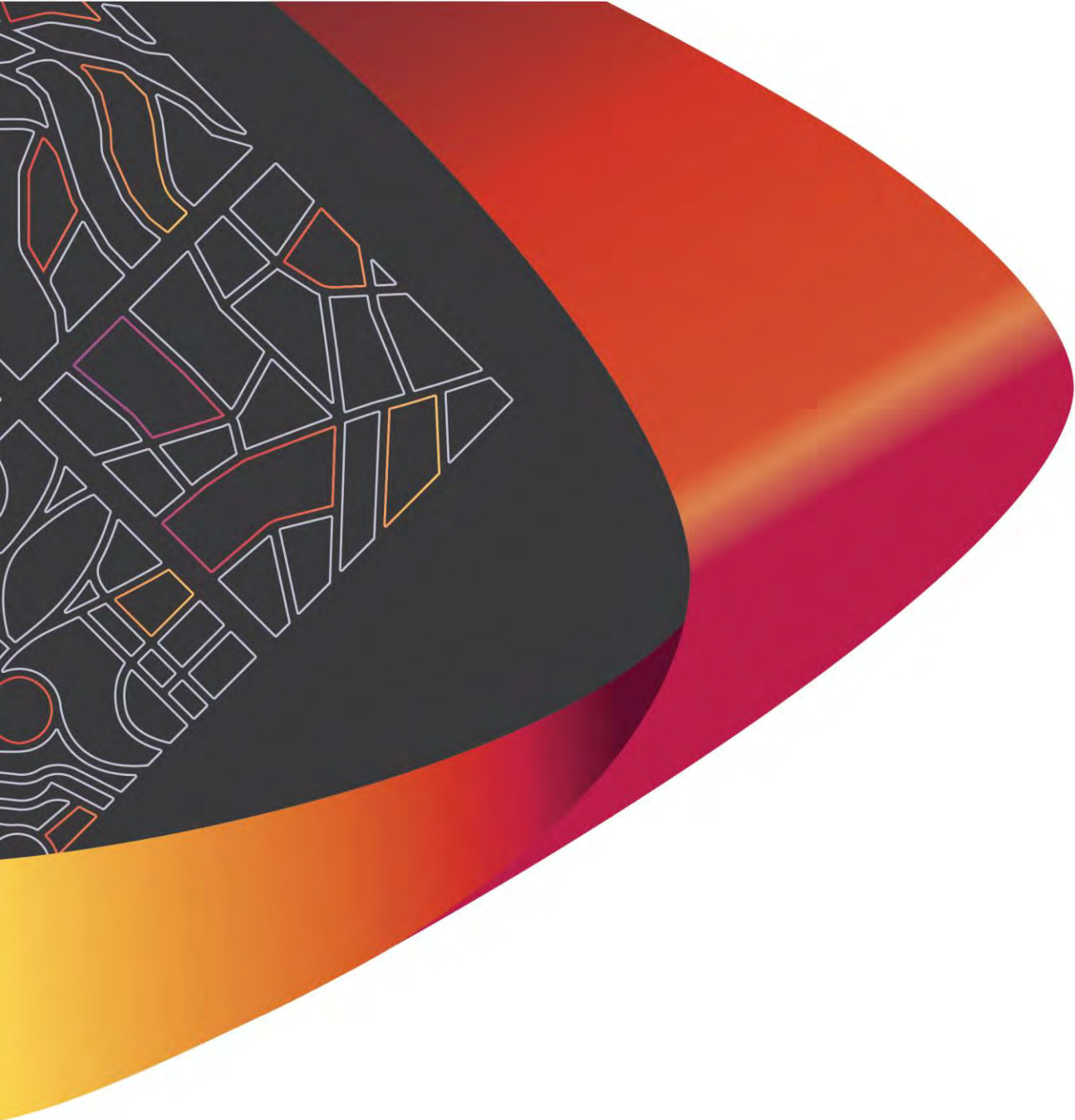


APPENDIX G

Internal Traffic Assessment prepared by Premise

brazier motti





GEMPLIFE

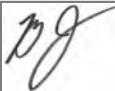

HARRIS CROSSING LLC MASTERPLAN - INTERNAL TRAFFIC ASSESSMENT

Job No: P001926
Rev: B
4 September 2024



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DOCUMENT AUTHORISATION					
Revision	Revision Date	Proposal Details			
DRAFT	14/08/24	For Comment			
A	15/08/24	For Submission			
B	04/09/24	Inclusion of P000463/R01revA Conclusions			
Prepared By		Reviewed By		Authorised By	
Brandon Wong		Bradley Jones		Bradley Jones	

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1. INTRODUCTION

Premise Australia Pty Ltd (Premise) has been commissioned by Gemlife to undertake an Internal Traffic Assessment for the Harris Crossing Land Lease Community (LLC) located in Bohle Plains, Queensland.

1.1 Background

The Harris Crossing LLC is a proposed Retirement Village located off Hogarth Drive in Harris Crossing Residential Estate.

The Harris Crossing Residential Estate is a master planned subdivision located off Hervey Range Road in Bohle Plains, Townsville, which is developing along Hogarth Drive. Harris Crossing Residential Estate has also been previously referred to as 'Harris, Hogarth and Goffage Land' and 'Harris and Hogarth Land'. Originally vacant land, approval was gained through a combined Material Change of Use (MCU) and Reconfiguring a Lot (ROL) development application in a process involving the legacy Queensland Government Department of Main Roads and Townsville City Council (TCC). This process commenced in 2009, and Maidment Group has progressively planned and developed the site through staged releases of residential lots. Premise, under legacy company UDP, delivered the "Harris and Hogarth Land Traffic Operation Assessment" (PLD0200/R01revA) in 2015 as part of initial master planning for Harris Crossing Residential Estate.

Construction of some residential lots in addition to the Eden Academy childcare centre in the site's south has been completed. "Harris Crossing Development: Traffic Impact Assessment" (P000463/R01revA) dated 8 March 2024 by Premise for Maidment Group was prepared to address changes in the Harris Crossing Residential Estate yield and internal layout associated with the proposed Harris Crossing LLC. P000463/R01revA adopted 592 low-density residential lots, a childcare centre of 130 children, and 280 residential dwellings in the LLC for analysis. The conclusions of P000463/R01revA are summarised as follows:

- > The traffic generated by the proposed development in its design year 2040 was assessed utilising SIDRA Intersection Software (SIDRA) for the Hervey Range Road / Hogarth Drive intersection. It was found that the network performed adequately in terms of degree of saturation, level of service and lane blockage probability. Therefore, no additional connections to the state-controlled road network, or upgrades to the existing signalised intersection, are required.
- > A road safety risk assessment was also completed, considering the crashes in the study area for the last 16 years. Introducing the development traffic resulted in an increase in the risk of intersection crashes at signalised intersections. Full control of right turns at Hervey Range Road signalised intersections mitigates the risk.
- > A road environment safety assessment found that a road safety audit was not required for any of the studied roads or the proposed internal road network. However, a road safety assessment is required, and can be conducted by an accredited road safety auditor or a registered professional engineer of Queensland (RPEQ). This requirement would be satisfied by safety reports prepared in accordance with Section 295 of the Work Health and Safety Regulation 2011 as part of the design process.

1.2 Scope and Study Area

The proposed development plan is enclosed in Appendix A and reproduced as Figure 1.








This Internal Traffic Assessment specifically addresses:

- > Access configuration to provide efficient and safe manoeuvring between the site and the public road network for cars, service vehicles, cyclists and pedestrians;
- > Assessing the internal layout to provide efficient and safe internal circulation and manoeuvring; and
- > Swept path analysis for the largest vehicle to demonstrate efficient and safe manoeuvring to / from the site.

The Internal Traffic Assessment is prepared with consideration of P000463/R01revA. Premise notes the total development yield has now increased from 280 lots to 292 lots. This change in development yield increases the total number of dwellings in Harris Crossing Residential Estate by approximately 1% which will not significantly alter the conclusions of P000463/R01revA.

Figure 1: Proposed development plan (Source: Solis Estudio)



YIELD	
TOTAL NUMBER OF LOTS	292
LOT SIZE	
	14.0m x 21.0m STANDARD LOTS 191
	13.5m x 21.0m STANDARD LOTS 20
	13.5m x 21.0m+ VARIOUS LENGTH LOTS 34
	14m x 21.0m CORNER VILLA LOTS 25
	13.5m x 21.0m SPLAYED LOTS 6
	SPECIAL LOTS 17
	DUPLEX LOT (279a & 279b) 1
STATISTICS	
VISITOR CAR PARKING	82
RV PARKING	40
SITE AREA	136,728 m ²
SITE COVER	%
TOTAL SITE COVER (LOTS + ROADS + FACILITIES)	%
OPEN SPACE (MIN DIMENSION OF 2m)	31,700 m ²
SITE PERIMETER	1,778 m ²
AREAS	
CLUB HOUSE (UNDER ROOF)	3117m ²
SUMMER HOUSE (INCL. WORKSHOP)	970m ²
DOG RUN STRUCTURES	250m ²
ENTRY STATEMENT & GATE HOUSE	20m ²
TENNIS COURT	450m ²
PICKLEBALL COURT	495m ²

2. EXISTING CONDITIONS

2.1 Land Use and Zoning

As shown by Figure 2, the subject site is currently zoned as an 'emerging community' under Townsville City Plan.

Figure 2: Surrounding area land use (Source: TownsvilleMAPS)



2.2 Adjacent Land Uses

The subject site is bounded by:

- > The Ring Road to the west
- > Hogarth Drive to east; and
- > Green (low) Queensland waterways for waterway barrier works to the north and south

3. PROPOSED DEVELOPMENT DETAILS

3.1 Development Site Plan

Harris Crossing LLC is to be constructed for 292 lots (dwelling sites). The indicative non-residential land use areas are detailed in Table 1.

Table 1: Proposed Non-Residential Land Uses

Use	Area / Qty
Club house	3117m ² GFA
Summer house	970m ² GFA
Dog run structures	250m ² GFA
Entry Statement and gate house	20m ² GFA
Tennis court	450m ² GFA
Pickleball court	495m ² GFA

A copy of the development plans is included in Appendix A and reproduced as Figure 1.

3.2 Operational Details

Development and construction of the proposed LLC is expected to be completed in 2030 (the opening year)

3.3 Proposed Access and Parking

3.3.1 PROPOSED ACCESS

Access to the site is via Hogarth Drive.

3.3.1.1 Entry

The proposed entry will form a crossroads with Dunraven Boulevard at the yet to be constructed Hogarth Drive / Dunraven Boulevard single lane roundabout (refer Figure 2). The proposed entry layout is shown by Figure 3 and incorporates the following features:

- > Sliding entry and exit gates are to be installed 35m (five (5) vehicle lengths) from the property boundary. The sites internal layout provides one (1) vehicle length of storage between the gate and adjacent conflict point. The entry gate is assumed to be operated via a console though remote operation is also possible. The exit gate will be operated by a vehicle sensor which will minimise delays to exiting vehicles.
- > Visitor parking for four (4) vehicles including one (1) space for people with disabilities (PWD). A path will be provided from the visitor parking to the pedestrian gate.

- > A turnaround area which allows vehicles to divert away from the gates or access visitor parking if the driver is not able to enter through the gate.
- > The first intersection inside the gate is a crossroads but extension of the entry road median through the intersection restricts side streets to left-in-left-out operation to ensure smooth traffic flow in the site entry and minimise delays to traffic exiting the development.

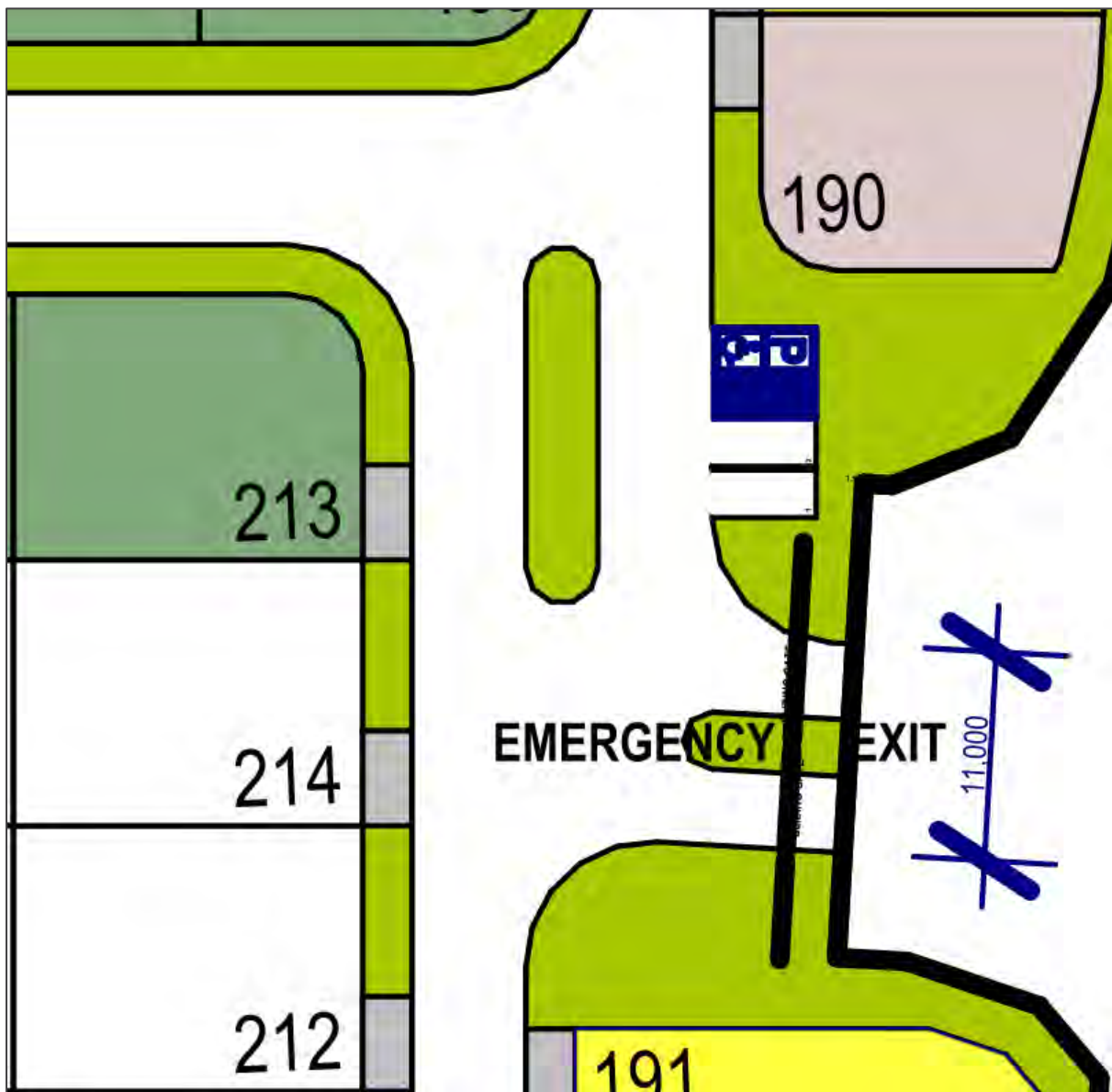
Figure 3: Proposed Entry (Source: Solis Estudio)



3.3.1.2 Emergency Exit

The proposed emergency exit will form a crossroads with Calveston Drive at the Hogarth Drive / Calveston Drive single lane roundabout (refer Figure 2). The proposed emergency exit layout is shown by Figure 4. The emergency exit will be gated and the gates will generally be locked, however, if the entry is closed due to an incident, the emergency exit will be opened. This ensures that no more than 12 dwellings (<5% of the development) would have access / egress restricted due to a single incident at the entry or on the internal road network. The emergency exit will also be utilised as the temporary development access pending extension of Hogarth Drive north to Dunraven Boulevard.

Figure 4: Proposed emergency exit (Source: Solis Estudio)



3.3.1.3 Internal Street Network

The internal street network forms a grid with a typical block being 170m long north-south and 45m wide east-west. Most internal street are 6.0m-wide, undivided, two-way access streets.

The entry roadway extending generally west from the entry (at Dunraven Boulevard) will be a divided, two-way roadway consisting of 4.0m wide carriageways and a 3.0m wide median. No dwelling sites will have direct access to the entry roadway, but four (4) visitor parking bays are proposed at the western end of the entry roadway near the club house. A short segment of access street fronting lot 213 (adjacent to the emergency exit as shown by Figure 4) will have the same cross section as the entry roadway.

The only other street type proposed is a 4.0m wide, one-way access place on the western side of the LCC fronting lots 64 to 75.

All internal streets will have verges at least 2.6m wide.

3.3.1.4 Lot Access

Each lot will have a 5.0m long section of frontage designated for an access driveway on either a 6.0m wide two-way access street or a 4.0m wide one-way access place.

Assuming garages are setback 2.8m from the lot boundary, the 2.6m wide verges will allow one (1) vehicle to park in the driveway of each lot without overhanging the carriageway.

3.3.2 PARKING

3.3.2.1 Visitor Parking

In addition to the four (4) visitor parking spaces (including one (1) PWD space) external to the entry and visitor parking available in lot driveways, 86 on-street, indented car parking spaces including eight (8) internal PWD spaces at the site. Visitor parking (including PWD) parking will be dispersed about the site but is generally concentrated around non-residential uses including the clubhouse, summer house, and dog run structures.

3.3.2.2 RV Parking

At the northern end of the site, 40 RV parking spaces will be provided. Parking spaces will be 9.0m long and 3.0m wide with an aisle width of 12.6m for manoeuvring.

4. DEVELOPMENT TRAFFIC

Consistent with P000463/R01revA, this Internal Traffic Assessment adopts 85th percentile traffic generation rates for Retirement Villages calculated from Traffic Generation Data 2006-2021 (Queensland) Open Data. The adopted directional splits are 80:20 for the morning (AM) peak, 30:70 for the afternoon (PM) peak, and 50:50 for the weekday.

A breakdown of the 292 dwelling LLC’s expected traffic generation is provided in Table 2. All numbers have been rounded to the nearest integer and inconsistencies in total values reflect rounding error.

Table 2: Development Traffic Generation

Period	Generation Rate	Generation of 292 LLC Dwellings		
		Two-way	In	Out
AM Peak	0.4 vph/dwelling	117vph	23	94
PM Peak	0.6 vph/dwelling	175vph	123	53
Weekday	3.4 vpd/dwelling	993vpd	496	496

5. IMPACT ASSESSMENT AND MITIGATION

5.1 Access Impact Assessment

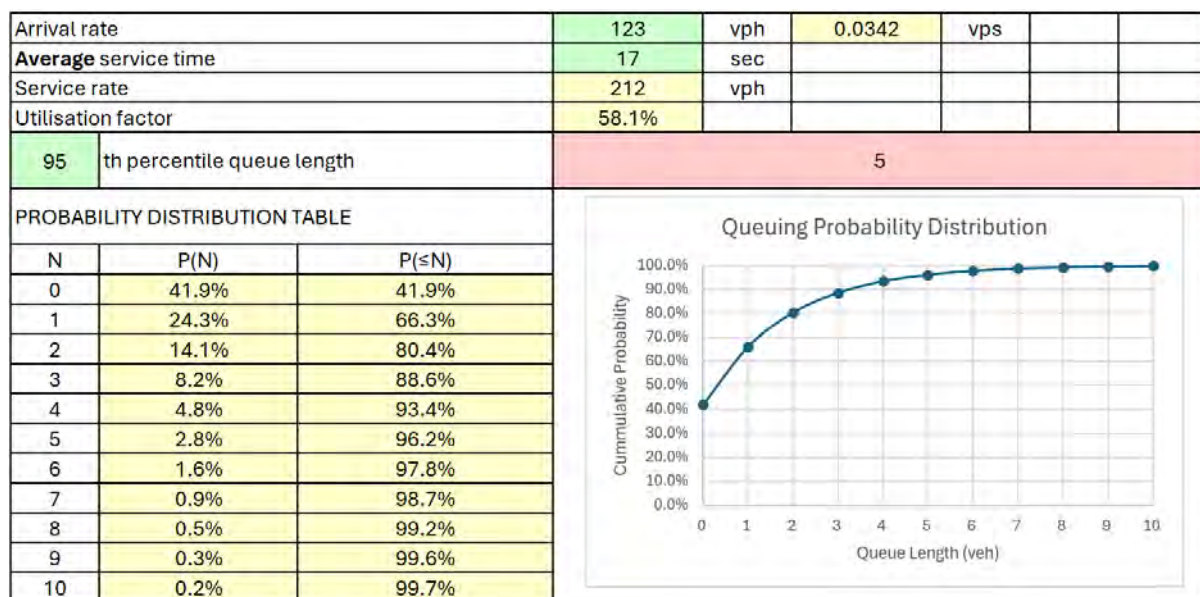
Development access will be restricted by gates. Outbound vehicles will be detected approaching the gates and the gates will open automatically. Inbound vehicles will need to activate the gate using either a remote or console interface.

Australian / New Zealand Standard Parking Facilities Part 1: Off-street Car Parking (AS2890.1:2004) specifies that, at an entry point the queuing area to be provided between the vehicular control point and the property boundary shall be sufficient to allow a free influx of traffic which will not adversely affect traffic or pedestrian flows in the frontage road. Table 3.3 of AS2890.1:2004 provides some guidance for calculating minimum queue lengths for a car park with boom gates and ticket issuing devices at entry points which implies a minimum of two (2) car lengths (12m) should be provided for queuing.

Further analysis was undertaken using queuing theory to determine if additional queue storage length is required beyond the minimum standard specified in AS2890.1:2004. Consistent with Townsville City Plan Table 6.4.5.6 the 95th percentile queue length is adopted as the desirable service standard.

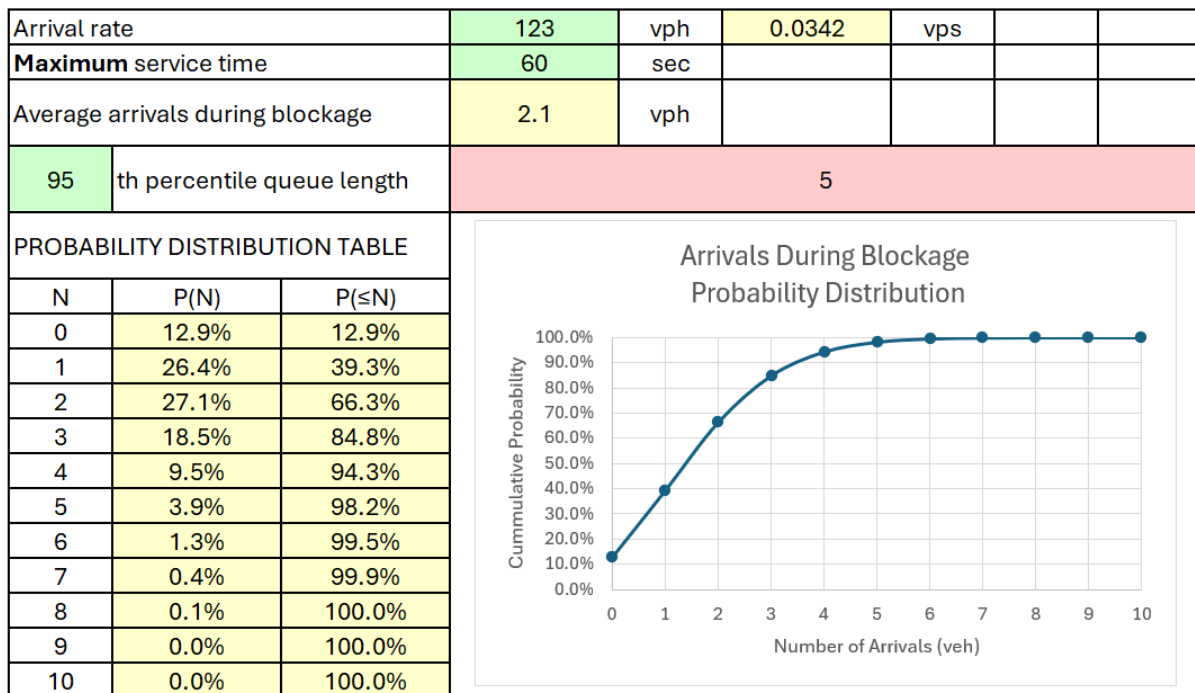
Figure 5 shows queuing analysis for the peak period for inbound traffic, the PM peak, based on an average service time of 17sec. This service time represents the time required for drivers to stop and interact with a console before the gate opens. If the gate were activated remotely the average service time would be reduced and vehicles may be able to enter the site with little or no delay. Based on an average service time of 17sec the 95th percentile queue length is five (5) vehicles which can be accommodated between the property boundary and the entry gate.

Figure 5: Queuing Probability Distribution



Visitors to the site who are not familiar with the gates operation and need to use an intercom to have the gate activated will block the gate for significantly longer than the average service time assumed in Figure 5. It is estimated that these visitors will block the gate for 60sec. Figure 6 shows the probability distribution for arrivals during the maximum service time of 60sec. Queuing for the maximum service time is estimated based on arrivals during the service period rather than steady state queuing theory as it is highly unlikely that multiple consecutive vehicles will require the maximum service time. The 95th percentile number of arrivals during the maximum service time of 60sec is five (5) vehicles which can be accommodated between the property boundary and the entry gate.

Figure 6: Arrivals During Blockage



In the unlikely event (<5% chance during the critical peak hour) that queues exceed the available five (5) vehicles storage length, waiting vehicles may divert into the carparking area external to the gate and use the pedestrian gate to enter the development. The external parking area has capacity for four (4) cars including one (1) PWD space.

5.2 Road Link Capacity Assessment

Detailed Design Guidelines Strategy 4.3.2 of IPWEAQ’s “Street Design Manual: Walkable Neighbourhoods” (SDM) recommends carriageway widths of:

- > Single lane – 3.5m; and
- > Two lane – 5.5m to 6.0m plus bike lanes or cycle tracks where required.

These widths are consistent with the proposed carriageway widths of:

- > 4.0m for one-way access streets and divided roadways; and
- > 6.0m for two-way access streets.

The LLC's internal road network is considered a low speed, shared zone environment. All transport modes will share the carriageway space and additional provision for bicycles is not required.

To achieve a travel time of no more than 90 seconds between the entry and any of the dwelling sites (as recommended by SDM Planning and Design Guidelines Strategy 2.7.2) vehicles may be required to travel at up to 30km/h on the internal street network. This is consistent with the recommended target speed for local access streets in SDM Detailed Design Guidelines Strategy 4.2.12.

5.3 Other Impacts Assessment

Appendix B contains vehicle turn paths for service vehicle access to the club house loading dock adjacent to the western site boundary and RVs accessing RV parking at the northern end of the site. All swept paths have been prepared using the 8.8m long, medium rigid vehicle (MRV) defined by Australian Standard Parking Facilities Part 2: Off-street Commercial Vehicle Facilities (AS2890.2:2018). This design vehicle is able to travel between the entry and the loading dock / RV parking but may need to track onto the wrong side of the road while making turning manoeuvres at intersections. The design vehicle is able to reverse into RV parking bays and exit in a forward gear without requiring corrective manoeuvres on either entry or exit.

6. CONCLUSIONS AND RECOMMENDATIONS

6.1 Summary of Impacts and Mitigation Measures Proposed

The following conclusions have been made with regard to the proposed development:

- > "Harris Crossing Development: Traffic Impact Assessment" (P000463/R01revA) dated 8 March 2024 by Premise for Maidment Group was prepared to address changes in the Harris Crossing Residential Estate yield and internal layout associated with the proposed Harris Crossing LLC. Traffic impacts of the proposed Harris Crossing LLC on the external road network are assessed in P000463/R01revA.
- > P000463/R01revA adopted 592 low-density residential lots, a childcare centre of 130 children, and 280 residential dwellings in the LLC for analysis. Premise notes the total development yield has now increased from 280 lots to 292 lots. This change in development yield increases the total number of dwellings in Harris Crossing Residential Estate by approximately 1% which will not significantly alter the conclusions of P000463/R01revA.
- > Queuing analysis confirms that the 95th percentile queue expected to form at the entry gate can be accommodated between the gate and the property boundary and will not adversely affect traffic or pedestrian flows in the frontage road. In the unlikely event (<5% chance during the critical peak hour) that queues exceed the available five (5) vehicles storage length, waiting vehicles may divert into the carparking area external to the gate and use the pedestrian gate to enter the development. The external parking area has capacity for four (4) cars including one (1) PWD space.
- > An emergency exit gate will be provided which ensures that no more than 12 dwellings (<5% of the development) would have access / egress restricted due to a single incident at the entry or on the internal road network.
- > The internal street network will consist of a divided two-way entry roadway with two (2) 4.0m wide single lane carriageways and a 3.0m wide median, two-way access streets with 6.0m wide carriageways and a one-way access place with a 4.0m wide carriageway. These street types are consistent with IPWEAQ's "Street Design Manual: Walkable Neighbourhoods" (SDM). All internal streets will have verges at least 2.6m wide.
- > Each lot will have a 5.0m long section of frontage designated for an access driveway. Assuming garages are setback 2.8m from the lot boundary, the 2.6m wide verges will allow one (1) vehicle to park in the driveway of each lot without overhanging the carriageway.
- > In addition to the four (4) visitor parking spaces (including one (1) PWD space) external to the entry gate and visitor parking available in lot driveways, 86 on-street, indented car parking spaces including eight (8) internal PWD spaces at the site. Visitor parking (including PWD) parking will be dispersed about the site but is generally concentrated around non-residential uses including the clubhouse, summer house, and dog run structures.
- > Forty (40) 9.0m x 3.0m RV parking spaces will be provided at the northern end of the site. Vehicle turn paths for an 8.8m long medium rigid vehicle (MRV) confirm that RVs are able to travel between the entry and RV parking, and reverse in and forward out of RV spaces.
- > Vehicle turn paths confirm that a MRV is able to access the club house loading dock from the entry gate.

6.2 Certification Statement and Authorisation

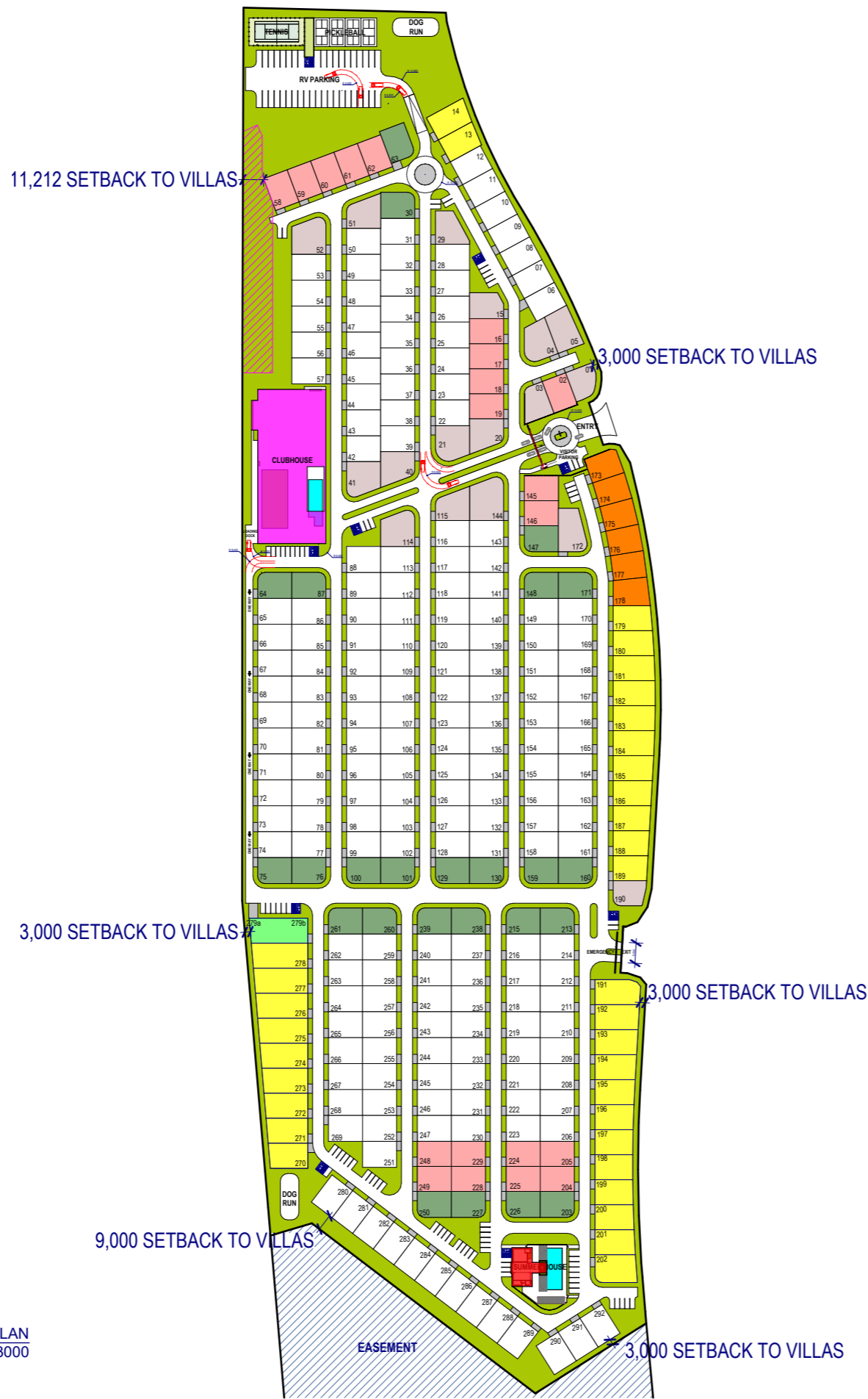
This Internal Traffic Assessment has been prepared by Brandon Wong under the direct supervision of Bradley Jones (RPEQ 19986). Traffic Impact Assessment Certification in accordance with the GTIA is enclosed in Appendix C.



Appendix A

Proposed Site Plan

Source: Solis Estudio



YIELD

TOTAL NUMBER OF LOTS	292
LOT SIZE	
14.0m x 21.0m STANDARD LOTS	191
13.5m x 21.0m STANDARD LOTS	20
13.5m x 21.0m+ VARIOUS LENGTH LOTS	34
14m x 21.0m CORNER VILLA LOTS	25
13.5m x 21.0m SPLAYED LOTS	6
SPECIAL LOTS	17
DUPLEX LOT (279a & 279b)	1

STATISTICS

VISITOR CAR PARKING	82
RV PARKING	40
SITE AREA	136,728 m ²
SITE COVER	%
TOTAL SITE COVER (LOTS + ROADS + FACILITIES)	%
OPEN SPACE (MIN.DIMENSION OF 2m)	31,700 m ²
SITE PERIMETER	1.778 m ²

AREAS

CLUB HOUSE (UNDER ROOF)	3117m ²
SUMMER HOUSE (INCL. WORKSHOP)	970m ²
DOG RUN STRUCTURES	250m ²
ENTRY STATEMENT & GATE HOUSE	20m ²
TENNIS COURT	450m ²
PICKLEBALL COURT	495m ²

MASTERPLAN
1:3000

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PROJECT NO. **HOA23-19**
STATUS **CONCEPT**
CLIENT **GEMLIFE**

DRAWING TITLE: **GENERAL MASTERPLAN**
SITE: **HARRIS CROSSING - MASTERPLAN LOT 908 & 1002 ON SP340654 TOWNSVILLE, QLD**

REVISION NO. **REV F.4**
SHEET SIZE: **A3**
DRAWING NO. **SK-005**
PLOT DATE: **13/08/2024**

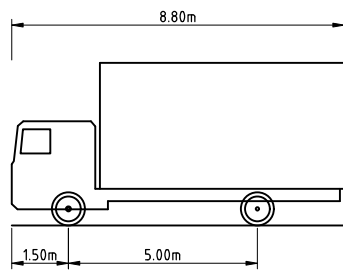
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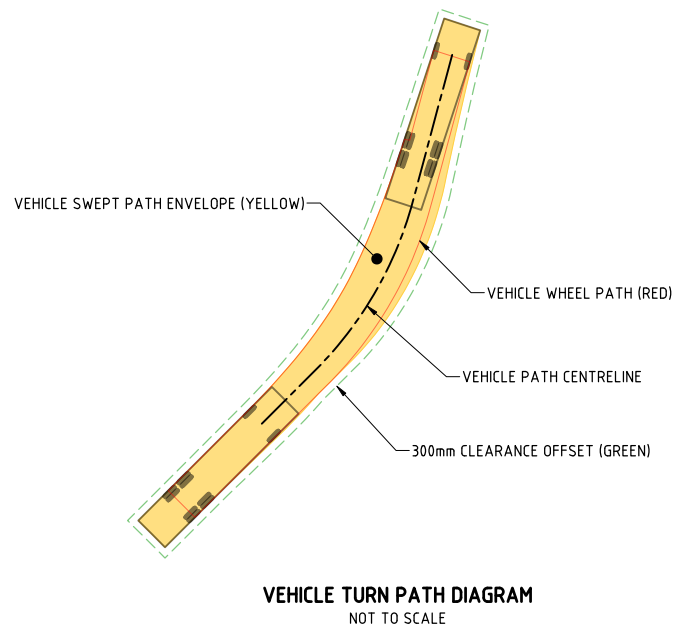


Appendix B

Vehicle Turn Paths



MEDIUM RIGID VEHICLE (8.8m)
 OVERALL LENGTH 8.800m
 OVERALL WIDTH 2.500m
 OVERALL BODY HEIGHT 4.300m
 MIN. BODY GROUND CLEARANCE 0.427m
 TRACK WIDTH 2.500m
 LOCK-TO-LOCK TIME 4.00s
 KERB-TO-KERB TURNING RADIUS 12.500m



ACCESS TO / FROM CLUB HOUSE LOADING DOCK - MRV REVERSE IN / FORWARD OUT

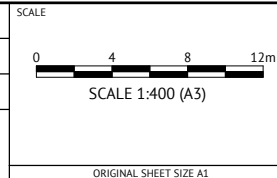
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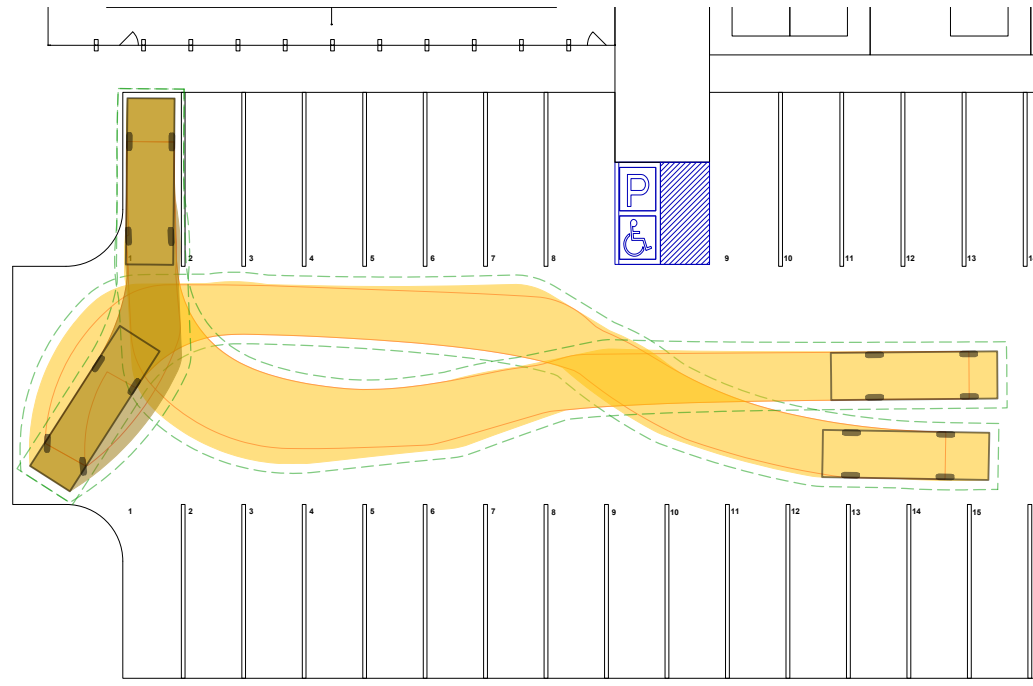
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ROBERT BARGER
 PROJECT MANAGER
BRADLEY JONES
 ENGINEERING CERTIFICATION
 BRADLEY JONES #RPEQ 19986

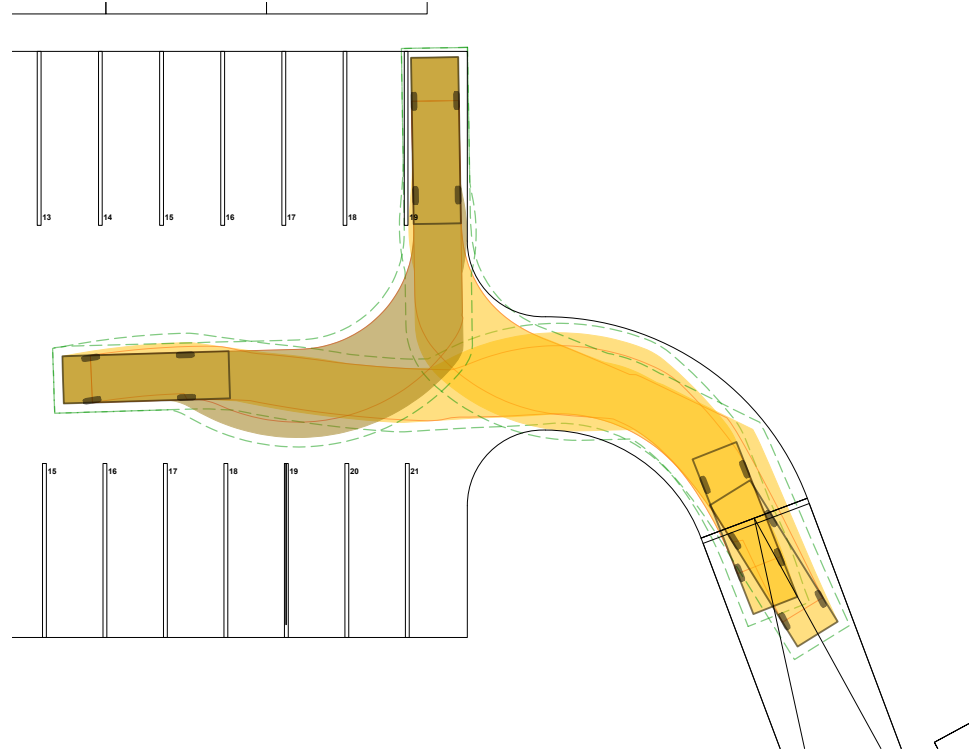


CLIENT
GEMPLIFE
 PROJECT
HARRIS CROSSING LCC MP
 LOCATION
BOHLE PLAINS, TOWNSVILLE
 SHEET TITLE
MRV (8.8M) - SERVICE VEHICLE ACCESS TO / FROM CLUB HOUSE LOADING DOCK

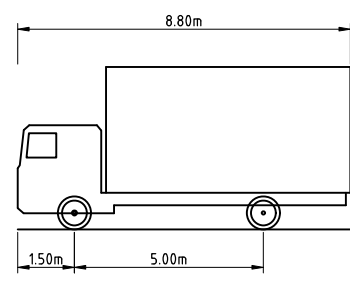
JOB CODE
P001926
 SHEET NUMBER
SKT01
 REV
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NORTHWEST RV CARPARK SIDE: MRV VEHICLE REVERSE IN / FORWARD OUT

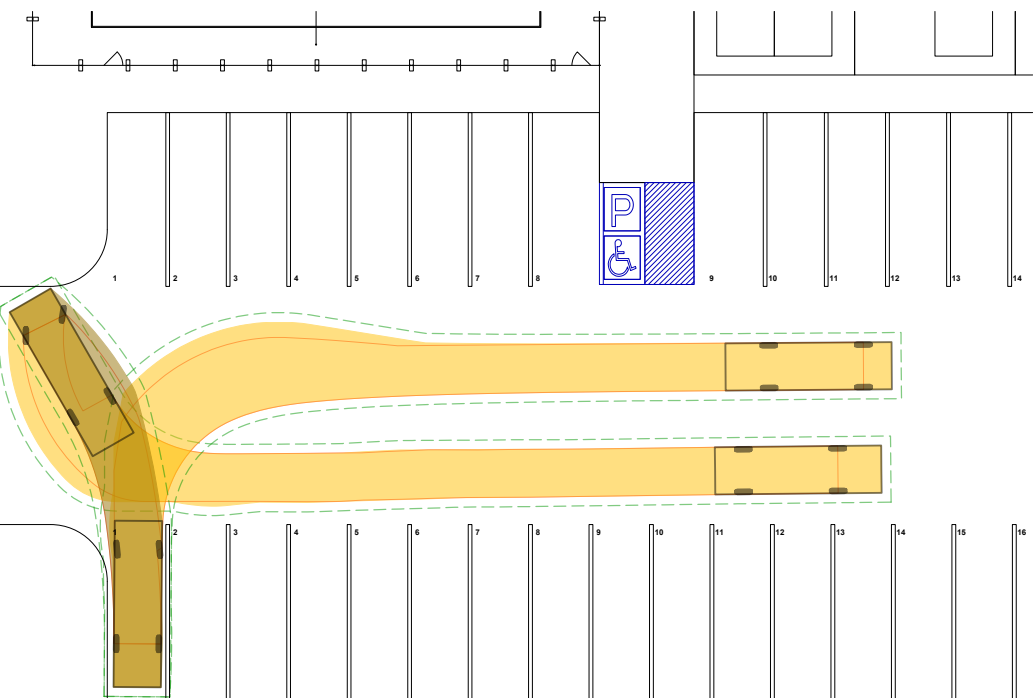


NORTHEAST RV CARPARK SIDE: MRV VEHICLE REVERSE IN / FORWARD OUT

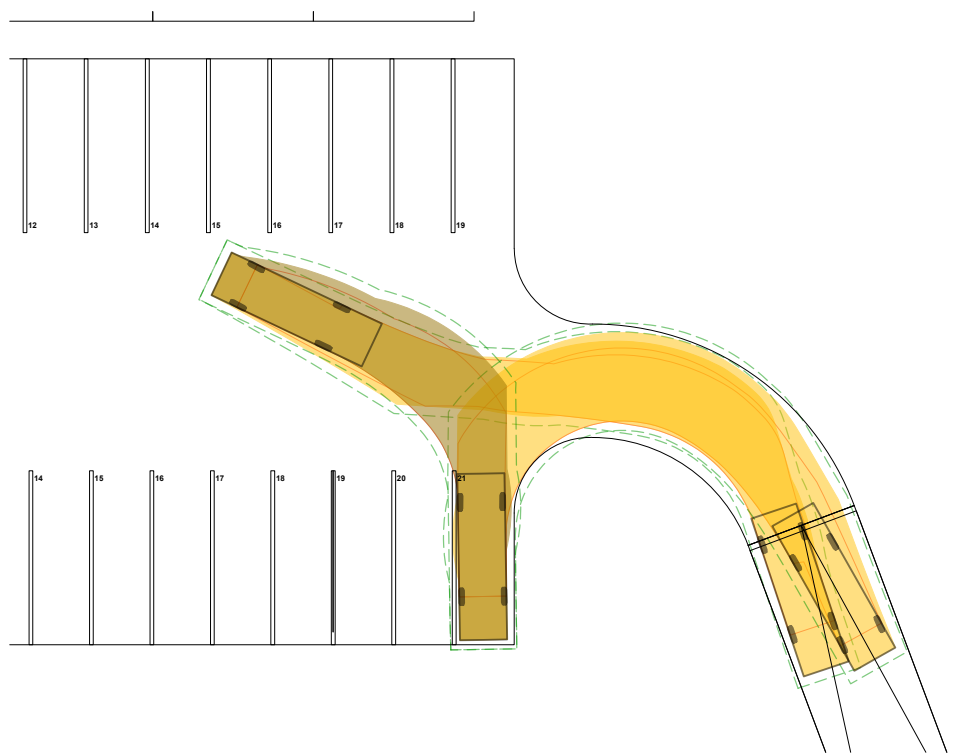


MEDIUM RIGID VEHICLE (8.8m)

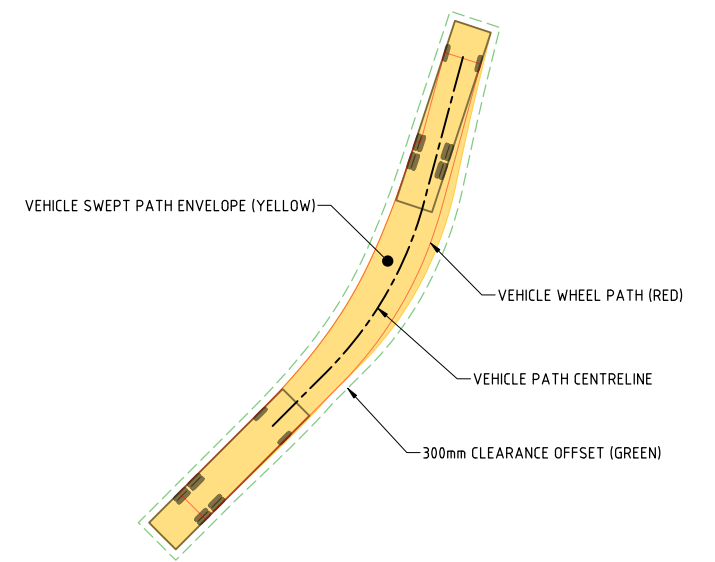
OVERALL LENGTH	8.800m
OVERALL WIDTH	2.500m
OVERALL BODY HEIGHT	4.300m
MIN. BODY GROUND CLEARANCE	0.427m
TRACK WIDTH	2.500m
LOCK-TO-LOCK TIME	4.00s
KERB-TO-KERB TURNING RADIUS	12.500m



SOUTHWEST RV CARPARK SIDE: MRV VEHICLE REVERSE IN / FORWARD OUT



SOUTHEAST RV CARPARK SIDE: MRV VEHICLE REVERSE IN / FORWARD OUT



VEHICLE TURN PATH DIAGRAM
NOT TO SCALE

THIS LAYOUT HAS NOT BEEN SUBJECT OF DETAILED DESIGN OR SURVEY. THE LAYOUT IS INDICATIVE ONLY.

PRELIMINARY - NOT FOR CONSTRUCTION

DATE	REV	DESCRIPTION	REC	APP
15/08/2024	1	PRELIMINARY - NOT FOR CONSTRUCTION		

Premise

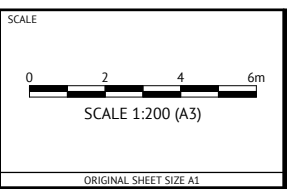
TOWNSVILLE OFFICE
84 DENHAM STREET
PO BOX 1110
TOWNSVILLE, QLD 4810
PH: (07) 4772 0666
WEB: www.premise.com.au

DESIGNED
BRANDON WONG

CHECKED
ROBERT BARGER

PROJECT MANAGER
BRADLEY JONES

CERTIFICATION
BRADLEY JONES RPEQ #19986



CLIENT
GEM LIFE

PROJECT
HARRIS CROSSING LCC MP

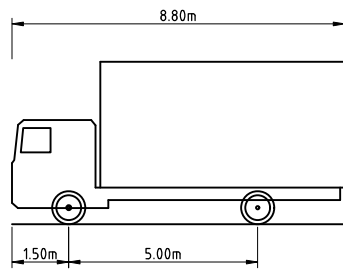
LOCATION
BOHLE PLAINS, TOWNSVILLE

SHEET TITLE
MRV 8.8M - RV PARKING BAY MANEUVERS

JOB CODE
P001296

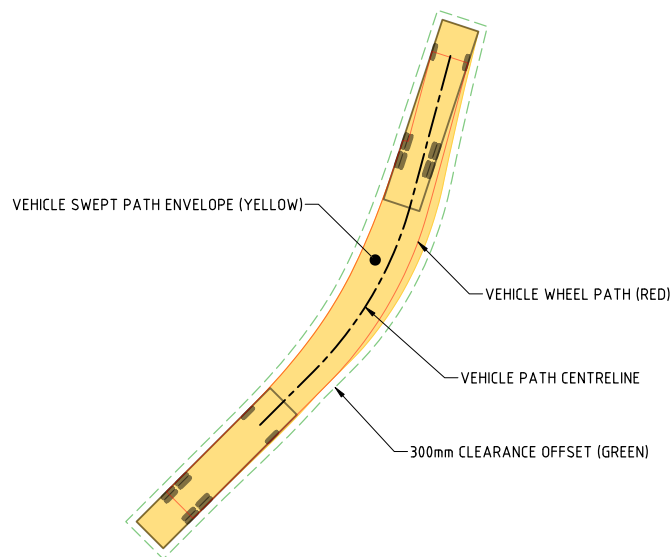
SHEET NUMBER
SKT02

REV
A



MEDIUM RIGID VEHICLE (8.8m)

- OVERALL LENGTH 8.800m
- OVERALL WIDTH 2.500m
- OVERALL BODY HEIGHT 4.300m
- MIN. BODY GROUND CLEARANCE 0.427m
- TRACK WIDTH 2.500m
- LOCK-TO-LOCK TIME 4.00s
- KERB-TO-KERB TURNING RADIUS 12.500m



VEHICLE TURN PATH DIAGRAM
NOT TO SCALE



ACCESS TO / FROM RV PARKING AREA

THIS LAYOUT HAS NOT BEEN SUBJECT OF DETAILED DESIGN OR SURVEY. THE LAYOUT IS INDICATIVE ONLY.

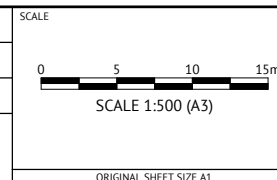
PRELIMINARY - NOT FOR CONSTRUCTION

DATE	REV	DESCRIPTION	REC	APP
15/08/2024	1	PRELIMINARY - NOT FOR CONSTRUCTION		



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DESIGNED
BRANDON WONG
 CHECKED
ROBERT BARGER
 PROJECT MANAGER
BRADLEY JONES
 CERTIFICATION
BRADLEY JONES #19986



CLIENT **GEMLIFE**
 PROJECT **HARRIS CROSSING LCC MP**
 LOCATION **BOHLE PLAINS, TOWNSVILLE**
 SHEET TITLE **MRV (8.8M) - RV ACCESS TO / FROM PARKING**

JOB CODE		P001926
SHEET NUMBER	REV	
SKT03	A	



Appendix C

Traffic Impact Assessment

Certification

CERTIFICATION OF TRAFFIC IMPACT ASSESSMENT REPORT
REGISTERED PROFESSIONAL ENGINEER QUEENSLAND
FOR


Project Title	Harris Crossing LLC Masterplan: Internal Traffic Assessment
----------------------	---

As a professional engineer registered by the Board of Professional Engineers of Queensland pursuant to the *Professional Engineers Act 2002* as competent in my areas of nominated expertise, I understand and recognise:

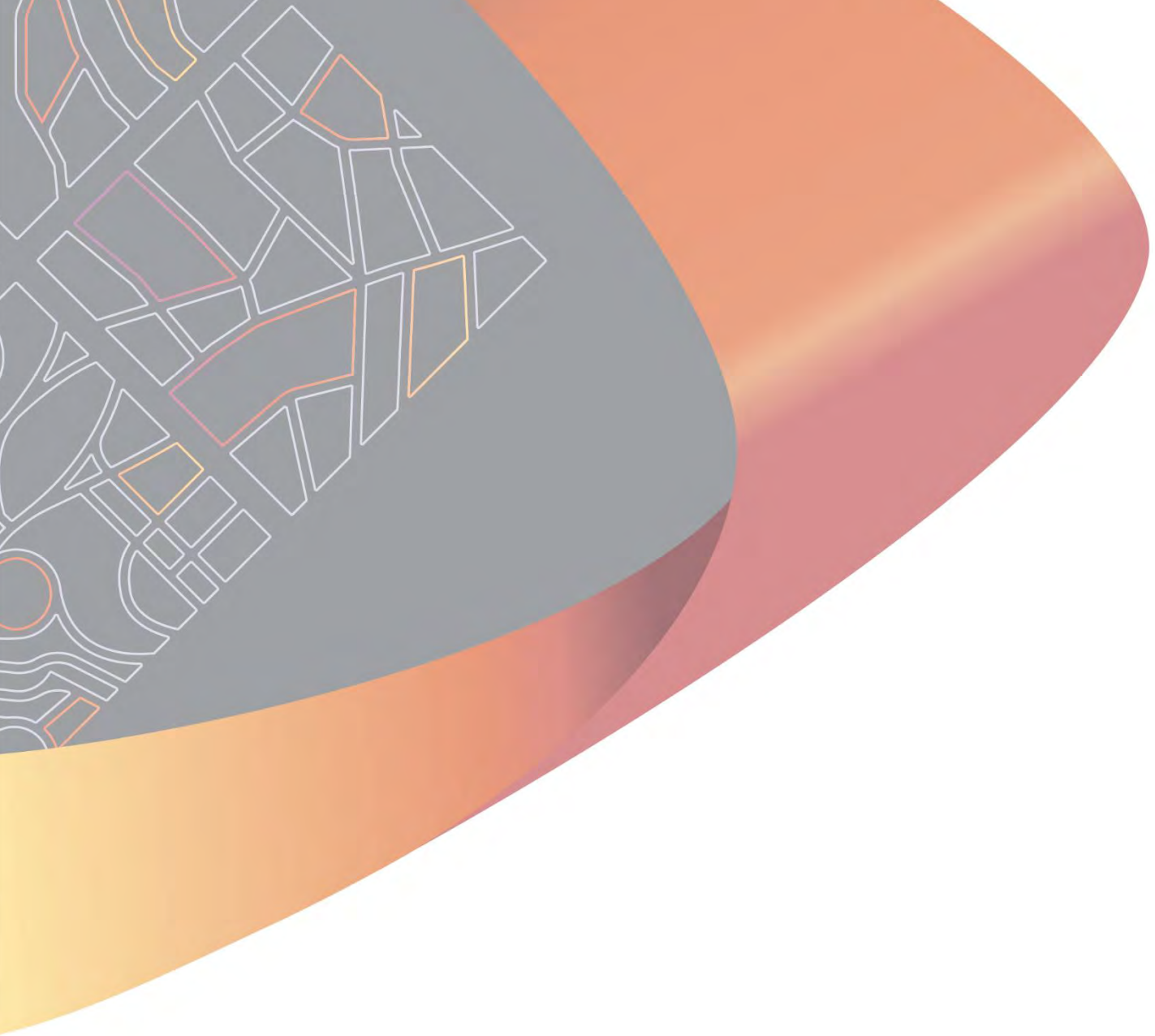
- The significant role of engineering as a profession; and that
- The community has a legitimate expectation that my certification affixed to this engineering work can be trusted; and that
- I am responsible for ensuring its preparation has satisfied all necessary standards, conduct and contemporary practice.

As the responsible RPEQ, I certify:

- i) I am satisfied that all submitted components comprising this traffic impact assessment, listed in the following table, have been completed in accordance with the Guide to Traffic Impact Assessment published by the Queensland Department of Transport and Main Roads and using sound engineering principles; and
- ii) Where specialised areas of work have not been under my direct supervision, I have reviewed the outcomes of the work and consider the work and its outcomes as suitable for the purposes of this traffic impact assessment; and that
- iii) The outcomes of this traffic impact assessment are a true reflection of results of assessment; and that
- iv) I believe the strategies recommended for mitigating impacts by this traffic impact assessment, embrace contemporary practice initiatives and will deliver the desired outcomes.

Name	Bradley Jones
RPEQ No.	19986
RPEQ Competencies	Civil
Email	Bradley.Jones@premise.com.au
Postal Address	PO Box 1110, Townsville QLD 4810
Signature	
Date	4 September 2024

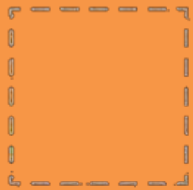
Traffic impact assessment components to which this certification applies	<input checked="" type="checkbox"/>
1. Introduction	
Background	<input checked="" type="checkbox"/>
Scope and study area	<input checked="" type="checkbox"/>
Pre-lodgement meeting notes	<input type="checkbox"/>
2. Existing Conditions	
Land use and zoning	<input checked="" type="checkbox"/>
Adjacent land uses / approvals	<input checked="" type="checkbox"/>
Surrounding road network details	<input type="checkbox"/>
Traffic volumes	<input type="checkbox"/>
Intersection and network performance	<input type="checkbox"/>
Road safety issues	<input type="checkbox"/>
Site access	<input type="checkbox"/>
Public transport (if applicable)	<input type="checkbox"/>
Active transport (if applicable)	<input type="checkbox"/>
Parking (if applicable)	<input type="checkbox"/>
Pavement (if applicable)	<input type="checkbox"/>
Transport infrastructure (if applicable)	<input type="checkbox"/>
3. Proposed Development Details	
Development site plan	<input checked="" type="checkbox"/>
Operational details (including year of opening each stage and any relevant catchment / market analysis)	<input checked="" type="checkbox"/>
Proposed access and parking	<input checked="" type="checkbox"/>
4. Development Traffic	
Traffic generation (by development stage if relevant and considering light and heavy vehicle trips)	<input checked="" type="checkbox"/>
Trip distribution	<input type="checkbox"/>
Development traffic volumes on the network	<input type="checkbox"/>
5. Impact Assessment and Mitigation	
With and without development traffic volumes	<input type="checkbox"/>
Construction traffic impact assessment and mitigation (if applicable)	<input type="checkbox"/>
Road safety impact assessment and mitigation	<input type="checkbox"/>
Access and frontage impact assessment and mitigation	<input checked="" type="checkbox"/>
Intersection delay impact assessment and mitigation	<input type="checkbox"/>
Road link capacity assessment and mitigation	<input checked="" type="checkbox"/>
Pavement impact assessment and mitigation	<input type="checkbox"/>
Transport infrastructure impact assessment and mitigation	<input type="checkbox"/>
Other impacts assessment relevant to the specific development type / location (if applicable)	<input checked="" type="checkbox"/>
6. Conclusions and Recommendations	
Summary of impacts and mitigation measures proposed	<input checked="" type="checkbox"/>
Certification statement and authorisation	<input checked="" type="checkbox"/>



APPENDIX H

Statement of Landscape Intent prepared by Zone Landscape Architecture

brazier motti



Lot 908 & 1002, Hogarth Drive, Townsville

Statement of Landscape Intent

PREPARED BY ZONE LANDSCAPE ARCHITECTURE

Project Reference: L24031

Designed: SS | JB

Revision: C | 26.08.2024

Gold Coast

1638 Tweed Street, Burleigh Heads QLD 4220
PO Box 3805, Burleigh Town QLD 4220

Gladstone

2/172 Goondoon Street, Gladstone, QLD 4680
PO Box 5332, Gladstone QLD 4680

Admin@zonelandscape.com.au

Document Control

Document Revisions

Rev.	Comments	Date	Initial
A	Rev A	16.08.2024	SS/JB
B	Rev B	21.08.2024	SS/JB
C	Rev C	26.08.2024	SS/JB

Document Sources

Rev.	Base Information	Issued By	Issued
C	Harris Crossing - Townsville - Masterplan - Rev C 16.04.24.Dwg	SOLIS ESTUDIO	16.04.2024
D	Harris Crossing - Townsville - Masterplan - Rev D 07.05.24.Dwg	SOLIS ESTUDIO	07.05.2024
-	S24-020-PC_Civilwks_Email_24.08.02.dwg	WESTERA PARTNERS	02.08.2024
F	Harris Crossing - Townsville - Masterplan - Rev F 07.05.24.Dwg	SOLIS ESTUDIO	09.08.2024
1	State Road Transport Noise Assessment	MWA ENVIRONMENTAL	20.08.2024

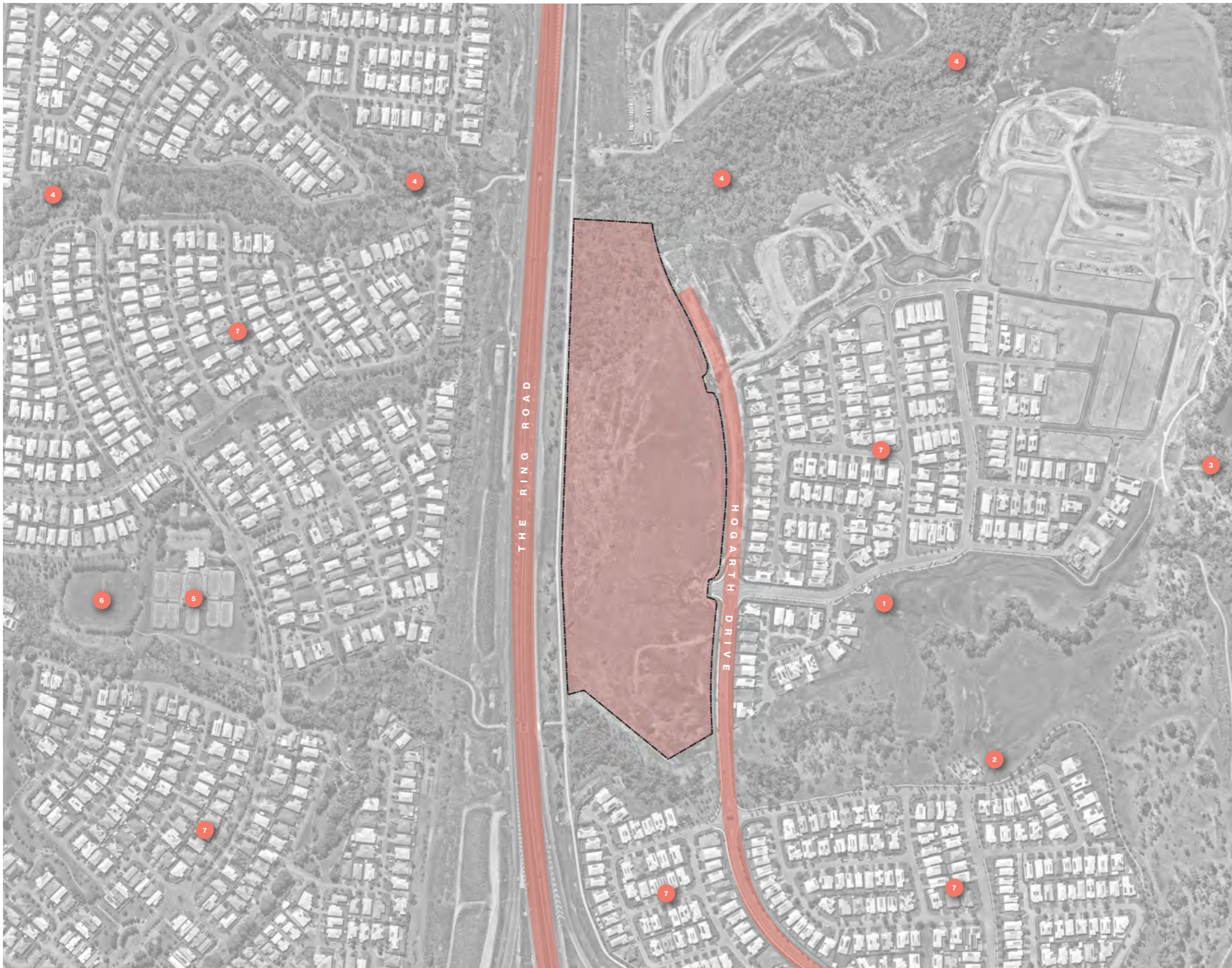
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Living Gems*

1.0
Site Context.



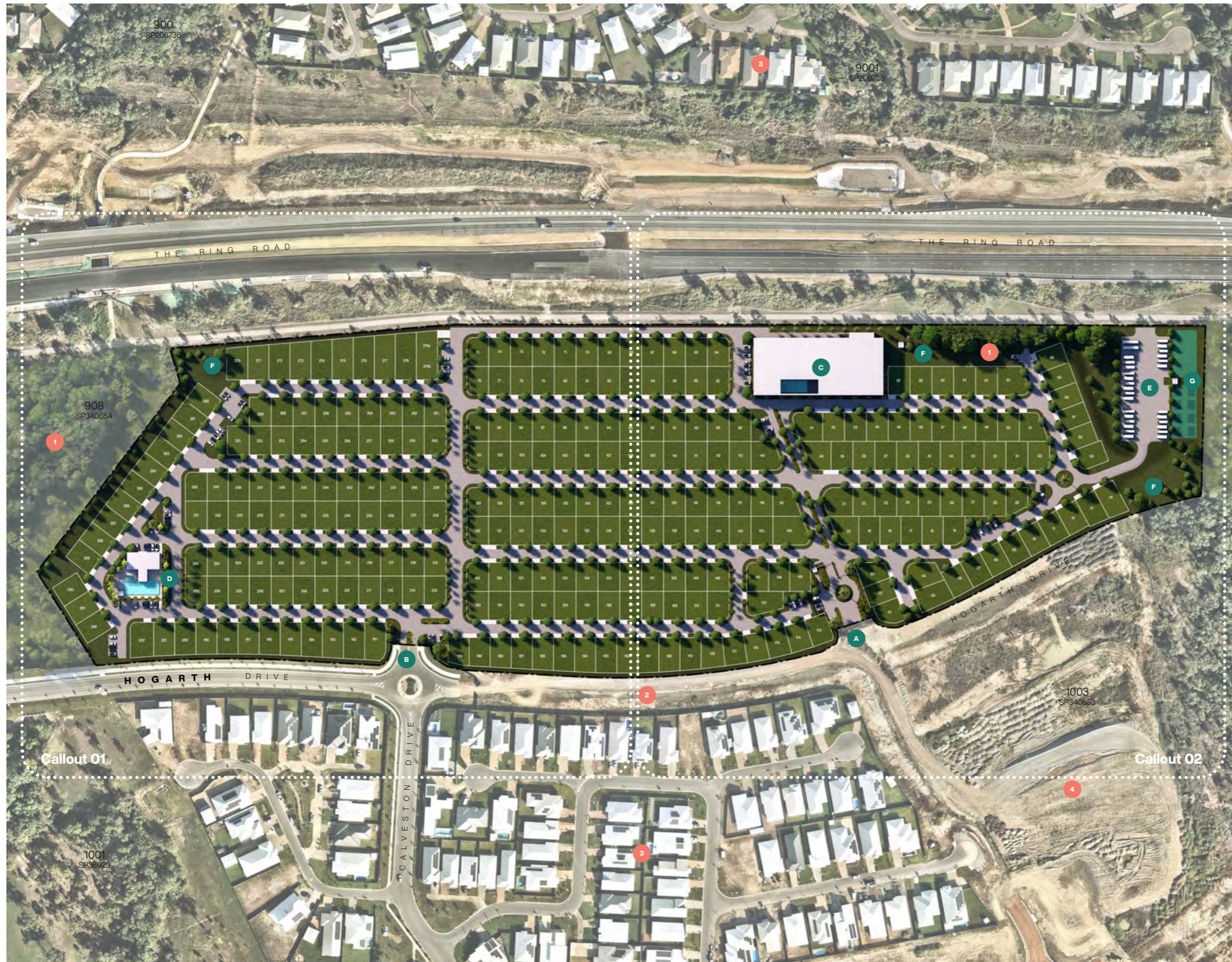
 **Subject Site**
 Lot 908 & 1002 on SP340654, Hogarth Drive, Townsville, QLD.

-  **Harriss Crossing Park**
-  **Harriss Crossing Main Park**
-  **Bohle River**
-  **Three Mile Creek**
-  **Kalynda Chase Regional Tennis Centre**
-  **Ovals**
-  **Residential Areas**

Site Analysis
1.1 Site Locality

August 2024





Subject Site
 Lot 908 & 1002 on SP340654, Hogarth Drive, Townsville, QLD.

- 1 Easement (908/SP340654)
- 2 Hogarth Road Continuation
- 3 Existing Residential
- 4 Future Residential

- A Primary Site Entry
- B Secondary Site Entry
- C Clubhouse/Communal Facilities
- D Pool House/Communal Facilities
- E RV Parking
- F Dog Run / Passive Open Space
- G Pickleball & Tennis Courts

Site Analysis
1.2 Site Locality Subject Site



Living Gems*

2.0

Landscape Design.



Open Space Areas

The Open Space Areas plan illustrates all areas of open space within the Subject Site. These areas encompass both soft and hard landscaping zones, incorporating communal spaces, streetscape features, landscape buffers, setbacks, as well as recreational amenities such as tennis courts and bowling greens. For a more detailed breakdown of landscape treatments, please consult **Plan 2.2 Landscape Treatment Areas**.

Subject Site
 Lot 908 & 1002 on SP340654, Hogarth Drive, Townsville, QLD.

- 1 Primary Estate Entry
- 2 Secondary Estate Entry
- 3 Clubhouse
- 4 Pool House
- 5 Visitor Parking
- 6 Dog Run/Open Space
- 7 Streetscape
- 8 OS Stormwater Function
- 9 RV Parking / Storage
- 10 Feature Entry Road/Boulevard
- 11 Tennis & Pickle-ball Courts



Landscape Design

2.1 Landscape Design Open Space Areas





Open Space Areas

The Open Space Areas plan illustrates all areas of open space within the Subject Site. These areas encompass both soft and hard landscaping zones, incorporating communal spaces, streetscape features, landscape buffers, setbacks, as well as recreational amenities such as tennis courts and bowling greens. For a more detailed breakdown of landscape treatments, please consult **Plan 2.2 Landscape Treatment Areas**.

Subject Site
Lot 908 & 1002 on SP340654, Hogarth Drive, Townsville, QLD.

- 1 Primary Estate Entry
- 2 Secondary Estate Entry
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- 5 Visitor Parking
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- 8 OS Stormwater Function
- 9 RV Parking / Storage
- 10 Feature Entry Road/Boulevard
- 11 Tennis & Pickle-ball Courts

Landscape Design 2.1 Landscape Design Open Space Areas

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Zone Landscape Architecture | L24031 Lot 908 & 1002 on SP340654, Hogarth Drive, Townsville, QLD | Rev C



- 1 General Planting**
 General Planting Areas to feature small to large feature trees (dictated by available planting area and offsets from services and cognisant of sightlines (CPTED). Trees and Palm species set within layered plantings, hedge species generally incorporated to rear of planting beds (typically along fencelines and or retaining walls). Signature character species to be incorporated within all areas to ensure a coherent design outcome is achieved. Mass planted ground cover species to front of planting beds. Accent species in copses to frame feature trees and palm species.
- 2 Dwelling Frontage Planting**
 Primary streetscape landscape zone located to dwelling frontages (refer to 3.0 Dwelling Streetscape for details). Planting area to feature small to medium feature tree set within layered plantings. Street trees will be planted at an average spacing of 14.0m based on lot width (one tree per lot). Tree species planted at minimum 600mm to rear of internal road edge with root guards incorporated as required. Low shrub species to rear with accent species and low mass planted groundcovers, refer to 3.0 Dwelling Design for planting setout details & species palette.
- 3 Lot Ends Planting**
 Secondary streetscape landscape zone located to end of residential blocks (refer to 3.0 Dwelling Streetscape for details). Planting area to feature small to medium feature tree set within layered plantings. Street trees will be planted at an average spacing of 14.0m based on lot width (one tree per lot). Tree species planted at minimum 600mm to rear of internal road edge with root guards incorporated as required. Low shrub species to rear with accent species and low mass planted groundcovers, refer to 3.0 Dwelling Design for planting setout details & species palette.
- 4 Median & Round-A-Bout Planting**
 Central medians (primary medians 3.0m width) to feature tall signature palm trees with copses of mid sized support palms (or shade trees e.g. Elaeocarpus, Waterhousia or Tristaniopsis species). Understorey plantings of formal layered shrub species and prostrate groundcovers with placement and maximum heights cognisant of maintaining vehicular sightlines where required. RAB of 11.6m diameter to feature large feature palm or shade tree. Understorey plantings of formal layered shrub species to centre and mass planted prostrate groundcovers to outer 3.0m cognisant of maintaining vehicular sightlines.
- 5 Feature Boulevard Planting**
 Feature streetscape landscape zone located to end of residential blocks along Primary Entry Boulevard. Planting area to feature small to medium feature tree set within layered plantings. Street trees will be planted at an average spacing of 7.0m. Tree species planted at minimum 600mm to rear of internal road edge with root guards incorporated as required. Medium shrub species to rear with accent species and low mass planted groundcovers. Signature character species to be incorporated within all areas to ensure a coherent design outcome is achieved.
- 6 Primary Entry Planting**
 Feature streetscape landscape zone located to a Primary Estate Entry. Planting area to feature trees set within layered plantings. Layered medium to large accent species and low mass planted groundcovers. Signature character species to be incorporated within all areas to ensure a coherent design outcome is achieved. Planting design to maintain vehicular sightlines.
- 7 9.0m Landscape Setback**
 Landscape Setback to achieve separation from adjacent existing natural vegetation. Primarily maintained turf, screening shrubs generally planted along retaining rear lot fence lines. Small - medium trees incorporated where offsets from services and built form permits, refer to cross sections for additional information.
- 8 2.5 - 3.5m Landscape Setbacks**
 Landscape setback to achieve screening and separation between Hogarth Dr & The Ring Rd. Screening shrubs generally planted along retaining walls and / or fence lines. Small - medium trees incorporated where offsets from services and built form permits, refer to cross sections for additional information.
- 9 Stormwater (Cut-Off Drain, Batters & Headwalls)**
 Landscape treatment to storm water feature (cutoff drain) to include planted batters generally reflecting General Planting transitioning to WSUD and Riparian species to batter toe and low flow. Scattered riparian trees incorporated as typically illustrated (Refer Cross Sections). Sedges planted to rockscour protection (headwalls) as determined by Civil Engineers. Refer also Civil Engineering plans for low flow treatment / requirements (river-rock or similar).
- Hogarth Dve RR**
 Existing streetscape works including street trees supported by additional shade trees offset from PB to be retained and continued to the northern Hogarth Dve extension. Potential for additional 15-2.0m wide planting to front of PB fence to reflect eastern side of Hogarth Dve treatment. Refer t to cross sections for additional information.



Landscape Design 2.2 Landscape Design Treatment Plan



- 1 General Planting**
General Planting Areas to feature small to large feature trees (dictated by available planting area and offsets from services and cognisant of sightlines (CPTED). Trees and Palm species set within layered plantings, hedge species generally incorporated to rear of planting beds (typically along fencelines and or retaining walls). Signature character species to be incorporated within all areas to ensure a coherent design outcome is achieved. Mass planted ground cover species to front of planting beds. Accent species in copes to frame feature trees and palm species.
- 2 Dwelling Frontage Planting**
Primary streetscape landscape zone located to dwelling frontages (refer to 3.0 Dwelling Streetscape for details). Planting area to feature small to medium feature tree set within layered plantings. Street trees will be planted at an average spacing of 14.0m based on lot width (one tree per lot). Tree species planted at minimum 600mm to rear of internal road edge with root guards incorporated as required. Low shrub species to rear with accent species and low mass planted groundcovers, refer to 3.0 Dwelling Design for planting setout details & species palette.
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- 4 Median & Round-A-Bout Planting**
Central medians (primary medians 3.0m width) to feature tall signature palm trees with copes of mid sized support palms (or shade trees e.g. Elaeocarpus, Waterhousia or Tristaniopsis species). Understorey plantings of formal layered shrub species and prostrate groundcovers with placement and maximum heights cognisant of maintaining vehicular sightlines where required. RAB of 11.6m diameter to feature large feature palm or shade tree. Understorey plantings of formal layered shrub species to centre and mass planted prostrate groundcovers to outer 3.0m cognisant of maintaining vehicular sightlines.
- 5 Feature Boulevard Planting**
Feature streetscape landscape zone located to end of residential blocks along Primary Entry Boulevard. Planting area to feature small to medium feature tree set within layered plantings. Street trees will be planted at an average spacing of 7.0m. Tree species planted at minimum 600mm to rear of internal road edge with root guards incorporated as required. Medium shrub species to rear with accent species and low mass planted groundcovers. Signature character species to be incorporated within all areas to ensure a coherent design outcome is achieved.
- 6 Primary Entry Planting**
Feature streetscape landscape zone located to a Primary Estate Entry. Planting area to feature trees set within layered plantings. Layered medium to large accent species and low mass planted groundcovers. Signature character species to be incorporated within all areas to ensure a coherent design outcome is achieved. Planting design to maintain vehicular sightlines.
- 7 9.0m Landscape Setback**
Landscape Setback to achieve separation from adjacent existing natural vegetation. Primarily maintained turf, screening shrubs generally planted along retaining rear lot fence lines. Small - medium trees incorporated where offsets from services and built form permits, refer to cross sections for additional information.
- 8 2.5 - 3.5m Landscape Setbacks**
Landscape setback to achieve screening and separation between Hogarth Dr & The Ring Rd. Screening shrubs generally planted along retaining walls and / or fence lines. Small - medium trees incorporated where offsets from services and built form permits, refer to cross sections for additional information.
- 9 Stormwater (Cut-Off Drain, Batters & Headwalls)**
Landscape treatment to storm water feature (cutoff drain) to include planted batters generally reflecting General Planting transitioning to WSUD and Riparian species to batter toe and low flow. Scattered riparian trees incorporated as typically illustrated (Refer Cross Sections). Sedges planted to rockscour protection (headwalls) as determined by Civil Engineers. Refer also Civil Engineering plans for low flow treatment / requirements (river-rock or similar).
- Hogarth Dve RR**
Existing streetscape works including street trees supported by additional shade trees offset from PB to be retained and continued to the northern Hogarth Dve extension. Potential for additional 1.5-2.0m wide planting to front of PB fence to reflect eastern side of Hogarth Dve treatment. Refer t to cross sections for additional information.

Landscape Design
2.2 Landscape Design Treatment Plan

August 2024

Zone Landscape Architecture | L24031 Lot 908 & 1002 on SP340654, Hogarth Drive, Townsville, QLD | Rev C



Subject Site
 Lot 908 & 1002 on SP340654, Hogarth Drive, Townsville, QLD.

Fence Type A
Privacy screening fence (Slatted 50% solid). Horizontal slat fencing with 75mm aluminium blades with 10-15mm spacings to allow filtered views. Typical height 1800mm, this can be extended to 2100mm if required.

Fence Type B
Privacy screening fence (100% solid). Colourbond Trimdek, Timber Good-Neighbor/ Lapped and Capped or approved equivalent to meet Australian Standard AS 1397, colour to match architectural finishes palette. This fence is typically used to provide privacy between residences or to the boundary of the development where significant screening is required. Typical height 1800mm, increased to 2100mm if deemed required. If fencing above typical heights are proposed this will be noted on the fencing plan contained within this design package.

Fence Type C
Aluminium spear top pool fence, colour to match architectural finishes palette. This fence is typically used to the perimeter of the development where views are to be promoted. This fence is also used extensively when associated with significant planting buffers when the use of solid fencing is not required including where lots interface with open space areas). Typical height 1200mm - 1800mm. Refer Section 5.0 Fences & Walls.

Fence Type C1
Aluminium spear top pool fence, specifications as per Fence Type C at typical height of 1200mm. Refer Section 5.0 Fences & Walls.

Fence Type D
Safety Rail: Handrail/ Guardrail to a minimum height of 900mm. Where fall from height is significant it is recommended to increase the height of the guardrail to at least 1000mm.

Wall Type C
Block work wall: Typical block dimensions 390x190x190mm. Wall to be laid in stretcher bond format and located only in areas where internal and external views to not allow views of the retaining wall. Retaining and/or non retaining function. This wall may also feature at entry points or to development frontages. Potential stone cladding incorporated when part of entry statement or way-finding signage. Rendered & Painted to match architectural finishes palette.

Wall Type C1
Frontage Wall / Fence to Hogarth Drive frontage. Wall Type D with portions of Fence Type C (50% transparent fencing) incorporated. Wall Type D as panels or to serve as pillars between spans of transparent fencing. Fence to be stepped back 600-1000mm to facilitate planting to front

Entry Gates
 Potential location of vehicular/ pedestrian entry gates.

Acoustic Fence
 Refer to Noise Assessment prepared by MWA Environmental. Extent of Acoustic Barrier illustrated this plan with height captured in associated Cross Sections.



Landscape Design

2.3 Landscape Design Primary/Perimeter Fences



Subject Site
 Lot 908 & 1002 on SP340654, Hogarth Drive, Townsville, QLD.

- A Fence Type A**
Privacy screening fence (Slatted 50% solid). Horizontal slat fencing with 75mm aluminium blades with 10-15mm spacings to allow filtered views. Typical height 1800mm, this can be extended to 2100mm if required.
- B Fence Type B**
Privacy screening fence (100% solid). Colourbond Trimdek, Timber Good-Neighbor/ Lapped and Capped or approved equivalent to meet Australian Standard AS 1397, colour to match architectural finishes palette. This fence is typically used to provide privacy between residences or to the boundary of the development where significant screening is required. Typical height 1800mm, increased to 2100mm if deemed required. If fencing above typical heights are proposed this will be noted on the fencing plan contained within this design package.
- C Fence Type C**
Aluminium spear top pool fence, colour to match architectural finishes palette. This fence is typically used to the perimeter of the development where views are to be promoted. This fence is also used extensively when associated with significant planting buffers when the use of solid fencing is not required including where lots interface with open space areas). Typical height 1200mm - 1800mm. Refer Section 5.0 Fences & Walls.
- C Fence Type C1**
Aluminium spear top pool fence, specifications as per Fence Type C at typical height of 1200mm. Refer Section 5.0 Fences & Walls.
- D Fence Type D**
Safety Rail: Handrail/ Guardrail to a minimum height of 900mm. Where fall from height is significant it is recommended to increase the height of the guardrail to at least 1000mm.
- C Wall Type C**
Block work wall: Typical block dimensions 390x190x190mm. Wall to be laid in stretcher bond format and located only in areas where internal and external views to not allow views of the retaining wall. Retaining and/or non retaining function. This wall may also feature at entry points or to development frontages. Potential stone cladding incorporated when part of entry statement or way-finding signage. Rendered & Painted to match architectural finishes palette.
- C Wall Type C1**
Frontage Wall / Fence to Hogarth Drive frontage. Wall Type D with portions of **Fence Type C** (50% transparent fencing) incorporated. Wall Type D as panels or to serve as pillars between spans of transparent fencing. Fence to be stepped back 600-1000mm to facilitate planting to front
- E Entry Gates**
 Potential location of vehicular/ pedestrian entry gates.
- Acoustic Fence**
 Refer to Noise Assessment prepared by MWA Environmental. Extent of Acoustic Barrier illustrated this plan with height captured in associated Cross Sections.

Landscape Design
2.3 Landscape Design Primary/Perimeter Fences

August 2024

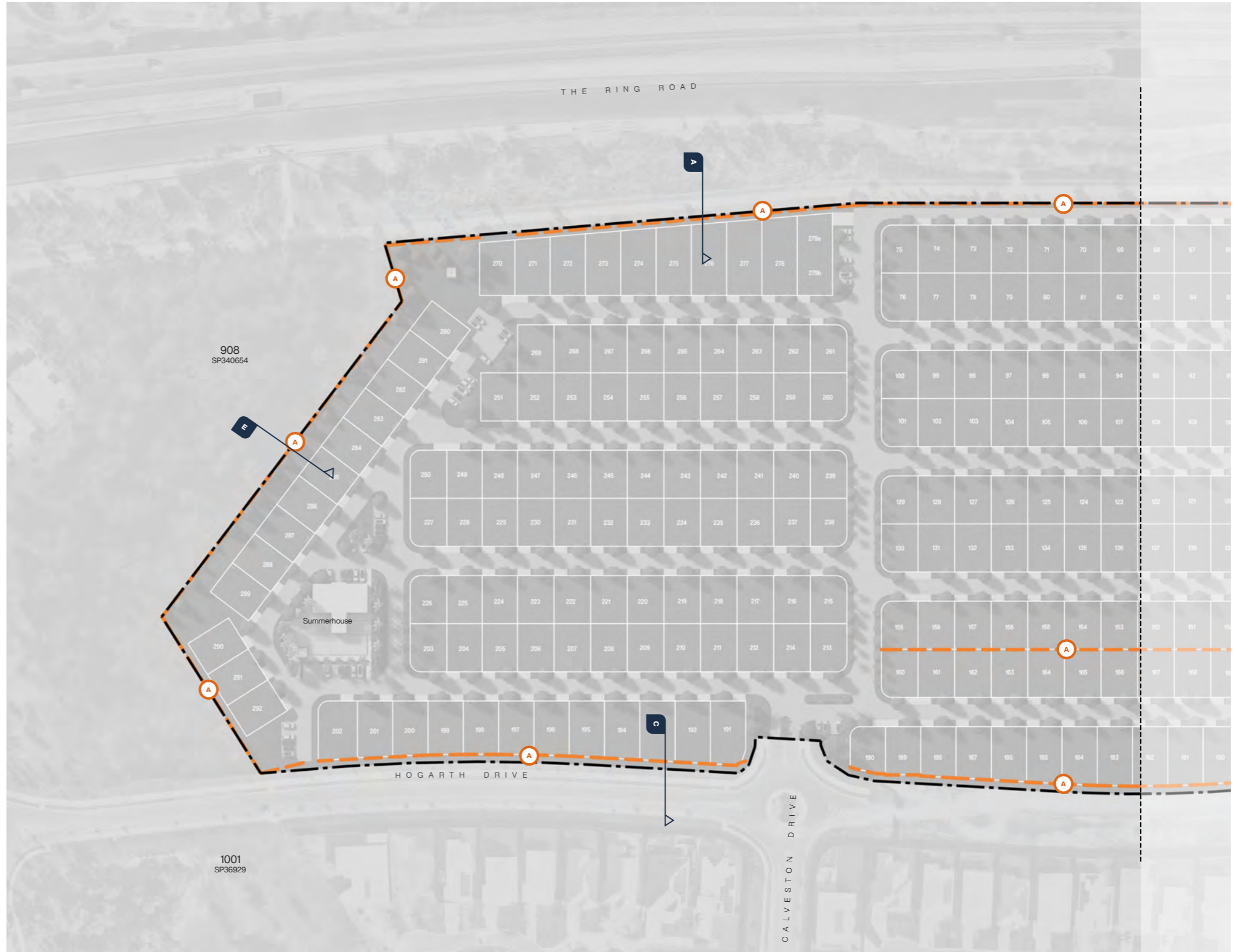
Zone Landscape Architecture | L24031 Lot 908 & 1002 on SP340654, Hogarth Drive, Townsville, QLD | Rev C



Subject Site
 Lot 908 & 1002 on SP340654, Hogarth Drive, Townsville, QLD.

Retaining Wall
 Refer Civil engineering documentation for further details. Refer Cross sections for additional information.

Note: Retaining wall locations included for reference only. Refer to civil engineering plans for all details regarding retaining wall heights, location and alignments. This plan set does not seek approval for any retaining structures.



Landscape Design

2.4 Landscape Design Retaining Wall Plan





Subject Site
 Lot 908 & 1002 on SP340654, Hogarth Drive, Townsville, QLD.

Retaining Wall
 Refer Civil engineering documentation for further details. Refer Cross sections for additional information.

Note: Retaining wall locations included for reference only. Refer to civil engineering plans for all details regarding retaining wall heights, location and alignments. This plan set does not seek approval for any retaining structures.

Landscape Design
2.4 Landscape Design Retaining Wall Plan

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Subject Site
 Lot 908 & 1002 on SP340654, Hogarth Drive, Townsville, QLD.

Stormwater Network
 Indicative location of stormwater infrastructure including stormwater reticulation, inlet pits & detention tanks. Refer to Engineering plans for further details.

Water Main
 Indicative location of potable water main. Refer to Engineering plans for further details.

Overland Flow/Swale
 Indicative location of Swale drain and overland flow path. Refer to Engineering plans for further details.

Sewer Network
 Indicative location of internal sewer infrastructure. Refer to Engineering plans for further details.

Note: Civil services locations included for reference only. Refer to civil engineering plans for all details regarding services detail, location and alignments. This plan set does not seek approval for any retaining structures.



Landscape Design
2.5 Landscape Design Services Plan





Subject Site
 Lot 908 & 1002 on SP340654, Hogarth Drive, Townsville, QLD.

Stormwater Network
 Indicative location of stormwater infrastructure including stormwater reticulation, inlet pits & detention tanks. Refer to Engineering plans for further details.

Water Main
 Indicative location of potable water main. Refer to Engineering plans for further details.

Overland Flow/Swale
 Indicative location of Swale drain and overland flow path. Refer to Engineering plans for further details.

Sewer Network
 Indicative location of internal sewer infrastructure. Refer to Engineering plans for further details.

Note: Civil services locations included for reference only. Refer to civil engineering plans for all details regarding services detail, location and alignments. This plan set does not seek approval for any retaining structures.

Landscape Design
2.5 Landscape Design Services Plan

August 2024

Zone Landscape Architecture | L24031 Lot 908 & 1002 on SP340654, Hogarth Drive, Townsville, QLD | Rev C

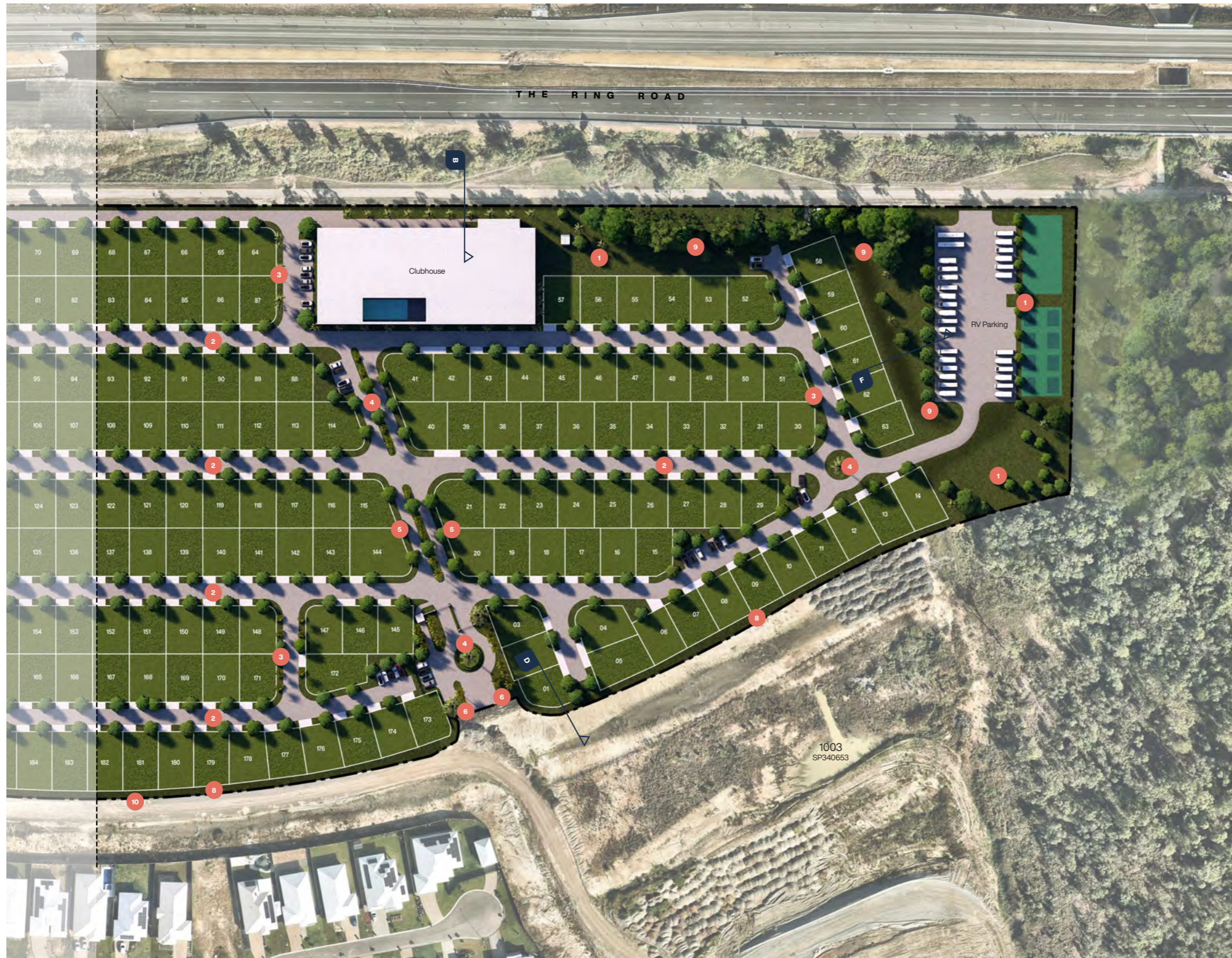


- 1 General Planting**
Layered planting scheme to general planting areas within the development (generally summarised as balance areas not described below / captured in Landscape Treatment Plan). General Planting Areas to feature small to large feature trees (as planting area / offsets permit) set within layered plantings, hedge species generally incorporated to rear of planting beds (typically along fence lines / retaining walls). Signature character species to be incorporated within all areas to ensure a coherent design outcome is achieved. Mass planted ground cover species to front of planting beds. Accent species planted in copses to frame feature trees and palm species.
- 2 Dwelling Frontage Planting**
Primary streetscape landscape zone located to dwelling frontages (refer to **3.0 Dwelling Streetscape** for details). Planting area to feature small to medium feature tree set within layered plantings. Street trees will be planted at an average spacing of 14.0m based on lot width (one tree per lot). Tree species planted at minimum 600mm to rear of internal road edge with root guards incorporated as required. Low shrub species to rear with accent species and low mass planted groundcovers, refer to **3.0 Dwelling Design** for planting setout details & species palette.
- 3 Lot Ends Planting (Secondary Boundaries)**
Secondary streetscape landscape zone located to end of residential blocks (refer to **3.0 Dwelling Streetscape** for details). Planting area to feature small to medium feature tree set within layered plantings. Street trees will be planted at an average spacing of 14.0m based on lot width (one tree per lot). Tree species planted at minimum 600mm to rear of internal road edge with root guards incorporated as required. Low shrub species to rear with accent species and low mass planted groundcovers, refer to **3.0 Dwelling Design** for planting setout details & species palette.
- 4 Median & Round-A-Bout Planting**
Central medians (primary medians 3.0m width) to feature tall signature palm trees with copses of mid sized support palms (or shade trees e.g. *Elaeocarpus*, *Waterhouisia* or *Tristaniopsis* species). Understorey plantings of formal layered shrub species and prostrate groundcovers with placement and maximum heights cognisant of maintaining vehicular sightlines where required. RAB of 11.6m diameter to feature large feature palm or shade tree. Understorey plantings of formal layered shrub species to centre and mass planted prostrate groundcovers to outer 3.0m cognisant of maintaining vehicular sightlines.
- 5 Feature Boulevard Planting**
Feature streetscape landscape zone located to end of residential blocks along Primary Entry Boulevard. Planting area to feature small to medium feature tree set within layered plantings. Street trees will be planted at an average spacing of 7.0m. Tree species planted at minimum 600mm to rear of internal road edge with root guards incorporated as required. Medium shrub species to rear with accent species and low mass planted groundcovers. Signature character species to be incorporated within all areas to ensure a coherent design outcome is achieved.
- 6 Primary Entry Planting**
Feature streetscape landscape zone located to a Primary Estate Entry. Planting area to feature trees set within layered plantings. Layered medium to large accent species and low mass planted groundcovers. Signature character species to be incorporated within all areas to ensure a coherent design outcome is achieved. Planting design to maintain vehicular sightlines.
- 7 9.0m Landscape Setback**
Landscape Setback to achieve separation from adjacent existing natural vegetation. Primarily maintained turf, screening shrubs generally planted along retaining rear lot fence lines. Small - medium trees incorporated where offsets from services and built form permits, refer to cross sections for additional information.
- 8 2.5 - 3.5m Landscape Setbacks**
Landscape setback to achieve screening and separation between Hogarth Dr & The Ring Rd. Screening shrubs generally planted along retaining walls and / or fence lines. Small - medium trees incorporated where offsets from services and built form permits, refer to cross sections for additional information.
- 9 Stormwater (Cut-Off Drain, Batters & Headwalls)**
Landscape treatment to storm water feature (cutoff drain) to include planted batters generally reflecting General Planting transitioning to WSUD and Riparian species to batter toe and low flow. Scattered riparian trees incorporated as typically illustrated (Refer Cross Sections). Sedges planted to rockscour protection (headwalls) as determined by Civil Engineers. Refer also Civil Engineering plans for low flow treatment / requirements (river-rock or similar).
- 10 Hogarth Dve RR**
Existing streetscape works including street trees supported by additional shade trees offset from PB to be retained and continued to the northern Hogarth Dve extension. Potential for additional 1.5-2.0m wide planting to front of PB fence to reflect eastern side of Hogarth Dve treatment. Refer to cross sections for additional information.



Landscape Design

2.6 Landscape Design Master Plan



- 1 General Planting**
Layered planting scheme to general planting areas within the development (generally summarised as balance areas not described below / captured in Landscape Treatment Plan). General Planting Areas to feature small to large feature trees (as planting area / offsets permit) set within layered plantings, hedge species generally incorporated to rear of planting beds (typically along fence lines / retaining walls). Signature character species to be incorporated within all areas to ensure a coherent design outcome is achieved. Mass planted ground cover species to front of planting beds. Accent species planted in copses to frame feature trees and palm species.
- 2 Dwelling Frontage Planting**
Primary streetscape landscape zone located to dwelling frontages (refer to 3.0 Dwelling Streetscape for details). Planting area to feature small to medium feature tree set within layered plantings. Street trees will be planted at an average spacing of 14.0m based on lot width (one tree per lot). Tree species planted at minimum 600mm to rear of internal road edge with root guards incorporated as required. Low shrub species to rear with accent species and low mass planted groundcovers, refer to 3.0 Dwelling Design for planting setout details & species palette.
- 3 Lot Ends Planting (Secondary Boundaries)**
Secondary streetscape landscape zone located to end of residential blocks (refer to 3.0 Dwelling Streetscape for details). Planting area to feature small to medium feature tree set within layered plantings. Street trees will be planted at an average spacing of 14.0m based on lot width (one tree per lot). Tree species planted at minimum 600mm to rear of internal road edge with root guards incorporated as required. Low shrub species to rear with accent species and low mass planted groundcovers, refer to 3.0 Dwelling Design for planting setout details & species palette.
- 4 Median & Round-A-Bout Planting**
Central medians (primary medians 3.0m width) to feature tall signature palm trees with copses of mid sized support palms (or shade trees e.g. Elaeocarpus, Waterhouisia or Tristaniopsis species). Understorey plantings of formal layered shrub species and prostrate groundcovers with placement and maximum heights cognisant of maintaining vehicular sightlines where required. RAB of 11.6m diameter to feature large feature palm or shade tree. Understorey plantings of formal layered shrub species to centre and mass planted prostrate groundcovers to outer 3.0m cognisant of maintaining vehicular sightlines.
- 5 Feature Boulevard Planting**
Feature streetscape landscape zone located to end of residential blocks along Primary Entry Boulevard. Planting area to feature small to medium feature tree set within layered plantings. Street trees will be planted at an average spacing of 7.0m. Tree species planted at minimum 600mm to rear of internal road edge with root guards incorporated as required. Medium shrub species to rear with accent species and low mass planted groundcovers. Signature character species to be incorporated within all areas to ensure a coherent design outcome is achieved.
- 6 Primary Entry Planting**
Feature streetscape landscape zone located to a Primary Estate Entry. Planting area to feature trees set within layered plantings. Layered medium to large accent species and low mass planted groundcovers. Signature character species to be incorporated within all areas to ensure a coherent design outcome is achieved. Planting design to maintain vehicular sightlines.
- 7 9.0m Landscape Setback**
Landscape Setback to achieve separation from adjacent existing natural vegetation. Primarily maintained turf, screening shrubs generally planted along retaining rear lot fence lines. Small - medium trees incorporated where offsets from services and built form permits, refer to cross sections for additional information.
- 8 2.5 - 3.5m Landscape Setbacks**
Landscape setback to achieve screening and separation between Hogarth Dr & The Ring Rd. Screening shrubs generally planted along retaining walls and / or fence lines. Small - medium trees incorporated where offsets from services and built form permits, refer to cross sections for additional information.
- 9 Stormwater (Cut-Off Drain, Batters & Headwalls)**
Landscape treatment to storm water feature (cutoff drain) to include planted batters generally reflecting General Planting transitioning to WSUD and Riparian species to batter toe and low flow. Scattered riparian trees incorporated as typically illustrated (Refer Cross Sections). Sedges planted to rockscour protection (headwalls) as determined by Civil Engineers. Refer also Civil Engineering plans for low flow treatment / requirements (river-rock or similar).
- 10 Hogarth Dve RR**
Existing streetscape works including street trees supported by additional shade trees offset from PB to be retained and continued to the northern Hogarth Dve extension. Potential for additional 15-20m wide planting to front of PB fence to reflect eastern side of Hogarth Dve treatment. Refer 1 to cross sections for additional information.

Landscape Design
2.6 Landscape Design Master Plan



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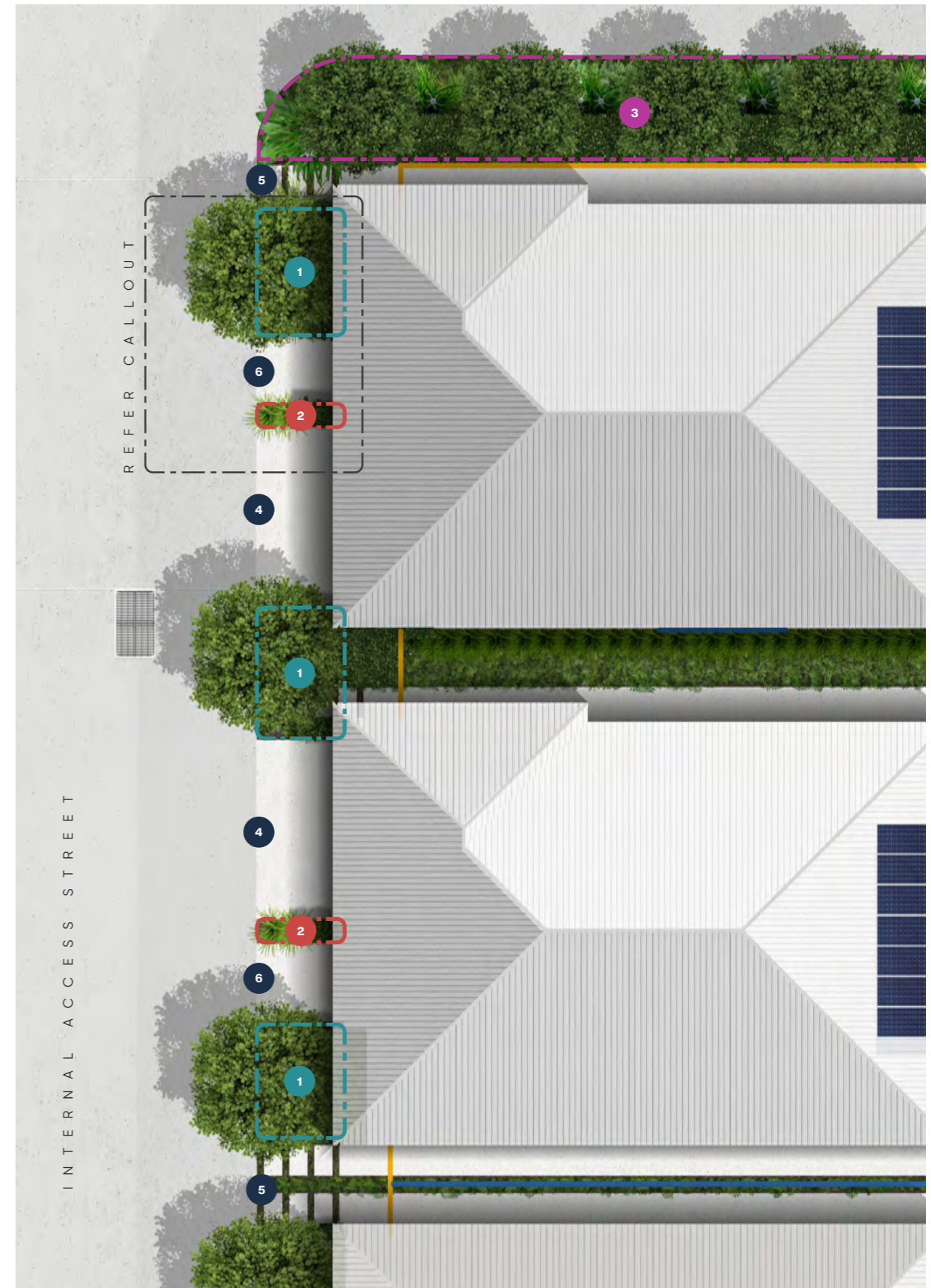


Living Gems*

3.0
Dwelling Design.

3.1 Dwelling Frontage & Streetscape

- 1 Primary Landscape Zone**
Primary landscape zone located within the dwelling setback as typically illustrated. Planting area to feature small to medium feature tree set within layered plantings (refer Dwelling Frontage species schedule). Signature character species will be repeated within these to ensure a coherent design outcome is achieved. Tree species are assigned by street and in this way are independent to the dwelling planting schemes. This ensures that a strong coherent design character is achieved within the streetscape through the repetition of tree species. Street trees will be planted at an average spacing of 12.5-13.5m (dictated by lot width with an average of one tree provided per dwelling lot where services locations, dwelling offsets and adherence to vehicular and pedestrian sight lines permit). Refer to planting palettes for street tree species types.
- 2 Secondary Landscape Zone**
Secondary landscape zone located within the dwelling setback as typically illustrated. The landscaped areas are located between access pathways and driveways and range in width from 500mm to 1000mm depending on lot frontages and context within the development. Planting will consist primarily of groundcovers with accent species incorporated where space permits. Species to reflect those used in the associated Primary Landscape Zone.
- 3 Secondary Frontage Planting Zone (Lot Ends)**
Secondary frontage landscape zone located within the dwelling setback as typically illustrated. The secondary frontages provide significant areas for planting. Secondary frontages are typically 2000mm in width. The use of Fence Type A (semitransparent horizontal slat) allows for filtered views and assists in preventing a solid facade presenting to the streetscape. Planting here will feature the developments signature species (refer species schedules) including dense shrub or hedge species to the rear with layered groundcover species to the front. Accent species to be planted in copses between formal plantings of small tree species as typically illustrated.
- 4 Driveway Crossover**
Contrasting finish to driveways to compliment architectural finishes palette. Indicative colour and finish illustrated pending detailed design phase.
- 5 Gate**
Side access to rear dwelling courtyard area.
- 6 Dwelling Access**
Pathway to primary dwelling access.
- Privacy Screening Fence (Slatted)**
Privacy screening fence. Horizontal slat fencing with 75mm aluminium blades with 10-15mm spacings to allow filtered views. Typical span is 2400mm. Powder coated aluminium to colour to match architectural finishes palette. Stratco EzySlat Fencing or approved equivalent. This fence is typically used to the secondary frontage of corner lots to provide privacy to the residence without the use of solid fencing. Typical height 1800mm, this can be extended to 2100mm if required. If fencing above typical heights are proposed this will be noted on the fencing plan contained within this design package.
- Privacy Screening Fence (Solid)**
Privacy screening fence (100% solid). Colourbond Trimdek or approved equivalent to meet Australian Standard AS 1397. Colour to match architectural finishes palette. This fence is typically used to provide privacy between residences or to the boundary of the development where significant screening is required. Typical height 1800mm.



Dwelling Design

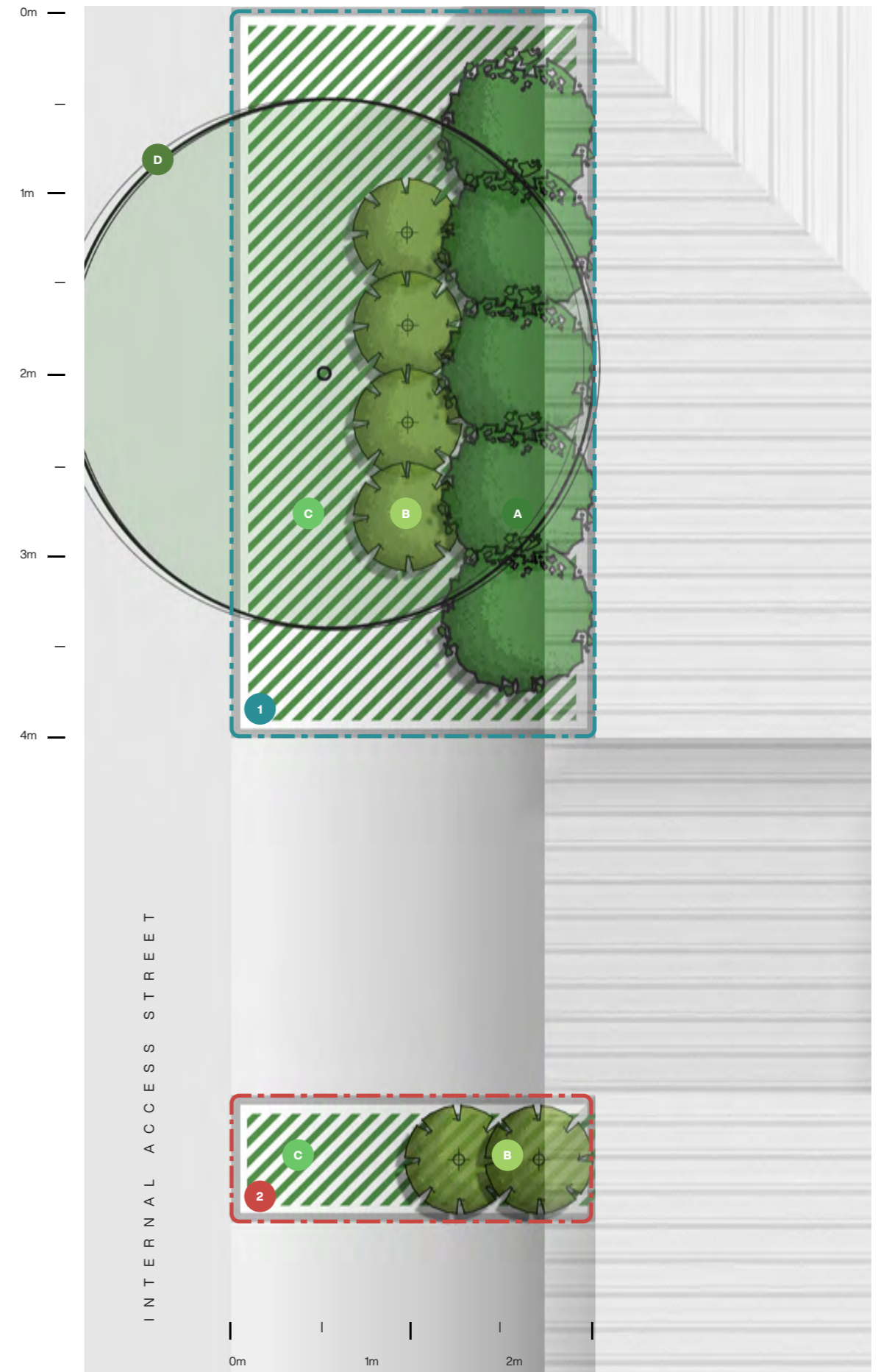
3.2 Dwelling Frontage & Streetscape Layering

- 1 Primary Landscape Zone**
 Primary landscape zone located within the dwelling setback as typically illustrated. Planting area to feature small to medium feature tree set within layered plantings (refer Dwelling Frontage species schedule). Signature character species will be repeated within these to ensure a coherent design outcome is achieved.
- 2 Secondary Landscape Zone**
 Secondary landscape zone located within the dwelling setback as typically illustrated. The landscaped areas are located between access pathways and driveways and range in width from 500mm to 1000mm depending on lot frontages and context within the development. Planting will consist primarily of groundcovers with accent species incorporated where space permits. Species to reflect those used in the associated Primary Landscape Zone.
- A Shrub / Hedge Layer**
 Shrub species planted to rear of garden beds as illustrated. Refer to planting palettes for shrub species. Spacings: Average of 750mm centres.

**Avoid variants that are psilid-prone or have significant red-coloured new growth.*
- B Accents**
 Accent species planted as illustrated. Generally planted in groups of 3-4 centered to base of tree. Spacings: 500-600mm centres.

^ Large planting beds only (dwelling secondary frontages, link parks and large general planting beds)
- C Ground Cover**
 Ground cover species to average height 300-400mm planted in pattern as illustrated. Spacings: 200-300mm centres.
- D Tree Species**
 Tree species planted 600mm to rear of internal road edge with root guards incorporated as required. Tree species are assigned by street and in this way are independent to the dwelling planting schemes. This ensures that a strong coherent design character is achieved within the streetscape through the repetition of tree species. Street trees will be planted at an average spacing of 12.5-13.5m (dictated by lot width with an average of one tree provided per dwelling lot where services locations, dwelling offsets and adherence to vehicular and pedestrian sight lines permit). Refer to planting palettes for street tree species types.

Important Note
 The illustrations within this landscape concept package are representations of general layout and landscape treatments. Planting palette to take precedent over the rendered dwelling and streetscape treatments.



Dwelling Design

3.3 Dwelling Frontage & Streetscape Setout 01



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1 Primary Landscape Zone
 Primary landscape zone located within the dwelling setback as typically illustrated. Planting area to feature small to medium feature tree set within layered plantings (refer Dwelling Frontage species schedule). There are **four planting schemes** proposed ensure a range of treatments are incorporated. Signature character species will be repeated within these to ensure a coherent design outcome is achieved.

2 Secondary Landscape Zone
 Secondary landscape zone located within the dwelling setback as typically illustrated. The landscaped areas are located between access pathways and driveways and range in width from 500mm to 1000mm depending on lot frontages and context within the development. Planting will consist primarily of groundcovers with accent species incorporated where space permits. Species to reflect those used in the associated Primary Landscape Zone.

A Shrub / Hedge Layer
 Shrub species planted to rear of garden beds as illustrated. Refer to planting palettes for shrub species options. Spacings: Average of 750mm centres.

Illustrated: Syzygium Species(Maximum height 1-1.5m)*

B Accents (Optional - dependent on planting scheme type)
 Accent species planted as illustrated. Generally planted in groups of 3-4 centered to base of tree. Refer to planting palettes for accent species options. Note: Illustrated in Plan - nil illustrated in 3D visualization. Spacings: 500-600mm centres.

Illustrated: Philodendron Rojo Congo

C Ground Cover
 Ground cover species to average height 300-400mm planted in pattern as illustrated. Refer to planting palettes for groundcover species options. Spacings: 200-300mm centres.

Illustrated: Myoporum elipticum

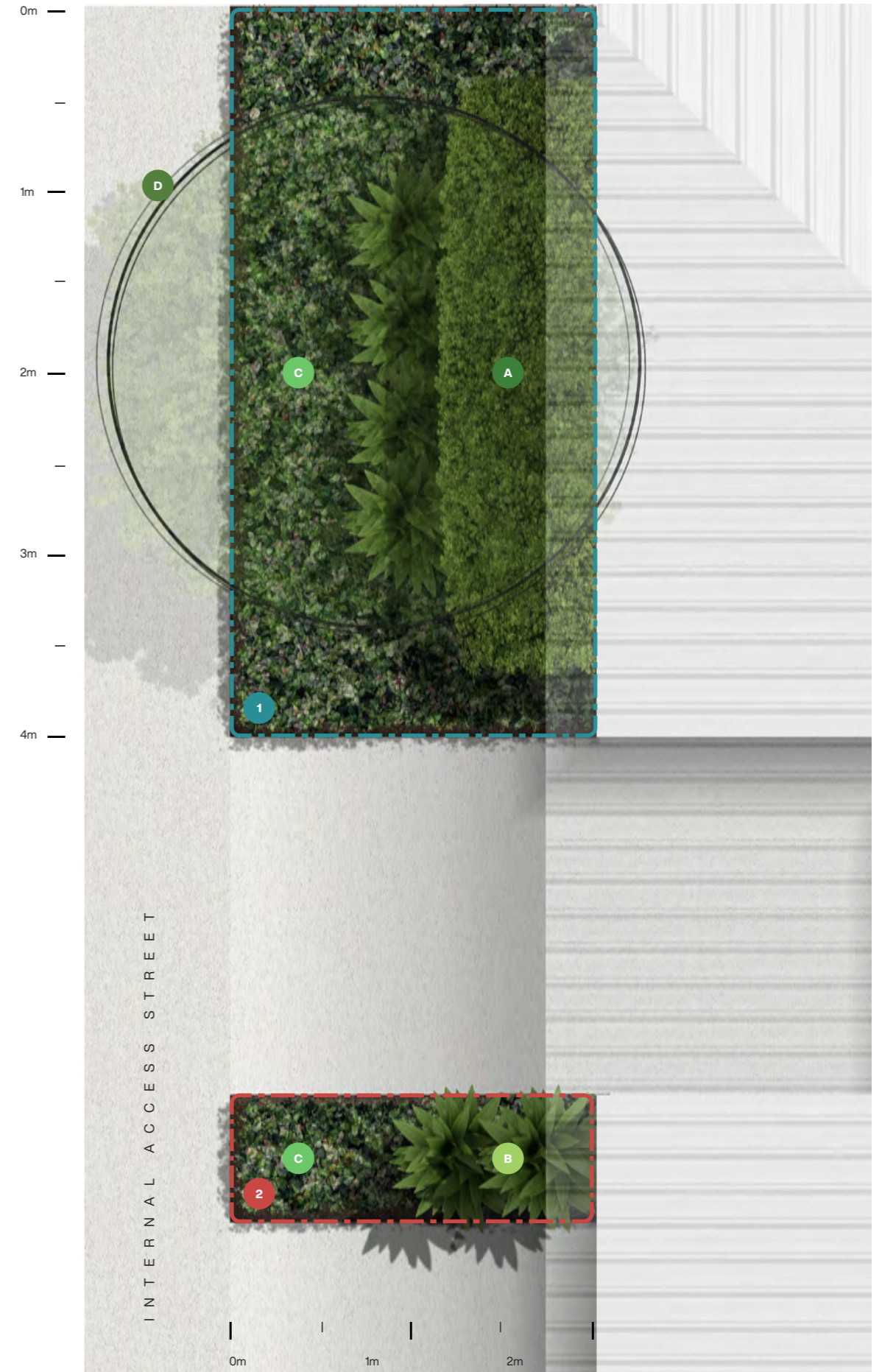
D Tree Species
 Tree species planted 600mm to rear of internal road edge with root guards incorporated as required. Tree species are assigned by street and in this way are independent to the dwelling planting schemes. This ensures that a strong coherent design character is achieved within the streetscape through the repetition of tree species. Street trees will be planted at an average spacing of 12.5-13.5m (dictated by lot width with an average of one tree provided per dwelling lot where services locations, dwelling offsets and adherence to vehicular and pedestrian sight lines permit). Refer to planting palettes for street tree species types. **Refer to Section 6.0 Planting Palettes** for street tree species types.

Refer to planting palettes for tree species options.

Illustrated: Tristaniopsis laurina 'Luscious'

Important Note

The illustrations within this landscape concept package are representations of general layout and landscape treatments. Planting palette to take precedent over the rendered dwelling and streetscape treatments.



Dwelling Design

3.4 Dwelling Frontage & Streetscape Setout 02



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1 Primary Landscape Zone
 Primary landscape zone located within the dwelling setback as typically illustrated. Planting area to feature small to medium feature tree set within layered plantings (refer Dwelling Frontage species schedule). There are four planting schemes proposed ensure a range of treatments are incorporated. Signature character species will be repeated within these to ensure a coherent design outcome is achieved.

2 Secondary Landscape Zone
 Secondary landscape zone located within the dwelling setback as typically illustrated. The landscaped areas are located between access pathways and driveways and range in width from 500mm to 1000mm depending on lot frontages and context within the development. Planting will consist primarily of groundcovers with accent species incorporated where space permits. Species to reflect those used in the associated Primary Landscape Zone.

A Shrub / Hedge Layer
 Shrub species planted to rear of garden beds as illustrated. Refer to planting palettes for shrub species options. Spacings: Average of 750mm centres.

Illustrated: Syzygium Species(Maximum height 1-1.5m)*

B Accents (Optional - dependent on planting scheme type)
 Accent species planted as illustrated. Generally planted in groups of 3-4 centered to base of tree. Refer to planting palettes for accent species options. Spacings: 500-600mm centres.

Illustrated: Philodendron Rojo Conjo

C Ground Cover
 Ground cover species to average height 300-400mm planted in pattern as illustrated. Refer to planting palettes for groundcover species options. Spacings: 200-300mm centres.

Illustrated: Trachelospermum jasminoides 'Tricolor'

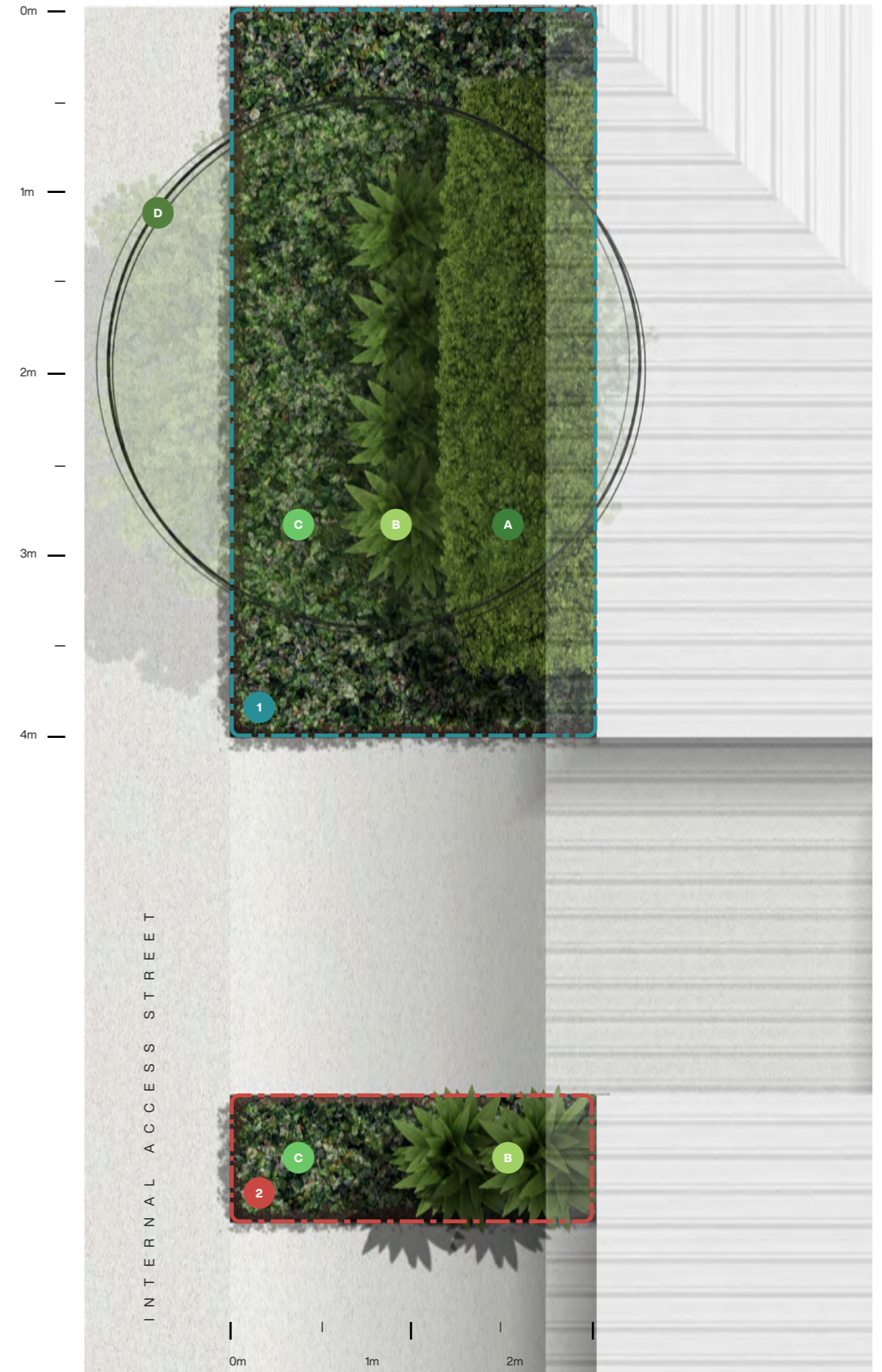
D Tree Species
 Tree species planted 600mm to rear of internal road edge with root guards incorporated as required. Tree species are assigned by street and in this way are independent to the dwelling planting schemes. This ensures that a strong coherent design character is achieved within the streetscape through the repetition of tree species. Street trees will be planted at an average spacing of 12.5-13.5m (dictated by lot width with an average of one tree provided per dwelling lot where services locations, dwelling offsets and adherence to vehicular and pedestrian sight lines permit). Refer to planting palettes for street tree species types. **Refer to Section 6.0 Planting Palettes** for street tree species types.

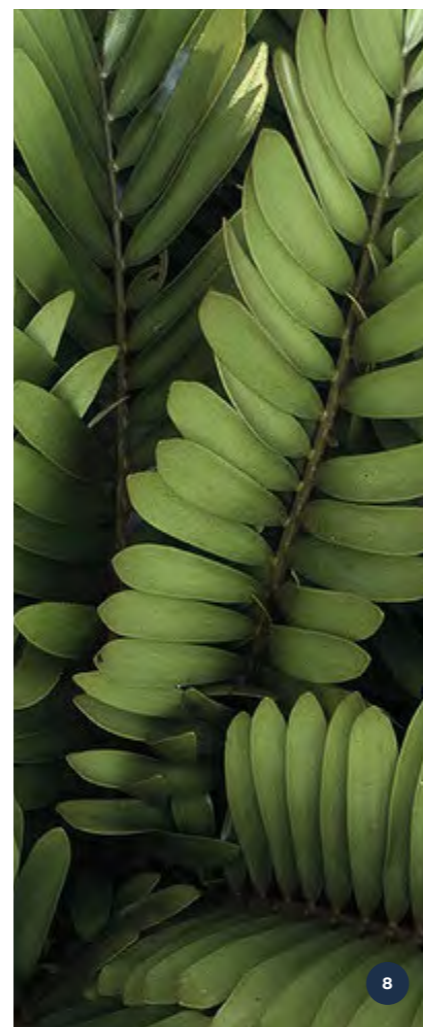
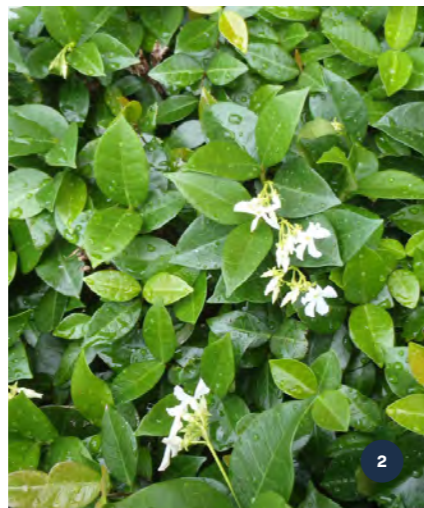
Refer to planting palettes for tree species options.

Illustrated: Tristaniopsis laurina 'Luscious'

Important Note

The illustrations within this landscape concept package are representations of general layout and landscape treatments. Planting palette to take precedent over the rendered dwelling and streetscape treatments.





Groundcover Low

1	<i>Myoporum ellipticum</i>	Coastal Myoporum
2	<i>Trachelospermum jasminoides</i>	Star Jasmine
3	<i>Trachelospermum jasminoides 'Tricolor'</i>	Tricolor Star Jasmine

Groundcover Mid

4	<i>Dietes grandiflora</i>	Wild Iris
	<i>Liriope Evergreen Giant</i>	Evergreen Giant

Accents High

5	<i>Aspidistra elatior</i>	Cast Iron Plant
6	<i>Alpinia zerumbet</i>	Native Ginger
7	<i>Philodendron Emerald Green</i>	Emerald Green
8	<i>Zamia furfuracea</i>	Cardboard Palm

Cascading Podium Planting

	<i>Casuarina Glauca</i>	Cousin It
	<i>Rosmarinus Prostrate Rosemary</i>	Trailing Rosemary
	<i>Trachelospermum jasminoides 'Tricolor'</i>	Tricolor Star Jasmine
	<i>Trachelospermum jasminoides</i>	Star Jasmine
	<i>Myoporum ellipticum</i>	Coastal Myoporum

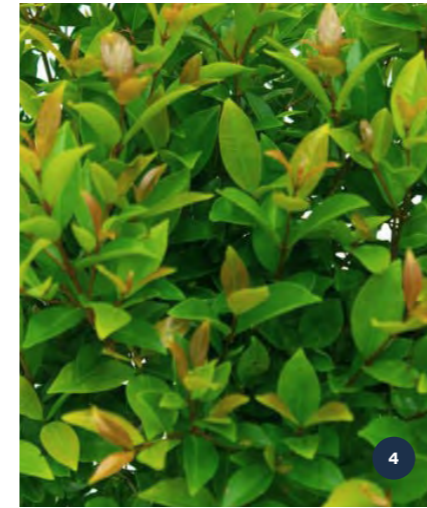
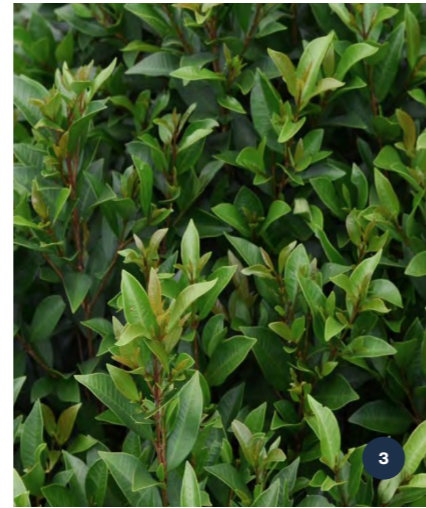
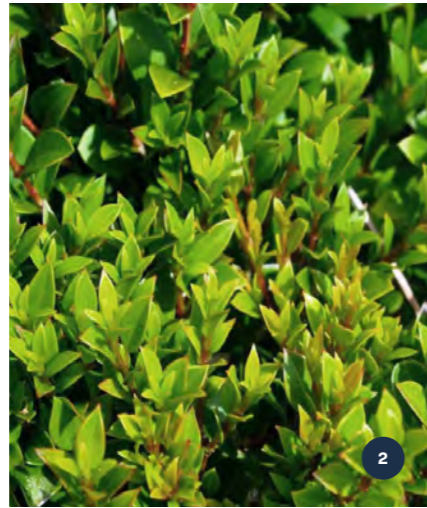
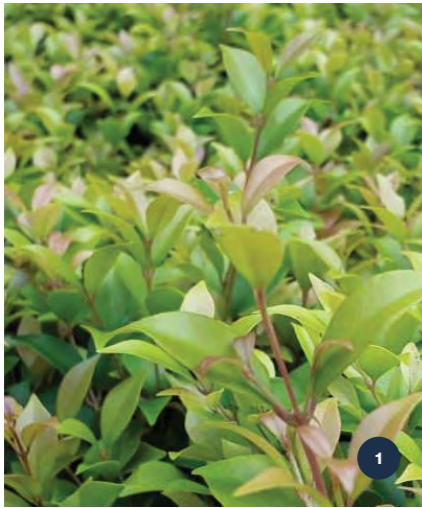
Planting Palette

3.5 Living Gems Character Species Groundcovers & Accents

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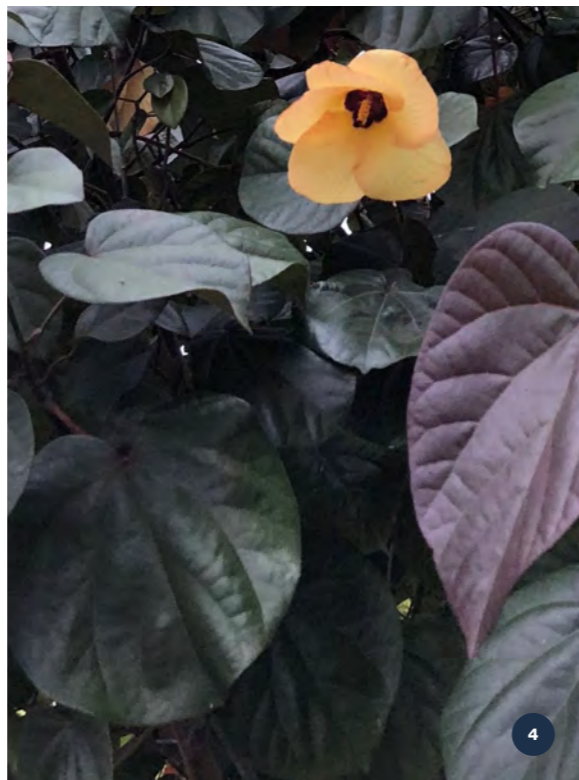
Shrub Layer

1	<i>Acmena Allyn Magic</i>	Maintained to height	~0.5m
2	<i>Syzygium Tiny Trev</i>	Maintained to height	~0.6m
3	<i>Syzygium Baby Boomer</i>	Maintained to height	~1.0m - 1.5m
4	<i>Syzygium Aussie Boomer</i>	Maintained to height	~1.5m
5	<i>Syzygium Resilience</i>	Maintained to height	~1.5 - 2.0m
6	<i>Syzygium Express</i>	Maintained to height	~2.5 - 3.0m

Syzygium species included this sheet allow for a range of heights. Hedge species within communal areas (streetscapes, entry areas, community use facilities) to be hedged. Shrub species are utilised within the development to screen fences, provide delineation and separation of uses, provide privacy to private open spaces and provide a dense backdrop to layered planting beds. A range of alternative / substitution species is included within **Supplementary Species** listings.

Planting Palette

3.6 Living Gems Character Species Hedged Syzygium Species



Trees & Palms

1	<i>Magnolia grandiflora</i>	Teddy Bear
2	<i>Magnolia grandiflora</i>	Little Gem
3	<i>Tristaniopsis laurina 'Luscious'</i>	Water Gum 'Luscious'
4	<i>Hibiscus tilleaceus Rubra</i>	Hibiscus Rubra
5	<i>Randia fitzalani</i>	Native Gardenia
6	<i>Waterhousia floribunda</i>	Weeping Lily Pilly
6	<i>Archontophoenix alexandrae</i>	Alex Palm
6	<i>Wodyetia bifurcata</i>	Foxtail Palm
6	<i>Phoenix canariensis</i>	Canary Island Date Palm

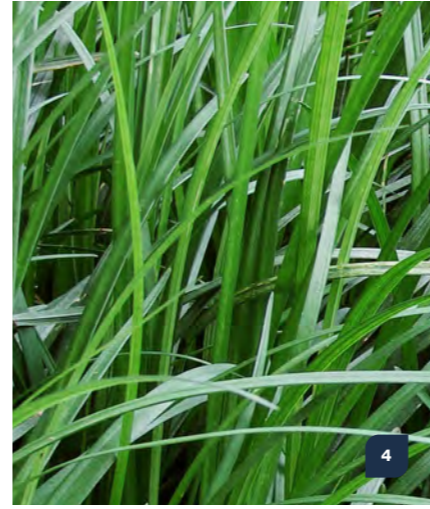
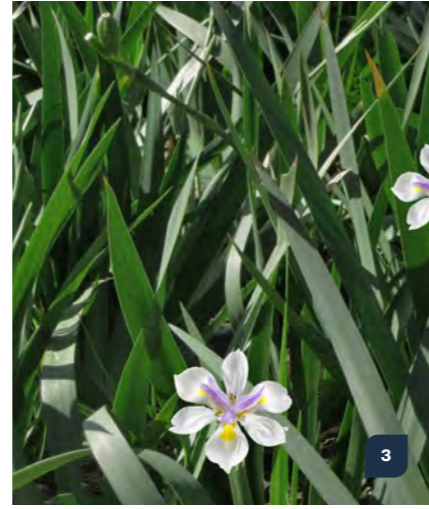
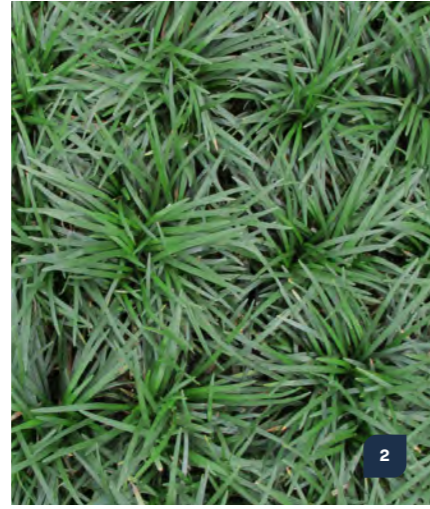
Planting Palette

3.7 Living Gems Character Species Trees & Palms

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Groundcover Low

- 1 *Liriope Isabella* Isabella
- 2 *Ophiopogon japonicus* Dwarf Mondo Grass

Groundcover High

- 3 *Dietes grandiflora* Wild Iris
- 4 *Liriope Evergreen Giant* Evergreen Giant

Accent Layer

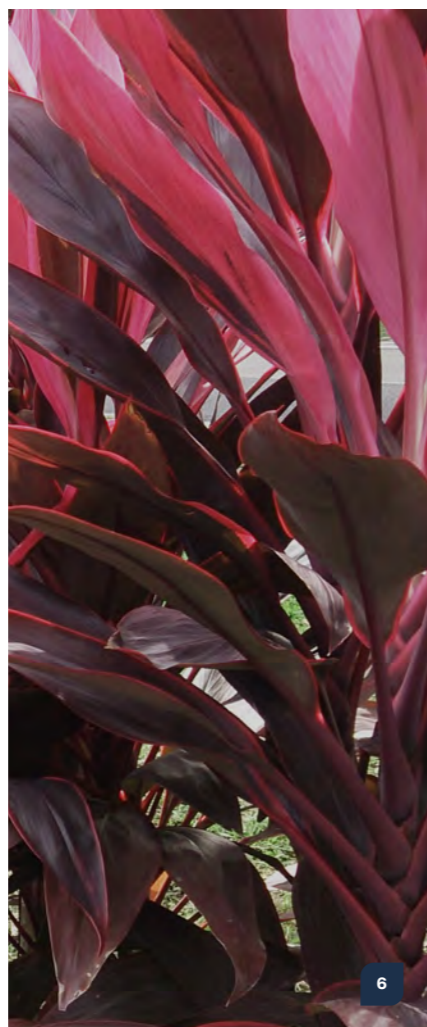
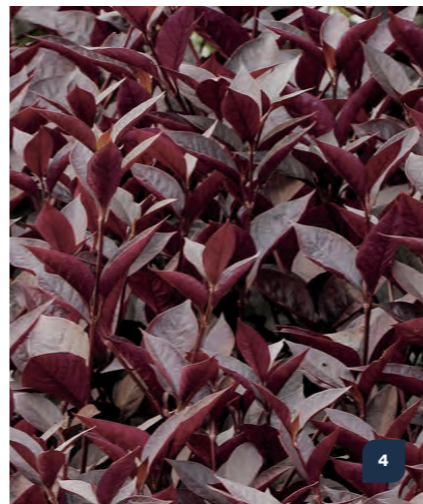
- 5 *Aspidistra elatior* Cast Iron Plant
- 6 *Philodendron 'var'* Hope

Shrub Layer

- 7 *Syzygium Baby Boomer* Baby Boomer

Planting Palette

3.8 Dwelling Frontages: Type 1



Groundcover Low

- 1 *Ophiopogon japonicus* Dwarf Mondo Grass
- 2 *Myoporum ellipticum* Coastal Myoporum

Groundcover High

- 3 *Gardenia randicans* Various dwarf species available
- 4 *Alternanthera dentata* Little Ruby

Accent Layer

- 5 *Alpinea sp.* Native Ginger
- 6 *Cordyline fruticosa* Cordyline Red Rubra

Shrub Layer

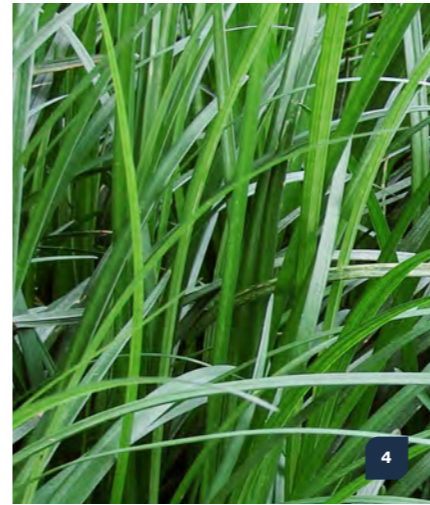
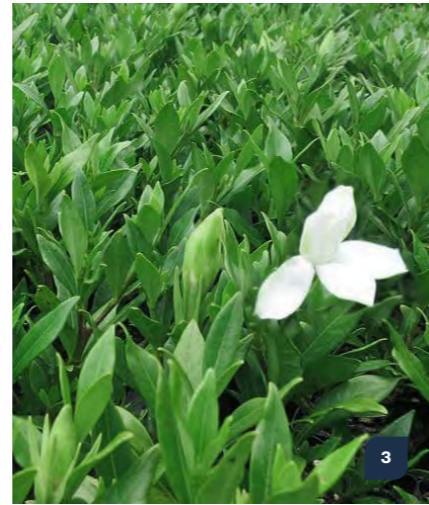
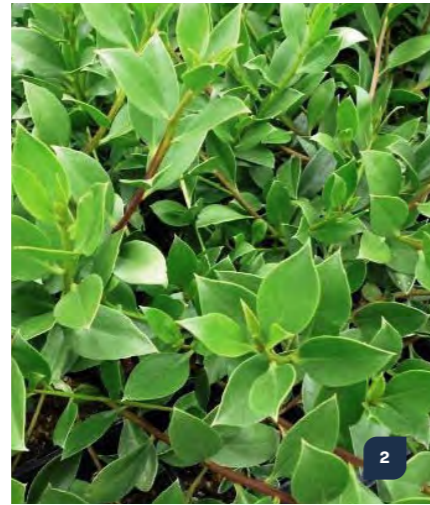
- 7 *Syzygium Baby Boomer* Baby Boomer

Planting Palette

3.9 Dwelling Frontages: Type 2

August 2024





Groundcover Low

- 1 *Trachelospermum jasminoides* Star Jasmine
- 2 *Myoporum ellipticum* Coastal Myoporum

Groundcover High

- 3 *Gardenia randicans* Various dwarf species available
- 4 *Liriope Evergreen Giant* Evergreen Giant

Accent Layer

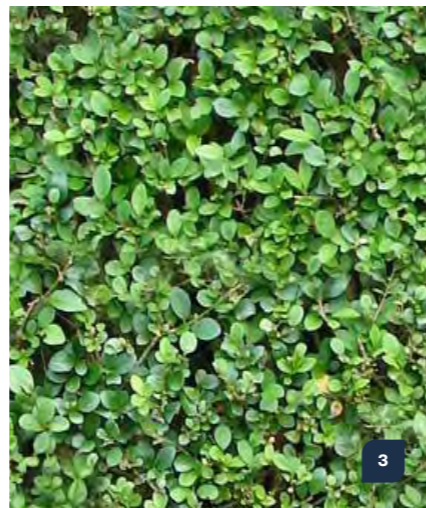
- 5 *Alpinia sp.* Native Ginger
- 6 *Zamia furfuracea* Cardboard Palm

Shrub Layer

- 7 *Gardenia sp.* Various

Planting Palette

3.10 Dwelling Frontages: Type 3



Groundcover Low

1	<i>Liriope Silver Dragon</i>	Silver Dragon
2	<i>Ophiopogon japonicus</i>	Dwarf Mondo Grass

Groundcover High

3	<i>Syzygium australe 'Tiny Trev'</i>	Tiny Trev
4	<i>Buxus japonica</i>	Japanese Box Hedge

Accent Layer

5	<i>Agave attenuata</i>	Foxtail Agave
6	<i>Crinum pendunculatum</i>	Swamp Lilly

Shrub Layer

7	<i>Gardenia sp.</i>	Various
8	<i>Syzygium Baby Boomer</i>	Baby Boomer

Planting Palette

3.11 Dwelling Frontages: Type 4

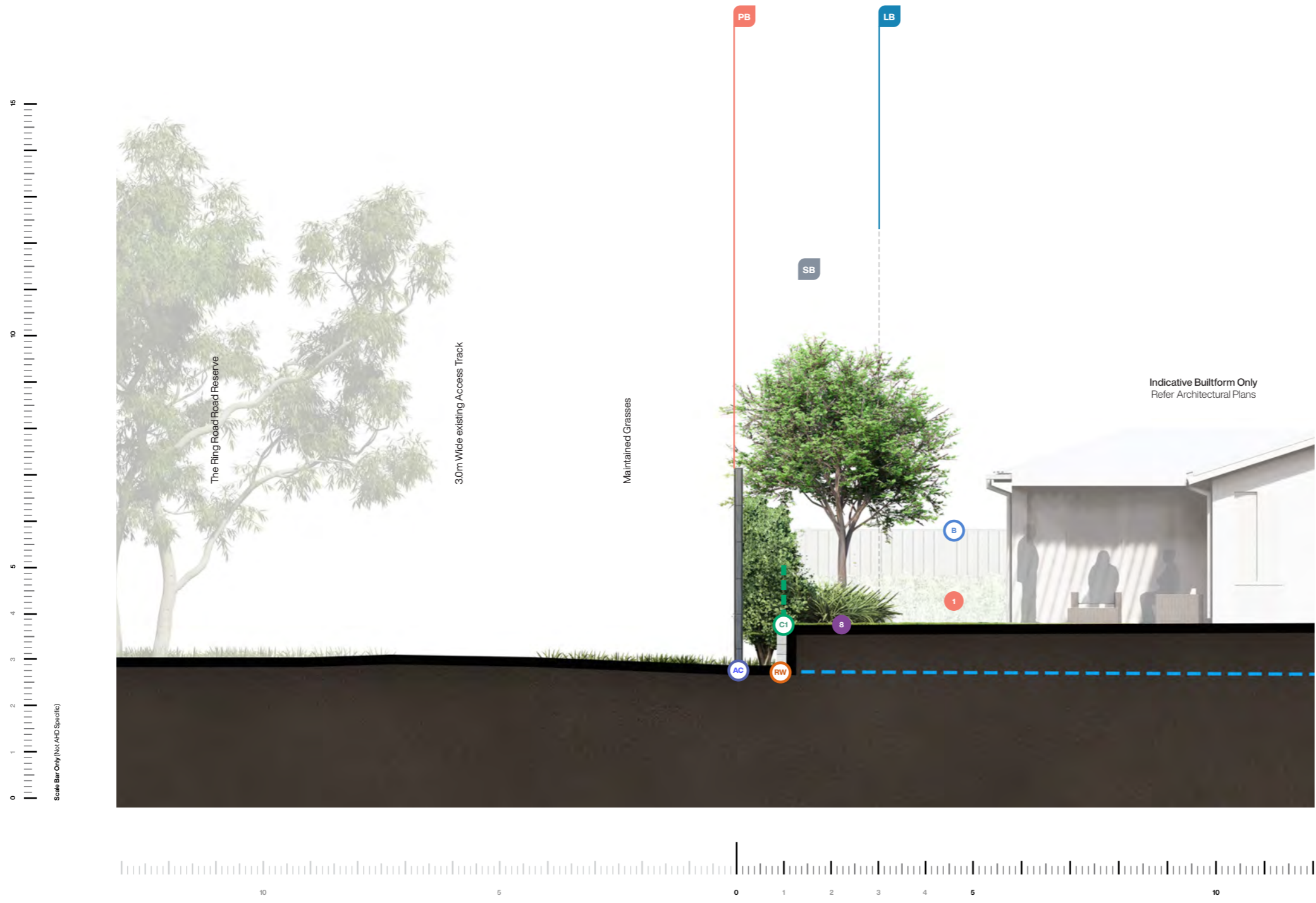
August 2024



Living Gems*

4.0

Sections & Elevations.



PB Property Boundary
 Lot 1 on SP330786, Talk Oak Dr, Toowoomba, QLD.

LB Lot Boundary
 Dwelling Lot Boundary.

SB Landscape Setback
 3.0m setback between PB and LB

NGL
 Existing Natural Ground Level

B Fence Type B
Privacy screening fence (100% solid). Colourbond Trimdek, Timber Good-Neighbor/ Lapped and Capped or approved equivalent to meet Australian Standard AS 1397, colour to match architectural finishes palette. This fence is typically used to provide privacy between residences or to the boundary of the development where significant screening is required. Typical height 1800mm, increased to 2100mm if deemed required. If fencing above typical heights are proposed this will be noted on the fencing plan contained within this design package.

C Fence Type C
Aluminium spear top pool fence, colour to match architectural finishes palette. This fence is typically used to the perimeter of the development where views are to be promoted. This fence is also used extensively when associated with significant planting buffers when the use of solid fencing is not required including where lots interface with open space areas). Typical height 1800mm. Refer Section 5.0 Fences & Walls.

C1 Fence Type C1
Aluminium spear top pool fence, specifications as per Fence Type C at typical height of 1200 - 1500mm. Incorporated only where retaining wall height is >/ = 900mm (Refer to Fencing Plan for typical alignment). Refer Section 5.0 Fences & Walls.

AC Acoustic Fence
 Refer to Noise Assessment prepared by MWA Environmental.
 Height at Cross Section Location: 4.3m

RW Retaining Wall
 Heights vary, refer Civil engineering documentation for further details. Refer to Plan 2.4 Retaining Wall Overlay for location and alignment.
 Height at Cross Section Location: 0.95m

B 2.5 - 3.5m Landscape Setbacks
 Landscape setback to achieve screening and separation between Hogarth Dr & The Ring Rd. Screening shrubs generally planted along retaining walls and / or fence lines. Small-medium trees incorporated where offsets from services and built form permits with layered planting generally reflecting General Planting character.
 Width at Cross Section Location: 3.0m

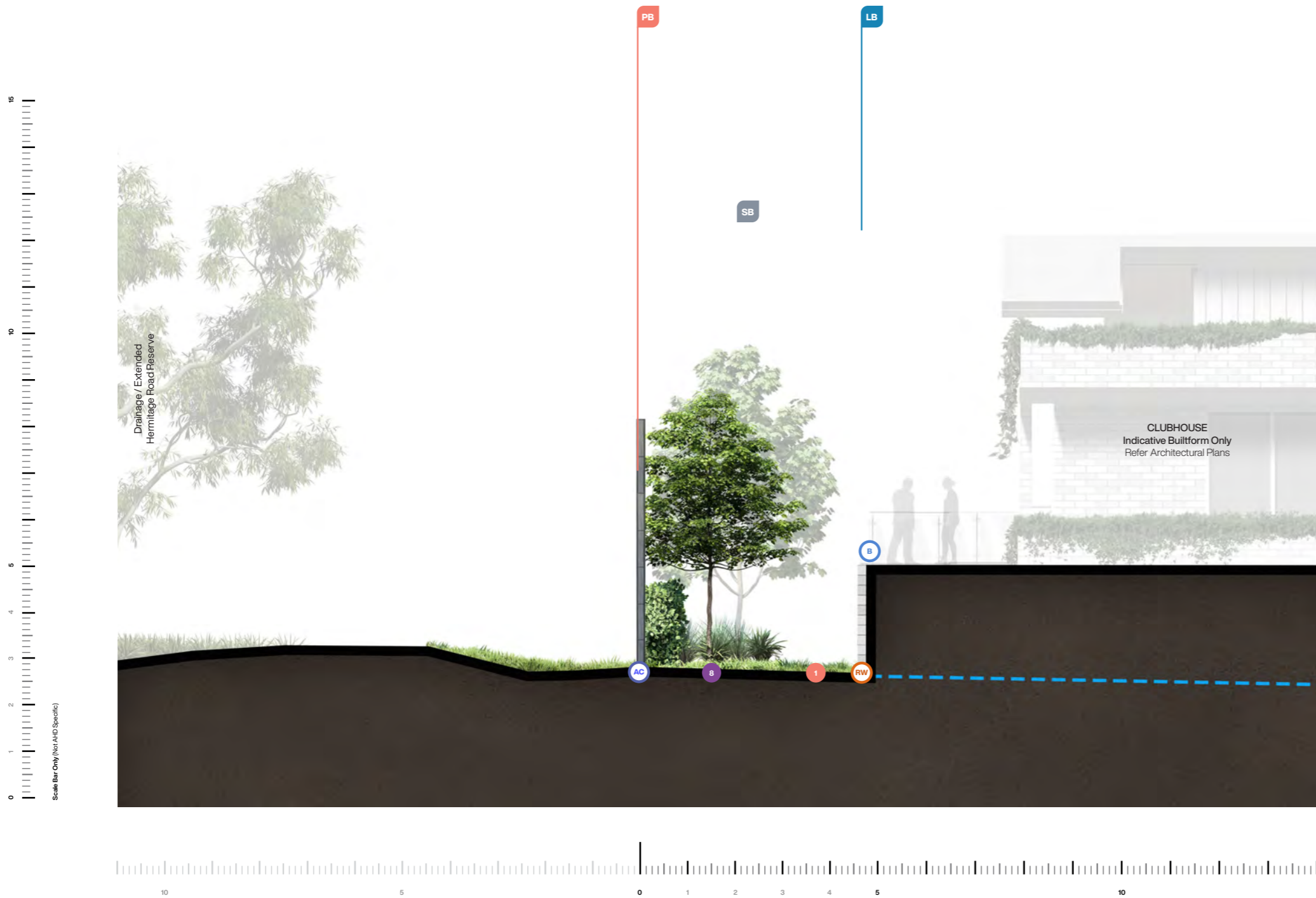
1 Private Open Space
 Indicative landscape illustrated - Private LS Works TBC

Tall Oak Drive

Site Sections Typical Section A

August 2024





PB Property Boundary
Lot 1 on SP330786, Tall Oak Dr, Toowoomba, QLD.

LB Lot Boundary
Dwelling Lot Boundary.

SB Landscape Setback
~4.7m setback between PB and LB

NGL
Existing Natural Ground Level

B Balustrade or approved equivalent
Refer Architectural Detail

C Fence Type C
Aluminium spear top pool fence, colour to match architectural finishes palette. This fence is typically used to the perimeter of the development where views are to be promoted. This fence is also used extensively when associated with significant planting buffers when the use of solid fencing is not required including where lots interface with open space areas). Typical height 1800mm. Refer Section 5.0 Fences & Walls.

C1 Fence Type C1
Aluminium spear top pool fence, specifications as per Fence Type C at typical height of 1200 - 1500mm. Incorporated only where retaining wall height is >/ = 900mm (Refer to Fencing Plan for typical alignment). Refer Section 5.0 Fences & Walls.

AC Acoustic Fence
Refer to Noise Assessment prepared by MWA Environmental.
Height at Cross Section Location: 5.2m

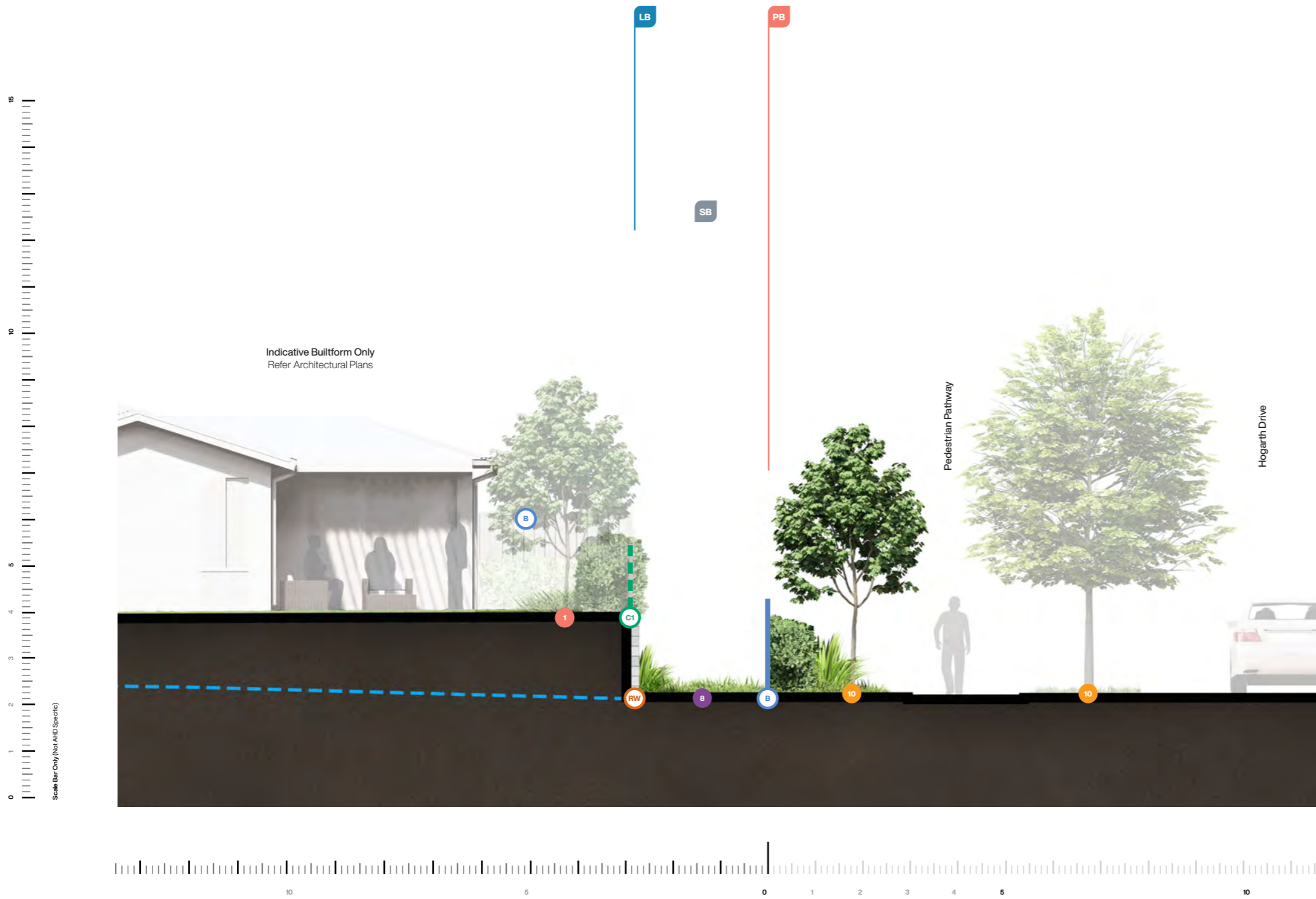
RW Retaining Wall
Heights vary, refer Civil engineering documentation for further details. Refer to Plan 2.4 Retaining Wall Overlay for location and alignment.
Height at Cross Section Location: 2.4m

B Landscape Setbacks
Landscape setback to achieve screening and separation between Hogarth Dr & The Ring Rd. Screening shrubs generally planted along retaining walls and / or fence lines. Small-medium trees incorporated where offsets from services and built form permits with layered planting generally reflecting General Planting character.
Width at Cross Section Location: 4.7m

1 Maintenance Access
Maintained turf / mulch area to facilitate access for general maintenance.

Tall Oak Drive

Site Sections Typical Section B



PB Property Boundary
 Lot 1 on SP330786, Tall Oak Dr, Toowoomba, QLD.

LB Lot Boundary
 Dwelling Lot Boundary.

SB Landscape Setback
 3.0m setback between PB and LB

NGL
 Existing Natural Ground Level

B Fence Type B
Privacy screening fence (100% solid). Colourbond Trimdek, Timber Good-Neighbor/ Lapped and Capped or approved equivalent to meet Australian Standard AS 1397, colour to match architectural finishes palette. This fence is typically used to provide privacy between residences or to the boundary of the development where significant screening is required. Typical height 1800mm, increased to 2100mm if deemed required. If fencing above typical heights are proposed this will be noted on the fencing plan contained within this design package.

C Fence Type C
Aluminium spear top pool fence, colour to match architectural finishes palette. This fence is typically used to the perimeter of the development where views are to be promoted. This fence is also used extensively when associated with significant planting buffers when the use of solid fencing is not required including where lots interface with open space areas). Typical height 1800mm. Refer Section 5.0 Fences & Walls.

C1 Fence Type C1
Aluminium spear top pool fence, specifications as per Fence Type C at typical height of 1200 - 1500mm. Incorporated only where retaining wall height is >/ = 900mm (Refer to Fencing Plan for typical alignment). Refer Section 5.0 Fences & Walls.

RW Retaining Wall
 Heights vary, refer Civil engineering documentation for further details. Refer to Plan 2.4 Retaining Wall Overlay for location and alignment. Height at Cross Section Location: 1.7m

B 2.5 - 3.5m Landscape Setbacks
 Landscape setback to achieve screening and separation between Hogarth Dr & The Ring Rd. Small - medium trees incorporated where offsets from services and built form permits Screening shrubs or groundcover species generally planted along retaining walls and / or fence lines generally reflecting General Planting character. Width at Cross Section Location: 3.0m

10 Hogarth Dve RR
 Existing streetscape works including street trees supported by additional shade trees offset from PB to be retained and continued to the northern Hogarth Dve extension. Potential for additional 1.5-2.0m wide planting to front of PB fence (Fence Type B) to reflect eastern side of Hogarth Dve treatment.

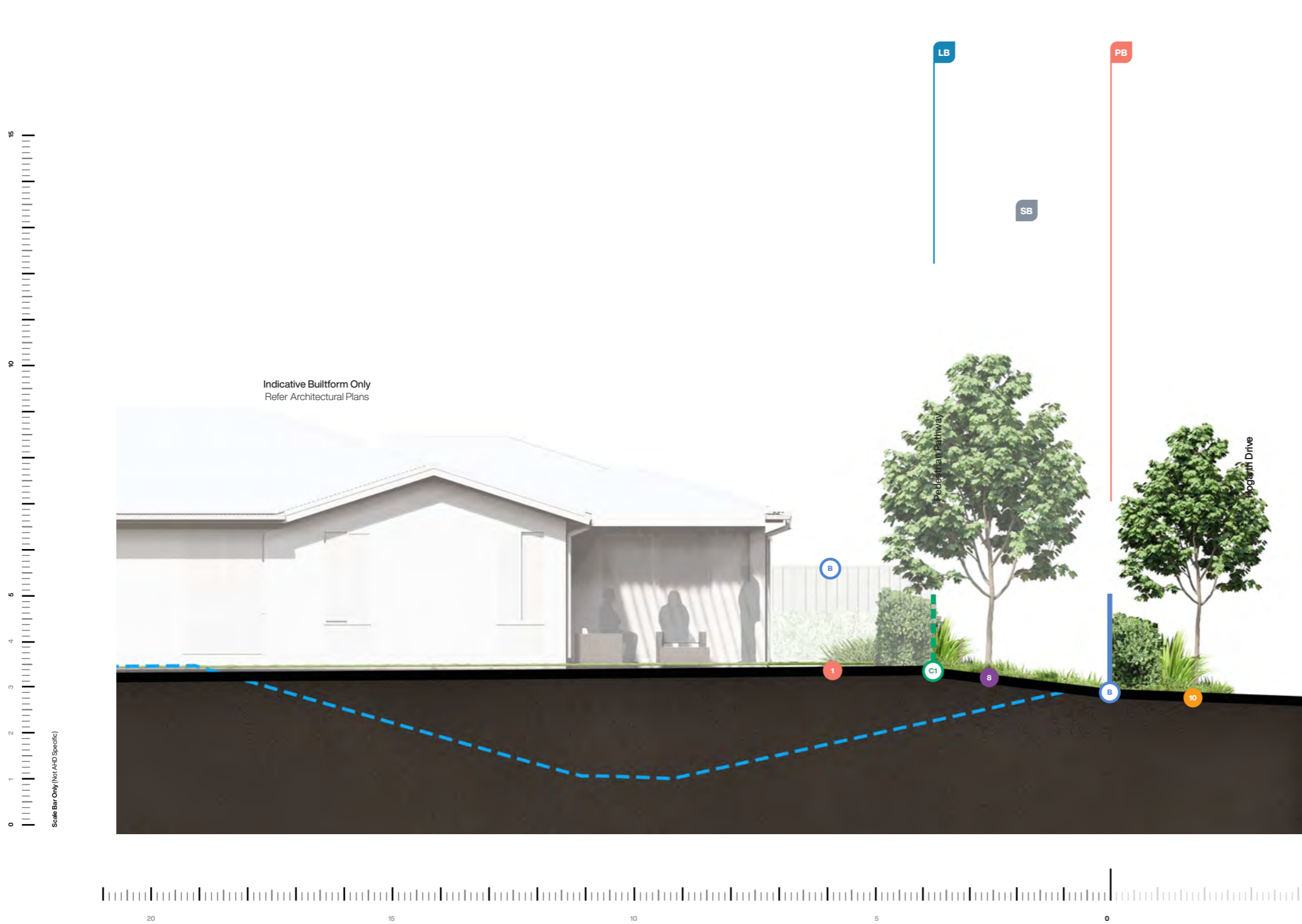
1 Private Open Space
 Indicative landscape illustrated - Private LS Works TBC

Tall Oak Drive

Site Sections Typical Section C

August 2024





PB Property Boundary
Lot 1 on SP330786, Tall Oak Dr, Toowoomba, QLD.

LB Lot Boundary
Dwelling Lot Boundary.

SB Landscape Setback
3.7m setback between PB and LB

NGL
Existing Natural Ground Level

B Fence Type B
Privacy screening fence (100% solid). Colourbond Trimdek, Timber Good-Neighbor/ Lapped and Capped or approved equivalent to meet Australian Standard AS 1397, colour to match architectural finishes palette. This fence is typically used to provide privacy between residences or to the boundary of the development where significant screening is required. Typical height 1800mm, increased to 2100mm if deemed required. If fencing above typical heights are proposed this will be noted on the fencing plan contained within this design package.

C Fence Type C
Aluminium spear top pool fence, colour to match architectural finishes palette. This fence is typically used to the perimeter of the development where views are to be promoted. This fence is also used extensively when associated with significant planting buffers when the use of solid fencing is not required including where lots interface with open space areas). Typical height 1800mm. Refer Section 5.0 Fences & Walls.

C1 Fence Type C1
Aluminium spear top pool fence, specifications as per Fence Type C at typical height of 1200 - 1500mm. Refer Section 5.0 Fences & Walls.

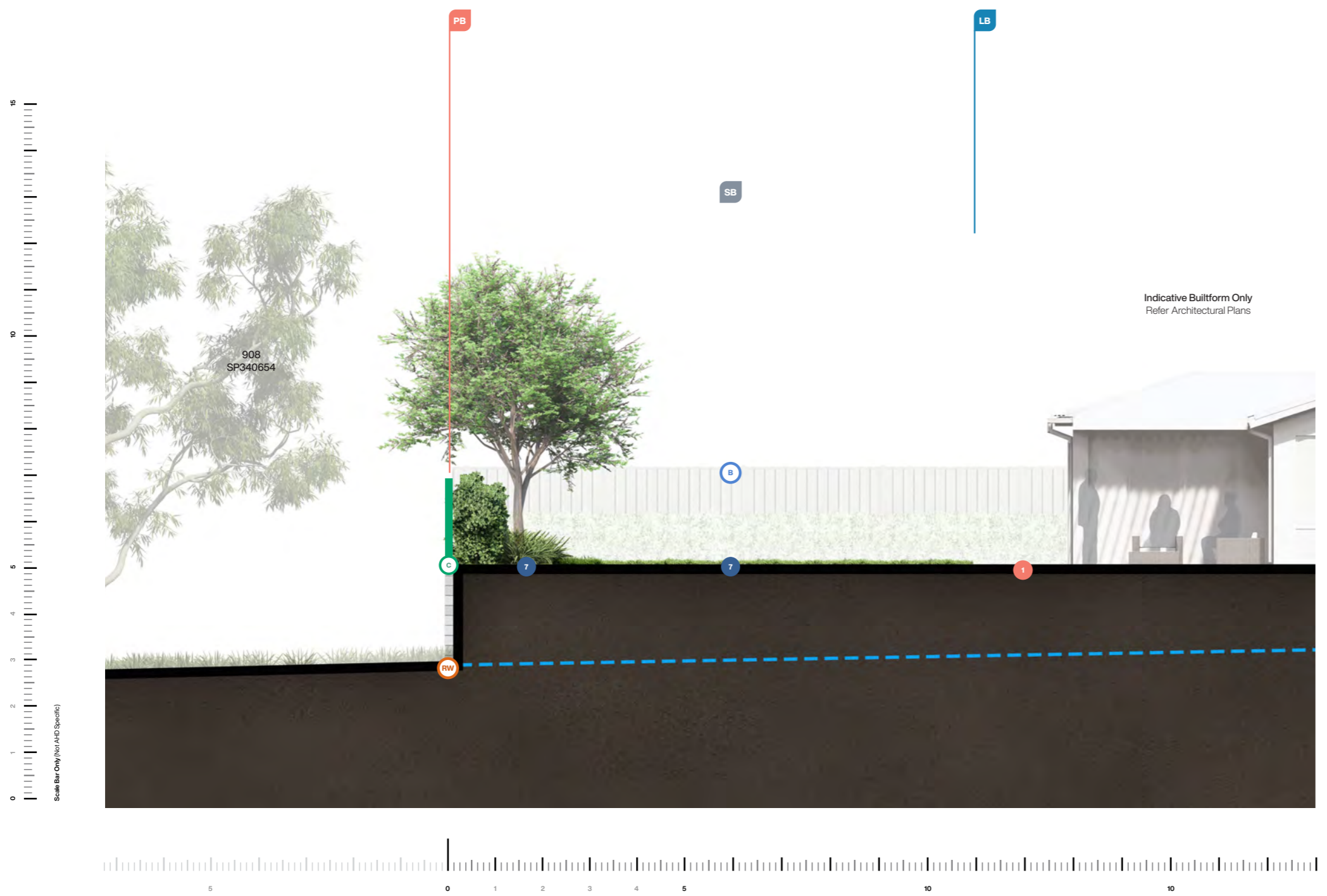
8 2.5 - 3.5m Landscape Setbacks
Landscape setback to achieve screening and separation between Hogarth Dr & The Ring Rd. Small - medium trees incorporated where offsets from services and built form permits Screening shrubs or groundcover species generally planted along retaining walls and / or fence lines generally reflecting General Planting character. Width at Cross Section Location: 3.7m

10 Hogarth Dve RR
Existing streetscape works including street trees supported by additional shade trees offset from PB to be retained and continued to the northern Hogarth Dve extension. Potential for additional 15-2.0m wide planting to front of PB fence (Fence Type B) to reflect eastern side of Hogarth Dve treatment.

1 Private Open Space
Indicative landscape illustrated - Private LS Works TBC

Tall Oak Drive

Site Sections Typical Section D



PB Property Boundary
Lot 1 on SP330786, Talk Oak Dr, Toowoomba, QLD.

LB Lot Boundary
Dwelling Lot Boundary.

SB Landscape Setback
9.0m setback between PB and LB

NGL
Existing Natural Ground Level

B Fence Type B
Privacy screening fence (100% solid). Colourbond Trimdek, Timber Good-Neighbor/ Lapped and Capped or approved equivalent to meet Australian Standard AS 1397, colour to match architectural finishes palette. This fence is typically used to provide privacy between residences or to the boundary of the development where significant screening is required. Typical height 1800mm, increased to 2100mm if deemed required. If fencing above typical heights are proposed this will be noted on the fencing plan contained within this design package.

C Fence Type C
Aluminium spear top pool fence, colour to match architectural finishes palette. This fence is typically used to the perimeter of the development where views are to be promoted. This fence is also used extensively when associated with significant planting buffers when the use of solid fencing is not required including where lots interface with open space areas). Typical height 1800mm. Refer Section 5.0 Fences & Walls.

C1 Fence Type C1
Aluminium spear top pool fence, specifications as per Fence Type C at typical height of 1200 - 1500mm. Incorporated only where retaining wall height is >/ = 900mm (Refer to Fencing Plan for typical alignment). Refer Section 5.0 Fences & Walls.

RW Retaining Wall
Heights vary, refer Civil engineering documentation for further details. Refer to Plan 2.4 Retaining Wall Overlay for location and alignment. Height at Cross Section Location: 2.1m

7 9.0m Landscape Setback
Landscape Setback to achieve separation from adjacent existing natural vegetation. Primarily maintained turf, screening shrubs generally planted along retaining rear lot fence lines. Small-medium trees incorporated where offsets from services and built form permits.

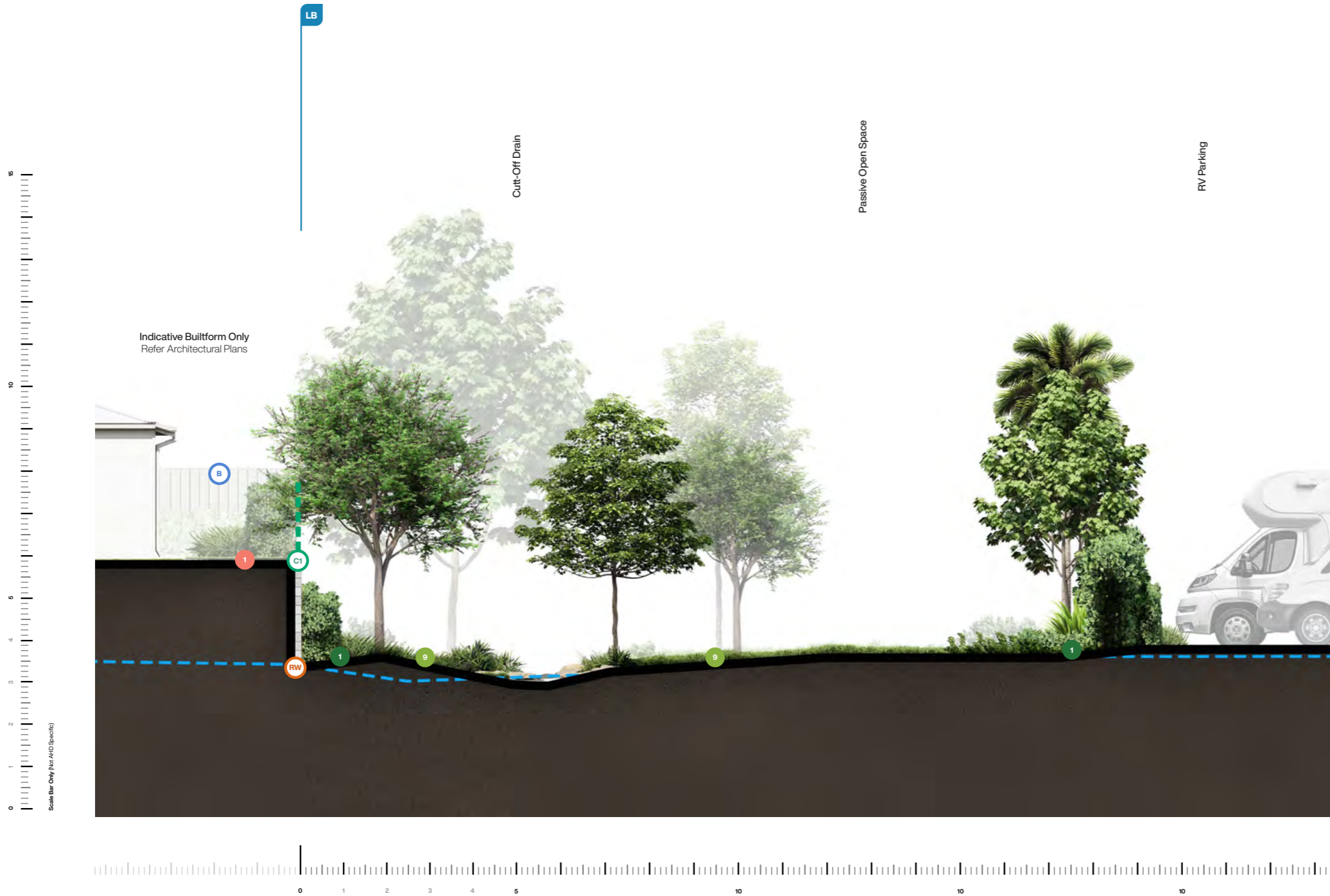
1 Private Open Space
Indicative landscape illustrated - Private LS Works TBC

Tall Oak Drive

Site Sections Typical Section E

August 2024





PB Property Boundary
Lot 1 on SP330786, Talk Oak Dr, Toowoomba, QLD.

LB Lot Boundary
Dwelling Lot Boundary.

SB Landscape Setback
9.0m setback between PB and LB

NGL
Existing Natural Ground Level

B Fence Type B
Privacy screening fence (100% solid). Colourbond Trimdek, Timber Good-Neighbor/ Lapped and Capped or approved equivalent to meet Australian Standard AS 1397, colour to match architectural finishes palette. This fence is typically used to provide privacy between residences or to the boundary of the development where significant screening is required. Typical height 1800mm, increased to 2100mm if deemed required. If fencing above typical heights are proposed this will be noted on the fencing plan contained within this design package.

C Fence Type C
Aluminium spear top pool fence, colour to match architectural finishes palette. This fence is typically used to the perimeter of the development where views are to be promoted. This fence is also used extensively when associated with significant planting buffers when the use of solid fencing is not required including where lots interface with open space areas). Typical height 1800mm. Refer Section 5.0 Fences & Walls.

C1 Fence Type C1
Aluminium spear top pool fence, specifications as per Fence Type C at typical height of 1200 - 1500mm. Incorporated only where retaining wall height is >/ = 900mm (Refer to Fencing Plan for typical alignment). Refer Section 5.0 Fences & Walls.

RW Retaining Wall
Heights vary, refer Civil engineering documentation for further details. Refer to Plan 2.4 Retaining Wall Overlay for location and alignment. Height at Cross Section Location: 2.5m

1 General Planting
General Planting Areas to feature small to large feature trees (dictated by available planting area and offsets from services and cognisant of sightlines (CPTED). Trees and Palm species set within layered plantings, hedge species generally incorporated to rear of planting beds (typically along fencelines and or retaining walls). Signature character species to be incorporated within all areas to ensure a coherent design outcome is achieved. Mass planted ground cover species to front of planting beds. Accent species in copses to frame feature trees and palm species.

9 Stormwater (Cut-Off Drain, Batters & Headwalls)
Landscape treatment to storm water feature (cutoff drain) to include planted batters generally reflecting General Planting transitioning to WSUD and Riparian species to batter toe and low flow. Scattered riparian trees incorporated as typically illustrated (Refer Cross Sections). Sedges planted to rockscour protection (headwalls) as determined by Civil Engineers. Refer also Civil Engineering plans for low flow treatment / requirements (river-rock or similar).

1 Private Open Space
Indicative landscape illustrated - Private LS Works TBC

Hogarth Drive

Site Sections Typical Section F

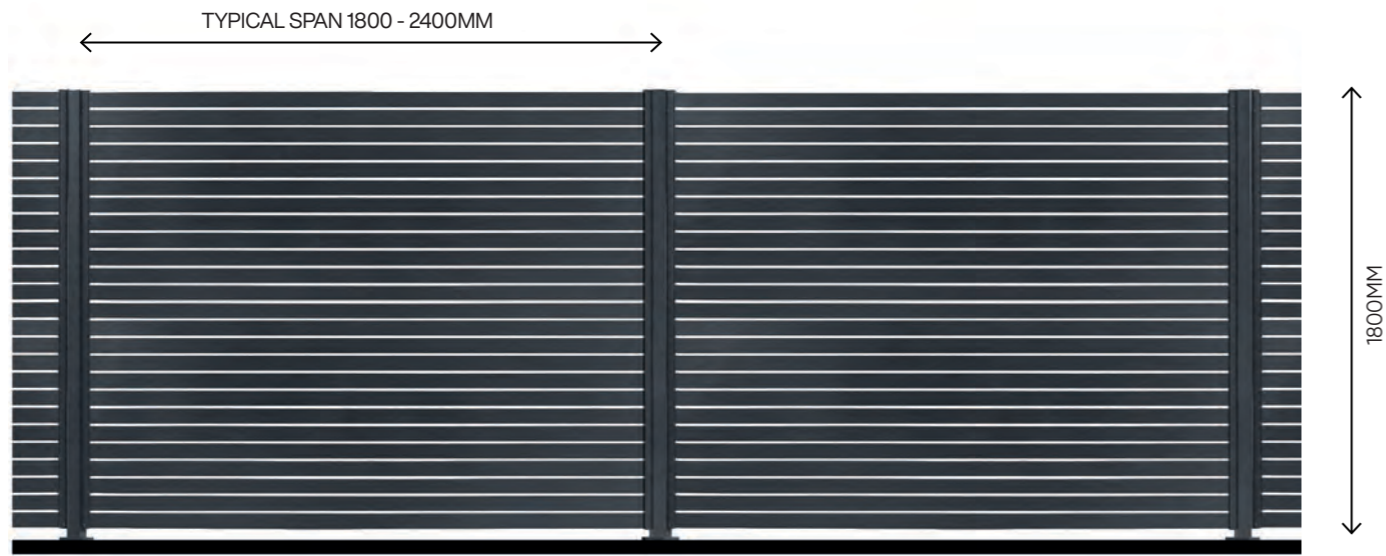
Living Gems*

5.0

Fences & Walls.

Important Note This section contains a number of Living Gems Typical Fence & Wall Types not all types contained herein are necessarily proposed within this development. Further detail on fencing and retaining wall locations will be provided in detailed design phase.





Fence Type A: Typical Elevation

A Fence Type A

Privacy screening fence. Horizontal slat fencing with 75mm aluminium blades with 10-15mm spacings to allow filtered views. Typical span is 2400mm. Powder coated aluminium to colour to match architectural finishes palette. Stratco EzySlat Fencing or approved equivalent. This fence is typically used to the secondary frontage of corner lots to provide privacy to the residence without the use of solid fencing. Typical height 1800mm, this can be extended to 2100mm if required. If fencing above typical heights are proposed this will be noted on the fencing plan contained within this design package.

Landscaping to feature layered plantings to provide softening to fence line. Landscape form as per typical elevations this sheet. Refer to fence line planting modules and schedules for species listings. Refer **Section 2.3 - Fencing Locations** and **Section 4.0 - Site Sections** for further information regarding layout and location of fence types and associated landscape treatments.

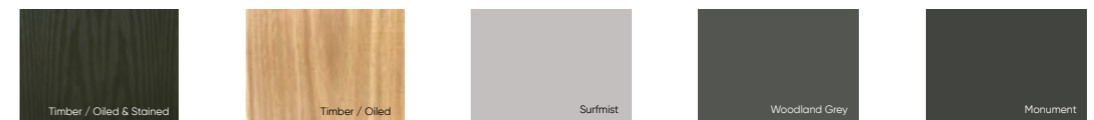


Fence Type B: Typical Elevation

B Fence Type B

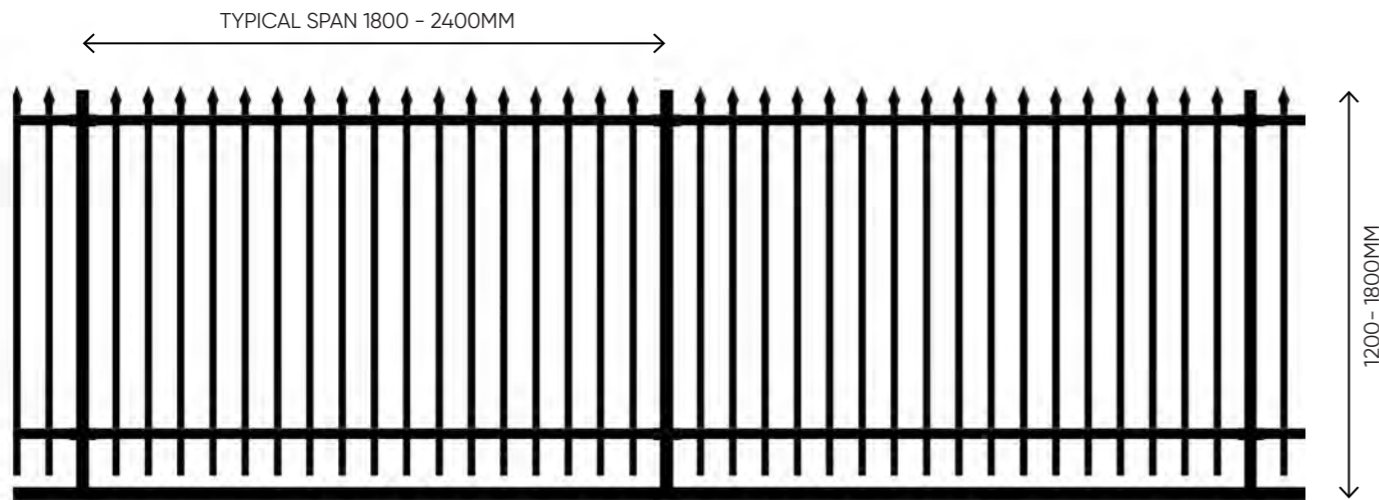
Privacy screening fence (100% solid). Colourbond Trimdek, Timber Good-Neighbor / Lapped and Capped or approved equivalent to meet Australian Standard AS 1397. Exterior grade lead-free paint (compliant with Australian Standard AS 2728) colour to match architectural finishes palette. Typical finishes illustrated below. This fence is typically used to provide privacy between residences or to the boundary of the development where significant screening is required. Typical height 1800mm, increased to 2100mm if deemed required. Posts 0.8mm min high tensile steel with fencing panels to min 0.35mm high tensile steel.

Landscaping to feature layered plantings to provide softening to fenceline. Landscape form as per typical elevations this sheet. Refer to fenceline planting modules and schedules for species listings. Refer to **Section 4.0 Site Sections** for additional information regarding wall alignments and associated landscape treatments.



Fences & Walls

5.1 Fence & Wall Types



Fence Type C: Typical Elevation

C Fence Type C

Aluminium spear top pool fence. Typical span is 2400mm. Powder coated aluminium to colour to match architectural finishes palette. Typical finishes illustrated below. This fence is typically used to the perimeter of the development where views are to be promoted. This fence is also used extensively when associated with significant planting buffers when the use of solid fencing is not required. Typical height 1200mm - 1800mm. If fencing above typical heights are proposed this will be noted on the fencing plan contained within this design package.

Landscaping to feature layered plantings to provide softening to fence line. Landscape form as per typical elevations this sheet. Refer to fence line planting modules and schedules for species listings. Refer to **Section 4.0 Site Sections** for additional information regarding wall alignments and associated landscape treatments.

Refer to **Section 2.3 - Fencing Locations** for proposed location and alignment of Fence Type C.



Fence Type D: Typical Elevation

D Fence Type D

Safety Rail: Handrail/ Guardrail to a minimum height of 900mm. Where fall from height is significant it is recommended to increase the height of the guardrail to at least 1000mm.

The maximum distance between the base and the bottom of the intermediate rail is 560mm to comply with AS 1657, as a toeboard or kickplate is not necessary within this context.

Handrails proposed to provide edge protection at the edge of fall zones where required for maintenance staffs safety. Landscaping to feature layered plantings to provide softening to safety rail and associated retaining wall structure if / as incorporated.

Refer to **Section 4.0 Site Sections** for additional information regarding wall alignments and associated landscape treatments.



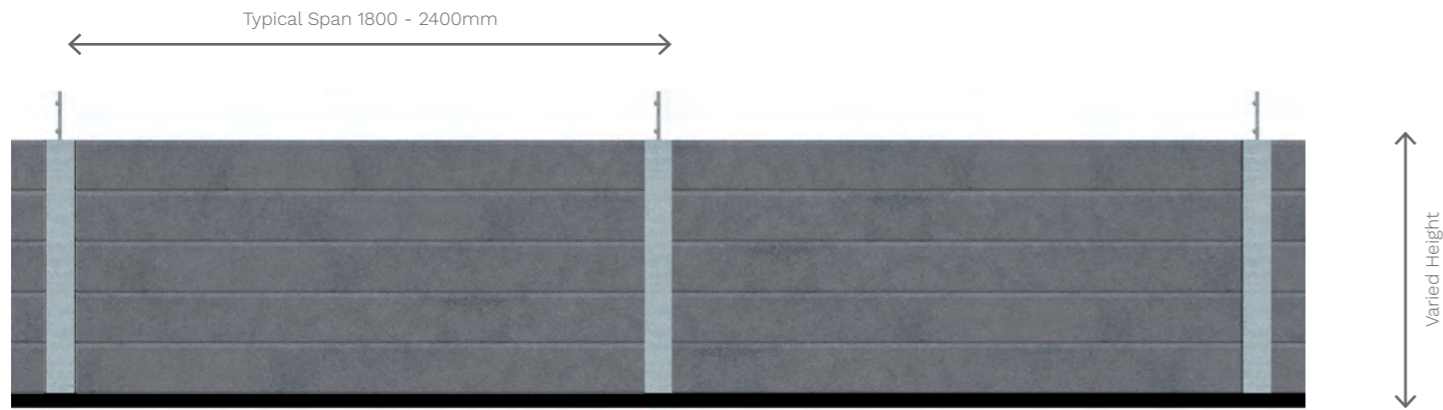
Important Note This section contains a number of Living Gems Typical Fence & Wall Types not all types contained herein are necessarily proposed within this development. Further detail on fencing and retaining wall locations will be provided in detailed design phase.

Fences & Walls

5.2 Fence & Wall Types

August 2024





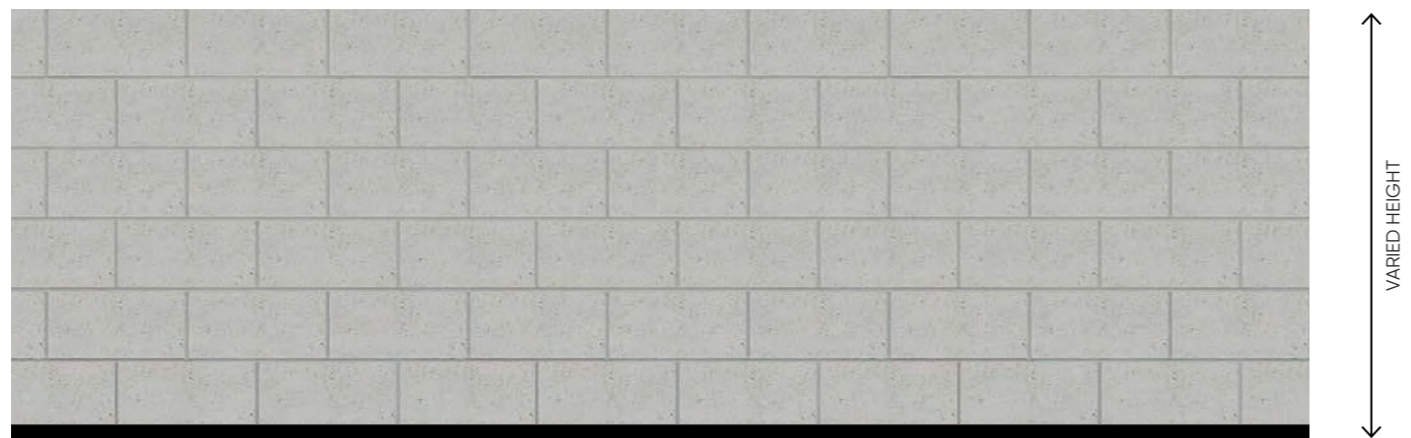
Wall Type A: Typical Elevation

Wall Type A

Concrete sleeper walls. Standard sleeper is 1800mm (200mm x 75mm) up to 2400mm where required (200mm x 120mm) weighing approximately 125kgs. The sleepers are steel reinforced and manufactured to engineer standards. Galvanised steel H posts with integrated fence brackets as illustrated to allow for fence mounting direct to retaining structure. Finish: charcoal coloured oxide illustrated.

Landscaping to feature layered plantings to provide softening to retaining structure and associated fenceline if this is incorporated.

Refer to **Section 4.0 Site Sections** for additional information regarding wall alignments and associated landscape treatments.



Wall Type B: Typical Elevation

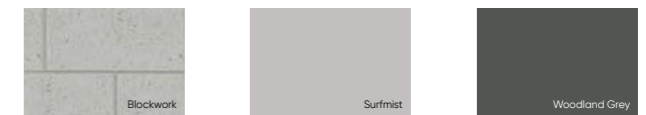
Wall Type B

Core filled block work retaining wall: Typical block dimensions 390 x 190 x 190mm. Wall to be laid in stretcher bond format and located only in areas where internal and external views to not allow views of the retaining wall.

Refer to **Section 4.0 Sections & Elevations** for additional information regarding wall alignments and associated landscape treatments.

Finish: Rendered & Painted to match architectural finishes palette.

Block work walls to engineers details.



Important Note This section contains a number of **Living Gems Typical Fence & Wall Types** not all types contained herein are necessarily proposed within this development. Further detail on fencing and retaining wall locations will be provided in detailed design phase.

Fences & Walls

5.3 Fence & Wall Types



VARIED HEIGHT

Wall Type C & C1: Typical Elevation



Varied Height

Wall Type D: Typical Elevation

Wall Type C

Core filled block work retaining wall: Typical block dimensions 390 x 190 x 190mm. Wall to be laid in stretcher bond format and located only in areas where internal and external views to not allow views of the retaining wall.

*Retaining and / or non retaining function. This wall may also feature at entry points or to development frontages. Potential stone cladding incorporated when part of entry statement or way-finding signage.

Refer to **Section 4.0 Sections & Elevations** for additional information regarding wall alignments and associated landscape treatments.

Finish: Rendered & Painted to match architectural finishes palette.

Block work walls to engineers details.

Wall Type C1

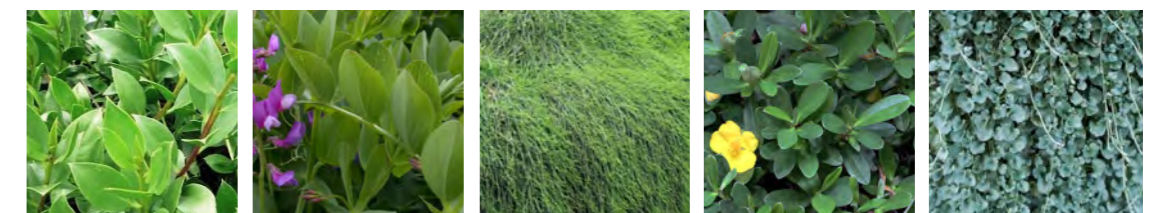
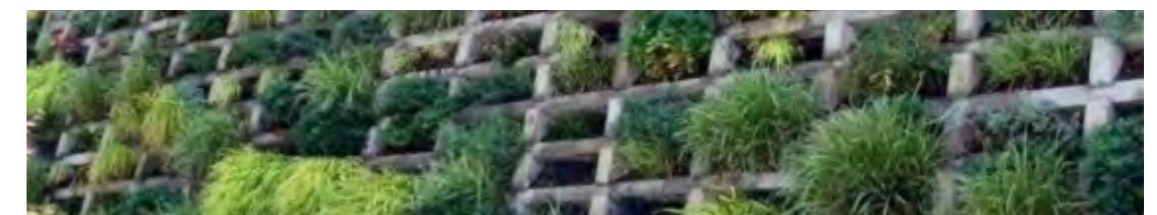
Frontage Wall / Fence to Hermans Road frontage.

Wall Type D with portions of Fence Type C (50% transparent fencing) incorporated. Wall Type D as panels or to serve as pillars between spans of transparent fencing. Fence to be stepped back 600 - 1000mm to facilitate planting to front as illustrated this sheet.

Wall Type D

Concrete Crib Walls: Concrib walls are gravity based retaining walls constructed from interlocking precast concrete components, filled with free draining material and earth backfill. Concrib walls to be planted with significant vegetation as typically illustrated this sheet.

Planting to the walls to include Hibbertia scandens, Dichondra Silver Falls, Casuarina glauca 'Cousin It', Myoporum ellipticum, Lathyrus japonica and Liriope and Lomandra species. landscape treatments.



Myoporum ellipticum Lathyrus japonica Casuarina glauca 'Cousin It' Hibbertia scandens Dichondra Silver Falls

Fences & Walls

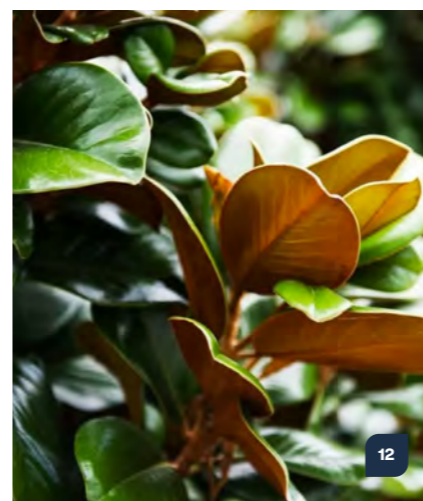
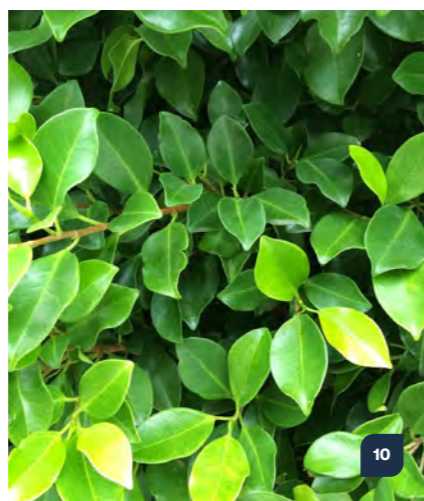
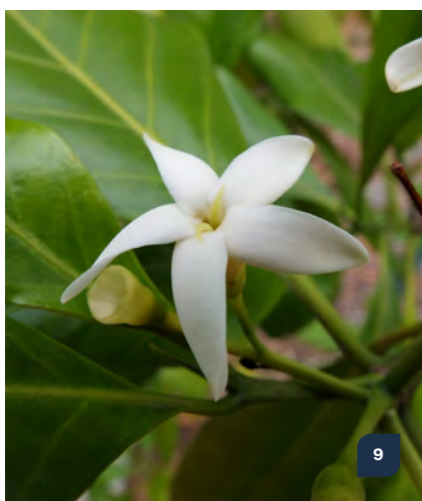
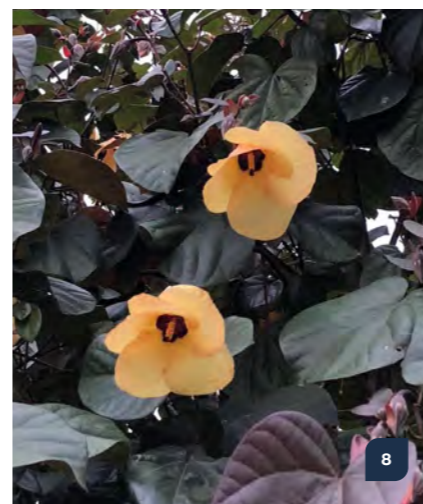
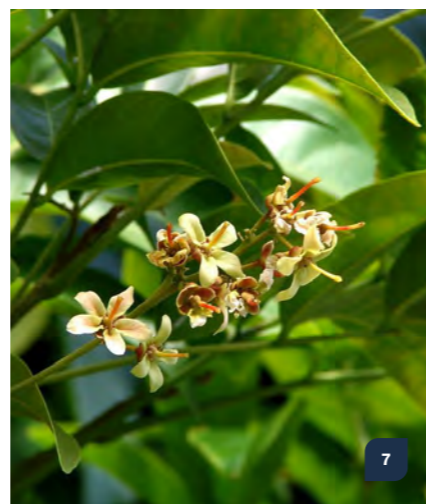
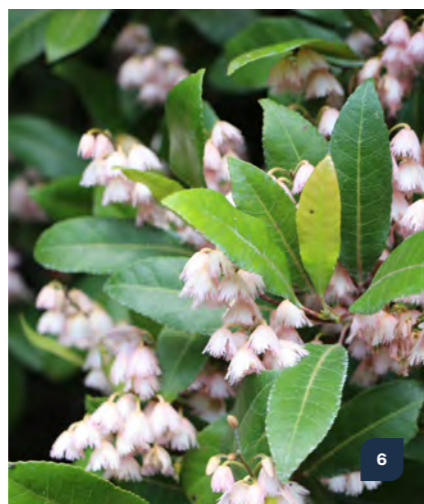
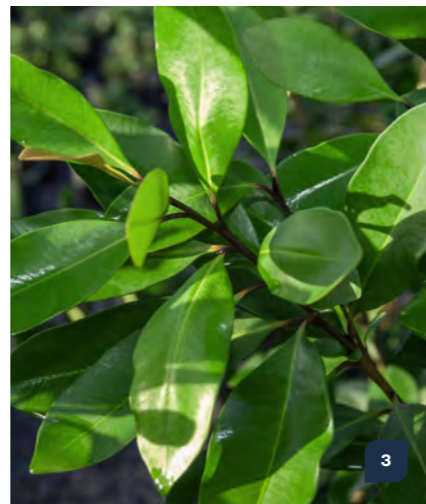
5.4 Fence & Wall Types

August 2024



Living Gems*

6.0
Planting Palettes.



Tree Type 1 (Large Trees)

1	<i>Magnolia grandiflora</i>	Southern Magnolia
2	<i>Cupaniopsis anacardioides</i>	Tuckeroo
3	<i>Tristaniopsis laurina</i>	Water Gum
4	<i>Waterhousea floribunda</i>	Weeping Lilly Pilly
5	<i>Banksia integrifolia</i>	Coast Banksia
6	<i>Elaeocarpus reticulatus</i>	Blueberry Ash

Tree Type 2 (Medium Trees)

7	<i>Harpullia pendula</i>	Tulipwood
8	<i>Hibiscus tiliaceus 'rubra'</i>	Cottonwood/Hibiscus Rubra
9	<i>Randia fitzalanii</i>	Native Gardenia
10	<i>Ficus microcarpa</i>	Indian Laurel Fig
11	<i>Backhousia citriodora</i>	Sweet Verbena/Lemon Scented Myrtle

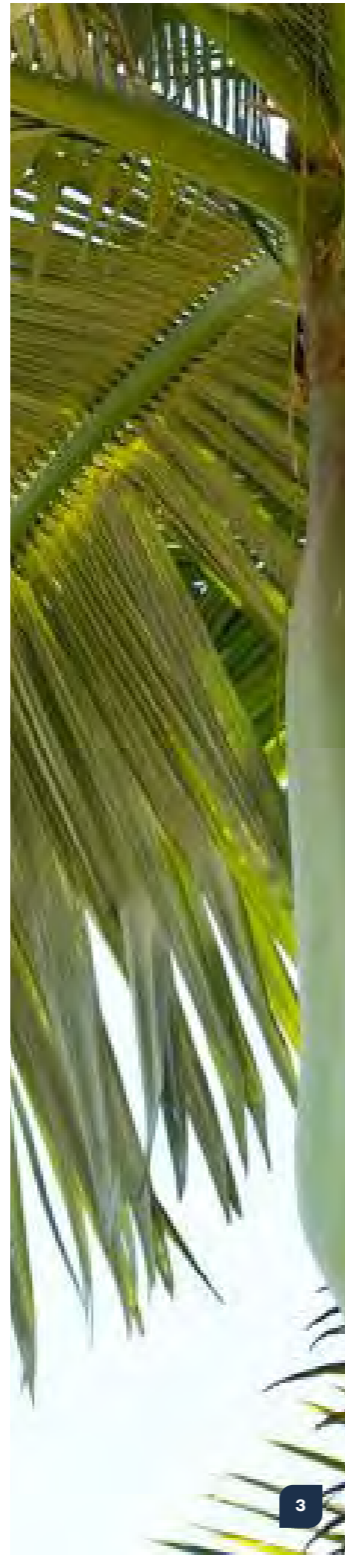
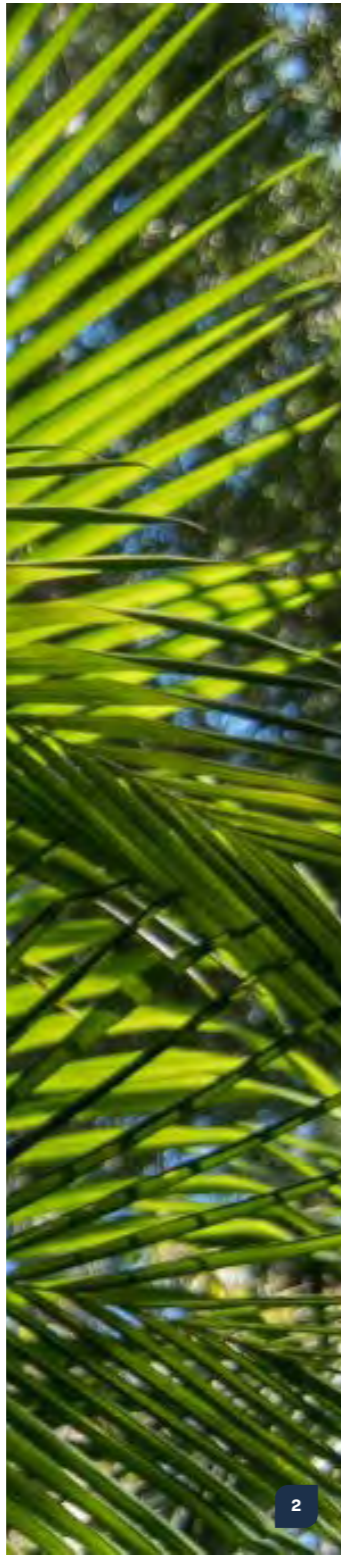
Tree Type 3 (Small Tree/Large Shrub)

12	<i>Magnolia grandiflora 'teddy bear'</i>	Teddy Bear Magnolia
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Planting Palette 6.1 Tree Planting Tree Type 1/2/3

August 2024





Palm Type 1 (Large Palms)

1	<i>Phoenix canariensis</i>	Canary Island Date Palm
2	<i>Archontophoenix cunninghamiana</i>	Bangalow Palm
3	<i>Archontophoenix alexandrae</i>	Alexander Palm

Palm Type 2 (Medium Palms)

4	<i>Howea forsteriana</i>	Kentia Palm
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Palm Type 3 (Small Palms)

5	<i>Wodyetia bifurcata</i>	Foxtail Palm
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Planting Palette

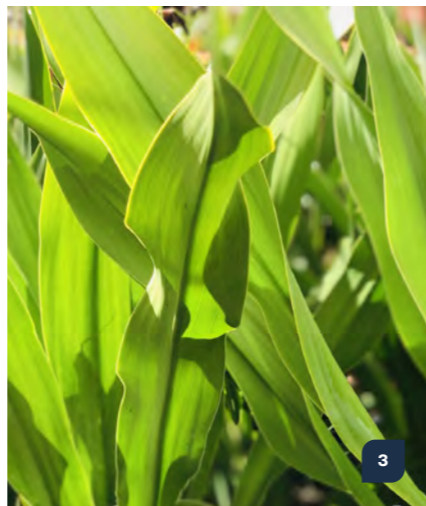
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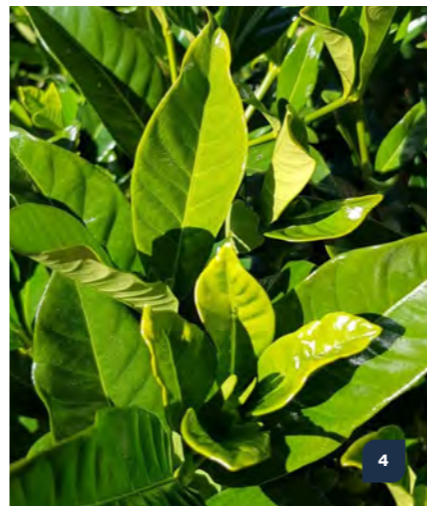
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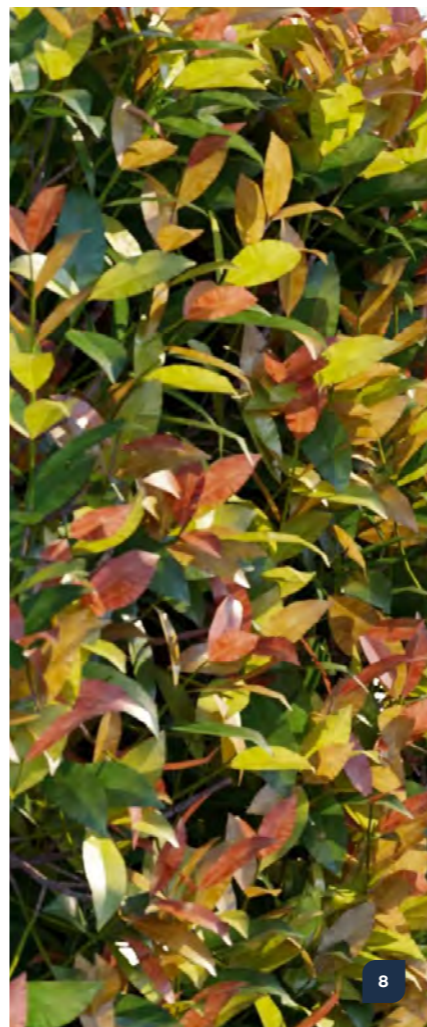
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Shrub Type 1 (2.0-3.0m+)

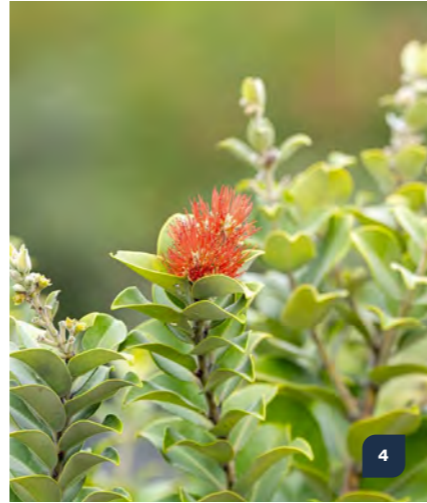
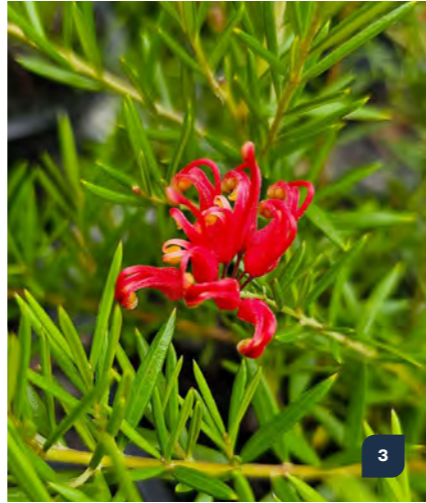
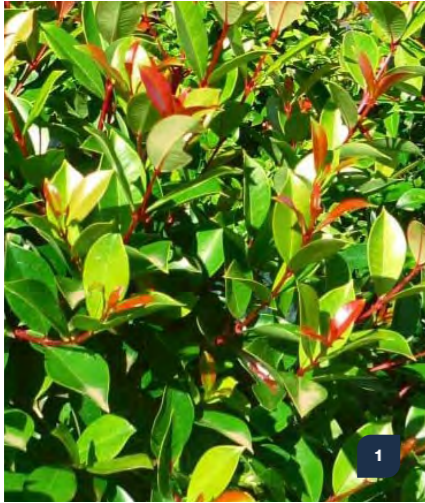
1	<i>Michelia figo</i>	Port Wine Magnolia
2	<i>Metrosideros collina</i>	'Little Dugald
3	<i>Doryanthes excelsa</i>	Spear Lily
4	<i>Gardenia augusta 'magnifica'</i>	Gardenia Cape Jasmine
5	<i>Syzygium australe 'resilience'</i>	Lilly Pilly
6	<i>Rhaps excelsa</i>	Broadleaf Lady Palm
7	<i>Syzygium wilsonii</i>	Powderpuff Lilly Pilly
8	<i>Acmena smithii</i>	Creek Lilly Pilly

Planting Palette

6.3 Shrub Planting Shrub Type 1

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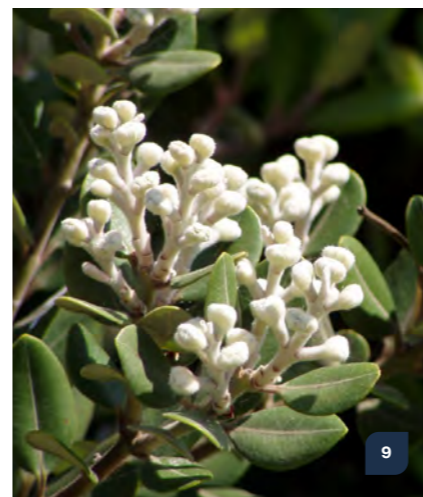
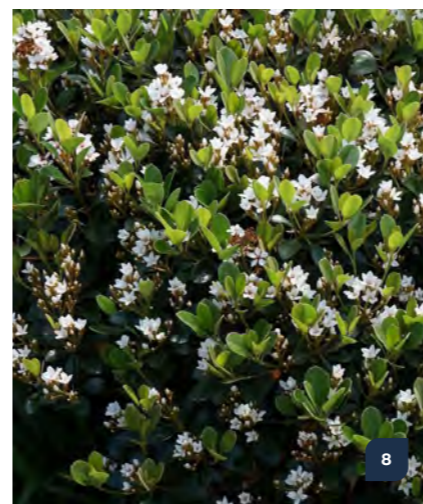
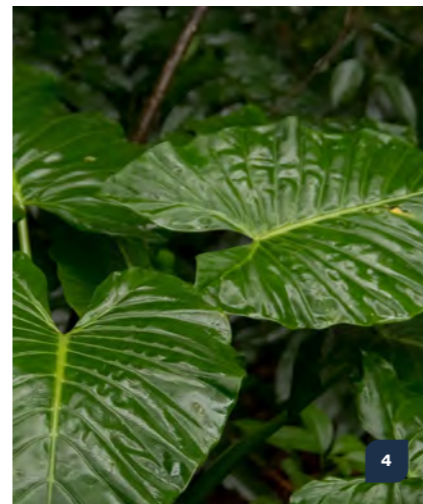
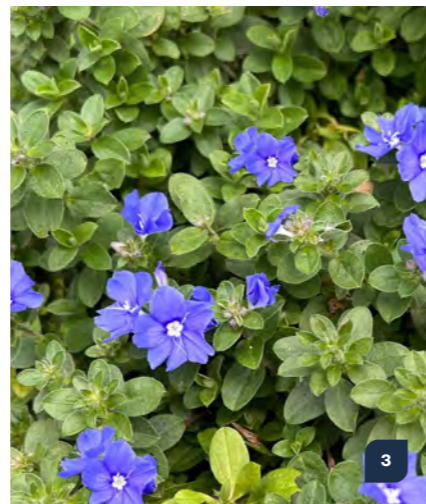
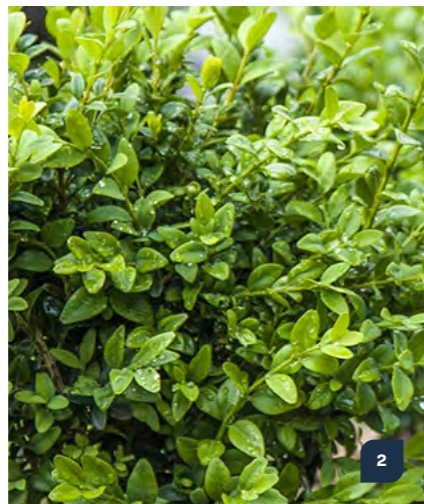


Shrub Type 2 (1.0-2.0m)

1	<i>Syzygium australis</i>	Bush Christmas
2	<i>Syzygium australe 'baby boomer'</i>	Syzygium Baby Boomer
3	<i>Grevillea 'winter flame'</i>	Winter Flame
4	<i>Metrosideros fiji fire</i>	Fiji Fire
5	<i>Gardenia augusta 'florida'</i>	Gardenia Florida
6	<i>Westringia fruticosa</i>	Native Rosemary

Planting Palette

6.4 Shrub Planting Shrub Type 2



Shrub Type 3 (1.0m)

1	<i>Murraya paniculata</i>	Mock Orange
2	<i>Buxus microphylla japonica</i>	Japanese Boxwood
3	<i>Evolvulus pilosus 'sapphire'</i>	Blue Eyes
4	<i>Alocasia brisbanensis</i>	Native Lily/Elephant's Ear
5	<i>Evolvulus pilosus</i>	Evolvulus White
6	<i>Rhaphiolepis</i>	Snow Maiden
7	<i>Nandina domestica</i>	Sacred Bamboo
8	<i>Rhaphiolepis indica</i>	Indian Hawthorn
9	<i>Metrosideros excelsa</i>	Christmas Bush

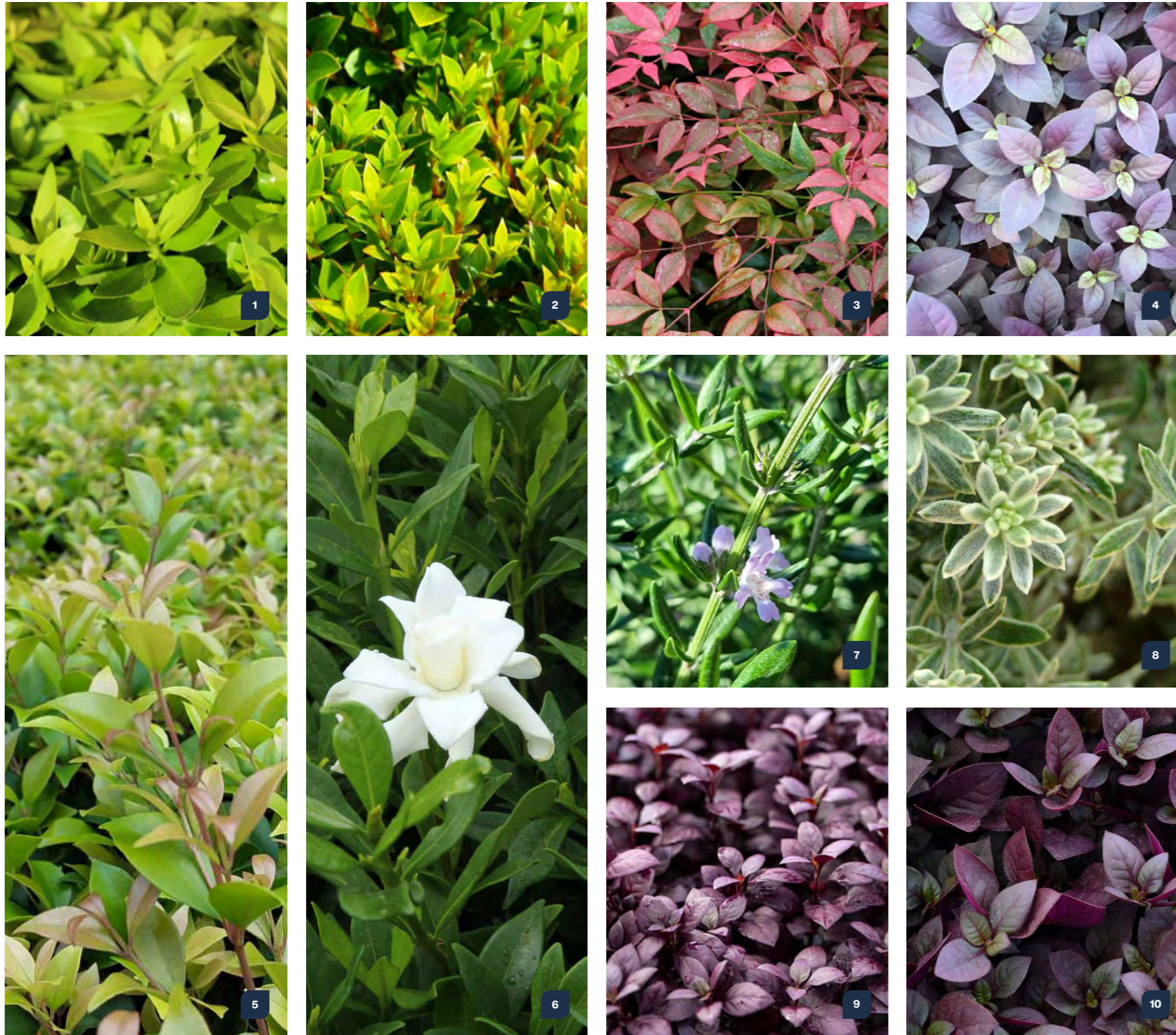
Planting Palette

6.5 Shrub Planting Shrub Type 3

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Shrubs (Substitution Species)

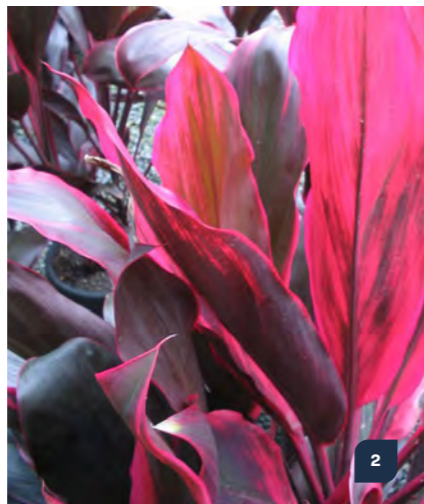
1	<i>Abelia grandiflora</i>	Glossy Abella
2	<i>Syzygium australe 'tiny trev'</i>	Syzygium Tiny Trev
3	<i>Nandina domestica</i>	Sacred Bamboo
4	<i>Alternanthera dentata</i>	Copperleaf
5	<i>Acmena allyn magic</i>	Allyn Magic
6	<i>Gardenia augusta 'radicans'</i>	Randicans
7	<i>Westringia fruticosa 'aussie box'</i>	Aussie Box
8	<i>Westringia fruticosa 'grey box'</i>	Grey Box
9	<i>Alternanthera dentata 'ruby'</i>	Blood Leaf
10	<i>Alternanthera dentata 'purple splash'</i>	Purple Splash

Planting Palette

6.6 Shrub Planting Substitution Species



1



2



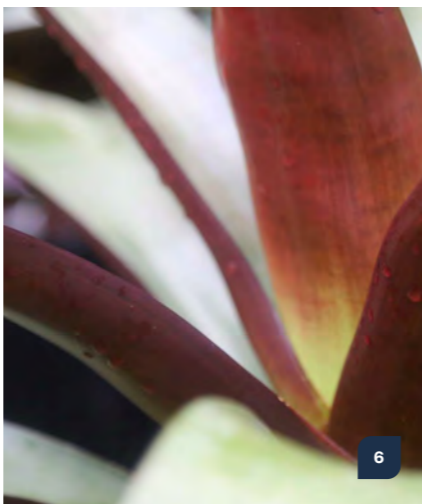
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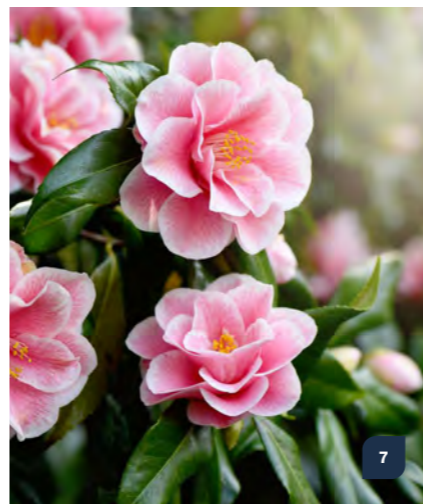
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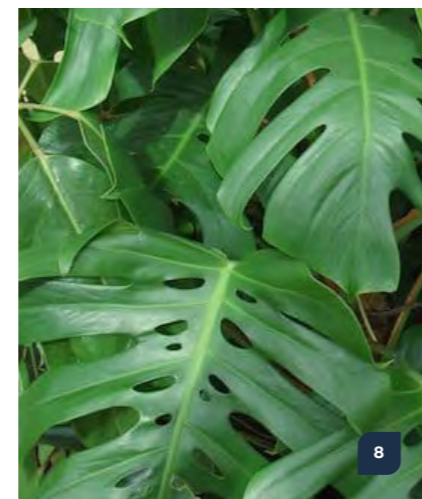
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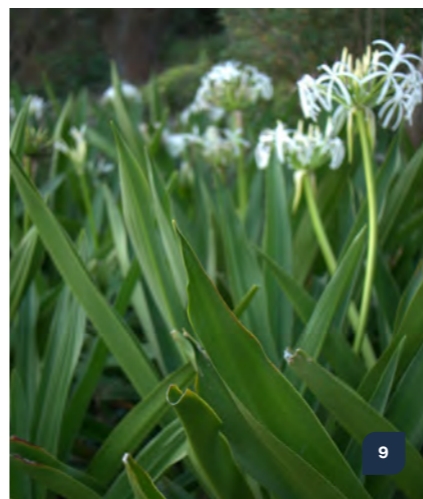
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Accent Type 1 (Large Accents)

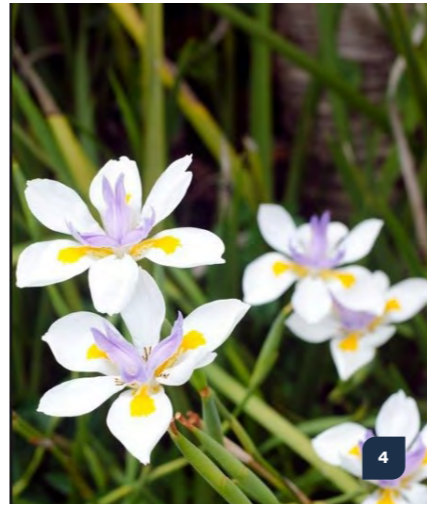
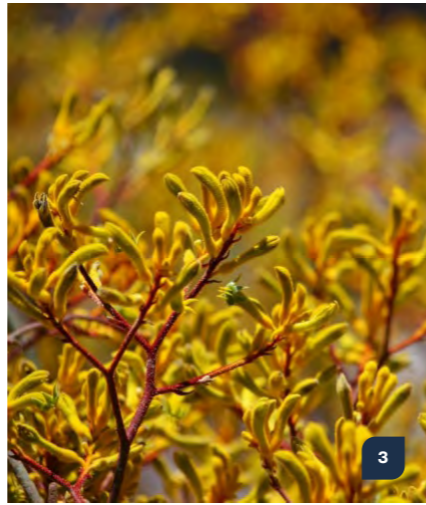
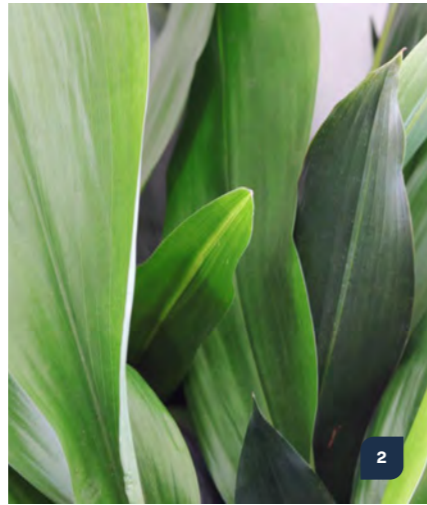
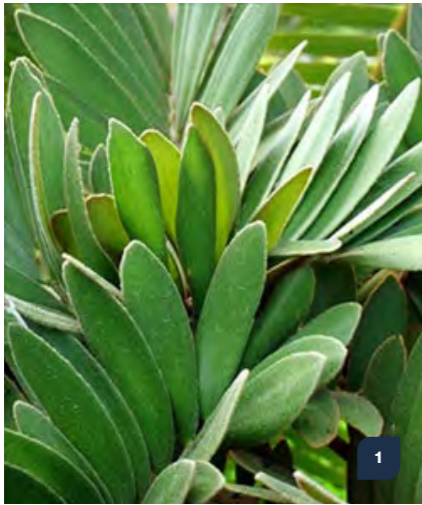
1	<i>Alpinia caerulea</i>	Native Ginger
2	<i>Cordyline fruticosa</i>	Cordyline Red Rubra
3	<i>Angiozanthus</i>	Bush Gold
4	<i>Senecio serpens</i>	Blue Chalk Sticks
5	<i>Doryanthes excelsa</i>	Spear Lily
6	<i>Alcantarea imperialis 'silver plum'</i>	Giant Bromeliad
7	<i>Camellia japonica</i>	Japanese Camellia
8	<i>Monstera deliciosa</i>	Fruit Salad Plant
9	<i>Crinum pedunculatum</i>	Swamp Lily/Brisbane Lily

Planting Palette

6.7 Accent Planting Accent Type 1

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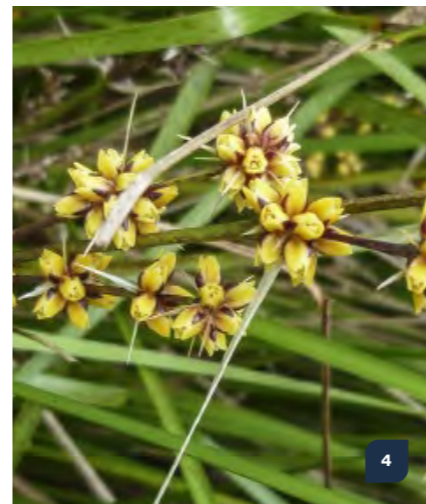
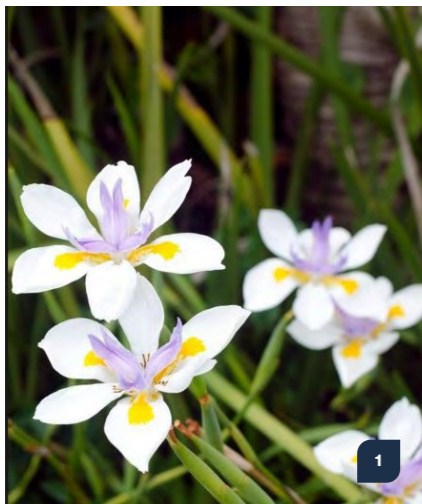


Accent Type 2 (Medium-Small Accents)

1	<i>Zamia furfuracea</i>	Jamaica Sago/Cardboard Palm
2	<i>Aspidistra elatior</i>	Cast-iron Plant
3	<i>Anigozanthos pulcherrimus</i>	Golden Kangaroo Paw
4	<i>Dietes grandiflora</i>	Large Wild Iris
5	<i>Philodendron selloum 'hope'</i>	Philodendron Hope
6	<i>Philodendron 'rojo conga'</i>	Red Congo
7	<i>Philodendron 'xanadu'</i>	Xanadu

Planting Palette

6.8 Accent Planting Accent Type 2



Groundcover Type A (1.0m)

1	<i>Dietes grandiflora</i>	Large Wild Iris
2	<i>Liriope evergreen giant</i>	Evergreen Giant
3	<i>Agapanthus africanus 'peter pan'</i>	Lily of the Nile
4	<i>Lomandra fluviatilis 'shara'</i>	Matt Rush
5	<i>Lomandra longifolia</i>	Long Leaved Mat Rush
6	<i>Kalanchoe orgyalis</i>	Copper Spoons
7	<i>Lomandra hystrix</i>	Creek Matt Rush

Planting Palette

6.9 Groundcover Planting Groundcover Type A

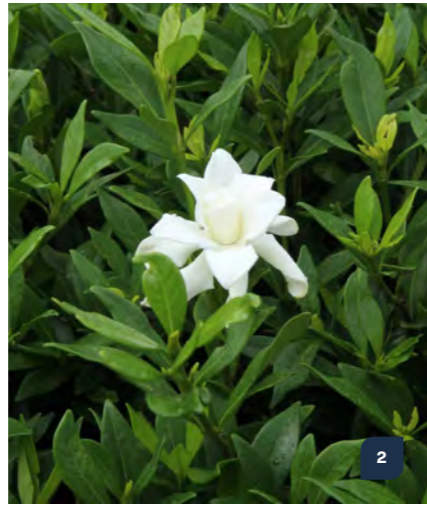
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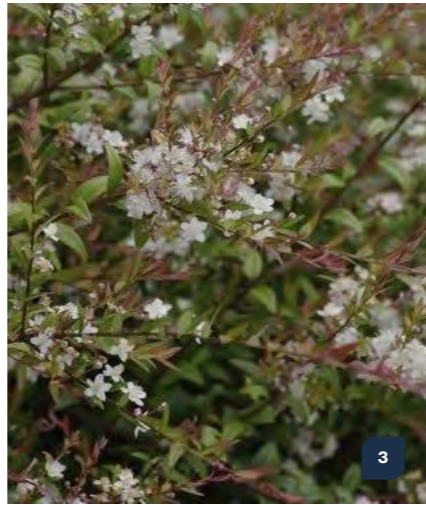




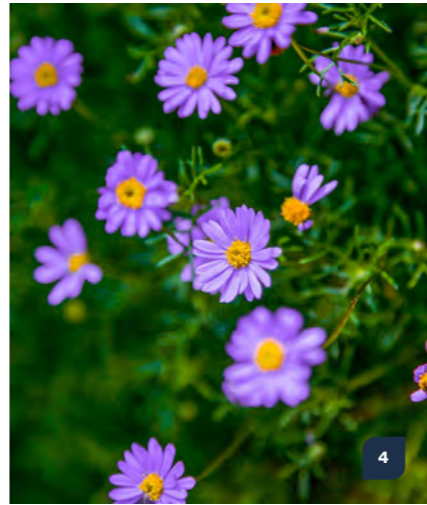
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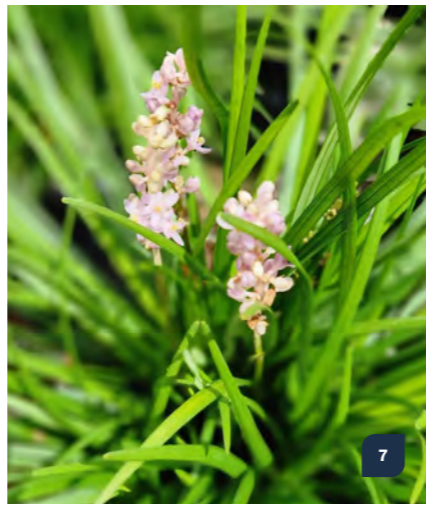
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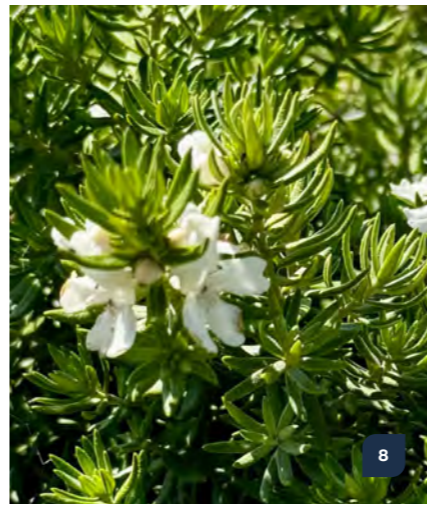
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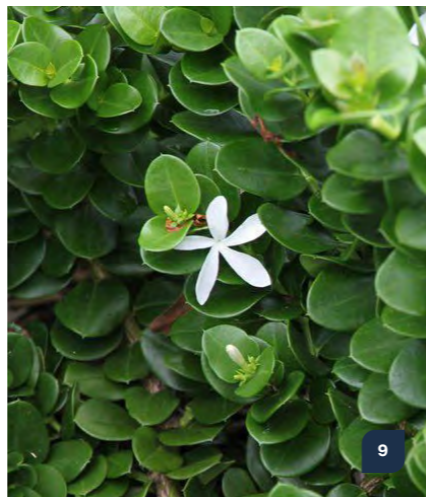
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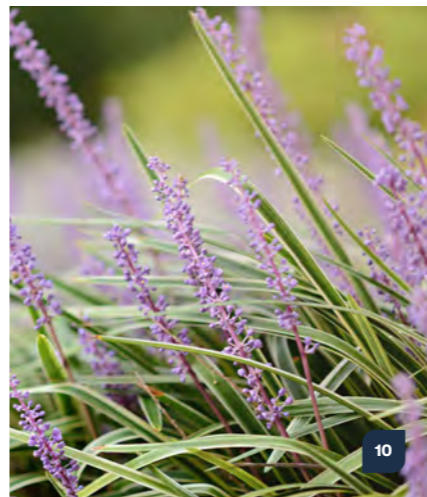
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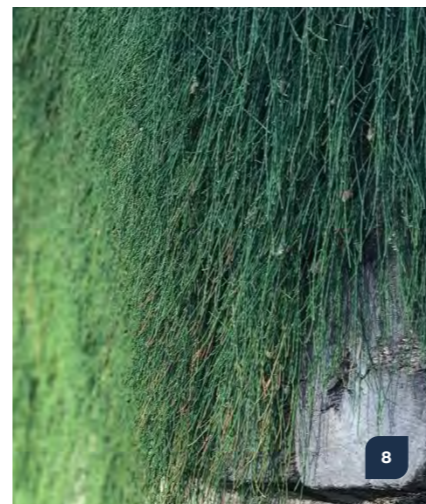
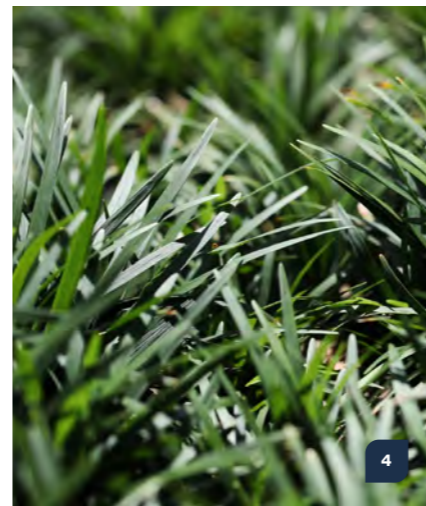
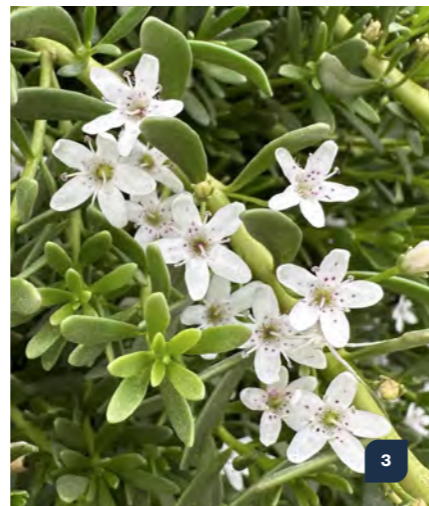
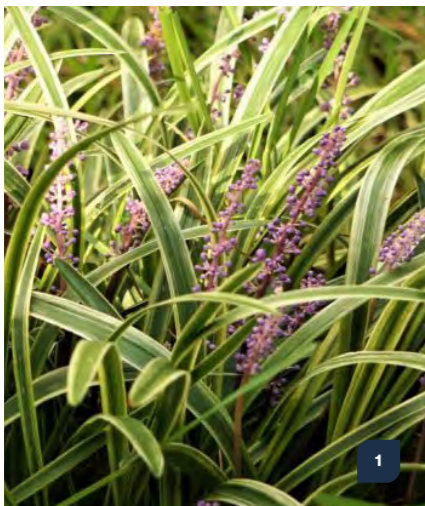
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Groundcover Type B (0.5m)

1	<i>Liriope muscari 'stripey white'</i>	Liriope Stripey White
2	<i>Gardenia jasminoides 'radicans'</i>	Dwarf Gardenia
3	<i>Austromyrtus dulcis</i>	Quakers Cherry/Midyum
4	<i>Brachyscome multifida</i>	BRACHYSCOME multifida
5	<i>Erigeron karvinskianus</i>	Seaside Daisy
6	<i>Ophiopogon 'stripey white'</i>	Variegated Mondo Grass
7	<i>Liriope muscari 'isabella'</i>	Liriope Isabella
8	<i>Westringia 'low horizon'</i>	Low Horizon
9	<i>Carissa grandiflora 'desert star'</i>	Desert Star
10	<i>Liriope spicata</i>	Silver Dragon

Planting Palette

6.10 Groundcover Planting Groundcover Type B



Groundcover Type C (0.3m)

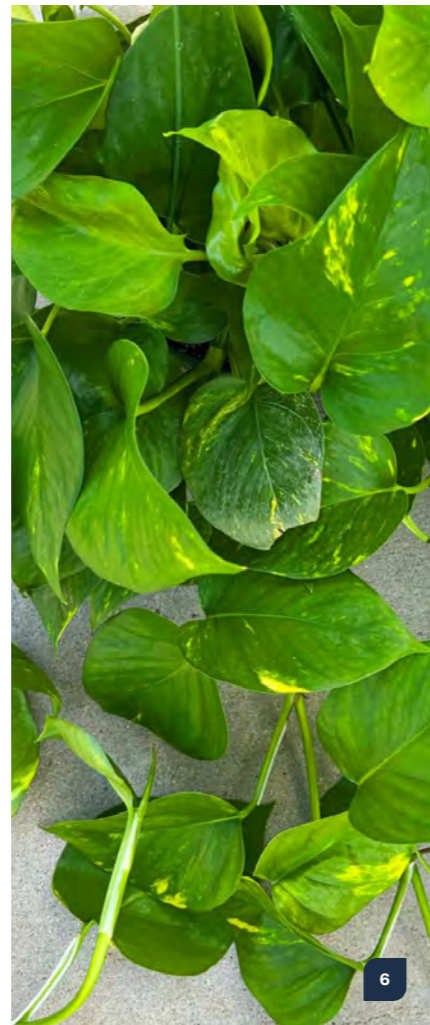
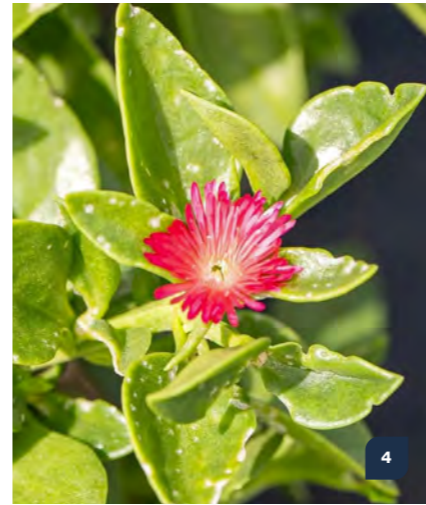
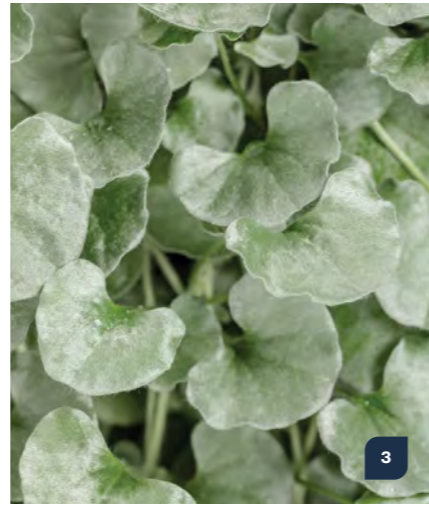
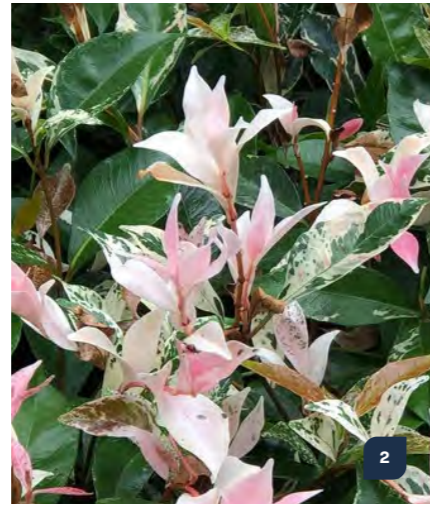
1	<i>Liriope muscari 'pink pearl'</i>	Liriope Pink Pearl
2	<i>Gazania rigens</i>	Treasure Flower/Gazania
3	<i>Myoporum parvifolium</i>	Creeping Boobialla
4	<i>Ophiopogon</i>	Mondo Grass
5	<i>Trachelospermum jasminoides</i>	Star Jasmine
6	<i>Trachelospermum jasminoides 'tricolour'</i>	Verigated Jasmine
7	<i>Myoporum ellipticum</i>	Coastal Myoporum
8	<i>Casuarina glauca</i>	Swamp Oak/Cousin It
9	<i>Epipremnum aureum</i>	Pothos/Heartleaf Pothos
10	<i>Liriope spicata</i>	Silver Dragon

Planting Palette

6.11 Groundcover Planting Groundcover Type C

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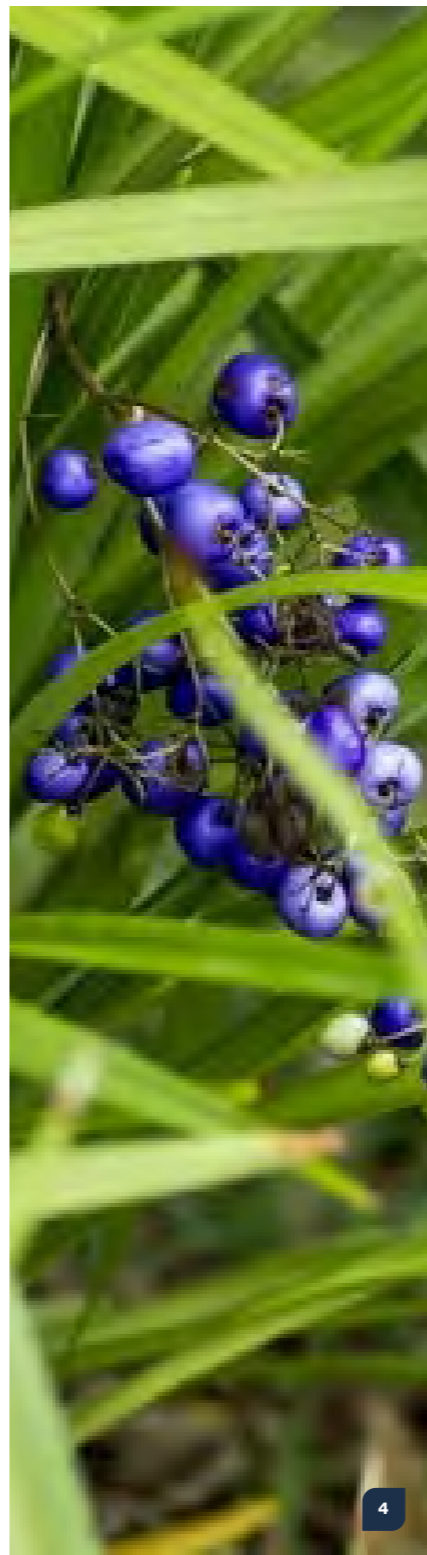


Groundcover Type D (Cascading/Trellis)

1	<i>Trachelospermum jasminoides</i>	Star Jasmine
2	<i>Trachelospermum jasminoides 'tricolour'</i>	Verigated Jasmine
3	<i>Dichondra argenta</i>	Silver Falls
4	<i>Aptenia cordifolia</i>	Heart Leaved Noon Flower
5	<i>Ficus pumila</i>	Creeping Fig
6	<i>Epipremnum aureum</i>	Pothos/Heartleaf Pothos
7	<i>Ipomoea pes-carpe</i>	Goats Foot Convolvulus
8	<i>Ipomoea brasiliensis</i>	Beach Morning Glory

Planting Palette

6.12 Groundcover Planting Groundcover Type D



Groundcover Type E (Native/Environmental)

1	<i>Imperata cylindrica</i>	Cogon Grass
2	<i>Themeda triandra</i>	Kangaroo Grass
3	<i>Lomandra longifolia</i>	Long Leaved Mat Rush
4	<i>Dianella revoluta</i>	Blueberry Flax Lilly

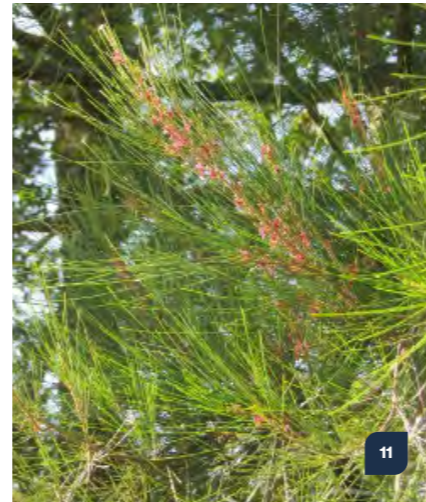
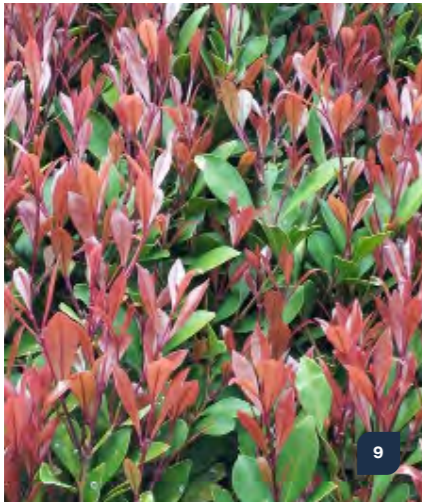
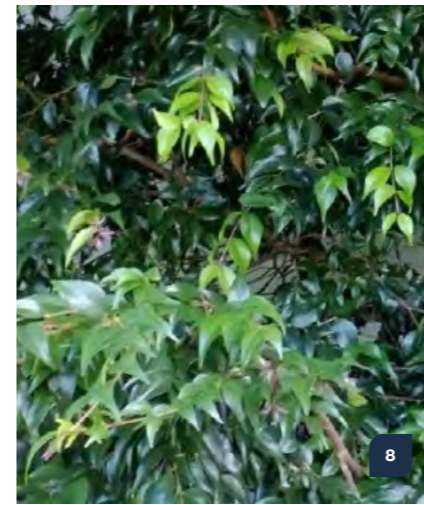
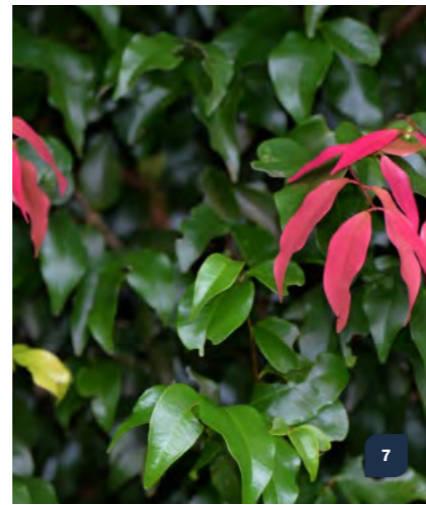
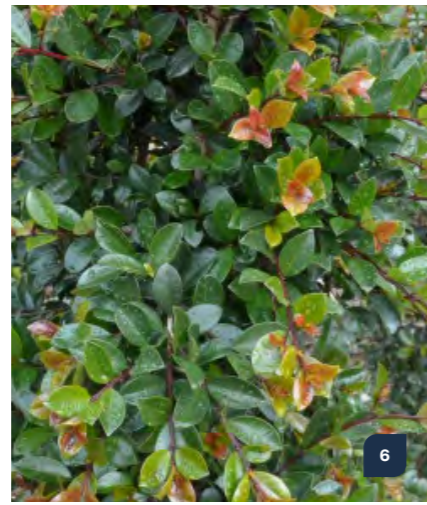
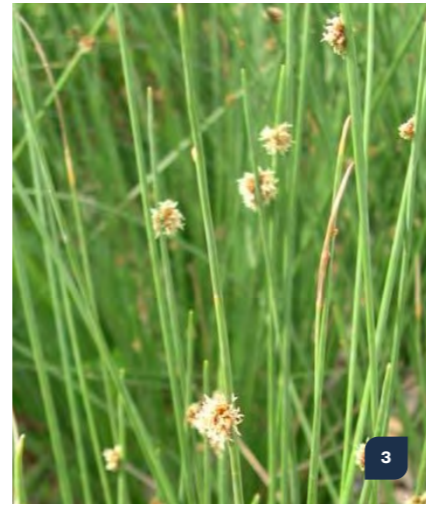
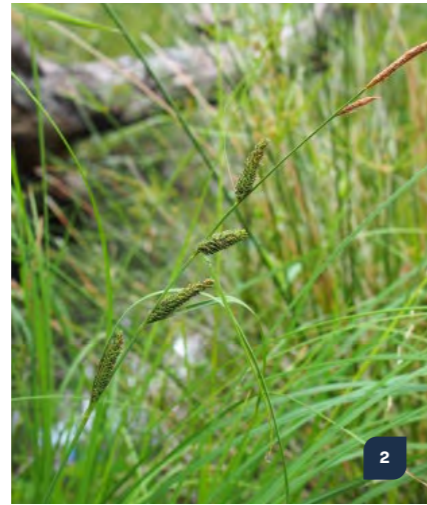
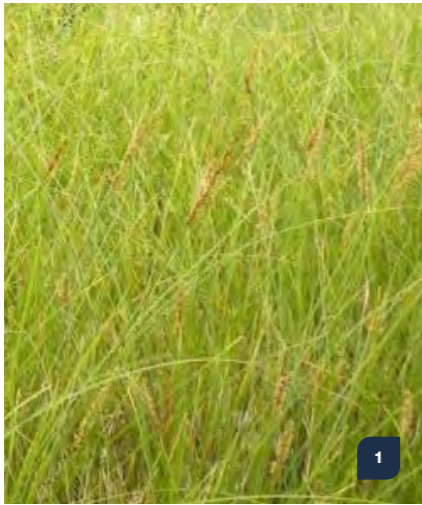
Planting Palette

6.13 Groundcover Planting Groundcover Type E

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Groundcovers

1	<i>Carex appressa</i>	Tall Sedge
2	<i>Carex gaudichaudiana</i>	Sedge
3	<i>Ficinia nodosa</i>	Knobby Club Rush
4	<i>Lomandra hystrix</i>	A Mat-rush
5	<i>Lomandra longifolia</i>	Spiny-headed Mat-rush

Shrubs

6	<i>Syzygium australe</i>	Coastal Rosemary
7	<i>Syzygium francisii</i>	Aussie Boomer
	<i>Syzygium hemilamprum</i>	Baby Boomer
	<i>Syzygium moorei</i>	Dwarf Japanese Box
8	<i>Syzygium luehmannii</i>	Various
9	<i>Syzygium smithii</i>	Lilly Pilly
	<i>Crinum pendunculatum</i>	Spider Lilly
	<i>Doryanthes palmeri</i>	Giant Spear Lilly

Trees

10	<i>Grevillea robusta</i>	Silky Oak
11	<i>Casuarina glauca</i>	Swamp Oak
	<i>Melaleuca linarifolia</i>	Flax-leaved Paperbark
12	<i>Melaleuca quinquenervia</i>	Broad-leaved Paperbark
	<i>Livistonia australis</i>	Cabbage Palm
	<i>Archontophoenix alexandrae</i>	Alex Palm

Planting Palette

6.14 Stormwater & Riparian

Living Gems*



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