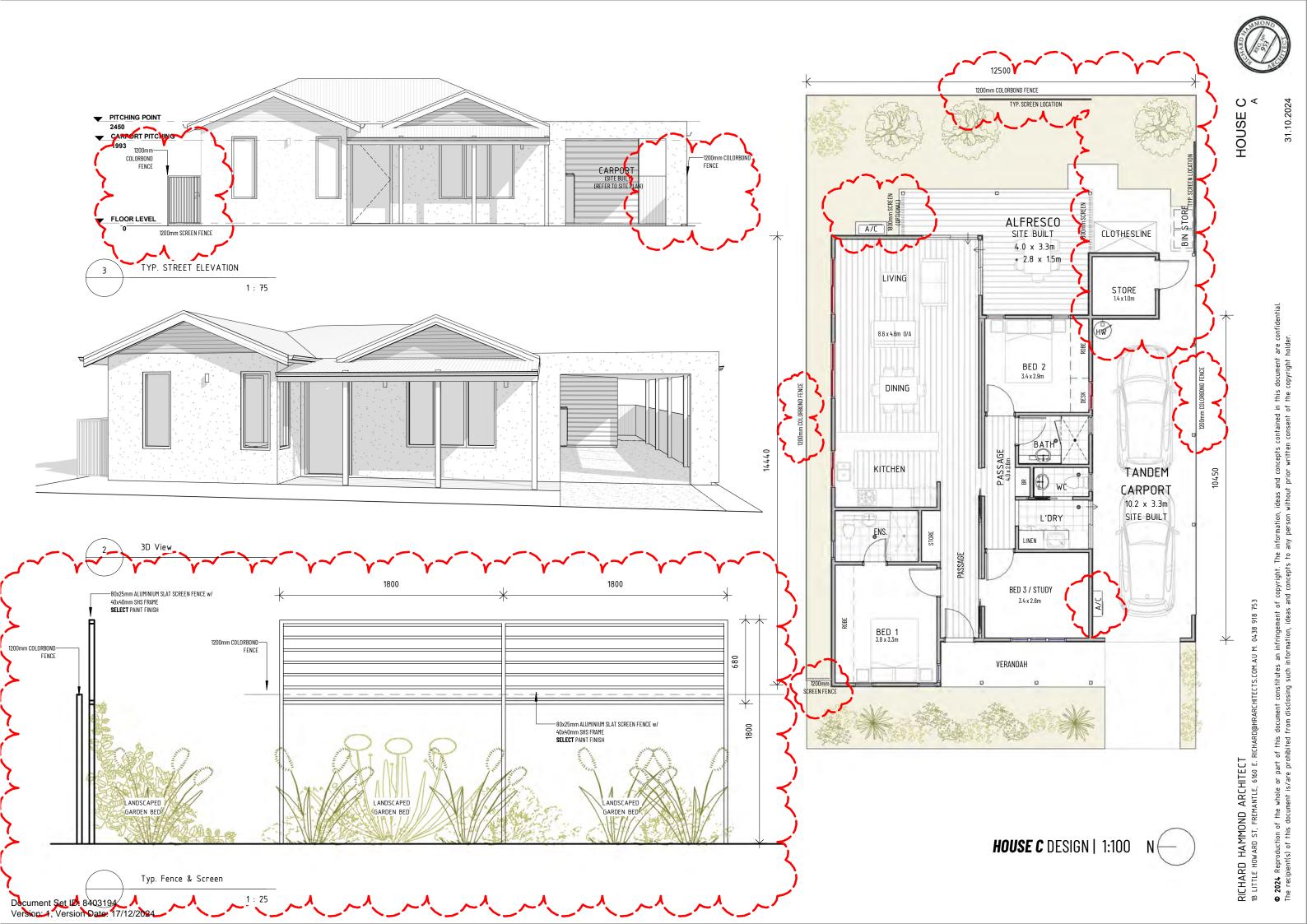
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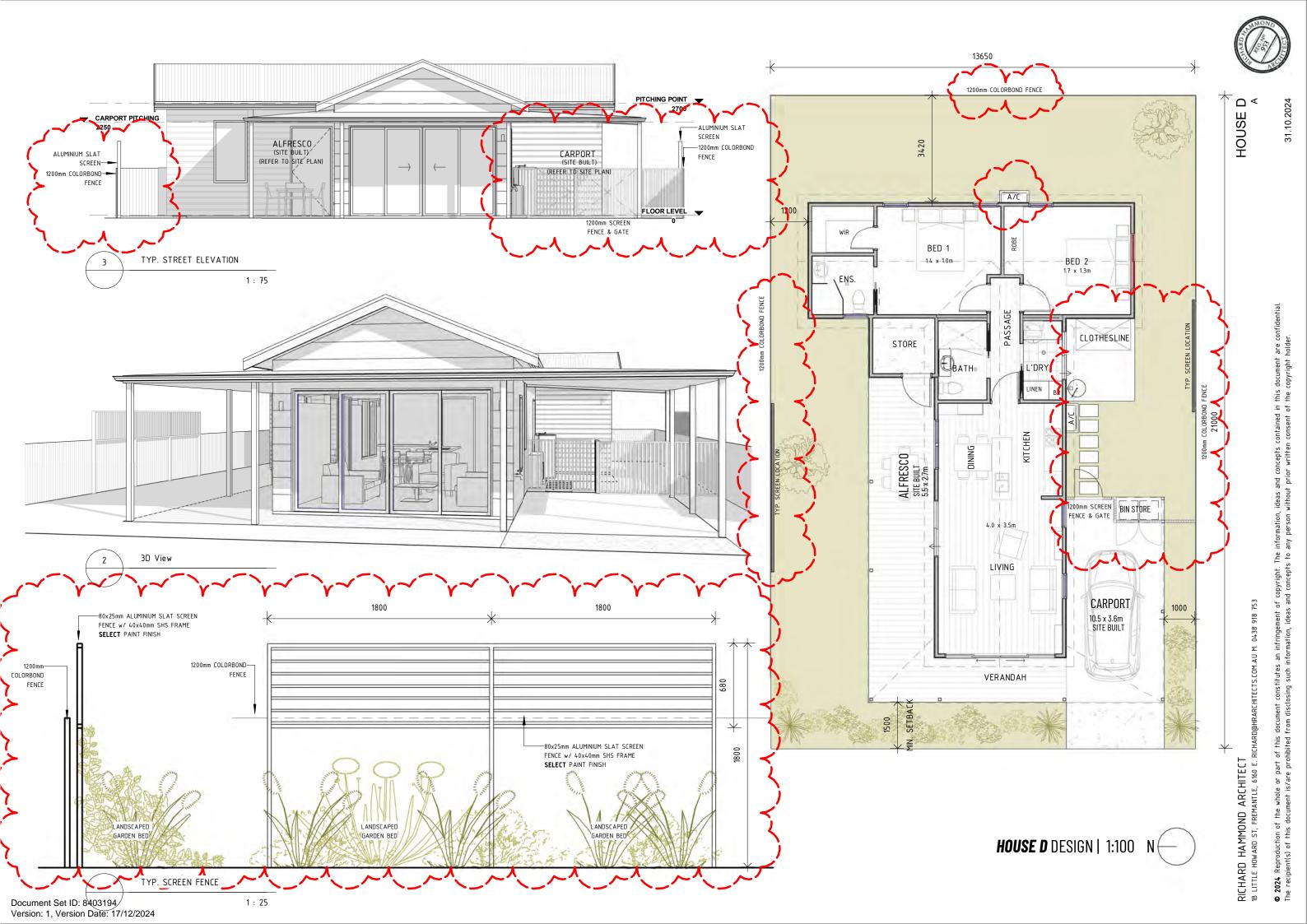


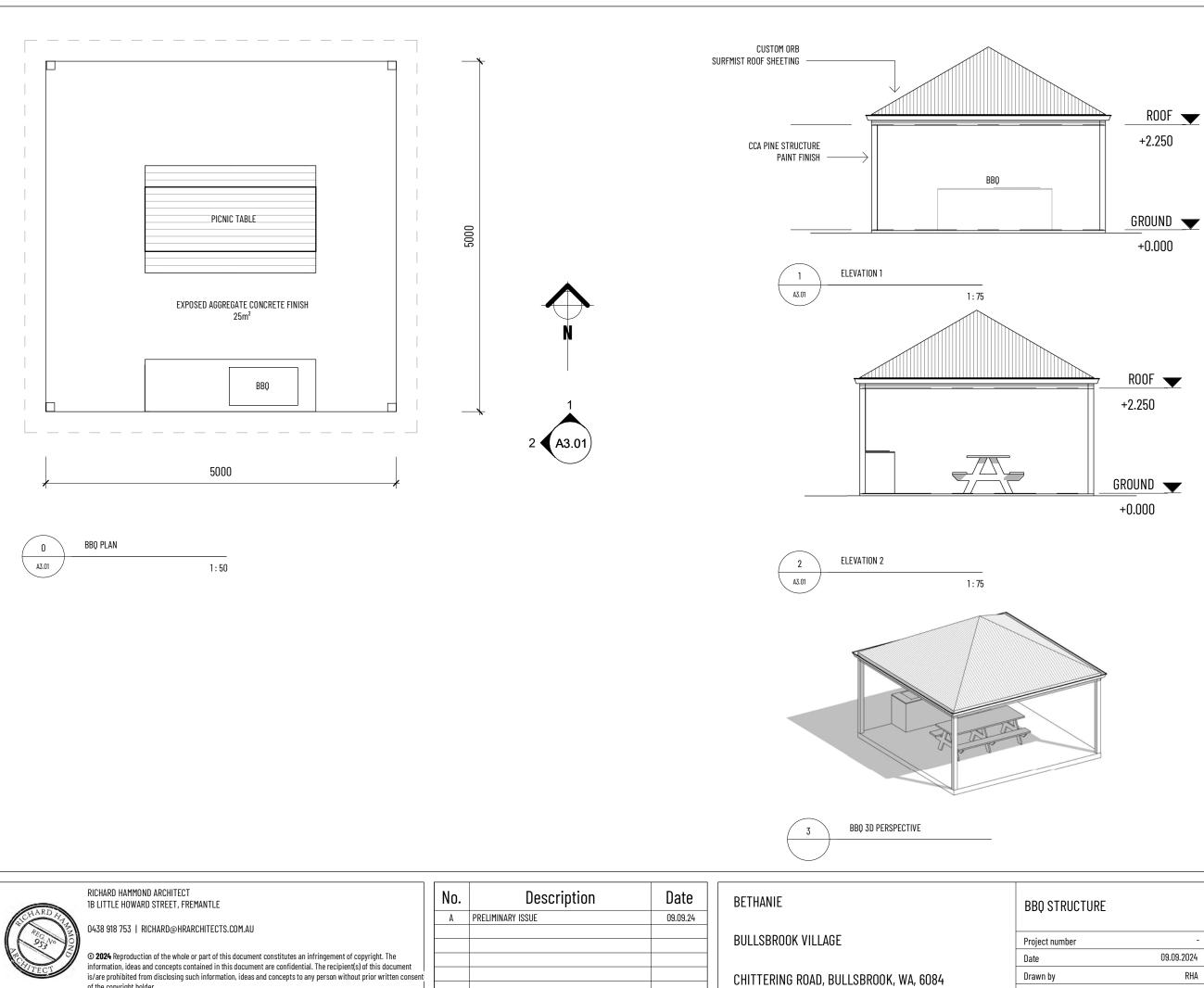


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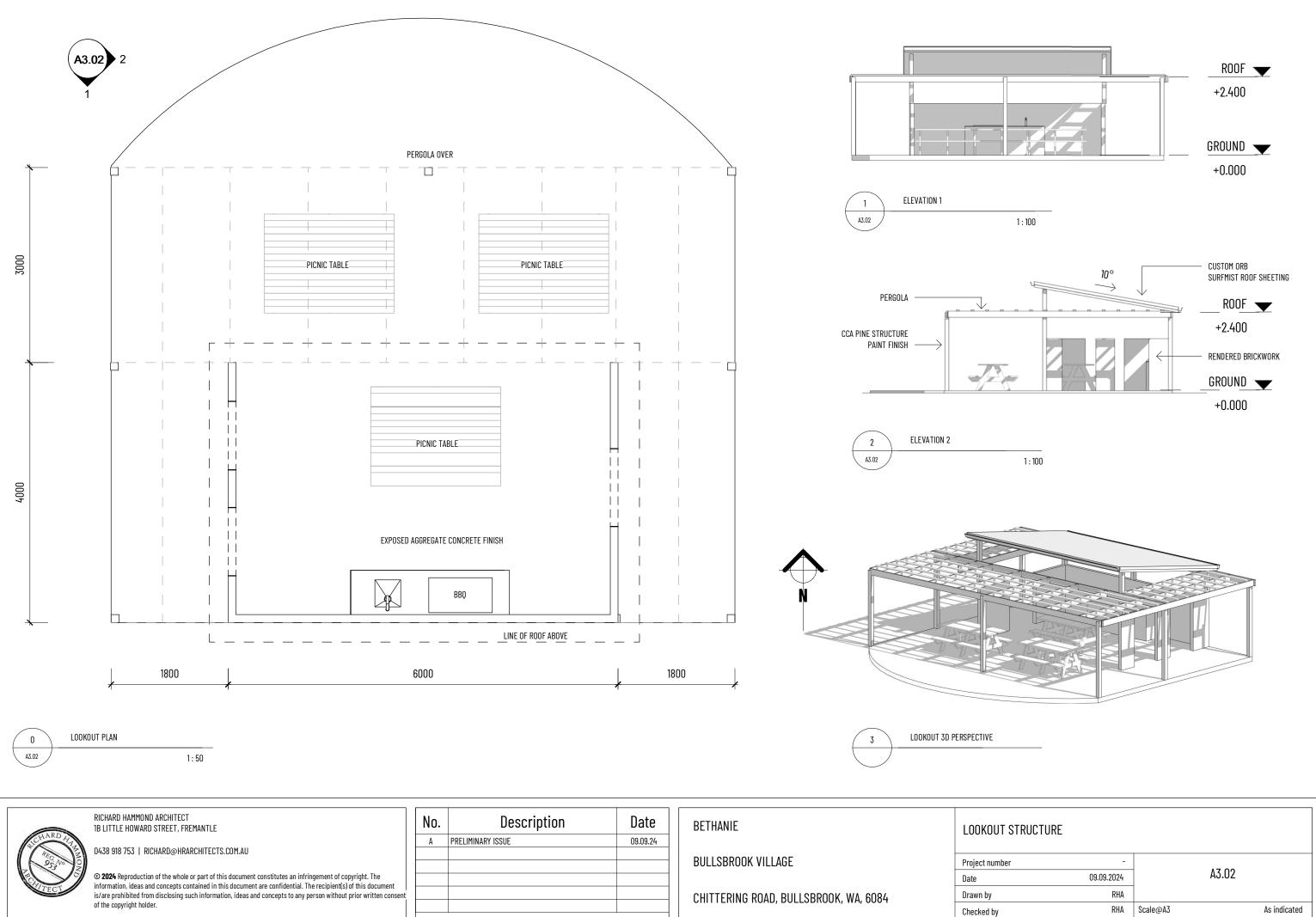
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	PRELIMINARY ISSUE	09.09.24	

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#### APPENDIX 2 RESPONSE TO SUBMISSIONS

<sup>241216 8799</sup>\_RFI 01 + 02\_Response Letter

#### DAP Application (DAP/24/02776) – Proposed Park Home Park

#### **Public Submission Responses**

Key Issue	Comment	Applicant Response
Non-compliance with the local	The use is not listed under the local planning scheme and therefore was never intended within the Bullsbrook area.	The land use of 'Park Home Park' is defined in Schedule 1 of LPS17 as having the same meaning as in the Caravan Parks and Camping Grounds Regulations 1997 (WA) (CPCG Regs).
planning scheme	Will set an undesirable precedent.	Park Home Park means a caravan park at which park homes, but not any other caravans or camps, are situated for habitation;
		A 'Park Home' is defined under the CPCG Act as: Park Home: A vehicle of a prescribed class or description that is fitted or designed for habitation.
		<ul> <li>The proposed development is considered to fit within the definition of 'Park Home Park' as defined in Schedule 1 of LPS17 (and relevantly the CPCG Regs and CPCG Act), as the relocatable, independent dwellings (Park Homes): <ul> <li>a. are capable of being propelled or drawn on wheels;</li> <li>b. are fitted or designed for habitation; and</li> <li>c. will be situated at a caravan park where no other caravans or camps are situated for habitation.</li> </ul> </li> </ul>
		Whilst the proposed land use is defined under the provisions of LPS17, it is not listed in the zoning table. The City has discretion to assess the proposed development as a 'Use Not Listed – Park Home Park'.
		In accordance with Clause 18(4)(b) of the Planning and Development (Local Planning Schemes) Regulations 2015:
		(4) The local government may, in respect of a use that is not specifically referred to in the zoning table and that <u>cannot reasonably be determined as falling within a use class</u> referred to in the zoning table –
		<ul> <li>(b) determine that the use may be <u>consistent with the objectives of a particular zone</u> and give notice under clause 64 of the deemed provisions before considering an application for development approval for the use of the land; [emphasis added]</li> <li>Accordingly, the proposed unlisted use can be considered with the objectives of the Residential Development zone of LPS17. As set out within the development application, the proposed land use is compatible with the aims and objectives of the Residential Development zone.</li> </ul>

Key Issue	Comment	Applicant Response
Environmental impacts on Ki-It Monger Brook	The access way will adversely impact the Ki-It Monger Brook Flora, ecosystems, habitats and Flora and Fauna within the Ki- it Brook. Concerns with potential for increase risk of pollution, soil erosion, water quality degradation and habitat destruction.	Pentium Water was commissioned to undertake a preliminary environmental assessment in response to the proposed Park Home Park (Lifestyle Village). It is understood the subject site has historically been cleared for agricultural purposes. Scattered Eucalyptus rudis (Flooded Gums) aligns with the Ki-it Monger Brook creek line and represent the key environmental asset within Lo 900.
		The Ki-it Monger Brook is a seasonal flowing creek line which traverses the northern boundary of the subject site and bisects a portion of the subject site towards its western boundary. The portion of the Ki-it Monger Brook within, and adjacent to, the subject site has historically been modified, including the infilling of the creek and the installation of culverts.
		The flooded gums trees within the Ki-it Monger Brook creek line will be maintained within the defined setback from the Brook, which was established in the approved 2021 Ki-it Monger Brook Foreshore Management Plan for the purposes of conservation, flood protection, better urban water management and open space.
Traffic and safety concerns	Increase traffic onto chittering road and other local roads will result in congestion and noise pollution.	A Traffic Impact Assessment (TIA) was prepared by GTA Consulting in support of the proposed development. The TIA provides traffic analysis of the proposed development. The TIA concludes that the traffic impact of the proposal on the surrounding road network will not have any negative impacts on the surrounding road network.
Increased bushfire safety risks	Development within close proximity to the brook will increase bushfire safety to residents.	The subject site is located within a designated Bushfire Prone Area. Accordingly, a Bushfire Attack Level (BAL) assessment was undertaken and identified the development achieving a BAL rating of BAL-29.
	Lack of emergency services within the area in the event of a bushfire and the density of the development and small emergency access point will result in congestion.	A Bushfire Management Plan ( <b>BMP</b> ) was also prepared in support of the development and concludes that the proposed development satisfies the intent, aims and objectives of State Planning Policy 3.7 Planning in bushfire prone areas and the associated bushfire planning guidelines.
		The BMP acknowledges that the proposed land use is not a vulnerable land use, given it differs significantly from residential aged care facilities and nursing homes. The BMP demonstrates the proposal can fully comply with the acceptable solutions of the Guidelines.

Key Issue	Comment	Applicant Response
Inadequate infrastructure & community resources	Lack of existing services with the Bullsbrook and Kingsford area to service the development including roads, healthcare, community resources and emergency infrastructure. Lack of water supply for the development.	The project has been subject to civil engineering inputs detailing the engineering, civil infrastructure and drainage works required to support the development project. This information has been considered and addressed in the original development application submission, specifically through the Engineering Servicing Report (refer <b>Appendix 7</b> - original Development Application submission).
	Existing services within the area cannot cater for elderly people.	The existing topography and proposed civil design has been considered in a holistic manner to enable the development of the proposed Park Home Park (Lifestyle Village). The existing topography of the subject is largely maintained, retaining the current land form of the place.
		The future development of the subject site will have access to services and utilities in the normal manner including a connection to reticulated sewer and water. Internal sewer reticulation from the subject site will discharge to the gravity sewer in Tigermoth Boulevard. It is anticipated the water supply to come from Chittering Road/Tigermoth Boulevard with a single property connection to the subject site.
		Lack of existing healthcare, community resources and emergency infrastructure are not matters under the control of the applicant, but in any event available given the growing population of the Bullsbrook area.
Incompatible land use	The proposal is not compatible with the surrounding residential housing and the area is not suitable for a retirement village.	In accordance with LPS17, the subject site is zoned 'Residential Development'. The development is considered to align with the objectives of the Residential Development zone and the development is therefore deemed to be capable of approval. The following is noted in relation to the land use and compatibility with the surrounding residential area:
	Area not suitable for a retirement village. Size and density does not align with the existing neighbourhood character.	• The 'Park Home Park' land use proposed dwellings that are entirely compatible with adjoining residential developments.
		<ul> <li>The housing typology offered by the Park Home Park dwellings caters for a different age demographic, allowing for an integrated community and neighbourhood.</li> </ul>
	The area is not suitable for a retirement village given the surrounding residents are made up by young families.	<ul> <li>The development does not prejudice the future development of land in the Residential Development zone, instead, it offers an opportunity for convenient and much needed housing supply.</li> </ul>
		<ul> <li>The Kingsford Local Structure Plan does not propose any public roads through the subject site. Therefore, we consider the Structure Plan contemplates a singular, coordinated development of the subject site.</li> </ul>
		<ul> <li>The Recreation zoned land within the subject site will be held in private ownership and maintained in accordance with the provisions of the approved Foreshore Management Plan.</li> </ul>
		• The proposed development and layout of the subject site has been designed in such a way to ensure the protection of existing amenity for adjoining landowners.

Key Issue	Comment	Applicant Response
Adversely impact the areas rural character	Design of a retirement village does not compliment the areas rural character. Noise from recreational activities will ruin the country style living, visual amenity and obscure views of the church from surrounding residents.	The design of the Park Home Park has been reviewed by the City's Design Review Panel (DRP) and the design is broadly supported. The DRP noted that in relation to the designs response to the character and context of the surrounding area, the simple and traditional housing forms maintained a rural quality that was "more relevant and appealing than the surrounding suburban housing". Noise from the proposed development will not adversely impact the amenity and atmosphere of the surrounding area. All development must comply with the <i>Environmental Protection (Noise) Regulations 1997</i> .
Reduced land value	Reduction in the value of surrounding residential properties due to the development providing more affordable house opportunities.	This is not a relevant planning consideration.
Interface Boundary with Kingsford Estate	The eastern boundary abuts Kingsford Estates' Fairchild Street and Amelia View and has housing orientated inwards to address the laneway leaving the backyards to address the existing streets. No information included on the rear fencing detail.	The plans have been amended to remove the real laneway along the eastern boundary. This will be replaced by landscaping behind fencing with elements of visual permeability. This will break up the appearance of fencing and provide a better outlook to residents' opposite.
Boat and RV parking area	Concerns about emergency access to Tigermoth Boulevard.	The Boat and RV parking area has been relocated.
Landscaping	Consideration of species that don't host the shot hole borer.	A condition requiring the City's approval of a landscape plan can address any concerns.

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Landscaping	Consideration of species that don't host the shot hole borer.	A condition requiring the City's approval of a landscape plan can address any concerns.

PS ref: 8799 LG ref: DA-692/2024

10 March 2025

City of Swan 2 Midland Square MIDLAND WA 6056

Attention: David Tomkin, Senior Planning Officer

Dear David,

#### APPLICATION FOR DEVELOPMENT APPROVAL RESPONSE TO DEVELOPMENT ASSESSMENT PANEL REASONS FOR DEFERRAL PROPOSED PARK HOME PARK (LIFESTYLE VILLAGE)

We refer to the decision of the Metro Outer Development Assessment Panel's (DAP) to defer consideration of a proposed Park Home Park (Lifestyle Village) development at Lot 900 Chittering Road, Lot 9501 Fairchild Street, Lot 9013 Tigermoth Boulevard, Bullsbrook (**subject site**).

At its meeting held on 27 Feburary 2025, the DAP resolved as follows:

That the consideration of DAP Application DAP/24/02776 be deferred for up to a period of 60 days, for the following reasons:

- To allow for the extra information provided by the applicant (dated 6 February 2025), and any additional information required by the City of Swan, to be reviewed and provided to the Department of Biodiversity, Conservation and Attractions and the Department of Water and Environmental Regulations for comment and feedback.
- Clarification of the existing crossovers and treatments, including photographic information.

In response to the reasons for deferral we provide the following additional information:

- 1. Updated site plan (Appendix 1)
- 2. Ki-It Monger Brook crossing detail (Appendix 2)
- 3. Environmental Assessment report in support of the crossing, which includes photographic images of the existing crossing (**Appendix 3**)

#### **RESPONSE TO REASONS FOR DEFERRAL**

In considering the appended additional information it is important to note the following relevant considerations:

- The entry road to service the lifestyle village will be a private driveway servicing the development, it is not proposed to be a public gazetted road.
- The private driveway will follow the alignment of an existing access track (**appendix 1**) and proposes to use and upgrade an existing crossing point over the Ki-It Monger Brook (**figure 01**), which is constructed with two 1.0m diameter pipe culverts. This existing crossing point will be used and upgraded to service the development. To be clear, **no new crossing point is proposed**.
- Only one flooded gum tree is proposed to be removed as part of the crossing upgrade.

Level 1, 251 St Georges Tce, Perth WA (08) 9227 7970 GPO Box 2709 Cloisters Square PO 6850



Figure 01: Existing pipe culverts, northern and southern ends respectively (extract: environmental assessment)

#### Brook crossing detail and earthworks

The initial proposal which was referred to the Department of Water and Environmental Regulation (**DWER**) and Department of Biodiversity, Conservation and Attractions (**DBCA**) for comment was based on raising the ground level at the existing crossing point and battering fill either side of the driveway. In response to this feedback the City sought more detail regarding the proposed crossing.

The applicant obtained advice on refining the crossing detail from their civil engineer and environmental consultant. The objective of seeking this advice was to consider a construction method that minimised impacts on the brook.

The revised design replaces twin 12m long pipe culverts with two shorter (9.6m) box culverts and uses a combination of retaining (across the brook) and battering to minimise impacts. This ensures areas of fill are generally confined to the existing crossing (**figure 02** and **appendix 02**).

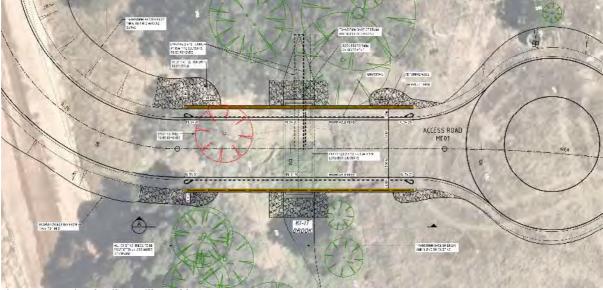


Figure 02: Crossing detail (Cossill & Webley)

In terms of fill quantities within the 'core creek area', there is currently estimated to be 80m<sup>3</sup> on the existing crossing alignment. The crossing upgrade will require an estimated 443m<sup>3</sup> of fill, representing an additional 363m<sup>3</sup>. However, this fill will be confined to the crossing and entry road and will be placed in a way that minimises the impact on the brook.



In relation to the Ki-It Monger Brook and selection of this location the proponent's Environmental Consultant has observed the following:

- The private driveway and crossing are within existing cleared and modified areas, including a historical brook crossing.
- The vegetation in the brook is degraded. Impacts on existing vegetation is limited to one flooded gum tree.
- Implementing the City's approved Foreshore Management Plan (FMP) will result in revegetation to offset the loss of one tree.
- The road and brook crossing won't impact the biological diversity and ecological integrity at a local or regional level.

It was also noted that the existing management framework associated with the brook includes the following which will be required at implementation phase:

- 1. Bed and Banks approval from DWER.
- 2. Implementation of the approved Ki-it Monger Brook FMP via the detailed landscape plan(s).
- 3. Implementing the Urban Water Management Plan and an approved ESDCP or Environmental Construction Management Plan.

#### **Vegetation removal**

To facilitate the crossing upgrade, one Flooded Gum (Eucalyptus Rudis) tree will be removed. The Flooded Gum is not subject to any State or Federal environmental protections. Refer **figure 03** for a photo of the tree to be removed.

Whilst it is acknowledged the brook crossing upgrade will result in the loss of a tree, replanting of trees throughout the site, including re-vegetation in accordance with the approved Foreshore Management Plan will occur. This will result in an overall net benefit in terms of tree canopy.



Figure 03: Photo of existing crossing and tree to be removed



#### CONCLUSION

We trust the information provided above, and enclosed responds to the Development Assessment Panels reasons for deferral. Accordingly, we respectfully request the City finalise their assessment of the additional information and submit a recommendation of approval to the DAP.

Should you have any queries or require further clarification in regard to the above matter please do not hesitate to contact the writer.

Yours faithfully,

TAYNE EVERSHED DIRECTOR

Copy to: DBCA DWER



APPENDIX 01 SITE PLANS



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# RICHARD HAMMOND ARCHITECT 18 LITTLE HOWARD STREET, FREMANTLE 438 918 753 | RICHARD@HRARCHITECTS.COM.AU

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ISSUE	DESCRIPTION	DATE		
Ι	FEATURE SURVEY	05.03.2025		

#### Entry/Access Road

- NIE BULLSBROOK VILLAGE IIE
- ADDRESS

RING ROAD, BULLSBROOK, WA, 6084

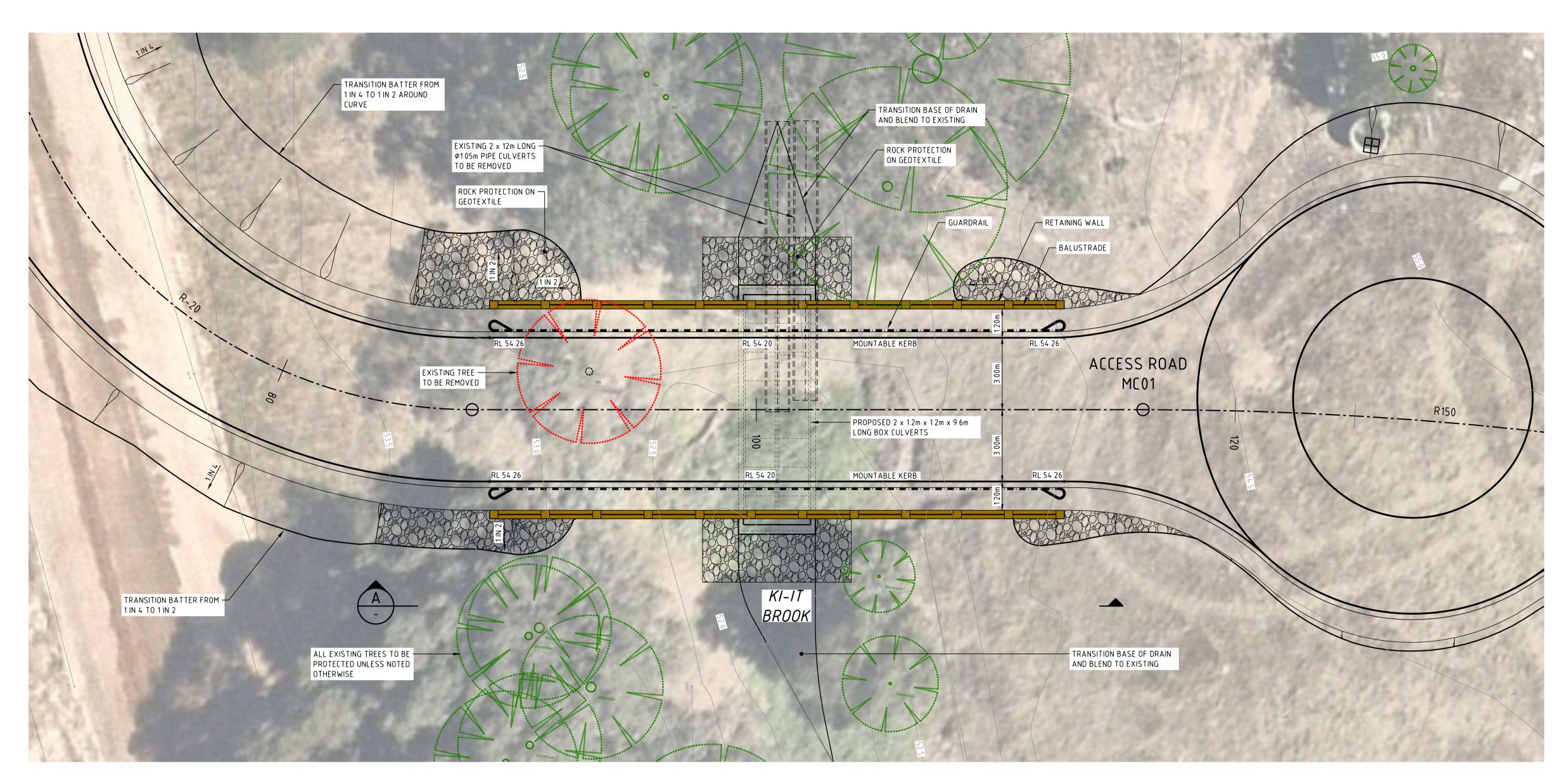
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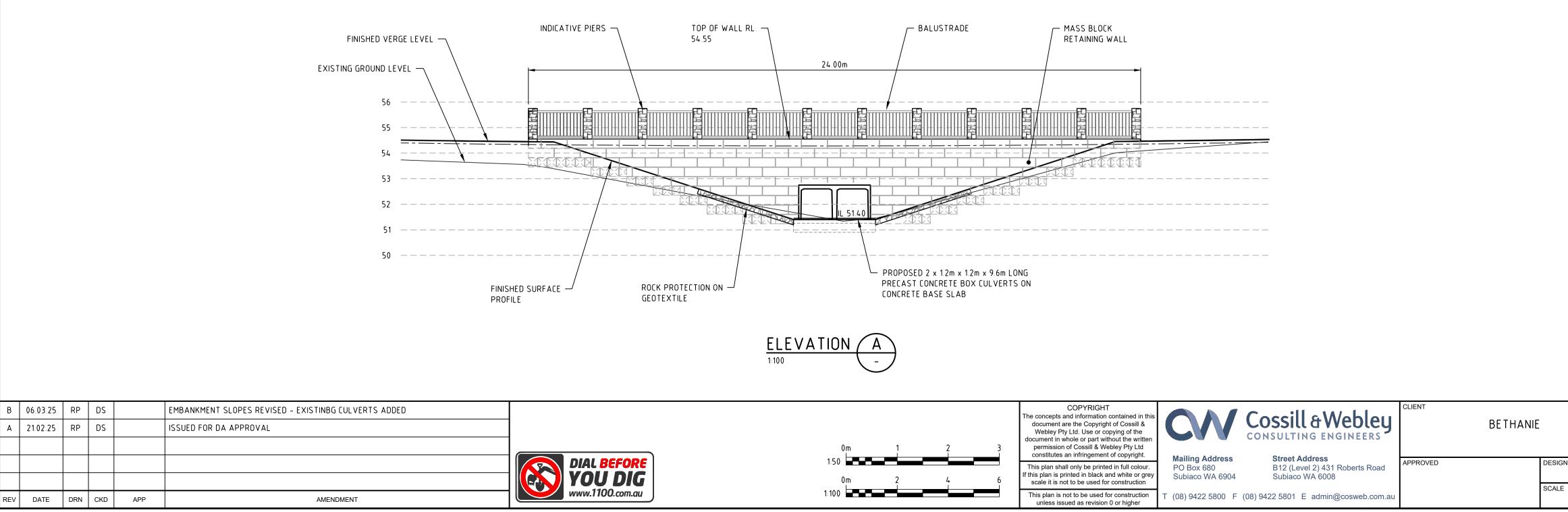
Date		10.03.2025
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Scale @ A3	1:500	

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#### APPENDIX 02 COSSILL & WEBLEY CROSSING DETAIL





KI-IT BROOK CROSSING

## NOTES

- 1. ALL DISTANCES AND LEVELS ARE IN METRES
- 2. ALL LEVELS IN METRES TO AHD.
- 3. ALL COORDINATES TO PCG94.
- 4. ALL BATTERS TO EXISTING SURFACE TO BE 1:3 (CUT) 1:4 (FILL) UNLESS NOTED OTHERWISE.
- 5. EXTENT OF CLEARING TO BE LIMITED TO THE AREA OF WORKS UNLESS AGREED WITH THE SUPERINTENDENT. VEGETATION WHERE NOTED FOR PROTECTION SHALL BE FENCED PRIOR TO CLEARING SURROUNDING LAND. CONTRACTOR TO PROTECT THE VEGETATION PROTECTION AREAS FROM ANY DAMAGE.
- 6. THE CONTRACTOR SHALL LIMIT THE MOVEMENT OF EQUIPMENT AND MANPOWER TO THE MINIMUM AREA NECESSARY AND PROTECT ALL VEGETATION AND EXISTING SERVICES ON SITE.

ROAD VOLUMES KI-IT BROO	
EXISTING CROSSING	80m3
PROPOSED CROSSING	443m3

# PRELIMINARY

	PROJECT	BETHANIE BULLSBROO	DK VILLAGE			-
	TITLE	KI-IT BROOK AG	CEES RO	DAD CROSSING		A
		PLAN AND ELEV	VATION			RIGIN <sup>A</sup> SIZE
E 1:50 1:100	WAPC No.		DRAWING No.	6524-SK-001	REVISION B	Ö



#### APPENDIX 03 ENVIRONMENTAL ASSESSMENT



### **Technical Memo**

Date: 10 March 2025 To: Bethanie Group Ltd – David Lorimer From: John Halleen

#### Preliminary Environmental Assessment – Bethanie Bullsbrook Village: Entrance Road Environmental Impact Assessment.

#### **Overview**

Pentium Water has been engaged by 'The Bethanie Group Ltd' (Bethanie) to complete a technical environmental impact assessment of the proposed Bethanie Bullsbrook Village entrance road, including the Ki-it Monger Brook crossing.

The entrance road provides a high-amenity access link for the Bethanie Bullsbrook Village residents and visitors to the western portion of Lot 9017 and Chittering Road.

#### Ki-it Monger Brook road crossing proposal description

Table 1 summAEPses the Ki-it Monger Brook road crossing proposal.

Fable 1:     Entrance road proposal summary			
Element	Ki-it Monger Brook road crossing		
Address	Lot		Suburb
Lot 9017 Bullsbrook Villa	age		Bullsbrook
Local Government	City of Swan		
Zoning	Metropolitan Region Scheme (MRS)	Local Planning Scheme (LPS) No. 17	
Lot 9017	Urban – 13.15 ha	Residential Development – 13.15 ha	
Ki-it Monger Brook road	i-it Monger Brook road crossing - Physical Elements		
Culvert and road construction within the Brook	<ul> <li>crossing - Physical Elements</li> <li>The entrance road consists of the following two components: <ul> <li>Existing 8.5 m wide construction access road.</li> <li>Ki-it Monger Brook road crossing.</li> </ul> </li> <li>The total entrance road area is approximately 0.15 ha.</li> <li>The Ki-it Monger Brook road crossing area is approximately 26 m long and 8.5 m wide.</li> <li>The physical elements of the Ki-it Monger Brook road crossing include: <ul> <li>6 m paved road</li> <li>Guardrail</li> <li>Retaining walls</li> <li>Rock pitching/embankment protection i.e., geofabric membranes)</li> <li>X 2 - 1200 mm culverts.</li> <li>The construction of the Ki-it Monger Brook road crossing will result in the clearing of a single mature Flooded Gum</li> </ul> </li> </ul>		

#### Table 1:Entrance road proposal summary

#### **Entrance Road Design – Guiding Principles**

The preliminary engineering design for the entrance road across the Ki-it Monger Brook adopted the following principles to avoid and minimise the road potential impacts on the brook:

#### Avoid

- The proposed entrance road from Chittering Road to the Ki-it Monger Brook crossing (or a length of approximately 140 m) is located within the existing 8 m wide construction access road. This road is currently being used by civil contractors accessing the neighbouring Kingsford residential estate.
- The Ki-it Monger Brook crossing is in a historically constructed brook crossing. The specific elements of this existing road crossing include:
  - The road crossing is approximately 12 m wide.
  - The crossing consists of two x 12 m long (1.05 m diameter) culverts and backfilled with approximately 80 m<sup>3</sup> of sand/limestone.

#### Mininise

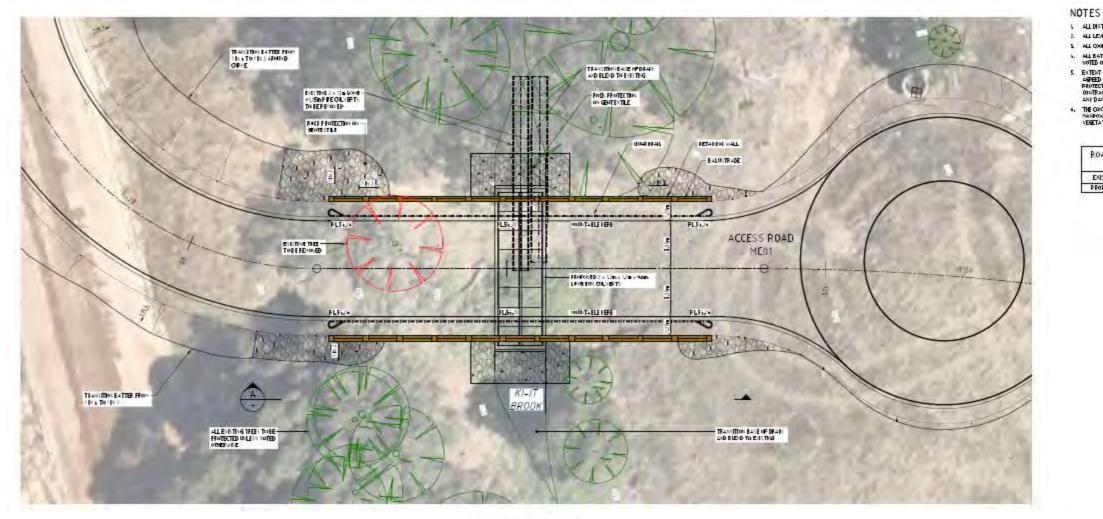
- The Ki-it Monger Brook road crossing engineering design adopted the following elements to minimise the road construction area within the brook:
  - Minimise the earthwork area and batters within the brook through:
    - Installing retaining walls along the length of the road crossing.
    - Installing rock pitching/rock protection at the entrance of the road crossing at the bank of the brook.
    - Replaced the existing culverts with two x 1200 mm culverts.

Figure 1 illustrates the entrance road linking Bullsbrook Village to Chittering Road.



Figure 1: Bethanie Village entrance road alignment

Figure 2 illustrates the preliminary engineering design of the Ki-it Monger Brook road crossing.



KI-IT BROOK CROSSING

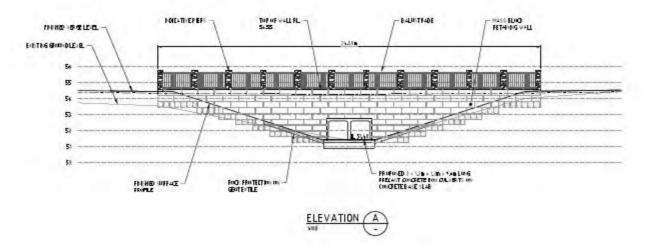


Figure 2: Ki-it Monger Brook road crossing preliminary engineering design



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ALL BATTERS TO EXISTING SURPACE TO BE IS (OUT) IN IPLLI UNLESS NOTED OTHERWISE.

NOTE: OTHERWISE. 5. EXTENT OF CLEAPING TO TELLIFIED TO THE AFEARS WORKS INLESS AGREED WITH THE SUPERINTERCONT, NEETA THAN WHERE NOTED FOR PROTECTION SHALL BE PERCED FROM TO CLEARING SUBROWDING LAND. CONTRACTOR TO FROM THE VEGETATION PROTECTION AFEAS FROM MAY DAMAGE

 THE CONTRACTOR SHALL UNT THE MOVEMENT OF EXCIPMENT AND MANPONES TO THE MOMMAN AREA NECESSARY AND PROTECT ALL VEGETATION AND EXISTING SERVICES ON SITE.

ROAD VOLUMES KHIT BROO	ACROSS K
EXISTING CROSSING	Rind
PROPOSED CROSSING	443m2

## PRELIMINARY



#### Objective

This technical memo has been prepared to provide information and inform the relevant approval stakeholders on the following aspects of the Bethanie Bullsbrook Village entrance road:

- Proposal characteristics and activities
- The Ki-it Monger Brook receiving environment
- Potential environmental impacts
- Proposed management framework

#### Site Context

Lot 9017 covers a total area of approximately 13.15 ha. The Ki-it Monger Brook traverses the northern boundary and separates the lot adjacent to the western boundary.

Until recently, the entire lot, including the Ki-it Monger Brook, was an open cattle paddock.

This technical memo focuses on the entrance road land, specifically:

- The 140 m portion of the existing construction access road that services the Kingsford residential estate development via Chittering Road; and
- The Ki-it Monger Brook crossing.

The photo below illustrates the existing construction access road (used by civil contractors to access the Kingsford residential development) adjacent to Kit-it Monger Brook.



Photo 1: The operational 8 m wide construction access road adjacent to the Ki-it Monger Brook

#### **Planning and Environmental Approval Status**

#### Land use zoning

Lot 9017 benefited from the planning and environmental approvals underpinning the Kingsford residential development land use re-zoning, local structure, and

management plans. Specifically, Lot 9017 (and therefore Bethanie Bullsbrook Village DA landholding) has been subject to the following land use assessment and approvals:

- 1. Lot 9017 was identified for 'Urban' development within the Bullsbrook Townsite District Structure Plan (City of Swan 2018).
- 2. 'Urban' land use under the Metropolitan Region Scheme (MRS) & 'Residential Development' under the City of Swan Local Planning Scheme No. 17.
- 3. Environmental Protection Authority (EPA) assessment
- 4. The planning and land use approvals were supported by:
  - a. District Water Management Strategy (DWMS) (RPS 2016)
  - b. Local Water Management Strategy (LWMS) (RPS 2018)
  - c. Ki-it Monger Brook Foreshore Management Plan (FMP) (RPS 2021)

#### **Ki-it Monger Brook**

Ki-it Monger Brook flows east to west across the northern part of the site. It then flows north to south through the western portion of the site before crossing under Great Northern Highway at the site's south-west corner. The confluence of Ki-it Monger Brook with Ellen Brook occurs approximately 2.3 km to the south-west of the proposed entrance road.

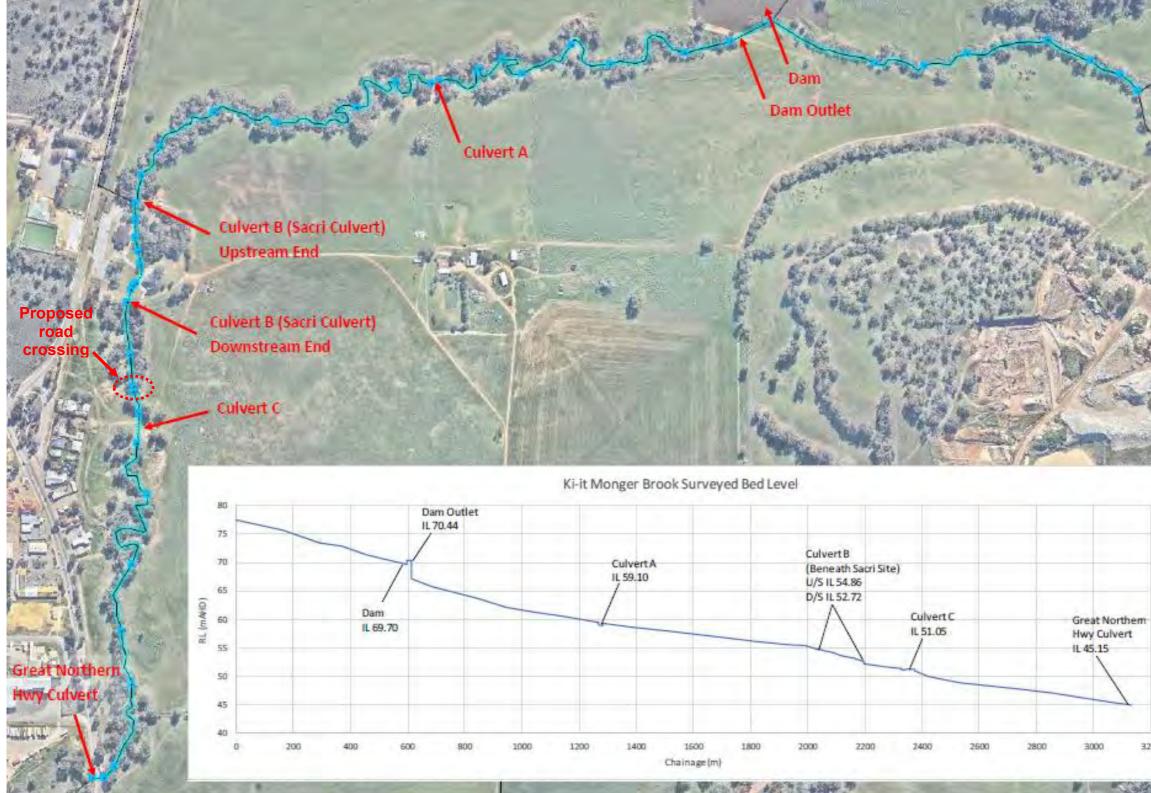
The Ki-it Monger Brook is a seasonal flowing creek. Water only flows within the brook after storm events, typically between May and September (or the winter period). The brook is dry during the summer period.

Specific to Lot 9017, the Ki-it Monger Brook traverses the northern boundary and approximately 30 m to 100 m inside the western boundary (Figure 1).

The Ki-it Monger Brook crosses under the Great Northern Highway approximately 480 m from the boundary of Lot 9017.

Figure 3 shows the locations of the dams and culverts installed along the length of the Ki-it Monger Brook.

The Bethanie Bullsbrook Village proposed Ki-it Monger Brook road crossing is between Culverts B and C.



Key modifications to the Ki-It Monger Brook Figure 3:







## Ki-it Monger Brook Modifications

The alignment and water flow within Ki-it Monger Brook within and adjacent to Lot 9017 were historically altered for primarily the following purpose:

- 1. Establish an access road and livestock crossing to service the rural land use.
- 2. Constructing the Sacri 'Our Lady of Revelation' Church.

These actions collectively resulted in:

- Infilling the brook and installing culverts across the Sacri landholding (Lot 2) and into Lot 9017.
- The infilling of a portion of the brook and installing culverts to establish a limestone track access road.
- The clearing of riparian vegetation
- The use of the brook area as part of a cattle paddock.
- The installation of new culverts at the southern boundary of Lot 9017 to facilitate access to the adjacent Kingsford residential estate.

## Lot 9017 and the Ki-it Monger Brook Historical Context

Below is a summary of the historical actions to the Ki-It Monger Brook locally within Lot 9017 and the location of the proposed Bethanie Village entrance road.

### 1965

The Ki-it Monger Brook area of Lot 9017 was significantly cleared and historically used for cattle grazing paddocks.

Site historical aerial photography from 1965 shows the brook being significantly cleared of native vegetation and incorporated into the cattle paddock area (Photo 2).



Photo 2: 1965 aerial photography of the Ki-it Monger Brook within Lot 9017

## 1980 - 2010

The Ki-it Monger Brook south of the Sacri 'Our Lady of Revelation' Church landholding (Lot 2) was significantly modified by straightening the creek bed, installing a culvert, and infilling the brook with compacted limestone to create an approximate 10 m wide access track.

Aerial photo 3 shows the culvert installation and the access track's construction.



**Photo 3:** 2006 aerial photography of the limestone track construction The limestone track was operational in 2008 as illustrated in aerial photo 4.



Photo 4: 2008 aerial photography of the operational limestone track

The constructed limestone track area totals approximately 300 m<sup>2</sup> and is subject to the proposed entrance road crossing. Photo 6 outlines the area of the constructed limestone track (aerial photo 5).



Photo 5: 2024 aerial photography of the limestone track and associated culverts

In summary, the portion of the brook within Lot 9017 has been highly modified. The proposed Bethanie Village entrance road, Ki-it Monger Brook crossing, aligns entirely with a historically constructed limestone track. This track was constructed by installing culverts and infilling (estimated at 80m<sup>3</sup>) an approximate 11 m wide and 15 m long portion of the brook.

Figure 4 illustrates the location of the existing culvert structures (and associated infill areas) within and adjacent to Lot 9017.



Figure 4: Historical modifications within and adjacent to Lot 9017

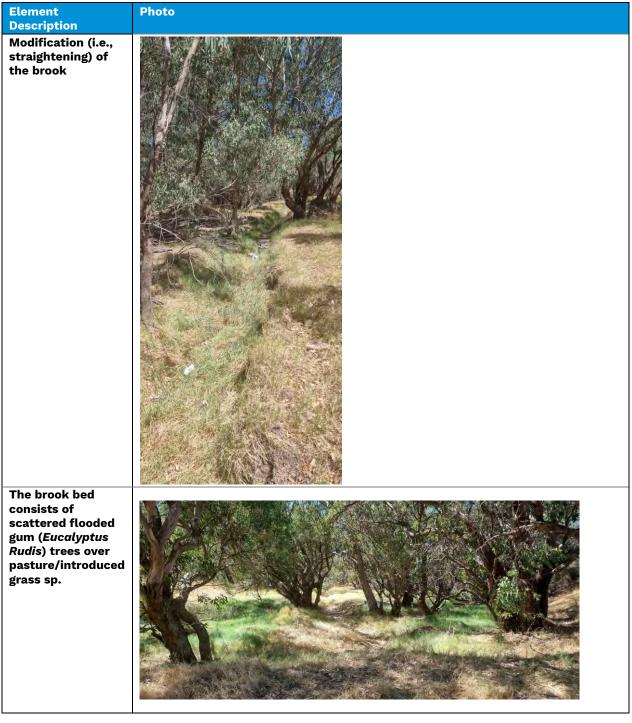
## **Existing Road Crossing and Associated Infrastructure**

Table 2 summarises the existing constructed infrastructure within the footprint of the proposed Ki-it Monger Brook entrance road crossing.

Table 2: Ki-it M	Nonger Brook road crossing
Element Description	Photo
Culverts: x 2 1,000 mm (northern end)	
Culverts: x 2 1,000 mm (southern end) with perennial Typha species	
Access track area (10 m wide)	

12

Pentium Water Pty Ltd | ACN: 655 914 015 | Level 1, 640 Murray St West Perth WAT +61 (0) 8 6182 1790 |E info@pentiumwater.com.au | pentiumwater.com.au



Lot 9017 and Key Implications from the Brook Modification

## Flood Studies

Hydraulic modelling of the 100-year flood assessment concluded that the 100-year Annual Exceedance Probability (AEP) flows are largely confined to the brook's existing channel. However, the installed culverts beneath the constructed limestone track are not appropriately designed for the 100-year AEP flows, resulting in water exceeding the existing culvert capacity and flowing over the existing fill/embankment.

The entrance road design presents an opportunity to size the culverts appropriately for the 100-year flood event without restricting flows.

Accordingly, the road crossing's finished level is above 54 m AHD and the 100-year AEP event.

Figure 5 presents the 100-year flood modelling levels within Lot 9017, including the proposed entrance road crossing of the brook.

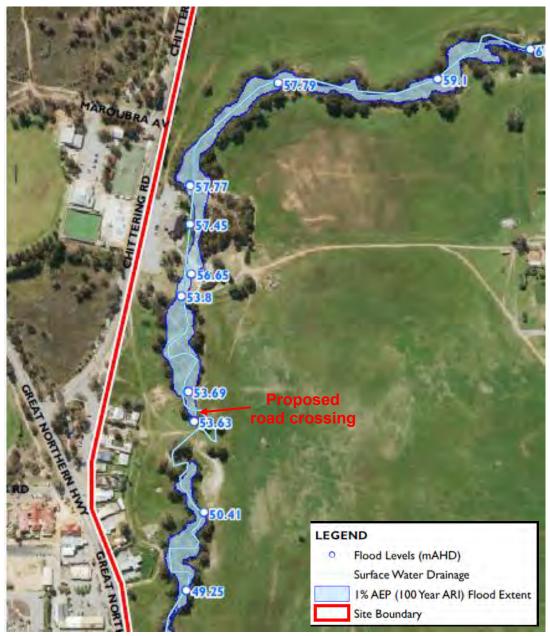


Figure 5: 100-year flood modelling levels (RPS 2018)

## Remnant Native Vegetation

Heddle et al. (1980) vegetation mapping identifies the riparian vegetation of Ki-it Monger Brook to be part of the Guildford Complex. The Guildford Complex is described as a mixture of open forest to tall open forest of *Corymbia calophylla–Eucalyptus wandoo–E. marginata* (marri–wandoo–jarrah) and woodland of E. wandoo (with rare occurrences of E. lane-poolei).

A 2014 detailed flora and vegetation assessment identified the Ki-it Monger Brook remnant riparian vegetation within Lot 9017 to be as follows:

• **Er1:** *Eucalyptus rudis* subsp. *rudis* low open forest, over mixed weed species dominated by \**Avena barbata*, \**Lolium rigidum* and \*Oxalis per-caprae and other common species included *Corymbia calophylla*, *Gomphocarpus fruticosus*, \**Solanum linnaenum*, \**Brixa maxima*, \**Moraea flaccida*.

This vegetation unit was identified as being in a "degraded" condition, supporting no or very few native understorey plants.

A site visit review of the Ki-it Monger Brook vegetation (February 2025) aligned with the detailed flora and vegetation assessment. Specifically, the following plant species were recorded:

- Scattered flooded gum trees (*Eucalyptus rudis*) along the brook bed with the occasional marri trees (*Corymbia calophylla*) on brook banks.
- Understorey was dominated by weed/pasture species, i.e., \**Avena barbata*, \**Lolium rigidum*, with small patches of Typha species adjacent to the culverts.

Below are site photos of the Kit-it Monger Brook (February 2025) adjacent to the existing limestone track.



Photo 6: Open area with scattered flooded gum trees with Typha and weed species dominated understorey



Photo 7: Flooded gum trees adjacent to the existing road crossing

### Single-flooded gum tree

A mature flooded gum tree is located at the edge of the proposed Kit-it Monger Brook crossing. No native understorey is present; weed species dominate the understorey. The key direct impact of the proposed construction of the road crossing is the potential loss of this single tree. Outside of this single flooded gum tree, in the Ki-it Monger Brook (and foreshore area), there are approximately 0.7 ha of existing mature trees (the majority are flooded gums with the occasional marri tree) within Lot 9017.

Figure 6 presents the approximately 0.7 ha retained remnant vegetation (essentially mature flooded gum trees with occasional marri trees) within the Ki-it Monger Brook.



Figure 6: Ki-it Monger Brook retained remnant vegetation

Photo 8 below illustrates the location of the single flooded gum tree within the proposed Ki-it Monger Brook road crossing area.



Photos 8: Flooded gum tree within the existing limestone track

## Wetlands

No Department of Biodiversity, Conservation and Attractions (DBCA) mapped Resource Enhancement Wetlands or Conservation Category Wetlands within Lot 9017.

The entrance road alignment is within a multiple-use wetland (MuW) UFI 15282 boundary. The MuW mapping represents the historical land uses and the degraded status of the Ki-it Monger Brook and the adjacent open former cattle paddock areas.

Figure 7 illustrates the broader MuW mapping across Lot 9017.



## Figure 7: DBCA MuW (UFI 15282) mapping

### Aboriginal Heritage

The proposed entrance road alignment, including the Ki-it Monger Brook crossing, does not include registered or confirmed Aboriginal heritage sites.

## **Environmental Impact Assessment**

Based on the assessment for potential impacts associated with the construction and operation of the Bethanie Bullsbrook entrance road, the following environmental factors are considered key environmental factors attributable to the construction and operation:

- Flora and vegetation
- Inland waters

## Environmental Management – Inland Waters

Water flows within the Ki-it Monger Brook depend on storm events, which statistically occur predominantly during the winter and early spring. The brook is within Lot 9017 and is dry during the summer and early autumn.

There are no significant wetlands within the proposed entrance road.

## Mitigation

### Ki-it Monger Brook water quality

The following mitigations have been adopted in the road crossing design and proposed construction methodology:

- The road crossing construction work will occur during the summer/autumn period, which statistically has the lowest rain events.
- Construction works will cease during any storm events.

Constructing the road crossing during the summer/autumn (or when the brook is dry) minimises potential impacts on sediment and water quality.

### Road crossing design

As far as practicable, the entrance road design has adopted avoid and minimise measures by incorporating the following measures:

- Locating the road within the footprint of the existing construction access road and the historically constructed limestone track
- Installing retaining walling to minimise batters in the brook.
- Installing rock pitching/embankment protection, i.e., geofabric membranes.
- The road will be above the 100-year AEP event and the appropriately designed culverts, mitigating flood risk.

These actions have limited the clearing impacts to a single flooded gum tree (Figure 6).

No significant conservation of flora or vegetation occurs within the entrance road alignment.

### **Construction management framework**

Construction works within the Ki-it Monger Brook will be undertaken in accordance with the following approvals:

- A Department of Water and Environmental Regulation (DWER) Bed and Banks Permit
- City of Swan approved Erosion, Sediment and Drainage Control Plan (ESDCP). An ESDCP was prepared for Bethanie Bullsbrook Village Development Application.

Geotechnical fabrics and rock pitching will be installed on disturbed banks to prevent erosion during the construction phase and minimise brook scouring during the road's operational phase.

### **Rehabilitation**

The Ki-it Monger Brook will be rehabilitated in accordance with the principles defined in the approved Ki-it Monger Brook Foreshore Management Plan (FMP). The FMP promotes the rehabilitation of the brook through replanting local native flora species.

Rehabilitation will commence at the end of the road and the Bethanie Bullsbrook Village construction period and will be implemented via City of Swan approved detailed landscape plan(s). This is the exact same implementation methodology employed for the adjacent Kingsford residential estate.

## Stormwater Management

The key principles for stormwater management at the site are to safely convey and contain runoff from major events to provide flood protection to infrastructure and people, and to promote opportunities for capture and infiltration close-to-source of runoff from first flush and small rainfall events. The engineering and drainage design will seek to implement water sensitive urban design (WSUD) principles and best management practices where possible.

The stormwater drainage strategy of the development is consistent with the strategy set out in the LWMS (RPS, 2018) which involves retaining and infiltrating stormwater runoff generated by the first 15 mm of rainfall at source as much as practical, and detaining stormwater generated by larger rainfall events up to and including the 1% AEP event on-site, while allowing limited discharge into the Ki-it Monger Brook for larger events in accordance with existing discharge rates.

The following design criteria have been adopted for the Bethanie Bullsbrook Village:

- Small/common events (one hour event): The following criteria are adopted for the management of small rainfall events, defined as the one hour one exceedance per year (one hour 1 EY) rainfall event:
- Maintain the pre-development hydrological regime by encouraging infiltration closeto-source.
- Manage, retain and/or detain, and treat (if required) stormwater run-off from constructed impervious surfaces generated by the first 15 mm of rainfall at-source as much as practical.

Minor events (20% AEP):

• Provide stormwater conveyance system capacity for the critical 20% AEP event to maintain serviceability of roads and pedestrian areas.

Major events (1% AEP):

- Provide adequate flood detention storage to maintain pre-development flow rates downstream of the site.
- Habitable floor levels to be at least 0.3 m above the 1% AEP flood level of the urban drainage system and road reserve.
- The basins are designed to contain the 1% AEP event on-site, inclusive of limited discharge into the Ki-it Monger Brook at a controlled rate for larger rainfall events. Specifically:
  - The total permissible discharge for both catchments into the Ki-it Monger Brook is assumed to be 0.2 m<sup>3</sup>/s in the 1% AEP event, in accordance with hydrological modelling of the existing conditions.

### Predicted Outcome

The proposed entrance road's location is extensively disturbed, and a modified portion of the brook has been impacted. With the proposed avoidance and mitigation measures and adherence to the DWER Bed and Banks permit and ESDCP, it is not anticipated that the development and operation of the Bethanie Bullsbrook entrance road will not impact inland waters, specifically the Ki-it Monger Brook water quality.

## **Environmental Management - Vegetation and Flora**

The proposed disturbance from the construction and operation of the Bethanie Village entrance road impacts a single flooded gum tree.

## Mitigation

## Road crossing design

The engineering design has minimised impacts to terrestrial/riparian vegetation and flora through the adoption of the following measures:

Minimising the Ki-it Monger Brook road crossing footprint by locating the road crossing road within an existing highly disturbed area.

Minimising earthworks within the brook by installing retaining walling and rock pitching/embankment protection, i.e., geofabric membranes to minimise batters in the brook.

## **Construction management framework**

The entrance road construction activities will adopt the following mitigation actions specific to terrestrial vegetation and flora:

- Compliance with approved limits of clearing and a DWER Bed and Banks Permit.
- The road construction (or footprint) area and all trees within 10 m of the road crossing will be surveyed and demarcated before construction works commence.
- Implementation of the City of Swan approved ESDCP.

### **Rehabilitation**

Implement a native vegetation revegetation and weed control program per the approved Ki-it Monger Brook FMP.

## Holistic Environmental Assessment

The entrance road design has adopted key avoidance and mitigation principles. It aligns the road within existing highly disturbed areas and limits the direct environmental impacts to a single flooded gum tree.

### Key Management Outcomes

**Permit to interfere with bed and banks for the Ki-it Monger Brook entry road crossing:** DWER approved before the entry road construction commences.

**Erosion, Sediment and Drainage Control Plan (ESDCP):** Approved by the City of Swan before the commencement of construction works.

**Urban Water Management Plan (UWMP):** Approved by the City of Swan before the commencement of construction works.

**Ki-it Monger Brook Foreshore Management:** The approved Ki-it Monger Brook FMP (RPS 2021) includes the portion of the brook within Lot 9017. The FMP outlines the management actions for the interface area along the Ki-It Monger Brook, inclusive of:

- Rehabilitation (i.e., weed control) and native species revegetation of the brook foreshore area.
- Passive recreation opportunities and formalised open space areas for picnics and informal gatherings.
- The pedestrian path system will extend, where possible, along the length of the interface area to define the public use area.
- The landscaping of the bioretention swales areas adjacent to the Ki-it Monger Brook.

## **Management Framework - Evidence**

The proposed management framework for the Bethanie Bullsbrook Village entrance road replicates the same management principles and approvals adopted for two constructed and operational Ki-it Monger Brook road crossings. Specifically, these two roads were subject to the following environmental management framework which was implemented to the satisfaction of the City of Swan and DWER:

- A DWER Bed and Bank permit
- Ki-it Monger Brook FMP
- Erosion and sediment control plan or Environmental Construction Management Plan.

An overview of the two road crossings is detailed below.

Existing Constructed Ki-it Monger Brook Road Crossings

There are two constructed Ki-it Monger Brook road crossings. A summary of the constructed and operational road crossings is detailed below.

Kingsford residential estate - Wylde Boulevard crossing

The Wylde Boulevard Ki-it Monger Brook crossing was constructed in 2020. The crossing comprises the following elements:

- 1. The road crossing was located within a former cleared brook crossing location
- 2. The road crossing area within the brook is approximately 650  $m^2$
- 3. The two-lane local road is approximately 10 m wide
- 4. Two 23 m long culverts were installed
- 5. To minimise the impacts on the brook:
- 6. The road crossing aligned with a former access track crossing.
- 7. Installed retaining walls to minimise earthworks
- 8. The 1 in 2 batters at the shoulders of the crossing were rock pitched.

Photo 9 shows the constructed and operational road crossings and culverts (Wylde Boulevard) within the Kingsford residential estate.



Photo 9: Wylde Boulevard – Ki-it Monger Brook crossing

Figure 8 shows an aerial view of the Wylde Boulevard crossing linking the Kingsford residential estate.



Figure 8: Wylde Boulevard Ki-it Monger Brook crossing

Kingsford residential estate – Construction access road and culvert upgrade

The construction access road is located at the southern boundary of Lot 9017. In 2023, this crossing was subject to construction, including upgraded culverts and installation of a sewer line. The crossing comprises the following elements:

- 1. This access road was located within a former road crossing.
- 2. The construction works included removing the old culvert, installing two new 1200 mm culverts, and backfilling.
- 3. The culvert extends approximately 50 m and supports the access road and sewer line.
- 4. The road crossing is approximately 11 m wide.

The constructed and operational culvert and access road are shown in photo 10.



Figure 9 shows an aerial view of the construction road crossing and the 50 m culvert.



Figure 9: Access Road crossing

## Conclusion

The Bethanie Bullsbrook entrance road is located within existing cleared and modified areas, specifically a cleared construction access road and a historical brook crossing.

The vegetation within the Ki-it Monger Brook is in a 'Degraded' condition. The direct impacts from the construction and operation of the Bethanie Bullsbrook entrance road are limited to the loss of a single mature flooded gum tree.

Implementing the City of Swan approved Ki-it Monger Brook FMP via the detailed landscape plan will result in replanting a significant number of native tree species in the Ki-it Monger Brook foreshore. The revegetation actions compensate for the loss of the single native flooded gum tree.

The development of the entrance road, including the brook crossing, will not significantly impact the brook's biological diversity and ecological integrity at a local or regional level. The entrance road construction program and associated civil works will be implemented outside peak winter storm events, reducing brook sediment and water quality risks.

This environmental assessment of the Bethanie Bullsbrook Village entrance road concluded by applying a mitigation framework (similar to the management of the two other road crossings) appropriate for managing the road's construction and operation activities. Specifically, this management framework included:

- 1. DWER approved Bed and Banks approval
- 2. Implementing the Ki-it Monger FMP via the detailed landscape plan(s).
- 3. Implementing the Urban Water Management Plan and an approved ESDCP or Environmental Construction Management Plan.

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- RPS. (2018). Local Water Management Strategy Bullsbrook Landholding. West Perth: RPS.

From:"Swan Avon Land Use Planning" <swanavon.landuse@dwer.wa.gov.au>Sent:Tue, 11 Mar 2025 08:44:11 +0800To:"David Tomkin" <David.Tomkin@swan.wa.gov.au>Cc:"Bree Lyons" <bree.lyons@dwer.wa.gov.au>Subject:RE: City of Swan Planning Referral - Proposed Park Home Park (Lifestyle Village)- Lot 900 Chittering Road, Bullsbrook (Ref: DA-692/2024)

### OFFICIAL

### OFFICIAL

Dear David,

Based on the new entry road design the Department of Water and Environmental Regulation (DWER) no longer has any objections to the proposal. The City of Swan can be informed of this and this advice will be provided to the City once the revised proposal is referred to DWER.

However, a bed and banks permit under the Rights in Water and Irrigation Act 1914 will be required from DWER. This is generally a formality required under the Act. An engineering assessment of the proposed creek crossing is not undertaken as part of a bed and banks permit. This engineering assessment will need to be undertaken by the City.

The DWER would also recommend that the foreshore area is rehabilitated in accordance with the relevant foreshore management plan, to the satisfaction of the City of Swan.

Regards

## **Jim Mackintosh**

## **Department of Water and Environmental Regulation**

Program Manager Swan Avon Region

**Planning Advice Section** 

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From: David Tomkin <David.Tomkin@swan.wa.gov.au>
Sent: Monday, 10 March 2025 7:42 PM
To: Swan Avon Land Use Planning <swanavon.landuse@dwer.wa.gov.au>

Cc: Info <info@dwer.wa.gov.au>; Bree Lyons <bree.lyons@dwer.wa.gov.au> Subject: City of Swan Planning Referral - Proposed Park Home Park (Lifestyle Village) - Lot 900 Chittering Road, Bullsbrook (Ref: DA-692/2024)

Dear Sir/Madam

# PROPOSED PARK HOME PARK (LIFESTYLE VILLAGE) - LOT 900 CHITTERING ROAD, BULLSBROOK (REF: DA-692/2024)

The City has received a Development Assessment Panel (DAP) application for a proposed Park Home Park (Lifestyle Village) at Lot 900 Chittering Road, Bullsbrook. The application was referred to the Department of Water and Environmental Regulation on 4 November 2024 due to the development proposing an access road and crossing over the Ki-It Monger Brook. On the 11 December 2024, The Department of Water and Environmental Regulation provided comments to the City advising they do not support the crossing in its current location and advised that applicant should negotiate with the City of Swan for a more appropriate route for the access road (see attached). The Department advised they would support a more direct path through the foreshore area, minimizing the impact of the access road on the foreshore area and fringing vegetation.

Subsequently, the City recommended refusal of the application to the Metro Outer Development Assessment Panel due to undue impact the proposed access road and vehicle crossing would have an on Ki-It Monger Brook through the removal of remnant vegetation and earthworks within the waterway. Notwithstanding, the Metro Outer Development Assessment Panel at its meeting held on 27 February 2025 resolved to defer the application for a period of 60 days to allow for the extra information provided by the applicant (dated 6 February 2025), and any additional information required by the City of Swan, to be reviewed and provided to the Department of Biodiversity, Conservation and Attractions and the Department of Water and Environmental Regulations for comment and feedback.

Since the City's original referral dated 4 November 2024, the applicant has amended the proposed access way to better utilise an existing access track which is located outside of the Ki-It Monger Brook. The private driveway will follow the alignment of an existing access track and proposes to use and upgrade an existing crossing point over the Ki-It Monger Brook, which is constructed with two 1.0m diameter pipe culverts. This existing crossing point will be used and upgraded to service the development. No new crossing point is proposed and the proposal will result in the removal of only one (1) flooded gum.

In light of the above, can the Department of Water and Environmental Regulation please review the attached additional information provided by the applicant and advise if they support or object to the proposed access road and vehicle crossing through the Ki-it Monger Brook.

A DAP meeting is to be held on or before 28 April 2025 to reconsider its decision of the abovementioned application and the City is required to provide its recommendation by 16 April 2025. Therefore, it is requested the department provide a response by **COB 9 April 2025 (30 Days)** to assist Council to expedite its decision making process. If no response is received within this timeframe the City will assume you have no comment to make and the application will be processed. All submissions should be sent to <u>Planning-email.Account@swan.wa.gov.au</u> and include myself as the assessing officer <u>David.tomkin@swan.wa.gov.au</u>. Should you have any queries regarding this matter, please do not hesitate to contact David Tomkin on 08 9267 9185.

Kind Regards,

**David Tomkin** Senior Planning Officer Statutory Planning



T: 08 9267 9185 2 Midland Square, Midland | PO Box 196 MIDLAND DC WA 6936 www.swan.wa.gov.au

The City of Swan acknowledges the Traditional Custodians of this region, the Whadjuk people of the Noongar Nation and their continuing connection to the land, waters and community. We pay our respects to Elders past and present, and their descendants.

Disclaimer: This e-mail is confidential to the addressee and is the view of the writer, not necessarily that of the Department of Water and Environmental Regulation, which accepts no responsibility for the contents. If you are not the addressee, please notify the Department by return e-mail and delete the message from your system; you must not disclose or use the information contained in this email in any way. No warranty is made that this material is free from computer viruses.

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Department of **Biodiversity**, **Conservation and Attractions** 



Your ref: D Our ref: 24 Enquiries: Jo Phone: 92 Email: io

DA-692/2024 24-4945 Josie Watson 9278 0910 josie.watson@dbca.wa.gov.au

Chief Executive Officer City of Swan PO Box 196 MIDLAND WA 6936

Attention David Tomkin

Dear Mr Cain

## CLAUSE 30A(2)b(ii) – PARK HOME PARK (LIFESTYLE VILLAGE) – LOTS 900, 9501 & 9030 CHITTERING ROAD, BULLSBROOK – AMENDED APPLICATION

The Department of Biodiversity, Conservation and Attractions (DBCA) provided comment on the original plans for the above development application on 16 December 2024.

DBCA understands that the proposal was considered at the February 2025 Metro Outer Development Assessment Panel meeting where it was resolved to defer the application to allow for extra information provided by the applicant to be provided to the DBCA and the Department of Water and Environmental Regulation (DWER) for review and feedback. The additional information includes an amended alignment for the access road crossing over the Ki-it Monger Brook and a more detailed assessment of environmental impact. The information was received by DBCA on 10 March 2025 and discussed in a meeting on 12 March 2025 with the applicant and representatives.

DBCA has considered the amended alignment of the crossing, and the additional information provided and advises that the crossing can be supported in accordance with the information provided. It is expected that detailed plans would be provided consistent with the information prior to construction.

The Ki-it Monger Brook Foreshore and Wetland Management Plan (FWMP) (RPS, 2018) guides the retention and protection of the brook including remnant vegetation, through controlled access, prevention of weeds and regeneration of native vegetation in designated areas. It is recommended that a condition of subdivision approval be included to require the preparation of an amended, site-specific Foreshore Management Plan to demonstrate how the environmental and water quality values of the Ki-it Monger Brook will be protected at this location.

Please note that DBCA's advice only relates to the proposed amendment to the proposed crossing. All other comments and recommended conditions and advice provided in the letter dated 16 December 2024 remain applicable.

If you have any queries regarding this matter, please contact the officer above. Please quote the above reference number in all correspondence.

Yours sincerely 401 Greg Comiskey Manager, Statutory Assessments As delegate of the Swan River Trust Under Section 28B(2) of the SCRM Act 2006

17 March 2025

## Part B – Item 3.2 – PART LOT 9502 SQUADRON BOULEVARD, BULLSBROOK – PROPOSED SERVICE STATION AND FAST FOOD OUTLET

DAP Name:	Metro Outer
Local Government Area:	City of Swan
Applicant:	Hatch (Tim Trefry)
Owner:	Amex Bullsbrook Pty Ltd
Value of Development:	\$3.5 million
Responsible Authority:	City of Swan
Authorising Officer:	Jonathan Lendich – Coordinator
5	Development Assessment & Appeals
LG Reference:	DA-806/2024
DAP File No:	DAP/24/02822
Application Received Date:	24 October 2024
Report Due Date:	28 March 2025
Application Statutory Process Timeframe:	90 Days with an additional 24 days agreed
Attachment(s):	<ol> <li>Location Plan</li> <li>Development Plans         <ul> <li>a) Broder Context Plan</li> <li>b) Precinct Plan</li> <li>c) Pedestrian Connectivity</li> <li>d) Character Design Precedent</li> <li>e) Overall Masterplan</li> <li>f) Site Plan – Service Station</li> <li>g) Site Plan - Fast Food Outlet</li> <li>h) North and South Elevations – Service Station</li> <li>i) East Elevation – Service Station</li> <li>j) West Elevation – Service Station</li> <li>k) North and South Elevations – Fast Food Outlet</li> <li>l) North and South Elevations – Fast Food Outlet</li> <li>l) East and West Elevations – Fast Food Outlet</li> <li>m) 3D Renders</li> </ul> </li> <li>Landscape Plan – BU-OP-1, Rev E</li> </ol>
	<ol> <li>Planning Report – October 2024</li> <li>Bushfire Management Plan – September 2024</li> </ol>
	<ol> <li>Transport Impact Assessment – October 2024</li> <li>Environmental Acoustic Assessment –</li> </ol>
	March 2025 8. Engineering Services Report – October 2024

Form 1 – Responsible Authority Report (Regulation 12)

9. Endorsed Design Review Report – 11
June 2024
10. Endorsed Design Review Report – 30
July 2024
11. Endorsed Design Review Report – 24
September 2024
12. Endorsed Design Review Report – 13
January 2024

### Officer Recommendation

That the Metro Outer Development Assessment Panel resolves to:

**Approve** DAP Application reference DAP/24/02822 and Accompanying Plans in accordance with Clause 68 of Schedule No.2 (Deemed Provisions) of the *Planning and Development (Local Planning Schemes) Regulations 2015*, and the provisions of Clause 10.3 of the City of Swan Local Planning Scheme No.17, subject to the following conditions:

- 1. This decision constitutes planning approval only and is valid for a period of 4 years from the date of approval. If the subject development is not substantially commenced within the specified period, the approval shall lapse and be of no further effect.
- 2. This approval is for a 'Service Station' and 'Fast Food Outlet' as defined under the City of Swan Local Planning Scheme No.17 and the subject land may not be used for any other use without prior approval of the City of Swan.
- 3. The approved 'Service Station' and 'Fast Food Outlet' are to comply in all respects with the attached approved plans, as dated, marked and stamped. The plans approved as part of this application form part of the development approval issued.
- 4. **Prior to the lodgement of a building approval**, a Statement of Sustainability shall be submitted to the satisfaction of the City of Swan. The Statement of Sustainability shall address, but is not limited to, sustainable construction materials, recycling, good waste management practices, re-use of materials and existing structures (where applicable), harnessing of renewable energy sources, analysis of summer heat gain through windows and total water cycle management. The Statement of Sustainability is to be complied with for the duration of the construction of the development.
- 5. **Prior to the lodgement of an occupancy permit,** the owner of Lot 9502 Squadron Boulevard, Bullsbrook, ("the Land") must enter into a deed of agreement with the City of Swan ("the City") whereby the owner:
  - a. Indemnifies the City against any loss or damage caused to any road reserve or other property of the City or to any person or property of any person arising out of the construction of the development or the use of the road reserve in connection with the development;

- b. Agrees to take out and maintain a policy of public liability insurance with a reputable insurer in an amount satisfactory to the City to insure the City and the owner against all claims for loss or damage or injury occurring to any road reserve or property of the City or any person or property of any person as a result of the construction of the development or in respect to the use of the road reservation in connection with the development; and
- c. Agrees to maintain the development at its cost.
- 6. **Prior to occupation or use of the development**, engineering drawings and specifications must be submitted to and approved by the City of Swan for the modification of the kerbing to a mountable design to facilitate service vehicle movements in accordance with the approved plans and constructed at the applicant's/landowner's cost.
- 7. **Prior to occupation or use of the development**, 20 car parking bays on-site must be provided on the lot in accordance with the approved plans. The design of vehicle parking and access must comply with AS/NZ 2890.1 (as amended). Accessible parking bays must comply with AS/NZ 2890.6 (as amended).
- 8. Vehicle parking, access and circulation areas must be sealed, kerbed, drained and maintained to the satisfaction of the City of Swan, in accordance with the approved plans.
- 9. All crossovers must be built and maintained in accordance with the City of Swan's specifications.
- 10. Vehicle access onto the site shall be restricted to that shown on the approved site plan.
- 11. The noise generated by activities on-site, including machinery motors or vehicles is not to exceed the levels as set out under the *Environmental Protection (Noise) Regulations* 1997.

Noisy Construction Work outside the period 7.00am to 7.00 pm Monday to Saturday and at any time on Sundays and Public Holidays is not permitted unless a Noise Management Plan for the construction site has been approved in writing by the City.

- 12. **Prior to the lodgement of an occupancy permit**, an acoustic study of the mechanical services for both the service station and fast food outlet shall be undertaken once the design has been finalised and submitted for approval to the City of Swan. Mechanical services shall be installed in accordance with an approved acoustic study and maintained thereafter to the satisfaction of the City of Swan.
- 13. Prior to occupation or use of the development, all noise attenuation measures, identified by the Environmental Acoustic Assessment (Reference: 33747-3-24425) prepared by Herring Storer Acoustics, dated 12 March 2025, are to be implemented and the requirements of the Environmental Acoustic Assessment are to be observed at all times, specifically:

- a. The tyre inflator beeper must be set to a noise level of 74 dB(A) at 1 metre from the inflator station, or a screen to be installed to the southern side of the inflator.
- 14. **Prior to the lodgement of a building approval**, a Waste Management Plan must be submitted to and approved by the City of Swan. The plan must include the following details to the satisfaction and specification of the City of Swan:
  - a) The location of bin storage areas and bin collection areas;
  - b) The number, volume and type of bins, and the type of waste to be placed in the bins;
  - c) Details on the future ongoing management of the bins and the bin storage areas, including cleaning, rotation and moving bins to and from the bin collection areas; and
  - d) Times and frequency of bin collections.

The Waste Management Plan must be implemented at all times to the satisfaction of the City of Swan.

- 15. Waste collection is to be limited to between 7.00am and 7.00pm Monday to Saturday and between 9.00am and 7.00pm on Sundays and Public Holidays unless further evidence, to the satisfaction of the City of Swan is provided that compliance can be achieved with the *Environmental Protection (Noise) Regulations 1997* outside of those times.
- 16. The refuse bin area shall be in compliance with the City of Swan Health Local Law 2002 and shall be provided to the satisfaction of the City of Swan prior to the occupation of the development.
- 17. The approved landscaping plan must be implemented prior to occupation of the development, and maintained thereafter, to the satisfaction of the City of Swan. Any species that fails to establish within the first two (2) planting seasons following implementation must be replaced in consultation with, and to the satisfaction of, the City of Swan.
- 18. All air conditioning units, plant and roof equipment and other external fixtures are to be screened from view from the surrounding streets and adjoining properties to the satisfaction of the City of Swan.
- 19. The development shall be connected to the reticulated sewerage system.
- 20. All building works to be carried out under this development approval are required to be contained within the boundaries of the subject lot.
- 21. No goods or materials being stored, either temporarily or permanently, in the parking or landscaping areas or within access driveways.
- 22. External lighting shall comply with the requirements of AS 4282 Control of Obtrusive Effects of Outdoor Lighting.
- 23. External illumination shall not flash or pulsate to the satisfaction of the City of Swan.

- 24. All signs must be placed on private property and must not overhang or encroach the road reservation.
- 25. No bunting is to be erected on the site (including streamers, streamer strips, banner strips or decorations of similar kind).
- 26. All stormwater must be contained and disposed of on-site at all times, to the satisfaction of the City of Swan.
- 27. The colours, materials and finishes of the development shall be in accordance with the details and annotations as indicated on the approved plans which forms part of this approval, to the satisfaction of the City of Swan.
- 28. **Prior to an occupancy permit being issued**, the landowner must contribute a sum of 1% of the total development construction value toward Public Art in accordance with the City of Swan Local Planning Policy for the Provision of Public Art (POL-LP-1.10), by either:
  - a) Payment to the City of Swan a cash-in-lieu amount equal to the sum of the 1% contribution amount (\$29,750 with the applicable 15% discount). This must be paid to the City of Swan prior to the date specified in an invoice issued by the City of Swan, or prior to the issuance of an occupancy permit for the approved development, whichever occurs first; or
  - Provision of Public Art on-site to a minimum value of the 1% contribution amount (\$35,000). The following is required for the provision of Public Art on-site:
    - i. the landowner or applicant on behalf of the landowner must seek approval from the City for a specific Public Art work including the artist proposed to undertake the work to the satisfaction of the City in accordance with POL-LP-1.10 and the *Developers' Handbook for Public Art* (as amended). The City of Swan may apply further conditions in regard to the proposed Public Art;
    - ii. no part of the approved development may be occupied or used until the Public Art has been installed in accordance with the approval granted by the City of Swan; and,
    - iii. the approved Public Art must be maintained in compliance with the approval granted by the City of Swan and any conditions thereof, to the satisfaction of the City of Swan.
- 29. Any additional development, which is not in accordance with the application (the subject of this approval) or any condition of approval, will require further approval of the City of Swan.
- 30. The glazing on the western facade of the 'Service Station', facing Boomerang Road, shall be visually permeable, using clear glass without tinting, film, or highly reflective coatings. Internal shelving or other obstructions shall be minimised to maintain transparency.

### Details: outline of development application

Region Scheme	Metropolitan Region Scheme
Region Scheme -	Urban
Zone/Reserve	
Local Planning Scheme	Local Planning Scheme No.17
Local Planning Scheme - Zone/Reserve	Residential Development
Structure Plan/Precinct Plan	Bullsbrook Townsite District Structure Plan Bullsbrook Central Local Structure Plan Kingsford Town Centre Precinct Plan
Structure Plan/Precinct Plan - Land Use Designation	General Commercial
Use Class and	Service Station 'A' use
permissibility:	Fast Food Outlet 'P' use
Lot Size:	1.621 ha
Existing Land Use:	Vacant Lot
State Heritage Register	No
Local Heritage	⊠ N/A
	□ Heritage List
	□ Heritage Area
Design Review	
	☑ Local Design Review Panel
	State Design Review Panel
	□ Other
Bushfire Prone Area	Yes
Swan River Trust Area	No

### Proposal:

The City of Swan has received a Development Assessment Panel application from Hatch on behalf of their client for a proposed 'Service Station' and 'Fast Food Outlet' at Lot 9502 Boomerang Road, Bullsbrook. It is noted the development is proposed over the southern and central portion of the site, with the remainder of the site subject to future development. A 'Fast Food Outlet' has been approved on the lot under DAP/24/02751.

The service station consists of a main station building and three (3) fuel bowsers, which will provide six (6) refuelling spaces (two on each side), as well as various signage, imagery and branding. The service station is proposed to operate 24 hours per day, seven (7) days per week.

A total of 10 parking spaces will be provided for the service station, with vehicle access via a full-movement crossover at the southern site frontage along Squadron Boulevard and a Left-in/Left-out crossover from Boomerang Road.

The fast food outlet consists of the main restaurant, a drive through facility designed to accommodate the queuing of 20 cars across two ordering lanes, and associated wall signage. The fast food outlet is proposed to operate 24 hours per day, seven (7) days per week.

A total of 10 parking bays have been provided on site with vehicle access proposed via crossovers to the north and east (internal roads) and a full movement crossover to the south onto Squadron Boulevard.

## Background:

The subject site is located at Lot 9502 Squadron Boulevard, Bullsbrook, which is a vacant irregular shaped lot with frontages to Boomerang Road and Squadron Boulevard. The subject land is zoned 'Residential Development' under the City of Swan Local Planning Scheme No.17 (LPS17) and 'Urban' in the Metropolitan Region Scheme (MRS).

The development site is subject to the Bullsbrook Townsite District Structure Plan and the Kingsford Town Centre Precinct Plan. The development site is identified as being 'General Commercial' within the Kingsford Town Centre Precinct Plan and has the character areas of 'Retail' and 'Service Commercial' across the site. The site is bound by Residential Development zoned land to the north and east, General Rural zoned land to the south and Special Use zone to the West.

## Legislation and Policy:

### Legislation

- Planning & Development Act 2005
- Metropolitan Region Scheme (MRS)
- Planning and Development (Local Planning Schemes) Regulations 2015
- Planning and Development (Development Assessment Panels) Regulations 2011
- Local Planning Scheme No.17

### State Government Policies

- State Planning Policy 5.4 Road and Rail Noise
- State Planning Policy 7.0 Design of the Built Environment

### Structure Plans/Activity Centre Plans

- Bullsbrook Townsite District Structure Plan
- Kingsford Town Centre Precinct Plan

### Local Policies

- POL-TP-125 Building and Development Standards Commercial Zones
- POL-LP-1.10 Provision of Public Art
- POL-LP-1.13 Design Review
- POL-C-070 Advertising Signs within Commercial and Industrial Zones

### Local Development Plans:

• Kingsford Estate Local Development Plan

### Consultation:

### Public Consultation

The application was advertised for a period of 14 days in accordance with Clause 64 (7) Advertising applications of Schedule No.2 (Deemed Provisions) of the *Planning and Development (Local Planning Schemes) Regulations 2015.* The 14 day consultation period commenced on 10 January 2025 and concluded on 24 January 2025. Letters were sent to owners and occupiers directly abutting the development lot, and a notice was placed on the City of Swan's website. During the public consultation period, a total of one (1) submission of no objection was received.

### Referrals/consultation with Government/Service Agencies

No referrals undertaken.

### **Design Review Panel Advice**

In accordance with State Planning Policy 7.0 – Design of the Built Environment, the Proposal was presented to the City of Swan's Design Review Panel to undertake a Design Review of the proposed development. This is discussed in the Planning Assessment section of this report.

### Planning Assessment:

### Zoning and Use Class Permissibility

Under the City of Swan's Local Planning Scheme No.17 (LPS17), the subject site is located within the 'Residential Development' zone. The land is subject to an approved local structure plan which identifies the subject land as having a nominal zoning of 'General Commercial'.

The use of the land for a 'Service Station' is an advertised ('A') use in a general commercial zone which means that the use is not permitted unless the local government has exercised its discretion by granting planning approval after giving special notice in accordance with clause 9.4;

The use of the land for a 'Fast Food Outlet' is a permissible use in a general commercial which means that the use is permitted by the Scheme provided the use complies with the relevant development standards and the requirements of the Scheme.

The objectives of the 'General Commercial' zone are listed as follows:

- a) encourage those uses necessary to provide convenience shopping of the lower order outside the Strategic Regional Centre;
- b) avoid development of land for any purposes or in any manner likely to compromise development of the Strategic Regional Centre or the efficient distribution of commercial services within the district;

- c) ensure development provides a high level of visual attraction at street level, and does not unduly detract from the visual amenities of adjacent residential areas;
- d) ensure any on-site advertising is integrated with the overall site development and does not detract from the amenities of the adjacent area;
- e) promote the development of continuous commercial frontages and the integration of adjacent commercial development so as to facilitate pedestrian access to and within commercial areas;
- f) enhance the amenities of the area and the development of a more sustainable environment through the use of complementary landscaping, including shade trees and stormwater recharge facilities.

### Objective (a)

Objective (a) is not relevant to this proposal as the development site is located within the Strategic Regional Centre.

### Objective (b)

The proposed 'Service Station' and 'Fast Food Outlet' are not considered to compromise development of the Strategic Regional Centre as the uses are consistent with the intended use of the site and intent of the structure plan.

The 'Service Station' complies with the guiding principles of the 'Service Commercial' character area as the proposal will service the local needs of the community and provides local employment opportunities.

The 'Fast Food Outlet' complies with the guiding principles of the 'Retail' character area as the development provides the convenience of fast food options in the western portion of the town centre, near the entry road with the higher traffic volumes and with visibility and access from Great Northern Highway.

### Objectives (c) to (f)

The question as to whether the proposed development does not unduly detract from the visual amenities of adjacent residential areas, promotes pedestrian integration, and enhances the amenities of the area through sustainable design can be measured against proposed noise and traffic generation as well as site planning and built form, which are addressed further in the report.

### Kingsford Town Centre Precinct Structure Plan

In addition to the above, the development site is identified as being within both the 'Retail' and 'Service Commercial' character areas within the Kingsford Town Centre Precinct Plan which have the following guiding principles:

## <u>Retail</u>

Vision: The retail heart of the Town Centre and will accommodate a mix of retail uses in a shopping centre development and associated car parking. The guiding principles for this character area include:

- Provides a welcoming and convenient shopping district centre and environment for the Kingsford Community;
- Public community spaces that provides a safe and attractive environment for pedestrians;
- Integration and synergy between Main Street and the shopping complex; and
- Shaded car parking areas.

## Service Commercial

Vision: *Enjoying a high level of vehicle access and located on the edge of the town centre, this area is ideally suited for land uses and development that have greater reliance on car based access for their viability.* The guiding principles for this character area include:

- To comprise service commercial, fast food + petrol station that services the local needs and provide local employment opportunities;
- Quality buildings of various scale with engaging architectural form, detail, materials and colour;
- Generous landscaping for shading car parking areas; and
- Signage integrated with buildings + pylon signage opportunity.

The consideration of compliance against the 'guiding principles' of the 'Retail' and 'Service Commercial' character areas has also been addressed through consideration of the site planning and built form further in the report.

## Site Planning and Built Form

The development has been considered against State Planning Policy 7.0 – Design of the Built Environment. State Planning Policy 7.0 outlines the 10 principles for good design and establishes the framework for integrating design review as a part of the evaluation process. The City of Swan's Local Planning Policy POL-LP-1.13 Design Review requires all Development Assessment Panel applications be subject to the design review process.

The development in the form of a pre-lodgement application was presented at the City of Swan's Design Review Panel meeting on 11 June 2024, 30 July 2024, and 24 September 2024. A further review was undertaken in the form of a chair review by the Design Review Panel chairperson on 13 January 2025, post lodgement of the development application with the City of Swan.

The final Design Review comments conclude support for the development, with comments regarding recommended conditions of approval in respect to the provision of a sustainability statement report. The panel also recommend a condition requiring visually permeable clear glass to be used on the convenience store where it faces the adjoining street. City of Swan staff consider conditions will address the remaining concerns raised by the Design Review.

Through the evolution of the proposal through the design review process, it is considered the proposal also generally complies with the 'development standards' set out within Part 3.5 of the Kingsford Town Centre Precinct Structure Plan with the panel concluding the architectural character, built form and scale is an appropriate typology for an emerging urban centre.

In light of the above, City of Swan staff and the Design Review Panel consider that subject to suitably worded conditions, the proposed fast food outlet meets the 10 design principles of State Planning Policy 7.0 and the 'development standards' within the Kingsford Town Centre Precinct Structure Plan.

## Local Planning Policy POL-TP-125 - Building and Development Standards Commercial Zones

POL-TP-125 applies to all development within the general commercial zone. Although the subject site and surrounding area is yet to be developed, it can be readily assumed the scale of the developments will be consistent with the future streetscape of the Bullsbrook town centre which will consist of retail, commercial, cultural and entertainment uses as per the objective of the structure plan.

The following variations are proposed:

- With regards to lot boundary setbacks, the service station is proposing a 0m setback to Boomerang Road in lieu of the required 9m. Although this represents a technical variation of 9m, Part 3.5 'development standards' of the Kingsford Town Centre Precinct Structure Plan allows buildings within the 'Retail' and 'Service Commercial' character areas to be constructed with nil setbacks to lot boundaries. Taking this into consideration, the proposed setback from Boomerang Road is appropriate and will initiate the intended district centre development. Furthermore, the design review panel concluded support for the development.
- The 'Service Commercial' development standards in the precinct structure plan require awnings to have a minimum depth of 2.4m for full building frontage to the primary street. The application proposes the awning along the Boomerang Road frontage with a width of 1.2m. This variation is acceptable given the awning adjacent to Squadron Boulevard is on the south side of the development and not along the entry and therefore shelter from the elements is less critical. In addition, the road reserve will contain broad canopy shade trees to provide shade to the adjacent glazing.
- The service station provides 20% glazing of the front façade in lieu of the required 50% as designated by the 'Service Commercial' character area built frontage requirements in the precinct structure plan. The applicant has justified the reduced glazing noting the glazing on the west-facing façade has been reduced to align with sustainability objectives by minimising heat load into the building, while glazing on the bin store is considered inappropriate. Instead, full glazing is provided on the east elevation, which faces the north-south road. A condition is recommended requiring the glazing to the west to be visually permeable and mostly free of obstruction.

City of Swan staff consider the proposed fast food outlet is overall consistent with the requirements of POL-TP-125 Building and Development Standards - Commercial Zones.

### Kingsford Estate Town Centre Local Development Plan

The site is subject to a local development plan which applies to all development on the

subject lot. The proposal is considered to comply with the built form requirements of the local development plan.

Notably, the proposed development satisfies the built form provisions of the LDP which requires buildings to be located within the indicative envelopes. Furthermore, the site is accessed via the designated vehicles access points and service vehicles can enter and exit the property in a forward gear as demonstrated in the provided turning path analysis. The service station proposes a pylon sign which will not be incorporated into the fabric of the building as required in the LDP. The variation is discussed further under 'Signage' below.

## Traffic, Access and Parking

The structure plan identifies car parking standards for the various Character Areas within the town centre. The proposed fast food outlet was assessed against those rates prescribed for the 'retail' character area, which requires four (4) car spaces per 100sqm of NLA. Based on these standards, the development requires 9 parking spaces. The application has provided 10 on-site parking spaces. The proposed service station was assessed against the rates for the 'Service Commercial' character area, which requires 2.5 car spaces per 100sqm of NLA. Based on these standards, the development requires six (6) parking spaces. The application has provided 10 on-site parking spaces. The proposed service station spaces per 100sqm of NLA. Based on these standards, the development requires six (6) parking spaces. The application has provided 10 on-site parking spaces. Parking is therefore compliant for both the fast food outlet and service station.

The Traffic Impact Assessment (TIA) prepared and submitted in support of the application concludes the development will have negligible impact on the surrounding road network. The traffic generated by the proposed service station and fast food outlet forms part of the anticipated traffic generation of the Kingsford Town Centre Precinct which was been planned for as part of the approved structure plan.

Parking bays and manoeuvring within the site meet AS2890.1 as demonstrated in the provided swept path analysis, however the kerbing of the crossover will need to be modified to mountable kerbing to allow service vehicles to exit the site, this will be recommended as a condition.

Access to the development is proposed via a full movement crossover to the southern site frontage (Squadron Boulevard) and a left-in/left-out crossover from Boomerang Road. The site can also be accessed via an internal road that will connect to the roundabout constructed on Boomerang Road providing full movement access. The submitted TIA details that the proposed developments are expected to generate approximately 194 vehicle trips (97 in / 97 out) during the Saturday peak period. The estimated vehicle movements are within the capacity of the adjacent road network with City of Swan staff concurring with these findings.

City staff concur with the findings of the TIA insofar that the existing road network can accommodate the additional traffic generated by the proposed development and will not place undue stress on the existing infrastructure.

## <u>Noise</u>

The Applicant has provided an Environmental Noise Assessment prepared by Herring Storer Acoustics in support of the proposal. Based on the assessment conducted, the report concludes the proposed fast food outlet complies with the requirements of the *Environmental Protection (Noise) Regulation 1997* and the proposed service station complies with the requirements of the *Environmental Protection (Noise) Regulation 1997*, provided that the tyre inflator is set to a noise level of 74dB(A) at 1 metre from the inflator station, or a screen is installed on the southern side of the inflator.

Although the subject site is located within the policy trigger distances to Great Northern Highway, the development is not considered a noise sensitive land use pursuant to clause 4.1.3 of State Planning Policy 5.4 - Road and Rail Noise and is not required to incorporate any additional noise attenuation measures.

At this stage of the project, the mechanical service has not been designed. Therefore, the noise sources have been based on designs used for the same or similar tenancies. It is recommended that, should the application be approved, a condition be included requiring the submission an acoustic study of the mechanical services for both developments once the design has been finalised.

## **Emissions**

State Planning Policy 4.1 Industrial Interface aims to consider the impact of industrial land uses, avoid, mitigate or manage potential impacts on the health and amenity of people and the environment and manage the transition between industrial and sensitive land uses. State Planning Policy 4.1 sets out the recommended separation distances for land uses that have the potential to generate off-site emissions. This is in order to provide for the safety and amenity of surrounding sensitive land uses. The Environmental Protection Authority has prepared a guidance note entitled 'Separation Distances between Industrial and Sensitive Land Uses' to assist in the implementation of State Planning Policy 4.1.

The guidance note suggests a general buffer (or separation distance) of 200m around service stations operating for 24 hours a day in order to protect surrounding sensitive land uses from potential risk and gaseous, noise and odour emissions associated with such development. The closest sensitive receiver is setback over 200m from the development. Nevertheless, should the setbacks be under 200m, its general practice for this type of development to incorporate relevant safety requirements such as standardised vapour recovery system as required under the Australian Standards and state regulations will be incorporated into the development. The Applicant/Landowner is also required to obtain a separate Dangerous Goods License under the *Dangerous Goods Safety Act 2004*, which addresses on-site and off-site risk of the service station on patrons and surrounding land uses.

## **Bushfire**

A Bushfire Management Plan (BMP) was prepared by Emerge associates for the Kingsford Town Centre dated September 2024. The northern and southern portions of the subject site are identified as being bushfire prone, the proposed fast food outlet is outside of the identified bushfire prone areas however the service station sits within it. The BMP identifies the proposed development area to be non-vegetated. The BMP outlines that these areas are not classified as a bushfire risk and therefore not included within the vegetated risk classification. Additionally, post development, the subject site is considered to have BAL rating of 12.5 to low. This confirms the development area as being a low threat to any bushfire risks. Notwithstanding this, State Planning Policy 3.7 no longer references high risk land uses as the nature of these land uses are subject to regulatory requirements under separate legislation. In the instance of this development, the Applicant/Landowner is required to obtain a separate Dangerous

Goods License under the *Dangerous Goods Safety Act 2004*, which addresses on-site and off-site risk of the service station including bushfire risk.

## Local Planning Policy POL-C-070 - Advertising Signs within the Commercial and Industrial Zones

The development includes various advertising signs associated with the development including wall mounted, way finding and illuminated signs as well as brand-specific signs. One (1) pylon sign is proposed for the service station.

The LDP for the Kingsford Town Centre requires signage is to be incorporated into the fabric of the building, unless otherwise identified on the Structure Plan. The service station proposes a variation to this with the construction of a pylon sign. The variation can be supported as signage of this nature is to be expected as part of a service station development and is not considered unreasonable within a commercial zone.

The service station also proposes a variation to POL-C-070 with branded signage located above the roof. The signage is integrated with the material of the roof, consistent with other similar proposals including the 7/11 service stations in Ellenbrook, Brabham and Caversham.

City staff are satisfied that the proposed signage does not create an unnecessary proliferation of signage on site and has been designed to integrate into the proposed development site and the context of its surroundings. As such, the proposed signage is deemed appropriate and complies with the relevant provisions of the City's Local Planning Policy POL-C-070 Advertising Signs within the Commercial and Industrial Zones and Part 3.6 of the Kingsford Town Centre Precinct Structure Plan.

## Local Planning Policy POL-LP-1.10 - Provision of Public Art

The City of Swan's Provision of Public Art Policy requires the proponent to make a contribution to Public Art. This can be either a cash-in-lieu contribution of \$29,750 (being 1% of the estimated \$3.5 million development cost inclusive of the applicable 15% discount per the Policy), or the provision of Public Art onsite to the value of \$35,000. This is recommended as a condition of approval should the development be approved.

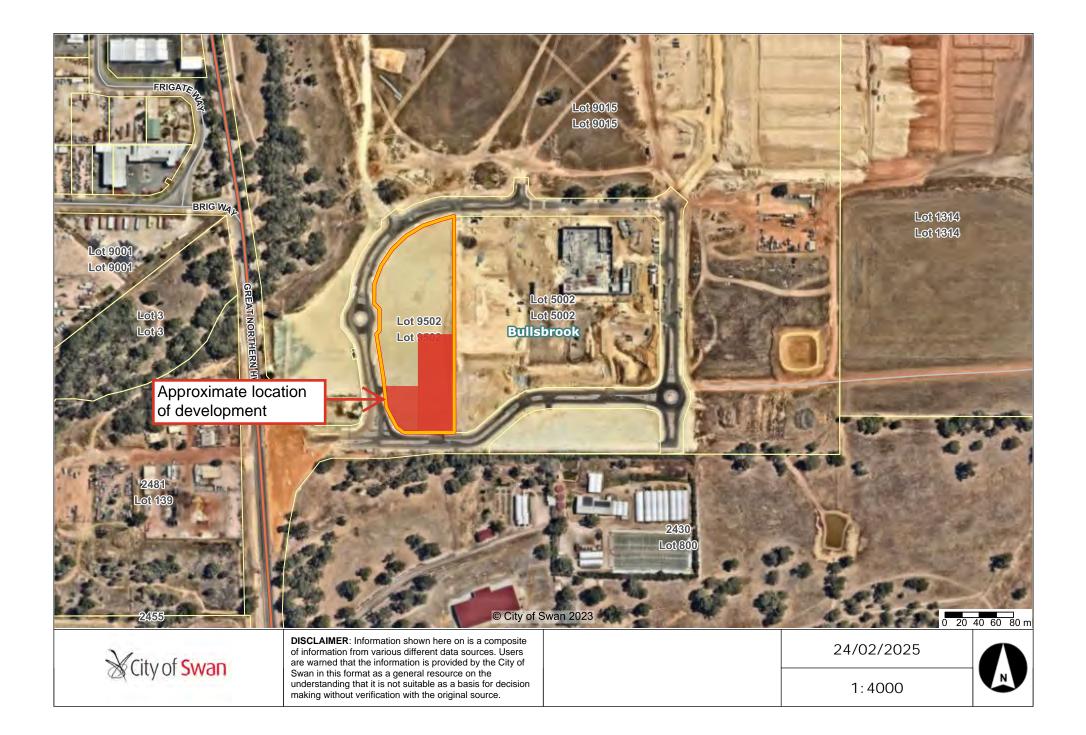
## Conclusion:

The City of Swan has received an application for a 'Service Station' and a 'Fast Food Outlet' over a portion of Lot 9502 Boomerang Road, Bullsbrook. The use of the land for a 'Service Station' is an advertised ('A') use in a general commercial zone which means that the use is not permitted unless the local government has exercised its discretion by granting planning approval after giving special notice in accordance with clause 9.4; The use of the land for a 'Fast Food Outlet' is a permitted ('P') use meaning that the use is permitted by the Scheme provided the use complies with the relevant development standards and the requirements of the Scheme.

The development is considered to appropriately address the City of Swan Local Planning Scheme No.17, Local Planning Policies and The Kingsford Town Centre Precinct Structure Plan. This is reinforced through the outcomes of the Design Review which concluded that the development meets the Design Principles of State Planning Policy 7.0 – Design of the Built Environment, subject to conditions.

It is also concluded that the development has provided the required number of car parking spaces on-site. The City of Swan is also satisfied that the estimated traffic generated by the development can be accommodated within the existing road network with no material impact as demonstrated by the provided Transport Impact Statement.

It is recommended that the Metro Outer Development Assessment Panel approve the application, subject to conditions.





 $( \top$ 

**Development Application** 

## Broad Context Plan Pg 2 Rev C 02 2025



## 

## LEGEND

## 

	GENERAL COMMERCIAL	
RESIDENTIAL R40-R60		
PUBLIC PURPOSE		
PS	PRIMARY SCHOOL	
WC	WATER CORPORATION	
D	D DRAINAGE	
	POS/ CONSERVATION	
	DISTRICT OPEN SPACE	

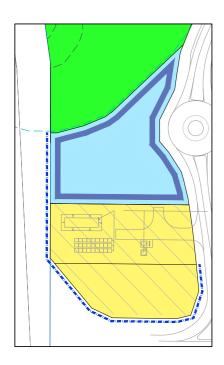
### CHARACTER AREA

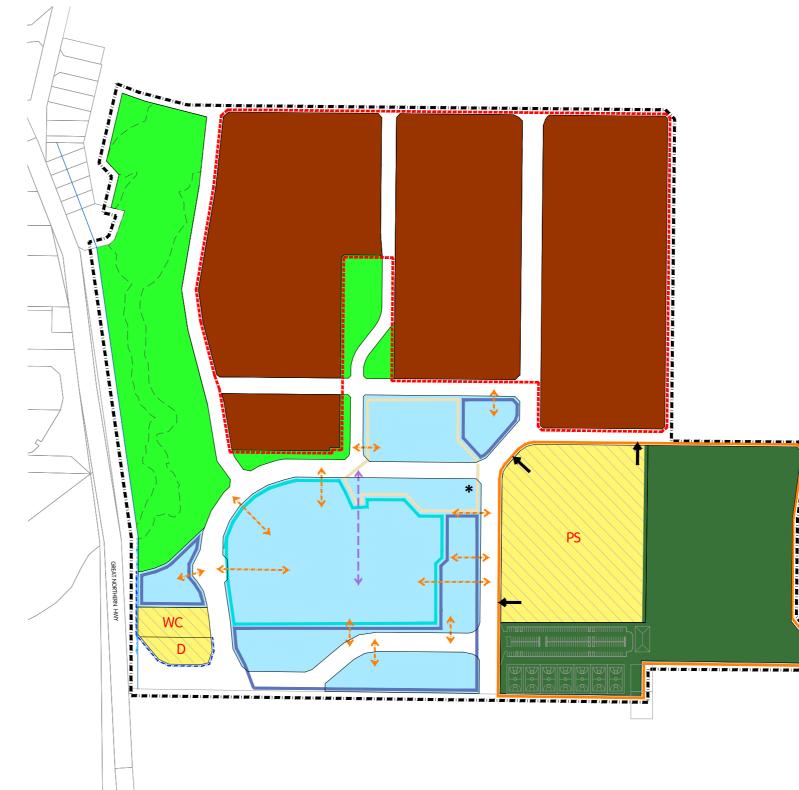


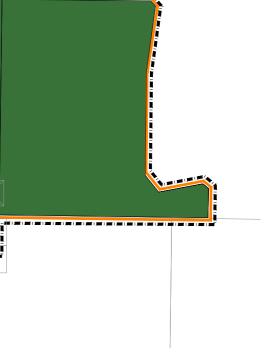
### OTHER

 NO VEHICLE ACCESS IS PERMITTED

- *Vertice* PEDESTRIAN LINKAGES
- ✓→ VEHICLE ACCESS
- LANDMARK BUILDING \* SAFE ROAD CROSSINGS



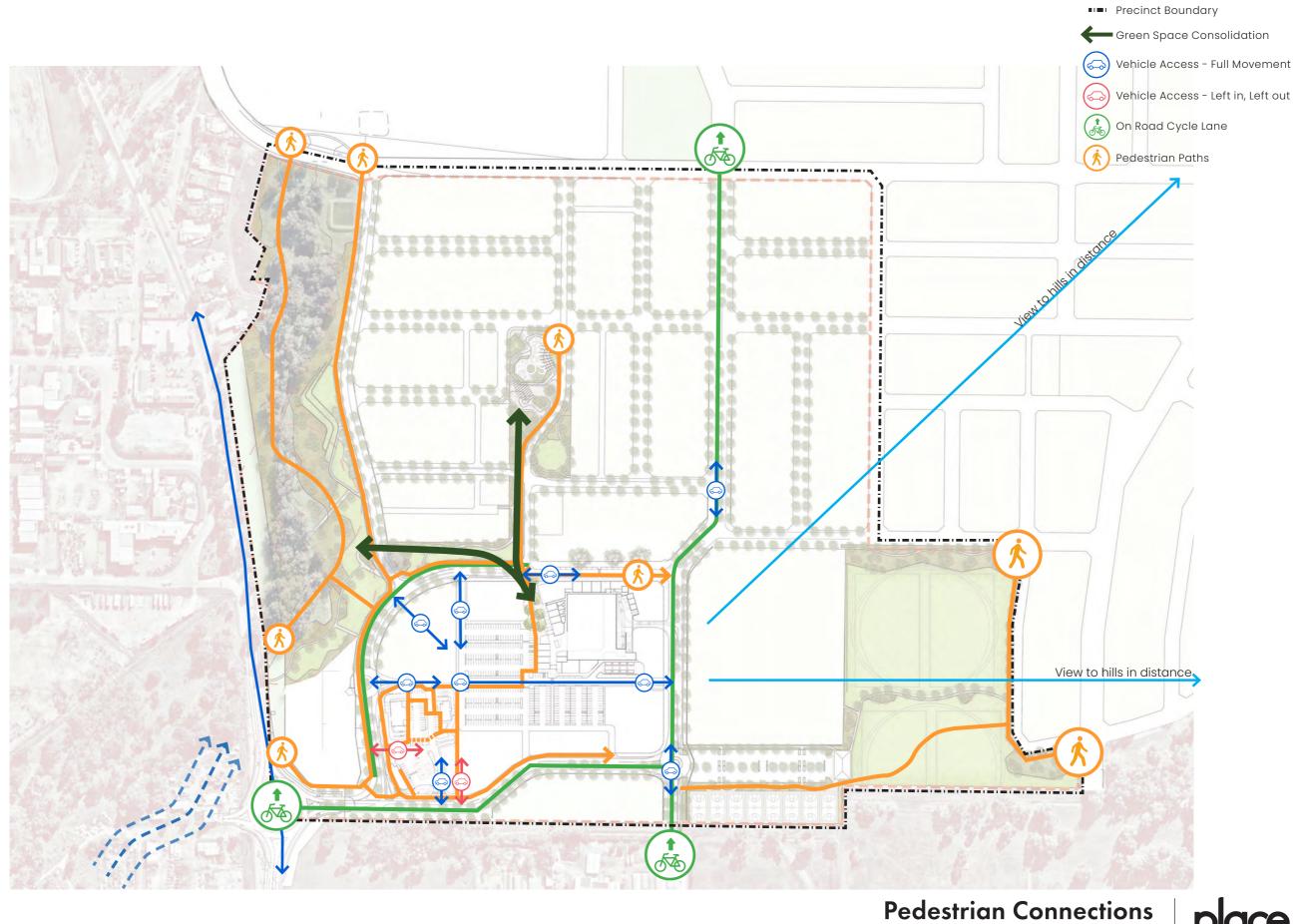






Pg 3 Rev C 02 2025





**Development Application** 

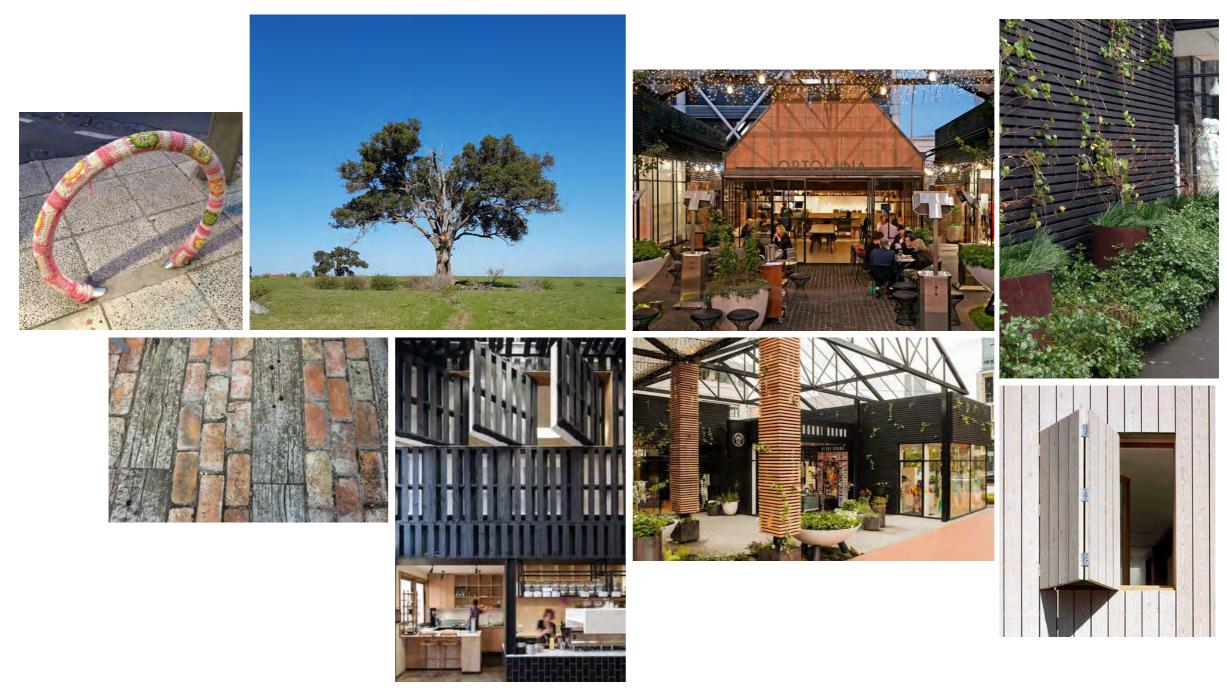
## Legend

Pg 4

Rev C 02 2025



## 'Town to Country'



**Development Application** 







Scale 1:500 @ A3

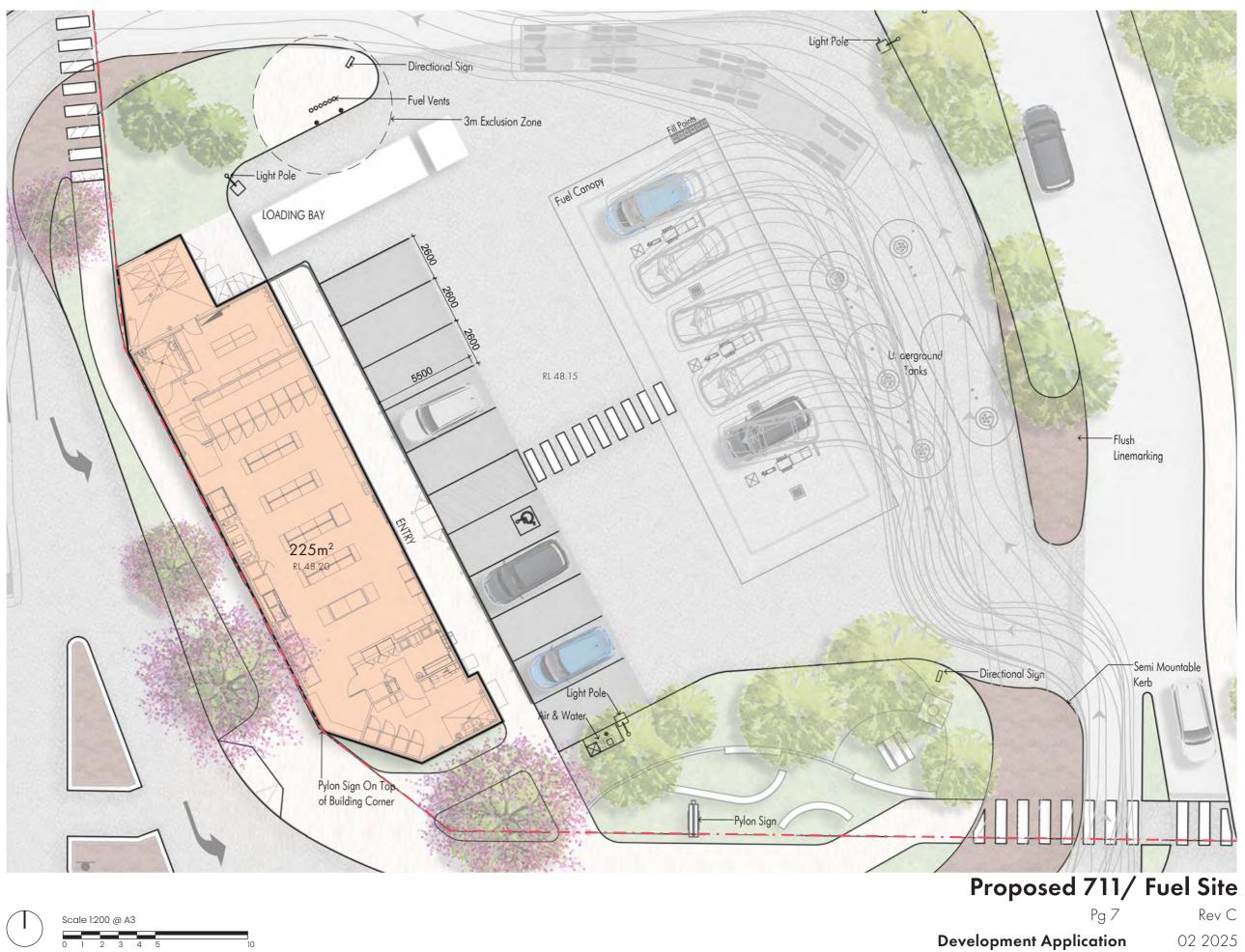
Pg 6Rev CDevelopment Application02 2025



Tenancy Breakdown
Fast Food
711 / Fuel
Boundary Line









## Tenancy Breakdown

- Fast Food
- 711 / Fuel
- Boundary Line





Scale 1:200 @ A3

**Development Application** 

Tenancy Breakdown	
Fast Food	
711 / Fuel	
Boundary Line	





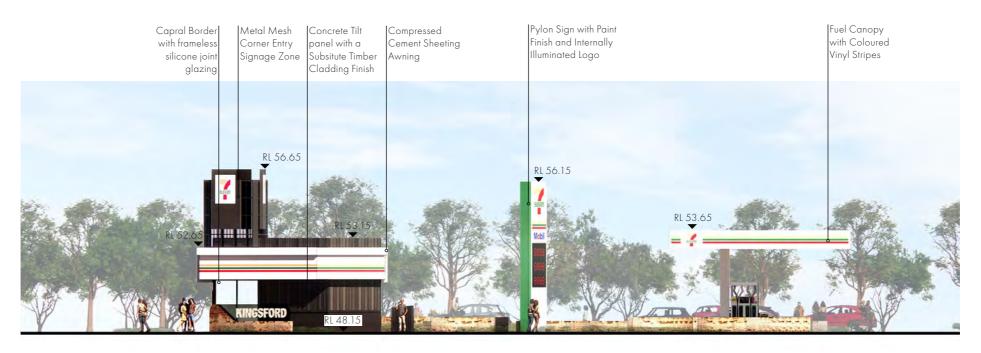
Pg 8 cation







## North Elevation



South Elevation

**Development Application** 

Scale 1:200 @ A3







East Elevation - Without Canopy



East Elevation - With Canopy

**Development Application** 

Scale 1:200 @ A3









West Elevation

**Development Application** 

Scale 1:200 @ A3

4







South Elevation



North Elevation

**Proposed Fast Food Elevations** 

**Development Application** 

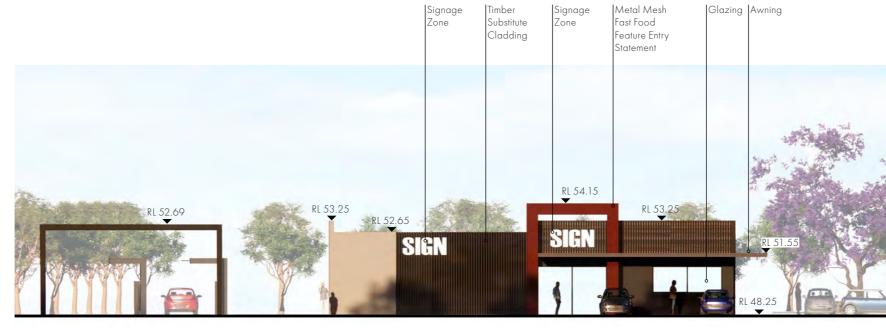
Scale 1:200 @ A3



Pg 12







## West Elevation



East Elevation

**Proposed Fast Food Elevations** 

**Development Application** 

Scale 1:200 @ A3



Pg 13

Rev C 02 2025







Pg 14





Pg 15 Development Application

3D Render Rev C 02 2025







Pg 16 Development Application

3D Render Rev C 02 2025







Pg 17 Development Application







Pg 18 Development Application

3D Render Rev C 02 2025







Pg 19 Development Application





KINGSFORD - PROPOSED FUEL STATION, FAST FOOD AND FUTURE DEVELOPMENT LANDSCAPE CONTEXT PLAN

REV E

DATE 28.02.2025





STONE WALLS





CURVED WALLS



RECYCLED BRICK INLA



**BRICK STEPS** 



LASER CUT STEEL

existing Kingsford materiality & character

earthy timeless materials provide grounding to stylish contemporary finishes

colours/tones to harmonise

with brook



NATURE PLAY

COMMUNITY ACTIVATION



STACKED STONE

RAISED PLANTE

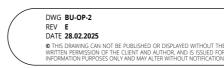




" The materials, vegetation and colour palette selections provide an aesthetic that pays respect to the rural character of the area but with a contemporary edge ."



KINGSFORD - PROPOSED FUEL STATION, FAST FOOD AND FUTURE DEVELOPMENT KINGSFORD EXISTING PUBLIC OPEN SPACE CHARACTER AND MATERIAL PALETTE











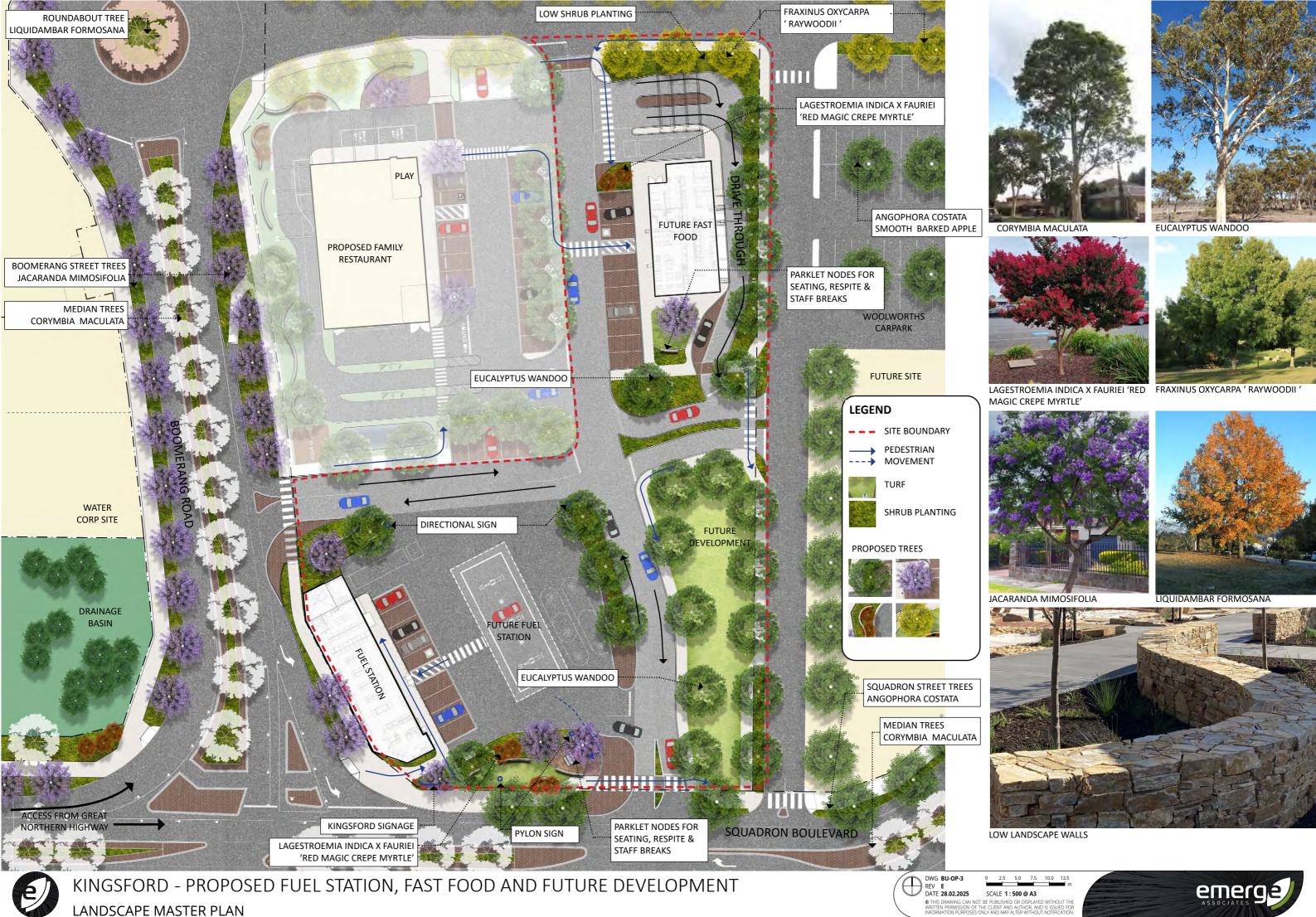


PROPOSED PLANTINGS



**DECIDUOUS SOLAR PASSIVE TREES** 





LOW NATIVE SPECIES TO BE INCLUDED TO GARDEN BED AREAS TO TIE IN WITH PROPOSED KINGSFORD STREETSCAPE PLANTING AND ENSURE THAT SIGHTLINES REMAIN OPEN FOR VEHICLE AND PEDESTRIAN SAFETY





KINGSFORD - PROPOSED FUEL STATION, FAST FOOD AND FUTURE DEVELOPMENT PLANTING PALETTE





## PETROL STATION AND FAST FOOD DEVELOPMENT APPLICATION (DAP)

## KINGSFORD TOWN CENTRE

OCTOBER 2024





ΗΔΤCΗ

Title	Kingsford Town Centre Development Application	
Project	Bullsbrook, WA	
Prepared for	Okeland Communities	
Reference	AMX BUL	
Status	For Lodgement	
Version	A	
Date of Release	October 2024	
Author	T. Trefry	
Approved by	T. Trefry	

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## 1.0 Introduction

### 1.1 Pre-Lodgement Engagement

Pre-lodgement engagement was undertaken with the City of Swan in two executive meetings attended by the City's senior planning staff and executives, Okeland Communities and Hatch. The interest from commercial operators for the two sites was raised and the intention to lodge a Development Application (DA) was discussed. A number of matters were discussed including the need to lodge a comprehensive package of information to address the statutory planning framework and matters raised in the approved Precinct Structure Plan.

### 1.2 Pre-Lodgment Design Review

As part of the pre-lodgement process, a design review of the draft plans was presented to and discussed with the City of Swan appointed Design Review Panel (DRP) at two separate meetings. Final draft panels were then tabled at a third DRP meeting incorporating previous feedback for consideration. A copy of the design review report is provided at Appendix 1 for reference. The design review was largely supportive and noted that with some further amendments and a commitment to sustainability the proposal could be supported in the context of meeting the ten design principles of SPP 7.

## 2.0 Land Description

### 2.1 Lot Details

Table 1. Certificate of Title Details		
Address	Squadron Blvd Bullsbrook	
Lot	9502	
Owner	AMEX Bullsbrook Pty Ltd	
Deposited Plan	426855	
Volume	4051	
Folio	404	

## 3.0 Contextual Considerations

### 3.1 Description of Context

In terms of regional context, the development sites form part of Kingsford Estate which is situated approximately 40km north-east of the Perth CBD and 25km north of Midland. It is located adjacent the existing Bullsbrook townsite and the Royal Australian Air Force base – Pearce, on Great Northern Highway.

The Kingsford Town Centre is located in the Southern portion of the estate adjacent the main access onto Great Northern Highway. The existing Bullsbrook townsite is in need of an upgrade with a limited range of outlets + facilities to service the needs of an increasing resident base.

The Kingsford Town Centre will ensure the delivery of a contemporary retail offering in concert with an active public realm while also providing important employment generator for the locality. The Kingsford Town Centre will service the existing Bullsbrook residents, several other smaller residential estates to the north, Shire of Chittering rural - residential estates and the future South Bullsbrook residential area.

The subject sites are located within the Town Centre of Kingsford estate in Central Bullsbrook. The proposed service station (7-Eleven) and fast-food sites are in the southwest portion of the central retail area on the northern side of the estate entry road, Squadron Boulevard. Boomerang Road forms the western boundary of the site with Lot 5002 being the Woolworths shopping centre site on the eastern boundary, currently under construction and due to open late 2025.

A McDonalds fast-food outlet is subject to a development application on a site directly north of the 7 – Eleven service station site and west of the proposed fast-food site.

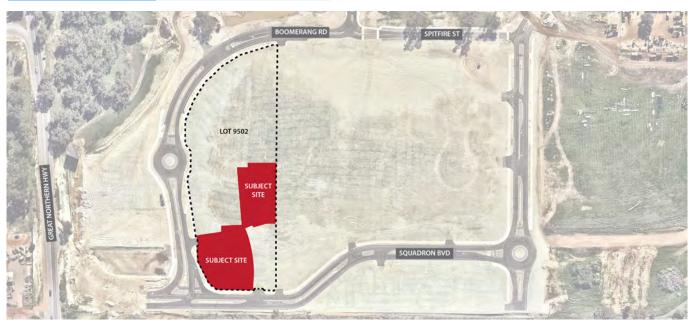


FIGURE 1: Location Plan

## 3.2 Existing Site Conditions

The Town Centre area is located on the relatively flat landscape of the Swan Coastal Plain. Kingsford estate ranges in elevation from approximately 122 m Australian Height Datum (AHD) in the east, to 46 m AHD to the South-West across approximately 300m. The town centre is located on the western edge of the estate and comprises a flat landscape that is ideally suited to the development of a Town Centre. The subject land for the proposed 7-Eleven & fast-food has been cleared and earth worked ready for development. The land is generally flat with a minor grade in a north-south direction with contours ranging from RL 48.9 in the north-east to RL 48.2 in the southwest. Figure 2 shows the earth worked site and service connection points.

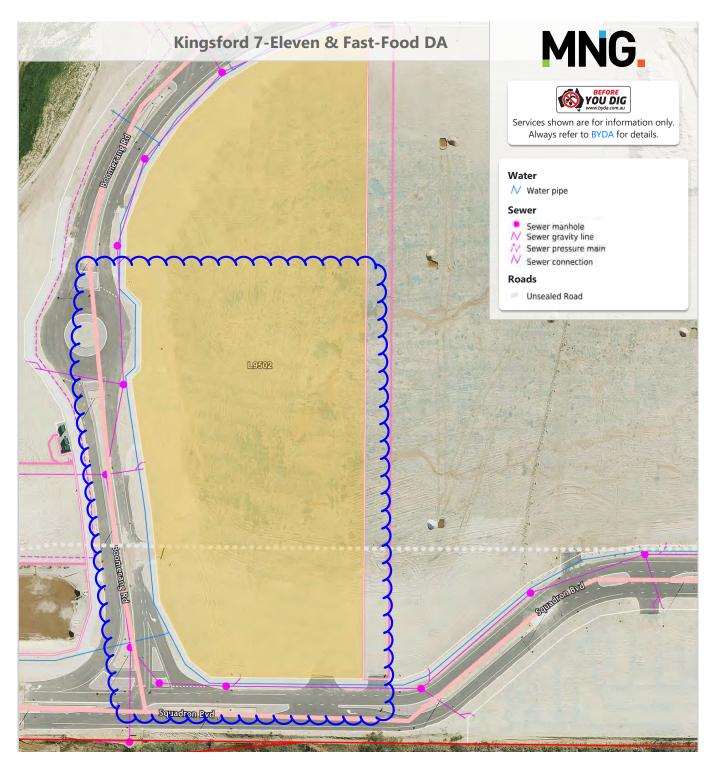


FIGURE 2: Earth Worked Site and Service Connection Points

## 4.0 Proposed Development

## 4.1 7-Eleven Service Station

The proposed 7- Eleven service station will provide access to petrol and other convenience items to the surrounding Kingsford community and motorists accessing the town centre via Squadron Boulevard. The facility will be open 24/7, staffed with 3-4 employees during peak hours, 1 employee overnight, and 2 employees during other operating hours. The development features good connectivity to the surrounding pedestrian network and reinforces a pedestrian friendly environment around the site to enhance opportunities for local residents to walk to the site to access the various incidental convenience goods available. A landscaped seating area is provided at the southern side of the building which allows the local community to gather and linger, staff to take a break and have lunch, reinforcing this development's role as a local facility. The development has been designed and incorporated feedback from the Design Review Panel (DRP) to address the street and key SW corner, integrating with the adjacent corner and celebrating its interface with the main entry into the town centre.

The built form addresses the adjacent roads / roundabout in association with a high-quality landscape design. Various changes have been made to the built form and the public realm based upon feedback from the City of Swan and DRP. (Refer attached elevations and renders).

The service station building is 225sqm in Gross Leasable Area (GLA) and contains an internal sales area with associated point of sale, office, back of house areas and seating area facing the corner. Full height windows are provided at the southern side of the building which allow the internal seating area to engage with the public realm, providing passive surveillance of the main entry road – Squadron Boulevard.

The Squadron Boulevard & Boomerang Road facades are enhanced with a feature awning, providing pedestrians with cover and extending over the windows along this part of the building to reduce internal heat gain. The awning element provides additional articulation and visual interest when viewed from the corner. At the eastern side (internal elevation), the service station building provides the typical 7-Eleven shopfront format with glazed entry and shopfront windows providing clear visibility to the forecourt. The distinct 7-Eleven blade wall tower is located on the Squadron Boulevard entrance. An awning extends over the entrance to provide patrons with cover from the weather as they enter and exit the building.

A pathway is provided adjacent the building which forms part of a wider pedestrian network providing safe movement & linkages to the fast-food sites to the north and wider retail / shopping precinct to the east. The proposed pedestrian access arrangements include site crossovers, and the crossovers will be constructed in red concrete as an urban design measure to reinforce a pedestrian friendly crossing environment.

The forecourt contains ten shopfront parking spaces (including an ACROD bay with shared space and an air/water bay. These parking bays and central canopy will be screened by high quality landscaping and shaded seating area within a landscape strip integrating with the verge.

A 5.5m high canopy is provided centrally within the forecourt housing three bowsers which provide six refueling spaces (two each side). The refueling area also contains a remote filling point which links to the underground fuel storage tank. A benefit of the site layout is that views to the canopy and forecourt are sleeved from the corner by the service station building and landscaping / seating area to be provided on the southern boundary.

A covered deliveries area and bin/plant yard is provided at the northern side of the building. The deliveries area is constructed of rebated concrete panels in selected paint finish and will meet the required acoustic specifications to attenuate noise associated with deliveries. The fuel vent is located at the northern side of the building where it achieves optimal separation from adjoining properties and is visually screened with dense buffer planting as depicted on the development plans.

The facility will be accessed by a full movement crossover to the southern site frontage being Squadron Boulevard and 'Left-in/ Left-out crossover from Boomerang Road, affording the site accessibility from all directions and enhancing internal circulation arrangements by providing convenient through-flow for vehicles access from either crossover. The proposed service station development is designed to a high standard (with generally positive feedback received from the City's DRP) and the layout is designed in a manner which considers the site's context and adjacent land uses.



FIGURE 3: 3D Render 7-Eleven

## 4.2 Fast-Food Site

The proposed fast-food outlet, like the 7-Eleven, has good connectivity to the adjacent developments and shopping centre via the interconnected pedestrian network. A landscaped seating area is provided at the southern side of the building which allows the local community to gather and linger, staff to take a break and have lunch. The facility will be open 24/7, staffed with 3-4 employees during peak hours, 1 employee overnight, and 2 employees during other operating hours.

The development has been designed and incorporated feedback from the Design Review Panel (DRP) with effort focused on addressing the internal street. The service area and drive-through has been screened to provide visual relief and shade for customers utilising a material and colour palette that responds to the rural qualities of the place. The built form addresses the adjacent roads / internal street in association with a high-quality landscape design.

The fast-food building is 210sqm in Gross Leasable Area (GLA) and contains an internal sales area with associated point of sale, office, back of house areas and seating area facing the SW corner. Windows are provided on the west and southern side of the building which allow the internal seating area to engage with the landscaped seating area, providing passive surveillance of the internal street and parking area. The western & southern facades are enhanced with a feature awning, providing pedestrians with cover, and extending over the windows along this part of the building to reduce internal heat gain. The awning element provides additional articulation and visual interest when viewed from the corner. The awning extends over the entrance to provide patrons with cover from the weather as they enter and exit the building

A pathway is provided along the eastern side of the building which forms part of a wider pedestrian network providing safe movement & linkages to the 7-Eleven to the south and wider retail / shopping precinct to the east. The forecourt contains ten shopfront parking spaces (including an ACROD bay. An enclosed bin room & deliveries area is provided at the northern side of the building

The fast-food will be accessed by a full movement crossover to the north being an internal road with a full movement access to the south onto Squadron Boulevard. A vehicle linkage to the east into the adjacent shopping centre is also provided at the southern boundary of the fast-food site, affording the site accessibility from all directions, and enhancing internal circulation arrangements by providing convenient through-flow for vehicles access.



FIGURE 4: 3D Render Fast Food



FIGURE 5: 3D Render 7-Eleven and Signage



FIGURE 6: 3D Render 7-Eleven and Pedestrian Network

### 4.3 Signage

The development contains advertising signage as detailed below:

Petrol Station:

- 1 pylon sign with paint finish and internally illuminated logo located within the 7-Eleven site.
- 1 metal mesh corner entry signage

Fast Food Outlet:

• 2 signage zones located on west elevation

The signage integrates appropriately with the proposed development, reducing its obstruction towards pedestrians and vehicle users. The signage aligns with the requirements of City of Swan Local Planning Policy – Advertising Sign within the Commercial and Industrial Zones as outlined in section 5.6.

### 4.4 Landscaping

A landscape concept prepared by Emerge is provided in Appendix 4 which displays the following arrangements:

- Parklet nodes for seating, respite and staff breaks that contain tree plantings such as eucalyptus trees, spotted gum and jacarandas.
- Low native species to be included in garden bed areas to blend in with streetscape planting and ensure sight lines remain open for vehicle and pedestrian safety.
- Tree plantings surrounding the development area to increase amenity, provide a visual buffer and shade for pedestrians.

The proposed landscaping is intended to compliment the developments interface with the public realm and increase visual amenity within the area. Having trees planted within the development site area will also provide a cooling effect, enhancing user experience. Additionally, landscaping is proposed to make up 28.3% and 25.8% of the site area.

### 4.5 Bushfire Management

A Bushfire Management Plan (BMP) was prepared by Emerge associates for the Kingsford Town Centre and is provided in Appendix 5. The BMP identifies the proposed development area to be non-vegetated. The BMP outlines that these areas are not classified as a bushfire risk and therefore not included within the vegetated risk classification. Additionally, post development, the subject site is considered to have BAL rating of 12.5 to low. This confirms the development area as being a low threat to any bushfire risks.

### 4.6 Traffic and Access

A Transport Impact Assessment has been prepared by Transcore and is provided at Appendix 6. The TIA report provides details on the following traffic and access matters relating to the development.

- Trip Generation and Distribution
- Future Traffic Flows
- Intersection Analysis

- Impact on Surrounding Roads
- Queue Analysis
- Public Transport
- Pedestrian and Cyclist Access

In summary the TIA concludes the future traffic generated from the proposed development can be adequately accommodated on the existing road network, will not have a significant impact on the surrounding road network and not form any impediment to the approval of the proposed development.

### 4.7 Engineering Services

A comprehensive Engineering Services Report has been prepared by JDSI Consulting Engineers.

The engineering report provides details on the following components relating to the Development and provision of services:

- The provision of a reticulated water supply and sewerage disposal
- The provision of public utility services (i.e. underground reticulated electricity supply, telephone)
- Drainage study, based upon the approved Drainage and Nutrient Management Program
- The required road network to service the development

A full copy of the Engineering Services Report is appended to this Development application - Refer Appendix 7.

### 4.8 Sustainability

The final sustainability measures around Ecological Sustainable Development (ESD) will be determined in concert with the developer at the building application stage. At this stage of the development process the following ESD measures are proposed:

- Materiality with minimal maintenance requirements
- Low energy lighting / Smart Lighting Systems Use energyefficient LED lighting both inside the store and for exterior lighting, such as canopies and signage, reducing energy consumption
- Waterwise planting -to ensure minimal water usage while delivery a quality landscape outcome
- Water-Efficient Fixtures: Use low-flow taps, toilets, and irrigation systems to minimise water usage
- EV Charging Stations
- Vapour Recovery System Implement vapor recovery systems in fuel pumps to capture fumes and reduce greenhouse gas emissions
- Water conservation Water-Efficient Fixtures: install low-flow taps, toilets, and drip irrigation for landscaping to conserve water and reduce costs
- Solar Panels: Rooftop PV for lighting
- HVAC Systems: Use high efficiency HVAC

### 4.9 Waste Management

Waste management for both the 7-Eleven and fast-food will be serviced by a private contractor service, no City of Swan service is required. The location of bin storage and collection areas is shown on the development plans. A 'Waster Management Plan' will be prepared in accordance with a condition of development approval which will detail:

- The number , volume, and type of bins
- Details on the future management of the bins and bin storage area, including cleaning
- Times and frequency of bin collections.

The bin storage design will allow for adequate ventilation by using appropriate material.

### 4.10 Environmental Noise Assessment

An environmental acoustic assessment was prepared by Herring Storer Acoustics to understand the noise emissions associated with the proposed development and is provided in Appendix 8.

Based on the assessment conducted, the proposed development complies with the requirements of the Environmental Protection (Noise) Regulation 1997, provided that the tyre inflator is set to a noise level of 74dB(A) at 1 metre from the inflator station, or a screen is installed on the southern side of the inflator.

#### 4.11 Stormwater Management

An LWMS addendum was prepared for the town centre land by RPS in June 2021. In accordance with the LWMS discharge points from the town centre have been modelled to achieve the overall LWMS drainage strategy and criteria. The project engineers JDSI have provided lot connections pits for the site and the internal drainage design for the 7-Eleven and fast-food sites will be in accordance with the approved strategy and direct stormwater into the designated drainage area as per Figure 7. This will ensure stormwater be contained and disposed of on-site.

Additionally, an underground oily water separator will be installed for efficient stormwater management as detailed in Appendix 9 -Vortceptor Hydrodynamic GPT.

#### 4.12 Lighting Management

Lighting management for the proposed development complies with AS4282 standards. There is no objection to including a condition requiring compliance with standards for outdoor lighting to control obtrusive effects and restrictions on flashing or pulsating lights.



FIGURE 7: Stormwater Drainage Area

### 5.0 Statutory Planning Assessment

### 5.1 Metropolitan Region Scheme (MRS)

The subject site is zoned Urban under the MRS. The development is consistent with the provisions of the MRS and warrants approval accordingly.

### 5.2 State Planning Policy 7.0 Design of Built Environment

The proposed developed has been designed to have regard for the ten principles of SPP 7.0, established as part of the Design WA suite of policies which emphasises the importance of design quality across the built environment.

The table below outlines how the proposed development has responded to the 10 design principles that achieves good design.

Table 2. Ten Design Principles of SPP 7.0			
Design Principle	Design Response		
Context and Character	The proposed development contributes to the Kingsford distinct sense of place by adopting materials that reflects the area's location at the transition from 'town to country.'		
Good design responds to and enhances the distinctive characteristics of a local area, contributing to a sense of place	This includes timber cladding, liner cladding, recycled brick and woven mesh.		
Landscape Quality	On site landscaping covers 28.3% and 25.3% of the site area. This helps to soften the landscape and increase amenity within the area due to the presence of green spaces.		
Good design recognises that together landscape and buildings operate as an integrated and sustainable system, within a broader ecological context.	The plants proposed are predominately native, allowing for sustainable management practices for the area. Additionally, these forms of vegetation are low native species and are to be included in garden bed areas to integrate appropriately with the streetscape area and ensure sightlines remain open for pedestrian and vehicle access.		
Built Form and Scale	The proposed development integrates appropriately with surrounding town centre uses due to its various height and mass. The inclusion of awnings helps to establish a human		
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.	scale, enhancing the overall integration with the surrounding area.		
Functionality and Build Quality	The proposal balances the functional needs of car users and pedestrians to establish a harmonious environment. Additionally, the materials proposed establish a high 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.	design that is fit for purpose and fits in with the surrounding environment.		
Sustainability	The majority of proposed plants used to landscape the two sites will be predominantly native. There will be a few larger deciduous trees planted to ensure an adequate level		
Good design optimises the sustainability of the built environment, delivering positive environmental, social and economic outcomes.	of shade for seating areas, pedestrians &vehicles. This creates a sustainable water wise planting system which reduces the quantity of water required for ongoing maintenance.		
Amenity	Proposal provides a safe and legible pedestrian environment surrounding the perimeter cell that is heavily landscaped. This increases amenity within the area and enhances		
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	pedestrian experience. The landscaping helps to establish a comfortable environment.		
Legibility	Due to the proposed development relying on vehicle access, legibility for car use has been established. However, key pedestrian access points have been identified providing		
Good design results in buildings and places that are legible, with clear connections and easily identifiable elements to help people find their way around	safe crossing points around the perimeter of the cell via designated central north-south and east-west routes complimented with landscaping and shade. A central north-south pedestrian path ensures integration across the 3 sites in this locality.		

Safety Good design optimises safety and security, minimising the risk of personal harm and supporting safe behaviour and use.	Red concrete has been utilised to assist in legibility between pedestrian and drivers. Additionally, direct pedestrian movement around the perimeter of the cell has been established, with a central north-south pedestrian path providing integration across the 3 different development sites.
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 development provides services to the community that will accommodate their daily needs.
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	Materials used are reflective of the Kingsford vision to transition from town to country. Extensive landscaping has been provided throughout the site to enhance user experience, creating an inviting place to visit.

### 5.3 State Planning Policy 4.1 Industrial Interface

This assessment addresses the developments compliance with State Planning Policy 4.1 (SPP 4.1) – Industrial Interface, focusing on potential emissions, including odour and fuel vapours, associated with the proposed service station development.

#### 5.3.1 SPP 4.1 Compliance and Emissions Management Overview

SPP 4.1 outlines requirements for industrial interface planning, including measures to mitigate and manage emissions that could impact surrounding areas and sensitive land uses. Key considerations relevant to this assessment include:

- Health and Amenity Protection: The policy prioritises the protection of health and amenity for the public and environment by requiring adequate planning for emissions, including odour and other pollutants.
- 2. Precautionary Principle: SPP 4.1 advocates for the precautionary principle when emissions pose potential health risks. While the vapour recovery system employed meets legislative requirements, further considerations for future improvements have been addressed to align with best practices.

### 5.3.2 Service Station Developments

The most significant period for vapour emissions at a service station occurs during tanker refuelling. When fuel is delivered to the underground storage tanks, vapours within these tanks are displaced by the incoming liquid fuel, which can release fuel vapours into the surrounding atmosphere if not properly managed. To address this, the development includes a VR1 Vapour Recovery (VR) system, designed specifically to capture these emissions at the source, thus safeguarding air quality and reducing potential impacts on nearby areas.

### 5.3.3 Emissions Control Measures – VR1 Vapour Recovery System

The VR1 Vapour Recovery System effectively captures and mitigates vapours during fuel delivery, aligning with State Planning Policy 4.1's (SPP 4.1) objectives of minimising industrial impacts on sensitive land uses. Key functions of the VR1 system include:

- Vapour Capture: As fuel flows into the underground tanks, VR1 captures the vapours that are displaced, preventing their escape into the atmosphere.
- Vapour Return: Through a sealed connection between the tanker and storage tanks, VR1 redirects these vapours back to the delivery truck. The captured vapours are then returned to the fuel terminal, where they can be processed or reused, significantly reducing odour and greenhouse gas emissions.

#### 5.3.4 Compliance with SPP 4.1 and Provisions for Future VR2

While VR1 is a legislative standard in Western Australia and meets current requirements, the development also incorporates future piping for a VR2 system, should regulations evolve. Although VR2 is presently used only in Eastern states, this additional piping prepares the facility for potential advancements in vapour recovery technology, enhancing its environmental sustainability.

#### 5.3.5 Odour and Vapour Impact Mitigation

In line with SPP 4.1, the VR1 system and proactive provisions for VR2 demonstrate a commitment to protecting the health and amenity of the surrounding area. By addressing the most notable period of vapour emissions and capturing them at the source, the development minimises off-site impacts, fulfilling SPP 4.1's intent to reduce industrial emissions near sensitive land uses.

This development's integration of the VR1 Vapour Recovery system and future VR2 piping provisions underscores its proactive approach to emissions management. By addressing key vapour emissions during refuelling, the project achieves SPP 4.1 compliance, ensuring a high standard of environmental stewardship and public health protection.



### 5.4 City of Swan Local Planning Scheme No.17 (LPS17)

### 5.4.1 Zoning, Land Use and Precinct Planning

The subject site is zoned Residential Development under LPS17. In accordance with the objectives for the Residential Development Zone a structure plan has been prepared to guide development in addition to providing predominately residential development, whilst including a range of compatible uses that support the diverse needs of the community. The application aligns with the above objectives as the land uses proposed, fast food and service station, supports the growing needs of the surrounding community by providing key infrastructure.

Under section 4.3-zoning table of LPS17, areas zoned residential development must be in accordance with an approved structure plan. Therefore, Kingsford Town Centre Precinct Structure Plan is the guiding statutory document for the application.

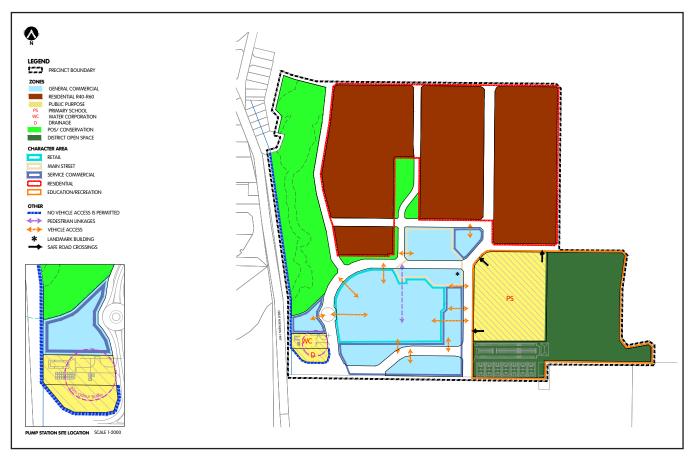


FIGURE 8: Kingsford Town Centre Precinct Plan

### 5.4.2 Matters To Be Given Due Regard

The table below outlines the matters to be given due regard and how the design responds in accordance with the Deemed Provisions and forms part of Planning and Development (Local Planning Schemes) Regulations 2015.

Table 3. Matters to Be Given Due Regard			
Matters to Be Given Due Regard	Response		
a) The aim and provisions of this Scheme and other local planning scheme operating within the Scheme area.	The proposed development aligns with the requirements of LPS17. With section 5.3.1 outlining how the proposal is consistent with its aims and intent.		
g) any local planning policy within the Scheme area	Sections 5.5 and 5.6 of the report address the relevant Local Planning Policies applicable to this application.		
h) any structure plan or local development plan that relates to the development	The guiding statutory document for the proposal is the Kingsford Town Centre Precinct Structure Plan. Section 5.4 addresses how the development application aligns with character areas guiding principles.		
<ul> <li>m) compatibility of the development with its setting, including –</li> <li>(i) the compatibility of the development with the desired future character of its setting; and</li> </ul>	The proposed development is located within the service commercial and retail area as outlined in the Kingsford Precinct Structure Plan. The vision for service commercial is to provide land uses that heavily rely on vehicle access, with the retail area aspiring to provide land uses that provide a mix of retail opportunities. A petrol station and fast food outlet aligns with the respective character areas and the intended future character of the setting.		
(ii) the relationship of the development to development on adjoining land or on other land n the locality including, but not limited to, the likely effect of the height, bulk, scale, orientation and appearance of development	The proposed development is configured and designed in a way that reflects an understanding of the site's location and its importance in relation to the wider town centre. Proposing the development on the western portion of the town centre provides separation from the future primary school. Additionally, as land uses in these areas need to support car orientated uses, locating this development on the entry road provides high traffic volumes and good visibility from Great Northern Highway.		
n) the amenity of the locality including the following –	The proposed development will not have any environmental, character and social impacts.		
<ul><li>(i) environmental impacts of the development</li><li>(ii) the character of the locality</li><li>(iii) social impacts of the development</li></ul>	Instead, the proposal will be providing key infrastructure to the community that will accommodate their daily needs. Additionally, a fast food outlet and petrol station will provide local employment opportunities, both during construction and operation phases of the project.		
	As the site is currently vacant and cleared of all vegetation, the extensive landscaping proposed will enhance environmental outcomes and increase amenity for users. Providing trees for the area will also have a cooling effect, combatting high temperatures.		
p) whether adequate provisions have 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.	As the development site is currently vacant there are no trees available to be retained. The landscaping concept plan responds to this by proposing extensive tree planting around the perimeter of the site. Additionally, low native species will be included in garden bed areas to blend in with streetscape planting and ensure sight lines remain open for vehicle and pedestrian safety.		
	Parklets are also proposed within the development site that contain tree plantings to improve user experience.		
(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;	A TIA has been prepared for the development application and has been provided in Appendix 6. The TIA demonstrates that the proposed development aligns with the requirements for vehicle movement.		
(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;	The TIA report indicates that the development will generate an appropriate amount of traffic, which is capable of being sustained by the local road network.		

### 5.5 Kingsford Town Centre Precinct Structure Plan

Under the Kingsford Town Centre Precinct Structure Plan (PSP) the subject site is zoned 'General Commercial'. Allocated zones within the PSP will have the same land use permissibility as those outlined under LPS17. Under LPS17 a fast-food outlet is indicated as a permitted land use and a service station as an "A" land use. "A" land uses are not permitted unless the local government has exercised its discretion by advertising the proposed application.

The proposed development is situated within character areas designated as 'Service Commercial' and 'Retail' in the PSP. The service station is specifically located within the 'Service Commercial' area. The vision for this area highlights its suitability for land uses and developments that rely heavily on car-based access for their viability. The proposed development aligns with the vision as it is proposing a service station within this location. This land use is reliant on car use as one of its main services is associated with car use. Additionally, positioning the development on parts of the entry road with the higher traffic volumes and visibility and good access from Great Northern Highway supports car use to access the development which further aligns with the vision. The proposed fast-food outlet is located within the "retail" character area of the Precinct Structure Plan. The vision for this area is to "accommodate a mix of retail uses in a shopping centre development and associated car parking". Fast food sites are located in shopping centre developments and provides retail land uses and the required parking.

Table 4. assesses how the proposed development aligns with the guiding principles for the service commercial and retail area within Kingsford Town Centre.

Table 4. Assessment Against Guiding Principles			
Character Area	Guiding Principle	Response	
	To comprise service, commercial, fast food and petrol station that services the local needs and provides local employment opportunities.	Development is proposing petrol station and fast food.	
Service Commercial	Quality buildings of various scale with engaging architectural form, detail, materials and colour.	Developments proposed contain various scales of height. The proposal aligns with the areas overarching built form theme of 'town to country' by incorporating materials such as timber cladding, linear cladding and recycled brick. This gives the development a high-quality built form and aesthetics that provides a country feel whilst celebrating the distinct Western Australian environment.	
	Generous landscaping for shading car parking areas.	Trees will be planted along the site boundary. This will enhance the overall amenity, providing spaces for people to relax and take breaks as needed.	
	Signage integrated with buildings and pylon signage opportunity.	Proposed signage integrated with building and only 1 pylon sign proposed.	
Retail	Provides a welcoming and convenient district shopping centre environment for the Kingsford community.	Development supports a retail environment by providing convenient fast-food options. Feedback from the City of Swan & WAPC during the approval process encouraged us to locate any fast-food outlets in the western portion of the town centre, to provide separation from the future primary school. This area of the town centre was designed to accommodate fast-food + fuel outlets (along with other 'car orientated' uses) on parts of the entry road with the higher traffic volumes and with visibility and good access from Great Northern Highway.	
	Public community spaces that provide a safe and attractive environment for pedestrians	Multiple parklet nodes are proposed that surround the fast-food development. These spaces provide the community with seating allowing respite and staff breaks. These areas are also shaded by trees that protect users from the environment, whilst enhancing amenity.	
	Integration and synergy between Main Street and the shopping complex	N/A. Development does not front onto Main Street	
	Shaded carparking areas	Trees will be planted along the site boundary. This will enhance the overall amenity, providing spaces for people to relax and take breaks as needed.	

### 5.5.1 Development Standards

Table 5 and 6 below assess the proposed development against the development standards for each applicable character area. The proposed development largely complies with the development requirements for service commercial and retail areas.

Table 5. Service Commercial Development Standards Assessment (7-Eleven)			
			DESIGN RESPONSE
BUILDING HEIGHT	Maximum Height	2 Storeys	Proposed Development is only one storey – compliant
BUILDING	Front	Minimum Nil	Compliant
SETBACKS	Side	Minimum Nil	Compliant
	Rear	Minimum Nil	Compliant
BUILDING FRONTAGE	Primary Entrance	Entrance to primary street mandatory	Access from Squadron Boulevard and Boomerang Road provided.
	Windows at Ground Level	Minimum glazing 50% of front facade area	<ul> <li>development proposes 20% glazing and is considered adequate given the need to accommodate the following:</li> <li>West facing façade and sustainability objective to reduce glazing and heat load into the building</li> <li>Glazing on the bin store is not considered appropriate.</li> <li>Full glazing is provided to the east elevation which faces the north-south road.</li> <li>The DRP were supportive of this design response .</li> </ul>
	Awnings	Minimum depth of 2.4m for full building frontage to primary street	<ul> <li>development proposes 1.1m and is considered adequate given the following:</li> <li>A 2.4m awning cannot be accommodated given the nil setback &amp; road reserve.</li> <li>The street trees occupy a portion of the road reserve and preclude a full width awning</li> <li>The proposed 1.1m awning combined with the street trees will provide an attractive and functional space that provides shade for pedestrians.</li> <li>The landscape design makes provision for broad canopy shade trees as opposed to narrow trees which provide shade to the adjacent glazing.</li> <li>The broad canopy shade trees need to work in combination with the awning to deliver a functional and attractive public realm in the space available.</li> <li>The DRP were supportive of this design response.</li> </ul>
BUILT FORM		<ol> <li>All elevations shall be well detailed and presentable where visible to the public</li> <li>Articulation shall be provided to avoid large expanses of blank facade</li> <li>Locate all delivery, stores, bin enclosures and other services or plant areas away from the entry (and visually screened from public view)</li> <li>All entries shall be clearly defined and shall be accessed via legible pathways</li> </ol>	<ol> <li>Elevations facing out to the public are detailed with 7-eleven branding.</li> <li>Building structure contains awnings and adopts different materials to provide diverse facades.</li> <li>The location of bin storage and collection areas are shown on the development plans. The bin stores are visually screened with metal sheet wall cladding which will provide a visually attractive facade to the public view. A 'Waste Management Plan' will be prepared in accordance with a condition of development approval.</li> <li>Extensive pedestrian network established to guide users to entry of proposed development.</li> </ol>

Table 6. Retail Development Standards Assessment (Fast Food)					
			DESIGN RESPONSE		
BUILDING HEIGHT	Maximum Height	<ul><li>10.5 metres (parapet height) above natural ground level is permitted</li><li>Architectural features and minor projections may extend above the maximum height of the discretion of the group as is a structure.</li></ul>	Building height does not exceed 10.5m		
	Front	maximum height of the discretion of the responsible authority			
BUILDING SETBACKS	Front	Nil to 10m in order to accommodate landscaping vehicle access and	Setbacks do not exceed 10m (approximately 7m).		
	Side	circulation, but not vehicle parking.			
	Rear				
BUILDING FRONTAGE	Clear and legible Entry		The proposed development has a distinct entry point outlined by pillars and signage.		
BUILT FORM	<ol> <li>Articulatio</li> <li>Locate all a away from</li> <li>All entries</li> <li>The Archite</li> </ol>	ons shall be well detailed and presentable where visible to the public in shall be provided to avoid large expanses of blank facade delivery, stores, bin enclosures and other services or plant areas the entry (and visually screened from public view) shall be clearly defined and shall be accessed via legible pathways ectural design across all buildings shall ensure variations in the built ding materials, colours and textures	<ol> <li>All elevations that are visible to the public include materials that reflect the Bullsbrook style guide. This enhances the quality and feel of the building for user experience.</li> <li>The design incorporates a range of materials such as timber cladding and metal mesh to provide articulaion in the built form.</li> <li>The location of bin storage and collection areas are shown on the development plans. The bin stores are visually screened with timber substitute cladding which will provide a visually attractive facade to the public view A 'Waste Management Plan' will be prepared in accordance with a condition of development approval.</li> <li>Extensive pedestrian network established to provide clear pathway for pedestrians to access the facility.</li> <li>The proposed development will incorporate diverse materials within its structure such as timber cladding, liera cladding, recycled brick and woven mesh.</li> </ol>		

### 5.5.2 Vehicle Parking Standards

In addition to the City's vehicle parking standards the endorsed 'Kingsford Town Centre Precinct Structure Plan' has parking rates specified for the 'Service Commercial' and 'Retail' precincts as set out below.

- Service Commercial Car parking shall be provided at a rate of 2.5 car spaces per 100sqm of NLA.
- Retail Car parking shall be provided at a rate of 4 car spaces per 100sqm of NLA.

Based upon the above rates the car parking proposed for the 7-Eleven and fast-food comply with the required parking standards as set out in the table below.

Table 7. Parking Assessment			
Character Area and Development	Precinct Structure Plan Parking Standards	Parking Bays Required	Proposed Number of car parking bays
Service Commercial - Petrol Station	2.5 car spaces per 100sqm of NLA Site area = 225m2	6 bays	10 including 1 Acrod bay. Compliant
Retail - Fast Food Outlet	Car parking shall be provided at a rate of 4 car spaces per 100sqm of NLA Site Area = 210m2	9 bays	10 including 1 Acrod bay. Compliant



FIGURE 9: 3D Render of Proposed Development

### 5.6 POL-C-070 Advertising Signs Within The Commercial And Industrial Zones

The proposed development includes signage that needs to be assessed against the requirements of the City's signage policy. The table below assesses the proposed signage against the City's requirements.

Table 8. City of Swan Local Planning Policy – Advertising Sig	gns within Commercial and Industrial Zones
Policy Standard	Response
3.1 Advertising signs shall not be approved on land other than on the land where the business being advertised operates from.	Proposed signage located on land where business will be operating from.
3.2 An unnecessary proliferation of signs shall be avoided. Where a number of signs may exist or are proposed, the applicant or landowner should be encouraged to rationalise the number and type of signs. In determining whether a proliferation of signs would exist if a sign were displayed on land, due regard shall be given to the number of pylon, free standing and fence signs that already exist on the land as well as the size of the area of the land or landholding relating to the sign and the length of frontage along a main road.	<ul> <li>The development proposes a minimal amount of signage, with two proposed signs for each land use as per the below:</li> <li>Petrol Station: <ol> <li>pylon sign with paint finish and internally illuminated logo.</li> <li>metal mesh corner entry signage</li> </ol> </li> <li>Fast Food Outlet: <ol> <li>signage zones located on west elevation</li> </ol> </li> <li>The proposed signage integrates appropriately with the structures and modest in nature when compared to the overall development. Due to the development's proximity to Great Northern Highway the signage is located to ensure a clear display, without obstructing the views of vehicle users.</li> </ul>
<ul> <li>3.3 Permanent advertising signs shall:</li> <li>not be approved for display within any thoroughfare - neither along a particular road or at an intersection; and</li> <li>shall be located entirely within the land where approved</li> </ul>	The proposed signage does not fall within any thoroughfare or intersection. Additionally it will be entirely located within the land where approved.
3.4 Fence signs may be permitted only where other locations for advertising signs are not available.	No fence signs proposed.
3.5 No sign shall be approved that would be displayed either upon the roof cladding or above the roof.	The proposed signage for the petrol station is integrated into the roof cladding. This is to give the site a distinct presence. Its integration is seamless with the metal mesh and is deemed acceptable when considering the entire built form.
3.6 No sign shall be approved that protrudes from a wall beyond one metre.	No signage proposed to protrude from a wall.
3.7 No sign shall be installed with an underside clearance that may be hazardous to or an unnecessary obstruction to any pedestrian.	Signage is located on roof structure or awning that eliminates any obstruction to pedestrians. The location of the proposed fuel pylon sign is located on the southern boundary where it does not obstruct any footpaths.
3.8 Any sign visible from a road shall be designed and installed in such a manner so as not to confuse or distract motorists or obstruct sight lines.	The signage proposed is simple in nature and does not obstruct or interfere with any motorists.
3.9 Moving advertising devices or advertising devices incorporating flashing or pulsating light shall not be approved.	No moving advertising or flashing lights proposed.

<ul> <li>3.10 Portable signs may only be licensed for display within a thoroughfare where there are:</li> <li>no safety or obstruction problems;</li> <li>no pylon or free standing signs on the land; and there are</li> <li>significant obstacles preventing effective display of the portable sign on the land.</li> </ul>	No portable signs proposed.
3.11 Temporary soft material signs may be displayed to promote new businesses, special events, or promotions for a reasonable period. This may include decorative flags, banners and the like but shall not include bunting. Soft signs should not be placed within thoroughfares so as to cause a nuisance or be an obstruction.	No temporary signs proposed.
<ul> <li>3.12 Signs may contain the following features:</li> <li>business logo</li> <li>street number;</li> <li>owners name and contact details;</li> <li>main services provided; and</li> <li>be clear and well maintained.</li> </ul>	Proposed signage incorporates business logos.
3.13 Ongoing inspections and enforcement shall be undertaken to ensure that advertising signage does not occur to the detriment of maintaining an attractive commercial and industrial area.	Noted.



FIGURE 10: 3D Render of Proposed Development

### 5.7 POL-LP-1.10 Provision of Public Art

The City of Swan Public Art Policy stipulates that development projects with a construction cost of \$2million or more should include at least 1% of its cost towards public art.

#### 5.8 Local Development Plan

The Local Development Plan (LDP) has been prepared in response to conditions of subdivision approval relating to WAPC 161 872. The Local Development Plan (Appendix 10) has been approved by the City of Swan. The LDP provides a framework to accommodate future development across a number of sites in a co-ordinated manner. Applicable to the assessment of this application include the following provisions:

- Vehicle access restrictions.
- Pedestrian movement.
- Built Form
- Crossover locations

The LDP designates the area for the development application as 'future development sites.' The application meets the LDP's requirements by proposing a petrol station and fast food outlet, both of which are appropriate land uses for this designation. Additionally, key pedestrian links and vehicle access points have been identified and are in alignment with the development application.

The LDP also specifies the need for signage to be integrated into the building's structure and permits the erection of pylon signage on Wylde and Squadron Boulevard. Both buildings in the development application include integrated signage, and the 7-Eleven features a pylon sign facing Squadron Boulevard.

### 6.0 Conclusion

The application for planning approval involves the establishment of a petrol station and fast food outlet on a portion of Lot 9502, located within Kingsford Town Centre. The information presented within the report demonstrates how the application aligns with relevant planning legislation and policy and is therefore appropriate for approval. Key aspects of the development application that supports its compliance includes:

- The proposed land uses align with the vision of service commercial and retail character areas as outlined within the Kingsford Town Centre Precinct Structure Plan.
- The location of the development is appropriate due to its proximity to Great Northern Highway and establishing a separation to the proposed primary school.
- The built form outcomes aligns with the Kingsford built form theme of being the transition from 'town to country'.
- The development of a petrol station and fast food outlet will support the growing needs of the community and provide local employment opportunities.
- Extensive landscaping enhances amenity and user experience. Parklet nodes have been provided for seating, respite and staff breaks that contain tree plantings.

Table 9. Local Development Plan Assessment			
Applicable LDP Provisions	Design Response		
Land use permissibility is in general accordance with City of Swan LPS17	Proposed development aligns with land use permissibility as outlined in sections 5.4 and 5.5.		
Built form locations on LDP are indicative and not reflective of exact building alignments designs, setbacks etc. Exact configuration of buildings should be per a Development Approval.	LDP identifies development site as being a future development site. The proposed development aligns with this indicative building envelope as it is porposing the development of a petrol station and fast food outlet through a development approval.		
Key pedestrian links have been identified and shall provide direct pedestrian movement paths	Key pedestrian links align with those outlined in the LDP to ensure safe movement for people.		
Preferred vehicle access/crossover locations are shown on the LDP.	Preferred vehicle access aligns with those outlined in the LDP.		
No vehicle access provided on sections of Wylde Boulevard and Squadron Boulevard as illustrated on the plan.	No vehicle access proposed on the section of Wylde Boulevard as outlined by LDP.		

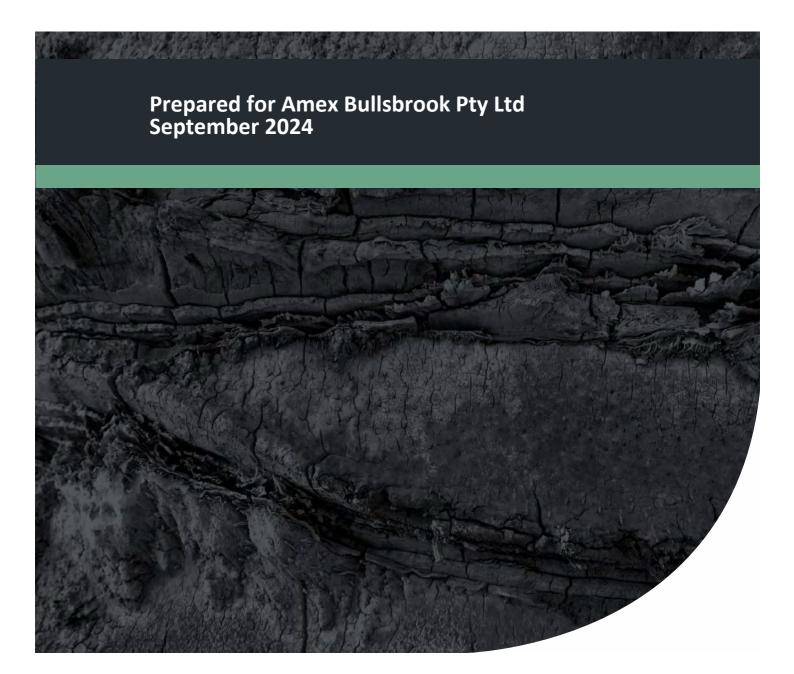
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# **Bushfire Management Plan**

## **Kingsford Town Centre**

Project No: EP23-095(08)





### Document Control

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Doc no.:	EP23-095(08)—01	EP23-095(08)—012 CSR			
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	Submitted to the c	lient for review			

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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" (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 threatened by the effects of bushfire attack.

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### **Executive Summary**

Amex Bullsbrook Pty Ltd (the proponent) are proposing to develop a portion of Lot 1354, Kingsford for commercial and residential purposes, which comprises the town centre of the Kingsford Bullsbrook Central Revised Local Structure Plan.

The area subject to subdivision and development (herein referred to as 'the site'), is approximately 33 hectares (ha) in area and is located within the City of Swan. It is bounded by Great Northern Highway to the west with industrial land uses beyond that, Ki-It Monger Brook to the north with remnant vegetation within its foreshore, undeveloped rural land to the east (which is within the broader Kingsford Bullsbrook Central Revised Local Structure Plan area and under the proponent's ownership which is proposed for future stages of development), and existing rural/industrial land use to the south also indicated to be developed in the future.

The site has already been predominantly cleared but historically supported agricultural land uses, with commercial land uses under development. The site is zoned 'Urban' under the Metropolitan Region Scheme and 'Residential Development' under the City of Swan Local Planning Scheme No. 1, (consistent with the proposed commercial and residential subdivision and development).

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 2021). The identification of a site within an area declared as bushfire prone necessitates 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 the *Guidelines for Planning in Bushfire Prone Areas Version 1.4* (the Guidelines) (DPLH & WAPC 2021).

The purpose of this Bushfire Management Plan (BMP) is to assess the bushfire hazards affecting the site (risk) and identify the 'management' strategies (risk treatments) required to ensure future development can achieve the intent of SPP 3.7 - *to preserve life and reduce the impact of bushfire on property and infrastructure.* 

As part of assessing the risk, a Bushfire Attack Level (BAL) assessment involving the classification and condition of vegetation and topography within 150 m of the site (post-development) has been undertaken. Bushfire hazards identified within 150 m of the site that are assumed to remain in the long-term include:

- Forest (Class A) vegetation in the northwest of the site associated with Ki-It Monger Brook and existing vegetated areas that will remain as part of the foreshore. This area is mostly trees over grass and was previously identified as woodland (in the structure plan BMP), however for the purposes of this assessment is assumed to be forest on the basis of planting the could occur under the existing trees.
- Grassland (Class G) vegetation to the north, south and east of the site is expected to remain in its current condition post the development of the site. There is also a drainage basin within the site that will contain grassland vegetation in the long term. The areas of grassland to the north

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and south are in areas proposed for future urban/industrial development but are not under the proponent's control and is why they have been assumed to remain.

Similar to existing stages of development, areas of the public open space associated with Ki-It Monger Brook will achieve low threat in accordance with clause 2.2.3.2 (f) of AS 3959 as part of development. These areas are currently composed of grass and will be designed and implemented by the proponent to achieve low threat, and when handed over will become the responsibility of the City of Swan.

Where within the proponent's broader landholding, grassland areas will be managed to achieve low threat (e.g. regular slashing/mowing) until development progresses. The area managed will be the minimum to ensure BAL-29 is achieved at habitable building but could be up to 50 m-wide area.

Other areas of land identified as low threat that are external to the site are assumed to continue to be managed in accordance with existing land management practices.

### **Compliance assessment**

The bushfire protection criteria provided in the Guidelines represent the risk treatments applicable to achieving the intent and the objectives listed in SPP 3.7. The bushfire protection criteria are divided into four subsystems (elements), plus a standalone element for tourism. Each subsystem is provided to the decision maker with an intent and solution method, either performance principle or acceptable solution (predetermined solution). Compliance with each subsystem (as a risk treatment) is required to demonstrate that the risk is within acceptance.

The BMP has identified that future development within the site (future residential and commercial buildings) will comply with the 'acceptable solution' for each of the applicable bushfire protection criteria outlined in the Guidelines.

This includes:

- Element 1 Location: The proposed subdivision of the site is in accordance with the zoning and structure plan for the site. All future habitable buildings will be able to achieve BAL-29 or lower as part of future development.
- Element 2 Siting and design: The BAL assessment undertaken as part of the BMP indicates that it is possible for all lots to facilitate a habitable building that achieves BAL-29 or less, with future residential and commercial buildings expected to be sited predominantly within BAL-12.5 or BAL-LOW. The BAL rating at all lots is achieved through low threat (as per Section 2.2.3.2 of AS 3959) features being located in the proximity of the lots through the provision of managed public open space and road reserves. An 8 m-wide setback will need to be accommodated in Lot 5003 where it abuts grassland vegetation to the south of the site to achieve BAL-29.
- Element 3 Vehicular access: All proposed public road reserves within the site will meet the minimum technical requirements for public roads compliant with the Guidelines. The proposed development will provide access and egress points onto the existing Great Northern Highway, Wylde Boulevard and Chittering Road providing access to multiple destinations. Great Northern Highway is a major regional road and connects to Muchea to the north and

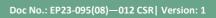
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Midland to the south, while Chittering Road provides access to the northeast and Wylde Boulevard connects to existing developed stages to the north. The roads within the site will also connect with residential development stages to the east as development progresses, but it is possible that no through roads will be required as part of the staging of development. These will need to be provided with appropriate temporary turning areas, and where required provided with temporary emergency access ways to provide access to multiple destinations.

• Element 4 Water: The development will be provided with a permanent and reticulated water supply to support onsite firefighting requirements. The existing reticulated scheme to the north will be extended into the site and hydrants will be installed as per Water Corporation requirements.

The management/mitigation measures to be implemented through the proposed development of the site have been outlined as part of this BMP, and through these, the site can appropriately manage risk in accordance with SPP 3.7 and the Guidelines.

Kingsford Town Centre





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### Appendices

### Appendix A

Subdivision Plan



### Abbreviation Tables

### Table A1: Abbreviations – General terms

General terms			
AS	Australian Standard		
APZ	Asset Protection Zone		
BAL	Bushfire Attack Level		
BMP	Bushfire Management Plan		
BPAD	Bushfire Planning and Design		
CCW	Conservation Category Wetland		
ESA	Environmentally Sensitive Area		
FDI	Fire Danger Index		
UFI	Unique Feature Identifier		

#### Table A2: Abbreviations - Organisations

Organisations			
DBCA	Department of Biodiversity, Conservation and Attractions		
DFES	Department of Fire and Emergency Services		
DWER	Department of Water and Environmental Regulation		
DPLH	Department of Planning, Lands and Heritage		
OBRM	Office of Bushfire Risk Management		
WAPC	Western Australia Planning Commission		

### Table A3: Abbreviations – Legislation and policies

Legislation	
AS 3959 Australian Standard 3959:2018 Construction of buildings in bushfire prone are	
Guidelines Guidelines for Planning in Bushfire Prone Areas Version 1.4 (DPLH & WAPC 20	
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				
LPS	Local Planning Scheme			
MRS	Metropolitan Region Scheme			

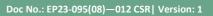




Table A4: Abbreviations - units of measurement

Units of measurement	
ha	Hectare
m AHD	m in relation to the Australian height datum



### 1 Introduction

### 1.1 Background

Amex Bullsbrook Pty Ltd (the proponent) is proposing to develop a portion of Lot 1354, Bullsbrook (herein referred to as 'the site') for commercial and residential purposes, and it comprises the town centre of the approved Kingsford Bullsbrook Central Revised Local Structure Plan.

The site is approximately 33 hectares (ha) in area and is located within the City of Swan, as shown in **Figure 1**. It is bounded by the Great Northern Highway to the west with Ki-It Monger Brook traversing under the highway to the northwest of the site, undeveloped rural land to the east (which is within the broader Kingsford Bullsbrook Central Revised Local Structure Plan area and under the proponent's ownership and proposed for future stages of development), and and existing rural/industrial land use to the south also indicated to be developed in the future. The site currently comprises few trees outside of already cleared areas and previously contained rural paddocks historically utilised for agricultural cropping.

The site is currently partially 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 2021) as shown in **Plate 1**. The identification of a site within an area declared as bushfire prone necessitates 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 the *Guidelines for Planning in Bushfire Prone Areas Version 1.4* (the Guidelines) (DPLH & WAPC 2021).

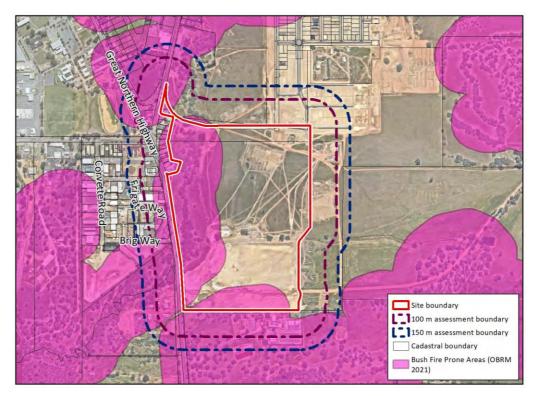


Plate 1: Areas within and surrounding the site, identified as 'bushfire prone areas' (under the state-wide Map of Bush Fire Prone Areas (OBRM 2021), is indicated in purple

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The purpose of SPP 3.7 is to preserve life and reduce the impact of bushfire on property and infrastructure through effective risk-based land-use planning. Importantly, it is risk-based, requiring a methodical approach to identify and evaluate the hazards and provide the treatments to ameliorate these hazards to an acceptable level. This has been affirmed by the Western Australian Planning Commission (WAPC):

SPP 3.7 does not require that there be no increase at all in the threat of bushfire to people property or infrastructure. Rather, as is seen in clause 2 of SPP 3.7, the intention of the policy is to 'implement effective, risk-based land use planning and development to preserve life and **reduce the impact of bushfire on property and infrastructure'**. (emphasis added)<sup>1</sup>

### 1.2 Aim of this report

The purpose of this BMP is to assess bushfire hazards both within the site, and nearby, and demonstrate that the threat posed by any identified hazards can be appropriately mitigated and managed. This BMP has been prepared in accordance with SPP 3.7 (WAPC 2015), the Guidelines (DPLH & WAPC 2021) and AS 3959 (Standards Australia 2018). 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 compliance with the bushfire protection criteria outlined within the Guidelines, including an indication of BAL ratings likely to be applicable to future buildings (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 1.4 (DPLH & WAPC 2021)
- Australian Standard AS 3959 2018 Construction of buildings in bushfire prone areas (Standards Australia 2018)

<sup>&</sup>lt;sup>1</sup> Harmanis Holdings No. 2 Pty Ltd and Western Australian Planning Commission [2019] WASAT 43 (Harmanis).

### 1.4 Description of the proposed development

The site is proposed to be developed for commercial and residential purposes in accordance with the approved structure plan, and will include a number of larger lots that will be subject to separate development applications. The general road and lot layout is provided in **Appendix A.** A drainage basin as well as a public open space area associated with Ki-It Monger Brook and its foreshore is part of the proposed development.

The proposed development is also consistent with the 'Urban' zoning of the site under the Metropolitan Region Scheme (MRS) and the 'Residential Development' zoning under the City of Swans Local Planning Scheme No. 17 (LPS No.17), as shown in **Plate 2** below.

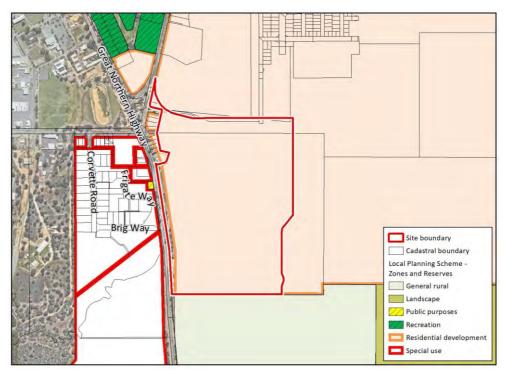


Plate 2: Local Planning Scheme Zoning, in and surrounding the site.

### 1.5 Description of land characteristics

Based on the observed site conditions and a review of publicly available historical aerial photography, the site was predominantly cleared of native vegetation by 1965 and utilised for rural/ agricultural purposes, likely stock grazing and or cropping (Landgate 2024). Scattered remnant trees remaining are mostly associated with Ki-It Monger Brook.

Elevation across the site is gently sloping from east to west, decreasing from 56 m Australian Height Datum (m AHD) to 46 m AHD at Great Northern Highway, as shown in **Figure 1**.

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### Bushfire Management Plan Kingsford Town Centre

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### 2 Environmental Considerations

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

The key environmental consideration that has relevance for the management of bushfire risk includes Ki-It Monger Brook, which a portion is also identified as a conservation category wetland (CCW). Ki-It Monger Brook is retained within the public open space corridor and existing remnant vegetation will be assumed to be unmanaged.

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 and buffer (Geomorphic wetlands, Swan Coastal Plain (DBCA- 019))	Yes	A review of the <i>Geomorphic Wetlands of the Swan Coastal Plain</i> dataset indicates that a conservation category wetland (CCW) occurs within the site (UFI #12681) and to the west of the site (UFI #12424). An appropriate separation between the CCW and residential development within the site will be provided through the provision of the proposed public open space within the site with no changes to the CCW proposed as a part of the development. A multiple-use wetland (UFI #15282) expands across the site, however, does not require buffers or revegetation that would influence bushfire risk.
RAMSAR wetlands (DBCA- 010)	No	No RAMSAR wetlands are identified as occurring within the site or in close proximity.
Threatened and priority flora (DBCA-036)	No	The site has limited flora and vegetation values as a result of significant historical clearing and agricultural land uses. A number of remnant trees are present and associated with Ki-It Monger Brook, however will be retained in public open space and will not require modification or management for bushfire purposes. The remainder of the site is cleared of vegetation and composed of paddock grasses. No threatened or priority flora have been identified.
Threatened and priority fauna (DBCA-037)	No	Similar to flora and vegetation values, the site has limited fauna habitat values. A number of remnant trees are present and associated with Ki-It Monger Brook and could provide fauna habitat, however, will be retained in public open space and will not require modification or management for bushfire purposes. The remainder of the site is composed of paddock grasses and does not provide habitat for conservation signficant species.
Threatened ecological communities (DBCA-038)	Yes	Investigations undertaken to support the structure plan identifed no threatened ecological communities within the site.
Bush Forever areas (DPLH- 019)	No	No Bush Forever areas are identifed as occuring within the site. The closest Bush Forever area is approximately 350 west of the site intersecting with RAAF Base Pearce.

Table 1: Summary of potential environmental considerations that may be associated with the site.

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Table 1: Summary of potential environmental considerations that may be associated with the site (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
Clearing regulations – Environmentally sensitive areas (DWER-046)	Yes	The western third of the site is situated within an environmentally sensitive area (ESA), associated with the CCW within the site and a TEC further to the northwest. ESAs are only a relevant consideration where native vegetation is present and/or exemptions pursuant to Schedule 6 of the <i>Environmental Protection Act 1986</i> do not apply.
Swan Bioplan Regionally Significant Natural Areas 2010 (DWER-070)	No	Not applicable. No Regionally Significant Natural Areas are identified within the site or nearby.

### 2.1 Native vegetation – modification and clearing

As outlined above, the site has been cleared of vegetation previously with some trees remaining and mostly associated with Ki-It Monger Brook. The remnant vegetation associated with Ki-It Monger Brook will be retained in public open space, as indicated by the concept (**Appendix A**). No modification of vegetation in the CCW or associated with Ki-It Monger Brook is required to implement this BMP.

Where clearing of native vegetation is undertaken in accordance with subdivision approval under the *Planning and Development Act 2005* or to implement Section 33 of the *Bush Fires Act 1954* (as examples), it is exempt from requiring a clearing permit under Schedule 6 of the *Environmental Protection Act 1986* (EP Act). Where outside an environmentally sensitive area, exemptions pursuant to the Environmental Protection (Clearing of Native Vegetation) Regulations 2004 can also apply, such as those provided by a building licence or planning approval. Additionally, a clearing permit would not be required where vegetation is not considered 'native vegetation' under Division 2 Section 51A of the EP Act, this includes trees that have been sown, planted or propagated.

### 2.2 Revegetation and landscape plans

The area of public open space in the western third of the site will retain the existing trees. This area is mostly trees over paddock grasses, however, is assumed to be a forest classification to accommodate potential future planting. No management will be required in this portion of the public open space areas for bushfire purposes.

The drainage basin proposed within Lot 8010 will be planted to support bioretention and water sensitive design requirements and is assumed to be a grassland classification (sedges and reeds with occasional trees and shrubs less than 10% foliage cover, typical basin planting approaches).

The portions of the public open space area that contain no remnant vegetation, similar to existing developed states of the Kingsford structure plan area, are assumed to be more managed landscape treatments such as irrigated garden beds/ turf pockets, or grass areas (based on the existing paddock grasses) that can be mowed and can be managed to achieve low threat.

Landscape treatments that are associated with future public open space areas, residential gardens and verge planting within road reserves, are assumed to be able to achieve low threat in accordance with Section 2.2.3.2 of AS 3959, based on standard treatments for urban areas and the requirements of the City of Swan. This 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.
- Regular mowing/slashing of grass to less than 50 mm in height.

Nature strips (verges) within public road reserves are excluded pursuant to clause 2.2.3.2(f) of AS 3959, where they are listed as a type of use/vegetation that can be excluded. Specific management is not required.

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### 3 Bushfire Assessment Results

Bushfire risk for the site has been appropriately considered with regard to the potential impact upon the site using AS 3959 and the Guidelines.

The objective of AS 3959 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. AS 3959 measures the Bushfire Attack Level (BAL) as the radiant heat level (kW/m<sup>2</sup>) 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.

A BAL contour plan has been prepared in accordance with Appendix Three of the Guidelines and Method 1 of AS 3959 to determine the BAL ratings likely to be applicable to future buildings. This has been based on the vegetation classifications and the effective slope under the vegetation (postdevelopment scenario).

### 3.1 Assessment inputs

The bushfire attack level (BAL) assessment was undertaken in accordance with Method 1 of AS 3959. Vegetation classifications and effective slope have been detailed in **Table 2** and **Figure 2**. The site has been visited multiple times, including October 2023, March 2024 and more recently September 2024.

### 3.1.1 Inputs and assumptions

The BAL assessment is based on the following inputs and assumptions:

- Designated Fire Danger Index (FDI): 80
- Flame temperature: 1090 K
- Effective slope beneath classified vegetation: flat/upslope (see Figure 2)
- The existing remnant vegetation associated with Ki-It Monger Brook will be retained, and no specific management of this area is required. If revegetation occurs, this has been accommodated by an assumed vegetation classification of forest (see Figure 2).
- Outside of the remnant vegetation in Kit-It Monger Brook, the public open space areas and road reserves will be modified to achieve low threat in accordance with Section 2.2.3.2 of AS 3959 and will be maintained as detailed in **Section 2.2**. Areas identified as low threat that are external to the site are assumed to continue to be managed in accordance with existing land management practices in the long term (unless stated otherwise).
- Undeveloped areas within the proponent's landholdings to the east of the site that are designated for future stages of development will be managed to low threat by the proponent until the development progresses.
- Grassland vegetation, based on planting for water sensitive urban design purposes, will be present within the drainage basin in Lot 8010.
- Classified vegetation outside of the site to the north, south and west is assumed to remain in their current condition as shown in **Figure 2**.

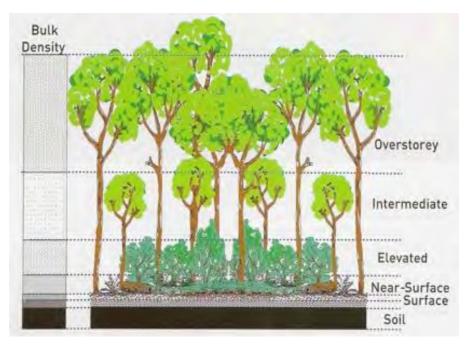
• Areas of grassland can include up to 10% foliage cover from shrubs and trees, as per AS 3959.

### 3.1.2 Vegetation classification

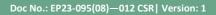
All vegetation within 150 m of the site was classified in accordance with Section 2.2.3 of AS 3959. The assignment of vegetation classifications is based on an assessment of vegetation structure, including consideration of the various fuel layers of different vegetation types, as outlined in **Plate 3.** Each distinguishable vegetation plot is described in **Table 2** and shown in **Figure 2**.

Not all vegetation classified as a bushfire risk. Vegetation and ground surfaces that are exempt from classification as a potential hazard are identified as a 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.



*Plate 3: The five fuel layers in a forest environment that could be associated with fire behaviour (Gould et al. 2007)* 





#### Table 2: AS 3959 vegetation classifications (refer to Figure 2)



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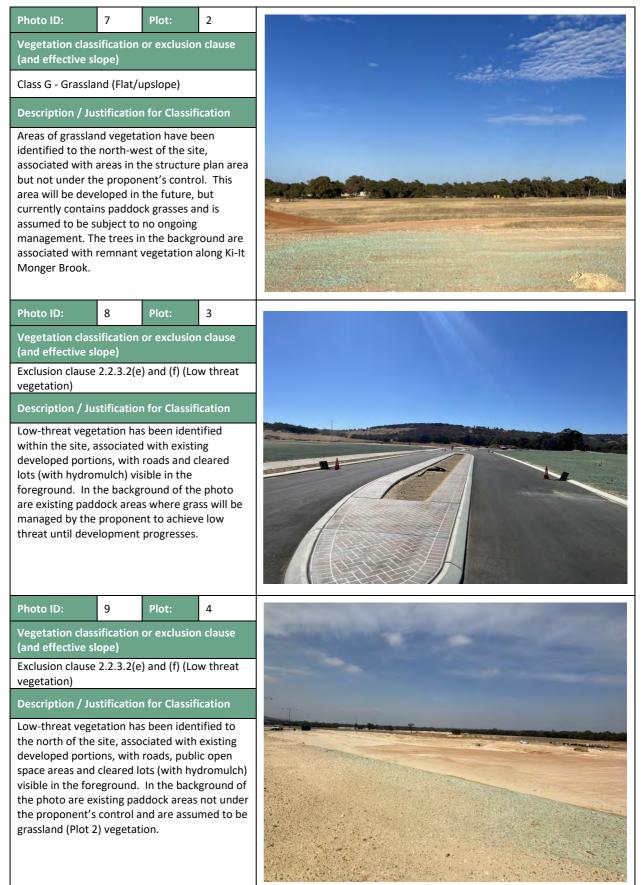
Table 2: AS 3959 vegetation classifications (refer to Figure 2)(continued)



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Table 2: AS 3959 vegetation classifications (refer to Figure 2)(continued)



#### 3.2 Assessment outputs

The vegetation classifications determined in **Section 3.1** are summarised in **Table 3** and shown in **Figure 2** and incorporate the known changes to vegetation post-development within the site and the determined effective slope.

Plot	Applied vegetation classification	Effective slope
1	Class A – Forest (remnant vegetation along Ki-It Monger Brook)	Flat/upslope
2	Class G – Grassland (cleared paddock areas not under proponent control)	Flat/upslope
3	Exclusion 2.2.3.2 (e) (existing lots/developed areas, or future developed areas)	Not applicable
4	Exclusion 2.2.3.2 (f) (existing or future management public open space areas)	Not applicable
5	Exclusion 2.2.3.2 (f) (areas of future development to be managed by the proponent)	Not applicable

Table 3: AS 3959 vegetation classification and effective slope applicable to the site

The resultant BAL ratings for the site are shown in **Figure 3**. The BAL ratings are based on the minimum distances outlined in Table 2.5 of AS 3959 for the applicable vegetation classifications and effective slope. The relevant setback distances for the BAL ratings from AS 3959 (that form the basis for the BAL contour plan) have been summarised for ease of reference in **Table 4**.

The BAL assessment shows that all future habitable buildings will be able to achieve BAL-29 or less, with the majority of lots in areas subject to BAL-12.5 or BAL-LOW.

In the southern portion of the site, an 8 m-wide rear lot setback will be required from the grassland vegetation to the south. This can be managed through the building design and using features such as car parks or similar to provide the required setback.



Table 4: Setback distances based on vegetation classification and effective slope and Table 2.5 of AS 3959, as	
determined by the method 1 BAL assessment.	

Plot number (see Figure 2)	Vegetation classification (see Figure 2)	Effective slope (see Figure 2)	Distance to vegetation (from Table 2.5 of AS 3959)	BAL rating
Plot 1	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 2	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, based on the requirements of SPP 3.7 and the Guidelines, the key issues that are likely to require management and/or consideration as part of future development within the site, particularly the construction of new habitable buildings, include:

- Provision of appropriate separation distance from bushfire hazards to ensure a BAL rating of BAL-29 or less can be achieved at future habitable buildings (built form). This will include ensuring that the managed portions of public open space are designed to ensure BAL-29 or less can be achieved at buildings, which could be through managed public open space or using a grassland or other vegetation classification.
- Lot 5003 (as shown in **Figure 2**), will require a minimum separation distance of 8 m to be accommodated in the lot itself in the area abutting the grassland vegetation to the south of the site, to ensure habitable buildings achieve BAL-29 or less.
- Ensuring that the site has access to a road network that supports egress to multiple destinations and that temporary no through roads due to staging of development are less than 200 m long with suitable turn-around areas where exemptions do not apply or are provided with temporary emergency access ways connecting to the public road network.
- Ensuring that the provision of water for firefighting is sufficient and accessible by firefighting services, to be accommodated by the reticulated water network.

#### 4.1 Permanent hazards

The land surrounding the site comprises a mix of uses, including a continuation of the Ki-It Monger Brook foreshore with remnant native vegetation, industrial areas and undeveloped land zoned for residential development (future stages of the Kingsford Bullsbrook Central Revised Local Structure Plan).

Classified vegetation in areas surrounding the site not under the proponent's control, specifically to the north, west and south of the site, are assumed to remain in their current condition and be a hazard to development.

Classified forest vegetation associated with Ki-It Monger Brook is expected to remain within the site in the proposed public open space and is assumed to not be managed.

The drainage basin within the site, although currently void of vegetation, is assumed to be planted to support bioretention functions and not subject to regular management.

#### 4.2 Temporary hazards

Once vegetation is removed or modified within the site (unless identified as being unmodified) and subdivision/development commences, that area needs to continue to be managed to achieve low threat at all times until the lots are sold and/or construction of buildings and landscape treatments commence. This includes the areas to the east of the site that are under the proponent's control, with a minimum 50 m-wide area required to be managed.

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Management in undeveloped areas will include regular slashing/mowing of grass/weedy regrowth. The proponent will be responsible for management until lots are sold/under the control of others and/or development progresses.

#### 4.3 Vulnerable or high risk land use

The definition of a vulnerable land use is where occupants are less able to respond in an emergency. The types of land uses considered vulnerable include *"facilities that, due to the building design or use, or the number of people accommodated, are likely to present evacuation challenges."* This generally includes (but is not limited to) schools, hospitals, aged care facilities and similar. The identification of a land use as a vulnerable use is at the discretion of the decision maker.

A high-risk land use is one where practices that occur within the site may lead to a potential ignition and spread of a fire from the site or could prolong the duration or intensity of a bushfire should a fire arrive from outside the site.

No vulnerable or high-risk land uses are identified as part of the plans provided as part of this BMP. The proposed development provides separation to classified vegetation, mostly through the proposed road reserve locations, enabling future habitable buildings to achieve BAL-29 or less. The road network supports access to multiple destinations, meaning evacuation can be supported across the site should any vulnerable or high-risk land uses be proposed.



### 5 Assessment Against the Bushfire Protection Criteria

The bushfire protection criteria provided in the Guidelines represent the risk treatments applicable to achieving the intent and the objectives listed in SPP 3.7. The bushfire protection criteria are divided into four subsystems (elements), plus a standalone element for tourism. Each subsystem is provided with an intent and solution method, either performance principle or acceptable solution (one predetermined solution). Compliance with each subsystem (as a risk treatment) is required to demonstrate to the decision-maker that the risk is within acceptance.

The bushfire protection criteria identified in the Guidelines and addressed as part of this BMP are:

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

The proposed development is compared with bushfire protection criteria in **Table 5**. The assessment demonstrates that the development can achieve the objectives of SPP 3.7 and addresses these through acceptable solutions detailed in the Guidelines.

Bushfire protection criteria	Proposed bushfire management strategies		
Element 1: Location			
A1.1 Development location The proposed development is in accordance with the approved structure plan. The assessment, discussed in <b>Section 0</b> , has indicated that all proposed lots are able to provide an area where future habitable buildings can achieve BAL-29 or less. The proposal complies with A1.1.			
Element 2: Siting and design			
A2.1 Asset Protection Zone (APZ)	All lots within the site are required to be managed to a low-threat condition with a minimum Asset Protection Zone (APZ) equivalent to enable BAL-29 to be achieved at the habitable building. APZs are typically contained within a lot but can also include areas external to a lot that achieve low threat in accordance with Section 2.2.3.2 of AS 3959 where the APZ cannot be contained within the lot boundaries (such as managed road reserves or public open space, and is typical in urban areas). As outlined, assumed permanent hazards are the classified forest vegetation associated with Ki-It Monger Brook and the grassland to the north, south and west of the site, as well as a drainage basin in the south-western portion of the site. Due to areas of unmanaged grassland vegetation to the south, BAL-FZ and BAL-40 encroaches into the southern portion of Lot 5003. An 8 m-wide setback at the rear of the lot is required to ensure future habitable buildings can achieve BAL-29. This is shown on <b>Figure 4</b> . Outside this area, road reserves and areas of managed POS (and areas of temporary hazard managed by the proponent) provide sufficient setbacks to achieve BAL-29 in all other lots, with most other lots subject to BAL-12.5 or BAL-LOW.		

Table 6: Assessment against the bushfire protection criteria from the Guidelines

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Table 6: Assessment against the bushfire protection criteria from the Guidelines (continued)

Bushfire protection criteria	Proposed bushfire management strategies
Element 3: Vehicular access	
A3.1 Public roads	All proposed public roads within the site can and will meet the minimum technical requirements for public roads compliant with the local government standards and with Table 6 column 1 of the Guidelines ( <b>Plate 4</b> below). The proposed road reserves are between 13 m to 20 m wide (refer to <b>Appendix A</b> and <b>Figure 4</b> ). The proposal complies with A3.1.
A3.2a Multiple access routes	The proposed development will provide access and egress points onto the existing public road network at Great Northern Highway to the west, Wylde Boulevard to the northeast and Chittering Road to the northwest. Great Northern Highway provides connection to Muchea to the north and Midland to the south. Great Northern Highway also connects to Stock Road, providing egress to the west towards Joondalup. Wylde Boulevard connects to existing urban areas to the north and Chittering Road provides access to the northeast and the exitsing Bullsbrook townsite. The road network is shown in <b>Figure 4</b> . As the future development stages in accordance with the approved structure plan are constructed, additional road connections will be provided to the north and east of the site.
	The proposal complies with A3.2a.
A3.2b Emergency access way	Not applicable given the proposal is compliant with A3.2a and A3.3. As part of staged development, if no through roads greater than 200 m are proposed and exemptions in accordance with the Guidelines do not apply, temporary emergency access ways may be required to ensure access to two different destinations. Temporary emergency access ways should comply with the requirements of Table 6 column 1 of the Guidelines ( <b>Plate 4</b> below) or as agreed with the local government.
A3.3 Through-roads	All proposed roads within the site are through-roads and will meet the minimum technical requirements for public roads compliant with the local government standards and with Table 6 column 1 of the Guidelines ( <b>Plate 4</b> below). The development of the site is part of a broader staged development in accordance with the approved structure plan. Where temporary no-through roads are required as part of future staged subdivision within the site, any temporary no-through road must be developed in accordance with A3.3 including having a maximum length of 200 m, a compliant turn-around head and meeting the minimum technical standards for a public road as detailed in Table 6, Column 1 of the Guidelines (see <b>Plate 4</b> ), or as agreed with the local government.
	The proposal complies with A3.3.
A3.4a Perimeter roads	<ul> <li>A perimeter public road interface is provided between all lots and permanent classified vegetation external to the site and is also provided between the majority of temporary hazards. An exception is:</li> <li>The grassland vegetation to the south, however separation can be accommodated as part of the lots (with the area further south identified as urban deferred being a likely future intensification of development).</li> <li>The forest vegetation associated with Ki-It Monger Brook, an a lot directly abutting the public open space. An interface of managed vegetation is provided between the retained vegetation and the lots and if required, access (such as a fire service access or similar) can be designed in in consultation with the City of Swan.</li> </ul>



Table 6: Assessment against the bushfire protection criteria from the Guidelines (continued)

Bushfire protection criteria	Proposed bushfire management strategies			
Element 3: Vehicular access				
A3.4b Fire service access route	No fire service access route is proposed or required to achieve compliance as the proposal complies with A3.4a. Therefore A3.4b is not applicable.			
A3.5 Battle-axe access legs	No battle-axe legs are proposed and therefore A3.5 is not applicable.			
A3.6 Private driveway longer than 70 metres	Not applicable to subdivision. Where driveways longer than 70 m are proposed, these should comply with the requirements of the Guidelines as part of future development applications.			
Element 4: Water				
A4.1 Reticulated areas	Not applicable to subdivision and development applications.			
A4.2 Provision of water for firefighting purposes	The site is located in a reticulated water supply area. Hydrants exist to the north of the site in existing developed areas as well as within the southern portion of the site, as shown in <b>Figure 4.</b> The current network will be extended as part of the subdivision within the site and additional hydrants will be supplied in accordance with the water authority requirements.			

#### Table 6: Vehicular access technical requirements

TECHNICAL REQUIREMENTS	1 Public roads	2 Emergency access way <sup>1</sup>	3 Fire service access route <sup>1</sup>	4 Battle-axe and private driveways <sup>2</sup>	
Minimum trafficable surface (metres)	In accordance with A3.1	6	6	4	
Minimum horizontal clearance (metres)	N/A	6 6		6	
Minimum vertical clearance (metres)	4.5		.5		
Minimum weight capacity (tonnes)	15				
Maximum grade unsealed road <sup>3</sup>	1:10 (10%)				
Maximum grade sealed road <sup>3</sup>	As outlined in the IPVVEA	1:7 (14.3%)			
Maximum average grade sealed road	Subdivision 1:10 (10%)				
Minimum inner radius of road curves (metres)	Guidelines	8.5			

Notes:

<sup>1</sup> To have crossfalls between 3 and 6%.

<sup>2</sup> Where driveways and battle-axe legs are not required to comply with the widths in A3.5 or A3.6, they are to comply with the Residential Design Codes and Development Control Policy 2.2 Residential Subdivision.

Plate 4: Excerpt of Table 6 from The Guidelines



#### 5.1 Additional management strategies

#### 5.1.1 Future approval considerations

The BAL assessment in this BMP assesses the potential bushfire risk posed to future habitable buildings within the site, based on the assumptions outlined in **Section 3**.

Following the creation of lot titles, a building licence will be required before the habitable building construction can commence.

Future Class 1, 2, 3 and 10a buildings in designated bushfire prone areas and within an area subject to a BAL rating of BAL-12.5 or higher, will need to satisfy construction standards in accordance with the National Construction Code (NCC) (e.g., AS 3959 or the National Association for Steel-framed Housing).

#### 5.1.2 Vegetation management

#### 5.1.2.1 Within the site

#### Public open space areas and road reserves

It is assumed that as part of the development of the site, all areas of remnant vegetation associated with Kit-It Monger Brook and the CCW will be retained in its current state (see **Figure 4** and areas assumed to remain a hazard (e.g. classified vegetation)).

Landscaping undertaken within the identified areas of managed public open space (shown in **Figure 4**) will be designed, landscaped and maintained to a low threat standard in accordance with Section 2.2.3.2 of AS 3959 (in particular Clause 2.2.3.2 (f)). Ongoing management will be aligned with typical urban requirements and will likely include:

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

This will be the responsibility of the proponent initially, and following the handover, will be the responsibility of the City of Swan. It is noted that the subdivision layout, through the road network can provide for separation between habitable buildings and classified vegetation is the public open space areas were to be unmanaged, if this is the direction provided by City of Swan as part of landscape detailed design.

Nature strips (verges) within public road reserves are excluded pursuant to clause 2.2.3.2(f) of AS 3959, where they are listed as a type of use/vegetation that can be excluded. Specific management is not required.



#### Future lots

All lots, once created, are required to be managed by the relevant landowner to a minimal fuel condition and achieve low threat as per Section 2.2.3.2 of AS 3959, in accordance with this BMP and the City of Swan Fire Hazard Reduction Notice (as published).

#### Management of temporary bushfire hazards

In order to minimise the impacts of temporary grassland hazards on proposed lots within the site, as part of staging of subdivision, it is recommended that the proponent manage a 50 m-wide area surrounding each stage to a low threat standard, where within their landholdings and outside the remnant vegetation associated with Kit-It Monger Brook.

This 50 m wide area should be maintained to achieve low threat in accordance with Section 2.2.3.2 of AS 3959 and will be the responsibility of the proponent until urban development progresses and/or other formal arrangements are made and agreed to with the City. Ongoing management is likely to include:

- Maintain areas to have a fine fuel loading of 2 tonnes per hectare or less.
- Where present, regular mowing/slashing of grass/weeds to less than 100 mm in height (throughout the year, particularly during the bushfire season).

#### 5.1.2.2 Surrounding the site

#### Low threat area management by proponent

As previously stated (and shown in **Figure 4**) the proponent has indicated that they will manage grassland hazards to the east of the site, to reduce the extent of BAL ratings on lots. A minimum 50 m-wide area would need to be subject to regular ongoing management (e.g. slashing/removal of grass and/or removal of built-up dead material (or similar type treatments)) until residential development progresses, to enable buildings to achieve BAL-LOW.

#### Private landholdings and public open space areas

Where indicated as a low threat in **Figure 2**, the areas surrounding the site will be managed by the applicable landowners/land managers in accordance with the City of Swan Fire Hazard Reduction Notice (as published) and/or in accordance with existing maintenance regimes.

Where indicated as classified vegetation in **Figure 2**, areas have been assumed to remain a bushfire hazard in the long-term, noting areas to the north are proposed for future development but are not under the management of the proponent.



#### 5.1.3 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 website (<u>https://www.dfes.wa.gov.au/bushfire/prepare/</u>) provides a range of materials to help the community prepare for and survive the bushfire season.

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

In the case of a bushfire in the area, advice would be provided to occupants by DFES, and/or the City of Swan on any specific recommendations with regard to responding to the bushfire, including evacuation if required.



### 6 Responsibilities for Implementation and Management of Bushfire Measures

**Table 7** outlines the future responsibilities of the proponent/developer to be undertaken to support the clearance of titles. These items will be certified by a bushfire consultant.

Devel	oper/landowner
No.	Implementation action
1	Unless identified for retention (e.g. remnant vegetation associated with Ki-It Monger Brook), ensure all classified vegetation in the site (or stage of development) is either removed or modified to achieve low threat in accordance with Section 2.2.3.2 of AS 3959.
2	If required and where within the proponent's landholding and outside the retained vegetation in Kit-It Monger Brook, the minimum width of land required to achieve BAL-29 or less at buildings will be managed to achieve low threat in accordance with Section 2.2.3.2 of AS 3959. This will include regular slashing of grass where present.
3	Install the public roads to the standards outlined in Appendix Four of the Guidelines or as agreed with the City of Swan. Public road reserves should be designed and maintained to achieve low threat in accordance with Section 2.2.3.2 of AS 3959.
4	Reticulated water supply and hydrants are to be installed as per standard water authority requirements unless otherwise agreed.
5	<ul> <li>As part of staged development, two access routes must be provided at all times other than:</li> <li>Temporary no-through roads that meet the requirements of the Guidelines with suitable turning heads or other exemptions apply.</li> <li>If emergency access ways are required temporarily to provide two access routes during staging, they must be provided in accordance with the minimum technical requirements of Appendix Four and Table 6 of the Guidelines.</li> </ul>

Table 7: Responsibilities for the implementation of this BMP prior to issue of titles

**Table 8** outlines the future responsibilities of the proponent, future landowners and the City of Swan associated with implementing this BMP with reference to ongoing bushfire risk mitigation measures for existing land uses (through compliance with the City's fire hazard reduction notice) or future mitigation measures to be accommodated as part of the development process but not necessarily for title clearances. These responsibilities will need to be considered as part of the subsequent development and implementation process.

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Table 8: Responsibilities for the implementation of this BMP during development (building construction) and ongoing

Develo	Developer/landowner					
No.	Implementation action					
1	Management of the site to achieve low threat is specified in <b>Table 7</b> , Item 1 to support the creation of titles.					
	As part of the development works, the areas of public open space and road reserves identified as low threat within the site (see <b>Figure 4</b> ) should be designed, and implemented to achieve a low threat standard in accordance with Section 2.2.3.2 of AS 3959. Where relevant, ongoing management is likely to include (but is not limited to): • 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. • Application of ground/surface covers such as mulch or non-flammable materials as required. • Regular mowing/slashing of grass to less than 100 mm in height Maintenance will be the responsibility of the proponent until handover to the City of Swan, and the City thereafter.					
Prope	rty (lot) owners					
No.	Implementation action					
1	Maintain the lot to a low threat standard in accordance with Section 2.2.3.2(e) and (f) of AS 3959 and the principles of the Asset Protection Zones Standard of Schedule 1 of the Guidelines and/or the City of Swan's fire					

hazard reduction notice requirements, whichever is the higher standard.



### 7 Applicant Declaration

#### 7.1 Accreditation

This assessment has been prepared by Emerge Associates who have been providing bushfire risk management advice for more than 10 years, undertaking detailed bushfire assessments (and associated approvals) to support the land use development industry. Emerge Associates have a number of team members who have undertaken Bushfire Planning and Design (BPAD) Level 1 and Level 2 training and are Fire Protection Association of Australia (FPAA) accredited practitioners.

Anthony Rowe is a FPAA Level 3 BPAD accredited practitioner (BPAD No. 36690) in accordance with clause 6.12 of the Guidelines.

#### 7.2 Declaration

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

**Reviewer signature:** 

Name: Anthony Rowe

Company: Emerge Associates/Envision Bushfire Planning

Date: 25/09/2024

BPAD Accreditation: BPAD No. 36690



### 8 References

#### 8.1 General references

The references listed below have been considered as part of preparing this document.

Department of Biodiversity, Conservation and Attractions (DBCA) 2017, *Ramsar Sites* (*DBCA-010*).

Department of Biodiversity, Conservation and Attractions (DBCA) 2022a, *Geomorphic Wetlands, Swan Coastal Plain (DBCA-019)*, Western Australia, <<u>https://catalogue.data.wa.gov.au/dataset/geomorphic-wetlands-swan-coastal-plain</u>>.

Department of Biodiversity, Conservation and Attractions (DBCA) 2022b, *Threatened Ecological Communities (DBCA-038)*, Perth, Western Australia <<u>https://catalogue.data.wa.gov.au/dataset/threatened-ecological-communities</u>>.

Department of Water (DoW) 2008, LiDAR Elevation Dataset, Swan Coastal Plain, Perth.

Department of Planning, Lands and Heritage (DPLH) 2019, *Bush Forever Areas 2000* (*DPLH-019*), <<u>https://catalogue.data.wa.gov.au/org/department-of-planning-lands-and-heritage</u>>.

Department of Planning, Lands and Heritage, and Western Australian Planning Commission, (DPLH & WAPC) 2021, *Guidelines for Planning in Bushfire Prone Areas Version 1.4*, Perth, Western Australia.

Department of Water and Environmental Regulation (DWER) 2021, *Clearing Regulations - Environmentally Sensitive Areas (DWER-046)*, <<u>https://catalogue.data.wa.gov.au/dataset/clearing-regulations-environmentally-sensitive-areas-dwer-046</u>>.

Gould, J., McCaw, W., Cheney, N., Ellis, P. and Matthews, S. 2007, *Field Guide: Fuel Assessment and Fire Behaviour Prediction in Dry Eucalypt Forest*, CSIRO and Department of Environment and Conservation, Perth, Western Australia.

Office of Bushfire Risk Management (OBRM) 2021, *Map of Bush Fire Prone Areas*, Landgate, <u>https://maps.slip.wa.gov.au/landgate/bushfireprone/</u>.

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

Western Australian Land Information Authority (WALIA) 2023, Landgate Map Viewer Plus.

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



Department of Biodiversity, Conservation and Attractions (DBCA) 2017, *Ramsar Sites* (*DBCA-010*).

Department of Biodiversity, Conservation and Attractions (DBCA) 2022a, *Geomorphic Wetlands, Swan Coastal Plain (DBCA-019)*, Western Australia, <<u>https://catalogue.data.wa.gov.au/dataset/geomorphic-wetlands-swan-coastal-plain</u>>.

Department of Biodiversity, Conservation and Attractions (DBCA) 2022b, *Threatened Ecological Communities (DBCA-038)*, Perth, Western Australia <https://catalogue.data.wa.gov.au/dataset/threatened-ecological-communities>.

Department of Planning, Lands and Heritage (DPLH) 2019, *Bush Forever Areas 2000* (*DPLH-019*), <<u>https://catalogue.data.wa.gov.au/org/department-of-planning-lands-and-heritage</u>>.

Department of Planning, Lands and Heritage, and Western Australian Planning Commission, (DPLH & WAPC) 2021, *Guidelines for Planning in Bushfire Prone Areas Version 1.4*, Perth, Western Australia.

Department of Water and Environmental Regulation (DWER) 2021, *Clearing Regulations - Environmentally Sensitive Areas (DWER-046)*,

<<u>https://catalogue.data.wa.gov.au/dataset/clearing-regulations-environmentally-</u> <u>sensitive-areas-dwer-046</u>>.

Gould, J., McCaw, W., Cheney, N., Ellis, P. and Matthews, S. 2007, *Field Guide: Fuel Assessment and Fire Behaviour Prediction in Dry Eucalypt Forest*, CSIRO and Department of Environment and Conservation, Perth, Western Australia.

Office of Bushfire Risk Management (OBRM) 2021, *Map of Bush Fire Prone Areas*, Landgate, <u>https://maps.slip.wa.gov.au/landgate/bushfireprone/</u>.

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.

#### 8.2 Online references

The online resources that have been utilised in the preparation of this report are referenced in **Section 8.1**, with access date information provided in **Table R-1**.

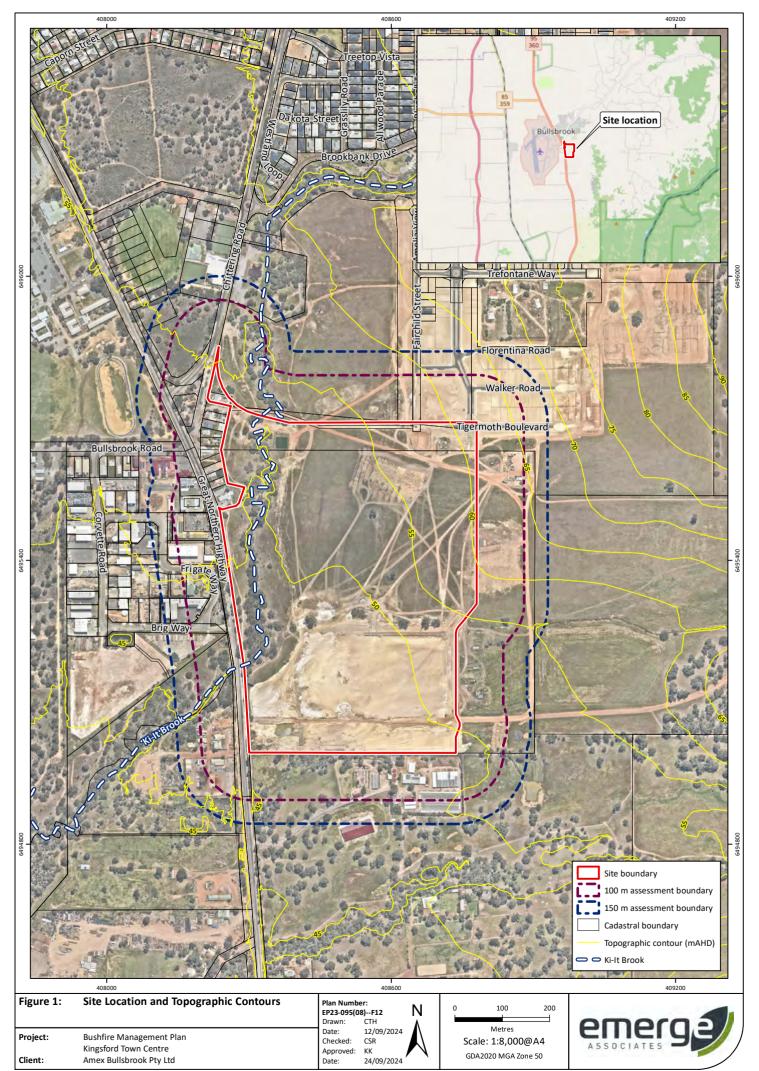
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#### Table R 1 Access dates for online references

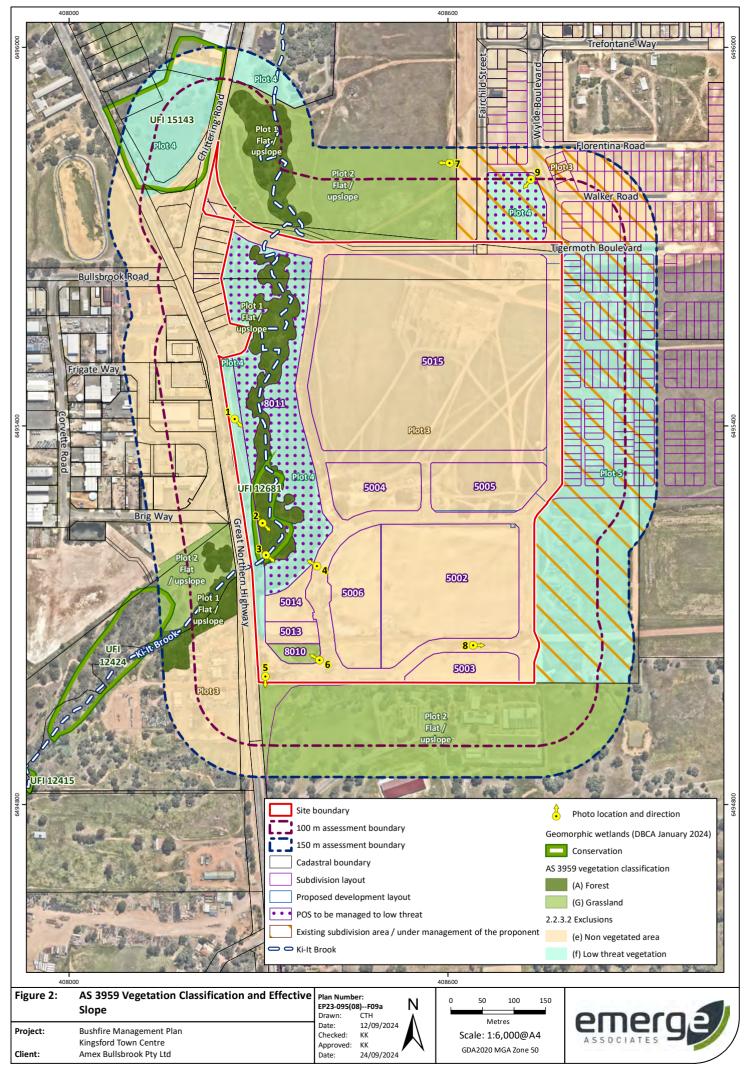
Reference	Date accessed	Website or dataset name	
Landgate 2024	09.09.2024	https://map-viewer-plus.app.landgate.wa.gov.au/index.html	
(OBRM 2021)	09.09.2024	Bush Fire Prone Areas	
(DBCA 2022a)	09.09.2024	Geomorphic Wetlands, Swan Coastal Plain	
(DBCA 2017)	09.09.2024	Ramsar Sites	
(DBCA 2022b)	09.09.2024	Threatened ecological communities	
(DWER 2021)	09.09.2024	Environmentally Sensitive Areas	
(DPLH 2019)	09.09.2024	Bush Forever areas	

# Figures

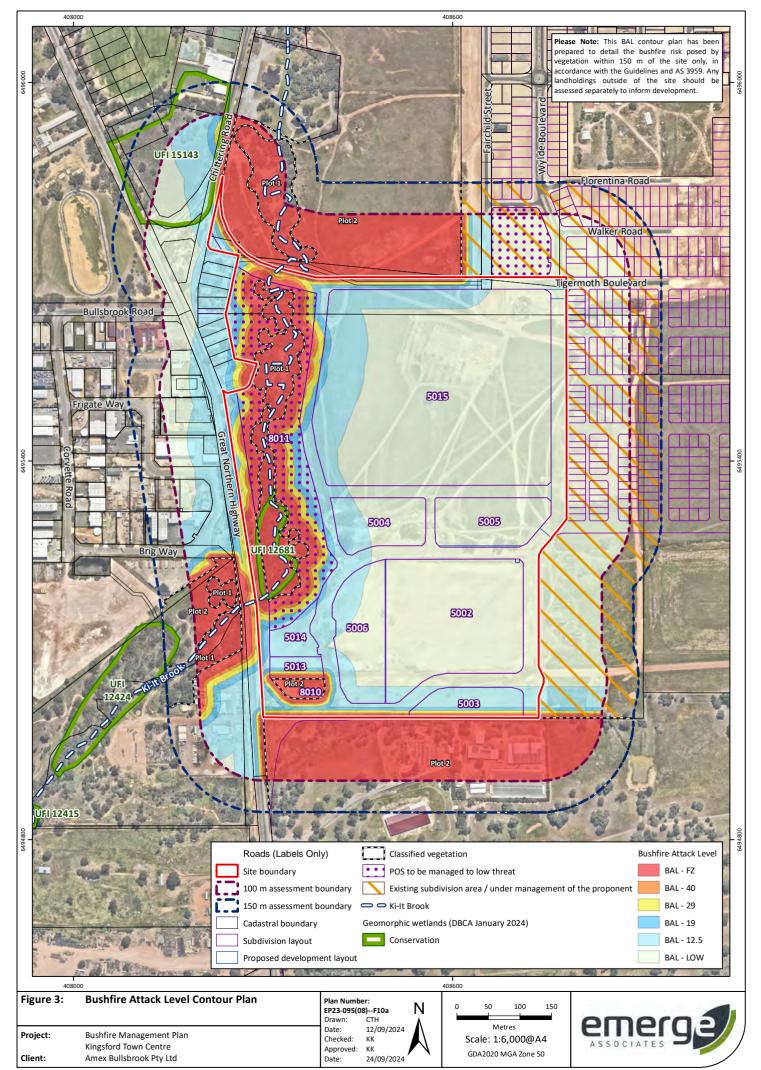
Figure 1: Site Location and Topographic Contours Figure 2: AS 3959 Vegetation Classification and Effective Slope Figure 3: Bushfire Attack Level Contour Plan Figure 4: Spatial Representation of Bushfire Management Strategies



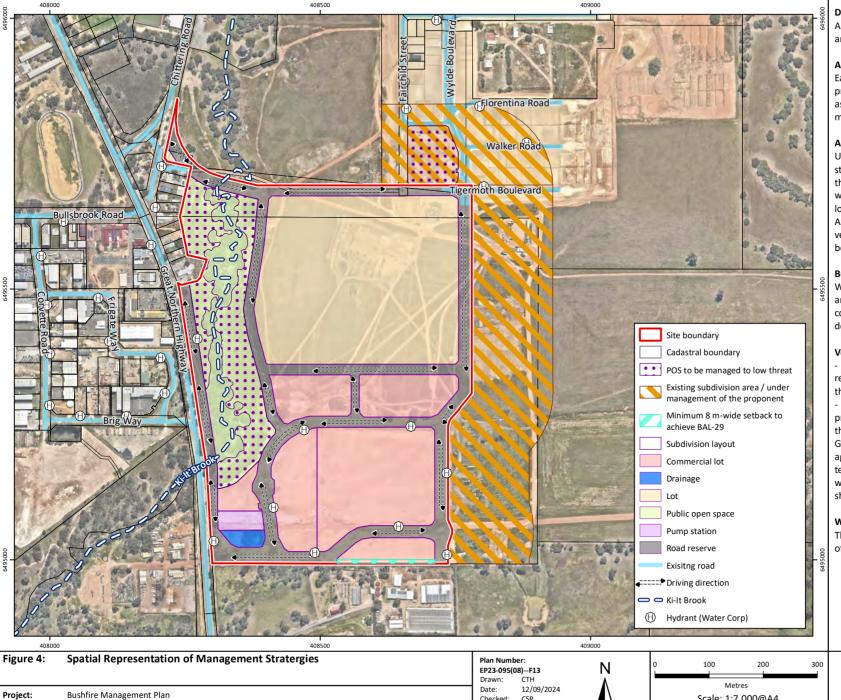
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Development Location

All new habitable buildings are to be located in an area that can achieve BAL-29 or less.

#### Asset Protection 7one

Each lot is required to be managed as an asset protection zone and achieve low threat. The asset protection zone can also include areas of managed public open space and/or road reserve.

#### Areas Managed by the Proponent

Until development in accordance with the structure plan is progressed and/or lots are sold. the proponent will manage a minimum 50 mwide areas within the indicated areas to achieve low threat in accordance with Section 2.2.3.2 of AS 3959. This will include maintaining nonvegetated areas, or regularly slashing grasses below 100 mm in height.

#### **Building Construction Requirements**

Where designated bushfire prone. Class 1, 2, 3 and associated 10a buildings will need to be constructed in accordance with BAL ratings determined as per AS 3959.

#### Vehicle Access

- All roads will achieve the public road requirements as per A3.2 of Appendix Four of the Guidelines or as agreed with the City of Swan - Temporary no-through roads are to be provided with a suitable turning area and satisfy the requirements of Appendix Four in the Guidelines.Where longer than 200 m, unless agreed otherwise with the City of Swan, a temporary emergency access way compliant with A3.2b in Appendix Four of the Guidelines should be provided connecting to a public road.

#### Water Supply

The development will be serviced by a network of reticulated water hydrants.

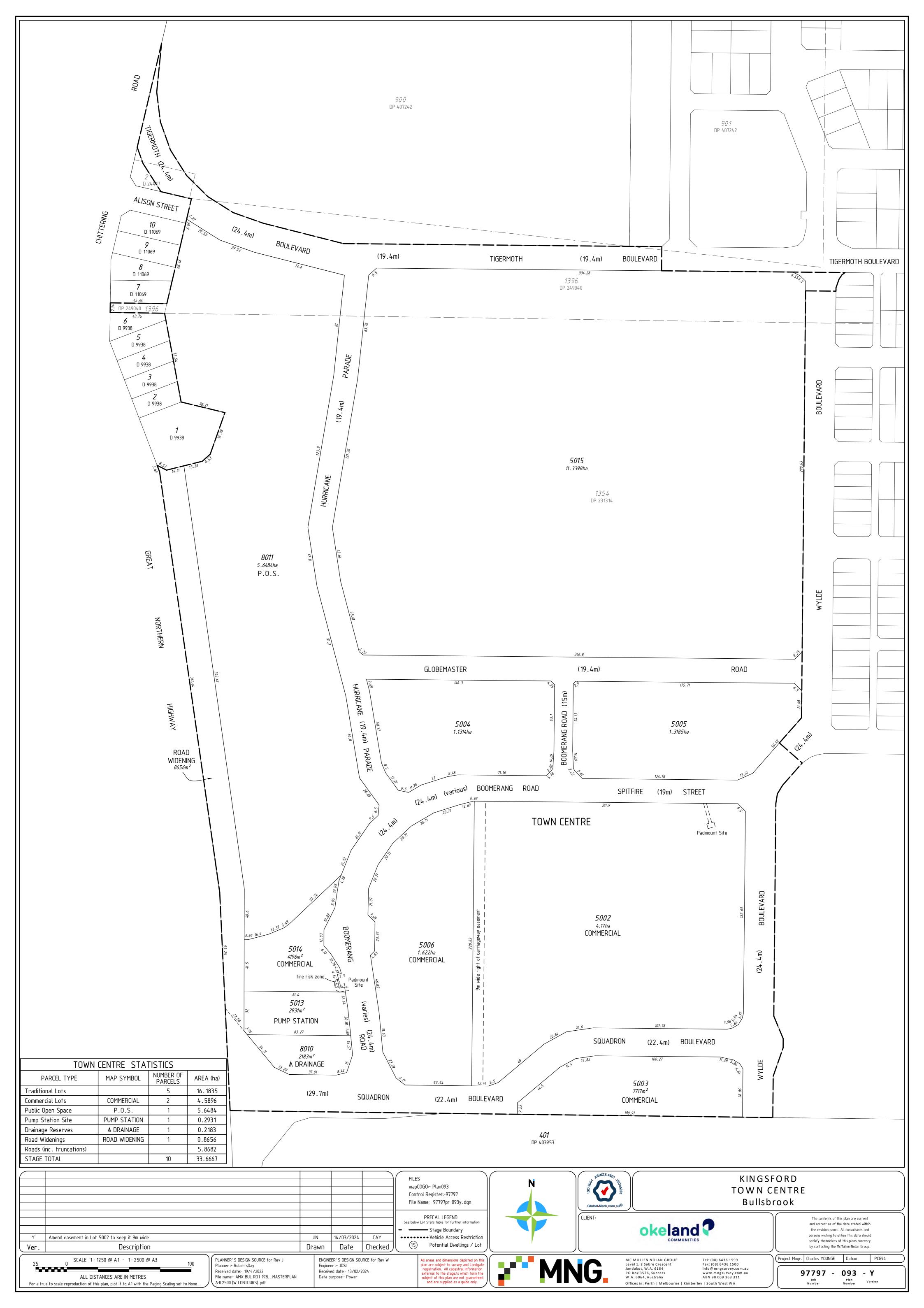
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e 4:	Spatial Representation of Management Stratergies	Plan Number: EP23-095(08)F13 Drawn: CTH	N	0 100 200 300 Metres	
t:	Bushfire Management Plan Kingsford Town Centre Amex Bullsbrook Pty Ltd	Date:         12/09/2024           Checked:         CSR           Approved:         KK           Date:         24/09/2024		Scale: 1:7,000@A4 GDA2020 MGA Zone 50	ASSOCIATES SE

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Client:







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# Proposed Service Station and Fast-Food Bullsbrook

# **Transport Impact Assessment**

PREPARED FOR: Okeland Communities

October 2024

# **Document history and status**

Author	Revision	Approved by	Date approved	Revision type
M Rasouli	r01	B Bordbar	13/10/2024	Draft
M Rasouli	r01a	B Bordbar	22/10/2024	Final

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Author:	Mohammad Rasouli
Project manager:	Mohammad Rasouli
Client:	Okeland Communities
Project:	Proposed Service Station and Fast-Food Bullsbrook
Document revision:	r01a
Project number:	t24.248

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# **1 Introduction**

This Transport Impact Assessment has been prepared by Transcore on behalf of Okeland Communities with respect to a proposed Service Station and Fast-Food Bullsbrook at Part Lot 9502 Boomerang Road, Bullsbrook, in the City of Swan.

The service station component of the subject site is located on the north-east corner of the intersection of Boomerang Road/ Squadron Blvd and the proposed fast-food outlet is located to the north east side of the service station as shown in **Figure 1**. The proposed development is located within the future Kingsford Town Centre in Bullsbrook.

A McDonald's restaurant, with a floor area of 450 m<sup>2</sup> and a drive-through facility, is also expected to be developed within Lot 9502 immediately to the west of the proposed Fast-food outlet. The traffic generation from the proposed McDonald's restaurant has been factored into the SIDRA intersection analysis for this project.



Figure 1: Location of the subject site

# 2 Development Proposal

The proposed development is a service station and fast-food outlet, as shown in the site plan at Appendix A.

The site plan shows that the proposed development includes:

- A service station with six filling points;
- A convenience store with approximately 225m<sup>2</sup> GFA;
- A fast-food outlet with a total of about 210m<sup>2</sup> GFA;
- Separate loading bays for service station and fast-food outlet;
- 10 parking bays including 1 disabled bay for the proposed service station; and,
- 10 parking bays including 1 disabled bay for the proposed fast-food outlet.

Access to the proposed development will utilise internal circulation roads within the overall town centre development, as illustrated in Figure 2 below.



**Figure 2: Proposed access arrangements** 

Access via Internal Roads 1, 2 and 3 is proposed to be secured via proposed right of carriageway easements.

Those Internal Roads will provide access to the public road network as follows:

- Internal Road 1 will connect to the roundabout constructed on Boomerang Road to provide full movement access;
- Internal Road 2 will connect to the driveway crossover constructed on Squadron Boulevard to provide full movement access; and
- Internal Road 3 will connect to the driveway crossover constructed on Boomerang Road to provide left in / left out access on Boomerang Road.

Delivery and rubbish collection will be provided within the sites. Turn path plans have been prepared for entry and exit movements by a 12.5m heavy rigid vehicle to demonstrate that service vehicles up this size can be accommodated by the proposed site layout for both land uses.

A 19m fuel tanker is also expected to service the proposed service station. The turn paths are presented in **Appendix B**.

Turn paths for a large car (B99 car) have been prepared for the drive through lanes of the proposed fast-food outlet to demonstrate satisfactory operation of the drive through lanes, as well.

### 3.1 Existing Land Use

The planned Kingsford Town Centre Precinct, including the subject site, is currently vacant land, as shown in **Figure 1**. There is an existing rural property to the south, industrial and commercial development west of Great Northern Highway and RAAF Pearce Air Base further to the northwest. The existing Bullsbrook townsite is approximately one kilometre north of the subject site, with residential subdivision in the Kingsford Estate progressing southward from the existing Bullsbrook townsite.

The Kingsford Town Centre Precinct Structure Plan allows for a centre of up to 20,000m<sup>2</sup> net lettable area of retail floor space by 2031.

### **3.2 Existing Road Network**

The road network of the planned Kingsford Town Centre is partially constructed, as shown in **Figure 1**. It currently consists of the boundary road loop around the main commercial site in the Kingsford Town Centre, including Squadron Boulevard on the southern side, Boomerang Road on the west and northwest, Spitfire Street on the northern side and Wylde Boulevard to the east. A closer view of Boomerang Road and Squadron Boulevard near the subject site is shown in **Figure 3**.

**Boomerang Road**, west of the subject sites, is constructed as two 3.5m, single-lane carriageways separated by a 4m central median.

Boomerang Road is planned as a Neighbourhood Connector A in the WAPC *Liveable Neighbourhoods* road hierarchy, suitable for future daily traffic flows of 3,000 to 7,000 vehicles per day (vpd).

A single-lane roundabout has already been constructed on Boomerang Road at the northwest corner of the subject site. This will ultimately have driveway or internal road connections on both sides to form a 4-way roundabout providing full-movement access for future development on both sides of Boomerang Road.

A left in / left out driveway crossover has been constructed on the eastern side of Boomerang Road at the southwest corner of the subject site.

The Squadron Blvd / Boomerang Rd intersection is constructed as a left in / right out / left out T-intersection (the right turn from Squadron Blvd to Boomerang Rd is not permitted).

**Squadron Boulevard,** south of the subject site, is constructed as two 5m carriageways separated by a 4m central median. Each 5m carriageway width will accommodate a 3.5m traffic lane and 1.5m on-road cycle lane.



Figure 3: Boomerang Road and Squadron Boulevard (April 2024)

Squadron Boulevard is also planned as a Neighbourhood Connector A east of Boomerang Road but is planned as an Integrator B from Boomerang Road to Great Northern Highway, suitable for future daily traffic flows up to 15,000vpd.

A number of driveway crossovers have already been constructed along Squadron Boulevard. The westernmost driveway crossover will provide full-movement access to the southern access leg of the subject sites, as shown in **Figure 1**.

Squadron Boulevard currently terminates approximately 200m west of the subject site and does not yet connect to the surrounding road network, as shown in **Figure 1**.

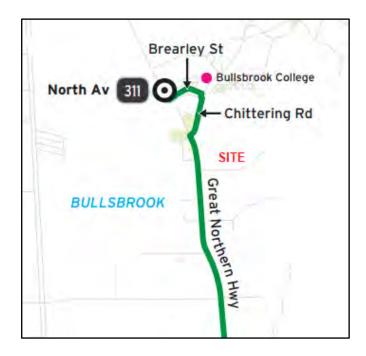
Squadron Boulevard will connect to Great Northern Highway approximately 130m west of the subject site. That intersection is planned to be constructed as a dual-lane roundabout on Great Northern Highway to accommodate future traffic flows when the Kingsford Estate and surrounding precincts in the Bullsbrook townsite are fully developed.

### **3.3 Existing Traffic Volumes**

Traffic count information on the Main Roads WA website indicates Great Northern Highway (south of Bullsbrook Rd) carried average weekday traffic flows of 8,333 vehicles per day (vpd) in 2020/21. The recorded AM peak hour flows (0700-0800) were 647vph and PM peak hour flows (1530-1630) were 734vph.

# **3.4 Public Transport Access**

The closest existing bus route to the subject site is Transperth Route 311, as shown in **Figure 4**.



**Figure 4: Existing Bus Routes** 

Route 311 (Bullsbrook townsite to Midland Station) operates on Great Northern Highway approximately 130m west of the subject site. The nearest bus stops are currently located on Great Northern Highway before Bullsbrook Road, approximately 500m to 700m northwest of the subject site.

# **3.5 Pedestrian and Cyclist Facilities**

Squadron Boulevard and Wylde Boulevard will include 1.5m on-road cycle lanes in both directions.

2.5m shared paths have already been constructed on the northern verge of Squadron Boulevard, the western side of Boomerang Rd and on both sides of Wylde Boulevard, as seen in **Figure 1** and **Figure 3**. Footpaths are provided on at least one side of other roads in this Kingsford Town Centre Precinct.

# 3.6 Crash Data

No existing crash data is available on the Kingsford Town Centre road network.

# 4 Changes to Surrounding Transport Networks

The Kingsford Town Centre road network is currently under construction in line with the relevant structure plan provisions. Ultimately this will include extension of Wylde Boulevard to the north and south as a Neighbourhood Connector A spine road through the new residential precincts of Bullsbrook, as well as other local road connections to the north and east.

The most important future road connection will be the connection of Squadron Boulevard westwards to Great Northern Highway, with a dual-lane roundabout planned at that intersection.

The Bullsbrook Townsite Land Use Master Plan anticipates a potential future rapid transit route along the north south activity corridor (Wylde Boulevard) but there is currently no indication on timing of future public transport provision. The network of integrator arterial roads and neighbourhood connectors in the planned residential precincts of Bullsbrook would provide various alternative route options for future bus routes in this area but will certainly include strong connections to this future Kingsford Town Centre.

## **5 Integration with Surrounding Area**

The proposed development is consistent with the type of land uses appropriate within this town centre precinct and is consistent with current planning for the Kingsford Town Centre of up to 20,000m<sup>2</sup> net lettable area of commercial floor space by 2031.

## **6.1 Assessment Period**

The Bullsbrook Local Structure Plan Transport Impact Assessment Addendum – Kingsford Town Centre Precinct Plan (July 2022) was undertaken for the future full development of that LSP area including Kingsford Town Centre with 20,000m<sup>2</sup> NLA of commercial floor space. (This was the TIA report that was prepared for the Kingsford Town Centre Precinct Structure Plan in 2022).

The critical peak hour for the traffic analysis of the Kingsford Local Structure Plan and the town centre precinct was identified as the weekday PM peak hour in the TIA reports.

The peak period for the proposed fast-food restaurant is anticipated to be the Saturday lunchtime peak period, which also coincides with the peak period of the planned shopping centre in the Kingsford Town Centre. The peak period for the proposed service station is anticipated to be during the weekday road network peak hours.

Accordingly, traffic analysis in this report focusses on that future, full development scenario and assesses weekday AM and PM peaks and the Saturday peak period.

## 6.2 Trip Generation and Distribution

### 6.2.1 proposed fast-food

The traffic volumes anticipated to be generated by the proposed fast-food restaurant have been estimated using trip generation rates derived from the ITE *Trip Generation Manual (11<sup>th</sup> Edition)*. The applicable trip rates which were used to estimate the proposed land uses are:

Fast-Food Restaurant with Drive-Through Window (#934)

- Weekday road network AM peak hour: 48.0 vph per 100m<sup>2</sup> GFA;
- Weekday road network PM peak hour: 35.6 vph per 100m<sup>2</sup> GFA;
- Saturday peak hour of development: 59.5 vph per 100m<sup>2</sup> GFA.

The ITE data indicates those peak hours of development traffic generation on weekdays and Saturdays occur during the lunchtime peak period, which is not a road network peak period. Accordingly, it is estimated that the proposed fast-food restaurant (210m<sup>2</sup> floor area) would generate the following total traffic flows:

- Weekday road network AM peak hour: 101 vph;
- Weekday road network PM peak hour: 75 vph;
- Saturday peak hour of development: 125 vph.

#### 6.2.2 proposed service station

Based on the feedback received from a number of Western Australia service station operators that the trip rates published in the ITE Trip Generation Manual (11th Edition) significantly overestimate the actual patronage numbers, Transcore undertook extensive traffic surveys during 2022. As part of this survey, a total of 15 service stations were surveyed, in order to establish more accurate local traffic generation rates for this type of land use in Western Australia. All of the sites selected entailed different operators in order to ensure robust data with a high level of confidence. The surveys were undertaken on Mondays, Tuesdays and Wednesdays in order to include trade activity during the discounted fuel days as well and to ensure a conservative approach.

The following sites were surveyed for the purpose of the study:

- 7-Eleven, 194 Great Eastern Hwy, Ascot WA
- Ampol, 204 Great Eastern Hwy, Ascot WA
- BP, 1 Canham Way, Greenwood WA
- BP, 88 Gilbertson Road, Kardinya WA
- BP, 848 Canning Hwy, Applecross WA
- Coles Express, 73A Frobisher Street, Osborne Park WA
- Puma, 58 Montana Crescent, Alkimos WA
- Ampol 3, Morwell Street, Yanchep WA
- Liberty, 2341 Albany Highway, Gosnells WA
- 7-Eleven, 931 Wanneroo Road, Wanneroo WA
- 7-Eleven, 13 Lakes Road, Greenfield WA
- Shell, 582 Stirling Highway, Mosman WA
- Puma, Cnr Johnson Street & Helena Street, Guildford WA
- United, 2 Feilman Drive, Leda WA
- United, 101 Terrier Place, Southern River WA

Accordingly, the trip rates which were used to estimate traffic generation for the service station components of the proposed development are as follows:

- Weekday daily: 162.20vpd per filling point;
- Weekday AM peak hour: 9.49vph per filling point; and,
- Weekday PM peak hour: 11.27vph per filling point.

It is estimated that the proposed service station (6 filing points) would generate the following total traffic flows:

- Weekday road network AM peak hour: 57 vph;
- Weekday road network PM peak hour: 68 vph;
- Saturday peak hour of development: 68 vph.

The Saturday peak hour trips were conservatively assumed to be the same as weekday PM peak hour trips.

Trips associated with the proposed service station and fast-food restaurant may be internal trips within the town centre site (eg. combined with trips to the shopping centre) or passing-trade trips (trips already on the road network and not specifically generated by the proposed development), or primary trips (new trips only visiting the proposed development).

The ITE *Trip Generation Handbook (3<sup>rd</sup> Edition)* provides additional information on internal trips within a mixed-use development and on pass-by and primary trips for various types of land use. Based on the information provided it is estimated that approximately 33% of the trips visiting the proposed service station and fast-food would be internal trips within the Kingsford Town Centre (i.e. to/from the shopping centre) and approximately 50% and 60% of the remainder would be pass-by trips for the fast-food restaurant and service station respectively. Table 1 summarises the trips associated with the proposed development.

	AM pea	ak hour	РМ реа	ak hour	Saturday peak hour			
	IN	Ουτ	IN	Ουτ	IN	OUT		
Internal trips	26	26	23	23	32	32		
Pass-by trips	28	28	26	26	35	35		
Primary trips	25	25	22	22	30	30		
Total trips	79	79	71	71	97	97		

### Table 1: Traffic generation

Trip distribution for primary trips has been evaluated from the town centre traffic modelling documented in the Kingsford Town Centre TIA report (July 2022). After considering corresponding approach routes to this part of the town centre, the primary trip distribution is as follows:

- 44% Squadron Boulevard west;
- 18% Squadron Boulevard east;
- 38% Boomerang Road north.

Pass-by trips are assigned 50% from Squadron Boulevard and 50% from Boomerang Road, as both roads will ultimately carry fairly similar traffic volumes when the surrounding area is fully developed.

## **6.3 Future Traffic Flows**

The peak period traffic flows expected to be generated by the proposed development have been manually assigned on the adjacent road network in line with the directional distribution assumptions outlined in the previous section. Traffic flows to and from this proposed development for weekday AM and PM and Saturday peak hours are shown in **Figure 5**.

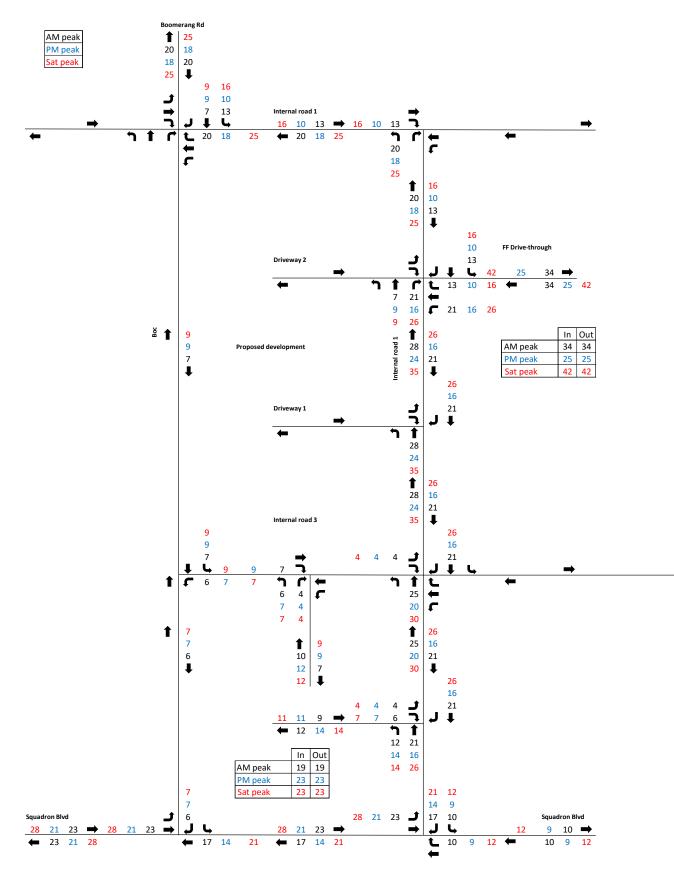


Figure 5: Traffic flows generated by proposed development

Future total traffic flows with full development of the Kingsford Town Centre and the overall Bullsbrook Townsite Land Use Master Plan were set out in the 2022 TIA reports for the Bullsbrook LSP and Kingsford Town Centre. Future total traffic flows with the proposed development traffic added are shown in **Figure 6**. This figure also included the traffic generation of the proposed McDonalds restaurant in this locality.

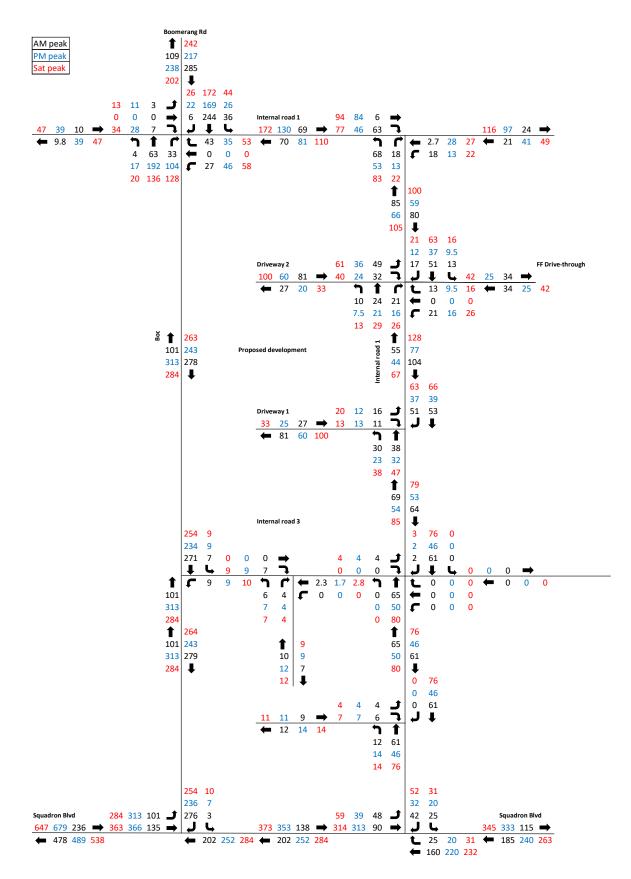


Figure 6: Future full development traffic flows including proposed development

## **6.4 Intersection Analysis**

Intersection capacity analysis has been undertaken for the key intersections on Squadron Boulevard and Boomerang Road providing access to the proposed development site, for the future full development AM, PM and Saturday peak hour traffic flows shown in Figure 6. The intersections assessed are as follows:

- Boomerang Rd / Internal road 1 (roundabout);
- Boomerang Rd / Internal road 3 (left in / left out only);
- Squadron Blvd / Boomerang Rd intersection (left in / right in / left in); and
- Squadron Blvd / Internal road 2 (full movement intersection).

Capacity analysis of those four intersections was undertaken using 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 C** and show the following degrees of saturation (DoS) in the weekday AM peak, weekday PM peak and Saturday peak, respectively:

- Boomerang Rd / Internal road 1: DoS 0.209 / 0.235 / 0.221
- Boomerang Rd / Internal road 3: DoS 0.154 / 0.173 / 0.157
- Squadron Blvd / Boomerang Rd: DoS 0.336 / 0.451 / 0.494
- Squadron Blvd / Internal road 2: DoS 0.089 / 0.196 / 0.208

Almost all movements are indicated as operating at Level of Service A (the best possible rating) with minimal traffic queues and delays, except the right turn from Boomerang Rd and Internal Road 2 to Squadron Blvd and during the PM peak which will be at Level of Service B.

The analysis confirms that all four of the intersections assessed will have more than sufficient capacity to accommodate the forecast traffic flows, with significant spare capacity available to accommodate other development in this precinct in future.

## 6.5 Impact on Surrounding Roads and Neighbouring Areas

The WAPC *Transport Impact Assessment Guidelines* (2016) provides the following guidance on the assessment of traffic impacts:

"As a general guide, an increase in traffic of less than 10 percent of capacity would not normally be likely to have a material impact on any particular section of road, but increases over 10 percent may. All sections of road with an increase greater than 10 percent of capacity should therefore be included in the analysis. For ease of assessment, an increase of 100 vehicles per hour for any lane can be considered as equating to around 10 percent of capacity. Therefore, any section of road where development traffic would increase flows by more than 100 vehicles per hour for any lane should be included in the analysis."

As can be seen in **Figure 5**, the proposed development will not increase traffic on any lanes on the surrounding road network by more than 100vph (increases will actually be significantly less than this threshold). Therefore, the proposed development will not increase traffic flows at or above the quoted WAPC threshold on the surrounding roads to warrant further detailed analysis.

## 6.6 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.

## 6.7 Road Safety

No particular road safety issues have been identified in relation to the proposed development.

The site plan at **Appendix A** shows that the proposed fast-food outlet would include:

- 10 parking bays including 1 disabled bay.
- Drive through facility with two ordering lanes (queuing space for 10 cars); and
- A separate loading bay adjacent to the bin store.

Therefore, a total of 20 cars and one delivery vehicle can be accommodated within the proposed fast-food outlet.

The proposed service station would include:

- 10 parking bays including 1 disabled bay.
- 6 filling positions; and
- A separate loading bay adjacent to the bin store.

Therefore, a total of 16 cars and one delivery vehicle can be accommodated within the proposed service station.

It is therefore, expected that the parking provision on the site would address the parking requirements of the proposed development.

### **NSW Guidelines:**

Section 5.8.1 of the New South Wales *Guide to Traffic Generating Developments* deals with the parking requirements for drive-in, take-away food outlets. This clause states that:

"An exclusive area for queuing of cars for a drive through is required (queue length of 5 to 12 cars measured from pick up point). There should also be a minimum of four car spaces for cars queued from the ordering point."

The proposed fast-food proposes a two-lane drive through facility with two Customer Order Booths (COB). This facility merges into a single lane for payment and pickup. The proposed drive through facility entails provision of at least 10 car queuing capacity within the drive through facility including a combined queuing space for at least four cars at the COBs.

Accordingly, the proposed drive through facility meets the NSW guide's recommended drive through queuing area provisions.

### Queue length analysis model for service station

The stacking capacity of the service station component of the proposed development and detailed queue analysis at the filling points have been assessed in more detail to investigate the impacts of the higher-than-average site patronage during peak weekday operational periods. This analysis was undertaken to investigate the capacity of the service station to operate satisfactory under amplified traffic activity conditions (i.e. "cheap fuel" day).

Based on the estimated peak hour trip generation for the service station outlined in this report, it is estimated that the subject service station would attract up to 34 inbound vehicles during the regular weekday PM peak hour (busiest peak hour). In order to ensure a robust assessment, it is assumed that the trade on "cheap fuel" day would be 50% higher than the typical peak weekday PM hour. Accordingly, it is conservatively assumed that the proposed service station would attract about 61 cars per hour on this occasion.

Experience indicates that, under normal circumstances, the rate of service per fill point (time taken for a vehicle to arrive, park at a fill point, get fuel, pay for fuel and leave the fill point and service station site) is usually between 2-3 minutes. In some circumstances refuelling time may extend to about 5 minutes when window washing or other similar activities are practiced. However, during the "cheap fuel" day periods and due to high turnover of vehicles and "pressure" from the patrons waiting behind the parked vehicle to access the bowser, the refuelling activity is always shortened and typically in order of up to 3min maximum. In this case, and in order to allow for a robust assessment, the service time is assumed to be conservatively 4 minutes.

Accordingly, a service rate of 240sec (15 vehicles per hour) was assumed for weekday PM peak "cheap fuel" peak hour.

A queue length analysis was undertaken to assess the provision of storage for vehicles within the drive through lanes. For this purpose, an M/M/1 queuing model was adopted for each COB. The M/M/1 is a single-server queue model that can be used to approximate simple systems.

The queuing model adopts the following assumptions:

- Vehicles arrive randomly following Poisson's probability distribution;
- Service time is exponentially distributed;
- There is one server per queue, i.e., there are two queues, one for each COB, instead of a single queue being served by two COBs;
- The capacity of the queue in which arriving users wait before being served is infinite (for the purposes of identifying queue space requirements);
- The population of users (i.e., the pool of users) available to join the system is infinite; and,
- The queue is serviced on a first come, first served basis.

The results of the queuing analysis are detailed in Figure 7.

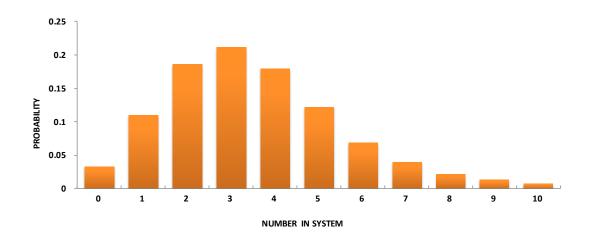
In summary, critical "cheap fuel" hour queuing analysis of the service station established the following for the worst-case scenario:

- The system utilisation is at 57% during the "cheap fuel" hour;
- The expected number in the system (refuelling) is 3.6 vehicles;
- The expected time in the queue is 14.7 seconds; and,
- The 95th percentile queue within the whole system is 8 cars (6 cars refuelling and 2 cars waiting).

The queue length usually adopted for robust analysis is the 95th percentile queue. Assuming equal queue distribution it is estimated that in the worst-case scenario there will be two vehicles waiting behind one of the refuelling vehicles. The service station layout can accommodate this level of queuing without any queue back to the adjacent crossovers.

### M/M/s - Drive Through Queuing Analysis (Poisson Arrival and Service Rates)

	vph	vps
M/M/s Arrival rate Service rate Number of servers	51 15 6	0.0141667 0.0041667 6
Utilization P(0), probability that the system is empty Lq, expected queue length L, expected number in system Wq, expected time in queue W, expected total time in system Probability that a customer waits	56.67% 0.0322 0.2086 (cars) 3.6086 (cars) 0.0041 (hours) 0.0708 (hours) 0.1595	56.67%           0.0322           6.0000         (metres)           24.0000         (metres)           14.7261         (seconds)           254.7261         (seconds)           0.1595
95% Queue	8.0000 (cars)	48.0000 (metres)



## Figure 7: PM peak hour queuing analysis

Details of the available public transport services in this locality are provided in Section 3.4 and Section 4 of this report.

It is anticipated that the planning for future upgrades to existing public transport services will ultimately provide an appropriate level of public transport accessibility for this site as part of the overall Kingston Town Centre at Bullsbrook.

## **10 Pedestrian and Cyclist Access**

Details of the pedestrian and cyclist facilities in this locality are provided in Section 3.5 of this report.

The existing and planned facilities in the Kingston Town Centre precinct will provide satisfactory pedestrian and cyclist access for the proposed development.

## **11 Conclusions**

This Transport Impact Assessment has been prepared by Transcore on behalf of Okeland Communities with respect to a proposed Service Station and Fast-Food outlet within Part Lot 9502 Boomerang Road, Bullsbrook, in the City of Swan.

The proposed development is situated within the future Kingsford Town Centre in Bullsbrook. A McDonald's restaurant, with a floor area of 450 m<sup>2</sup> and a drive-through facility, is also expected to be developed within Lot 9502. The traffic generation from the proposed McDonald's restaurant has been factored into the SIDRA intersection analysis for this project.

Access to the proposed development will utilise internal circulation roads within the overall town centre development with access to the public road network via an existing roundabout on Boomerang Road at the northwest corner of the site, left in / left out access via an existing left in / left out crossover on Boomerang Road at and full movement access via an existing crossover on Squadron Boulevard at the southern end of the site's southern access leg.

The proposed development is anticipated to generate a total of approximately 194 vehicle trips (97 in / 97 out) during the Saturday peak period. This traffic would form part of the total traffic generation of the planned Kingsford Town Centre Precinct that the adjacent road network has been planned for, with approximately one third being trips already attracted by other uses in the town centre, one third being pass-by trips already on the adjacent road network and only one third being additional traffic generation to the town centre. Thus, the proposed development would not have a significant traffic impact on the surrounding road network.

Pedestrian and cyclist access to the proposed development will be accommodated by the existing and planned path network and on-road cycle lanes on the adjacent road network, in accordance with WAPC *Liveable Neighbourhoods* principles.

No particular transport or safety issues have been identified for the proposed development within the scope of this assessment.

Accordingly, it is concluded that traffic-related issues should not form any impediment to the approval of the proposed development.

# **Appendix A**

## **PROPOSED DEVELOPMENT PLANS**



Engineering a better future for over 20 years!

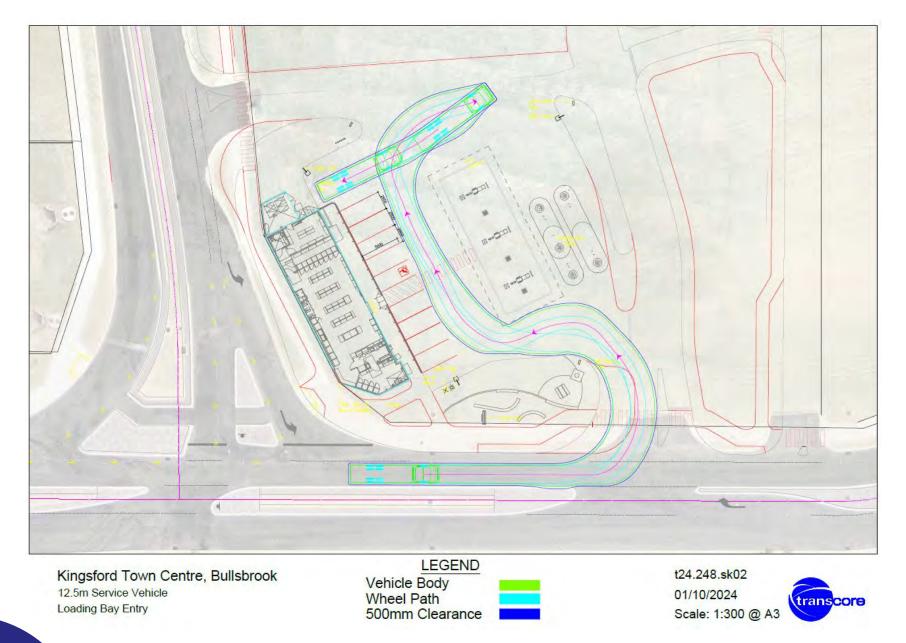


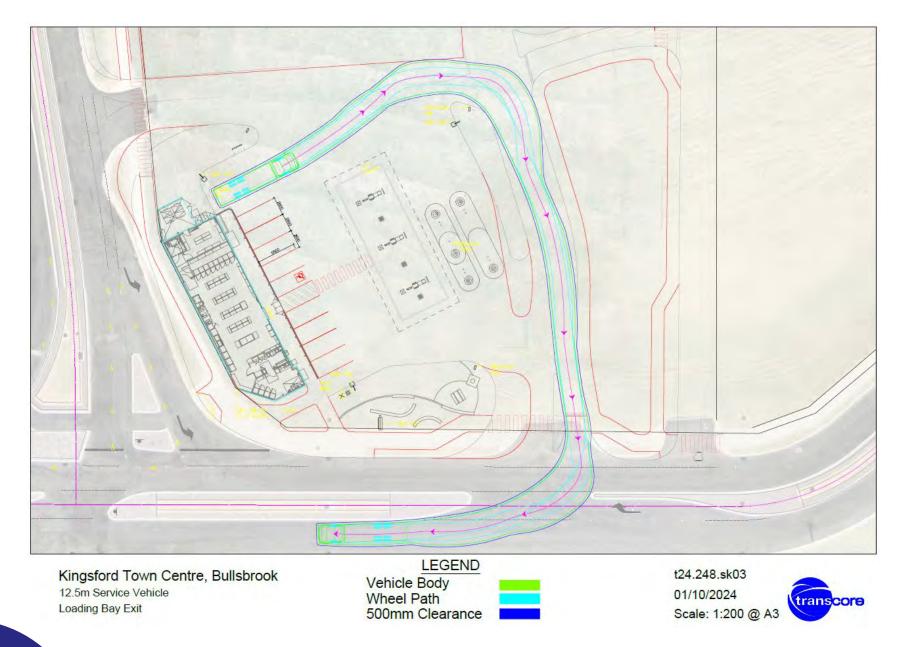
# **Appendix B**

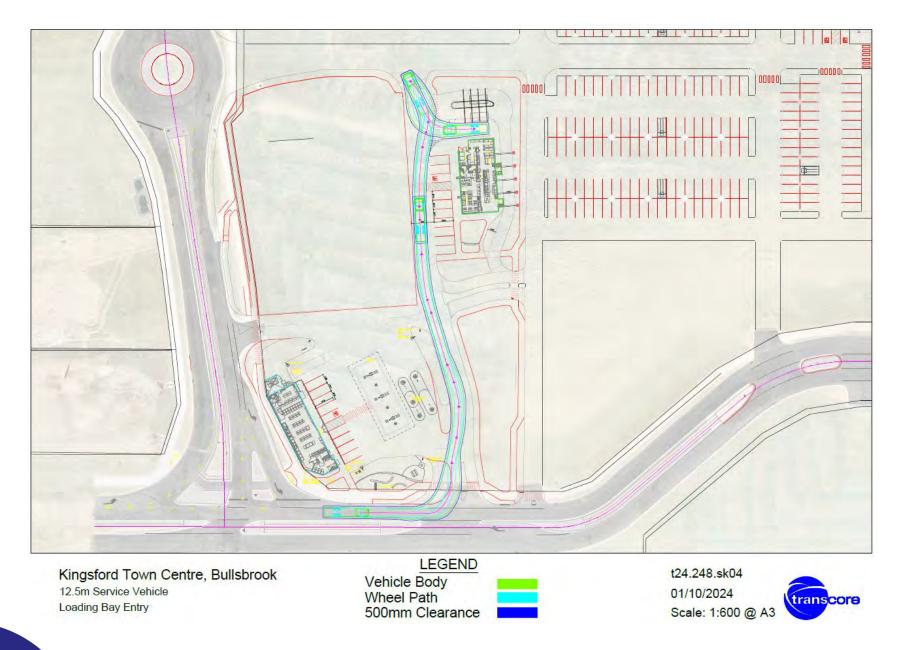
## TURN PATH ANALYSIS

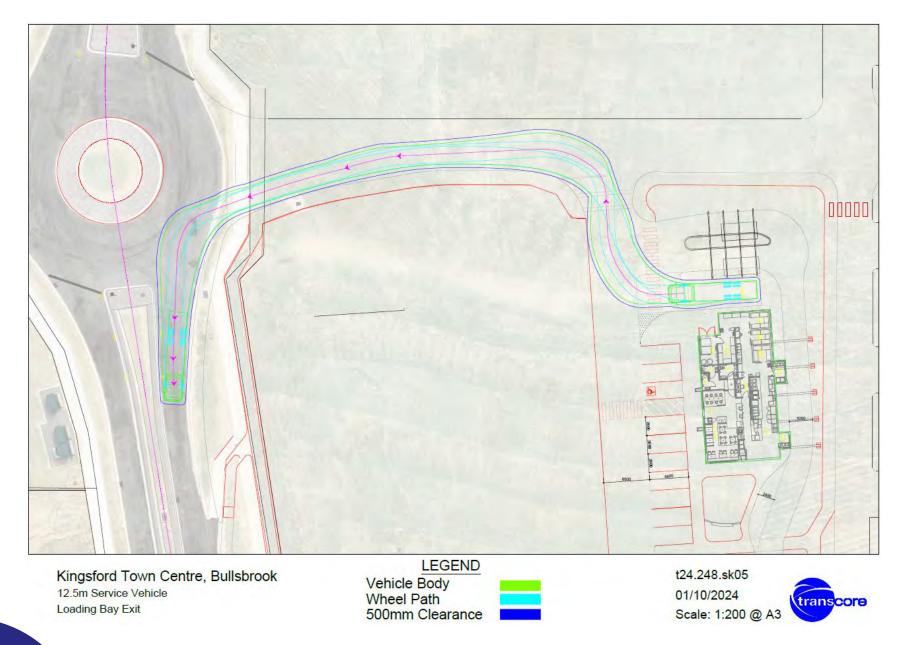


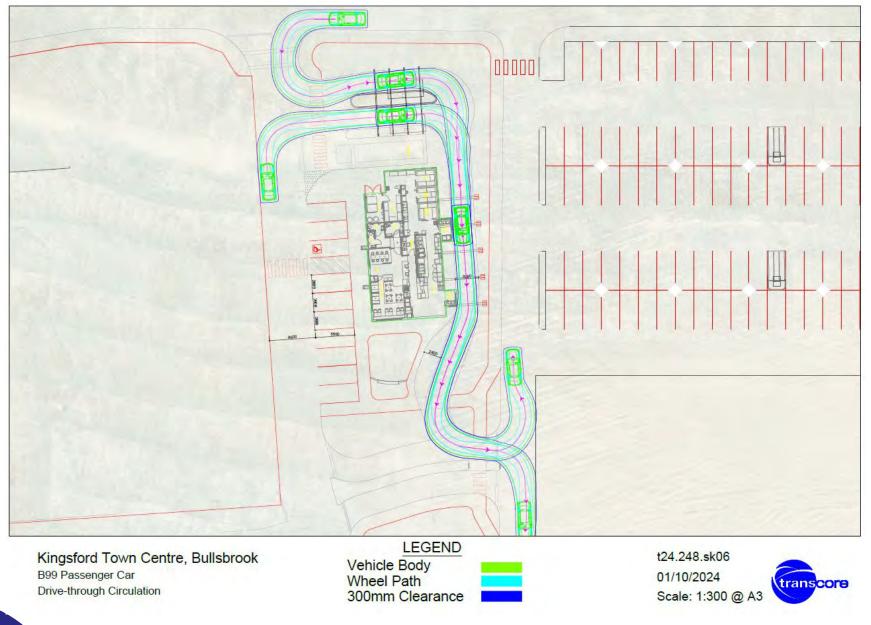
Engineering a better future for over 20 years!



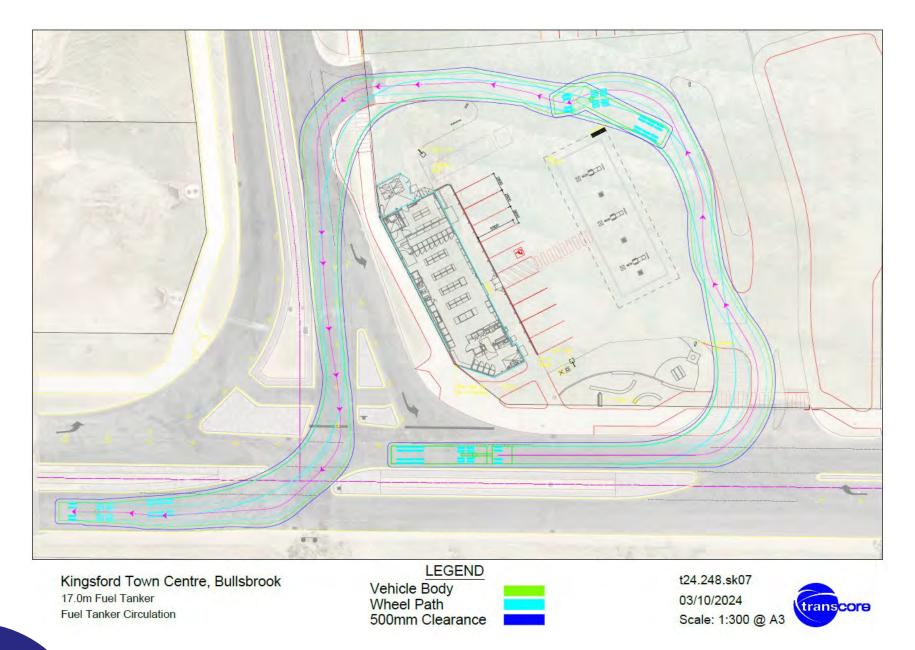


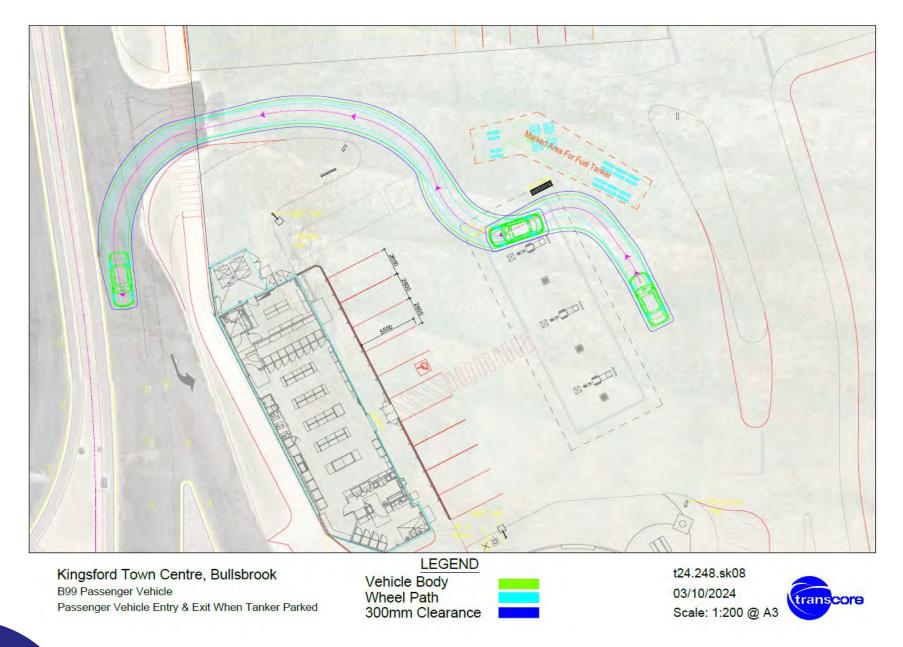






t24.248.mr.r01a.docx | Proposed Service Station and Fast-Food Bullsbrook







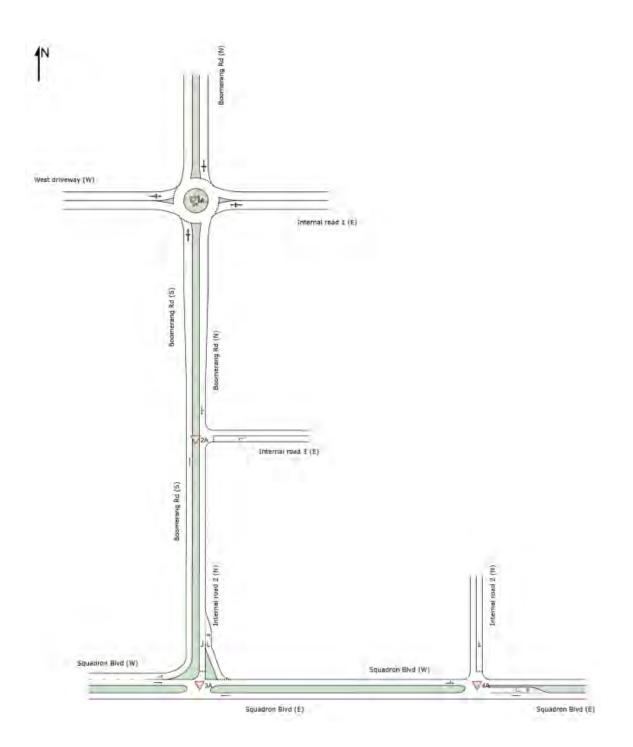
Kingsford Town Centre, Bullsbrook Marked Area For Fuel Tanker t24.248.sk09 03/10/2024 Scale: 1:150 @ A3

# **Appendix C**

## SIDRA INTERSECTION ANALYSIS



Engineering a better future for over 20 years!



V Site: 1A [Boomerang-InternalRd1 Future AM peak with devt (Site Folder: Future)]

■ Network: N1A [Future AM peak (Network Folder: Future AM peak)]

Site Category: (None) Roundabout

Mov ID	Tum	DEM/ FLO		ARR		Deg. Satn		Level of		ACK OF EUE	Prop.	Effective/		Aver
ID.		Total	WS HV1	i Tota		Sauri	Deray	Service	[ Veh.	Dist 1	Que	Stop Rate	Cycles	Speed
_		veh/h	%	veh/h	%	v/c	sec	0	veh	m		and the second second		km/h
South	h: Boon	nerang Ro	d (S)											
1	L2	4	3.0	4	3.0	0.079	3.2	LOS A	0.3	2.4	0.15	0.46	0.15	28.4
2	T1	66	3.3	66	3.3	0.079	3.2	LOS A	0.3	2.4	0.15	0.46	0.15	39.2
3	R2	35	3.0	35	3.0	0.079	7.0	LOS A	0.3	2.4	0.15	0.46	0.15	30.9
Appro	oach	105	3.2	105	3.2	0.079	4.4	LOS A	0.3	2.4	0.15	0.46	0.15	36.0
East:	Interna	al road 1 (	(E)											
4	L2	28	3.0	28	3.0	0.066	4.0	LOS A	0.3	2.0	0.34	0.59	0.34	24.9
5	T1	1	3.0	1	3.0	0.066	3.9	LOS A	0.3	2.0	0.34	0.59	0.34	28.8
6	R2	45	3.0	45	3.0	0.066	7.8	LOS A	0.3	2.0	0.34	0.59	0.34	31.3
Appro	oach	75	3.0	75	3.0	0.066	6.3	LOS A	0.3	2.0	0.34	0.59	0.34	29.5
North	: Boom	erang Ro	I (N)											
7	L2	38	3.0	38	3.0	0.209	3.5	LOS A	0.9	6.9	0.13	0.38	0.13	35.6
8	T1	257	3.3	257	3.3	0.209	3.5	LOS A	0.9	6.9	0.13	0.38	0.13	34.6
9	R2	6	3.0	6	3.0	0.209	7.3	LOS A	0.9	6.9	0.13	0.38	0.13	34.2
Appro	oach	301	3.3	301	3.3	0.209	3.5	LOS A	0.9	6.9	0.13	0.38	0.13	34.8
West	: West	driveway	(W)											
10	L2	3	3.0	3	3.0	0.009	3.1	LOS A	0.0	0.3	0.23	0.54	0.23	33.5
11	T1	1	3.0	1	3.0	0.009	3.2	LOSA	0.0	0.3	0.23	0.54	0.23	30.2
12	R2	7	3.0	7	3.0	0.009	6.9	LOS A	0.0	0.3	0.23	0.54	0.23	25.2
Appro	oach	12	3.0	12	3.0	0.009	5.5	LOS A	0.0	0.3	0.23	0.54	0.23	28.8
	ehicles	493	3.2	493	3.2	0.209	4.2	LOSA	0.9	6.9	0.17	0.43	0.17	34.0

V Site: 2A [Boomerang-InternalRd3 Future AM peak with devt (Site Folder: Future)]

Network: N1A [Future AM peak (Network Folder: Future AM peak)]

Site Category: (None) Give-Way (Two-Way)

Veh	icle Mo	vement	Perfo	rmano	:e				1 × 1		-	-	-	-
Mov ID	Tum	DEM/ FLO [Total veh/h		ARR FLO [ Tota veh/h	WS [HV]	Deg. Satn v/c	Aver. Delay sec	Level of Service		ACK OF EUE Dist] m	Prop. Que	EffectiveA Stop Rate	wer. No. Cycles	Aver. Speed km/h
Sout	h: Boon	erang R	d (S)											
2	T1	106	3.3	106	3.3	0.056	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
Appr	roach	106	3.3	106	3.3	0.056	0.0	NA	0.0	0.0	0.00	0.00	0.00	50.0
East	: Interna	l road 3	(E)											
4	L2	9	3.0	9	3.0	0.008	5.2	LOS A	0.0	0.2	0.35	0.52	0.35	24.6
Appr	oach	9	3.0	9	3.0	0.008	5.2	LOS A	0.0	0.2	0.35	0.52	0.35	24.6
Nort	h: Boom	erang Ro	d (N)											
7	L2	7	3.0	7	3.0	0.154	4.3	LOS A	0.0	0.0	0.00	0.01	0.00	32.0
8	T1	285	3.3	285	3.3	0.154	0.0	LOSA	0.0	0.0	0.00	0.01	0.00	48.9
Appr	roach	293	3.3	293	3.3	0.154	0.1	NA	0.0	0.0	0.00	0.01	0.00	47.7
	ehicles	408	3.3	408	3.3	0.154	0.2	NA	0.0	0.2	0.01	0.02	0.01	47.0

### MOVEMENT SUMMARY

V Site: 3A [Squadron-Boomerang Future AM peak with devt (Site Folder: Future)] ■ Network: N1A [Future AM peak (Network Folder: Future AM peak)]

Site Category: (None) Give-Way (Two-Way)

Vehi	icle Mo	vement	Perfo	rmano	æ	-		-		a name in the	- 1	and a second		-
Mov ID	Tum	DEM/ FLO [ Total veh/h		ARRI FLO [ Total veh/h	WS HV]	Deg. Satn v/c	Aver. Delay sec	Level of Service		ACK OF EUE Dist]	Prop. Que	Effective A Stop Rate	ver. No. Cycles	Aver. Speed km/h
East	Squad	ron Blvd	(E)											
5	T1	213	3.3	213	3.3	0.112	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
Appr	oach	213	3.3	213	3.3	0.112	0.0	NA	0.0	0.0	0.00	0.00	0.00	50.0
North	n: Intern	al road 2	! (N)											
7	L2	3	3.3	3	3.3	0.002	4.0	LOS A	0.0	0.1	0.23	0.45	0.23	26.1
9	R2	291	3.3	291	3.3	0.336	6.1	LOSA	1.5	11.3	0.48	0.74	0.54	31.2
Appr	oach	294	3.3	294	3.3	0.336	6.1	LOSA	1.5	11.3	0.48	0.73	0.53	31.2
West	t: Squad	ron Blvd	(W)											
10	L2	106	3.3	106	3.3	0.059	4.4	LOS A	0.0	0.0	0.00	0.47	0.00	34.9
11	T1	142	3.3	142	3.3	0.075	0.0	LOSA	0.0	0.0	0.00	0.00	0.00	50.0
Appr	oach	248	3.3	248	3.3	0.075	1.9	NA	0.0	0.0	0.00	0.20	0.00	41.7
All Ve	ehicles	755	3.3	755	3.3	0.336	3.0	NA	1.5	11.3	0.19	0.35	0.21	38.5

V Site: 4A [Squadron-InternalRd2 Future AM peak with devt (Site Folder: Future)]

■ Network: N1A [Future AM peak (Network Folder: Future AM peak)]

Site Category: (None) Give-Way (Two-Way)

Vehi	cle Mo	vement	Perfo	rmand	:e									
Mov ID	Tum	DEM/ FLO [Total veh/h	and the second se	ARRI FLO [ Total veh/h	WS IHV]	Deg. Satn v/c	Aver. Delay sec	Level of Service		ACK OF EUE Dist] m	Prop. Que	Effective A Stop Rate	ver. No. Cycles	Aver. Speed km/h
East	Squad	on Blvd	(E)			-								
5	T1	168	3.3	168	3.3	0.089	0.0	LOSA	0.0	0.0	0.00	0.00	0.00	50.0
6	R2	26	3.0	26	3.0	0.017	5.0	LOSA	0.1	0.6	0.25	0.52	0.25	29.8
Appr	oach	195	3.3	195	3.3	0.089	0.7	NA	0.1	0.6	0.03	0.07	0.03	44.5
North	n: Intern	al road 2	(N)											
7	L2	26	3.0	26	3.0	0.072	3.9	LOS A	0.3	2.1	0.28	0.55	0.28	32.9
9	R2	44	3.0	44	3.0	0.072	5.6	LOS A	0.3	2.1	0.28	0.55	0.28	22.8
Appr	oach	71	3.0	71	3.0	0.072	5.0	LOS A	0.3	2.1	0.28	0.55	0.28	28.1
West	: Squad	ron Blvd	(W)											
10	L2	51	3.0	51	3.0	0.078	4.5	LOS A	0.0	0.0	0.00	0.19	0.00	22.7
11	T1	95	3.3	95	3.3	0.078	0.0	LOS A	0.0	0.0	0.00	0.19	0.00	44.5
Appr	oach	145	3.2	145	3.2	0.078	1.6	NA	0.0	0.0	0.00	0.19	0.00	35.3
	ehicles	411	3.2	411	3.2	0.089	1.7	NA	0.3	2.1	0.06	0.19	0.06	37.4

Site: 1P [Boomerang-InternalRd1 Future PM peak with devt (Site Folder: Future)]

■■ Network: N1P [Future PM peak (Network Folder: Future PM peak)]

Site Category: (None) Roundabout

Mov ID	Tum	DEM/ FLO		ARR FLO		Deg. Satn		Level of Service	95% B/ QUI	ACK OF EUE	Prop. Que	Effective/ Stop	ver. No. Cycles	Aver Speed
		[ Total veh/h	HV] %	[ Total veh/h		v/c	sec		[Veh. veh	Dist] m		Rate		km/t
South	: Boon	nerang R		VELDI	10	V/L	366		Ven					KITU
1	L2	18	3.0	18	3.0	0.235	3.2	LOSA	1.1	8.2	0.17	0.47	0.17	28.2
2	T1	202	3.3	202	3.3	0.235	3.2	LOSA	1.1	8.2	0.17	0.47	0.17	38.9
3	R2	109	3.0	109	3.0	0.235	7.1	LOSA	1.1	8.2	0.17	0.47	0.17	30.1
Appro	bach	329	3.2	329	3.2	0.235	4.5	LOS A	1.1	8.2	0.17	0.47	0.17	35.0
East:	Interna	I road 1 (	E)											
4	L2	48	3.0	48	3.0	0.074	3.8	LOS A	0.3	2.3	0.32	0.56	0.32	25.7
5	T1	1	3.0	1	3.0	0.074	3.8	LOSA	0.3	2.3	0.32	0.56	0.32	29.0
6	R2	37	3.0	37	3.0	0.074	7.6	LOSA	0.3	2.3	0.32	0.56	0.32	32.
Appro	bach	86	3.0	86	3.0	0.074	5.5	LOS A	0.3	2.3	0.32	0.56	0.32	29.
North	Boom	erang Ro	I (N)											
7	L2	27	3.0	27	3.0	0.183	3.9	LOS A	0.8	6.0	0.26	0.45	0.26	34.0
8	T1	178	3.3	178	3.3	0.183	3.8	LOSA	0.8	6.0	0.26	0.45	0.26	32.5
9	R2	23	3.0	23	3.0	0.183	7.7	LOSA	0.8	6.0	0.26	0.45	0.26	32.0
Appro	bach	228	3.2	228	3.2	0.183	4.2	LOS A	0.8	6.0	0.26	0.45	0.26	32.7
West	West	driveway	(W)											
10	L2	12	3.0	12	3.0	0.039	3.9	LOS A	0.2	1.2	0.38	0.60	0.38	32.4
11	T1	1	3.0	1	3.0	0.039	3.9	LOS A	0.2	1.2	0.38	0.60	0.38	29.0
12	R2	29	3.0	29	3.0	0.039	7.6	LOS A	0.2	1.2	0.38	0.60	0.38	23.8
Appro	bach	42	3.0	42	3.0	0.039	6.5	LOSA	0.2	1.2	0.38	0.60	0.38	27.2
All Ve	hicles	686	3.2	686	3.2	0.235	4.7	LOSA	1.1	8.2	0.23	0.48	0.23	33.5

V Site: 2P [Boomerang-InternalRd3 Future PM peak with devt (Site Folder: Future)]

■■ Network: N1P [Future PM peak (Network Folder: Future PM peak)]

Site Category: (None) Give-Way (Two-Way)

		vement				-					-			
Mov ID	Tum	DEM/ FLOV [Total veh/h		ARRI FLO [ Total veh/h	WS [HV]	Deg. Satn v/c		Level of Service		ACK OF EUE Dist] m	Prop. Que	Effective A Stop Rate	ver. No. Cycles	Aver Speed km/h
Sout	h: Boom	erang Ro	d (S)											
2	T1	329	3.3	329	3.3	0.173	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Appr	oach	329	3.3	329	3.3	0.173	0.0	NA	0.0	0.0	0.00	0.00	0.00	49.9
East	Interna	l road 3 (	(E)											
4	L2	9	3.0	9	3.0	0.007	5.1	LOS A	0.0	0.2	0.32	0.51	0.32	24.8
Appr	oach	9	3.0	9	3.0	0.007	5.1	LOS A	0.0	0.2	0.32	0.51	0.32	24.8
Norti	n: Boom	erang Ro	1 (N)											
7	L2	9	3.0	9	3.0	0.135	4.3	LOS A	0.0	0.0	0.00	0.02	0.00	31.9
8	T1	246	3.3	246	3.3	0.135	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	48.4
Appr	oach	256	3.3	256	3.3	0.135	0.2	NA	0.0	0.0	0.00	0.02	0.00	46.8
	ehicles	595	3.3	595	3.3	0.173	0.2	NA	0.0	0.2	0.01	0.02	0.01	47.4

### MOVEMENT SUMMARY

V Site: 3P [Squadron-Boomerang Future PM peak with devt (Site Folder: Future)]

■ Network: N1P [Future PM peak (Network Folder: Future PM peak)]

Site Category: (None) Give-Way (Two-Way)

Mov ID	Tum	DEM/ FLO	WS	ARRI FLO	WS	Deg. Satn		Level of Service	QU	ACK OF EUE	Prop. Que	Effective A Stop	ver. No. Cycles	Aver. Speed
		[ Total veh/h	HV] %	[ Total veh/h		v/c	sec		[Veh. veh	Dist] m		Rate		km/h
East	Squad	ron Blvd	(E)											
5	T1	265	3.3	265	3.3	0.139	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Appr	oach	265	3.3	265	3.3	0.139	0.0	NA	0.0	0.0	0.00	0.00	0.00	49.9
North	n: Intern	al road 2	(N)											
7	L2	7	3.3	7	3.3	0.007	5.0	LOSA	0.0	0.2	0.41	0.52	0.41	24.3
9	R2	248	3.3	248	3.3	0.451	10.7	LOS B	2.1	16.1	0.70	0.96	1.00	25.3
Appr	oach	256	3.3	256	3.3	0.451	10.5	LOS B	2.1	16.1	0.69	0.95	0.99	25.2
West	t: Squad	ron Blvd	(W)											
10	L2	329	3.3	329	3.3	0.182	4.4	LOS A	0.0	0.0	0.00	0.47	0.00	34.9
11	T1	385	3.3	385	3.3	0.203	0.0	LOSA	0.0	0.0	0.00	0.00	0.00	49.9
Appr	oach	715	3.3	715	3.3	0.203	2.0	NA	0.0	0.0	0.00	0.21	0.00	41.2
	ehicles	1236	3.3	1236	3.3	0.451	3.4	NA	2.1	16.1	0.14	0.32	0.20	37.6

V Site: 4P [Squadron-InternalRd2 Future PM peak with devt (Site Folder: Future)]

■■ Network: N1P [Future PM peak (Network Folder: Future PM peak)]

Site Category: (None) Give-Way (Two-Way)

Vehi	cle Mo	vement	Perfo	rmano	e:	-		1000	-					
Mov ID	Tum	DEM/ FLO [ Total veh/h	and the second second	ARRI FLO [Total veh/h	WS [HV]	Deg. Satn v/c	and the second s	Level of Service		ACK OF EUE Dist] m	Prop. Que	Effective A Stop Rate	ver. No. Cycles	Aver. Speed
East	Squade	on Blvd	(E)											
5	T1	232	3.3	232	3.3	0.122	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
6	R2	21	3.0	21	3.0	0.017	5.9	LOS A	0.1	0.5	0.43	0.58	0.43	28.8
Appr	oach	253	3.3	253	3.3	0.122	0.5	NA	0.1	0.5	0.04	0.05	0.04	46.1
North	n: Intern	al road 2	(N)											
7	L2	21	3.0	21	3.0	0.080	4.8	LOSA	0.3	2.2	0.51	0.69	0.51	29.3
9	R2	34	3.0	34	3.0	0.080	8.5	LOS A	0.3	2.2	0.51	0.69	0.51	18.6
Appr	oach	55	3.0	55	3.0	0.080	7.1	LOSA	0.3	2.2	0.51	0.69	0.51	24.2
West	: Squad	ron Blvd	(W)											
10	L2	41	3.0	41	3.0	0.196	4.5	LOS A	0.0	0.0	0.00	0.06	0.00	23.8
11	T1	329	3.3	329	3.3	0.196	0.0	LOSA	0.0	0.0	0.00	0.06	0.00	48.0
Appr	oach	371	3.3	371	3.3	0.196	0.5	NA	0.0	0.0	0.00	0.06	0.00	44.5
	ehicles	678	3.2	678	3.2	0.196	1.0	NA	0.3	2.2	0.05	0.11	0.05	43.0

♥ Site: 1S [Boomerang-InternalRd1 Future Sat peak with devt (Site Folder: Future)]

■ Network: N1S [Future Sat peak (Network Folder: Future Sat peak)]

Site Category: (None) Roundabout

Vehi	icle Mo	vement	Perfo	rmano	e									
Mov ID	Tum	DEMA FLOV [Total veh/h		ARRI FLO [ Total veh/h	WS HV]	Deg. Satn v/c		Level of Service	95% BA QUE [ Veh. veh		Prop. Que	EffectiveA Stop Rate	ver. No. Cycles	Aver. Speed km/h
Sout	h: Boon	erang Ro												
1	L2	21	3.0	21	3.0	0.221	3.3	LOS A	1.0	7.7	0.21	0.51	0.21	27.4
2	T1	143	3.3	143	3.3	0.221	3.3	LOS A	1.0	7.7	0.21	0.51	0.21	37.8
3	R2	135	3.0	135	3.0	0.221	7.2	LOS A	1.0	7.7	0.21	0.51	0.21	29.9
Appr	oach	299	3.1	299	3.1	0.221	5.0	LOS A	1.0	7.7	0.21	0.51	0.21	33.4
East	Interna	l road 1 (	E)											
4	L2	61	3.0	61	3.0	0.103	3.9	LOS A	0.4	3.3	0.34	0.57	0.34	25.3
5	T1	1	3.0	1	3.0	0.103	3.9	LOS A	0.4	3.3	0.34	0.57	0.34	29.3
6	R2	56	3.0	56	3.0	0.103	7.7	LOS A	0.4	3.3	0.34	0.57	0.34	31.8
Appr	oach	118	3.0	118	3.0	0.103	5.7	LOS A	0.4	3.3	0.34	0.57	0.34	29.3
North	n: Boom	erang Rd	l (N)											
7	L2	46	3.0	46	3.0	0.209	4.0	LOS A	0.9	7.1	0.30	0.47	0.30	33.6
8	T1	181	3.3	181	3.3	0.209	4.0	LOS A	0.9	7.1	0.30	0.47	0.30	31.9
9	R2	27	3.0	27	3.0	0.209	7.8	LOS A	0.9	7.1	0.30	0.47	0.30	32.3
Appr	oach	255	3.2	255	3.2	0.209	4.4	LOS A	0.9	7.1	0.30	0.47	0.30	32.4
West	t: West o	driveway	(W)											
10	L2	14	3.0	14	3.0	0.046	3.8	LOS A	0.2	1.4	0.38	0.61	0.38	32.3
11	T1	1	3.0	1	3.0	0.046	3.9	LOS A	0.2	1.4	0.38	0.61	0.38	29.0
12	R2	36	3.0	36	3.0	0.046	7.6	LOS A	0.2	1.4	0.38	0.61	0.38	23.8
Appr	oach	51	3.0	51	3.0	0.046	6.5	LOS A	0.2	1.4	0.38	0.61	0.38	27.1
	ehicles	722	3.1	722	3.1	0.221	5.0	LOS A	1.0	7.7	0.27	0.51	0.27	32.0

## MOVEMENT SUMMARY

V Site: 2S [Boomerang-InternalRd3 Future Sat peak with devt (Site Folder: Future)]

■ Network: N1S [Future Sat peak (Network Folder: Future Sat peak)]

Site Category: (None) Give-Way (Two-Way)

Veh	icle Mo	vement	Perfo	rmano	e									
Mov ID	Tum	DEM/ FLO [Total veh/h	WS	ARRI FLO [Total veh/h	WS [HV]	Deg. Satn v/c		Level of Service		ACK OF EUE Dist] m	Prop. Que	Effective/ Stop Rate	ver. No. Cycles	Aver Speed
Sout	th: Boom	nerang R	d (S)											
2	T1	299	3.3	299	3.3	0.157	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Арр	roach	299	3.3	299	3.3	0.157	0.0	NA	0.0	0.0	0.00	0.00	0.00	49.9
East	: Interna	I road 3	(E)											
4	L2	11	3.0	11	3.0	0.008	5.1	LOS A	0.0	0.2	0.33	0.52	0.33	24.7
Арр	roach	11	3.0	11	3.0	0.008	5.1	LOS A	0.0	0.2	0.33	0.52	0.33	24.7
Nort	h: Boom	erang Ro	1 (N)											
7	L2	9	3.0	9	3.0	0.146	4.3	LOS A	0.0	0.0	0.00	0.02	0.00	31.9
8	T1	267	3.3	267	3.3	0.146	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	48.5
App	roach	277	3.3	277	3.3	0.146	0.2	NA	0.0	0.0	0.00	0.02	0.00	47.0
AII V	ehicles	586	3.3	586	3.3	0.157	0.2	NA	0.0	0.2	0.01	0.02	0.01	47.3

### MOVEMENT SUMMARY

V Site: 3S [Squadron-Boomerang Future Sat peak with devt (Site Folder: Future)] ■ Network: N1S [Future Sat peak (Network Folder: Future Sat peak)]

Site Category: (None) Give-Way (Two-Way)

Vehi	icle Mo	vement	Perfo	rmand	æ	-								
Mov ID	Tum	DEM/ FLO [ Total veh/h		ARRI FLO [ Total veh/h	WS HV]	Deg. Satn v/c		Level of Service		ACK OF EUE Dist] m	Prop. Que	Effective/ Stop Rate	wer. No. Cycles	Aver. Speed
East	: Squad	ron Blvd	(E)											
5	T1	299	3.3	299	3.3	0.157	0.0	LOSA	0.0	0.0	0.00	0.00	0.00	49.9
Appr	oach	299	3.3	299	3.3	0.157	0.0	NA	0.0	0.0	0.00	0.00	0.00	49.9
North	h: Intern	al road 2	(N)											
7	L2	11	3.3	11	3.3	0.010	5.0	LOS A	0.0	0.3	0.41	0.53	0.41	24.3
9	R2	267	3.3	267	3.3	0.494	11.3	LOS B	2.4	18.5	0.72	1.00	1.09	24.6
Appr	oach	278	3.3	278	3.3	0.494	11.1	LOS B	2.4	18.5	0.71	0.98	1.07	24.6
West	t: Squad	Iron Blvd	(W)											
10	L2	299	3.3	299	3.3	0.165	4.4	LOS A	0.0	0.0	0.00	0.47	0.00	34.9
11	T1	382	3.3	382	3.3	0.201	0.0	LOSA	0.0	0.0	0.00	0.00	0.00	49.9
Appr	oach	681	3.3	681	3.3	0.201	1.9	NA	0.0	0.0	0.00	0.20	0.00	41.5
	ehicles	1258	3.3	1258	3.3	0.494	3.5	NA	2.4	18.5	0.16	0.33	0.24	37.2

## MOVEMENT SUMMARY

V Site: 4S [Squadron-InternalRd2 Future Sat peak with devt (Site Folder: Future)]

■ Network: N1S [Future Sat peak (Network Folder: Future Sat peak)]

Site Category: (None) Give-Way (Two-Way)

Vehi	cle Mo	vement	Perfo	rmand	:e	100								
Mov ID	Tum	DEM/ FLOV [Total veh/h	and the second se	ARRI FLO [ Total veh/h	WS [HV]	Deg. Satn v/c		Level of Service		ACK OF EUE Dist] m	Prop. Que	Effective A Stop Rate	ver. No. Cycles	Aver. Speed
East	Squad	on Blvd	(E)	11020										
5	T1	244	3.3	244	3.3	0.129	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
6	R2	33	3.0	33	3.0	0.027	6.0	LOSA	0.1	0.9	0.44	0.60	0.44	28.7
Appr	oach	277	3.3	277	3.3	0.129	0.7	NA	0.1	0.9	0.05	0.07	0.05	44.7
North	n: Intern	al road 2	(N)											
7	L2	33	3.0	33	3.0	0.133	4.9	LOS A	0.5	3.8	0.53	0.73	0.53	28.6
9	R2	55	3.0	55	3.0	0.133	9.1	LOSA	0.5	3.8	0.53	0.73	0.53	17.8
Appr	oach	87	3.0	87	3.0	0.133	7.5	LOS A	0.5	3.8	0.53	0.73	0.53	23.2
West	: Squad	ron Blvd	(W)											
10	L2	62	3.0	62	3.0	0.208	4.5	LOSA	0.0	0.0	0.00	0.09	0.00	23.6
11	T1	331	3.3	331	3.3	0.208	0.0	LOSA	0.0	0.0	0.00	0.09	0.00	47.3
Appr	oach	393	3.3	393	3.3	0.208	0.7	NA	0.0	0.0	0.00	0.09	0.00	42.4
	ehicles	757	3.2	757	3.2	0.208	1.5	NA	0.5	3.8	0.08	0.15	0.08	40.4



PROPOSED DEVELOPMENT

# LOT 9502 SQUADRON BOULEVARD BULLSBROOK

# **ENVIRONMENTAL ACOUSTIC ASSESSMENT**

**MARCH 2025** 

OUR REFERENCE: 33747-3-24425



Rochdale Holdings Pty Ltd A.B.N. 85 009 049 067 trading as: HERRING STORER ACOUSTICS P.O. Box 219, Como, W.A. 6952 (08) 9367 6200 hsa@hsacoustics.com.au

## DOCUMENT CONTROL PAGE

# ENVIRONMENTAL ACOUSTIC ASSESSMENT PROPOSED 7-ELEVEN and FAST FOOD DEVELOPMENT BULLSBROOK

Job No: 24425

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FOR

# HATCH

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2	Council Comme	ents / including Fast Food		12/03/25	TR	GH
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This report has been prepared in accordance with the scope of services and on the basis of information and documents provided to Herring Storer Acoustics by the client. To the extent that this report relies on data and measurements taken at or under the times and conditions specified within the report and any findings, conclusions or recommendations only apply to those circumstances and no greater reliance should be assumed. The client acknowledges and agrees that the reports or presentations are provided by Herring Storer Acoustics to assist the client to conduct its own independent assessment.

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## APPENDICIES

A Plan

## 1. INTRODUCTION

Herring Storer Acoustics were commissioned by Hatch to undertake an acoustic assessment of noise emissions associated with the proposed 7-Eleven and fast food development to be located at Lot 9502 Squadron Boulevard, Bullsbrook.

This report assesses noise emissions from the premises with regards to compliance with the requirements of the *Environmental Protection (Noise) Regulations 1997*. It is understood that the development consists of a service station, therefore, noise sources considered as part of this assessment include :

- Mechanical Services;
- Tyre Inflator beeper;
- Drive Thru ordering speakers;
- Delivery Truck; and
- Car and truck doors closing.

We note that from recent information received from the DWER, the bitumised area would be considered as a road, thus noise relating to the "propulsion and braking" of motor vehicles is exempt from the *Environmental Protection (Noise) Regulations 1997*. We note that these noise sources, as listed below, are rarely critical in the determination of compliance.

We understand that the bulk storage tanks are gravity feed. Thus, there is no noise associated with the activity and an assessment is not required.

For reference, the plans of the proposed development are attached in Appendix A.

### 2. <u>SUMMARY</u>

As the service station would be open 24 hours per day, noise received at the neighbouring noise (highly) sensitive premises from the development needs to comply with the appropriate assigned noise levels for the night period.

Noise from the mechanical services and air compressor, that would occur for more than 10% of the time, hence noise received at the neighbouring premises needs to comply with the assigned  $L_{A10}$  noise levels.

With regards to delivery trucks, we note the with regards to refrigerated trucks, we understand that as the truck make a round of deliveries, thus the delivery trucks need to run the refrigeration during deliveries. Under these circumstances, noise received at the neighbouring residences from delivery trucks would need to comply with the assigned L<sub>A10</sub> noise level. Noise received at the neighbouring residences to the south from a delivery truck would comply with the assigned L<sub>A10</sub> assigned noise level at all times.

Noise received at the neighbouring residences from the refuelling truck has been assessed to complied with the regulatory requirements at all times.

Noise from car doors closing have also been assessed to comply with the regulatory criteria at all times.

Finally, with regards to the tyre inflator deeper, compliance would be achieved at all times.

Thus, noise emissions from the proposed development, would be deemed to comply with the requirements of the Environmental Protection (Noise) Regulations 1997, at all times, provided :

the tyre inflator beeper either needs to be set to a noise level of 74 dB(A) at 1 metre from the inflator station or a screen to be installed to the southern side of the inflator.

#### 3. CRITERIA

The allowable noise level for noise sensitive premises in the vicinity of the proposed Facility site is prescribed by the Environmental Protection (Noise) Regulations 1997. Regulations 7 and 8 stipulate maximum allowable external noise levels or assigned noise levels that can be received at a premise from another premises. For residential premises, this noise level is determined by the calculation of an influencing factor, which is then added to the base levels shown below. The influencing factor is calculated for the usage of land within two circles, having radii of 100m and 450m from the premises of concern. The base noise levels for residential premises and the assigned noise levels for industrial premises are listed in Table 3.1.

Premises	Time of Day	Assigned Level (dB)				
Receiving Noise	Time of Day	L <sub>A10</sub>	L <sub>A1</sub>	L <sub>Amax</sub>		
	0700 - 1900 hours Monday to Saturday (Day)	45 + IF	55 + IF	65 + IF		
Noise sensitive premises: highly	0900 - 1900 hours Sunday and Public Holidays (Sunday / Public Holiday Day)	40 + IF	50 + IF	65 + IF		
sensitive area	1900 - 2200 hours all days (Evening)	40 + IF	50 + IF	55 + IF		
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and Public Holidays (Night)	35 + IF	45 + IF	55 + IF		
Note: LA10 is the no	pise level exceeded for 10% of the time.					

#### **TABLE 3.1 - BASELINE ASSIGNED OUTDOOR NOISE LEVEL**

Note: is the noise level exceeded for 10% of the time.

 $L_{A1}$  is the noise level exceeded for 1% of the time.

L<sub>Amax</sub> is the maximum noise level.

IF is the influencing factor.

It is a requirement that received noise be free of annoying characteristics (tonality, modulation and impulsiveness), defined below as per Regulation 9.

"impulsiveness"	means a variation in the emission of a noise where the difference between $L_{Apeak}$ and $L_{Amax(Slow)}$ is more than 15 dB when determined for a single representative event;
"modulation"	means a variation in the emission of noise that –
	<ul> <li>(a) is more than 3 dB L<sub>AFast</sub> or is more than 3 dB L<sub>AFast</sub> in any one- third octave band;</li> </ul>
	(b) is present for more at least 10% of the representative assessment period; and
	(c) is regular, cyclic and audible;
"tonality"	means the presence in the noise emission of tonal characteristics where the difference between –
	<ul> <li>(a) the A-weighted sound pressure level in any one-third octave band; and</li> </ul>

(b) the arithmetic average of the A-weighted sound pressure levels in the 2 adjacent one-third octave bands,

is greater than 3 dB when the sound pressure levels are determined as  $L_{Aeq,T}$  levels where the time period T is greater than 10% of the representative assessment period, or greater than 8 dB at any time when the sound pressure levels are determined as  $L_{ASlow}$  levels.

Where the noise emission is not music, if the above characteristics exist and cannot be practicably removed, then any measured level is adjusted according to Table 3.2 below.

TABLE 3.2 - ADJUSTMENTS TO MEASURED LEVELS					
Where <b>tonality</b> is present	Where modulation is present	Where <b>impulsiveness</b> is present			
+5 dB(A)	+5 dB(A)	+10 dB(A)			
+5 UB(A)	+5 dB(A) +5 dB(A) +10 dB(A)				

Note: These adjustments are cumulative to a maximum of 15 dB.

For this development, the closest residential premises of concern are located to the south (denoted as A1), as shown on Figure 3.1 below.

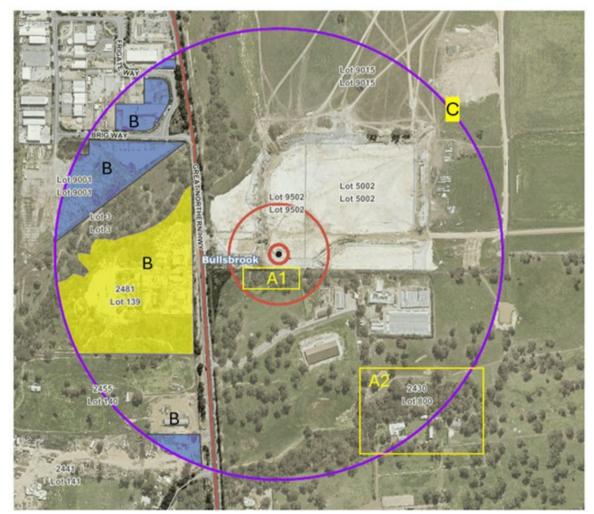


FIGURE 3.1 – AREA AROUND PROPOSED DEVELOPMENT

From Figure 3.1, the following are noted :

- From the MRWA Traffic Map, the traffic volume for this section of Great Northern Highway is approximately 9,000vpd. Under the Regulations, Great Northern Highway would be considered as a secondary road, and being outside the 100m radius circle, does not contribute to the Influencing Factor.
- The residences of concern with regards to compliance are those designated A1, being immediately to the south of the development.
- The other additional residences, A2 and C, are noted. However, these residences are a considerable distance away from the proposed development. Thus, with compliance being achieved at residences A1, compliance at these residences would be easily achieved. Even so, as requested by council, these residences have been included in the assessment.

At the above neighbouring residences, noting the commercial and industrial zoning in the area, the Influencing Factor has at residences A1 been determined to be +3 dB, with the Influencing Factor for both residences A2 and C being +1. Thus, the assigned noise levels for these residences are as listed in Tables 3.3 and 3.4.

Note: The above determined Influencing Factors have taken into account the industrial land (designated B in Figure 3.1).

Premises	Time of Day	Assigned Level (dB)			
Receiving Noise	Time of Day	L <sub>A 10</sub>	L <sub>A 1</sub>	L <sub>A max</sub>	
	0700 - 1900 hours Monday to Saturday	48	58	68	
Noise sensitive	0900 - 1900 hours Sunday and Public Holidays	43	53	68	
premises : Highly	1900 - 2200 hours all days	43	53	58	
sensitive area	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and Public Holidays	38	48	58	

#### TABLE 3.3 - ASSIGNED OUTDOOR NOISE LEVEL RESIDENCES A1

Note: L<sub>A10</sub> is the noise level exceeded for 10% of the time.

 $L_{\text{A1}}$  is the noise level exceeded for 1% of the time.

L<sub>Amax</sub> is the maximum noise level.

#### TABLE 3.4 - ASSIGNED OUTDOOR NOISE LEVEL RESIDENCES A2 AND C

Premises	Time of Dev	Assigned Level (dB)			
Receiving Noise	Time of Day	L <sub>A 10</sub>	L <sub>A 1</sub>	L <sub>A max</sub>	
	0700 - 1900 hours Monday to Saturday	46	56	66	
Noise sensitive	0900 - 1900 hours Sunday and Public Holidays	41	51	66	
premises : Highly	1900 - 2200 hours all days	41	51	56	
sensitive area	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and Public Holidays	36	46	56	

Note:  $L_{A10}$  is the noise level exceeded for 10% of the time.

 $L_{A1}$  is the noise level exceeded for 1% of the time.  $L_{Amax}$  is the maximum noise level.

## 4. MODELLING

Modelling of the noise propagation from the proposed development was carried out using an environmental noise modelling computer program, "SoundPlan". Calculations were carried out using the EPA worst case weather conditions as stated in the Environmental Protection Authority's "Draft Guidance for Assessment of Environmental Factors No.8 - Environmental Noise".

Noise emissions from the development, include:

- Mechanical services;
- Fast food ordering speakers;
- Air compressor;
- Tyre inflator beep indicator;
- Doors closing for both cars and trucks; and
- Delivery trucks.

The calculations were based in the sound power levels listed in Tables 4.1 and 4.2.

Item of Equipment	Sound Power Level, (dB(A))			
FAST FOOD - Mechanical				
Air Conditioning Condensing Units	2 at 80			
	1 at 85			
Exhaust Systems	1 at 77			
	2 at 70			
Supply Systems	1 at 78			
Defrice action convirture at	2 at 75			
Refrigeration equipment	1 at 78			
SERVICE STATION - Mechanical				
Air Conditioning Condensing Units	2 at 67			

### TABLE 4.1 – MECHANICAL SERVICES

#### TABLE 4.2 – GENERAL SOUND POWER LEVELS

Item of Equipment	Sound Power Level, (dB(A))
Car Door	83
Refuelling Truck	93
Delivery Truck	84
KFC Ordering Speakers	83
Air compressor	75
Tyre Inflator Beeper	88

With regards to noise emissions, the following are noted:

- 1 Noise associated with the mechanical services does not take into account any diversity of operation. Such diversity would occur during the night period. Thus, this is a conservative assessment. At this stage of the project, the mechanical service has not been design. Therefore, the noise sources have been based on designs used for the same or similar tenancies.
- 2 The mechanical services would be located within the yard located on the northern end of the development. We note that the noise modelling excludes any screening or barriers.
- 3 We understand that the air compressor could be located either within the yard located on the northern end of the development or within the store. Thus, to be conservative, an assessment of the air compressor located within the yard has been undertaken. We note that the noise modelling excludes any screening or barriers.
- 4 We note that the refrigeration units on the delivery trucks would be power take-off units (PTU's), which run of the vehicle engine. Thus, the refrigeration units do not operate when the vehicle engine is turned off. However, we understand that to provide fresh produce every day, a delivery during the night period is required. Additionally, as the delivery trucks visit other site on a delivery run, the refrigeration unit and hence the engine would remain running during a delivery. Thus, with the engine running, compliance with the assigned L<sub>A10</sub> criteria would be required.

### 5. <u>RESULTS</u>

Calculations were undertaken to all the residences noted on Figure 3.1. However, to simplify the assessment, only the noise received at the worst case location has been listed in Table 5.1.

	Calculated Noise Levels (dB(A))								
ltem	Mechanical services	Ordering Speaker	Air Compressor	Fuel Truck	Delivery Truck	Car Door	Tyre Inflator		
Residences to South (A1)	27	19	11	47	31	37	47		
Residence A2	21	10	2	28	15	14	18		
Residences C	14	19	5	28	22	16	16		

TABLE 5.1 – WORST CASE CALCULATED NOISE LEVELS

Noise emissions from the noise sources would need to comply with the following criteria :

L <sub>A10</sub>	-	Mechanical service, ordering speaker, air compressor and delivery
		trucks.
L <sub>A1</sub>	-	Refuelling truck.
L <sub>AMax</sub>	-	Tyre inflator beeper and car doors closing.

## 6. <u>ASSESSMENT</u>

The following provided the acoustic assessment for the noise sources requiring compliance, as listed in Table 5.1.

### 6.1 <u>L<sub>A10</sub> NOISE EMISSION – MECHANICAL SERVICES</u>

Noise emissions from the mechanical services would be steady state and would operate for the majority of time. Hence noise received from the mechanical services needs to comply with the assigned  $L_{A10}$  noise level.

Although, at the calculated noise level, the noise received at the neighbouring residences from the mechanical services is unlikely to be tonal, but to be conservative, the +5 dB(A) penalty for tonality has been applied to the calculated noise level associated with the mechanical services. Table 6.1 lists the characteristics that should be included in the assessable noise level.

# TABLE 6.1 – APPLICABLE ADJUSTMENTS AND ASSESSABLE LA10 NOISE LEVELS, dB(A) MECHANICAL SERVICES

Calculated Location Noise Level.		Applicable Adj	Assessable Noise Level,		
Location	Noise Level, dB(A)	Where Noise Emission is NOT music		dB(A)	
	UD(A)	Tonality	Modulation	Impulsiveness	UD(A)
Residences to South (A1)	27	+5	-	-	32
Residence A2	21	+5	-	-	26
Residences C	14	+5	-	-	19

Table 6.2 shows the applicable Assigned Noise Levels, and assessable noise level emissions associated for the scenarios associated with the mechanical services.

Location	Assessable Noise Level, dB(A)	HANICAL SERVICES Applicable Times of Day	Applicable Assigned L <sub>A10</sub> Noise Level (dB)	Exceedance to Assigned Noise Level (dB)
Residences to South (A1)	32	Night Period	38	Complies
Residence A2	26	Night Period	36	Complies
Residences C	19	Night Period	36	Complies

### TABLE 6.2 – ASSESSMENT OF LA10 NOISE LEVEL EMISSIONS MECHANICAL SERVICES

### 6.2 <u>L<sub>A10</sub> NOISE EMISSION – ORDERING SPEAKER</u>

Noise received from voices associated with the ordering speaker, within the drive thru, would not contain any annoying characteristics. Thus, the assessable noise level would be as listed in Table 5.1 above.

Table 6.3 shows the applicable Assigned Noise Levels, and assessable noise level emissions associated for the scenarios associated with ordering speaker voices.

Location	Assessable Noise Level, dB(A)	Applicable Times of Day	Applicable Assigned L <sub>A10</sub> Noise Level (dB)	Exceedance to Assigned Noise Level (dB)
Residences to South (A1)	19	Night Period	38	Complies
Residence A2	10	Night Period	36	Complies
Residences C	19	Night Period	36	Complies

### TABLE 6.3 – ASSESSMENT OF LA10 NOISE LEVEL EMISSIONS **ORDERING SPEAKER**

#### 6.3 LA10 NOISE EMISSION - AIR COMPRESSOR

Noise emissions from the air compressor would be steady state and would at times operate for more than 10% of the time. Hence, noise received from the mechanical services needs to comply with the assigned LA10 noise level.

Again, at the calculated noise level, the noise received at the neighbouring residences from the air compressor is unlikely to be tonal, but to be conservative, the +5 dB(A) penalty for tonality has been applied to the calculated noise level associated with the air compressor. Table 6.4 lists the characteristics that should be included in the assessable noise level.

#### TABLE 6.4 - APPLICABLE ADJUSTMENTS AND ASSESSABLE LA10 NOISE LEVELS, dB(A) **AIR COMPRESSOR**

Calculated		Applicable Adj	Assessable			
Location	Noise Level,	Where	Noise Level,			
C	dB(A)	Tonality	Modulation	Impulsiveness	dB(A)	
Residences to South (A1)	11	+5	-	-	16	
Residence A2	2	+5	-	-	7	
Residences C	5	+5	-	-	10	

Table 6.5 shows the applicable Assigned Noise Levels, and assessable noise level emissions associated for the scenarios associated with the mechanical services.

AIR COMPRESSOR								
Location	Assessable Noise Level, dB(A)	Applicable Times of Day	Applicable Assigned L <sub>A10</sub> Noise Level (dB)	Exceedance to Assigned Noise Level (dB)				
Residences to South (A1)	16	Night Period	38	Complies				
Residence A2	7	Night Period	36	Complies				
Residences C	10	Night Period	36	Complies				

TABLE 6.5 – ASSESSMENT OF LA10 NOISE LEVEL EMISSIONS

Note: Given the calculated noise levels, the total combined noise of the mechanical services and air compressor would also comply with the assigned  $L_{A10}$  noise levels at all times.

### 6.4 <u>LA10 NOISE EMISSION – DELIVERY TRUCKS</u>

Noise emissions from delivery trucks needs to comply with the assigned L<sub>A10</sub> noise level with the engine running during delivery within the southern delivery bay.

With the engines operating, noise received at the neighbouring residences could be tonal. Thus, to be conservative, the +5 dB(A) penalty for tonality has been applied to the calculated noise level associated with the air compressor. Table 6.6 lists the characteristics that should be included in the assessable noise level.

TABLE 6.6 – APPLICABLE ADJUSTMENTS AND ASSESSABLE LA10 NOISE LEVELS, dB(A)
DELIVERY TRUCKS

Calculated		Applicable Adj	Assessable Noise Level,		
Location	•	Where Noise Emission is NOT music			
	dB(A)	Tonality	Modulation	Impulsiveness	dB(A)
Residences to South (A1)	31	+5	-	-	36
Residence A2	15	+5	-	-	20
Residences C	22	+5	-	-	27

Table 6.7 shows the applicable Assigned Noise Levels, and assessable noise level emissions associated for the scenarios associated with the truck doors closing.

Location	Assessable Noise Level, dB(A)	Applicable Times of Day	Applicable Assigned L <sub>A10</sub> Noise Level (dB)	Exceedance to Assigned Noise Level (dB)
		Day Period	48	Complies
Residences to South	36	Sunday / Public Holiday Day Period	43	Complies
(A1)	30	<b>Evening Period</b>	43	Complies
		Night Period	38	Complies
	20	Day Period	46	Complies
Residence A2		Sunday / Public Holiday Day Period	41	Complies
Residence Az		Evening Period	41	Complies
		Night Period	36	Complies
		Day Period	46	Complies
Desidence C	27	Sunday / Public Holiday Day Period	41	Complies
Residence C	27	Evening Period	41	Complies
		Night Period	36	Complies

#### TABLE 6.7 – ASSESSMENT OF LA10 NOISE LEVEL EMISSIONS DELIVERY TRUCKS

### 6.5 <u>LA1 NOISE EMISSION – REFUELLING TRUCK</u>

Noise emissions from refuelling trucks needs to comply with the assigned LA1 noise level.

Based on the definitions of tonality, noise emissions from car movements, being an  $L_{A1}$  and present for less than 10% of the time, would not be considered tonal. Thus, no penalties would be applicable.

Table 6.8 shows the applicable Assigned Noise Levels, and assessable noise level emissions associated for the scenarios associated with the refuelling truck.

Location	Assessable Noise Level, dB(A)	Applicable Times of Day	Applicable Assigned L <sub>A1</sub> Noise Level (dB)	Exceedance to Assigned Noise Level (dB)
		Day Period	58	Complies
Residences to South	47	Sunday / Public Holiday Day Period	53	Complies
(A1)	47	Evening Period	53	Complies
		Night Period	48	Complies
	28	Day Period	56	Complies
Residence A2		Sunday / Public Holiday Day Period	51	Complies
Residence Az		Evening Period	51	Complies
		Night Period	46	Complies
		Day Period	56	Complies
Desidence C	20	Sunday / Public Holiday Day Period	51	Complies
Residence C	28	Evening Period	51	Complies
		Night Period	46	Complies

# TABLE 6.8 – ASSESSMENT OF $L_{\rm A1}$ NOISE LEVEL EMISSIONS REFUELLING TRUCK

### 6.6 <u>LAMAX NOISE EMISSION – TYRE INFLATOR BEEP</u>

Noise emissions from tyre inflator beep indicator needs to comply with the assigned  $L_{AMax}$  noise level.

Noise associated with the closing of a tyre inflator beep indicator could be both tonal and impulsive. Thus, to be conservative, both the +5 dB(A) penalty for tonality and the +10 dB(A) penalty for impulsiveness have been applied.

Table 6.9 list the characteristics that should be included and the assessable noise levels and the assessable noise level for tyre inflator beep indicator.

	Calculated	Applicable Adjustments to Measured Noise Levels, dB(A) Where Noise Emission is NOT music			Assessable Noise Level,	
Locations	Noise Level,					
	dB(A)	Tonality	Modulation	Impulsiveness	dB(A)	
Residences to South (A1)	47	+5	-	+10	62	
Residence A2	18	+5	-	+10	33	
Residences C	16	+5	-	+10	31	

TABLE 6.9 – APPLICABLE ADJUSTMENTS AND ASSESSABLE LAMAX NOISE LEVELS, dB(A) TYRE INFLATOR INDICATOR

Table 6.10 shows the applicable Assigned Noise Levels, and assessable noise level emissions associated for the scenarios associated with the truck doors closing.

Location	Assessable Noise Level, dB(A)	Applicable Times of Day	Applicable Assigned L <sub>Amax</sub> Noise Level (dB)	Exceedance to Assigned Noise Level (dB)
Residences to South (A1)	62	Day Period	68	Complies
		Sunday / Public Holiday Day Period	68	Complies
		Evening Period	58	+4
		Night Period	58	+4
Residence A2	33	Day Period	66	Complies
		Sunday / Public Holiday Day Period	66	Complies
		Evening Period	56	Complies
		Night Period	56	Complies
Residence C	31	Day Period	66	Complies
		Sunday / Public Holiday Day Period	66	Complies
		<b>Evening Period</b>	56	Complies
		Night Period	56	Complies

# TABLE 6.10 – ASSESSMENT OF LAMAX NOISE LEVEL EMISSIONS TYRE INFLATOR INDICATOR

We note that the volume associated with the tyre inflator beeper is adjustable. Thus, based on the above assessment, either the noise associated with the tyre inflator beeper needs to be set to 74 dB(A) at 1 metre or be screened from the residence to the south, to achieve compliance with the regulations.

### 6.7 <u>LAMAX NOISE EMISSION – CAR DOOR</u>

Noise emissions from a car door closing on site need to comply with the assigned  $L_{AMax}$  noise level.

Noise associated with the closing of a car door could be impulsive and to be conservative, a +10 dB(A) penalty for impulsiveness would be applied.

Table 6.11 list the characteristics that should be included and the assessable noise levels and the assessable noise level for car doors closing.

Locations	Calculated Noise Level, dB(A)	Applicable Adjustments to Measured Noise Levels, dB(A) Where Noise Emission is NOT music			Assessable Noise Level,
		Residences to South (A1)	37	-	-
Residence A2	14	-	-	+10	24
Residences C	16	-	-	+10	26

TABLE 6.11 – APPLICABLE ADJUSTMENTS AND ASSESSABLE LAMAX NOISE LEVELS, dB(A) CAR DOOR

Table 6.12 shows the applicable Assigned Noise Levels, and assessable noise level emissions associated for the scenarios associated with the car doors closing.

Location	Assessable Noise Level, dB(A)	Applicable Times of Day	Applicable Assigned L <sub>Amax</sub> Noise Level (dB)	Exceedance to Assigned Noise Level (dB)
Residences to South (A1)	47	Day Period	68	Complies
		Sunday / Public Holiday Day Period	68	Complies
		Evening Period	58	Complies
		Night Period	58	Complies
Residence A2	24	Day Period	66	Complies
		Sunday / Public Holiday Day Period	66	Complies
		Evening Period	56	Complies
		Night Period	56	Complies
Residence C	26	Day Period	66	Complies
		Sunday / Public Holiday Day Period	66	Complies
		Evening Period	56	Complies
		Night Period	56	Complies

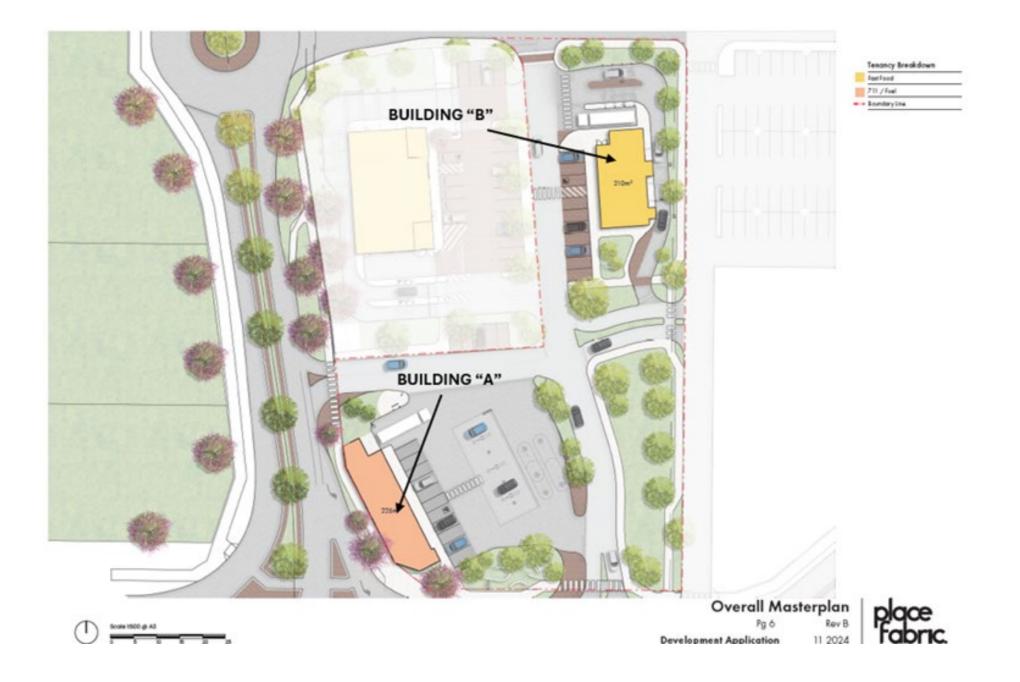
#### TABLE 6.12 – ASSESSMENT OF LAMAX NOISE LEVEL EMISSIONS CAR DOOR

From the above assessments, it can be seen that noise received at the neighbouring residences, even using a conservative analysis, complies with the requirements of the *Environmental Protection (Noise) Regulations 1997* at all times, provided :

- the tyre inflator beeper either needs to be set to a noise level of 74 dB(A) at 1 metre from the inflator station or a screen to be installed to the southern side of the inflator.

# **APPENDIX A**

PLAN





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# Submission to Okeland Communities

# SERVICING REPORT Lot 9502 Kingsford Town Centre Service Station & Fast-Food Site



### INTEGRITY

We are open, honest, and consistent in our principles and conduct, so we're able to build trusted relationships with our clients and partners.

### RESPECT

We treat everyone with respect and dignity and develop relationships founded on understanding and trust.

### ACCOUNTABILITY

We always assume responsibility for our actions and make decisions in line with our economic, social, and ethical obligations.

### EXCELLENCE

We pursue excellence in everything we do, challenging ourselves to look beyond the obvious and ensure ongoing improvement. This page has been intentionally left blank.



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## **1** Introduction

Lot 9502 (the development) is located within the Kingsford Estate Town Centre, approximately 40km north-east of the Perth CBD. Located south of the existing RAAF Pearce Airbase and the existing commercial precinct, delineated by Great Northern Highway (GNH) to the west and the Local Council road networks within the Kingsford Estate to the east.

It is proposed the site will be developed for commercial purposes with a potential service station and fast food planned on the site in accordance with the plans included in the appendix of this document.

This report has been prepared by JDSi Consulting Engineers to assist Hatch with the DA (Development Application) submission for the development. It summarises the results of a review of the civil engineering issues which are related to the future servicing of the development.

The key objectives of this report are to highlight:

- Existing infrastructure assets.
- Advise on infrastructure requirements for the planned development.
- Demonstrate the development can be serviced in the short to medium term.
- Advise on the implementation of key infrastructure requirements.

This report has been based on the civil engineering aspects of urban land uses. The report covers the engineering infrastructure requirements to service the proposed development. The engineering review has covered earthworks, roads, stormwater drainage and utility services with a particular emphasis on outlining how all major utility services will be available once the DA of the landholding has been completed. This report will outline completed works or works currently underway and show that utility services are not an impediment on the development.

The investigations and preparation of the report are largely based on recent construction works in the area. The information is current as of October 2024 and is subject to change as development proceeds in the Kingsford Estate resulting in the extension of service infrastructure and the creation of new capacity.



## 2 The Study Area

The development Study Area has a total land area of approximately 1.62 hectares. This site is located to the east of Great Northern Highway and in the southern end of Kingsford Estate.

The Study Area is part of the recently completed Kingsford Town Centre, with new services, roadworks and earthworks completed in 2024.

## 3 Earthworks

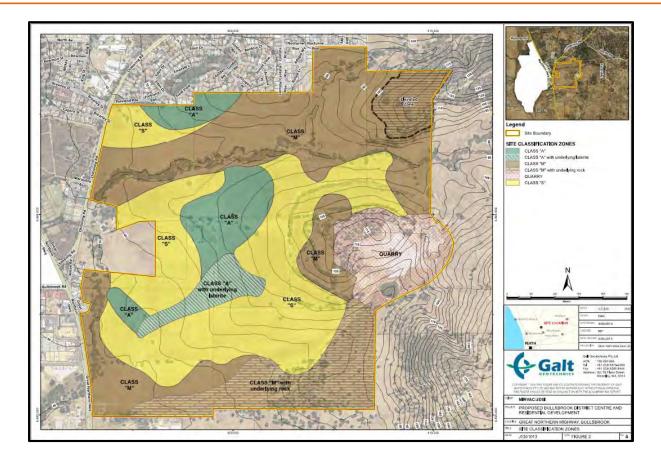
### 3.1 Predevelopment Conditions

The following is a summary of the pre development investigative reporting provided by Galt Geotechnical Consultants and is an overview of the likely soil types that will be encountered and proposed remedial measures;

The Muchea sheet of the 1:50,000 scale Environmental Geology series of maps shows that the Kingsford Estate site is underlain by a variety of soil and rock types. The western part comprises mainly soil deposits while the eastern part of underlain by shallow rock and rock outcrop. The following notes are relevant:

- 1. Generally, soils over the western portion of the site are sandy overlaying clay/sandy clay. Test trenches were excavated to depths of 2.5m, typically with 0.5 to 1.0m of sand/gravelly sand cover.
- 2. Generally, soils over the eastern portion of the site are clays/clayey sand overlaying rock (siltstone/gravel/gneiss). Test trenches were refused at depths of 1.1 to 2.0m.
- **3.** The soils are generally moderate to high reactive clay/clays soils with high percentage fines and low permeability.
- 4. The site is predominantly classed as M and S with some existing class A in the northern portion of the site.
- 5. For areas where subgrade has >0.5m inert structural fill a CBR of 12 can be adopted for pavement design.





## 3.2 Existing Conditions

Lot 9502 has been developed as a Class "S" site in accordance with AS2870-2011, with the following remediation methods undertaken to achieve this classification:

- Removal of topsoils and unsuitable materials within the building envelopes.
- Proof compaction of the excavated base after clearing of topsoils and uncontrolled fills.
- Backfill and compaction of a minimum 0.5m of clean fill across the development sitting on top of the existing graded clay surface.

The classification relates to the site at the time of testing and completion of the bulk earthworks for the Town Centre. No allowance has been made for future disturbance for buried services installation or additional earthworks. Builders should carry out their own surface compaction and checks on a lot-by-lot basis to compact any localised loose areas prior to construction.

All stormwater runoff from roofs and paved areas is disposed of as far as practical from structures to reduce the risk of differential settlements.

## 3.3 Topography

The land is generally flat with a minor grade in a north-south direction with contours ranging from RL48.9 in the northeast to RL48.2 to the southwest. The Kingsford Estate is generally steep in nature, increasing in grade towards the hilltop in the east. This can be seen with the neighbouring Lot 5002, directly east of the development, grading from east to west with a drop of approximately 4m before tying into the levels of the development.



## 4 Wastewater

The existing Bullsbrook wastewater treatment plant (WWTP) currently caters for the existing urban zoned land within the Bullsbrook area (including this development) and is currently close to full capacity. The Water Corporation's (WC) WWTP is in the process of being converted into a major transfer station with the additional flows created by the Bullsbrook development landholdings ultimately pumped from Bullsbrook to Ellenbrook via a major transfer pipeline.

As part of these works WC will be constructing and commissioning a Type 90 wastewater pump station (WWPS) that will collect and convey this flow to Ellenbrook. This WWPS is presently out for tender, with construction expected to begin in November 2024 and be commissioned and operational by mid-2025. Note the site for the WWPS is located in land directly across from the development.

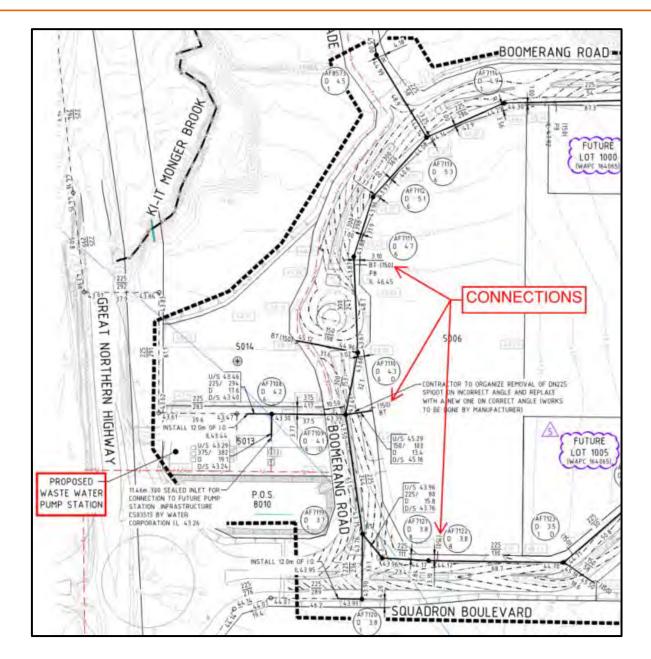
There is existing sewer reticulation network in the Kingsford Town Centre. This includes DN225 & DN300 gravity mains that run along Boomerang Road and Squadron Boulevard that are planned to discharge into the future WWPS. The development is presently serviceable via three existing DN150 sewer connections that connect into this newly constructed gravity sewer network.

The Kingsford Town Centre sewer reticulation has been inspected and taken over by the WC however is not currently connected to any live existing infrastructure pending delivery and commissioning of the WWPS. Should sewer flow for the development come online prior to the commissioning of the WWPS it will need to be managed via tankering as an interim solution, which will incur WC maintenance costs for the Developer.

JDSi can therefore confirm that servicing the landholdings for sewer reticulation is possible and is not an impediment to development.

An overview of the sewer reticulation near the development is shown in the figure below.







## 5 Water Supply

The development is located within the current scheme planning and a connection to water reticulation has been provisioned for via the existing DN300 distribution main infrastructure located within Great Northern Highway (GNH) and provision of new reticulation infrastructure within the Town Centre of the Kingsford estate. The existing DN300 distribution main will provide permanent supply to the development site.

As part of the WC long-term planning there is a DN600 distribution main planned to be constructed that will traverse the Kingsford Estate c/o Boomerang Road, Squadron Boulevard and through the planned WWPS site where it will connect into the existing distribution main on the west side of GNH. There will be some modification of the existing DN300 required to facilitate this, however the supply feed to the development site will be maintained via the current proposed connection location.

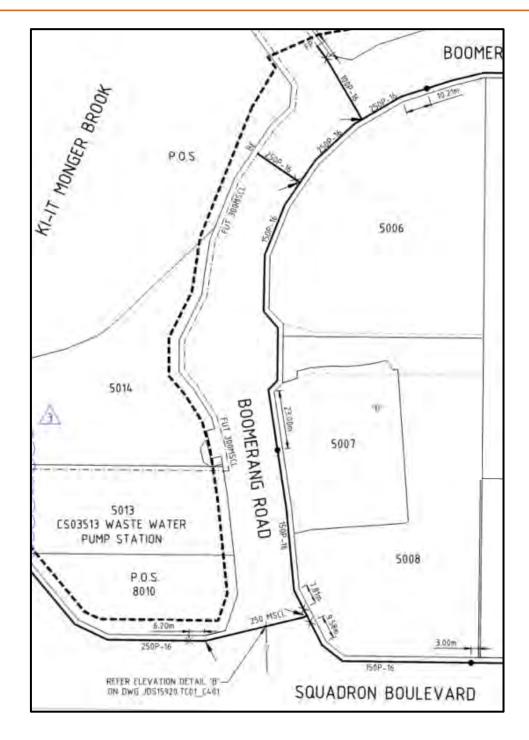
The DN600 distribution main works will include the installation of a new high level water tank and approximately 2km of DN600 inlet mains and associated infrastructure to convey the water from the existing Bullsbrook tank to the new tank. The DN600 will become the primary inlet feed to the new tank that will service the broader Bullsbrook region with additional distribution network back down to Chittering Road.

There is existing water reticulation network in the Kingsford Town Centre. This includes an existing DN150 water reticulation that runs along Boomerang Road & Squadron Boulevard that will provide connectivity for the development. This existing water reticulation has recently been inspected and taken over by the WC however not currently connected to live infrastructure pending resolve on the modifications required to service the future DN600 main. This is currently in the design phase with WC and is expected to be approved in Oct '24 with connection and livening up anticipated by the end of 2024.

JDSi can therefore confirm that servicing the landholdings for water reticulation is possible and is not an impediment to development.

An overview of the water reticulation near the development is shown in the figure below.



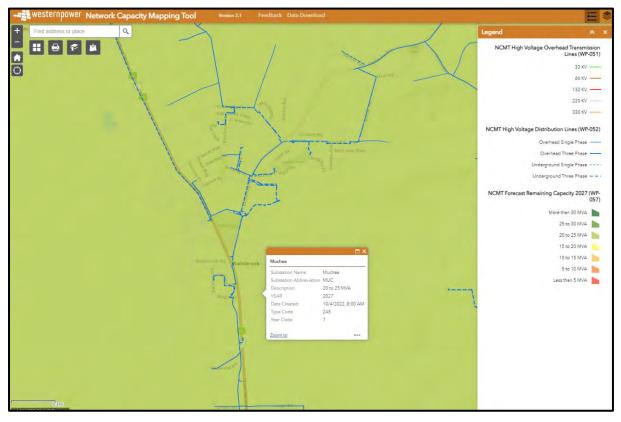




## 6 Power Supply

The Distribution network in the Bullsbrook area currently provides power supply to mostly large rural lots. These lots are serviced by an existing three phase 22kV high voltage aerial network feeders with smaller low voltage networks and pole top transformer infrastructure. These feeders emanate from Western Power's (WP) Muchea substation. The development site is located approximately 20km south east of the Muchea 132kV / 22kV zone substation. It is also a requirement that all existing aerial distribution lines are converted to underground cables within and bordering this development.

Western Power's Network Capacity Mapping Tool indicates that there is presently capacity to feed the Kingsford Estate, including the development site. The extract below forecasts the remaining capacity for 2027, which indicates that an estimated 20-25MVA is available for this HV feeder nearest to the development site.



JDSi can advise however based on earlier WP feasibility studies and the initial supply that has been delivered for the estate to date, there may be reinforcement of the upstream 22kV feeder line, and voltage regulator required. This will be subject to reassessment by WP's planning department and will be dependent on the service requirements for the commercial development within the site.

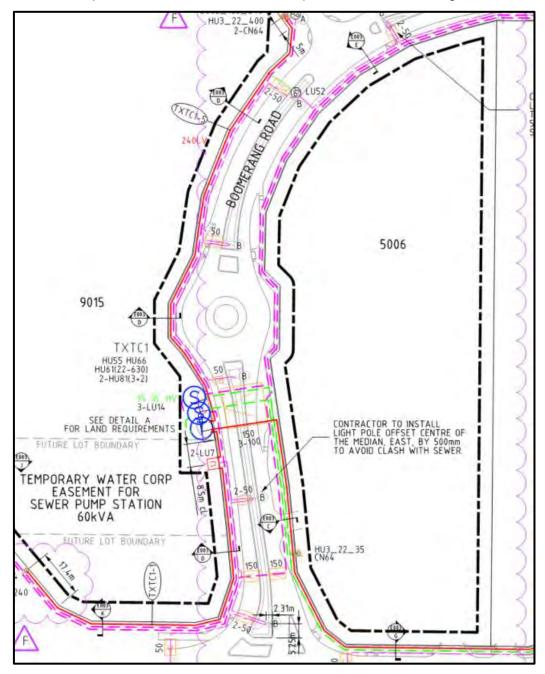
There is existing underground electrical reticulation network in the Kingsford Town Centre. The recently constructed electrical network extends along Boomerang Road and Squadron Boulevard, with both HV and LV cable adjacent the development, shown in the figure below. There is an existing 630kVA transformer and two switchgears across from the development which services the Town Centre and is fed from HV connection to existing WP infrastructure along Great Northern highway. Handover of these assets to Western Power has recently occurred, with energisation expected to occur on the 8<sup>th</sup> of November 2024.



The development will require new transformer and switchgear infrastructure, associated low voltage cable and pillar infrastructure to service the lots, the size and scope will be dependent on service load requirements.

JDSi can therefore confirm that servicing the landholdings for electrical reticulation is possible and is not an impediment to development subject to WP's assessment of their network and reinforcement requirements which will be determined via a WP Design Information Package.

An overview of the power reticulation near the development is shown in the figure below.





# 7 Gas Supply

The Bullsbrook area and the Kingsford Town Centre currently has no reticulated gas network. Reticulated gas is not considered to be an essential service and as such is not required as a condition of subdivision. It is usual practice to install gas reticulation network for the subdivision within a common civil trench at no cost to the developer.

In the early planning phase for the Kingsford Estate the Developer engaged with ATCO gas to discuss a business case to bring forward gas headworks infrastructure into the Bullsbrook region south from Ellenbrook however this resolved to not be financially viable. Residential built form is currently being managed via alternative electrical appliances or bullet tank storage units.

If there is an extension required to connect to the nearest high pressure gas main it is anticipated there will be significant contributions required towards extension of headworks infrastructure.

JDSi can therefore confirm that servicing the landholdings with traditional gas reticulation is restricted but there are alternative solutions for the development.



## 8 **Telecommunications**

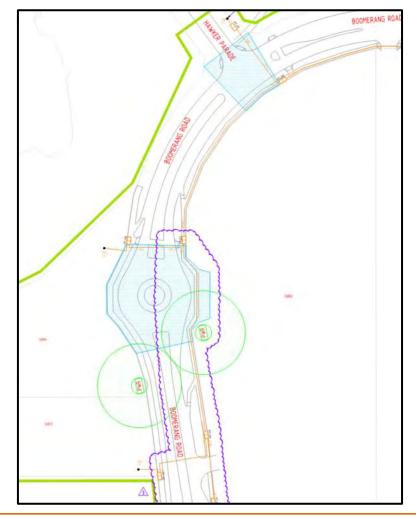
There is existing NBN communications pit and pipe infrastructure that has recently been constructed as part of the Kingsford Town Centre development with provision for future development. This includes two off P100 conduits and two off Type 8 service pits located on Boomerang Road immediately adjacent the development site that can provide a location for connectivity into the NBN network. The figure below shows the infrastructure recently constructed as part of the Town Centre works.

The current infrastructure once taken over will be owned and operated by NBN. At present the Town Centre infrastructure is isolated from existing active NBN optic fibre. The pit and pipe network and subsequent fibre is planned for the Town Centre is planned to be fed from existing fibre within the Kingsford Estate. This will be via to connection to planned NBN infrastructure along Wylde Boulevard that will provide a link between the Town Centre and existing residential development within the estate. Wylde Boulevard is presently under construction with completion of the associated communications network and handover to NBN anticipated by mid-2025.

Should communications services be required prior to handover and laying of fibre by NBN the developer may need to implement wireless communication networks.

JDSi can therefore confirm that servicing the landholdings for communications is possible and is not an impediment to development.

An overview of the communications reticulation near the development is shown in the figure below.





## 9 Roads and Traffic

This site is located within the Town Centre precinct of the Kingsford Estate located south of the existing RAAF Pearce Airbase and the existing commercial precinct, delineated by Great Northern Highway (GNH) to the west and the local council road networks within the Kingsford Estate to the east.

Great Northern Highway provides the southward road connection to the Perth Metropolitan Area and northward connection to the rest of Western Australia. There is planned connectivity between the Town Site and Great Northern Highway discussed further in this section. The site is also near Tonkin Highway (approximately 3.5km to the west).

Tonkin highway provides a new long term transport route between the Perth Metropolitan Area and Northwest of Western Australia and has reduced heavy vehicle traffic loads on the Great Northern Highway. This has promoted improved traffic conditions for local vehicles and enhance the attraction of the development being part of the new town centre for Bullsbrook.

The development site is bound by two existing gazetted road reserves owned and maintained by the Local Authority, City of Swan, namely Boomerang Drive to the west and Squadron Boulevard to the south. These internal roads have been designed and constructed in accordance with the Local Structure Plan, IPWEA Subdivisional Guidelines and Local Authority design standards. Both roads are fully sealed and kerbed.

Boomerang Road is Neighbourhood Connector A with two 3.5m wide pavements separated by a 4m median. Boomerang Road incorporates a roundabout with design provisions for connectivity of an internal road within the development site. Squadron Boulevard immediately adjacent the site is also a Neighbourhood Connector A with two 5m wide pavements separated by a 4m median. Squadron Boulevard is planned to transition into an Integrator B that will connect into a planned roundabout upgrade at the intersection with Great Northern Highway. There are two existing access crossovers located at the southern boundary into the site, one along each of these existing roads.

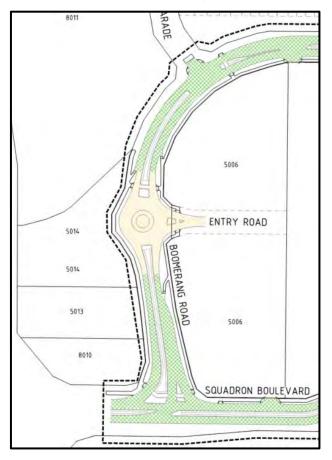
Presently the Town Centre road network is isolated from externally gazetted road reserves with access being restricted to private access roads being managed by the Kingsford Estate development and construction team. In addition to the planned connectivity to and upgrade of the Great Northern Highway there is also planned connectivity to the existing gazetted roads within the north of the Kingsford estate, with primary connection to Wylde Boulevard. Wylde Boulevard is presently being constructed as part of existing estate contract works that will link the Town Centre with the rest of the estate. This road connection is expected to be complete in April 2025.

The planned roundabout upgrade at the intersection of Great Northern Highway and Squadron Boulevard will be a Main Roads Western Australia (MRWA) asset. The design for the roundabout has involved joint liaison with MRWA, Local Authority, the Developer and relevant stakeholders and is currently with Main Roads for final approval. This roundabout will provide the Town Centre with immediate access to Great Northern Highway. The roundabout is a high priority for the Kingsford Estate, with works expected to begin prior to end of 2024, and completed by third quarter of 2025.

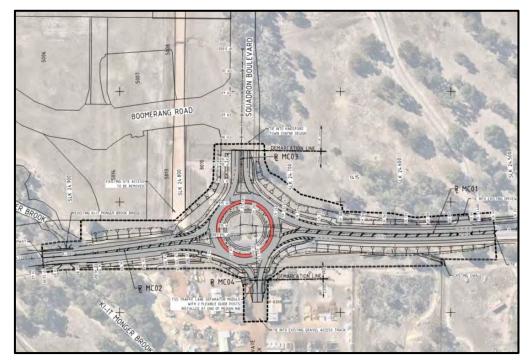
An overview of the road layout near the development and the proposed GNH roundabout are shown in the figures below.



## Internal Road Layout:



Proposed GNH Roundabout:





## **10 Drainage**

Stormwater drainage management is a major component of urban water management (UWM) for developments. The strategy for which achievement of the UWM principals are facilitated through the application of Water Sensitive Urban Design (WSUD) techniques during planning, design and construction of urban development projects. Objectives of WSUD have been considered in the development of the Kingsford estate through the mechanism of an overarching Local Water Management Strategy, and a detailed Urban Water Management Plan (UWMP) for the Town Centre specifically. This includes:

- > Detention of stormwater rather than rapid conveyance to maintain pre-development flows
- Use of vegetation for filtering purposes and nutrient stripping for quality management.
- Water efficient landscaping.
- Sediment & erosion control

The is currently an operational main stormwater drainage system within the Town Centre. This system was designed in accordance with the UWMP for the Kingsford estate and provides connectivity for the road reserves external to the development site. This system connects into and maintains predevelopment discharge into the existing Ki-it Monger Brook that traverses the estate.

The Ki-IT Monger Brook historically collects and distributes sheet flows from the Darling Scarp. The creek grades from east to west and contains a natural dam towards the centre providing detention and retardation of flows. The creek changes direction and traverses the estate through a series of existing culverts before being conveyed beneath GNH west adjacent the RAAF Pearce Airbase site.

Within the Town Centre there is traditional pit and pipe network that captures the rainfall up to a 10-year storm event from the road reserve catchment only and conveys the runoff water to a dedicated drainage basin located in Lot 8010. This basin is designed to hold the 100-year storm event and maintain predevelopment discharge into the Ki-it by way of the existing roadside swales in the Great Northern Highway. The basin is also underlain with biofiltration media and subsoil drainage to treat, infiltrate and discharge the 15mm event back into the natural system.

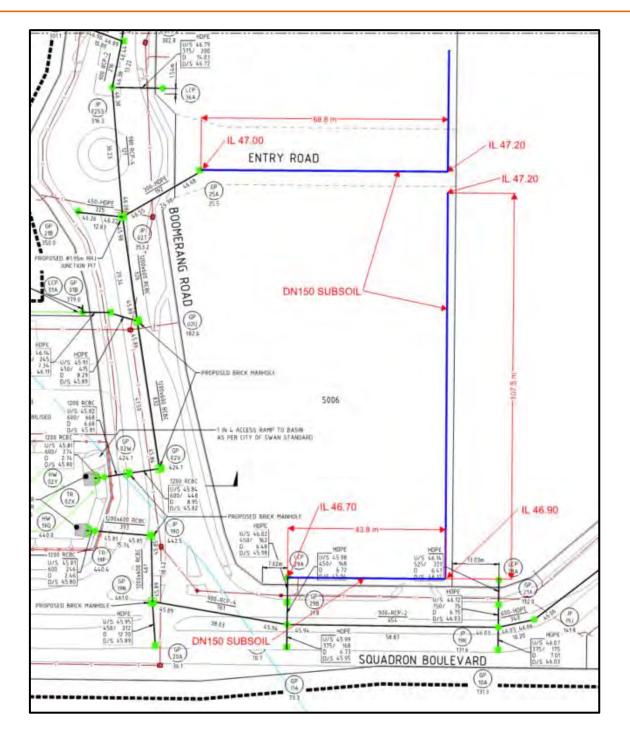
There a single dedicated drainage lot connection pit provided at the southern boundary of the development site that provides a mechanism for the site to discharge stormwater drainage into the external system, however all commercial built form within the development site must retain the first 15mm event at source via interconnected soak wells (or other suitable underground storage) prior to discharging into the external network. Depending on the final layout of the built form the developer may need to incorporate an additional lot connection pit. This would require Local Authority approval.

There are also two sections of dedicated subsoil drainage that travers the perimeter of the stie that connect into the drainage network to assist with efficient discharge of infiltrated runoff across the site in the predeveloped state. This could be utilised for any internal subsoil drainage requirements.

JDSi can therefore confirm that servicing the landholdings for drainage is possible and is not an impediment to development.

An overview of the drainage layout near the development is shown in the figure below.







### **11 Disclaimer**

JDSi have undertaken this assessment based on limited information and subsequently assumptions have been made which, if incorrect, have potential to change costs. Major cost implications exist through factors which cannot be assured at this time including upgrading and provision of utility services, WAPC conditions of development, Local Authority Scheme Requirements, ground conditions, timing of adjacent developments, etc.

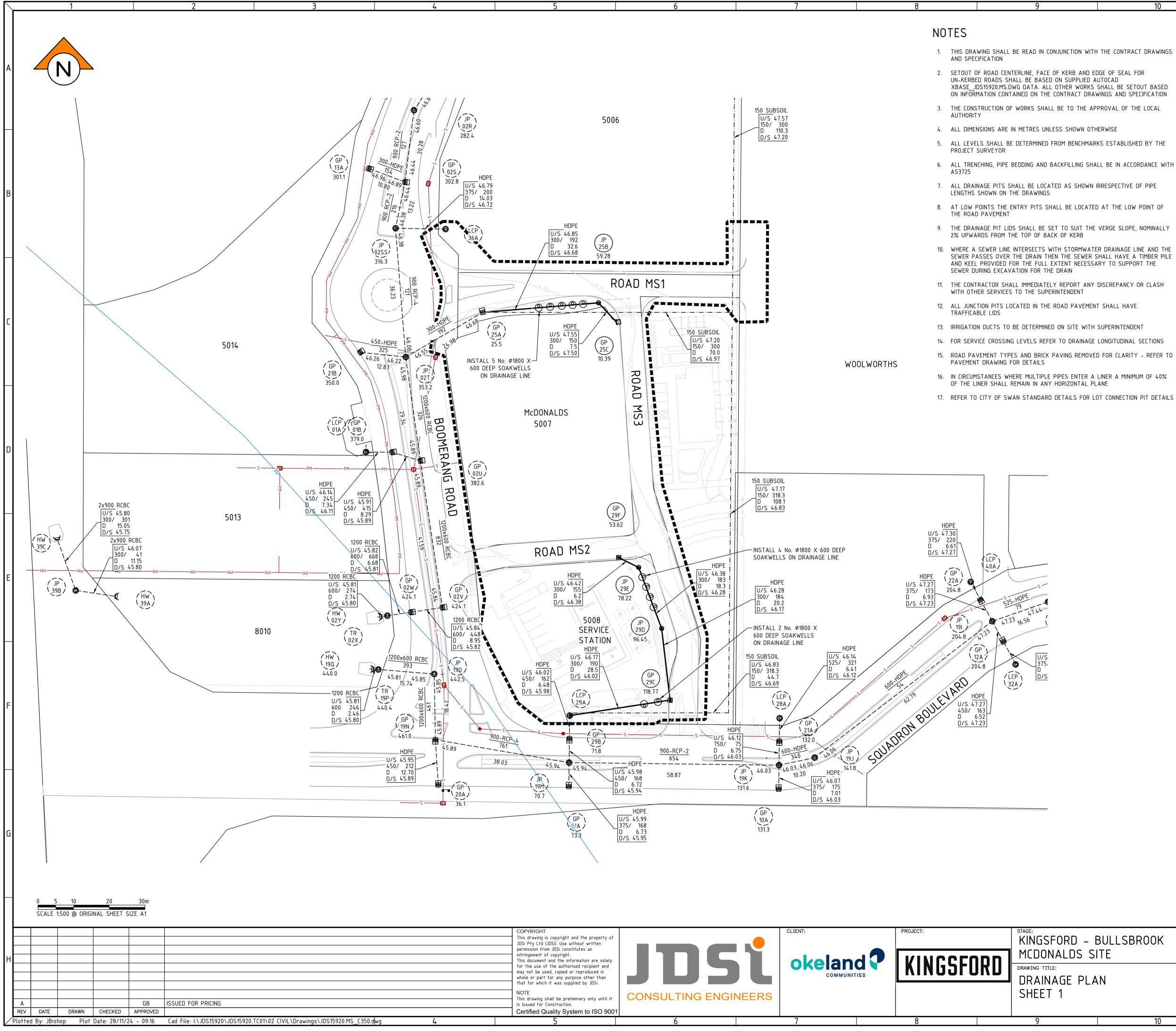
While JDSi has taken all care in the preparation of the likely development requirements and has noted key assumptions, JDSi accepts no responsibility for the accuracy of this report and provides it only as an indicative summary of engineering requirements.

If any further information is required or should you wish to clarify any issue, please contact our office.



### **12 Appendix**

Lot 9502 Development Application Plans



CHITTERING ROAD		Δ
GREAT NORTHERN HIGHWAY		B
L(	SCALITY PLAN SCALE: DIAGRAMMATIC	C
	LIMIT OF WORKS LOT NUMBER	
PIPE DIA-CLASS GRADE IL IL LENGTH(m)	PROPOSED DRAINAGE WITH NOTATION	
CLASS U/S 00.00 300/ 0.0 D 0.0 D/S 00.00	(CLASS IF NOT CLASS 2) UPSTREAM INVERT LEVEL PIPE DIA / GRADE LENGTH DOWNSTREAM INVERT LEVEL PROPOSED DRAINAGE	
 	EXISTING DRAINAGE EXISTING DRAINAGE TO BE REMOVED	
- · - · - • - • - • - • - • - • • - • • - •	FUTURE DRAINAGE FUTURE SUBSOIL DRAINAGE EXISTING SUBSOIL DRAINAGE PROPOSED JUNCTION PIT	
	PROPOSED SIDE ENTRY PIT PROPOSED DOUBLE SIDE ENTRY PIT PROPOSED COMBINATION SIDE ENTRY/GULLY PIT PROPOSED GULLY PIT PROPOSED SOAKWELL Ø1800 X 600 DEEP	E
JP 1 CH 0.0 JP	PIT TYPE PIT NUMBER CHAINAGE JUNCTION PIT	
DSEP GP SEP CSEP LCP	DOUBLE SIDE ENTRY PIT GRATED PIT (TRAPPED WHEN IN SWALES) SIDE ENTRY PIT COMBINATION SIDE ENTRY/GULLY PIT LOT CONNECTION PIT	F
BUP s 	BUBBLE-UP PIT PROPOSED/EXISTING/FUTURE SEWER PROPOSED/EXISTING/FUTURE PRESSURE MAIN EXISTING GROUND WATER CONTOURS PROPOSED/EXISTING RETAINING WALL	
		6



### The location of underground cables are approximate only and their exact position should be checked on site. No guarantee is given that all existing cables and services

**DIAL1100** BEFORE YOU DIG given that an are shown. Locate all underground cables and services before commencement of work. Refer to Worksafe Regulation 3.21.

	DRAWN		WAPC No.			i i
LSBROOK	J. BISHOP		WAFU NO.			
	DESIGNED		SCALE @ A1			
	J. BISHOP		1:5	500		Η
	PROJECT MANAGER		DATUM	CO-ORD	S	
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# Lot 9502, Kingsford

Development Application



Rev A 10 2024



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#### Broad Context Plan Pg 2 Rev A 10 2024



## 

#### LEGEND

#### 

	GENERAL COMMERCIAL
	RESIDENTIAL R40-R60
	PUBLIC PURPOSE
PS	PRIMARY SCHOOL
WC	WATER CORPORATION
D	DRAINAGE
	POS/ CONSERVATION
	DISTRICT OPEN SPACE

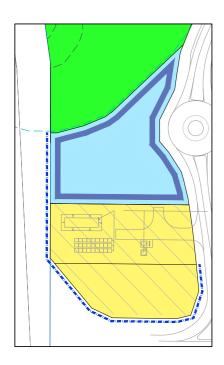
#### CHARACTER AREA

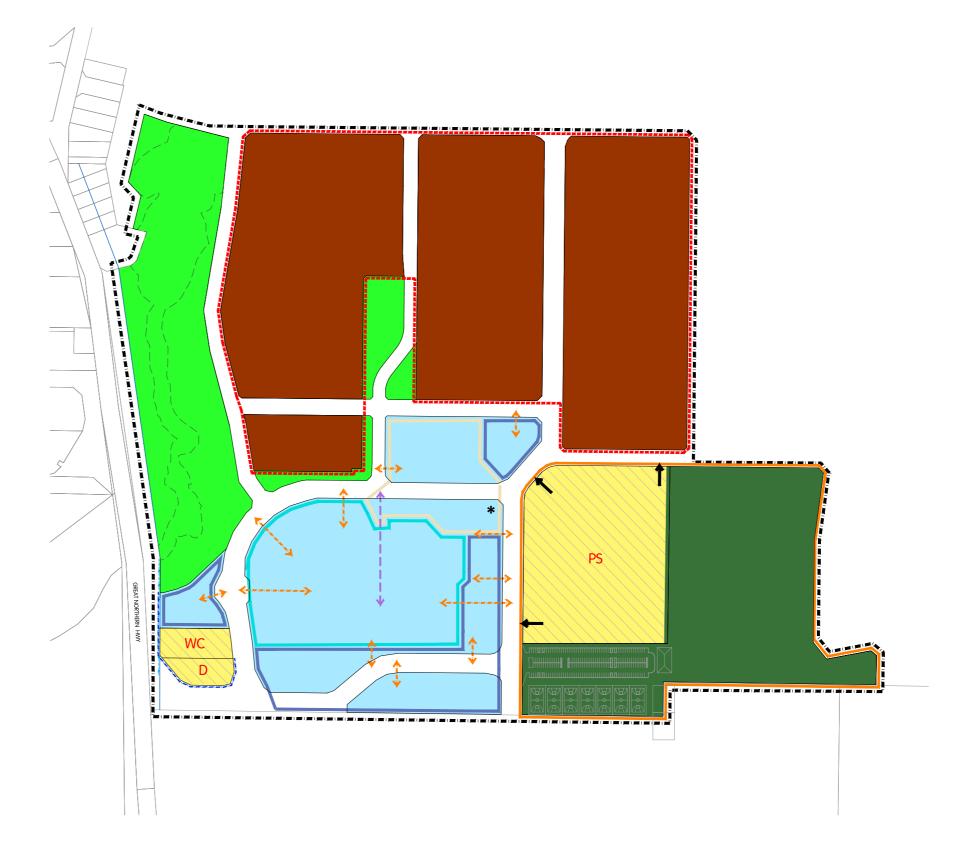


#### OTHER

 NO VEHICLE ACCESS IS PERMITTED

- PEDESTRIAN LINKAGES
  VEHICLE ACCESS
- ✤ LANDMARK BUILDING↔ SAFE ROAD CROSSINGS

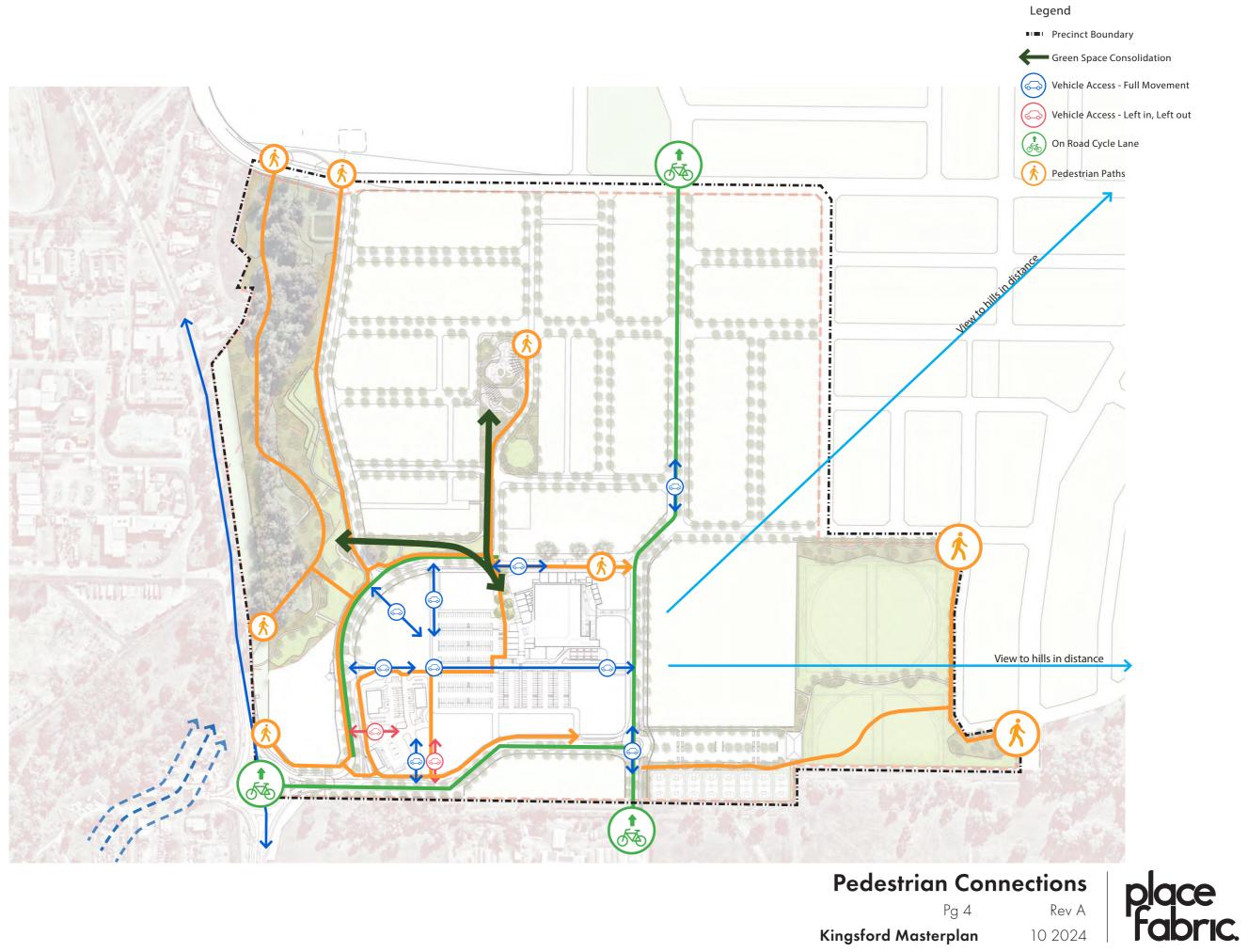




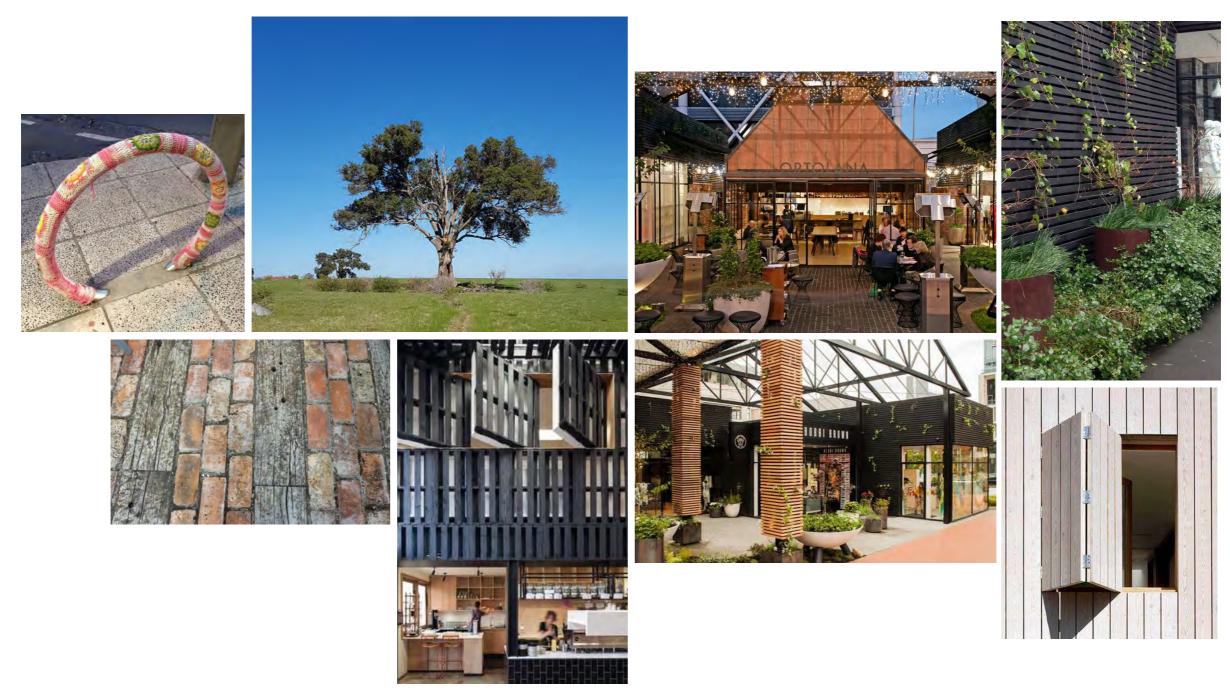
### **Precinct Plan**

Pg 3 Rev A **rplan** 10 2024





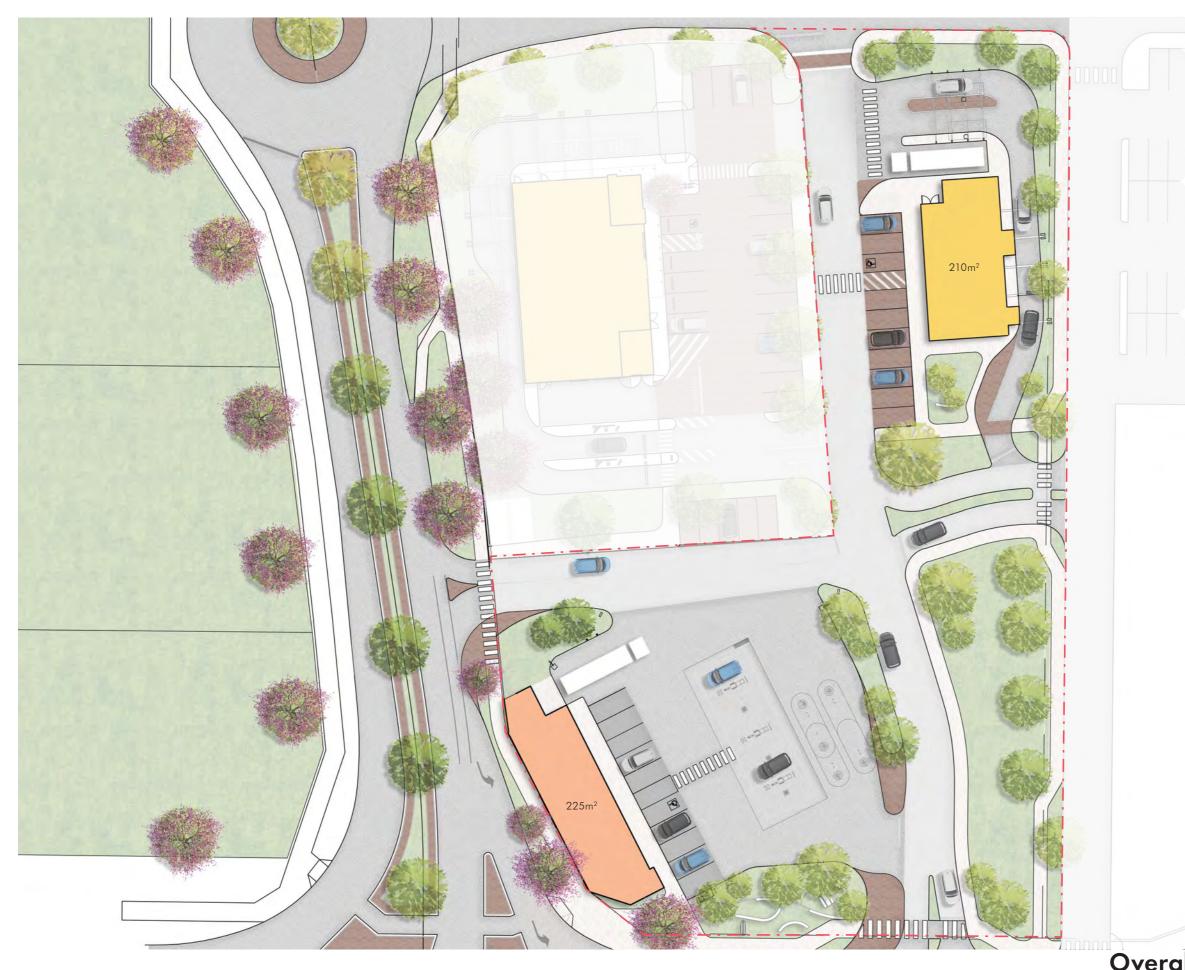
# 'Town to Country'



Kingsford Masterplan







Kingsford Masterplan

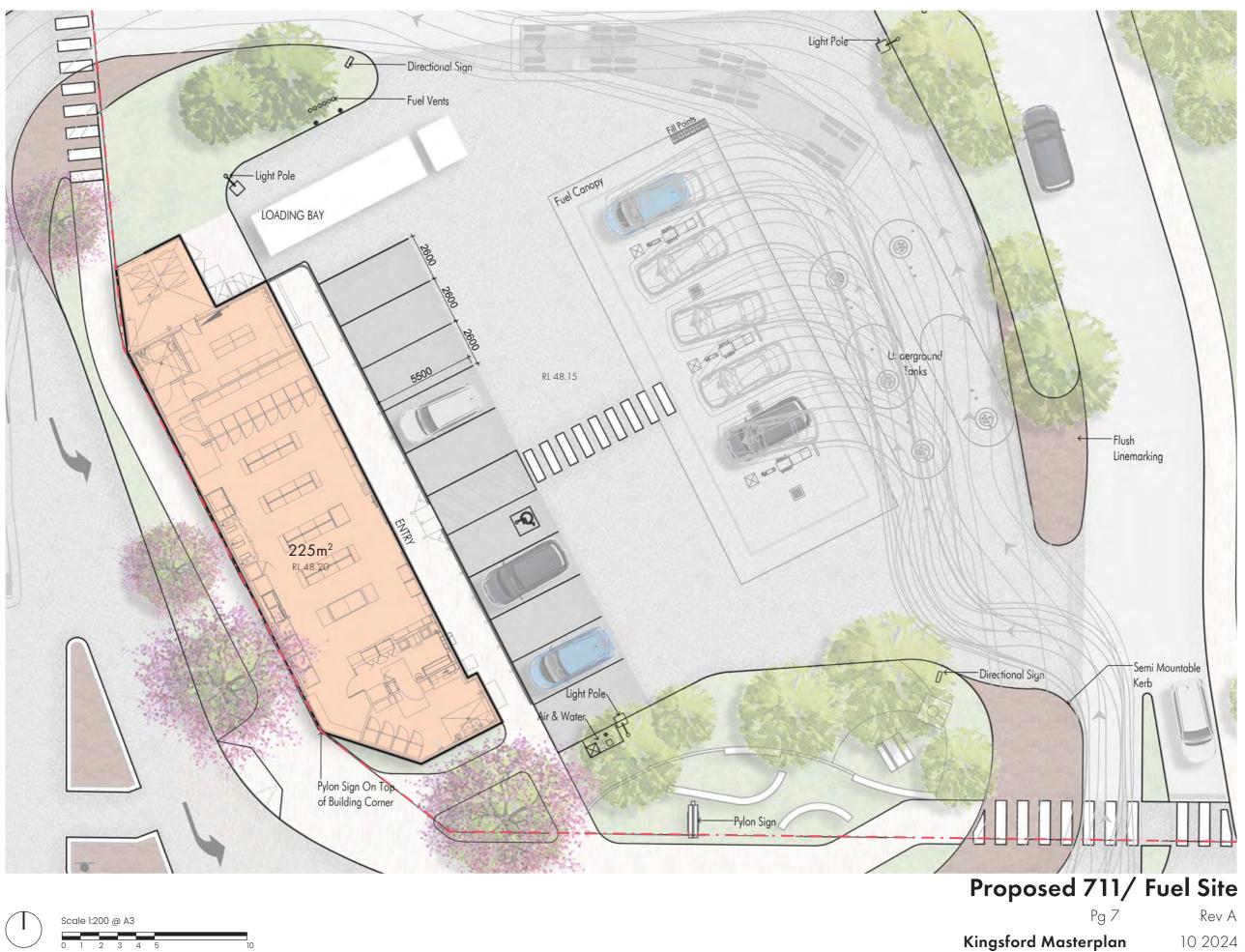


Tenancy Breakdown
Fast Food
711 / Fuel
Boundary Line





Pg 6 F**plan**  Rev A





#### Tenancy Breakdown

- Fast Food
- 711 / Fuel
- Boundary Line





Scale 1:200 @ A3

Kingsford Masterplan

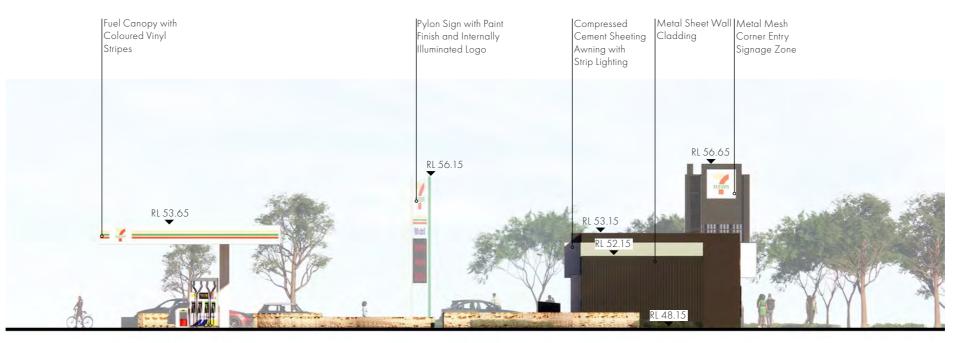
Tenancy Breakdown
Fast Food
711 / Fuel
Boundary Line



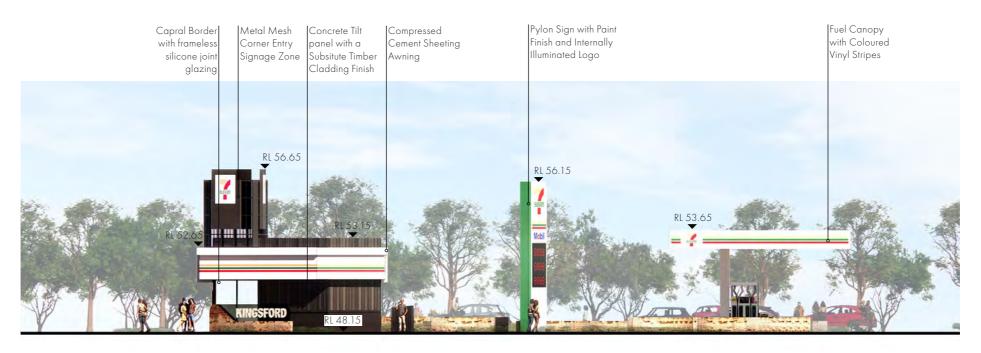


Pg 8 F**plan**  Rev A 10 2024





### North Elevation



South Elevation

Scale 1:200 @ A3

Kingsford Masterplan







East Elevation - Without Canopy



East Elevation - With Canopy

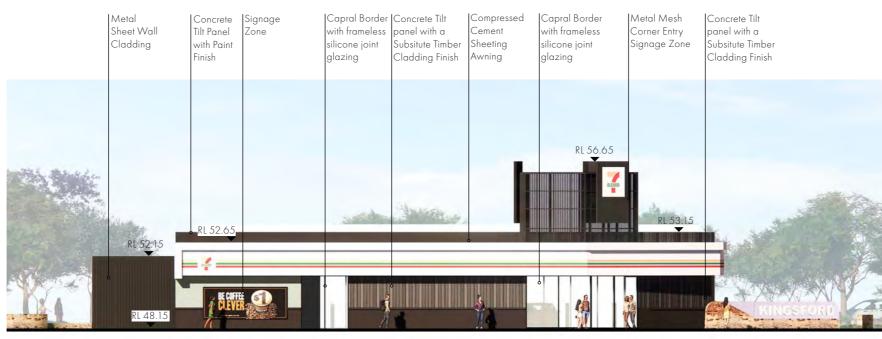
Kingsford Masterplan

Scale 1:200 @ A3









West Elevation

Kingsford Masterplan

Scale 1:200 @ A3

4









South Elevation



North Elevation

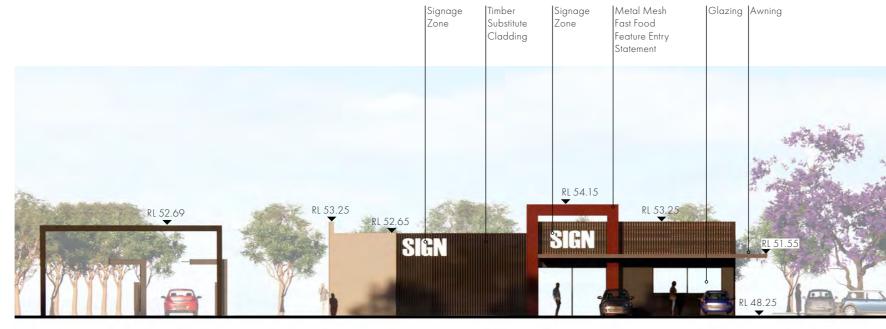
**Proposed Fast Food Elevations** 

Pg 12 Kingsford Masterplan 10 2024

Scale 1:200 @ A3







### West Elevation



East Elevation

**Proposed Fast Food Elevations** 

Scale 1:200 @ A3

Kingsford Masterplan



Pg 13

Rev A 10 2024





**3D Render** 4 Rev A an 10 2024







Pg 15 Kingsford Masterplan

**3D Render** 5 Rev A an 10 2024







Pg 16 Kingsford Masterplan

3D Render Rev A 10 2024







Pg 17 Kingsford Masterplan

3D Render Rev A 10 2024







Pg 18 Kingsford Masterplan

3D Render Rev A

place fabric.

Rev A 10 2024





Pg 19 Kingsford Masterplan

3D Render Rev A 10 2024





### **Design Review Report**

Location/Venue:	City of Swan Council Chambers - Midland Town Hall -
	312 Great Eastern Highway Midland
Meeting Date:	Tuesday 11 June 2024
Meeting Time:	2 pm

### Item 2 – Service Station and Fast-Food Outlet - Lot 5006 Kingsford Town Centre, Bullsbrook – DRP -14/2024 – Concept – 1<sup>st</sup> DRP Meeting

Design Review	Design Review Report		
Subject	Item 2 – Service Station and Fast-Food Outlet - Lot 5006 Kingsford Town Centre, Bullsbrook		
Design Reviewers	Brett Wood-Gush – Acting Chairperson (Insight Urbanism)		
	Peter Damen - Panel Member (Level 5 Design)		
	Wayne Dufty – Panel Member (DNA Architects)		
	Stephen Carrick – Panel Member (Stephen Carrick Architects)		
Proponent &	Craig Graham – Okeland Communities		
Project Team	Graham Taylor – Place Fabric		
	Stephanie Voon – Place Fabric		
	Tim Trefry – Hatch		
	Paul Broderick – Emerge		
Declarations	None.		

#### **General Comment**

The general arrangements plan shown at the Kingsford Structure Plan DRP indicate a centre that faces the surrounding streets with active street front/building edges. The DRP supported the master plan on the base of this design approach.

A potential and noted concern was that the Masterplan includes a main street at the back of the centre, located away from the parking areas and on a lower-visibility street. Its staging, location, access to parking, and passing traffic we all a concern. The panel is now seeing a series of proposals that undermine the focus on street fronts and the main street and undermine the town-centre quality of the centre. Great Eastern Highway presents a logical location for service stations and drive-through areas so often imposed on town centres.

The revised general arrangements plan tabled at this DRP was not discussed for assessment and is not supported without a detailed review. On the face of it, it appears to undermine the potential for street-front development and provide less potential for a consolidated town centre. Initial responses to this expression of concern further



undermined the DRPs confidence in the development trajectory. The current proposal is assessed on its merits and as part of the proposed whole.

Design quality evaluation			
Principle 1 Context and character	Good design responds to and enhances the distinctive characteristics of a local area, contributing to a sense of place.		
Comments and Recommendation	Strengths <ul> <li>a) The context analysis was reasonably comprehensive and of some assistance.</li> </ul>		
	<ul> <li>Areas for improvement</li> <li>b) The southern part of the precinct was identified in the master plan for uses that are more service commercial the north end of this per cent for retail. There was an expectation that this precinct would create a sense of arrival that foreshadowed the more urban and pedestrian environment in the main street of the centre. It was also indicated to have street front development.</li> <li>c) The collection of pad sites is a poor gateway at the main access point to the centre. Moreover, the selection of uses and the way these uses are configured creates an extremely poor environment.</li> <li>d) Apart from a tiny section of the perimeter, the component presents driveways and backs to the centre and streets.</li> <li>e) The multiplicity of driveways and crossovers is not compatible with the indented centre.</li> <li>f) The isolated car wash development is land and access hungry and a poor outcome for a city centre.</li> </ul>		
	<ul> <li>Recommendations</li> <li>1. Consider tabling a series of design studies that illustrate the opportunities and constraints of various layouts/ development approaches.</li> <li>2. Revisit the context analysis and respond through the lenses of walkability and good urban design rather than mere functionality and traffic movement.</li> <li>3. Demonstrate how the identified emerging character is expressed in the design.</li> <li>4. Ensure the building addresses the adjacent street.</li> <li>5. Review the location of this and the associated uses in the context of the master plan.</li> <li>6. Develop a master plan for this sub-precinct that provides greater continuity of street frontage.</li> </ul>		



Principle 2 Landscape quality	Good design recognises that together landscape and buildings operate as an integrated and sustainable system, within a broader ecological context.
Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) The inclusion of landscape in the design process at an early stage is supported.</li> <li>b) Some trees and paths are indicated.</li> <li>c) The proposed under-storey planting is supported.</li> </ul> </li> </ul>
	<ul> <li>Areas for improvement</li> <li>d) The verges are compromised and lack landscape. The development needs to deliver a green edge.</li> <li>e) The on-site landscape appears to be the common case of painting leftover spaces with plants rather than being an integral part of the design.</li> <li>f) Asphalt is the predominant landscape element and pedestrian, and footpath area are mostly outside the site as indicated on page 10 of the presentation. These need to be included in the development.</li> <li>g) There appears to be little inclusion of alfresco, which is part of contemporary eating and assists in activation.</li> </ul>
	<ul> <li>Recommendations <ol> <li>Shade pedestrian routes</li> <li>Ensure landscape is an integral part of the design rather than space filler.</li> <li>Introduce different paving treatments that can help explain the ground plain (movement, parking, pedestrians, services, etc) and break up the expanse of asphalt.</li> <li>Introduce a comprehensive, connected, and legible pedestrian pathway with minimal vehicle/pedestrian conflict points.</li> <li>Include a formal landscaped al-fresco area.</li> </ol></li></ul>
Principle 3 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.
Comments and Recommendation	<ul> <li>Strengths         <ul> <li>a) The proposal does not contribute to the centre's form and function. It removes land and is valuable in creating a consolidated lifestyle and community-building centre.</li> </ul> </li> </ul>
	Areas for improvementb) The built form does little to engage with the street and, in many places, establishes a moat of cars



	<ul> <li>between the building and the street, which is an unacceptable urban design outcome.</li> <li>c) The built form does little to create a proper relationship to the streets.</li> <li>d) It is noted that fast food development can be developed as a street based urban form.</li> <li><i>Recommendations</i> <ol> <li><i>Reconsider the range of uses proposed as they do little to support the urban quality of the centre.</i></li> <li><i>Move and reorientate the buildings to establish a direct relationship between the building and the street.</i></li> </ol> </li> </ul>
Principle 4 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.
Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) Early presentation of the concept is supported.</li> </ul> </li> <li>Areas for improvement <ul> <li>b) Revise the concept to create an outcome that helps consolidate the town centre and does not compete with the main street.</li> <li>c) Local highway-based uses away from the centre.</li> </ul> </li> <li>Recommendations <ul> <li>Revise the proposal to meet planning objectives for town centres and SPP7.</li> </ul> </li> </ul>
Principle 5 Sustainability	Good design optimises the sustainability of the built environment, delivering positive environmental, social and economic outcomes.
Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) Limited information. The uses perpetuate a highly instantiable form of service delivery and built form.</li> </ul> </li> <li>Areas for improvement <ul> <li>b) Develop a development strategy that delivers sustainable built form.</li> </ul> </li> <li>Recommendations <ul> <li>1. Develop a comprehensive sustainability strategy from precinct planning to design and function.</li> </ul> </li> </ul>
Principle 6 <b>Amenity</b>	Good design optimises internal and external amenity for occupants, visitors and neighbours, providing environments that are comfortable, productive and healthy.



Comments and Recommendation	a) There are indications of a pedestrian network
	outside the site.
	<ul> <li>Areas for improvement</li> <li>b) There is little discernible amenity provided by the design that goes beyond mere functionality.</li> <li>c) The level of pedestrian amenity within and adjacent to the site is very poor and unacceptable.</li> <li>d) Review uses and forms to deliver a proper urban centre.</li> </ul>
	<ul> <li>Recommendations</li> <li>1. Consolidate the precinct with uses that serve needs beyond those of car drivers.</li> <li>2. Establish a clear and comprehensive connected pedestrian network with dedicated paths, shade and shelter, distinguished crossing points, passive surveillance, and visual interest, which connects seamlessly with the rest of the centre.</li> </ul>
Principle 7 <b>Legibility</b>	Good design results in buildings and places that are legible, with clear connections and easily identifiable elements to help people find their way around.
Comments and Recommendation	Strengths The network of footpaths could be made legible and shaded.
	<ul> <li>Areas for improvement <ul> <li>a) The design is largely inhospitable from a pedestrian point of view and relies on the delivery of the surrounding footpaths. This is not assured.</li> <li>b) The buildings provide little shade or shelter to the adjacent footpath in the street.</li> <li>c) The design provides no appropriate visual interest to the adjacent public realm.</li> <li>d) Develop a convincing, safe avenue-street through or on the edge of the precinct with clear pedestrian crossings and minimised vehicle conflict. Raise pedestrian crossings to footpath level to establish priority.</li> </ul> </li> </ul>
	<ul> <li>Recommendations</li> <li>1. Reorientate the building to face the street with pedestrian access directly from the street.</li> <li>2. Establish a clear and comprehensive connected pedestrian network with dedicated paths, shade and shelter, distinguished crossing points, passive surveillance, and visual interest, which connects seamlessly with the rest of the centre.</li> </ul>



	<ol> <li>Provide shade and shelter to the adjacent footpath in the street.</li> <li>Ensure the verge path network is delivered.</li> </ol>
Principle 8 <b>Safety</b>	Good design optimises safety and security, minimising the risk of personal harm and supporting safe behaviour and use.
Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) There are some safer pedestrian routes.</li> </ul> </li> <li>Areas for improvement <ul> <li>b) There is a multiplicity of internal and external cross overs that appear to be more a result of land parcelling than proper planning.</li> <li>c) At pedestrian crossing points, painted lines are shown. More should be done to make pedestrian movement and continuity of the footpaths a priority.</li> </ul> </li> <li>Recommendations <ol> <li>Establish a clear and comprehensive connected pedestrian network with dedicated paths, shade and shelter, distinguished crossing points, passive surveillance, and visual interest, which connects seamlessly with the rest of the centre.</li> <li>Minimise the number of pedestrian/vehicle conflict points.</li> </ol> </li> </ul>
Principle 9 <b>Community</b>	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.
Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) Car cleaning and refuelling and fast-food needs can be met.</li> </ul> </li> <li>Areas for improvement <ul> <li>b) There is little discernible community benefits arising from the design (as opposed to arising from the use).</li> <li>c) Any positive contribution to the public realm is negligible.</li> <li>d) Check whether there is a requirement for public art and, if so, identify what strategy is proposed.</li> </ul> </li> <li>Recommendations <ul> <li>Reconsider uses and move and reorientate the buildings to establish a direct relationship between the building and the public realm.</li> </ul> </li> </ul>



	<ol> <li>Confirm whether public art is required and, if so, identify what strategy is proposed.</li> <li>Include a formal landscaped al-fresco area.</li> </ol>
Principle 10 <b>Aesthetics</b>	Good design is the product of a skilled, judicious design process that results in attractive and inviting buildings and places that engage the senses.
Comments and Recommendation	<ul> <li>Strengths         <ul> <li>a) Early indication of an intent to reflect rural materials in the theme of the centre.</li> </ul> </li> </ul>
	<ul> <li>Areas for improvement</li> <li>b) Consider how the uses and design can be modified to reflect the intended characteristics of the place identified in the context and character analysis.</li> <li>c) In focusing on movement and parking over consolidated development, the design fails to deliver sufficient visual interest to be inviting or engaging.</li> <li>d) Seek to integrate a design narrative that builds on the sense of place.</li> </ul>
	<ol> <li>Recommendations</li> <li>Avoid car service focused uses in the centre.</li> <li>Review how the standard design templates can be adapted to contribute meaningfully to the identified character and sense of place.</li> <li>Move and reorientate the building enable greater visual interest to the public realm.</li> </ol>

Design Review progress					
	Supported				
	Pending furt	her attention			
	Not yet supported				
	Yet to be addressed				
		DRP Meeting 1 11/06/24 Concept	DRP Meeting 2	DRP Meeting 3	DRP Meeting 4
Principle 1 - Context and character					
Principle 2 - Landscape quality					
Principle 3 - Built form and scale					
Principle 4 - Functionality					



and build quality		
Principle 5 - Sustainability		
Principle 6 - Amenity		
Principle 7 - Legibility		
Principle 8 - Safety		
Principle 9 - <b>Community</b>		
Principle 10 - <b>Aesthetics</b>		

#### **Concluding Remarks**

It could be assumed that because service stations and drive-thought fast-food outlets are so common in the highway service suburban environment, their ubiquity equates to acceptability everywhere. However, the DRP's role is to consider design through the prism of the 10 design principles of SPP7, with special consideration of the current and intended urban context.

Viewed through the prism of SPP7 and the location in the town centre, the proposal is largely unsatisfactory and unsupportable. Many shortcomings need to be addressed, as highlighted in the report above. However, the three fundamental issues are the poor relationship to the street, the negligible consideration of pedestrian movement, amenity, and safety, and the lack of discernible effort to contribute to the local sense of place.

#### Note

The panel is concerned with the centre master plan concept included in the presentation package. This fast food precinct proposal and the inclusion of a second anchor tenacity appear to compromise the parking areas needed to support street-facing uses. The master plan may also not meet SPP7 and other planning principles, jeopardising the long-term outcomes and success of the town centre. A DRP review of the masterplan concept is recommended before assessing development proposals with significant impacts, such as this proposal.

Is the proposal required to go back to a future Design Review Panel Meeting? Please tick one of the following:

 $\sqrt{\text{Yes}}$  – future full panel design review.

 $\Box$  No – future chair review only.

 $\Box$  No – supported – no further review required.

#### Is the proposal supported?

Please tick one of the following:

□ Yes - Supported

□ Yes - Supported – pending further attention and/or conditions to be imposed.

 $\sqrt{NO}$  - Not yet supported.

Design Review Report endorsement & DRP Recommendation

Brettich

Brett Wood-Gush DRP (Acting) Chair



## **Design Review Report**

Location/Venue:	City of Swan Council Chambers - Midland Town Hall -
	312 Great Eastern Highway Midland
Meeting Date:	Tuesday 30th July 2024
Meeting Time:	2.30pm

## Item 2 – Fast Food Outlet & Service Station – Lot 5006 Kingsford Town Centre, BULLSBROOK – DRP-14/2024– 2nd DRP Meeting.

Design Review	Report
Subject	Item 2 - Fast Food Outlet & Service Station – Lot 5006 Kingsford Town Centre, BULLSBROOK
Design Reviewers	Malcolm Mackay - Chairperson (Mackay Urban Design)
	Brett Wood-Gush – Deputy Chairperson (Insight Urbanism)
	Wayne Dufty – Panel Member (DNA Architects)
	Peter Damen - Panel Member (Level 5 Design)
Proponent &	Craig Graham – Okeland Communities Graham Taylor – Place Fabric
Project Team	Stephanie Voon – Place Fabric
	Tim Trefry – Hatch
Declarations	None.

Design quality evaluation	on	
Principle 1 Context and character		<i>Good design responds to and enhances the distinctive characteristics of a local area, contributing to a sense of place.</i>
Comments and Recommendation		<ul> <li>Strengths <ul> <li>a) Whilst the proposed uses are not the preferred ones to celebrate the entry to the town centre, they are, sadly, the economic reality of the suburban environment and it's better that they are here rather than in the main street.</li> <li>b) The service station has been reformatted to better address the street and the entry corner, albeit subject to the next level of detail.</li> </ul> </li> <li>Areas for improvement <ul> <li>c) More information on the internal layouts is required to assess the design response to the streetscape</li> </ul> </li> </ul>
		context. d) The loss of the car wash and more landscape is an



Principle 2	<ul> <li>be developed, the site planning should include an indicative layout for the site to help understand to what extent development might enhance or compromise the proposed design.</li> <li>Recommendations <ol> <li>Provide detail on the internal layouts.</li> <li>Include an indicative layout for the vacant site (former car wash).</li> </ol> </li> </ul>
Landscape quality	buildings operate as an integrated and sustainable system, within a broader ecological context.
Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) The landscape design works hard to mitigate the inherent shortcomings of the proposed car-based uses.</li> <li>b) The extent of the landscape extent has improved.</li> <li>c) The parklet areas with casual seating are good but need to be reflected in the architectural drawing set.</li> <li>d) The shade tree provision to the perimeter pedestrian routes is extensive and supported.</li> <li>e) The plant selection appears to be logical, but the tree selection should be assessed for susceptibility to Shot Hole Borer.</li> <li>f) The use of different hardscape materials to help explain the use of hard surfaces is commendable.</li> </ul> </li> <li>Areas for improvement <ul> <li>g) Whilst there is merit in the external pedestrian connectivity between the service station and the fast-food outlet. The previous pedestrian spine should be reintroduced.</li> </ul> </li> <li>Recommendations <ul> <li>Ensure consistency between the landscape and architectural plans.</li> <li>Review the connectivity of the internal pedestrian network of the site.</li> </ul> </li> </ul>
Principle 3 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.



	e (
Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) The built form is largely consistent in height, scale, and form for this type of use.</li> <li>b) Some effort has been made to provide an address to the street (service station) and the internal street (fast food) but more information on the internal layouts is needed to assess whether the intent is realised in detail.</li> </ul> </li> <li>Areas for improvement <ul> <li>c) The site still reads as a collection of pad sites than an integrated development with any sense of place, with the landscape pulling the overall composition together.</li> <li>d) Whist the corner feature on the service station is supported in principle, it needs to be brought to ground to be a meaningful architectural element, rather than tottering on the edge of the roof.</li> </ul> </li> <li>Recommendations <ul> <li>Provide detail on the internal layouts.</li> </ul> </li> <li>Review the design of the corner feature of the service station with a preference to bring it to ground.</li> </ul>
Principle 4 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.
Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) The design appears to be functional from a vehicle perspective.</li> <li>b) The material selection looks promising, consistent with the vision for the overall centre, and above the norm for this form of development.</li> </ul> </li> <li>Areas for improvement <ul> <li>c) More internal information to assess the functionality of the buildings.</li> <li>d) The vacant site is small with an awkward geometry <ul> <li>demonstrate its potential for functionality with an indicative design.</li> </ul> </li> <li>Recommendations <ul> <li>Provide detail on the internal layouts.</li> <li>demonstrate the potential for functionality of the vacant site with an indicative design.</li> </ul> </li> </ul></li></ul>
Principle 5 Sustainability	<i>Good design optimises the sustainability of the built environment, delivering positive environmental, social</i>



	and economic outcomes.
Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) None.</li> </ul> </li> <li>Areas for improvement <ul> <li>b) Given that the proposed car-based uses in a suburban environment are Inherently unsustainable, the design needs to work hard from a sustainability perspective to make it 'less bad'.</li> <li>c) There appears to be no consideration of sustainability initiatives, which are even foreshadowed as an afterthought. Almost a quarter of the way though the 21<sup>st</sup> Century, sustainability should lie at the heart of all development.</li> <li>d) Prepare a sustainability strategy, utilising an ESD consultant if necessary.</li> <li>e) Review the service station with a view to futureproofing it to accommodate EV charging.</li> <li>f) Commit to provision of rooftop PV.</li> <li>g) Review materials for savings on embodied energy and recyclability.</li> <li>h) Prioritise the encouragement of pedestrians and other forms of active transport.</li> </ul> </li> <li>Recommendations <ul> <li>Develop a comprehensive sustainability strategy with quantifiable/ verifiable commitments, noting the comments above.</li> </ul> </li> </ul>
Principle 6 <b>Amenity</b>	Good design optimises internal and external amenity for occupants, visitors and neighbours, providing environments that are comfortable, productive and healthy.
Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) The proposed parklets are supported.</li> <li>b) There is a generous level of shade to the perimeter pedestrian path.</li> </ul> </li> <li>Areas for improvement <ul> <li>c) More information is needed on the internal layouts to assess internal amenity.</li> <li>d) The lack of pedestrian connectivity within the site compromises pedestrian amenity.</li> <li>e) Ensure the service are to the fast-food outlet is sufficiently screened.</li> <li>f) Ensure glazed areas are transparent and sufficiently shaded, and not obscured by film, tinted, or reflective glass needed to reduce heat load.</li> <li>g) Provide operable windows to enable heat purging.</li> <li>h) Consider utilising the corner glazing in the service</li> </ul> </li> </ul>



		station for a coffee window.
		commendations Provide detail on the internal layouts.
Principle 7 <b>Legibility</b>	legi	nd design results in buildings and places that are ble, with clear connections and easily identifiable ments to help people find their way around.
Comments and Recommendation	a) b) c) Are d) Rec 1.	engthsThe movement for vehicles is direct and well connected.The clarity of the surrounding path network has been improved.There is a reasonable level of both vehicle and pedestrian permeability.eas for improvementWhilst there is merit in the external pedestrian circulation, the internal pedestrian route remains disjointed and convoluted. For example, pedestrian connectivity between the service station and the fast-food outlet. The previous pedestrian spine should be reintroduced.commendations Reintroduce a connected internal pedestrian routes between all buildings on the site without recourse to the perimeter footpath.
Principle 8 <b>Safety</b>	min	ed design optimises safety and security, imising the risk of personal harm and supporting behaviour and use.
Comments and Recommendation	a) b) <b>Are</b> c) d)	<ul> <li>engths The reduction in the number of crossovers is an improvement. The pedestrian crossing points are clarified (but the use of zebra stripes suggests a car-focussed rather than a people- focussed design approach – consider a material change rather than a painted solution. eas for improvement Concern remains about the impact of designing for truck movement on the pedestrian environment. Review truck movement to reduce crossover widths wherever possible and use changes of materials and elevation of pedestrian areas to provide more confidence and security to pedestrians. The proximity of the southern fuel station and car park entry is of concern.</li></ul>



	<ul> <li>f) Ensure the TIA extends to internal traffic movements rather than just external impacts.</li> <li><i>Recommendations</i> <ol> <li>Use changes of material to durably demarcate pedestrian crossing points.</li> <li>Review, as part of the TIA, truck turning movements to minimise crossover widths.</li> <li>Use materials and changes of level to enhance pedestrian safety at crossovers and crossing points.</li> </ol></li></ul>
Principle 9 <b>Community</b>	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.
Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) The proposed parklets are supported.</li> </ul> </li> <li>Areas for improvement <ul> <li>b) Investigate whether there is a public art requirement and, if so, what the public art strategy will be.</li> <li>c) Consider a pop-up use for the vacant site until it is developed.</li> </ul> </li> <li>Recommendations <ul> <li>Review the need for public art and, if so, identify a public art strategy.</li> <li>Consider a pop-up use for the vacant site (former car wash) until it is developed.</li> </ul> </li> </ul>
Principle 10 <b>Aesthetics</b>	Good design is the product of a skilled, judicious design process that results in attractive and inviting buildings and places that engage the senses.
Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) The material and colour palette responds to the rural qualities of the place, consistent with the centre master plan.</li> </ul> </li> <li>Areas for improvement <ul> <li>b) Whilst the muted colours are supported, there is some scepticism as to whether they will eventuate.</li> <li>c) Whist the corner feature on the service station is supported in principle, it needs to be brought to ground to be a meaningful architectural element, rather than tottering on the edge of the roof – a supporting blade wall would have the additional benefit of providing oblique sun shading to the</li> </ul></li></ul>



	adjacent glazing.
	<ul> <li>Recommendations</li> <li>1. Review the design of the corner feature of the service station with a preference to bring it to ground.</li> </ul>

Design Review progress					
	Supported				
	Pending furt	her attention			
	Not yet supp	ported			
	Yet to be ad	dressed	<b></b>	<b></b>	1
		DRP Meeting 1 11/06/24 Concept	DRP Meeting 2 30/07/24 Concept	DRP Meeting 3	DRP Meeting 4
Principle 1 - Context and character					
Principle 2 - Landscape quality					
Principle 3 - Built form and scale					
Principle 4 - Functionality and build quality					
Principle 5 - Sustainability					
Principle 6 - Am	Principle 6 - Amenity				
Principle 7 - Legibility					
Principle 8 - Safety					
Principle 9 - <b>Community</b>					
Principle 10 - Aesthetics					

### **Concluding Remarks**

#### Concluding comments

The Panel thanks the Applicant for returning to the DRP and the improvements that were made to the design. Developments such as these are challenging to review in the context of design quality because car-based drive-through development does not, as a rule, create good places.

Whilst the Panel accepts that these types are widely considered to be an essential part of the suburban environment by the community, that should not legitimise poor design outcomes. The Panel takes the view that these types of uses should function and respond to their



context as well as they possibly can – in other words; be the best version of themselves that they can be.

The Panel acknowledges that the proposed design is, in many ways, better than 'business as usual' for these types of development, and with some further amendments and a proper commitment to sustainability, it could be supported in the context of meeting the ten design principles of SPP7.

**Is the proposal required to go back to a future Design Review Panel Meeting?** Please tick one of the following:

- $\sqrt{\text{Yes}}$  future full panel design review
- □ No future chair review only
- □ No supported no further review required

Is the proposal supported?

Please tick one of the following:

 $\Box$  Yes - Supported

- $\sqrt{
  m Yes}$  Supported pending further attention and/or conditions to be imposed
- □ No Not supported

Desig	n Review Report
endo	rsement & DRP
Recor	nmendation

Malcolm Mackay DRP Chair



## **Design Review Report**

Location/Venue:	City of Swan Council Chambers - Midland Town Hall -
	312 Great Eastern Highway Midland
Meeting Date:	Tuesday 24 <sup>th</sup> September 2024
Meeting Time:	2:00pm

## Item 2: – Fast Food Outlet & Service Station – Lot 9015 Squadron Boulevard, BULLSBROOK – DRP-14/2024– 3<sup>rd</sup> DRP Meeting.

Design Review	Design Review Report		
Subject	Item 2 - Fast Food Outlet & Service Station – Lot 9015 Squadron Boulevard, BULLSBROOK		
Design Reviewers	Malcolm Mackay - Chairperson (Mackay Urban Design)		
	Brett Wood-Gush – Deputy Chairperson (Insight Urbanism)		
	Wayne Dufty – Panel Member (DNA Architects)		
	Peter Damen - Panel Member (Level 5 Design)		
Proponent &	Proponent & project team did not attend meeting.		
Project Team	Craig Graham – Okeland Communities		
	Graham Taylor – Place Fabric		
	Stephanie Voon – Place Fabric		
	Tim Trefry – Hatch		
Declarations	None.		

Design quality evaluation.		
Principle 1 Context and character		<i>Good design responds to and enhances the distinctive characteristics of a local area, contributing to a sense of place.</i>
Comments and Recommendation		<ul> <li>Strengths <ul> <li>a) Whilst the proposed uses are not the preferred ones to celebrate the entry to the town centre, they are, sadly, the economic reality of the suburban environment and it's better that they are here rather than in the main street.</li> <li>b) The service station has been formatted to provide some containment and address the street and the entry corner.</li> </ul></li></ul>
		Areas for improvement



Principle 2	<ul> <li>c) The loss of the car wash and more landscape is an improvement in principle, and the Panel is obliged to consider it as given. However, the capacity of this site to be developed in a meaningful way is still a question of concern.</li> <li>Recommendations         <ol> <li>None.</li> </ol> </li> </ul>
Landscape quality	buildings operate as an integrated and sustainable system, within a broader ecological context.
Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) The landscape design works hard to mitigate the inherent shortcomings of the proposed car-based uses.</li> <li>b) The extent of the landscape has improved from the original design.</li> <li>c) The parklet areas with casual seating are a positive inclusion.</li> <li>d) The shade tree provision to the perimeter pedestrian routes is extensive and supported.</li> <li>e) The plant selection appears to be logical, but the tree selection should be assessed for susceptibility to Shot Hole Borer.</li> <li>f) The use of different hardscape materials to help explain the use of hard surfaces is commendable.</li> </ul> </li> <li>Areas for improvement <ul> <li>g) None.</li> </ul> </li> <li>Review tree species for susceptibility to Shot Hole Borer prior to implementation, noting that the susceptibility list is in a state of flux.</li> </ul>
Principle 3 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.
Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) The built form is largely consistent in height, scale, and form for this type of use.</li> <li>b) Some effort has been made to provide an address to the street (service station) and the internal street (fast food) but a detailed cross-section is needed to assess whether the intent is realised through the relationship between glazing and the fit out, and the transparency of the glass.</li> </ul> </li> <li>Areas for improvement</li> </ul>



	<ul> <li>c) The site still reads as a collection of pad sites than an integrated development with any sense of place, with the landscape pulling the overall composition together.</li> <li>d) Whist the corner feature on the service station is supported in principle, it needs to be brought to ground to be a meaningful architectural element, rather than tottering on the edge of the roof.</li> <li>Recommendations <ol> <li>Provide a detailed cross section to demonstrate that the service station windows to the street provide functional transparency.</li> <li>Review the design of the corner feature of the service station with a preference to bring it to ground.</li> </ol> </li> </ul>
Principle 4 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.
Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) The design appears to be functional from a vehicle perspective.</li> <li>b) The material selection looks promising, consistent with the vision for the overall centre, and above the norm for this form of development.</li> </ul> </li> <li>Areas for improvement <ul> <li>c) None.</li> </ul> </li> <li>Recommendations <ul> <li>None.</li> </ul> </li> </ul>
Principle 5 Sustainability	<i>Good design optimises the sustainability of the built environment, delivering positive environmental, social and economic outcomes.</i>
Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) None.</li> </ul> </li> <li>Areas for improvement <ul> <li>b) Given that the proposed car-based uses in a suburban environment are Inherently unsustainable, the design needs to work hard from a sustainability perspective to make it 'less bad'.</li> <li>c) Prepare a sustainability strategy, utilising an ESD consultant if necessary.</li> <li>d) Review the service station with a view to futureproofing it to accommodate EV charging.</li> <li>e) Commit to provision of rooftop PV.</li> </ul> </li> </ul>



	<ul> <li>f) Review materials for savings on embodied energy and recyclability.</li> <li>g) Prioritise the encouragement of pedestrians and other forms of active transport.</li> <li><i>Recommendations</i> <ol> <li>Develop a comprehensive sustainability strategy with quantifiable/ verifiable commitments, noting the comments above.</li> </ol> </li> </ul>
Principle 6 <b>Amenity</b>	Good design optimises internal and external amenity for occupants, visitors and neighbours, providing environments that are comfortable, productive and healthy.
Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) The proposed parklets are supported.</li> <li>b) There is a generous level of shade to the perimeter pedestrian path.</li> </ul> </li> <li>Areas for improvement <ul> <li>c) Ensure the service area and drive-through to the fast-food outlet is sufficiently screened.</li> <li>d) Demonstrate that glazed areas are transparent and sufficiently shaded, and not obscured by film, tinted, or reflective glass needed to reduce heat load.</li> <li>e) Provide operable windows to enable heat purging.</li> <li>f) Consider utilising the corner glazing in the service station for a coffee window.</li> </ul> </li> <li>Recommendations <ol> <li>Provide adequate screening to the fast-food drive-through and service area consistent with the adjacent McDonalds proposal.</li> <li>Provide assurance that street-front glazing to the service station will be functional transparent.</li> </ol> </li> </ul>
Principle 7 <b>Legibility</b>	Good design results in buildings and places that are legible, with clear connections and easily identifiable elements to help people find their way around.
Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) The movement for vehicles is direct and well connected.</li> <li>b) The clarity of the surrounding path network has been improved.</li> <li>c) There is a reasonable level of both vehicle and pedestrian permeability.</li> </ul> </li> <li>Areas for improvement <ul> <li>d) Whilst an internal path has been included, it results</li> </ul> </li> </ul>



	<ul> <li>in a convoluted pathway between the two building with pedestrians more likely to take a short cut rather than use the path.</li> <li>Recommendations</li> <li>1. Review the internal pathway to provide a more direct pedestrian route between the two buildings.</li> </ul>
Principle 8 <b>Safety</b>	Good design optimises safety and security, minimising the risk of personal harm and supporting safe behaviour and use.
Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) The reduction in the number of crossovers is an improvement.</li> <li>b) The pedestrian crossing points are clarified (but the use of zebra stripes suggests a car-focussed rather than a people- focussed design approach – consider a material change rather than just a painted solution.</li> </ul> </li> <li>Areas for improvement <ul> <li>c) Concern remains about the impact of designing for truck movement on the pedestrian environment.</li> </ul> </li> </ul>
	<ul> <li>d) Consider changes of materials and elevation of pedestrian areas to provide more confidence and security to pedestrians.</li> <li>e) The proximity of the southern fuel station and car park entry remains an area of concern.</li> <li>f) Ensure the TIA extends to internal traffic movements by all vehicles (not just trucks) rather than just external impacts.</li> </ul>
	<ul> <li>Recommendations</li> <li>1. Use changes of material to durably demarcate pedestrian crossing points.</li> <li>2. Use materials and changes of level to enhance pedestrian safety at crossovers and crossing points.</li> <li>3. Review all internal movements from a safety perspective.</li> </ul>
Principle 9 <b>Community</b>	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.
Comments and Recommendation	Strengthsa) The proposed parklets are supported.Areas for improvement



	<ul> <li>b) Investigate whether there is a public art requirement and, if so, what the public art strategy will be.</li> <li>c) Consider a pop-up use for the vacant site until it is developed.</li> <li><i>Recommendations</i> <ol> <li><i>Review the need for public art and, if so, identify a public art strategy.</i></li> </ol> </li> <li>Consider a pop-up use for the vacant site (former car wash) until it is developed.</li> </ul>
Principle 10 <b>Aesthetics</b>	Good design is the product of a skilled, judicious design process that results in attractive and inviting buildings and places that engage the senses.
Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) The material and colour palette responds to the rural qualities of the place, consistent with the centre master plan.</li> </ul> </li> <li>Areas for improvement <ul> <li>b) Whilst the muted colours are supported, there is some scepticism as to whether they will eventuate.</li> <li>c) Whist the corner feature on the service station is supported in principle, it needs to be brought to ground to be a meaningful architectural element, rather than tottering on the edge of the roof – a supporting blade wall would have the additional benefit of providing oblique sun shading to the adjacent glazing.</li> </ul> </li> <li>Recommendations <ul> <li>Review the design of the corner feature of the service station with a preference to bring it to ground.</li> </ul> </li> </ul>



Design Review progress.					
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	Pending furt	her attention			
	Not yet supp	ported			
	Yet to be ad	dressed		Γ	
		DRP Meeting 1 11/06/24 Concept	DRP Meeting 2 30/07/24 Concept	DRP Meeting 3 24/09/24 Concept	DRP Meeting 4
Principle 1 - Context and character					
Principle 2 - Landscape quality					
Principle 3 - Built form and scale					
Principle 4 - Functionality and build quality					
Principle 5 - Sus	stainability				
Principle 6 - Amenity					
Principle 7 - Legibility					
Principle 8 - Saf	ety				
Principle 9 - Cor	nmunity				
Principle 10 - Ae	esthetics				

#### **Concluding Remarks**

#### **Concluding comments**

The Panel thanks the Applicant for provided an updated version of the plans and supporting information. However, the Panel is of the view that the changes are minimal, other than introduction of a footpath and fall short of the Panel's expectations. In this respect, the design report remains much the same as before, albeit edited to acknowledge the changes made.

Whilst the Panel accepts that these types are widely considered to be an essential part of the suburban environment by the community, that should not legitimise lesser design outcomes. The Panel takes the view that these types of uses should function and respond to their context as well as they possibly can – in other words; be the best version of themselves that they can be.

The Panel acknowledges that the proposed design is, in many ways, better than 'business as usual' for these types of development, and with some further amendments and a demonstrated commitment to sustainability, it could be supported in the context of meeting the ten design principles of SPP7.



 Is the proposal required to go back to a future Design Review Panel Meeting?

 Please tick one of the following:

 Yes - future full panel design review

 √ No - future chair review only

 No - supported - no further review required

 Is the proposal supported?

 Please tick one of the following:

 Yes - Supported

 √ Yes - Supported

 √ Yes - Supported - pending further attention and/or conditions to be imposed

 No - Not supported

 Design Review Report

 endorsement & DRP

 Recommendation

 Malcolm Mackay

 DRP Chair



#### Chair Review Date: Monday 13 January 2025

# Item: Fast Food Outlet & Service Station – Lot 9015 Squadron Boulevard, BULLSBROOK – DRP-14/2024 & DA-806/2024

Design Review Report				
Subject	ast Food Outlet & Service Station – Lot 9015 Squadron Boulevard, ULLSBROOK			
Design Reviewers	Malcolm Mackay - Chairperson (Mackay Urban Design)			
Proponent & Project Team	Okeland Communities/ Place Fabric/ Hatch			
Declarations	None.			

Design quality evaluation	Design quality evaluation		
Principle 1 Context and character		Good design responds to and enhances the distinctive characteristics of a local area, contributing to a sense of place.	
Comments and Recommendation		<ul> <li>Strengths <ul> <li>a) Whilst the proposed uses are not the preferred ones to celebrate the entry to the town centre, they are, sadly, the economic reality of the suburban environment and it's better that they are here rather than in the main street.</li> <li>b) The service station has been formatted to provide some containment and address the street and the entry corner.</li> </ul> </li> <li>Areas for improvement <ul> <li>c) The loss of the car wash and more landscape is an improvement in principle. However, further clarity around whether it is interned to be developed in the future of retained as landscape amenity would be of value.</li> </ul> </li> <li>Recommendations <ul> <li>Clarify the intended use of the south-eastern portion of the site – whether it will be retained as landscape amenity, or whether it is intended to be developed.</li> </ul> </li> </ul>	
Principle 2 Landscape quality		Good design recognises that together landscape and buildings operate as an integrated and sustainable	



	system, within a broader ecological context.
Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) The landscape design works hard to mitigate the inherent shortcomings of the proposed car-based uses.</li> <li>b) The extent of the landscape has improved from the original design.</li> <li>c) The parklet areas with casual seating are a positive inclusion.</li> <li>d) The shade tree provision to the perimeter pedestrian routes is extensive and supported.</li> <li>e) The plant selection appears to be logical, but the tree selection should be assessed for susceptibility to Shot Hole Borer.</li> <li>f) The use of different hardscape materials to help explain the use of hard surfaces is commendable.</li> </ul> </li> <li>Areas for improvement <ul> <li>g) None.</li> </ul> </li> <li>Review tree species for susceptibility to Shot Hole Borer prior to implementation, noting that the susceptibility list is in a state of flux.</li> </ul>
Principle 3 Built form and scale Comments and Recommendation	<ul> <li>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.</li> <li>Strengths         <ul> <li>a) The built form is largely consistent in height, scale, and form for this type of use.</li> <li>b) Some effort has been made to provide an address to the street (service station) and the internal street (fast food) but a detailed cross-section is needed to assess whether the intent is realised through the relationship between glazing and the fit out, and the transparency of the glass.</li> <li>c) The relationship between the convenience store corner element and the building below has improved.</li> </ul> </li> <li>Areas for improvement         <ul> <li>d) The site still reads as a collection of pad sites than an integrated development with any sense of place, with the landscape pulling the overall composition together. However, that is, unfortunately, the nature of this type of development.</li> </ul> </li> </ul>



	1. The City should consider a condition of approval that requires glazing to the convenience store that faces the street to be visually permeable with clear glass, without applied film or highly reflective coating, and largely free of obstruction by internal shelving.
Principle 4 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.
Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) The design appears to be functional from a vehicle perspective.</li> <li>b) The material selection looks promising, consistent with the vision for the overall centre, and above the norm for this form of development.</li> </ul> </li> <li>Areas for improvement <ul> <li>c) None.</li> </ul> </li> <li>Recommendations <ul> <li>None.</li> </ul> </li> </ul>
Principle 5 Sustainability	Good design optimises the sustainability of the built environment, delivering positive environmental, social and economic outcomes.
Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) None.</li> </ul> </li> <li>Areas for improvement <ul> <li>b) Given that the proposed car-based uses in a suburban environment are Inherently unsustainable, the design needs to work hard from a sustainability perspective to make it 'less bad'.</li> <li>c) Prepare a sustainability strategy, utilising an ESD consultant if necessary.</li> <li>d) Review the service station with a view to futureproofing it to accommodate EV charging.</li> <li>e) Commit to provision of rooftop PV.</li> <li>f) Review materials for savings on embodied energy and recyclability.</li> <li>g) Prioritise the encouragement of pedestrians and other forms of active transport.</li> <li>h) Investigate through the detailed design process the provision of operable windows and/or roof vents to enable heat purging and reduce the AC burden.</li> </ul> </li> <li>Recommendations</li> </ul>



	<ol> <li>Develop a comprehensive sustainability strategy with quantifiable/ verifiable commitments, noting the comments above.</li> <li>The City should consider a condition of approval that requires a sustainability strategy to its satisfaction, prior to Building Permit.</li> </ol>
Principle 6 Amenity	Good design optimises internal and external amenity for occupants, visitors and neighbours, providing environments that are comfortable, productive and healthy.
Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) The proposed parklets are supported.</li> <li>b) There is a generous level of shade to the perimeter pedestrian path.</li> <li>c) The landscape provides a reasonable amount of screening to the service drive-through components of the fast-food outlet, without compromising the capacity for passive surveillance from the pay/collection windows.</li> </ul> </li> <li>Areas for improvement <ul> <li>d) Demonstrate that glazed areas are transparent and sufficiently shaded, and not obscured by film, tinted, or reflective glass needed to reduce heat load.</li> </ul> </li> <li>Recommendations <ul> <li>The City should consider a condition of approval that requires glazing to the convenience store that faces the street to be visually permeable with clear glass, without applied film or highly reflective coating, and largely free of obstruction by internal shelving.</li> </ul></li></ul>
Principle 7 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.
Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) The movement for vehicles is direct and well connected.</li> <li>b) The clarity of the surrounding path network has been improved.</li> <li>c) There is a reasonable level of both vehicle and pedestrian permeability.</li> </ul> </li> <li>Areas for improvement <ul> <li>d) Whilst an internal path has been included, it results in a convoluted pathway between the two building with pedestrians more likely to take a short cut rather than use the path.</li> </ul></li></ul>



	<ul> <li>Recommendations</li> <li>1. Review the internal pathway to provide a more direct pedestrian route between the two buildings.</li> <li>2. The City should consider a condition of approval that requires a clear and relatively direct safe pedestrian path between the two buildings to reduce the risk of ad-hoc pedestrian movement across the fuel forecourt and internal roads.</li> </ul>
Principle 8 Safety	Good design optimises safety and security, minimising the risk of personal harm and supporting safe behaviour and use.
Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) The reduction in the number of crossovers is an improvement.</li> <li>b) The pedestrian crossing points are clarified (but the use of zebra stripes suggests a car-focussed rather than a people-focussed design approach – a material change rather than just a painted solution would be a more pedestrian-friendly approach.</li> </ul> </li> <li>Areas for improvement <ul> <li>c) The risk of ad-hoc pedestrian movement across the fuel forecourt and internal road network remains a concern.</li> </ul> </li> <li>Recommendations <ul> <li>Review the internal pathway to provide a more direct pedestrian route between the two buildings.</li> </ul> </li> <li>The City should consider a condition of approval that requires a clear and relatively direct safe pedestrian path between the two buildings to reduce the risk of ad-hoc pedestrian movement across the fuel forecourt and across the fuel forecourt and relatively direct safe pedestrian path between the two buildings to reduce the risk of ad-hoc pedestrian movement across the fuel forecourt and internal roads.</li> </ul>
Principle 9 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.
Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) The proposed parklets are supported.</li> </ul> </li> <li>Areas for improvement <ul> <li>b) Investigate whether there is a public art requirement and, if so, what the public art strategy will be.</li> </ul> </li> </ul>



	<ul> <li>c) Consider a pop-up community use for the vacant site until it is developed or confirm it will be retained as landscape amenity.</li> <li><i>Recommendations</i> <ol> <li><i>Review the need for public art and, if so, identify a public art strategy. It is noted that there is likely to be a standard condition of approval regarding public art.</i></li> <li><i>Clarify the intended use of the south-eastern portion of the site – whether it will be retained as landscape amenity, or whether it is intended to be developed. If the latter, consider a pop-up community use for the vacant site (former car wash) until it is developed.</i></li> </ol> </li> </ul>
Principle 10 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.
Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) The material and colour palette responds to the rural qualities of the place, consistent with the centre master plan.</li> </ul> </li> <li>Areas for improvement <ul> <li>b) None.</li> </ul> </li> <li>Recommendations <ul> <li>None.</li> </ul> </li> </ul>

Design Review progress					
	Supported				
	Pending furt	her attention			
	Not yet supp	ported			
	Yet to be ad	dressed			
		DRP Meeting 1 11/06/24 Concept	DRP Meeting 2 30/07/24 Concept	DRP Meeting 3 24/09/24 Concept	Chair review 13/01/25
Principle 1 - Context and character					
Principle 2 - Landscape quality					
Principle 3 - <b>Built form and</b> scale					
Principle 4 - Functionality and					



build quality		
Principle 5 - Sustainability		
Principle 6 - Amenity		
Principle 7 - Legibility		
Principle 8 - Safety		
Principle 9 - Community		
Principle 10 - Aesthetics		

#### Concluding Remarks

#### **Concluding comments**

The Panel thanks the Applicant for provided an updated version of the plans and supporting information. It is noted that the changes, again, are minimal.

Despite the reluctance to achieve a good design outcome at the main entrance to a new activity centre, the Panel acknowledges that the proposed design is, in many ways, better than 'business as usual' for these types of development and is of the view that the design can be supported as an acceptable response to the 10 design principles of SPP7 subject to the suggested conditions of approval.

In this respect, the Panels lingering concerns include the ability of the glazing to the convenience store to establish a meaningful visual relationship with the adjacent streets, the lack of commitment at this stage in the design process to sustainability, and the risks arising from ad-hoc pedestrian movement across the fuel forecourt and internal roads because of the circuitous and inconvenient nature of the proposed footpath network.

**Is the proposal required to go back to a future Design Review Panel Meeting?** Please tick one of the following:

□ Yes – future full panel design review

□ No – future chair review only

 $\sqrt{NO}$  – supported – no further review required

Is the proposal supported?

Please tick one of the following:

□ Yes - Supported

- $\sqrt{\text{Yes}}$  Supported pending further attention and/or conditions to be imposed
- □ No Not supported

Design Review Report endorsement & DRP Recommendation	H.	
	Malcolm Mackay	
	DRP Chair	

## Part B – Item 3.3 – LOT 5002 SQUADRON BOULEVARD, BULLSBROOK – PROPOSED CHILD CARE PREMISES

DAD Nomer	Matua Outan
DAP Name:	Metro Outer
Local Government Area:	City of Swan
Applicant:	Apex Planning (Alessandro Stagno)
Owner:	Fabcot Pty Ltd
Value of Development:	\$3 million
Responsible Authority:	City of Swan
Authorising Officer:	Jonathan Lendich – Coordinator
	Development Assessment & Appeals
LG Reference:	DA-1001/2024
DAP File No:	DAP/25/02849
Application Received Date:	03/01/2025
Report Due Date:	31 March 2025
Application Statutory Process	60 Days with an additional 32 days agreed
Timeframe:	
Attachment(s):	1. Location Plan
	2. Development Plans
	a) Cover Sheet
	b) Site Plan
	c) Floor Plan
	d) Roof Plan
	e) Elevations
	<li>f) Section and Fence Details</li>
	g) Perspectives
	Other reports not subject of approval
	Other reports not subject of approval
	3. Planning Report
	4. Landscape Plan – 12 March 2025
	5. Transport Impact Statement – 13
	December 2024
	6. Acoustic Assessment – 17 December
	2024
	7. Waste Management Plan – 13
	December 2024
	8. Endorsed Design Review Report – 29
	October 2024
	<ol> <li>Endorsed Design Review Report - 28 January 2025</li> </ol>
	10. Endorsed Design Review Report (Chair
	Review) – 28 March 2025
	11. Applicants Response to FIR – Received
	17 March 2025

Form 1 – Responsible Authority Report (Regulation 12)

**Officer Recommendation** 

That the Metro Outer Development Assessment Panel resolves to:

**Approve** DAP Application reference DAP/25/02849 and Accompanying Plans in accordance with Clause 68 of Schedule No.2 (Deemed Provisions) of the *Planning and Development (Local Planning Schemes) Regulations 2015*, and the provisions of Clause 10.3 of the City of Swan Local Planning Scheme No.17, subject to the following conditions:

- 1. This decision constitutes planning approval only and is valid for a period of 4 years from the date of approval. If the subject development is not substantially commenced within the specified period, the approval shall lapse and be of no further effect.
- 2. This approval is for a 'Child Care Premises' as defined under the City of Swan Local Planning Scheme No.17 and the subject land may not be used for any other use without prior approval of the City of Swan.
- 3. The approved 'Child Care Premises' is to comply in all respects with the attached approved plans, as dated, marked and stamped. The plans approved as part of this application form part of the development approval issued.
- 4. The 'Child Care Premises' is limited to a maximum number of 92 children and 16 staff at any given time.
- 5. The hours of operation shall be limited to 6.30am to 6.30pm Monday to Friday.
- 6. **Prior to the lodgement of a building approval**, a Statement of Sustainability shall be submitted to the satisfaction of the City of Swan. The Statement of Sustainability shall address, but is not limited to, sustainable construction materials, recycling, good waste management practices, re-use of materials and existing structures (where applicable), harnessing of renewable energy sources, analysis of summer heat gain through windows and total water cycle management. The Statement of Sustainability is to be complied with for the duration of the construction of the development.
- 7. **Prior to occupation or use of the development**, 28 car parking bays on-site must be provided on the lot in accordance with the approved plans. The design of vehicle parking and access must comply with AS/NZ 2890.1 (as amended). Accessible parking bays must comply with AS/NZ 2890.6 (as amended).
- 8. Vehicle parking, access and circulation areas must be sealed, kerbed, drained and maintained to the satisfaction of the City of Swan, in accordance with the approved plans.
- 9. All crossovers must be built and maintained in accordance with the City of Swan's specifications.
- 10. Vehicle access onto the site shall be restricted to that shown on the approved site plan.
- 11. **Prior to occupation or use of the development**, all noise attenuation measures, identified by the Environmental Noise Assessment (Reference: 24099433-01) prepared by Lloyd George Acoustics, dated 17 December 2024,

are to be implemented and the requirements of the Environmental Noise Assessment are to be observed at all times, specifically:

- a. The installation of a 2.1m high solid fence, free of gaps with a minimum surface mass of 8kg/m2 along the north and northwest sides of Play Area 1 and Play Area 3; and
- b. The outdoor play area not being used prior to 7.00am.
- 12. **Prior to the lodgement of an occupancy permit**, an acoustic study of the mechanical services shall be undertaken once the design has been finalised and submitted for approval to the City of Swan. Mechanical services shall be installed in accordance with an approved acoustic study and maintained thereafter to the satisfaction of the City of Swan.
- 13. The noise generated by activities on-site, including machinery motors or vehicles is not to exceed the levels as set out under the *Environmental Protection (Noise) Regulations 1997*.

Noisy Construction Work outside the period 7.00am to 7.00 pm Monday to Saturday and at any time on Sundays and Public Holidays is not permitted unless a Noise Management Plan for the construction site has been approved in writing by the City.

- 14. Waste collection is to be in accordance with the approved Waste Management Plan prepared by Talis Consultants (Reference: WMP24106, dated 13 December 2024). The Waste Management Plan must be implemented at all times to the satisfaction of the City of Swan.
- 15. Waste collection is to be limited to between 7.00am and 7.00pm Monday to Saturday and between 9.00am and 7.00pm on Sundays and Public Holidays unless further evidence, to the satisfaction of the City of Swan is provided that compliance can be achieved with the *Environmental Protection (Noise) Regulations 1997* outside of those times.
- 16. The refuse bin area shall be in compliance with the City of Swan Health Local Law 2002 and shall be provided to the satisfaction of the City of Swan prior to the occupation of the development.
- 17. **Prior to the lodgement of a building approval**, a detailed playscape, landscaping and reticulation plan shall be submitted, and approved by the City of Swan, addressing the location, densities, and species as well as verge treatments.
- 18. The approved landscaping plan must be implemented prior to occupation of the development, and maintained thereafter, to the satisfaction of the City of Swan. Any species that fails to establish within the first two (2) planting seasons following implementation must be replaced in consultation with, and to the satisfaction of, the City of Swan.
- 19. **Prior to the lodgement of a building approval**, a pedestrian connectivity plan must be submitted to and approved to the satisfaction of the City of Swan which includes a walkway along the southern façade.

- 20. All air conditioning units, plant and roof equipment and other external fixtures are to be screened from view from the surrounding streets and adjoining properties to the satisfaction of the City of Swan.
- 21. All building works to be carried out under this development approval are required to be contained within the boundaries of the subject lot.
- 22. No goods or materials being stored, either temporarily or permanently, in the parking or landscaping areas or within access driveways.
- 23. External lighting shall comply with the requirements of AS 4282 Control of Obtrusive Effects of Outdoor Lighting.
- 24. External illumination shall not flash or pulsate to the satisfaction of the City of Swan.
- 25. All signs must be placed on private property and must not overhang or encroach the road reservation.
- 26. No bunting is to be erected on the site (including streamers, streamer strips, banner strips or decorations of similar kind).
- 27. **Prior to the lodgement of a building approval**, stormwater disposal plans, details and calculations must be submitted for approval by the City of Swan and thereafter implemented, constructed and maintained on-site to the satisfaction of the City of Swan.
- 28. All stormwater must be contained and disposed of on-site at all times, to the satisfaction of the City of Swan.
- 29. The development shall be connected to the reticulated sewerage system.
- 30. The colours, materials and finishes of the development shall be in accordance with the details and annotations as indicated on the approved plans which forms part of this approval, to the satisfaction of the City of Swan.
- 31. **Prior to an occupancy permit being issued**, the landowner must contribute a sum of 1% of the total development construction value toward Public Art in accordance with the City of Swan Local Planning Policy for the Provision of Public Art (POL-LP-1.10), by either:
  - a) Payment to the City of Swan a cash-in-lieu amount equal to the sum of the 1% contribution amount (\$25,500 with the applicable 15% discount). This must be paid to the City of Swan prior to the date specified in an invoice issued by the City of Swan, or prior to the issuance of an occupancy permit for the approved development, whichever occurs first; or
  - Provision of Public Art on-site to a minimum value of the 1% contribution amount (\$30,000). The following is required for the provision of Public Art on-site:
    - i. the landowner or applicant on behalf of the landowner must seek approval from the City for a specific Public Art work including the artist proposed to undertake the work to the satisfaction of the City

in accordance with POL-LP-1.10 and the *Developers' Handbook for Public Art* (as amended). The City of Swan may apply further conditions in regard to the proposed Public Art;

- ii. no part of the approved development may be occupied or used until the Public Art has been installed in accordance with the approval granted by the City of Swan; and,
- iii. the approved Public Art must be maintained in compliance with the approval granted by the City of Swan and any conditions thereof, to the satisfaction of the City of Swan.
- 32. No goods or materials being stored, either temporarily or permanently, in the parking or landscaping areas or within access driveways.
- 33. External lighting shall comply with the requirements of AS 4282 Control of Obtrusive Effects of Outdoor Lighting.
- 34. External illumination shall not flash or pulsate to the satisfaction of the City of Swan.
- 35. Any additional development, which is not in accordance with the application (the subject of this approval) or any condition of approval, will require further approval of the City of Swan.

Region Scheme	Metropolitan Region Scheme
Region Scheme -	Urban
Zone/Reserve	
Local Planning Scheme	Local Planning Scheme No.17
Local Planning Scheme - Zone/Reserve	Residential Development
Structure Plan/Precinct Plan	Bullsbrook Townsite District Structure Plan
	Bullsbrook Central Local Structure Plan
	Kingsford Town Centre Precinct Plan
Structure Plan/Precinct Plan	General Commercial
- Land Use Designation	
Use Class and	Childcare Premises - 'P' Use
permissibility:	
Lot Size:	4.1699 ha
Existing Land Use:	Vacant Land
State Heritage Register	No
Local Heritage	⊠ N/A
	Heritage List
	□ Heritage Area
Design Review	
	Local Design Review Panel
	□ State Design Review Panel
	□ Other

#### Details: outline of development application

Bushfire Prone Area	No
Swan River Trust Area	No

#### Proposal:

The City of Swan has received a Development Assessment Panel application from Apex Planning on behalf of their client for a proposed 'Child Care Premises' at Lot 5002 Squadron Boulevard, Bullsbrook. It is noted that the development is proposed over a 2,487m<sup>2</sup> north-western portion of the lot with the remainder of the subject site for an approved shopping centre and future development.

The development proposes a new single storey building comprising six (6) internal activity rooms and an outdoor play area along with associated signage and landscaping. The child care premises is designed to accommodate a maximum of 92 children and a minimum of 16 staff with operating hours from 6.30am-6.30pm Monday to Friday.

A total of 28 bays are proposed to be provided on site accessed via a 6.85-metre-wide full movement crossover to the adjoining western shopping centre access driveway.

#### Background:

The subject site is located at Lot 5002 Squadron Boulevard, Bullsbrook. The subject land is zoned 'Residential Development' under the City of Swan Local Planning Scheme No.17 (LPS17) and 'Urban' in the Metropolitan Region Scheme (MRS).

The development site is situated in the north-western portion of Lot 5002, adjacent Squadron Boulevard which is vacant and generally cleared ready for commercial development.

The Western Australian Planning Commission (WAPC) granted conditional approval (WAPC 161872) on 8 July 2022 for subdivision of the subject site, in accordance with the structure plan layout. The proposed development is located within a 4ha site being Lot 5002 under the approved subdivision. There has been subsequent subdivision approval (WAPC 164065) on 4 April 2024 of Lot 5002 into seven lots, however titles are yet to be issued.

The Metro Outer DAP granted approval (DAP/22/02400) on 31 March 2023 for Mixed Commercial Development (Shopping Centre). This approval occupies the northeastern part of the subject site and includes Consulting Rooms, Fast Food Outlet, Medical Centre, Office, Restaurant, Shop (including a Supermarket), Recreation – Private and associated large car parking area.

The development site is subject to the Bullsbrook Townsite District Structure Plan, the Kingsford Bullsbrook Central Revised Local Structure Plan and the Kingsford Town Centre Precinct Structure Plan. The development site is identified as being 'General Commercial' within the Kingsford Town Centre Precinct Plan and is located within the 'Retail' character area.

#### Legislation and Policy:

#### Legislation

- Planning & Development Act 2005
- Metropolitan Region Scheme (MRS)
- Planning and Development (Local Planning Schemes) Regulations 2015
- Planning and Development (Development Assessment Panels) Regulations 2011
- Local Planning Scheme No.17

#### State Government Policies

- State Planning Policy 5.4 Road and Rail Noise
- State Planning Policy 7.0 Design of the Built Environment

#### Structure Plans/Activity Centre Plans

- Bullsbrook Townsite District Structure Plan
- Kingsford Town Centre Precinct Structure Plan

#### Local Policies

- POL-TP-125 Building and Development Standards Commercial Zones
- POL-LP-1.10 Provision of Public Art
- POL-LP-1.13 Design Review
- POL-C-070 Advertising Signs within Commercial and Industrial Zones

#### Local Development Plans

• Kingsford Estate Local Development Plan

#### **Consultation:**

#### Public Consultation

No public consultation was undertaken for this proposal with the site being located within a large undeveloped commercial area and significant separation distance from sensitive land uses.

#### Referrals/consultation with Government/Service Agencies

No referrals undertaken.

#### Design Review Panel Advice

In accordance with State Planning Policy 7.0 – Design of the Built Environment, the Proposal was presented to the City of Swan's Design Review Panel to undertake a Design Review of the proposed development. This is discussed in the Planning Assessment section of this report.

#### Planning Assessment:

#### Zoning and Use Class Permissibility

Under the City of Swan's Local Planning Scheme No.17 (LPS17), the subject site is located within the 'Residential Development' zone. The land is subject to an approved local structure plan which identifies the subject land as having a nominal zoning of 'General Commercial'. The use of the land for a 'Child Care Premises' is a permissible use in a general commercial zone which means that the use is permitted by the Scheme provided the use complies with the relevant development standards and the requirements of the Scheme.

The objectives of the 'General Commercial' zone are listed as follows:

- a) encourage those uses necessary to provide convenience shopping of the lower order outside the Strategic Regional Centre;
- b) avoid development of land for any purposes or in any manner likely to compromise development of the Strategic Regional Centre or the efficient distribution of commercial services within the district;
- c) ensure development provides a high level of visual attraction at street level, and does not unduly detract from the visual amenities of adjacent residential areas;
- d) ensure any on-site advertising is integrated with the overall site development and does not detract from the amenities of the adjacent area;
- e) promote the development of continuous commercial frontages and the integration of adjacent commercial development so as to facilitate pedestrian access to and within commercial areas;
- f) enhance the amenities of the area and the development of a more sustainable environment through the use of complementary landscaping, including shade trees and stormwater recharge facilities.

#### Objective (a)

Objective (a) is not relevant to this proposal as the development site is located within the Strategic Regional Centre.

#### Objective (b)

The proposed child care premises is not considered to compromise development of the Strategic Regional Centre as it is a permissible land use within the general commercial zone and is consistent with the intended use of the site and intent of the structure plan.

#### Objectives (c) to (f)

The question as to whether the proposed development does not unduly detract from the visual amenities of adjacent residential areas, promotes pedestrian integration, and enhances the amenities of the area through sustainable design can be measured against proposed noise and traffic generation as well as site planning and built form, which are addressed further in the report.

#### Kingsford Town Centre Precinct Structure Plan

In addition to the above, the development site is identified as being within the 'Retail' character area within the Kingsford Town Centre Precinct Plan which have the following guiding principles:

#### <u>Retail</u>

Vision: The retail heart of the Town Centre and will accommodate a mix of retail uses in a shopping centre development and associated car parking. The guiding principles for this character area include:

- Provides a welcoming and convenient shopping district centre and environment for the Kingsford Community;
- Public community spaces that provides a safe and attractive environment for pedestrians;
- Integration and synergy between Main Street and the shopping complex; and
- Shaded car parking areas.

The establishment of a child care premises within the Retail character area is considered most appropriate, as the use is well-suited to coexisting with retail-style development. It is also ideally located near the Town Centre's main employment generator (the Shopping Centre), ensuring accessibility by both car and foot and providing benefits to both residents and workers.

The consideration of compliance against the 'guiding principles' of the 'Retail' character area has also been addressed through consideration of the site planning and built form further in the report.

#### State Planning and Built Form

The development has been considered against State Planning Policy 7.0 – Design of the Built Environment. State Planning Policy 7.0 outlines the 10 principles for good design and establishes the framework for integrating design review as part of the evaluation process. The City of Swan's Local Planning Policy POL-LP-1.13 Design Review requires all Development Assessment Panel applications be subject to the design review process.

The development in the form of a pre-lodgement application was presented at the City of Swan's Design Review Panel meeting on 29 October 2024. The lodged application was presented at the City of Swan's Design Review Panel meeting on 28 January 2025 and a further review was undertaken in the form of a chair review by Design Review Panel chairperson on 28 March 2024.

The final Design Review comments conclude support for the development, with comments regarding recommended conditions of approval in respect to the provision of a sustainability statement report. The panel also recommend a condition requiring a detailed landscaping and playscape plan, and a pedestrian connectivity plan. City of Swan staff consider conditions will address the remaining concerns raised by the Design Review.

Through the evolution of the proposal through the design review process, it is considered the proposal also generally complies with the 'development standards' set out within Part 3.5 of the Kingsford Town Centre Precinct Structure Plan with architectural character, built form and scale an appropriate typology for an emerging urban centre.

In light of the above, City of Swan staff and the Design Review Panel consider that subject to suitably worded conditions, the proposed child care premises meets the 10 design principles of State Planning Policy 7.0 and the 'development standards' within the Kingsford Town Centre Precinct Structure Plan.

#### Local Planning Policy POL-TP-125 – Building and Development Standards Commercial Zones

POL-TP-125 applies to all development within the general commercial zone. Although the subject site and surrounding area is yet to be developed, it can be readily assumed the scale of the child care premises will be consistent with the future streetscape of the Bullsbrook town centre which will consist of retail, commercial, cultural and entertainment uses as per the objective of the structure plan.

There is a minor variation to landscaping requirements. POL-TP-125 requires landscaping to cover a minimum 10% of the total site area, amounting to a requirement of 248.7sqm. In lieu of this, the development proposes landscaping coverage of 176.1sqm (7.08%). This represents a technical variation of 72.6sqm (2.92%). Notwithstanding, the design review panel concluded the provision of landscaping satisfied principle two (2) 'landscape quality' of SPP 7.0. Moreover, it is expected further landscaping will be provided within the outdoor play area following the submission of a detailed landscaping plan, which is required as a condition of approval.

In regard to setbacks, table one (1) of POL-TP-125 states these are to be negotiated with council. However the application is subject to Part 3.5 'development standards' of the Kingsford Town Centre Precinct Structure Plan which allows buildings within the 'Retail' character area to be constructed with a nil to 10 metre setback to lot boundaries. The rear setback is 20 metres in lieu of the permitted 10 metres to accommodate the parking lot. The variation is acceptable given the parking lot will be located in the rear and screened from Boomerang Road, while also configuring the parking lot adjacent to the shopping centre car park.

City of Swan staff consider the proposed child care premises is overall consistent with the requirements of POL-TP-125 Building and Development Standards - Commercial Zones.

#### Kingsford Estate Town Centre Local Development Plan

The site is subject to a local development plan which applies to all development on the subject lot. The proposal is considered to comply with the built form requirements of the local development plan.

Notably, the proposed development satisfies the built form provisions of the LDP which requires buildings to be located within the indicative envelopes. Furthermore, the site is accessed via the designated vehicles access points and service vehicles can enter and exit the property in a forward gear as demonstrated in the provided turning path analysis provided the parking lot is empty.

#### Traffic, Access and Parking

The structure plan identifies car parking standards for the various Character Areas within the town centre. The proposed child care premises was assessed against those rates prescribed for the 'retail' character area, which requires four (4) car spaces per 100sqm of NLA. Based on these standards, the development requires 28 parking spaces. The application has provided 28 on-site parking spaces. Parking is therefore compliant.

The Traffic Impact Assessment (TIA) prepared and submitted in support of the application concludes the development will have negligible impact on the surrounding road network. The traffic generated by the proposed child care forms part of the anticipated traffic generation of the Kingsford Town Centre Precinct which was been planned for as part of the approved structure plan. Parking bays and manoeuvring within the site meet AS2890.1 as demonstrated in the provided swept path analysis, however a waste truck will only be able to manoeuvre the site if the car park is empty, therefore waste collection is proposed outside operating hours.

Access to the development is proposed via one (1) full movement crossover from the internal road which connects to Boomerang Road. The submitted TIA details that the proposed development is expected to generate approximately 80 vehicle trips (46 in / 34 out) during the AM peak period, with a daily traffic generation of 322 trips. The estimated vehicle movements are within the capacity of the adjacent road network with City of Swan staff concurring with these findings.

City staff concur with the findings of the TIA insofar that the existing road network can accommodate the additional traffic generated by the proposed development and will not place undue stress on the existing infrastructure.

#### <u>Noise</u>

The Applicant has provided an Environmental Noise Assessment prepared by Lloyd George Acoustics in support of the proposal. The noise assessment concludes that noise emissions from the proposed land use complies with the *Environmental Protection (Noise) Regulations 1997* provided the 2.1-metre-high solid fencing shown on the development plans is constructed. It is noted, the mechanical plant sources were based on file data and manufacturer specifications, therefore an acoustic study of the mechanical services should be further reviewed once the plan has been designed12 and selected.

It is recommended that, should the application be approved, a condition be included requiring the submission an acoustic study of the mechanical services once the design has been finalised.

#### State Planning Policy 5.4 – Road and Rail Noise

The subject site is located in a road traffic noise area, and the child care premises is classified as a noise-sensitive land use. As a result, SPP 5.4 applies to the proposal. A noise exposure forecast screening assessment under SPP 5.4 indicates that traffic noise levels for the child care premises are 52 dB. As the development falls below the

outdoor noise target, no further noise mitigation measures are required to address the policy.

## Local Planning Policy POL-C-070 - Advertising Signs within the Commercial and Industrial Zones

The development includes brand-specific wall-mounted and wayfinding signage. No pylon signage has been proposed. City staff are satisfied that the proposed signage does not create an unnecessary proliferation of signage on site and has been designed to integrate into the proposed development site and the context of its surroundings. As such, the proposed signage is deemed appropriate and complies with the relevant provisions of the City's Local Planning Policy POL-C-070 Advertising Signs within the Commercial and Industrial Zones and Part 3.6 of the Kingsford Town Centre Precinct Structure Plan.

#### Local Planning Policy POL-LP-1.10 - Provision of Public Art

The City of Swan's Provision of Public Art Policy requires the proponent to make a contribution to Public Art. This can be either a cash-in-lieu contribution of \$25,500 (being 1% of the estimated \$3 million development cost inclusive of the applicable 15% discount per the Policy), or the provision of Public Art onsite to the value of \$30,000. This is recommended as a condition of approval should the development be approved.

#### Conclusion:

The City of Swan has received an application for a 'Child Care Premises' over a portion of Lot 5002 Squadron Boulevard, Bullsbrook. The land use is a 'P' use which means that the use is permitted by the Scheme provided the use complies with the relevant development standards and the requirements of the Scheme.

The development is considered to appropriately address the City of Swan Local Planning Scheme No.17, Local Planning Policies and The Kingsford Town Centre Precinct Structure Plan. This is reinforced through the outcomes of the Design Review which concluded that the development meets the Design Principles of State Planning Policy 7.0 – Design of the Built Environment, subject to conditions.

It is also concluded that the development has provided the required number of car parking spaces on-site. The City of Swan is also satisfied that the estimated traffic generated by the development can be accommodated within the existing road network with no material impact as demonstrated by the provided Transport Impact Statement.

It is recommended that the Metro Outer Development Assessment Panel approve the application, subject to conditions.



# PROPOSED CHILDCARE CENTRE SPITFIRE STREET, BULLSBROOK W.A.



SHEET NUMBER

DA00 DA01 DA02 DA03 DA04 DA05 DA06

## **GENERAL NOTES**

DIMENSIONS TO BE VERIFIED ON SITE PRIOR TO COMMENCEMENT, PREPARATION OF SHOP DRAWINGS OR MANUFACTURING. FIGURED DIMENSIONS TAKE PRECEDENCE OVER SCALING. VERIFY LOCATION OF EXISTING SERVICES BEFORE COMMENCEMENT.

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH THE NATIONAL CONSTRUCTION CODE OF AUSTRALIA, RELEVANT STATE BUILDING ACT AS AMENDED, STANDARD BUILDING BY-LAWS AND RELEVANT AUSTRALIAN STANDARDS.

В	CITY OF SWAN DESIGN REVIEW	11/03/20
А	DEVELOPMENT APPLICATION	19/12/20
ISSUE	DESCRIPTION	DATE





## DRAWING REGISTER PLANNING

SHEET NAME	ISSUE	DESCRIPTION	DATE
COVER SHEET	В	CITY OF SWAN DESIGN REVIEW	11/03/2025
SITE PLAN	В	CITY OF SWAN DESIGN REVIEW	11/03/2025
FLOOR PLAN	В	CITY OF SWAN DESIGN REVIEW	11/03/2025
ROOF PLAN	В	CITY OF SWAN DESIGN REVIEW	11/03/2025
ELEVATIONS	В	CITY OF SWAN DESIGN REVIEW	11/03/2025
SECTION & FENCE DETAILS	В	CITY OF SWAN DESIGN REVIEW	11/03/2025
PERSPECTIVES	В	CITY OF SWAN DESIGN REVIEW	11/03/2025

CLIENT:	LOCATION:	SCALE
Jarra Property	Lot 1000 Boomerang Road Bullsbrook WA	DRAW
PROJECT: Proposed Childcare Centre (92 places)	DRAWING TITLE: COVER SHEET	CHECK
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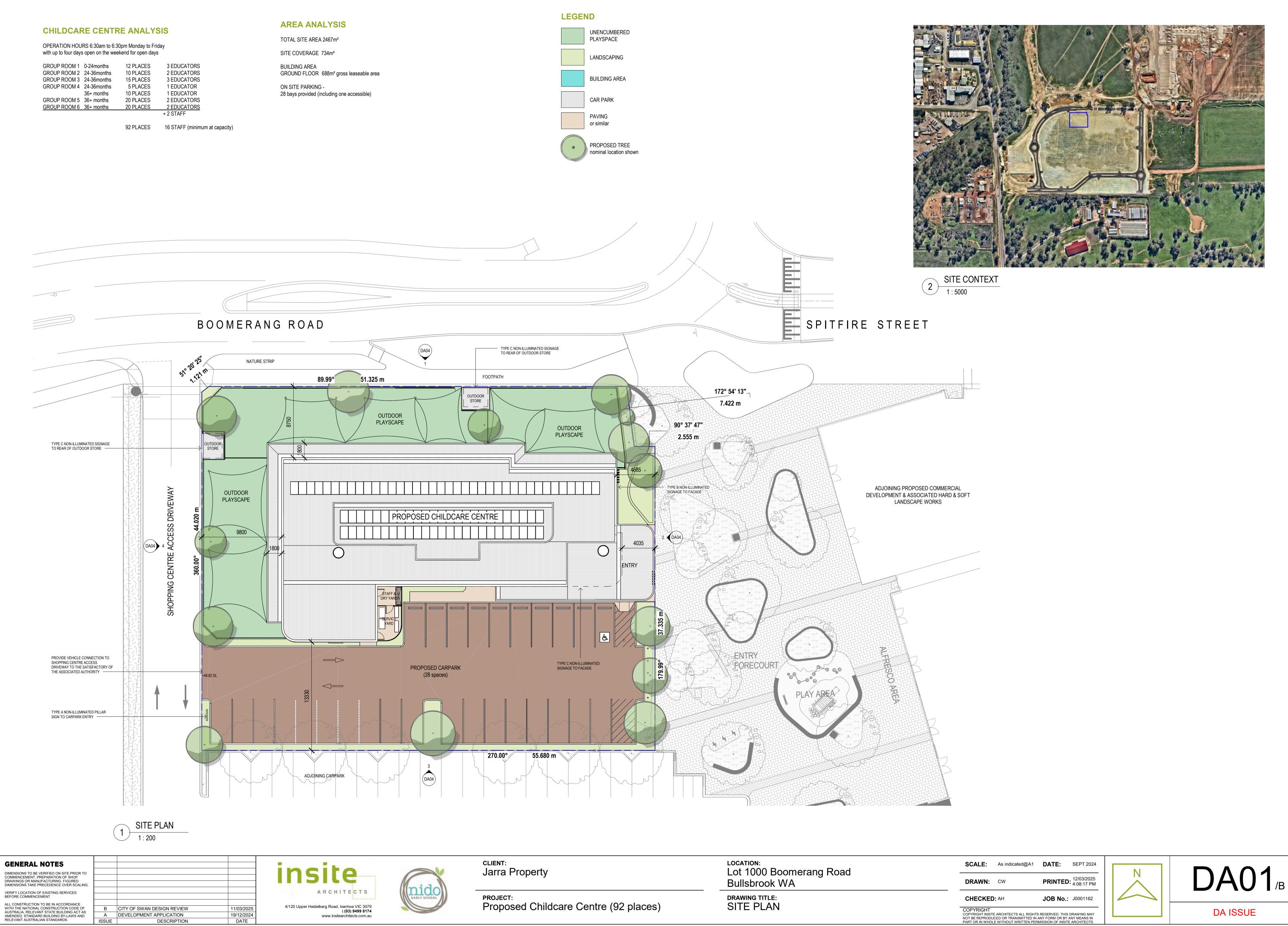


ISSUE

DESCRIPTION

DATE

GROUP ROOM 1	0-24months	12 PLACES	<b>3 EDUCATORS</b>	
GROUP ROOM 2	24-36months	10 PLACES	2 EDUCATORS	
GROUP ROOM 3	24-36months	15 PLACES	3 EDUCATORS	
GROUP ROOM 4	24-36months	5 PLACES	1 EDUCATOR	
	36+ months	10 PLACES	1 EDUCATOR	
GROUP ROOM 5	36+ months	20 PLACES	2 EDUCATORS	
GROUP ROOM 6	36+ months	20 PLACES	2 EDUCATORS	

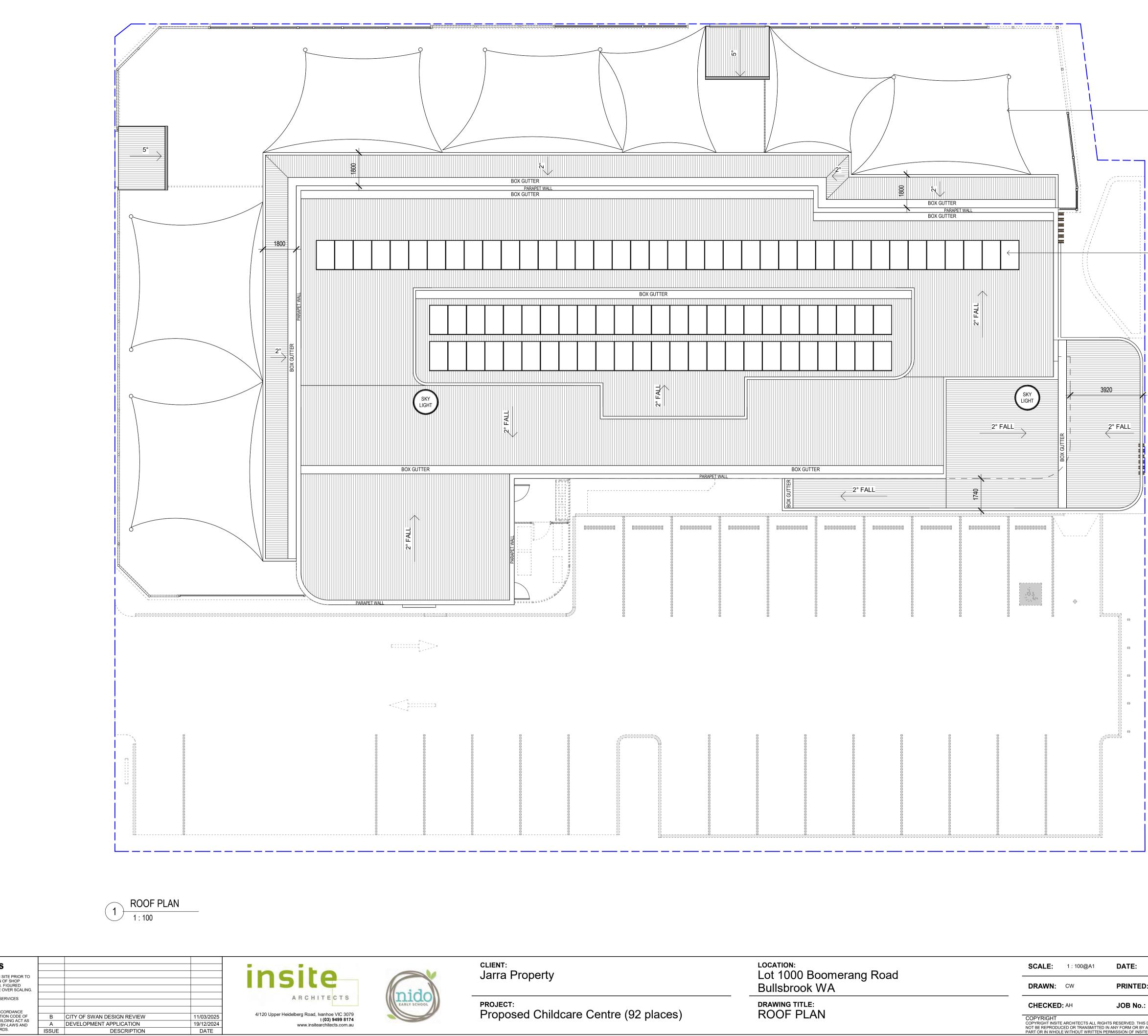


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19/12/2024 DATE

DESCRIPTION

www.insitearchitects.com.au

CLIENT:		
Jarra Prop	erty	

DRAWING TITLE: ROOF PLAN

- NOMINAL SHADE SAILS SHOWN ON DESIGN. LOCATION TO BE CONFIRMED WITH LANDSCAPE ARCHITECT AT DOCUMENTATION STAGE TO ENSURE COHESION WITH THEIR DESIGN

PROVIDE 25KW SOLAR SYSTEM TO ROOF - SIZE, QUANTITY AND LAYOUT OF PANELS TO BE CONFIRMED BY INSTALLER

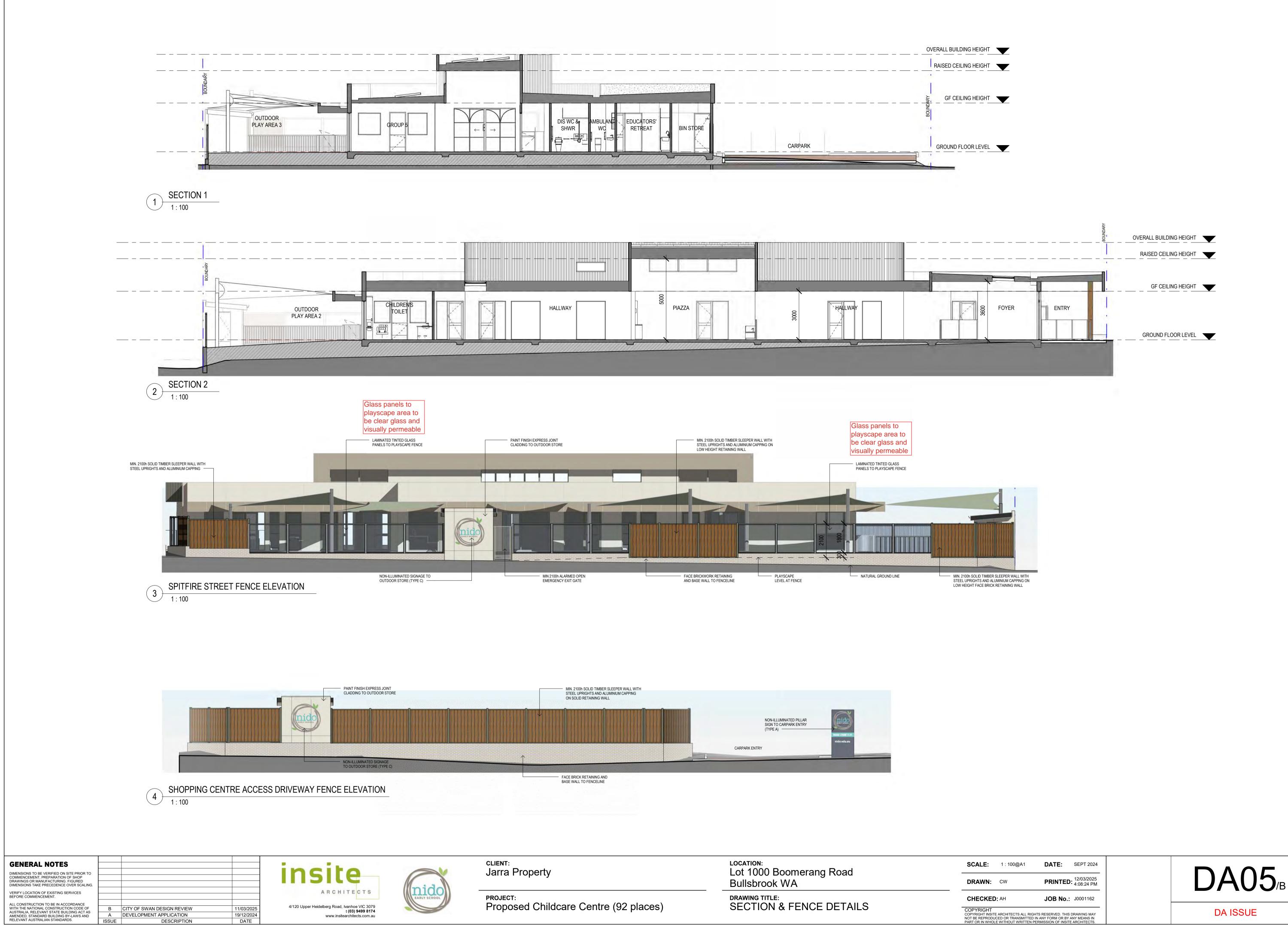
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#### PERSPECTIVE 1 SHOPPING CENTRE ACCESS DRIVEWAY (1)



#### **GENERAL NOTES**

DIMENSIONS TO BE VERIFIED ON SITE PRIOR TO COMMENCEMENT, PREPARATION OF SHOP DRAWINGS OR MANUFACTURING. FIGURED DIMENSIONS TAKE PRECEDENCE OVER SCALING. VERIFY LOCATION OF EXISTING SERVICES BEFORE COMMENCEMENT.

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В	CITY OF SWAN DESIGN REVIEW	11/03/2025
А	DEVELOPMENT APPLICATION	19/12/2024
ISSUE	DESCRIPTION	DATE







сцелт: Jarra Property

PROJECT: Proposed Childcare Centre (92 places)

LOCATION: Lot 1000 Boomerang Road Bullsbrook WA DRAWING TITLE: PERSPECTIVES

SCALE: DRAW

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# **Proposed Child Care Premises**

Application for Planning Approval



Future Lot 1000 Spitfire Street, Bullsbrook

December 2024

apex planning



Future Lot 1000 Boomerang Road, Bullsbrook

Prepared for Jarra Property

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#### 1 INTRODUCTION

Apex Planning has produced this application for planning approval on behalf of Jarra Property, with regard to a new child care premises proposed on a portion of Lot 5002 Spitfire Street, Bullsbrook which will be identified as Lot 1000 at the completion of subdivision (hereafter referred to as the **development site**).

The proposal would establish a brand new child care facility within the emerging Kingsford Town Centre, complementing the adjacent shopping centre which is currently under construction. The facility will provide education and care services for 92 children.

Child Care Premises is a 'P' permitted use on the site by virtue of its zoning allocation as General Commercial under the Kingsford Town Centre Precinct Plan, and will add to the vibrancy of the Town Centre with a responsive design and layout.

The proposal is supported by a number of expert reports which demonstrate its suitability for establishment on the development site. The proposed development warrants the support of the City of Swan and the approval of the Metro Outer DAP.

#### 1.1 PRE-LODGEMENT DESIGN REVIEW

The proposed development was considered at a pre-lodgement Design Review Panel (**DRP**) meeting on 29<sup>th</sup> October 2024. The Panel's feedback principally related to perceptions around land use suitability which informed the vast majority of comments in relation to the ten principles. Whilst the DRP feedback was helpful in advancing elements of the design, the applicable planning framework must be recognised, noting:

- The core of the Town Centre is allocated a zoning of General Commercial which corresponds to the same zone in Local Planning Scheme No.17 (LPS17). Child Care Premises is a 'P' permitted use in the General Commercial zone.
- The site is part of the Retail character area of the Town Centre, which is distinctly different to the Main Street character area. The Retail character area is identified as the "retail heart" of the Town Centre and envisaged to accommodate a shopping centre development and associated car parking.
- The Precinct Plan notes that Stage 1 of the Town Centre (which includes the development site) is likely to include child care, and specifically references the inclusion of childcare facilities as an "area of focus" as part of a key strategy to "establish anchor tenants as early as possible, and focus on a curated tenancy mix in strategic locations".
- The proponent of this development has no influence or control over how other parts of the Town Centre are to be developed, and has acquired the development site on the basis of what is permissible under the applicable planning controls.

The design has been amended based on the feedback received from the DRP, and **Appendix 1** contains a response to the DRP1 comments.



#### 2 LAND DESCRIPTION

#### 2.1 LOT DETAILS AND ENCUMBRANCES

The land subject of this application for planning approval is described in **Table 1** below.

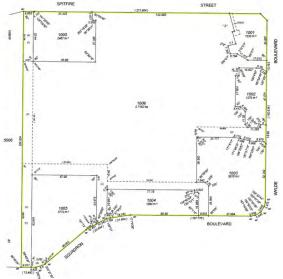
Table 1: Lot details				
Lot	<b>Deposited Plan</b>	Volume	Folio	Ownership
5002	426855	4051	402	Fabcot Pty Ltd

The Certificate of Title is provided at **Appendix 2**. The CT for Lot 5002 contains the following encumbrances:

- An easement burden to Western Power located at the eastern end of the lot (not relevant to the development site).
- Two notifications to advise that High Voltage infrastructure is bonded and that the site is subject to a Bushfire Management Plan.
- An easement burden for access purposes along the western side of Lot 5002, which provides rights of access between Boomerang Road (north) and Squadron Boulevard (south).

#### 2.2 APPROVED SUBDIVISION

In April 2024, the WAPC granted condition approval for the green title subdivision of Lot 5002 to create seven green-title lots (WAPC ref 164065). The development site is identified as future Lot 1000, comprising an area of 2,487sqm as shown on the below extract of draft Deposited Plan 424635:



As part of the approved subdivision, the development site will have benefit of the shared use of a 9.8m wide driveway to its western side via a Right of Carriageway easement established in accordance with s.136C of the *Transfer of Land Act 1893*. The approved subdivision is in the process of completion by the current landowner and understood to be substantially progressed, with completion anticipated in Q1 2025.



### **3 CONTEXTUAL CONSIDERATIONS**

The following sub-sections describe the contextual characteristics of the site and local area. Refer to **Figure 1: Aerial Photo** on the subsequent page, which illustrates the development site and surrounds.

#### 3.1 REGIONAL CONTEXT

In terms of regional context, the development site is within the Perth metropolitan region, in the locality of Bullsbrook. The site is located approximately:

- 35km north-east of the Perth CBD;
- 26.5km east of the Joondalup Strategic Centre; and
- 13.5km north-east of the Ellenbrook Secondary Centre.

As per the Kingsford Town Centre Precinct Plan, Squadron Boulevard along the town centre's southern periphery will provide a linkage to Great Northern Highway. Great Northern Highway is a major transport route for the metropolitan region, connecting Midland to the northern outer localities (including Bullsbrook).

#### 3.2 LOCAL CONTEXT

The development site forms part of the emerging Kingsford Town Centre, identified as a District Centre in accordance with *State Planning Policy 4.2 Activity Centres*. The Town Centre will service the growing residential community at Kingsford estate located further north and the surrounding established suburb of Bullsbrook.

In accordance with the Kingsford Town Centre Precinct Plan, the Town Centre is divided into five character areas. The development site is within the Retail character area, which forms part of the commercial core of the Town Centre.

At the time of preparing this report, the delivery of the Town Centre is still underway. The main perimeter roads of the core of the town centre (Boomerang Road, Spitfire Street, Wylde Boulevard, Squadron Boulevard) have been constructed, but the formal linkages to the established external road network are still yet to be constructed.

In terms of the intended composition of the core of the Town Centre as per the Precinct Plan, Spitfire Street (located east of the site) is identified as the 'main street', whilst Boomerang Road, Squadron Boulevard, and Wylde Boulevard are connector roads offering linkages to the wider Kingsford estate.

The development site has sole road frontage to Boomerang Road to the north but is also bounded by a vehicular access driveway along its western boundary. Beyond Boomerang Road to the north is a planned Public Open Space corridor with land allocated as Residential R40-R60.



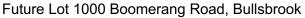
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Immediately east and south of the development site is an approved supermarket development which effectively forms the 'anchor' of the Town Centre. The approved development includes a 3,600sqm supermarket with specialty tenancies, a pedestrian plaza connecting to Spitfire Street, and multiple car parking areas with associated vehicular driveways. The construction of the approved supermarket development is currently underway. At completion of the supermarket development, the development site will adjoin the pedestrian plaza to the east, a car park to the south, and a shared vehicular driveway to the west.

To the west of the development site is undeveloped land also forming part of the Retail character area of the town centre.

In terms of topography, the development site has a fall of approximately 1 metre from its north-eastern corner to its south-western corner with levels ranging from 49.75m AHD to 48.75m AHD.





#### 4 PROPOSED DEVELOPMENT

The proposal involves the establishment of a new high quality early learning facility on the development site. The development plans, which include a 3D images, are provided at **Appendix 3**. The facility will provide early learning and care services for up to 92 children, catering for the following age groups:

0-2 years: 12 2-3 years: 30 3+ years: 50 Total: 92

The early learning centre will typically operate 6:30am-6:30pm Monday to Friday, offering a high level of convenience for the emerging population of the Kingsford estate and improving the vibrancy of the Town Centre.

The facility will complement the adjoining shopping centre development (a significant employment generator for the locality), providing the future residents of Kingsford estate as well as the businesses and employees of the Town Centre with access to critically needed childcare services.

A minimum of 16 staff would cater for the needs of children in accordance with the ratios of the relevant childcare regulatory requirements, with a small number of additional support staff intermittently attending the facility during off-peak periods to enable the efficient operation of the centre.

The layout and design of the proposed facility addresses the provisions of the Kingsford Town Centre Precinct Plan, and responds to local characteristics (noting the construction of an adjacent supermarket development which includes a pedestrian plaza is currently underway). The design approach involves the following key elements:

- The childcare building positioned centrally within the development site, addressing its wide northern frontage to Boomerang Road with the internal activity spaces and external play area receiving northern sun for high amenity.
- The car park containing 28 spaces positioned at the southern side of the site, where it adjoins the approved car park of the supermarket. The car park will be screened from view of Boomerang Road and the main street by the building.
- An interactive and aesthetic edge to the pedestrian plaza along the eastern side of the development site, achieved through a generous covered entry area at the eastern side of the building with incorporation of windows and permeable fence panels to the playscape.
- Playscape wrapping around the northern and western sides of the building, interacting with Boomerang Road and the pedestrian plaza.
- A considered landscape approach which ensures consistency and integration with the wider landscaping arrangements of the town centre. This includes shade trees in the car park, feature trees within the playscape, and a feature landscape area north of the entry interfacing with the pedestrian plaza.

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The proposed building is designed in a contemporary commercial format but with distinct features to reinforce the Kingsford 'country town' character which is encouraged by the Precinct Plan.

The building is single storey with an elevated central roof feature which contains clerestory windows facing north and south, optimising the amount of sunlight and daylight within the internal spaces.

The building's colour palette includes a combination of earthy timber-style and light colour tones, consistent with the architectural approach of other key buildings in the Bullsbrook locality.

The architectural approach involves the use of vertical batten features in varying textures and colours to accentuate elements of the façade and add layers of visual interest. Timber battens are used at the eastern side of the building as feature columns and a timber lapped fence along the site periphery to reference the 'country town' character sought by the Precinct Plan, with some inspiration taken from other key developments in the wider Bullsbrook locality.

A generously sized covered entry area at the south-eastern corner of the building provides a welcoming space accessible via both the car park and the adjoining pedestrian plaza, providing parents and children with a sense of openness as they enter the reception / foyer which has a 3.6m ceiling height. The entry includes a feature canopy and curved building edge in a feature 'hit and miss' facebrick finish which adds layers of detailing and texture.

The car park is accessed via a 6.85 metre wide vehicle connection to the adjoining western shopping centre access driveway. The car park contains 28 parking bays (including an ACROD bay) and a turning bay with reversing space for unimpeded vehicle movement. Two bike spaces are provided beneath the entry canopy.

A consolidated area is provided at the rear of the building which contains provision for drying and mechanical plant. The area is enclosed with a fence and will not be visible to the public realm. The bin store is internalised within the building and accessible to the car park via a rollerdoor.

In terms of fencing, the facility provides:

- Along the playscape facing Boomerang Road and the adjoining pedestrian plaza, a 2.1m high fence with timber lapped styling for solid sections, and the incorporation of permeable glass panels for surveillance and interactivity.
- Along the shopping centre access driveway, a 2.1m high solid timber lapped fence above a low retaining wall.

The fences include feature 'pop up' elements with a Nido logo which provide a varied top of fence height and improve the articulation of the fence where visible from the public realm.

The development provides a suitable response to its location, and will complement the Kingsford Town Centre.



#### 4.1 LANDSCAPING

The proposed development features a high-quality landscaping approach, illustrated within the landscape plan provided at **Appendix 4**. The landscape arrangements include:

- Landscape buffer planting along the periphery of the car park, with seven shade trees strategically deployed to ensure no interference with trees planted in the adjoining shopping centre car park.
- The playscape containing shade structures and additional six trees planted within deep soil to add an element of greenery where visible from the street and an element of natural shade.
- A feature landscape planting area within the eastern setback of the building, to integrate with the planting arrangements for the adjoining pedestrian plaza and improve the aesthetic response to the plaza.

#### 4.2 TRAFFIC ASSESSMENT

The proposed development is supported by a Transport Impact Statement (**TIS**) produced by Transcore. The TIS is provided at **Appendix 5**.

With regard to traffic generation, the TIS concludes that the AM and PM peak trip generation is estimated at 80 and 65 trips respectively, resulting in an insignificant impact to the surrounding road network.

The TIS also contains swept path diagrams demonstrating the satisfactory movements of a 10m long waste collection vehicle within the site.

The development is acceptable from a traffic and access point of view.

#### 4.3 ACOUSTIC COMPLIANCE

An environmental noise assessment has been produced by Lloyd George Acoustics in accordance with statutory requirements. This is provided at **Appendix 6**.

The acoustic assessment demonstrates compliance is achievable from outdoor play, car park noise, and mechanical plant at all times. It is noted that mechanical plant noise should be verified at detailed design stage, once mechanical plant has been designed and selected (as per standard practice).

#### 4.4 WASTE AND SERVICING

A waste management plan has been produced by Talis which outlines the waste storage and collection arrangements of the development, provided at **Appendix 7**.

The proposed development provides a suitably sized bin storage area which is internal to the building and accessible to the car park by a rollerdoor.

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The bin store is sized to accommodate 2x 660L bins for general waste and 2x 660L bins for recyclables, enabling two collections per week for each waste stream.

Swept path plans are included with the TIS (**Appendix 5**) which demonstrate a 10m waste collection vehicle can comfortably enter and exit the car park in a forward gear.

Waste receptacles and collection activity will be undertaken by a private contactor, with suitable arrangements to be put in place at the time of entering into a waste contract for the facility.

The bin store is to be designed in accordance with the City's specifications and compliant with any health regulations, including the provision of a tap with wash-down facilities and a drain connected to the site's reticulated sewer system. The bin store will be regularly cleaned and maintained to a high standard to prevent offsite impact.

#### 5 STATUTORY PLANNING ASSESSMENT

#### 5.1 METROPOLITAN REGION SCHEME

The development site and adjoining land is zoned Urban under the MRS. The proposal seeks approval for a child care premises, an important urban support service and land use which is entirely consistent with the Urban zone.

#### 5.2 STATE PLANNING POLICY 3.7 BUSHFIRE

The subject development is not affected by any 'bushfire prone' areas and hence SPP3.7 is not applicable.

## 5.3 STATE PLANNING POLICY 7.0 DESIGN OF THE BUILT ENVIRONMENT

The development has undergone a pre-lodgement design review process, where the development was assessed against the ten principles of SPP7.0. A response to the recent comments of DRP1 is provided at **Appendix 1**.

#### 5.4 CITY OF SWAN LOCAL PLANNING SCHEME NO.17 (LPS17)

5.4.1 ZONING AND LAND USE

The development site is zoned Residential Development under the City's LPS17. Refer to **Figure 2 – Zoning / Structure Plan Map**.

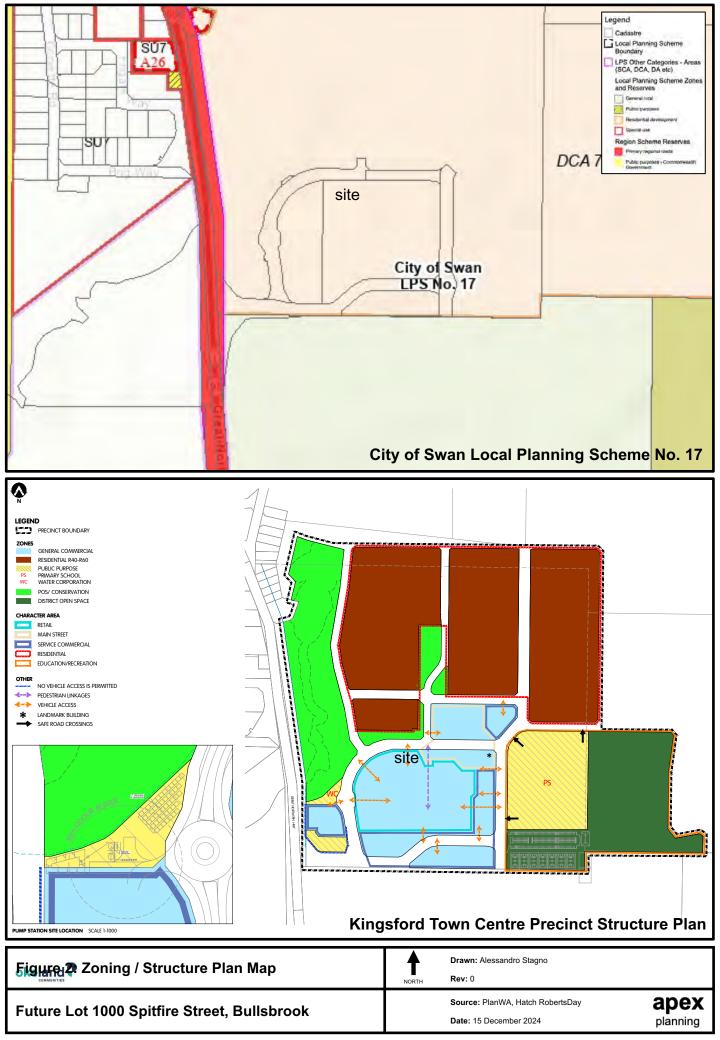
Development and subdivision within the Residential Development zone is required by the guided by a comprehensive Structure Plan.

The Kingsford Town Centre Precinct Plan (**PP**) is applicable to the Town Centre area, and allocates a zoning of General Commercial to the development site. Under Section 3.4 of the PP, the zones of the PP correspond to the same zones within LPS17 and shall have the same land use permissibility.

Child Care Premises is a 'P' permitted use in the General Commercial zone of LPS17 and is therefore appropriate for establishment on the development site by virtue of its PP designation. The establishment of a child care premises on the site (a nonresidential community based activity) will improve the vibrancy of the Town Centre and is entirely consistent with the land use intent set out by the PP.

#### 5.4.2 SCHEME REQUIREMENTS AND DEVELOPMENT STANDARDS

There are no development standards provided in LPS17 that are applicable to the proposed development. An assessment against the relevant / applicable structure plan, local development plan, and local planning policies is provided later in this report.



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#### 5.5 KINGSFORD TOWN CENTRE PRECINCT PLAN

Development and subdivision within the Kingsford Town Centre is guided by the applicable Precinct Plan (**PP**). Section 3.12 of Part 1 of the PP notes it to be the *"key statutory document to guide land use permissibility, built form and layout for the Town Centre"*.

As outlined earlier in this report, the development site is allocated a zoning of General Commercial by the PP which corresponds to the same zone of LPS17, where Child Care Premises is identified as a 'P' permitted use.

Under Section 3.12 of Part 1, child care is specifically identified as a use to be established as part of Stage 1 of the Town Centre development. This is furthered by Section 3.4 of Part 2, which specifically references the inclusion of childcare facilities in the Town Centre as an "area of focus" as part of a key strategy to "establish anchor tenants as early as possible, and focus on a curated tenancy mix in strategic locations".

The staging plan of the PP is extracted below for reference:



The Town Centre is divided into five 'character areas' and the Retail, Main Street, and Service Commercial character areas encompass the Stage 1 area shown above.

Whilst Child Care Premises is widely recognised as being an adaptable land use, its establishment within the Retail character area of the Stage 1 area is considered to be the most appropriate, because:

• It ensures the Main Street character area can be developed with uses which optimise the activation of the Main Street (ie Spitfire Street), both day and night per its 'vision' and 'guiding principles'.

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- It preserves land within the Service Commercial character area for those uses which will require a suitable amount of land area for 'big box' style development and associated parking / servicing areas, as well as any alternate car-based uses (ie drive-through fast food and petrol station) which are more appropriately located on the edge of the Town Centre per its 'vision' and 'guiding principles'.
- The Child Care Premises use will most easily co-exist with retail style development, and is also most suitably positioned closest to the main employment generator of the Town Centre (ie the Shopping Centre) where it can have optimised accessibility both by car and foot, ensuring benefit to both residents and workers.

An assessment against the development standards of the Retail character area is provided in **Table 2** below.

Table 2: assessment against Retail c	haracter area development standards
Standard	Response
<b>Building height</b> Maximum height 10.5 metres (parapet height) above natural ground level is permitted. Architectural features and minor projections may extend above the maximum height at the discretion of the local authority.	The proposed development is generally single storey in scale and achieves a maximum height of 6.2m.
Building setbacks Front / side / rear: nil to 10m in order to accommodate landscaping, vehicle access, and circulation, but not vehicle parking.	<ul> <li>The proposed building achieves compliant setbacks to its northern (Boomerang Road), western (Shopping Centre access driveway), and eastern (pedestrian plaza) boundaries which are each up to 10m.</li> <li>However, the building setbacks to the southern boundary (adjoining the Woolworths car parking areas) exceed 10 metres to facilitate the provision of an onsite car parking area. Discretion is warranted in this instance, noting: <ul> <li>Child Care is a use which inherently requires an onsite parking provision to cater to the needs of parents for drop off and pick up activity. The site planning of the development has carefully configured the layout of the facility in a way which places the onsite car parking next to the Shopping Centre car park.</li> <li>The layout of the development ensures that the car park is screened from view of the site's road frontage to Boomerang Road. Alternative car park from Boomerang Road and/or the pedestrian plaza.</li> </ul> </li> <li>Having regard for the above, the proposed setback and layout arrangements are</li> </ul>
	acceptable.
Building frontage Clear and legible entry	The child care entry is highly legible and designed in a way which facilitates access via both the car park and the adjoining pedestrian plaza. The entry is framed with a feature canopy

	-	
		and uses timber batten columns and vertical batten style finish along the building façade to ensure it is clearly identifiable through architectural expression.
	<ul> <li>All elevations shall be well detailed and presentable where visible to the public</li> <li>Articulation shall be provided to avoid large expanses of blank facade</li> <li>Locate all delivery, stores, bin enclosures and other services or plant areas away from the entry (and visually screened from public view)</li> <li>All entries shall be clearly defined and shall be accessed via legible pathways</li> <li>The architectural design across all buildings shall ensure variations in the built form including materials, colours and textures</li> </ul>	<ol> <li>As is evident from the development plans, all elevations visible from the public realm are appropriately articulated with architectural features, including the proposed street fencing facing Boomerang Road which includes permeable glass panels for surveillance and interactivity. The fencing facing the western boundary to the shopping centre access driveway comprises a combination of vertical timber lapping panels atop retaining with a feature panel containing the Nido logo which offers further articulation and a variation in the top of fence height.</li> <li>As is evident from the development plans, there are no "large expanses" of blank façade.</li> <li>The bin store is internalised and the service yard is tucked away at the rear of the building and enclosed with a timber look batten screen where it is not evident from the public realm.</li> <li>The entry is clearly defined as explained under the 'building frontage' requirements, and is accessed via clearly delineated pathways from within the site car park and the adjoining pedestrian plaza.</li> <li>The architectural design adopts various materials, textures, and finishes with a layered roof form resulting in a well articulated built form response.</li> </ol>
Ca 1. 2. 3.	carspaces per 100sqm of NLA	<ol> <li>688sqm of GLA is proposed which requires 27.5 parking bays. The development provides 28 parking bays.</li> <li>28 parking bays require 7 shade trees, and 7 shade trees are proposed within the car park.</li> <li>The development provides 2 covered bike parking spaces and EOT is provided within the building, noting the UAT contains a shower and is next to the educators' retreat which contains lockers.</li> </ol>

The PP also contains provisions relating to signage at Section 3.6. The development proposes a modest extent of signage compared to a typical retail development, comprising:

- A 2.4m high freestanding car park pillar sign located at the entry to the car park, allowing the clear delineation of the car park for Nido patrons only.
- A 2.2m diameter Nido logo sign on the eastern façade (one only).
- A 1.8m diameter Nido logo sign on the southern building façade, and integrated on the Boomerang Road fence and the shopping centre access driveway fence (three total).

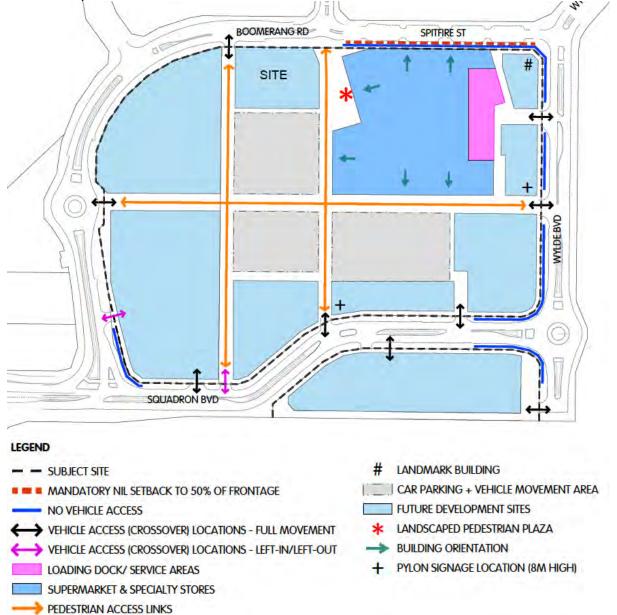


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The signage demonstrates restraint and is integrated with the architectural styling and design on the development. The proposed signage warrants support.

## 5.6 LOCAL DEVELOPMENT PLAN – TOWN CENTRE, KINGSFORD ESTATE

In accordance with Section 3.7 of the PP, a Local Development Plan (**LDP**) is applicable to the Town Centre which encompasses the development site. The LDP was endorsed by the City in March 2024. An extract of the LDP is provided below with the development site indicated:



The development site is identified as 'future development sites' and adjoins a vehicle access (full movement) and pedestrian access link to the west, the landscaped pedestrian plaza with pedestrian access link to the east, and a car parking + vehicle movement area to the south.

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A key consideration in relation to the LDP is the way the adjacent shopping centre development will be delivered, which in some respects informs the way development on the subject site can/should be executed.

The shopping centre development includes the creation of a landscaped pedestrian plaza which will interface with the development site at its eastern boundary. As outlined in earlier sections of this report, the subject development has been designed to respond to the pedestrian plaza interface through the location of the building entry, its architectural design response, and its landscaping response.

A critical element to note is that the shopping centre development has established a car park access driveway along the western side of the development site, which links between Boomerang Road and Squadron Boulevard. The car park access driveway is covered by an access easement to provide rights of vehicular access, and will not be created as a formal road reserve with verges.

The shopping centre car park access driveway does not include any pedestrian footpath linkage between Boomerang Road and Squadron Boulevard. The effect of this, is that it would render any requirement for the subject development to provide a pedestrian footpath along its western boundary redundant.

The pedestrian plaza is intended to be a pedestrian focal point of the town centre, and hence it would be counterintuitive to provide any alternative pedestrian routes along the western side of the development site as this would draw foot traffic away from the plaza. The way the subject development has been formulated, ensures that any pedestrians using the centre would be funnelled through the plaza via the footpath network along Boomerang Road (if coming from the north or west) and/or Spitfire Street (if coming from the north or east) which achieves the underlying intent for the plaza. The arrangements also ensure the shopping centre car park driveway is kept clear of pedestrians which appropriately separates vehicle dominant spaces from areas for pedestrian movement.

With the above taken into consideration, the proposed development aligns with the LDP by:

- Providing its only vehicular access point to the western side, enabling vehicle access via the shopping centre car park access driveway which is covered by an easement affording rights of access.
- Encouraging pedestrians to only use the plaza if arriving at the centre on foot or by bicycle, which optimises foot traffic through the plaza to the benefit of the specialty shops and kiosk within the plaza.

Table 3: assessment against LDP provisions		
Provision Response		
General provisions		
1. The provision of this Local Development Plan (LDP) constitute variations to the local planning policy framework. Compliance with the LDP will	Noted.	

**Table 3** below provides a response against the provisions of the LDP.



**Application for planning approval** Future Lot 1000 Boomerang Road, Bullsbrook

not require consultation with adjoining and/or nearby landowners. Minor variations to the requirements of this LDP may be approved by the City of Swan.       Land use         2. Land use permissibility is as per General Commercial zone of the City of Swan Local Internet Commercial zone of the City of Swan Local Internet Commercial zone of the City of Swan Local Internet Commercial zone of the City of Swan Local Internet Commercial zone of LPS17.         9. Indicative built form locations are nominated the building, unless otherwise identified on the LDP.       Noted. The proposed development is oriented to address this pedestrian plaza area is to be approved to in the location shown on the LDP.         9. Reduced street setbacks are supported along the feaced facing is provided in the second on the LDP.       Noted. The proposed development is oriented to address this pedestrian plaza.         6. Signage is to be incorporated into the fabric of the building, unless otherwise identified on the Structure Plan.       NIA - the development side designed in the same colours and styling as the development. A small provide d internet for improved leighbility.         7. An 8m high freestanding pylon sign is supported on Wylde Boulevard and Squadron Boulevard and Squadron and the surrounding road network to building entrances and the pedestrian plaza.       All signage on the building is comprised of a single Nido logo which is designed in the same colours and styling as the development. A small provide a time car park entry to ear park entry or wide d at the car park entry to ear park entry or wide d at the car park entry or building entrances and the pedestrian plaza.         8. Reduced street setbacks are supported at the texported at the car park entry to be approved to the LDP. And Smal		
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Servicing and back of house areas	the site along Spitfire Street and sections of Wylde Boulevard and Squadron Boulevard as	Noted.
	Servicing and bac	ck of house areas



12. Refuse/storage areas are to be screened from view of any public street/thoroughfare and accessible to service vehicles. The bin store is internalised and not visible from the public realm. The service yard containing mechanical plant is located at the rear of the building and screened by a timber batten style fence.	11. Service vehicles are required to enter/exit the subject site in forward gear.	The TIS contains swept path plans demonstrating service vehicles can enter/exit the site in forward gear.
	from view of any public street/thoroughfare and	the public realm. The service yard containing mechanical plant is located at the rear of the building and screened by a timber batten style

#### 5.7 POL-TP-125 BUILDING AND DEVELOPMENT STANDARDS COMMERCIAL ZONES

The City's Building and Development Standards - Commercial Zones policy applies to proposals to develop land zoned General Commercial.

It is noted that development standards are set out by the Kingsford Town Centre PP and LDP, however the landscaping requirements of POL-TP-125 remain applicable.

The development provides approximately 176.1sqm of soft landscaping area (excluding the playscape), which represents around 7% of site area. It is noted the soft landscaping area is likely to increase when tree planting details in the playscape are determined at detailed design stage, as it is proposed to plant at least 6 trees within deep soil areas in the playscape. The landscape provision is acceptable and warrants the City's support.

The landscape strips external to the playscape have a general width of 1m. Whilst this is slightly short of the minimum 1.5m width stipulated by the policy, it is important to note that:

- Rather than providing a single consolidated landscape buffer strip, the approach taken is to include individual 1m wide 'finger' strips between parking spaces which enables increased planting of trees. This results in a greater amount of tree canopy and is considered to be a more suitable outcome.
- The landscape designer has ensured that the planting and pot sizes can thrive within the landscape strips and remain viable over a long period of time.

Having regard for the above, the proposal is consistent with the City's Building and Development Standards - Commercial Zones policy

#### 5.8 POL-TP-129 VEHICLE PARKING STANDARDS

The City's Local Planning Policy *POL-TP-129 Vehicle Parking Standards* applies to the development proposal. An assessment against the relevant provisions of the City's Vehicle Parking Standards Policy is provided below.

#### PARKING SUPPLY

Parking rates specific to the Town Centre have been established by the PP, and compliance is achieved with those rates.



#### LANDSCAPING OF PARKING AREAS

POL-TP-129 requires boundary landscaping be provided for parking facilities visible from any public street with more than five parking spaces, and interior landscaping for open parking facilities with 21 or more spaces. The following specific policy requirements apply:

- a) All areas between parking facilities and adjoining streets shall have a minimum of 3m wide permanent landscape area. In addition, the Council may also require permanent landscaping between the parking facilities and all other side and rear property lines.
- b) For open parking facilities, with 21 or more parking spaces, there shall be provided a minimum of 1 sq. metre of permanent landscaping for every 10 sq. metres of parking stall area. Such landscaping shall not be in addition to any other landscaping required by any other policy.

With respect to point (a) above, the development site's car park does not adjoin any street. The car park is accessed via the shopping centre car park access driveway. A landscape buffer width of 1m is proposed which is considered to be suitable and appropriate given its interface with a driveway.

Application of point (b) above generates a requirement of 41.5m<sup>2</sup> of permanent landscaping for an area of 415m<sup>2</sup> encompassing parking bays. The proposed development exceeds the minimum permanent landscaping area.

# 5.9 POL-C-070 ADVERTISING SIGNS WITHIN COMMERCIAL AND INDUSTRIAL ZONES

The proposed childcare facility includes the following signage:

- A 2.4m high freestanding car park pillar sign located at the entry to the car park, allowing the clear delineation of the car park for Nido patrons only.
- A 2.2m diameter Nido logo sign on the eastern façade (one only).
- A 1.8m diameter Nido logo sign on the southern building façade, and integrated on the Boomerang Road fence and the shopping centre access driveway fence (three total).

The proposed signage is entirely consistent with the City's policy for signs within commercial zones, noting:

- The signs are proposed on the development site and relate to the proposed child care business subject of this application.
- There is no proliferation of signage. The signage on the building facades is integrated into its design and each sign serves a specific purpose.
- The signs do not protrude from walls and are not digital, and the signs are not portable they are in fixed positions.

The proposed signage is therefore appropriate and warrants the City's support.



## 6 CONCLUSION

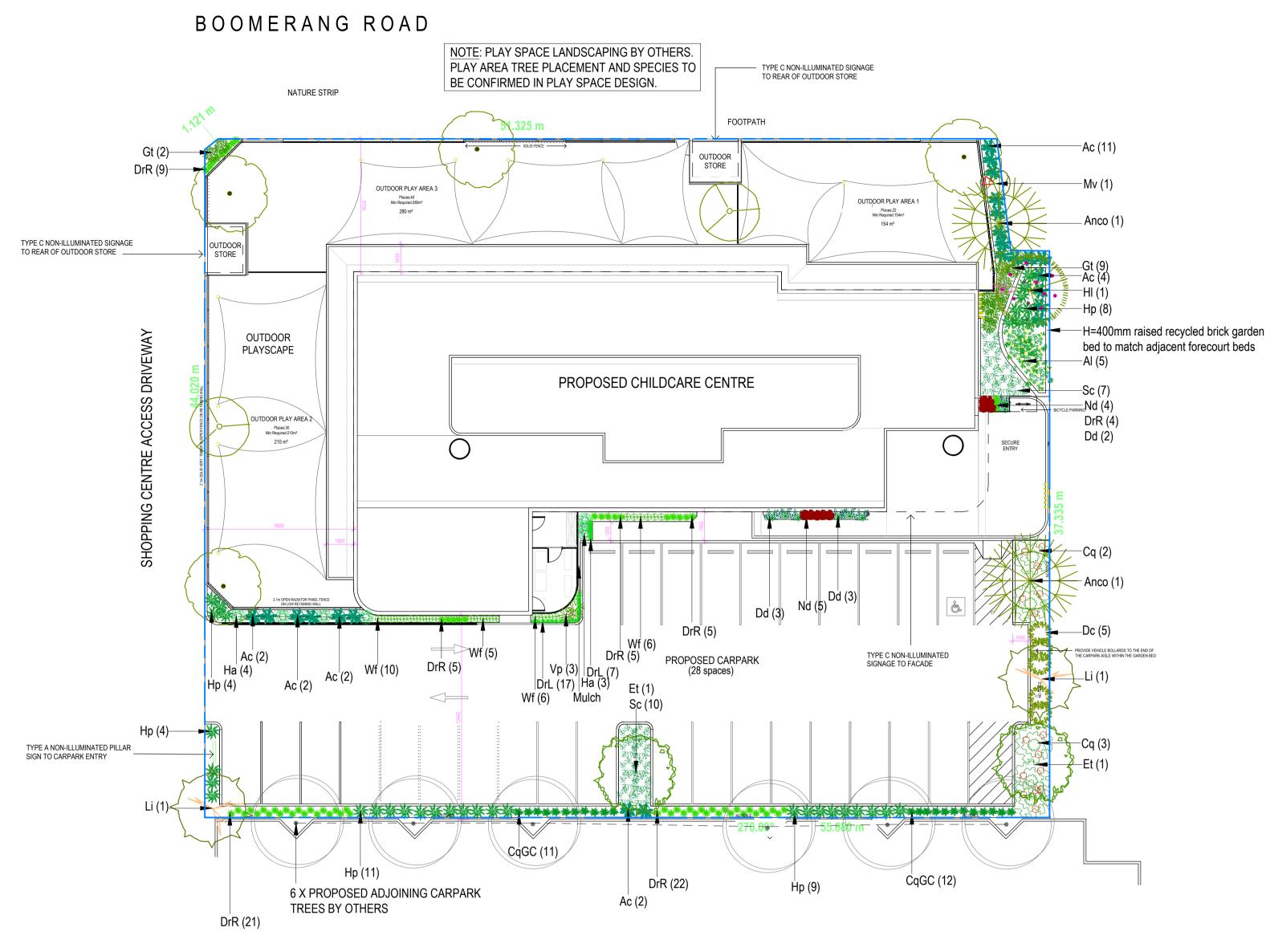
This application for planning approval involves the establishment of a new early learning facility at future Lot 1000 Boomerang Road in the Kingsford Town Centre.

The proposed new centre is designed to provide education and care services for up to 92 children and would deliver critically needed urban support services to the Town Centre and growing Kingsford community.

The proposed development warrants the City's support for the following reasons:

- The proposed land use is contemplated as a 'P' permitted use in the General Commercial zone of LPS17 and entirely appropriate for establishment on the development site.
- The site is appropriately located to accommodate childcare services, noting it will complement the adjacent shopping centre development and preserves land in the Main Street and Service Commercial character areas for development and land use typologies which are more consistent with the vision and guiding principles for those character areas.
- The proposed development will deliver an essential community service which will increase the provision of childcare places for the residents and workers of the growing local community.
- The proposal will contribute positively to local visual amenity and streetscape quality, providing both a high quality of built form design and extensive landscaping that is well suited to the site's location.
- The proposed centre has been designed and configured to maximise operational efficiency, safety and amenity, while also minimising any potential off-site amenity impacts for surrounding residential dwellings. The proposal is supported by expert traffic and acoustic reports demonstrating there will be no unacceptable impacts to the surrounding area.

The proposal warrants the support of the City of Swan and the approval of the Metro Outer DAP.



## INSTALLATION SPECIFICATIONS

1. TREE AND PLANT MATERIAL SUPPLY AND PLANTING

1.1 PLANT MATERIAL

- ALL PLANT STOCK SUPPLIED BY CONTRACTOR SHALL BE OF THE SPECIES AND SIZES AS THOSE ON THE PLANT SCHEDULE. SHOULD THERE BE ANY DIFFICULTIES IN SOURCING PLANTS, THE CONTRACTOR SHALL RECOMMEND SIMILAR SUITABLE SUBSTITUTE SPECIES AND/OR SIZES TO THOSE SHOWN ON THE DRAWINGS. NO SUBSTITUTIONS SHALL TAKE PLACE WITHOUT WRITTEN APPROVAL BY THE SUPERINTENDENT.
- GREENLIFE AND TURF MUST BE WELL KEPT: DELIVERED TO SITE ON DAY OF INSTALLATION, OUT OF FULL SUN, AWAY FROM ANIMALS AND PESTS AND ROOTS NOT ALLOWED TO DRY OUT AND SHALL:
  - -BE TRUE TO SPECIES, SUBSPECIES AND VARIETY
  - -BE IN FIRST CLASS CONDITION AND HEALTHY
  - -BE OF GOOD FORM CONSISTENT WITH SPECIES AND VARIETY
  - -AND BE PLANTED AS PER THE INSTRUCTIONS BELOW.

**1.2. GENERAL PLANTING INSTRUCTIONS** 

- SETTING OUT OF WORKS WHERE UNDERGROUND SERVICES, MANHOLES, CABLE PITS, KERBING, PAVING AND OTHER OBSTRUCTIONS OCCUR, PLANT CLEAR OF SUCH SERVICES AND OBSTRUCTIONS AND PROTECT FROM DAMAGE BY MACHINES AND EQUIPMENT.
- REMOVE ALL PLANTS FROM THEIR CONTAINERS. IN SUCH A MANNER AS TO DO AS LITTLE DISTURBANCE AS POSSIBLE TO THE ROOTS. WHERE NECESSARY, GENTLY TEASE OUT ROOTBALLS BEFORE PLANTING. PLACE TREES, SHRUBS AND PLANTS IN HOLES IN AN UP-RIGHT POSITION AND BACKFILL LEVEL WITH TOP OF ROOTBALL. COMPACT SOIL BY HAND.
- REFER DETAILS 'TREE PLANTING DETAIL' AND 'SHRUB PLANTING DETAIL'.
- A ROOT BARRIER SHALL BE INSTALLED FOR ALL TREES.

**1.3 SOIL CONDITIONER** 

 AFTER SITE WORKS AND BEFORE PLANTING SUPPLY AND INSTALL SOIL CONDITIONER TO ALL PLANTING AREAS.

- PRIOR TO PLACEMENT ENSURE ALL BASE MATERIAL IS CLEAN. FREE DRAINING AND FREE OF ALL BUILDER'S RUBBLE, RUBBISH, DELETERIOUS MATERIAL AND CONTAMINATION. ALL AREAS CONTAMINATED BY THE BUILDER OR OTHERS SHALL BE REMOVED AND REPLACE WITH CLEAN FILL SAND TO THE APPROVAL OF THE SUPERINTENDENT.
- PLACE SOIL CONDITIONER TO A DEPTH OF 15MM OVER THE FULL EXTENT OF AREAS TO BE CONDITIONED. ROTARY-HOE OR SPADE DIG SOIL CONDITIONER INTO EXISTING SITE SOIL TO A DEPTH OF 80MM TO PRODUCE A FULLY HOMOGENEOUS MIX. REMOVE ALL RUBBLE OR OTHER EXTRANEOUS MATTER EXPOSED AS A RESULT OF CULTIVATION. INCLUDING ANY BASE COURSE MATERIAL.
- SOIL CONDITIONER SHALL COMPLY WITH AS4454COMPOSTS, SOIL CONDITIONERS AND MULCHES.

**1.4 FERTILISING** 

- AFTER PLANTING AND AT TIME OF BACK FILLING ALL PLANTS ARE TO RECEIVE APPROVED PROPRIETY ITEM OF EIGHT TO NINE MONTH SLOW-RELEASE FERTILISER SUITABLE FOR AUSTRALIAN NATIVE PLANTS.
- FERTILISER TO BE APPLIED IN BACKFILL (BELOW GROUND) DURING PLANTING AT THE MANUFACTURERS' RECOMMENDED RATE FOR THE RELATIVE PLANT SIZE, AND AT A MINIMUM RATE AS FOLLOWS: - 45 LITRE POT SIZE PLANTS TO HAVE FORTY GRAMS - 13CM - 14CM POT SIZE PLANTS TO HAVE TEN GRAMS

2. MULCH

- ALL MULCH SHALL MEET AUSTRALIAN STANDARD 4454-2012. • MULCH SHALL BE PLAYGROUND APPROVED FINE GRADE WOOD CHIPS
- SPREAD TO 75MM. MULCH IS TO BE COMPLETELY FREE OF ALL NOXIOUS WEEDS. SEEDS AND
- TIDY AND GRADE MULCH AFTER APPLICATION, FINISHING 20MM BELOW SURROUNDING HARD SURFACES.

#### 3. IRRIGATION

- ALL GARDEN BEDS TO BE IRRIGATED. INSTALL A SUB-MULCH DRIP SYSTEM
- FOR ALL GARDEN BEDS WITH INDIVIDUAL BUBBLERS TO ALL TREES. CONTROLLER TO BE AUTOMATIC SYSTEM WITH RAIN SENSOR. LOCATION TO
- BE CONFIRMED ON SITE.

Symbol	Code on plan	Botanic Name	Mature height x width	Minimum installation size	Quantity	
TREES (8	)					TREE VARIETIES
	Anco	Angophora costata	10m x 6m	45 Litres	2	
$\bigcirc$	Et	Eucalyptus torquata	8m x 5m	45 Litres	2	
	н	Hakea laurina	6m x 5m	45 Litres	1	
	Li	Lagerstroemia indica Natchez'	7m x 5m	45 Litres	2	Angophora costata
6	Mv	Melaleuca viridiflora 'Red'	5m x 2m	45 Litres	1	-
SHRUBS						SHRUB VARIETIES
發	Ac	Adenanthos cygnorum	1.5m x 1m	13cm	23	
	Cq	Calothamnus quadrifidis	2.5m x 2.5m	14cm	5	
	Dd	Damperia diversifolia	50cm x 1m	13cm	8	
AN WAR	Dc	Darwinia citrodora	1.5m x 1.5m	13cm	5	Adenanthos cynorum
	Hr	Hypocalymma robustum	1m x 1m	13cm	7	2 Arra
	Nd	Nandina domestica Obsession'	75cm x 75cm	14cm	9	
-	Vp	Verticordia plumosa	60cm x 1m	13cm	3	E. P. J.
	Wf	Westringia fruticosa 'Grey Box'	45cm x 40cm	13cm	27	Westringia fruticosa 'Grey Box'
GRASSE	S					GRASS VARIETIES
*	DrL	Dianella revoluta 'Little Rev'	40cm x 30cm	14cm	24	
*	DrR	Dianella revoluta 'Revelation'	50cm x 50cm	13cm	71	
GROUND	COVER					
×.	AI	Acacia lasiocarpa prostrate	50cm x 2m	13cm	5	Dianella revoluta 'Little Rev'
*	CqGC	Calothamnus quadrifidus Green Carpet'	40cm x 60cm	13cm	23	GROUND COVER V
A DECEMBER OF	Gt	Grevillea thelmanniana 'Mini Marvel'	30cm x 1m	13cm	11	
*	Нр	Hemiandra pungens	30cm x 1m	13cm	36	No.
きた	Sc	Scaevola calliptera	40cm x 1.2m	14cm	17	Acacia lasiocarpa
TOTAL					282	prostrate

PLANT SCHEDULE









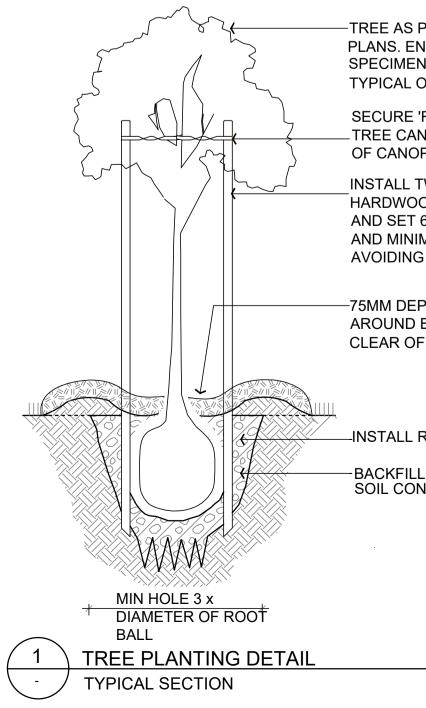
OUND COVER VARIETIES



 THE CONTRACTOR IS RESPONSIBLE FOR LAYOUT DESIGN AND INSTALLATION OF IRRIGATION SYSTEM.

 AT TIME OF COMPLETION THE IRRIGATION SYSTEM SHALL BE FULLY AUTOMATED, WORKING EFFICIENTLY AND EFFECTIVELY AND WATERING TIMES PROGRAMMED.

## TYPICAL DRAWINGS



-TREE AS PER PLANT SCHEDULE AND PLANS. ENSURE IT IS A HEALTHY SPECIMEN OF SUITABLE SIZE. TYPICAL OF ITS GROWING HABIT.

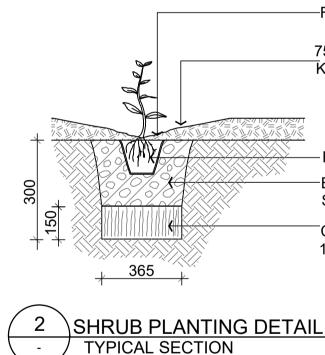
SECURE 'RAINBOW TIE' AT BASE OF TREE CANOPY TO ENSURE WEIGHT OF CANOPY IS BEST SUPPORTED.

INSTALL TWO 50x50x1800MM POINTED HARDWOOD STAKES PAINTED BLACK AND SET 600MM INTO THE GROUND AND MINIMUM 250MM FROM TRUNK. AVOIDING THE ROOT BALL.

-75MM DEPTH MULCH AS SPECIFIED AROUND BASE OF TREE KEEPING CLEAR OF TRUNK.

-INSTALL ROOT BARRIER.

-BACKFILL WITH 3:1 SITE SOIL TO SOIL CONDITIONER AS SPECIFIED.



## THIS PLAN MUST BE PRINTED IN BEST QUALITY COLOUR PRINT







indica 'Natchez'



'Red'

Calothamnus Darwinia citrodora









Nandina domestica 'Obsession'

Verticordia plumos



quadrifidis

'Revelation'











Carpet'

Grevillea quadrifidus 'Green thelmanniana 'Mini Marvel'

pungens



Scaevola calliptera

-FORM RETENTION DISHAROUND STEM.

75mm MULCH (COMPACTED THICKNESS) KEPT CLEAR OF PLANT STEM

-ROOTBALL -BACKFILL WITH 3:1 SITE SOIL TO SOIL CONDITIONER. CULTIVATE SUBGRADE TO 150mm DEPTH.

NOT TO SCALE





D	D DEVELOPMENT APPLICATION			AC	12.03.2025	
С	DEVELOPMENT APP	LICATION			AC	18.12.2024
В	DEVELOPMENT APP	LICATION			AC	17.12.2024
Α	DEVELOPMENT APP	LICATION			AC	09.10.2024
revision/issue description			drawn	date		
project				description		
				LANDSCAPE		
LOT 1000 BOOMERANG ROAD, BULLSBROOK WA					PLAN	١
-	AL AND RESIDENTIAL	GARDEN DESIG www.urbanretreatgardens.com.au amelia@urbanretreatgardens.com.au	1:200	project no 24312 <sup>dwg no</sup> 01		
LANDS	SCAPE DESIGN	0438 926 313		<sup>rev</sup> 4		

Engineering a better future for over 20 years!

PREPARED FOR: Jarra Property

**December 2024** 



# Proposed Childcare Centre Lot 1000 Boomerang Rd, Bullsbrook Transport Impact Statement

## **Document history and status**

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## **1** Introduction

This Transport Impact Statement (TIS) has been prepared by Transcore on behalf of Jarra Property Pty Ltd with regard to a proposed childcare centre to be located at Lot 1000 Boomerang Road, Bullsbrook in the City of Swan.

The subject site is currently vacant and located to the south of Boomerang Road, before Spitfire Street, within the planned Kingsford Town Centre Precinct, as shown in Figure 1.



The proposed childcare development plan is presented in Appendix A for reference.

**Figure 1: Location of the subject site** 

The Transport Impact Assessment Guidelines (WAPC, Vol 4 – Individual Developments, August 2016) states: "A Transport Impact Statement is required for those developments that would be likely to generate moderate volumes of traffic<sup>1</sup> and therefore would have a moderate overall impact on the surrounding land uses and transport networks".

Section 6 of Transcore's report provides details of the estimated trip generation for the proposed development.

<sup>&</sup>lt;sup>1</sup> Between 10 and 100 vehicular trips per hour

Accordingly, as the total peak hour vehicular trips are estimated to be less than 100 trips, a Transport Impact Statement is deemed appropriate for this development.

Key issues that will be addressed in this report include the traffic generation and distribution of the proposed development, access and egress movement patterns and parking demand and supply.

## 2 Development Proposal

The Development Application (DA) for the subject site proposes the development of a childcare centre (GFA 687m<sup>2</sup>) to be located on the southern side of Boomerang Road, Bullsbrook within the planned Kingsford Town Centre Precinct. This childcare centre is proposed to accommodate up to 92 children and 16 staff members.

The proposed childcare centre comprises the following elements:

- Six activity rooms (one room for 0-1 years old, three rooms for 2-3 years old, two rooms for 3+ years old);
- Reception & Foyer area;
- Office, Planning & Meeting Rooms;
- Kitchen & Pantry;
- Cot Room;
- Ateliers;
- Piazza;
- Sleep Rooms;
- Preparation Rooms;
- Laundry & Cleaners Room;
- Storerooms;
- Amenities;
- Education Retreat;
- Drying & Service Yard;
- Outdoor Play Areas; and,
- On-site car park with 28 bays (inclusive of one ACROD bay).

According to the development plan provided in **Appendix A**, a combined Visitor/Staff carpark is proposed with 28 on-site parking bays, including one ACROD bay. In addition, a turnaround bay is proposed to provide efficient vehicular circulation within the carpark.

The bin store is provided, within the childcare centre, on the northwestern side of the car park. Waste collection and deliveries will be accommodated within the site. It is proposed that servicing will be conducted outside of the peak operating hours of the childcare centre.

Vehicular access to the carpark is proposed via a full-movement crossover on the planned north-south shopping centre car park driveway which will form a T-intersection with Boomerang Road.

Pedestrian and bicycle access to the childcare centre will be available via the proposed footpaths and cycleways on Boomerang Road.

## **3 Vehicle Access and Parking**

#### 3.1 Access

The subject site is currently vacant. Access to the proposed childcare centre will be facilitated via the north-south shopping centre car park driveway forming a T-intersection with Boomerang Road. This north-south driveway is already approved and will be constructed by others. The development crossover on the shopping centre car park driveway will operate as a full-movement crossover. Refer to the location of the proposed crossover in **Figure 2**.

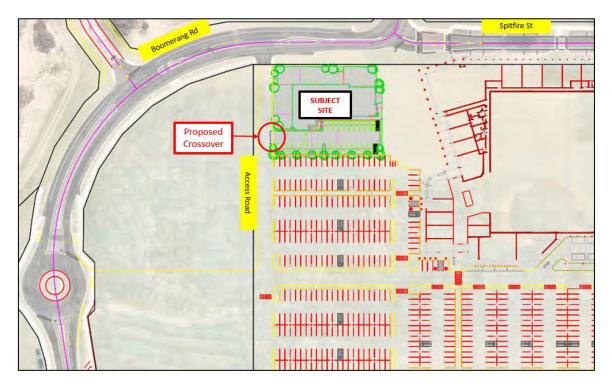


Figure 2: Location of development crossover

Boomerang Road forms an intersection with Squadron Boulevard which will connect to Great Northern Highway, approximately 300m west of the subject site.

The Great Northern Highway Intersection with Squadron Boulevard is planned to be constructed as a dual-lane roundabout to accommodate future traffic flows when the Kingsford Estate and surrounding precincts in the Bullsbrook townsite are fully developed.

## 3.2 Parking

The proposed development entails an on-site car park within the subject site which has a provision of 28 parking bays inclusive of an ACROD bay.

The City of Swan Local Planning Policy – Vehicle Parking Standards (POL-TP-129) provides parking requirements for various land uses. The parking provision applicable to the proposed childcare centre is as follows:

- 1 space per employee, plus;
- 1 space per every 8 children.

The childcare centre is proposed to accommodate 92 children and 16 staff members. According to the City's policy, the proposed childcare centre requires a parking provision of 28 parking bays (16 bays for staff and 12 visitor bays for drop off/pick up).

Therefore, the proposed childcare centre parking provision conforms to the relevant parking requirement. It is recommended the development's carpark plan identify 16 bays for Staff and 12 Visitor bays for drop off/pick up.

Based on the information provided to Transcore, the proposed childcare centre is expected to operate on weekdays between 6:30AM and 6:30PM.

## **5 Provision for Service Vehicles**

The bin store is located within the childcare centre building, with direct access to the carpark, as is shown in the development plan attached in **Appendix A**.

The waste collection and deliveries will take place within the site. Based on the advice provided to Transcore, the waste collection for the proposed development will be undertaken using a private contractor using a 10.0m service vehicle.

The waste collection truck will be able to enter the carpark in forward gear, via the full movement crossover on the proposed shopping centre car park driveway. The truck will park in a suitable position adjacent to the bin store for waste collection and then exit the site via the same crossover in forward gear.

It is proposed that servicing will be conducted outside of the peak operating hours of the proposed childcare centre. The childcare centre will generate a small volume of additional service traffic primarily associated with deliveries to the childcare centre.

It is recommended that smaller vehicles, such as vans, should be used for general deliveries. To improve vehicle manoeuvrability with the car park, a Turning Bay has been provided.

Turn path analysis has been undertaken for a 10.0m service vehicle and is included in **Appendix B**. It shows satisfactory access and egress of the waste collection vehicle via the proposed shopping centre car park driveway which forms a T-intersection with Boomerang Road.

## **6 Daily Traffic Volumes and Vehicle Types**

## **6.1 Proposed Development Trip Generation**

To establish accurate traffic generation rates for the proposed childcare centre, traffic surveys undertaken by Transcore at similar centres in the Perth metropolitan area were sourced.

Discussions with the respective centre managers revealed that the peak drop-offs and pick-ups for these centres occur between the hours of 7:30 AM - 9:30 AM and 3:00 PM - 5:00 PM.

From the total number of children at each of the centres on the surveyed days, the following average generation rates were established for the morning and afternoon surveyed periods:

- 7:30AM-9:30AM: 1.25 trips per child (57% in / 43% out); and,
- 3:00PM-5:00PM: 1.10 trips per child (49% in / 51% out).

From this information, the traffic generation rate for the combined period of 07:30AM-09:30AM and 3:00PM-05:00PM was calculated as 2.36 trips per child. To convert this figure to a daily generation rate, this figure was increased to 3.5 trips per child to account for any trips outside of the surveyed times. It was assumed that the daily in and out split for vehicle trips was 50/50.

Furthermore, the following peak hour generation rates were established from the surveys for the childcare centres:

- AM peak hour: 8:00AM 9:00AM: 0.87 trips per child (57% in / 43% out); and,
- PM peak hour: 04:00PM 05:00PM: 0.71 trips per child (47% in/ 53% out);

A comparison of the four-hour generation rates and the peak-hour generation rates confirms that the distribution of traffic from these centres is spread over the peak periods and that the full concentration of traffic does not occur in one peak hour.

Accordingly, the following number of trips was estimated for the proposed childcare centre, assuming a maximum scenario of 92 children being present (i.e., centre at full capacity):

- AM peak hour: 80 trips generated (46 in / 34 out);
- PM peak hour: 65 trips generated (31 in / 34 out); and,
- Daily traffic generation: 322 trips generated (161 in / 161 out).

## 6.2 Traffic Flow

Based on the site location and residential areas in the immediate locality, the permeability of the local road network, the childcare centre's traffic distribution adopted for this analysis is as follows:

- 50% to/from the residential areas to the north-east of Boomerang Road;
- 50% to/from the residential areas to the north-west of Boomerang Road,

**Figure 3** illustrates trip generation and distribution of the development-generated traffic over the local road network. The trip distribution assumes that patrons from the existing residential areas from the north-west will access the site from Great Northern Highway, through to Boomerang Road. The future residential areas from the north-east will access the site via Boomerang Road.

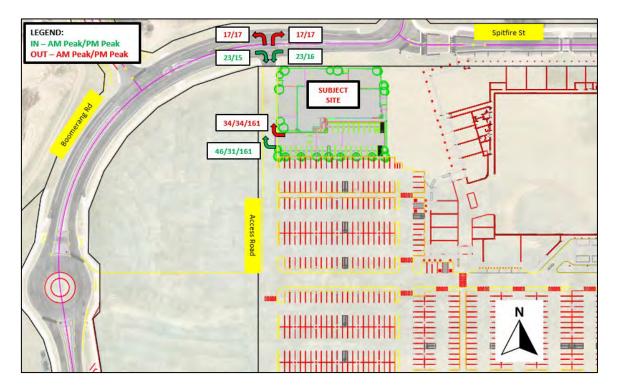


Figure 3: Estimated traffic movements for the proposed childcare centre

## 6.3 Impact on Surrounding Roads

The WAPC *Transport Impact Assessment Guidelines* (2016) provides the following guidance on the assessment of traffic impacts:

"As a general guide, an increase in traffic of less than 10 percent of capacity would not normally be likely to have a material impact on any particular section of road but increases over 10 percent may. All sections of road with an increase greater than 10 percent of capacity should therefore be included in the analysis. For ease of assessment, an increase of 100 vehicles per hour for any lane can be considered as equating to around 10 percent of capacity. Therefore, any section of road where development traffic would increase flows by more than 100 vehicles per hour for any lane should be included in the analysis."

The proposed childcare centre will not increase traffic flows on any roads adjacent to the site by the quoted WAPC threshold of +100vph to warrant further analysis.

Therefore, the impact of development traffic on the surrounding road network will not be significant.

## 7 Traffic Management on the Frontage Streets

**Boomerang Road,** north of the subject site, is constructed as two 5.0m wide carriageways separated by a central median. Each 5.0m carriageway width will accommodate a 3.5m traffic lane and a 1.5m on-road cycle lane.

Boomerang Road is planned as a *Neighbourhood Connector A* in the WAPC *Liveable Neighbourhoods* road hierarchy, suitable for future daily traffic flows of 3,000 to 7,000 vehicles per day (vpd).

A right turn pocket is provided in the median for access into the future shopping centre car park driveway adjacent to the subject site as shown in Figure 4.

Boomerang Road is under development and does not yet connect to Squadron Boulevard to the south of the site or the surrounding road network to the north of the site.



Figure 4: Existing Boomerang Road (Nearmap Nov 2024)

Squadron Boulevard will connect to Great Northern Highway approximately 300m west of the subject site. That intersection is planned to be constructed as a dual-lane roundabout on Great Northern Highway to accommodate future traffic flows when the Kingsford Estate and surrounding precincts in the Bullsbrook townsite are fully developed.

## 8 Public Transport Access

The closest, existing public bus route to the subject site is Transperth Route 311, as shown in **Figure 5**.

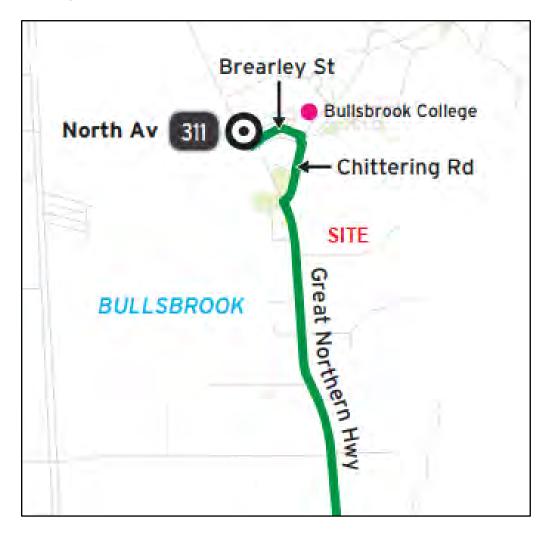


Figure 5: Bus Service 311 (Transperth Maps)

Route 311, connecting Bullsbrook townsite to Midland Station, operates along Great Northern Highway, approximately 300 meters west of the subject site. The closest bus stops are located on Great Northern Highway near Bullsbrook Road, approximately 500 to 700 meters northwest of the subject site.

## 9 Pedestrian and Cycle Access

Boomerang Road and Squadron Boulevard are constructed to Neighbourhood Connector A standard in the WAPC Liveable Neighbourhoods road hierarchy and will include 1.5m on-road cycle lanes in both directions.

Shared paths of 2.5m width have already been constructed on the northern verge of Squadron Boulevard and the east and western sides of Boomerang Road, as seen in **Figure 4**. Footpaths are provided on at least one side of other roads in this Kingsford Town Centre Precinct.

No site-specific issues were identified within the scope of this assessment for the proposed development.

No safety issues were identified within the scope of this assessment for the proposed development.

## **12 Conclusions**

This Transport Impact Statement (TIS) has been prepared by Transcore on behalf of Jarra Property with regard to the proposed childcare centre development to be located at Lot 1000 Boomerang Road, Bullsbrook in the City of Swan.

The proposal entails the construction of a childcare centre with on-site parking. The proposed childcare centre is to cater to 92 children and 16 staff.

Access to the proposed childcare centre will be facilitated via the proposed northsouth shopping centre car park driveway which will form an intersection with Boomerang Road. The crossover on the proposed shopping centre car park driveway will operate as a full-movement crossover.

The on-site car park entails parking provision of 28 parking bays (inclusive of one ACROD bay) which complies with the City's requirements.

The traffic analysis undertaken in this report demonstrates that the estimated traffic generation of the proposed development is below the critical threshold set by WAPC and as such, would not have any significant impact on the surrounding road network.

The waste collection will be undertaken using up to a 10.0m collection vehicle. The turn path analysis undertaken for the service vehicle which will utilise the proposed crossover on the future shopping centre car park driveway and shows satisfactory access and egress. To improve vehicle manoeuvrability with the car park, a Turning Bay has been provided. It is recommended that smaller vehicles, such as vans, should be used for deliveries.

The subject site will benefit from the connectivity with the future road, path, cyclist network and public transport network planned for the Kingsford Town Centre Precinct.

No transport or safety issues have been identified for the proposed development.

It is concluded that the findings of this Transport Impact Statement are supportive of the proposed development.

## **Appendix A**

## **PROPOSED DEVELOPMENT PLANS**



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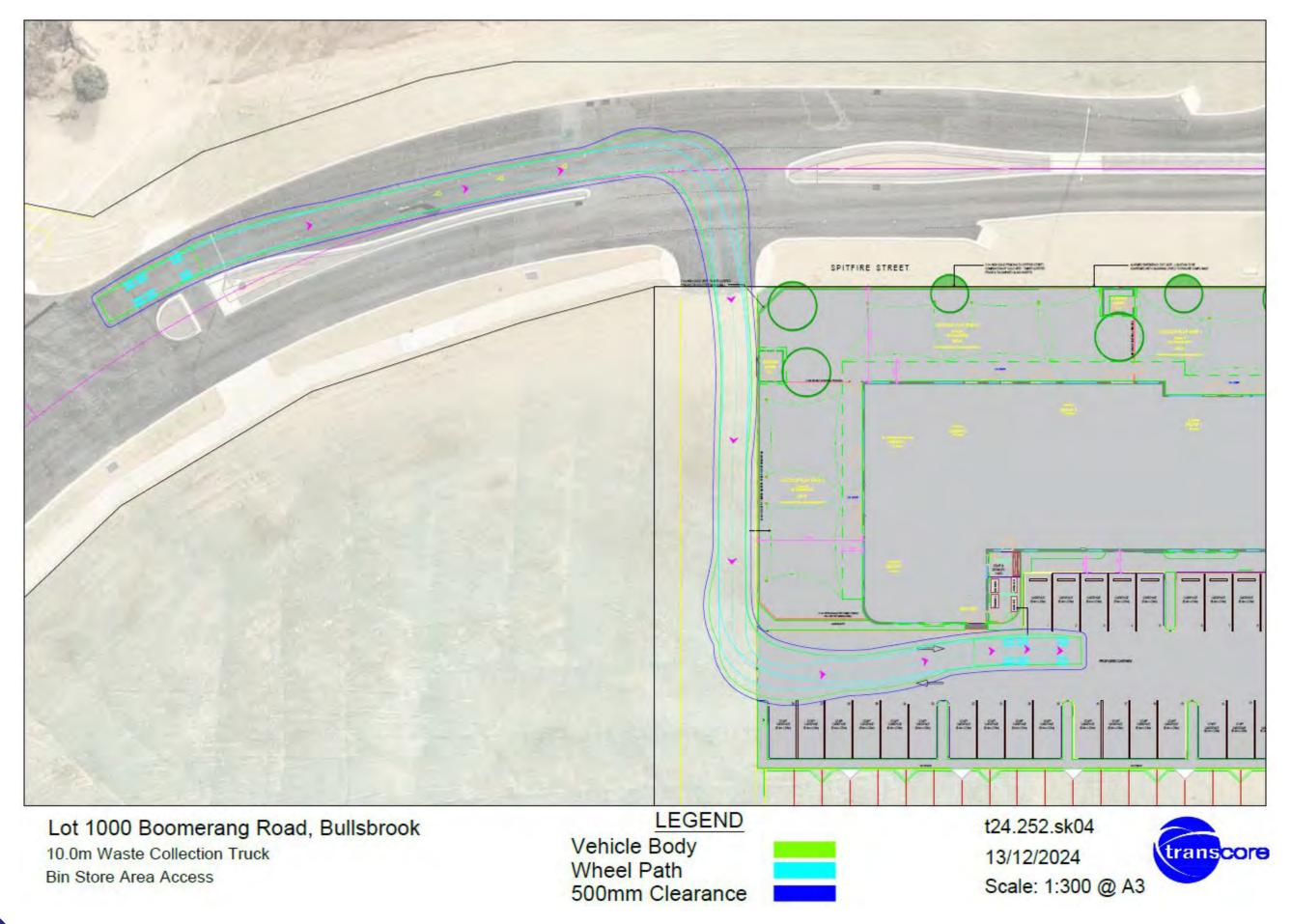
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## **Appendix B**

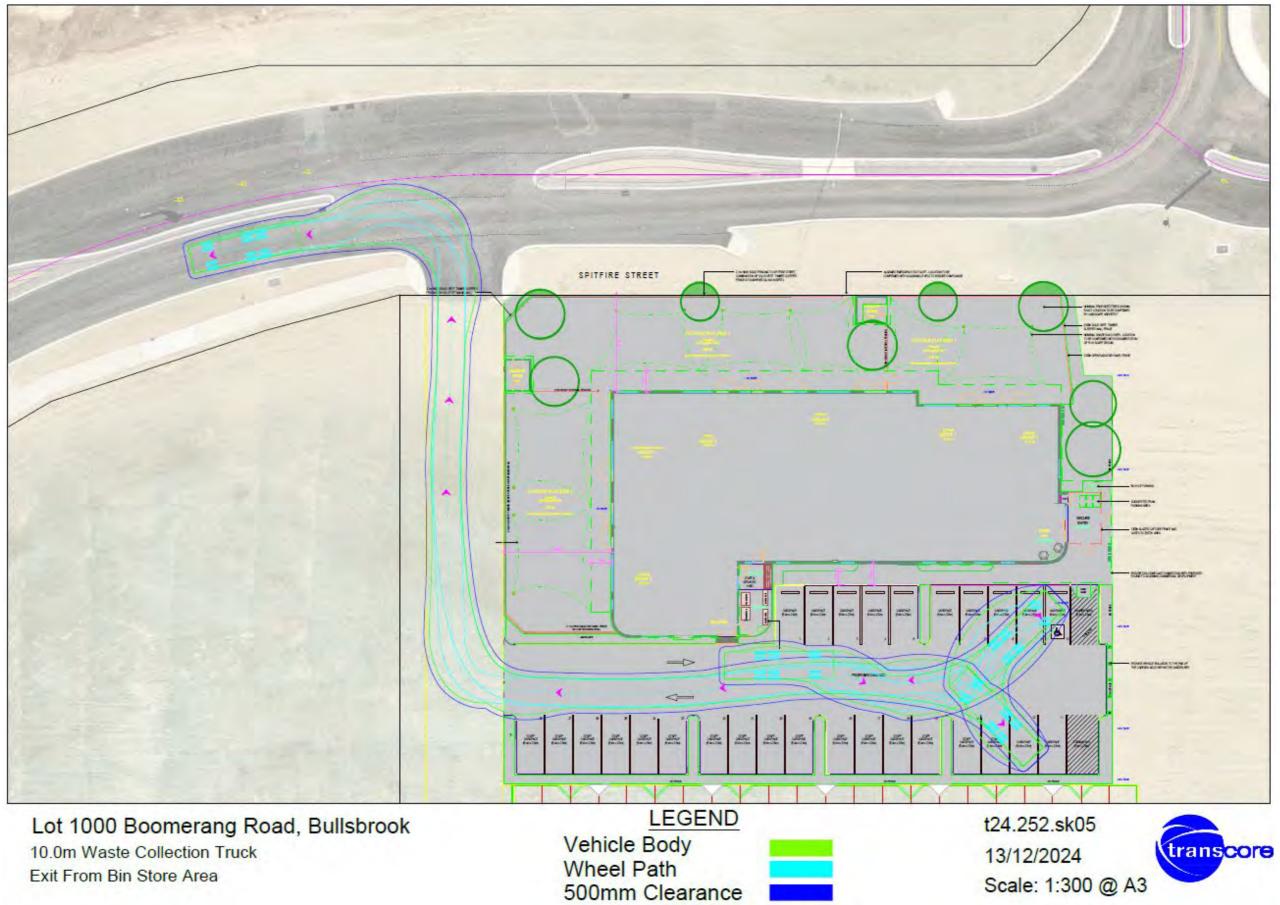
## TURN PATH ANALYSIS



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# Noise Assessment – Childcare Centre

## Lot 1000 Boomerang Road, Bullsbrook

Reference: 24099433-01

Prepared for: Jarra Property



### Reference: 24099433-01

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Date	Rev	Description	Author	Verified
17-Dec-24	0	Issued to Client	Matt Nolan	Matt Moyle

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### **EXECUTIVE SUMMARY**

Lloyd George Acoustics was engaged by Jarra Property to undertake a noise assessment for a proposed childcare centre (CCC) to be located at Lot 1000 Boomerang Road, Bullsbrook. This report considered noise emissions from the proposed childcare centre to surrounding properties, as well as the impact of road traffic noise to the childcare centre.

With regard to the noise emission assessment, this was undertaken using noise modelling and considered child play, mechanical plant and car door closings. The predicted noise from all children playing outside and car door closings is compliant provided the 2.1m high solid fencing shown on the DA Plans is constructed. The north and northwest side of Play Area 1 and Play Area 3 will need to be solid, free of gaps and minimum surface mass of 8kg/m<sup>2</sup>. Mechanical plant noise was also calculated to be compliant, however once the plant has been designed and selected, this should be further reviewed to ensure compliance prior to Building Permit.

It is noted that single storey receivers have been used within the model for the future residential and commercial receivers. If these were double storey, additional noise mitigation may be required.

With regard to road traffic noise impacts, an assessment was undertaken in accordance with State Planning Policy 5.4 Guidelines. The CCC was determined to be located in an area below the outdoor noise target. As a result, no further mitigation measures are required.

## **1. INTRODUCTION**

Lloyd George Acoustics was engaged by Jarra Property to undertake a noise assessment for a proposed childcare centre (CCC) to be located at Lot 1000 Boomerang Road, Bullsbrook (refer *Figure 1-1*) with the site plan shown in *Figure 1-2* and full Development Application (DA) plans provided in *Appendix A*. The purpose of this report is to consider noise emissions from the proposed childcare centre to surrounding properties, as well as the impact of road traffic noise to the childcare centre.



Figure 1-1: Subject Site Location (Source: Landgate)

The proposed childcare centre will be open Monday to Friday, 6.30am to 6.30pm and consist of the following:

- Six internal teaching spaces capable of accommodating up to 92 children, grouped as follows:
  - Group 1: 12 places for children aged 0-2 years;
  - Group 2: 10 places for children aged 2-3 years;
  - Group 3: 15 places for children aged 2-3 years;
  - Group 4: 5 places for children aged 2-3 years & 10 places for children aged 3+ years;
  - Group 5 & 6: each with 20 places for children aged 3+ years;
- Three outdoor play areas (not used prior to 7.00am);
- Amenities and associated mechanical plant such as:
  - Kitchen exhaust fan assumed to be located on roof above;
  - Various exhaust fans (toilets, laundry, nappy room) assumed to be located on the roof above;
  - Air-conditioning (AC) plant, assumed to located on the ground in the designated yard as shown on the DA Plans;
- Car parking on the south side of the lot.



Figure 1-2: Proposed Site Plan

With regard to noise emissions, consideration is given to noise from child play, mechanical services and closing car doors at neighbouring properties, against the prescribed standards of the *Environmental Protection (Noise) Regulations 1997*.

With regard to road traffic noise impacts, the childcare centre is considered noise sensitive and is located within approximately 227 metres from Great Northern Highway. This road is considered a 'Strategic Freight/Major Traffic Route' in accordance with the PlanWA Maps and as such, a noise assessment is required against *State Planning Policy No. 5.4 Road and Rail Noise*.

Appendix C contains a description of some of the terminology used throughout this report.

## **2. CRITERIA**

#### 2.1. Environmental Noise

Environmental noise in Western Australia is governed by the *Environmental Protection Act 1986*, through the *Environmental Protection (Noise) Regulations 1997* (the Regulations).

#### 2.1.1. Regulations 7, 8 & 9

This group of regulations defines the prescribed standard for noise emissions applicable to child play, mechanical services and car door closing as follows:

#### "7. Prescribed standard for noise emissions

- (1) Noise emitted from any premises or public place when received at other premises -
  - (a) must not cause, or significantly contribute to, a level of noise which exceeds the assigned level in respect of noise received at premises of that kind; and
    - (b) must be free of
      - (i) tonality; and
      - (ii) impulsiveness; and
      - (iii) modulation,

when assessed under regulation 9.

(2) For the purposes of subregulation (1)(a), a noise emission is taken to significantly contribute to a level of noise if the noise emission ... exceeds a value which is 5 dB below the assigned level at the point of reception."

Tonality, impulsiveness and modulation are defined in regulation 9 (refer *Appendix C*). Under regulation 9(3), *"Noise is taken to be free of the characteristics of tonality, impulsiveness and modulation if -*

- (a) the characteristics cannot be reasonably and practicably removed by techniques other than attenuating the overall level of noise emission; and
- (b) the noise emission complies with the standard prescribed under regulation 7(1)(a) after the adjustments in the table [Table 2-1] ... are made to the noise emission as measured at the point of reception."

Where	Noise Emission is Not	Music*	Where Noise Er	nission is Music
Tonality	Modulation	Impulsiveness	No Impulsiveness	Impulsiveness
+ 5 dB	+ 5 dB	+ 10 dB	+ 10 dB	+ 15 dB

Table 2-1 Adjustments Where Characteristics Cannot Be Removed
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\* These adjustments are cumulative to a maximum of 15 dB.

The assigned levels (prescribed standards) for all premises are specified in regulation 8(3) and are shown in Table 2-2. The L<sub>A10</sub> assigned level is applicable to noises present for more than 10% of a representative assessment period, generally applicable to "steady-state" noise sources. The LA1 is for short-term noise sources present for less than 10% and more than 1% of the time. The LAmax assigned level is applicable for incidental noise sources, present for less than 1% of the time.

Premises Receiving	The Of Dec	Assigned Level (dB)			
Noise	Time Of Day	L <sub>A10</sub>	L <sub>A1</sub>	L <sub>Amax</sub>	
	0700 to 1900 hours Monday to Saturday (Day)	45 + influencing factor	55 + influencing factor	65 + influencing factor	
Noise sensitive	0900 to 1900 hours Sunday and public holidays (Sunday)	40 + influencing factor	50 + influencing factor	65 + influencing factor	
premises: highly sensitive area <sup>1</sup>	1900 to 2200 hours all days (Evening)	40 + influencing factor	50 + influencing factor	55 + influencing factor	
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and public holidays (Night)	35 + influencing factor	45 + influencing factor	55 + influencing factor	
Noise sensitive premises: any area other than highly sensitive area	All hours	60	75	80	
Commercial Premises	All hours	60	75	80	
Industrial and Utility Premises	All hours	65	80	90	

#### Table 2-2 Baseline Assigned Levels

1. highly sensitive area means that area (if any) of noise sensitive premises comprising -

a building, or a part of a building, on the premises that is used for a noise sensitive purpose; and (a) (b)

any other part of the premises within 15 metres of that building or that part of the building.

The influencing factor (IF), in relation to noise received at noise sensitive premises, has been calculated as between 1-2 dB, as determined in Appendix B. Table 2-3 shows the assigned levels including the influencing factor and transport factor at the receiving locations.

Premises Receiving		Assigned Level (dB)		
Noise	Time Of Day	L <sub>A10</sub>	L <sub>A1</sub>	L <sub>Amax</sub>
North Future Residences (IF = 2 dB) Noise sensitive premises: highly sensitive area <sup>1</sup>	0700 to 1900 hours Monday to Saturday (Day)	52	62	72
	0900 to 1900 hours Sunday and public holidays (Sunday)	47	57	72
	1900 to 2200 hours all days (Evening)	47	57	62
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and public holidays (Night)	42	52	62
	0700 to 1900 hours Monday to Saturday (Day)	46	56	66
Northwest Future Residences (IF = 1 dB) Noise sensitive premises: highly sensitive area <sup>1</sup>	0900 to 1900 hours Sunday and public holidays (Sunday)	41	51	66
	1900 to 2200 hours all days (Evening)	41	51	56
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and public holidays (Night)	36	46	56
Commercial Premises	All hours	60	75	80

#### Table 2-3 Assigned Levels

It must be noted the assigned levels above apply outside the receiving premises and at a point at least 3 metres away from any substantial reflecting surfaces.

The assigned levels are statistical levels and therefore the period over which they are determined is important. The Regulations define the Representative Assessment Period (RAP) as "a period of time of not less than 15 minutes, and not exceeding 4 hours, determined by an inspector or authorised person to be appropriate for the assessment of a noise emission, having regard to the type and nature of the noise emission". An inspector or authorised person is a person appointed under Sections 87 & 88 of the Environmental Protection Act 1986 and include Local Government Environmental Health Officers and Officers from the Department of Water Environmental Regulation. Acoustic consultants or other environmental consultants are not appointed as an inspector or authorised person. Therefore, whilst this assessment is based on a 4-hour RAP, which is assumed to be appropriate given the nature of the operations, this is to be used for guidance only.

#### 2.1.2. Regulation 3

#### "3. Regulations do not apply to certain noise emissions

- (1) Nothing in these regulations applies to the following noise emissions -
  - (a) Noise emissions from the propulsion and braking systems of motor vehicles operating on a road;"

The childcare centre car park is open to the public and considered a road and therefore vehicle noise (propulsion and braking) is not assessed. Noise from vehicle car doors however are assessed, since these are not part of the propulsion or braking system.

#### 2.1.3. Regulation 14A

#### "14A. Waste Collection and Other Works

- (2) Regulation 7 does not apply to noise emitted in the course of carrying out class 1 works if -
  - (a) The works are carried out in the quietest reasonable and practicable manner; and
  - (b) The equipment used to carry out the works is the quietest reasonably available;

class 1 works means specified works carried out between -

- (a) 0700 hours and 1900 hours on any day that is not a Sunday or a public holiday; or
- (b) 0900 hours and 1900 hours on a Sunday or public holiday.

specified works means -

- (a) The collection of waste; or
- (b) The cleaning of a road or the drains for a road; or
- (c) The cleaning of public places, including footpaths, cycle paths, car parks and beaches;"

In the case where specified works are to be carried out outside of class 1, a noise management plan is to be prepared and approved by the CEO.

#### 2.2. Road Traffic Noise

The criteria for road traffic noise is provided in *State Planning Policy No. 5.4 Road and Rail Noise* (hereafter referred to as SPP 5.4) produced by the Western Australian Planning Commission (WAPC). SPP 5.4 is supported by the *Road and Rail Noise Guidelines* (the Guidelines) and the Department of Planning, Lands and Heritage mapping. The objectives of SPP 5.4 are to:

- Protect the community from unreasonable levels of transport noise;
- Protect strategic and other significant freight transport corridors from incompatible urban encroachment;
- Ensure transport infrastructure and land-use can mutually exist within urban corridors;
- Ensure that noise impacts are addressed as early as possible in the planning process; and
- Encourage best practice noise mitigation design and construction standards.

*Table 2-4* sets out noise targets that are to be achieved by proposals under which SPP 5.4 applies. Where the targets are exceeded, an assessment is required to determine the likely level of transport noise and management/mitigation required.

Table 2-4: Noise	Targets for	<b>Noise Sensitive</b>	Land-Use
------------------	-------------	------------------------	----------

Scenario	Outdoor N	oise Target	Indoor Noise Target				
Noise-sensitive land-use and/or development	55 dB L <sub>Aeq(Day)</sub>	50 dB L <sub>Aeq(Night)</sub>	40 dB L <sub>Aeq(Day)</sub> (Living and Work Areas)	35 dB L <sub>Aeq(Night)</sub> (Bedrooms)			

Notes:

- The outdoor noise target is to be measured at 1-metre from the most exposed, habitable<sup>1</sup> facade of a noise sensitive building.
- For all noise-sensitive land-use and/or development, indoor noise targets for other room usages may be reasonably drawn from Table 1 of Australian Standard/New Zealand Standard AS/NZS 2107:2016 Acoustics Recommended Design Sound Levels and Reverberation Times for Building Interiors (as amended) for each relevant time period.
- Outdoor targets are to be met at all outdoor areas as far as is reasonable and practicable to do so using the various noise mitigation measures outlined in the Guidelines.

The application of SPP 5.4 is to consider anticipated traffic volumes for the next 20 years from when the noise assessment has been undertaken.

In the application of the noise targets, the objective is to achieve:

- Indoor noise levels as specified in Table 2-4 in noise-sensitive areas (e.g. activity and cot rooms); and
- A reasonable degree of acoustic amenity for outdoor play areas.

<sup>•</sup> Day period is from 6am to 10pm and night period from 10pm to 6am.

<sup>&</sup>lt;sup>1</sup> A habitable room is defined in State Planning Policy 3.1 as a room used for normal domestic activities that includes a bedroom, living room, lounge room, music room, sitting room, television room, kitchen, dining room, sewing room, study, playroom, sunroom, gymnasium, fully enclosed swimming pool or patio.

## **3. METHODOLOGY**

### 3.1. Environmental Noise Modelling

Computer modelling has been used to predict the noise emissions from the development to all nearby receivers. The software used was *SoundPLAN 9.0* with the ISO 9613 algorithms (ISO 17534-3 improved method) selected, as they include the influence of wind and are considered appropriate given the relatively short source to receiver distances. Input data required in the model are listed below and discussed in *Section 3.1.1* to *Section 0*:

- Meteorological Information;
- Topographical data;
- Ground Absorption; and
- Source sound power levels.

#### 3.1.1. Meteorological Conditions

Meteorological information utilised is provided in *Table 3-1* and is considered to represent worst-case conditions for noise propagation. At wind speeds greater than those shown, sound propagation may be further enhanced, however background noise from the wind itself and from local vegetation is likely to be elevated and dominate the ambient noise levels.

Parameter	Day (7.00am to 7.00pm)	Night (7.00pm to 7.00am)
Temperature (°C)	20	15
Humidity (%)	50	50
Wind Speed (m/s)	Up to 5	Up to 5
Wind Direction*	All	All

#### Table 3-1: Modelling Meteorological Conditions

\* The modelling package allows for all wind directions to be modelled simultaneously.

Alternatives to the above default conditions can be used where one year of weather data is available and the analysis considers the worst 2% of the day and night for the month of the year in which the worst-case weather conditions prevail (source: *Draft Guideline on Environmental Noise for Prescribed Premises*, May 2016). In most cases, the default conditions occur for more than 2% of the time and therefore must be satisfied.

#### **3.1.2.** Topographical Data

Topographical data was adapted from publicly available information (e.g. *Google*) in the form of spot heights and combined with the site plan.

Surrounding existing and proposed future buildings were also incorporated in the noise model, as these can provide noise shielding as well as reflection paths. Single storey residential buildings are modelled with a height of 3.5 metres and commercial buildings are modelled with a height of 4.0 metres, with receivers 1.4 metres above ground.

The childcare centre building is incorporated in the noise model as per the *Appendix A* plans. The fencing surrounding all child play areas is noted as being 2.1-metres high. The north and northwest side of Play Area 1 and Play Area 3 will need to be solid, free of gaps and minimum surface mass of 8kg/m<sup>2</sup>. A solid 1.8m-high fence has also been included surrounding the Staff and Services yard as per the *Appendix A* plans.

*Figure 3-1* shows a 2D overview of the noise model with the location of all relevant receivers identified. Pink dots represent point sources in the noise model (car doors, mechanical plant) with the pink polygon representing child play.



Figure 3-1: Overview of Noise Model

#### **3.1.3.** Ground Absorption

The ground absorption has been assumed to be 0.1 (10%) for the roads and carpark, 0.5 (50%) outside of the roads and 1.0 (100%) for the play areas, noting that 0.0 represents hard reflective surfaces such as water and 1.0 represents absorptive surfaces such as grass.

#### 3.1.4. Source Sound Levels

The source sound power levels used in the modelling are provided in *Table 3-2*.

	Octave Band Centre Frequency (Hz)											
Description	63	125	250	500	1k	2k	4k	8k	dB(A)			
Babies Play Aged 0-2 Years (10 kids), L <sub>10</sub>	54	60	66	72	74	71	67	64	78			
Toddler Play Aged 2-3 Years (10 kids), $L_{10}$	61	67	73	79	81	78	74	70	85			
Kindy Play Aged 3+ Years (10 kids), L <sub>10</sub>	64	70	75	81	83	80	76	72	87			
AC Plant, double fan unit (each), $L_{10}$	72	74	68	69	63	61	53	47	70			
General Exhaust Fans (each), L <sub>10</sub>	60	65	62	63	60	61	56	53	67			
Kitchen Exhaust Fan, $L_{10}$	50	64	61	70	69	66	62	50	73			
Closing Car Door (each), L <sub>max</sub>	71	74	77	81	80	78	72	61	84			

Table 3-2: Source Sound Power Levels, dB

The following is noted in relation to *Table 3-2*:

- Child play source levels are based on *Guideline for Childcare Centre Acoustic Assessments Version 3.0* produced by the Association of Australasian Acoustical Consultants (AAAC) published September 2020. Where the number of children for individual play areas is specified in the plans, these have been adjusted from the reference source levels using appropriate acoustical calculations. Outdoor child play was modelled as area sources at 1.0-metre above ground level. The sound power levels used in the model were scaled as follows:
  - Outdoor Play Area 1:
    - 12 children aged 0-2 years = 78 dB(A);
    - 10 children aged 2-3 years = 85 dB(A).
  - Outdoor Play Area 2:
    - 20 children aged 2-3 years = 88 dB(A).
    - 10 children aged 3+ years = 87 dB(A).
  - Outdoor Play Area 3:
    - 40 children aged 3+ years = 93 dB(A).
- Based on the AAAC Guideline 3.0, source sound power levels for AC condensing units were assumed. Medium sized (double fan) outdoor units were deemed appropriate with four (4) modelled as point sources in the Services Yard.
- Other mechanical plant includes four (4) exhaust fans (toilets and laundry) and one kitchen exhaust fan. All were modelled as point sources approximately 0.5-metres above roof level and above the area serviced.
- Car doors closing were modelled as a point source 1.0-metre above ground level. Since noise from a car door closing is a short term event, only the L<sub>Amax</sub> level is applicable.

#### 3.2. Transportation Noise

The methodology used in this assessment is to follow the screening assessment procedure provided in the Guidelines. From *Table* 2 of the Guidelines (refer *Figure 3-2*), noise levels at the proposed residence are assessed as 52 dB  $L_{Aeq(Day)}$ , with Great Northern Highway being a total of 2 lanes and at a distance of 227 metres from the proposed site. Therefore, the CCC is determined to be located in an area below the outdoor noise target.

Transport Corridor Classification		Number of lanes	Forecas	t noise	exposur	e categor	based o	n lot dis	tance(m)	from ed	ige of nea	rest mai	n road c	arriagewa	y (not e	ntrance/	exitram	os)					-	-	Forecast	Exposure	Policy requirements for noise-	
	(both directions), including bus/priority	1	0	20	30	40	50	60	70	80	90	100	110	20	130	140	150	175 2	00	225	250	275	300	Excess Noise Level, dB	Category	sensitive land-use and/or development		
	lanes and entrance/	adjacent																						0 or less		No further measures		
		exit ramps							12-12										1.1						103	A	Noise-sensitive land-use and/or	
Strategic freight/major tra	affic route	2 to 4 lanes	71	68	66	65	63	62	67	61	60	59	.59	58	57	57	56	55	54	53	5	2	51	50	-	"A+	development is acceptable, subject to	
500 or more Class 7-12 Aus	troads vehicles per day,	5 to 6 lanes	. 74	70	68	66	65	- 64	63	62	61	61	60	59	59	58	58	57	56	55	5	4	53	52	4to7	В	Mitigation measures in accordance with an approved noise management	
01		7 to 8 lanes	. 76	72	69	68	66	65	64	64	63	62	62	61	60	60	59	58	57	56	5	5	54	53	÷	•B+	plan;	
<ul> <li>50,000+ vehicles per day</li> </ul>		9 to 10 lanes	_ 77	73	70	69	67	66	65	65	64	63	63	62	61	61	60	59	58	57	5	6	55	54	8to 11	C	or quiet house package as specified	
		10 or more lanes	78	74	71	70	68	67	66	66	65	64	64	63	62	62	61	60	59	5	5	7	56	56		ME+		
Other significant freight /	Urban Region Scheme	1 to 2 lanes	57	64	62	61	60	59	58	57	56	56	55	54	54	53	53	52	51	50	4	9	48	47	12 to 15	B	Noise-sensitive land-use and/or development is not recommended.	
raffic routes Any actual or planned	areas 60-80 km/hr	3 to 6 lanes	69	66	64	63	62	61	60	59	58	58	57	56	56	55	55	54	53	57	5	1	50	49				There is no default quiet house option due to excessive forecast noise:
future State Administered Road	Urban Region Scheme	1 to 2 lanes	70	67	65	64	63	62	61	60	59	59	58	57	57	56	56	55	54	- 53	5	2	51	50	100		professional design input is required in order to achieve compliance with relevant criteria. If noise-sensitive land-use and/or development is	
Local Government Roads	areas 100+ km/hr	3 to 6 lanes	74	70	68	66	65	64	63	62	61	61	60	60	59	59	58	57	56	5	5	4	53	52	16+	1		
Carrying 100 or more Class 7 – 12 Austroads vehicles/day • 25,000+ vehicles per	Rural areas	1 to 2 lanes	62	59	57	56	55	54	53	52	51	51	50	49	49	48	48	46	45	4	4	3	42	41			unavoidable, an approved noise management plan is required to	
	60-80 km/hr	3 to 4 lanes	66	63	61	60	59	58	56	56	55	54	53	53	52	52	51	50	49	4	4	7	46	45			demonstrate compliance with the	
	Rural areas	1 to 2 lanes	67	64	62	61	60	59	58	57	56	55	54	- 54	53	53	52	51	50	4	4	8	47	46			noise target (see Table 1).	
days vehicles/day	100+ km/hr	3 to 4 lanes	69	66	64	63	62	61	60	59	58	57	56	56	55	55	54	53	52	5	5	0	49	48	Assits to mit	igate short ten	n noise events from freight rail.	

Figure 3-2: Noise Exposure Forecast Table from Guidelines

## 4. RESULTS AND ASSESSMENT

#### 4.1. Environmental Noise

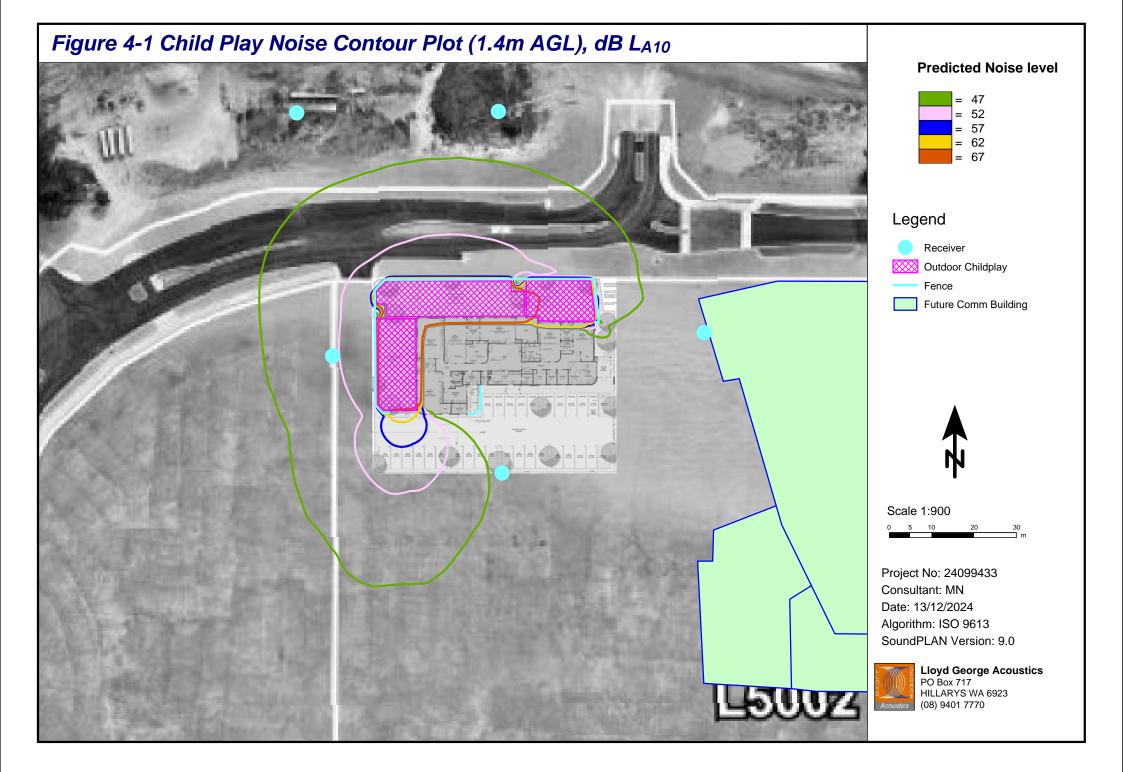
#### 4.1.1. Outdoor Child Play Noise

The childcare development will host up to 92 children. It is noted play time is generally staggered and therefore not all children would be playing outside at once for extended periods of time. However, noise levels were conservatively predicted for all children playing simultaneously, as a worst-case scenario with the results provided and assessed in *Table 4-1*. The critical assigned level is during the day, as whilst the childcare centre will open at 6.30am, child play will not commence until after 7.00am. Noise from child play is not considered to contain annoying characteristics within the definition of the Regulations and therefore no adjustments are made to the predicted noise levels. A noise contour plot is also provided in *Figure 4-1* showing noise levels at ground floor.

Receiver	Babies (0-2 yo)	Toddler (2-3 yo)	Kindy (3+ yo)	Total	Assigned Level	Assessment
Future Residential North (single storey)	29	38	44	45	47	Complies
Future Residential Northwest (single storey)	26	37	43	44	46	Complies
Future Commercial East	32	38	41	43	60	Complies
Future Commercial South	21	43	43	46	60	Complies
Future Commercial West	18	47	49	51	60	Complies

Table 4-1: Child Play Noise Predicted Levels and Assessment, dB LA10

Based on a conservative scenario of all 92 children playing outside simultaneously, the assessment demonstrates compliance is achieved during the day.



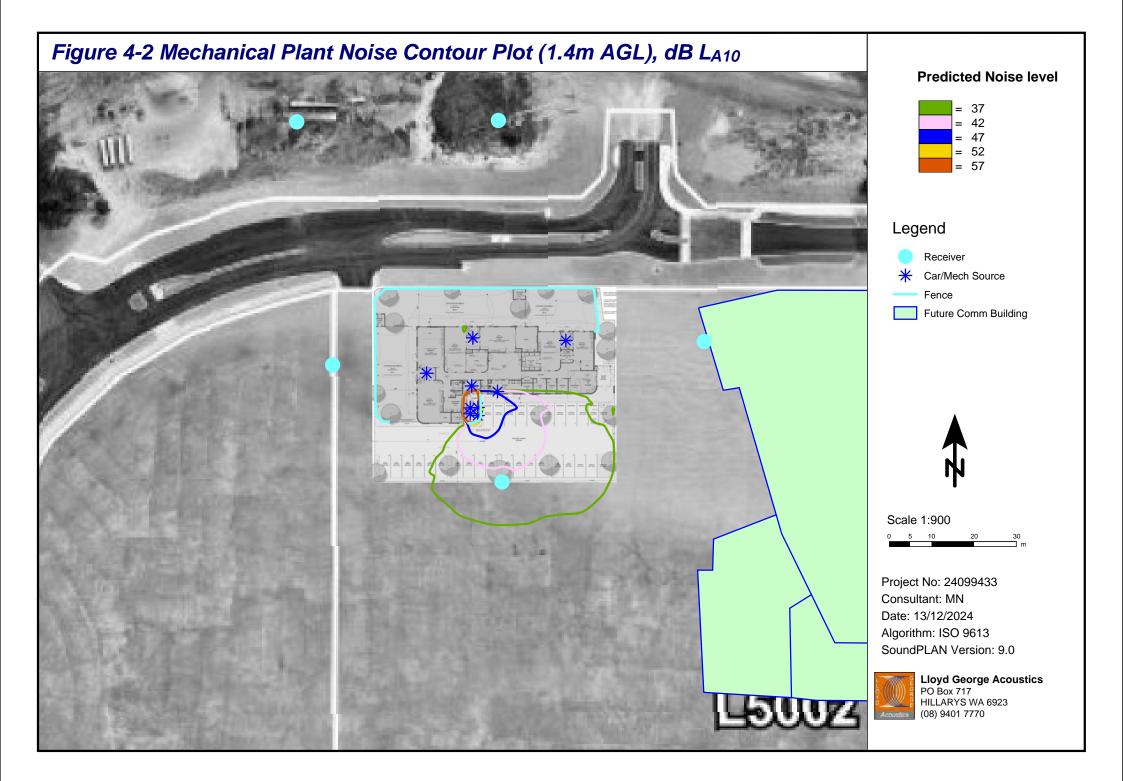
#### 4.1.2. Mechanical Plant Noise

Mechanical plant noise consists of the outdoor AC condensing units and exhaust fans. Predicted and assessed noise levels are provided in *Table 4-2*. The critical assigned level is during the night, as the plant may operate prior to 7.00am. An adjustment of + 5 dB is included for tonality, since this may be present for such noise sources. A noise contour plot is also provided in *Figure 4-2* showing noise levels at ground floor.

Receiver	AC	Exhaust Fans	Total	Total Adjusted	Assigned Level	Assessment
Future Residential North (single storey)	10	27	27	32	37	Complies
Future Residential Northwest (single storey)	8	25	25	30	36	Complies
Future Commercial East	20	30	30	35	60	Complies
Future Commercial South	36	38	40	45	60	Complies
Future Commercial West	15	28	28	33	60	Complies

Table 4-2: Mechanical Plant Noise Predicted Levels and Assessment, dB LA10

The calculations show compliance at all receiver locations. It must be noted that the assessment is based on assumptions in relation to the number, location, size and type of mechanical plant. Therefore, once the mechanical plant has been designed and selected, noise is to be reviewed by a suitably qualified acoustical consultant.



### 4.1.3. Car Door Closing Noise

Predicted and assessed noise levels for car doors closing are provided in *Table 4-3* being the maximum noise level from the worst-case car bay for each receiver. The critical assigned level is during the night, as car door closings will occur prior to 7.00am. An adjustment of + 10 dB is included for impulsiveness, since this may be present for such noise sources. A noise contour plot is also provided in *Figure 4-3* showing noise levels at ground floor.

Receiver Car Door Total Adjusted Assigned Level Assessme					
Future Residential North (single storey)	20	30	57	Complies	
Future Residential Northwest (single storey)	37	47	56	Complies	
Future Commercial East	46	56	80	Complies	
Future Commercial South	63	73	80	Complies	
Future Commercial West	47	57	80	Complies	

Table 4-3: Car Door Closing Noise Predicted Levels and Assessment, dB LAmax

Noise from car doors is predicted to comply at all nearest receivers during the critical night period.

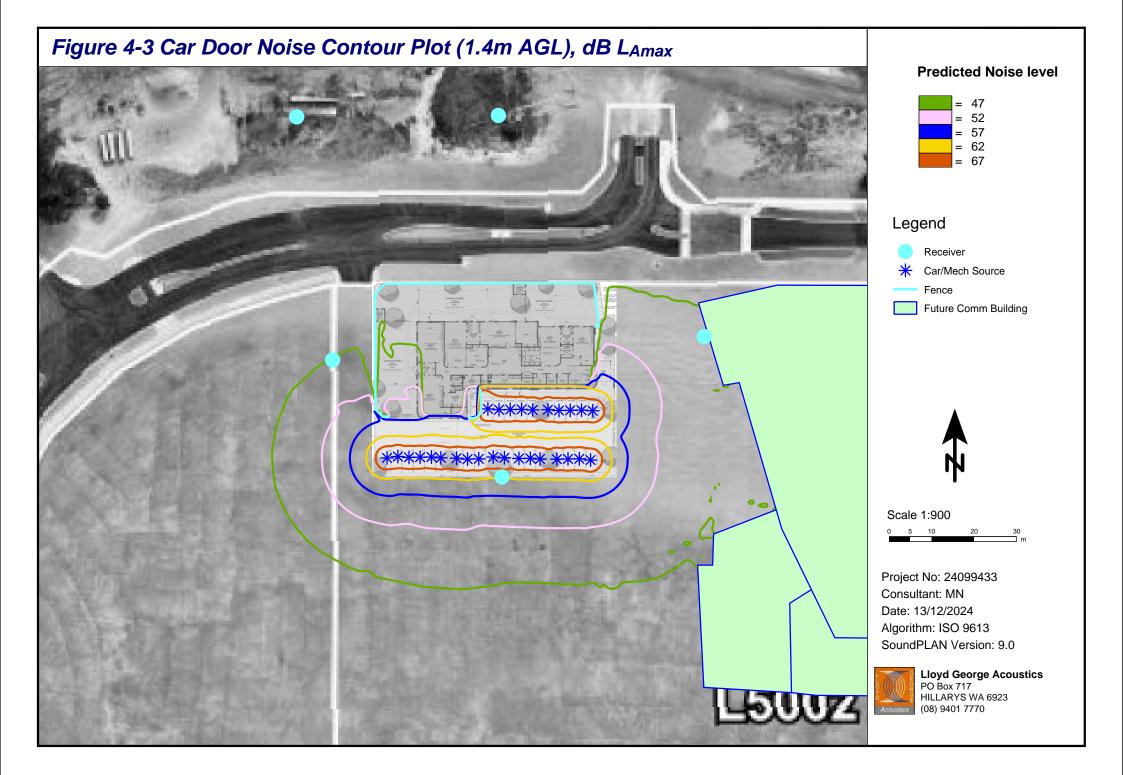
### 4.1.4. Indoor Child Play

An assessment of noise levels from indoor child play was carried out and the resulting noise levels at all locations were predicted to be well below that of outdoor child play considered in *Section 4.1.1*. This assessment was carried out based on the following considerations:

- Internal noise levels within activity rooms would not exceed those from outdoor play for each age group, regardless of windows being open or closed; and
- Any music played within the internal activity areas would be 'light' music with no significant bass content and played at a relatively low level.

### 4.2. Transportation Noise

From *Section 3.2*, the CCC is determined to be located in an area below the outdoor noise target. As a result, no further mitigation measures are required.



## **5. RECOMMENDATIONS**

### 5.1. Child Play

The predicted noise from all children playing outside is compliant provided the 2.1m high solid fencing shown on the DA Plans is constructed. The north and northwest side of Play Area 1 and Play Area 3 will need to be solid, free of gaps and minimum surface mass of 8kg/m<sup>2</sup>.

Whilst not necessarily required for compliance, to further minimise noise impacts as part of best practice, the following are to be considered where practicable:

- The behaviour and 'style of play' of children should be monitored to prevent particularly loud activity e.g. loud banging/crashing of objects, 'group' shouts/yelling;
- Favour soft finishes in the outdoor play area to minimise impact noise (e.g. soft grass, sand pit(s), rubber mats) over timber or plastic;
- Favour soft balls and rubber wheeled toys;
- Crying children should be taken inside to be comforted;
- Child play to be staggered;
- No amplified music to be played outside;
- Any music played within the internal activity areas to be 'light' music with no significant bass content and played at a relatively low level;
- Car park drainage grates or similar to be plastic or metal with rubber gasket and secured to avoid excess banging.

### 5.2. Mechanical Plant

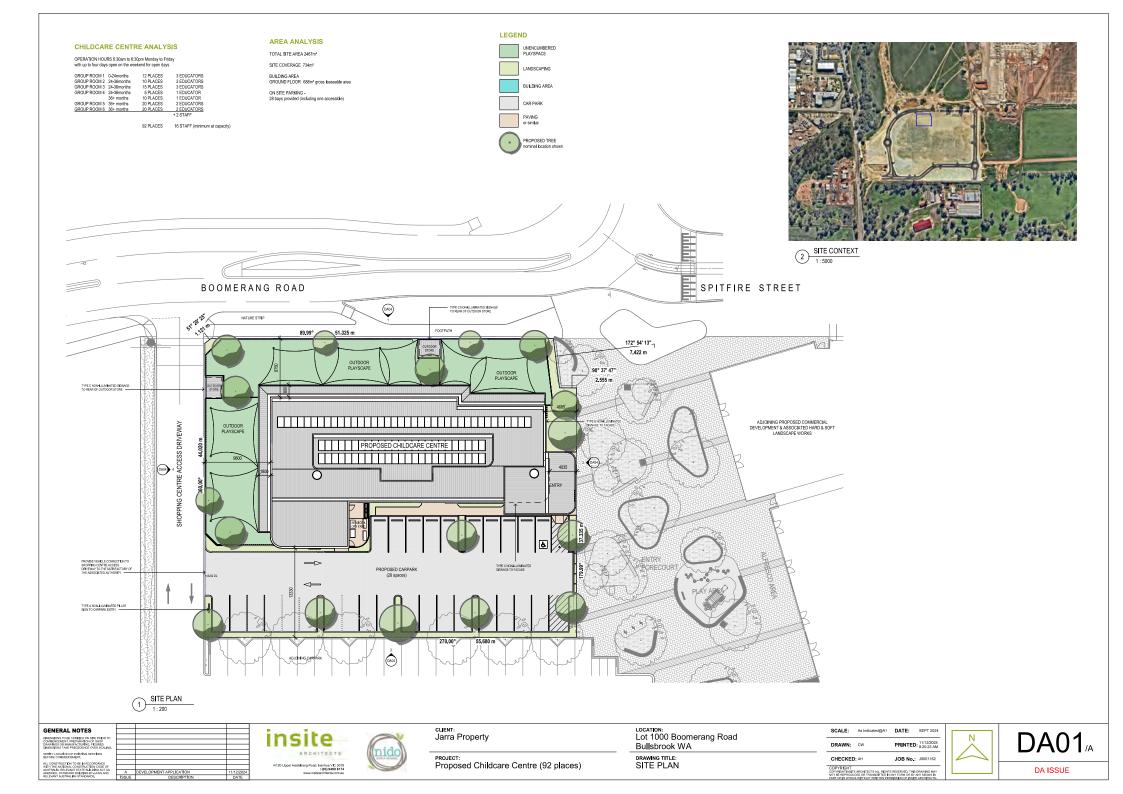
For mechanical plant, the following are recommended:

- Once the mechanical plant has been designed and selected, the noise levels shall be reviewed prior to Building Permit;
- All exhaust fans shall be located inside the ceiling void and shall be axial fan type, allowing the incorporation of an attenuator if required;
- All fans shall be variable speed drive so that maximum speed is only occurring when necessary with demand;
- Air-conditioning shall have a 'night' / 'quiet' mode option, in case required for prior to 7.00am operation, subject to final detailed analysis;
- All plant shall be selected taking into consideration noise levels. That is, when comparing manufacturers of equivalent equipment, select the quieter model;
- All plant is to be appropriately vibration isolated to 95% isolation efficiency.

### 5.3. Car Doors

The predicted noise from car door closings is shown to be compliant within the assessment.

**Appendix A – Development Plans** 









Appendix B – Influencing Factor Calculation

The assigned levels combine a baseline assigned level with an influencing factor, with the latter increasing the assigned level on the basis of the existence of significant roads and commercial or industrial zoned land within two radii (100 metres and 450 metres) of the noise sensitive premises. The calculation for the influencing factor is:

$$= \frac{1}{10} (\% \text{ Type } A_{100} + \% \text{ Type } A_{450}) + \frac{1}{20} (\% \text{ Type } B_{100} + \% \text{ Type } B_{450})$$
where:  
% Type  $A_{100}$  = the percentage of industrial land within  
a 100m radius of the premises receiving the noise  
% Type  $A_{450}$  = the percentage of industrial land within  
a 450m radius of the premises receiving the noise  
% Type  $B_{100}$  = the percentage of commercial land within  
a 100m radius of the premises receiving the noise  
% Type  $B_{450}$  = the percentage of commercial land within  
a 450m radius of the premises receiving the noise  
% Type  $B_{450}$  = the percentage of commercial land within  
a 450m radius of the premises receiving the noise  
% Type  $B_{450}$  = the percentage of commercial land within  
a 450m radius of the premises receiving the noise  
+ Transport Factor (maximum of 6 dB)  
= 2 for each secondary road (6,000 to 15,000 vpd) within 100m  
= 2 for each major road (>15,000 vpd) within 450m  
= 6 for each major road within 100m

The nearest future noise sensitive premises are identified within the new precinct plan to the north and northwest as shown in *Figure 3-1*, approximately 40-metres away.

*Table B-1* shows the percentage of industrial and commercial land within the inner (100 metre radius) and outer (450 metre radius) circles of this noise sensitive premise with reference to the Kingsford Town Centre Planning Scheme.

Receiver	Land Type	Within 100m	Within 450m
Future North Residential	Type A - Industrial and Utility	0	0
	Type B – Commercial	24	14
Future	Type A - Industrial and Utility	0	0
Northwest Residential	Type B – Commercial	12	14

 Table B-1: Percentage of Land Types within 100m and 450m Radii



Figure B-1: Land Types within 100m and 450m Radii

*Table B-2* combines the percentage land types and Transport Factor to calculate the influencing factor. There are no major roads within 450m nor secondary roads within 100m.

Receiver	Industrial Land	Commercial Land	Transport Factor	Total
Future North Residential	0	1.9	0	2
Future Northwest Residential	0	1.3	0	1

Table B-2: Influencing Factor Calculation, dB

The influencing factor calculated in *Table B-2* is combined with those baseline assigned levels of *Table 2-2*, resulting in the project assigned levels provided in *Table 2-3*.

Appendix C – Terminology

The following is an explanation of the terminology used throughout this report:

### • Decibel (dB)

The decibel is the unit that describes the sound pressure levels of a noise source. It is a logarithmic scale referenced to the threshold of hearing.

### • A-Weighting

An A-weighted noise level has been filtered in such a way as to represent the way in which the human ear perceives sound. This weighting reflects the fact that the human ear is not as sensitive to lower frequencies as it is to higher frequencies. An A-weighted sound level is described as L<sub>A</sub>, dB.

### • Sound Power Level (L<sub>w</sub>)

Under normal conditions, a given sound source will radiate the same amount of energy, irrespective of its surroundings, being the sound power level. This is similar to a 1kW electric heater always radiating 1kW of heat. The sound power level of a noise source cannot be directly measured using a sound level meter but is calculated based on measured sound pressure level at known distances. Noise modelling incorporates source sound power levels as part of the input data.

### • Sound Pressure Level (L<sub>p</sub>)

The sound pressure level of a noise source is dependent upon its surroundings, being influenced by distance, ground absorption, topography, meteorological conditions etc. and is what the human ear actually hears. Using the electric heater analogy above, the heat will vary depending upon where the heater is located, just as the sound pressure level will vary depending on the surroundings. Noise modelling predicts the sound pressure level from the sound power levels taking into account ground absorption, barrier effects, distance etc.

### L<sub>ASlow</sub>

This is the noise level in decibels, obtained using the A-frequency weighting and the S (slow) time weighting. Unless assessing modulation, all measurements use the slow time weighting characteristic.

### L<sub>AFast</sub>

This is the noise level in decibels, obtained using the A-frequency weighting and the F (fast) time weighting. This is used when assessing the presence of modulation.

### • L<sub>APeak</sub>

This is the greatest absolute instantaneous sound pressure level in decibels using the A-frequency weighting.

### L<sub>Amax</sub>

An L<sub>Amax</sub> level is the maximum A-weighted noise level during a particular measurement.

### • L<sub>A1</sub>

The  $L_{A1}$  level is the A-weighted noise level exceeded for 1 percent of the measurement period and is considered to represent the average of the maximum noise levels measured.

### • L<sub>A10</sub>

The L<sub>A10</sub> level is the A-weighted noise level exceeded for 10 percent of the measurement period and is considered to represent the "intrusive" noise level.

### • L<sub>A90</sub>

The L<sub>A90</sub> level is the A-weighted noise level exceeded for 90 percent of the measurement period and is considered to represent the "background" noise level.

### L<sub>Aeq</sub>

The equivalent steady state A-weighted sound level ("equal energy") in decibels which, in a specified time period, contains the same acoustic energy as the time-varying level during the same period. It is considered to represent the "average" noise level.

### • One-Third-Octave Band

Means a band of frequencies spanning one-third of an octave and having a centre frequency between 25 Hz and 20000 Hz inclusive.

### • Representative Assessment Period

Means a period of time not less than 15 minutes, and not exceeding four hours, determined by an inspector or authorised person to be appropriate for the assessment of a noise emission, having regard to the type and nature of the noise emission.

### • L<sub>Amax</sub> assigned level

Means an assigned level, which, measured as a L<sub>ASlow</sub> value, is not to be exceeded at any time.

### • L<sub>A1</sub> assigned level

Means an assigned level, which, measured as a L<sub>ASlow</sub> value, is not to be exceeded for more than 1 percent of the representative assessment period.

### • L<sub>A10</sub> assigned level

Means an assigned level, which, measured as a L<sub>ASlow</sub> value, is not to be exceeded for more than 10 percent of the representative assessment period.

### L<sub>Aeq(Day)</sub>

The  $L_{Aeq(Day)}$  level is the logarithmic average of the  $L_{Aeq}$  levels from 6.00am to 10.00pm.

### L<sub>Aeq(Night)</sub>

The  $L_{Aeq(Night)}$  level is the logarithmic average of the  $L_{Aeq}$  levels from 10.00pm to 6.00am.

#### • Tonal Noise

A tonal noise source can be described as a source that has a distinctive noise emission in one or more frequencies. An example would be whining or droning. The quantitative definition of tonality is:

- the presence in the noise emission of tonal characteristics where the difference between -
  - (a) the A-weighted sound pressure level in any one-third octave band; and
  - (b) the arithmetic average of the A-weighted sound pressure levels in the 2 adjacent one-third octave bands,

is greater than 3 dB when the sound pressure levels are determined as  $L_{Aeq,T}$  levels where the time period T is greater than 10% of the representative assessment period, or greater than 8 dB at any time when the sound pressure levels are determined as  $L_{A Slow}$  levels.

This is relatively common in most noise sources.

#### • Modulating Noise

A modulating source is regular, cyclic and audible and is present for at least 10% of the measurement period. The quantitative definition of modulation is:

- a variation in the emission of noise that
  - (a) is more than 3 dB L<sub>A Fast</sub> or is more than 3 dB L<sub>A Fast</sub> in any one-third octave band; and
  - (b) is present for at least 10% of the representative assessment period; and
  - (c) is regular, cyclic and audible.

#### Impulsive Noise

An impulsive noise source has a short-term banging, clunking or explosive sound. The quantitative definition of impulsiveness means:

a variation in the emission of a noise where the difference between L<sub>Apeak</sub> and L<sub>Amax</sub> is more than 15 dB when determined for a single representative event.

#### Major Road

Is a road with an estimated average daily traffic count of more than 15,000 vehicles.

#### • Secondary / Minor Road

Is a road with an estimated average daily traffic count of between 6,000 and 15,000 vehicles.

#### Noise-sensitive land use and/or development

Land-uses or development occupied or designed for occupation or use for residential purposes (including dwellings, residential buildings or short-stay accommodation), caravan park, camping ground, educational establishment, child care premises, hospital, nursing home, corrective institution or place of worship.

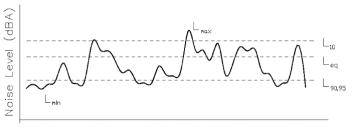
### • R<sub>w</sub>

This is the weighted sound reduction index. It is a single number rating determined by moving a grading curve in integral steps against the laboratory measured transmission loss until the sum of the deficiencies at each one-third-octave band, between 100 Hz and 3.15 kHz, does not exceed 32 dB. The higher the R<sub>w</sub> value, the better the acoustic performance.

#### • C<sub>tr</sub>

This is a spectrum adaptation term for airborne noise and provides a correction to the  $R_w$  value to suit source sounds with significant low frequency content such as road traffic or home theatre systems. A wall that provides a relatively high level of low frequency attenuation (i.e. masonry) may have a value in the order of – 4 dB, whilst a wall with relatively poor attenuation at low frequencies (i.e. stud wall) may have a value in the order of -12 dB.

• Chart of Noise Level Descriptors

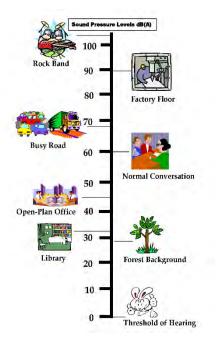


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• Typical Noise Levels





# Waste Management Plan

Lot 1000 Boomerang Road, Bullsbrook

Prepared for Ladybug Thirteen Pty Ltd ATF Ladybug Investment Trust Thirteen

**13 December 2024** 

Project Number: WMP24106

Assets | Engineering | Environment | Noise | Spatial | Waste



DOCUMENT CONTROL						
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Approval	Approval for Release					
Name		Position	File Referenc	e		
Dilan Pat	el	Project Manager – Senior Waste Strategy Consultant	W/W/P/4106-01 W/aste Wanagement Plan 10			it Plan_1.0
Signature						
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## **Executive Summary**

Ladybug Thirteen Pty Ltd ATF Ladybug Investment Trust Thirteen is seeking development approval for the proposed childcare centre development located at Lot 1000 Boomerang Road, Bullsbrook (the Proposal).

To satisfy the conditions of the development application the City of Swan (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. Talis Consultants has been engaged 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
Refuse	1,429	660	Two	Twice a week	Private Contractor
Recycling	1,429	660	Two	Twice a week	Private Contractor

A private contractor will service the Proposal onsite, directly from the Bin Storage Area. The private contractor's waste collection vehicle will enter and exit the Proposal in forward gear via the future Access Road.

A childcare centre operator/suitably qualified staff will oversee the relevant aspects of waste management at the Proposal.



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Figure 1: Locality Plan



## 1 Introduction

Ladybug Thirteen Pty Ltd ATF Ladybug Investment Trust Thirteen is seeking development approval for the proposed childcare centre development located at Lot 1000 Boomerang Road, Bullsbrook (the Proposal).

To satisfy the conditions of the development application the City of Swan (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. Talis Consultants has been engaged to prepare this WMP to satisfy the City's requirements.

The Proposal is bordered by Boomerang Road to the north and vacant land to the east, to the south and to the west (future Access Road 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 waste (refuse and recyclables) at the Proposal. Specifically, the WMP demonstrates that the Proposal is designed to:

- Adequately cater for the anticipated volume of waste to be generated;
- Provide an adequately sized 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 section shows the waste generation rates used and the estimated waste volumes to be generated at the Proposal.

### 2.1 **Proposed Tenancies**

The anticipated volume of refuse and recyclables is based on the total floor area ( $m^2$ ) of the waste generating areas at the Proposal – **408.40m<sup>2</sup>**, and as follows:

- Reception 9m<sup>2</sup>;
- Meeting 8m<sup>2</sup>;
- Planning 8m<sup>2</sup>;
- Office 10m<sup>2</sup>;
- Kitchen 22m<sup>2</sup>;
- Educators Retreat 19m<sup>2</sup>;
- Group 1 40.24m<sup>2</sup>;

- Group 2 33.51m<sup>2</sup>;
- Group 3 53.85m<sup>2</sup>;
- Group 4 49.99m<sup>2</sup>;
- Group 5 68.88m<sup>2</sup>;
- Group 6 67.93m<sup>2</sup>; and
- Cot Room 18m<sup>2</sup>.

### 2.2 Waste Generation Rates

In order to achieve an accurate projection of waste volumes for the Proposal, consideration was given to the City of Melbourne's *Guidelines for Waste Management Plans* (2021).

Table 2-1 shows the waste generation rates which have been applied to the Proposal.

### Table 2-1: Waste Generation Rates

Tenancy Use Type	City' of Melbourne	Refuse	Recycling
	Guideline Reference	Generation Rate	Generation Rate
Childcare Centre	Childcare	350L/100m <sup>2</sup> /week	350L/100m <sup>2</sup> /week

### **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.

Waste generation volumes in litres per week (L/week) adopted for this waste assessment is shown Table 2-2. It is estimated that the Proposal will generate 1,430L of refuse and 1,430L of recyclables each week.

Table 2-2:	Estimated	Waste	Generation
------------	-----------	-------	------------

Childcare Centre	Area (m²)	Waste Generation Rate (L/100m <sup>2</sup> /week)	Waste Generation (L/week)
Refuse	408.4	350	1,429
Recyclables	408.4	350	1,429
		Total	2,858



## 3 Waste Storage

Waste materials generated within the Proposal will be collected in the bins located in the Bin Storage Area, as shown in Diagram 1, and discussed in the following sub-sections.

### **3.1** Internal Transfer of Waste

To promote positive recycling behaviour and maximise diversion from landfill, internal bins will be available throughout the Proposal for the source separation of refuse and recycling.

These internal bins will be collected by the staff/cleaners and transferred to the Bin Storage Area for consolidation into the appropriate bins.

All bins will be colour coded and labelled in accordance with Australian Standards (AS 4123.7) to assist, staff and cleaners to dispose of their separate waste materials in the correct bins.

### **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 (m)	Bin Sizes				
Dimensions (m)	240L	660L	1,100L		
Depth	0.730	0.780	1.070		
Width	0.585	1.260	1.240		
Height	1.060	1.200	1.330		

Reference: SULO Bin Specification Data Sheets

### **3.3** Bin Storage Area Size

To ensure sufficient area is available for storage of the bins, the amount of bins required for the Bin Storage Area was modelled utilising the estimated waste generation in Table 2-2, bin sizes in Table 3-1 and based on collection of refuse and recyclables twice each week.

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

- Two 660L refuse bins; and
- Two 660L recycling bins.

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

Waste Stream	Waste Generation	Number of Bins Required		
waste stream	(L/week)	240L	660L	1,100L
Refuse	1,429	3	2	1
Recycling	1,429	3	2	1

The configuration of these bins within the Bin Storage Area is shown in Diagram 1. It is worth noting that the number of bins and corresponding placement of bins shown in Diagram 1 represents the maximum requirements assuming two collection each week of refuse and recyclables.



Diagram 1: Bin Storage Area



### **3.4** Bin Storage Area Design

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

- Smooth impervious floor sloped to a drain connected to the sewer system;
- Taps for washing of bins and Bin Storage Area;
- Doors to the Bin Storage Area self-closing and vermin proof;
- Doors to the Bin Storage Area wide enough to fit bins through;
- Ventilated to a suitable standard;
- Appropriate signage;
- Undercover where possible and be designed to not permit stormwater to enter into the drain;
- Located behind the building setback line;
- Bins not to be visible from the property boundary or areas trafficable by the public; and
- Bins are reasonably secured from theft and vandalism.

Bin numbers and storage space within the Bin Storage Area will be monitored by the childcare centre operator/suitably qualified staff during the operation of the Proposal to ensure that the number of bins and collection frequency is sufficient.



## 4 Waste Collection

A private waste collection contractor will service the Proposal and provide two 660L bins for refuse and two 660L bins for recyclables.

The private contractor will collect refuse and recyclable twice each week utilising a rear loader waste collection vehicle.

The private contractor's rear loader waste collection vehicle will service the bins onsite, directly from the Bin Storage Area. The private contractor's rear loader waste collection vehicle will travel with left hand lane traffic flow along the future Access Road and turn into the Proposal in forward gear, and pull up next to the Bin Storage Area for servicing.

It is proposed that servicing may be conducted outside of normal operating hours to allow the waste collection vehicle to utilise the empty carpark for manoeuvring and mitigate impacts on local traffic movements during peak traffic hours.

Private contractor's staff will ferry bins to and from the rear loader waste collection vehicle and the Bin Storage Area during servicing. The private contractor will be provided with key/PIN code access to the Bin Storage Area and security access gates to facilitate servicing, if required.

Once servicing is complete the private contractor's rear loader waste collection vehicle will complete a multipoint turn point within the carpark and exit in a forward motion, turning onto the future Access Road moving with traffic flow.

The above servicing method will preserve the amenity of the area by removing the requirement for bins to be presented to the street on collection days. In addition, servicing of bins onsite will reduce the noise generated in the area during collection. Noise from waste vehicles must comply with the Environmental Protection (Noise) Regulations and such vehicles should not service the site before 7.00am or after 7.00pm Monday to Saturday, or before 9.00am or after 7.00pm on Sundays and Public Holidays.

### 4.1 Bulk and Speciality Waste

Bulk and speciality wastes will be removed from the Proposal as they are generated. The childcare centre operator/suitably qualified staff will monitor the accumulation of any bulk hard waste or specialty wastes, such as batteries or e-waste, and will liaise with staff/cleaners to organise the removal of these wastes to appropriate disposal facilities, as required.

Sanitary wastes from the Proposal will be collected in situ. A suitably qualified sanitary waste collection and disposal provider will be engaged to determine storage and collection requirements.



### 5 Waste Management

A childcare centre operator/suitably qualified staff will be engaged to complete the following tasks:

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



## 6 Conclusion

As demonstrated within this WMP, the Proposal provides a sufficiently sized Bin Storage Area for storage of refuse and recyclables based on the estimated waste generation volumes and suitable configuration of bins. This indicates that an adequately designed Bin Storage Area has been provided, and collection of refuse and recyclables can be completed from the Proposal.

The above is achieved using:

- Two 660L refuse bins, collected twice each week; and
- Two 660L recycling bins, collected twice each week.

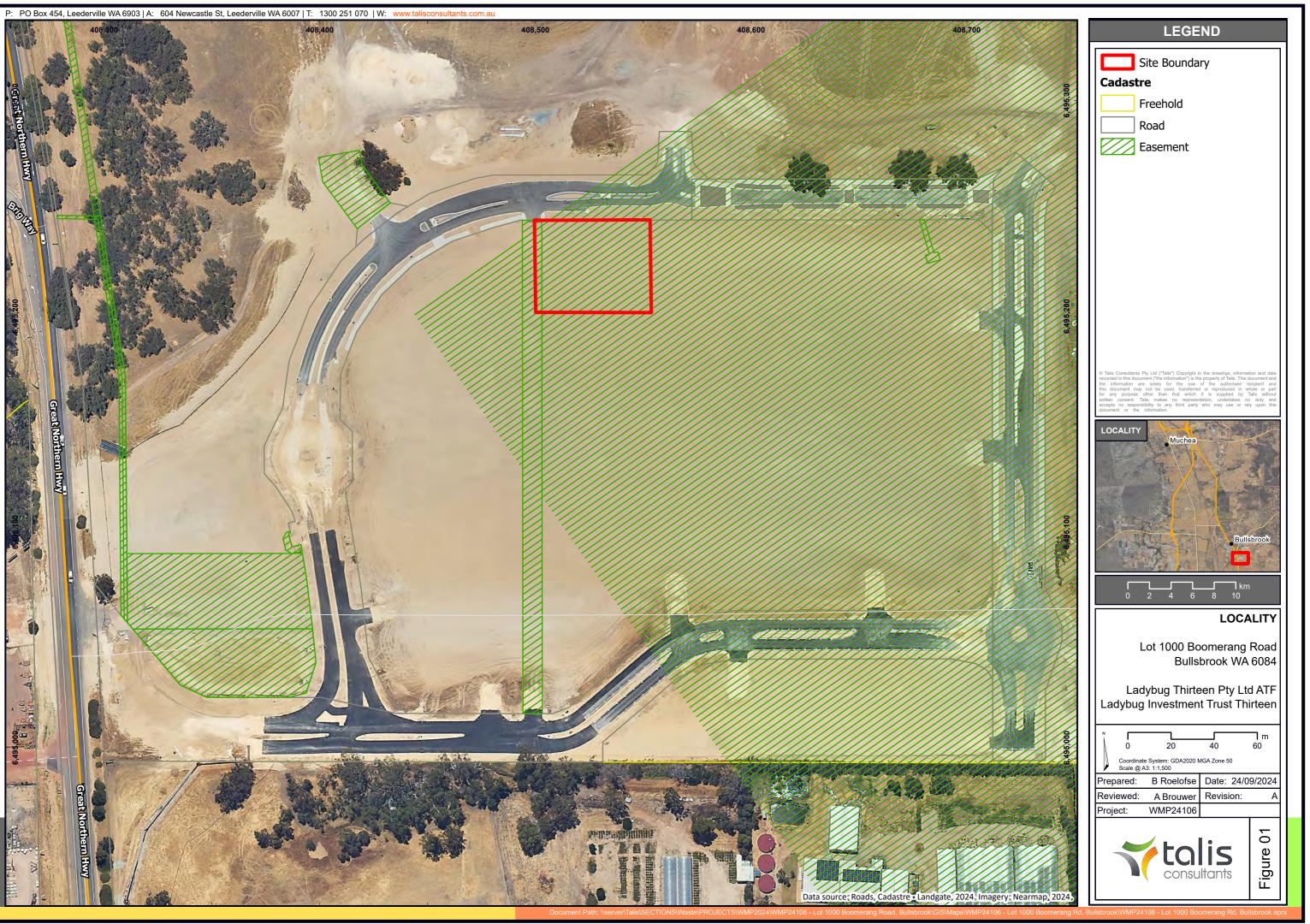
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A childcare centre operator/suitably qualified staff will oversee the relevant aspects of waste management at the Proposal.



## **Figures**

Figure 1: Locality Plan





Assets | Engineering | Environment | Noise | Spatial | Waste

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# **Design Review Report**

Location/Venue:

Meeting Date: Meeting Time: City of Swan Council Chambers - Midland Town Hall -312 Great Eastern Highway Midland Tuesday, 29 October 2024 1 pm

### Item 1 – Childcare Centre – Lot 1000 Spitfire Street BULLSBROOK– DRP-30/2024 – 1st DRP Meeting Pre DA

Design Review Report		
Subject	Item 1 – Childcare Centre– Lot 1000 Spitfire Street BULLSBROOK	
Design Reviewers	Brett Wood-Gush – Acting Chairperson (Insight Urbanism)	
	Peter Damen - Panel Member (Level 5 Design)	
	Wayne Dufty – Panel Member (DNA Architects)	
	Walter Van Der Loo – Panel Member (PLACE Laboratory)	
Proponent &	Alessandro Stagno – Apex Planning	
Project Team	Emily Woods – Jarra Property	
Declarations	None	

Design quality evaluation		
Principle 1 Context and character		Good design responds to and enhances the distinctive characteristics of a local area, contributing to a sense of place.
Comments and Recommendation		<ul><li>Strengths</li><li>a) The proposal integrates a sensitive use into the centre limiting impact on the residential areas.</li><li>b) The East-West orientation aids impassive design.</li></ul>
		<ul><li>Area of improvements</li><li>c) The precinct plan provided is one of the plans the various owners of the centre have tabled. There needs to be more certertantly of the future layout against which the DRP can assess his proposal.</li></ul>
		<ul> <li>d) While the use is permitted, the proposal needs to respond to its immediate context, which includes a public plaza that anchors the main street.</li> <li>e) The use is often associated with a particular (suburban) built-form response. This needs to be</li> </ul>



	completely reviewed in a town centre location. Avoid a residential natured outcome.
	f) The single-use proposed for the site has its peak during the day and is likely to be closed and vacant in the evening, which does not support the activation of the adjacent town plaza.
	<ul> <li>g) This proposal accentuates the creation of a built environment of individual island developments within a sea of car parking</li> </ul>
	Recommendations
	<ul> <li>Provide more context including a clear and coherent and agreed plan for the immediate precinct.</li> <li>Reconsider the selection of this site within the Structure Plan. If a childcare centre has to be located on this site, explore moving it west to enable sleaving with an active frontage to the plaza. Alternatively, a mixed-use development with active use on the ground floor and the childcare above may meet expectations.</li> <li>Examine alternative typologies for a town centre overcoming the low-density suburban option proposed for this site.</li> <li>Clearly show treatments in the adjoining verge, access road, carpark and plaza and demonstrate design responses to this context.</li> </ul>
Principle 2 Landscape quality	Good design recognises that together landscape and buildings operate as an integrated and sustainable system, within a broader ecological context.
Comments and	Strengths
Recommendation	a) The proposal leaves land available for landscape
	Area of improvements
	<ul> <li>b) The DRP is generally concerned about Childcare Centers that do not deliver a comprehensive landscape plan. In this location, this must be addressed.</li> </ul>
	<ul> <li>c) Within the car park the landscape areas appear very compromised.</li> </ul>
	<ul> <li>d) There is limited tree planting to the south of the building.</li> </ul>
	<ul> <li>e) Identify how the age groups will be supported by external social spaces appropriate to their age group. Consider the outdoor spaces as a series of</li> </ul>



	<ul> <li>rooms allocated to each age group, providing opportunities for those groups to mingle with others in their age group.</li> <li>f) Tree planting appears very limited, relying on shade sails rather than planting for enduring tre canopy. The shade sails are not a high-quality outcome and can be ineffective with angled</li> </ul>	e
	sunlight g) Landscaping verges and other areas must be better explained and developed.	
	<ul> <li>h) More detail on how the landscaping and place- making here will integrate with the landscaped plaza is needed.</li> </ul>	
	i) Further refine the landscape and species list to ensure appropriateness to the location and use.	
	<ul><li>Recommendations</li><li>Progress a detailed strategy for landscape</li></ul>	
	alongside the review of the use/build form	
Principle 3 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.	F
Comments and	Strengths	
Comments and Recommendation	Strengths a) Benefits from its high roof and provision of a veranda.	
	a) Benefits from its high roof and provision of a	
	<ul><li>a) Benefits from its high roof and provision of a veranda.</li><li>b) Benchmarked against a suburban topology,</li></ul>	
	<ul> <li>a) Benefits from its high roof and provision of a veranda.</li> <li>b) Benchmarked against a suburban topology, architectural forms are above average.</li> <li>c) The curvilinear corners are supported. The DRP questions why these are not extended to other</li> </ul>	
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	<ul> <li>a) Benefits from its high roof and provision of a veranda.</li> <li>b) Benchmarked against a suburban topology, architectural forms are above average.</li> <li>c) The curvilinear corners are supported. The DRP questions why these are not extended to other corners.</li> <li>Area of improvements</li> <li>d) In relation to the intent and the approved development on the opposite side of the plaza. I scale and level of integration should be significantly improved.</li> <li>e) The architectural approach appears somewhat undefined, with some corners having curves and other squares and some more interesting material.</li> </ul>	l ials n jo



	<ul> <li>Recommendations</li> <li>Review more successful urban topologies for childcare centres, including greater expression of two-story development and form that is not hidder behind a surrounding wall.</li> <li>Work to define the western side of the plaza in terms of built-form elements, with more provision of shade and as much activation as possible.</li> <li>A mix of uses should be delivered. This could include a café and alfresco area</li> </ul>
Principle 4 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.
Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) Internal functionality is mostly resolved.</li> <li>b) The provision of an indoor shared space provides a breakout space and assists circulation.</li> <li>c) The entry lobby is well-sized.</li> <li>d) The integrated bin stores and drying areas are appropriate.</li> <li>e) Sufficient parking supply has been provided to meet demands.</li> </ul> </li> <li>Area of improvements <ul> <li>f) The design is treated similarly to a childcare centr on a single lot in a street. The integration within the rest of the centre needs to be better resolved.</li> <li>g) Providing the gathering space internally would benefit from more access to outdoor areas.</li> <li>h) Recipricol use and management of the car park in the context of the adjacent parking areas still needs to be resolved.</li> <li>i) The fencing is a significant feature but appears utilitarian with an association with freeway noise walls.</li> </ul> </li> <li>Recommendations <ul> <li>Deliver an outcome that reflects the scale, presence and vitality of the shopping centre across the other side of the plaza.</li> <li>Consider relocating the form to define the plaza. Deliver colonnades, seating and landscape to integrate with and support the urban outcome.</li> <li>Avoid car parking facing the plaza.</li> </ul> </li> </ul>



Principle 5 Sustainability	Good design optimises the sustainability of the built environment, delivering positive environmental, social and economic outcomes.
Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) The clearstory windows above the central space provide light.</li> </ul> </li> <li>Area of improvements <ul> <li>b) Far more detail is needed on the sustainability commitments.</li> <li>c) The opportunity to include a second clearstory for cross ventilation appears to be being overlooked</li> <li>d) Explain the approach regarding water-sensitive urban design, energy reduction reuse, use of more sustainable materials, etc.</li> </ul> </li> <li>Recommendations <ul> <li>Progress the sustainability commitments to ensure they are optimised</li> <li>Integrate the design and management of parking as a shared resource within the context of the overall town centre.</li> </ul> </li> </ul>
Principle 6 Amenity	Good design optimises internal and external amenity for occupants, visitors and neighbours, providing environments that are comfortable, productive and healthy.
Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) The childcare spaces appear appropriately sized, and areas for outdoor play have been provided.</li> </ul> </li> <li>Area of improvements <ul> <li>b) Amenity for childcare users within the building is considered; however, urban amenity is lacking.</li> <li>c) Pedestrian amenity is inadequate along the southern side of the building – paths, shade, pedestrian priority over vehicles</li> <li>d) Verandah is fairly shallow <ul> <li>e) High wall along the property boundary</li> <li>f) There is limited visual/open-air connection between internal playspaces and surrounding areas, i.e. POS opposite and plaza adjacent.</li> </ul> </li> <li>Recommendations <ul> <li>Expand the consideration of amenity beyond the interior layout.</li> </ul> </li> </ul></li></ul>



Good design results in buildings and places that are legible, with clear connections and easily identifiable
elements to help people find their way around.
<ul> <li>Strengths <ul> <li>a) Efforts have been made to locate the entry on a corner that can be seen from the centre and the car park.</li> <li>b) The form is now one that is familiar to most as being that of a (suburban) childcare.</li> </ul> </li> </ul>
Area of improvements
<ul> <li>c) The car park's fragmentation from the rest of the town centre undermines ccar park legibility for vehicles.</li> </ul>
<ul> <li>d) The DRP questions how the car park will effectively operate in the context of the design of the overall centre.</li> </ul>
Recommendations
<ul> <li>Undertake a (micro precinct) urban design study identifying destinations and sight lines and ensure pedestrian footpaths connect these well.</li> </ul>
<ul> <li>Clarify how vehicle parking will be managed to meet users' requirements and, if physical measures are required, ensure they are well integrated into the design - gates and barriers are not supported.</li> </ul>
Good design optimises safety and security, minimising the risk of personal harm and supporting safe behaviour and use.
Strengths
a) Consideration has been given to the safety of children using the centre once within the centre.
Area of improvements
<ul> <li>b) The child care provides minimal eyes on the street for the public space.</li> </ul>
<ul> <li>c) The car park is isolated from the rest of the centre. Limit to the opportunity for a more natural flow of vehicles.</li> </ul>
<ul> <li>d) The use occupies a very sensitive location within the town centre yet appears to provide no east- west footpath.</li> </ul>
<ul> <li>e) No north-south path has been identified on the access way. This needs to be resolved.</li> </ul>



	Recommendations
	<ul> <li>Improve pedestrian access and cross-site connections.</li> </ul>
	<ul> <li>Improve passive surveillance opportunities.</li> </ul>
Principle 9 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.
Comments and	Strengths
Recommendation	<ul> <li>a) The use provides a community need and is located away from sensitive residential areas</li> </ul>
	Area of improvements
	<ul> <li>b) The DRP understands the potential for childcare to provide activation within the town centre. However, this activation is limited in relation to retail and food and beverage, which provide direct access for all.</li> </ul>
	Recommendations
	• The proposal needs to identify how it will contribute to the public space day and night by providing a town centre where people can gather and socialise.
Principle 10 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.
Comments and	Strengths
Recommendation	a) Clarity on signage is appreciated.
	<ul> <li>Area of improvements</li> <li>b) Overall, the building appears quite beige. Prioritise the design to respond and engage with the children with a sense of joy and excitement.</li> <li>c) The boundary treatments appear quite bland and overpowering to the streetscape</li> <li>Recommendations</li> </ul>
	• Be more expressive in the design and better reflect the human (child) scale of the use.



Design Review progress				
Supporte	Supported			
Pending f	urther attention			
Not yet s	ipported			
Yet to be	addressed			
	DRP Meeting 1 29/10/24 Concept	DRP Meeting 2	DRP Meeting 3	DRP Meeting 4
Principle 1 - Context and character				
Principle 2 - Landscape quality				
Principle 3 - Built form an scale	nd			
Principle 4 - Functionality	,			
Principle 5 - Sustainabilit	у			
Principle 6 - Amenity				
Principle 7 - Legibility				
Principle 8 - Safety				
Principle 9 - Community				
Principle 10 - Aesthetics				



#### **Concluding Remarks**

The DRP has significant concerns about the approach to the centre's development. Much of the benefit of structured planning is in staged development and integrated outcomes. The approval of a structured plan comes with expectations on the landholders to develop these consistently. Subdivision and fragmented development of individual sites do not support this outcome.

The permissibility of use within a structured plan is designed to provide flexibility. As the structure plan is developed, it becomes more refining of which uses can be located where. While use is a planning issue, appropriate form and activation is a design principle.

The proponent needs to start by undertaking an urban design study for the site, acknowledging that this development contributes an urban component to the centre's consolidation. From there, the landscape and built form can evolve.

**Is the proposal required to go back to a future Design Review Panel Meeting?** Please tick one of the following:

 $\sqrt{\text{Yes}}$  – future full panel design review

□ No – future chair review only

□ No – supported – no further review required

Is the proposal supported?

Please tick one of the following:

□ Yes - Supported

□ Yes - Supported – pending further attention and/or conditions to be imposed

 $\sqrt{NO}$  - Not supported

Design Review Report endorsement & DRP Recommendation

Reviewers Signature Malcolm Mackay



# **Design Review Report**

Location/Ven	ue:
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Meeting Date: Meeting Time: City of Swan Administration Centre - 2 Midland Square Midland 28 January 2025 2 pm

## Item 2 – Childcare Centre – Lot 5002 Squadron Boulevard (Future lot 1000 Spitfire St), Bullsbrook – DRP-30/2024 & DA-1001/2024 – 1st DRP Meeting Post DA

Design Review	Report
Subject	Item 2 – Childcare Centre – Lot 5002 Squadron Boulevard, Bullsbrook (Future lot 1000 Spitfire Street) – DRP-30/2024 & DA-1001/2024 – 1st DRP Meeting Post DA
Design Reviewers	Brett Wood-Gush – Deputy Chairperson (Insight Urbanism)
	Peter Damen - Panel Member (Level 5 Design)
	Wayne Dufty – Panel Member (DNA Architects)
	Stephen Carrick – Panel Member (Stephen Carrick Architects)
Proponent & Project Team	Alessandro Stagno – Apex Planning Emily Woods – Jarra Property
	Amelia Coleman – Urban Retreat Gardens
Declarations	None

Design quality evaluation		
Principle 1 Context and character		Good design responds to and enhances the distinctive characteristics of a local area, contributing to a sense of place.
Comments and Recommendation		<ul><li>Strengths</li><li>a) The proposal integrates a sensitive use into the centre limiting impact on the residential areas.</li><li>b) The East-West orientation aids in passive design.</li></ul>
		Areas for Improvement c) The context and character do not meet the expectations of the location within the structure plan and the changing and evolving context and



	character of Bullsbrook.
	<ul> <li>d) The single-use proposed for the site has its peak during the day and is likely to be closed and vacant in the evening, which does not support the activation of the adjacent town plaza.</li> <li>e) The modifications have not significantly improved the urban frontage of the plaza and have regressed in terms of landscape separation of the plaza and parking.</li> </ul>
	Recommendations
	1. Reinstate the landscape strip to the square and use this to provide some vertical elements to screen the car bays and define the square.
Principle 2 Landscape quality	<i>Good design recognises that together landscape and buildings operate as an integrated and sustainable system, within a broader ecological context.</i>
Comments and	Strengths
Recommendation	a) The proposal leaves land available for landscape to the north and west.
	b) A landscape architect has joined the team.
	<ul> <li>c) Landscaping verges and other areas have been better explained.</li> </ul>
	Areas for Improvement
	<ul> <li>d) The DRP is generally concerned about Childcare Centers that do not deliver a comprehensive landscape plan. The design should outline the programming of the space for users with a focus on some defined spaces for various age groups.</li> </ul>
	<ul> <li>e) There is limited tree planting to the south of the building but there has been some improvement. The additional planning nibs may not be sufficiently wide to support good growth. Adding the existing nibs and delivering large tree planting as part of the proposal could be more effective.</li> </ul>
	<ul> <li>f) Within the car park the landscape areas appear very compromised. The planting strip to the east end has been removed instead of enhanced</li> </ul>
	g) Identify how the age groups will be supported by external social spaces appropriate to their age group. Consider the outdoor spaces as a series of rooms allocated to each age group, providing opportunities for those groups to mingle with others in their age group.
	<ul> <li>h) Tree planting still appears very limited, relying on shade sails rather than planting for enduring tree canopy. The shade sails are not a high-quality outcome and can be ineffective with angled</li> </ul>



	<ul> <li>sunlight <ol> <li>Some improvement has been made to the landscape on the east side. A raised seating platner would be supported. Check the separation between these treatments and the gardens proposed for the square.</li> <li>Further refine the landscape and species list to ensure appropriateness to the location and use. The maximum canopy of 6 m appears insufficient.</li> </ol> </li> <li>Recommendations <ol> <li>Progress a detailed strategy for landscape.</li> </ol></li></ul>
Principle 3 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.
Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) Benefits from its high roof and provision of a veranda.</li> <li>b) The curvilinear corners are supported.</li> </ul> </li> <li>Areas for Improvement <ul> <li>c) In relation development on the opposite side of the plaza, the scale and extent of frontage is limited. The improvements are minor but accepted by the Panel.</li> <li>d) The rounded corners are now more consistent and a supported feature of a more organic and softer architecture.</li> <li>e) We support the textural qualities of hit and miss brickwork and suggest it be extended to enhance the corner entrance and also incorporate more creative 'child friendly' design elements.</li> <li>f) Extend shade and rain protection to the east and south sides of the building along with improved pedestrian walkways.</li> </ul> </li> <li>Recommendations <ul> <li>Inmprove the east-west connections and the frontage to the plaza, including the car park's frontage.</li> </ul> </li> </ul>
Principle 4 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.



Comments and Recommendation	Strengths
Recommendation	a) Internal functionality is mostly resolved.
	<ul> <li>b) The provision of an indoor shared space provides a breakout space and assists circulation.</li> </ul>
	c) The entry lobby is well-sized.
	<ul> <li>d) The integrated bin stores and drying areas are appropriate.</li> </ul>
	Areas for Improvement
	<ul> <li>e) The design is treated similarly to a childcare centre on a single lot in a street. The integration within the rest of the centre needs to be better resolved.</li> </ul>
	<ul> <li>f) Recipricol use and management of the car park in the context of the adjacent parking areas still needs to be resolved.</li> </ul>
	<ul> <li>g) For childcare staff, the opportunity for an external breakout space and fresh air is seen as important. Locating this area as part of the service yard would be a poor outcome.</li> </ul>
	Recommendations
	1. See other sections.
	2. Improve seating in the lobby for parents.
Principle 5	Good design optimises the sustainability of the built
Sustainability	environment, delivering positive environmental, social and economic outcomes.
Comments and	Strengths
Recommendation	<ul> <li>a) The clearstory windows above the central space provide light and ventilation.</li> </ul>
	Areas for Improvement
	<ul> <li>b) Explain the approach regarding water-sensitive urban design, energy reduction reuse, use of more sustainable materials, etc.</li> </ul>
	c) Provide an ESD report with clear and measurable commitments.
	Recommendations
	1. Progress the sustainability commitments to ensure they are optimised
	2. Integrate the design and management of parking as a shared resource within the context of the overall town centre.
Principle 6	<i>Good design optimises internal and external amenity for occupants, visitors and neighbours, providing</i>



Amenity	<i>environments that are comfortable, productive and healthy.</i>
Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) The childcare spaces appear appropriately sized, and areas for outdoor play have been provided.</li> <li>b) There is some visual connection between internal playspaces and surrounding areas.</li> </ul> </li> <li>Areas for Improvement <ul> <li>c) Amenity for childcare users within the building is considered; however, urban amenity is lacking.</li> <li>d) The entrance could be improved with a recessed undercroft zone, more open to the piazza and welcoming to kids.</li> <li>e) Pedestrian amenity is inadequate along the southern side of the building – paths, shade, pedestrian priority over vehicles.</li> <li>f) The site's eastern edge, to the plaza, should provide better shade and shelter to pedestrians.</li> </ul> </li> <li>Recommendations <ul> <li>Expand the consideration of amenity beyond the interior layout.</li> </ul> </li> </ul>
Principle 7 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.
Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) Efforts have been made to locate the entry on a corner that can be seen from the centre and the car park.</li> </ul> </li> <li>Areas for Improvement <ul> <li>b) The car park's fragmentation from the rest of the town centre undermines car park legibility for vehicles.</li> <li>c) The DRP questions how the car park will effectively operate in the context of the design of the overall centre.</li> <li>d) The proposal that signs will be placed a the entrances to tell people to stay out may be insufficient if the parking looks like the rest of the centre.</li> </ul> </li> </ul>



	<ul> <li>Recommendations</li> <li>1. Undertake a (micro precinct) urban design study identifying destinations and sight lines and ensure pedestrian footpaths connect these well.</li> <li>2. Clarify how vehicle parking will be managed to meet users' requirements and, if physical measures are required, ensure they are well integrated into the design - gates and barriers are not supported.</li> <li>3. Consider making the car park look more like a plaza and less like a common-use car park.</li> </ul>
Principle 8 Safety	Good design optimises safety and security, minimising the risk of personal harm and supporting safe behaviour and use.
Comments and Recommendation	<ul> <li>Strengths <ul> <li>a) Consideration has been given to the safety of children using the centre once within the centre.</li> </ul> </li> <li>Areas for Improvement <ul> <li>b) The child care provides some eyes on the street for the public space/ car park.</li> <li>c) The use occupies a very sensitive location within the town centre yet appears to provide no eastwest footpath.</li> <li>d) No north-south path has been identified on the access way.</li> </ul> </li> <li>Recommendations <ol> <li>Improve pedestrian access and cross-site connections.</li> </ol> </li> </ul>
Principle 9 <b>Community</b>	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.
Comments and Recommendation	<ul> <li>Strengths         <ul> <li>a) The use provides a community need and is located away from sensitive residential areas</li> </ul> </li> <li>Areas for Improvement         <ul> <li>b) The proposal fails to deliver the urban outcome that could have been delivered by a mixed-use building or even a street (plaza)-the front focus of child care. More must be done to lift the</li> </ul> </li> </ul>



	2
	building and car park interface to the plaza.
	Recommendations
	1. See other recommendations.
Principle 10 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.
Comments and	Strengths
Recommendation	a) Clarity on signage is appreciated.
	Areas for Improvement
	<ul> <li>b) Prioritise the design to respond and engage with the children with a sense of joy and excitement.</li> </ul>
	<ul> <li>Most of the boundary treatments appear quite bland. Look to more bright colours over subdued greys and browns.</li> </ul>
	Recommendations
	1. Be more expressive in the design and bettter reflect the human (child) scale of the use.

Design Review progress					
	Supported				
	Pending furt	her attention			
	Not yet supp	ported			
	Yet to be ad	dressed			
	DRP Meeting 1DRP Meeting 2DRP Meeting 3DRP Meet29/10/202428/01/2025Concept1st DRP Post DA			DRP Meeting 4	
Principle 1 - Cor character	itext and				
Principle 2 - Landscape quality					
Principle 3 - Built form and scale					
Principle 4 - Functionality and build quality					
Principle 5 - Sustainability					
Principle 6 - Amenity					



Principle 7 - Legibility		
Principle 8 - Safety		
Principle 9 - <b>Community</b>		
Principle 10 - Aesthetics		

## **Concluding Remarks**

There appears to be a missed opportunity, as the use and design fail to integrate into the centre in terms of parking access/management, pedestrian circulation, and the urban and landscape definition of the plaza.

Child Care is a vital community use; however, there are matters of importance to creating a thriving town centre. The first DRP suggested a holistic redesign, but this was not undertaken. Some improvements have been made around the existing design, but further modifications to circulation and interface are needed for the design to be acceptable.

Within the site, there are opportunities for a better programmed and designed landscape and for improvements to internal amenities for visitors and staff.

The proposal also needs a better definition of sustainability and child-friendly aesthetics.

Is the proposal required to go back to a future Design Review Panel Meeting? Please tick one of the following:

□ Yes – future full panel design review

 $\sqrt{NO}$  – future chair review only

□ No – supported – no further review required

Is the proposal supported?

Please tick one of the following:

□ Yes - Supported

- $\sqrt{\text{Yes}}$  Supported pending further attention and/or conditions to be imposed
- □ No Not supported

Design Review Report endorsement & DRP Recommendation

Brethinth

Brett Wood-Gush Acting DRP Chairperson



# Design Review Report Chair Review Report

## Chair Review Date: Friday 28 March 2025

## Item: Childcare Centre – Lot 5002 Squadron Boulevard, Bullsbrook – DRP-30/2024 & DA-1001/2024

Design Review	Design Review Report		
	Childcare Centre - Lot 5002 Squadron Boulevard, Bullsbrook (Future lot 1000 Spitfire Street)		
Chairperson undertaking the Review	Brett Wood-Gush – Deputy Chairperson (Insight Urbanism)		

Design quality evaluation	
Principle 1 Context and character	Good design responds to and enhances the distinctive characteristics of a local area, contributing to a sense of place.
Comments and Recommendation	Chair Review – 2025/03/28 The Plans have been amended to partially address the recommendation. A raise planter bed, similar to the one at the front of the building, and features that provide early definition of the plaza edge should be provided in the final design. <b>supported</b> Subject to a condition requiring that the carpark interface design meets SPP 7.0.
Principle 2 Landscape quality	Good design recognises that together landscape and buildings operate as an integrated and sustainable system, within a broader ecological context.
Comments and Recommendation	Chair Review – 2025/03/28 The Proponent continues to object to providing play area landscape details at this point, stating that the details are subject to further consideration. This is not appropriate as landscape and built form, etc, should be addressed together. However, in this case, the design review of the landscape can be



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	<i>conditioned.</i> <b>Supported -</b> Subject to a condition requiring that the playground landscape design meets SPP 7.0.
Principle 3 Built form and scale	<i>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.</i>
Comments and Recommendation	<i>Chair Review – 2025/03/28</i> <i>The building's frontage has been improved, and the car</i> <i>park has been designed to resemble a plaza.</i> <i>Supported.</i>
Principle 4	<i>Good design meets the needs of users efficiently and</i>
Functionality and build quality	effectively, balancing functional requirements to perform well and deliver optimum benefit over the full life-cycle.
Comments and Recommendation	Chair Review – 2025/03/28 The seating in the lobby remains unconvincing but is acceptable, as it can be modified post-occupation, and the proposal generally meets the principle. <b>Supported.</b>
Principle 5 Sustainability	<i>Good design optimises the sustainability of the built environment, delivering positive environmental, social and economic outcomes.</i>
Comments and Recommendation	Chair Review – 2025/03/28 The Proponent continues to object to providing sustainability at this point. Passive design has been addressed. Other commitments should be provided, but can be provided post-planning approval. <b>Supported</b> - Subject to a condition requiring a sustainability report.
Principle 6 <b>Amenity</b>	Good design optimises internal and external amenity for occupants, visitors and neighbours, providing environments that are comfortable, productive and healthy.
Comments and Recommendation	Chair Review – 2025/03/28 A walkway along the southern façade has not been



	 ``
	provided. Users walking along the southern entry are forced to walk through the car park.
	<b>Supported</b> - Subject to a condition of a pedestrian link besides the services yard and/or other improvement.
Principle 7 <b>Legibility</b>	<i>Good design results in buildings and places that are legible, with clear connections and easily identifiable elements to help people find their way around.</i>
Comments and Recommendation	<i>Chair Review – 2025/03/28</i> <i>The car park has been modified to look more like a plaza and less like a common-use car park. Parking management can be negotiated with the City.</i> <i>Supported</i>
Principle 8 Safety	<i>Good design optimises safety and security, minimising the risk of personal harm and supporting safe behaviour and use.</i>
Comments and Recommendation	<i>Chair Review – 2025/03/28 See other comments.</i>
Principle 9 <b>Community</b>	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.
Comments and Recommendation	<i>Chair Review – 2025/03/28</i> <i>See other comments.</i>
Principle 10 Aesthetics	<i>Good design is the product of a skilled, judicious design process that results in attractive and inviting buildings and places that engage the senses.</i>
Comments and	Chair Review – 2025/03/28
Recommendation	The design has been improved and has a reasonable overall standard of aesthetics. There is still insufficient information on the landscape and play space design.
	<b>Supported -</b> Subject to a condition requiring that the playground landscape design meets the standard of SPP 7.0.



Design Review progress					
Su	ipported				
Pe	nding furt	her attention			
No	ot yet supp	oorted			
Ye	t to be ad	dressed			
		DRP Meeting 1 29/10/24 Concept	DRP Meeting 2 28/01/25 Post DA	Chair Review 1 28/03/2025 Post DA	
Principle 1 - Context and character					
Principle 2 - <b>Landscape</b> quality					
Principle 3 - Built form and scale					
Principle 4 - Functionality and build quality					
Principle 5 - Sustainability					
Principle 6 - <b>Amenity</b>					
Principle 7 - Legibility					
Principle 8 - Safety					
Principle 9 - <b>Community</b>					
Principle 10 - Aestl	netics				

### Concluding Remarks

Chair Review – 2025/03/28

The proposal has improved sufficiently to be supported. Some additional information and design refinements are needed and can be conditioned.

#### Supported

Is the proposal required to go back to a future Design Review Panel Meeting? Please tick one of the following:

□ Yes – future full panel design review

□ No – future chair review only

 $\sqrt{NO}$  – supported – no further review required

Is the proposal supported?

Please tick one of the following:



Design Review Report endorsement & DRP Recommendation Brett Wood-Gush	Yes - Supported $\Box$ Yes - Supported – pending further attention and/or conditions to be imposed $\Box$ No - Not supported		
	endorsement & DRP Recommendation	Brett Wood-Gush	

Proposed child care premises - Lot 5002 Squadron Boulevard, Bullsbrook



Assessment comments	dated 13 February 2025
CoS comment	Applicant response
Public	c consultation
The application was not advertised for public consultation however as discussed with Jonathan, please see attached comments from Hatch on behalf of the developer Okeland Communities with recommended design modifications.	<ul> <li>Our response to the comments from Hatch are as follows:</li> <li>We respectfully disagree with the characterisation of the northern fence as a "boundary wall". Whilst we accept that additional treatment could be provided, the fence included articulations in its height, the incorporation of timber batten style panelling as well as other complementary finishes, and transparent sections providing a level of interactivity with the playscape. Refer to Appendix 1 for a set of revised drawings which depict improvement of the northern fence, including: <ul> <li>The provision of additional transparent panels to the maximum extent possible. Three panels have been retained as solid timber finish to prevent views to the children's toilets, with details of sightlines included on the GF plan.</li> <li>Along the bottom section of the fence, the replacement of concrete panels with face brickwork to provide improved detailing. The bottom section is provided in a 'stepped' configuration to add to the overall articulation of the fence.</li> </ul> </li> <li>We also respectfully disagree with the comments that the eastern side of the development "only proposes a car park, fencing and a few trees as an 'Urban Realm' interface". The interface included the primary frontage of the child care building with its main entry beneath a curved feature awning, a feature landscaping area which forms an extension of the approved landscape &amp; hardscape treatments of the plaza, and the eastern side of Outdoor Play Area 1 with permeable fencing. These elements are appropriate as an interface with the plaza. The revised drawings provided at Appendix 1 include the following further improved design detail.</li> <li>Increased permeability to the playscape fence for improved interactivity with the plaza.</li> </ul>



	- A wider landscape buffer strip
	between the car park and plaza with screen vegetation planting, and improved hardscape treatment of the carpark to improve its urban design quality.
	The refinements to the development plans result in an acceptable interface with Boomerang Road and the plaza, and the development meets the relevant requirements of the Precinct Plan.
De	sign review
<ul> <li>The proposal was presented to the 28 January DRP with the minutes of this meeting attached. You would have already received a copy of the endorsed report however the City recommends the matters outlined in the report be addressed to the point where the City's Design Review Panel are satisfied the proposal satisfies the 10 design principles of SPP 7.0. Of the matters identified by the Panel that require attention, the following points are reiterated by City staff:</li> <li>Improve the east-west connections and the frontage to the plaza, including the car park's frontage;</li> <li>Preparation of a detailed sustainability strategy with commitments, preferably with an ESD consultant;</li> <li>Consider modifying the car park design to look more like a plaza.</li> </ul> In addition to the DRPs comments, there is opportunity to provide additional visual permeable fencing to the street and integrate the playscape better with its surroundings. Other examples of Nido centres where visually permeable fencing has been utilised include the Belmont, Mt Hawthorn, Maylands, Brabham, and Caversham centres (photos attached) where the location of the development is either adjacent residential development or a road that experiences higher levels of traffic. Therefore, there is opportunity for fencing to be redesigned to be visually permeable to the adjacent street boundaries and this can include the installation of transparent panelling that is commonly used in this scenario as it also ensures the development still provides both direct and passive surveillance along with improved amenity outcomes.	<ul> <li>Sign revised plans provided at Appendix 1 and revised landscape plan at Appendix 2 resolve the latest DRP comments as follows:</li> <li>Improved built form aesthetic which features a high level of articulation, design detail, and feature elements fronting the plaza.</li> <li>Increased length of feature awning along southern façade.</li> <li>Improved fencing treatment with increased permeability to the playscape and enhanced finish with contiguous feature facebrick along the bottom section to 'tie in' to the raised garden bed.</li> <li>Wider landscape buffer strip between the car park and the plaza which allows meaningful landscape screen planting with feature trees.</li> <li>Improved car park hardscape using a feature colour synonymous with the earthy tones prevalent throughout the Bullsbrook locality. The above refinements have improved the eastwest interface and frontage to the plaza.</li> <li>Sustainability features have been incorporated into the drawings (ie solar panels, native trees, significant landscaping, natural shade in the playscape created by tree canopy, etc). A detailed sustainability strategy can be provided as a condition of planning approval.</li> <li>The City's request to provide additional transparent sections along the street fence has been addressed. The northern fence maximises the amount of transparent panels possible.</li> <li>Three panels have been retained as solid timber finish to prevent views to the children's toilets, with details of sightlines included on the GF plan.</li> </ul>
	Noise
Based on the assessment conducted, the predicted noise is compliant provided the 2.1m high solid fencing shown on the DA Plans is constructed. Its likely the City will recommend a	Noted.



condition requiring an Operational Management Plan which outlines how the recommendations of the acoustic report will be implemented on site. This Plan might also include operational matters extending to traffic/parking/waste management etc. to avoid numerous conditions and separate documents being prepared for the development.	
Waste	e management
Internal swept path movements are acceptable for waste collection, however the waste truck cannot manoeuvre if there are cars in the car park therefore collection will need to occur outside the hours of operation of the premises, and a mechanism will need to be put in place to ensure the truck can access the site when required.	Noted. It was always intended that waste collection would occur outside of operating hours, as this is a common operational measure for child care premises. This can be incorporated into the Operational Management Plan for the facility.

Design Review Panel comments (28 January 2025)	
DRP recommendation	Applicant response
Conte	xt & Character
1. Reinstate the landscape strip to the square and use this to provide some vertical elements to screen the car bays and define the square.	The design has been amended to reinstate the wide/generous landscaping strip along the eastern boundary of the car park which will accommodate three feature trees as well as feature shrubs which will grow 1.5m-2.5m high to provide a visual buffer and define the plaza.
Land	scape Quality
1. Progress a detailed strategy for landscape.	<ul> <li>The playscape design is subject to input by the operator, Nido. A playscape design will be submitted to the City at building permit stage as part of the detailed landscaping package. In advance of this, the drawings are considered to provide sufficient detail in relation to:</li> <li>Separated outdoor play areas based on age group.</li> <li>The provision of both natural and structure shade.</li> <li>Dedicated tree planting areas with mature trees within deep soil zones.</li> <li>Whilst the Panel's interest in playscape design is certainly recognised and noted, it is essential to recognise that the design and configuration of these spaces is ultimately to the specification and requirement of the operator who must comply with a range of regulatory requirements and operate the facility on a long-term basis.</li> <li>With regard to the landscaping in the car park, the individual planting nibs have been amalgamated to provide a wider landscape buffer at the eastern side and a wider planting area in the middle. These refinements should resolve the Panel's concerns pertaining to the viability of the planting strips and the effectiveness of the eastern car park buffer.</li> <li>The general landscaping arrangements and species list have been formulated to be</li> </ul>

Proposed child care premises - Lot 5002 Squadron Boulevard, Bullsbrook



	consistent with the landscaping strategy for the plaza and wider shopping centre precinct.	
Built Form and Scale		
1. Improve the east-west connections and the frontage to the plaza, including the car park's frontage.	<ul> <li>The east-west interface and frontage to the plaza has been improved as follows:</li> <li>Improved built form aesthetic which features a high level of articulation, design detail, and feature elements fronting the plaza. This includes feature 'pop out' windows in playful colours matching Nido's palette.</li> <li>Increased length of feature awning along southern façade for improved shade and cover, and increased extent of feature brickwork consistent with the awning extension.</li> <li>Improved fencing treatment with increased permeability to the playscape and enhanced finish with contiguous feature facebrick along the bottom section to 'tie in' to the raised garden bed.</li> <li>Wider landscape buffer strip between the car park and the plaza which allows meaningful landscape screen planting with feature trees.</li> <li>Improved car park hardscape using a feature colour synonymous with the Bullsbrook locality.</li> </ul>	
Functionali	ty and Build Quality	
<ol> <li>See other sections.</li> <li>Improve seating in the lobby for parents.</li> </ol>	<ul> <li>Refer to responses in other sections.</li> <li>Seating within the lobby improved for parents.</li> </ul>	
<u>Su</u>	stainability	
<ol> <li>Progress the sustainability commitments to ensure they are optimised</li> <li>Integrate the design and management of parking as a shared resource within the context of the overall town centre.</li> </ol>	<ul> <li>Noted, sustainability features have been incorporated into the latest drawings. An ESD report can be prepared at building permit stage in accordance with a condition of planning approval.</li> <li>The urban design of the car park has been improved and differentiated from the rest of the centre by its hardscape treatment, landscaping, and the use of signage. These features are expected to sufficiently define the car park from the other car parking areas of the shopping centre.</li> </ul>	
	Amenity	
1. Expand the consideration of amenity beyond the interior layout.	<ul> <li>Urban amenity has been improved through the various refinements made to the building, landscaping, fencing, and car park. More permeability, interactivity, and built form quality has been achieved.</li> <li>The entrance includes a large / open undercover space beneath the feature awning which is open to the plaza and welcoming to children.</li> <li>A pedestrian path is provided along the southern side of the building which provides</li> </ul>	



	adequate connectivity for parents using the car parking, noting all of the bays on the
	<ul> <li>northern side of the car park are for visitors only. The awning has been extended to cover more of the path to improve the entry experience for parents. Pedestrian priority over vehicles has been achieved through the use of hardscape treatment.</li> <li>All of the pedestrian traversable areas at the pattern side of the building are undergover.</li> </ul>
	eastern side of the building are undercover.
<ol> <li>Undertake a (micro precinct) urban design study identifying destinations and sight lines and ensure pedestrian footpaths connect these well.</li> <li>Clarify how vehicle parking will be managed to meet users' requirements and, if physical measures are required, ensure they are well integrated into the design - gates and barriers are not supported.</li> <li>Consider making the car park look more like a plaza and less like a common-use car park.</li> </ol>	<ul> <li>The main entrance of the facility is accessible from both the plaza and the car park. Signage and design features assist with legibility. As the landscape plaza is intended to be the pedestrian focal point of the town centre, this development has been designed/configured to support this function and funnel patrons walking to the site through the plaza.</li> <li>Vehicle parking will be managed to meet users requirements as follows:         <ul> <li>Visitor bays mostly provided along the northern side of the car park where parents and children have immediate access to a covered pathway linking to the entrance.</li> <li>All staff bays are provided along the southern side of the car park and are marked appropriately.</li> <li>The car park will be treated in an earthy colour tone as an urban design measure which will differentiate it from the other car parking areas in the town centre and also reinforce it as a shared environment for slow vehicle movement.</li> </ul> </li> <li>The hardscape treatment of the car park, in conjunction with the improved landscaping arrangements which will create a visual buffer between the car park and the adjoining landscape plaza will create more of a "plaza" effect and make it look less like a common-use car park is only used by child care patrons and staff.</li> </ul>
	<u>Safety</u>
1. Improve pedestrian access and cross-site connections.	It is our respectful submission that limited benefit would be derived from the provision of an east- west or north-south pathway, because:
	<ul> <li>Doing so would draw pedestrian traffic away from plaza of the town centre, which is meant to be the pedestrian focal point. There is a high quality external pedestrian footpath network which</li> </ul>



С	<ul> <li>provides optimal accessibility for future residents coming from the planned residential areas.</li> <li>The shopping centre access driveway is a vehicle dominant area and the preference is to avoid co-locating vehicle movements and pedestrian movements.</li> <li>The position of visitor parking spaces within the site's car park is immediately adjacent the internal pathway connecting to the main entrance of the facility.</li> </ul>
1. See other recommendations.	Noted. See other responses.
Aesthetics	
1. Be more expressive in the design and better reflect the human (child) scale of the use.	The palette adopted for the development is based on Nido's design guide. As part of the latest round of revisions, feature 'pop out' windows have been incorporated into the southern and eastern facades which include brighter feature colours matching Nido's palette. This improves the architectural expression of the

facility and incorporates a playful element.



## PART C – OTHER BUSINESS

- 1. State Administrative Tribunal Applications and Supreme Court Appeals
- 2. Meeting Closure