

Plans

APPROVED

Note: Accessible access parking to be provided in accordance with the AS2890 series

*Compliance assessment required for Pylon signs in accordance with Condition 29 - Pylon signs

AMENDED IN RED

By: **Matthew Buchanan**

Date: **28 July 2023**



PLANS AND DOCUMENTS referred to in the PDA DEVELOPMENT APPROVAL

Approval no.: **DEV2023/1368**

Date: **11 August 2023**



MAXIMUM BUILDING HEIGHT	15.0m
PROPOSED BUILDING HEIGHT	10.6m
REQUIRED CAR PARKING	90 SPACES
PROVIDED CAR PARKING	85 SPACES
REQUIRED BIKE PARKING	26 SPACES
PROVIDED BIKE PARKING	~~26 SPACES~~ 22 SPACES

~~NLA INCLUDING COVERED LICENSED AREAS~~

~~FAST FOOD PREMISES 674.0m²~~

~~SHOWROOM 1124.0m²~~

~~OFFICE (LVL 1) 483.0m²~~

GFA

~~BLDG 1 1,123.5m² 1196m²~~

~~BLDG 2 836.6m² 1020m²~~

~~BLDG 3 194.6m² 247m²~~

LOT No. 20 ON SP331111

LOT AREA 6079.9M²

SITE COVER 32.3%

GREEN SPACE 582M²

BUILDING FOOTPRINTS

BLDG 01 922m²

BLDG 02 736m²

BLDG03 308m²

TOTAL 1966m²



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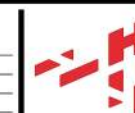
PROJECT

LOT 20 DIXON DRIVE, YARRABILBA

DRAWING TITLE

CONCEPT SITE PLAN

REV	DATE	BY
H	09.06.23	RG
G	01.06.23	RG
F	13.04.23	RG
E	15.12.22	RG
E	24.11.22	RG
D	21.10.22	RG



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143 Ferry Road, Southport, Gold Coast 4215, AUSTRALIA
P.O. BOX 7328 SOUTHPORT PARK, 4215 QUEENSLAND, AUSTRALIA.
t: (07) 5528 0088 w: HHH.com.au e: Architects@HHH.com.au

SCALE

1:200 @ A1

DATE

09/08/2023

DRAWN

RG/UB

CHECKED

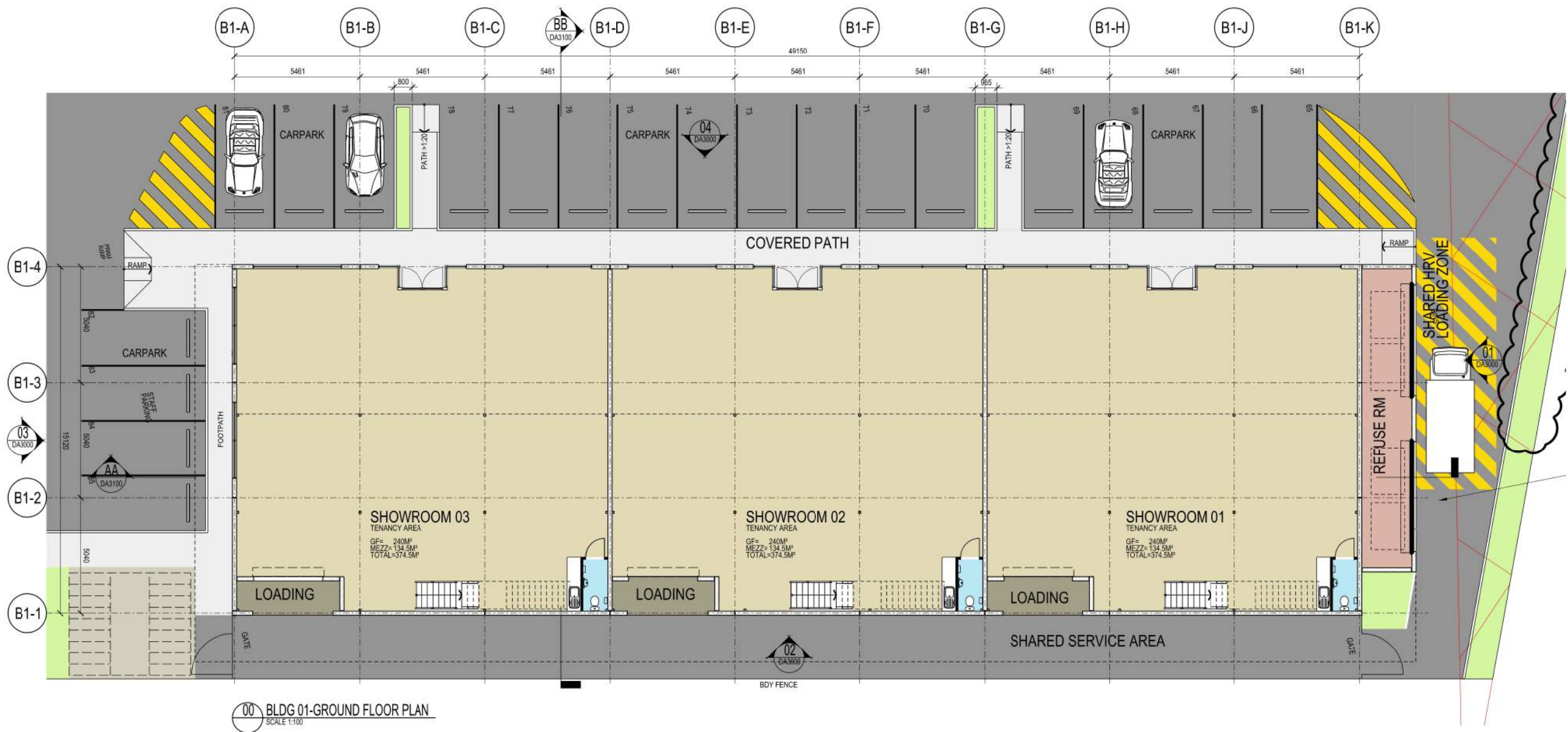
NM

JOB NO.

5646

DRAWING/REVISION NO.

DA-1100-H



PLANS AND DOCUMENTS
referred to in the
PDA DEVELOPMENT APPROVAL
Approval no.: **DEV2023/1368**
Date: **11 August 2023**



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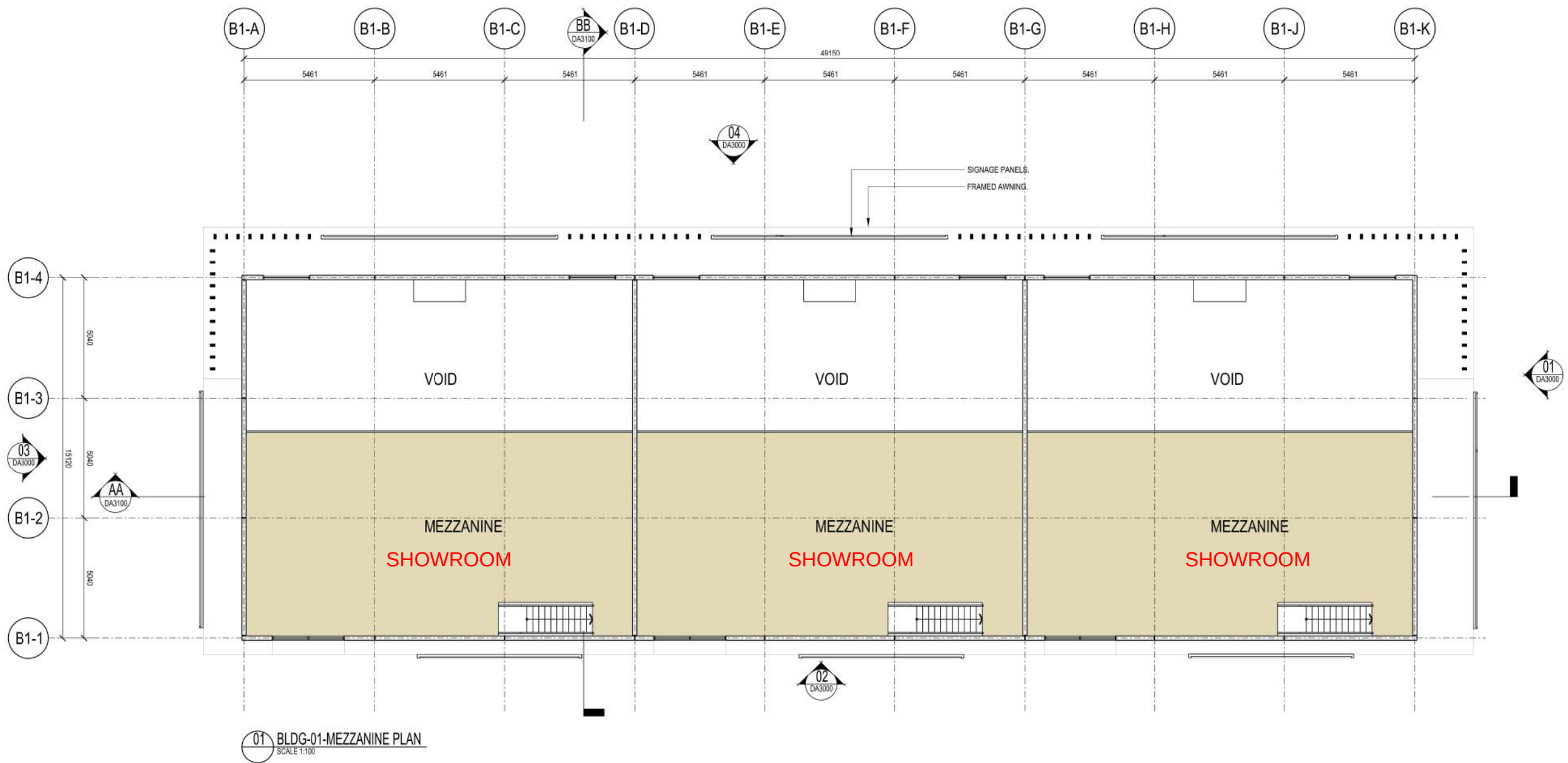
CLIENT	NATIONAL FOOTPRINTS PTY LTD
PROJECT	LOT 20 DIXON DRIVE, YARRABILBA
DRAWING TITLE	BUILDING 01 - GROUND FLOOR PLAN

REV	DATE	BY	REVISION
G	09.06.23	RG	REVISED CARPARKING
F	01.06.23	RG	REVISED SITE DESIGN
E	15.12.22	RG	APPROVAL ISSUE
D	24.11.22	RG	PRELIMINARY ISSUE
D	21.10.22	RG	PRELIMINARY ISSUE

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t: (07) 5528 0088 w: HHH.com.au e: Architects@HHH.com.au

SCALE	1:100 @ A1
DATE	09/06/2023
DRAWN	RG
CHECKED	AB
JOB. NO.	5646
DRAWING/REVISION NO.	DA-2000-G



AMENDED IN RED

By: **Matthew Buchanan**

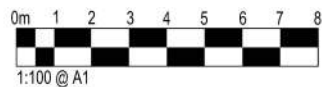
Date: **28 July 2023**



PLANS AND DOCUMENTS
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Approval no.: **DEV2023/1368**

Date: **11 August 2023**



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PROJECT

LOT 20 DIXON DRIVE, YARRABILBA

DRAWING
TITLE

BUILDING 01 - MEZZANINE FLOOR PLAN

REV	DATE	BY	
F	01.06.23	RG	REVISED SITE DESIGN
E	15.12.22	RG	APPROVAL ISSUE
E	24.11.22	RG	PRELIMINARY ISSUE
D	21.10.22	RG	PRELIMINARY ISSUE



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P.O. BOX 7328 SOUTHPORT PARK, 4215 QUEENSLAND, AUSTRALIA.
t: (07) 5528 0088 w: HHH.com.au e: Architects@HHH.com.au

SCALE

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DATE

31/05/2023

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RG

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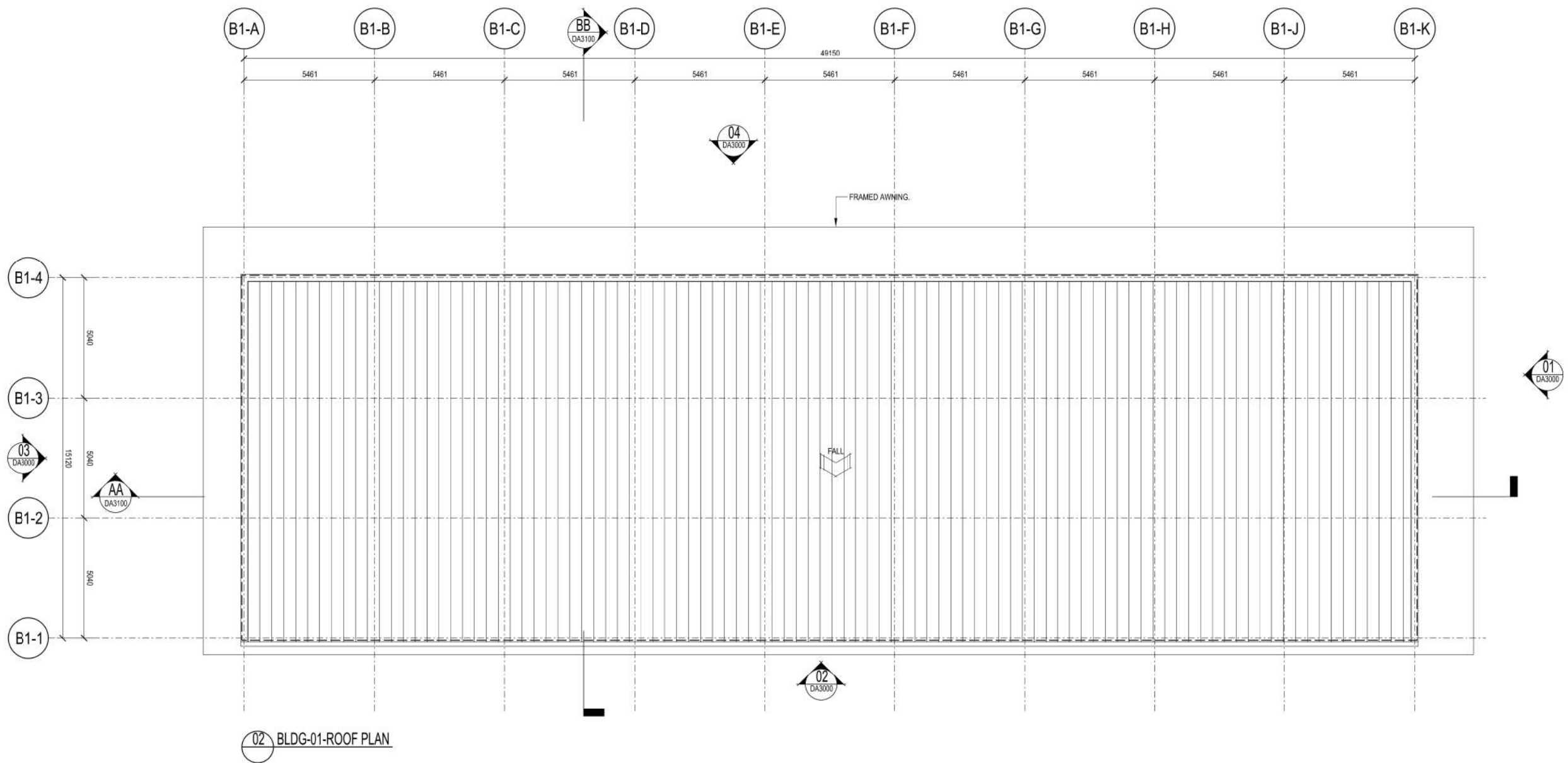
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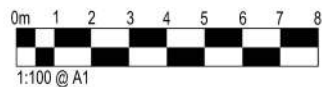
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DRAWING/
REVISION NO.

DA-2001-F



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Approval no.: **DEV2023/1368**
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150 9001

CLIENT	NATIONAL FOOTPRINTS PTY LTD
PROJECT	LOT 20 DIXON DRIVE, YARRABILBA
DRAWING TITLE	BUILDING 01 - ROOF PLAN

REV	DATE	BY	
F	01.06.23	RG	REVISED SITE DESIGN
E	15.12.22	RG	APPROVAL ISSUE
E	24.11.22	RG	PRELIMINARY ISSUE
D	21.10.22	RG	PRELIMINARY ISSUE

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SCALE	1:100 @ A1
DATE	31/05/2023
DRAWN	RG
CHECKED	AB
JOB. NO.	5646
DRAWING/REVISION NO.	DA-2002-D



AMENDED IN RED

By: **Matthew Buchanan**

Date: 28 July 2023



PLANS AND DOCUMENTS
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PDA DEVELOPMENT APPROVAL

Approval no.: **DEV2023/1368**

Date: **11 August 2023**



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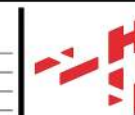
PROJECT

LOT 20 DIXON DRIVE, YARRABILBA

DRAWING
TITLE

BUILDING 02 - GROUND FLOOR PLAN

REV	DATE	BY	
E	09.06.23	RG	REVISED CARPARKING
D	01.06.23	RG	REVISED SITE DESIGN
C	15.12.22	RG	APPROVAL ISSUE
C	24.11.22	RG	PRELIMINARY ISSUE
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P.O. BOX 7328 SOUTHPORT PARK, 4215.QUEENSLAND, AUSTRALIA.
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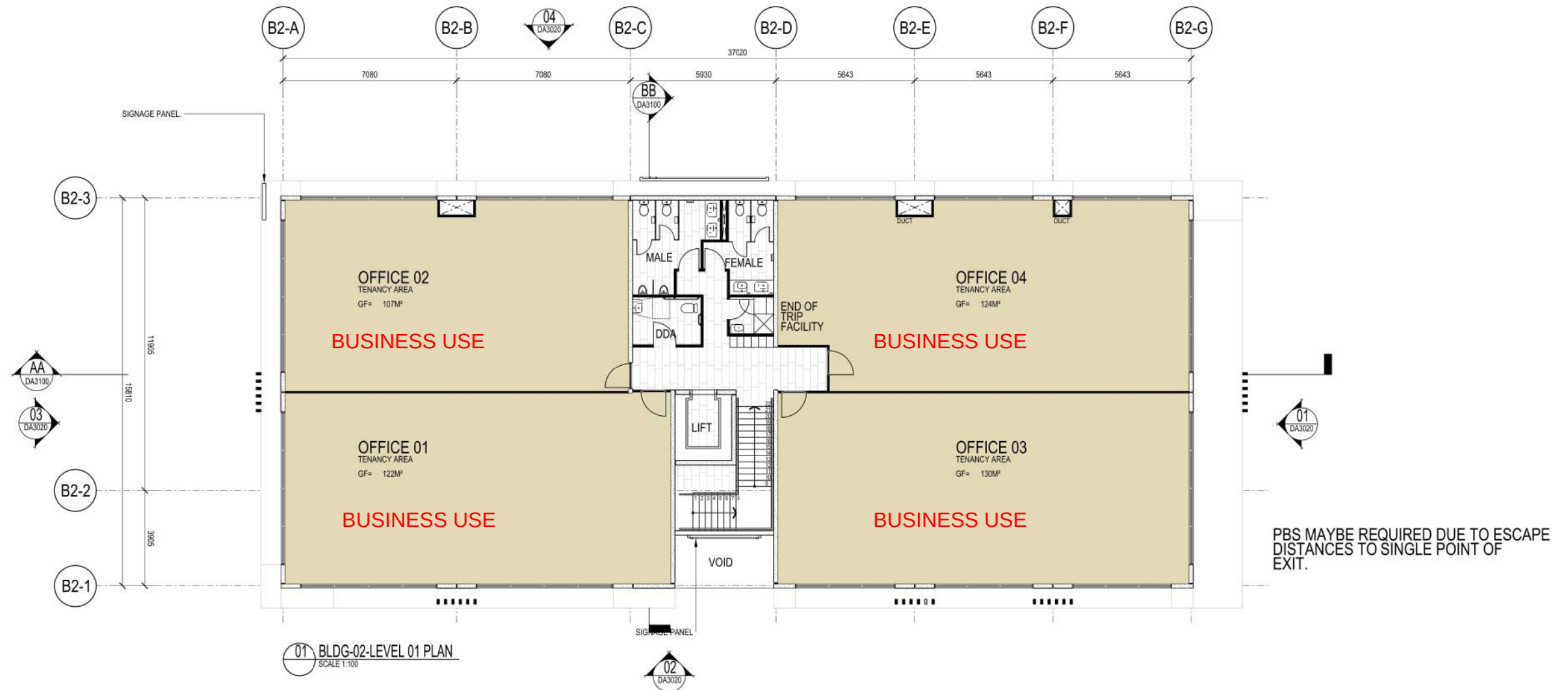
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DA-2020



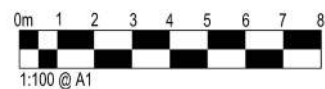
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PROJECT
DRAWING TITLE

NATIONAL FOOTPRINTS PTY LTD
LOT 20 DIXON DRIVE, YARRABILBA
BUILDING 02 - FIRST FLOOR PLAN

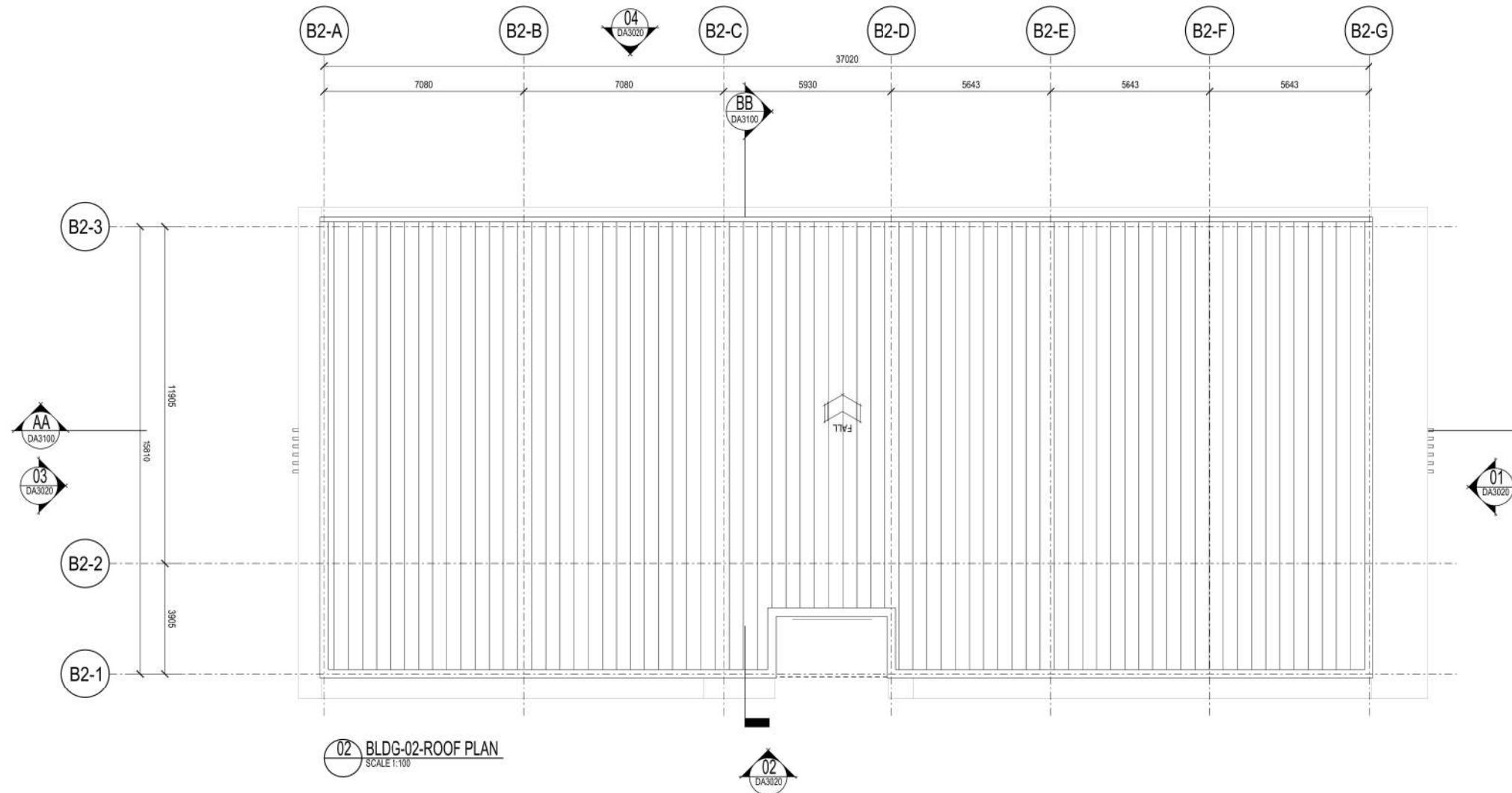
REV	DATE	BY
D	01.06.23	RG
C	15.12.22	RG
C	24.11.22	RG
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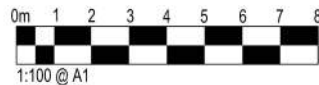
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JOB NO.
DRAWING/REVISION NO.

1:100 @ A1
31/05/2023
RG
AB
5646
DA-2021-D



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Approval no.: **DEV2023/1368**
Date: **11 August 2023**


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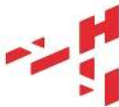
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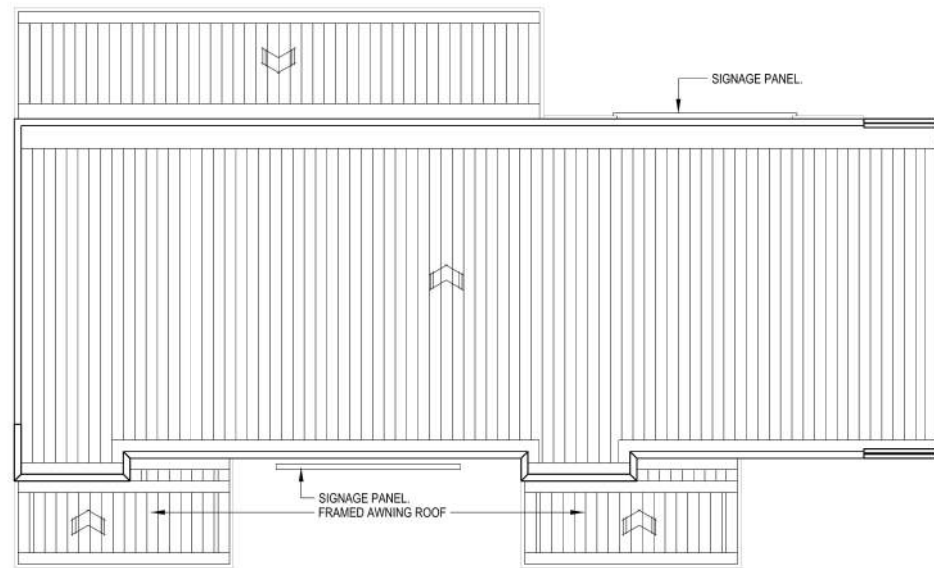
CLIENT	NATIONAL FOOTPRINTS PTY LTD
PROJECT	LOT 20 DIXON DRIVE, YARRABILBA
DRAWING TITLE	BUILDING 02 - ROOF PLAN

REV	DATE	BY	
D	01.06.23	RG	REVISED SITE DESIGN
C	15.12.22	RG	APPROVAL ISSUE
C	24.11.22	RG	PRELIMINARY ISSUE
B	21.10.22	RG	PRELIMINARY ISSUE

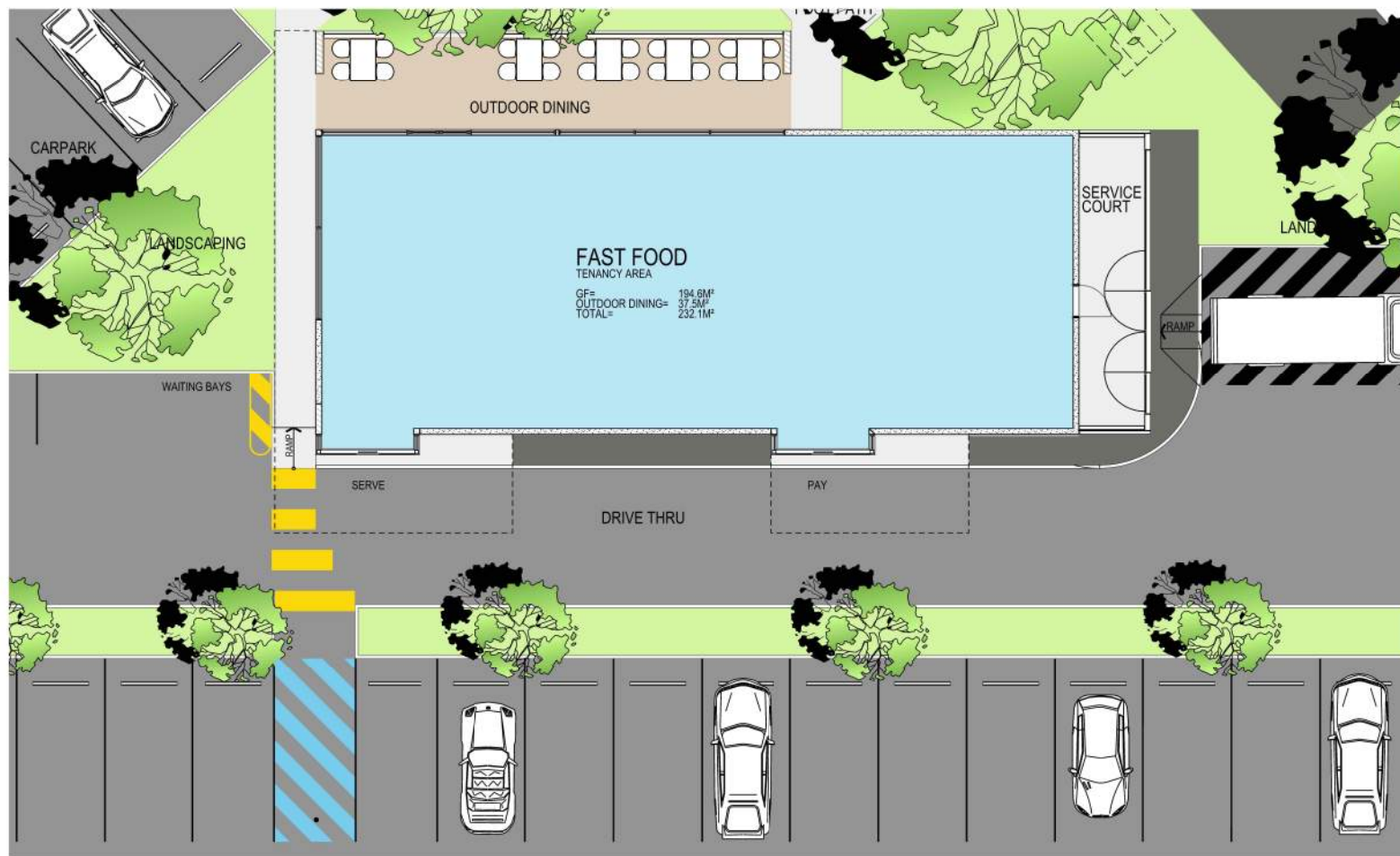
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t:(07)5528 0088 w:HHH.com.au e:Architects@HHH.com.au

SCALE	1:100 @ A1
DATE	31/05/2023
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JOB. NO.	5646
DRAWING/REVISION NO.	DA-2022-D

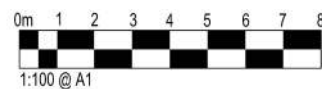


01 BLDG 03-ROOF PLAN
SCALE 1:100



00 BLDG 03-GROUND FLOOR PLAN
SCALE 1:100

PLANS AND DOCUMENTS
referred to in the
PDA DEVELOPMENT APPROVAL
Approval no.: **DEV2023/1368**
Date: **11 August 2023**



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CLIENT

NATIONAL FOOTPRINTS PTY LTD

PROJECT

LOT 20 DIXON DRIVE, YARRABILBA

DRAWING
TITLE

BUILDING 03 - FLOOR PLANS

REV	DATE	BY	
E	09.06.23	RG	REVISED CARPARKING
D	01.06.23	RG	REVISED SITE DESIGN
C	15.12.22	RG	APPROVAL ISSUE
C	24.11.22	RG	PRELIMINARY ISSUE
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ACN 010281302
143 Ferry Road, Southport, Gold Coast 4215, AUSTRALIA
P.O. BOX 7328 SOUTHPORT PARK, 4215 QUEENSLAND, AUSTRALIA.
t: (07) 5528 0088 w: HHH.com.au e: Architects@HHH.com.au

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DATE

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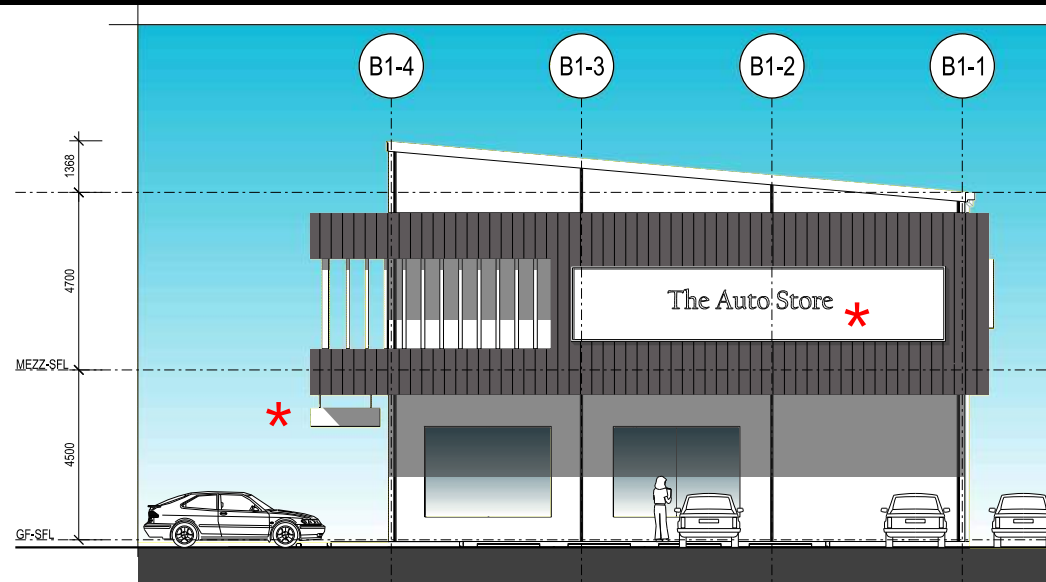
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JOB. NO.

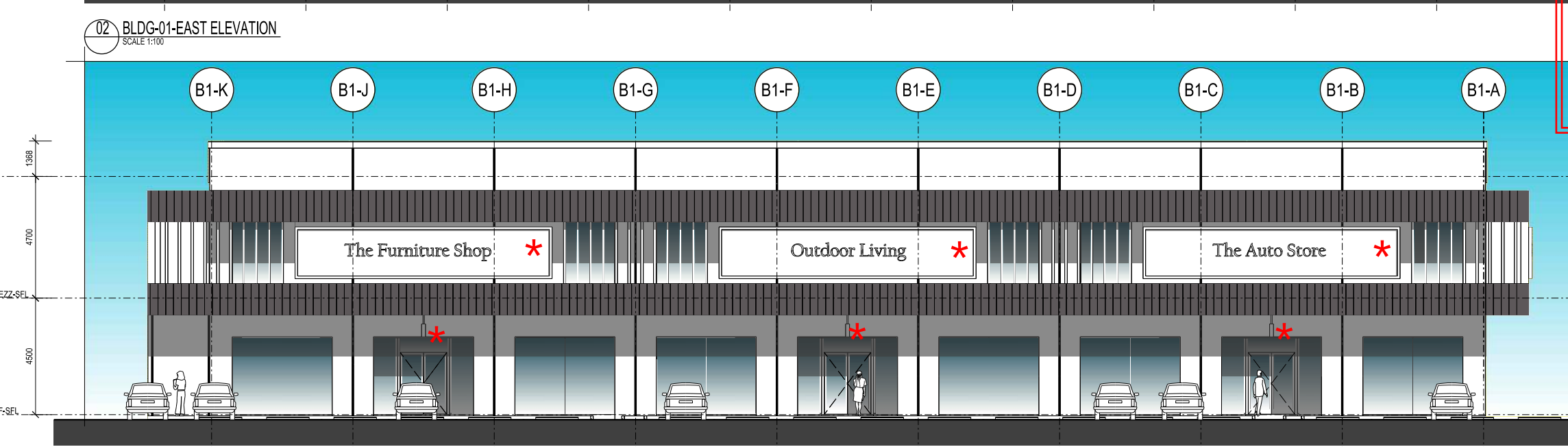
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REVISION NO.

DA-2030-E



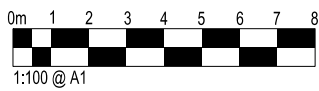
03 BLDG-01-SOUTH ELEVATION
SCALE 1:100



04 BLDG-01-WEST ELEVATION
SCALE 1:100



*Signage to be provided in accordance with Condition 28 - General Signage



CLIENT	NATIONAL FOOTPRINTS PTY LTD
PROJECT	LOT 20 DIXON DRIVE, YARRABILBA
DRAWING TITLE	BUILDING 01 - ELEVATIONS

REV	DATE	BY	
E	01.06.23	RG	REVISED SITE DESIGN
D	15.12.22	RG	APPROVAL ISSUE
D	24.11.22	RG	PRELIMINARY ISSUE
C	21.10.22	RG	PRELIMINARY ISSUE



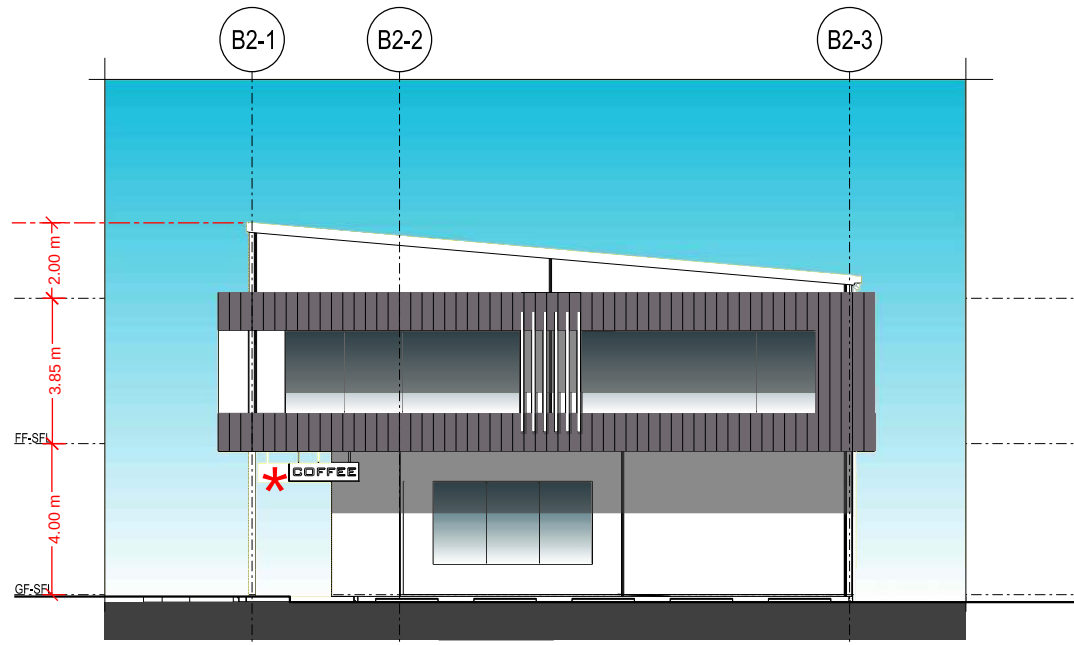
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SCALE	1:100 @ A1
DATE	07/06/2023
DRAWN	RG
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JOB. NO.	5646
DRAWING/ REVISION NO.	DA-3000-E

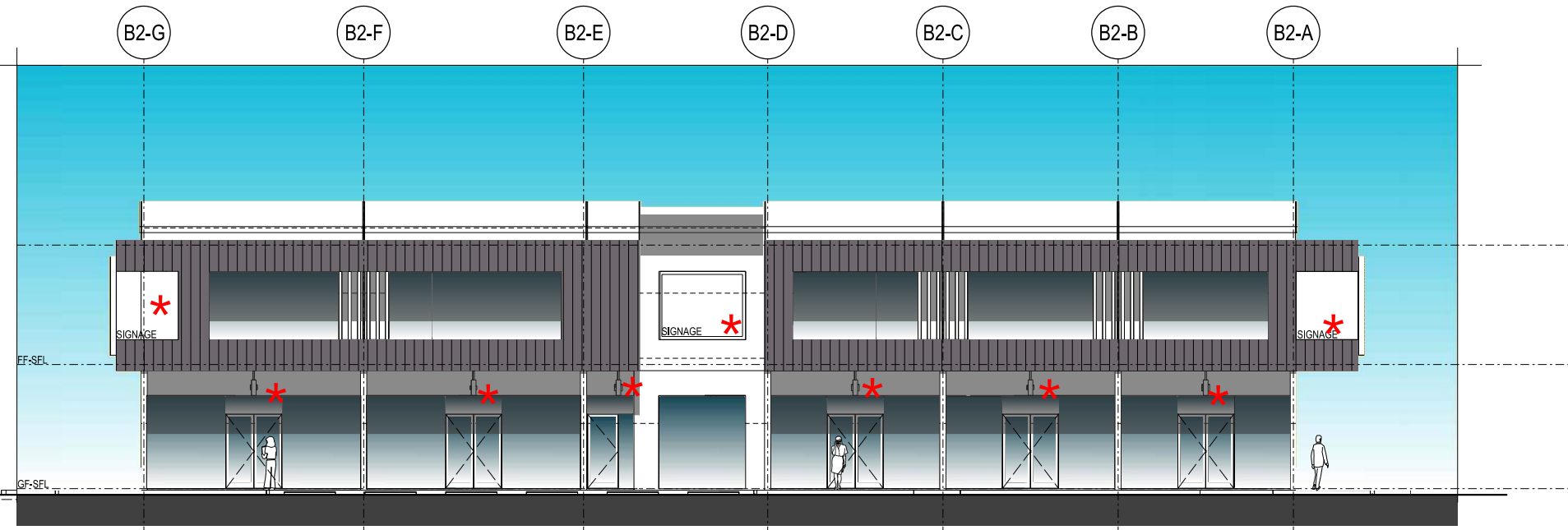


05 BLDG-02-NORTH ELEVATION
SCALE 1:100

AMENDED IN RED

By: **Matthew Buchanan**

Date: **28 July 2023**

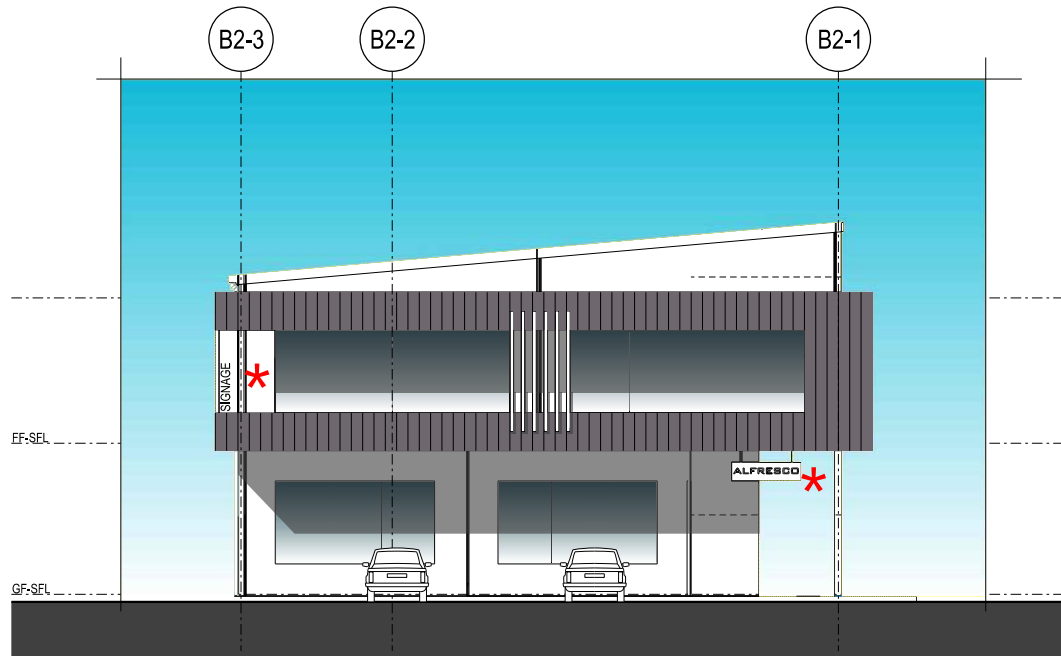


06 BLDG-02-EAST ELEVATION
SCALE 1:100

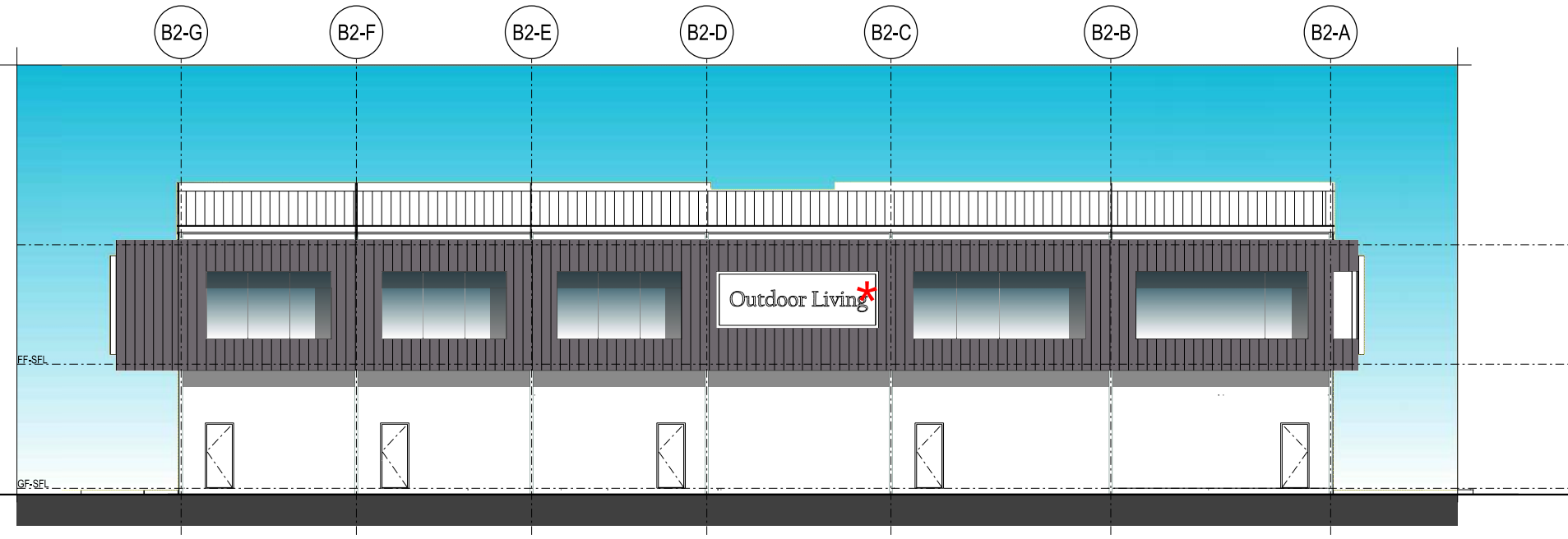
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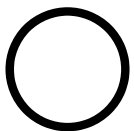


07 BLDG-02-SOUTH ELEVATION
SCALE 1:100



08 BLDG-02-WEST ELEVATION
SCALE 1:100

*Signage to be provided
in accordance with C
28 - General Signage



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PROJECT

LOT 20 DIXON DRIVE, YARRABILBA

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TITLE

BUILDING 02 - ELEVATIONS

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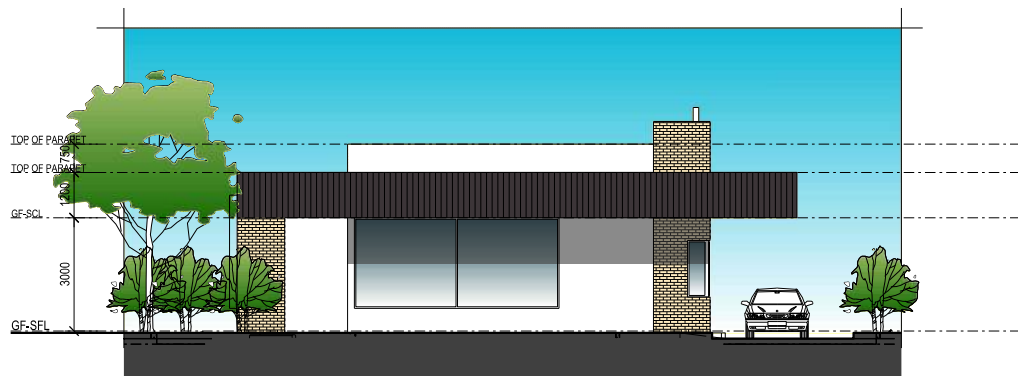
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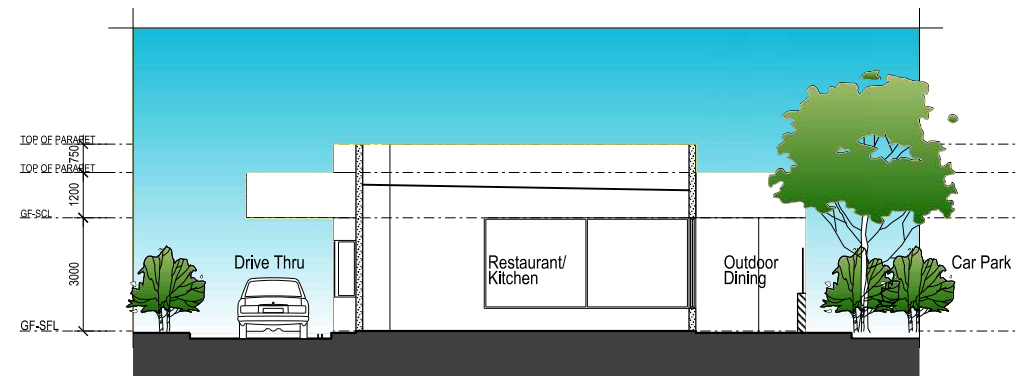
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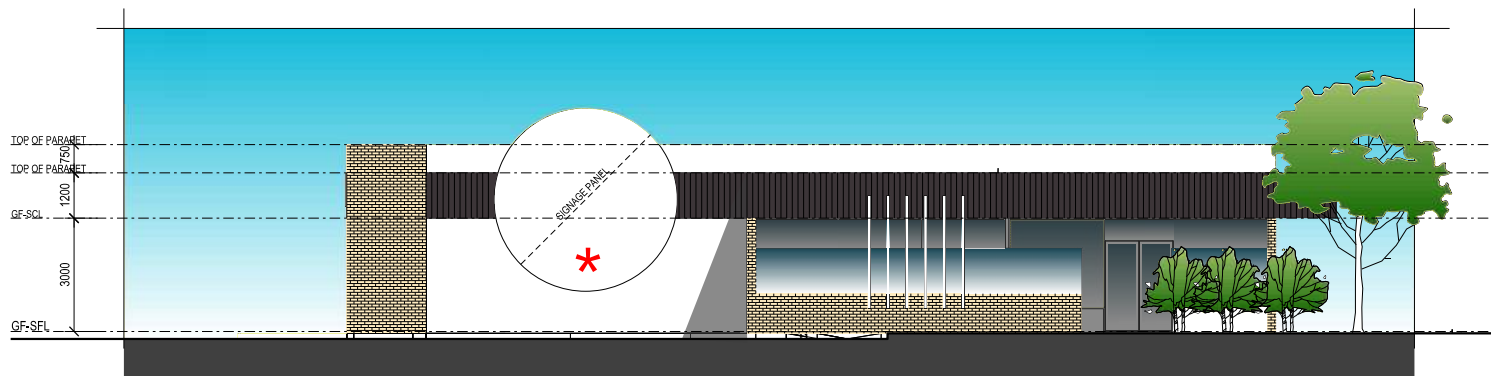
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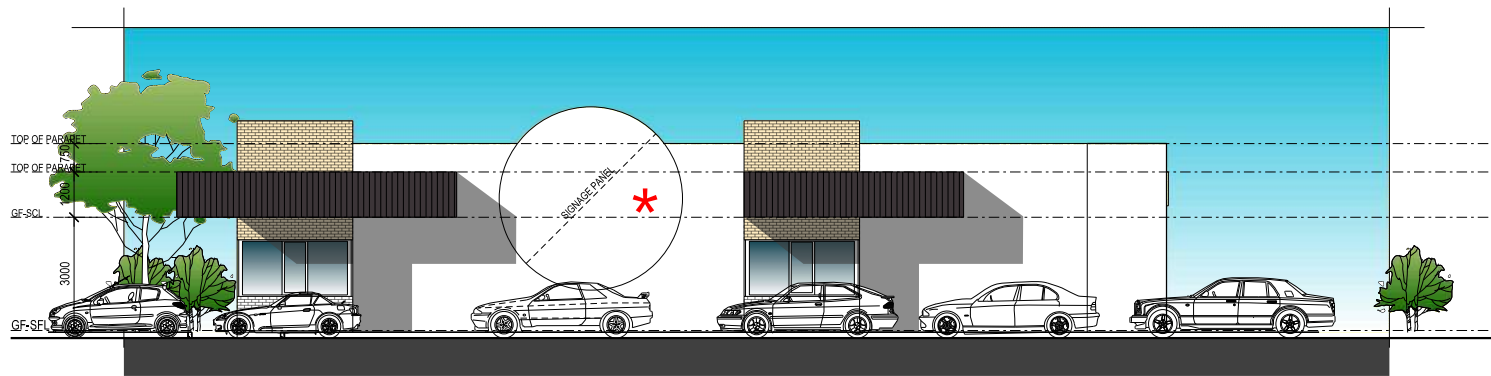


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11 BLDG-03-NORTH ELEVATION
SCALE 1:100

*Signage to be provided in accordance with Condition 28 - General Signage



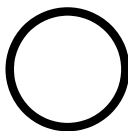
12 BLDG-03-WEST ELEVATION
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COLOURS OF BUILDING 3 SUBJECT TO OPERATOR.

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Date: **11 August 2023**



AMENDED IN RED
By: **Matthew Buchanan**
Date: **28 July 2023**



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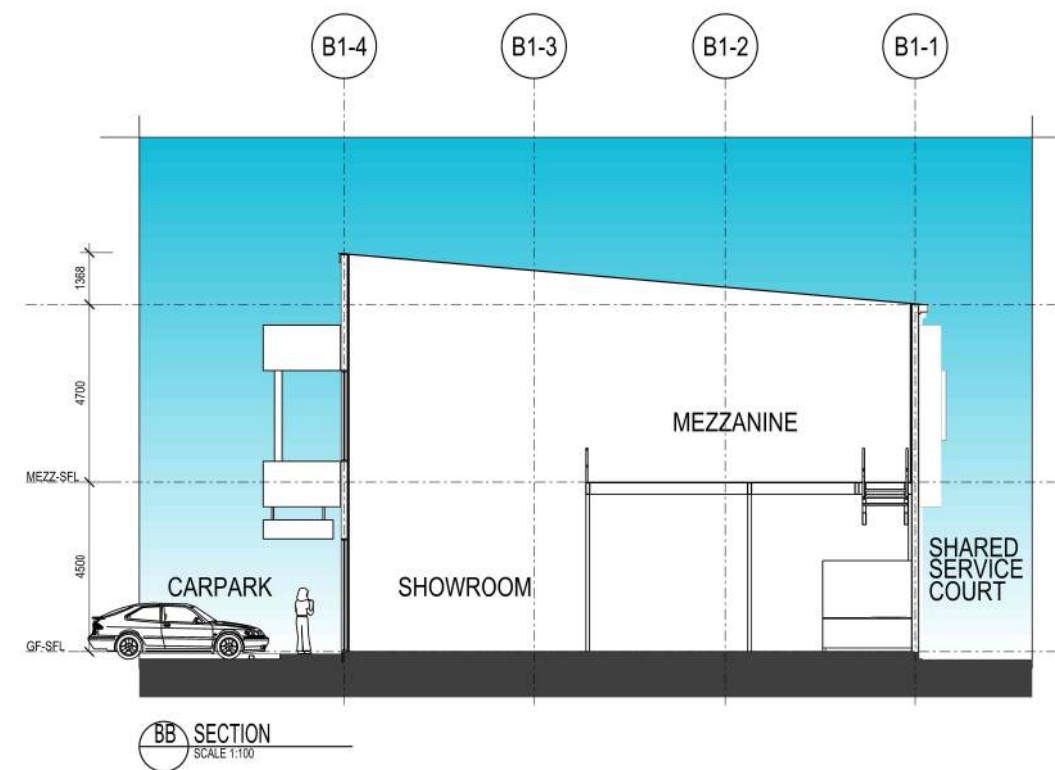
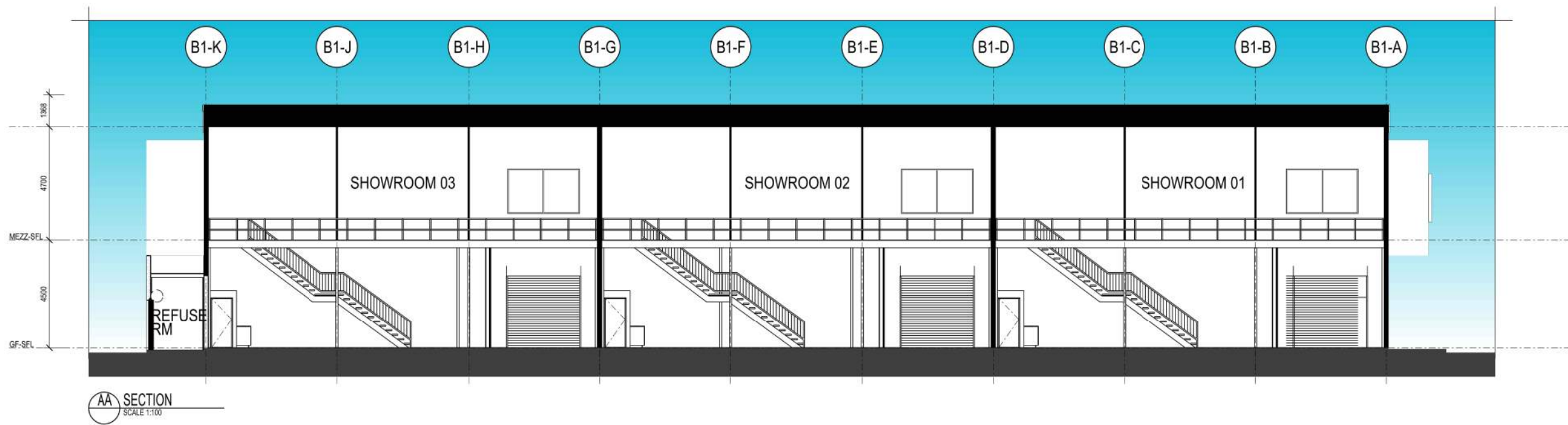
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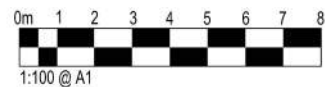
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LOT 20 DIXON DRIVE, YARRABILBA

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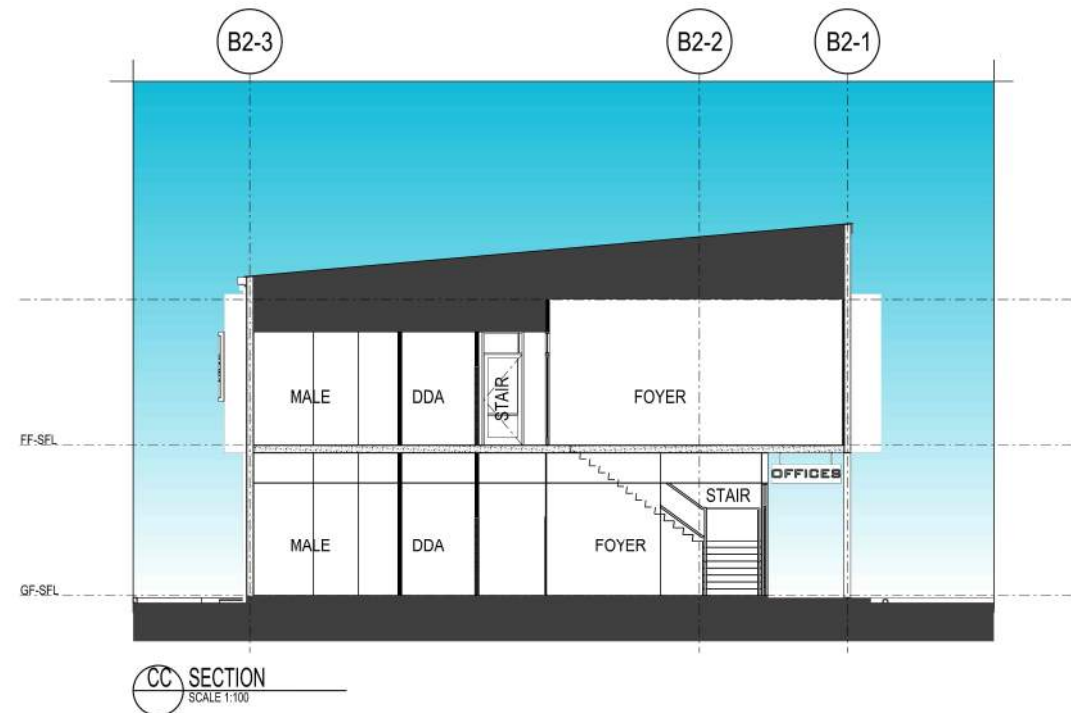
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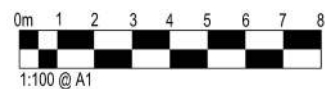
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LOT 20 DIXON DRIVE, YARRABILBA

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Landscape intent

APPROVED



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referred to in the
PDA DEVELOPMENT APPROVAL
Approval no.: **DEV2023/1368**
Date: **11 August 2023**



Landscape Intent

Lot 20 Dixon Ct

Yarrabilba, QLD

Project Reference: L22161

June 2023

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 Revisions

Rev.	Comments	Date	Initial
A	For Approval	19/12/22	HL / SW
B	RFI Amendments	16/01/23	SW
C	Minor Change	14/06/23	SW
C	Minor Change (Update)	20/06/23	SW

Document Sources

Rev.	Base Information	Issued By	Issued
A	Architectural Plans - Revision D	Hamilton Hayes Henderson Architects	10/11/22
	Civil Plans	Friends Engineering	11/10/22
	Traffic Plans	TTM Group	16/11/22
	Flood Study	Design Flow	07/11/22
B	Architectural Plans - Revision E	Hamilton Hayes Henderson Architects	13/01/23
A	Civil Plans	Friends Engineering	12/01/23
C	Architectural Plans - Revision H	Hamilton Hayes Henderson Architects	13/06/23
A	Civil Plans	Friends Engineering	19/06/23

1.0 Site Context.





Site Analysis

1.1 Site Locality



2.0 Landscape Design.





2.1 Landscape Design Character Imagery

AMENDED IN RED

By: **Matthew Buchanan**

Date: **28 July 2023**



Subject Site
Lot 20 Dixon Ct, Yarrabilba, QLD.



Approved Streetscape
All streetscape works to tie into existing proposed streetscape finishes. Potential to incorporate additional street trees along Dixon Ct.



Hardstand
All hardstands to stay consistent with architectural material and finishes palette. Potential to incorporate contrasting hardstand finishes to delineate entry areas, shop frontages and licensed areas. Refer to architectural package for further details.



Feature signage *
Signage to frontage corner to be visible from streetscape recommended to be pylon signage. Refer to architectural plans for further details.



Frontage Deep Planting
Garden bed located along Dixon Crescent entrance within easement to be planted with low ground covers only. Species to be low-maintenance and drought tolerant. Understorey planting shall grow to a maximum height of 1 meter to maintain a visual connection between the building and the street ensuring views to the signage* and entry. Sight lines to be considered when planting.



Central Feature Planting
Garden bed located within the internal courtyards to be mass planted ground-cover species. Feature shade trees (100LTR at the time of planting) to the center of proposed planting beds. Potential to incorporate raised garden beds to various areas within the courtyards and arbour structure to main pedestrian transitional zone. Potential to also include climbing species to various trellis and post structures.



Car Park
Garden bed located within the internal carpark to be mass planted ground-cover species. Shade trees (45LTR at the time of planting) to the center of proposed planting beds. Shade trees in car parking areas to be provided where possible.



Boundary Perimeter Planting Area ^
Plantings of large screening hedge to soften development boundary. Potential to plant shade trees and palms where space and offsets allow. Shade trees to be 45LTR at the time of planting. Refer to civil plans for all retaining walls and levels.



Outdoor staff area
Outdoor staff area to include feature shade tree and screening planting. Potential to include built in seating and permeable pavement to surface treatment.

***Compliance assessment required for Pylon signs in accordance with Condition 29 - Pylon signs**

^Planting to comply with requirements of approved Bushfire Hazard Assessment

Landscape Design

2.2 Landscape Design Ground Level

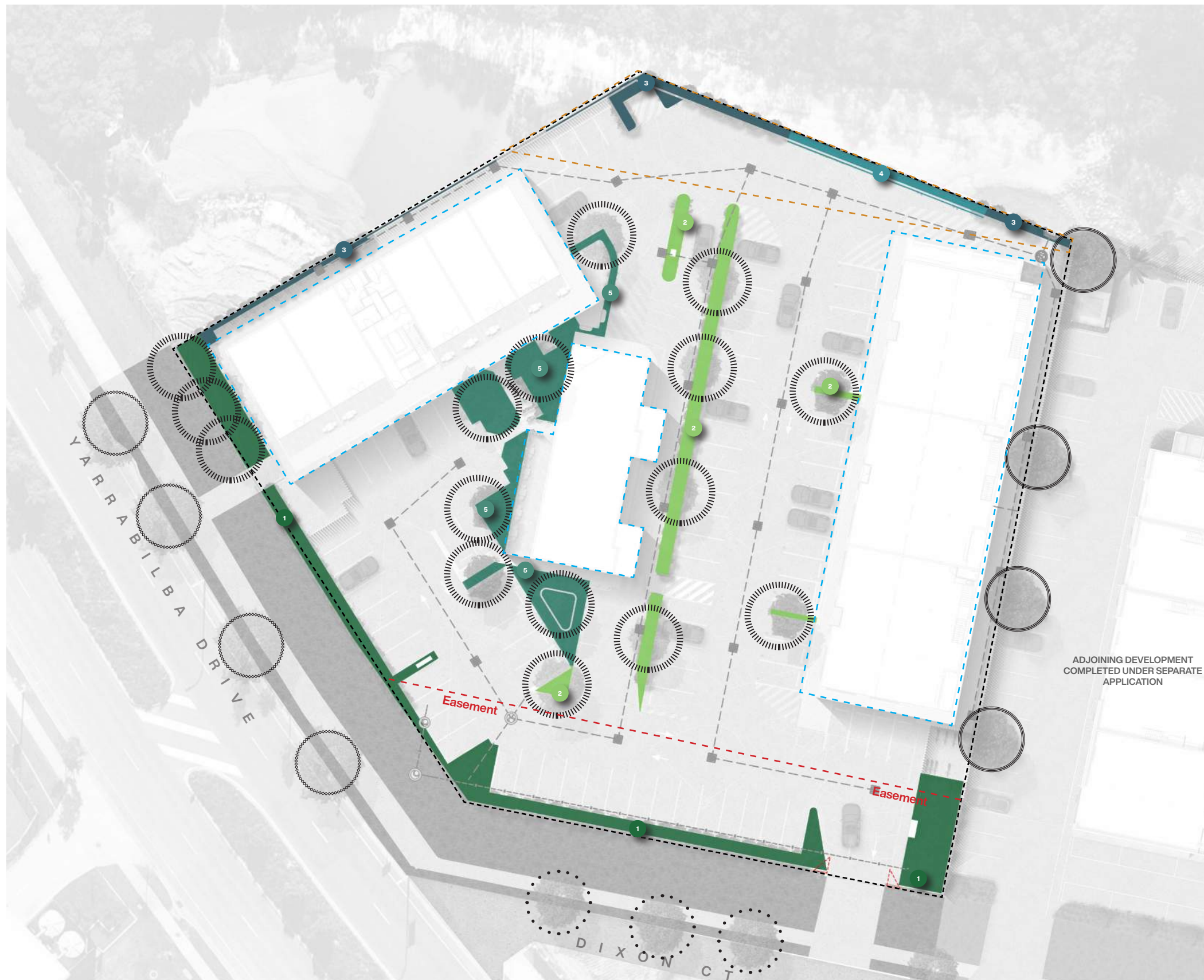
June 2023

Zone Landscape Architecture | L22161 | Dixon Ct, Yarrabilba QLD



AMENDED IN RED

 By: **Matthew Buchanan**

 Date: **28 July 2023**


-  **Subject Site**
Lot 20 Dixon Ct, Yarrabilba, QLD.
-  **Potential Shade Tree/ Palm Locations**
Ensure 3m offset from building/roof line.
-  **Proposed Street Tree Locations**
Potential to incorporate additional street trees where space allows. 45LTR at the time of planting.
-  **Existing Street Tree Locations**
Potential to incorporate additional street trees where space allows. 45LTR at the time of planting.
-  **Proposed Tree Locations**
Proposed tree locations for adjacent development. Potential to provide shade to North Eastern boundary.
-  **Roof Line**
All Palms to be offset a minimum of 3m from roof and building line where possible.
-  **Easement**
Refer to civil package for further information regarding the easement along Dixon Crescent.
-  **Bushfire Setback**
Planting within the bushfire setback to comply with bushland protection systems and bushfire hazard guidelines. Landscaped areas can consist of tall canopy tree species and mowed grass under 300mm high, potential to incorporate fire tolerant species. All landscaped areas within the bushfire offset are to be managed regularly, and in accordance with Bushfire Management Plan.
-  **Frontage Deep Planting (inc within Easement)**
Garden bed located along Dixon Crescent entrance within easement to be planted with low ground covers only. Species to be low-maintenance and drought tolerant. Understorey planting shall grow to a maximum height of 1 meter to maintain a visual connection between the building and the street ensuring views to the signage, and entry. Shade trees are required to be clear trunked to maintain clear line of sight.
-  **Car Park**
Garden bed located within the internal carpark to be mass planted ground-cover species. Shade trees (45LTR at the time of planting) to the center of proposed planting beds. Shade trees in car parking areas to be provided at 1 tree per 6 car parking spaces, where possible.
-  **Boundary Perimeter Planting Area**
Plantings of medium to large screening hedge to soften development boundary. Potential to plant shade trees and palms where space and offsets allow. Shade trees to be 45LTR at the time of planting. Refer to civil plans for all retaining walls and levels.
-  **Low Boundary Perimeter Planting Area**
Plantings within this zone are to remain below 150mm in height to allow for vehicle overhang. Refer to Traffic report and Architectural package for further information.
-  **Central Feature Planting**
Garden bed located within the internal courtyards to be mass planted ground-cover species. Feature shade trees (100LTR at the time of planting) to the center of proposed planting beds. Potential to incorporate raised garden beds to various areas within the



Landscape Design

2.3 Landscape Plan Ground Level Treatment Areas

AMENDED IN RED

By: **Matthew Buchanan**

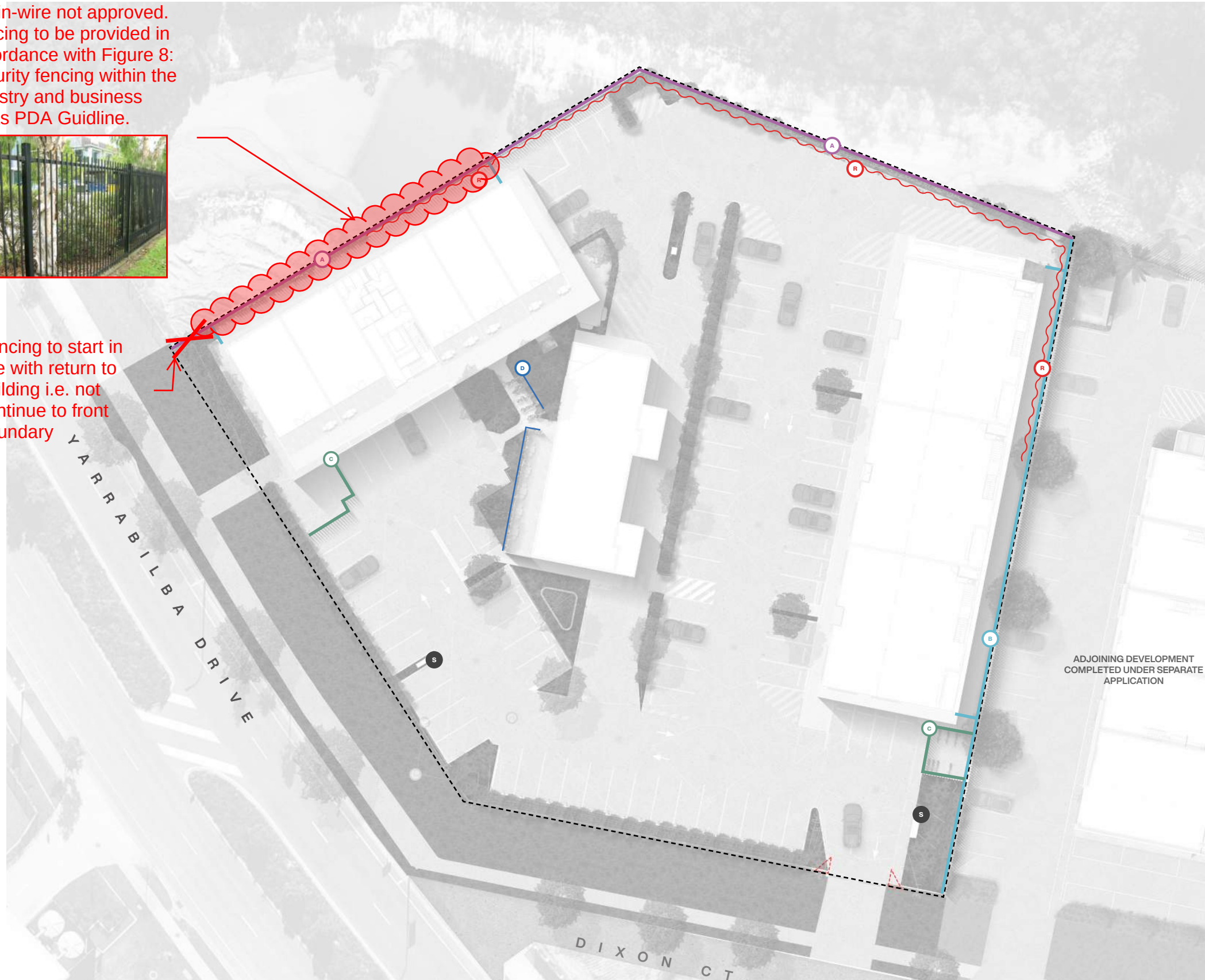
Date: **28 July 2023**



Chain-wire not approved.
Fencing to be provided in
accordance with Figure 8:
Security fencing within the
Industry and business
areas PDA Guideline.



Fencing to start in
line with return to
building i.e. not
continue to front
boundary



- Subject Site**
Lot 20 Dixon Ct, Yarrabilba, QLD.
- Existing Retaining Wall**
Refer to civil package for further details.
- Retaining Wall**
Refer to civil package for further details.
Location to be confirmed
- Fence Type A**
Black Chain-wire fence
Typical height: 1.8m -2.4m
Chain-wire fence to height 1.8m associated with the rear retaining wall and development boundary.
- Fence Type B**
Boundary Fence
Typical height: 1.8m
Boundary fence proposed along development boundary street shall be 'softened' with planting.
- Fence Type C**
Feature Batten Fence
Feature batten fence to height 1.2 - 1.8m located along external services and secure areas.
- Fence Type D**
Trellis System
Typical height: to be confirmed
Vertical Trellis system to provide climbing species to green facade
- Signage***
Typical height: to be confirmed
Feature sign to the development frontage to be a blockwork structure. Refer to architectural package for further information.
- Headwall Outlet**
Headwall outlet to drainage channel.
Size and location to be confirmed.
Refer to civil package for further details.

***Compliance assessment
required for Pylon signs in
accordance with Condition
29 - Pylon signs**

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.

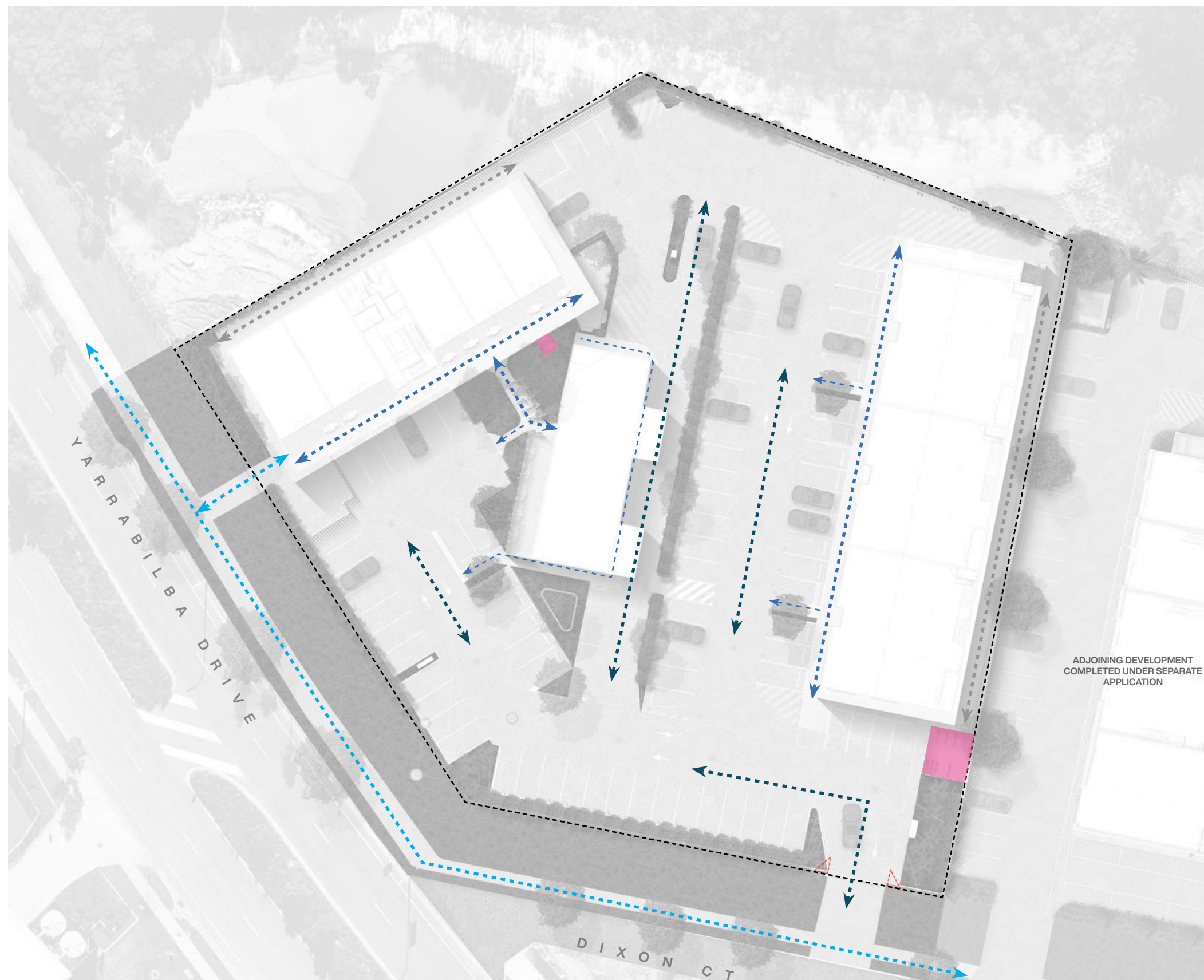
Landscape Design

2.4 Landscape Plan Fence & Edges Ground Level

June 2023

Zone Landscape Architecture | L22161 | Dixon Ct, Yarrabilba QLD





-  **Subject Site**
Lot 20 Dixon Ct, Yarrabilba, QLD.
-  **Pedestrian Access**
Internal access pathways from car park to buildings.
-  **Proposed Pedestrian Pathway**
Proposed to connect to proposed pedestrian pathway network.
-  **Service Access**
Internal access pathways from car park to buildings.
-  **Vehicle Access**
Internal vehicle access around buildings and takeaway restaurant.
-  **Bike parking**
22 bike parks proposed to be provided.
18 secure staff bike parking & 4 visitor bike parking.

Landscape Design

2.5 Landscape Plan Access plan

3.0 Design Details.

June 2023





Groundcover

1	Hardenbergia violacea	Happy Wonderer
	Viola banksii	Native violet
2	Grevillea ‘Poorinda Royal Mantle’	Grevillea Royal Mantle
3	Dianella caerulea	Blue Flax Lilly
	Myoporum parvifolium	Yareena
4	Liriope Evergreen Giant	Evergreen Giant
5	Lomandra longifolia ‘Tanika’	Mat Rush
6	Carex appressa	Tall sedge
7	Westringia fruticosa ‘mundi’	Mundi

Shrubs & Accents

8	Westringia fruticosa	Coastal Rosemary
	Syzygium Hedges	Lilly Pilly Various
	Alpinia sp	Native Ginger
9	Acacia concurrens	Black wattle

Trees

10	Backhousia citriodora	Lemon myrtle
11	Melaleuca leucadendra	Fine Leaf White Paperbark
12	Tristaniopsis laurina ‘Luscious’	Luscious
	Elaeocarpus eumundi	Eumundii Quandong
	Eucalyptus moluccana	Grey box

Note: All landscaped areas within the bushfire setback are to be in accordance with the Bushfire Management Plan.

Design Details
3.1 Planting Palette



Engineering services report

APPROVED



20 Dixon Circuit, Yarrabilba

PLANS AND DOCUMENTS
referred to in the
PDA DEVELOPMENT APPROVAL

Approval no.: **DEV2023/1368**

Date: **11 August 2023**



Engineering Services Report

For: Nikunj Patel

January 2023

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The information contained in this report has been prepared based on the information made available to Friends Civil Engineering Pty Ltd at the time of preparation. This document, design parameters, and conclusions rely on external data sources, and the accuracy of this document is correct to the extent of the information provided to us.

This report has been prepared solely for the benefit of our client. We do not accept any liability for damage or loss resulting from reliance on this report, or any part of it, by any party other than the client (named on this page of this report).

Document Control

Author	Stefan Heyward & Grant Halcrow		
Certification	RPEQ No.: 12509	Signed: 	
Report Title	R001-FE22140 – Engineering Services Report		
Revision	B	Date	19/06/23

Revision History

Revision	Date	Author	Approver	Description
A	24/01/23	SH/GH	GH	Submission
B	19/06/23	GH	GH	Updated Layout

Company Contact Details

- Name: Friends Civil Engineering Pty Ltd
- ABN: 40 638 121 132
- Phone: 0422 024 440
- Email: contact@friendsengineer.com
- Postal: PO Box 94 West Burleigh QLD 4219
PO Box 7111 East Ballina NSW 2478

Client Contact Details

- Client: Nikunj Patel

Contents

1. Introduction	4
1.1 Report Abstract.....	4
2. Property Description.....	5
2.1 Locality and Previous Use	5
2.2 Topography and Drainage	5
3. Proposed Development.....	6
4. Proposed Stormwater	7
4.1 Upstream Catchment	7
5. Earthworks.....	8
6. Erosion and Sediment Control.....	10
6.1 General Erosion and Sediment Control Measures	10
6.2 Spoil and Stockpile Management Measures	10
7. Regional Flooding.....	11
8. Sewer and Water Connection.....	12
8.1 Sewer Connection.....	12
8.2 Water Connection	12
9. Road and Access.....	14
10. Conclusion	15

1. Introduction

This report has been prepared to support the development application to approve the construction of a commercial development. The development is proposed to take place over the following parcel of land:

Property Address:	20 Dixon Circuit, Yarrabilba
Property Description:	Lot 20 on SP331111
Council:	Logan City Council (EDQ Area)
Registered Site Area:	6,079m ²

The purpose of this report is to demonstrate the civil engineering outcomes for the development to ensure compliance with all necessary State and Local Government policies.

1.1 Report Abstract

This report describes that no apparent significant constraints on the execution of earthworks, services, sediment and erosion control, provision of vehicular access, or the drainage of stormwater are expected resulting the development of the site.

3. Proposed Development

The proposal is to build a commercial development, key components of the new development are:

- Showroom (x3);
- Fast food premises (x1);
- Fast food premises or Food premises or Shop (x5);
- Business or Office (x4).

No major external works are proposed as part of the development.

The only works outside the boundary are expected to include new vehicle cross over (VXO), as well as connecting to public infrastructure like stormwater, water, sewer, electrical and communications.



Figure 3.1 Architectural Layout

Full development plans are located within Appendix A for further details.

4. Proposed Stormwater

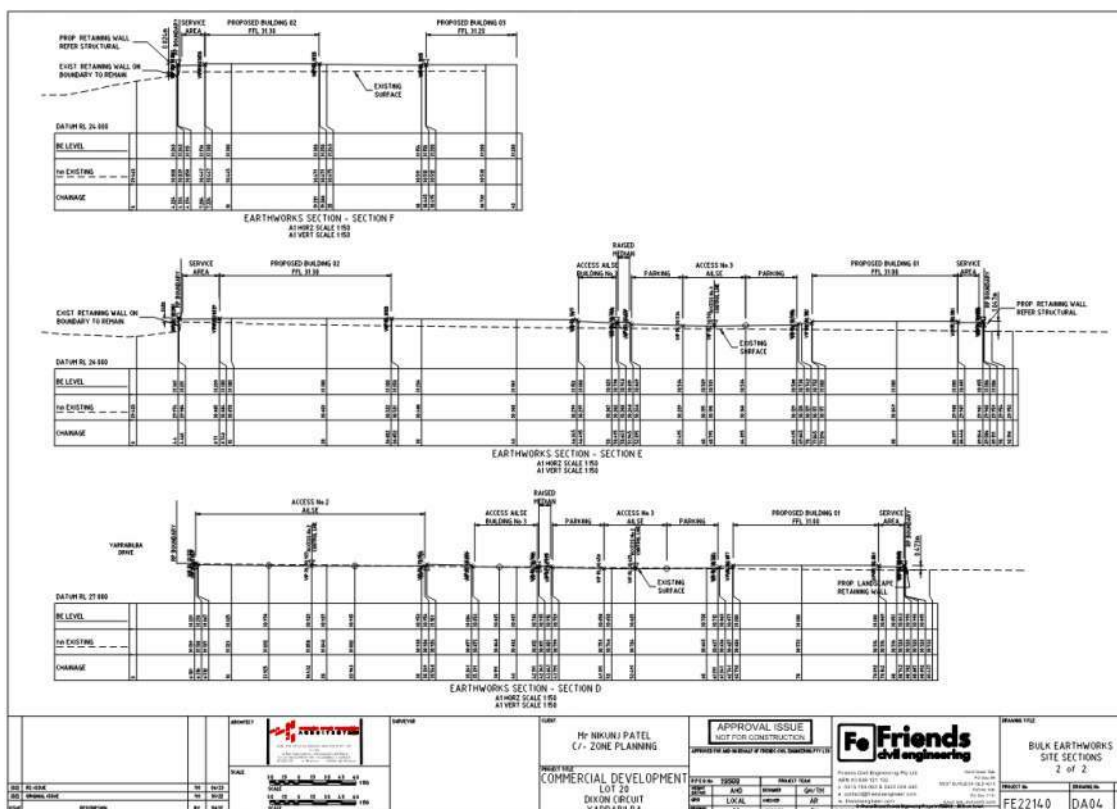
The entire precinct has been previously approved under the Yarrabilba Precinct 3 Stormwater Quality Management Plan - Version 2 by DesignFlow dated 2016 and certified by DesignFlow ROL2 certification letter dated 12 November 2021.

The site is proposed to be serviced by an internal stormwater network connection to the existing DN375 outlet headwall to the north of the site. Flows from the headwall will then enter the existing open stormwater drainage channel before flowing downstream to the bio-basins adjacent lot 22.

4.1 Upstream Catchment

The site is not affected by any upstream catchments.

Refer Appendix B for layouts of proposed infrastructure.



Council mapping does not indicate the site to be within a Land Slide Hazard and Slope or Acid Sulfate Soils.

6. Erosion and Sediment Control

During construction, it shall be the responsibility of the Principal Contractor to ensure that the development complies with the relevant erosion and sediment control objectives.

This section of the report provides suggested inclusions in an erosion and sediment control plan for the proposed development site. This plan includes recommendations for monitoring and reporting responsibilities and the construction of site-specific sedimentation and erosion control measures. Detailed drawings specifying the proposed erosion and sediment control measures are to be provided at the next stage of the development.

6.1 General Erosion and Sediment Control Measures

It shall be the responsibility of the Principal Contractor to ensure the following erosion and sediment control measures are implemented on site:

- Clean stormwater runoff from upstream allotments is to be directed away from the development site using earth bunds or cut-off drains, as deemed appropriate by a suitable supervisor;
- The prevention of sediment runoff towards other allotments via the effective implementation of silt fences, sediment basins or other mitigation devices as deemed appropriate by a suitable supervisor;
- Sediment runoff shall also be prevented from entering the Council stormwater drainage system via the implementation of control measures such as gully pit sediment barriers;
- Erosion shakedown points shall be established at all vehicular access points, with shakedown areas regularly swept clean and sediment removed; and
- Erosion and sediment control measures are not to be removed from the development site until the site is completely rehabilitated and the surface is capable of resisting erosion.
- Site induction courses shall include details of an environmental management reporting system, through which personnel will be able to report perceived erosion and sediment control issues on site.

6.2 Spoil and Stockpile Management Measures

It shall be the responsibility of the Contractor to ensure the following spoil and stockpile management measures are implemented on site:

- Where the stockpiling of spoil and excess earthworks is necessary on the development site, stockpiles shall be established as far away as possible from stormwater inlets and pipelines to reduce the likelihood of sediment runoff; and
- Stockpiles are to be established within a designated zone of fill material and should be surrounded with appropriate erosion and sediment control measures.

7. Regional Flooding

The site is not affected by regional flooding or mapped overland flow, refer the below Figure 7.1 details the location of the nearest flood/overland flow zone, with the site is well outside of this area. The larger site of Yarrabilba Precinct 3 has previously been captured under the approved Yarrabilba Precinct flood study by Design Flow dated July 2016.



Figure 7.1 – Extents of Flooding (1% AEP Event)

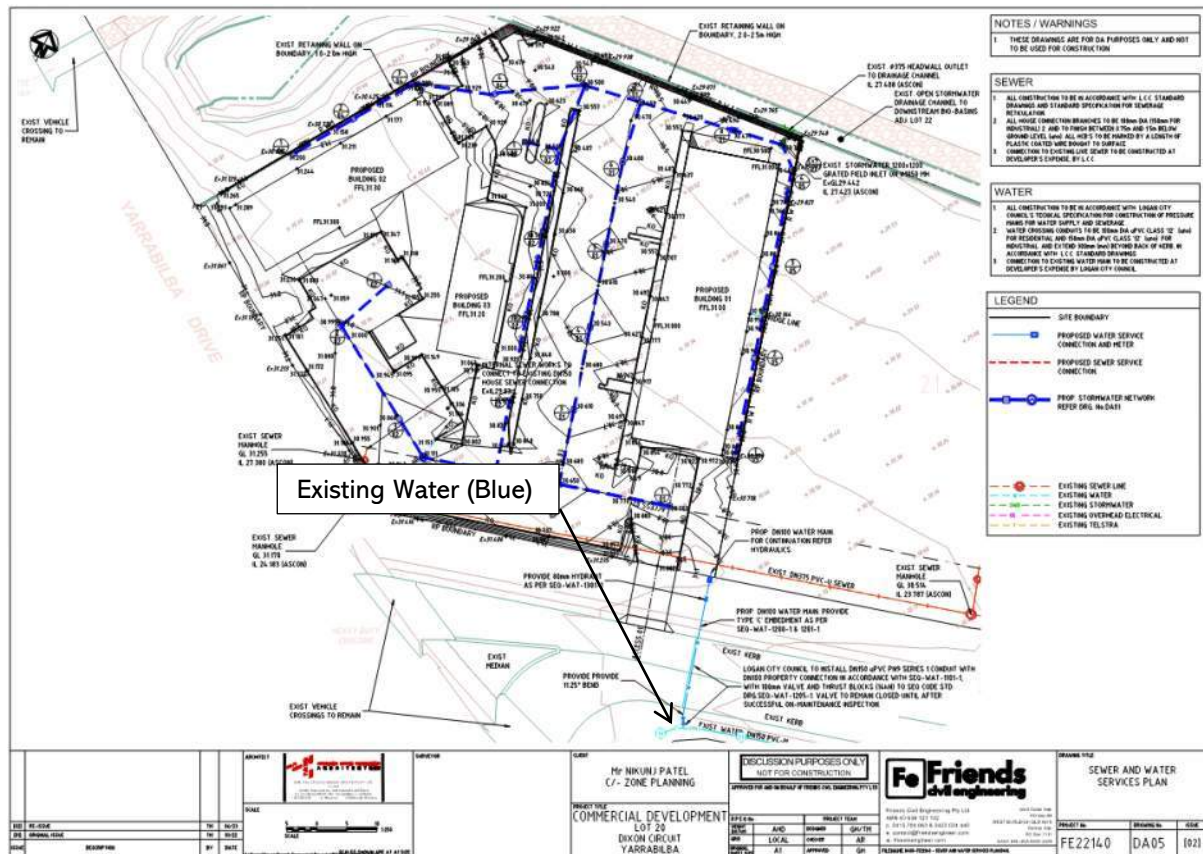


Figure 8.2: Existing Water Main Location

9. Road and Access

Vehicular access to the development is proposed via the construction of new vehicle cross over (VXO) at the site frontage of Dixon Circuit. The construction of a new private internal road within the development will be constructed to service the proposed commercial development along with the proposed carparking areas. Refer TTM report for further assessment of access.

All internal roads will be designed in accordance Australian standards with access VXO as per Logan City Council Guidelines.

Refer Appendix B for preliminary drawings.

10. Conclusion

This report has been prepared to support the lodgement of a development application to approve the construction of a commercial development.

There are no apparent significant constraints on the execution of earthworks, services, sediment and erosion control, provision of vehicular access, or the drainage of stormwater from the site.

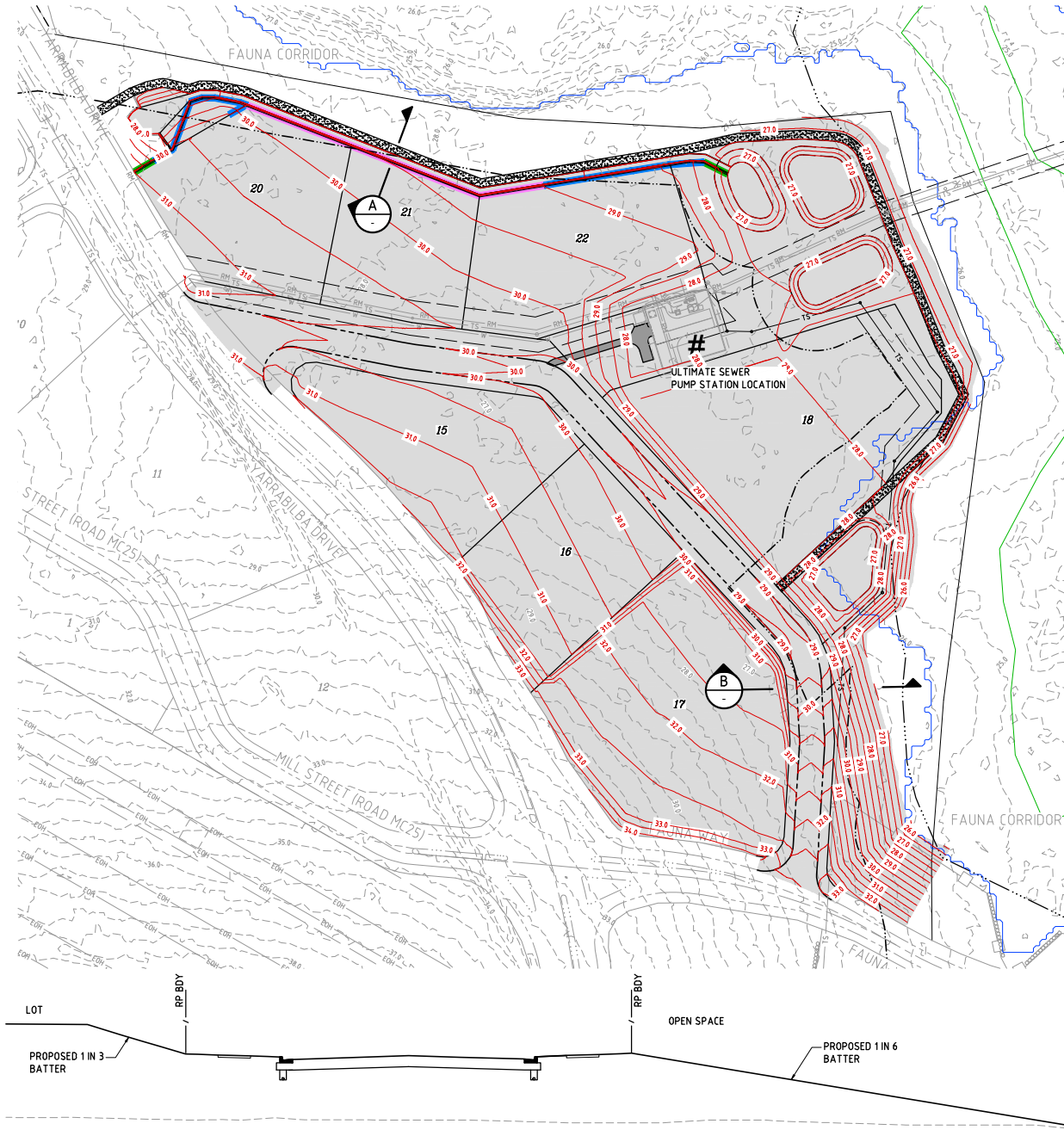
A summary of the proposed water and sewer connection strategy has been presented for EDQ's consideration.

This report demonstrates that the proposed development can be suitably serviced with all engineering services described and supports the type and scale and development that is proposed.

Appendix A

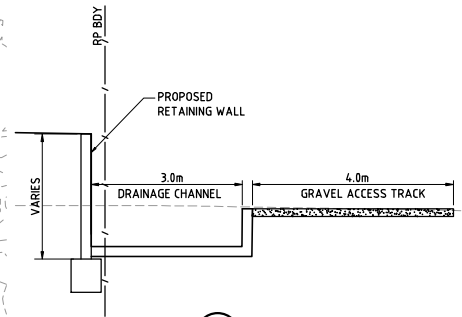
- Site Survey
- Development Layout Plans

M:\3515\1511 Yarrabilba P3 Preliminary Support Engineering\Local\US-111-SK13-P3D_100TH-FUNC-EMVCS.dwg Printed by: JS on 30/04/2021 10:51:08 AM



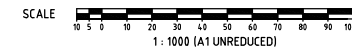
LEGEND

- PROPOSED KERB FACE
- PRELIMINARY CONTOURS
- EXISTING CONTOURS (LIDAR)
- EASEMENT
- 50m WETLAND - BUFFER LINE
- WETLAND
- 100 YEAR FLOOD LINE
- BATTERS - RETAINING WALL <1.0m
- PROPOSED RETAINING WALL 1.0-2.0m
- PROPOSED RETAINING WALL 2.0-2.5m
- PROPOSED RETAINING WALL 2.5-4.0m
- BUSH FIRE OFFSET
- GRAVEL ACCESS TRACK



SECTION A-A
SCALE NTS

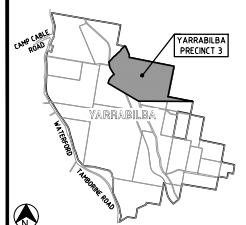
SECTION B-B
SCALE 1:100



DO NOT SCALE THIS DRAWING
IF IN DOUBT - ASK



LOCALITY PLAN



REVISIONS

No	Description	Date	By
A	FOR APPROVAL	09.09.19	DES
B	FOR APPROVAL	16.10.19	GPC
C	FOR APPROVAL	04.12.19	GPC
D	FOR APPROVAL	08.09.20	GPC
E	FOR APPROVAL	16.09.20	GPC
F	LOT 18 BOUNDARIES UPDATED	30.04.21	JAS

Associated Consultants



Project
YARRABILBA
PRECINCT 3D-NORTH
PRELIMINARY PLANNING
FUNCTIONAL DRAWINGS

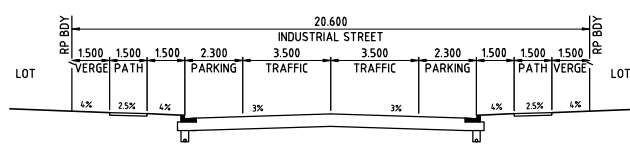
KN GROUP PTY LTD
CONSULTING ENGINEERS
LEVEL 1 - 42 ASTOR TCE
SPRING HILL, QLD 4000
PHONE 07 3017 1900
EMAIL kn@knpl.com.au
ABN 35 112 053 611

Approved - RPEQ 12803

Drawing title:
**FUNCTIONAL LAYOUT
EARTHWORKS PLAN**

Drawn RCT	Designed GPC	Checked GBG	Date SEP 19
Scale AS SHOWN	Drawing No 15-111-SK113	Sheet 3 of 4	Revisions F

M:\355\5111 Yarrabilba P3 Preliminary Support Engineering\Asat\5-115-SK111-P3D_NORTH-FUNC_LAYOUT.dwg Plotted by JG on 30/04/2021 10:51:04 AM



INDUSTRIAL ACCESS
A SECTION
SCALE 1:100

- LEGEND**
- PROPOSED KERB FACE
 - PROPOSED ROAD CENTRELINE
 - PROPOSED FOOTPATH
 - EASEMENT
 - WETLAND
 - EXISTING ELECTRICAL OVERHEAD
 - FAUNA OFFSET
 - BUSH FIRE OFFSET
 - GRAVEL ACCESS TRACK



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NORTH

LOCALITY PLAN

YARRABILBA PRECINCT 3

REVISIONS

No	Description	Date	By
A	FOR APPROVAL	09.09.19	DES
B	FOR APPROVAL	16.10.19	GPC
C	FOR APPROVAL	04.12.19	GPC
D	FOR APPROVAL	08.09.20	GPC
E	FOR APPROVAL	16.09.20	GPC
F	LOT 18 BOUNDARIES UPDATED	30.04.21	JAS

Associated Consultants

rps

Client

lendlease

Project

YARRABILBA
PRECINCT 3D-NORTH
PRELIMINARY PLANNING
FUNCTIONAL DRAWINGS

KN GROUP PTY LTD
CONSULTING ENGINEERS

LEVEL 1 - 42 ASTOR TCE
SPRING HILL, QLD 4000
PHONE 07 3017 1900
EMAIL kn@knpl.com.au
ABN 35 112 053 611

Approved: RPEQ 12803

Drawing title:
**FUNCTIONAL LAYOUT
ROADWORKS PLAN
AND TYPICAL SECTIONS**

Drawn	Designed	Checked	Date
RCT	GPC	GBG	SEP 19

Scale	Sheet
AS SHOWN	1 of 4

Revision	By
A1	15-111-SK111

F



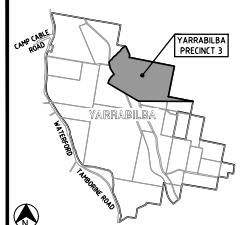
LEGEND

	PROPOSED KERB FACE
	PROPOSED SEWER
	PROPOSED STORMWATER
	PROPOSED WATER
	PROPOSED TRUNK SEWER
	EXISTING RISING MAIN
	EXISTING SEWER
	EXISTING TRUNK SEWER
	EXISTING STORMWATER
	EXISTING WATER
	VEGETATION OFFSET LINE
	EXISTING TOP OF BANK
	30m TOP OF BANK - BUFFER LINE
	50m WETLAND - BUFFER LINE
	WETLAND
	EASEMENT
	BUSH FIRE OFFSET
	GRAVEL ACCESS TRACK

DO NOT SCALE THIS DRAWING
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LOCALITY PLAN



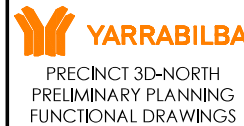
REVISIONS

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B	FOR APPROVAL	16.10.19	GPC
C	FOR APPROVAL	04.12.19	GPC
D	FOR APPROVAL	12.08.20	GPC
E	FOR APPROVAL	27.08.20	GPC
F	FOR APPROVAL	16.09.20	GPC
G	LOT 18 BOUNDARIES UPDATED	30.04.21	JAS

Associated Consultants



Project

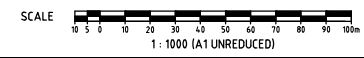


LEVEL 1 - 42 ASTOR TCE
SPRING HILL, QLD 4000
PHONE 07 3017 1900
EMAIL kn@knpl.com.au
ABN 35 112 053 611

Approved- RPEQ 12883

Drawing title:
**FUNCTIONAL LAYOUT
PRELIMINARY TRUNK SEWER**

Drawn SLK	Designed RM	Checked GBG	Date SEP 19
Scale AS SHOWN	Drawing No 15-111-SK114	Sheet 4 of 4	Revision G





MAXIMUM BUILDING HEIGHT 15.0m
PROPOSED BUILDING HEIGHT 10.6m

REQUIRED CAR PARKING 90 SPACES
PROVIDED CAR PARKING 85 SPACES

REQUIRED BIKE PARKING 26 SPACES
PROVIDED BIKE PARKING 26 SPACES

NLA INCLUDING COVERED LICENSED AREAS

FAST FOOD PREMISES 674.0m²

SHOWROOM 1124.0m²

OFFICE (LVL 1) 483.0m²

GFA

BLDG 1 1196m²

BLDG 2 1020m²

BLDG 3 247m²

LOT No. 20 ON SP331111

LOT AREA 6079.9M²

SITE COVER 32.3%

GREEN SPACE 582M²

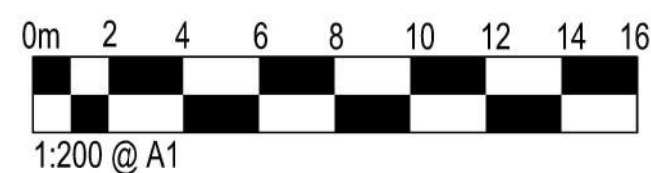
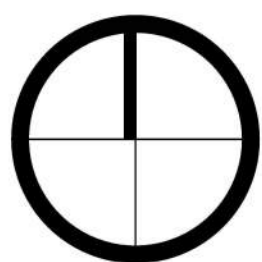
BUILDING FOOTPRINTS

BLDG 01 922m²

BLDG 02 736m²

BLDG03 308m²

TOTAL 1966m²



P:\PROJ\56XX\5646\DA\PL\OT\DA-1100-H.dgn

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CLIENT

NATIONAL FOOTPRINTS PTY LTD

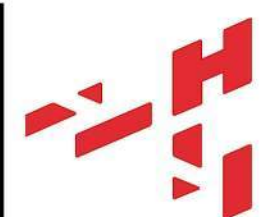
PROJECT

LOT 20 DIXON DRIVE, YARRABILBA

DRAWING TITLE

CONCEPT SITE PLAN

REV	DATE	BY	
H	09.06.23	RG	REVISED CARPARKING
G	01.06.23	RG	REVISED SITE DESIGN
F	13.04.23	RG	RFI RESPONSE
E	15.12.22	RG	APPROVAL ISSUE
E	24.11.22	RG	PRELIMINARY ISSUE
D	21.10.22	RG	PRELIMINARY ISSUE



HAMILTON HAYES HENDERSON
ARCHITECTS est.78

HAMILTON HAYES HENDERSON ARCHITECTS PTY LTD

143 Ferry Road, Southport, Gold Coast 4215, AUSTRALIA

P.O. BOX 7328 SOUTHPORT PARK, 4215 QUEENSLAND, AUSTRALIA.

t:(07)5528 0088 w:HHH.com.au e:Architects@HHH.com.au

SCALE

1:200 @ A1

DATE

09/06/2023

DRAWN

RG/JB

CHECKED

NM

JOB. NO.

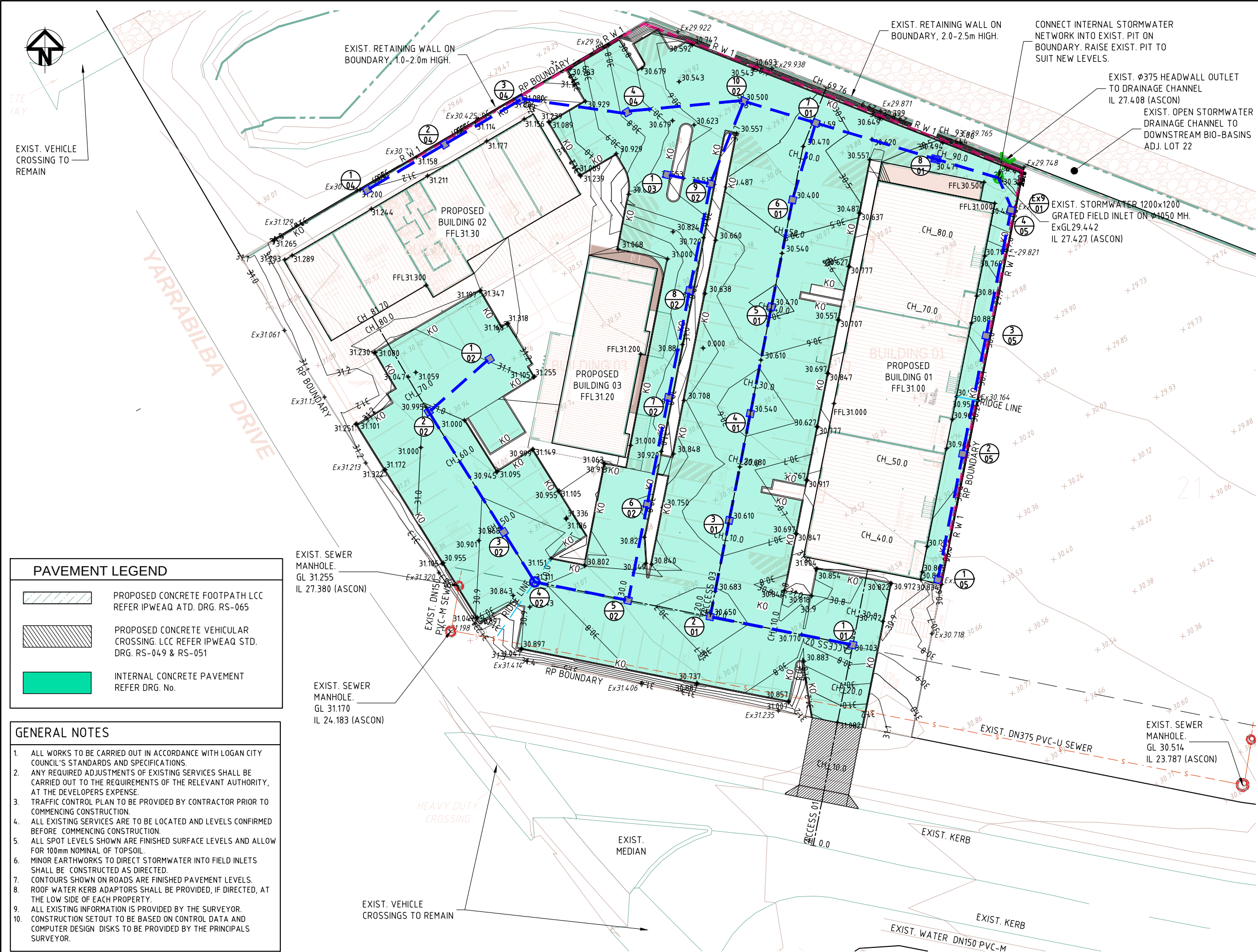
5646

DRAWING/ REVISION NO.

DA-1100-H

Appendix B

- Civil Drawings



NOTES / WARNINGS

1. THESE DRAWINGS ARE FOR DA PURPOSES ONLY AND NOT TO BE USED FOR CONSTRUCTION.

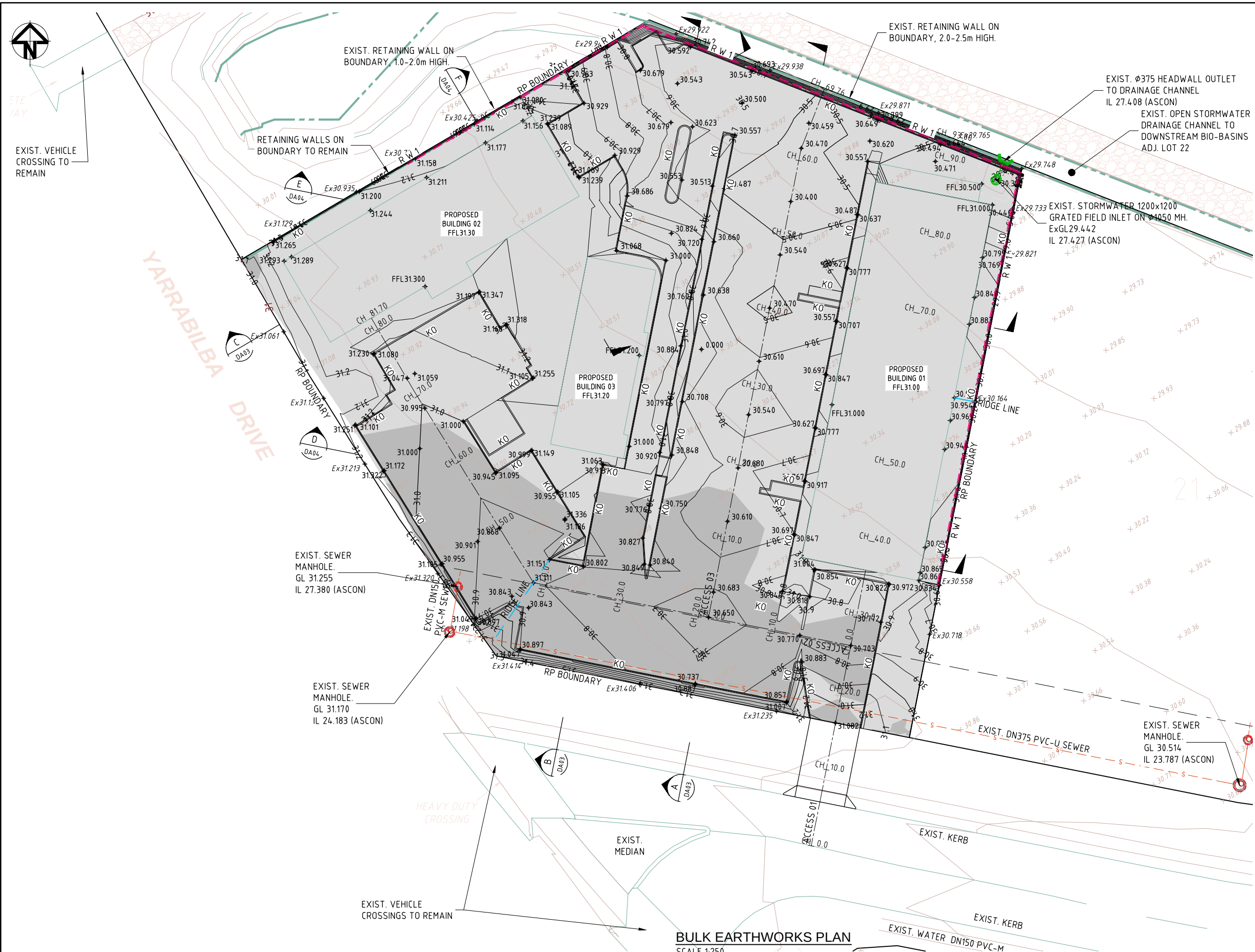
LEGEND	
	SITE BOUNDARY
	DESIGN CONTOUR MAJOR 0.5m
	DESIGN CONTOUR MINOR 0.1m
	DESIGN SURFACE LEVEL
	BARRIER KERB TYPE 'B2'. LCC REFER IPWEAQ STD. DRG. RS-080 (TYP.)
	PROPOSED PAVEMENT EDGE THICKENING. REFER DETAILS. DRG.
	PROPOSED STORMWATER LINE
	PROP. STORMWATER INLET GRATE. LCC REFER IPWEAQ STD. DRG. RS-050
	PROP. STORMWATER LABEL
	PROP. RAINWATER TANK REFER DRG. No.
	PROP. INTERNAL HYDRAULICS FIELD INLET PIT. REFER HYDRAULICS.
	PROPOSED INTERNAL HYDRAULICS STORMWATER LINE. REFER HYDRAULICS
	EXISTING SURVEY SURFACE LEVEL
	EXISTING SEWER LINE
	EXISTING WATER
	EXISTING STORMWATER
	EXISTING OVERHEAD ELECTRICAL
	EXISTING TELSTRA

PAVEMENT LEGEND	
	PROPOSED CONCRETE FOOTPATH LCC REFER IPWEAQ ATD. DRG. RS-065
	PROPOSED CONCRETE VEHICULAR CROSSING. LCC REFER IPWEAQ STD. DRG. RS-049 & RS-051
	INTERNAL CONCRETE PAVEMENT REFER DRG. No.

- GENERAL NOTES
- ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH LOGAN CITY COUNCIL'S STANDARDS AND SPECIFICATIONS.
 - ANY REQUIRED ADJUSTMENTS OF EXISTING SERVICES SHALL BE CARRIED OUT TO THE REQUIREMENTS OF THE RELEVANT AUTHORITY, AT THE DEVELOPERS EXPENSE.
 - TRAFFIC CONTROL PLAN TO BE PROVIDED BY CONTRACTOR PRIOR TO COMMENCING CONSTRUCTION.
 - ALL EXISTING SERVICES ARE TO BE LOCATED AND LEVELS CONFIRMED BEFORE COMMENCING CONSTRUCTION.
 - ALL SPOT LEVELS SHOWN ARE FINISHED SURFACE LEVELS AND ALLOW FOR 100mm NOMINAL OF TOPSOIL.
 - MINOR EARTHWORKS TO DIRECT STORMWATER INTO FIELD INLETS SHALL BE CONSTRUCTED AS DIRECTED.
 - CONTOURS SHOWN ON ROADS ARE FINISHED PAVEMENT LEVELS.
 - ROOF WATER KERB ADAPTORS SHALL BE PROVIDED, IF DIRECTED, AT THE LOW SIDE OF EACH PROPERTY.
 - ALL EXISTING INFORMATION IS PROVIDED BY THE SURVEYOR.
 - CONSTRUCTION SETOUT TO BE BASED ON CONTROL DATA AND COMPUTER DESIGN DISKS TO BE PROVIDED BY THE PRINCIPALS SURVEYOR.

- STORMWATER DRAINAGE NOTES
- STORMWATER DRAINAGE SHALL BE GENERALLY IN ACCORDANCE WITH CURRENT AUSTRALIAN STANDARDS AND COUNCIL'S SPECIFICATION.
 - PIPES OF 225mm DIA. AND UNDER SHALL BE UPVC
 - PIPES OF 300mm DIA. AND LARGER SHALL BE FRC OR CONCRETE CLASS 2 RUBBER RING JOINTED UNO.
 - ALL FRC OR RCP STORMWATER PIPES WITHIN ROAD RESERVE AREAS TO BE CLASS 3 U.N.O.
 - PIPES SHALL GENERALLY BE LAID AT THE GRADES INDICATED ON THE DRAWINGS.
 - MINIMUM COVER TO PIPES 300mm DIA. AND OVER GENERALLY SHALL BE 600mm IN CARPARK & ROADWAY AREAS UNO.
 - PIPES UP TO 150mm DIA SHALL BE LAID AT 1.0% MIN. GRADE U.N.O
 - PIPES 225mm DIA AND OVER SHALL BE LAID AT 0.5% MIN. GRADE U.N.O.
 - BACKFILL TRENCHES WITH APPROVED FILL COMPACTED IN 200mm LAYERS TO 98% OF STANDARD DENSITY
 - ANY PIPES OVER 16% GRADE SHALL HAVE CONCRETE BULKHEADS AT ALL JOINTS
 - PITS SHALL BE AS DETAILED WITH METAL GRATES AT LEVELS INDICATED. ALL PITS DEEPER THAN 1000mm TO HAVE CLIMB IRONS.
 - ALL DRIVEWAY & OSD PITS TO BE 600 SQUARE UNLESS NOTED OTHERWISE
 - INSTALL TEMPORARY SEDIMENT BARRIERS TO INLET PITS, TO COUNCIL'S STANDARDS UNTIL SURROUNDING AREAS ARE PAVED OR GRASSED.
 - PITS LOCATIONS AND LEVELS MAY BE VARIED TO SUIT SITE CONDITIONS AFTER CONSULTING THE ENGINEER.
 - ALL PLANTER BOXES AND BALCONIES TO BE CONNECTED TO THE PROPOSED STORMWATER DRAINAGE LINE.
 - HAND-EXCAVATE STORMWATER PIPES IN VICINITY OF TREE ROOTS.
 - FOOTPATH CROSSING LEVELS SHOWN ARE TO BE ADJUSTED TO FINAL COUNCIL'S ISSUED LEVELS.

ARCHITECT HAMILTON HAYES HENDERSON ARCHITECTS HAMILTON HAYES HENDERSON ARCHITECTS PTY LTD 140 Perry Road, Southport, Gold Coast 4215, AUSTRALIA P.O. BOX 708 SOUTHPORT QLD 4215 AUSTRALIA 1 (07) 5528 0088 h.h.h@hha.com.au h.ha@hha.com.au	SURVEYOR	CLIENT: Mr NIKUNJ PATEL C/- ZONE PLANNING	DISCUSSION PURPOSES ONLY NOT FOR CONSTRUCTION APPROVED FOR AND ON BEHALF OF FRIENDS CIVIL ENGINEERING PTY LTD	Fe Friends civil engineering	DRAWING TITLE: CIVIL WORKS PLAN
SCALE 5 0 5 10 1250 SCALE SHOWN ARE AT A1 SIZE	PROJECT TITLE: COMMERCIAL DEVELOPMENT LOT 20 DIXON CIRCUIT YARRABILBA	R.P.E.Q No : HEIGHT DATUM GRID ORIGINAL SHEET SIZE AHD LOCAL A1	PROJECT TEAM DESIGNER CHECKER APPROVED GH/TM AR GH	Friends Civil Engineering Pty Ltd ABN 40 638 121 132 p. 0415 704 063 & 0422 024 440 e. contact@friendsengineer.com w. friendsengineer.com Gold Coast Mail PO Box 94 WEST BURLEIGH QLD 4219 Ballina Mail PO Box 7111 EAST BALLINA NSW 2478	PROJECT No. DRAWING No. ISSUE FE22140 DA01 [02]



NOTES / WARNINGS

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LEGEND

	SITE BOUNDARY
	DESIGN CONTOUR MAJOR 0.5m
	DESIGN CONTOUR MINOR 0.1m
	DESIGN SURFACE LEVEL
	BARRIER KERB TYPE 'B2'. LCC REFER IPWEAQ STD. DRG. RS-080 (TYP.)
	PROPOSED PAVEMENT EDGE THICKENING. REFER DETAILS. DRG.
	PROP. LANDSCAPE RETAINING WALL.
	PROP. RETAINING WALL. REFER STRUCTURAL
	PROP. TOP OF WALL LEVEL
	PROP. BOTTOM OF WALL LEVEL
	EXISTING SURVEY SURFACE LEVEL
	EXISTING SEWER LINE
	EXISTING WATER
	EXISTING STORMWATER
	EXISTING OVERHEAD ELECTRICAL
	EXISTING TELSTRA

NOTES / WARNINGS

- REFER GENERAL NOTES SHEET DRG. No.??
- UNDERGROUND SERVICES EXISTING IN THIS AREA.
- CONTRACTOR IS RESPONSIBLE FOR THE LOCATION AND PROTECTION OF ALL UNDERGROUND SERVICES PRIOR TO COMMENCEMENT OF WORKS.

BULK EARTHWORKS NOTE:

- LEVELS SHOWN ON PLAN ARE FINISHED SURFACE LEVELS.
- CONTRACTOR TO ALLOW FOR BOXING OF PAVEMENTS AND BUILDING FOOTPRINT.
- NO TOPSOIL STRIPPED FROM SITE FOR CALCULATIONS.
- DRAWINGS TO BE READ IN CONJUNCTION WITH ARCHITECT AND STRUCTURAL DOCUMENTATION.

NOTES / WARNINGS

- REFER GENERAL NOTES SHEET DRG. No.??
- UNDERGROUND SERVICES EXISTING IN THIS AREA.
- CONTRACTOR IS RESPONSIBLE FOR THE LOCATION AND PROTECTION OF ALL UNDERGROUND SERVICES PRIOR TO COMMENCEMENT OF WORKS.
- EARTHWORKS CUT AND FILL VOLUMES ARE TAKEN TO THE FINISHED SURFACE LEVEL
- EARTHWORKS CUT AND FILL VOLUMES CONSIDER MATERIAL COMPACTED IN PLACE AND DO NOT INCLUDE A BULKING FACTOR FOR TRANSPORTATION.
- CONTOURS AND DESIGN LEVELS SHOWN REPRESENT THE FINISHED SURFACE LEVELS

CUT	FILL
PROPOSED CUT	PROPOSED FILL

EARTHWORKS SCHEDULE		
CUT OR FILL	ITEM	VOLUME (M³)
FILL	TOTAL FILL	2444.816
CUT	TOTAL CUT	-197.690
	TOTAL BALANCE (BANK MEASURE)	2247.126
TOTAL TOPSOIL (0mm STRIP)		0

[02] RE-ISSUE

[01] ORIGINAL ISSUE

ISSUE

TM

TM

BY

06/23

01/23

DATE

ARCHITECT

HAMILTON HAYES HENDERSON ARCHITECTS PTY LTD
140 Parry Road, Southport, Gold Coast 4215, AUSTRALIA
P.O. BOX 708 SOUTHPORT PARK, 4215 GLENREILAN, AUSTRALIA
t: (07) 5528 0088 e: Architects@HHH.com.au

SCALE

SCALE
SCALES SHOWN ARE AT A1 SIZE

SURVEYOR

CLIENT:

Mr NIKUNJ PATEL
C/- ZONE PLANNING

PROJECT TITLE:

COMMERCIAL DEVELOPMENT
LOT 20
DIXON CIRCUIT
YARRABILBA

DISCUSSION PURPOSES ONLY
NOT FOR CONSTRUCTION

APPROVED FOR AND ON BEHALF OF FRIENDS CIVIL ENGINEERING PTY LTD

R.P.E.Q No :	PROJECT TEAM
HEIGHT DATUM	DESIGNER
GRID	CHECKER
ORIGINAL SHEET SIZE	APPROVED
AHD	GH/TM
LOCAL	AR
A1	GH

Friends Civil Engineering Pty Ltd
ABN 40 638 121 132
p. 0415 704 063 & 0422 024 440
e. contact@friendsengineer.com
w. friendsengineer.com

Gold Coast Mail
PO Box 94
WEST BURLEIGH QLD 4219
Ballina Mail
PO Box 7111
EAST BALLINA NSW 2478

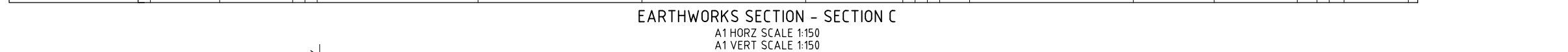
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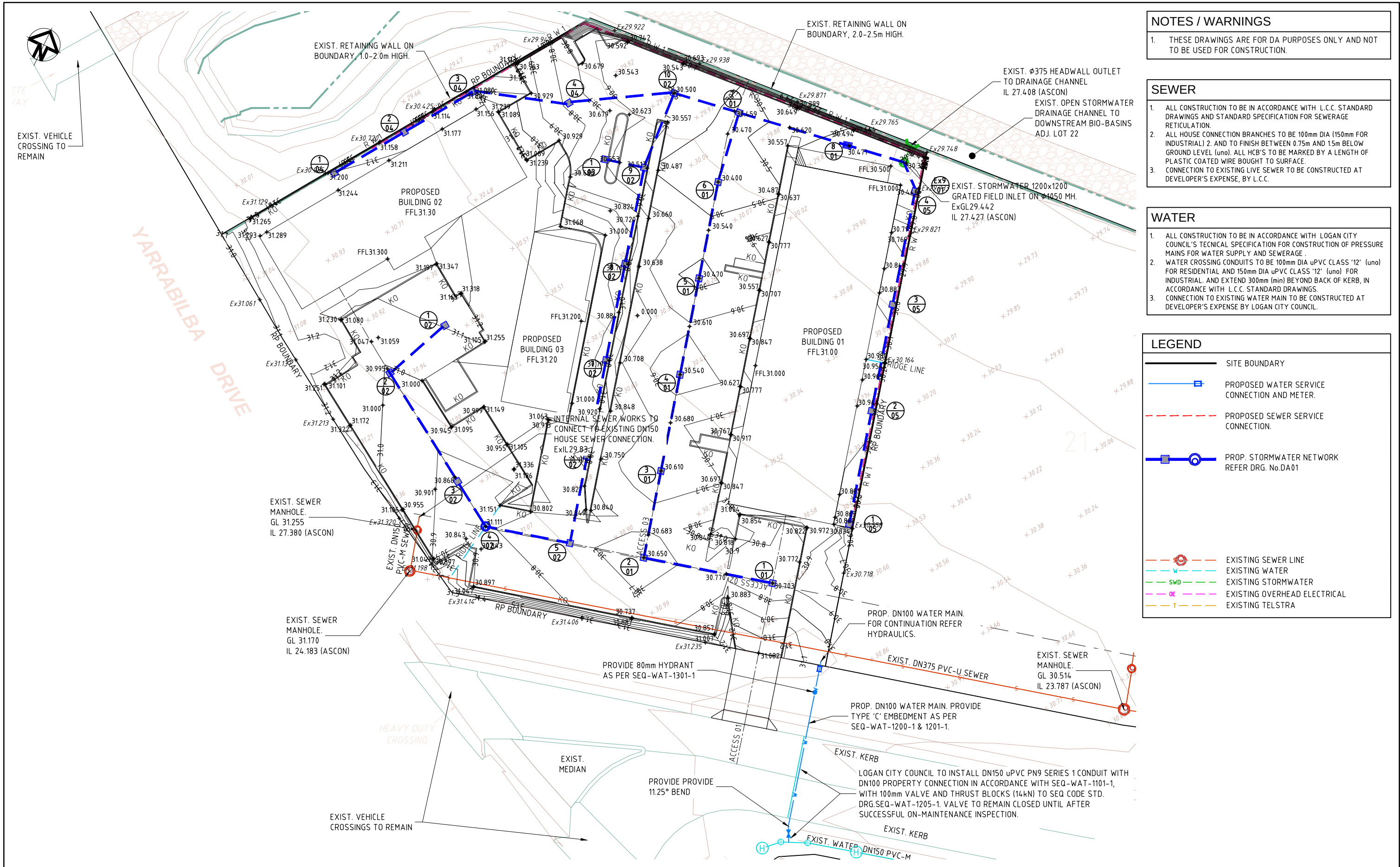
BULK EARTHWORKS
LAYOUT PLAN

PROJECT No.	DRAWING No.	ISSUE
FE22140	DA02	[02]

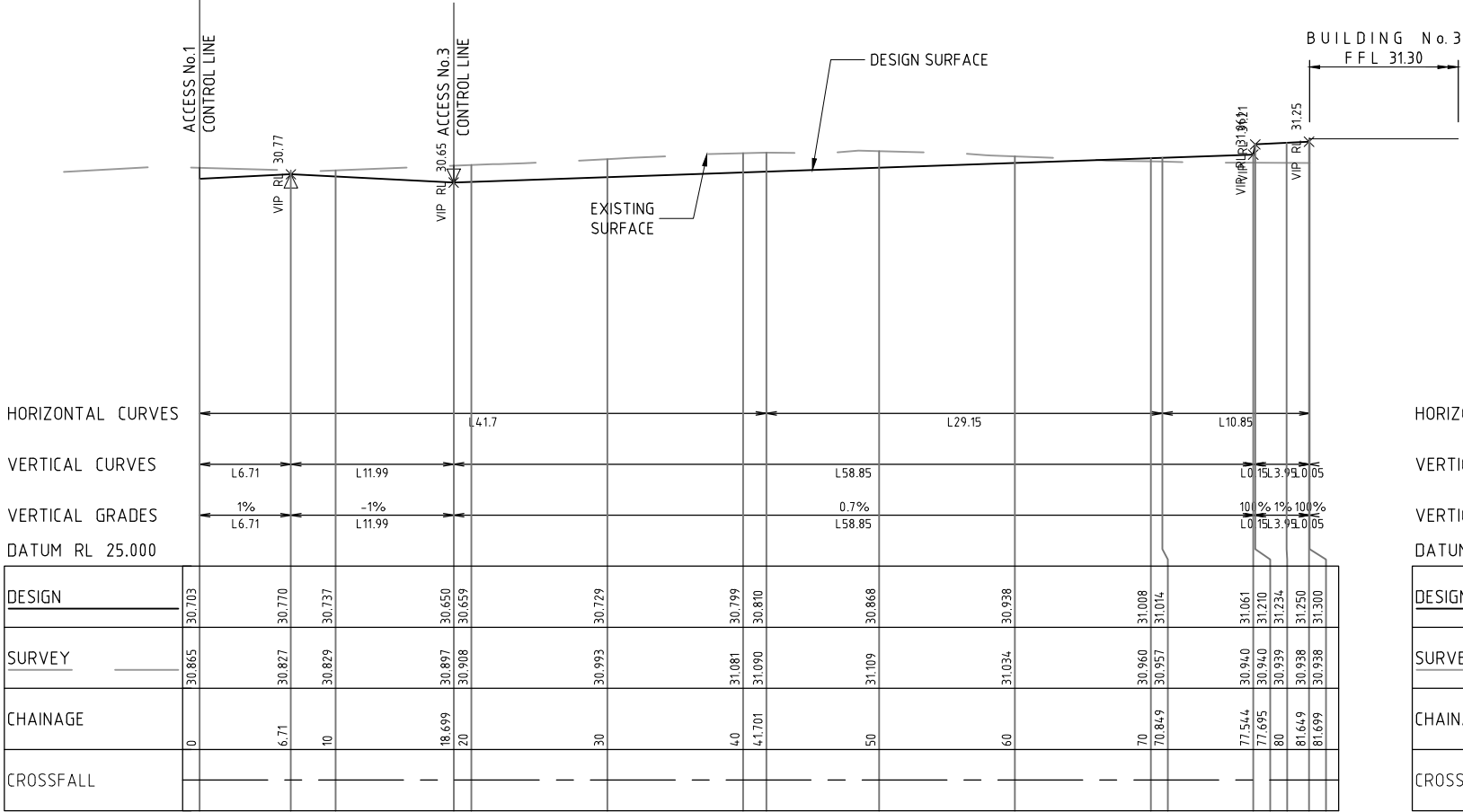
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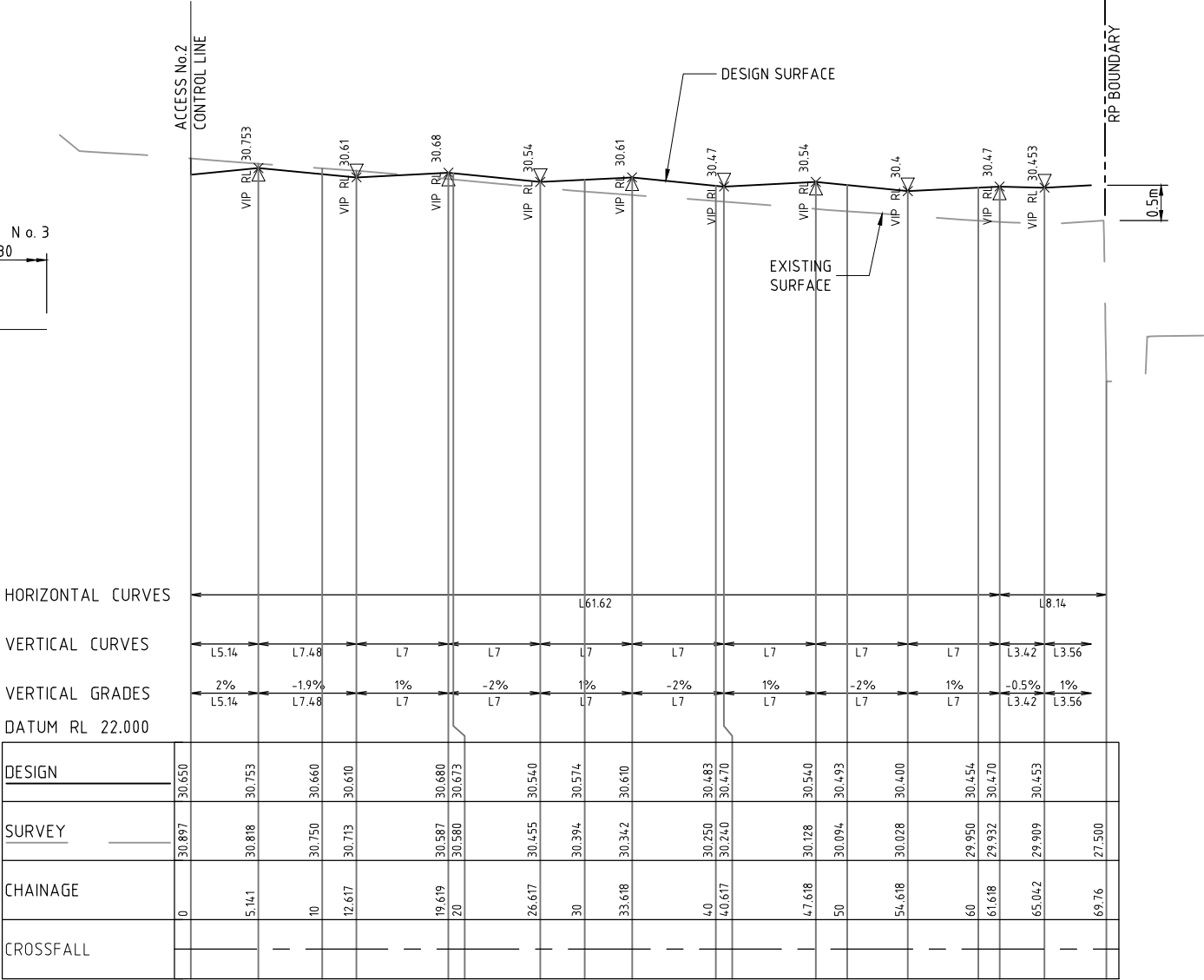
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				ARCHITECT		SURVEYOR		CLIENT:		DISCUSSION PURPOSES ONLY NOT FOR CONSTRUCTION		DRAWING TITLE:	
								Mr NIKUNJ PATEL C/- ZONE PLANNING		APPROVED FOR AND ON BEHALF OF FRIENDS CIVIL ENGINEERING PTY LTD		SEWER AND WATER SERVICES PLAN	
				SCALE				PROJECT TITLE:		R.P.E.Q No :		PROJECT TEAM	
								COMMERCIAL DEVELOPMENT LOT 20 DIXON CIRCUIT YARRABILBA		HEIGHT DATING		DESIGNER GH/TM	
										GRID LOCAL		CHECKER AR	
										ORIGINAL SHEET SIZE		APPROVED GH	
												FILESNAME: DA05-FE22140 - SEWER AND WATER SERVICES PLANDWG	
												PROJECT No.	
												DRAWING No.	
												ISSUE	
												FE22140	
												DA05	
												[02]	



ROAD ACCESS 02 - LONGITUDINAL SECTION
A1 HORZ SCALE 1:250
A1 VERT SCALE 1:50



ROAD ACCESS 03 - LONGITUDINAL SECTION
A1 HORZ SCALE 1:250
A1 VERT SCALE 1:50

[02] RE-ISSUE

[01] ORIGINAL ISSUE

ISSUE

DESCRIPTION

BY

DATE

ARCHITECT

HAMILTON HAYES HENDERSON ARCHITECTS PTY LTD
140 Parry Road, Southport, Gold Coast 4215, AUSTRALIA
P.O. Box 708 SOUTHPORT PARK, 4215 GARDENLANDS, AUSTRALIA
t: (07) 5528 0088 w: hhh.com.au e: Architects@hhh.com.au

SCALE

1 0 1 2 1:50

5 0 5 10 1:250

SCALES SHOWN ARE AT A1 SIZE

SURVEYOR

CLIENT:

Mr NIKUNJ PATEL
C/- ZONE PLANNING

PROJECT TITLE:

COMMERCIAL DEVELOPMENT
LOT 20
DIXON CIRCUIT
YARRABILBA

DISCUSSION PURPOSES ONLY
NOT FOR CONSTRUCTION

APPROVED FOR AND ON BEHALF OF FRIENDS CIVIL ENGINEERING PTY LTD

R.P.E.Q No : 22508

PROJECT TEAM

HEIGHT DATUM AHD

DESIGNER GH/TM

GRID LOCAL

CHECKER AR

ORIGINAL SHEET SIZE A1

APPROVED

GH

Friends Civil Engineering Pty Ltd
ABN 40 638 121 132
p. 0415 704 063 & 0422 024 440
e. contact@friendsengineer.com w. friendsengineer.com

Gold Coast Mail
PO Box 94
WEST BURLEIGH QLD 4219
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DRAWING TITLE:

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PROJECT No.

DRAWING No.

ISSUE

FE22140

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Bushfire Hazard Assessment

APPROVED



**Bushland Protection
Systems**
Specialising in
**BUSHFIRE HAZARD
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ABN 97 782 336 595

Phone: 07 5546 7933

Fax: 07 5546 7988

PO Box 40, Ormeau, Qld, 4208

E-mail: admin@bpsfire.com.au

**SUB-PRECINCT SPECIFIC
BUSHFIRE HAZARD ASSESSMENT
AND MITIGATION PLAN**

FOR

**LOTS 15 – 18 & 20-22
SUB-PRECINCT 3D
YARRABILBA**

PREPARED BY

BUSHLAND PROTECTION SYSTEMS PTY LTD

FOR

LEND LEASE

DATE: 23rd September, 2020.

1. Background

A Bushfire Mitigation Plan is designed to identify and minimise the potential bushfire risk to a given property and to help property owners to minimise bushfire risk to themselves, their property and their neighbours, although it will not completely eliminate that risk. Ultimately it is a community responsibility to protect the environmental values, life and property in their area.

This plan is a Sub-Precinct Specific Plan for Lots 15-18 & 20-22, Sub-Precinct 3D of Yarrabilba, produced in accordance with:

- State Planning Policy 7/17 (SPP7/17) including the December 2019 support documents, under the planning Act 2009.
- The Context Bushfire Hazard Assessment and Mitigation Plan for Precinct 3 of Yarrabilba produced by Bushland Protections Systems, dated 2/4/16.
- This report also takes into consideration the 'Pre-Development Bushfire Mitigation Concept' Plan prepared by Bushland Protection Systems, dated 30/1/12.

This plan is based on the following material supplied by Lend Lease, and several site visits.

- 1.1. A copy of the Yarrabilba Precinct 3 Context Plan, Supplied by Lend Lease, drawing no. YAR_P03_PCP180803, dated 3/8/18, is included as Appendix 1A in this report.
- 1.2. A copy of the Bushfire Plan, drawn by Lendlease, drawing no. YAR-PO3D-ROL2-BFP-200907, dated 7/09/20, is included as Appendix 1B in this report.

2. Description

The overall Yarrabilba site has been used as a pine plantation in the past with operations ceasing some 21-22 years ago with minimal management since that time, creating considerable pine regrowth, grass and weed growth. Some areas have been hazard reduced by the local Rural Fire Brigade from time to time, although unauthorised ignitions have been responsible for the majority of fires on the site.

Sub-Precinct 3D consists of a retail/community/commercial infrastructure/mixed use area, which will be predominantly cleared for development, and open space areas including both managed and conservation. This report focuses on proposed Lots 15-18 & 20-22 as shown in Appendix 1B, with the predominant bushland exposures being the corridors to the north and east. To the west are the previously approved and developed allotments making up the rest of Sub-precinct 3D.

To the north of the allotments is a small area of open space that then adjoins the fauna corridor that runs east-west through Precinct 3 and connects to the National Park (Plunkett Conservation Park) to the east of Precinct 3. The unmanaged portions of the open space area and the fauna corridor will eventually consist of grassy eucalypt vegetation over slopes of up to 4 degrees. The corridor would be assigned a Vegetation Hazard Class (VHC) of 9.2 with associated fuel loads of up to 17.2t/Ha, over slopes of up to 4 degrees with an FFDI of 54, providing for a potential fire line intensity of up to 11,307kW/m equating to a Medium hazard rating.

Running north-south to the east of the proposed allotments is an open space waterway corridor to be retained predominantly as bushland. The corridor will vary in width from 130 to 250 metres and follows a shallow water flow path, with relatively level slopes of up to 5 degrees. The eventual bushland would be assigned a Vegetation Hazard Class (VHC) of 16.1 with associated fuel loads of up to 16t/Ha, over relatively level land up to 5 degrees slope with an FFDI of 54, providing for a potential fire line intensity of up to 10,438kW/m equating to a Medium hazard rating.

Between the allotments and the two corridors outlined above is an open space area which will be predominantly bushland with some managed areas as outlined further in this report. The retained bushland will also be assigned a Medium hazard rating unless otherwise managed as a buffer area as outlined in the report.

The power line easement area to the south is to be cleared and managed by regular slashing in accordance with the approved Concept BMP.

Table 1

POTENTIAL HAZARD CLASS	POTENTIAL FIRELINE INTENSITY
Not Bushfire Prone Area (Low)	<4,000 kw/m
Medium	4,000 to 20,000 kw/m
High	20,000 to 40,000 kw/m
Very High	>40,000 kw/m

The Bushfire Hazard Mapping also incorporates a 100 metre Potential Impact Buffer meaning that any land within 100 metres of a Potential Bushfire Hazard is also assigned the same rating as that bushland and triggers the Bushfire Code if Medium, High or Very High. Whilst having the same distance for all three levels of hazard is not considered a fit for purpose application, it is unfortunately what is legislated at this current time. Therefore, proposed Lots 16-18 & 20-22 would be subject to a bushfire hazard rating being within the potential impact buffer zone, while Lot 15 would be assigned a Low hazard rating.

Appendix 1B provides a visual representation of the Potential Impact Zone for allotments requiring bushfire measures.

3. Appropriate Building Location & Managed Buffers

As the site is relatively level to undulating topography, there are no significant steep slopes causing buildings to be located along ridgelines or the like. The developable area is on the lower slopes, where future buildings will not be exposed to significant upslope bushfire approach.

The SPP 7/17 with support documents, requires a separation between hazardous bushland (Medium, High or Very High hazard rated bushland) and buildings to be sufficient to achieve a 29kW/m² or less radiant heat flux rating, when assessed in accordance with the methodology outlined in the Bushfire Resilient Communities 2019 support document. For this application that distance would be 17 metres separation.

In the event the land use involves a Vulnerable Use, Community Infrastructure or Hazardous Materials, the required minimum separation increases to achieve a 10kW/m² or less radiant heat flux rating, when assessed in accordance with the methodology outlined in the Bushfire Resilient Communities 2019 support document. For this application that distance would be 40 metres separation.

Appendix 1B shows the 100m potential impact zone measured from the proposed edge of unmanaged hazardous bushland (outer northern and eastern extent of impact zone). Both the 17 metre and 40 metre separations are also shown in Appendix 1B, measured from the proposed edge of unmanaged bushland, demonstrating the minimum separation required dependant on the proposed land use.

With the separation distances adhered too, future buildings would achieve what is considered a tolerable risk level in accordance with the SPP 7/17 - Bushfire Resilient Communities 2019 support document

4. Roads and Fire Trails

The main road (Yarrabilba Drive) along the southwest side of Lots 15-17 provides access to the north, with access also provided to the east via Fauna Way on the southern side of Lot 17, and also future access to the south. The internal road is a loop road, mostly sheltered from bushland exposure, except for adjacent to Lot 17 and provides direct road frontage for the proposed allotments. It is considered unlikely for access/egress to be denied due to a bushfire event due to multiple access/egress route and managed areas.

A fire trail is proposed around Lots 18 & 20-22 providing vehicle access between these allotments and unmanaged bushland.

Fire trails would be low impact preferably with a mowed or slashed surface which would minimise disturbance or erosion, have a maximum grade of 25% and maximum cross slope of 5%. Fire trails are to have a minimum cleared width of 6 metres and minimum formed width of 4 metres. Where fire trails deviate away from lot boundaries the area between the trail and lot boundary must be managed with low fuel levels so as not to compromise the buffer function that fire trails provide in addition to vehicle access. Appendix 4 on fire trails is included in this report as a guide on establishing and maintaining fire access trails.

5. Appropriate Building Construction

The bushfire provisions of the National Construction Code (NCC) are applied to Class 1, 2 & 3 buildings and associated Class 10a buildings, located in designated bushfire prone areas. “Designated bushfire prone area means land which has been designated under a power in legislation as being subject, or likely to be subject, to bushfires” (*NCC Schedule 3 Definitions*).

Sub-Precinct 3D is a retail/community/commercial infrastructure/mixed use area, therefore it is not expected that there will be any Class 1, 2, 3 or associated 10a buildings in Sub-Precinct 3D and as such the bushfire provisions of the NCC, including AS3959-2018 are not applicable to the future buildings in Sub-Precinct 3D.

6. Appropriate Clearing and Landscaping

The proposed allotments are to be maintained with low ground fuel levels at all times and may include domestic gardens/landscaping, lawns with grass kept under 100mm in height and scattered trees with discontinuous canopy.

The areas shown as Potential Impact Zone outside the proposed allotments are proposed to be managed areas, including to the east of Lot 17, between Lot 18 & 22, and north of Lots 20-22. These areas are to be managed equivalent to an outer Asset Protection Zone (APZ) as outlined in Appendix 2 of this report. Slopes within these managed areas, including any batters, are to be less than 25% (1:4) to allow for management. Responsibility for management will rest with the landowner.

The retained bushland along the fauna corridor and waterway corridor are to be managed by the removal of weed species and control of non-endemic grass growth. All slash pine is to be removed from the site including within the retained bushland areas and future regrowth slash pine is also to be removed.

As a guide to landscaping and gardening in a bushfire prone area, the document 'Landscaping for Bushfire' produced by the CFA Victoria, is a useful guide on plant selection, garden design and ongoing maintenance. It can be found at <https://www.cfa.vic.gov.au/plan-prepare/landscaping>.

The power line easement area to the south is to be cleared and managed by regular slashing in accordance with the approved Concept BMP.

Fibrous bark trees, such as melaleuca, swamp mahogany and stringy bark, have a tendency to increase ember attack during a bushfire, due to the fire running up the tree trunk and burning bark breaking off, creating large quantities of airborne burning embers. Ribbon bark tree species (trees that shed their bark in long strips) are also an issue, significantly increasing the potential for spot fires. For this reason, tree species with these bark types should not be used as revegetation/rehabilitation/regeneration plantings in urban interface areas.

In bushland areas, the areas around the fringes of the bushland and along fire trails have a tendency to have increased ground fuel loading, as a result of increased sunlight penetration producing better growing conditions for grass and weeds (known as 'Edge Effects'), which can have an adverse impact on the local ecosystem and safety issues for fire suppression personnel during unplanned fire events. These non-endemic grasses penetrate into the edges of the retained bushland, creating conditions for high intensity fire which damages the edges of the bushland, opening up the canopy which then allows more sunlight in and promotes grass and weed intrusion further into the bushland. This cyclic process has the effect of decreasing the size of quality bushland and increasing grass and weed dominated areas. The most cost effective way to control grass and weed growth is to create a good closed in canopy cover, which will shade out the undesirable species. The control of fuel loads along the edges by regular mowing, brush cutting or in some cases poisoning may be suitable. Areas with a build-up of volatile fuel levels along the open edges of bushland, where full sunlight is available, can be where the most damage is inflicted on the bushland during a bushfire.

For optimal bushfire safety and best practise, the required vegetation management practises for allotments must be established during operational works and maintained by the developer until sold.

All land under the control of the developer is to be managed to control ground fuel levels and prevent uncontrolled regrowth, in areas identified as developable in accordance with the Pre-development Bushfire Mitigation Concept plan dated 30/1/12.

7. Provision of Adequate Water Supplies

The area of the proposed development is to be serviced by reticulated water supplies with the inclusion of fire hydrants for firefighting purposes. These services are to comply with the relevant standards as required by the local authorities, including a minimum pressure and flow of 10 litres per second at 200kPa.

8. Provision of Fire Fighting Infrastructure

Buildings are to have external taps and hoses (or hose reels) that are positioned so water supply can reach to all parts of the buildings. All water lines are to be covered by at least 300mm of soil or be of metal above ground. Occupants should maintain good access around their buildings for fire suppression activities by fire authorities.

9. Local Fire Brigades

The subject property is currently in the Tamborine Rural Fire Brigade district and they would be responded on a 000 emergency call, with back-up from Logan Village Rural Fire Brigade. If further back-up is required, additional units would be engaged by the Beaudesert/Logan Rural Fire Brigades Group. Urban fire appliances would be responded in the event of a structural fire or specialised structural protection being required.

In time as urban development progresses in this area it will most likely become the responsibility of the Urban Fire Service.

10. Improved Community Awareness

Managing ground fuel in small pockets of bushland at the interface between urban development and bushland (Izone) is the easiest way of reducing bushfire hazard, particularly the removal of non-endemic grass and weeds.

Bulk hazardous materials, including fuels, explosives and flammable chemicals are generally not to be manufactured or stored above ground within 100 metres of Medium hazard rated bushland.

The Bushland open space is a very sensitive ecosystem and could be altered drastically if not cared for properly. The community can assist in maintaining this fragile ecosystem by preventing unwanted fires from encroaching into the parkland, ensure that dumping of rubbish does not degrade the area and that exotic plant species do not invade the bushland. Hot fires on a regular basis will degrade the bushlands biodiversity.

11. Conclusion

This plan is a Sub-Precinct Specific Plan for Lots 15-18 & 20-22, Sub-Precinct 3D of Yarrabilba, produced in accordance with:

- State Planning Policy 7/17 (SPP7/17) including the December 2019 support documents, under the planning Act 2009.

- The Context Bushfire Hazard Assessment and Mitigation Plan for Precinct 3 of Yarrabilba produced by Bushland Protections Systems, dated 2/4/16.
- This report also takes into consideration the 'Pre-Development Bushfire Mitigation Concept' Plan prepared by Bushland Protection Systems, dated 30/1/12.

With the appropriate management of the allotments and APZs, adequate water supply, good access provisions and minimising of ground fuels, the risk of bushfire damage can be managed and improve the safety of the community and fire services in attending to a bushfire threat, as well as maintaining the localised ecosystems.

This plan should remain current for a period of 5 years, until 2025, at which time it should be subject to review to take account of changing land use and vegetation patterns. Any major bush fire event affecting the subject site should also trigger a review in order to determine effectiveness of protection measures and annual hazard reduction initiatives.

Ultimately, persons living or operating in a bushfire prone area must take the precautions necessary to protect themselves, their families/staff, and their buildings if Brigades are stretched and are unable to attend immediately.

If you require any further assistance, please do not hesitate to contact this office.



C. L. Bain
Principal Consultant.

- LEGEND

YARRABILBA SITE BOUNDARY

PRECINCT THREE BOUNDARY

NEIGHBOURHOOD CENTRE

RESIDENTIAL

URBAN RESIDENTIAL

EDUCATIONAL ESTABLISHMENT

RETAIL/COMMUNITY/COMMERCIAL, MIXED USE & MULTI RESIDENTIAL

INFRASTRUCTURE & EMPLOYMENT

FAUNA CORRIDOR (ENVIRONMENTAL PROTECTION)

ENVIRONMENTAL PROTECTION

PARK

MAJOR SPORTS PARK

OPEN SPACE EXTERNAL TO PRECINCT 3

NEIGHBOURHOOD RECREATION PARK & 400m RADIUS LOOP

DISTRICT RECREATION PARK & 400m RADIUS LOOP

ELECTRICITY EASEMENT

LANDSCAPE BUFFER

SOUTHERN INFRASTRUCTURE CORRIDOR

PRIMARY MOVEMENT NETWORK

SECONDARY MOVEMENT NETWORK

BUS ROUTE

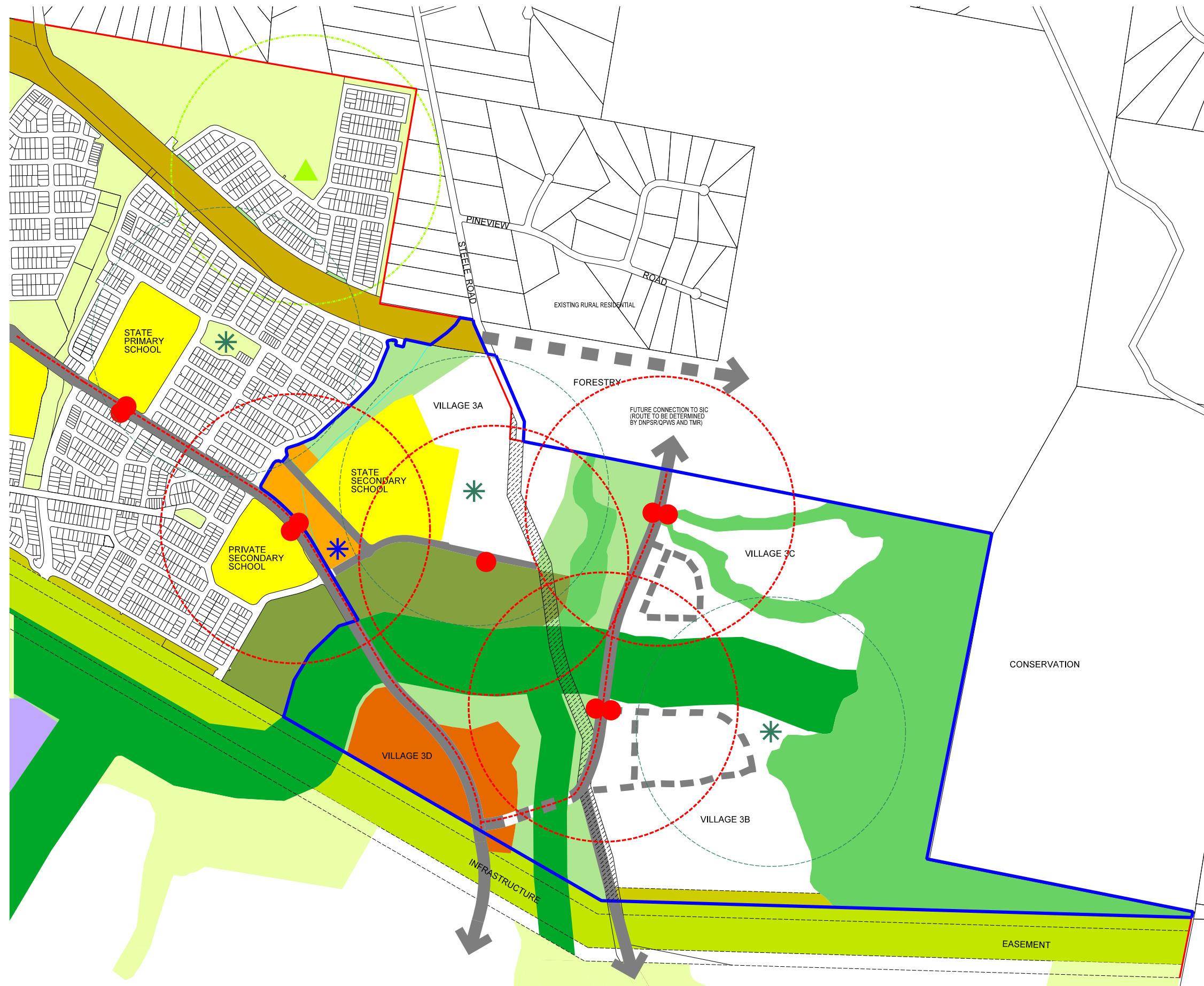
INDICATIVE BUS STOPS AND 400M RADIUS

ROAD TO BE CLOSED

TOTAL PRECINCT AREA	254 ha
GROSS RESIDENTIAL AREA	67ha
Approx 950 lots at an average density of 15dw/ha	
COMMUNITY FACILITIES	2.55ha
STATE SECONDARY SCHOOL	12.0ha
OPEN SPACE	157.0ha
ROAD	7.0ha

DISCLAIMER
The context plan is intended to guide development within the Yarrabilba Precinct Three area and show the preferred land use designations and structural elements. The context plan does not prescribe these designations and structural elements with complete accuracy and the final location will be determined through further detailed design and development applications.

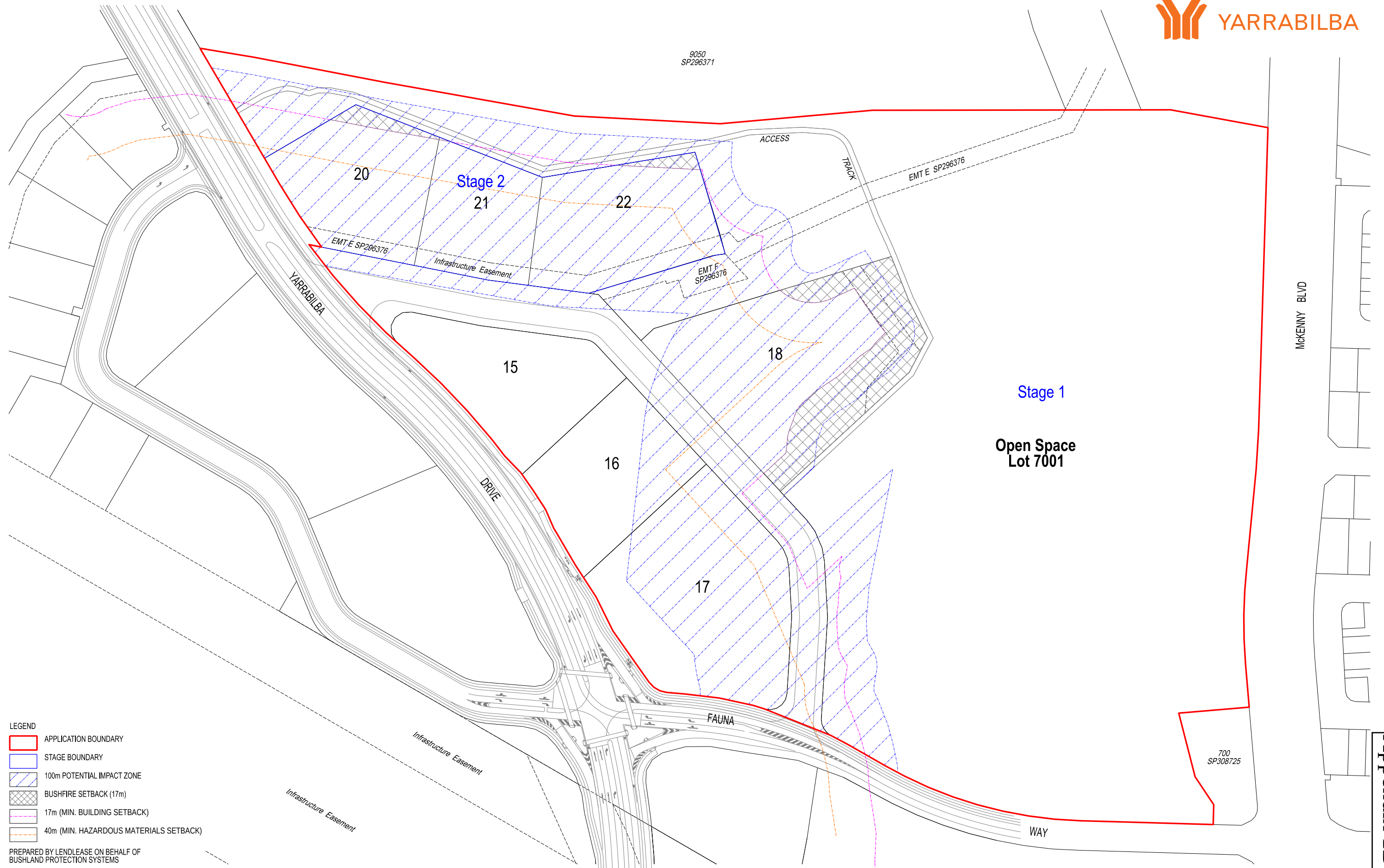
NOTES
The contents of this plan are conceptual only. All areas are approximate only and subject to relevant studies, survey, engineering and relevant authority approvals.



YARRABILBA - PRECINCT THREE CONTEXT PLAN

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- LEGEND**
- APPLICATION BOUNDARY
 - STAGE BOUNDARY
 - 100m POTENTIAL IMPACT ZONE
 - BUSHFIRE SETBACK (17m)
 - 17m (MIN. BUILDING SETBACK)
 - 40m (MIN. HAZARDOUS MATERIALS SETBACK)

PREPARED BY LENDLEASE ON BEHALF OF
BUSHLAND PROTECTION SYSTEMS

PRECINCT 03D - ROL 2 BUSHFIRE PLAN

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0 20 40 60 80 100m
Scale 12,000 at A3



APPENDIX 2

Asset Protection Zones

Appendix 2 on Asset Protection Zones (APZs) is included in this report as a guide on how to implement and maintain Asset Protection Zones.

What is an APZ

Generally buildings or infrastructure located in a bushfire prone area are required to have a minimum separation between the buildings/infrastructure and the unmanaged hazardous bushland (hazardous bushland being bushland assigned a Medium, High or Very High bushfire hazard rating). This separation is known as an Asset Protection Zone (APZ) and is also sometimes referred to as a Radiation Zone or bushfire buffer.

The Asset Protection Zone can include roadways, fire trails, car parking, driveways, active park and managed areas (i.e. lawns and correctly designed landscaping). For example on rural allotments the APZ would most often be provided by managed areas with a Low hazard rating (lawns and gardens), whilst in an area of small residential allotments adjacent to large areas of bushland the APZ may consist of a roadway or fire trail possibly supplemented by managed areas within the allotments.

An APZ provides an area for bushfire impact mitigation and a defensible space for active fire suppression. An APZ;

- Allows the radiant heat from a bushfire in adjacent bushland to at least partially dissipate before impacting on buildings or infrastructure, thereby mitigating the bushfires impact on the asset
- Reduces the chance of direct flame contact on buildings
- Usually includes vehicle access or firefighter pedestrian access
- Provides an area of defensible space around the asset, allowing firefighters room to work safely and defend structures during direct, indirect and defensive suppression strategies
- Provides a work area and break for hazard reduction burning activities to be conducted, if desirable.

Dimensions of APZs

Often the APZ will be split into two zones, an 'inner APZ' and 'outer APZ', particularly where the APZ is a managed vegetation area. As a general rule of thumb the first ten metres around the building would be an inner APZ while the remainder of the required separation would be an outer APZ, however the exact dimensions are those stipulated in the bushfire mitigation plan, not the generalised examples stated in this appendix, as it may vary depending on individual site conditions. The dimensions may vary depending on site factors, for example with a building on a slope, the APZ may be less on the upslope side of the building than on the downslope side. A change in vegetation type or size of vegetation area that the building is exposed to may also vary the dimensions of the APZ. An extended outer APZ is also sometimes used to extend the outer APZ in consideration of slope. The extended outer APZ is usually managed the same as the outer APZ.

Slopes in APZs

Generally APZs require ongoing vegetation management and therefore need to be located where management can be physically possible. APZs on public land should not include slopes with a grade greater than 1:4, on private land APZs should avoid slopes greater than 1:3. For example; where a roadway (including road verge) provides the required separation, the road verge cannot consist of a batter greater than 1:4. Where a retaining wall is located within an APZ, access to all levels need to be provided permitting management of the entire APZ.

Vegetation in APZs

It should be noted that APZs do not necessarily call for complete clearing of all vegetation, as tall canopy tree retention, for example, is a common feature within outer APZs. The management of fuel levels within these zones is designed to reduce the intensity of bushfires before the bushfire impacts on assets such as buildings and property. The correct and continued maintenance of fuel levels within a buildings APZ may result (depending on factors such as terrain, fuel types and climatic conditions) in reduced flame height, a slowing of the rate of spread of the fire and a reduced risk of direct or radiant heat attack on buildings and other property assets.

The following is a guide for vegetation within APZs, however where there is an inconsistency between the main body of the Bushfire Mitigation Plan (BMP) and this Appendix, the requirements of the BMP applies.

The inner APZ;

- Trees have less than 15% canopy cover at maturity and canopy is discontinuous.
- Trees do not touch or over hang buildings.
- Near surface fuels (shrubs, ground covers) are not to be planted underneath tree canopies, are less than 300mm in height and have less than 10% plant cover.
- Lawns/grass is kept to less than 100mm height.
- No accumulated Leaf litter or fallen timber.

An example of 15% canopy – If the tree species being used have a maximum 5 metre diameter canopy at maturity then there could be up to one tree per 130m².

The outer APZ;

- Trees have less than 30% canopy cover at maturity.
- Trees do not touch or over hang buildings.
- Near surface fuels (shrubs, ground covers) are not to be planted underneath tree canopies, are less than 300mm in height and have less than 20% plant cover. Gaps between fuel patches are greater than the size of the patches.
- Lawns/grass are kept to less than 300mm height.
- No fallen timber.
- Leaf litter is not allowed to accumulate to more than 5t/Ha (10mm deep).

An example of 30% canopy – If the tree species being used have a maximum 5 metre diameter canopy at maturity then there could be up to one tree per 65m².

General for both zones;

- No mulch, woodchip, bark or leaf litter build-up against structures or flammable fencing.
- Shrubs and ground covers should not be species that accumulate a lot of dead fuel underneath.
- Creepers used as ground cover must not be climbers.
- Creepers should be low broadleaf succulents, such as *Myoporum ellipticum*.
- Tree selection is not to include fibrous bark trees or ribbon bark trees.
- Tree species have a well-defined trunk with upper canopy, not short bushy trees with foliage from ground to canopy, providing ladder fuels. Trees have branches lower than two metres removed, providing separation between canopy and ground fuels.
- Weed growth is removed.

The above criteria for an outer APZ, would approximately allow up to 8t/Ha overall fuel load in the outer zone.

Plant/Canopy cover is defined as the amount of ground blocked out by that fuel layer if viewed while looking straight down from above. Each plant is considered opaque – any ground within the perimeter of the plant cannot be seen.

Pebbles, gravel or scoria may be useful substitutes for garden mulch. Pathways and gravel areas in addition to lawn can assist in separation of plantings resulting in less continuity of fuels.

How to select the correct plant species for APZs

In selecting the correct plant species to use for landscaping in a bushfire prone area, consideration needs to be given to plant moisture content, branching patterns, texture, foliage density, leaf type, bark type, retention of dead material, and presence of oils, waxes and resins.

As a guide to landscaping and gardening in a bushfire prone area, the document 'Landscaping for Bushfire' produced by the CFA Victoria, is a useful guide on plant selection, garden design and ongoing maintenance. It can be found at <https://www.cfa.vic.gov.au/plan-prepare/landscaping>. Section 5 of the document provides a good description of the above characteristics and which are good or bad, and Section 7 of the document provides a plant selection key, which is a step by step guide on how to select plants based on those characteristics and should be used when choosing what plants to have in APZs.

There are a number of different terms used to identify suitable plants, some of the more common ones include Fire Resistant, Fire Retardant and Firewise. Not all of these are correct and such plant lists are often confused by some as to their purpose.

'Fire Resistant Plants' is a term that describes plant species that survive being burnt and will regrow after a bushfire. They are resistant to being killed by a bushfire, but not to being burnt. Therefore they may be highly flammable and inappropriate for bushfire risk areas. You can often find lists of 'Fire Resistant Plants' being used for the wrong purpose due to people not understanding this, so beware, it doesn't not necessarily mean low flammability.

‘Fire Retardant Plants’ can be confused by some as being plants that will not burn. All plants will burn under the right conditions, so don’t be misled. Plants with low flammability are good, but can still burn, which is why positioning, planting density and ongoing management is also just as important.

‘Firewise Plants’ is the term used in the ‘Landscaping for Bushfire’ document to describe suitable lower flammability plants.

Other Features within APZs

Non-flammable features such as tennis courts, in-ground swimming pools, dams, driveways, paved or concreted areas, uncovered patios and non-combustible water tanks may be located within the APZs. (Note: a timber deck around a pool, is not non-flammable and if connected to the building is part of the building.)

Retaining walls and Fencing within APZs should preferably be non-flammable.

Piles of timber, fire wood and other flammable material should not be stored within the APZ unless shielded from bushfire.

Management of APZs

Management requirements in the APZ include:

- Tree branches below two metres being removed.
- Selective removal of tree saplings.
- Fallen Timber, bark and twigs being removed.
- Leaf Litter being controlled to the appropriate level, which can be achieved by raking or using a blower/vac.
- Removing of weed growth regularly, especially woody weed.
- Regular mowing, slashing or grazing.
- Trimming back of shrubs and ground covers
- Regular watering to keep lawns and vegetation lush and green at all times, particularly during drought, when fires are more likely to happen.
- If poisoning is used, ensure dead material has time to collapse and begin to rot prior to the onset of fire season and not provide standing dead material as fuel for a potential bushfire.

Ongoing management of vegetation in the APZ is just as critical as getting the right type of plants and correct landscape design.

Building construction ratings (or BALs) are calculated with consideration of the amount of separation between the building and hazardous bushland. Not properly maintaining the APZ separation may mean the designated construction of the dwelling is not sufficient and could compromise building survivability in the event of bushfire. This could also lead to issues with insurance claims in the event of building damage or loss.

APPENDIX 3

Being Prepared

Knowing how to prepare your property for bush fire, both pre-fire and during a fire, can assist in protecting people and property. It can also alleviate a lot of the stress and panic and the feeling of helplessness that is commonly felt by the inexperienced and by the ill-prepared.

It is generally accepted that South East Queensland does not experience the same degree of extreme fire conditions as the southern states of New South Wales, Victoria and South Australia. Having said this it is also accepted that this State's bushland experiences a relatively regular fire regime. From time to time conditions may occur that will institute a serious and potentially destructive fire. These conditions can be recognised and precautions taken. It must be remembered that during extreme fire conditions the fire services may be stretched to the limit and may not be able to respond immediately to your particular emergency. Fire trucks and fire fighters are a limited resource so it is important that they are deployed in an appropriate manner to best manage the fire. The Queensland Fire and Rescue Service do not guarantee a fire truck will be available to defend every structure during a large bushfire. So it would be desirable to be as prepared and self-reliant as possible to protect yourself, your family and your assets. It is not difficult if appropriate preparation is undertaken and the following information is provided to be of some assistance.

1. Conditions that may lead to a Serious Fire:

- 1.1. Higher than average air temperatures for prolonged periods.
- 1.2. Large and very dry fuel loads.
- 1.3. Prolonged dry spell with little or no rain resulting in low soil moisture content.
- 1.4. Very low relative humidity, ie. there is very little moisture in the air.
- 1.5. Strong and gusty winds, usually from the north through to the west contribute to increased fire hazard. The longer these winds continue the drier the conditions become, and the higher the risk of serious fire.

Observation of local weather conditions past and present will give the best indication of the potential intensity of a fire at any given time or place.

Notification of potential bushfire conditions are available from the Queensland Rural Fire Service and Local Brigades, in the form of Fire Danger Ratings often seen on roadside signs, Advice Messages, Watch and Act Messages and Emergency Warnings. More information on these information sources, where to find them and what they mean, is available on the Rural Fire Service Website www.ruralfire.qld.gov.au or through the local Fire Brigade.

2. Basic Fire Behaviour.

Having some idea of what a fire is likely to do in your local area, will help you make the right decisions and give you the confidence to deal with an approaching fire if necessary. Following are some basic fire behaviours.

- 2.1. Fire will travel faster and hotter uphill. The steeper the slope the faster the rate of spread, in some cases allowing little time to react. The speed of a fire will double for every 10 degrees of upslope.
- 2.2. Fire will usually travel relatively slower down hill even with reasonably high fuel loads, which will give more time to prepare. The speed of a fire will halve for every 10 degrees of down slope.
- 2.3. A fire will generally travel faster and at higher intensities with a wind behind it. The stronger the wind, the faster the rate of spread. Likewise a fire will slow considerably when burning against the wind in some cases it may even go out.
- 2.4. The fire will usually burn at a higher intensity and spread faster during the hottest times of the day and tend to slow down considerably as the evening approaches and air temperatures drop.
- 2.5. The greater the supply of dry ground fuel available to the fire, ie. grass, dry leaf litter, hanging bark and twigs, the greater the intensity of the fire. If the ground fuel is minimised the intensity of the fire reduces considerably and so does the personal risk and the potential for damage.
- 2.6. If ground fuels are kept relatively low the chances of a fire progressing into the treetops (crown fire) would be considerably reduced within the Queensland coastal bushlands. For a fire to progress into the tree tops ground fuels and elevated fuels must be present providing a 'ladder' of fuels from ground level to tree top. Control of these fuels is the best way of minimising fire intensity and therefore limiting the destructiveness of a bushfire.

Talk to neighbours that have been present during previous bushfires or consult the local Fire Brigade to develop an understanding of usual fire behaviour for your specific location.

3. Preparing for the bushfire season.

Most cases of damage to property are caused by radiated heat, direct flame contact or most commonly by burning debris or sparks landing in, on, or around buildings and starting small spot fires which if not attended to may destroy the property long after a fire front has passed. There are many steps that should be taken prior to the onset of a fire season to help protect your property.

- 3.1. Keep ground fuel cleared from around buildings such as long dry grass, branches, dead leaves, bark and thick undergrowth.
- 3.2. Remove elevated fuels, such as hanging bark and fallen debris hung up on lower branches.

- 3.3. Ensure fire breaks/trails/buffers are checked and maintained, even a well-watered lawn can be an effective firebreak.
- 3.4. Flammable material around buildings should be kept well clear, such as firewood piles, rubbish, fuels, hazardous materials, plant pots, boxes, paper, patio and garden furniture.
- 3.5. Ensure flammable materials are not stored in open areas under the building.
- 3.6. Make sure that rainwater gutters are kept clear of leaf litter build-up. Consider a method of blocking off down pipes so gutters can be filled with water during a fire to extinguish sparks landing in gutters. There are commercially made products available or you can create your own.
- 3.7. Make sure that the roofing is well secured, as winds created during a fire may lift roofing and allow the entry of burning embers into the roof space. Also clear any leaf litter or debris build-up from roof areas.
- 3.8. All windows and vents should be screened with fine wire mesh and all roof areas closed in to prevent entry by sparks.
- 3.9. Ensure gas tanks have their emergency relief valves facing away from the building (this includes barbeque bottles).
- 3.10. Make sure of reserve water supplies. Power frequently fails during a fire. If petrol or diesel pumps are available make sure they and associated hoses and fittings are in good working order.
- 3.11. Ensure your bushfire survival kit is up to date and complete.

The Queensland Fire and Rescue Service provide detailed lists for preparation prior to fire season and what to do during a bushfire event. This information can be found at www.ruralfire.qld.gov.au or obtained from your local fire brigade.

4. Green Fire Breaks

Added protection from bushfire can be achieved by establishing green fire breaks which include green lawns, trees arranged to create a shield to catch sparks or fire brands or the expanding of tropical rainforest species. Excess rainwater or tertiary treated waste water could be stored and used for this purpose during dry periods to maintain the green fire breaks. Trees and shrubs not subject to drought stress will cope better during bushfires. The higher the moisture content in the plant the slower it burns. Therefore by keeping the surrounding area green and low in dry ground fuel, the intensity of an approaching fire will be reduced and the risk of spot fires minimised.

5. Personal Protection

- 5.1. If you plan to evacuate, make sure you do so early, long before the fire front arrives. Evacuating at the very last moment results in the majority of deaths at bushfires. People remaining to fight the fire need to be physically and mentally fit to do so.

5.2. Those staying to protect the property should make sure they protect themselves from radiant heat, flying embers, smoke and most importantly heat stress.

Protection measures should include the following:

- Long trousers and long sleeve shirt made of wool, denim or cotton (no synthetics)
- Woollen socks and sturdy work boots for foot protection
- Goggles for eye protection
- A good pair of work gloves to protect hands from burns
- A smoke mask or a damp cloth (non-synthetic), to cover your nose and mouth to protect you from inhaling smoke and embers.
- Have plenty of drinking water available to protect against dehydration (not refrigerated as this can cause cramping).

5.3. During the fire

When a fire is approaching and given that you have already carried out your pre-fire precautions, established adequate buffers, implemented mitigation measures and established the degree of risk to your property, protection from the actual fire should be relatively straight forward.

5.3.1. Dress in the appropriate clothing and be sure to drink water regularly.

5.3.2. Fill up bathtubs, sinks, buckets, laundry tubs etc. in case of blackouts.

5.3.3. Close doors and windows.

5.3.4. Close gaps under doors and windows with wet towels.

5.3.5. Block up down pipes, wet down roof, walls and gardens, paying particular attention to the side the fire is approaching from.

5.3.6. Have a battery-powered radio on hand to listen for information about the fire's progress from local radio stations.

5.3.7. Patrol your property while the fire is approaching and take shelter inside as the fire front passes. Then continue patrolling the property for many hours after it has passed, to ensure that any spot fires or smouldering debris do not get a chance to develop into a major fire, paying particular attention to the roof cavity of your buildings. Smouldering embers have been known to start fires hours or even days after the initial passing of the bushfire front.

The Queensland Fire and Rescue Service provide detailed lists for preparation prior to the arrival of a bushfire and what to do during a bushfire event. This information can be found at www.ruralfire.qld.gov.au or obtained from your local fire brigade.

6. Further Information?

The local fire brigade is a good source of local district knowledge, they also have pamphlets and literature produced by the Queensland Fire and Rescue Service available. Most brigades will also be happy to advise local residents.

The information provided above is only a basic guide. Further and more details information is available from the Queensland Fire and Rescue Service. It would be recommended that residents in bushfire prone areas prepare a 'Bushfire Survival Plan', which is available from the Queensland Rural Fire Service website at www.ruralfire.qld.gov.au. The 'Bushfire Survival Plan' document provides information on Bushfire Danger Ratings, Community Warning Information, how to prepare your property, what to do in the event of a bushfire and what to expect. The Bushfire Survival Plan should be updated annually. Further information is also available through the Prepare•Act•Survive brochure also available on the Rural Fire Service website. For further information contact your local Fire Brigade for assistance or phone 1300 369 003.

APPENDIX 4

Recommendations for Fire Trails

Fire trails can be a very effective tool in the management of bushland, for weed control, hazard reduction requirements, prescribed burns and fire suppression activities. A good well maintained trail network can effectively enhance and maintain desired ecosystems, while providing added safety for the protection of life and property. The following is some ways in which fire trails can be constructed and maintained to improve their viability.

1. Fire trails should preferably be constructed to a cleared width of 6 metres and a formed width of 4 metres, and be able to be negotiated by light and medium 4 wheel drive fire appliances.
2. They should preferably have a maximum gradient of 25%, a maximum cross slope of 5%, avoid large cut and fill and avoid sharp corners.
3. Fire trails up to 25% can be of compacted earth surface designed with water shedding devices, such as pipes under trail, woa boys or change of gradients, to prevent washouts or gouging of slopes. It would also be advantageous in some cases if grass coverage can be established, which with periodic slashing or mowing will assist in preventing washouts.
4. Fire trails should have access at each end and multiple access/egress points where possible.
5. Fire tails are to have passing and turn around areas at maximum intervals of 400 metres.
6. Periodic management of ground fuel levels along the edges of fire trails should be implemented to at least one metre each side to improve accessibility during a fire event.
7. Trees alongside fire trails should have low branches removed to a height of 2 metres to assist in preventing fire from climbing into treetops. Branches overhanging fire trails should be removed to a minimum height of 4 metres to ensure access by fire vehicles.
8. Fire trails should be inspected each year prior to fire season, to ensure their condition and carry out remedial work if required.
9. Dead or dying trees that are close to fire trails and may pose a risk to fire services should be removed.
10. Fire trails should not be seen as fire breaks. They are an aid in the management of fuel levels and fire suppression activities.
11. Fire trails should be identifiable to land managers and fire services by signage and map records. Where a fire trail network exists, intersections should also be identifiable.



Bushland Protection Systems

Specialising in

**BUSHFIRE HAZARD
PLANNING & MITIGATION**

ABN 97 782 336 595

Phone: 07 5546 7933

Fax: 07 5546 7988

PO Box 40, Ormeau, Qld, 4208

E-mail: admin@bpsfire.com.au

Fire is a part of nature. Its effects can be catastrophic and fire can never be totally eliminated, however there are steps that can be taken to reduce the chances of uncontrolled fires occurring and the risk to life, property and the environment, in the event of uncontrolled fires. This is what we concentrate on, how the threats from bushfire can be minimised. There are many methods to do so, however deciding which method/s is best to use can be a complex decision to make. There are so many factors to consider such as ecological values, biodiversity, fire history, availability of resources, cost effectiveness and public awareness just to name a few. No guarantees can ever be given when dealing with Mother Nature, with ever increasing complexities it has now become a specialist field to be able to create plans to try and minimise the risk from bushfire. Ultimately it is a community responsibility to protect the environmental values, life and property in their area

COMPANY PROFILE

Bushland Protection Systems Pty Ltd (BPS) is a leading Bushfire Management Consultancy firm in Queensland, with many clients, ranging from private landowners to multi-national companies and Government bodies.

BPS consultants began operating as Bushfire Management Consultants with the introduction of the Gold Coast Bushfire Management Strategy in 1998 and spread their operations across the state with the implementation in 2003 of the State Planning Policy for mitigating the adverse impacts of flood, bushfire and landslide.

During that time over 3400 projects have been successfully completed, including large residential estates such as Coomera Waters, Spring Mountain, Pacific Pines, Coomera Springs, Observatory, Highland Reserve, Delfin Woodlands & Yarrabilba as well as commercial or Government project sites such as Paradise Country, Wacol Police Academy, Numinbah Correctional Facility, Silkwood Steiner School, Canon Hill Community Links Project & Griffith University.

With a strong background in bush fire fighting and involvement with numerous industry bodies, Bushland Protection Systems continues to deliver realistic and cost effective advice and solutions to provide higher levels of safety for the community, improve wildfire suppression and mitigation options for emergency services and land managers, while maintaining and improving environmental values for the future.

Our Consultants are registered with the Rural Fire Association of Queensland (RFAQ) as Level 2 Accredited Bushfire Practitioners.

Traffic engineering report

SUPPORTING DOCUMENT



Traffic Engineering

Proposed Commercial Development
At Lot 20 Dixon Drive, Yarrabilba

On behalf of National Footprints Pty Ltd



About TTM

T:
F:
E:



Acoustics



Data



Traffic



Waste

Revision Record

No.	Author	Reviewed/Approved	Description	Date
1.	J Smith	R V Jones	RP01	23.01.23
2.	H Yesudas	I Blackburn RPEQ 16879 	RP02	18.07.23
3.	H Yesudas	I Blackburn RPEQ 16879 	RP02v2	26.07.23
4.				
5.				

Contents

1	Introduction	4
1.1	Background	4
1.2	Scope	4
1.3	Site Location	4
1.4	Development Profile.....	6
1.5	Access	6
1.6	Parking.....	6
2	Existing Transport Infrastructure	7
2.1	The Road Network.....	7
2.2	Public and Active Transport	7
3	Parking Arrangements	9
3.1	Site Car Parking Supply	9
3.2	Persons With a Disability	9
3.3	Car Park Layout	10
3.4	Drive - Through	10
3.5	Cycle Parking Requirements	11
4	Road Network Performance.....	12
4.1	Impact on the Local Road Network	12
5	Site Access Arrangements	13
5.1	Queuing Capacity	13
5.2	Sight Distances	13
6	Service Vehicle Arrangements.....	15
6.1	Council Requirements	15
6.2	Refuse Collection.....	15
7	Summary and Conclusions	16
7.1	Development Summary	16
7.2	Car Parking Arrangements	16
7.3	Impact on Surrounding Road Network	16
7.4	Service Vehicle Arrangements	16
7.5	Active Transport Facilities	16

7.6	Conclusion	16
Appendix A	Proposed Site Development Plan	17
Appendix B	Vehicle Swept Paths	18

Table Index

Table 1-1: Proposed land uses	6
Table 2-1: Local Road Hierarchy.....	7
Table 3-1: Parking Supply Requirement.....	9
Table 3-2: Parking Design Requirements	10
Table 5-1: Access requirements – entry and exit to main car park.....	13
Table 6-1: Minimum Service Vehicle Requirements	15

Figure Index

Figure 1.1: Site Location.....	5
Figure 1.2: Site Area.....	5
Figure 3: Yarrabilba PDA Proposed Transport Network (Source: Yarrabilba PDA Development Scheme)	8
Figure 5.1: Proposed Sight Distances.....	14

1 Introduction

1.1 Background

TTM Consulting has been engaged by National Footprints Pty Ltd to prepare a traffic engineering report investigating a proposed mixed commercial development. It is understood that a Development Application will be lodged with the Logan City Council.

1.2 Scope

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

- Parking supply required to cater for development demand
- Parking layout to provide efficient and safe internal manoeuvring
- Identification of likely traffic volumes and traffic distribution from the future development
- Identification of likely traffic impact of development on the public road network
- Access configuration to provide efficient and safe manoeuvring between the site and the public road network
- Suitability of access and internal facilities to provide for pedestrian and cyclist operation
- Access to suitable level of public transport

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

- The Economic Development Queensland (EDQ) Yarrabilba Priority Development Area (PDA) Development Scheme
- Precinct 03D – Reconfiguration of a Lot 2 - Plan of Development (DEV2020/1145)
- The Logan City Council Planning Scheme (2015 version 8.1), specifically:
 - Servicing, Access and Parking Code (Section 9.4.7 of the Planning Scheme)
- Australian Standard 2890

1.3 Site Location

The site is located at Lot 20 Dixon Drive, Yarrabilba, QLD 4207, as per the approved Reconfiguration of a Lot DEV2020/1145. The Lot is zoned as Industry and Business within the Yarrabilba Priority Development Area. Figure 1.1 and Figure 1.2 detail the location of the site. The site has road frontages to Yarrabilba Drive, and Dixon Drive, and is currently unoccupied.

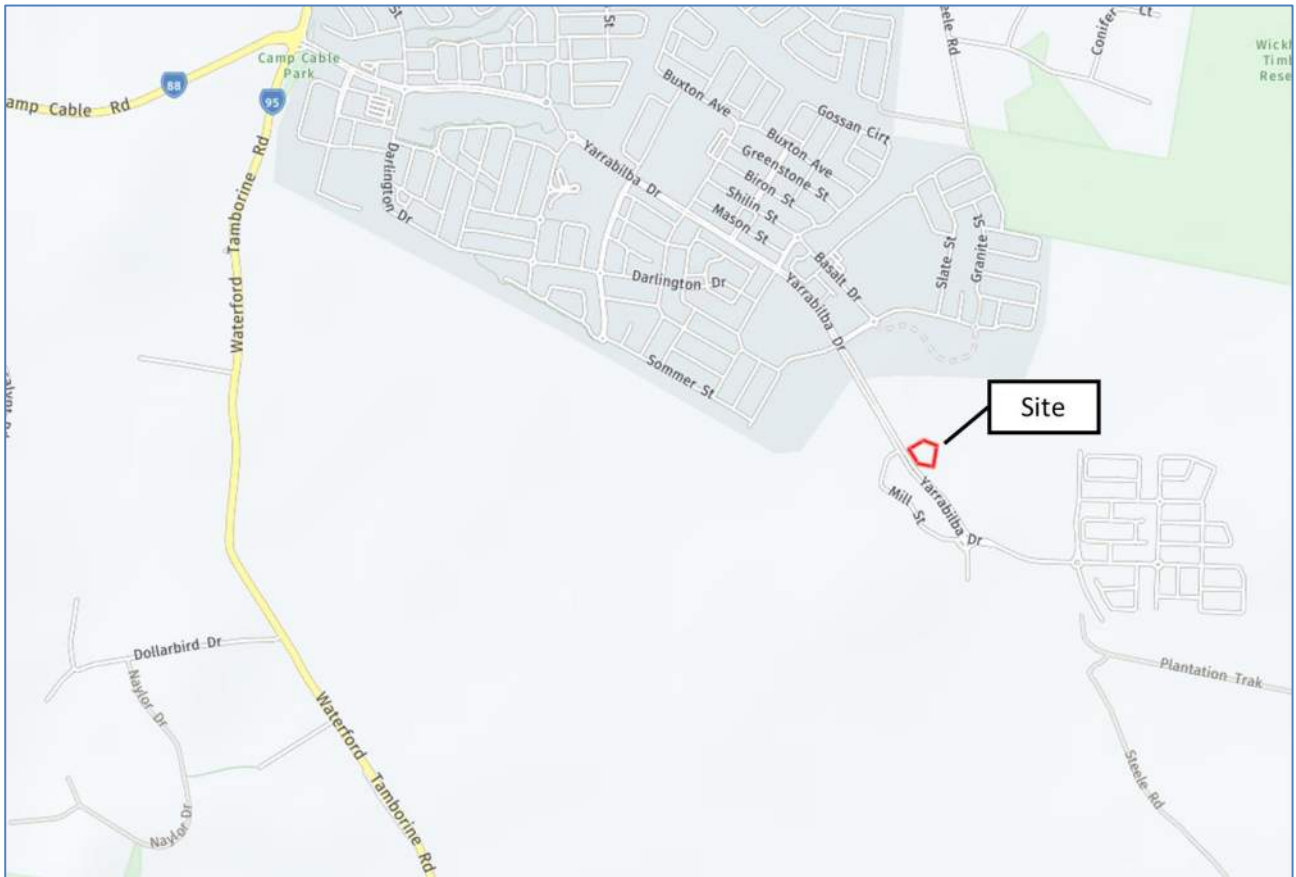


Figure 1.1: Site Location



Figure 1.2: Site Area

1.4 Development Profile

The proposed land uses for this development are summarised in Table 1-1.

Table 1-1: Proposed land uses

Land Use	Extent
Food and Drink Outlet	547.6 m ² GFA and 107.6 m ² GFA outdoor seating area
Showroom	1124.0m ² GFA
Office	483.0m ² GFA

1.5 Access

The development plan includes the following access arrangements:

- Dixon Drive, located at the south-eastern side of the subject site. The characteristics of this access include:
 - 6.6m wide at the property boundary.
 - All turns permitted.
 - 38m from intersection of Yarrabilba Drive / Dixon Drive

1.6 Parking

The development proposal includes the following parking supply:

- 85 spaces, at ground floor, including:
 - 83 standard spaces
 - 2 PWD spaces

2 Existing Transport Infrastructure

2.1 The Road Network

Roads in the immediate vicinity of the site are administered by the Logan City Council (LCC). The hierarchy and characteristics of roads in the immediate vicinity of the site are shown below in Table 2-1.

Table 2-1: Local Road Hierarchy

Road	Speed Limit	Lanes	Classification	Road Authority
Dixon Drive	50kph	2 (undivided)	Local Road	LCC
Mill Street	50kph	2 (undivided)	Local Road	LCC
Yarrabilba Drive	60kph	4 (divided)	Local Road	LCC

Dixon Drive has a 11.5m wide carriageway at the site frontage where current access is located.

2.2 Public and Active Transport

Buses

The site is connected by bus to central Logan. There are two sets of bus stops respectively 300m south, and 700m north of the site along Yarrabilba Drive. The stops are serviced by route 587, which provides hourly services from Yarrabilba through Waterford, and Loganlea hospital, TAFE, and heavy rail station.

Future bus services and networks within and through Yarrabilba are expected to be provided as the suburb is developed in accordance with the Yarrabilba PDA Development Scheme. The Development Scheme shows that multiple bus services throughout the area are expected to be implemented as per Figure 3.

While public transport within the area is currently limited, TTM consider future availability of public transportation provisions in the vicinity of the site can satisfy the site's requirements for such facilities.

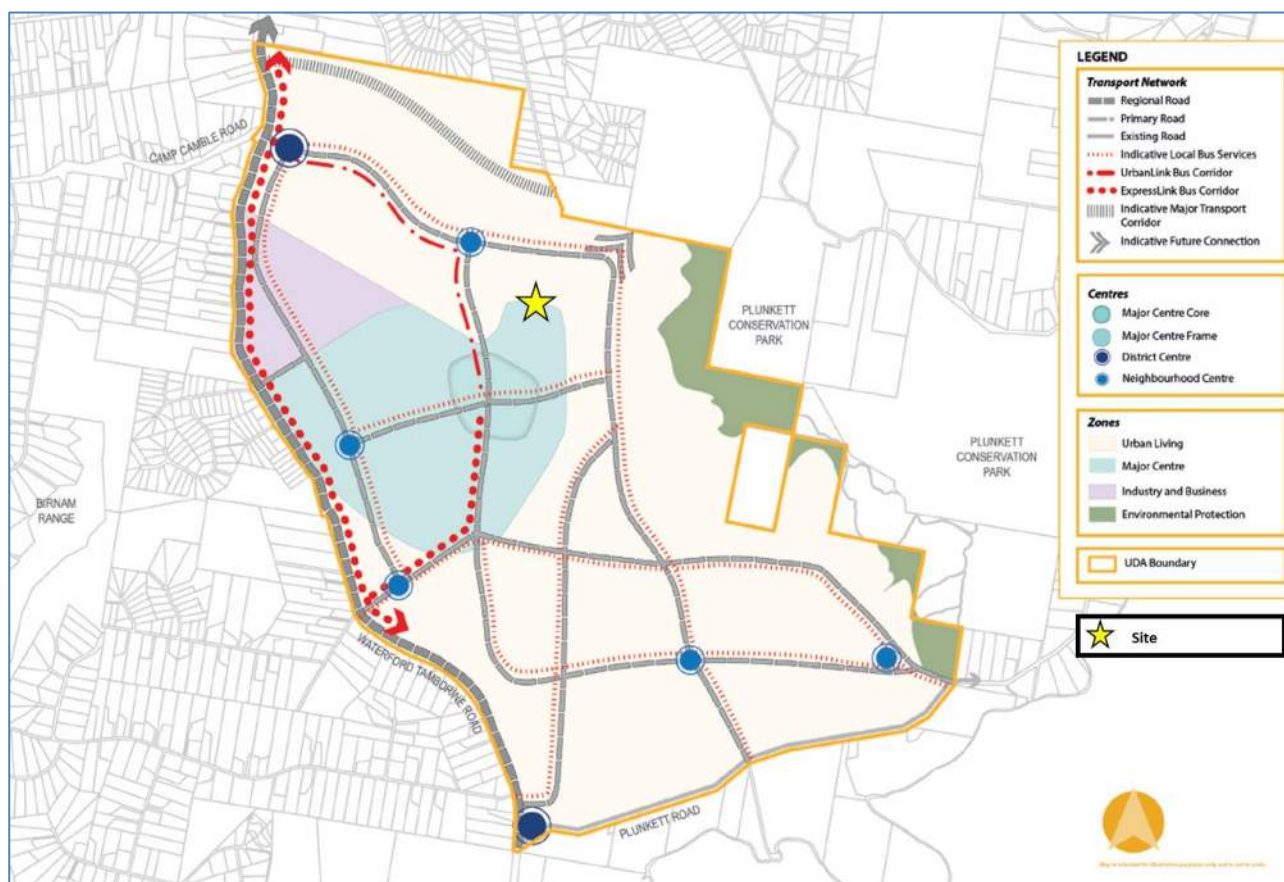


Figure 3: Yarrabilba PDA Proposed Transport Network (Source: Yarrabilba PDA Development Scheme)

Pedestrians

Formal pedestrian footpaths are located on both sides of Dixon Drive and Yarrabilba Drive.

A signalised pedestrian crossing at the Yarrabilba Drive / Mill Street intersection allows for the crossing of Yarrabilba Drive.

The existing footpath network is considered suitable to cater for the needs of the development as it connects the site to the surrounding locality and public transport stops.

Internally, the site facilitates pedestrian movement through a network of pedestrian pathways that connect all buildings. Ramps are provided near all major parking space groups. The layout of the internal pedestrian network mean that pedestrians are conveniently directed to and from all parking spaces, requiring only to cross at most one internal low-speed (10km/h) parking aisle.

Cyclists

There are on-street bicycle lanes along Yarrabilba Drive, providing cycling connections to the surrounding locality. Cyclist access along Dixon Drive is to be via shared pedestrian pathways, which are present on both sides of the street.

3 Parking Arrangements

Council parking requirements for this type of development are identified in Table 3-1. The development is zoned within Precinct 03D, and council parking provisions are as per Table 1 of the Plan of Development (DEV2020/1145). Where parking rates were not specified by land use (office, shop), reference has been made to table 9.4.7.3.2 of the Logan Planning Scheme.

Table 3-1: Parking Supply Requirement

Land Use	Extent	Parking Rate	Requirement
Fast food premises	655.2m ² GFA	1 space per 10m ² of GFA up to 200m ² GFA, thereafter 1 space per 20m ² GFA thereafter	42.8 spaces
Showroom	1124.0m ² GFA	1 space per 35m ² GFA	32.1 spaces
Office	483m ² GFA 1 st Floor	1 space per 20m ² of GFA of any storey at ground level; plus 1 space per 30m ² of GFA of any other storey with a minimum of 4 spaces; plus 2 visitors' spaces	16.1 spaces 2 visitor spaces
Subtotal			93 spaces
Linked Trips 10% Reduction			-9.3 spaces
Total			84 spaces

3.1 Site Car Parking Supply

Logan City Council and EDQ's parking rates for the site require 93 parking spaces. The site proposes providing 85 parking spaces to meet this requirement. It is acknowledged that this is a shortfall of 2 parking spaces, however as per Section 3.3.11 of the PDA, this is considered acceptable based on anticipated shared parking spaces within the site. Of note, EDQ indicated an openness to explore a minor parking reduction for the site as indicated in pre-lodgement meeting advice PRE2022/601.

The proposed fast-food tenancy area (building-3) offers a drive – through option for customers. The proposed site complies with minimum queuing capacity requirement for a drive through. As per the enclosed swept paths, the site provides 10 additional queuing spaces from the order point clear of circulation and the property boundary.

Due to the food and drink outlet (drive-through facility) land use as a part of the site, it is likely that some visitors would visit for multiple land uses (i.e. shop and food and drink, or office and food and drink). As such, it is proposed that a 10% reduction in parking requirement is appropriate to capture this shared parking behaviour.

3.2 Persons With a Disability

The Building Code of Australia (BCA) outlines the requirements for parking for people with a disability (PWD). BCA specifies that for a development containing the proposed land uses, the site is to provide 1 space for every 50 parking spaces or part thereof.

The development provides 2 PWD spaces and as such is compliant with the BCA.

3.3 Car Park Layout

Table 3-2 identifies the characteristics of the proposed parking area with respect to the Council requirements. The last column identifies the compliance of each design aspect. Where compliance with Council is not achieved, further information is provided below.

Table 3-2: Parking Design Requirements

Design Aspect	Minimum AS2890.1 Standard	Proposed Provision	Compliance
Parking space length: – Standard bay – PWD bay	5.4m 5.4m	5.4m 5.4m	Compliant Compliant
Parking width: – Standard bay – PWD bay	2.5m 2.4m	2.6m 2.4m	Compliant Compliant
Aisle Width: – Parking aisle/ Circulation aisle	5.8m	6.5m	Compliant
Parking envelope clearance – space adjacent to wall	Space 0.3m clear of wall	Space 0.3m clear of wall	Compliant
End of Aisle extension	1.0m	1.0m	Compliant
Wheel stops	820mm from front of parking space	820mm from front of parking space	Shall comply
Maximum Gradient: – Parking bay – Parking aisle – Ramp (private)	1:20 (5.0%) 1:16 (6.25%) 1:4 (25%)	Flat Flat Flat	Compliant Compliant Compliant
Height Clearance – Drive-through	2.2m	3.0m	Compliant

3.4 Drive - Through

The drive-through is located on the eastern side of the site within the tenancy of Building 3.

Circulation of the drive-through is to occur anti clockwise through the site. Signage at the site entry will be required to direct traffic to the drive-through. 'No entry' signage will be needed at the southern end of the drive-through.

Two waiting bays are provided after the drive-through's order window. Both waiting bays comply with AS2890.1:2004 regarding their dimensions as parallel parking bays. The bays are considered short-term, and high turnover and are only accessible by visitors utilising the drive-through. As such, they have been excluded from general parking provision calculations.

3.5 Cycle Parking Requirements

Within the site itself, off-street bike parking requirements are as per note (i.) of the Precinct 03D Plan of Development, which states 1 bike space is to be provided for every 5 car parking spaces. As 83 car parking spaces have been provided, a total of 17 bike parking spaces are to be provided.

These 17 bike parking spaces are to be provided in accordance with AS2890.3 geometric requirements, and are to be provided via:

- 13 Class 2 staff bike spaces within an enclosed shed near the site's access.
- 4 Class 3 visitor bike spaces via 2 ground-mounted hoop rings located within the site.

There are 18 class 2 parking spaces and 4 class 3 freely accessible parking spaces provided satisfying requirements.

4 Road Network Performance

4.1 Impact on the Local Road Network

The development proposes a GFA coverage of 28% of the site. EDQ has advised within pre-lodgement meeting advice, that GFA limits have not been exceeded within the site. As the GFA and associated site traffic generation of the site is within the limits prescribed by the masterplan's POD (DEV2020/1145), the impact on the local road network is accounted for within existing approved development.

5 Site Access Arrangements

It is proposed that the site be accessed via Dixon Drive.

The proposed entry / exit to the development from Dixon Drive is to be all movements. The proposed access driveway requirements are identified in Table 5-1.

Table 5-1: Access requirements – entry and exit to main car park.

Design Aspect	AS2890.1 Requirement	Proposed Provision	Compliance
Distance from another driveway	3m	>50m	Compliant
Distance from a minor intersection	6m (min) from tangent point.	34m	Compliant
Sight Distance - 50kph	Desirable – 69m Minimum - 45m	>100m to the east 73.9m to the west	Compliant Compliant
Driveway Design Type	2	2 (Type B - IPWEA RS-051)	Compliant
Width/ Entry and Exit Widths	6.0-9.0m	6.6m	Compliant
Queuing	4 vehicles (24.0m)	2 vehicles (12m)	Compliant
Pedestrian Sight Triangle	2.5m by 2.0m	2.5m by 2.0m	Compliant

5.1 Queuing Capacity

As per AS2890.1 - Table 3.3, the minimum queuing capacity for the development site needs to be 4 vehicles from the property boundary. The proposed site provides a queuing length of 12m (2 vehicles) from the property boundary to the first conflict point of parking.

TTM recommends allocating the first four parking spaces opposite the site entry to staff to limit turnover of these bays during peak periods.

5.2 Sight Distances

Sight distances from the proposed access are adequate to both the east and west. Figure 5.1 demonstrates the desirable sight distances to the east and west of Dixon Drive. It is also noted that sight distance to the direct west is to the intersection, where vehicles will be slower due to the entry turn into Dixon Drive. The western sight distance extends to 73.9m across the verge within the site's property boundary.

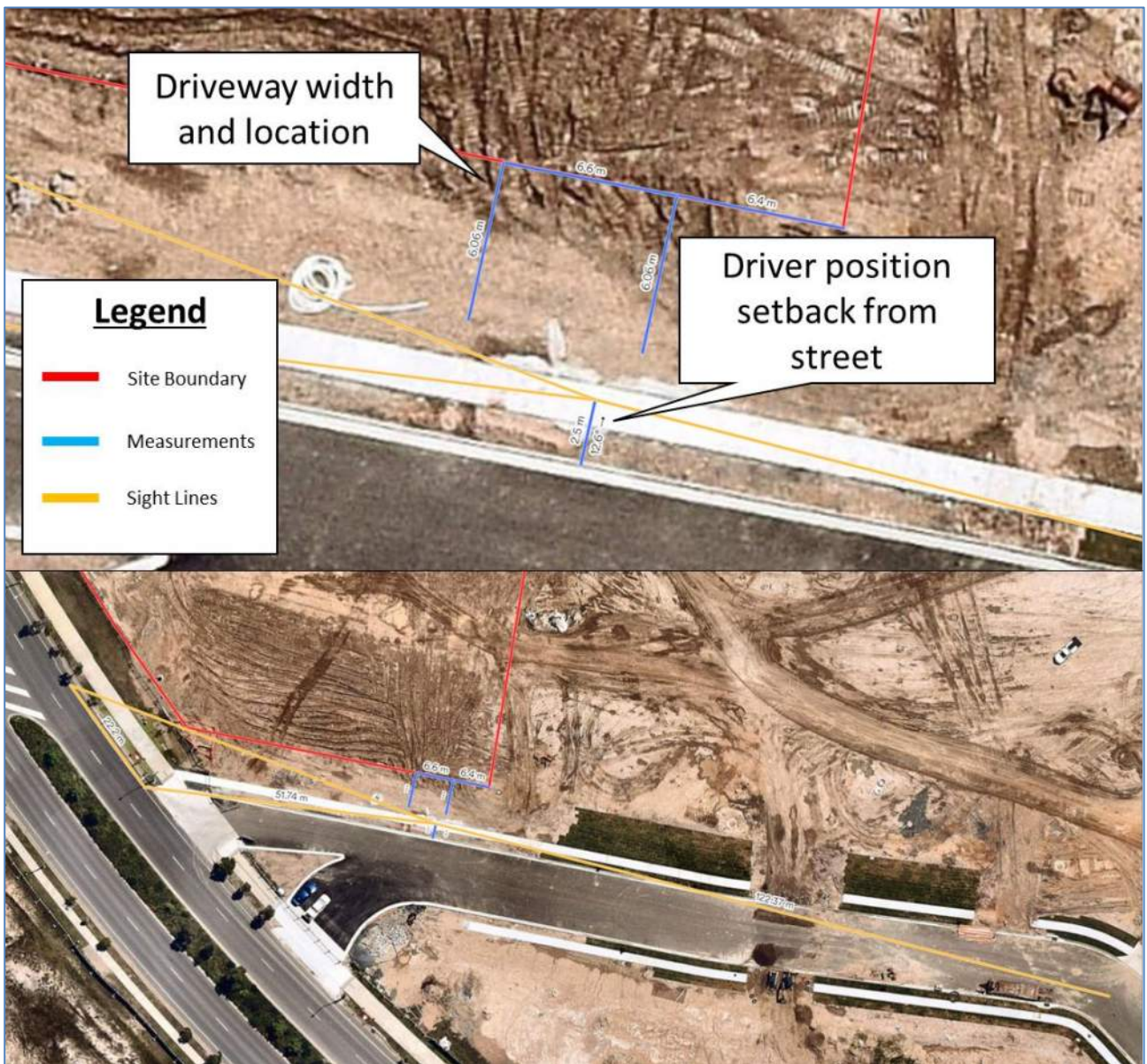


Figure 5.1: Proposed Sight Distances

6 Service Vehicle Arrangements

To assess the required number of service bays for the development, TTM has referred to the Logan City Council requirements for service vehicles as per Table 9.4.7.3.5 of the Planning Scheme. Other service vehicle provisions are generally in accordance with AS2890.2.

6.1 Council Requirements

The proposed development includes multiple land uses whose requirements are shown in Table 6-1.

Table 6-1: Minimum Service Vehicle Requirements

Use	Requirement
Food and drink outlet	MRV <200m ² GFA
Office	MRV <1000m ² GFA
Showroom	HRV

Buildings 2 and 3 are serviced by a Heavy Rigid Vehicle (HRV) service bay located next to the drive-through lane, north of building 3. Building 1 is to be serviced by an HRV at the service bay located at the eastern side of the development site.

Swept paths conducted by TTM (Appendix B) shows that a Heavy Rigid Vehicle (HRV) can service all buildings within the site with full manoeuvring on site.

This provision is deemed an appropriate outcome for the site as there are no industrial land uses that may require a larger class of service vehicle such as an Articulated Vehicle (AV).

6.2 Refuse Collection

Provision for a 10.3m Logan City Council Front Lift Refuse Collection Vehicle is implied by the provision for an HRV on site within the northern service area.

7 Summary and Conclusions

7.1 Development Summary

The mixed-use commercial development is to consist of multiple land uses, including offices, a fast-food premises, and showrooms. Access is to be provided via a new 6.6m wide driveway on Dixon Drive.

7.2 Car Parking Arrangements

The car parking provision, of 85 parking spaces, for the proposed development is considered suitable to cater for the needs of the proposed development due to the number of linked trip visitors expected.

The ground level car park layouts comply with Australian Standard requirements. Overall, TTM considers the proposed car parking arrangements for the development are to be adequate.

7.3 Impact on Surrounding Road Network

The site coverage of the proposed development indicates that the development is within the limits allocated to the master plan (DEV2020/1145).

7.4 Service Vehicle Arrangements

Council lists general requirements for service vehicles on site. The development accommodates an HRV service vehicle provision for all tenancies within the site. TTM considers that the proposed servicing provisions are sufficient to cater for the expected demands generated by the development.

7.5 Active Transport Facilities

The current public transport infrastructure and proposed site provisions for pedestrian/bicycle facilities are to be considered adequate for the development and is compliant with AS2890.3.

7.6 Conclusion

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

Appendix A Proposed Site Development Plan



MAXIMUM BUILDING HEIGHT 15.0m
PROPOSED BUILDING HEIGHT 10.6m

REQUIRED CAR PARKING 90 SPACES
PROVIDED CAR PARKING 85 SPACES

REQUIRED BIKE PARKING 26 SPACES
PROVIDED BIKE PARKING 26 SPACES

NLA INCLUDING COVERED LICENSED AREAS

FAST FOOD PREMISES 674.0m²

SHOWROOM 1124.0m²

OFFICE (LVL 1) 483.0m²

GFA

BLDG 1 1196m²

BLDG 2 1020m²

BLDG 3 247m²

LOT No. 20 ON SP331111

LOT AREA 6079.9M²

SITE COVER 32.3%

GREEN SPACE 582M²

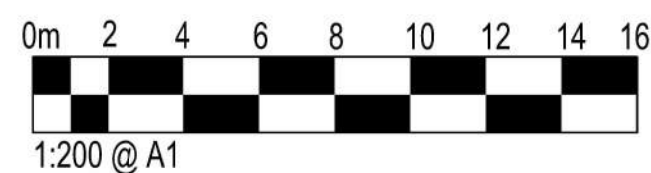
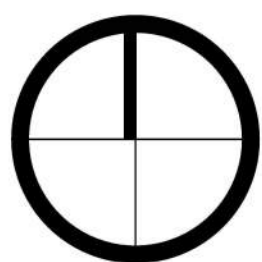
BUILDING FOOTPRINTS

BLDG 01 922m²

BLDG 02 736m²

BLDG03 308m²

TOTAL 1966m²



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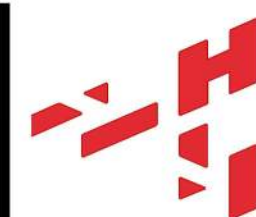
PROJECT

LOT 20 DIXON DRIVE, YARRABILBA

DRAWING TITLE

CONCEPT SITE PLAN

REV	DATE	BY	
H	09.06.23	RG	REVISED CARPARKING
G	01.06.23	RG	REVISED SITE DESIGN
F	13.04.23	RG	RFI RESPONSE
E	15.12.22	RG	APPROVAL ISSUE
E	24.11.22	RG	PRELIMINARY ISSUE
D	21.10.22	RG	PRELIMINARY ISSUE



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HAMILTON HAYES HENDERSON ARCHITECTS PTY LTD

ACN 910283282

143 Ferry Road, Southport, Gold Coast 4215, AUSTRALIA
P.O. BOX 7328 SOUTHPORT PARK, 4215 QUEENSLAND, AUSTRALIA.
t: (07) 5528 0088 w: HHH.com.au e: Architects@HHH.com.au

SCALE

1:200 @ A1

DATE

09/06/2023

DRAWN

RG/JB

CHECKED

NM

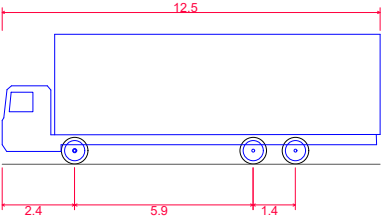
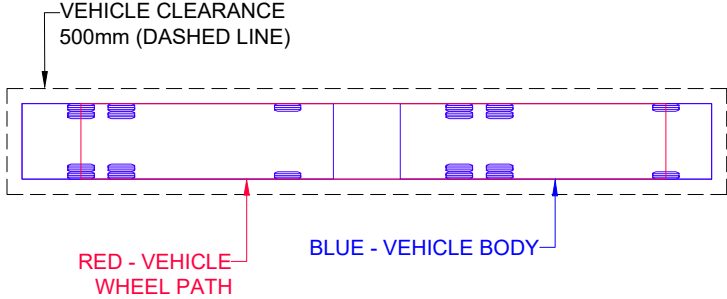
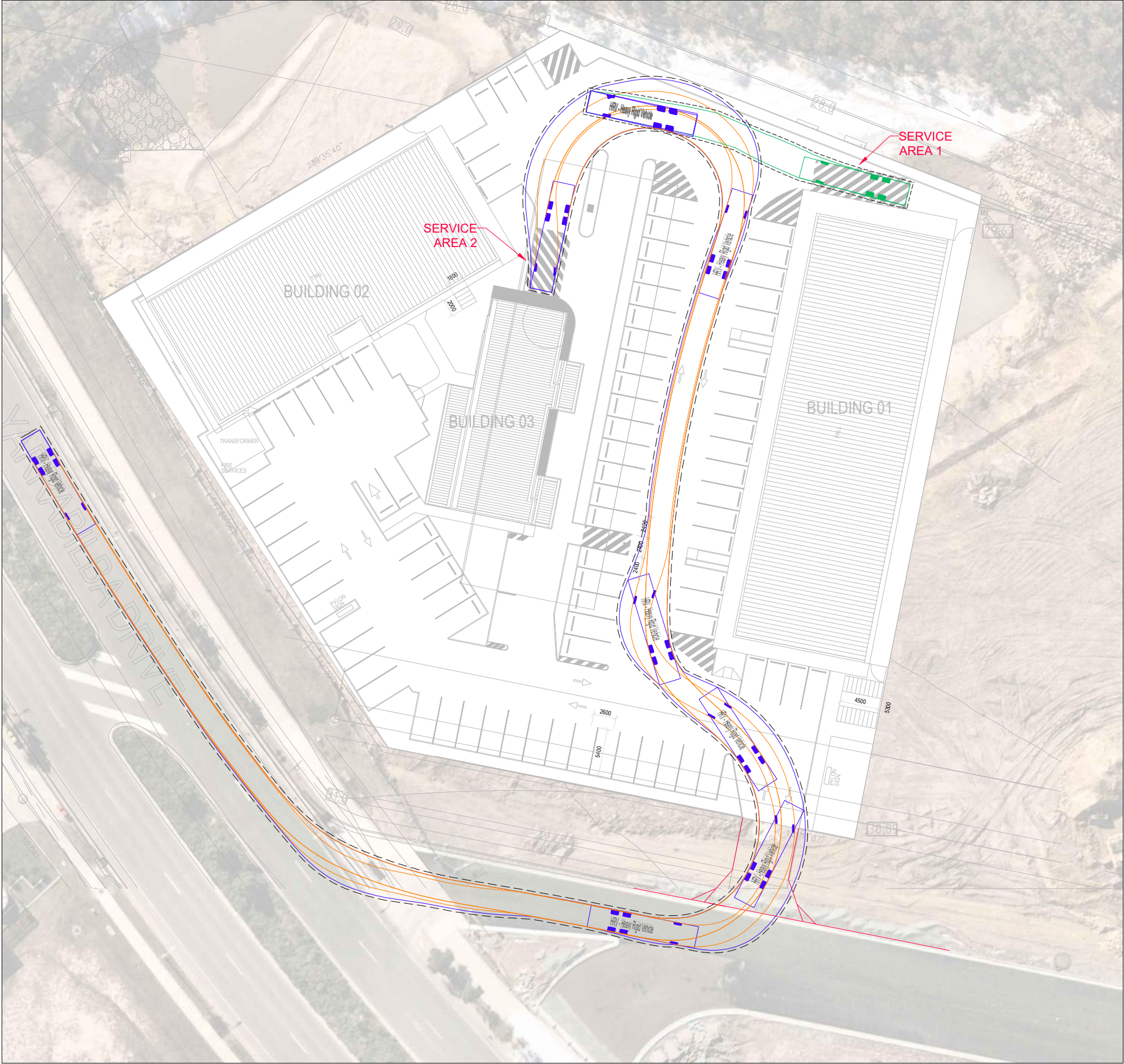
JOB. NO.

5646

DRAWING/
REVISION NO.

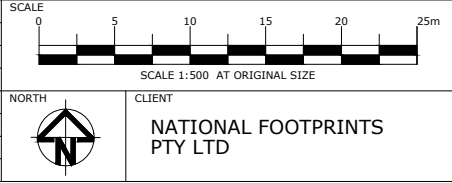
DA-1100-H

Appendix B Vehicle Swept Paths



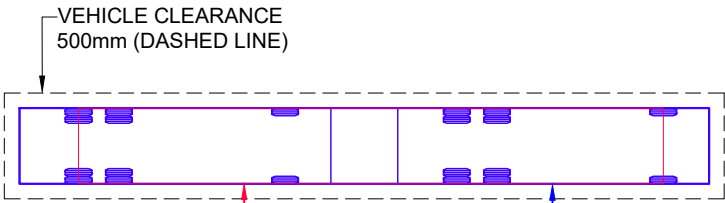
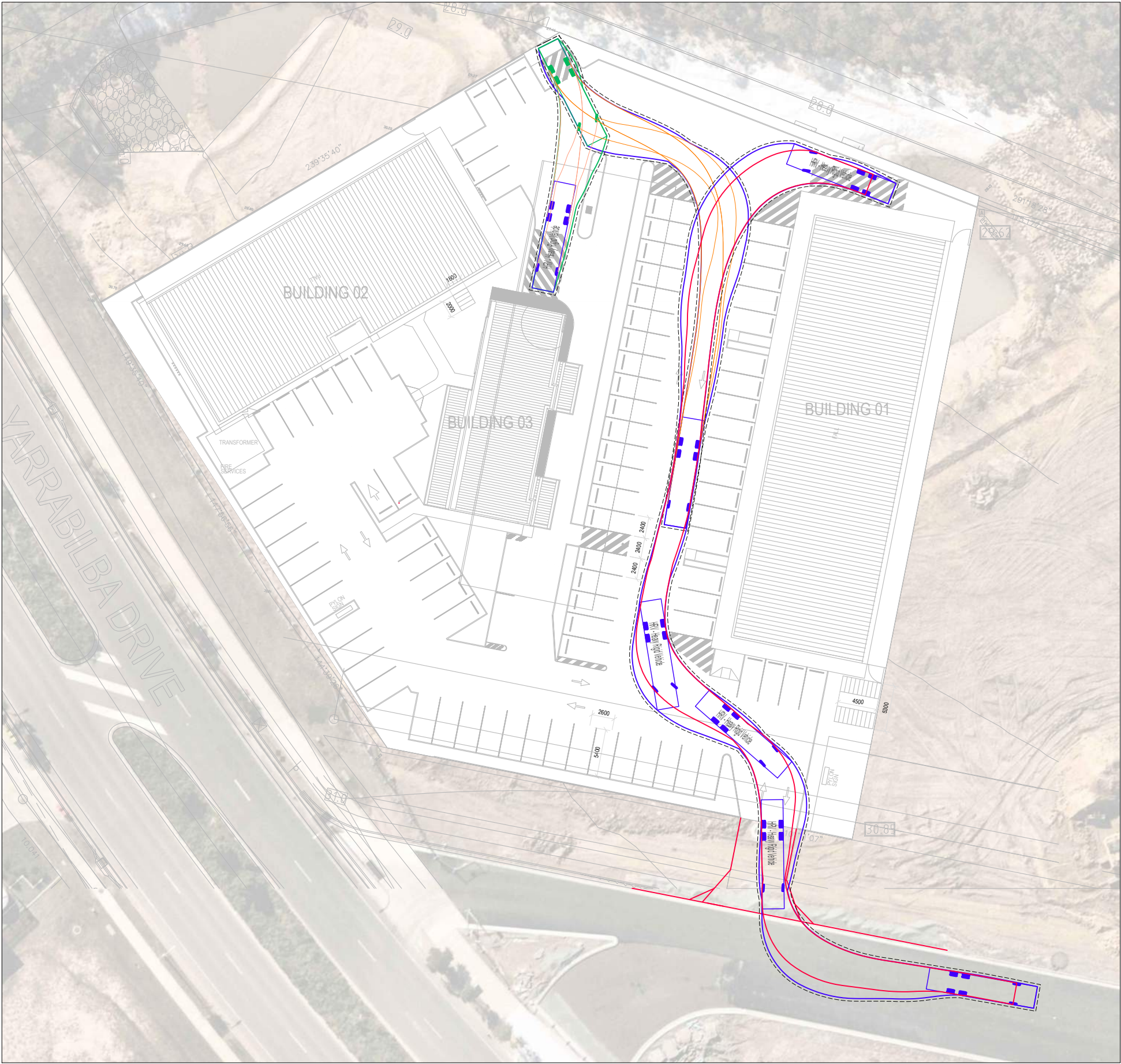
HRV 12.5m
Overall Length 12.500m
Overall Width 2.500m
Overall Body Height 4.300m
Min Body Ground Clearance 0.417m
Track Width 2.500m
Lock-to-lock time 6.00s
Curb to Curb Turning Radius 12.500m
Design Speed Forward 10km/h
Clearance Envelope 0.500m

REV.	DATE	AMENDMENT DESCRIPTION	DRAWN	CHECKED	APPROVED
B	26-07-23	PATH UPDATE ISSUE	IB	IB	IB
A	18-07-23	ORIGINAL ISSUE	HY	IB	IB



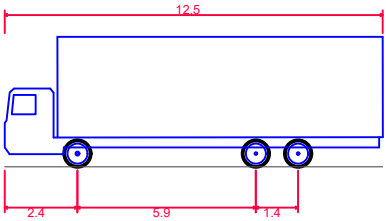
TTM CONSULTING PTY LTD
ABN 65 010 868 621
Seabank Building - Suite 701 (Level 7)
12-14 Marine Parade SOUTHPORT QLD 4215
T: (07) 5514 8000 F: (07) 5514 8144
E: ttmgc@ttmgroup.com.au W: www.ttmgroup.com.au

PROJECT LOT 20 DIXON DRIVE, YARRABILBA	PROJECT NUMBER 22GCT0263	ORIGINAL SIZE A3
DRAWING TITLE SWEPT PATH ANALYSIS - INBOUND HRV DESIGN VEHICLE	DRAWING NUMBER 22GCT0263-04	REVISION B
	DATE 26 Jul 2023	SHEET 1 OF 1



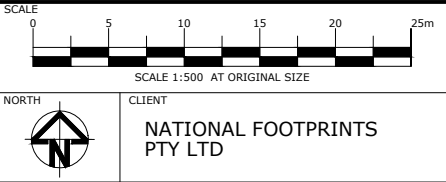
RED - VEHICLE
WHEEL PATH

BLUE - VEHICLE BODY



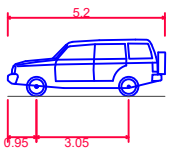
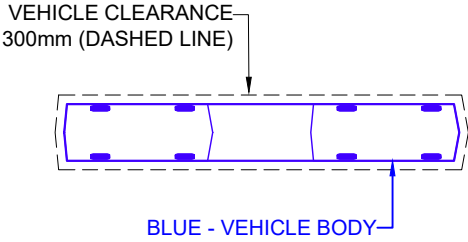
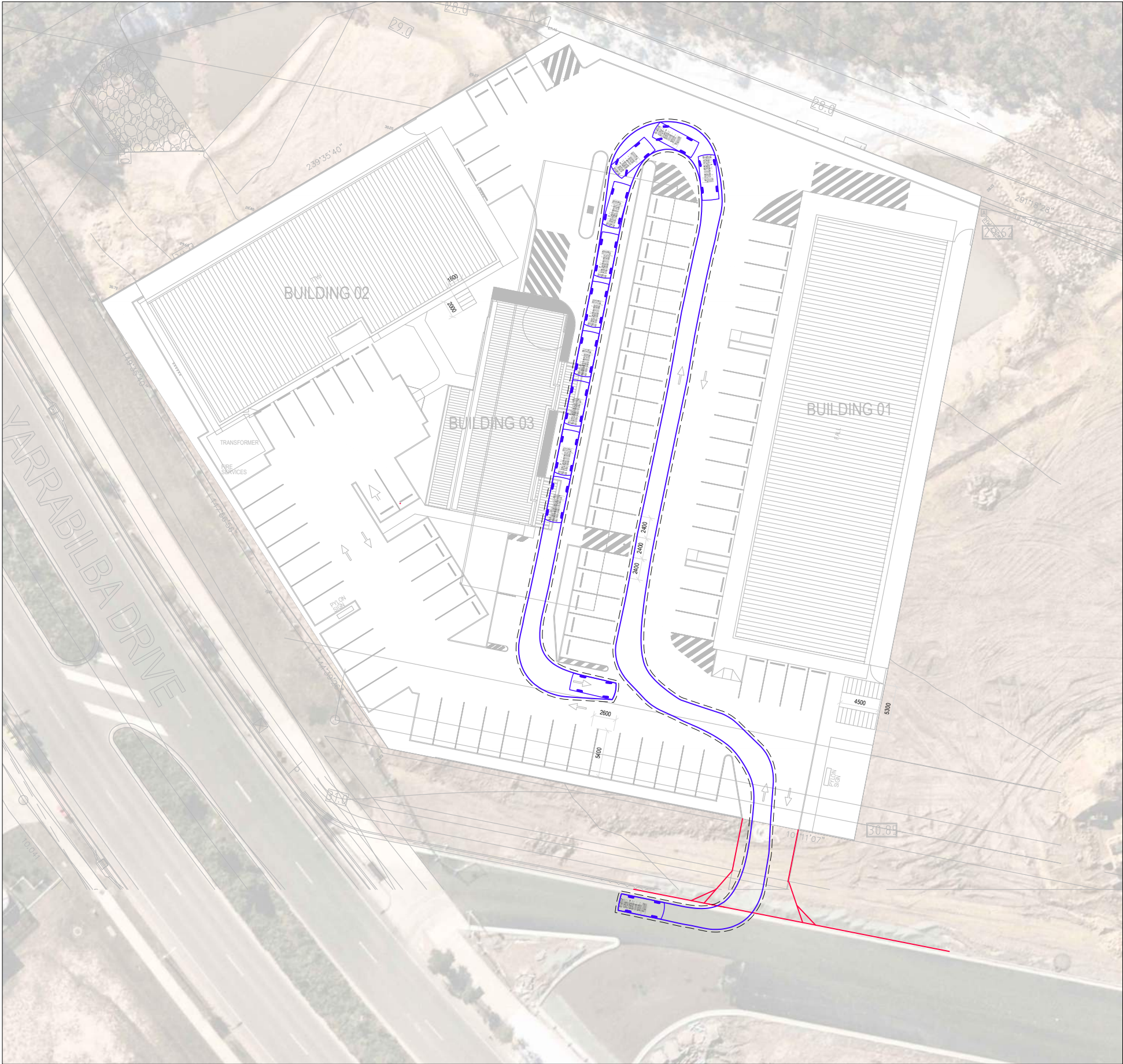
HRV 12.5m
Overall Length 12.500m
Overall Width 2.500m
Overall Body Height 4.300m
Min Body Ground Clearance 0.417m
Track Width 2.500m
Lock-to-lock time 6.00s
Curb to Curb Turning Radius 12.500m
Design Speed Forward 10km/h
Clearance Envelope 0.500m

REV.	DATE	AMENDMENT DESCRIPTION	DRAWN	CHECKED	APPROVED
A	18-07-23	ORIGINAL ISSUE	HY	IB	IB



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ABN 65 010 868 621
Seabank Building - Suite 701 (Level 7)
12-14 Marine Parade SOUTHPORT QLD 4215
T: (07) 5514 8000 F: (07) 5514 8144
E: ttmgc@ttmgroup.com.au W: www.ttmgroup.com.au

PROJECT	LOT 20 DIXON DRIVE, YARRABILBA	PROJECT NUMBER	22GCT0263	ORIGINAL SIZE	A3
DRAWING TITLE	SWEPT PATH ANALYSIS - OUTBOUND HRV DESIGN VEHICLE	DRAWING NUMBER	22GCT0263-05	REVISION	A
		DATE	18 Jul 2023	SHEET	1 OF 1



B99 Vehicle (Realistic min radius) (2004)
Overall Length 5.200m
Overall Width 1.940m
Overall Body Height 1.878m
Min Body Ground Clearance 0.272m
Track Width 1.840m
Lock-to-lock time 4.00s
Curb to Curb Turning Radius 6.250m
Design Speed Forward 10.0km/h
Clearance Envelope 0.300m

REV.	DATE	AMENDMENT DESCRIPTION	DRAWN	CHECKED	APPROVED
A	18-07-23	ORIGINAL ISSUE	HY	IB	IB

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

NORTH
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ABN 65 010 868 621
Seabank Building - Suite 701 (Level 7)
12-14 Marine Parade SOUTHPORT QLD 4215
T: (07) 5514 8000 F: (07) 5514 8144
E: ttmgc@ttmgroup.com.au W: www.ttmgroup.com.au

PROJECT LOT 20 DIXON DRIVE, YARRABILBA	PROJECT NUMBER 22GCT0263	ORIGINAL SIZE A3
DRAWING TITLE SWEPT PATH ANALYSIS - INBOUND B99 CAR - DESIGN VEHICLE	DRAWING NUMBER 22GCT0263-06	REVISION A
	DATE 18 Jul 2023	SHEET 1 OF 1