STATE COMMISSION ASSESSMENT PANEL
A COMMITTEE OF THE STATE PLANNING COMMISSION

APPLICATION ON NOTIFICATION – Category 2

Applicant:	CACA Nominees Pty Ltd & ALDI Stores C\- Buildtec Group
Development Number:	155/M009/18
Nature of Development:	Staged mixed-use development comprising an ALDI supermarket and shops, a 7 (seven) storey residential flat building comprising 5 tower elements, 33 (thirty-three) townhouses of both a detached and group dwelling nature, and associated signage, car parking
Subject Land:	76 Magill Road, Norwood
Development Plan:	Norwood, Payneham & St Peters Council Development Plan
Zone / Policy Area:	Urban Corridor Zone / High Street Policy Area
Contact Officer:	Brett Miller
Phone Number:	8343 2988
Consultation Start Date:	20 September 2018
Consultation Close Date:	5:00 PM 5 October 2018
During the notification period, hard copies of the application documentation can be viewed at the Department of Planning, Transport and Infrastructure, Level 5, 50 Flinders St, Adelaide, during normal business hours. Application documentation may also be viewed during normal business hours at the local Council office (if identified on the public notice).	

Written representations must be received by the close date (indicated above) and can either be posted, hand-delivered or emailed to the State Commission Assessment Panel.

Any representations received after the close date will not be considered.

Postal Address:
The Secretary
State Commission Assessment Panel
GPO Box 1815
ADELAIDE SA 5001

Street Address:
Development Division
Department of Planning, Transport and Infrastructure
Level 5, 50 Flinders Street
ADELAIDE

Email Address: scapreps@sa.gov.au

DEVELOPMENT APPLICATION FORM

PLEASE USE BLOCK LETTERS

COUNCIL: City of Norwood Payneham & St Peters

APPLICANT: Caca Nominees Pty. Ltd. & ALDI Stores

Postal Address: C/O - Buildtec Group
99 King William Street, Kent Town, South Australia

Owner: Urban Renewal Authority

Postal Address: Level 9 (west), Riverside Centre
North Terrace Adelaide SA 5000

BUILDER: To Be Confirmed

Postal Address: _____

_____ Licence No: _____

FOR OFFICE USE

Development No: _____

Previous Development No: _____

Assessment No: _____

❒ Complying	Application forwarded to DA
❒ Non Complying	Commission/Council on
❒ Notification Cat 2	/ /
❒ Notification Cat 3	Decision: _____
❒ Referrals/Concurrences	Type: _____
❒ DA Commission	Date: / /

CONTACT PERSON FOR FURTHER INFORMATION

Name: Ekistics Planning and Design
Richard Dwyer

Telephone: 08 7231 0286 [work] 0402 344 401 [Ah]

Fax: _____ [work] _____ [Ah]

	Decision required	Fees	Receipt No	Date
Planning:				
Building:				
Land Division:				
Additional:				
Development Approval				

EXISTING USE: Industry (Manufacturing & Warehouses)

DESCRIPTION OF PROPOSED DEVELOPMENT: Staged mixed use development comprising shops, residential flat buildings, detached dwellings, group dwellings & associated signage, car parking, fencing, retaining walls, earthworks & landscaping including removal of a regulated tree

LOCATION OF PROPOSED DEVELOPMENT:

House No: _____ Lot No: ____ Street: _____ Town/Suburb: _____

Section No [full/part] _____ Hundred: _____ Volume: _____ Folio: _____

Section No [full/part] _____ Hundred: _____ Volume: _____ Folio: _____

LAND DIVISION: CT 6153 / 860, 845, 954, 855, 856, 857, 849, 850, 847, 846, 848, 852, 853, 854 & 851.
CT 6198 / 719

Site Area [m^2] _____ Reserve Area [m^2] _____ No of existing allotments _____

Number of additional allotments [excluding road and reserve]: _____ Lease: **YES** ❒ **NO** ❒

BUILDING RULES CLASSIFICATION SOUGHT: _____ Present classification: _____

If Class 5,6,78 or 9 classification is sought, state the proposed number of employees: Male: _____ Female: _____

If Class 9a classification is sought, state the number o persons for whom accommodation is provided: _____

If Class 9b classification is sought, state the proposed number of occupants of the various spaces at the premises: _____

DOES EITHER SCHEDULE 21 OR 22 OF THE DEVELOPMENT REGULATIONS 2008 APPLY? **YES** ❒ **NO** ❒

HAS THE CONSTRUCTION INDUSTRY TRAINING FUND ACT 2008 LEVY BEEN PAID? **YES** ❒ **NO** ❒

DEVELOPMENT COST [do not include any fit-out costs]: $ $60,000,000

I acknowledge that copies of this application and supporting documentation may be provided to interested persons in accordance with the Development Regulations 2008.

SIGNATURE: _____ Dated: / /

DEVELOPMENT REGULATIONS 2008
Form of Declaration (Schedule 5 clause 2A)

Government of South Australia

To: Department of Planning Transport and Infrastructure

From: Pat Callisto (Lucid Consultant)

Date of Application: 21 / 08 / 2018

Location of Proposed Development: 76 Magill Road, Norwood

House No: 76 Lot No: _____ Street: Magill

Town/Suburb: Norwood

Section No (full/part): _____ Hundred: _____

Volume: _____ Folio: _____

Nature of Proposed Development:

Integrated mixed use development comprising shops, Residential Flat Buildings, Detached Dwellings, Group Dwellings and associated signage, car parking, fencing, retaining walls, earthworks and landscaping including the removal a regulated tree

I PAT CALLISTO (LUCID CONSULTING) **being the applicant/ a person acting on behalf of the applicant (delete the inapplicable statement) for the development described above declare that the proposed development will involve the construction of a building which would, if constructed in accordance with the plans submitted, not be contrary to the regulations prescribed for the purposes of section 86 of the Electricity Act 1996. I make this declaration under clause 2A(1) of Schedule 5 of the Development Regulations 2008.**

Signed: _____ **Date:** 21 / 8 / 2018

ekistics

NORWOOD GREEN PLANNING STATEMENT

Integrated Mixed Use Development

Prepared for:
ALDI Stores &
Caca Nominees Pty. Ltd.

Date:
August 2018

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Proprietary Information Statement

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Document Control

Revision	Description	Author	Date
V1	Draft Planning Statement	RAD	12/08/18
V2	Edited Planning Statement	RAD	24/08/18

Approved by: Managing Director Date: 24/08/2018

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Contents

1. EXECUTIVE SUMMARY 6

2. INTRODUCTION/BACKGROUND 8

3. THE SITE AND LOCALITY 10

3.1 THE SITE 10
3.2 THE LOCALITY AND SURROUNDING DEVELOPMENT 15
3.2.1 ADJOINING ROAD NETWORK 15
3.2.2 SURROUNDING LAND USE AND FEATURES 16
3.2.3 HERITAGE 17

4. PROPOSED DEVELOPMENT 19

4.1 DEVELOPMENT VISION 19
4.2 LAND USE 20
4.2.1 ALDI SUPERMARKET 20
4.2.2 RESIDENTIAL TOWNHOUSES 22
4.2.3 MIXED USE RESIDENTIAL APARTMENTS 22
4.3 BUILT FORM 23
4.3.1 ALDI STORE 23
4.3.2 RESIDENTIAL TOWNHOUSES (DWELLINGS) 27
4.3.3 MIXED USE APARTMENT BUILDINGS 30
4.4 OPEN SPACE, LANDSCAPING & PUBLIC REALM 33
4.4.1 REGULATED TREE REMOVAL 33
4.4.2 SITE LANDSCAPING MASTERPLAN 34
4.4.3 PUBLIC REALM IMPROVEMENTS 35
4.5 TRANSPORT, PARKING AND ACCESS 39
4.5.1 ACCESS/EGRESS 39
4.5.2 TRAFFIC IMPACT. 41
4.5.3 CAR PARKING 42
4.5.4 BICYCLE PARKING 42
4.5.5 DELIVERIES AND SERVICE VEHICLES 43
4.5.6 PEDESTRIAN MOVEMENT & PERMEABILITY 44
4.5.7 PUBLIC TRANSPORT 45
4.6 WASTE MANAGEMENT & SERVICING 45
4.7 STORMWATER MANAGEMENT 48
4.7.1 ALDI SUPERMARKET 48
4.7.2 MIXED USE BUILDINGS 49
4.8 BUILDING SERVICES 49
4.9 SUSTAINABILITY (ESD) 50
4.10 STAGED CONSTRUCTION 53

4.11 OPERATIVE PERIOD OF CONSENT 54

5. ECONOMIC IMPACT 55

5.1 FULL TIME EQUIVALENT JOBS 55
5.2 GROSS OPERATING SURPLUS 55
5.3 STATE AND FEDERAL TAXES 55
5.4 WAGES AND SALARIES 55
5.5 ONGOING EMPLOYMENT IMPACT 56

6. PROCEDURAL REQUIREMENTS 57

6.1 RELEVANT AUTHORITY 57
6.2 NATURE OF DEVELOPMENT 57
6.3 PUBLIC NOTIFICATION 57
6.4 AGENCY REFERRALS 57

7. DEVELOPMENT PLAN ASSESSMENT 59

7.1 OVERVIEW 59
7.2 ZONE AND COUNCIL WIDE PROVISIONS 60
LAND USE 60
BUILT FORM 63
TRANSPORT, ACCESS AND PARKING 71
OCCUPANT AMENITY 75
INTERFACE CONSIDERATIONS 81
LANDSCAPING & VEGETATION 86
ADVERTISING & SIGNAGE 89
STORMWATER MANAGEMENT 91
WASTE & SERVICING 95
CRIME PREVENTION 96
SUSTAINABILITY 98
INFRASTRUCTURE & BUILDING SERVICES 99
ENVIRONMENT (SITE CONTAMINATION) 101

8. CONCLUSION 104

Appendices

Appendix 1. *Certificates of Title* *108*
Appendix 2. *Survey Plans* *109*
Appendix 3. *Site Levels (A&S)* *110*
Appendix 4. *Cultural Heritage (Mulloway Studios)* *111*
Appendix 5. *Architectural Plans (TECTVS / Select Architects)* *112*
Appendix 6. *Design Report (TECTVS Architects)* *113*

Appendix 7. Landscape Report (Hassell) 114
Appendix 8. Traffic Impact Assessment (GTA Consultants) 115
Appendix 9. Waste Management Plans (Colby Industries / ALDI Stores) 116
Appendix 10. Stormwater Management Plan (Wallbridge & Gilbert) 117
Appendix 11. Services Infrastructure Report (Lucid Consulting Australia) 118
Appendix 12. Sustainability Strategy (D^2) 119
Appendix 13. Acoustic Assessment (Resonate / Sonus) 120
Appendix 14. Building Surveying Advice (BuiltSurv / Katnich Dodd) 121
Appendix 15. Environment Contamination Assessment (JBS&G & LBWco) 122

Figures

Figure 3.1 Survey Plan of Existing Caroma Factory (Source: Alexander Symonds) 11
Figure 3.2 Subject Site 11
Figure 3.3 Existing Site Features 12
Figure 3.4 Existing Infrastructure 13
Figure 3.5 Subject Site and Surrounds 14
Figure 3.6 Existing Adjoining Road Network 16
Figure 3.7 Surrounding Land Uses 17
Figure 3.8 Heritage in Locality 18
Figure 4.1 Architectural model of Magill Road streetscape looking south-east (Source: Select Architects) 25
Figure 4.2 Architectural model of Magill Road streetscape looking south-west (Source: Select Architects) 25
Figure 4.3 Magill Road Streetscape Perspective (Source: TECTVS & Select Architects) 26
Figure 4.4 Townhouse Type A (Source: TECTVS Architects) 28
Figure 4.5 Townhouse Type B (Source: TECTVS Architects) 28
Figure 4.6 Townhouse Type C (Source: TECTVS Architects) 29
Figure 4.7 Townhouse Type D (Source: TECTVS Architects) 29
Figure 4.8 Level 1 Building courtyard space - Communal Open Space (Source: Hassell) 31
Figure 4.9 Design of Apartment Façade -Apartments A -H (Source: Tectus Architects) 32
Figure 4.10 Design of Apartment Façade - Apartments I – J (Source: Tectus Architects) 32
Figure 4.11 Regulated Tree (Source: Alexander Symonds) 33
Figure 4.12 Publicly Accessible Communal Open Space 35
Figure 4.13 Stephen Street Streetscape (Source: Hassell) 36
Figure 4.14 Town Piazza - indicative Concept (Source: Hassell) 37
Figure 4.15 Urban Promenade – Indicative Concept (Source : Hassell) 38
Figure 4.16 Motor Vehicle Access (Source: Hassell) 40
Figure 4.17 Magill Road Treatments (Source: GTA Consultants) 41
Figure 4.18 Loading and Service Vehicle Movements (Source: Hassell) 44
Figure 4.19 Neighbourhood Pedestrian network (Source: Hassell) 44
Figure 4.20 Pedestrian Movement (Source: Hassell) 45
Figure 4.21 Building Safely near Power Lines 50
Figure 4.22 Staging Plan 54
Figure 7.1 Zoning and Policy Areas 59
Figure 7.2 Flood Inundation Mapping (Source: First to Fifth Creeks 1 in 100 year Flood Inundation Map) 93
Figure 7.3 Treatment of Transformer fronting Magill Road 100

Tables

Table 2.1 Drawing Schedule 9
Table 3.1 Certificates of Title 10
Table 4.1 Proposed Townhouse Typologies 27
Table 4.1 Proposed Apartment Composition 30
Table 4.1 Waste Storage and Service Provision (Source: Colby Industries) 46
Table 7.1 Parking Requirement Summary 74

1. Executive Summary

Category	Details
PROJECT	Norwood Green Integrated Mixed Use development
ADDRESS OF SITE	76 Magill Road, Norwood, SA 5067
CERTIFICATES OF TITLE	1. Certificate of Title Volume 6153 Folio 860 2. Certificate of Title Volume 6153 Folio 845 3. Certificate of Title Volume 6153 Folio 954 4. Certificate of Title Volume 6153 Folio 855 5. Certificate of Title Volume 6153 Folio 856 6. Certificate of Title Volume 6135 Folio 857 7. Certificate of Title Volume 6135 Folio 849 8. Certificate of Title Volume 6153 Folio 850 9. Certificate of Title Volume 6153 Folio 847 10. Certificate of Title Volume 6153 Folio 846 11. Certificate of Title Volume 6153 Folio 848 12. Certificate of Title Volume 6153 Folio 852 13. Certificate of Title Volume 6135 Folio 853 14. Certificate of Title Volume 6135 Folio 854 15. Certificate of Title Volume 6153 Folio 851. 16. Certificate of Title Volume 6198 Folio 719
SITE AREA	• 18,990m^2 (approx.)
FRONTAGE	• Magill Road – 177.62m • Sydenham Road – 23.23m • Stephen Street – 233.05m
LOCAL GOVERNMENT	• City of Norwood Payneham & St Peters
RELEVANT AUTHORITY	• State Planning Commission (SPC) Delegate -State Commission Assessment Authority (SCAP)
PRE LODGEMENT PANEL MEETINGS	• PLP#1: 13 March 2018 • PLP# 2: 16 May 2018 • PLP# 3: 18 June 2018

	• PLP# 4: 8 August 2018
DESIGN REVIEW	• DRP: 5 April 2018
DEVELOPMENT PLAN	• Norwood Payneham & St Peters Development Plan (consolidated 19 December 2017)
ZONING	• Urban Corridor Zone
POLICY AREA/PRECINCT	• High Street Policy Area 14.3
KEY DEVELOPMENT AREA	• 6 storeys or 24.5m
OVERLAYS	• Affordable Housing Overlay (Designated Area) • Noise & Air Emissions (Designated Area) • Strategic Transport Routes (Designated Area)
EXISTING USE	• Industry (Manufacturing & Warehouse)
PROPOSAL DESCRIPTION	• Integrated mixed use development comprising shops, Residential Flat buildings, Detached Dwellings, Group Dwellings and associated signage, car parking, fencing, retaining walls, earthworks and landscaping including removal of a regulated tree.
NATURE OF DEVELOPMENT	• 'Consent use' for assessment on merit
REQUIRED CONSENTS	• Development Plan Consent
SEPARATE REQUIRED CONSENTS	• Encroachments Consent (City of Norwood Payneham & St Peters) • Proposed Plan of Division: » Development Plan Consent » Land Division Consent
REFERRALS/CONCURRENCES	• Formal: » State Government Architect » Commissioner of Highways (DPTI) » Renewal SA - Affordable Housing Branch • Informal: » City of NP&SP (Informal)
PUBLIC NOTIFICATION	Category 2
APPLICANT	ALDI Stores & Caca Nominees Pty. Ltd.
CONTACT PERSON	Richard Dwyer – Ekistics Planning and Design – (08) 7231 0286
OUR REFERENCE	#00595

2. Introduction/Background

This planning statement has been prepared in support of an application by ALDI Stores and CACA Nominees Pty. Ltd. to construct a master planned mixed use integrated development comprising retail and residential land uses with associated signage, car parking, fencing, retaining walls, earthworks and landscaping including removal of a regulated tree. The address of the subject site is 76 Magill Road, Norwood.

This planning statement provides information about the subject site and proposed development and addresses the merits of the development application against the relevant provisions of the Urban Corridor Zone of the Norwood Payneham & St Peters Development Plan (Consolidated 19 December 2017), as well as the most relevant 'Council Wide' provisions.

For the purposes of this statement, the Norwood Payneham & St Peters Development Plan (Consolidated 19 December 2017) will be referred to as the 'Development Plan', the '*Development Act'*, 1993 will be referred to as the 'Act' and the '*Development Regulations'*, 2008 will be referred to as the 'Regulations'.

This Planning Statement has been prepared on the basis of the plans and elevations for the development prepared by TECTVS Architects and Select Architects as identified in Table 2.1 *Drawing Schedule.*

Table 2.1 *Drawing Schedule*

No	Version	Title	Scale	Format
P00	1.0	Locality Plan	1:500	A1
P01	1.0	Ground Floor	1:500	A1
P02	1.0	Basement	1:500	A1
P03	1.0	First Floor	1:500	A1
P04	1.0	Second Floor	1:500	A1
P05	1.0	Third Floor	1:500	A1
P06	1.0	Fourth Floor	1:500	A1
P07	1.0	Fifth Floor	1:500	A1
P08	1.0	Sixth Floor	1:500	A1
P09	1.0	Roof Plan	1:500	A1
P10	1.0	Sections A-A	1:200	A1
P11	1.0	Sections B-B, C-C, D-D	1:200	A1
P012	1.0	Street Elevations	1:500	A1
P013	1.0	Ground Floor Plan Apartments	1:200	A1
P014	1.0	Basement Plan Apartments	1:200	A1
P015	1.0	First Floor Plan Apartments	1:200	A1
P016	1.0	Second Floor Apartments	1:200	A1
P017	1.0	Third Floor Apartments	1:200	A1
P018	1.0	Fourth Floor Apartments	1:200	A1
P019	1.0	Fifth Floor Apartments	1:200	A1
P020	1.0	Sixth Floor Apartments	1:200	A1
P021	1.0	Roof Plan Apartments	1:200	A1
P022	1.0	Elevations North & South	1:200	A1
P023	1.0	Elevations North & South Internal	1:200	A1
P024	1.0	Elevations East & West	1:200	A1
P025	1.0	Type A Townhouse	1:200	A1
P026	1.0	Type B Townhouse	1:200	A1
P027	1.0	Type C Townhouse	1:200	A1
P028	1.0	Type D Townhouse	1:200	A1
P029	1.0	ALDI – Location Plan	1:500	A1
P030	1.0	ALDI – Site Plan	1:200	A1
P031	1.0	ALDI – Floor Plan	1:200	A1
P032	1.0	ALDI – Elevations	Various	A1
P033	1.0	ALDI – Signage Details	Various	A1
P034	1.0	ALDI – Perspective	NA	A1
DR	1.0	Design Report	NA	A1

3. The Site and Locality

3.1 The Site

The subject land is located at 76 Magill Road, Norwood and comprises 19 Allotments identified in Table 3.1. Relevant Certificates of Title are attached in ***Appendix 1***.

Table 3.1 *Certificates of Title*

Certificate of Title	Volume	Folio	Lot	Plan
1	6153	860	701	DP49943
2	6153	845	35	FP100169
3	6153	954	702	DP49943
4	6153	855	25	FP100167
5	6153	856	26	FP100167
6	6153	857	27	FP100167
7	6153	849	20	FP100166
8	6153	850	21	FP100166
9	6153	847	18	FP100166
10	6153	846	17	FP100166
11	6153	848	19	FP100166
12	6153	852	22	FP100167
13	6153	853	23	FP100167
14	6153	854	24	FP100167
15	6153	851	28	FP100168
16	6198	719	50	FP250838
17	6198	719	51	FP250838
18	6198	719	52	FP250838
19	6198	719	53	FP250838

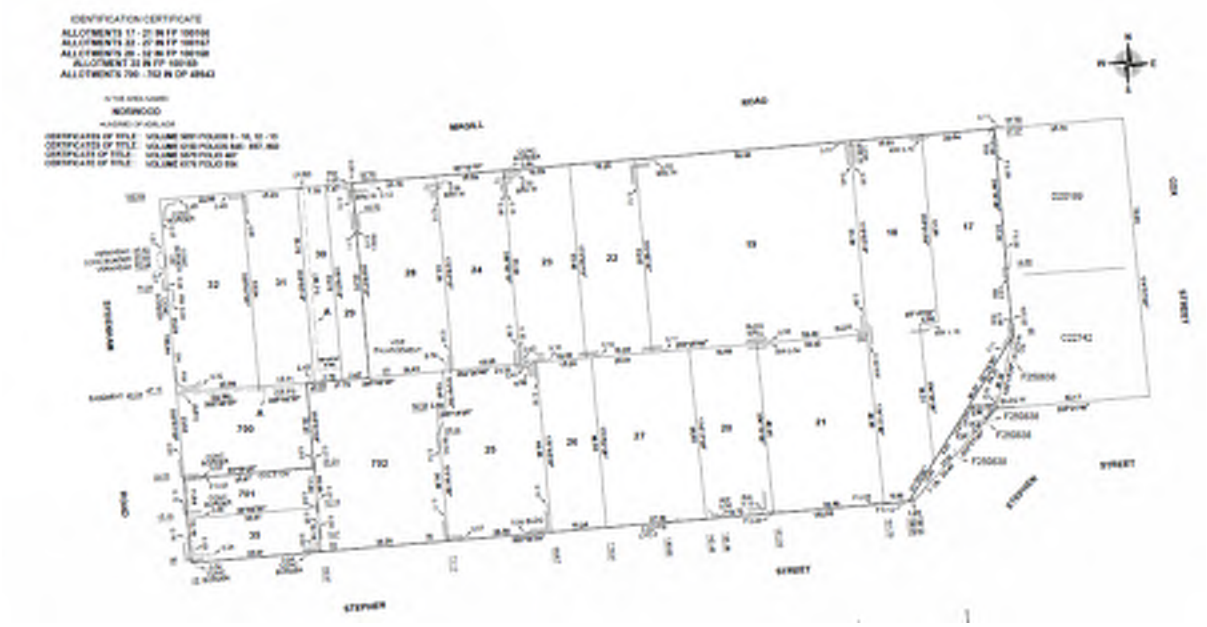
It is noted that there are no height limits associated with the Certificates of Title and there are no easements or encumbrances affecting the subject site.

The subject land measures approximately 18,990m^2 and has three (3) road frontages as follows:

- Magill Road - 177.62m;
- Sydenham Road - 23.23m; and
- Stephen Street - 233.05m.

A survey plan of the former Caroma factory prepared by Alexander Symonds is provided in ***Figure 3.1*** and is reproduced in ***Appendix 2***.

Figure 3.1 *Survey Plan of Existing Caroma Factory (Source: Alexander Symonds)*



An aerial photograph of the subject site is provided in ***Figure 3.2*** below.

Figure 3.2 *Subject Site*

The subject site contains the former Caroma factory and warehouse (industry) which operated from the site for 73 years from 1951 to 2014. Caroma utilised the site for the manufacture of plastic bathroom fittings such as cisterns, pipes and kitchen sink traps by injection moulding.

Prior to Caroma occupying the site it is understood that the site was used as a box factory and prior to that it is understood that the site and surrounding area was used as brickworks in the early settlement years of Adelaide. The Cultural Heritage Report prepared by Mulloway Studio (***Appendix 4***) provides a detailed history of the former use of the site including the history of Caroma.

The site contains large masonry and metal clad portal framed industrial buildings associated with the previous use of the site as an industrial factory and warehouse. The site also contains asphalt at-grade car parking with vehicle access currently provided via three (3) existing crossovers to Magill Road, a single existing crossover to Sydenham Road and a number of large crossovers to Stephen Street. The location of existing access crossovers is demonstrated in ***Figure 3.3*** below:

Figure 3.3 *Existing Site Features*

The site features plan in ***Figure 3.3*** also includes basic topographical contours which demonstrate that the site has a fall of approximately four (4) metres from the south-east to the north-west of the site. A detailed level survey prepared by Alexander Symonds is also attached in ***Appendix 3***.

The site has limited vegetation with the exception of:

- A single Regulated Tree (Tree Circumference of 2.6 metres) in the north-east corner of the site, adjacent Magill Road;
- A single gum tree adjacent the common property boundary in the north-east corner of the site, adjacent Magill Road;
- A variety of small shrubs, bushes and ground cover adjacent and fronting Magill Road,
- A number of small pine trees adjacent the southern boundary, in the north-east corner of the site (adjacent Magill Road) and bordering the car park at the intersection of Sydenham Road and Stephen Street,
- A variety of small trees, shrubs and ground cover at the perimeter of the site, adjacent Stephen Street; and
- A variety of small trees within the existing at-grade carpark in the south-eastern corner of the site.

The existing site is well serviced via existing infrastructure (power, potable water and waste water etc.) as demonstrated in ***Figure 3.4*** below.

Figure 3.4 *Existing Infrastructure*

Images of the subject site and surrounds are provided in ***Figure 3.5*** below.

Figure 3.5 *Subject Site and Surrounds*

3.2 The Locality and Surrounding Development

3.2.1 *Adjoining Road Network*

Magill Road

Magill Road is an arterial road managed and maintained by the Department of Planning, Transport and Infrastructure (DPTI). It is a single carriageway two-way road configured with two travel lanes in each direction and aligned in an approximately east – west direction. Bicycle lanes are provided on the southern and northern side of Magill Road adjacent the site, which operate 7:30am – 9:00am and 4:30pm – 6:00pm respectively Monday to Friday. Outside of these times, on-street parking is permitted on both sides of Magill Road.

Magill Road is subject to a sign posted speed limit of 60 km/h and carries approximately 22,400 vehicles per day.

Part of the subject site (east) fronting Magill Road is subject to road widening pursuant to the *Metropolitan Adelaide Road Widening Plan Act*, 1972-1976 however through the pre-lodgement case management process DPTI (Paul Bennet) confirmed that there is no requirement for land to be acquired by DPTI for the purpose of road widening.

Sydenham Road

Sydenham Road is a collector road managed and maintained by the City of Norwood, Payneham & St Peters (Council) and links between The Parade and Magill Road. It is a single carriageway two-way road configured with one travel lane in each direction and aligned in an approximately north – south direction. On-street parking is permitted on both sides of Sydenham Road, which are subject to time restricted parking control. Traffic signals are located at its intersection with Magill Road.

Sydenham Road is subject to a default urban speed limit of 50km/h and carries approximately 6,000 vehicles per day.

Stephen Street

Stephen Street is a local street managed and maintained by Council. It comprises a single carriageway ranging from 3.6 metres to 6.4 metres wide adjacent the site. It is aligned in an approximately east to west direction, with movements permitted only in the westbound direction. On-street parking is generally not permitted on Stephen Street except for a short section on the southern side mid-block adjacent the site.

Stephen Street is subject to a default urban speed limit of 50 km/h and carries less than 500 vehicles per day.

The nature and composition of the existing road and bicycle network in the locality is demonstrated spatially in *Figure 3.6* below.

Figure 3.6 *Existing Adjoining Road Network*

3.2.2 *Surrounding Land Use and Features*

To the immediate west of the site is the existing single storey Alma Hotel and associated at-grade asphalt car parking and landscaping. The Alma Hotel is also located within the Urban Corridor Zone and is recognised as a Local Heritage Place.

To the north and west of the site (over Magill Road and Sydenham Road respectively) there is a mixture of commercial offices, showrooms and service trade premises in the 'Light Industry Zone' and 'Mixed Use A Zone' respectively.

To the east of the site, within the 'Business Zone', there are commercial offices and consulting rooms fronting Magill Road as well as town houses in the form of row-dwellings fronting Stephen Street.

To the south of the site, over Stephen Street, are predominantly residential town houses in the form of row dwellings and group dwellings within both the 'Residential Character (Norwood) Zone' and the 'Mixed Use A Zone'.

Existing land uses within the locality are broadly demonstrated spatially in ***Figure 3.7*** below.

Figure 3.7 *Surrounding Land Uses*

3.2.3 *Heritage*

The site is opposite a local Council Reserve (Chimney Park) over Stephen Street which accommodates a local heritage place (*Destructor Chimney Base – square masonry base*).

The site is also adjacent the Alma Hotel (to the west) which is a local heritage place.

A local heritage place (*Victorian masonry shop and rendered masonry cottage*) is also located to the south of the site over Stephen Street (on the corner of Stephen Street and Sydenham Road).

Existing local heritage places in the surrounding locality are demonstrated spatially in ***Figure 3.7*** below.

Figure 3.8 *Heritage in Locality*

4. Proposed Development

4.1 Development Vision

The development vision is for a vibrant hub of retail, commercial and residential uses which are enhanced by high quality public and communal space.

The existing mixed-use character of the area enables opportunities for contemporary architectural expression with limited need for overt reference to any historic buildings. Careful consideration has however been given to the relationship with the Alma Hotel (Local heritage Place) to the west of the site and the impact of development on existing dwellings immediately south of the site, over Stephen Street.

The proposed built form incorporates a transition in scale of smaller domestic scaled residential buildings fronting Stephen Street transitioning and graduating in height to taller building elements located towards Magill Road and centrally within the site. Taller seven (7) storey mixed use buildings will incorporate ground level retail uses that will provide a highly active and vibrant frontage to Magill Road and assist to define and create a legible pedestrian link through the site from Stephen Street to Magill Road.

Housing diversity will be achieved through a variety of dwelling sizes, configurations and price points. A minimum of 15% of dwellings will meet the requirements of affordable housing.

A high level of amenity will be provided for future residents with dwellings designed to be both functional and flexible with good access to light, outlook, useable private open space, privacy and storage. Dwellings have been designed to achieve relevant objective noise criteria, particularly at the interface with Magill Road and the Alma Hotel. Site organisation and structure including land use distribution and the careful consideration of building placement, form and orientation will ensure the amenity of adjoining properties will be preserved.

The development has been generally designed to adhere to Crime Prevention Through Environmental Design (CPTED) principles with dwellings designed to provide good passive surveillance over the public realm and communal areas.

Landscaping is integrated into public, communal and private areas and will contribute to an attractive, comfortable and contextual development. A central public open space reserve and Urban Promenade is provided (1,763 m^2) which represents approximately 9.3 % of the total site area (marginally less than the statutory 12.5% benchmark). The public open space reserve will be functional and accessible and located to provide amenity to residents within and adjoining the development. The public open space reserve is an effective extension of Chimney Park and will provide pedestrian linkages through the site including part of the proposed linkage between Magill Road and Stephen Street. The public open space has been designed a hard-working urban park and Town Piazza that creates a series of outdoor rooms and plateaus for social and cultural exchange. The space caters for small and large groups, providing flexibility for users to find more private intimate spaces or open communal zones.

A proposed publicly accessible communal open space area of approximately 1,139m^2 is also provided and has been designed as a series of small outdoor rooms. Each room caters for differing experiences and activities. The

rooms consist of an outdoor turf activity zone (associated with an internal recreation room), a raised timber deck alfresco area, a large communal table and a sunken turf lounge area with perimeter retaining wall.

Site access and egress will utilise Magill Road, Stephen Street and Sydenham Road for efficient traffic management and distribution.

Whilst not directly forming part of this development application, Stephen Street will be widened (via a proposed concurrent plan of division) to create a pedestrian friendly and green laneway environment. The existing roadway width and one- way configuration of Stephen Street will be maintained however streetscape improvements will provide a landscape setting with street trees to cool the environment and provide scale and softening to the façade of proposed townhouses.

These public realm treatments will improve the functional design, performance and streetscape appearance of Stephen Street and will improve pedestrian amenity of this laneway.

At-grade visitor car parking is provided for the ALDI Supermarket in a landscaped setting. Apartment car parking will be integrated within a basement and under-croft car park, sleeved and screened from view by ground level retail tenancies fronting Magill Road.

The development will be designed to achieve positive environmental, social and economic outcomes. A 5 Star Green Star self-assessed rating will be targeted for residential components of the development to benchmark the built form against 'Australian Leadership' in sustainable design. The residential component of the development benchmarks at an expected average 7 Star NatHERS rating, demonstrating a 20% improvement over the NCC/BCA minimum requirement of 6 Star average.

4.2 Land Use

The proposed development is perhaps best described as an integrated mixed-use development comprising retail (shops and restaurants), and residential land uses (residential flat buildings, detached dwellings and group dwellings) with associated signage, earth works, car parking, fencing, retaining walls, landscaping and removal of a regulated tree.

Each of the individual components of the integrated development are described below.

4.2.1 *ALDI Supermarket*

The proposed ALDI Supermarket has a floor area of 1,634m ^{2} (of which 1,274m^2 will be retail floor space and 286m^2 will be 'back of house' functions) and incorporates associated advertising, at-grade carparking (89 spaces) and landscaping.

A supermarket is a form of a 'shop', as defined in Schedule 1 of the Regulations:

> ***shop*** *means—*
>
> *(a) premises used primarily for the sale by retail, rental or display of goods, foodstuffs, merchandise or materials; or*
>
> *(b) a restaurant; or*

(c) a bulky goods outlet or a retail showroom; or

(d) a personal service establishment,

but does not include—

(e) a hotel; or

(f) a motor repair station; or

(g) a petrol filling station; or

(h) a plant nursery where there is no sale by retail; or

(i) a timber yard; or

(j) service trade premises; or

(k) service industry;

ALDI Stores are in many ways similar to 'typical' supermarkets in that they offer traditional grocery products in a familiar aisle-by-aisle format. However, there are a number of key differences that distinguish ALDI from other supermarket operations. These differences include:

- Predominately exclusive ALDI label branded products;
- 'Hard discount' food and grocery model;
- Simplified, consistent supply chain, internal layout, merchandising, store operations and marketing;
- All delivery and logistics undertaken by ALDI employees, with only two 19 metre truck deliveries per 24 hours and one daily bakery delivery via a small rigid vehicle;
- Low swept exhaust delivery vehicles (ALDI trucks are to European standards with the exhaust discharge at wheel level on the Prime Mover, i.e. there is no exhaust discharge above the vehicle cabin);
- Regulated product range of approximately 1,350 items (compared with typical full-line supermarkets which offer between 20,000-30,000 items); and
- Considerably smaller retail floor plate of approximately 1,300m^2 (compared with full-time supermarkets which are typically between 3,000m^2 to 4,000m^2).

Of particular note is that ALDI Stores, of which there are in excess of 500 across Australia in Victoria, NSW, ACT, WA and QLD, successfully operate in close proximity to other major supermarket chains (i.e. Coles and Woolworths), with direct competition in approximately 80% of the existing locations.

Unlike most supermarket operations, ALDI own, operate and control all of its supply and logistics via its purpose built distribution centre (in Regency Park). This streamlined system of operation enables ALDI to position itself as a discount supermarket quite differently to its competitors. Accordingly, a recessed loading bay will be situated on the western side of the building which will provide for ALDI's dedicated delivery by 19 metre long (and in future 20m) semi-trailers.

A typical ALDI Store employs 25 full-time equivalent (FTE) employees with 6-10 employees present on site at any one time.

4.2.2 *Residential Townhouses*

A total of 33 two and three storey townhouses are proposed with frontage and/or access to Stephen Street.

There a four (4) distinct townhouse typologies offering 2 and 3 bedroom product in variety of formats.
Type A, B & C townhouses are 'detached dwellings', as defined in Schedule 1 of the Regulations:

> ***detached dwelling*** *means a detached building comprising 1 dwelling on a site that is held exclusively with that dwelling and has a frontage to a public road, or to a road proposed in a plan of land division that is the subject of a current development authorisation;*

The Type A, B & C dwellings fronting Stephen Street are on proposed Torrens Titled Allotments and are likely to be classified as 'Detached Dwellings' given each dwelling is abutting the other and there is no common party wall separating the dwellings (i.e. they can be built and stand-alone separately and are not reliant on a common party wall separating each dwelling).

Importantly, each dwelling will be on a site that is held exclusively with that dwelling and will have a frontage to a public road (Stephen Street). In relation to the Type A dwellings, the rear private road does not form part of the 'curtilage' of each allotment for the purposes of the word 'site' (within the definition of a 'detached dwelling'). Accordingly, each of these dwellings should be correctly classified as a 'detached dwelling'.

We have based this opinion based on case law. In particular, the following matters:

- *Alexander V The Corporation of the City of Marion & Anor [2016] SAERDC 29 (attached)*
- *City of Mitcham V Terra Equities [2007] SAQSC 244; and*
- *Colmer v Alexandrina Council [2009] SASC 13.*

Proposed Type D townhouses are 'group dwellings', as defined in Schedule 1 of the Regulations:

> ***group dwelling*** *means 1 of a group of 2 or more detached buildings, each of which is used as a dwelling and 1 or more of which has a site without a frontage to a public road or to a road proposed in a plan of land division that is the subject of a current development authorisation;*

4.2.3 *Mixed Use Residential Apartments*

A total of five, seven (7) storey apartment buildings are proposed with a total of 208 one and two bedroom apartments (dwellings), ground level 'shops' (1,300m^2), ground level car parking (107 spaces) and basement car parking (198 spaces).

There are 15 different types of proposed apartments in a variety of configurations ranging from 50m^2 (1 bed and 1 bath) to 104m^2 (2 bed and 2 bath).

The specialist retail tenancies are defined as 'shops' whilst the proposed apartment buildings are recognised as Residential Flat Buildings as defined in Schedule 1 of the Regulations:

residential flat building *means a single building in which there are 2 or more dwellings, but does not include a semi-detached dwelling, a row dwelling or a group dwelling;*

4.3 Built Form

Mulloway studio have provided advice on cultural heritage integration and interpretation of the former Caroma site to inform an appropriate design response for the proposed development.

The cultural heritage investigations undertaken by Mulloway Studio are attached in ***Appendix 4*** and identify opportunities for integrating cultural representation into the architecture, landscaping and public and communal spaces within the development. This analysis has assisted to:

- create a thematic narrative for the project;
- inform and enrich the overall identity and experience of the place; and
- integrate the new development into the existing community and urban environment.

The site has been formerly use as brickworks, a paper bag and box factory as well as a factory for the manufacture of plastic bathroom fittings such as cisterns, pipes and kitchen sink traps by injection moulding. These associations have been used to inform the site and built form design response through:

- direct design decisions and influences (i.e. site layout, materials and retaining any remnant fabric etc.);
- provocative interpretation (i.e. Strategies for embedding heritage interpretation in a variety of provocative or incidental ways); and
- didactic information (i.e. text and image-based information provided on site).

Various interpretation strategies have been adopted in the site composition, configuration and built form design response.

4.3.1 *ALDI Store*

Typically, ALDI Stores present a uniform appearance which is a relatively standardised corporate design for all stores within Australia. The regular design is an essential component of the ALDI brand and more importantly is a functional necessity due to particular operational arrangements ALDI have as outlined above.

However, in some situations a more unique store design is warranted and this is the case with the Norwood Green development.

A one-off building design is proposed for the ALDI Norwood store due to a number of contributing factors including:

- The location of the land as a landmark site on Magill Road;
- The proximity of a number of Local Heritage Places including the Alma Hotel;
- The proximity of high and low voltage powerlines along Magill Road
- The gradient and topography of the site; and

- The interface and desired streetscape transition in built form from the adjoining Alma Hotel thorough to the proposed seven (7) storey mixed use apartment buildings on the balance of the site.

A number of architectural options have been explored with design input from 'Select Architects' and TECTVS Architects as well as urban design and landscape advice from Hassell.

Important to note is the significant departure of the proposed Norwood Store design from the typical ALDI form.

The Norwood ALDI supermarket has been designed to successfully complement and integrate with the overall site master plan. It has been designed from 'first principles', with careful consideration of building scale, use of materials and an intimate understanding of the overall site geometry and the surrounding mixed-use development.

Given the fall in the site from north to south in excess of 2.5m, special attention has been given to site levels to provide safe and convenient access and permeability through and within the site. Careful consideration has also been given to the relationship of the building with Magill Road, car park access and grades, the contextual relationship of the bulk and scale with the adjacent Alma Hotel, and the connection to the specialty retail and residential development on the balance of the site.

The primary ALDI supermarket tower, which is clad in vertical timber style battens, will have a maximum height of 9.48 metres, measured from finished floor level, whilst the secondary timber and perforated metal tower is slightly higher at 10.48 metres from finished floor level. The balance of the building will have a height of approximately 6.48 metres above finished floor level. The variation in height, together with high level feature windows, sunshade canopy and timber batten towers provide strong articulation to the building façade and Magill Road streetscape. The higher timber and illuminated perforated metal tower in the north-eastern corner of the building also assists with the transition to the apartment building and provides a focal entry point to the commercial sector of the development

Materials and finishes further reinforce the proposed uses and include a combination of concrete paving, bitumen and detailed paving treatment highlighting pedestrian links. Trees and high-quality landscaping have been carefully incorporated into the ALDI car park to further connect the ALDI supermarket to areas beyond the site including the specialist retail spaces at ground level within the apartment buildings.

The northern elevation of the ALD supermarket (fronting Magill Road) incorporates high level frameless glazing and glazed edges returning into the timber batten towers on the eastern and western corners. This provide approximately 42% transparency and an active interface with the public realm. This design approach provides a visual connection to the activity within the supermarket. The planter box on the Magill Road boundary assist with the transition to the footpath and public realm, providing a fine grain texture, landscaping and a sheltered place to sit adjacent the existing bus stop on Magill Road. This design treatment also directly assists with the transition of built form to Magill Road.

External plant will be screened from view on a rooftop platform above the north-eastern tower.

Figure 4.1 *Architectural model of Magill Road streetscape looking south-east (Source: Select Architects)*

Figure 4.2 *Architectural model of Magill Road streetscape looking south-west (Source: Select Architects)*

The materials and finishes are sympathetic to the overall design of the site, with the use of red brick, black framed and frameless windows, and timber battens to the tower elements. The red brick façade directly ties-in and complements the matching red brick colonnade of the proposed apartments, assisting to integrate the buildings and create an integrated streetscape appearance to Magill Road.

The existence of adjoining Local Heritage Places has been an influencing factor in the design of the subject building. A contemporary architectural design approach has been adopted, which seeks to contrast and not compete with the historic Alma hotel. The use of a sympathetic material pallet, including the red brick façade, ensures the proposed building is complementary and does not detract from the setting of the adjoining heritage building.

Figure 4.3 *Magill Road Streetscape Perspective (Source: TECTVS & Select Architects)*

Full details of the proposed external materials and finishes are contained on the elevation plans (***Appendix 5***) prepared by Select Architects and include:

- Parapet capping – Colorbond® 'Basalt';
- Precast concrete –'Fluorescent Fire' & 'Drive Time';
- Panel lift door – Colorbond® 'Basalt';
- Face Brick – Selected red brick;
- Vertical timber style batten screening – Modwood 'Blackbean';
- Aluminium window frames – powder coated Dulux 'Olde Pewter';
- Mesh Screen – Colourbond 'night sky';
- Metal work – Colourbond 'Night Sky'
- Door and frame – 'Fluorescent Fire' & 'Basalt';
- Shopfront – colourbond 'Night sky';
- Roof cladding – Zincalume® sheeting 'surf mist';
- Gutters and Downpipes - Colorbond® 'Basalt'.

Signage

Proposed signage is generally integrated into the building rather than being applied to the surface.

The application proposes to erect two (2) internally illuminated gable signs on the ALDI supermarket tower in the north-west corner of the building and two (2) internally illuminated gable signs on the perforated metal tower in the north-eastern corner of the building, adjacent Magill Road. Two (2) primary internally illuminated gable signs measuring 2.0m by 2.44m are also proposed on the southern elevation, adjacent the pedestrian entrance to the building. An externally illuminated 'tomato graphic' (lifestyle image) is proposed on the southern elevation of the building adjacent the at-grade car park and a small 'airlock decal sign' and 'digital poster box' is proposed to clearly identify the store entrance at the south-eastern corner of the building. Specific details of each sign are outlined in the Architect drawings located in *Appendix 5*.

4.3.2 *Residential Townhouses (Dwellings)*

Key development metrics for each townhouse are provided in *Table 4.1* below.

Table 4.1 *Proposed Townhouse Typologies*

Townhouse	Definition	Area (Internal/ m²)	Bedrooms	Car Parking (spaces)	Private Open Space (m²)	Storage (m²)	Number
Type A1	Detached Dwellings	138	3	2	19	9	2
Type A2	Detached Dwellings	168	3	6	24	10	3
Type A3	Detached Dwellings	132	3	1	35	4	1
Type A4	Detached Dwellings	132	3	1	58	4	1
Type B	Detached Dwellings	133	2	26	10	3	13
Type C	Detached Dwellings	214	3	8	38	10	4
Type D	Group Dwellings	183	2	18	7	10	9
Total	-	-		62 spaces			33

Key development metrics for each townhouse type are also provided in Design Report prepared by TECTVS Architects attached in *Appendix 6*.

The townhouse style dwellings are proposed to reflect the nearby lane culture and industrial history of the site.

The attached 'Design Report' prepared by TECTVS in *Appendix 6* provides a detailed architectural statement for the development including information on the applied architectural philosophy and language of the proposed townhouses including materiality and detailed floor plans.

The two and three storey townhouses have been designed to create a laneway feel, with brickwork, blockwork and colour combining with various roof lines to add character.

Townhouse Type A

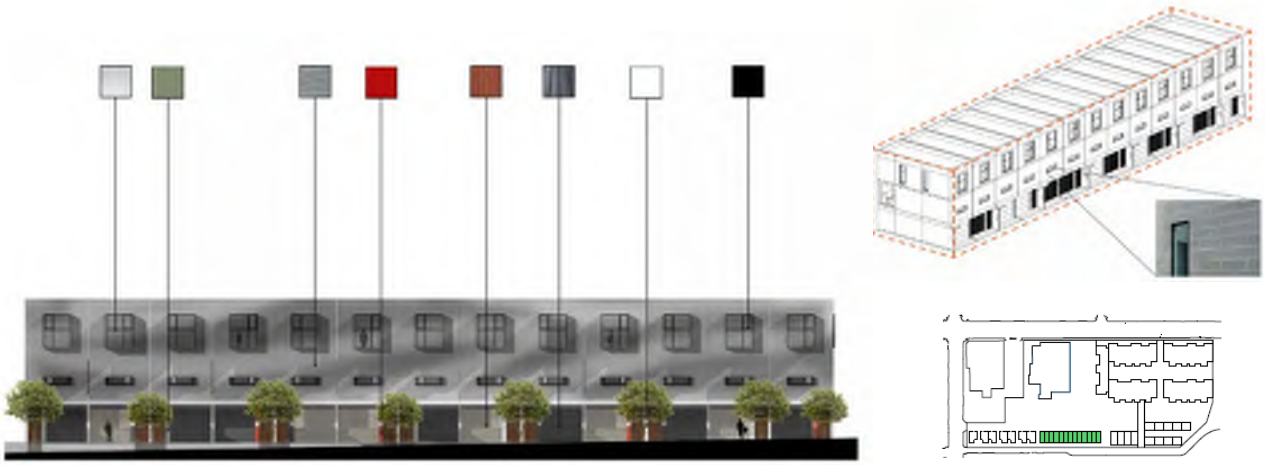
The seven (7) two storey Type A townhouses incorporate confident clean pitched roof's and are clad in metal in reference to the adjacent Alma Hotel and nearby townhouses.

Figure 4.4 *Townhouse Type A (Source: TECTVS Architects)*

Townhouse Type B

The thirteen (13) three storey Type B townhouses draw on the extended history of the site as a former box factory with a series of industrial, almost box-like dwellings. These townhouses are proposed to be constructed in blockwork to emphasise the strong industrial forms and an honest material language.

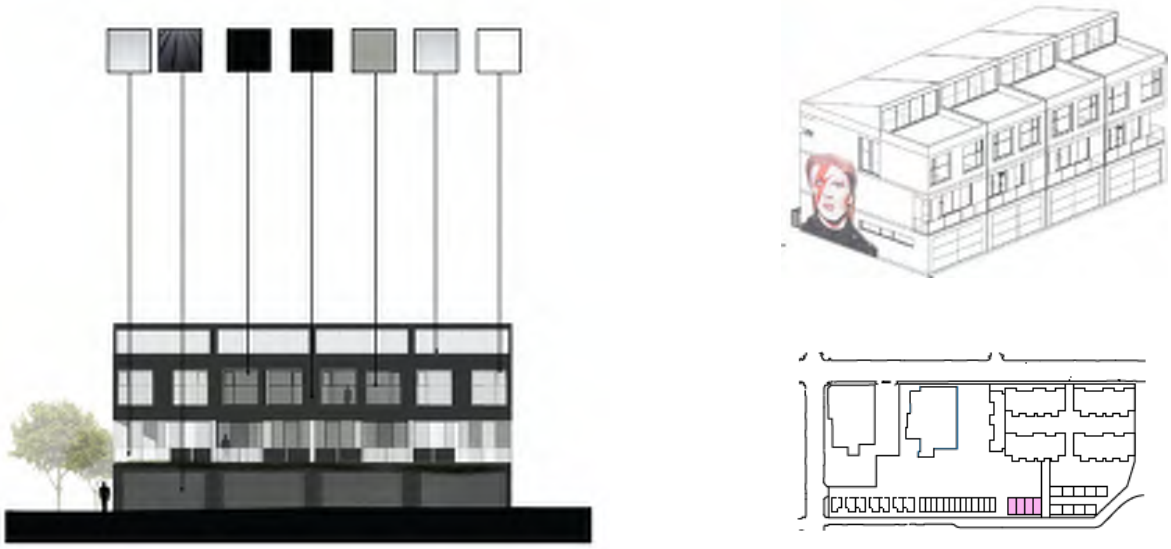
Figure 4.5 *Townhouse Type B (Source: TECTVS Architects)*



Townhouse Type C

The four (4) three storey Type C Townhouses reference the area's contemporary urban influences with feature walls on the East and West side providing space for urban street art.

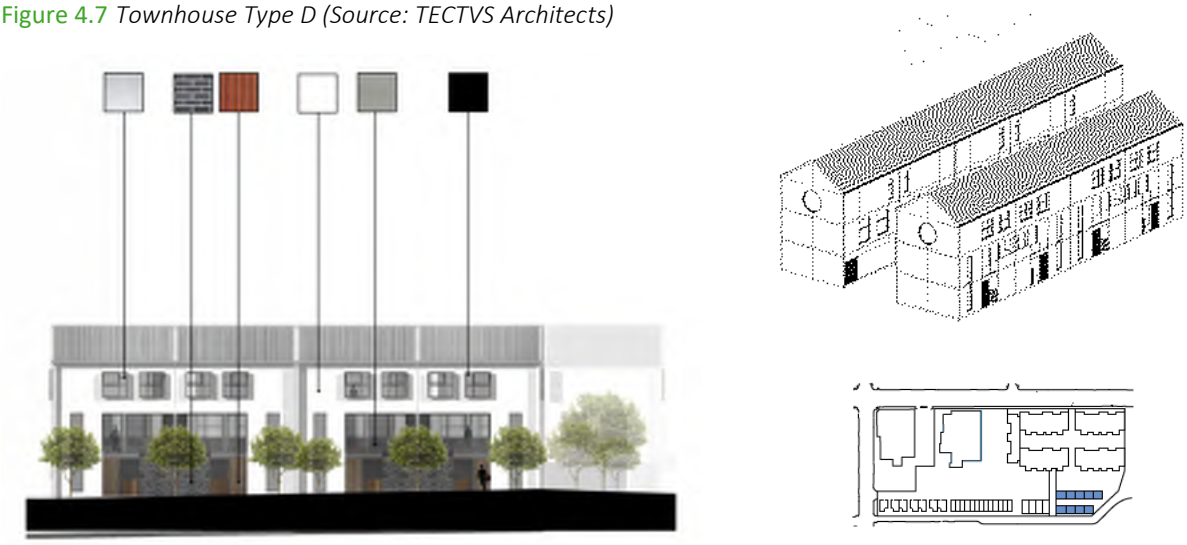
Figure 4.6 *Townhouse Type C (Source: TECTVS Architects)*



Townhouse Type D

The nine (9) three storey Type B townhouses draw on the language of neighbouring townhouses with roof-lines that produce an iconic cultural reference.

Figure 4.7 *Townhouse Type D (Source: TECTVS Architects)*



4.3.3 *Mixed Use Apartment Buildings*

The proposed apartment configuration and distribution is provided in ***Table 4.1.***

Table 4.1 *Proposed Apartment Composition*

Townhouse	Building A (North West)	Building B (north East)	Building C (South West)	Building D (South East)	Building E (West)	Total
Ground	0	0	0	0	0	0
First	8	8	7	8	4	35
Second	8	8	8	8	4	36
Third	8	8	8	8	4	36
Fourth	8	8	8	8	3	35
Fifth	8	8	8	8	3	35
Sixth	7	7	7	7	3	31
Total	47	47	46	47	21	208

Key development metrics for each apartment type are provided in the Design Report prepared by TECTVS Architects attached in ***Appendix 6***.

The attached 'Design Report' also provides a detailed architectural statement for the development including information on the applied architectural philosophy and language of the proposed apartments including materiality and detailed floor plans.

The proposed mixed-use apartment buildings (Residential Flat Buildings) are seven (7) storeys and built to a maximum height of 24.5 metres above ground level. The apartments incorporate 1,300m^2 of retail floor space at ground level to sleeve proposed under croft car parking and to activate both Magill Road and the Urban Promenade connection through the site (from Stephen Street to Magill Road).

In accordance with preliminary design feedback provided by both ODASA and Council, the apartments incorporate a minor ground level canopy extending over the southern footpath of Magill Road to provide pedestrian shade and shelter. It is recognised that this component of the development will require separate 'encroachment consent' of the City of Norwood, Payneham and St Peters Council.

The apartments include an under croft car park comprising 107 car parking spaces for visitors and residents and a basement car park comprising 198 car parking spaces reserved for residents of the apartments. Access to under croft car parking is proposed via a single crossover on Magill road while access to basement car parking is proposed via a private internal road from Stephen Street.

The apartments incorporate a Level 1 building courtyard space which is accessible only to residents of the apartments. Utilising the same design narrative and form as the public open space the building courtyard provides a series of outdoor rooms which provide users with opportunities to seek solace or socially engage with other residents. Spaces are sized from intimate small gathering spaces to large communal group gathering spaces.

Figure 4.8 *Level 1 Building courtyard space - Communal Open Space (Source: Hassell)*

Level 1 apartments which address the building courtyard have their own private spaces, which are physically separated from the communal area with a palisade fence, which is scaled and softened with raised planters.

Large group gathering spaces are concentrated at the centre of the courtyard space, which is also aligned with the main access from the external public open space. This central space features a large pavilion and BBQ facilities, with a paved plaza and tree canopy supported by large turf areas directly adjacent, allowing residents to spill from the pavilion onto the turf areas.

The smaller rooms provide a variety of smaller communal seating environments enclosed with vegetation and a tree canopy above. Water features are proposed to provide a background noise to help residents immerse themselves into the landscaped environment of the courtyard. The outdoor rooms adjacent to the apartment entries form the lifts feature a paved bosque with informal seating arrangement

Apartments are proposed to be contemporary in style, with creative façade articulation that combines a series of interpretive yet functional elements with 'pops of colour'. The design of the facade draws on the Caroma factory's existing colour coding scheme and floor patterning. Originally used to delineate pedestrian/equipment/ vehicular zones and provide high visibility, it's interpretation across the facade will articulate the apartments' various formal and programmatic changes.

Figure 4.9 *Design of Apartment Façade -Apartments A -H (Source: Tectus Architects)*

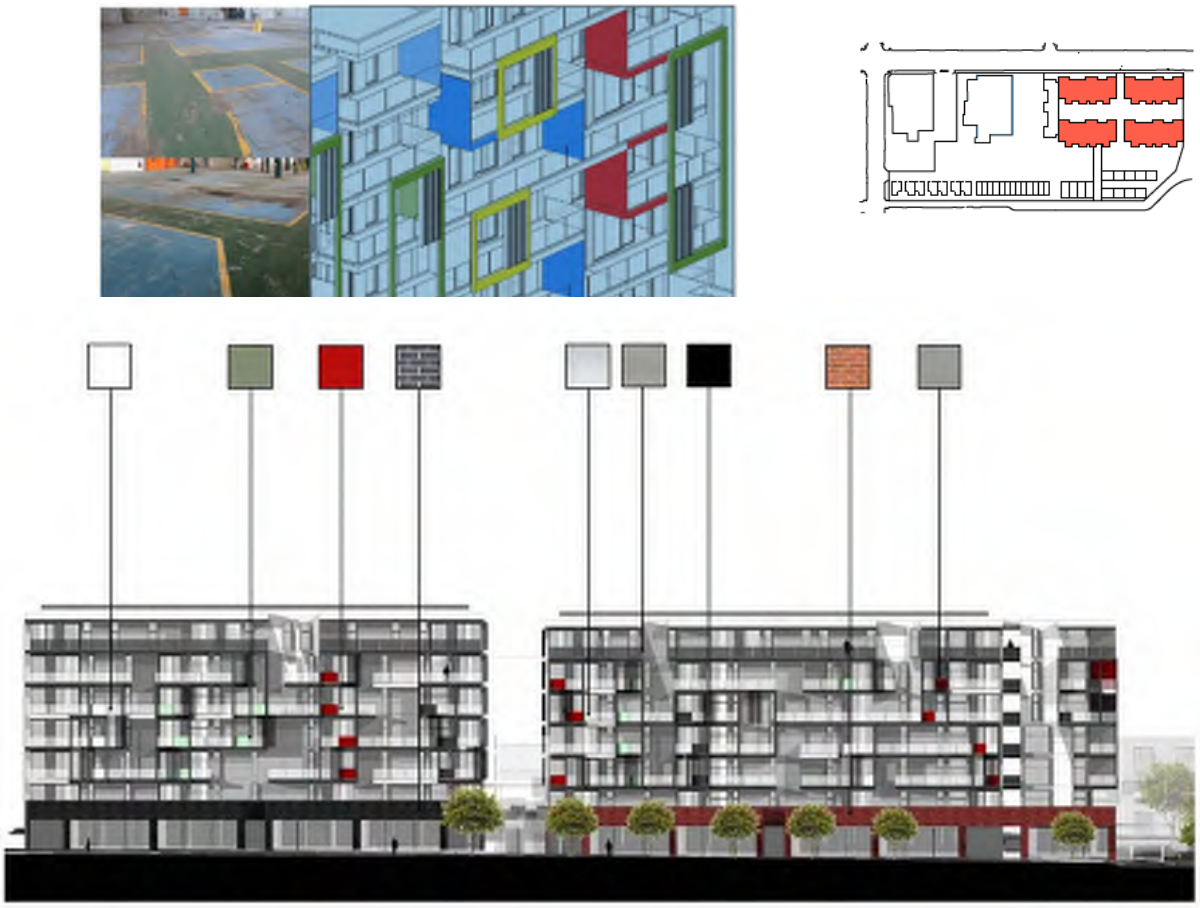


Figure 4.10 *Design of Apartment Façade - Apartments I – J (Source: Tectus Architects)*

In accordance with design guidance and advice provided by ODASA, the apartments are proposed to be constructed with treated pre-cast in an 'off-white' colour. The eastern elevation of the apartment buildings has also been articulated with 'banding' in a black magic paint finish. Full details of the proposed external materials and finishes are contained on the elevation plans (***Appendix 5***) prepared by TECTVS Architects and include:

- Treated Precaset – off white;
- Paint Finishes – Black Magic, China white, Quagmire, Burnished Russet, Arid Land & Charcoal;
- Face Brick Types – Charcoal, White & red;
- Face Block Type - Grey
- Glass Type – Clear, translucent & Grey;
- Window Frames – Anodized, Black and White;
- Balustrades – Clear Glass, Translucent Glass, Opaque Panel & Metal Screen
- Metal Cladding – Monument, Surfmist, Heritage Galv & Zincalume;
- Garage Doors - Surf Mist, Polycarbonate, Timber
- Timber – Spotted Gum & Painted

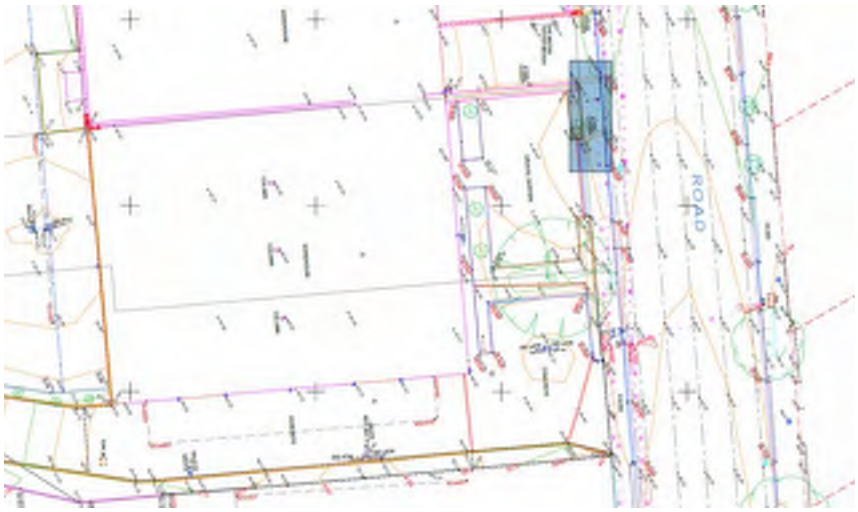
With the exception of treated pre-cast walls, these materials and finishes are also utilised on the proposed townhouse dwellings.

4.4 Open Space, Landscaping & Public Realm

4.4.1 *Regulated Tree Removal*

Only one existing regulated tree is proposed to be removed to accommodate the future development and this tree will be replaced with an extensive landscaped public and communal open space network. The existing regulated tree is identified in ***Figure 4.11*** below and in image 8 on ***Figure 3.5*** . The tree has a circumference of 2.6 metres and is located adjacent to Magill Road in a position that would inhibit the future reasonable and expected development of the site in accordance with the primary Objectives and Principles of Development Control of the Urban Corridor Zone.

Figure 4.11 *Regulated Tree (Source: Alexander Symonds)*



4.4.2 *Site Landscaping Masterplan*

An overall Landscape Master Plan has been prepared by Hassell and is attached at ***Appendix 7*** and seek to establish a public realm which supports a flexible indoor – outdoor lifestyle to create a community within a community.

The design narrative responds to the unique context and heritage of the site and draws inspiration from the shape, form and stacking nature of boxes and brickwork associated with the sites past use for brickworks and a box factory before becoming the Caroma factory as it remains today.

The landscape master plan seeks to maximises opportunities for a pedestrian permeable and landscape focussed ground plane which unifies the development within the surrounding neighbourhood context and establishes a healthy communal offer.

The layered programme that links internal and external living with passive and active lifestyle activity encourages incidental contact and connection – fundamental to a sense of community.

The open and permeable site allows for connection and interaction between:

- Existing neighbours / residents;
- Apartment residents;
- Townhouse residents; and
- ALDI and retail shoppers.

The landscape master plan provides a connected and integrated place for living that brings together the resident groups and provides a catalyst for positive interaction and a place for social and cultural exchange.

A key component of the landscape master plan is a publicly accessible communal open space area of approximately 1,139m^2 to the south of the proposed apartment buildings. This communal open space has been designed as a series of small outdoor rooms with each room catering for differing experiences and activities. The rooms comprises an outdoor turf activity zone (associated with an internal recreation room), a raised timber deck alfresco area, a large communal table and a sunken turf lounge area with perimeter retaining wall.

Figure 4.12 *Publicly Accessible Communal Open Space*

4.4.3 *Public Realm Improvements*

The landscape masterplan prepared by Hassell includes indicative concepts for the public realm including the Town Piazza, Urban Promenade and Stephen Street. The landscape master plan is attached at ***Appendix 7***.

A proposed plan of division will be lodged as a separate application for Development Plan Consent and Land Division Consent and this application will excise and vest proposed public open space with Norwood Payneham and St Peters Council (pursuant to Section 50 of the *Development Act, 1993*). This proposed plan of division will also vest land with Council to widen Stephen Street (pursuant to Section 52 of the *Development Regulations, 1993*).

A brief description of proposed treatments to the public realm, subject to the separate future agreement and consent of Council, is provided below.

Stephen Street

The approach to Stephen Street is to create a pedestrian friendly and green laneway environment.

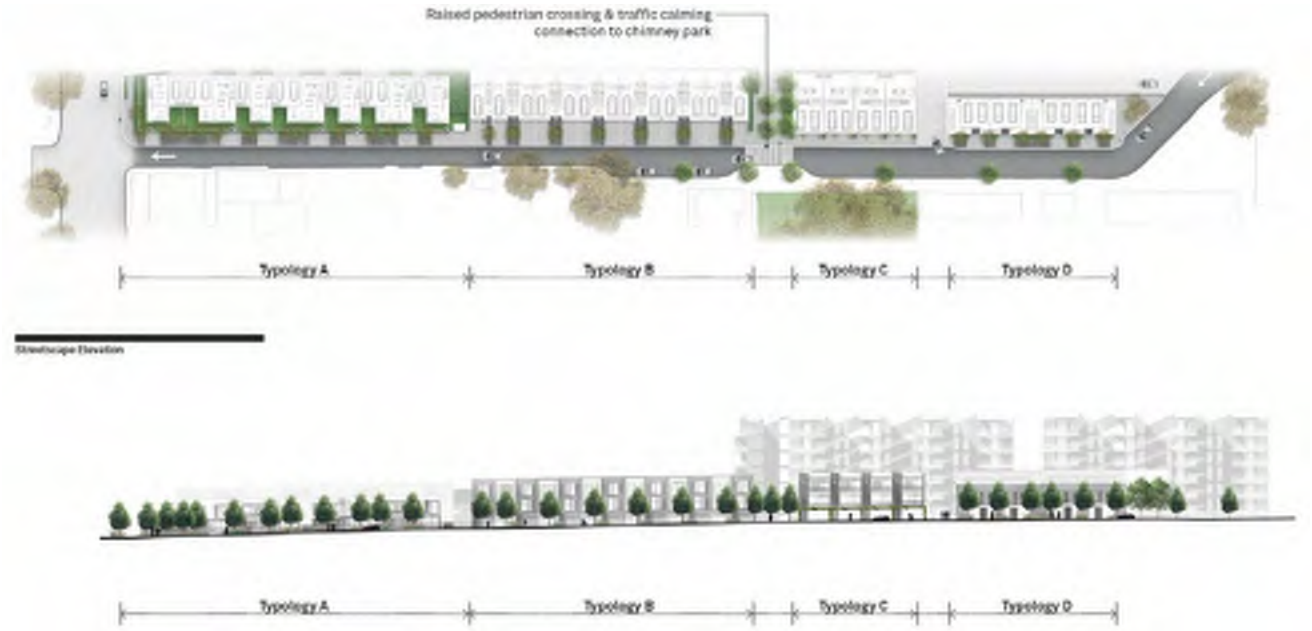
The proposed footpath treatment uses scale changes to delineate between circulation zones and private residence entry points. Subtle material or textural changes will also be used to demarcate the property boundary for easy understanding of maintenance responsibilities between the public and private realm.

Pavement treatments above the street tree root zone will be either a permeable paver of paving bands with infill of planting or resin bound gravel, to enable the tree root zone to breathe and for infiltration of moisture during the winter months. Final pavement materiality and treatment will be subject to further discussions and agreement with Council.

The opportunity exists to change the character of Stephen Street by addressing townhouses onto the Street, removing the presences of garages as well as the provision of footpaths and streetscape treatments in the form of street tree plantings and low level garden beds.

The various streetscape typologies proposed for Stephen Street are provided within the Landscape Master Plan prepared by Hassell attached at *Appendix 7*.

Figure 4.13 *Stephen Street Streetscape (Source: Hassell)*



Town Piazza

A central public open space reserve is provided and has been designed as a Town Piazza that creates a series of outdoor rooms and plateaus that respond to the site topography. The Town Piazza features approximately 2m of level difference from west to east, resulting in four (4) distinct levels. Universal access is provided between levels by a 1:14 ramp located on the northern edge of the open space.

Direct access through the space is provided by a series of stairs, which transition into low height retaining walls, which also double as informal seats and ledges.

The lowest plateau closest to the carpark will provide outdoor dining opportunities in a hard paved environment with tree canopy above. The second plateau which is the largest space in the Town Piazza provides flexibility to host events or to enable larger groups gathering on the lawn area or beneath the trees.

The two eastern most plateaus are smaller than the western two spaces and predominantly provide circulation through the space, access to the apartments and more intimate settings for people to sit, read and engage with nature.

Figure 4.14 *Town Piazza - indicative Concept (Source: Hassell)*

Urban Promenade

The Urban Promenade provides the main north south pedestrian connection through the site, connecting Stephen St, Chimney Park and community to Magill Road.

A generous 6m Urban Promenade is provided through a green colonnade comprising a living trellis adjacent a retail frontage. The space is broken down into a 2.4m wide dinning / street trading zone along the building edge, a 2.4m circulation zone in the centre and a 1.2m garden bed and carpark unloading zone kerbside.

The living trellis system comprises a continuous awning to the retail frontage, featuring battens and solid panels at retail tenancy doorways.

Figure 4.15 *Urban Promenade – Indicative Concept (Source : Hassell)*

4.5 Transport, Parking and Access

GTA Consultants have undertaken a detailed traffic and parking assessment of the anticipated transport implications of the proposed development, including consideration of the following:

- existing traffic and parking conditions surrounding the site;
- parking demand likely to be generated by the proposed development;
- suitability of the proposed parking in terms of supply (quantum) and layout;
- traffic generation characteristics of the proposed development; and
- proposed access arrangements for the site.

A copy of the Transport Impact Assessment prepared by GTA is attached at ***Appendix 8***.

4.5.1 *Access/Egress*

Proposed vehicle access and egress to the site is identified in Figure ***4.16*** and summarised as follows:

Public Access – Magill Road

Access to the public and car park servicing the retail tenancies and residential apartments is proposed via a two-way crossover on Magill Road. The proposed access will accommodate left and right turns into the site and left turn exits onto Magill Road. A channelised right turn lane has been proposed for Magill Road to ensure right turning traffic is separated from through traffic.

The access will primarily cater for light vehicles however will also cater for a small volume of commercial traffic requiring loading access for the speciality retail tenancies.

ALDI Access 1 – Eastern Access on Magill Road

A light vehicle entry has been proposed east of the proposed store location. This access point will facilitate left and right turn entry and left turn exit. A channelised right turn lane has been proposed for the access.

ALDI Access 2 – Western Access on Magill Road

The access point west of the proposed store will facilitate ingress movements for trucks only.

Bus Stop 4 on Magill Road will require relocation to between the western and eastern ALDI access on Magill Road to accommodate the installation of the western access.

ALDI Access 3 – Access on Sydenham Road

Access to and from Sydenham Road will be provided via a proposed laneway. The proposed carriageway width will be suitable for two-way movements for ALDI traffic and residential traffic from the adjacent townhouses. The access will also facilitate the ALDI delivery vehicle exiting the site to return to Magill Road via Sydenham Road. Seven (7) of the proposed town houses (Type A) will have garages facing the laneway. These garages will be setback 3 metres to provide improved access and sight lines for vehicles reversing from a garage. This will assist with managing safe access to these garages during peak times of the adjacent uses.

Residential Apartment Driveway – Access on Stephen Street

A residential apartment driveway is proposed from Stephen Street to the basement car park. It will accommodate two-way traffic.

Residential Townhouse Laneway – Access on Stephen Street

An access for nine (9) townhouses (Type D group dwellings) is proposed onto Stephen Street. The access will be 6.0 metres wide and facilitate two-way traffic to and from Stephen Street. This lane will not enable access to the apartment driveway to the west.

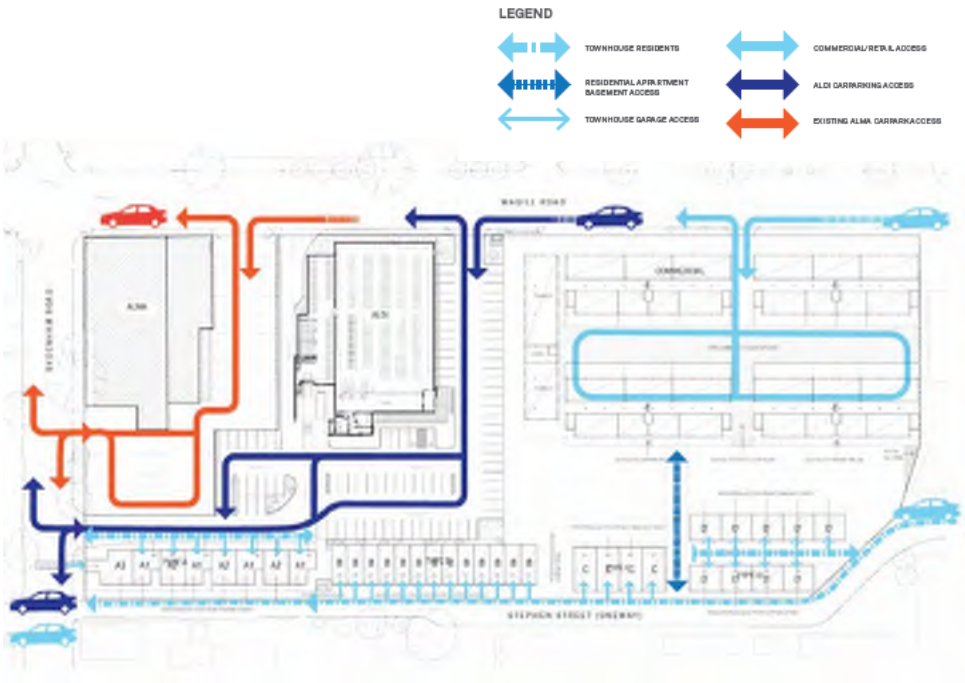
Waste Collection Driveway– Access on Stephen Street

A driveway from Stephen Street is proposed to facilitate refuse collection for a 10.6 metre refuse vehicle. Based on rear-loading by this vehicle, the vehicle will reverse into the driveway, and then exit with a forward movement back to Stephen Street. It is understood this may occur approximately three (3) times per week.

Townhouse Access

There are also 17 townhouses which are proposed to have direct access from Stephen Street.

Figure 4.16 *Motor Vehicle Access (Source: Hassell)*



Magill Road Median Treatments

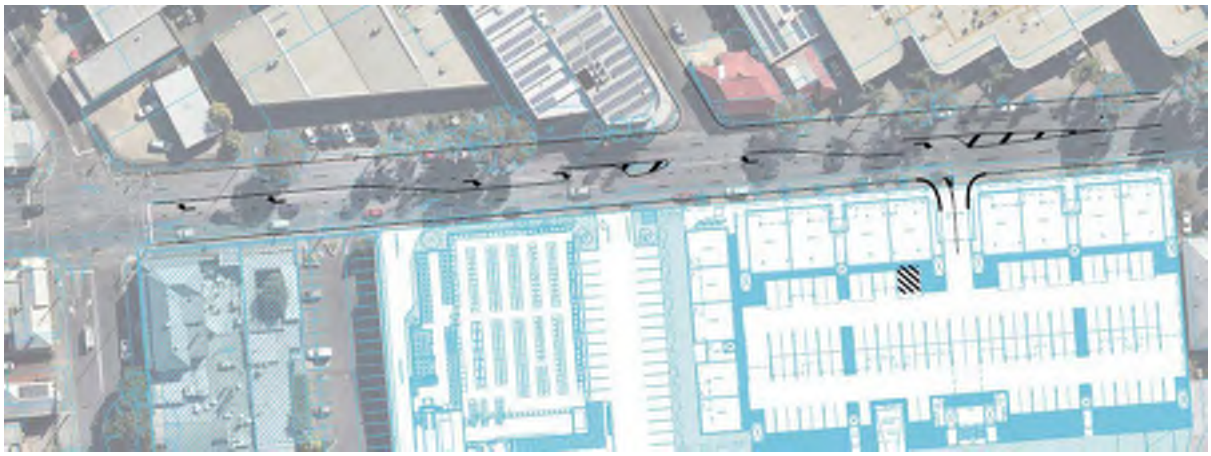
A channelised right turn lane into the ALDI site is proposed backing onto the right turn lane onto George Street.

A full width channelised right turn lane cannot be provided without reducing the capacity of the right turn lane onto George Street.

A back-to-back right turn lane has also been provided for the apartment car park and Stepney Street with a 17.5-metre-long travel lane and 20 metre taper. This will facilitate 3 – 4 vehicle storage and has been designed in accordance with the DPTI Road Design Standard S-4069 '*Typical Median Opening Treatment*'.

The proposed treatment along Magill Road is illustrated in ***Figure 4.17*** prepared by GTA.

Figure 4.17 *Magill Road Treatments (Source: GTA Consultants)*



On this basis, the part-time bicycle lanes along Magill Road will need to be removed to facilitate the median treatment however the bicycle lane presently ends just prior to the Sydenham Road intersection.

The actual impact on cycling will be minor with discontinuous bicycle lanes to the west on Magill Road. Alternative bicycle routes are also available (via Beulah Road to the south) for safer travel by cyclists not confident enough to contend with sharing the kerbside lane with traffic. The lack of bicycle lane will not deter the more experienced commuter cyclists using Magill Road.

4.5.2 *Traffic Impact.*

GTA has undertaken an analysis of the development accesses and surrounding intersections pre and post development. The results are presented in the Traffic Impact Assessment Prepared by GTA and attached at *Appendix 8*.

The analysis undertaken by GTA reveals that the site is expected to generate in total 500 trips per hour during the PM peak period. The AM period would be much less with 162 trips anticipated consisting mostly of residential trips with the retail uses not generating very much traffic at this time.

The intersections adjacent the site have been modelled using *SIDRA Intersection 7.0*. The outputs from the results confirmed that all intersections would operate at a suitable level of service with average queue lengths and delays within acceptable limits. The existing Magill Road/Sydenham Road/George Street Intersection will

maintain the same level of service with only marginal increases in the average delay and 95th percentile queue length.

GTA have therefore confirmed that the impact on the adjacent road network will be minor based on the anticipated traffic generation of the site and proposed median treatment on Magill Road.

4.5.3 *Car Parking*

The proposed development includes a total of 456 car parking spaces as follows:

- ALDI car park– 89 spaces including 2 parking spaces for people with disabilities;
- Apartment building car park – 305 spaces (including 7 parking spaces for people with disabilities) with 45 spaces allocated to retail with 260 spaces allocated for residential use.
- Townhouses – 62 Parking spaces (including 13 tandem visitor car parks associated with Type B Townhouses)

The proposed development has been designed to provide adequate car parking in accordance with the Norwood Payneham and St Peters Development Plan as follows:

- Retail – a total of 134 spaces are proposed which satisfies and achieves the desired minimum and maximum range of parking stipulated in the table NPSP/9A of 89 spaces and 148 spaces respectively;
- Residential Apartments – A total of 260 spaces are provided representing 1 space per 1 and 2 bed apartments and 0.25 spaces per dwelling for visitors; and
- Townhouse Dwellings – Designed to proved a total of 62 spaces exceeding the minimum requirements of 44 space based on the requirement of 1 space per 1 and 2 bed dwellings and 2 spaces per 3 bed dwellings.

The proposed parking layout is consistent with the dimensional requirements as set out in the Australian/New Zealand Standards for Off Street Car Parking (AS/NZS2890.1:2004 and AS/NZS2890.6:2009) for a Class 2 and Class 3A facility.

4.5.4 *Bicycle Parking*

The Development Plan identifies a minimum bicycle requirement of 176 spaces with a requirement of 104 spaces for residents, 42 spaces for visitors, 20 spaces for employees and 10 spaces for retail.

The proposed development provides 208 bicycle parking spaces for residents in the form of a bike rack in each apartment. Secure communal bicycle storage is also proposed on the southern side of the basement car park.

A bicycle rail will be provided within the ALDI component of the development for customers and staff bicycle parking.

Proposed bicycle parking therefore exceeds minimum Development Plan guidelines

4.5.5 *Deliveries and Service Vehicles*

ALDI Supermarket.

The ALDI supermarket loading area is proposed adjacent the building at the western side of the site, with entry proposed via Magill Road and egress proposed via Sydenham Road (before 10:00pm) and Magill Road (after 10:00pm).

The loading dock will be provided in accordance with ALDI's standard detail and approximately two (2) deliveries per day are anticipated. A bin store is also proposed to be located in the loading dock area.

ALDI deliveries will be made using vehicles up to 19.0 metre semi-trailers however it is noted that the site has been designed for access by semi-trailers up to 20.0 metres. A swept path analysis has been carried out by GTA and demonstrates adequate clearance for required service vehicles.

Waste collection vehicles will be via the proposed loading dock, using the same routes and manoeuvres as delivery vehicles. The vehicles would be a typical commercial waste collection vehicles up to 10.6 metres in length and would access the ALDI supermarket generally on a weekly basis.

Apartment / Retail Tenancy Deliveries

Deliveries for the retail tenancies will take place by vehicles up to a 6.4 metre Small Rigid Vehicle (SRV). Entry and exit will occur via Magill Road with vehicles entering and existing in a forward direction.

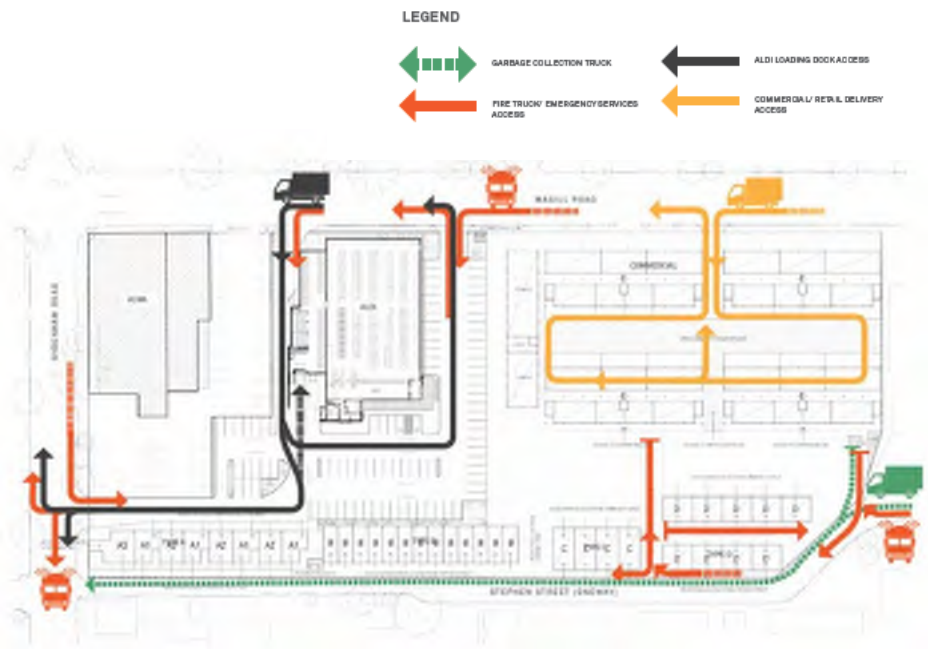
Waste collection for the residential apartments and retail tenancies will occur at the south-east corner of the site, with entry and exit proposed via Stephen Street. Collection will occur by vehicles up to 10.6 metre refuse vehicle with entry occurring via a reverse manoeuvre from Stephen Street. The truck will then exit in a forward direction westbound along Stephen Street. The driveway will be designed to ensure there is suitable sight distance along Stephen Street and adequate separation from the adjacent access servicing the townhouses. The low volume of traffic on Stephen Street will facilitate safe and efficient access.

Kerbside Waste Collection

Townhouse refuse collection will be via kerbside collections which will require parking restrictions or marked bin placement areas to be provided along Stephen Street, Sydenham Street and the Sydenham Street access lane into the ALDI car park.

Kerb side refuse collection will also be provided for the townhouses at the east side of the site, located on the north side of the proposed access lane. A 10.6 metre refuse vehicle can reverse into the access lane, collect refuse then exit back onto Stephen Street in a forward direction.

Figure 4.18 *Loading and Service Vehicle Movements (Source: Hassell)*



4.5.6 *Pedestrian Movement & Permeability*

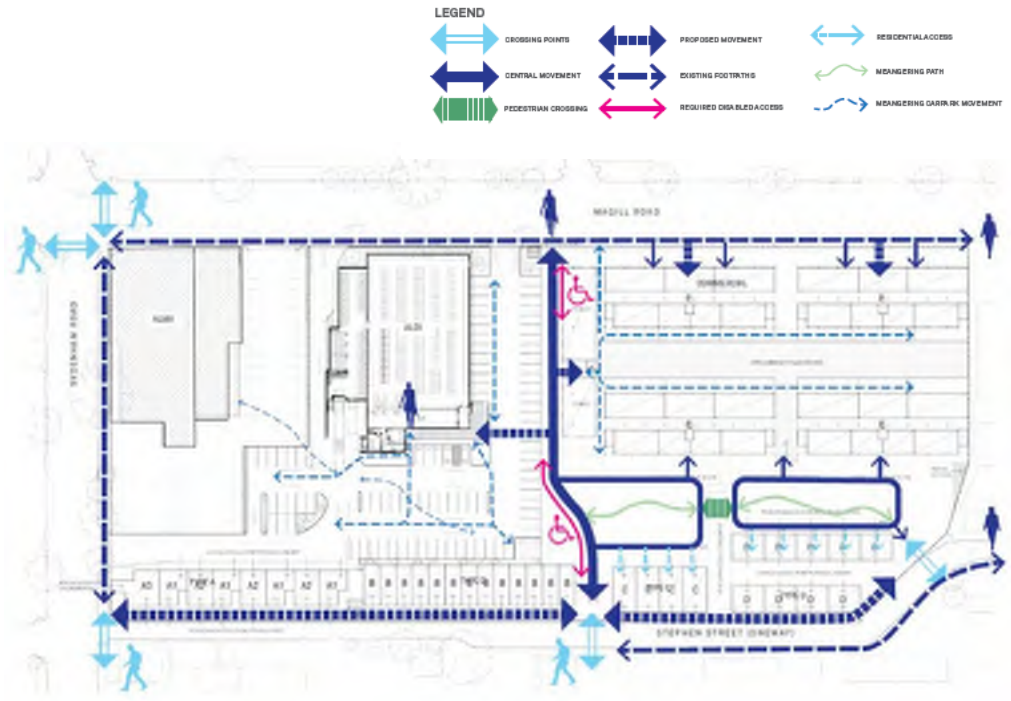
The existing neighbourhood fabric presents a tapestry of small interconnected open spaces, which run from west to east, from the project site to Osmond Terrace and Richards Park. The combination of interconnected open space and pedestrian networks creates a high level of pedestrian permeability.

The proposed development offers strong internal pedestrian connectivity and legibility and has been designed to integrate with the broader neighbourhood pedestrian network. In particular, the Urban Promenade provides the main north south pedestrian connection through the site, connecting Chimney Park and Stephen Street to Magill Road.

Direct pedestrian access from Magill Road will also be available to the retail tenancies and apartments.

Figure 4.19 *Neighbourhood Pedestrian network (Source: Hassell)*

Figure 4.20 *Pedestrian Movement (Source: Hassell)*



4.5.7 *Public Transport*

There are a number of public bus routes within the vicinity of the site which is located within a go-zone, with bus services operating at a minimum 15 minute frequency between 7:30am and 6:30pm Monday to Friday.

Bus Stop 4 on Magill Road is located immediately adjacent the site and will need to be relocated in association with this development.

4.6 Waste Management & Servicing

A detailed Waste Management Plan for the mixed-use apartment buildings and townhouses has been prepared by Colby Industries and is attached in *Appendix 9*. Also attached in *Appendix 9* is a Waste Management Plan prepared for the proposed ALDI Supermarket.

Mixed Use / Residential Waste Management

Colby Industries have estimated the following expected waste and recycling volumes (excluding garden waste and sanitary waste) for the development:

- Residential Apartments & Townhouses: 39,571 litres / week; and
- Commercial Tenancies: 20,368 litres / week.

Colby Industries have also estimated required waste storage areas as well as required waste collection and likely service providers for each land use. These waste metrics are provided in *Table 4.1* below.

Table 4.1 *Waste Storage and Service Provision (Source: Colby Industries)*

Waste Storage Area(s)		Routine Service	Estimated Waste/Recycling Volumes (L/week)	Provider	Collection Frequency (Events/week)	Max. Bins/Items Stored & Collected (per Event)		
						No.	Size (L)	Type
1. Torrens Titled Townhouses, Types A-C (S1 & S2)		General Waste	2206	East Waste Council kerbside	Weekly	21	140	MGB
		Recycling	3067		Fortnightly	21	240	MGB
		Food Organics	1840		Fortnightly	21	240	MGB
2. Community Titled Townhouses, Type D (S3)		General Waste	540	East Waste Council Rear-Lift	Weekly	1	660	Skip
		Recycling	450		Weekly	1	660	Skip
		Food Organics	180		Weekly	1	240	MGB
3. Apartment Buildings	*a. Apartment Buildings A-C Residential (S2)*	General Waste	2760		2	2	1,100	Skip
		Recycling	3833		2	2	1,100	Skip
		Food Organics	2300		2	2	660	Skip
	b. Apartment Buildings D + E Residential (S3)	General Waste	2206		2	2	1,100	Skip
		Recycling	3067		2	2	1,100	Skip
		Food Organics	1840		2	2	660	Skip
	Public Place (S2 & S3)	General Waste	1638		2	2	660	Skip
4. Café tenancies (Shared &/or Separate Bin Sets)		General Waste	3906	Private contractor	3	3	660	Skip
		Recycling	3472		3	3	660	Skip
		Food Organics	4340		3	3	660	Skip
5. Retail (Shared)		General Waste	4278		3	3	660	Skip
		Recycling	4074		3	3	660	Skip

* Compacted waste/recycling volumes – up to 2.5-3× for general waste and up to 1.75× for recycling

Proposed waste storage areas and disposal pathways include:

- Torrens Titled Type A Townhouse dwellings:
  - » Entitled to a standard Council kerbside collection and would store their 3-bin set (140/240/240L MGBs) in their garages.
  - » On Council designated kerbside collection days, these residents would transfer these bins (via private rear lane) to a kerbside collection point on Sydenham Rd or Stephen Street (as agreed with Council and East Waste).
- Torrens Titled Type B & C Townhouse dwellings:
  - » Entitled to a standard Council kerbside collection and would store their 3-bin set (140/240/240L MGBs) in their garages.
  - » On Council designated kerbside collection days, these residents would transfer these bins (via private rear lane) to an on-road kerbside collection point on the opposite side of Stephen Street (as agreed with Council and East Waste).
- Community Titled Type D Townhouse Dwellings:
  - » These residents would dispose of waste into shared skip bins located within a purpose designed bin station enclosure adjacent the eastern boundary of the site.

- These bins would be transferred (and replaced with an empty) in a nearby common (shared with apartment building residents) skip bin presentation room for (weekly) collection by East Waste via the loading area.

- Apartment Buildings A-E residential (inc. public place) waste:
  - Residents in these buildings would have access to local disposal rooms at ground level on the Southern side of the building complex:
  - Residents would access these local disposal rooms using corridors, lifts and/or walkways within or interconnecting the apartment buildings at Ground and Level 1
  - The local disposal room would contain waste-chute like access disposal points that discharge to a waste room below at Basement level where bins would be located and swapped over with empties when full.
    - The local disposal rooms would include a 660L skip bin for disposal of flat-packed large cardboard items/boxes by residents to minimise potential blockage of the waste-chute like access disposal points.
    - The chutes for general waste & recycling would include a compactor that would reduce volume.
    - The waste rooms at Basement level would include extra bins for public place waste disposal by the Body Corporate.
  - Full bins would be transferred using tug and vehicular driveway and ramp to ground level to the common (shared with Townhouse Type D) skip bin presentation room adjacent the eastern boundary for (twice weekly) collection by East Waste via the designated Loading area.

- Apartment Buildings - commercial tenancies:
  - Commercial tenancies would be provided with dedicated or shared (walk-in) waste rooms in the basement, accessible using lifts and corridors, for disposal of waste & recycling.
  - Before designated collection days, the commercial tenants would arrange for bins to be transferred (and swapped over with empties) using a tug to a separate ground-level shared presentation room for collection by private contractor.
  - The final configuration of these waste rooms, types and size of bins and collection services would be decided when the tenancy is leased.

The disposal pathway and collection of waste for each land use and tenancy is described in detail within the proposed Waste Management Plan by Colby Industries. Details on proposed waste collection vehicles and access is also described in Section 4.5.5 above.

ALDI Supermarket Waste Management

ALDI's in store operation is considerably different when compared with other supermarkets. All products ALDI retail are delivered pre-packaged. ALDI do not undertake the preparation of food for sale on site and do not

have an in-store delicatessen, butcher, bakery or green grocer. This results in the waste streams and quantities of waste generated being a small proportion of that generated by a conventional supermarket.

Each store is supplied with a single 1.5 cubic metre bin. The bins are fully contained and equipped with a hinged lid and contained in the bin enclosure in the loading dock.

Each store bin is located within a secure enclosure and the collection of the bin is undertaken by a third party contractor who services the store on average three times per week. The collection will be managed at ALDI's request at specified times and coordinated to avoid any conflict with ALDI transport deliveries.

4.7 Stormwater Management

Wallbridge and Gilbert have been engaged to compose a stormwater management report for the proposed development (refer to *Appendix 10*).

Wallbridge and Gilbert have confirmed that the existing site is fully developed to total impermeability, with most of the area being covered by large roofs and the remainder comprising sealed industrial pavements.

Whilst some aspects of the internal stormwater drainage system finds its way to the Stephen Street system currently, a large portion of the existing site generally discharges into the Magill Road watertable via a substantial number of galvanised box drains.

Council have confirmed the following storm water requirements with respect to the site:

- On site detention storage (to reduce the peak flow rate) is required to reduce the site outflow. Although the future site will be more permeable than it currently is, downstream Council systems are often over-capacity with public flooding being the result. Norwood Green are to therefore limit the 'post-development' stormwater outflow in 1 in 5 year ARI events to no greater than the existing 'pre-development' outflows occurring in 1 in 100 year ARI events. This is a significant reduction in what currently leaves the site to be collected on Magill Road itself.
- Site levels are to be set to provide a clear overland flow path for the 1 in 100 year flows where possible
- Stormwater quality improvement measures (such as GPTs) are encouraged to treat the quality of the stormwater runoff from any trafficable areas (outdoors car parks etc).

The site has been divided into two individual precincts (ALDI & Mixed Use), to minimize the need for future easements across titles.

4.7.1 *ALDI Supermarket*

Some of the ALDI discharge is proposed to be directed, in a controlled manner, to the Magill Road watertable, whilst the majority will be directed to an existing 825mm underground stormwater main located within Sydenham Road. The discharge from the ALDI precinct is to be limited to approximately 102L/Sec in total (the discharge to the Sydenham Road system will be limited by an orifice fitting). Oversized underground pipes are intended to provide the majority of this storage, with use also made of the loading dock recess during more extreme events.

4.7.2 *Mixed Use Buildings*

Preliminary stormwater calculations to meet Council's discharge requirements for the 100 year ARI event for the balance of the site indicate that a portion of the stormwater may be discharged immediately from the site whilst a significantly larger volume is required to be temporarily stored (detained).

The immediate discharge is to be directed to both the Magill Road and Stephen Street water tables with the detention volume balance captured in large underground tanks placed below the basement level. Multiple pumps will gradually empty these tanks towards Magill Road via spaced box drains, each limited to 20 L/sec output. Preliminary calculations reveal that on this portion of the site a detention capacity of 212m^3 and a maximum outflow of 108.1 L/sec must be met.

Relatively clean roof water could be separated for potential re-use, whilst the majority of the external carpark collection will pass through an adequately sized Pollution Control Device (such as a Rocla First Defence FD450 or similar) prior to entering the Detention Tank.

4.8 Building Services

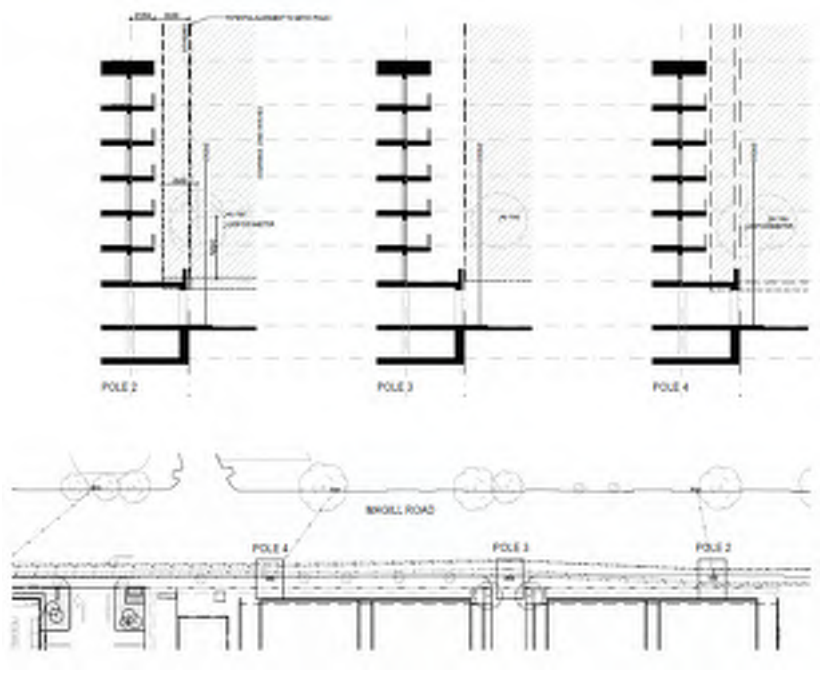
Lucid Consulting Australia have been engaged to assess:

- The Capacity of existing Services Utilities infrastructure to cater for the overall site redevelopment;
- Modifications/upgrades required to existing Services Utilities infrastructure to cater for the site redevelopment and to establish suitably sized services connections to the site;
- The opportunities to share infrastructure between the adjacent developments.

The Lucid Service Infrastructure Report is attached in ***Appendix 11*** and demonstrates that the site can be suitably serviced with required power, sewer, potable water, gas and communications infrastructure.

The Lucid Report also provides guidance on the setback requirements of proposed buildings on site to avoid high voltage (11kv) and low voltage cables that run adjacent the entire length of the site, along Magill Road. The report confirms that the proposed ALDI Building will need to be setback a minimum of 2010mm from the front boundary to achieve the minimum setback dimension of 3.1 metres from bare 11Kv cables or equipment. The setback of the apartment buildings has also been determined based on the nearest high voltage cable / equipment on Magill road as demonstrated in ***Figure 4.21***.

Figure 4.21 *Building Safely near Power Lines*



In addition, a stobie pole (Pole 3) has been identified as clashing with a vehicular exit from the proposed undercroft carpark of the Mixed-Use Residential/Commercial building. Discussions have been undertaken with SAPN in relation to relocating this stobie pole west to clear the driveway.

4.9 Sustainability (ESD)

D Squared have been engaged to work with the consultant team to prepare a sustainability strategy and ESD initiatives for the site in order to reduce the development's impact on the environment in both construction and operation.

The Sustainability Strategy is attached in ***Appendix 12*** and confirms the sustainability vision for the development to create a place designed for wellness, where the residents can be healthy, and are helped by the built environment to feel good.

The Sustainability Strategy identifies the following proposed sustainability initiatives:

- Community and Social Sustainability;
  - The site layout is designed around a courtyard and open space layout to maximise community connection, and views from and to dwellings to provide transparency and a visual connection between residents and the community and environment.
  - The building design allows for connection the local environment through passive design and landscaping, and allowing residents and the general public to connect to nature and to adjust how they live in their dwellings according to the seasons.
  - Provision of a mixed-use site, with retail adjacent to the residential development, reduces the need for car journeys and provides a community within the development.

- Provide easily accessible communal areas to both residents and visitors to the building.
- Utilise courtyard space for edible plants, vegetable gardens, fruit trees, alongside areas for socialising and rest.
- Providing bicycle storage facilities for apartment residents and visitors, with a minimum of one secure rack provided per apartment. Additional racks will be provided for visitors at ground floor level.
- Providing infrastructure for the future charging or electric vehicles.

- Energy:
  - The residential building design allows for the full natural ventilation of all dwellings though openable doors and windows.
  - All residential common areas at Ground level and above will be naturally ventilated and provided with daylight access.
  - Glazing to be performance glass with optimised external shading specific to each orientation.
  - Selection of energy efficient lighting fittings (LED) with automated lighting control systems.
  - Zoning the air conditioning systems into functional areas and providing automatic and manual controls. All air conditioning units will be inverter controlled and rated to the highest available Energy Star rating. All units can be operated in fan mode providing low energy air circulation.
  - Solar PV arrays of total capacity 95kW will be installed on the roofs of the apartment buildings, providing sufficient generated power to offset 30% of the common area power demand.
  - Solar PV arrays of total capacity 99kW will be installed on the roof of the Aldi Supermarket.
  - The Town Houses will be designed to allow the installation of up to 3kW of Solar PV on the rooftops, as a cost option for purchasers, allowing the Town Houses to be zero net carbon for energy if required. The installation of a battery storage unit, again as a purchaser cost option, will facilitate the town houses being self-sufficient for energy.
  - Extensive metering and sub-metering for apartment energy management, connected to a fully integrated Energy Management System.
  - An embedded network will be used in the apartment buildings with electricity being supplied via an inset network, so that residents can benefit from the option of reduced electricity supply rates, and the ability to share renewable energy from the building solar PV array.
  - Demand controlled car park ventilation systems with inverter controlled variable speed fans and carbon monoxide sensor control.
  - Using light coloured external finishes (in particular roof coverings) to reflect heat and reduce solar gain, and reduce the heat island effect.
  - Using zero ODP refrigerants and insulation.
  - Designing and certifying the apartments and town houses to achieve an energy performance at least 20% better than current Building Code minimum NatHERS rating of 6 Stars average, representing a dwelling average NatHERS Rating of 7 Stars.
  - Using gas for hot water supply (with solar boost) and gas cooktops where appropriate in order to reduce peak electricity demands and reduce the overall development carbon footprint.

- Providing apartment owners with retractable clothes racks in their apartments, to minimise electric clothes drier use. These facilities will also minimise the incidence of clothes drying on exposed balconies.

- Water:
  - Water efficient fittings with the minimum WELS ratings:
    - Taps 6 Stars
    - WCs 4 Stars
    - Showers 3 Stars
  - Selecting water efficient white goods within one Star rating of the highest available rating.
  - Selecting appropriate landscape planting to minimise irrigation water use.
  - Stormwater systems designed such that historic peak stormwater outflows should not be exceeded, and all stormwater is appropriately treated before discharge to sewer. If required by Council, water storage may be provided and utilised as a shared resource for irrigation to landscaping.
  - Providing the firefighting systems with a test water recycling facility.
- Waste
  - Construction waste will be minimised through efficient design techniques including standardisation and wherever practicable off-site pre-fabrication. A minimum 90% diversion from landfill rate will be targeted.
  - Provisions will be made for the location and use of separate bins for general, organic and recyclable waste, in accordance with advice from Chris Colby (Waste Management specialist).
  - The development will incorporate ventilated and weather proof storage facilities for the collection and disposal of general, recyclable, organic waste, and bulky waste, which will be separated on site to facilitate ease of disposal for recycling.
  - Waste management operations for the ALDI supermarket will be in accordance with the ALDI waste management statement. ALDI's waste management strategy includes the minimisation of packaging and food preparation waste on site, and the recycling of waste materials off-site.
- Indoor Environment Quality:
  - Using paints, sealants, adhesives, carpets, coverings and furniture which have low off-gassing properties (low VOC, low formaldehyde).
  - Maximising access to daylight to all residential areas whilst minimising glare.
  - All dwellings will be fully naturally ventilated.
  - All residential common areas at ground level and above will be fully naturally cross ventilated
- Construction (initiatives for the residential development):

- Select recycled and recovered materials wherever viable, particularly sourced from the local area in order to build in a recognition of the local area and heritage.
- Select materials with a comparatively low embodied energy/carbon profile e.g. timber in preference to steel, where practicable.
- Select building materials with a recycled material content e.g. thermal insulation, reinforcement bar, fly ash in concrete, recycled content floor coverings, where viable.
- Using off site pre-fabrication techniques to reduce on site construction time, waste, and greenhouse gas emissions, wherever practicable.

The D Squared Sustainability Strategy identifies that the design team will target a 5 Star Green Star self-assessed rating for the mixed-use apartments and townhouses to benchmark the buildings against 'Australian Leadership' in sustainable design.

D Squared also confirm that preliminary modelling has also been undertaken using AccuRATE software to BDAV standards in order to establish the expected apartment and town house NatHERS rating. The residential development benchmarks at an expected average 7 Star NatHERS rating, demonstrating a 20% improvement over the NCC/BCA minimum requirement of 6 Star average.

4.10 Staged Construction

Development Plan consent is being sought for the overall project. However, because of the scale of the project, the project will be constructed in stages. Accordingly, separate Building Rules Consents and staged Development Approvals will be sought for each stage.

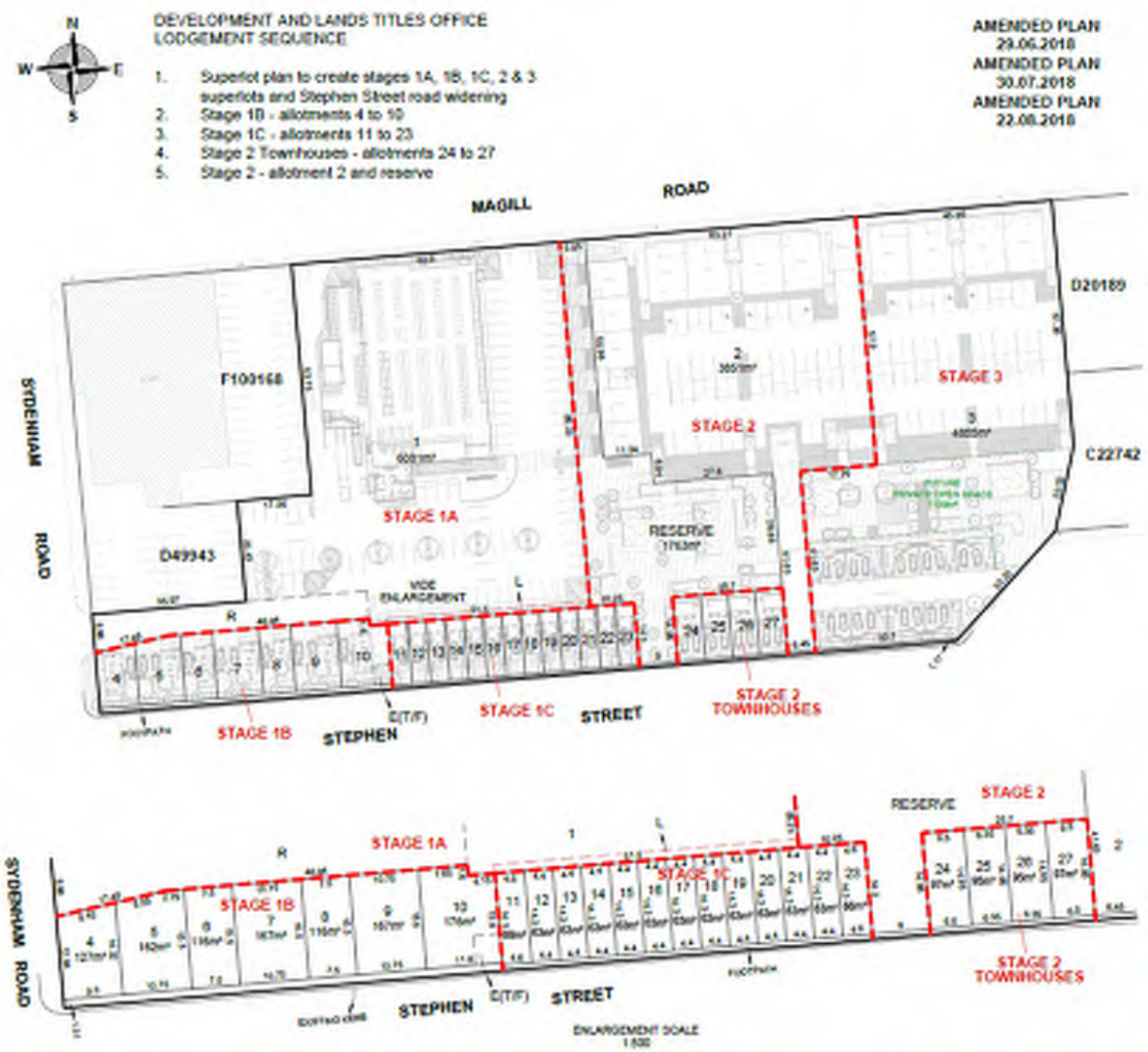
Staged development approvals are also likely to be sought for individual building components such as piling, capping beams, bulk excavation, sub-structure / super structure and architectural and services fit out.

The overall site redevelopment is likely to be undertaken in stages as follows;

- Stage 1 – Proposed ALDI Supermarket and the rear Torrens Title townhouses:
  - Stage 1A – ALDI Supermarket;
  - Stage 1B – Type A Townhouses;
  - Stage 1C – Type B Townhouses;
- Stage 2 – Type C Townhouses, the western half of the mixed-use residential/commercial development plus public open space reserve;
- Stage 3 – Eastern half of the Mixed-Use Residential/Commercial development plus Community Title Townhouse development (Type D).

A staging plan for the development prepared by Alexander Symonds Surveyors is provided in *Figure 4.22*.

Figure 4.22 *Staging Plan*



4.11 Operative Period of Consent

Given the scale of the overall project, the Applicant seeks, as part of the application for Development Plan Consent, that the relevant authority extend the operative period of consent for the development to facilitate the staged construction of the project.

In particular, it is requested that the period prescribed under Regulation 48(1)(b)(i) of the Regulations for the substantial completion of the project be extended to a period of 5 years from the operative date of the Development Plan Consent.

5. Economic Impact

In order to appreciate the economic significance of this project, it is useful to refer to the study undertaken by Property Insights on behalf of the Urban Development Institute of Australia (UDIA) in 2009 which examined the economic impact of investing one million dollars in property investment. The economic measures used in this study and how they apply to the Norwood Green are summarised below.

5.1 Full Time Equivalent Jobs

According to Property Insights, every one million dollars of development industry investment in South Australia generates 6.9 full time equivalent development industry jobs. Development industry investment also indirectly supports jobs in a range of other industries. For every one million dollars of development industry investment, the combined direct and indirect employment impact is fourteen (14) full time equivalent jobs.

Based on an estimated development cost of $60 Million, the development would generate 414 direct jobs in the development industry with a direct and indirect employment impact of the Norwood Green development estimated to be approximately 840 industry jobs.

5.2 Gross Operating Surplus

Gross operating surplus is a measure of business profits. According to Property Insights, every one million dollars of development industry investment in South Australia generates direct profits of $280,263 to development industry businesses. Indirect impacts on other businesses arising from development industry investment generate additional gross operating surplus across a range of industries. The combined direct and indirect gross operating surplus impact of one million dollars of development industry investment is estimated at $455,296.

The Norwood Green development is therefore estimated to deliver a direct gross operating surplus of $16.8M to development industry businesses and a total gross operating surplus of $27.3M across all industries.

5.3 State and Federal Taxes

Development industry activity attracts a range of State and Federal taxes. The industry contributes around 4.8% of the State tax base. Property Insights estimates that for every million dollars of development industry investment, direct taxes of $62,921 are generated. When indirect taxation impacts are considered, total taxes generated by one million dollars of development industry investment is estimated at $143,281.

The direct tax impact of the Norwood Green development is estimated at $3.8M and the total tax impact, including direct and indirect impacts, is estimated at $8.6M.

5.4 Wages and Salaries

Property Insights estimates that a one million dollar investment in the development industry generates wages and salaries of $256,287 within the development industry.

The indirect impact on wages and salaries arising from development industry activity is substantial, estimated at an additional $344,997 for every one million dollars of investment. The combined direct and indirect impact on wages and salaries is therefore estimated at $601,284 per million dollars of investment.

The Norwood Green development is therefore estimated to generate direct wages and salaries of $15.4M and total (direct and indirect) wages and salaries of $36.1M.

5.5 Ongoing Employment Impact

It is estimated that the following direct jobs will be created by the development:

- The ALDI Supermarket will require approximately 25 jobs FTE; and
- The proposed 1,300m^2 of retail specialty shops are estimated to require approximately 39 jobs FTE (@ 3.0 jobs per 100m^2).

The Norwood Green development will therefore generate an ongoing employment impact of approximately 64 jobs.

6. Procedural Requirements

6.1 Relevant Authority

Given the application involves development in the Urban Corridor Zone in the City of Norwood Payneham and St Peters and exceeds sour (4) storeys in height, the State Planning Commission (SPC) is the Relevant Authority pursuant to Section 4C(1) of Schedule 10 of the Regulations.

The State Commission Assessment Panel (SCAP) is the delegate of the SPC pursuant to Section 107(2) of the Regulations.

6.2 Nature of Development

As outlined in Section 4.2, the proposal is perhaps best described as a mixed-use development comprising retail (shops and restaurants), and residential land uses (residential flat buildings, detached dwellings and group dwellings) with associated signage, earth works, car parking, fencing, retaining walls, landscaping and removal of a regulated tree.

Pursuant to the Urban Corridor Zone, the application is a '**Consent Use**', to be assessed on its merits against the relevant provisions of the Development Plan.

It is noted that the development proposes to replace an existing non-complying form of development (industry and Warehouse) in the Urban Corridor Zone.

6.3 Public Notification

Pursuant to Principle of Development Control 21 (Public Notification) of the Urban Corridor Zone any form of development not listed as Category 1 (other than non-complying development) is a Category 2 form of development.

Therefore, the proposal is a **Category 2** form of development.

6.4 Agency Referrals

The proposed development involves an alteration to existing access arrangements to Magill Road as well as the creation of new access to Magill Road which is a Secondary Arterial Road. The proposed development also involves an encroachment within a road widening setback under the *Metropolitan Adelaide Road Widening Plan Act, 1972*. The development also involves advertising displays that are internally illuminated and within 100 metres of a signalised intersection. The proposed development will therefore require referral to the **Commissioner of Highways** (Via DPIT).

The proposed development involves the provision of affordable housing (applying the criteria determined under regulation 4 of the *South Australian Housing Trust (General) Regulations, 1995*) and the development will therefore require referral to the Minister Administering the *Housing and Urban Development (Administrative Arrangements) Act, 1995*) via **Renewal SA**.

The proposed development involves the construction of a building that exceeds four (4) storeys in height in the Urban Corridor Zone within the City of Norwood, Payneham and St Peters. The proposed development will therefore require referral to the State Government Architect or the Associate Government Architect.

Given that the State Planning Commission (SPC) is the relevant Planning Authority, it is understood that the proposal will be referred to the City of Norwood Payneham & St Peters.

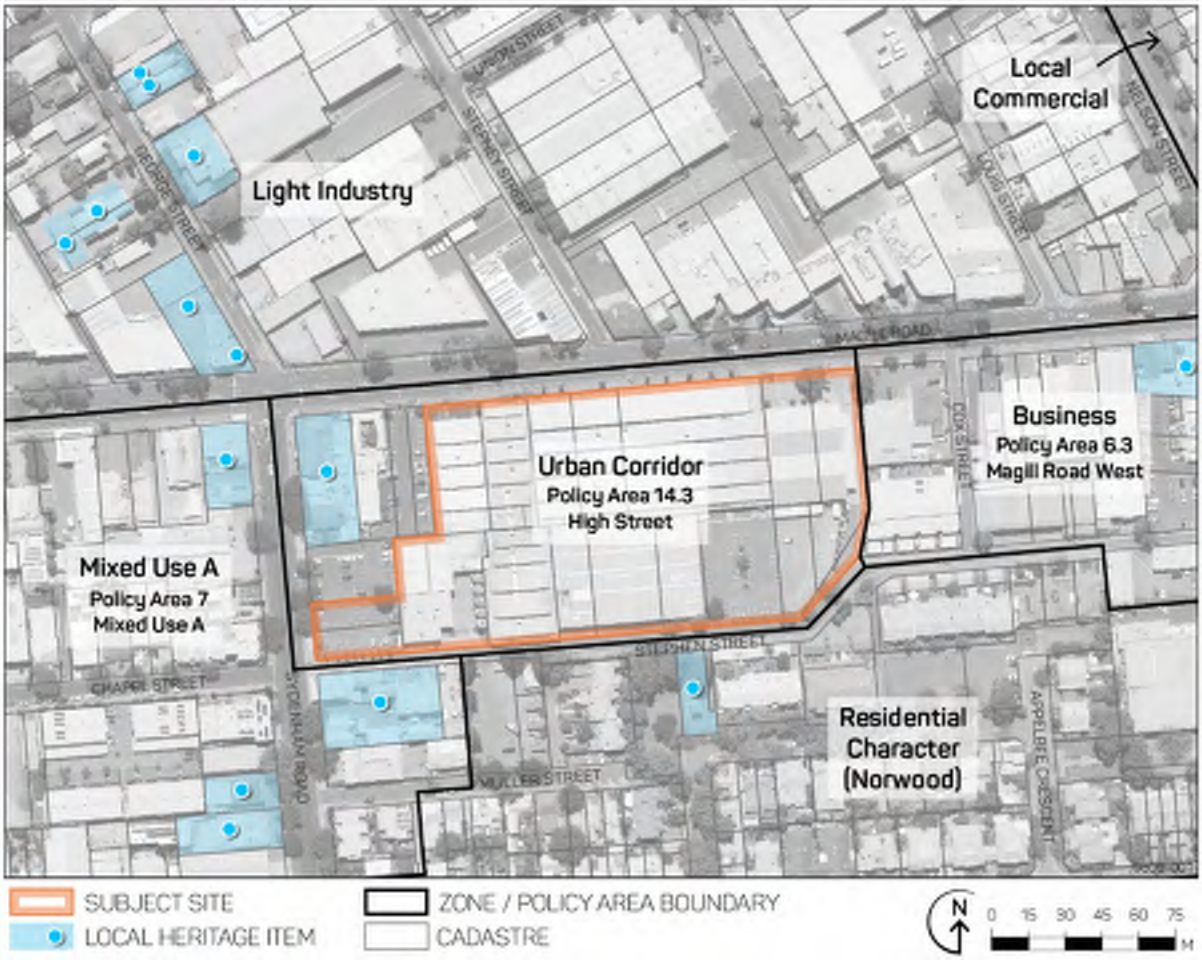
7. Development Plan Assessment

7.1 Overview

The subject land is located within the City of Norwood Payneham and St Peters and, accordingly, the relevant Development Plan is the Norwood Payneham & St Peters Council Development Plan – Consolidated 19 December 2017.

The subject land is located within the 'High Street Policy Area 14.3' of the 'Urban Corridor Zone' of the Norwood Payneham & St Peters Council Development Plan. ***Figure 7.1*** shows the relevant Zoning and Policy Areas for the subject site and the surrounding land.

Figure 7.1 *Zoning and Policy Areas*



The subject site was recently rezoned to the High Street Policy Area 14.3 of the Urban Corridor Zone via the *Inner and Middle Metropolitan Corridor (Sites) DPA*. This Ministerial rezoning was gazetted by the Minister for Planning on 19 December 2017.

The Government initiated this Development Plan Amendment (rezoning) to encourage a mix of medium to high density homes, offices and shops along main roads and strip shopping areas which have good access to public transport and are close to the city.

The 'Urban Corridor Zone' seeks a range of compatible non-residential and medium to high density residential land uses oriented towards a high frequency public transport corridor (i.e. Magill Road).

The 'High Street Policy Area 14.3' supports a mix of land uses including retail, office, commercial, community, civil and medium density and high density residential development. Buildings of up to 6 storeys (24.5 metres) are anticipated over the site with a minimum net residential site density of 70 dwellings per hectare.

The subject site is also located within the following Overlays:

- Affordable Housing Overlay:
  - Pursuant to the Affordable Housing Overlay, development comprising 20 or more dwellings should include a minimum of 15 percent affordable housing.
- Strategic Transport Routes Overlay
  - Pursuant to the Strategic Transport Routes Overlay, development should be designed to not impede traffic flow or create hazardous conditions for pedestrians, cyclists or drivers of vehicles (including emergency service vehicles) along Magill Road.
- Noise and Air Emissions Overlay.
  - Pursuant to the Noise and Air Emissions Overlay, development should be designed to mitigate the impact of major noise sources and air emissions in the locality, particularly Magill Road.

7.2 Zone and Council Wide Provisions

The following provides an assessment of the proposed development against the more relevant Development Plan provisions. Where there is policy duplication the assessment has focused on the more specific zone and policy area provisions rather than the more generic City Wide provisions.

7.2.1 *Land Use*

The following provisions are considered most relevant to the assessment of land use.

Urban Corridor Zone

Objectives:

***OBJ 1**: A mixed use zone accommodating a range of compatible non-residential and medium and high density residential land uses orientated towards a high frequency public transport corridor.*

***OBJ 2:** Integrated mixed use, medium and high rise buildings with ground floor uses that create active and vibrant streets with residential development above.*

***OBJ 3**: A mix of land uses that enable people to work, shop and access a range of services close to home.*

Desired Character Statement

The Urban Corridor Zone supports a mix of compatible non-residential and residential uses at densities which reflect its close proximity to the City of Adelaide and the Adelaide Park Lands, as well as its location around Primary Road Corridors and public transport infrastructure.

Along the North Terrace, Hackney Road, Magill Road, Fullarton Road, Rundle Street, The Parade West and King William Street Primary Road Corridors, non-residential land uses should be established at the ground floor levels of buildings. Residential development should only be established above ground floor uses.

Development which incorporates a significant residential component (more than 20 dwellings) will provide a range of dwelling sizes and a proportion of affordable housing.

PDC 1 *The following types of development, or combinations thereof, are envisaged in the zone:*

Affordable housing

Aged persons accommodation

Community centre

Consulting room

Dwelling

Educational establishment

Entertainment venue

Hotel

Indoor recreation centre (including health, fitness and personal training facilities)

Licensed premises

Office

Pre-school

Primary school

Residential flat building

Retirement village

Shop or group of shops

Supported accommodation

Tourist accommodation.

High Street Policy Area

OBJ 1*: A mix of land uses including retail, office, commercial, community, civic and medium and high density residential development that support the economic vitality of the area.*

Desired Character

The High Street Policy Area will enable the development of retail and pedestrian hubs in Kent Town and Norwood with a focus on smaller scale specialty shops and businesses, restaurants and cafes, which serve the local community.

Area H

Area H, shown on Concept Plan Fig UrC/2, comprises the former Caroma industrial site together with a State heritage listed place (the Alma Hotel). The site provides an opportunity for development of up to six (6) storeys incorporating a mixture of commercial and medium density residential development. The site's three frontages to Magill Road, Sydenham Road and Stephen Street, a narrow road to the rear of the site, provide opportunity for the development of the site to respond in a number of innovative ways to the characteristics of the locality.

Development on the ground floor fronting Magill Road should consist of commercial activities in the form of shops, consulting rooms, offices or cafes/restaurants that serve the daily needs of local residents. Such development is also encouraged to Sydenham Road where possible. Upper levels should be devoted to medium density residential development.

PDC 1 *Development should comprise small scale specialty shops and businesses, restaurants and cafes at ground floor levels.*

PDC2 *A shop or a group of shops contained in a single building should have a maximum total gross leasable floor area in the order of 1000 square metres, except where located in Area H as shown on Concept Plan Fig UrC/2 where a maximum total gross leasable floor area in the order of 2000 square metres is anticipated*

City Wide

PDC 275 *Buildings comprising more than 10 dwellings should provide a variety of dwelling sizes and a range in the number of bedrooms per dwelling.*

Affordable Housing Overlay

OBJ 1: *Affordable housing that is integrated into residential and mixed use development.*

OBJ 2: *Development that comprises a range of affordable dwelling types that caters for a variety of household structures*

PDC 1 *Development comprising 20 or more dwellings should include a minimum of 15 per cent affordable housing (as defined by the South Australian Housing Trust Regulations 2010 as amended), unless it can be demonstrated that any shortfall in affordable housing from a preceding stage of development will be accommodated in a subsequent stage or stages*

The Urban Corridor Zone and High Street Policy Area seek a range of compatible non-residential and medium and high-density residential land uses.

The proposed development comprises and integrated mixed-use development including retail (supermarket, shops and restaurants) of some 3,000m^2 across the site together with a mix of medium and higher density residential development (residential flat buildings, detached dwellings and group dwellings) achieving an overall residential density of approximately 127dw/ha.

Importantly, all land uses proposed on site are envisaged within the Urban Corridor Zone and the proposed mix of land uses will enable people to live, work and shop in an integrated mixed-use community.

Proposed retail activities will occur at ground level to activate street frontages and proposed public open space and no individual building will incorporate retail floor space exceeding 2,000m^2.

The total of thirty-three (33), 2 and 3 storey townhouses are proposed comprising a mix of 2 bed (67%) and 3 bed (33%) product.

A total of 208 apartments are proposed within five (5) residential flat buildings comprising a mix of 1 bed (35%) and 2 bed (65%) dwellings.

Consistent with the Desired Character Statement of the Urban Corridor Zone and the Affordable Housing Overlay, 15% of dwellings will be provided as 'affordable housing' as defined by the S*outh Australian Housing Trust Regulations, 2010*. In accordance with the Affordable Housing Gazette notice *(Determination of Criteria for the Purposes of the Concept of Affordable Housing, Regulation 4 of Development Act 1993)* proposed affordable housing will be secured by a legally binding agreement with Renewal SA to confirm the commitment to deliver 15% affordable housing in the proposed development.

The proposed composition and mix of land uses is therefore highly aligned with the relevant land use objectives and Principles of Development Control of the Urban Corridor Zone and High Street Policy Area.

7.2.2 *Built Form*

The following provisions are considered most relevant to the assessment of built form.

Building Setback

Urban Corridor Zone

Desired Character
The prescribed set-backs to the street boundaries may be varied in response to specific site constraints or opportunities, such as the provision of outdoor dining areas, public realm improvements, topography or adjacency to a heritage place.

***PDC 15**: Buildings (excluding verandahs, porticos and the like) should be set back from the primary road frontage in accordance with the following parameters:*

Policy Area	Minimum setback from the primary road frontage where it is the Primary Road Corridor as shown on Concept Plan Fig UrC/1 and UrC/2.	Minimum setback from the primary road frontage in all other cases
Boulevard Policy Area	4 metres from the Dequetteville Terrace, North Terrace, Magill Road and Fullarton Road Primary Road Corridors	2 metres
High Street Policy Area	No minimum	2 metres
Business Policy Area	No minimum	2 metres

***PDC 16** Buildings (excluding verandahs, porticos and the like) should be set back from the secondary road frontage or a vehicle access way in accordance with the following parameters:*

Policy area	Minimum setback from a secondary road (where the secondary road is not a rear access way or laneway)	Minimum setback from a rear access way (or laneway)
High Street Policy Area	No minimum	1 metre where the access way is 6.5 metres or more in width OR Where the access way is less than 6.5 metres in width, the additional width required to make the access way 6.5 metres, to provide adequate manoeuvrability for vehicles, plus 1 metre

City Wide

PDC 17 *Buildings (excluding verandahs, porticos, or any portion of a basement car park which is less than 1 metre above natural ground level) should be set back in accordance with the following parameters:*

Policy area	Minimum setback from rear allotment boundary (where not a rear access way or laneway)	Minimum setback from side boundaries (where not a street boundary)
High Street Policy Area	5 metres where the subject land directly abuts an allotment of a different zone 3 metres, except where the development abuts the wall of an existing or simultaneously constructed building on the adjoining land.	No minimum

PDC 51*: Development likely to encroach within a road widening setback under the Metropolitan Adelaide Road Widening Plan Act 1972, should be set back the distance specified in the relevant Zone and/or Policy Area from the alignment of the boundary required for road widening.*

Residential Development

PDC 211: *Unless the desired character of an area provides otherwise, garages and carports fronting a primary street should:*

(a) be of a width that is minimised relative to the width of the dwelling frontage and in any case, should be designed with a maximum width (including the total width of any support structure) of 6.5 metres or 50 per cent (or 40 per cent in a Residential Historic (Conservation) Zone) of the allotment or building site frontage width, whichever is the lesser distance; and

(b) be set back at least 0.5 metres behind the main face of the associated dwelling, unless the main face incorporates projecting elements such as a portico or verandah, in which case the garage or carport may be in line with the main face of the associated dwelling (Refer to Figure 8); and

(c) be set back no less than 5.5 metres from the primary street frontage, to allow for vehicle parking

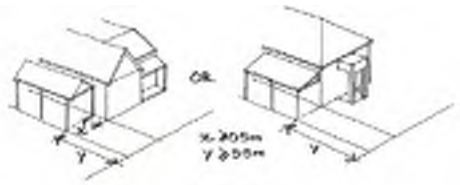


Figure 8

There is no prescribed minimum setback to the primary street frontage or side boundaries within the Urban Corridor Zone.

The proposed ALDI supermarket incorporates a setback of 2.01 metres from Magill Road with the proposed canopy sunshade and planter box extending to the property boundary of the road reserve. The setback and proposed planted box configuration has been informed by the site topography and the need to transition the building towards the primary street alignment whilst maintaining a consistent internal floor level for the

proposed supermarket. The proposed building setback from Magill Road also responds to the requirement to achieve a 3.1 metre setback from 11Kv electrical cables and equipment along Magill Road.

The colonnade of the proposed apartment building(s) is built to the Magill Road street alignment with ground level retail uses recessed approximately 2.0 metres from the street alignment and below a canopy extending to the street alignment (property boundary).

Part of the subject site (adjacent the proposed apartments) fronting Magill Road is subject to road widening pursuant to the *Metropolitan Adelaide Road Widening Plan Act*, 1972-1976 however through the pre-lodgement case management process DPTI (Paul Bennet) confirmed that there is no requirement for land to be acquired by DPTI for the purpose of road widening.

The proposed apartment buildings are also proposed to be built on the eastern common property boundary adjacent existing commercial and residential development fronting Magill Road and Stephen Street respectively.

The proposed residential townhouses incorporate a setback from Stephen Street ranging from 2.5 metres (Townhouse Type A), 3.7 metres (Townhouse Type B) and 1.3 metres (Townhouse Type C & D). The Garages of the Type B dwellings have also been setback 5.4 metres from Stephen Street to allow tandem visitor car parking which is generally in accordance with City Wide Residential Development PDC 211(c).

Proposed Type A townhouses are serviced via a rear private access laneway and the dwellings retain a setback from this lane of approximately 3.0 metres with the exception of the proposed dwelling located on the corner of Stephen Street and Sydenham Road which maintain a minimum rear setback of 1.0 metre from this rear access driveway. This dwelling also incorporates a side setback to this secondary road frontage (Sydenham Road) of approximately 1.5 metres.

Proposed building setbacks are therefore aligned with and do not offend the relevant building setback provisions of the Urban Corridor Zone.

Building Scale, Form and Articulation

Urban Corridor Zone

OBJ 4: Adaptable and flexible building designs that can accommodate changes in land use and respond to changing economic and social conditions.

Desired Character

New development will exhibit architectural merit, which favours contemporary leading edge design, particularly along the prominent Boulevard Policy Area frontages and in gateway locations

PDC 8: Buildings on sites with a frontage width of greater than 10 metres should be well articulated through variations in forms, materials, openings and colours.

PDC 13: Except where airport building height restrictions prevail, or the interface height provisions require a lesser height, or where an alternative maximum building height is shown on Concept Plan Fig UrC/1 and UrC/2, building heights (excluding any rooftop mechanical plant or equipment) should be consistent with the following parameters:

Policy area	Minimum building height	Maximum building height
Boulevard	3 storeys or no less than 11.5 metres, or 4 storeys or no less than 15 metres for land that is directly adjacent to or facing the Adelaide Park Lands	10 storeys and up to 36 metres
High Street	3 storeys or no less than 11.5 metres	5 storeys and up to 18.5 metres
Business	3 storeys or no less than 11.5 metres	5 storeys and up to 18.5 metres

High Street Policy Area

OBJ 2: *Buildings sited to provide a continuous and consistent built edge with verandahs/ awnings over the public footpath and an intimate built scale, with fine-grained detailing of buildings in the public realm.*

OBJ 3*: An interesting and varied skyline as viewed from the street and afar, provided by modulation in roof forms and the use of parapets.*

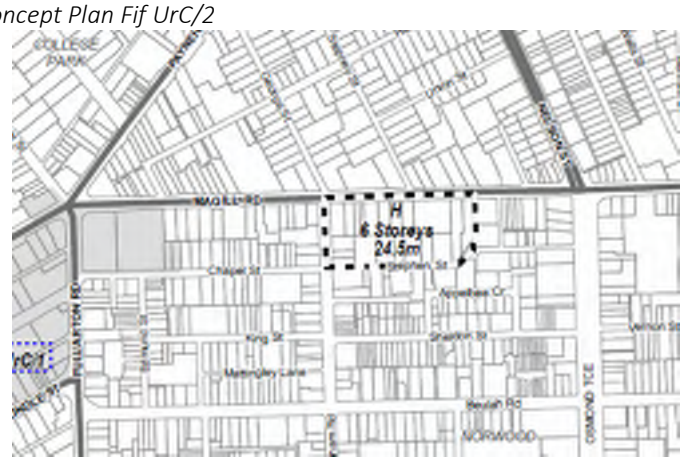
OBJ 4*: An intimate public realm with active streets created by buildings designed with frequently repeated frontage form and narrow tenancy footprints.*

Desired Character Statement

The built form within the High Street Policy Area will establish a rhythm and pattern of facades that support a variety of tenancies with building frontages of a scale and rhythm that reflects adjacent development. The locality will generally comprise buildings of up to five (5) storeys except where taller buildings are anticipated on Concept Plan Fig UrC/2, with a podium or street wall height of two (2) storeys. Above the podium/street wall component, additional storeys will be set back a minimum of three (3) metres so as to be visually recessive and to maintain a lower-scale feel along the High Street.

Development will enhance the pedestrian environment through the provision of verandahs, pergolas and awnings to provide pedestrian protection and achieve a human scale and visually interesting environment. Where possible, verandahs and pergolas constructed over the footpath will be cantilevered to reduce the possibility of damage by vehicles.

Concept Plan Fif UrC/2



Area H

Development should be cognisant of the strong heritage and character nature of the locality, particularly south of the site. Buildings with large frontages should be strongly articulated to create visual interest. Although the site is separated from adjoining residential development to the south by a narrow roadway, building heights will transition down to a level that complements the adjacent residential character area.

PDC 4 *Buildings should maintain a pedestrian scale at street level, and should:*

(a) include a clearly defined podium or street wall with a maximum building height of 2 storeys or 8 metres in height; and

(b) have levels above the defined podium or street wall setback a minimum of 3 metres from that wall.

PDC 5 *Pedestrian shelter and shade should be provided over footpaths through the use of structures such as awnings, canopies and verandahs.*

PDC 6 *The ground level street frontages of buildings should contribute to the appearance and retail function of the area by providing at least 5 metres or 60 per cent of the street frontage (whichever is greater) as an entry/foyer or display window to a shop (including a café or restaurant) or other community or commercial use which provides pedestrian interest and activation.*

PDC 7 *The ground floor of buildings should be built to dimensions including a minimum floor to ceiling height of 3.5 metres to allow for adaptation to a range of land uses including retail, office and residential without the need for significant change to the building.*

PDC 8 *A minimum of 50 per cent of the width of ground floor primary frontage of buildings should be visually permeable, transparent or clear glazed to promote active street frontages and maximise passive surveillance.*

Design & Appearance of Land and Buildings

PDC 29 *Except where the zone or policy area objectives, principles of development control and/or desired character of a locality provide otherwise, new buildings:*

(a) may be of a contemporary appearance and exhibit an innovative style;

(b) should complement the urban context of existing buildings on adjoining and nearby land in terms of:

(i) maintenance of existing vertical and horizontal building alignments

(ii) architectural style, building shape and the use of common architectural elements and features;

(iii) consistent colours, materials and finishes; and

(c) should not visually dominate the surrounding locality.

PDC 30 *Buildings should be designed to minimise their visual bulk and provide visual interest through design elements such as:*

(a) articulation;

(b) colour and detailing;

(c) materials, patterns, textures and decorative elements;

(d) vertical and horizontal components;

(e) design and placement of windows;

(f) window and door proportions;

(g) roof form and pitch;

(h) verandahs and eaves; and

(i) variations to facades.

PDC 32 *The height of buildings, structures and associated component parts should not exceed the number of storeys or height in metres above the natural ground level prescribed in the relevant Zone and/or Policy Area.*

PDC 33 *Buildings should be designed and sited to avoid creating extensive areas of uninterrupted walls facing areas exposed to public view.*

PDC 36 *Balconies should:*

(a) be integrated with the overall architectural form and detail of the building;

(b) be sited to face predominantly north or east to provide solar access;

(c) be self-draining and plumbed to minimise runoff; and

(d) be recessed where wind would otherwise make the space unusable.

PDC 37 *The external walls and roofs of buildings should not incorporate highly reflective materials which will result in excessive glare.*

PDC 38 *Structures located on the roofs of buildings to house plant and equipment, should be screened from view and should form an integral part of the building design in relation to external finishes, shaping and colours.*

PDC 39 *Building design should emphasise all pedestrian entry points to provide all users with perceptible and direct access from public street frontages and vehicle parking areas.*

PDC 40 *Buildings, landscaping, paving and signage should have a coordinated appearance that maintains and enhances the visual attractiveness of the locality.*

PDC 41 *Buildings (other than ancillary buildings, group dwellings or buildings located on hammerhead, battleaxe or similar configuration allotments) should be designed so that their main facade faces the primary street frontage of the land on which they are situated.*

Medium and High Rise Development (3 or more storeys)

PDC 260 *Buildings should be designed to respond to key features of the prevailing local context within the same zone as the development. This may be achieved through design features such as vertical rhythm, proportions, composition, material use, parapet or balcony height, and use of solid and glass.*

PDC 261 *In repetitive building types, such as row housing, the appearance of building facades should provide some variation, but maintain an overall coherent expression such as by using a family of materials, repeated patterns, facade spacings and the like.*

PDC 262 *Windows and doors, awnings, eaves, verandas or other similar elements should be used to provide variation of light and shadow and contribute to a sense of depth in the building façade.*

PDC 263 Buildings should:

(a) achieve a comfortable human scale at ground level through the use of elements such as variation in materials and form, building projections and elements that provide shelter (for example awnings, verandas, and tree canopies);

(b) be designed to reduce visual mass by breaking up the building façade into distinct elements;

(c) ensure walls on the boundary that are visible from public land include visually interesting treatments to break up large blank facades.

PDC 264 Buildings should reinforce corners through changes in setback, materials or colour, roof form or height.

PDC 265 Materials and finishes should be selected to be durable and age well to minimise ongoing maintenance requirements. This may be achieved through the use of materials such as masonry, natural stone and prefinished materials that minimise staining, discolouring or deterioration.

PDC 281 Development of 5 or more storeys, or 21 metres or more in building height (excluding the rooftop location of mechanical plant and equipment), should be designed to minimise the risk of wind tunnelling effects on adjacent streets by adopting one or more of the following:

(a) a podium at the base of a tall tower and aligned with the street to deflect wind away from the street;

(b) substantial verandas around a building to deflect downward travelling wind flows over pedestrian areas;

(c) the placement of buildings and use of setbacks to deflect the wind at ground level

PDC 192 Dwellings on corner sites should address both the primary and secondary street frontages and should be designed and sited so that the dwelling facade on the secondary street frontage includes visible articulation and detail, which complements the secondary streetscape (Refer to Figure 6).

The design of the proposed ALDI Supermarket represents a significant departure from the typical ALDI form. The building has been designed to provide strong articulation to the Magill Road streetscape utilising a variation in building height, together with high level feature windows, a sunshade canopy and timber batten towers.

Whilst the proposed ALDI supermarket is single storey, the building will have a height of approximately 6.48 metres above finished floor level and also incorporates a primary feature tower clad in timber style battens with a maximum height of 9.48 metres as well as a secondary timber and perforated metal tower which is slightly higher at 10.48m. This commercial building therefore comprises a height equivalent to a three-storey

residential building which assists to provide an appropriate transition in building scale from the adjoining Alma Hotel to the proposed new apartment buildings on site.

The Urban Corridor Zone Building height provisions identify that a minimum building height of 3 storeys or 11.5 metres should be achieved in the Zone, except where interface height provisions require a lesser height. The proposed ALDI supermarket is on the interface with the adjoining Alma hotel which is a local heritage place. Principles of Development Control 359, 260 and 361 relate to development on land adjacent to land containing a heritage place and identify that development should respect the heritage value, integrity and character of the heritage place by establishing compatible scale and bulk. The proposed ALDI supermarket is proposed at a scale that will complement and not dominate or detract from the heritage value and integrity of the adjoining heritage place.

Consistent with PDC 8 of the High Street Policy Area (Area H) the northern elevation of the proposed ALDI supermarket (fronting Magill Road) has been designed to incorporate high level frameless glazing and glazed edges. Whilst this achieves approximately 42% transparency (and not 50% as recommended in PDC 8) this design approach provides a visual connection to the activity within the supermarket and provides a more active interface with the public realm.

In accordance with City Wide PDC 38 external plant on the proposed ALDI Building will be screened from view on a rooftop platform above the north-eastern tower.

The apartment buildings (Residential Flat Buildings) are proposed to a maximum height of 24.5 metres consistent with Concept Plan Fig URC/2 and City Wide PDC 32. The apartment buildings have been designed to be contemporary in style, with creative façade articulation that combines a series of interpretive yet functional elements with 'pops of colour'. The design of the facade draws on the Caroma factory's existing colour coding scheme and floor patterning and it's interpretation across the façade together with protruding balconies and the ground level colonnade to Magill Road will also assist to articulate the buildings in accordance with Urban Corridor Zone Objective 4 and PDC 8 as well as City Wide PDC 30, 33 and 261 – 264.

Consistent with the intent of PDC 4 of the High Street Policy Area the proposed apartments also incorporate a ground level single storey street wall to Magill Road with an upper level podium setback of five (5) metres (3.0 metres to balconies). The generous upper level podium setback reflects the requirement to avoid high and low voltage cables that run adjacent the entire length of the site, along Magill Road. In accordance with City Wide PDC 281 the proposed podium and ground level canopies will ensure that the building (which exceeds 21 metres in height) has been designed to minimise the risk of wind tunnelling effects on adjacent streets.

Consistent with High Street Policy Area Objective 1 and PDC 6 and 8, the ground level of the apartment buildings incorporate retail shop tenancies with clear glazed facades that will provide an active frontage to Magill Road as well as the proposed public open space linkage from Stephen Street to Magill Road. Consistent with High Street Policy Area PDC 7, the proposed ground floor tenancies also incorporate a minimum floor to ceiling height of 3.5 metres to allow for adaptation to a range of land uses.

The proposed residential townhouses are in the form or Detached Dwellings (Type A, B & C) and Group Dwellings (Type D). The proposed townhouses are built to common property boundaries and are therefore abutting, but these two and three storey buildings have been designed to create a laneway feel, with brickwork, blockwork and colour combining with various roof lines to add character.

7.2.3 *Transport, Access and Parking*

The more relevant Objectives and Principles of Development Control relating to transport, access and parking seek to achieve the following outcomes:

- Development that limits direct access to arterial road;
- Development that provides safe and convenient access that:
  - does not unreasonably interfere with the flow of traffic on adjoining roads;
  - accommodates the type and volume of traffic likely to be generated by the development;
  - minimises any adverse impacts on the occupants of and visitors to neighboring properties;
  - is designed to enable all vehicles to enter and exit the site in a forward direction.
- Service vehicle access that is designed to
  - discourage commercial and industrial vehicle movements through residential streets;
  - separate commercial vehicle movements from passenger vehicle car parking areas;
  - enable the parking, loading, unloading, turning of service vehicles;
- Provision of adequate car parking and on-site secure bicycle parking facilities to satisfy anticipated demand;
- Provision of access and car parking designed to relevant Australian standards (AS2890) and Austroads Guides; and
- Provision for safe and convenient pedestrian and cycle movements through the site as well as end of journey facilities to encourage cycling.

In addition, some of the more relevant and specific provisions of the Development Plan that are most relevant to the assessment of transport, access and parking are identified as follows:

Strategic Transport Routes Overlay

***OBJ 1**: Development that recognises the importance of strategic transport routes and does not impede traffic flow or create hazardous conditions for pedestrians, cyclists or drivers of vehicles, including emergency services vehicles.*

***PDC 1** Development adjacent to a strategic transport route should:*

(a) avoid the provision of parking on the main carriageway;

(b) be accessible via service roads, where possible, that provide:

(i) parking off the main carriageway; and

(ii) a buffer from the main carriageway for pedestrian and cycle activity; and

(c) not impede the potential for overhead cabling and associated infrastructure to be established in an existing or proposed tram corridor.

PDC 2 *Vehicular site access should not be provided along the main street frontage where an alternative access is available.*

PDC 3 *Development adjacent kerbside bus stops should be set back to provide sufficient space for indented bus bays with associated hard stand area, shelter and a 1.2 metre wide continuous accessible path behind the bus shelter.*

Urban Corridor Zone

Desired Character Statement

The provision of on-site vehicle parking will be in accordance with the vehicle parking rates, which have been established for different land uses, however, some opportunity to discount these rates will be considered in circumstances set out in the City Wide principles of development control. In instances where discounted vehicle parking rates are assessed as appropriate for a new development, it is expected that a comparable increase in on-site facilities for bicycle and scooter parking is provided.

Cycling is an increasingly popular form of transport and recreation, therefore development on public and private land will consider the needs of cyclists, in terms of providing secure bicycle parking and storage facilities. Larger scale commercial developments will also provide appropriate end of journey facilities such as showers and change rooms.

High Street Policy Area

Area H

Vehicle access should primarily be provided from Stephen Street via common driveways and/or to the rear of dwellings. Pedestrian access should be provided through the site, linking Stephen Street and Chimney Park to Magill Road.

Vehicle Parking for Mixed Use and Corridor Zones

PDC 133 *In mixed use buildings, the provision of vehicle parking may be reduced in number and shared where the operating hours of commercial activities complement the residential use of the site.*

Table NPSP/9A Off Street Vehicle Parking Requirements for Designated Areas.

PDC 3 *Development should provide off-street vehicle parking in accordance with the table(s) below.*

A lesser number of parking spaces may be provided based on the nature of the development and parking conditions in the wider locality including (but not limited to) the following:

(a) the development is a mixed use development with integrated (shared) parking where the respective peak parking demands across the range of uses occurs at different times;
(b) the development is sited in a locality where the respective peak demands for parking for the range of uses (existing and proposed) occurs at different times and

suitable arrangements are in place for the sharing of adjoining or nearby parking areas;
(c) the development involves the retention and reuse of a place of heritage value, where the provision of on-site parking is constrained;
(d) suitable arrangements are made for any parking shortfall to be met elsewhere or by other means (including a contribution to a car parking fund);
(e) generous on-street parking and/or public parking areas are available and in convenient proximity, other than where such parking may become limited or removed by future loss of access, restrictions, road modifications or widening;
(f) the site of the development is located within distances specified in the conditions applicable to Designated Areas for at least two different public transit modes

Table 1: Non-residential development excluding tourist accommodation

Location of development	Desired minimum number of vehicle parking spaces	Maximum number of vehicle parking spaces
All *Designated Areas* (unless otherwise stated)	3 spaces per 100 square metres of gross leasable floor area	6 spaces per 100 square metres of gross leasable floor area
Urban Corridor Zone	3 spaces per 100 square metres of gross leasable floor area	5 spaces per 100 square metres of gross leasable floor area

Table 3: Residential development, in the form of residential flat buildings and residential development in multi-storey buildings

Location of development	Rate for each dwelling based on number of bedrooms per dwelling	Plus number of required visitor parking spaces
Urban Corridor Zone	1 per studio (no separate bedroom), 1, or 2 bedroom dwelling 1.25 per 3 + bedroom dwelling	0.25 per dwelling

Table 4: Row, semi-detached and detached dwellings

Location of development	Number of bedrooms, or rooms capable of being used as a bedroom	Number of required vehicle parking spaces
Urban Corridor Zone	1 or 2 bedrooms 3 + bedrooms	1 2

Table NPSP/10 Off Street Bicycle Parking Requirements

Form of development	Employee/resident (bicycle parking spaces)	Visitor/shopper (bicycle parking spaces)
Residential component of a multi-storey building/residential flat building	1 for every 2 dwellings	1 for every 5 dwellings
Office	1 for every 100 square metres of gross leasable floor area	2 **plus** 1 per 500 square metres of gross leasable area
Shop	1 for every 150 square metres of gross leasable floor area	1 per 300 square metres of gross leasable area
Tourist Accommodation	1 for every 10 employees	2 for the first 20 rooms **plus** 1 for every additional 20 rooms

GTA Consultants have undertaken a traffic assessment and analysis of the subject site which is attached at *Appendix 8*.

The car parking assessment undertaken by GTA confirms that the proposed development generates a minimum parking requirement of 393 spaces and a maximum requirement of 452 spaces in accordance with the Development Plan for the combined land uses proposed for the site. A parking requirement Summary is provided in *Table 7.1* below.

Table 7.1 *Parking Requirement Summary*

Land Use	Minimum Parking Rate	Maximum Parking Rate	Floor Area / Number of Dwellings	Minimum Parking Requirement	Maximum Parking Requirement
Retail (ALDI & Other Tenancies)	3 spaces per 100 square metres of gross leasable floor area	5 spaces per 100 square metres of gross leasable floor area	2,957 sq. m	89	148
Residential Apartments	1 per studio (no separate bedroom), 1, or 2-bedroom dwelling	N/A	72 x 1 BR 136 x 2 BR	208	208
Residential Apartments	Visitor = 0.25 per dwelling	N/A	208	52	52
Townhouses	1 per 1 or 2 bedrooms 2 per 3+ bedrooms	N/A	22 x 2 BR 11 x 3 BR	22 22	22 22
		Total		**393**	**452**

The parking available for retail uses on the site will total 134 spaces including the open at-grade car park and part of the under-croft car park. Based on a total of approximately 3,000m^2 of retail floor space, this car parking provision satisfies and achieves the desired minimum and maximum range of parking stipulated in Table NPSP/9A of the Development Plan.

The apartments incorporate 208 parking spaces for residents and 52 spaces for visitors to total 260 parking spaces which satisfies and achieves the desired minimum and maximum range of parking stipulated in Table NPSP/9A of the Development Plan.

Parking for individual townhouses will vary against the Development Plan but overall a total of 62 spaces will be provided across the 33 townhouses with each townhouse having access to at-least one undercover garage.

On this basis, GTA have confirmed that the proposed supply of 456 spaces across the site meets the minimum and maximum Development Plan parking requirements stipulated in Table NPSP/9A of the Development Plan.

GTA consultant have also confirmed that the proposed parking layout is consistent with the dimensional requirements as set out in the Australian/New Zealand Standards for Off Street Car Parking (AS/NZS2890.1:2004 and AS/NZS2890.6:2009) for a Class 2 and Class 3A facility.

With respect to bicycle parking, the proposed development plan generates a bicycle parking requirement of 176 spaces pursuant to Table NPSP/10 of the Development Plan. The development will provide at least 208 bicycle parking spaces for residents in the form of:

- a bike rack in each apartment;
- at least a further 8 bicycle parking spaces within the outdoor public spaces; and
- secure communal bicycle storage provided on the southern side of the basement car park.

In relation to site servicing and loading GTA consultants have confirmed that:

- A loading area for the ALDI store is proposed on the western side of the building. A 19m semi-trailer can enter the site in a forward direction via a dedicated access on Magill Road for delivery vehicles, reverse into the loading bay and then exit the site in a forward direction onto Sydenham Road. After 10pm, delivery vehicles can exit in a forward direction back out onto Magill Road through the eastern ALDI access.
- Loading for the retail tenancies will be undertaken by vehicles up to a 6.4 metre SRV. Delivery vehicles can enter the under-croft car park in a forward direction, access the loading bay and exit the car park in a forward direction.
- Refuse collection will occur at the south-east corner of the site via Stephen Street using up to a 10.6 metre refuse vehicle. The vehicle will reverse into the site refuse collection area, collect refuse and then exit onto Stephen Street in a forward direction.
- Kerbside refuse collection for the townhouses will require parking restrictions or marked bin storage areas to be provided on Stephen Street, Sydenham Street and the ALDI car park access lane from Sydenham Street, to facilitate refuse collection.

In relation to traffic generated by the proposed development GTA have confirmed that:

- The site is expected to generate in total 500 trips per hour during the PM peak period. The AM period would be much less with 162 trips anticipated consisting mostly of residential trips with the retail uses not generating very much traffic at this time.
- The intersections adjacent the site have been modelled using *SIDRA Intersection 7.0*. The outputs from the results confirm that all intersections would operate at a suitable level of Service with average queue lengths and delays within acceptable limits. The existing Magill Road/Sydenham Road/George Street Intersection will maintain the same level of service with marginal increases in the average delay and 95th percentile queue length.
- The impact on the adjacent road network will be minor based on the anticipated traffic generation of the site and proposed median treatment on Magill Road.

7.2.4 *Occupant Amenity*

There are a number of Development Plan provisions relating to the amenity of public open space and residential dwellings which seek to achieve the following outcomes:

- Enhancement of the public environment and a high-quality experience for residents, workers and visitors by creating attractive, welcoming, safe and vibrant spaces, integrating public art into development and incorporation of generous and high quality landscaping;
- Mitigation of noise and air quality impacts for future occupants of dwellings proposed on site;
- Preservation of visual privacy and prevention of unreasonable overlooking with habitable rooms, windows and balconies designed and positioned with adequate separation and screening from one another;
- Provision for natural ventilation and the infiltration of daylight into interior and outdoor spaces;

- Provision of a satisfactory visual outlook to public, communal or private open space;
- Provision of adequate storage for dwelling occupants (nominally $8m^3$ per dwelling);
- Provision of private open space that is accessible directly form internal living areas and is of sufficient area and shape to be functional and capable of meeting the likely needs of the occupant,
- Provision of communal open space to be shared by more than one dwelling that is designed to facilitate landscaping and/ or food production and integrated into the overall composition of buildings;
- Provision of shared site facilities (i.e. mail box, waste storage areas and clothes drying areas) for group dwellings and residential flat buildings; and
- Building designed with sunlight access to public open space.

The more relevant and specific provisions of the Development Plan that are most relevant to the assessment of building and occupant amenity are identified as follows:

Urban Corridor Zone

The residential component of all buildings will be designed having regard to the amenity of the occupants and will ensure that individual units have reasonable access to light, ventilation and views. Noise attenuation and air emission control measures will be included in the design of residential units where there is the potential for acceptable noise and air emissions levels to be exceeded. Residential balconies will be designed to form an extension to the main living area and will not be used for the placement of air- conditioning units, the storage of household goods, or unscreened clothes drying areas.

PDC 9 *Buildings should be designed to:*

(a) enable suitable sunlight access to public open space; and
(b) overlook or orientate towards public open space and defined pedestrian and cycle routes.

Private Open Space

PDC 222 *Private open space (land available for the exclusive use of residents of each dwelling) may comprise one or more of the following forms:*

(a) a ground level courtyard, garden, yard, decking or patio space, or other private open space that:
(i) is screened to achieve privacy from adjoining properties and public areas by a suitable fence of at least 1.8 metres in height. The space should not be located between the primary street frontage and the main face of an existing or proposed building unless high, solid front fences form part of the existing streetscape or the desired character of the locality; and

(ii) has a minimum dimension of 2.5 metres and a minimum area of 10 square metres;

(b) a roof top outdoor private open space, with a minimum dimension of 2.5 metres provided the area is equal to or greater than 10 square metres; or
(c) a balcony, terrace, or other upper level outdoor areas (other than a roof top outdoor area), with a minimum dimension of 2 metres, provided the area of each is equal to or greater than 8 square metres.

PDC 225 *Dwellings (other than residential development in the form of apartments within a multi storey building) should have associated private open space of sufficient area, shape and gradient to be functional and capable of meeting the likely needs of the occupant(s) (taking into consideration the location of the dwelling and the dimensions and gradient of the site) and should be in accordance with the following:*

(a) a dwelling with a site area of 250 square metres or greater, 20 per cent of the site area should be private open space, of which one portion should be equal to or greater than 10 per cent of the site area and have a minimum dimension of 4 metres; or

(b) a dwelling with a site area of less than 250 square metres, a minimum of 35 square metres should be private open space, of which one portion should have an area of 16 square metres and a minimum dimension of 4 metres; and

(c) in either of the circumstances described above, have a maximum gradient of 1 in 10.

PDC 226 *Residential development in the form of apartments within a multi storey building should have associated private open space of sufficient area and shape to be functional and capable of meeting the likely needs of the occupant(s) and should be in accordance with the following requirements:*

(a) studio (no separate bedroom) or one bedroom, a minimum area of 10 square metres of private open space;

(b) two bedrooms, a minimum area of 12 square metres of private open space; or

(c) three bedrooms or greater; a minimum area of 15 square metres of private open space.

PDC 227 *A lesser amount of private open space may be considered in circumstances where:*

(a) the equivalent amount of private open space is provided in the form of communal open space, which is accessible to all occupants of the development; or

(b) the development is directly adjacent to large areas of useable public open space, such as Felixstow Reserve, the Parklands and the River Torrens Linear Park, which can be easily accessed by all occupants of the development.

PDC 228 *Rooftop gardens should be incorporated into multi-storey residential flat buildings and multi storey buildings with a residential component*

Communal Open Space

PDC 231 *Communal open space should be shared by more than one dwelling, not be publicly accessible and exclude:*

(a) private open space;

(b) public rights of way;

(c) private streets;

(d) parking areas and driveways;

(e) service and storage areas; and

(f) narrow or inaccessible strips of land.

PDC 232 *Communal open space should only be located on elevated gardens or roof tops where the area and overall design is useful for the recreation and amenity needs of residents and where it is designed to:*

(a) address acoustic, safety, security and wind effects;

(b) minimise overlooking into habitable room windows or onto the useable private open space of other dwellings;

(c) facilitate landscaping and/or food production; and

(d) be integrated into the overall facade and composition of buildings

Site Facilities and Storage

PDC 284 *Dwellings should provide a covered storage area of not less than 8 cubic metres in one or more of the following areas:*

(a) in the dwelling (but not including a habitable room);

(b) in a garage, carport, outbuilding or an on-site communal facility and be conveniently located and screened from view from streets and neighbouring properties.

Noise and Air Emissions Overlay

***OBJ 1**: Protect community health and amenity from adverse impacts of noise and air emissions.*

***PDC** 1 Noise and air quality sensitive development located adjacent to high noise and/or air pollution source should:*

(a) shield sensitive uses and areas through one or more of the following measures:

(i) placing buildings containing less sensitive uses between the emission source and sensitive land uses and areas;

(ii) within individual buildings, place rooms more sensitive to air quality and noise impacts (e.g. bedrooms) further away from the emission source;

(iii) erecting noise attenuation barriers provided the requirements for safety, urban design and access can be met;

(b) use building design elements such as varying building heights, widths, articulation, setbacks and shapes to increase wind turbulence and the dispersion of air pollutants provided wind impacts on pedestrian amenity are acceptable; and …

Private & Communal Open Space

Consistent with City Wide PDC 222(c), balconies on the proposed apartment buildings have been designed to achieve a minimum dimension of 2 metres and consistent with City Wide PDC 226 proposed one bedroom apartments have been generally designed to achieve a minimum area of 10 square metres of private open space and two bedroom apartments have been designed to achieve a minimum area of 12 square metres of private open space. No air conditioning units are proposed on balconies which have been designed to form an extension to the main living area of each dwelling.

Level 1 apartments breaking out to the central building courtyard space have been designed to achieve private open space with a minimum dimension of 2.5 metres and a minimum area of 10 m^2 consistent with City Wide PDC 222(a).

Pursuant to Medium and High Rise development PDC 273 proposed balconies have been designed with screens to allow visual and acoustic privacy whilst allowing natural ventilation and the infiltration of daylight into interior spaces.

A central communal open space area is also provided at level 1 for access to all residents of the apartment buildings.

The townhouses have been designed with varying areas of private open space. The two storey Type A townhouses achieve a ground level private open space with a minimum dimension of 2.5 metres and a minimum area of 10 m^2 consistent with City Wide PDC 222(a) however they have not been designed to achieve a minimum area of private open space of 35m^2 (with one area of 16m^2 and a minimum dimension of 4m) in accordance with City Wide PDC 225(d). Notwithstanding, the proposed private open space in these areas is functional, directly linked to internal living areas with more than one area of open space provided.

The three storey Type B, C and D townhouses have generally been designed to achieve private open space in the form of balconies of varying sizes however not all dwellings achieve a minimum dimension of 2.0 metres and a minimum area of $8m^2$ in accordance with City Wide PDC 222(c). Notwithstanding, it is noted that all of the townhouses are in close proximity to the proposed new Public Town Piazza and communal open space reserve as well as Chimney Park (over Stephen Street) offering alternative access to open space pursuant to City Wide PDC 227(b).

Access to Daylight

The proposed northern and southern apartment buildings have been separated by a distance of 17.4 metres to achieve penetration of natural light into the southern apartments and the level 1 building courtyard space. The apartments have also been designed to ensure that every bedroom receives direct access to sunlight.

The open communal open spaces area is located to the south of the proposed apartments and will therefore be subject to winter shade, however it has been designed as a flexible, large multiple use and layered open space area that will provide alternative seasonal activities and choice for residents seeking seasonal exposure or shelter.

The apartments have also been designed to achieve cross-ventilation and other passive design considerations.

ESD and sustainability consultants D^2 have undertaken a computer modelling simulation of the daylight access in the proposed apartments (Residential Flat Buildings). This analysis is provided in the 'Sustainability Strategy' attached at *Appendix 12*.

D^2 has undertaken modelling in accordance with the GBCA Recognised Provider – Daylight Simulation standards, using the Green Star Design & As-Built Daylight Credit as the benchmark.

The simulation uses a performance glass with a VLT of 50%, and is a worst case scenario model using a uniform overcast sky as the daylight source. A clear sky will result in a significantly improved result. The simulation also ignores the borrowed light available from the link corridors, which have overhead daylight access.

The Green Star criteria is based on lighting autonomy, with 1 point awarded where at least 40% of the living and bedroom space has a daylight autonomy level of at least 160 Lux for 80% or more of the occupied hours, and 2 points awarded where at least 60% of the space has this level of daylight autonomy. Toilets, laundry, bathrooms, stores and robes are excluded from the eligible area.

The modelling results indicate that all apartments are compliant for the full 2 points, except for apartment type A and F that sit in the south west corner, facing the courtyard, at levels 1, 2, and 3. These still have 40% of the floor space over 160 Lux so would get 1 point. These apartments at level 4, 5, and 6 comply for 2 points.

Images generated from the daylight model are included in the assessment and demonstrate the extent and quality of daylight autonomy provided by the proposed design.

Environmental Noise Assessment

Resonate acoustic engineers have prepared an acoustic assessment of the proposed development which has taken into account the relevant noise requirements of the Development Plan, Minister's Specification SA 78B and the SA Noise Environment Protection Noise Policy. (Refer to **Appendix 13**).

The assessment has confirmed that the development will be designed to achieve the requirements of the National Construction Code Part F5 in relation to acoustic separation between sole occupancy units.

This report also concludes that:

- Whilst mechanical plant selections and noise data are not available at this stage, it is expected that noise emissions from external mechanical plant associated with the development can meet the relevant criteria with standard mitigation measures as required;
- Noise from vehicles associated with the development are expected to comply with the relevant noise limits at all locations; and
- The objective noise criteria within the Development Plan, Minister's Specification SA 78B and the SA Noise EPP can be achieved with the adoption of appropriate façade construction and environmental noise mitigation techniques.

Sonus acoustic engineers have also prepared an acoustic assessment of the ALDI supermarket including car parking activity and vehicle movements, operation of mechanical plant, deliveries and rubbish collection. This report has been used to inform the Resonate Assessment and is also attached in **Appendix 13.**

The Sonus report considers noise levels at the existing and proposed noise sensitive receivers from the proposed ALDI supermarket (including closest existing residences on the opposite side of Stephen Street). The outcome and recommendations of the Sonus Report is discussed in more detail in Section 7.2.5 Interface Considerations

Together, the acoustic assessments conclude that relevant objective noise standards will be achieved to preserve amenity for proposed future residents on site and existing residents in the locality.

Storage

Pursuant to Medium and High rise Development (3 or more storeys) PDC 284, the apartments and proposed Townhouses B, C and D should provide a minimum of $8m^3$ of storage in the dwelling (but not including the habitable room) or in a garage, carport, outbuilding or an on-site communal facility.

The proposed apartments have generally been designed to accommodate in the order of $3m^3$ to $6m^3$ of storage within each dwelling with $490m^2$ of storage also allocated within the basement of the apartment buildings. The townhouse dwellings have been designed with a range of $3m^3$ to $10m^3$ with an average provision of approximately $7m^3$.

7.2.5 *Interface Considerations*

There are a number of Development Plan provisions relating to the management of development at the interface with neighbouring zones and development. These provisions generally seek to achieve the following outcomes:

- The maintenance of residential amenity of residential properties in adjoining Zones;
- A transition down in building scale and height towards the periphery of the zone, particularly at the boundaries with the existing Residential and Residential Historic (Conservation) Zones;
- Noise impacts managed in accordance with the relevant Environment Protection (Noise) Policy criteria to minimised the impact of development on adjoining sensitive receptors;
- Development that minimises solar access impacts on adjacent land or buildings as well as effects of wind, temperature, daylight, sunlight, glare and shadow.

The following provisions are considered most relevant to the assessment of interface considerations.

Urban Corridor Zone

OBJ 5: *A built form that provides a transition down in scale and intensity at the zone boundary to maintain the amenity of residential properties located within adjoining zones.*

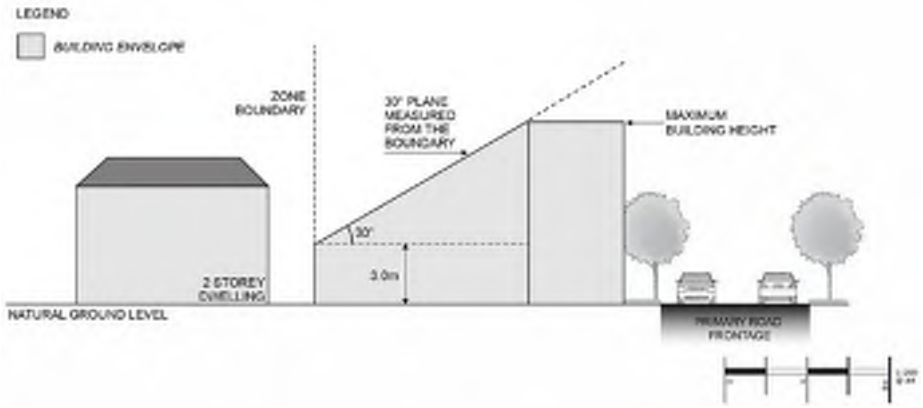
OBJ 7: *Noise and air quality impacts mitigated through appropriate building design and orientation.*

Desired Character Statement

Development at the interface with neighbouring zones, will have regard to the potential visual, overlooking and overshadowing impacts on the occupants of adjacent and nearby residential properties. In these locations development will transition down in scale and height towards the periphery of the zone, particularly at the boundaries with the existing Residential and Residential Historic (Conservation) Zones. At other locations within the Urban Corridor Zone, it is recognised that some level of overshadowing and overlooking will occur, however, this will be moderated through a range of design techniques, which may include separation of buildings, orientation of windows and balconies and various forms of screening.

Development adjacent to, or on the same site as a State or Local Heritage Place, will be respectful of its heritage character and setting and ensure that new development sensitively interfaces with the original building form. This may, in some circumstances, limit the scale and intensity of development on a site.

PDC 14 *To minimise building massing at the interface with residential development outside of the zone, buildings should be constructed within a building envelope provided by a 30 degree plane, measured from a height of 3 metres above natural ground level at the zone boundary (except where this boundary is a primary road frontage), as illustrated in Figure 1:*



Orderly and Sustainable Development

PDC 11 *Buildings should be designed so as not to unreasonably overlook or overshadow indoor or outdoor living areas of adjacent dwellings.*

Interface between land uses

OBJ 26*: Development located and designed to minimise adverse impact and conflict between land uses.*
OBJ 27: *Protect community health and amenity from the adverse impacts of development and support the continued operation of all desired land uses.*

PDC 80 *Development should not detrimentally affect the amenity of the locality or cause unreasonable interference through any of the following:*

(a) the emission of effluent, odour, smoke, fumes, dust or other airborne pollutants;
(b) noise;
(c) vibration;
(d) electrical interference;
(e) light spill;
(f) glare;
(g) hours of operation; or
(h) traffic impacts.

PDC 81 *Residential development adjacent to a non-residential land use or zone or within a non-residential zone should be located, designed and sited in a manner which:*
(a) protects residents from any adverse effects of non-residential activities; and
(b) minimises negative impact on existing and potential future land uses considered appropriate in the locality.

PDC 84 *Non-residential development on land abutting a residential zone or within a residential zone should be designed to minimise noise impacts and achieve adequate levels of compatibility between existing and proposed uses.*

PDC 85 *Sensitive land uses which are likely to conflict with the continuation of lawfully existing developments and land uses considered appropriate for the zone should not be developed*

PDC 86 *Development that emits noise (other than music noise) should include noise attenuation measures that achieve the relevant Environment Protection (Noise) Policy criteria when assessed at the nearest existing noise sensitive premises.*

PDC 87 *Development with the potential to emit significant noise (e.g. industry) should incorporate noise attenuation measures that prevent noise from causing unreasonable interference with the amenity of noise sensitive premises.*

PDC 195 *Unless otherwise specified in the relevant Zone and/or Policy Area, development should ensure that the north-facing windows of habitable rooms of dwelling(s) on adjacent sites receive at least 3 hours of direct sunlight over a portion of their surface and in the case of the main living area windows, a minimum of 50% of their surface, between 9am and 5pm on the winter solstice (21 June).Development should not increase the overshadowed area in cases where overshadowing from existing structures, fences and non-deciduous vegetation already exceeds this requirement.*

PDC 196 *Unless otherwise specified in the relevant Zone and/or Policy Area, development should ensure that at least half of the ground level private open space of existing dwelling(s) receive direct sunlight for a minimum of two hours between 9.00am and 3.00pm on 21 June. Development should not increase the overshadowed area in cases where overshadowing already exceeds these requirements.*

PDC 279 *Multi-storey buildings should:*

(a) minimise detrimental micro-climatic and solar access impacts on adjacent land or buildings, including effects of patterns of wind, temperature, daylight, sunlight, glare and shadow

PDC 293 *The location and design of centres and shopping development should ensure that all sources of noise, including refrigeration and air conditioning equipment, garbage collection and car parking, do not cause excessive or disturbing noise at neighbouring properties.*

PDC 334 *Development should not have significant adverse micro-climatic impacts on other land and buildings, particularly with regard to:*

(a) increased overshadowing resulting in loss of winter sunlight to active outdoor living areas;

(b) decreased daylight illumination; and

(c) increased wind turbulence.

PDC 347 *Development (including land division) should not compromise or detrimentally affect the heritage value, character, integrity, setting, siting or function of buildings or sites of architectural, historic or scientific interest, sites of natural beauty or places of heritage value identified in Tables NPSP/5 and 6 as State or Local Heritage Places.*

PDC 359 *Development on land adjacent to land containing a State or Local Heritage Place as designated in Tables NPSP/5 and 6 should respect the heritage value, integrity and character of the heritage place and should clearly demonstrate design consideration of the relationships with the heritage place and its setting (without necessarily replicating its historic detailing) and the character of the locality by establishing compatible:*

(a) scale and bulk;

(b) width of frontage and boundary setback patterns;

(c) proportion and composition of design elements;

(d) form and visual interest (as determined by play of light and shade, treatment of openings and depths of reveals, roofline and pitch and silhouette, colour and texture of materials as well as detailing, landscaping and fencing);

(e) fencing and areas set aside for landscaping, particularly on the primary street frontage of an allotment, which complement the era, style and landscaping setting of the heritage place; and

(f) garages, carports or outbuildings set-back at a greater distance from the primary street frontage than the main face of the primary building.

PDC 360 *Development on land adjacent to land containing a heritage place and sited in strategic locations, such as corners or at the termination of vistas, should have a scale and visual interest in the streetscape at least equal to that of the adjoining heritage place, providing the heritage value of the place within its setting is not diminished.*

PDC 361 *Development on land adjacent to land containing a State or Local Heritage Place should not be undertaken if it is likely to dominate or detract from the heritage value and integrity of the heritage place by way of design, appearance or standard of construction*

Built Form Interface

In accordance with the desired character statement of the Urban Corridor Zone the proposed built form incorporates a graduation in building scale and height with taller building elements located towards Magill Road and transitioning down to smaller domestic scaled residential buildings fronting Stephen Street and the adjoining Residential Character (Norwood) Zone to the south.

This achieves the intent of the Zone to accommodate medium and high-rise buildings on the site whilst managing the more sensitive interface with the adjoining Residential Character (Norwood) Zone. A transition in building height has not however been provided from the adjoining Business Zone where a variety of residential and non-residential land uses can be accommodated and existing residential dwellings have been '*dominated by the Caroma Industries site*'.

Acoustic Amenity

Sonus acoustic engineers have prepared an acoustic assessment of the ALDI supermarket which is attached in *Appendix 13*. The Sonus report considers noise levels at the existing and proposed noise sensitive receivers from the proposed ALDI supermarket, including closest existing residences on the opposite side of Stephen Street.

The Sonus assessment confirms that the overall development is well considered from an environmental noise perspective with the ALDI supermarket located closest to the highest existing noise sources (Magill Road and the ALMA Hotel). This provides a greater distance between the proposed residential use to the south of the site and the existing noise sources. The proposed residences on the site (which will be designed to protect occupants from noise) also provide a barrier between the commercial activity at the ALDI supermarket and the closest existing residences on the opposite side of Stephen Street.

The Sonus assessment concludes that the noise levels at existing residents in the locality (particularly south of Stephen Street) are predicted to achieve the relevant objective noise criteria (i.e. the *Environment Protection (Noise) Policy 2007*) provided the following acoustic treatments are applied to the proposed ALDI supermarket:

- Restrict the operation of the compactor to the hours between 7am and 10pm;
- Restrict the hours of rubbish collection from the site and any use of the refuse area to the hours of Division 3 of the *Environment Protection (Noise) Policy 2007* (that is, only between the hours of 9am and 7pm on a Sunday or public holiday, and 7am and 7pm on any other day); and
- Restrict the exit of trucks to Sydenham Road to the hours between 7am and 10pm.

Overlooking

Given the nature of development anticipated and contemplated in the Urban Corridor Zone, the desired character statement of the zone recognises that some level of overlooking will occur, but should be moderated through a range of design techniques such as the separation of buildings, orientation of windows and balconies and various forms of screening.

The proposed Apartment buildings (residential flat buildings) and townhouses have been designed with windows and balconies orientated towards Magill Road and Stephen Street, the proposed ALDI supermarket and

the proposed public and shared communal open space located centrally on site. These windows and balconies will provide good passive surveillance of the ALDI Supermarket and public and communal open space areas in accordance with the principles of Crime Prevention through Environmental Design. Importantly, no windows or balconies are however proposed on the eastern elevation of the apartments and given the location and configuration of the proposed apartments and townhouses, there will be no overlooking from the proposed development into the rear private open space of existing adjoining dwellings to the east, in the Business Zone.

Shadow and Solar Access

Given the nature of development anticipated and contemplated in the Urban Corridor Zone, the desired character statement of the zone recognises that some level of overshadowing will occur, but should be moderated through a range of design techniques.

Shadow diagrams for the proposed development for the summer solstice, winter solstice and equinox have been prepared by TECTVS Architects and are attached in the 'Design Report' provided at ***Appendix 6.***

In accordance with City Wide PDC 195 and 196 the shadow diagrams reveal that the proposed development will not cast additional shadow on the adjoining rear private open space and habitable room windows of the adjoining dwellings to the east (in the Business Zone) between the hours of 9:00am and midday (min 3 hour duration) on the winter solstice.

Local Heritage Interface

The subject site is located adjacent the Alma Hotel (to the west) which is a local heritage place. The subject site is also located opposite a local Council Reserve (Chimney Park) over Stephen Street which accommodates a local heritage place (*Destructor Chimney Base – square masonry base*). A local heritage place (*Victorian masonry shop and rendered masonry cottage*) is also located to the south of the site over Stephen Street (on the corner of Stephen Street and Sydenham Road). Existing local heritage places in the surrounding locality are demonstrated spatially in ***Figure 3.8***.

The composition and organisational structure of the proposed development has taken into consideration the location of adjoining local heritage places.

The ALDI supermarket is proposed adjacent the Alma hotel and is setback from the common property boundary of the hotel to preserve the curtilage and setting of this Local Heritage Place. The proposed ALDI supermarket also provides a transition and graduation in building scale to the proposed seven (7) storey apartments fronting Magill Road.

Modest two (2) storey townhouses are also proposed to the rear of the Alma hotel and are separated from the building by an existing at-grade car park and new laneway connection to Sydenham Road. These two storey townhouses also front Stephen Street and are located opposite the *Victorian masonry shop and rendered masonry cottage* on the corner of Stephen Street and Sydenham Road. These townhouses have been designed with confident and clean pitched roofs and clad in metal in reference to the neighbouring Alma hotel and nearby townhouses.

The '*Destructor Chimney Base*' will be directly linked and integrated into the site through the proposed Town Piazza and Urban Promenade which provides a north-south linkage from Chimney Park to Magill Road. This will assist to connect and integrate this local heritage place into the proposed development and celebrate the existing local heritage context.

The proposed development has therefore been designed to celebrate and respect the heritage value, integrity and character of adjoining local heritage places.

7.2.6 *Landscaping & Vegetation*

The following Development Plan provisions are considered most relevant to the assessment of tree damaging activity to a Regulated Tree:

Regulated Trees

OBJ 120: *The conservation of regulated trees that provide important aesthetic and/or environmental benefit.*

OBJ121*: Development in balance with preserving regulated trees that demonstrate one or more of the following attributes:*

(a) significantly contributes to the character or visual amenity of the locality;
(b) indigenous to the locality;
(c) a rare or endangered species;
(d) an important habitat for native fauna.

PDC 409 *Development should have minimum adverse effects on regulated trees.*

PDC 410 *A regulated tree should not be removed or damaged other than where it can be demonstrated that one or more of the following apply:*

(a) the tree is diseased and its life expectancy is short;
(b) the tree represents a material risk to public or private safety;
(c) the tree is causing damage to a building;
(d) development that is reasonable and expected would not otherwise be possible;
(e) the work is required for the removal of dead wood, treatment of disease, or is in the general interests of the health of the tree.

PDC 411 *Tree damaging activity other than removal should seek to maintain the health, aesthetic appearance and structural integrity of the tree.*

The proposed development involves the removal of one existing Regulated Tree to accommodate the future development of the site. The exiting regulated tree, identified in ***Figure 4.11*** and in Image 8 on ***Figure 3.5***, has a circumference of 2.6 metres and is located adjacent to Magill Road.

The existing regulated tree is located in a position that would inhibit the future reasonable and expected development of the site in accordance with the primary Objectives and Principles of Development Control of the Urban Corridor Zone. Accordingly, the tree is proposed to be removed in accordance with PDC 410(d) of the Development Plan.

The following provisions are considered most relevant to the assessment of site landscaping and vegetation:

Landscaping, Fences and Walls

OBJ 24*: The amenity of land and development enhanced with appropriate planting and landscaping, which uses locally indigenous plant species where possible.*

OBJ 25: *Functional fences and walls that enhance the attractiveness of development*

PDC 73 *Development should incorporate open space and landscaping and minimise the use of hard paved surfaces in order to:*

(a) complement built form and reduce the visual impact of larger buildings (for example locating taller and broader plants against taller and bulkier building components);
(b) enhance the visual appearance from the street frontage;
(c) screen service yards, loading areas and outdoor storage areas;
(d) define and enhance the appearance of outdoor spaces, including car parking areas;
(e) minimise heat absorption and reflection;
(f) provide shade and shelter;
(g) assist in climate control within and around buildings;
(h) allow for natural infiltration of surface waters through permeable treatments;
(i) contribute to the viability of ecosystems and species; and
(j) promote water and biodiversity conservation.

PDC 74 *Landscaped areas should:*

(a) where practicable, have a width of not less than two metres;
(b) be protected from damage by vehicles and pedestrians;
(c) result in the appropriate clearance from powerlines and other infrastructure being maintained;
(d) be designed to incorporate the re-use of stormwater for irrigation purposes; and
(e) include the planting of locally indigenous species where practical.

PDC 76 *Landscaping of non-residential development should be provided and maintained in order to:*

(a) establish a buffer between the non-residential development and the development on adjacent sites;
(b) complement the landscaping provided by adjacent development and enhance the visual appearance and character of the area;
(c) shade, define and create windbreaks for pedestrian paths and spaces;
(d) screen, shade and enhance the appearance of car parking areas;(e) screen service yards, loading areas and outdoor storage areas; and
(f) re-establish local indigenous plant species where it is practical to do so.

PDC 78 *Landscaping should not:*

(a) unreasonably restrict solar access to adjoining development;
(b) cause damage to buildings, paths, infrastructure/services and other landscaping from root invasion, soil disturbance or plant overcrowding;
(c) remove opportunities for passive surveillance;
(d) increase leaf fall into watercourses; and
(e) introduce pest plants and/or increase the risk of weed invasion.

PDC 79 *Fences and walls, including retaining walls, should:*

(a) not result in damage to neighbouring trees;
(b) be compatible with the associated development and with existing predominant, attractive fences and walls in the locality;
(c) enable some visibility of buildings from and to the street or laneway (only where it is the primary street) to allow casual surveillance;
(d) incorporate articulation or other detailing, where there is a large expanse of wall facing the street;
(e) assist in highlighting building entrances;
(f) be sited and limited in height, to ensure adequate sight lines for motorists and pedestrians especially on corner sites;
(g) in the case of side and rear boundaries, be of sufficient height to maintain privacy and/or security without adversely affecting the visual amenity or access to sunlight of adjoining land; and
(h) be constructed of non-flammable materials.

Communal Open Space

PDC 231 *Communal open space should be shared by more than one dwelling, not be publicly accessible and exclude:*

(a) private open space;
(b) public rights of way;
(c) private streets;
(d) parking areas and driveways;
(e) service and storage areas; and
(f) narrow or inaccessible strips of land.

PDC 232 *Communal open space should only be located on elevated gardens or roof tops where the area and overall design is useful for the recreation and amenity needs of residents and where it is designed to:*

(a) address acoustic, safety, security and wind effects;
(b) minimise overlooking into habitable room windows or onto the useable private open space of other dwellings;
(c) facilitate landscaping and/or food production; and
(d) be integrated into the overall facade and composition of buildings.

Medium and High Rise Development

OBJ 63: *Development that integrates built form within high quality landscapes to optimize amenity, security and personal safety for occupants and visitors.*

PDC 280 *Green roofs (which can be a substitute for private or communal open space provided they can be accessed by occupants of the building) are encouraged for all new residential commercial or mixed use buildings*

PDC 282 *Deep soil zones should be provided to retain existing vegetation or provide areas that can accommodate new deep root vegetation, including tall trees with large canopies.*
One way of achieving this is in accordance with the following table:

Site area	Minimum deep soil area	Minimum dimension	Tree/ deep soil zones
<300m²	10m²	1.5 metres	1 small tree/10m² deep soil
300-1500m²	7% site area	3 metres	1 medium tree/30m² deep soil
>1500m²	7% site area	6 metres	1 large or medium tree/60m² deep soil
Tree size and site area definitions			
Small tree	< 6 metres mature height and < less than 4 metres canopy spread		
Medium tree	6-12 metres mature height and 4-8 metres canopy spread		
Large tree	12 metres mature height and > 8 metres canopy spread		
Site area	The total area for development site, not average area per dwelling		

PDC 283 *Deep soil zones should be provided with access to natural light to assist in maintaining vegetation health*

The overall Landscape Master Plan prepared by Hassell is attached at ***Appendix 7*** and includes indicative concepts for the public realm including the Town Piazza, Urban Promenade and Stephen Street. A proposed plan of division will be lodged as a separate application for Development Plan Consent and Land Division Consent and this application will excise and vest proposed public open space with Norwood Payneham and St Peters Council (pursuant to Section 50 of the *Development Act, 1993*). .

The proposed central public open space reserve (Town Piazza) and Urban Promenade is approximately 1,763 m^2 and represents approximately 9.3 % of the total site area (marginally less than the statutory 12.5% benchmark). The proposed public open space reserve will be functional and highly accessible and located to provide amenity to residents within and adjoining the development. The public open space reserve is an effective extension of

Chimney Park and will provide pedestrian linkages through the site including part of the proposed linkage between Magill Road and Stephen Street.

A communal open space area of approximately 1,139m^2 is also provided between the proposed apartments and Type D townhouses (Group Dwellings). This communal open space has been designed as a series of small outdoor rooms and will be publicly accessible. The rooms consist of an outdoor turf activity zone (associated with an internal recreation room), a raised timber deck alfresco area, a large communal table and a sunken turf lounge area with perimeter retaining wall.

The proposed apartments also incorporate a Level 1 building courtyard space which is communal open space that is only accessible to residents of the apartments (refer to ***Figure 4.8***). Utilising the same design narrative and form as the public open space the building courtyard provides a series of outdoor rooms which provide users with opportunities to seek solace or socially engage with other residents. Spaces are sized from intimate small gathering spaces to large communal group gathering spaces. Landscaping will be established in both set-down pits and raised planters to accommodate root zones for vegetation.

The combined area of communal open spaces is approximately 2,656 m^2 representing approximately 14% of the site dedicated to landscaping. When combined with the dedicated public open space in the Town Piazza and Urban Promenande, the total landscaped percentage of the site (soft and hard landscaping) is approximately 23%. Whilst not all deep soil landscaping, this area of landscaped open space significantly exceeds the minimum 7% deep soil landscape area encouraged by PDC 282 of the Development Plan.

Pursuant to PDC 280 high quality landscapes are proposed that will integrate with built form within the development to optimize site amenity.

7.2.7 *Advertising & Signage*

The key Development Plan Objectives relating to advertisements include:

> ***OBJ 117:*** *An urban environment not disfigured by advertisements.*
> ***OBJ 118:*** *Advertisements in retail, commercial and industrial areas, designed to enhance the appearance of those areas.*
> ***OBJ 119:*** *Advertisements not hazardous to any person.*

There are also a number of principles of development control relating to advertising that seek to achieve the following outcomes:

- Signage designed to enhance the appearance of buildings and not detrimentally affect the amenity of an area associated with the siting, size, shape, scale, glare, reflection or colour of proposed signs;
- Advertisements that do not result in clutter, visual disorder and the untidiness of buildings and spaces;
- Advertisements that are compatible with the buildings on which they are situated and coordinated to be consistent with the architectural theme of the building on which they are situated;
- Advertisements that do not obscure drivers views of the road (and associated road features), do not distract drivers or can be liable to interpretation by drivers as an official sign;

- Advertisements sited and designed at a suitable size, colour, shape and lighting to harmonise with the desired character described by the objectives for the zone;
- Advertisements that are:
  - no higher than the height of the finished floor level of the second storey of the building to which it relates; and
  - where located below canopy level, flush with the wall or projecting horizontally; or
  - where located at canopy level, in the form of a facia sign; or
  - where located above the canopy, flush with the wall and within the height of the parapet.

The proposed ALDI Supermarket incorporates two (2) internally illuminated gable signs on the supermarket tower in the north-west corner of the building and two (2) internally illuminated gable signs on the perforated metal tower in the north-eastern corner of the building, adjacent Magill Road. Two (2) primary internally illuminated gable signs measuring 2.0m by 2.44m are also proposed on the southern elevation of the ALDI building, adjacent the pedestrian entrance into the building. An externally illuminated 'tomato graphic' (lifestyle image) is also proposed on the southern elevating of the building adjacent the at-grade car park. A small 'airlock decal sign' and 'digital poster box' is also proposed to clearly identify the store entrance at the south-eastern corner of the building.

No freestanding signs are proposed.

The signage associated with the proposed ALDI development generally satisfies the relevant provisions of the Development Plan given:

- The signs are integrated within the design of the proposed ALDI building and are appropriately sited and scaled to complement the building design and façade treatment;
- The size of the gable signs are relatively modest and restrained in the context of the proposed building scale and the signs will be professionally constructed utilising durable and weather resistant materials;
- The materials and colours of the proposed signs illustrate the corporate ALDI branding and the content of the advertising displays will be simple and display a single branding theme relating to the legitimate use of the subject land;
- The advertising displays are designated to clearly identify the retail activity to passing traffic and assist to identify the access points into the site to facilitate safe traffic movements, without any flashing or animations; and
- Given the location and height above ground level of the proposed illuminated adverting displays will not cause discomfort to an approaching driver or create difficulty in the driver's perception of the road or persons or objects on the road.

7.2.8 *Stormwater Management*

The following provisions are considered most relevant to the assessment of stormwater management.

Stormwater Management

OBJ 42: Development sited and designed to maximise the harvest and use of stormwater and reduce run-off.

OBJ 43: Development sited and designed to minimise demand on reticulated water supplies.

OBJ 44 Development designed and located to protect stormwater from pollution sources.

OBJ 45 Development designed and located to protect or enhance the environmental values of receiving waters.

OBJ 46 Development designed and located to prevent or minimise the risk of downstream flooding.

OBJ 47: Development designed and located to prevent erosion.

OBJ 48: Storage, use and disposal of stormwater which avoids adverse impact on public health and safety

OBJ 51: Development located and designed to minimise the risks to safety and property from flooding

PDC 147 Development should be designed to maximise conservation, minimise consumption and encourage re-use of water resources.

PDC 148 Development should be sited and designed to:

(a) minimise surface water runoff;
(b) capture and re-use stormwater, where practical;
(c) prevent soil erosion and water pollution;
(d) protect and enhance natural water flows;
(e) protect water quality by providing adequate separation distances from watercourses and other water bodies; and
(f) maintain natural hydrological systems and not adversely affect:
(i) the quantity and quality of groundwater; and
(ii) the depth and directional flow of groundwater.

PDC 149 Development should include stormwater management systems to:

(a) mitigate peak flows and manage the rate and duration of stormwater discharge from the site to ensure the carrying capacities of downstream systems are not overloaded; and
(b) protect it from damage during a minimum of a 1 in 100 year Average Recurrence Interval flood.

PDC 150 Stormwater management systems should preserve natural drainage systems, including the associated environmental flows.

PDC 151 Stormwater management systems should:

(a) maximise the potential for stormwater harvesting and re-use, either on-site or as close as practicable to the source; and
(b) utilise, but not be limited to, one or more of the following harvesting methods:
(i) the collection of roof water in tanks;
(ii) the controlled discharge to open space, landscaping or garden areas, including strips adjacent to car parks;
(iii) the incorporation of detention and retention facilities; or
(iv) aquifer storage and recovery.

PDC 152 Stormwater management systems should be designed and located to improve the quality of stormwater, minimise pollutant transfer to receiving waters, and protect downstream receiving waters from high levels of flow.

PDC 153 *Development affecting, or likely to affect, existing stormwater management systems should be designed and located to improve the quality of stormwater, minimise pollutant transfer to receiving waters, and protect downstream receiving waters from high levels of flow.*

PDC 154 *Development should incorporate appropriate measures to minimise the concentrated discharge of stormwater from the site.*

PDC 155 *Site drainage should:*

(a) include, where practicable, scope for on-site stormwater detention, retention and use, including the collection and storing of water from roofs and communal car parks in appropriate devices;
(b) provide for on-site infiltration where practicable, having regard to:
(i) the availability of unbuilt upon or unsealed areas;
(ii) the ability of the soils to absorb water;
(iii) the ability of the building footings on and adjacent to the site to withstand the likely effects of any retained water; and
(iv) any potential adverse impacts on the level of ground water in the locality;
(c) allow for convenient access to all components of the drainage system for maintenance purposes; and
(d) not cause damage or nuisance flows on site or to adjoining properties.

PDC 158 *Above ground stormwater detention systems should:*

(a) not create or increase the risk of flooding to any building on the site or on an adjacent site; and
(b) be designed with a maximum ponding depth of 200 millimetres.

PDC 159 *All new dwellings and additions to existing dwellings (including dependent accommodation units) greater than 50 square metres (where the addition incorporates a water closet, water heater or a laundry cold water outlet) with direct access to the ground level, should be provided with a 2000 litre rainwater tank/s connected to the roof water outlets and plumbed to at least a water closet, a water heater and/or all laundry cold water outlets.*

PDC 160 *A development which includes:*

(a) three or more dwellings;
(b) the replacement of one dwelling with three or more dwellings on one site, or on separate sites resulting from the land division of the original site; or
(c) in the case of a non-residential development, an impervious surface area that is greater than the pre-development state;

should incorporate an on-site stormwater detention system (either above or below ground) to ensure that stormwater discharged from the site and/or combined sites does not exceed the capacity of the existing or planned 1 in 5 year Average Recurrence Interval stormwater system and increase the risk of flooding to downstream properties or add any significant pollutant load to the downstream stormwater system

PDC 161 *Where it is not practicable to detain or dispose of stormwater on site, only clean stormwater runoff should enter the public stormwater drainage system.*

PDC 162 *Water discharge from a site should be of a physical, chemical and biological condition equivalent to or better than the water discharge from the site in its pre-developed state.*

PDC 163 *Stormwater from a site should not discharge into or onto a laneway (including a service lane), or other minor or unserviced street unless there is a defined underground piped stormwater drainage system which has sufficient capacity to receive the stormwater flows.*

PDC 164 *A dwelling, other than a dwelling located within the 1-in-100 year Average Recurrence Interval floodplain, should be sited and designed so that the finished floor level of the dwelling is a suitable height above the adjacent top of kerb level, to enable the efficient gravity-fed drainage of stormwater from all impervious surfaces on the site, provided that the finished floor level of*

the dwelling is no more than 700 millimetres above the natural ground level at any point along the side and rear boundaries of the site.

In instances where this can not be achieved, a lower floor level and alternative stormwater management system, such as pump and sump and/or soakage systems, should be provided. This alternative stormwater management system should take into consideration the secondary flood flows from the road reserve and provide adequate mitigation measures.

PDC 165 *Development should incorporate appropriate measures to minimise the discharge of sediment, suspended solids, organic matter, nutrients, bacteria and litter and other contaminants to the stormwater system and may incorporate systems for treatment or use on site.*

PDC 170 *No new buildings or structures, or extensions to existing buildings or structures, or portions thereof, should be constructed within any site which is at or below the principal flow path level of the 1 in 20 year Average Recurrence Interval floodplain.*

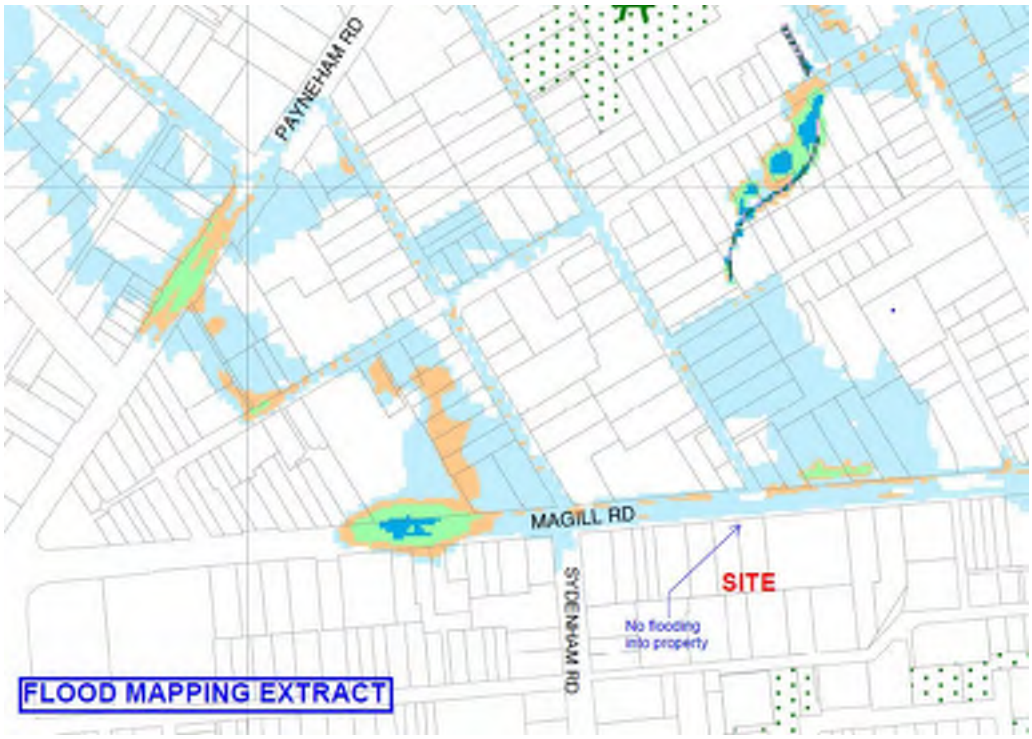
PDC 171 *The finished ground floor level of all habitable spaces should not be less than 300 millimetres above the 1 in 100 year Average Recurrence Interval floodplain*

A Stormwater Management Plan has been prepared by Wallbridge and Gilbert (W&G) and is attached at *Appendix 10*.

W&G have confirmed that currently some of the internal stormwater drainage system is currently released to Stephen Street however the site generally discharges into the Magill Street water table via a substantial number of galvanised box drains.

W&G have also provided flood mapping extracted from the 'First to Fifth Creeks 1 in 100 year Flood Inundation Map' which demonstrates that the subject site is not subject to flooding (refer to ***Figure 7.2*** below)

Figure 7.2 *Flood Inundation Mapping*
(Source: First to Fifth Creeks 1 in 100 year Flood Inundation Map)



The City of Norwood Payneham and St Peters have Council have confirmed the following storm water requirements with respect to this site:

- On site detention storage (to reduce the peak flow rate) is required to reduce the site outflow. Although post development will be more permeable than pre-development conditions, downstream Council systems are often over-capacity resulting in public flooding. On this basis, Council require a limit to the 'post-development' stormwater outflow in 1 in 5 year ARI events to no greater than the existing 'pre-development' outflows occurring in 1 in 100 year ARI events. This is a significant reduction in what currently leaves the site to be collected on Magill Road.
- Site levels are to be set to provide a clear overland flow path for the 1 in 100 year flows where possible.
- Stormwater quality improvement measures (such as GPTs) are encouraged to treat the quality of the stormwater runoff from any trafficable areas (outdoors car parks etc).

W&G have proposed a stormwater methodology involving the separate management of stormwater from the ALDI Supermarket and the balance of the site. Two separate systems are proposed to be treated individually, to minimise the need for future easements across titles etc.

Some of the 'ALDI' discharge is proposed to be directed, in controlled fashion, to the Magill Road water table, whilst the majority will be directed to an existing 825mm stormwater main available in Sydenham Road. Discharge to the Sydenham Road's system will be limited by an orifice fitting to limit the ALDI outflow to approximately 102L/Sec in total. Oversize pipes will provide the majority of this storage, with rare use also made of the loading dock recess.

Preliminary stormwater calculations to meet Council's discharge requirements for the 100 year ARI event for the balance of the site indicate that a portion of the stormwater may be discharged immediately from the site whilst a significantly larger volume is required to be temporarily stored (detained).

The immediate discharge is to be directed to both the Magill Road and Stephen Street water tables with the detention volume balance captured in large underground tanks placed below the basement level. Multiple pumps will gradually empty these tanks towards Magill Road via spaced box drains, each limited to 20 L/sec output. Preliminary calculations reveal that on this portion of the site a detention capacity of 212m^3 and a maximum outflow of 108.1 L/sec must be met.

Relatively clean roof water could be separated for potential re-use, whilst the majority of the external carpark collection will pass through an adequately sized Pollution Control Device (such as a Rocla First Defence FD450 or similar) prior to entering the Detention Tank.

The stormwater management report therefore demonstrates that, subject to detailed design, stormwater can be suitably managed on site in accordance with Council requirements and in accordance with the relevant provisions of the Development Plan.

7.2.9 *Waste & Servicing*

The following Development Plan provisions are considered most relevant to the assessment of waste management:

City Wide

PDC 12 *Development should take place in a manner which is not liable to cause an unreasonable nuisance to neighbours or the community or significantly detrimentally affect the amenity, use or enjoyment of nearby properties by:*

(a) the emission beyond the site boundaries of noise, vibration, odour, atmospheric liquid or other pollutants, waste water, waste products, electrical interference, light overspill or loss of privacy; or

Energy Efficiency

OBJ 23 *Development designed and sited to conserve energy and minimise waste*

Infrastructure

PDC 135 *Development should not occur without the provision of adequate utilities and services, including:*

(d) waste disposal;

PDC 141 *Development should enable economic and effective servicing for public transport, recycling and waste collection, fire protection and street lighting.*

Site Coverage

PDC 208 *Site coverage should ensure that sufficient space is provided for:*
(g) convenient storage of household waste and recycling receptacles

Site Facilities and Storage

PDC 233 *Site facilities for group dwellings and residential flat buildings of greater than six dwellings should include:*
(c) household waste and recyclable material storage areas away from dwellings; and

PDC 285 *Development should provide a dedicated area for the on-site collection and sorting of recyclable materials and refuse, green organic waste and wash-bay facilities for the ongoing maintenance of bins. This area should be screened from view from public areas so as to not to detract from the visual appearance of the ground floor.*

Centres, shops and businesses

PDC 292 *Provision for the movement of people and goods within business, centre and shopping zones or areas should comply with the following:*
(e) adequate and convenient provision should be made for service vehicles and the storage and removal of waste goods and materials;

A detailed Waste Management Plan for the mixed-use apartment buildings and townhouses has been prepared by Colby Industries and is attached in ***Appendix 9***. Also attached in ***Appendix 9*** is a Waste Management Plan prepared for the proposed ALDI Supermarket.

Combined, the Waste Management Plans provide detailed information on waste and recycling volumes likely to be generated on site as well as proposed waste and recycling service provision. The reports also provide a management strategy with respect to:

- Waste storage areas for each component of the development;
- Waste system operations;
- Waste collection;
- Waste transfer pathways; and
- Waste operations and management.

The proposed Waste Management Plans demonstrate that there is adequate provision for the suitable collection, storage, management and removal of waste in accordance with relevant Development Plan provisions.

7.2.10 *Crime Prevention*

The following Development Plan provisions are considered most relevant to the assessment of crime prevention through environmental design (CPTED):

Design and Appearance of Land and Buildings

OBJ 22: *A safe, secure and crime resistant environment where land uses are integrated and designed to facilitate community surveillance.*

Crime Prevention

PDC59 *Development should be designed to maximise surveillance of public spaces through the incorporation of clear lines of sight, appropriate lighting and the use of visible permeable barriers wherever practicable.*

PDC 60 *Buildings should be designed to overlook public and communal open spaces and streets to allow casual surveillance.*

PDC 61 *Buildings should be designed to minimise and discourage access between roofs, balconies and windows of adjoining dwellings.*

PDC 62 *Development, including car park facilities should incorporate signage and lighting that indicate the entrances and pathways to, from and within the site.*

PDC 63 *Site planning, buildings, fences, landscaping and other features should clearly differentiate between public, communal and private areas.*

PDC 64 *Development should avoid pedestrian entrapment spots and routes and paths that are predictable or unchangeable and offer no choice to pedestrians.*

PDC 65 *Development fronting an alleyway, laneway (including a service lane), or other minor or unserviced street should be located and designed to maximise safety and security.*

PDC 66 *Development fronting a laneway (including a service lane), or other minor or unserviced street should maximise the potential for passive surveillance by ensuring that the building can be seen from nearby buildings and the laneway/minor streets/unserviced streets.*

Landscaping

PDC 75 *Landscaping should be used to assist in discouraging crime by:*

(a) screen planting areas susceptible to vandalism;

(b) planting trees or ground covers, rather than shrubs, alongside footpaths; and
(c) planting vegetation other than ground covers a minimum distance of two metres from footpaths to reduce concealment opportunities.

The proposed development has been designed taking into consideration crime prevention through environmental design (CPTED) principles and techniques including:

- The proposed development incorporates approximately 3,000m^2 of retail floor space including opportunities for cafes and restaurants together with existing hotels in the broader precinct (Alma Hotel and Republic hotel) that will bring high levels of activation from morning through to evening, 7 days a week;
- Active retail shop fronts, particularly fronting Magill Road and the urban boulevard, that will be transparent and allow for the spill of light from shops as well as out of hours window shopping;
- Proposed townhouses and apartments have been designed to overlook and provide a high level of passive surveillance to Magill Road, Stephen Street, at-grade car park, the Town Piazza, Urban Promenade and all communal open space;
- Balconies have been physically separated or designed with screens to prevent access between balconies of different dwellings;
- Building entrances have been designed to be highly visible and legible and oriented towards the street, public and communal open space and pedestrian routes;
- Utilisation of robust building materials, particularly in public and communal open space reserves, that are durable and resistant to vandalism,
- Appropriate and consistent lighting will be provided in communal and public open space reserves, building entrances, parking and pedestrian areas to avoid the creation of shadowed areas (i.e. all outdoor lighting will be designed to Australian Standard AS/NZS 1158 Part 3.1 *Lighting for roads and public spaces Pedestrian Area (Category P)*;
- Public and communal open space designed to clearly delineate the public and private realm and promote a sense of territoriality and ownership through physical features expressed in the design including:
  - public open space designed as a series of outdoor rooms which will assist to create a sense of ownership of common space by various user groups;
  - raised landscape planter boxes and use of paving treatments to delineate boundaries;
  - use of permeable barriers (landscaping, fencing and walls) to separate the public and private realm;
- The proposed undercroft and basement car park designed with:
  - an open and clear layout with long continuous wall surfaces containing a minimum of bends, projects or obstructions to minimise opportunities for concealment;

- lift cores and stairwells provided in highly visible locations and distributed in a manner such that an alternative means of travel to an alternative lift or stair core is always available if required; and
- wayfinding will be provided with signage assisting with site legibility and permeability.

With the adoption of the above CPTED techniques the proposed development is generally aligned with the relevant Development Plan provisions relating to crime prevention.

7.2.11 *Sustainability*

The following Development Plan provisions are considered most relevant to the assessment of the development for environmental sustainability:

Energy Efficiency

PDC 67 *Development should provide for efficient solar access to buildings and open space all year round.*

PDC 68 *Buildings should be sited and designed to ensure:*

(a) that the main living areas and the private open space associated with the main living areas, face north to maximise exposure to winter sun; and
(b) adequate natural light and winter sunlight is available to the main internal living areas and principal private open spaces of adjacent properties.

PDC 69 *Development should be designed to minimise energy consumption by incorporating, where practicable, energy efficient building design elements, techniques and materials, such as:*

(a) the sizing, orientation and shading of windows to reduce summer heat load and take advantage of winter sun;
(b) the use of deciduous trees, pergolas, eaves, verandas and awnings, to allow penetration of heat and light from the sun in winter and to provide shade in summer;
(c) openings designed to maximise the potential for natural cross-ventilation to enable cooling breezes to reduce internal temperatures in the summer months; or
(d) the use of colours on external surfaces such as roofs and walls, to minimise heat absorption in summer.

Environment and Conservation

OBJ 106*: The ecologically sustainable use of all natural resources including ground water, surface water and watercourses.*

PDC330 *Development should be undertaken with minimum impact on the natural environment, including air and water quality, land, soil biodiversity, or scenically attractive areas.*

PDC 331 *Development should take place in a manner which will protect biological systems and maintain natural ecological processes on the land and in surrounding localities.*

PDC 333 *Development should take place in a manner which is not liable to contribute to pollution of air, water or land.*

D^2 have prepared a sustainability strategy for the proposed development which is attached in ***Appendix 12***.

This strategy identifies proposed sustainability initiatives with respect to:

- Community and Social Sustainability (7 initiatives identified);

- Energy (16 Initiatives identified including an embedded network used in the apartment buildings with electricity being supplied via an inset network, so that residents can benefit from the option of reduced electricity supply rates, and the ability to share renewable energy from the building solar PV array);
- Water (5 initiatives identified);
- Waste (4 initiatives identified);
- Indoor Environment Quality (4 initiatives identified); and
- Construction (4 initiatives identified).

The full list of initiatives is reproduced in Section 4.9 of this Planning Statement.

The D Squared Sustainability Strategy also identifies that the design team will target a 5 Star Green Star self-assessed rating for the mixed-use apartments and townhouses to benchmark the buildings against 'Australian Leadership' in sustainable design.

D Squared also confirm that preliminary modelling has also been undertaken using AccuRATE software to BDAV standards in order to establish the expected apartment and town house NatHERS rating. The residential development benchmarks at an expected average 7 Star NatHERS rating, demonstrating a 20% improvement over the NCC/BCA minimum requirement of 6 Star average.

With the adoption of the proposed sustainability initiatives the proposed development is aligned with the relevant Development Plan provisions relating to environmental sustainability.

7.2.12 *Infrastructure & Building Services*

The following Development Plan provisions are considered most relevant to the assessment of infrastructure:

Infrastructure

OBJ 37: *The efficient and cost-effective use of existing infrastructure.*

OBJ 38: *Infrastructure provided in an economical and environmentally sensitive manner.*

OBJ 39: *Infrastructure, including social infrastructure, provided in advance of need.*

OBJ 40: *Suitable land for infrastructure identified and set aside in advance of need.*

OBJ 41: *The visual impact of infrastructure facilities minimised.*

PDC 135 *Development should not occur without the provision of adequate utilities and services, including:*

(a) electricity supply;

(b) water supply;

(c) drainage and stormwater systems;

(d) waste disposal;

(e) effluent disposal systems;

(f) formed all-weather public roads;

(g) telecommunications services;

(h) social infrastructure, community services and facilities; and

(i) gas service.

PDC 136 *Electricity supply serving new development should be installed underground.*

PDC 138 *The treatment and disposal of effluent and other waste material from any development or use of land should, having regard to the location or design of the development or use, be able to be achieved without risk to health or impairment to the environment.*

PDC 139 *Development should incorporate provision for the supply of infrastructure services to be located within common service trenches, where practical.*

PDC 143 *Development in proximity to infrastructure facilities should be sited and be of a scale to ensure adequate separation to protect people and property.*

PDC 144 *Buildings and structures associated with the supply and maintenance of public utilities should where possible:*

(a) be grouped with non-residential development;

(b) be sited unobtrusively; and

(c) be landscaped.

PDC 145 *Electricity infrastructure should be designed and located to minimise its visual and environmental impacts.*

A Service Infrastructure Report prepared by Lucid is attached in ***Appendix 11*** and demonstrates that the proposed development can be economically and efficiently serviced with required power, sewer, potable water, gas and communications infrastructure.

There are two existing transformer that are proposed to be preserved on site fronting both Magill Road and Stephen Street. The transformer adjacent the entrance to the site fronting Magill Road is proposed to be screened in a perforated mesh enclosure and softened with landscaping to preserve streetscape amenity and minimise adverse visual impacts both on and off the site.

Figure 7.3 *Treatment of Transformer fronting Magill Road*

Based on advice provided by Lucid, proposed buildings have been designed and setback from Magill Road to avoid existing high and low voltage cables that run adjacent the entire length of the site, along Magill Road.

With respect to Building services including building fire safety, Katnich Dodd have been engaged as Building Certifiers for the residential and retail components of the development (excluding the ALDI Supermarket) and have confirmed in correspondence dated 25 July 2018 that:

> *To date we have undertaken a preliminary review of the planning documentation and feel that the building (subject to performance based alternate solutions to be further reviewed and supported by the SAMFS) will be able to satisfy the minimum requirements of the NCC BCA Vol 1 & Vol 2 with regards to a mixed use building of Class 2, 6 & 7a classifications as well as the Class 1 dwellings detached from the main complex.*

In addition, BuildSurv have been engaged as Building Certifiers for the proposed ALDI Supermarket and have provided preliminary advice on 29 July 2018 with regards to Building Code of Australia (BCA) compliance for this building. With adoption of the proposed recommendations of Buildsurv it is anticipated that this building will also satisfy minimum building requirements for a Class 6 (Shop / supermarket) building. Both preliminary Building Surveying assessments are provided at ***Appendix 14***.

On this basis, the proposed development is therefore generally aligned with the relevant infrastructure and servicing Objectives and Principles of Development control of the Development Plan.

7.2.13 *Environment (Site Contamination)*

The following Development Plan provisions are considered most relevant to the assessment of the development for environmental site contamination:

Hazards

OBJ 52: *Appropriate assessment and remediation of site contamination to ensure land is suitable for the proposed use and provides a safe and healthy living and working environment*

OBJ 53: *Protection of human health and the environment wherever site contamination has been identified or suspected to have occurred*

Site Contamination

PDC 172 *Development, including land division, should not take place where site contamination has occurred unless the site has been assessed and remediated as necessary to ensure that it is suitable and safe for the proposed use.*

Extensive environmental investigations have been undertaken of the Norwood Green site including:

1. *Preliminary Environmental Site Assessment, GWA Bathrooms and Kitchens, 76 Magill Road, Norwood, South Australia*, Noel Arnold & Associates, July 2011 (Noel Arnold & Associates 2011a).
2. *Environmental Assessment, 76 Magill Road, Norwood, South Australia,* Noel Arnold & Associates, November 2011 (Noel Arnold & Associates 2011b).
3. *Environmental Update Letter Report, 76 Magill Road, Norwood, South Australia,* Greencap, 23 December 2015 (Greencap 2015).

4. *Environmental Assessment, Caroma Manufacturing Facility, 76 Magill Road, Norwood, South Australia,* Progressive Risk Management (PRM), October 2016 (PRM 2016).
5. *Groundwater Assessment – 76 Magill Road, Norwood, South Australia (DRAFT),* LBWco Pty Ltd, 23 March 2018 (LBWco 2018).
6. *Results from Stage 1 Environmental Investigation (Vapour Screening) at 76 Magill Road, Norwood, South Australia*, JBS&G Australia Pty Ltd, 13 June 2017 (JBS&G 2017).
7. *Preliminary Soil Classification and Volume Estimates for the Caca Portion of 76 Magill Road, Norwood, South Australia,* JBS&G Australia Pty Ltd, 31 May 2018 (JBS&G 2018).

LBWco has been engaged by ALDI Stores to provide environmental review, assessment and advisory services regarding the proposed acquisition and proposed retail redevelopment of the ALDI portion of the Norwood Green site. In correspondence dated 26 July 2018, (attached at ***Appendix 15***) LBWco have confirmed that the extensive environmental investigations that have been undertaken at the site collectively constitute a Detailed Site Investigation consistent with the National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) and provide a high confidence characterisation of the contamination status of the site.

LBW Co have concluded that:

> *'…there was no evidence of site contamination within the ALDI portion of the site that would preclude the proposed commercial land use and therefore no remediation is required to make the site suitable for ALDI's purpose.'*

In addition, LBWco also advised that:

> *'Together with representatives of ALDI's joint venture partners, LBWco provided advice on the waste characteristics of the fill materials and soils that will be surplus to redevelopment needs onsite. The advice was considered by Renewal SA in regard to suitability of the waste soils to be transferred to Renewal SA's Soil Bank site at Gillman SA. Renewal SA confirmed to the joint venture that all surplus materials from the redevelopment works are acceptable to be transferred to the Soil Bank, where the materials will be beneficially and sustainably reused as Waste Derived Fill'*

LBWco have also confirmed that prior to commencement of any redevelopment works onsite, LBWco will prepare (for ALDI's approval) a Construction Environmental Management Plan (CEMP) to guide the environmental management of the site works to help ensure the general environmental duty obligations of ALDI and its contractors are well considered and can be responsibly met.

JBS&G Australia Pty Ltd (JBS&G) have been engaged by Caca Nominess Pty. Ltd. to provide environmental advisory services in relation to the balance of the site. JBS&G conclude in correspondence dated 26 July 2018 (attached at ***Appendix 15)*** that:

'Based on the environmental investigations completed to date (referenced above and included in Attachment A to Attachment F), significant contamination which would preclude the use of the site for the proposed use as a mixed-use zone (including a shopping centre, medium to high density residential land use and a park / recreational public use area) has not been identified, subject to the appropriate management of surface fill material'.

It is noted preliminary classifications and volume estimates were calculated for this portion of the site and provided to RenewalSA for review together with soil data. JBS&G have noted that RenewalSA stated they will accept the entirety of the material described within the JBS&G report dated 31 May 2018, which includes all fill material and some natural soils across this portion of the site. JBS&G state that '*This proposed development measure (removal of these soils from site to the RenewalSA Soil Bank) will result in appropriate management of the surface fill material*'.

On this basis, subject to required soil removal and disposal, both LBWco and JBS&G confirm that the site can be suitably managed and remediated as necessary to ensure that it is suitable and safe for the proposed use in accordance with site contamination PDC 172.

8. Conclusion

This development application seeks to establish an integrated mixed-use development comprising retail (shops and restaurants), and residential land uses (residential flat buildings, detached dwellings and group dwellings) with associated signage, earth works, car parking, fencing, retaining walls, landscaping and removal of a regulated tree in the Urban Corridor Zone in the City of Norwood Payneham and St Peters.

Following an inspection of the subject site and locality, a review of the proposed plans and associated documentation accompanying the application and a detailed assessment of the proposed development against the relevant provisions of the Norwood Payneham and St Peters (City) Development Plan, we have formed the opinion that the proposed development represents appropriate and orderly development that deserves favourable consideration for approval.

In particular we note that:

- The proposed development comprises a mixed-use development including retail of some 3,000m^2 (supermarket, shops and restaurants) together with a mix of medium and higher density residential development (residential flat buildings, detached dwellings and group dwellings) achieving an overall residential density of approximately 127dw/ha;
- All land uses proposed on site are envisaged within the Urban Corridor Zone and the proposed mix of land uses will enable people to live, work and shop an integrated mixed-use community;
- Cultural heritage investigations undertaken by Mulloway Studio have informed opportunities for integrating cultural representation into the architecture, landscaping and public and communal spaces within the development and has assisted to:
  - create a thematic narrative for the project;
  - inform and enrich the overall identity and experience of the place; and
  - integrate the new development into the existing community and urban environment;
- Site organisation and structure including land use distribution and the careful consideration of building placement, form and orientation will ensure the amenity of adjoining properties will be preserved;
- The proposed built form incorporates a transition in scale of smaller domestic scaled residential buildings fronting Stephen Street transitioning and graduating in height to higher seven (7) storey apartments (Residential Flat Buildings) fronting Magill Road to a maximum height of 24.5 metres consistent with Concept Plan Fig URC/2 and City Wide PDC 32;
- The proposed single storey ALDI supermarket has been designed to sensitively respond to the interface with the adjoining Alma Hotel which is a Local Heritage Place whilst providing a transition and graduation in building scale from the Alma Hotel to the proposed new seven (7) storey apartment buildings on site;
- Independent and objective property advice has been obtained from Residential Development Marketing Services (RDMS) who advises against the development of any 'shop-top' apartments above

the ALDI supermarket based on real and demonstrated sales and marketing risks associated with the delivery of product of this nature to the Adelaide Market (relative to other larger markets such as Sydney and Melbourne);

- A high level of amenity will be provided for future residents with dwellings designed to be both functional and flexible with good access to day light, outlook, useable private open space, privacy and storage;
- Housing diversity will be achieved through a variety of dwelling sizes, configurations and price points with a minimum of 15% of dwellings meeting the requirements of affordable housing;
- Identified public realm treatments (subject to separate agreement) will improve the functional design, performance and streetscape appearance of Stephen Street and will improve pedestrian amenity of this laneway;
- A traffic impact assessment undertaken by GTA consultants has confirmed that:
  - The proposed supply of 456 car parking spaces across the site meets the minimum and maximum Development Plan parking requirements stipulated in Table NPSP/9A of the Development Plan;
  - The proposed parking layout is consistent with the dimensional requirements as set out in the Australian/New Zealand Standards for Off Street Car Parking (AS/NZS2890.1:2004 and AS/NZS2890.6:2009) for a Class 2 and Class 3A facility;
  - The Development Plan generates a bicycle parking requirement of 176 bicycle spaces and the development will provide at least 208 bicycle parking spaces for residents and visitors to the site;
  - Suitable site servicing and loading arrangements are proposed including:
    - A loading area for the ALDI store on the western side of the building designed to accommodate a 20m semi-trailer that can enter the site in a forward direction (via a dedicated access on Magill Road for delivery vehicles) reverse into the loading bay and then exit the site in a forward direction onto Sydenham Road (before 10pm) or Magill Road (after 10pm);
    - Loading for the retail tenancies will be undertaken by vehicles up to a 6.4 metre SRV where delivery vehicles can enter the under-croft car park in a forward direction, access the loading bay and exit the car park in a forward direction;
    - Refuse collection will occur at the south-east corner of the site via Stephen Street using up to a 10.6 metre refuse vehicle which will reverse into the site refuse collection area, collect refuse and then exit onto Stephen Street in a forward direction; and
    - Kerbside refuse collection for the townhouses will require parking restrictions or marked bin storage areas to be provided on Stephen Street, Sydenham Street and the ALDI car park access lane from Sydenham Street, to facilitate refuse collection;

- The site is expected to generate in total 500 trips per hour during the PM peak period whilst the AM period would be much less with 162 trips anticipated comprising mostly residential trips with the retail uses not generating very much traffic at this time;
- The intersections adjacent the site have been modelled using *SIDRA Intersection 7.0* and the results confirm that all intersections would operate at a suitable level of service with average queue lengths and delays within acceptable limits;
- The impact on the adjacent road network will be minor based on the anticipated traffic generation of the site and proposed median treatment on Magill Road.

- Landscaping is integrated into public, communal and private areas and will contribute to an attractive, comfortable and contextual development that includes:
  - Dedicated private open space areas and/or balconies directly accessible to internal living areas of each dwelling;
  - A publicly accessible communal open space area of approximately 1,139m^2 to the south of the proposed apartment buildings which has been designed as a series of small outdoor rooms with each room catering for differing experiences and activities;
  - A central public open space reserve that has been designed as a 'Town Piazza' that creates a series of outdoor rooms and plateaus that respond to the site topography; and
  - A six (6) metre wide 'Urban Promenade' providing a main north south pedestrian connection through the site (connecting Stephen St, Chimney Park and community to Magill Road) in the form of a green colonnade comprising a living trellis adjacent a retail frontage;
- Only one existing Regulated Tree is proposed to be removed to accommodate the future development of the site and this tree is located adjacent Magill Road in a position that would inhibit the future reasonable and expected development of the site in accordance with the primary Objectives and Principles of Development Control of the Urban Corridor Zone;
- Resonate have confirmed that dwellings on site have been designed to achieve relevant objective noise criteria (particularly at the interface with Magill Road and the Alma Hotel) and Sonus have confirmed that noise levels at existing residents in the locality (particularly south of Stephen Street) are predicted to meet the *Environment Protection (Noise) Policy 2007* provided the following acoustic treatments are applied to the proposed ALDI supermarket:
  - Restrict the operation of the compactor to the hours between 7am and 10pm;
  - Restrict the hours of rubbish collection from the site and any use of the refuse area to the hours of Division 3 of the *Environment Protection (Noise) Policy 2007* (that is, only between the hours of 9am and 7pm on a Sunday or public holiday, and 7am and 7pm on any other day); and
  - Restrict the exit of trucks to Sydenham Road to the hours between 7am and 10pm;
- The proposed development has been designed to prevent unreasonable overshadowing or overlooking of existing adjoining residential properties;

- The development has been designed to adhere to Crime Prevention Through Environmental Design (CPTED) principles with dwellings designed to provide good passive surveillance over the public realm and communal areas;
- The development will be designed to achieve positive environmental, social and economic outcomes including:
  - A 5 Star Green Star self-assessed rating will be targeted for residential components of the development to benchmark the built form against 'Australian Leadership' in sustainable design;
  - The residential component of the development benchmarks at an expected average 7 Star NatHERS rating, demonstrating a 20% improvement over the NCC/BCA minimum requirement of 6 Star average;
  - A precinct electricity strategy is proposed to provide a shared inset network which will provide significant efficiencies in terms of peak demand on the grid (which allows the precinct to consolidate the power supply into one incoming feed and transformer, rather than having three separate feeds and transformers) and allow embedded solar PV power generation to be shared by all consumers;
- The proposed advertising signage is integrated within the design of the proposed ALDI building, are relatively modest and restrained in the context of the proposed building scale and are designated to clearly identify the retail activity to passing traffic and assist to identify the access points into the site to facilitate safe traffic movements;
- A Waste Management Plan prepared by Colby Industries has demonstrated that there is adequate and convenient provision for the suitable collection, storage, management and removal of waste from site;
- A Stormwater Management Plan prepared by Wallbridge and Gilbert has demonstrated that, subject to detailed design and further risk assessment, stormwater can be suitably managed on site in accordance with Council and Development Plan requirements;
- A Service Infrastructure Report prepared by Lucid has demonstrated that the proposed development can be economically and efficiently serviced with required power, sewer, potable water, gas and communications infrastructure; and
- Subject to required soil removal and disposal, both LBWco and JBS&G confirm that the site can be suitably managed and remediated as necessary to ensure that it is suitable and safe for its intended use.

The proposed development is therefore generally aligned with the most relevant provisions of the Norwood Payneham and St Peters (City) Development Plan and warrants Development Plan Consent, subject to reasonable and relevant conditions.

Appendix 1. Certificates of Title

Appendix 2. Survey Plans

Appendix 3. Site Levels (A&S)

Appendix 4. Cultural Heritage (Mulloway Studios)

Appendix 5. Architectural Plans

(TECTVS / Select Architects)

Appendix 6. Design Report

(TECTVS Architects)

Appendix 7. Landscape Report (Hassell)

Appendix 8. Traffic Impact Assessment (GTA Consultants)

Appendix 9. Waste Management Plans

(Colby Industries / ALDI Stores)

Appendix 10. Stormwater Management Plan (Wallbridge & Gilbert)

Appendix 11. Services Infrastructure Report (Lucid Consulting Australia)

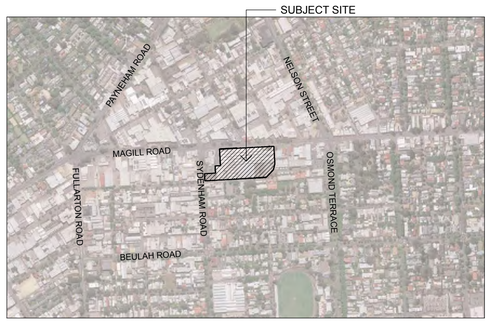
Appendix 12. Sustainability Strategy (D^2)

Appendix 13. Acoustic Assessment (Resonate / Sonus)

Appendix 14. Building Surveying Advice (BuiltSurv / Katnich Dodd)

Appendix 15. Environment Contamination Assessment (JBS&G & LBWco)

Architectural Drawings



LOCALITY PLAN
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NORWOOD GREEN
76 MAGILL ROAD NORWOOD
28055 AUGUST 2018
DPC ISSUE v1.0

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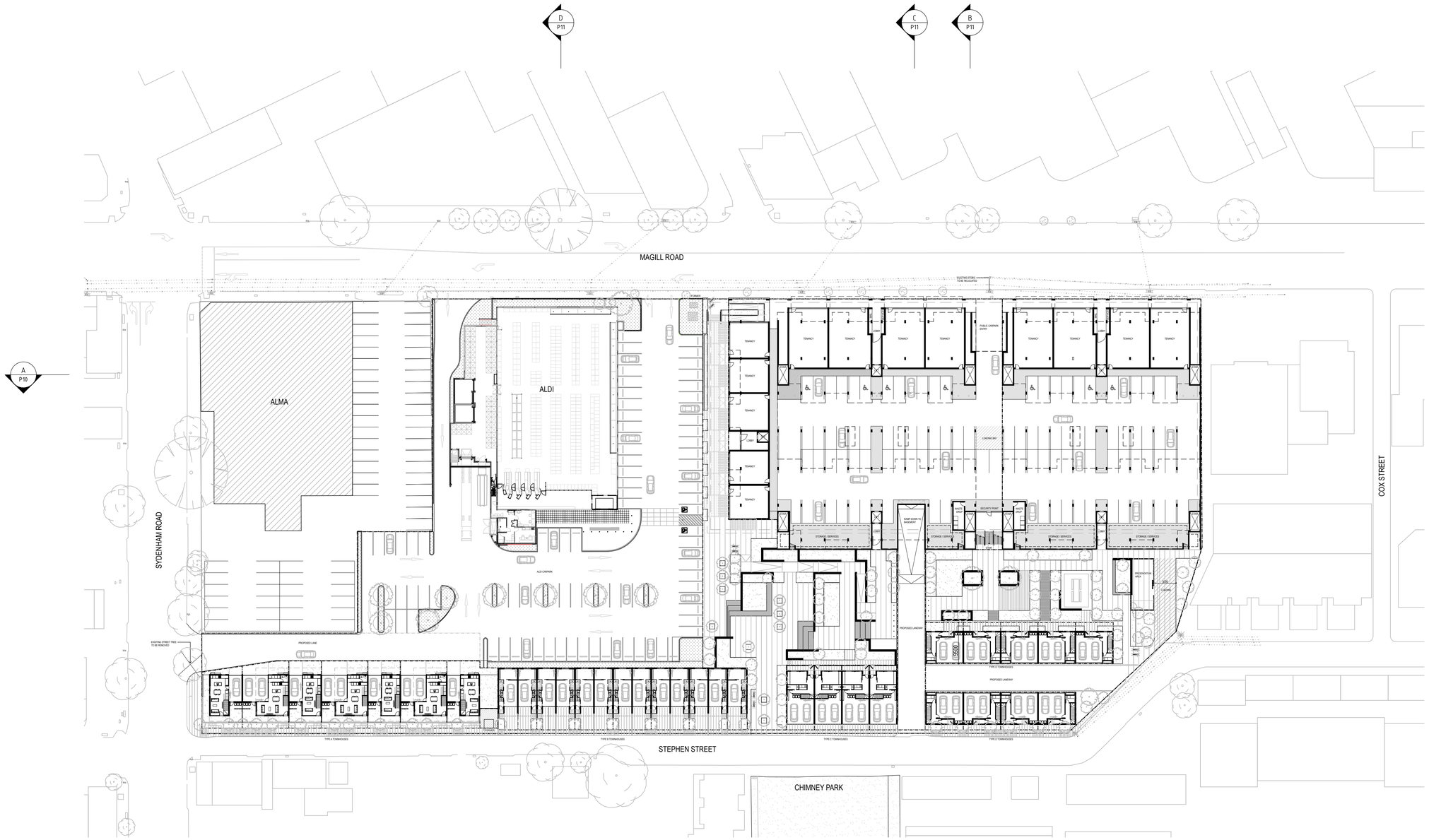

GROUND FLOOR PLAN
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PROJECT
NORWOOD GREEN
76 MAGILL ROAD
NORWOOD

CLIENT
ALDI | CA CA

DRAWING
GROUND FLOOR PLAN

NORTH

SCALE
AS SHOWN

DATE
AUGUST 2018

PROJECT NO
28055

DWG NO
P01

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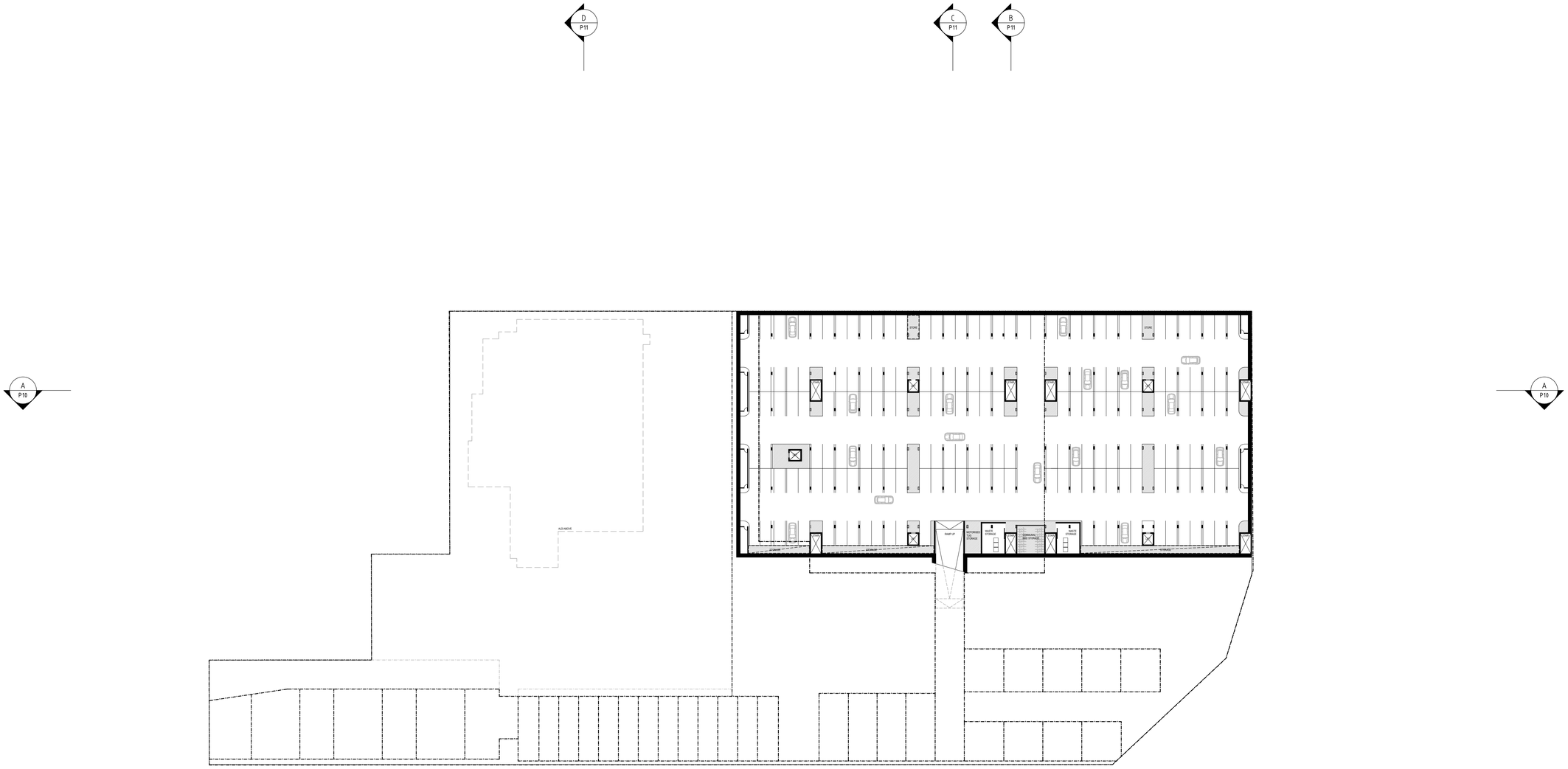

BASEMENT FLOOR

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PROJECT
NORWOOD GREEN
76 MAGILL ROAD
NORWOOD

CLIENT
ALDI | CA CA

DRAWING
BASEMENT FLOOR PLAN

NORTH

SCALE
AS SHOWN

DATE
AUGUST 2018

PROJECT NO
28055

DWG NO
P02

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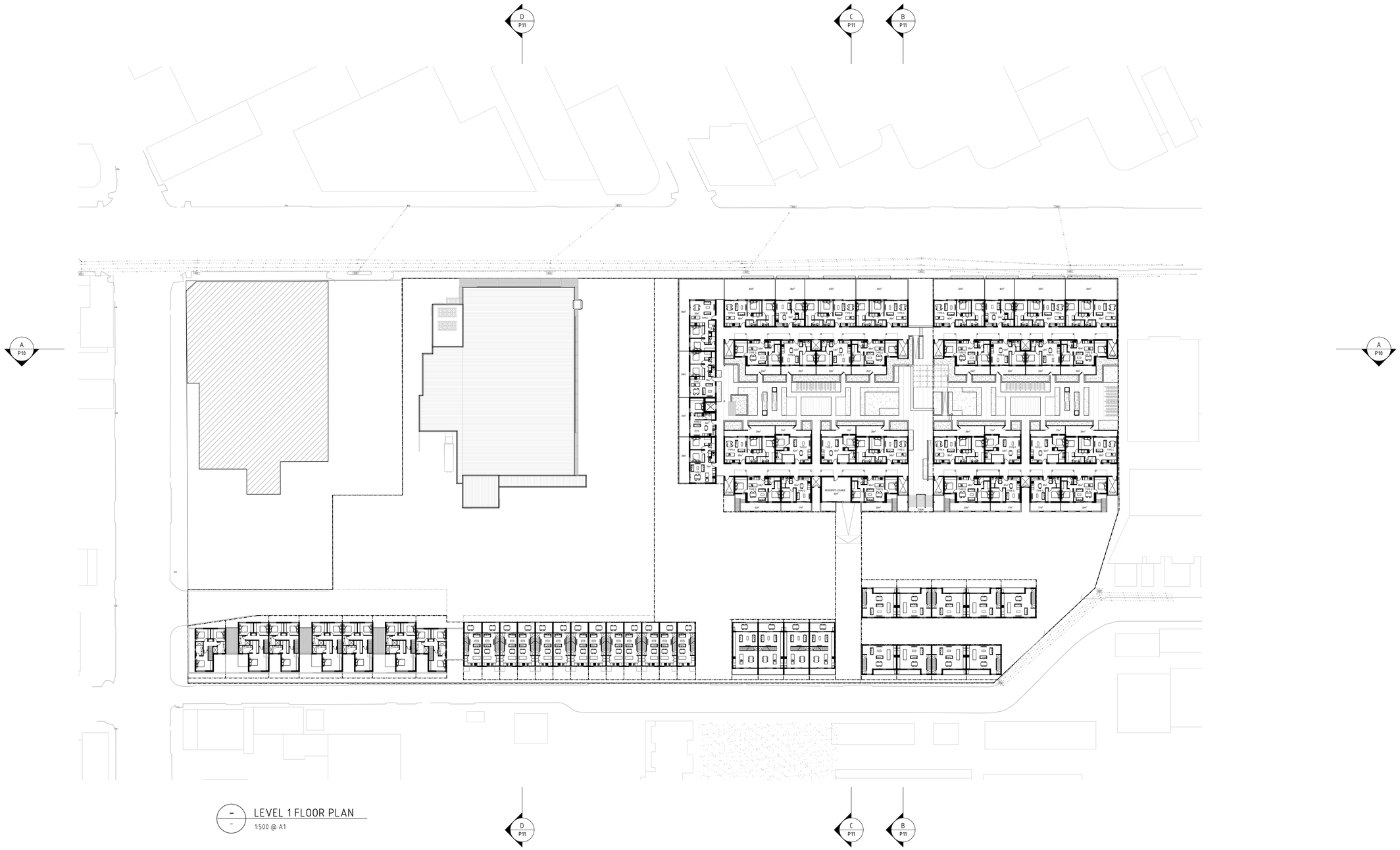

LEVEL 1 FLOOR PLAN

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PROJECT
NORWOOD GREEN
76 MAGILL ROAD
NORWOOD

CLIENT
ALDI | CA CA

DRAWING
FIRST FLOOR PLAN

NORTH

SCALE
AS SHOWN

DATE
AUGUST 2018

PROJECT NO
28055

DWG NO
P03

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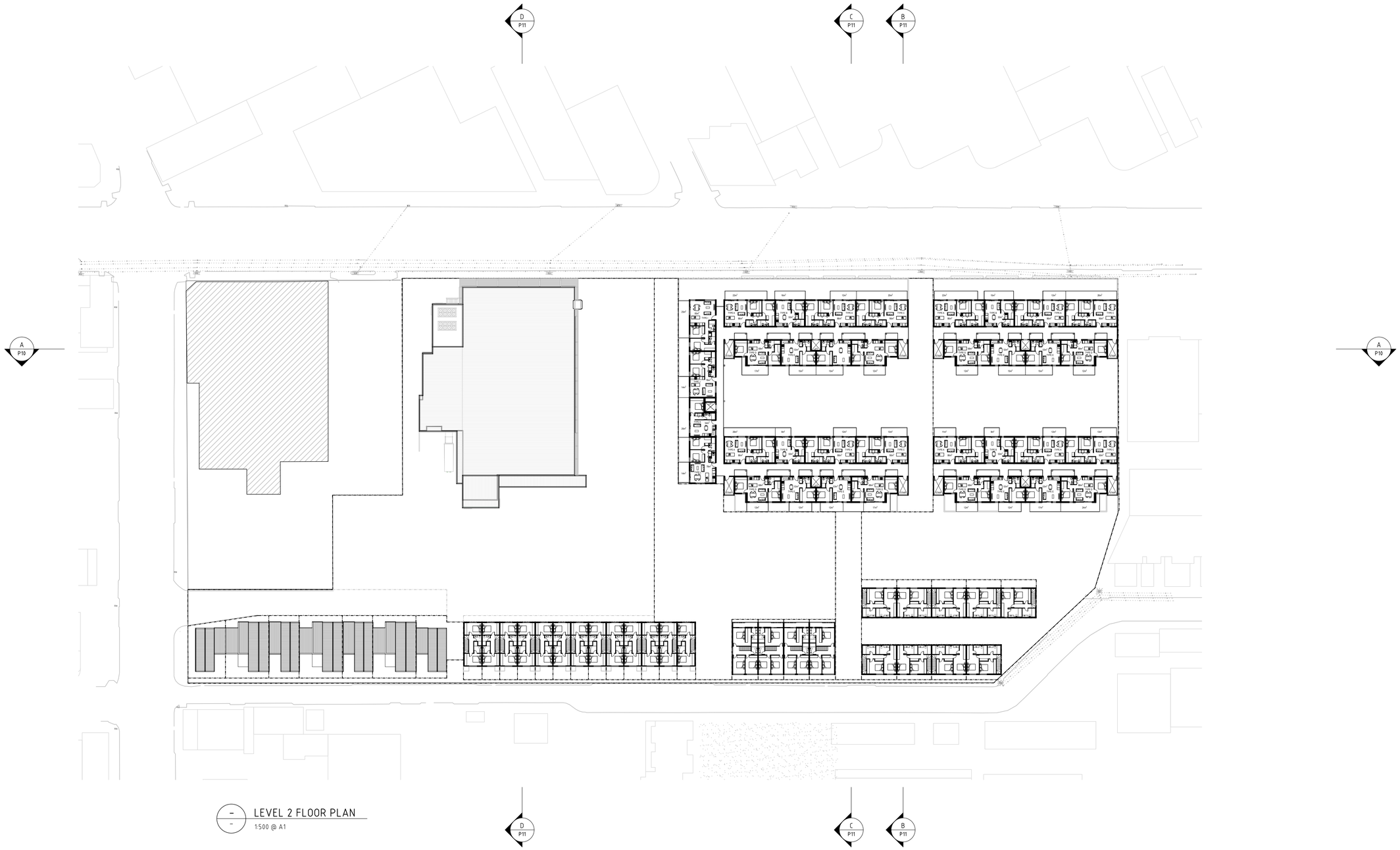

LEVEL 2 FLOOR PLAN

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PROJECT
NORWOOD GREEN
76 MAGILL ROAD
NORWOOD

CLIENT
ALDI | CA CA

DRAWING
SECOND FLOOR PLAN

NORTH

SCALE
AS SHOWN

DATE
AUGUST 2018

PROJECT NO
28055

DWG NO
P04

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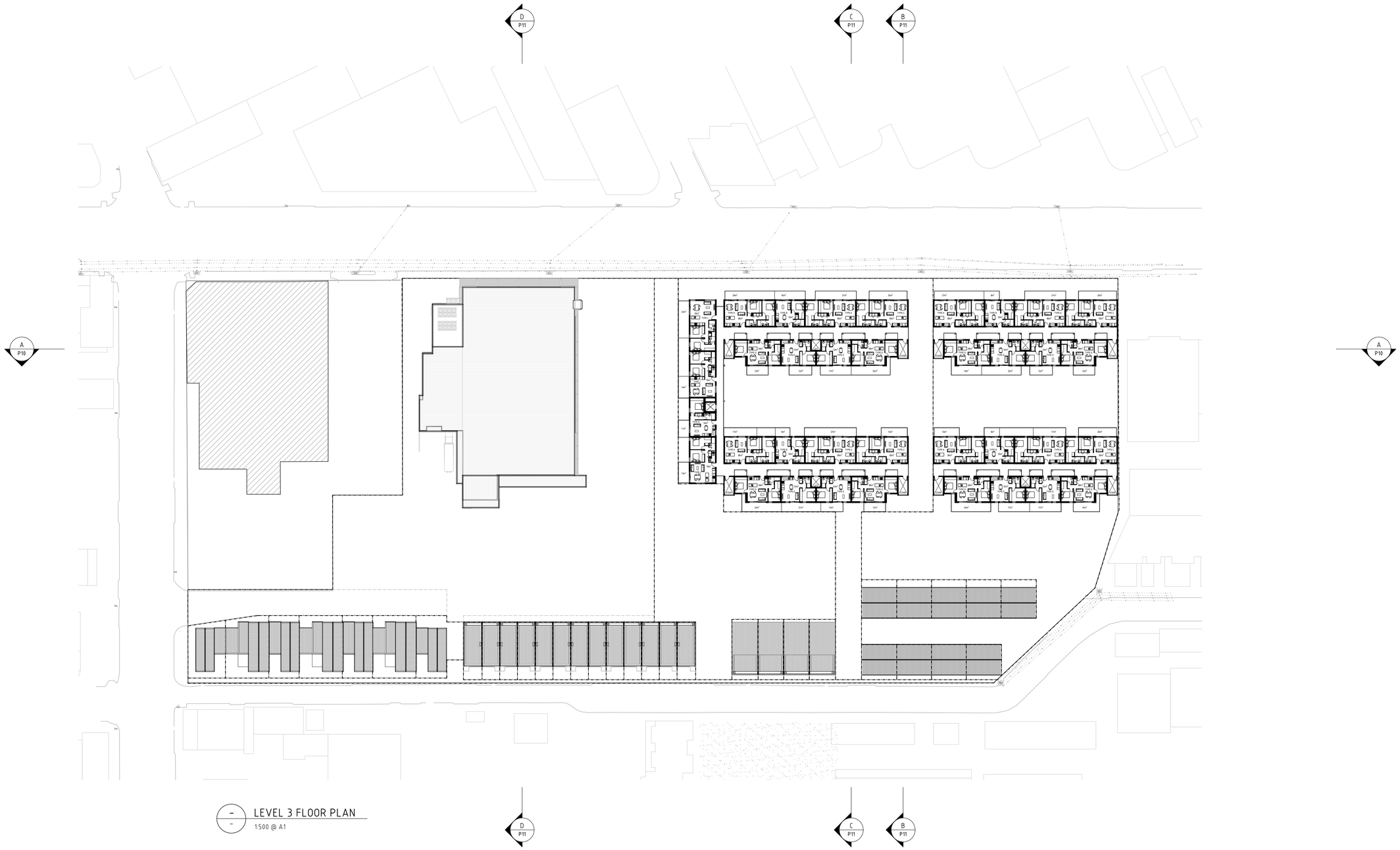
1.0	FB	mdf



LEVEL 3 FLOOR PLAN

1:500 @ A1

HASSELL

mulloway

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tectvs

REV	DATE	DESCRIPTION
1.0	23/08/18	ISSUED FOR DPC

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PROJECT
NORWOOD GREEN
76 MAGILL ROAD
NORWOOD

CLIENT
ALDI | CA CA

DRAWING
THIRD FLOOR PLAN

NORTH

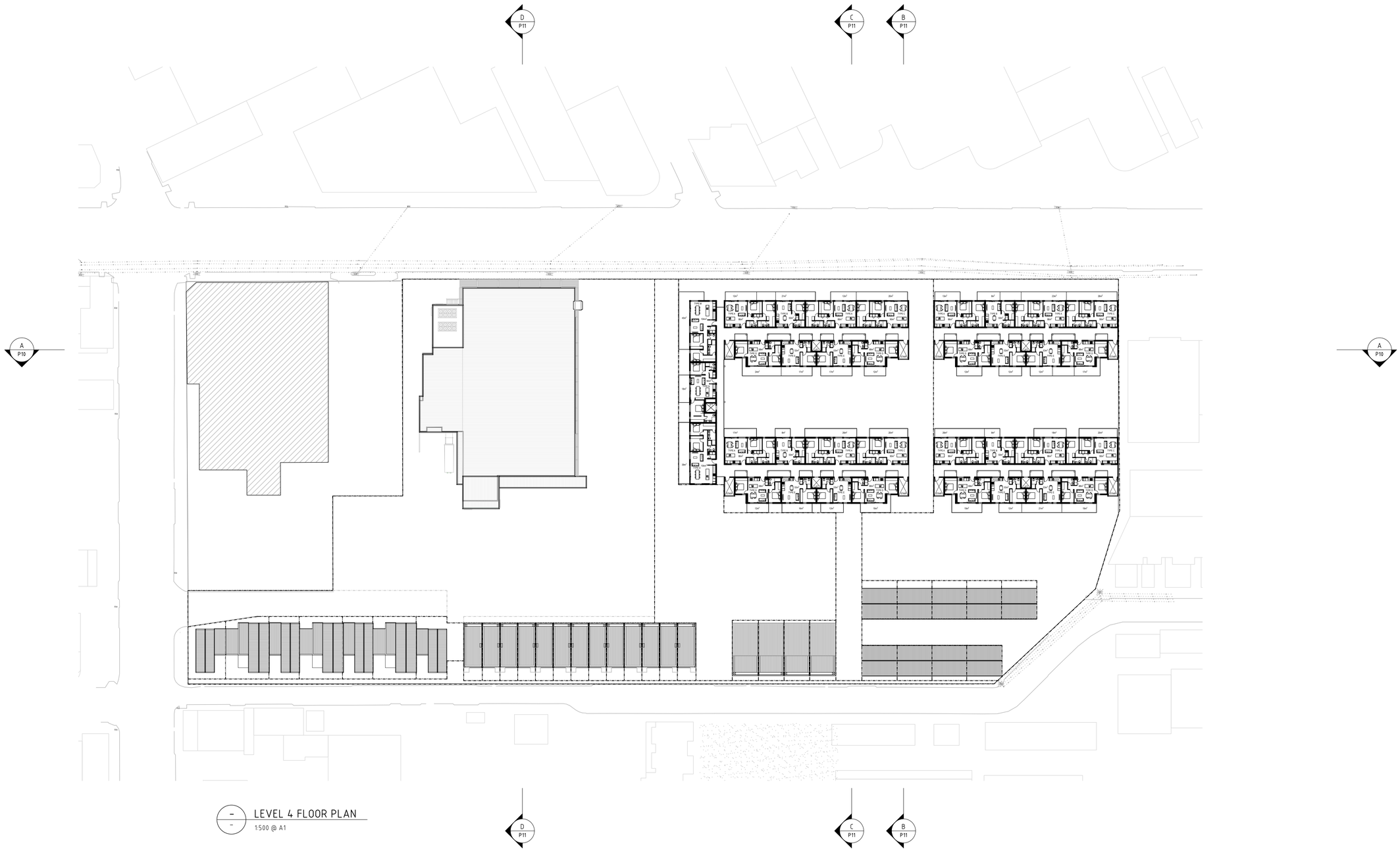
SCALE
AS SHOWN

DATE
AUGUST 2018

PROJECT NO
28055

DWG NO
P05

REVISION	CHECKED	DRAWN
1.0	FB	mdf



LEVEL 4 FLOOR PLAN

1:500 @ A1

HASSELL

mulloway

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PROJECT
NORWOOD GREEN
76 MAGILL ROAD
NORWOOD

CLIENT
ALDI | CA CA

DRAWING
FOURTH FLOOR PLAN

NORTH

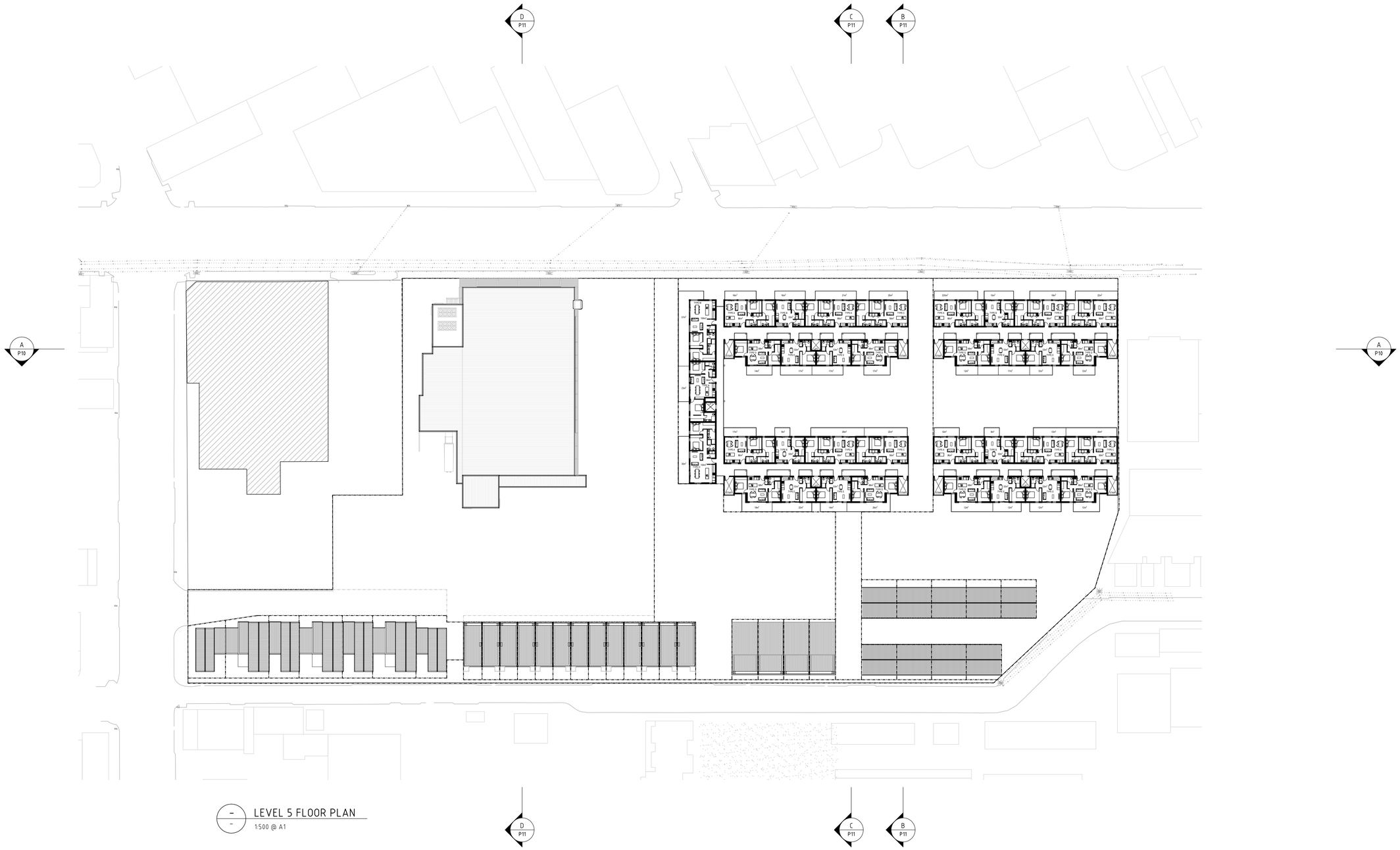
SCALE
AS SHOWN

DATE
AUGUST 2018

PROJECT NO
28055

DWG NO
P06

REVISION	CHECKED	DRAWN
1.0	FB	mdf



LEVEL 5 FLOOR PLAN

1:500 @ A1

HASSELL

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PROJECT
NORWOOD GREEN
76 MAGILL ROAD
NORWOOD

CLIENT
ALDI | CA CA

DRAWING
FIFTH FLOOR PLAN

NORTH

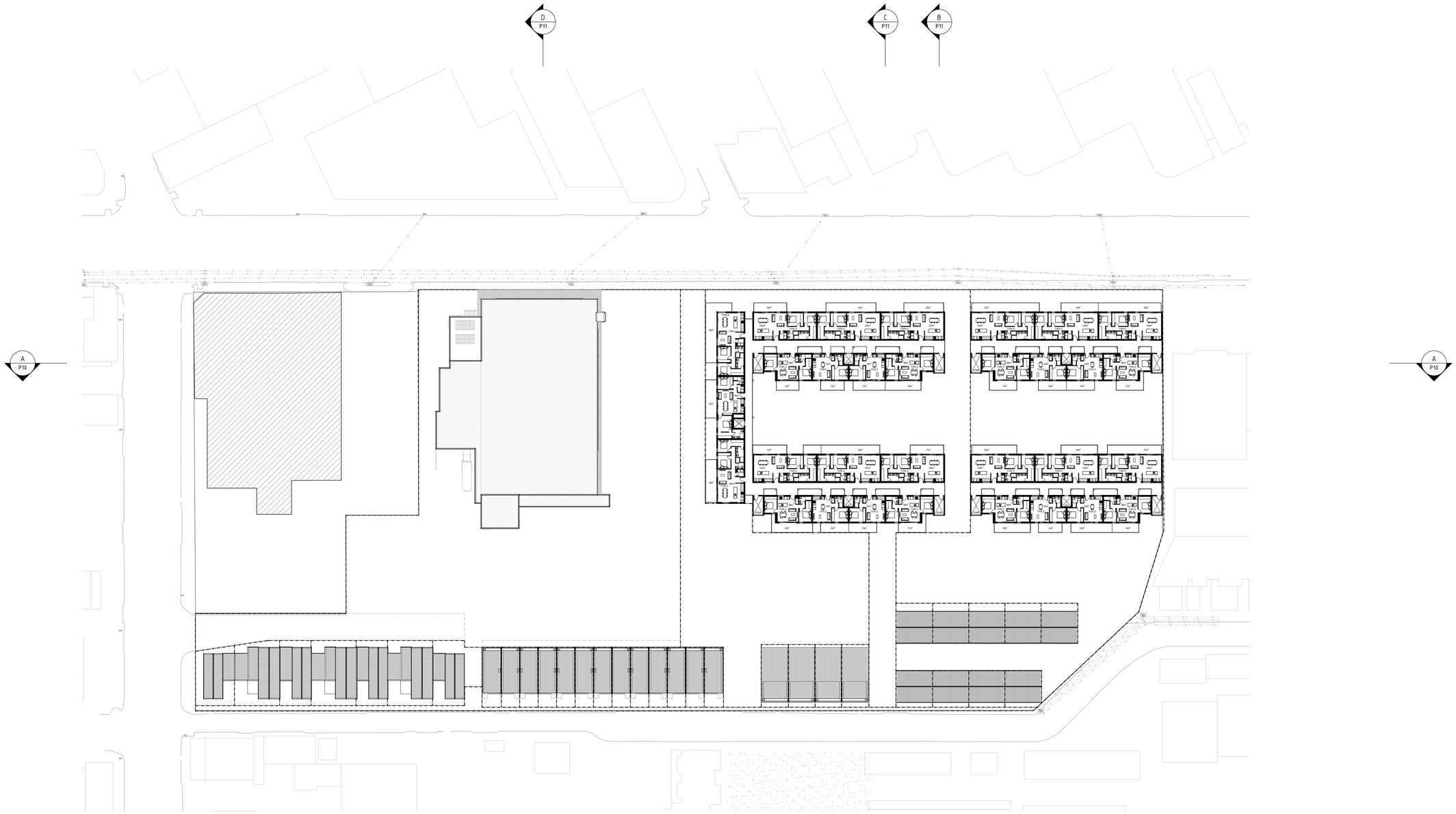
SCALE
AS SHOWN

DATE
AUGUST 2018

PROJECT NO
28055

DWG NO
P07

REVISION	CHECKED	DRAWN
1.0	FB	mdf



LEVEL 6 FLOOR PLAN

1:500 @ A1

HASSELL

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PROJECT
NORWOOD GREEN
76 MAGILL ROAD
NORWOOD

CLIENT
ALDI | CA CA

DRAWING
SIXTH FLOOR PLAN

NORTH

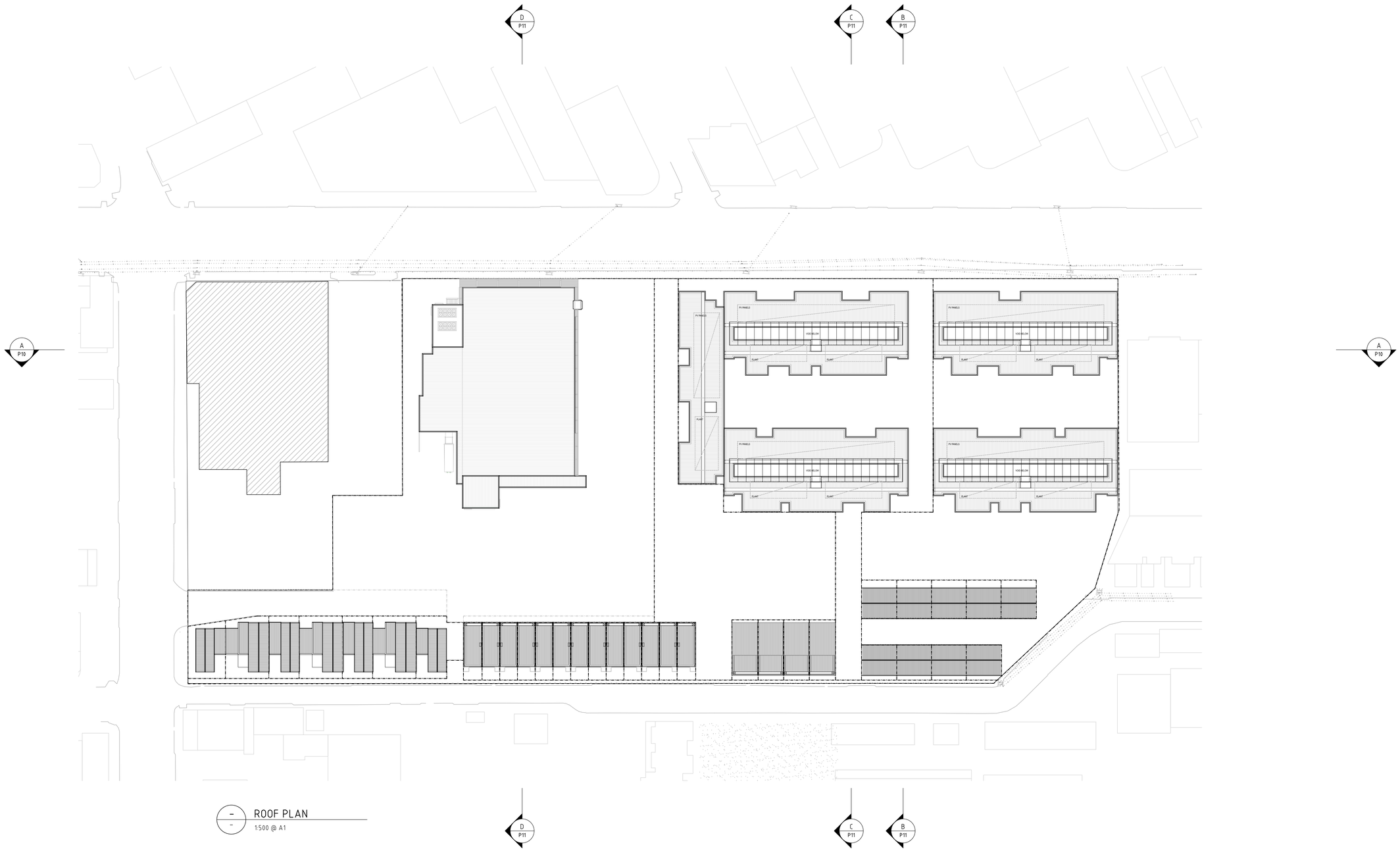
SCALE
AS SHOWN

DATE
AUGUST 2018

PROJECT NO
28055

DWG NO
P08

REVISION	CHECKED	DRAWN
1.0	FB	mdf



ROOF PLAN
1:500 @ A1

HASSELL

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PROJECT
NORWOOD GREEN
76 MAGILL ROAD
NORWOOD

CLIENT
ALDI | CA CA

DRAWING
ROOF PLAN

SCALE
AS SHOWN

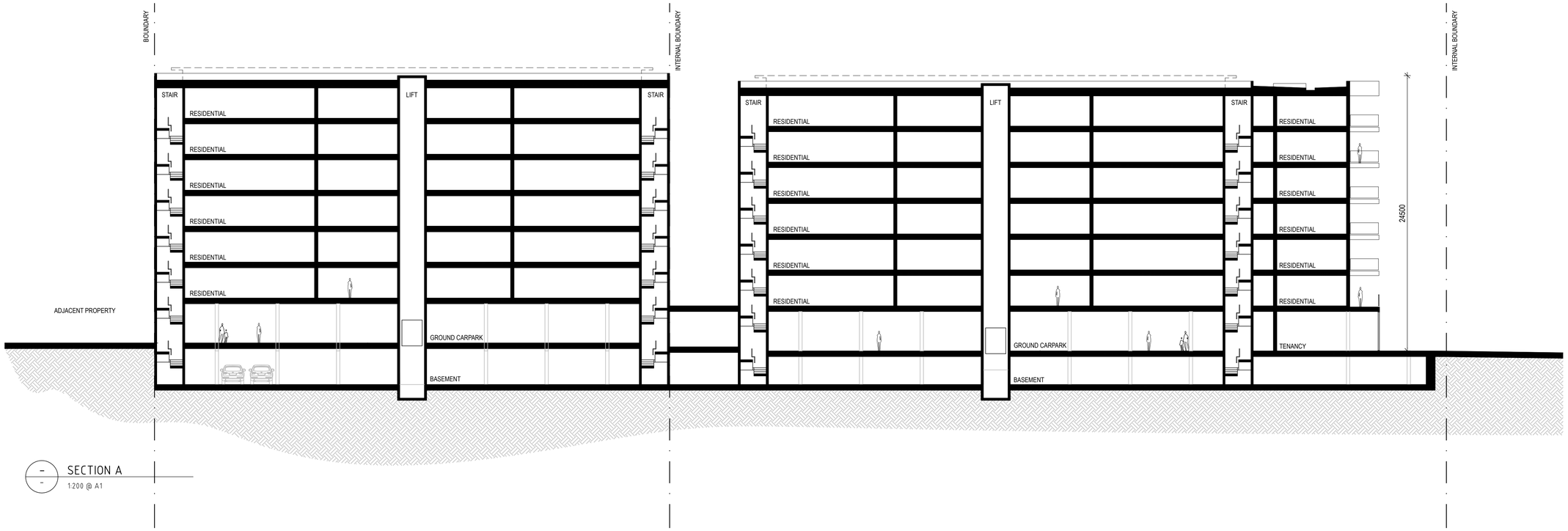
DATE
AUGUST 2018

NORTH

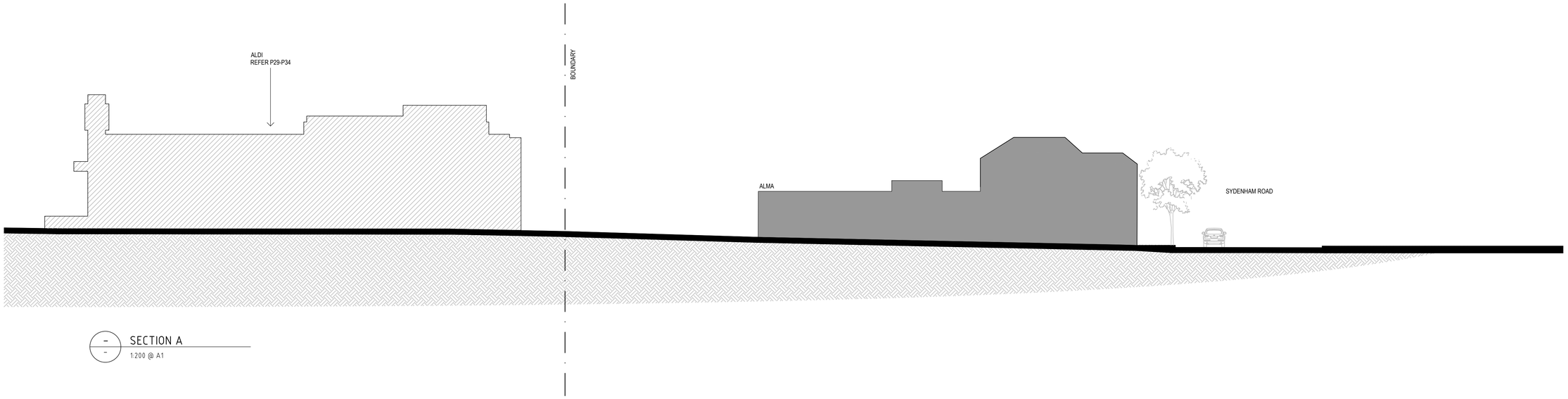
PROJECT NO
28055

DWG NO
P09

REVISION	CHECKED	DRAWN
1.0	FB	mdf



SECTION A
1:200 @ A1



SECTION A
1:200 @ A1

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PROJECT
NORWOOD GREEN
76 MAGILL ROAD
NORWOOD
CLIENT
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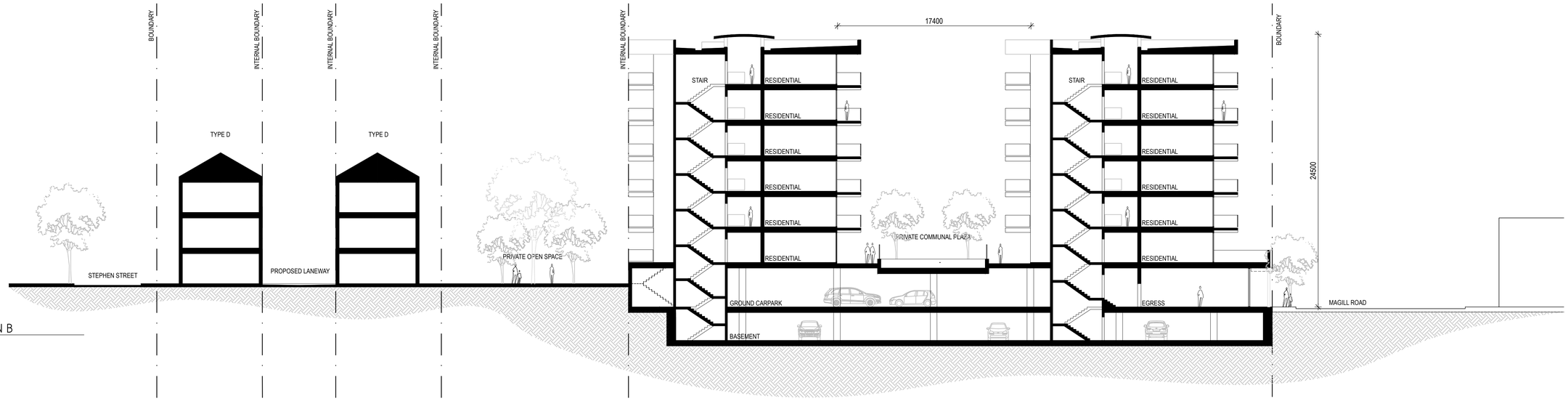
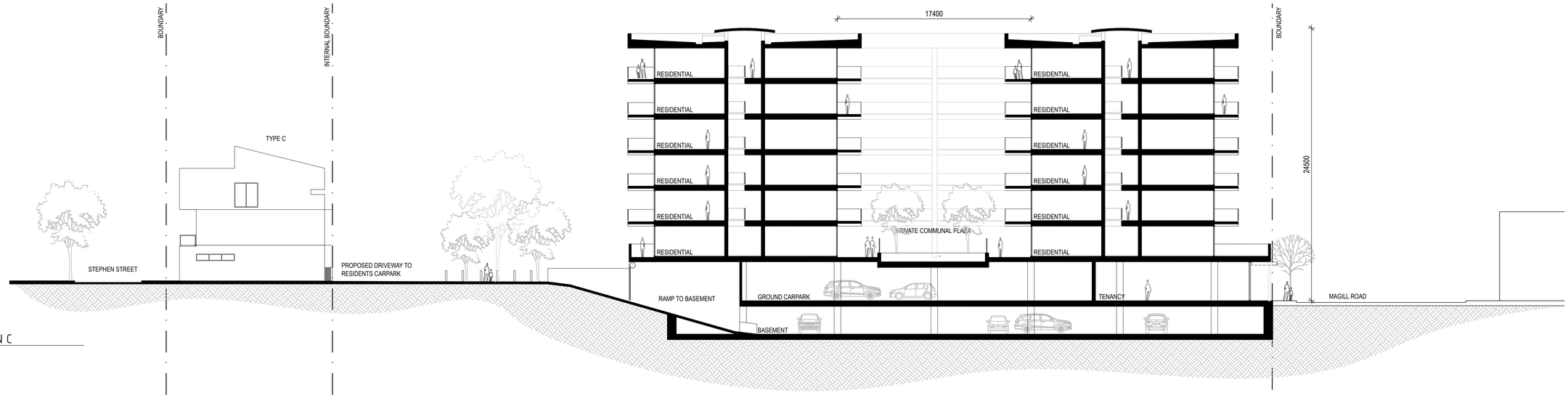
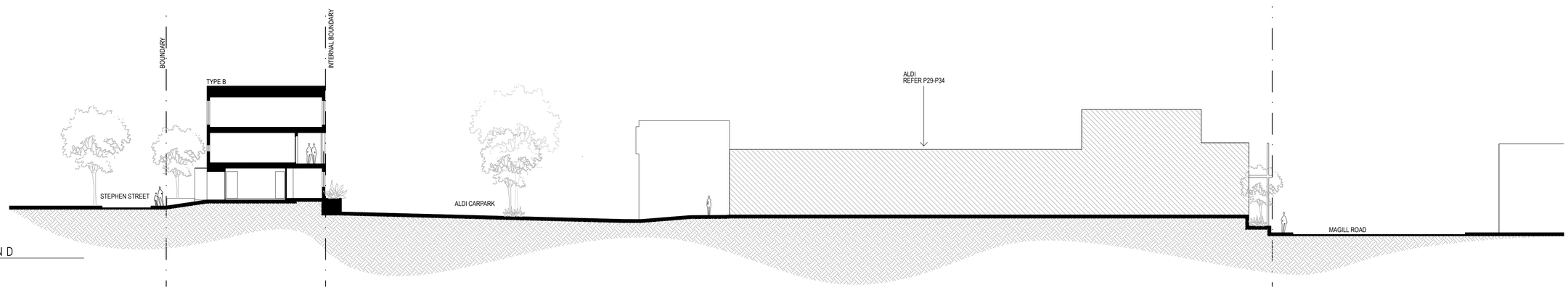
DRAWING
SECTIONS
SCALE
AS SHOWN
DATE
AUGUST 2018
NORTH
PROJECT NO
28055
DWG NO
P10
REVISION 1.0
CHECKED FB
DRAWN mdf



SECTION B
1:200 @ A1



SECTION C
1:200 @ A1



SECTION D
1:200 @ A1

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1.0	23/08/18	ISSUED FOR DPC

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PROJECT
NORWOOD GREEN
76 MAGILL ROAD
NORWOOD
CLIENT
ALDI | CA CA

DRAWING
SECTIONS

NORTH

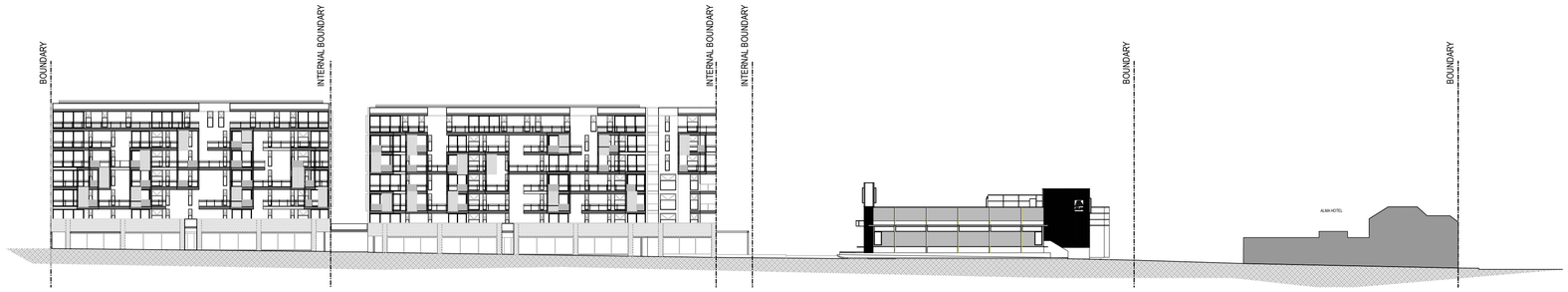
SCALE
AS SHOWN

DATE
AUGUST 2018

PROJECT NO
28055

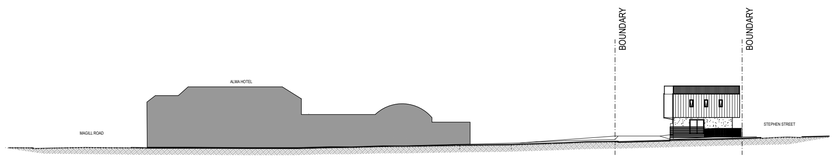
DWG NO
P11

REVISION	CHECKED	DRAWN
1.0	FB	mdf



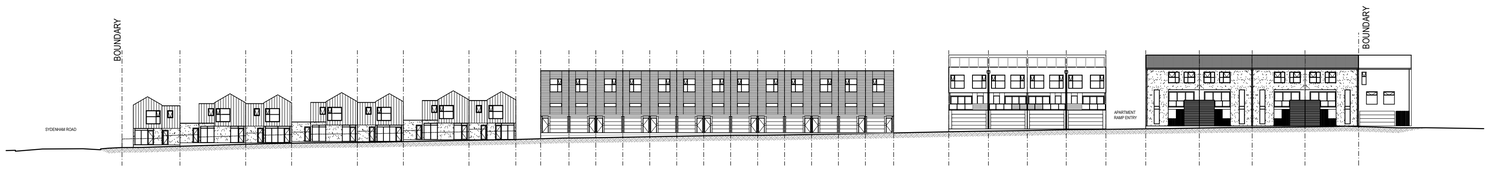
MAGILL ROAD ELEVATION (NORTH)

1:500 @ A1



SYDENHAM STREET ELEVATION (WEST)

1:500 @ A1



STEPHEN STREET ELEVATION (SOUTH)

1:500 @ A1

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PROJECT
NORWOOD GREEN
76 MAGILL ROAD
NORWOOD

CLIENT
ALDI | CA CA

DRAWING
SECTIONS

NORTH

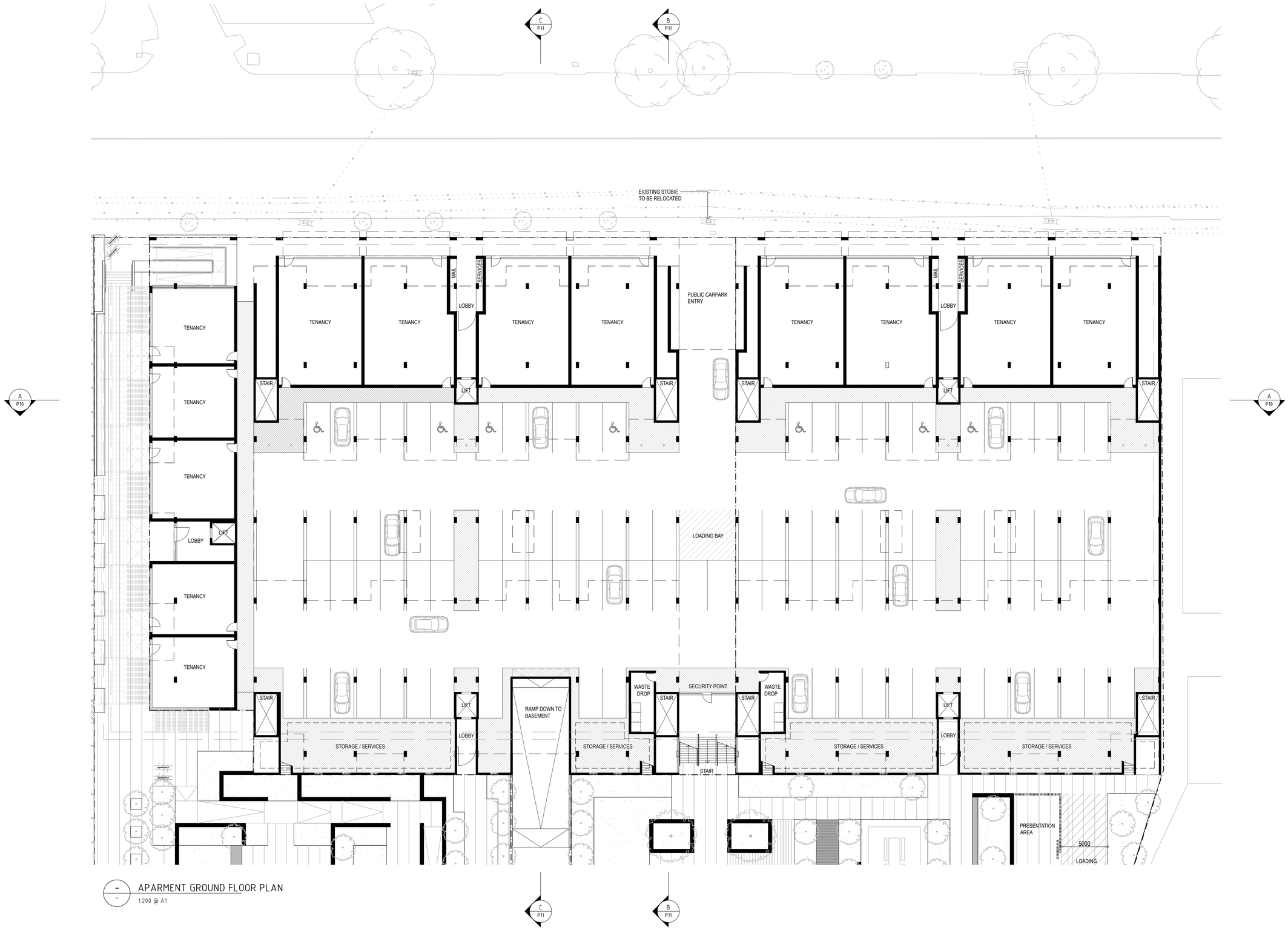
SCALE
AS SHOWN

DATE
AUGUST 2018

PROJECT NO
28055

DWG NO
P12

REVISION	CHECKED	DRAWN
1.0	FB	mdf



APARMENT GROUND FLOOR PLAN

1:200 @ A1

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REV	DATE	DESCRIPTION
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PROJECT
NORWOOD GREEN
76 MAGILL ROAD
NORWOOD

CLIENT
ALDI | CA CA

DRAWING
GROUND FLOOR PLAN
APARTMENTS

NORTH

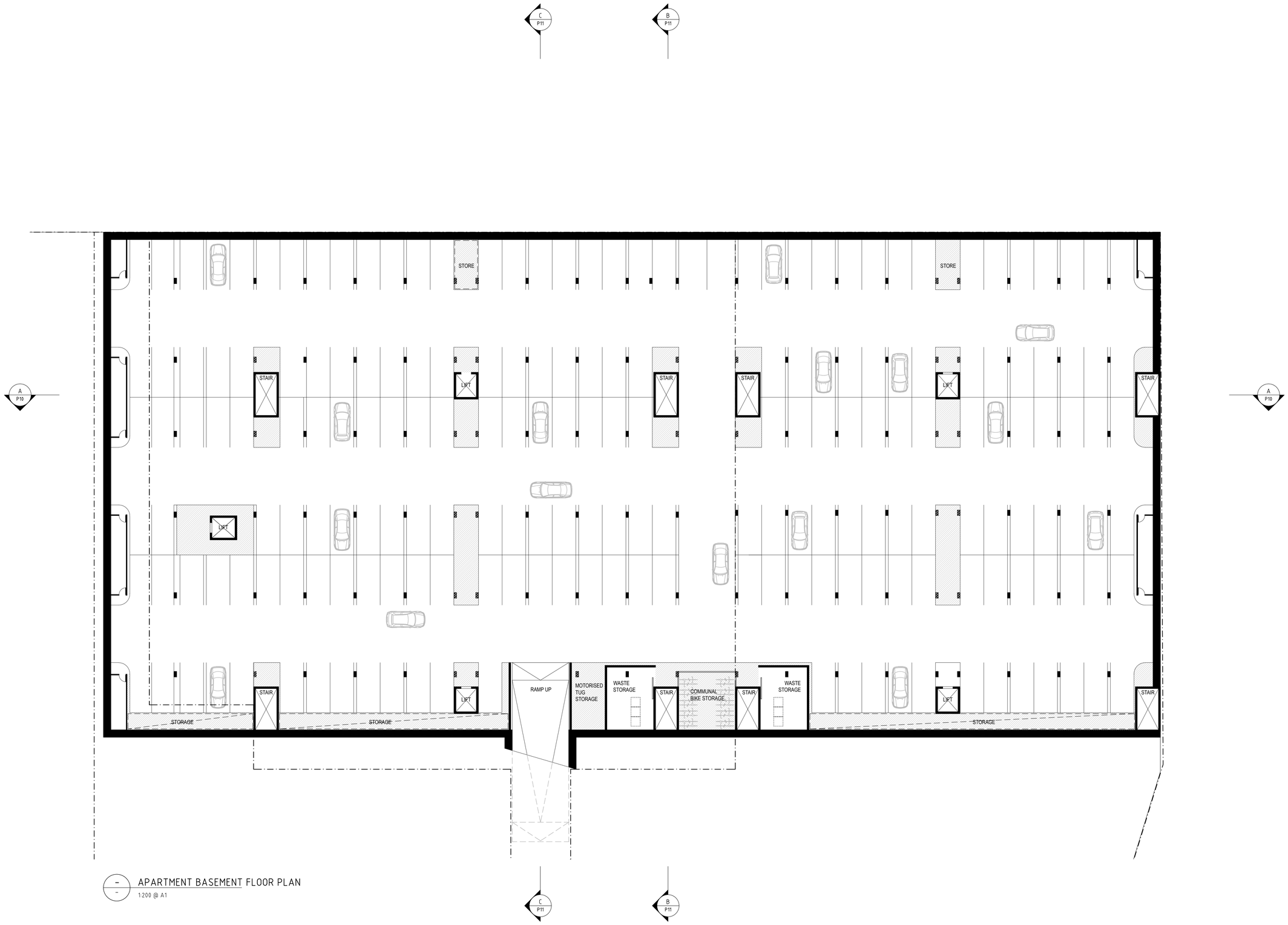
SCALE
AS SHOWN

DATE
AUGUST 2018

PROJECT NO
28055

DWG NO
P13

REVISION	CHECKED	DRAWN
1.0	FB	mdf



APARTMENT BASEMENT FLOOR PLAN

1:200 @ A1

HASSELL

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tectvs

REV	DATE	DESCRIPTION
1.0	23/08/18	ISSUED FOR DPC

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PROJECT
NORWOOD GREEN
76 MAGILL ROAD
NORWOOD

CLIENT
ALDI | CA CA

DRAWING
BASEMENT
APARTMENTS

NORTH

SCALE
AS SHOWN

DATE
AUGUST 2018

PROJECT NO
28055

DWG NO
P14

REVISION	CHECKED	DRAWN
1.0	FB	mdf

APARTMENT LEVEL 1 FLOOR PLAN

1:200 @ A1

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REV	DATE	DESCRIPTION
1.0	23/08/18	ISSUED FOR DPC

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PROJECT
NORWOOD GREEN
76 MAGILL ROAD
NORWOOD

CLIENT
ALDI | CA CA

DRAWING
FIRST FLOOR PLAN
APARTMENTS

NORTH

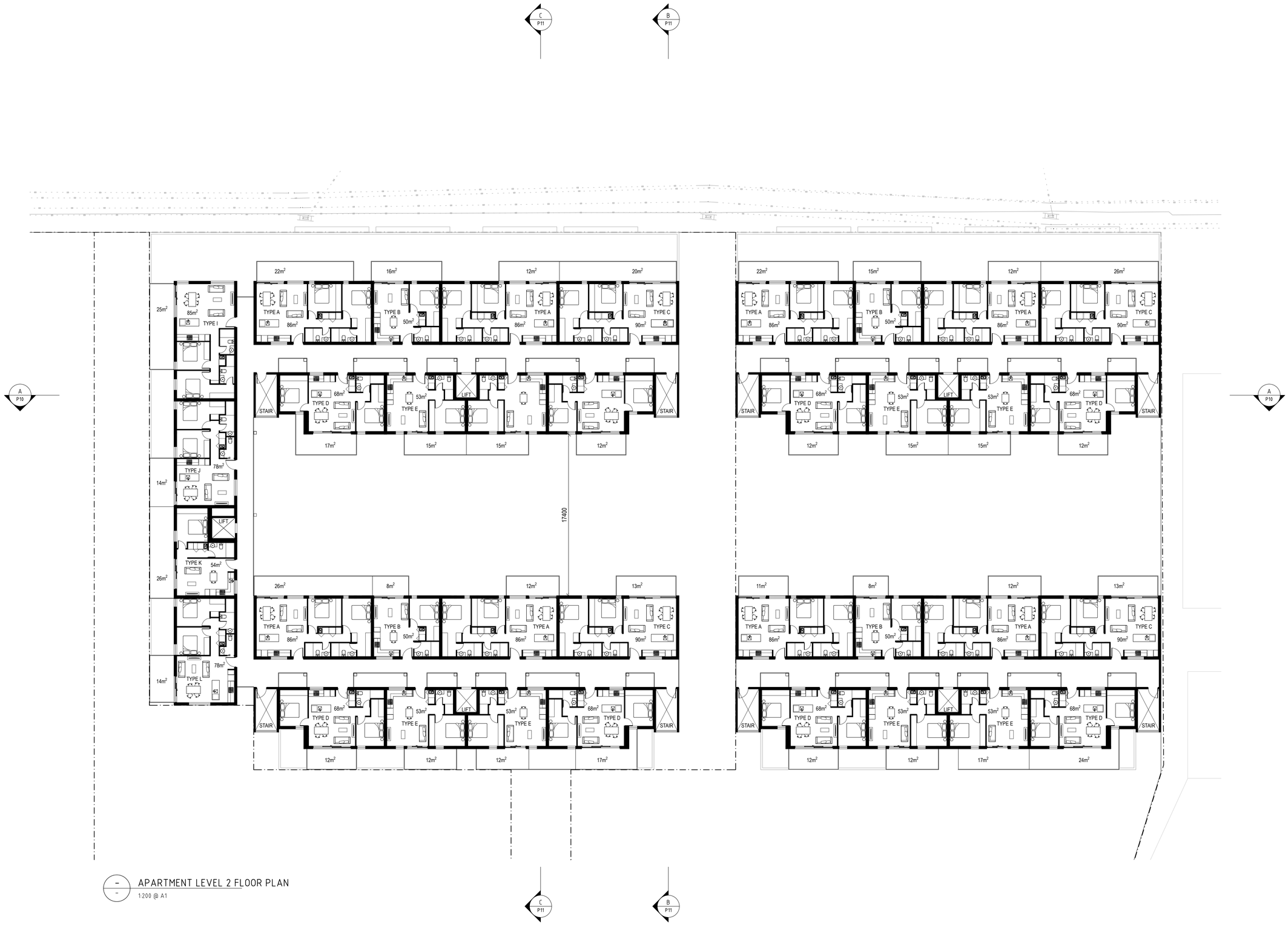
SCALE
AS SHOWN

DATE
AUGUST 2018

PROJECT NO
28055

DWG NO
P15

REVISION	CHECKED	DRAWN
1.0	FB	mdf



APARTMENT LEVEL 2 FLOOR PLAN

1:200 @ A1

HASSELL

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REV	DATE	DESCRIPTION
1.0	23/08/18	ISSUED FOR DPC

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PROJECT
NORWOOD GREEN
76 MAGILL ROAD
NORWOOD

CLIENT
ALDI | CA CA

DRAWING
SECOND FLOOR PLAN
APARTMENTS

NORTH

SCALE
AS SHOWN

DATE
AUGUST 2018

PROJECT NO
28055

DWG NO
P16

REVISION	CHECKED	DRAWN
1.0	FB	mdf

APARTMENT LEVEL 3 FLOOR PLAN

1:200 @ A1

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REV	DATE	DESCRIPTION
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PROJECT
NORWOOD GREEN
76 MAGILL ROAD
NORWOOD

CLIENT
ALDI | CA CA

DRAWING
THIRD FLOOR PLAN
APARTMENTS

NORTH

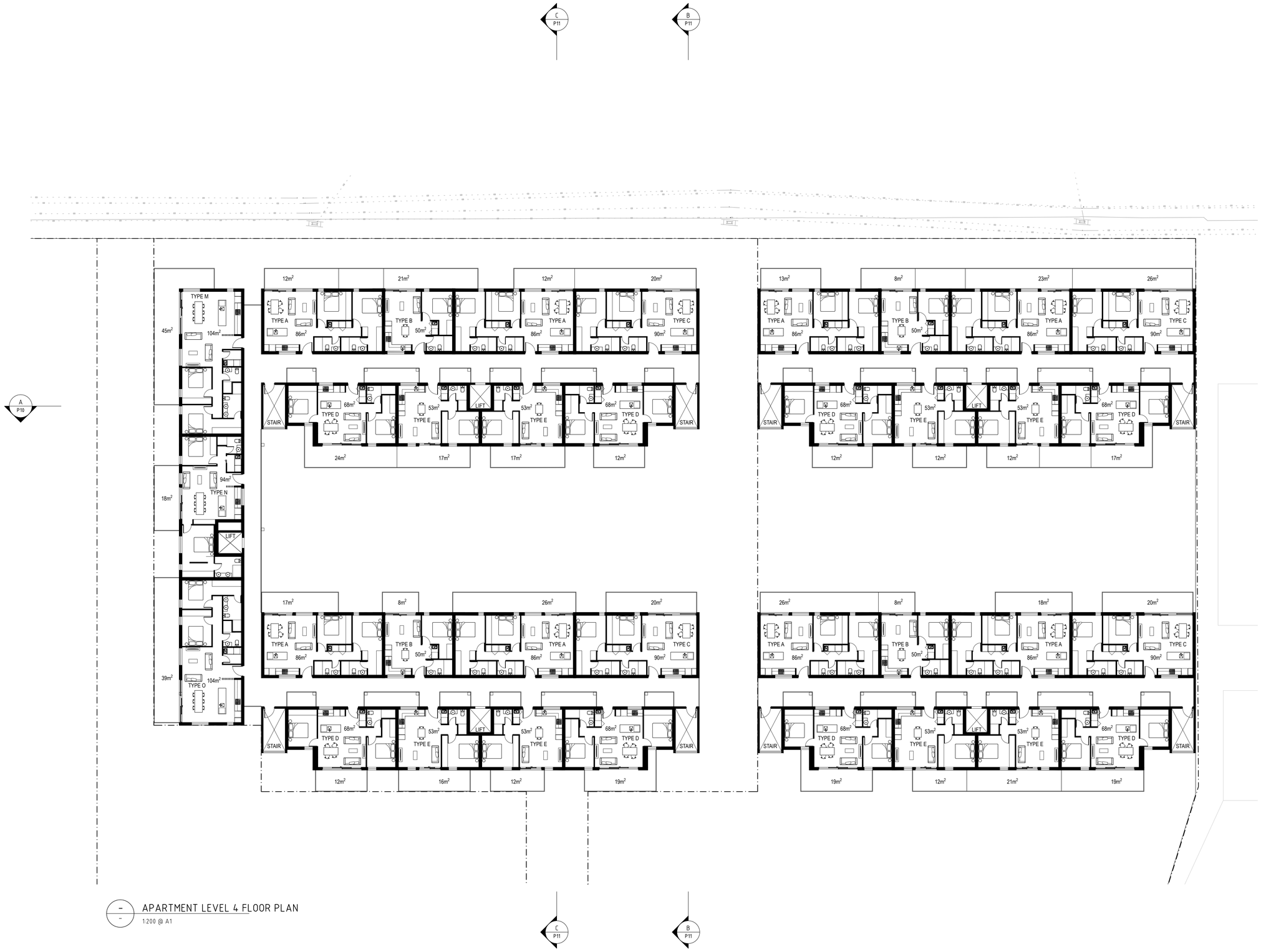
SCALE
AS SHOWN

DATE
AUGUST 2018

PROJECT NO
28055

DWG NO
P17

REVISION	CHECKED	DRAWN
1.0	FB	mdf



APARTMENT LEVEL 4 FLOOR PLAN

1:200 @ A1

HASSELL

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tectvs

REV	DATE	DESCRIPTION
1.0	23/08/18	ISSUED FOR DPC

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PROJECT
NORWOOD GREEN
76 MAGILL ROAD
NORWOOD

CLIENT
ALDI | CA CA

DRAWING
FOURTH FLOOR PLAN
APARTMENTS

NORTH

SCALE
AS SHOWN

DATE
AUGUST 2018

PROJECT NO
28055

DWG NO
P18

REVISION	CHECKED	DRAWN
1.0	FB	mdf

APARTMENT LEVEL 5 FLOOR PLAN

1:200 @ A1

HASSELL

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REV	DATE	DESCRIPTION
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PROJECT
NORWOOD GREEN
76 MAGILL ROAD
NORWOOD

CLIENT
ALDI | CA CA

DRAWING
FIFTH FLOOR PLAN
APARTMENTS

NORTH

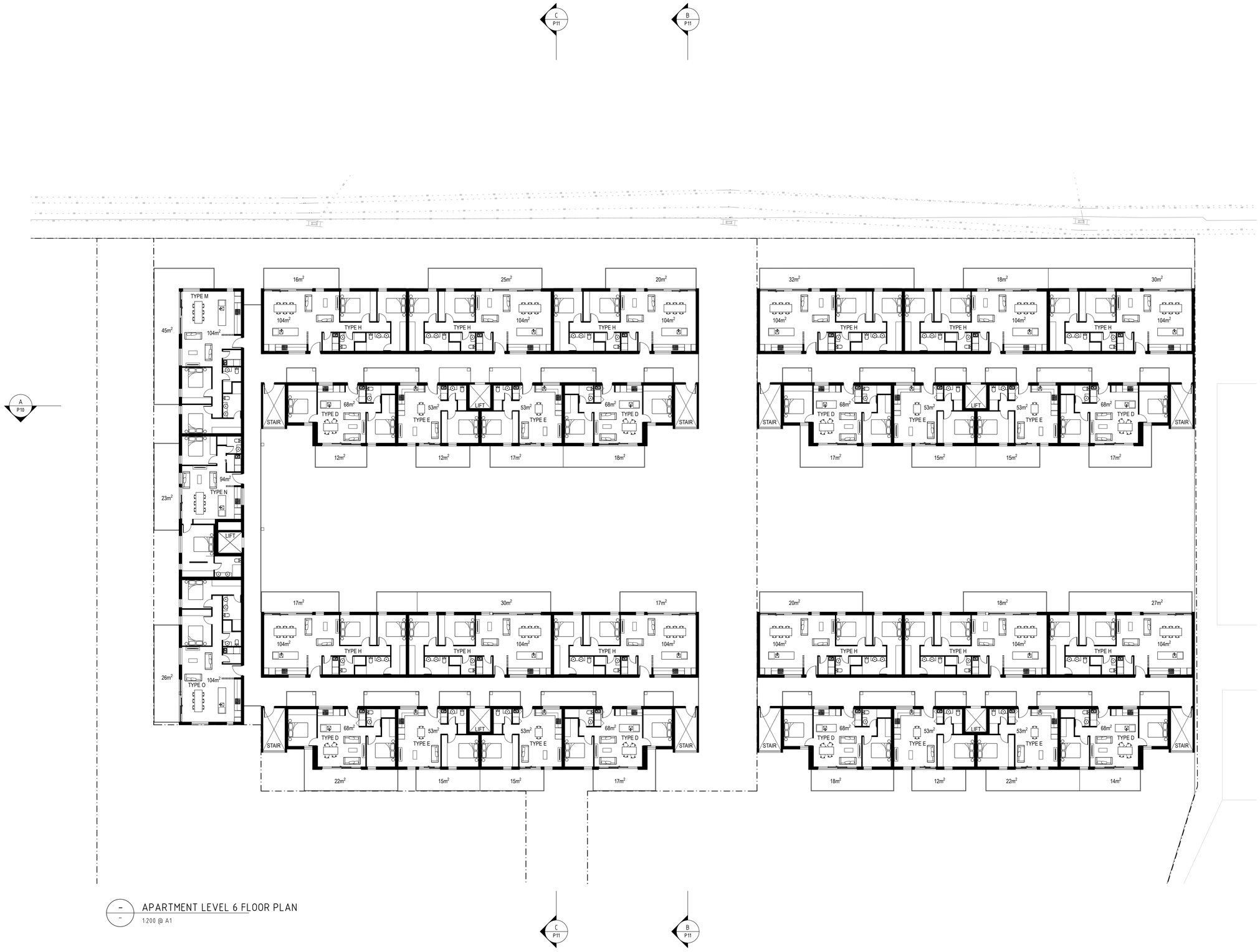
SCALE
AS SHOWN

DATE
AUGUST 2018

PROJECT NO
28055

DWG NO
P19

REVISION	CHECKED	DRAWN
1.0	FB	mdf



APARTMENT LEVEL 6 FLOOR PLAN

1:200 @ A1

HASSELL

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REV	DATE	DESCRIPTION
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PROJECT
NORWOOD GREEN
76 MAGILL ROAD
NORWOOD

CLIENT
ALDI | CA CA

DRAWING
SIXTH FLOOR PLAN
APARTMENTS

NORTH

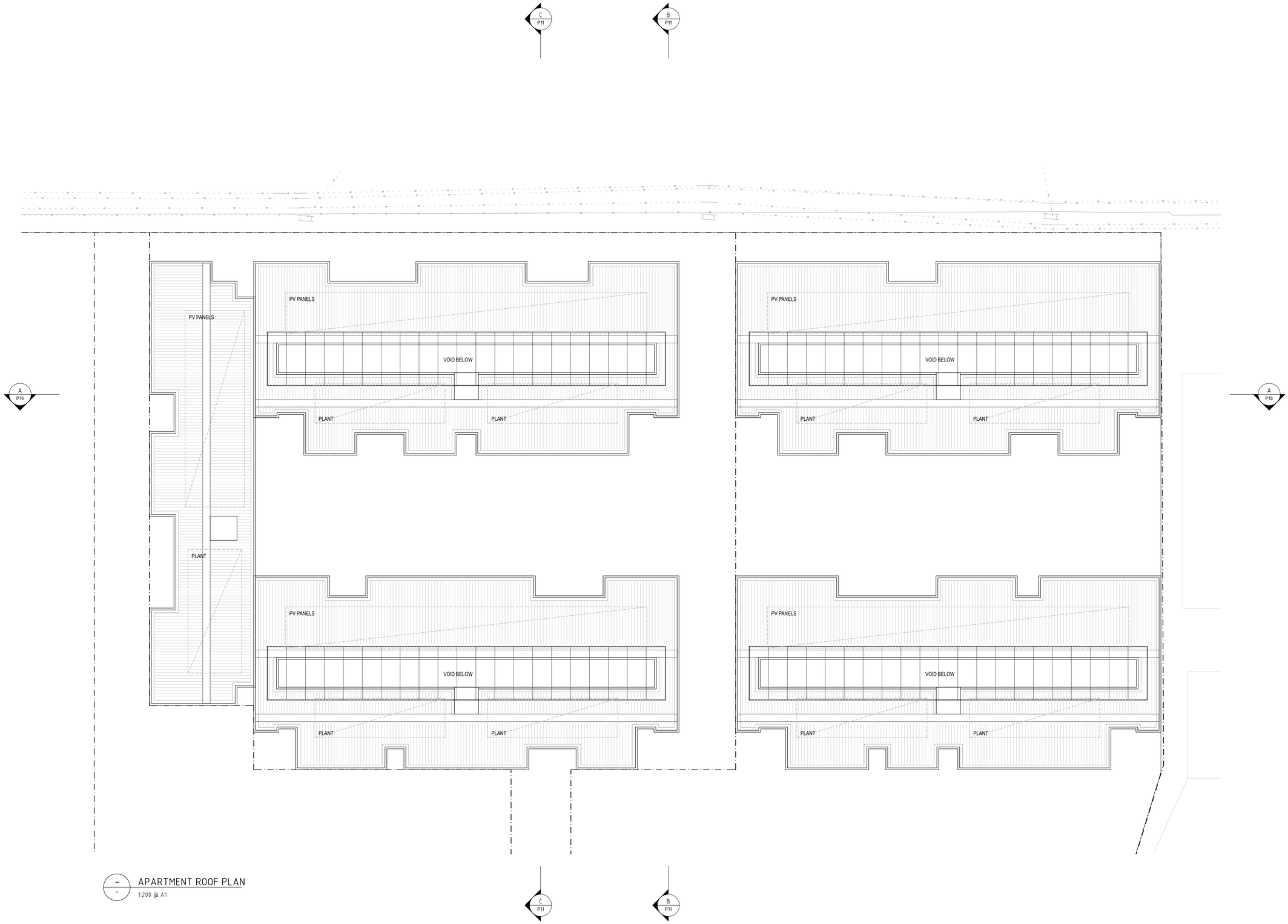
SCALE
AS SHOWN

DATE
AUGUST 2018

PROJECT NO
28055

DWG NO
P20

REVISION	CHECKED	DRAWN
1.0	FB	mdf



APARTMENT ROOF PLAN

1:200 @ A1

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1.0	23/08/18	ISSUED FOR DPC

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PROJECT
NORWOOD GREEN
76 MAGILL ROAD
NORWOOD
CLIENT
ALDI | CA CA

DRAWING
ROOF PLAN
APARTMENTS

NORTH

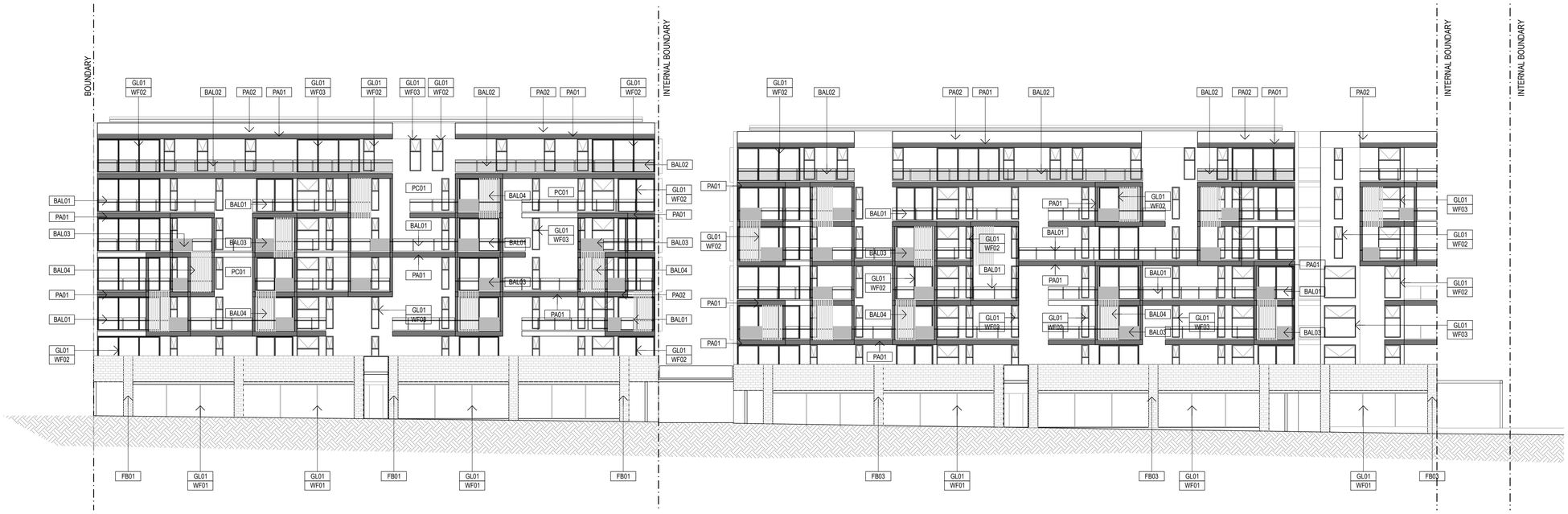
SCALE
AS SHOWN

DATE
AUGUST 2018

PROJECT NO
28055

DWG NO
P21

REVISION	CHECKED	DRAWN
1.0	FB	mdf



NORTH ELEVATION (MAGILL)

1:200 @ A1

SOUTH ELEVATION

1:200 @ A1

ELEVATIONS LEGEND

PC01	TREATED PRECAST (OFF WHITE)
PA01	PAINT FINISH TYPE 1 (BLACK MAGIC)
PA02	PAINT FINISH TYPE 2 (CHINA WHITE)
PA03	PAINT FINISH TYPE 3 (QUAGMIRE)
PA04	PAINT FINISH TYPE 4 (BURNISHED RUSSET)
PA05	PAINT FINISH TYPE 5 (ARID LAND)
FB01	FACE BRICK TYPE 1 (CHARCOAL)
FB02	FACE BRICK TYPE 2 (WHITE)
FB03	FACE BRICK TYPE 3 (RED)
FB04	FACE BLOCK TYPE 4 (GREY)
GL01	GLASS TYPE 1 (CLEAR)
GL02	GLASS TYPE 2 (GREY)
GL03	GLASS TYPE 3 (TRANSLUCENT)
WF01	WINDOW FRAME 1 (ANODIDSED)
WF02	WINDOW FRAME 2 (BLACK)
WF03	WINDOW FRAME 3 (WHITE)
BAL01	BALUSTRADE 1 (CLEAR GLASS)
BAL02	BALUSTRADE 2 (GREY GLASS)
BAL03	BALUSTRADE 3 (OPAQUE PANEL)
BAL04	BALUSTRADE 4 (METAL SCREEN)
MC01	METAL CLADDING 1 (MONUMENT)
MC02	METAL CLADDING 2 (SURFMIST)
MC03	METAL CLADDING 2 (HERITAGE GALV)
MC04	METAL CLADDING 3 (ZINCALUME)
GA01	GARAGE DOOR 1 (MONUMENT)
GA02	GARAGE DOOR 2 (SURFMIST)
GA03	GARAGE DOOR 3 (POLYCARBONATE)
GA04	GARAGE DOOR 4 (TIMBER)
TI01	TIMBER 1 (SPOTTED GUM)
TI02	TIMBER 2 (PAINTED)

NOTE: LANDSCAPING OMITTED FOR CLARITY

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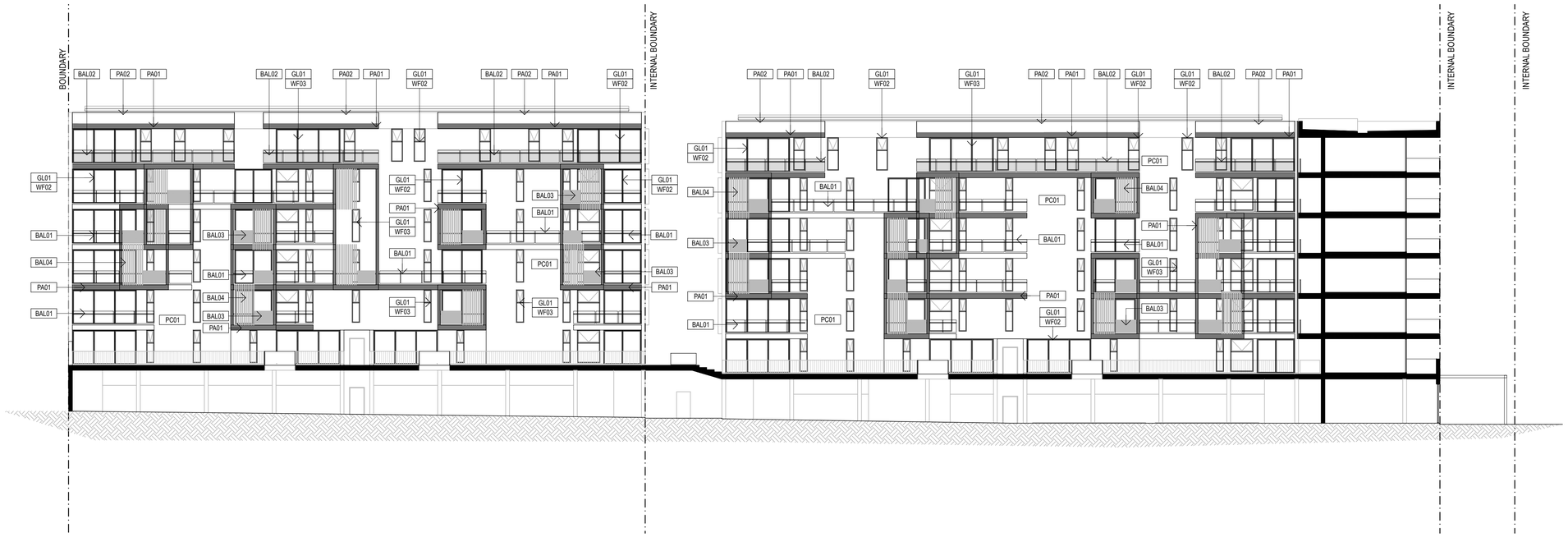
PROJECT: NORWOOD GREEN, 76 MAGILL ROAD, NORWOOD
CLIENT: ALDI | CA CA

DRAWING: ELEVATIONS APARTMENTS
NORTH
SCALE: AS SHOWN
DATE: AUGUST 2018

PROJECT NO: 28055
DWG NO: P22
REVISION: 1.0
CHECKED: FB
DRAWN: mdf

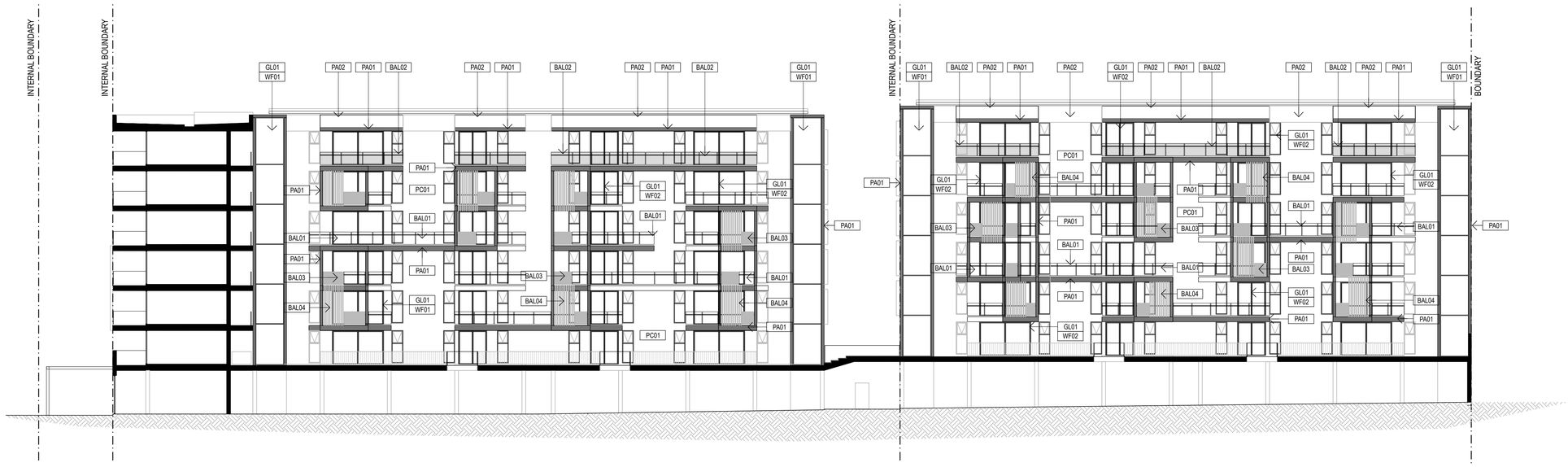


NORTH ELEVATION (INTERNAL)

1:200 @ A1

ELEVATIONS LEGEND

PC01	TREATED PRECAST (OFF WHITE)
PA01	PAINT FINISH TYPE 1 (BLACK MAGIC)
PA02	PAINT FINISH TYPE 2 (CHINA WHITE)
PA03	PAINT FINISH TYPE 3 (QUAGMIRE)
PA04	PAINT FINISH TYPE 4 (BURNISHED RUSSET)
PA05	PAINT FINISH TYPE 5 (ARID LAND)
FB01	FACE BRICK TYPE 1 (CHARCOAL)
FB02	FACE BRICK TYPE 2 (WHITE)
FB03	FACE BRICK TYPE 3 (RED)
FB04	FACE BLOCK TYPE 4 (GREY)
GL01	GLASS TYPE 1 (CLEAR)
GL02	GLASS TYPE 2 (GREY)
GL03	GLASS TYPE 3 (TRANSLUCENT)
WF01	WINDOW FRAME 1 (ANODIOSED)
WF02	WINDOW FRAME 2 (BLACK)
WF03	WINDOW FRAME 3 (WHITE)
BAL01	BALUSTRADE 1 (CLEAR GLASS)
BAL02	BALUSTRADE 2 (GREY GLASS)
BAL03	BALUSTRADE 3 (OPAQUE PANEL)
BAL04	BALUSTRADE 4 (METAL SCREEN)
MC01	METAL CLADDING 1 (MONUMENT)
MC02	METAL CLADDING 2 (SURFMIST)
MC03	METAL CLADDING 2 (HERITAGE GALV)
MC04	METAL CLADDING 3 (ZINCALUME)
GA01	GARAGE DOOR 1 (MONUMENT)
GA02	GARAGE DOOR 2 (SURFMIST)
GA03	GARAGE DOOR 3 (POLYCARBONATE)
GA04	GARAGE DOOR 4 (TIMBER)
TI01	TIMBER 1 (SPOTTED GUM)
TI02	TIMBER 2 (PAINTED)



SOUTH ELEVATION (INTERNAL)

1:200 @ A1

NOTE: LANDSCAPING OMITTED FOR CLARITY

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PROJECT
NORWOOD GREEN
76 MAGILL ROAD
NORWOOD

CLIENT
ALDI | CA CA

DRAWING
APARTMENTS
ELEVATIONS

NORTH

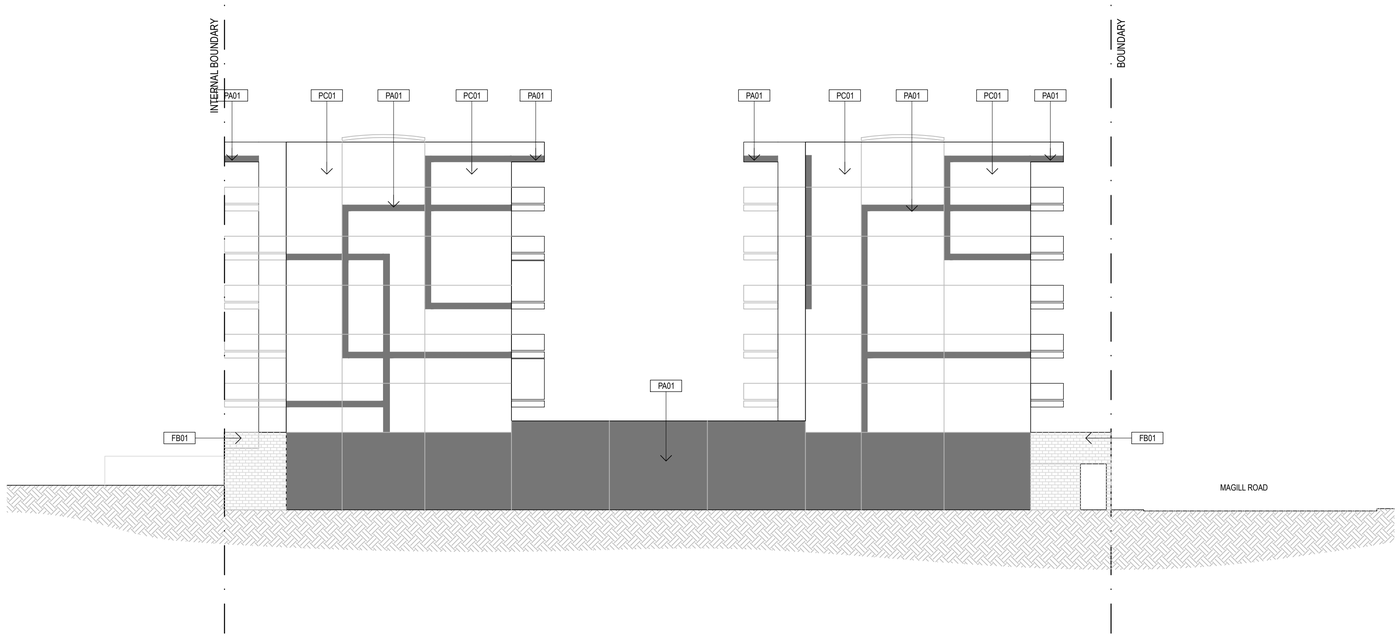
SCALE
AS SHOWN

DATE
AUGUST 2018

PROJECT NO
28055

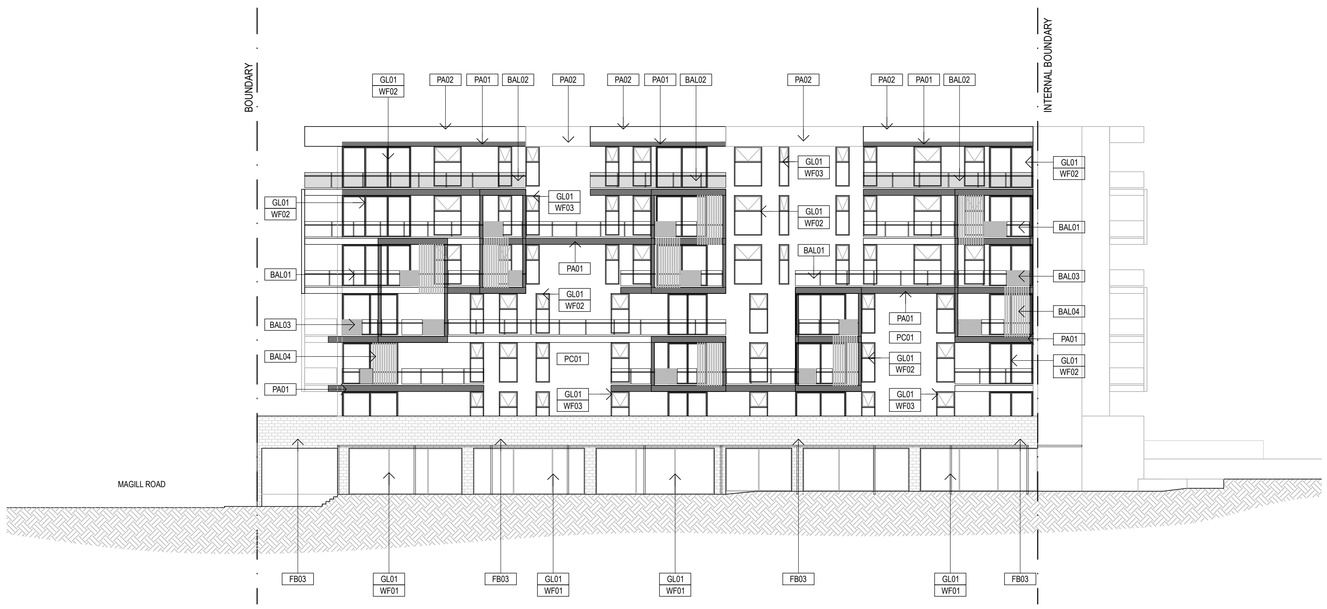
DWG NO
P23

REVISION	CHECKED	DRAWN
1.0	FB	mdf



EAST ELEVATION

1:200 @ A1



WEST ELEVATION

1:200 @ A1

ELEVATIONS LEGEND

PC01	TREATED PRECAST (OFF WHITE)
PA01	PAINT FINISH TYPE 1 (BLACK MAGIC)
PA02	PAINT FINISH TYPE 2 (CHINA WHITE)
PA03	PAINT FINISH TYPE 3 (QUAGMIRE)
PA04	PAINT FINISH TYPE 4 (BURNISHED RUSSET)
PA05	PAINT FINISH TYPE 5 (ARID LAND)
FB01	FACE BRICK TYPE 1 (CHARCOAL)
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FB03	FACE BRICK TYPE 3 (RED)
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GL01	GLASS TYPE 1 (CLEAR)
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GL03	GLASS TYPE 3 (TRANSLUCENT)
WF01	WINDOW FRAME 1 (ANODIOSED)
WF02	WINDOW FRAME 2 (BLACK)
WF03	WINDOW FRAME 3 (WHITE)
BAL01	BALUSTRADE 1 (CLEAR GLASS)
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BAL04	BALUSTRADE 4 (METAL SCREEN)
MC01	METAL CLADDING 1 (MONUMENT)
MC02	METAL CLADDING 2 (SURFMIST)
MC03	METAL CLADDING 2 (HERITAGE GALV)
MC04	METAL CLADDING 3 (ZINCALUME)
GA01	GARAGE DOOR 1 (MONUMENT)
GA02	GARAGE DOOR 2 (SURFMIST)
GA03	GARAGE DOOR 3 (POLYCARBONATE)
GA04	GARAGE DOOR 4 (TIMBER)
TI01	TIMBER 1 (SPOTTED GUM)
TI02	TIMBER 2 (PAINTED)

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PROJECT
NORWOOD GREEN
76 MAGILL ROAD
NORWOOD

CLIENT
ALDI | CA CA

DRAWING
ELEVATIONS
APARTMENTS

NORTH

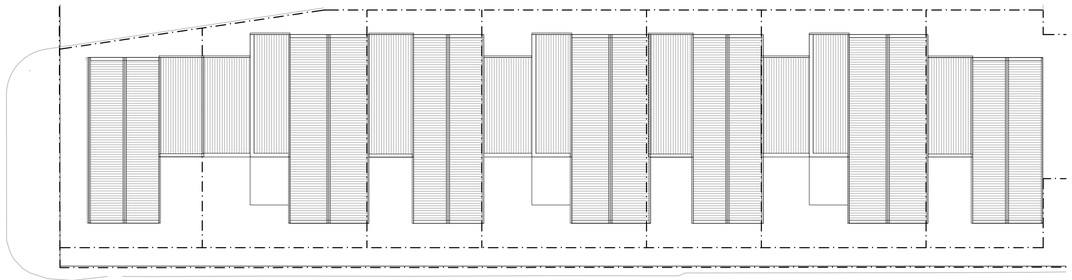
SCALE
AS SHOWN

DATE
AUGUST 2018

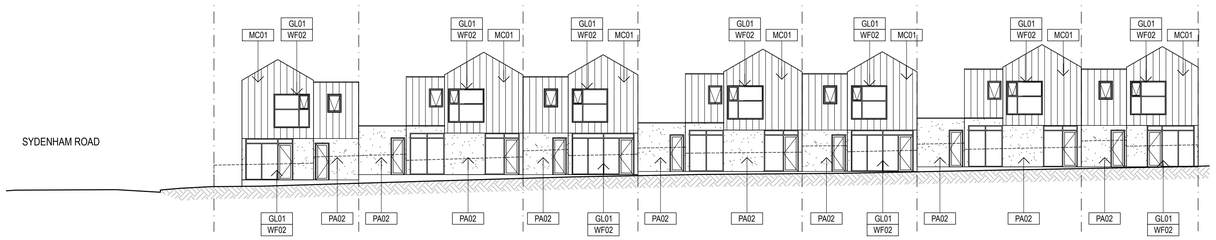
PROJECT NO
28055

DWG NO
P24

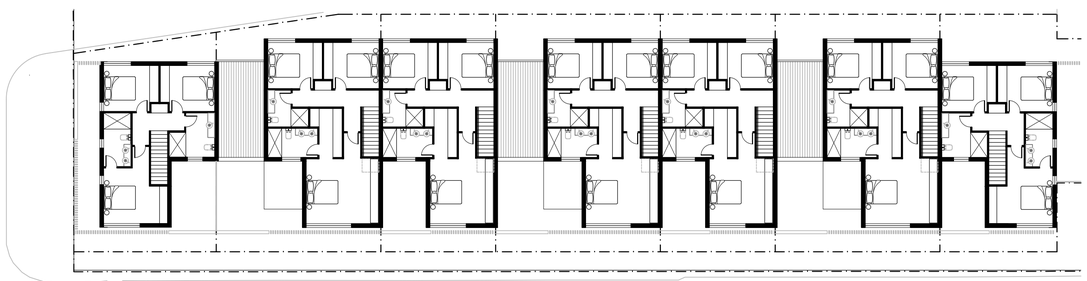
REVISION	CHECKED	DRAWN
1.0	FB	mdf



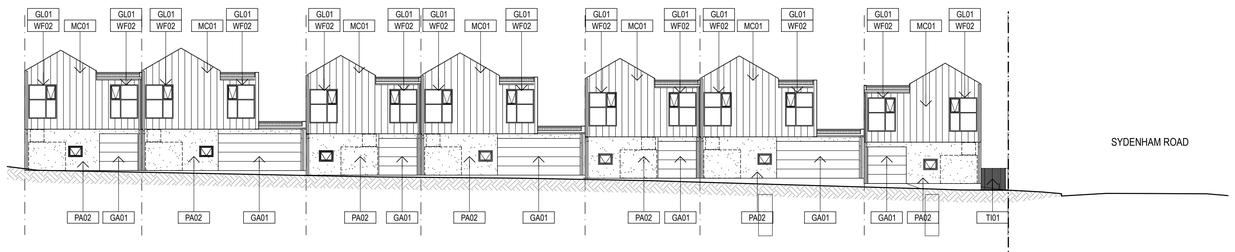
ROOF PLAN
1:200 @ A1



SOUTH ELEVATION (STEPHEN STREET)
1:200 @ A1

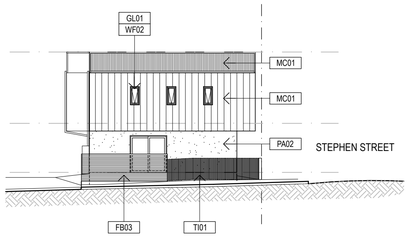


LEVEL 1 FLOOR PLAN
1:200 @ A1

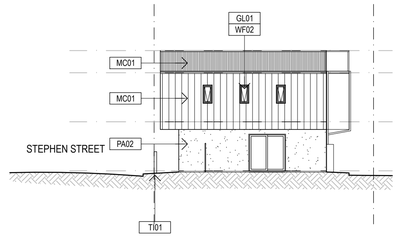


NORTH ELEVATION
1:200 @ A1

GROUND FLOOR PLAN
1:200 @ A1



WEST ELEVATION (SYDENHAM ROAD)
1:200 @ A1



EAST ELEVATION
1:200 @ A1

ELEVATIONS LEGEND

PC01	TREATED PRECAST (OFF WHITE)
PA01	PAINT FINISH TYPE 1 (BLACK MAGIC)
PA02	PAINT FINISH TYPE 2 (CHINA WHITE)
PA03	PAINT FINISH TYPE 3 (QUAGMIRE)
PA04	PAINT FINISH TYPE 4 (BURNISHED RUSSET)
PA05	PAINT FINISH TYPE 5 (ARID LAND)
FB01	FACE BRICK TYPE 1 (CHARCOAL)
FB02	FACE BRICK TYPE 2 (WHITE)
FB03	FACE BRICK TYPE 3 (RED)
FB04	FACE BLOCK TYPE 4 (GREY)
GL01	GLASS TYPE 1 (CLEAR)
GL02	GLASS TYPE 2 (GREY)
GL03	GLASS TYPE 3 (TRANSLUCENT)
WF01	WINDOW FRAME 1 (ANODIOSED)
WF02	WINDOW FRAME 2 (BLACK)
WF03	WINDOW FRAME 3 (WHITE)
BAL01	BALUSTRADE 1 (CLEAR GLASS)
BAL02	BALUSTRADE 2 (GREY GLASS)
BAL03	BALUSTRADE 3 (OPAQUE PANEL)
BAL04	BALUSTRADE 4 (METAL SCREEN)
MC01	METAL CLADDING 1 (MONUMENT)
MC02	METAL CLADDING 2 (SURFMIST)
MC03	METAL CLADDING 2 (HERITAGE GALV)
MC04	METAL CLADDING 3 (ZINCALUME)
GA01	GARAGE DOOR 1 (MONUMENT)
GA02	GARAGE DOOR 2 (SURFMIST)
GA03	GARAGE DOOR 3 (POLYCARBONATE)
GA04	GARAGE DOOR 4 (TIMBER)
TI01	TIMBER 1 (SPOTTED GUM)
TI02	TIMBER 2 (PAINTED)

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PROJECT
NORWOOD GREEN
76 MAGILL ROAD
NORWOOD
CLIENT
ALDI | CA CA

DRAWING
TYPE A
TOWNHOUSES

NORTH

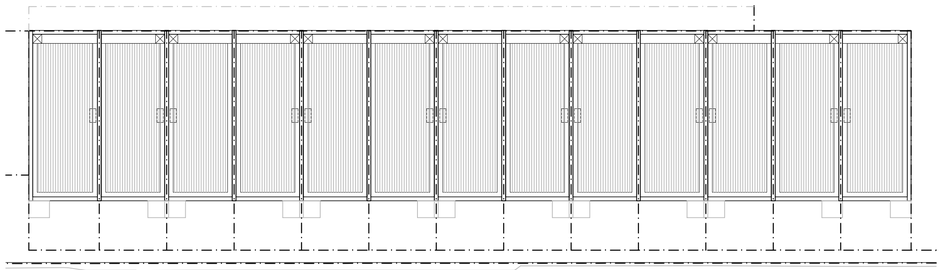
SCALE
AS SHOWN

DATE
AUGUST 2018

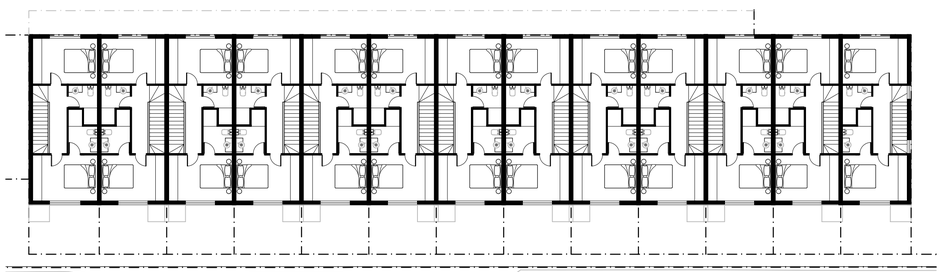
PROJECT NO
28055

DWG NO
P25

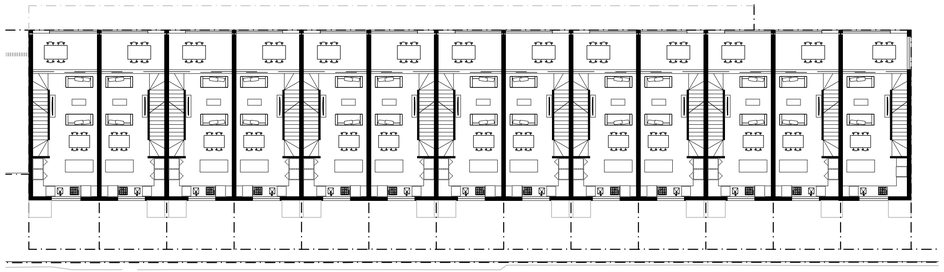
REVISION	CHECKED	DRAWN
1.0	FB	mdf



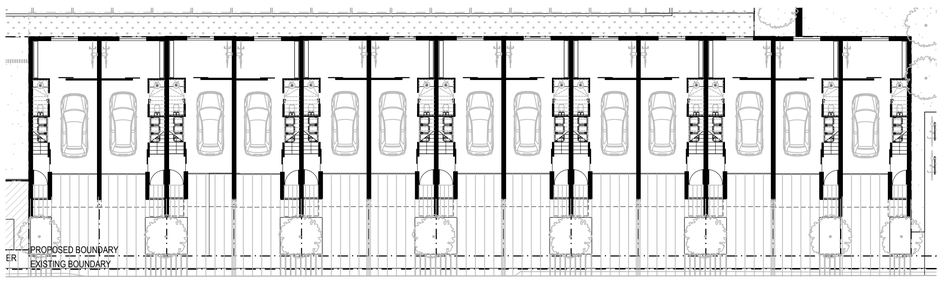
ROOF PLAN
1:200 @ A1



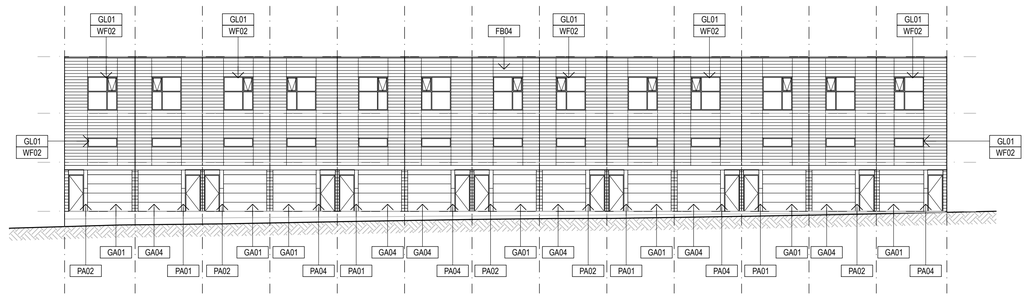
LEVEL 2 FLOOR PLAN
1:200 @ A1



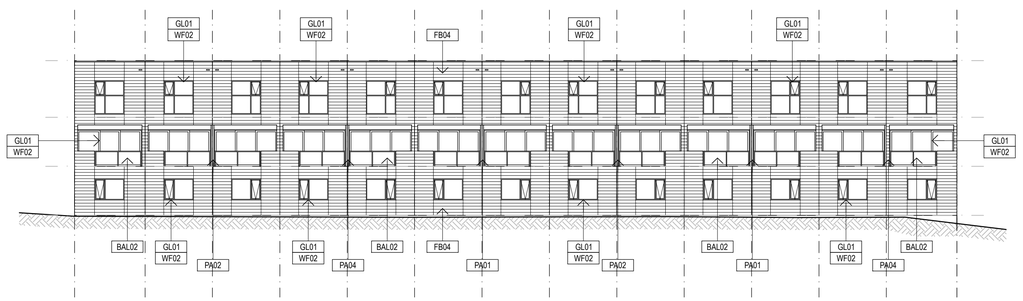
LEVEL 1 FLOOR PLAN
1:200 @ A1



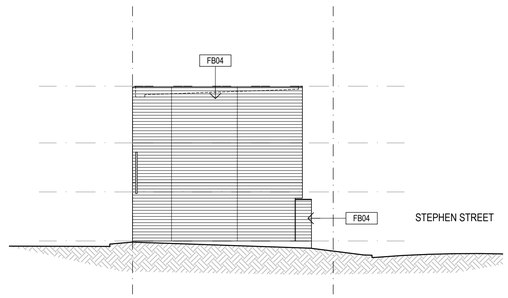
GROUND FLOOR PLAN
1:200 @ A1



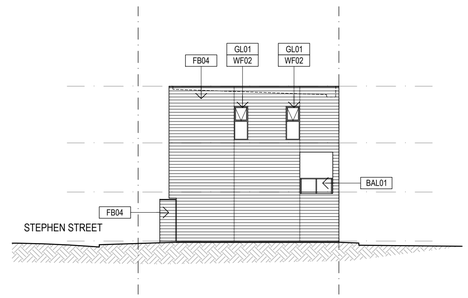
SOUTH ELEVATION (STEPHEN STREET)
1:200 @ A1



NORTH ELEVATION
1:200 @ A1



WEST ELEVATION
1:200 @ A1



EAST ELEVATION
1:200 @ A1

ELEVATIONS LEGEND

PC01	TREATED PRECAST (OFF WHITE)
PA01	PAINT FINISH TYPE 1 (BLACK MAGIC)
PA02	PAINT FINISH TYPE 2 (CHINA WHITE)
PA03	PAINT FINISH TYPE 3 (QUAGMIRE)
PA04	PAINT FINISH TYPE 4 (BURNISHED RUSSET)
PA05	PAINT FINISH TYPE 5 (ARID LAND)
FB01	FACE BRICK TYPE 1 (CHARCOAL)
FB02	FACE BRICK TYPE 2 (WHITE)
FB03	FACE BRICK TYPE 3 (RED)
FB04	FACE BLOCK TYPE 4 (GREY)
GL01	GLASS TYPE 1 (CLEAR)
GL02	GLASS TYPE 2 (GREY)
GL03	GLASS TYPE 3 (TRANSLUCENT)
WF01	WINDOW FRAME 1 (ANODIOSED)
WF02	WINDOW FRAME 2 (BLACK)
WF03	WINDOW FRAME 3 (WHITE)
BAL01	BALUSTRADE 1 (CLEAR GLASS)
BAL02	BALUSTRADE 2 (GREY GLASS)
BAL03	BALUSTRADE 3 (OPAQUE PANEL)
BAL04	BALUSTRADE 4 (METAL SCREEN)
MC01	METAL CLADDING 1 (MONUMENT)
MC02	METAL CLADDING 2 (SURFMIST)
MC03	METAL CLADDING 2 (HERITAGE GALV)
MC04	METAL CLADDING 3 (ZINCALUME)
GA01	GARAGE DOOR 1 (MONUMENT)
GA02	GARAGE DOOR 2 (SURFMIST)
GA03	GARAGE DOOR 3 (POLYCARBONATE)
GA04	GARAGE DOOR 4 (TIMBER)
TI01	TIMBER 1 (SPOTTED GUM)
TI02	TIMBER 2 (PAINTED)

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PROJECT
NORWOOD GREEN
76 MAGILL ROAD
NORWOOD
CLIENT
ALDI | CA CA

DRAWING
TYPE B
TOWNHOUSES

NORTH

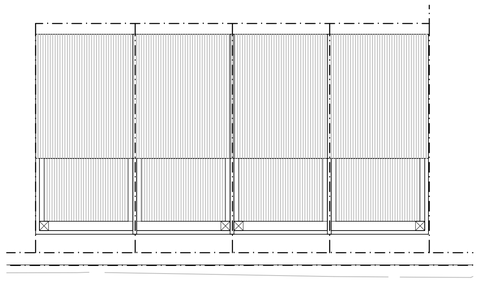
SCALE
AS SHOWN

DATE
AUGUST 2018

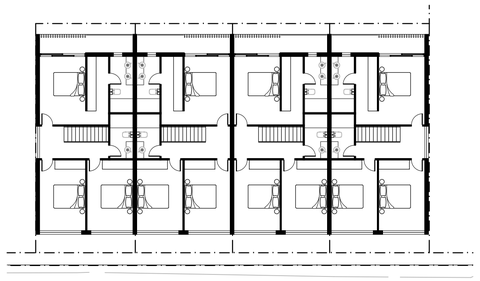
PROJECT NO
28055

DWG NO
P26

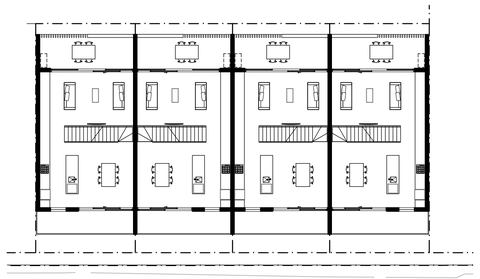
REVISION	CHECKED	DRAWN
1.0	FB	mdf



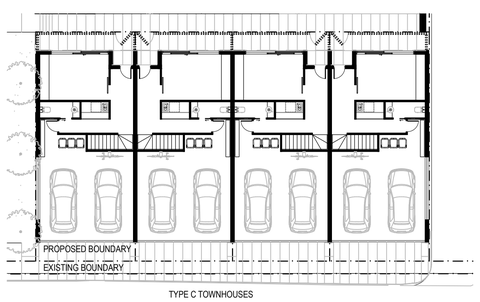
ROOF FLOOR PLAN
1:200 @ A1



LEVEL 2 FLOOR PLAN
1:200 @ A1



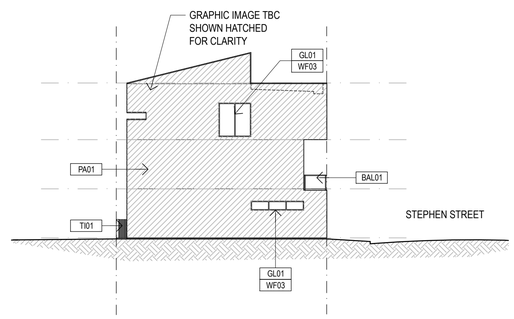
LEVEL 1 FLOOR PLAN
1:200 @ A1



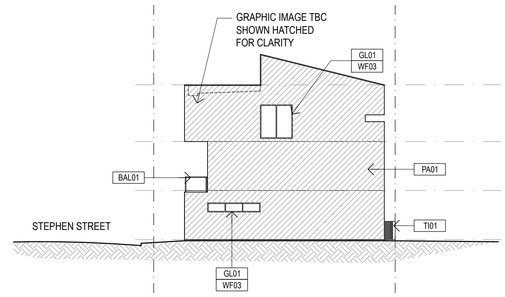
GROUND FLOOR PLAN
1:200 @ A1

SOUTH ELEVATION (STEPHEN STREET)
1:200 @ A1

NORTH ELEVATION
1:200 @ A1



WEST ELEVATION
1:200 @ A1



EAST ELEVATION
1:200 @ A1

ELEVATIONS LEGEND

PC01	TREATED PRECAST (OFF WHITE)
PA01	PAINT FINISH TYPE 1 (BLACK MAGIC)
PA02	PAINT FINISH TYPE 2 (CHINA WHITE)
PA03	PAINT FINISH TYPE 3 (QUAGMIRE)
PA04	PAINT FINISH TYPE 4 (BURNISHED RUSSET)
PA05	PAINT FINISH TYPE 5 (ARID LAND)
FB01	FACE BRICK TYPE 1 (CHARCOAL)
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MC03	METAL CLADDING 2 (HERITAGE GALV)
MC04	METAL CLADDING 3 (ZINCALUME)
GA01	GARAGE DOOR 1 (MONUMENT)
GA02	GARAGE DOOR 2 (SURFMIST)
GA03	GARAGE DOOR 3 (POLYCARBONATE)
GA04	GARAGE DOOR 4 (TIMBER)
TI01	TIMBER 1 (SPOTTED GUM)
TI02	TIMBER 2 (PAINTED)

NOTE: LANDSCAPING OMITTED FOR CLARITY

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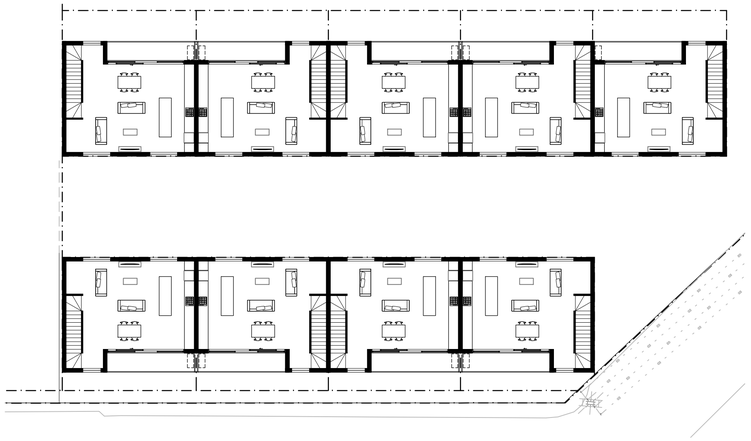
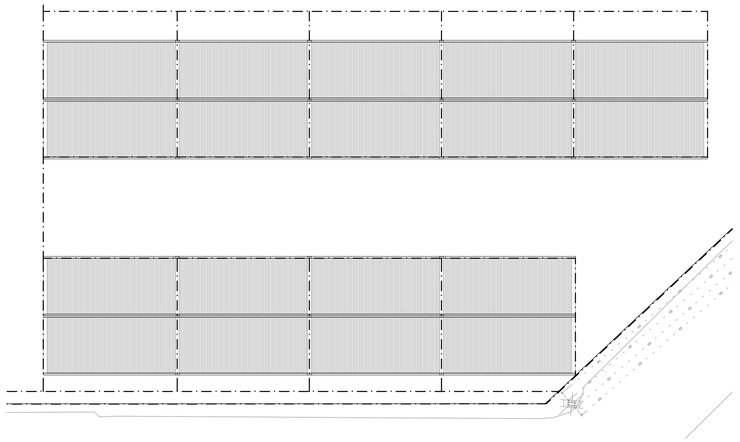
PROJECT: NORWOOD GREEN, 76 MAGILL ROAD, NORWOOD
CLIENT: ALDI | CA CA

DRAWING: TYPE C TOWNHOUSES
SCALE: AS SHOWN
DATE: AUGUST 2018
NORTH

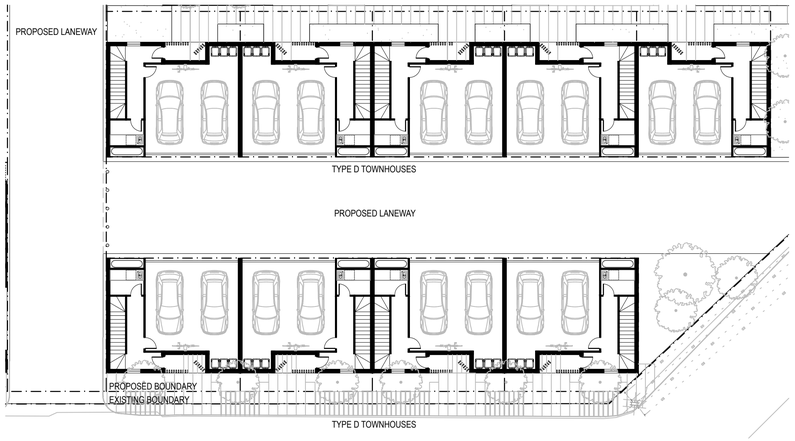
PROJECT NO: 28055
DWG NO: P27
REVISION: 1.0
CHECKED: FB
DRAWN: mdf



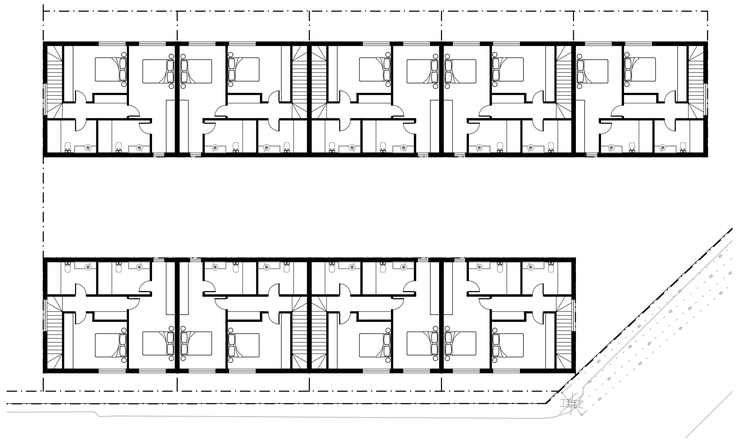
LEVEL 1 FLOOR PLAN
1:200 @ A1



ROOF FLOOR PLAN
1:200 @ A1



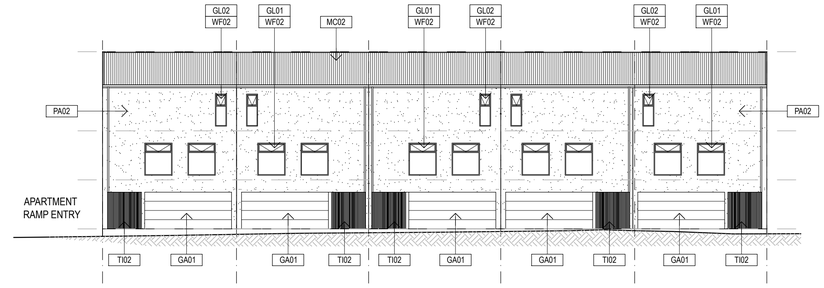
GROUND FLOOR PLAN
1:200 @ A1



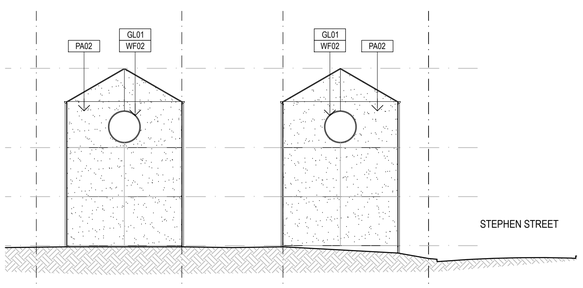
LEVEL 2 FLOOR PLAN
1:200 @ A1

SOUTH ELEVATION (STEPHEN STREET)
1:200 @ A1

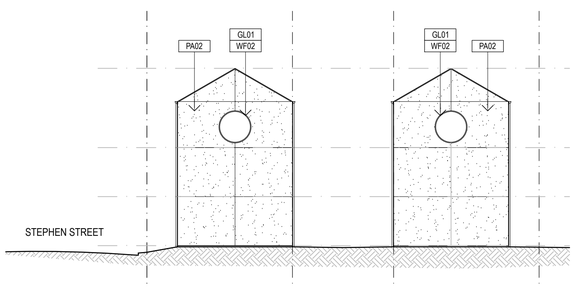
NORTH ELEVATION
1:200 @ A1



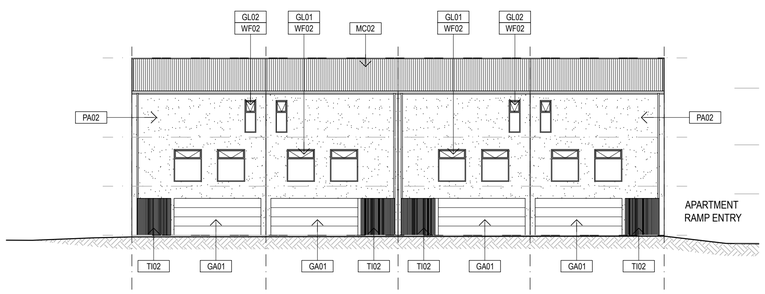
SOUTH INTERNAL ELEVATION
1:200 @ A1



WEST ELEVATION
1:200 @ A1



EAST ELEVATION
1:200 @ A1



NORTH INTERNAL ELEVATION
1:200 @ A1

ELEVATIONS LEGEND

PC01	TREATED PRECAST (OFF WHITE)
PA01	PAINT FINISH TYPE 1 (BLACK MAGIC)
PA02	PAINT FINISH TYPE 2 (CHINA WHITE)
PA03	PAINT FINISH TYPE 3 (QUAGMIRE)
PA04	PAINT FINISH TYPE 4 (BURNISHED RUSSET)
PA05	PAINT FINISH TYPE 5 (ARID LAND)
FB01	FACE BRICK TYPE 1 (CHARCOAL)
FB02	FACE BRICK TYPE 2 (WHITE)
FB03	FACE BRICK TYPE 3 (RED)
FB04	FACE BLOCK TYPE 4 (GREY)
GL01	GLASS TYPE 1 (CLEAR)
GL02	GLASS TYPE 2 (GREY)
GL03	GLASS TYPE 3 (TRANSLUCENT)
WF01	WINDOW FRAME 1 (ANODIOSED)
WF02	WINDOW FRAME 2 (BLACK)
WF03	WINDOW FRAME 3 (WHITE)
BAL01	BALUSTRADE 1 (CLEAR GLASS)
BAL02	BALUSTRADE 2 (GREY GLASS)
BAL03	BALUSTRADE 3 (OPAQUE PANEL)
BAL04	BALUSTRADE 4 (METAL SCREEN)
MC01	METAL CLADDING 1 (MONUMENT)
MC02	METAL CLADDING 2 (SURFMIST)
MC03	METAL CLADDING 2 (HERITAGE GALV)
MC04	METAL CLADDING 3 (ZINCALUME)
GA01	GARAGE DOOR 1 (MONUMENT)
GA02	GARAGE DOOR 2 (SURFMIST)
GA03	GARAGE DOOR 3 (POLYCARBONATE)
GA04	GARAGE DOOR 4 (TIMBER)
TI01	TIMBER 1 (SPOTTED GUM)
TI02	TIMBER 2 (PAINTED)

NOTE: LANDSCAPING OMITTED FOR CLARITY

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REV	DATE	DESCRIPTION
1.0	23/08/18	ISSUED FOR DPC

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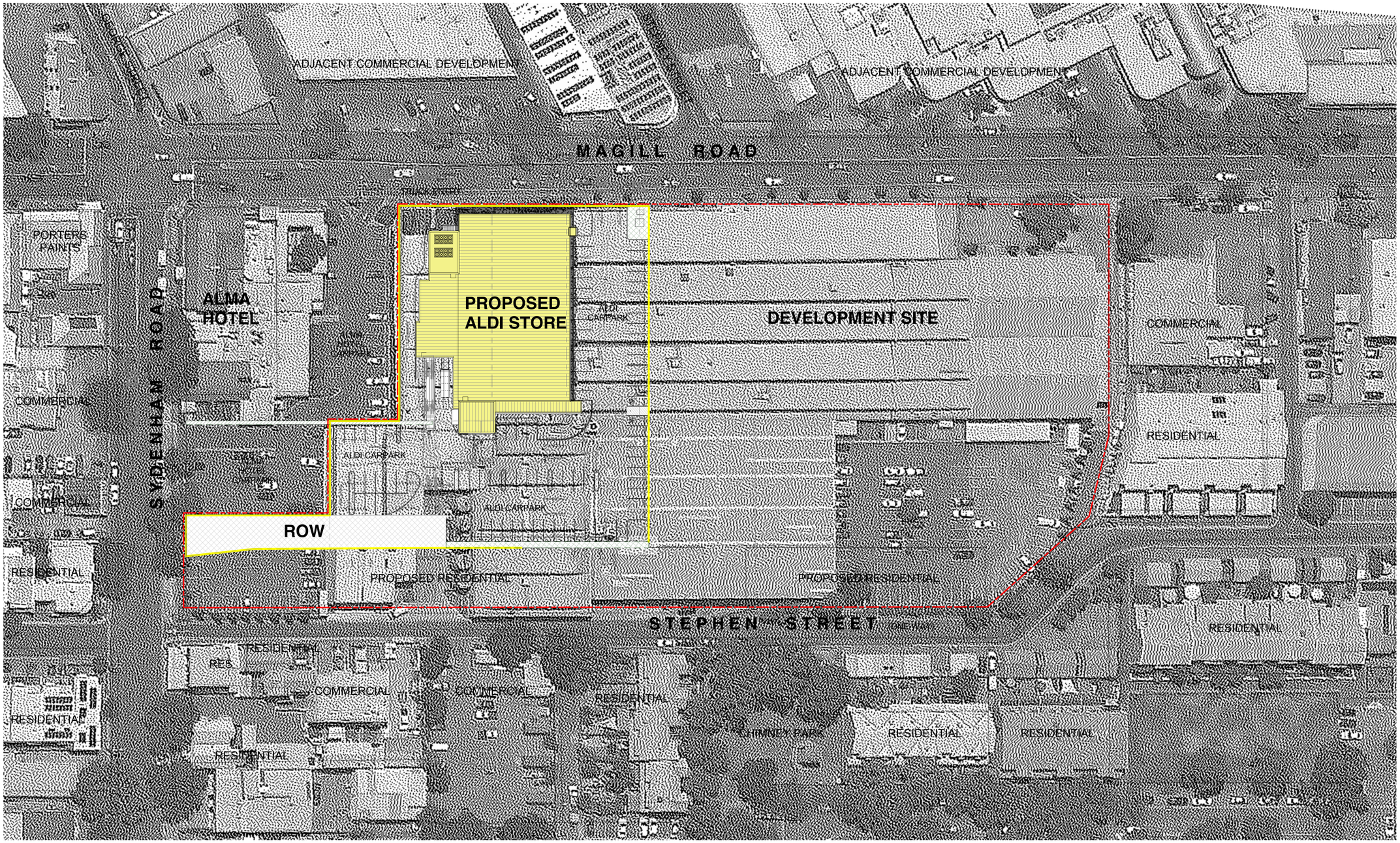
PROJECT: NORWOOD GREEN, 76 MAGILL ROAD, NORWOOD
CLIENT: ALDI | CA CA

DRAWING: TYPE D TOWNHOUSES
SCALE: AS SHOWN
DATE: AUGUST 2018
NORTH

PROJECT NO: 28055
DWG NO: P28
REVISION: 1.0
CHECKED: FB
DRAWN: mdf



PROPERTY DESCRIPTION	
TOTAL SITE AREA	18,978m²
TOTAL ALDI SITE AREA	6,201m²
ALDI BUILDING GROSS AREA	1,663m²
ALDI BUILDING NETT AREA	1,634m²
ALDI RETAIL NETT AREA	1,274m²
ALDI BOH NETT AREA	286m²
ALDI AMENITIES NETT AREA	78m²
ALDI REMAINING NETT AREA	364m²
RESERVE AREA	-
PARK / TRAFFICE AREA	3,675m²
NUMBER OF CARPARKS	89
NUMBER OF BOH PALLETS	66
CAR SPACES REQUIRED BY COUNCIL	-
LANDSCAPED AREA	
EASEMENT (EXISTING)	
EASEMENT (NEW)	
RIGHT OF WAY	
CONCRETE PAVEMENT (TRUCK PATH)	
ALDI SITE BOUNDARY	
SITE BOUNDARY	

1 LOCATION PLAN
1 : 500

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REV	DATE	DESCRIPTION
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PROJECT: NORWOOD GREEN, 76 MAGILL ROAD, NORWOOD
CLIENT: ALDI | CA CA

DRAWING: ALDI - LOCATION PLAN
NORTH
SCALE: 1 : 500
DATE: 13/07/18
PROJECT NO: 28055
DWG NO: P29
REVISION: 1.0
CHECKED: BE
DRAWN: DA

MAGILL ROAD

SYDENHAM ROAD

ALMA HOTEL

ALMA HOTEL CARPARK

ALMA HOTEL CARPARK

PROPOSED ALDI STORE

RL 49.1

DEVELOPMENT SITE

TRUCK ENTRY ONLY

ENTRY / EXIT

ENTRY / EXIT

HIGH LEVEL WINDOWS

CANOPY OVER

EXISTING STOBIE POLE

TRANSFORMER + EASEMENT

LANDSCAPE ZONE

LANDSCAPE ZONE

LANDSCAPE ZONE

LANDSCAPE ZONE

GABLE SIGNS

GABLE SIGNS

GABLE SIGNS

COLORBOND FENCING

SITE BOUNDARY

SERVICE ROAD

EXTENT OF SOLAR PANELS ON ROOF

ALDI CARPARK

SUNSHADE OVER

HIGH LEVEL WINDOWS

COLONINADE

SITE BOUNDARY

LOADING DOCK SCREEN WALL

INTEGRATED GRADING OF RAMP

19m TRUCK

COMPACTOR

LOADING BAY

EXISTING EASEMENT

SITE BOUNDARY

ALDI CARPARK

ALDI CARPARK

ROLL OVER KERB

SITE BOUNDARY

SITE BOUNDARY

SITE BOUNDARY

EASEMENT

RIGHT OF LIGHT EASEMENT

ENTRY / EXIT

PROPERTY DESCRIPTION	
TOTAL SITE AREA	18,978m²
TOTAL ALDI SITE AREA	6,201m²
ALDI BUILDING GROSS AREA	1,663m²
ALDI BUILDING NETT AREA	1,634m²
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RESERVE AREA	-
PARK / TRAFFICE AREA	3,675m²
NUMBER OF CARPARKS	89
NUMBER OF BOH PALLETS	66
CAR SPACES REQUIRED BY COUNCIL	-
LANDSCAPED AREA	
EASEMENT (EXISTING)	
EASEMENT (NEW)	
RIGHT OF WAY	
CONCRETE PAVEMENT (TRUCK PATH)	
ALDI SITE BOUNDARY	
SITE BOUNDARY	

1 SITE PLAN
1 : 200

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REV	DATE	DESCRIPTION
1.0	23/08/18	ISSUED FOR DPC

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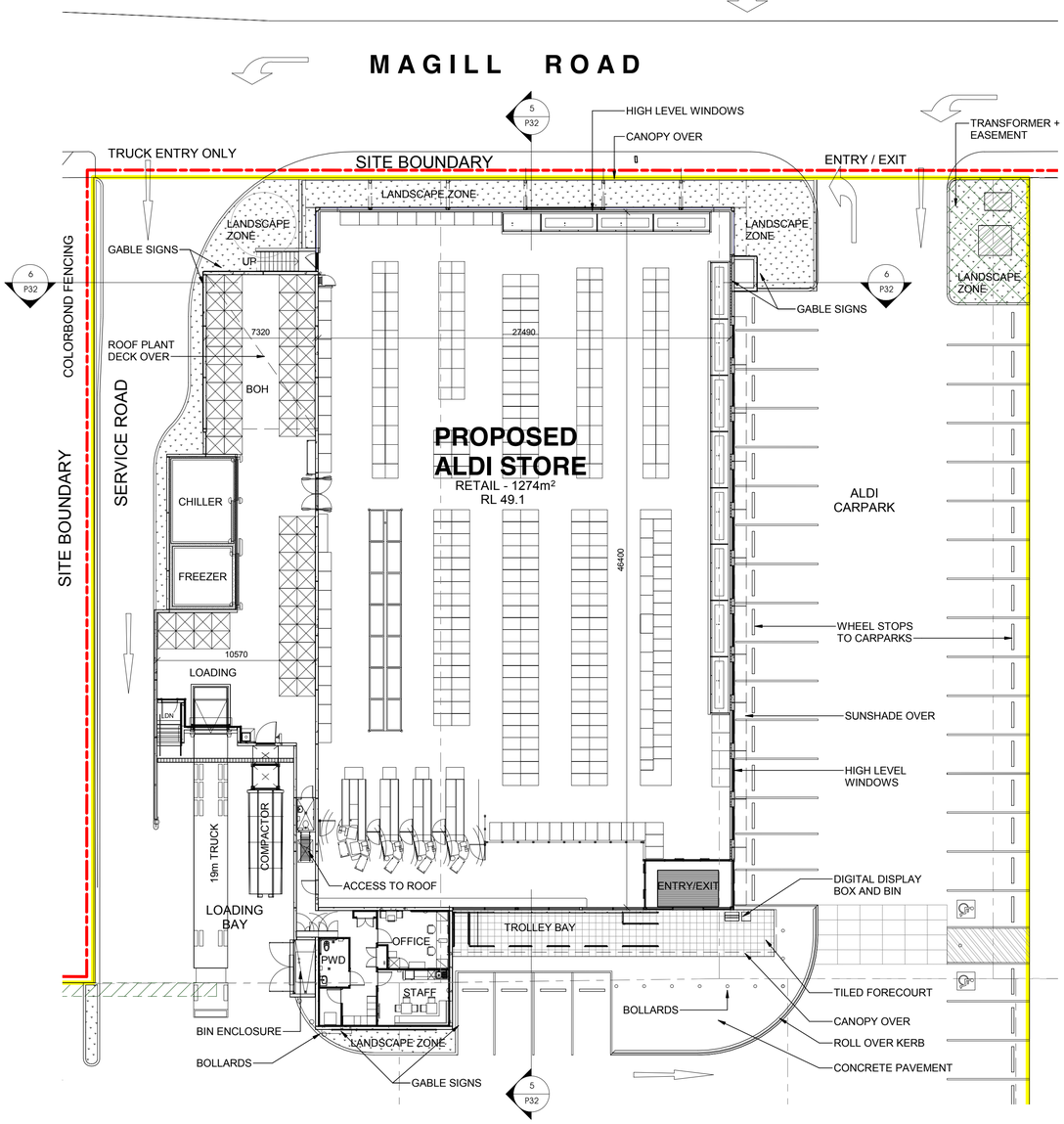
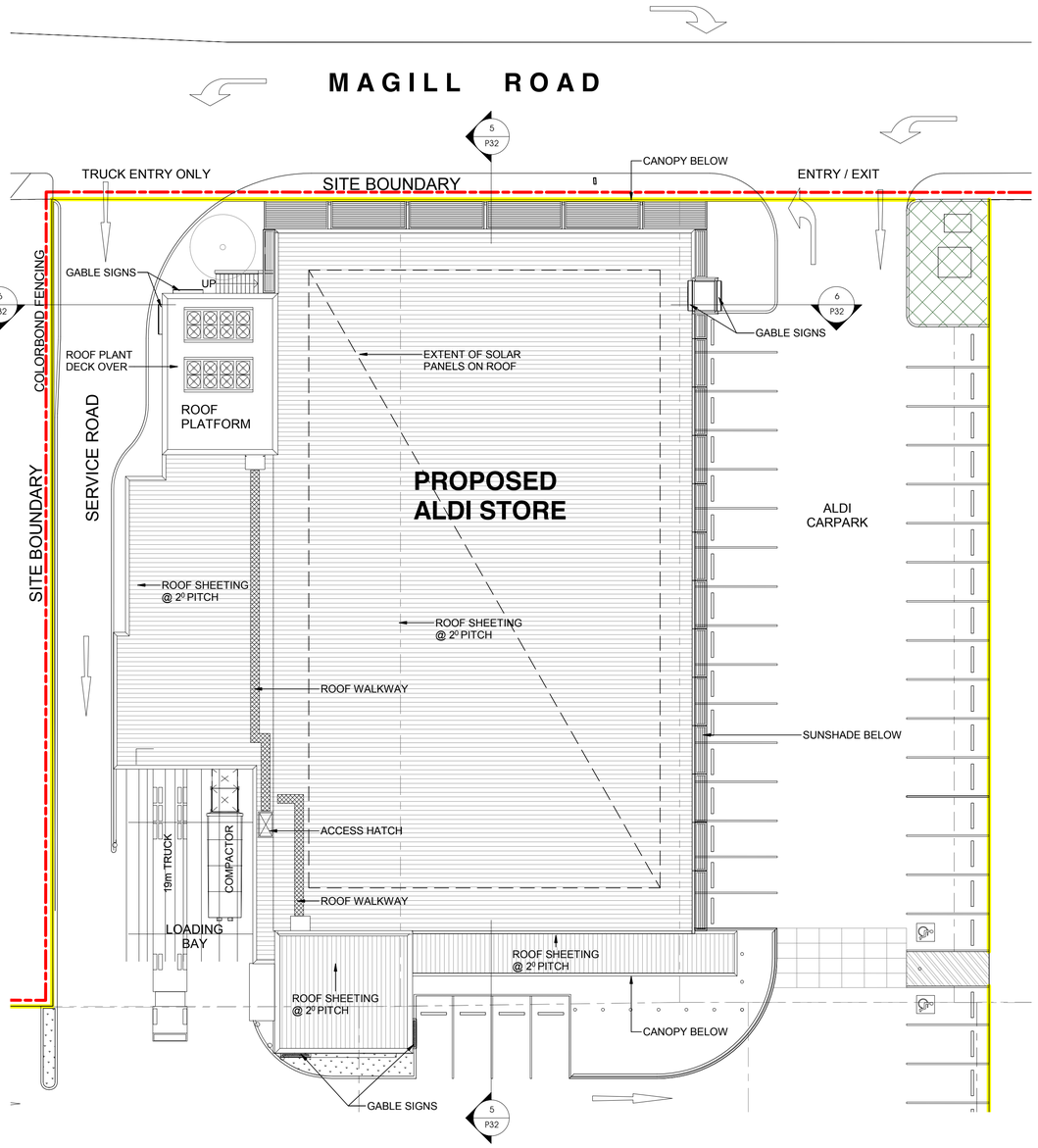
PROJECT: NORWOOD GREEN, 76 MAGILL ROAD, NORWOOD
CLIENT: ALDI | CA CA

DRAWING: ADLI - SITE PLAN
SCALE: 1 : 200
DATE: 13/07/18
NORTH

PROJECT NO: 28055
DWG NO: P30
REVISION: 1.0
CHECKED: BE
DRAWN: DA



1 GROUND FLOOR PLAN
1 : 200



2 ROOF PLAN
1 : 200

PROPERTY DESCRIPTION	
TOTAL SITE AREA	18,978m²
TOTAL ALDI SITE AREA	6,201m²
ALDI BUILDING GROSS AREA	1,663m²
ALDI BUILDING NETT AREA	1,634m²
ALDI RETAIL NETT AREA	1,274m²
ALDI BOH NETT AREA	286m²
ALDI AMENITIES NETT AREA	78m²
ALDI REMAINING NETT AREA	364m²
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PARK / TRAFFICE AREA	3,675m²
NUMBER OF CARPARKS	89
NUMBER OF BOH PALLETS	66
CAR SPACES REQUIRED BY COUNCIL	-
LANDSCAPED AREA	
EASEMENT (EXISTING)	
EASEMENT (NEW)	
RIGHT OF WAY	
CONCRETE PAVEMENT (TRUCK PATH)	
ALDI SITE BOUNDARY	
SITE BOUNDARY	

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REV	DATE	DESCRIPTION
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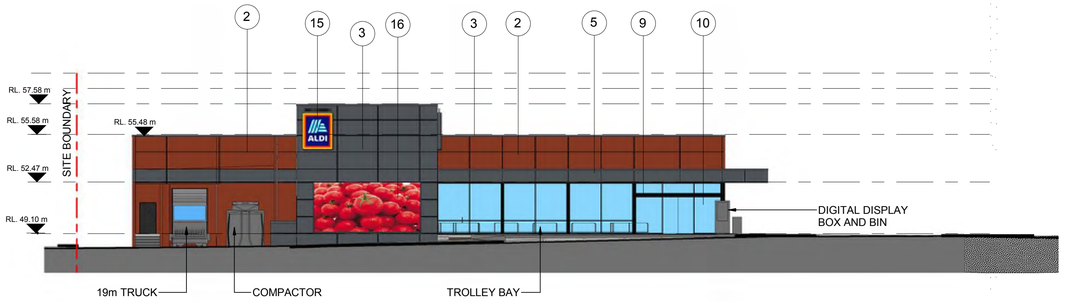
PROJECT: NORWOOD GREEN, 76 MAGILL ROAD, NORWOOD
CLIENT: ALDI | CA CA

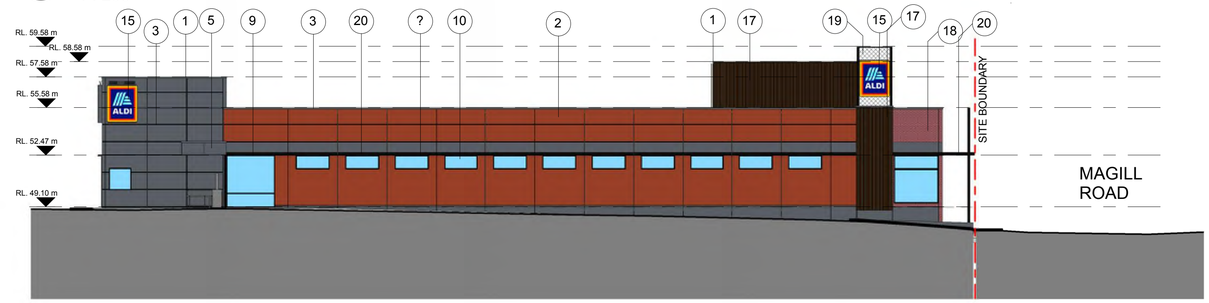
DRAWING: ADLI - FLOOR PLANS
SCALE: 1 : 200
DATE: 13/07/18
NORTH

PROJECT NO: 28055
DWG NO: P31
REVISION: 1.0
CHECKED: BE
DRAWN: DA



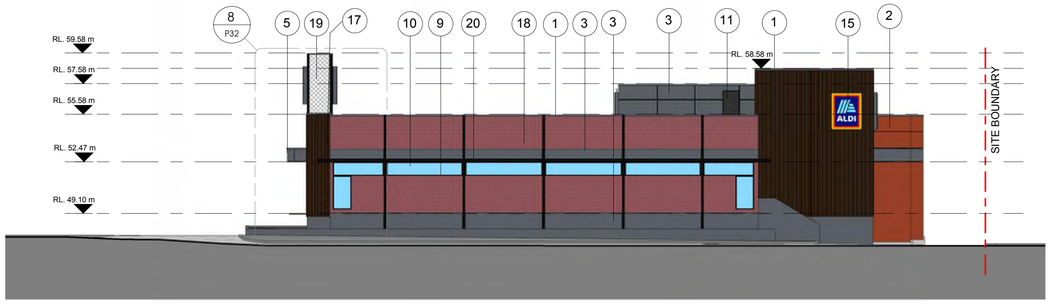
1 SOUTH ELEVATION
1 : 200

5 SECTION A - A
1 : 200

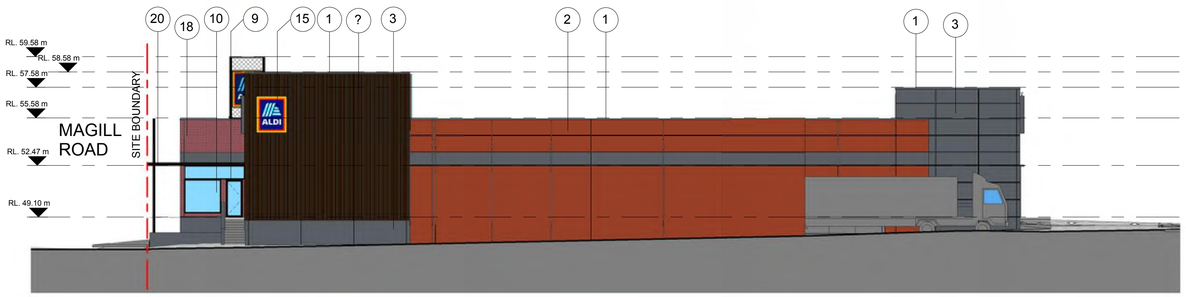


2 EAST ELEVATION
1 : 200

6 SECTION B - B
1 : 200

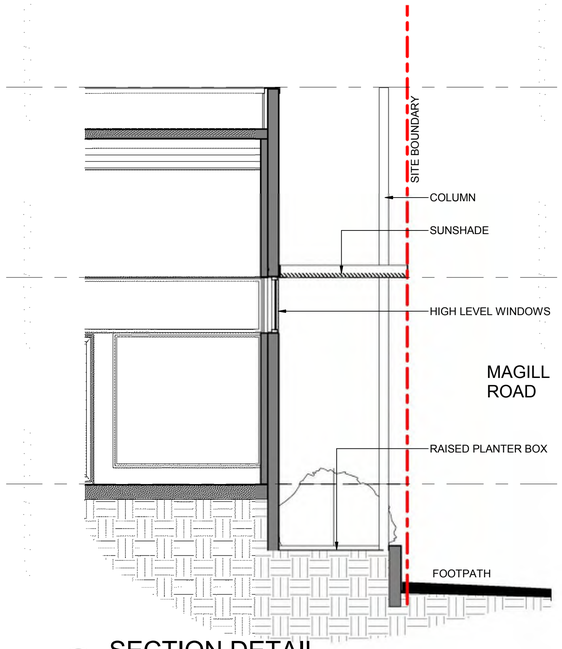


3 NORTH ELEVATION
1 : 200

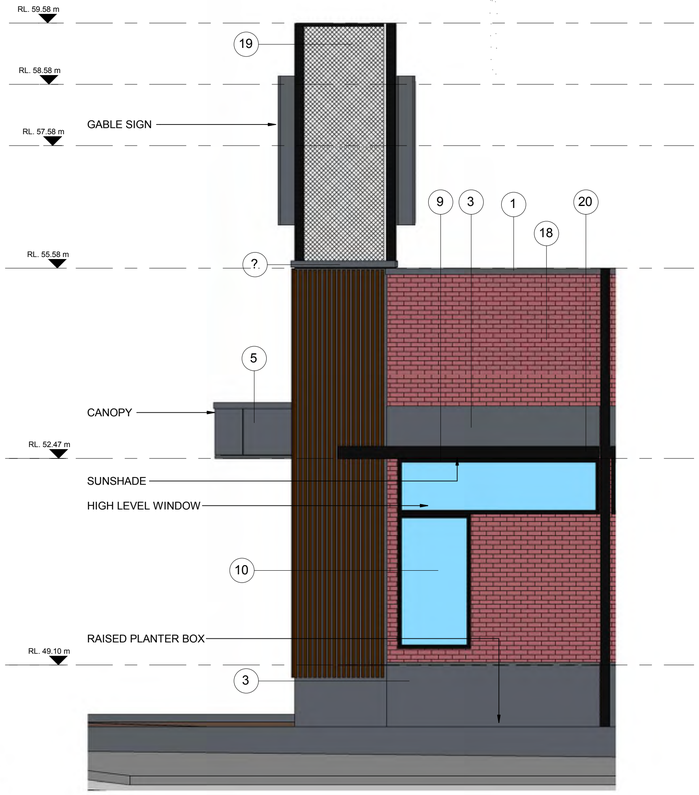


4 WEST ELEVATION
1 : 200

REFER TO SHEET P34 FOR METERIALS SCHEDULE



7 SECTION DETAIL
1 : 50



8 ELEVATION DETAIL
1 : 50

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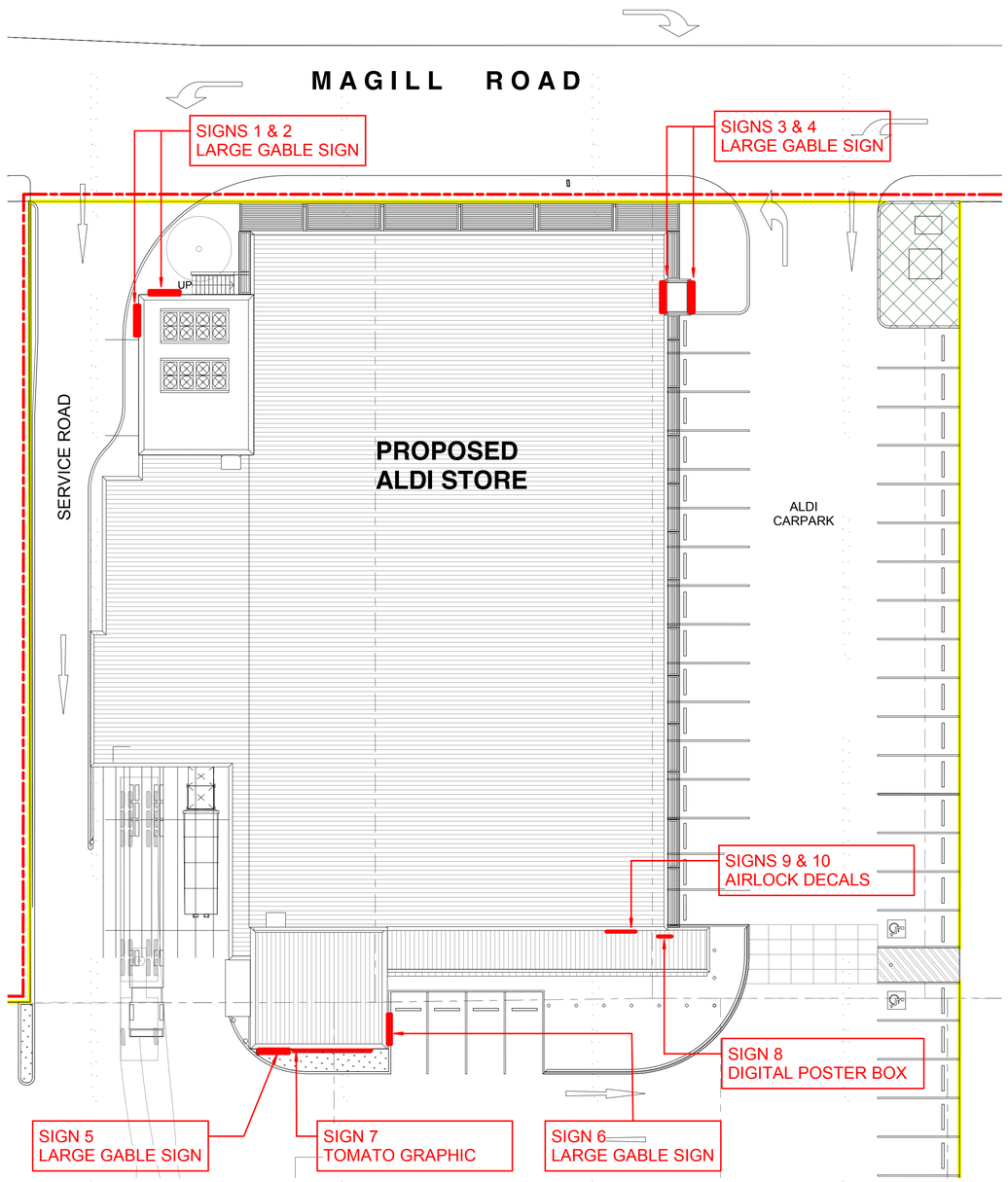
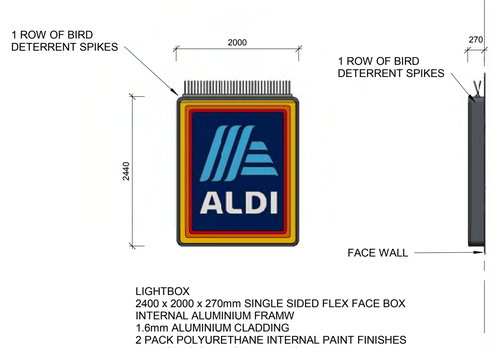
PROJECT: NORWOOD GREEN, 76 MAGILL ROAD, NORWOOD
CLIENT: ALDI | CA CA

DRAWING: ALDI - ELEVATIONS
NORTH
SCALE: As indicated
DATE: JULY 2018

PROJECT NO: 28055
DWG NO: P32
REVISION: 1.0
CHECKED: BE
DRAWN: DA

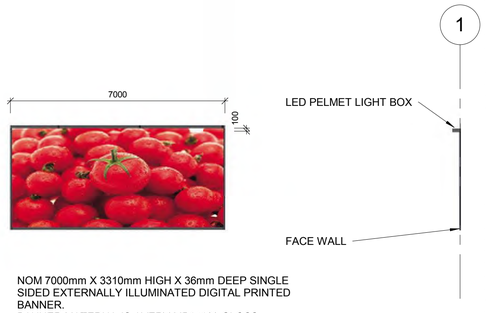


1 SIGNAGE PLAN
1 : 200



LIGHTBOX
2400 x 2000 x 270mm SINGLE SIDED FLEX FACE BOX
INTERNAL ALUMINIUM FRAMW
1.6mm ALUMINIUM CLADDING
2 PACK POLYURETHANE INTERNAL PAINT FINISHES
MULFORDS SX 3M SELF-ADHESIVE VINYL
INTERNAL 'DAYLIGHT' FLUORESCENT LIGHTING
LIGHT OUTPUT; CALVIN - 40,000 LUMINS 16,500

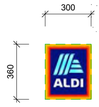
2 LARGE GABLE SIGN (SIGNS 1, 2, 3, 4, 5 & 6)
1 : 50



NOM 7000mm X 3310mm HIGH X 36mm DEEP SINGLE SIDED EXTERNALLY ILLUMINATED DIGITAL PRINTED BANNER.
BANNER MATERIAL IS AVERY MP14120 GLOSS BILLBOARD 400gsm FRONTLIT BANNER WITH 'ECO TUFF' ANTI GRAFFITI

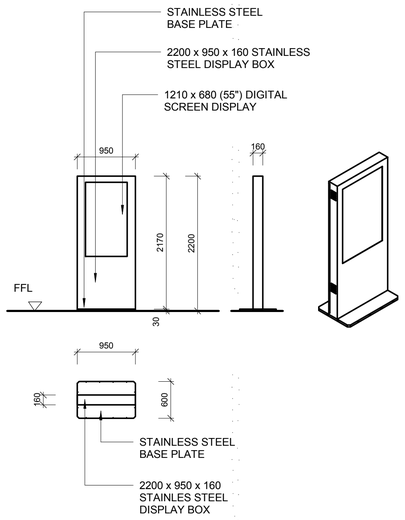
ILLUMINATION: LED PELMET DOWNLIGHTING BUILT INTO PELMET ABOVE.

3 WALL MOUNTED SIGN (SIGN 7)
1 : 100



DOUBLE SIDED SCREENPRINTED DECAL 300mm x 360mm
APPLIED TO REVERSE SIDE OF ENTRY DOORS

5 AIRLOCK DECAL SIGN (SIGN 9 & 10)
1 : 20



4 DIGITAL POSTER BOX (SIGN 8)
1 : 50

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PROJECT: NORWOOD GREEN, 76 MAGILL ROAD, NORWOOD
CLIENT: ALDI | CA CA

DRAWING: SIGNAGE DETAILS
SCALE: As indicated
DATE: 13/07/18
NORTH
PROJECT NO: 28055
DWG NO: P33
REVISION: 1.0
CHECKED: BE
DRAWN: DA

1 PERSPECTIVE 1
1 : 50

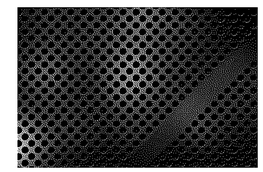
3 PERSPECTIVE 3
1 : 50

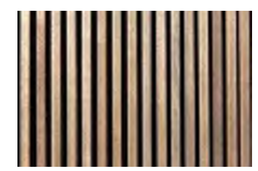
MATERIAL SCHEDULE

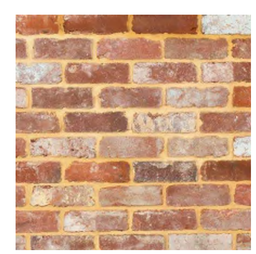
1	CAPPING - COLORBOND 'BASALT'	11	DOOR & FRAME - 'BASALT'
2	PRECAST CONCRETE PANEL 'FLUORESCENT FIRE'	12	DOOR & FRAME - 'FLUORESCENT FIRE'
3	PRECAST CONCRETE PANEL 'DRIVE TIME'	13	ROOF - ZINCULAME SHEETING 'SURFMIST'
4	FIBRE CEMENT PANEL WITH EXPRESS JOINTS 'FLUORESCENT FIRE'	14	PANEL LIFT DOOR - COLORBOND 'BASALT'
5	FIBRE CEMENT PANEL WITH EXPRESS JOINTS 'DRIVE TIME'	15	ALDI ILLUMINATED SIGN
6	DOWNPIPE - COLORBOND 'BASALT'	16	GRAPHIC IMAGE
7	GUTTER - COLORBOND 'BASALT'	17	TIMBER BATTENS
8	WINDOWS - COLORBOND 'NIGHT SKY'	18	FACE BRICK - SELECTED RED BRICK
9	SHOPFRONT - COLORBOND 'NIGHT SKY'	19	MESH SCREEN - COLORBOND 'NIGHT SKY'
10	CLEAR GALZING	20	METAL WORK - COLORBOND 'NIGHT SKY'

2 PERSPECTIVE 2
1 : 50

4 PERSPECTIVE 4
1 : 50







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REV	DATE	DESCRIPTION
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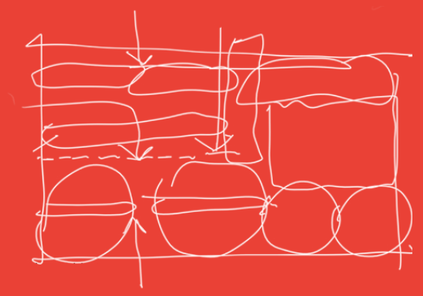
PROJECT
NORWOOD GREEN,
76 MAGILL ROAD,
NORWOOD
CLIENT
ALDI | CA CA

DRAWING
PERSPECTIVE
SCALE
As indicated
DATE
13/07/18
NORTH

PROJECT NO 28055
DWG NO P34
REVISION 1.0 | CHECKED BE | DRAWN DA



norwood
green.

76 Magill Road

Design Report

Version 1.0

“We speak to the language of city living and laneways; where public open space informs contemporary design to respond to new opportunities for Magill Road and Norwood.”

Contents

EXECUTIVE SUMMARY **5**

SITE CONDITIONS **6**
Urban Context 7
Built Character 10

CONCEPTUAL VISUALISATIONS **13**

DESIGN RESPONSE **18**
Ground Plan 19
Heights 24
Streetscapes 28
Sections 31
Concept 35
Language 43
Palette 46
Materiality 56
Typologies 59
Sustainability 88
Bicycles 91
Storage 92
Shadows 93
Powerline Analysis 94
Site Matrix 95

TEAM **96**

ARCHITECTURAL DRAWINGS **98**

Executive Summary

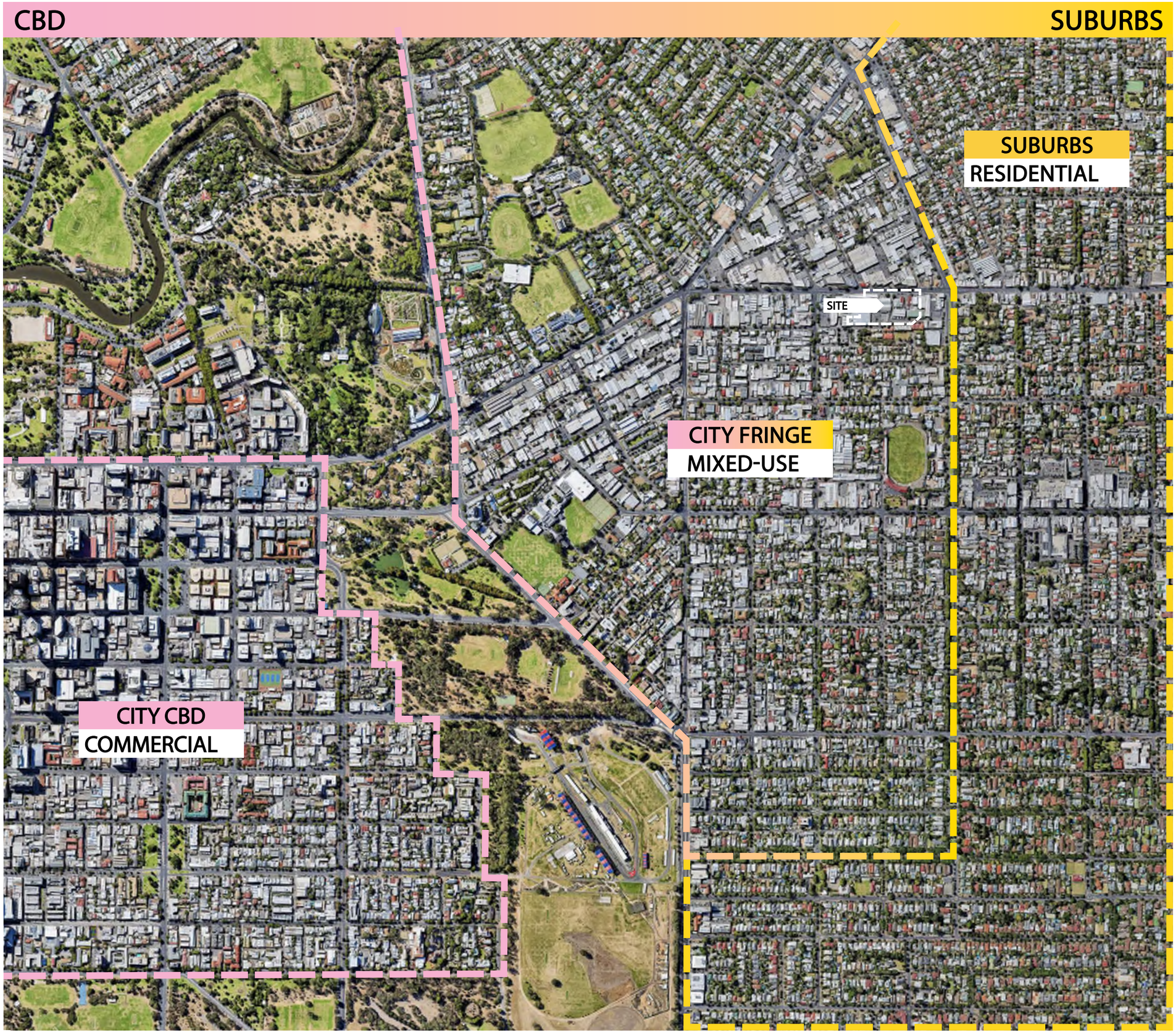
We speak to the language of city living and laneways; where public open space informs contemporary design to respond to new opportunities for Magill Road and Norwood.

Our design response combines a successful development mix with the variable character of Magill Road, Stephens Street and Sydenham Road.

Clever articulation of massing, programmatic distribution, and conceptual responses situate the development within the broader urban interface of Norwood.

This Design Report presents our proposal, elaborating on key issues such as the overall concept, proposed design language and materiality, before a detailed exploration of the multiple dwelling types.

Site Conditions



Urban Context

BROADER CONTEXT

The 19,000m2 (approx) Norwood site presents multiple opportunities. Located within the unique threshold between suburbia and the city, the location features a history of light industry, or, a combination of mixed uses ranging from light industry, commercial, and residential.

Urban Context

DEVELOPMENT ZONES

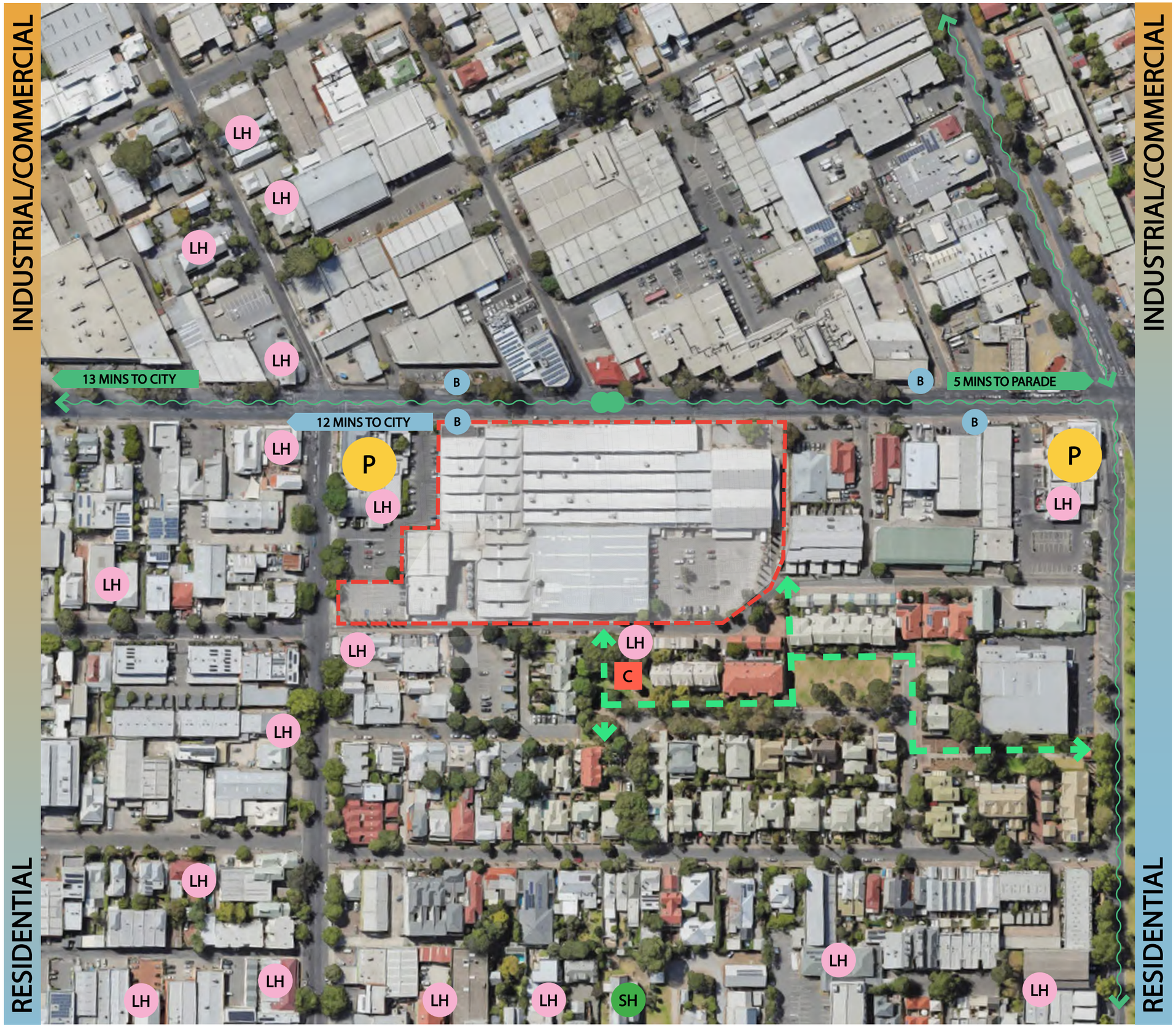
The site is located on 76 Magill Road and sits within a designated Urban Corridor (UC) zone. The UC zone allows for developments of up to 24.50m in height, promoting increased density.

UC	Urban Corridor
LIn	Light Industry
B	Business
MU(A)	Mixed Use A
MU(B)	Mixed Use B
R	Residential
RH(C)	Residential Character
RC(Nwd)	Residential Character (Norwood)
REC	Recreational
LCe(StP)	Local Centre (St Peters)

1:2000 @A3

0 20 40 100M

Urban Context



SITE ANALYSIS

The site is uniquely bordered by two pubs - Republic and the Alma - and connects strategically through a series of urban public green spaces to the East.

- LH — Local Heritage
- SH — State Heritage
- P — Pub
- C — Cultural Artefact (Incinerator)
- B — Bus
- Bicycle
- Public Open Space

1:2000 @A3

0 20 40 100M

Built Character

MAGILL RD

The existing built fabric of Magill Road features multiple building types; combinations of industrial and commercial - with a few recent additions featuring 'box like' forms (image 6). Notably, the corner of Sydenham Road and Magill Road features the Alma pub, whilst the corner of Osmond Terrace and Magill Road has the Republic pub.

1 REPUBLIC NORWOOD

2 CAROMA FACTORY

3 ALMA TAVERN

4 ADJACENT COMMERCIAL TENANCY

5 ADJACENT COMMERCIAL TENANCY

6 ADJACENT COMMERCIAL TENANCY

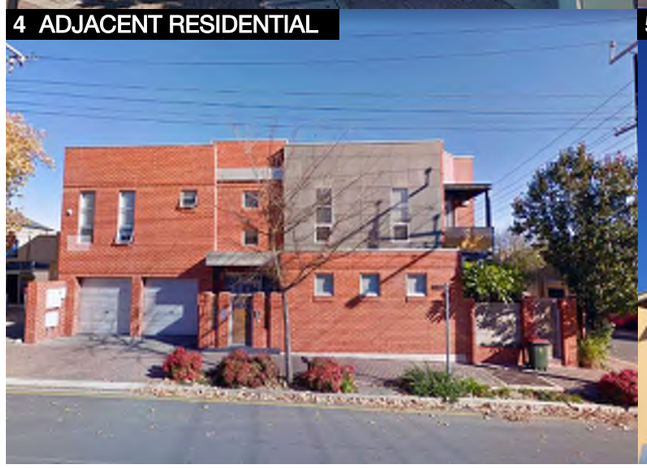
SYDENHAM RD

Sydenham Road features a mix of existing building types, ranging from the Alma Pub, to local heritage structures and residential expressions. Common materiality is brick, with notable pitched-roofs on several properties.

1 ALMA TAVERN

2 ADJACENT LOCAL HERITAGE/COMMERCIAL

3 ADJACENT LOCAL HERITAGE/RESIDENTIAL

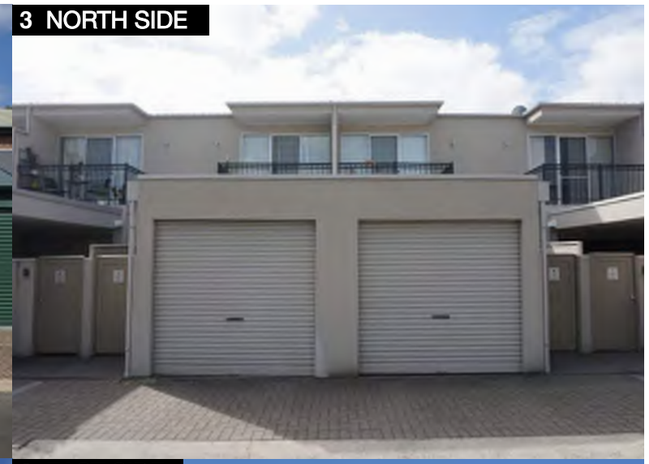

4 ADJACENT RESIDENTIAL

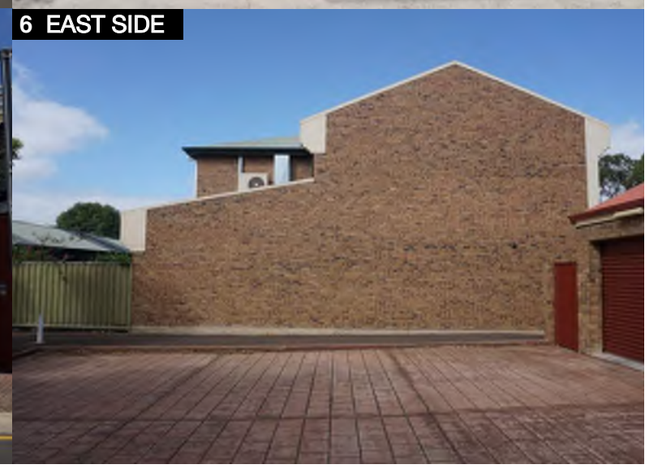
5 ADJACENT RESIDENTIAL

6 ADJACENT RESIDENTIAL

STEPHENS ST

Rear-loaded townhouses are predominant on Stephens Street, with multiple garages.





Conceptual Visualisations

Visual 1

LOOKING SOUTH-EAST

Visual 2

LOOKING NORTH-EAST

Visual 3

LOOKING NORTH-WEST

Visual 4

LOOKING SOUTH-WEST

Design Response

Ground Plan

1:1000 @A3

0 10 20 50M

Ground Plan

MOVEMENT

1:1000 @A3

0 10 20 50M

Ground Plan

SERVICES

1:1000 @A3

0 10 20 50M

Ground Plan

PLANT

1:1000 @A3

0 10 20 50M

Ground Plan

TYPES

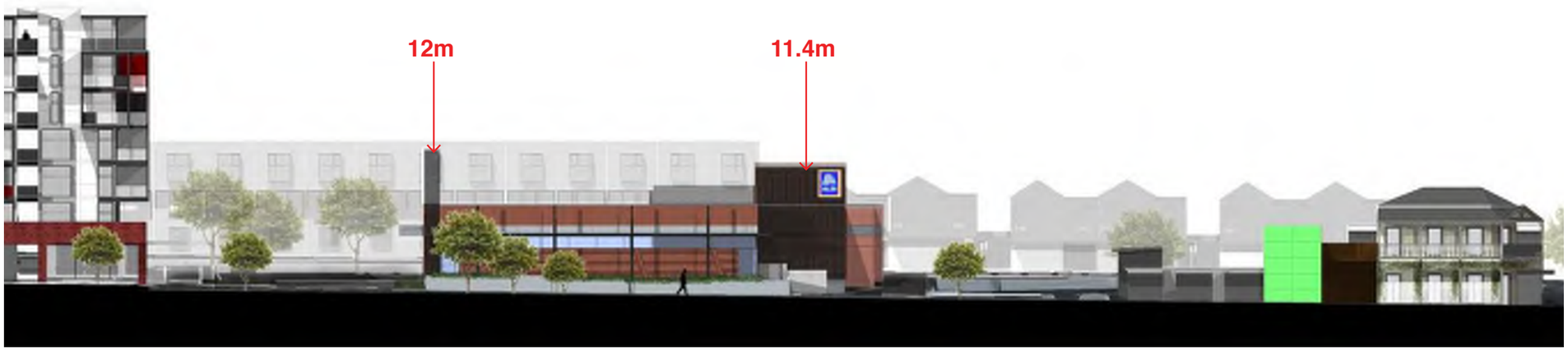
- Apartments
- Townhouse Type A
- Townhouse Type B
- Townhouse Type C
- Townhouse Type D
- ALDI

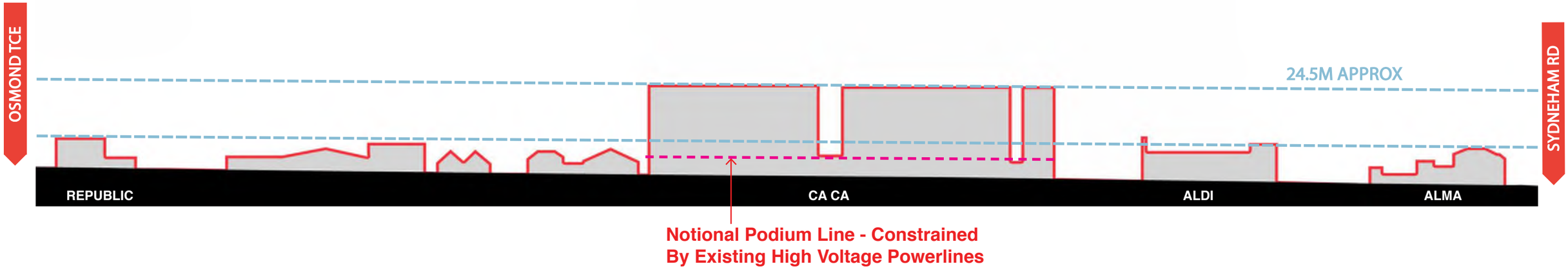
1:1000 @A3

0 10 20 50M

Heights

MAGILL RD





NOT TO SCALE

ALDI
ALDI

ALDI

Streetscapes

Magill Road

Sydenham Road

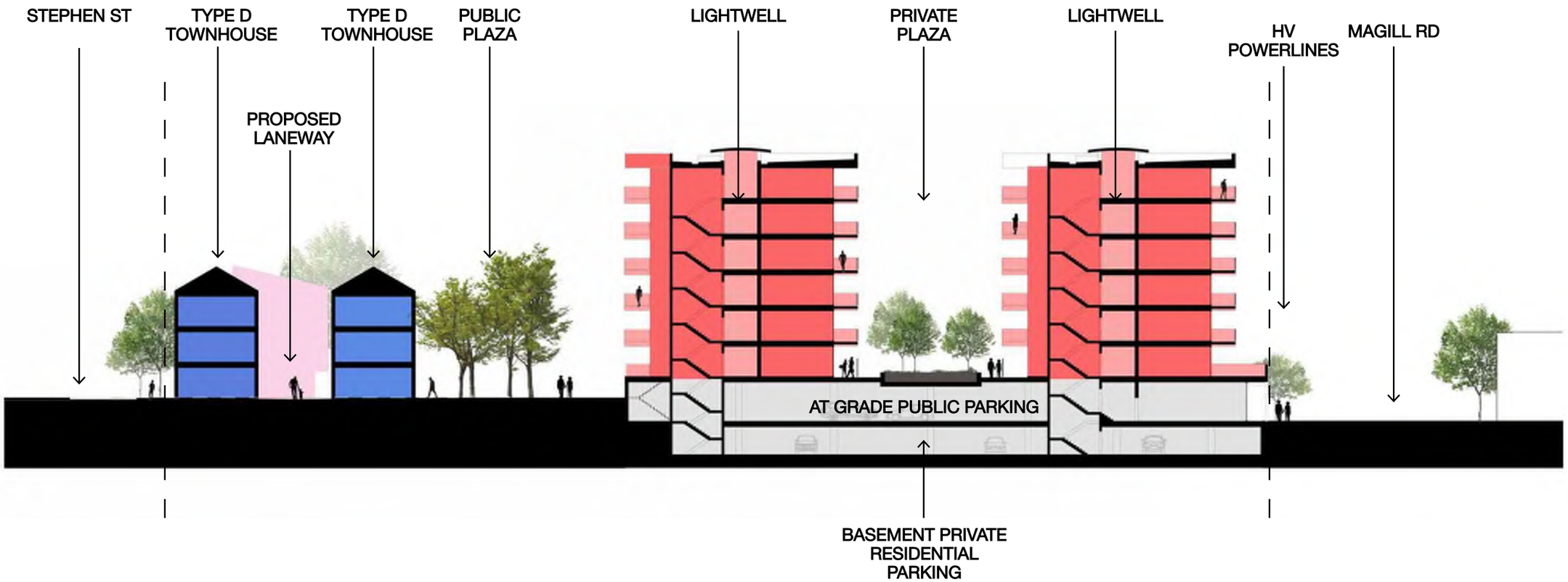
Stephen Street

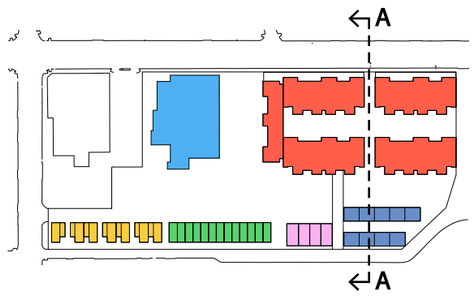
NOT TO SCALE

ALDI
ALDI

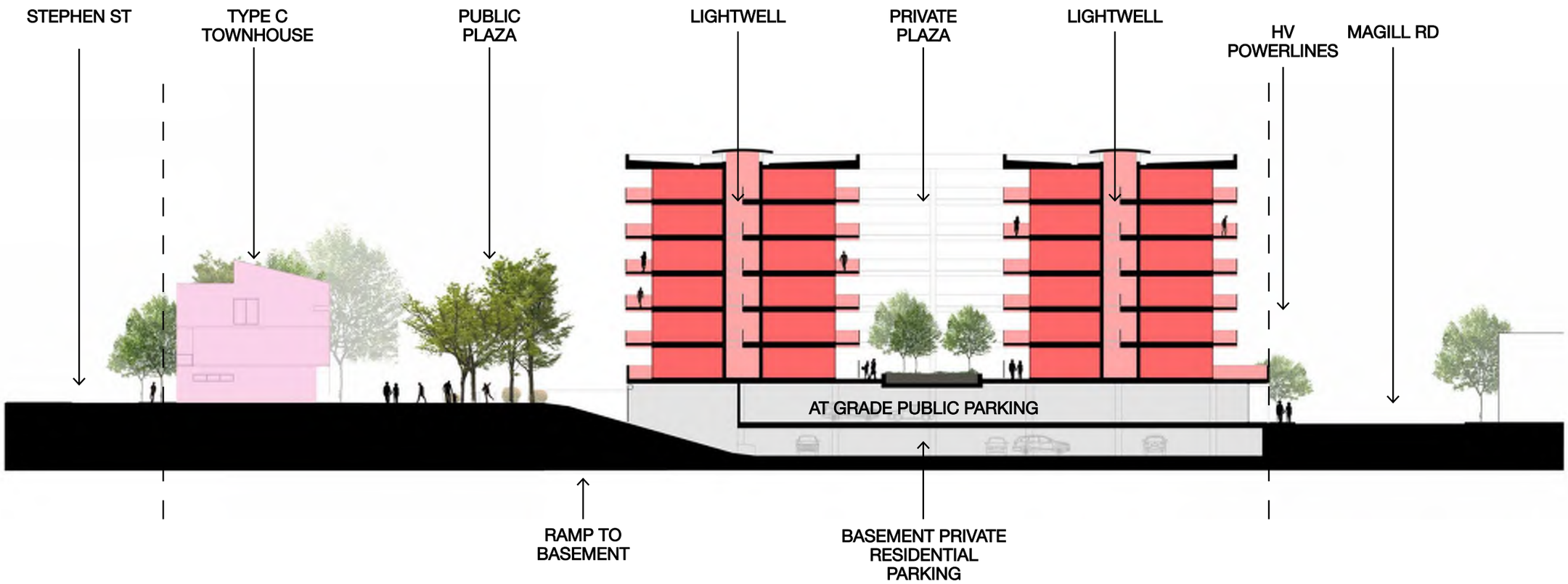
Sections

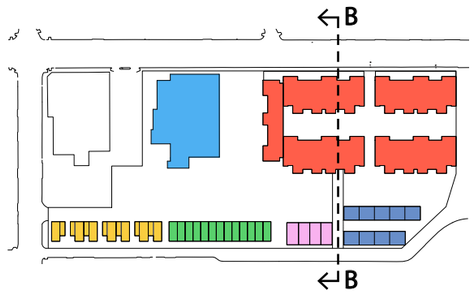
A-A


STEPHEN ST
TYPE D TOWNHOUSE
TYPE D TOWNHOUSE
PUBLIC PLAZA
PROPOSED LANEWAY
LIGHTWELL
PRIVATE PLAZA
LIGHTWELL
HV POWERLINES
MAGILL RD
AT GRADE PUBLIC PARKING
BASEMENT PRIVATE RESIDENTIAL PARKING

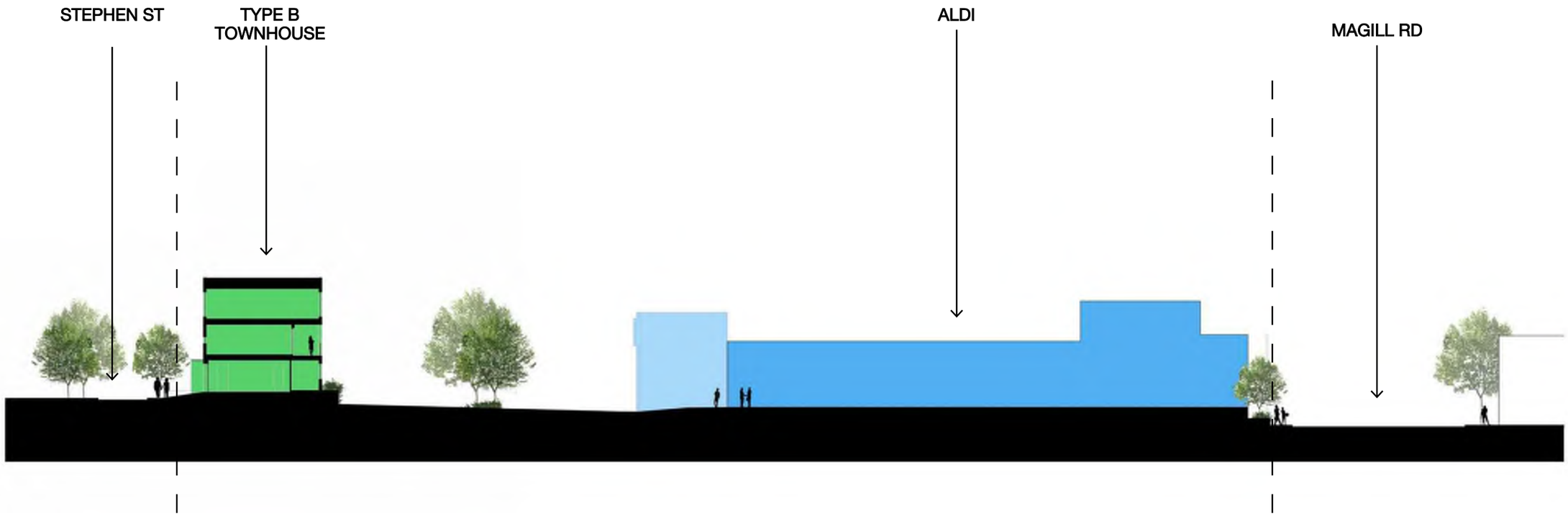

A
A

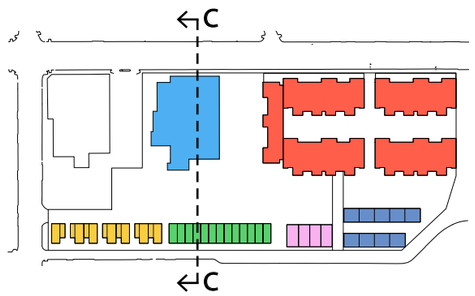
B-B


STEPHEN ST
TYPE C TOWNHOUSE
PUBLIC PLAZA
LIGHTWELL
PRIVATE PLAZA
LIGHTWELL
HV POWERLINES
MAGILL RD
AT GRADE PUBLIC PARKING
RAMP TO BASEMENT
BASEMENT PRIVATE RESIDENTIAL PARKING

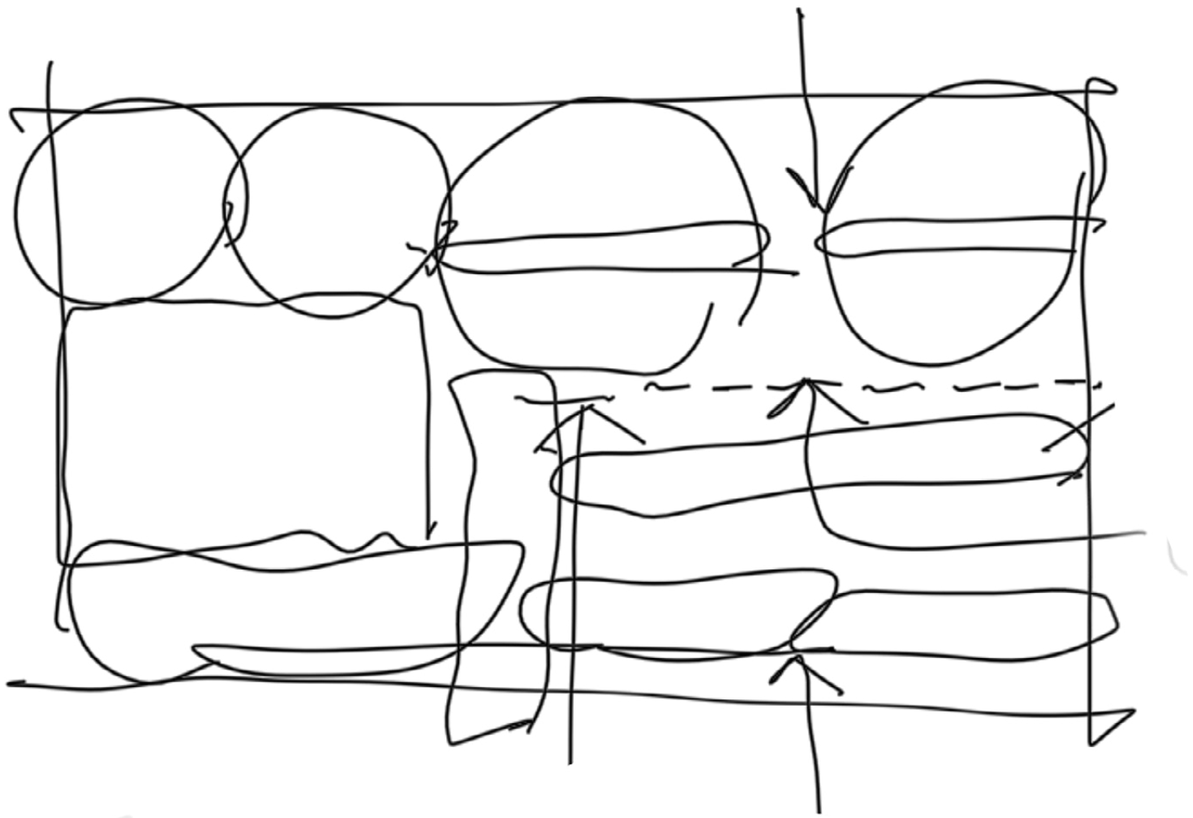

B
B

C-C





Concept



Our concept creates a dialogue between public and private, between historical and contemporary, between the urban and the suburban.

We speak to the language of city living and laneways, to public space and private tenancines. Our design response combines a successful development mix with rich formal explorations that listens to the variable character of Magill Road, Stephens Street and Sydenham Road - and draws on the unique history of the site.

MASSING

The creation of a terraced public realm will allow the proposal to create a productive dialogue between apartments and townhouses. Pitched roofs on the townhouses will create rich vistas and introduce character to the proposal.

The connection to Magill Road will be expressed between the apartments, with an expansive private courtyard creating a unique setting.

Pictured: Gantry Apartments, Camberdown (NSW) by Aspect Studios

INTERFACE

Transitions in scale are assisted with expansive plantings and cleverly designed public and private realms. An overall emphasis on social space has been incorporated.

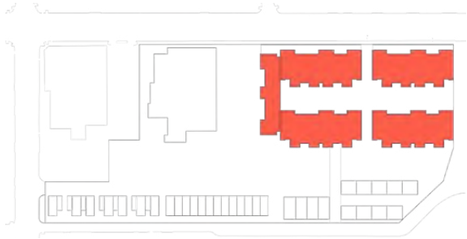
Pictured from left to right:
- Brickwork lane house
- 45 Gilberton by Tectvs
- Luminaire Apartments by Tectvs

FACTORY FLOOR PATTERNING ----------→ FACADE DETAILING

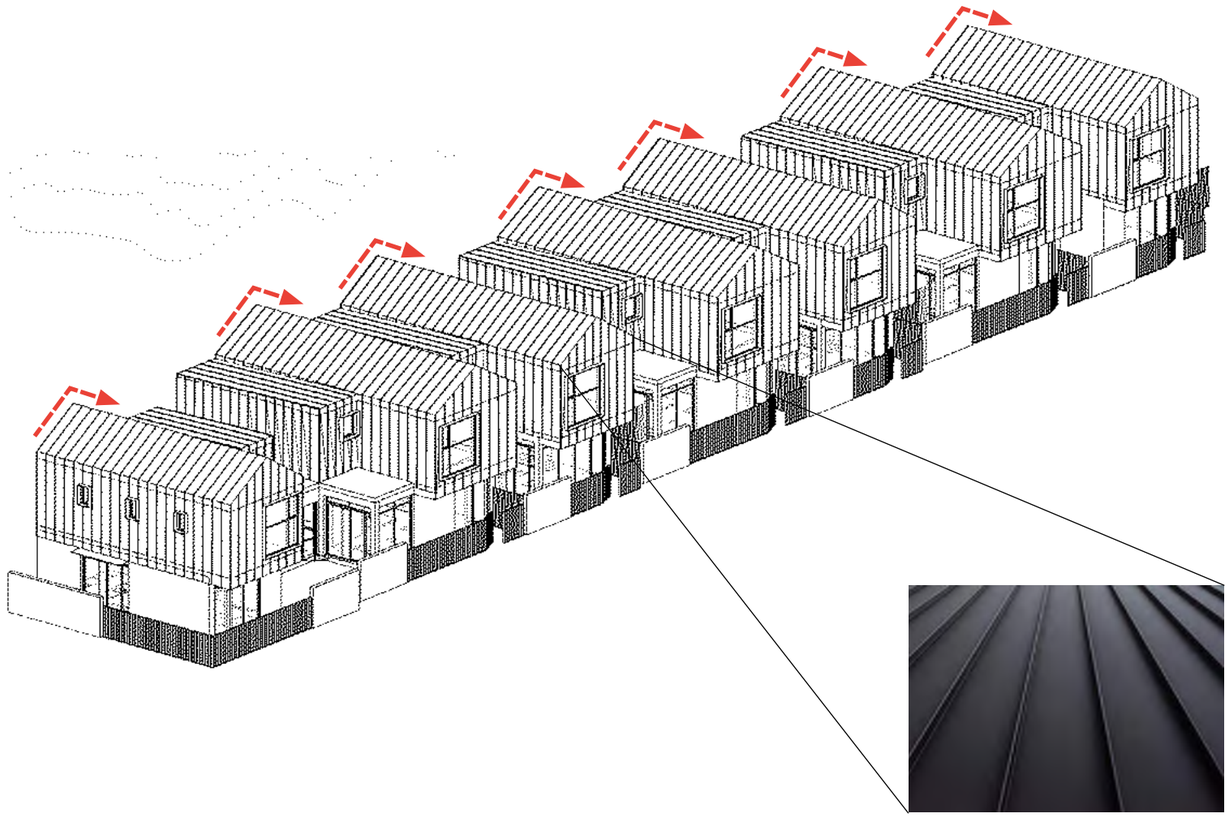
APARTMENTS

The design of our facade draws on the Caroma factory's existing colour coding scheme and floor patterning. Originally used to delineate pedestrian/equipment/ vehicular zones and provide high visibility, its interpretation across the facade will articulate the apartments' various formal and programmatic changes.

Colour and application shown to be used as a guide only.

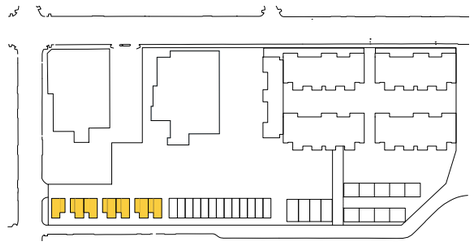


PITCHED ROOF ----------→ PITCHED ROOF

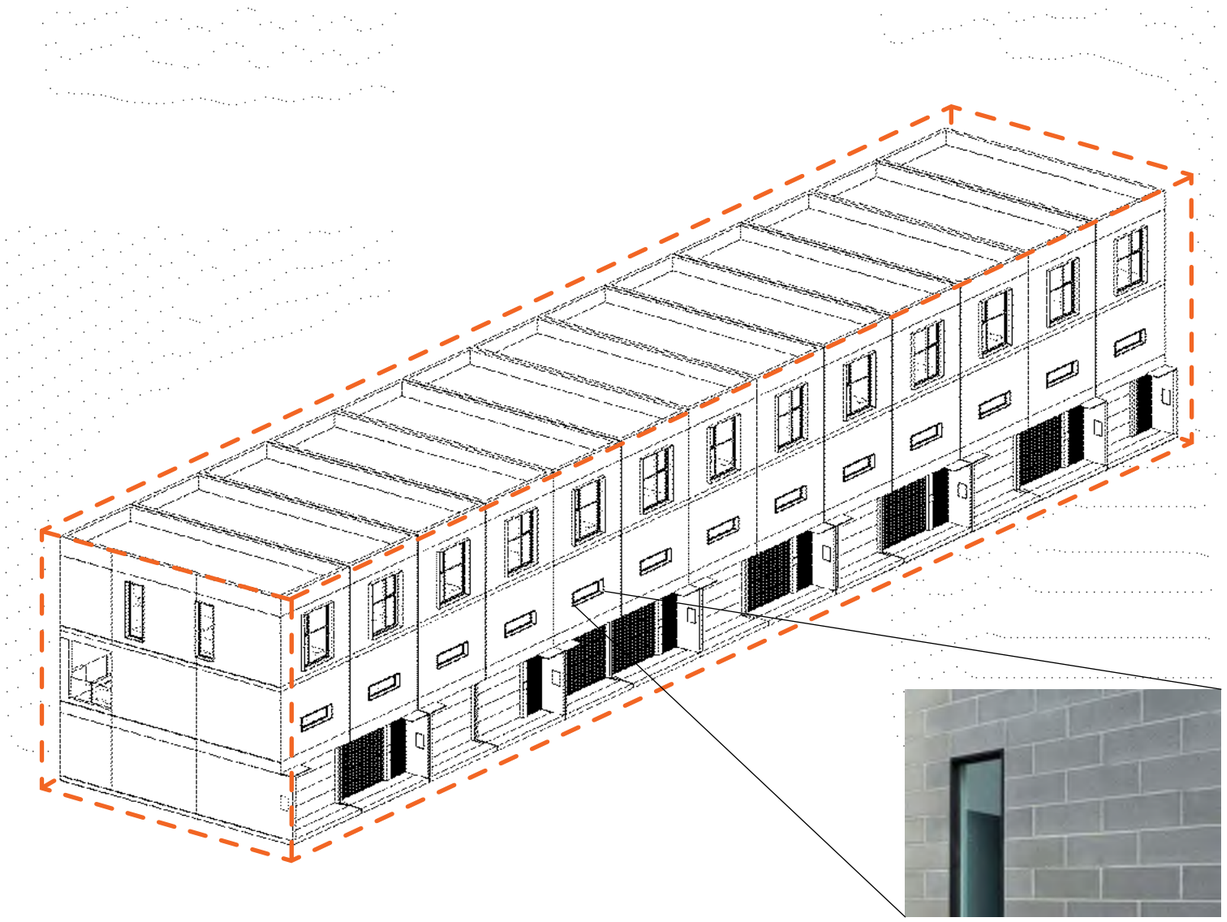


TOWNHOUSE TYPE A

Confident and clean pitched roofs are clad in metal to reference to the neighbouring Alma hotel and nearby townhouses.

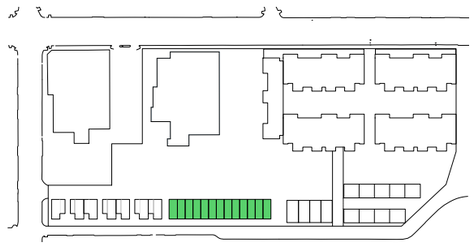


BOX FACTORY HERITAGE ----------→ INDUSTRIAL, BOX-LIKE FORM

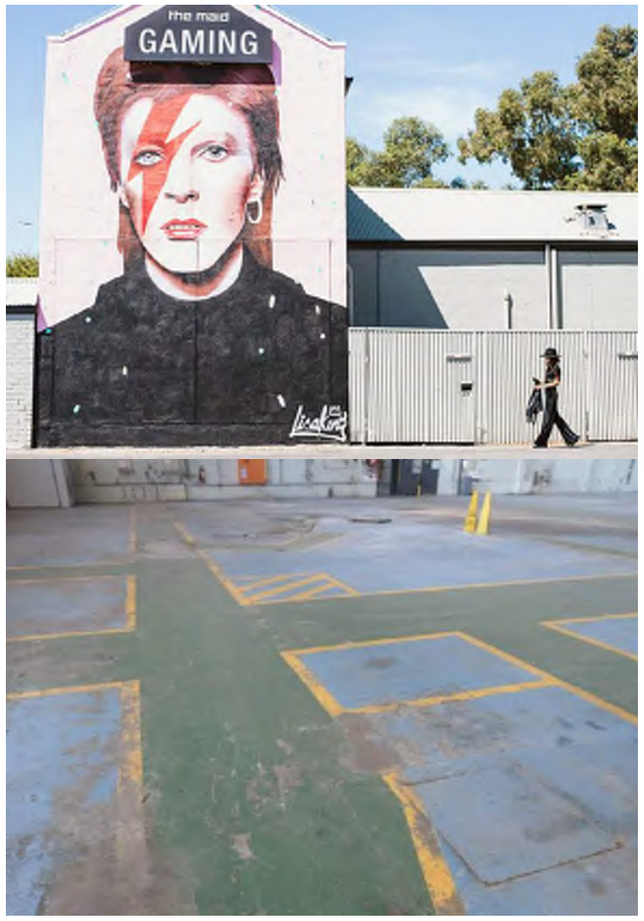


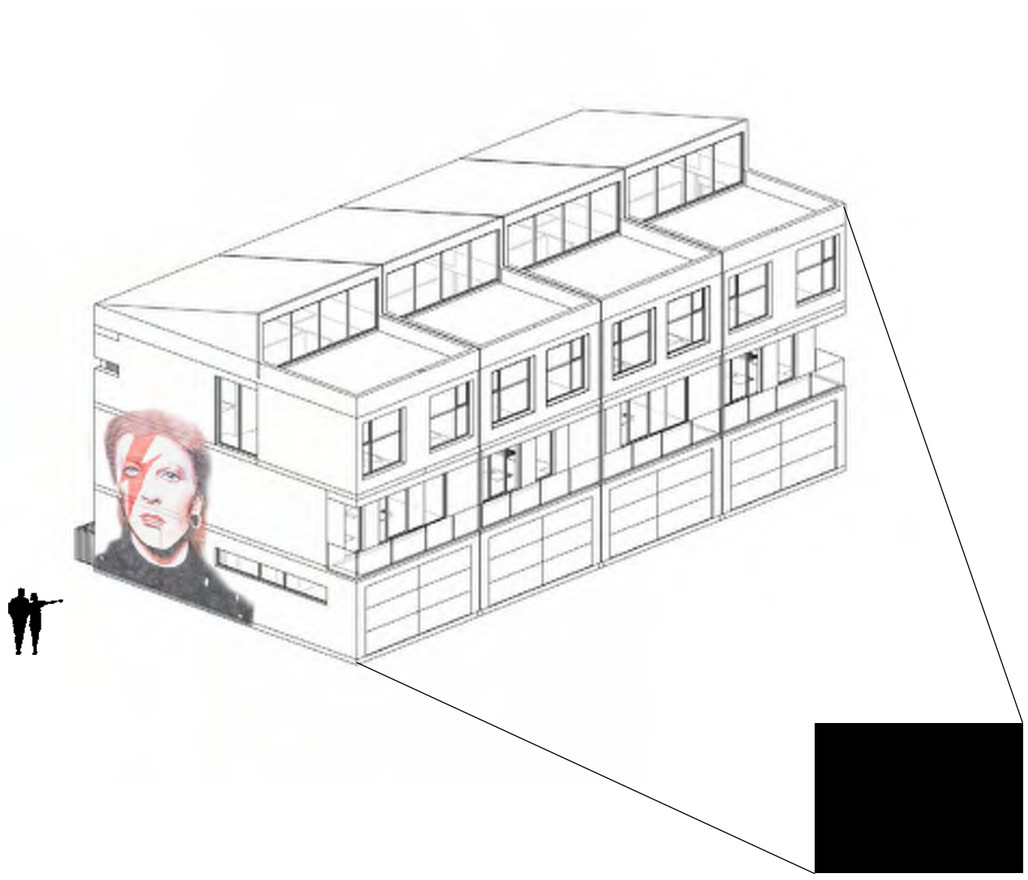
TOWNHOUSE TYPE B

We draw on the extended history of the site as a former box factory with a series of industrial, almost box-like townhouses. To be constructed in blockwork to emphasise the strong industrial forms and honest material language.



STREET ART ----------→ STREET-ART



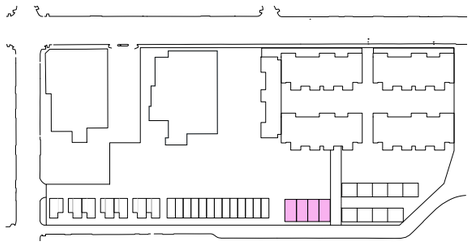


TOWNHOUSE TYPE C

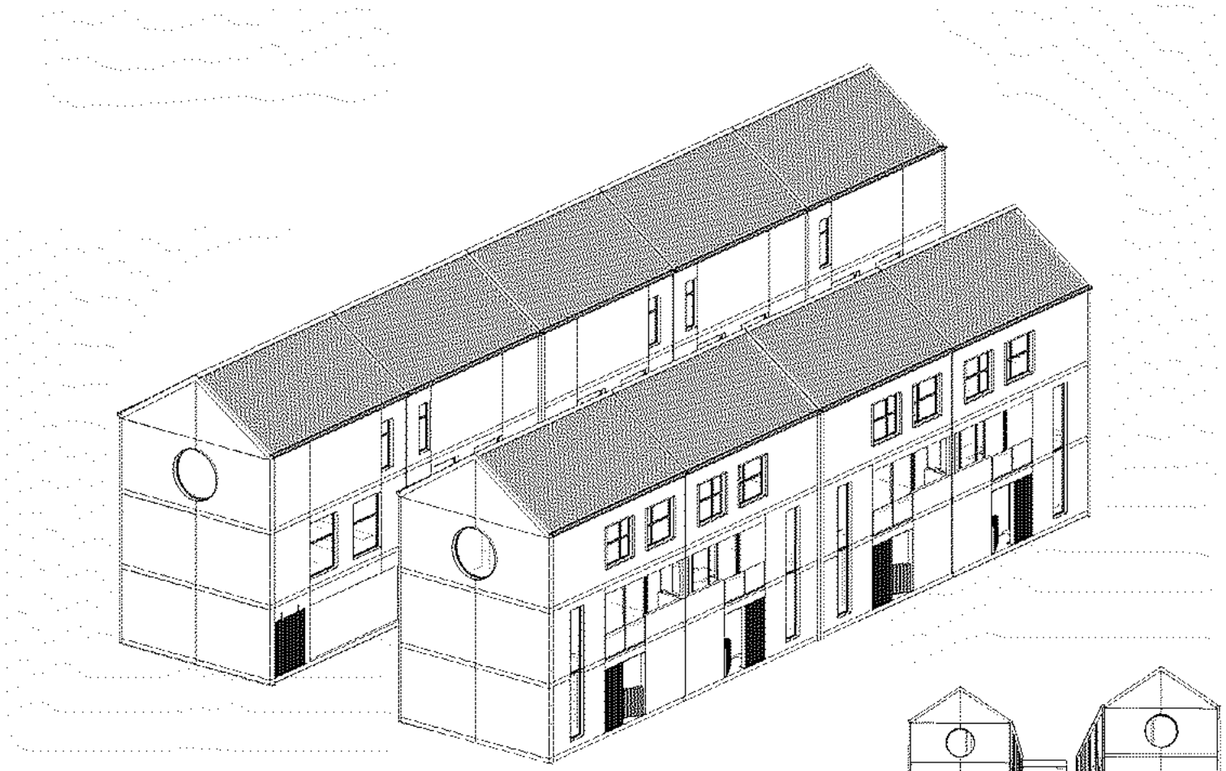
We reference the area's contemporary urban influences with feature walls on the East and West side providing space for urban street art.

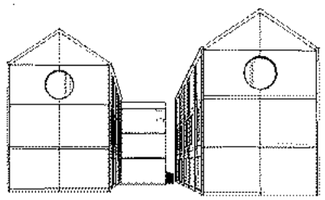
Pictured: David Bowie mural at the 'Maid & Magpie' hotel on Magill Road.

Note: conceptual art shown here to be viewed as a guide only.

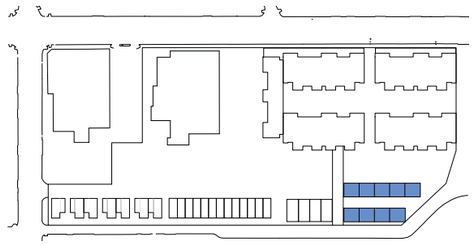


PITCHED ROOF & PORTHOLES ----------→ PITCHED ROOF & PORTHOLES





Long range views looking East from Stephens Street



TOWNHOUSE TYPE D

We draw on the language of neigbouring townhouses with roof-lines that produce an iconic cultural reference.

Language

PRECINCT

We propose a vibrant mixed-use precinct that combines public space with a range of dwelling types.

Pictured clockwise from left:
- Halifax Precinct by Tectvs
- Air Apartments by Tectvs
- Gallery on Waymouth by Tectvs
- Alta Apartments by Tectvs
- Ebenezer Place, various projects by Tectvs

APARTMENTS

Apartments are proposed to be contemporary in style, with creative facade articulation that combines a series of interpretive yet functional elements with pops of colour.

Pictured clockwise from left:

- Luminaire apartments, Bowden, by Tectvs
- Air Apartments by Tectvs
- Luminaire Apartments, Bowden, by Tectvs
- Merchant Quarter Apartments by Jasmax (Auckland)
- Air Apartments by Tectvs

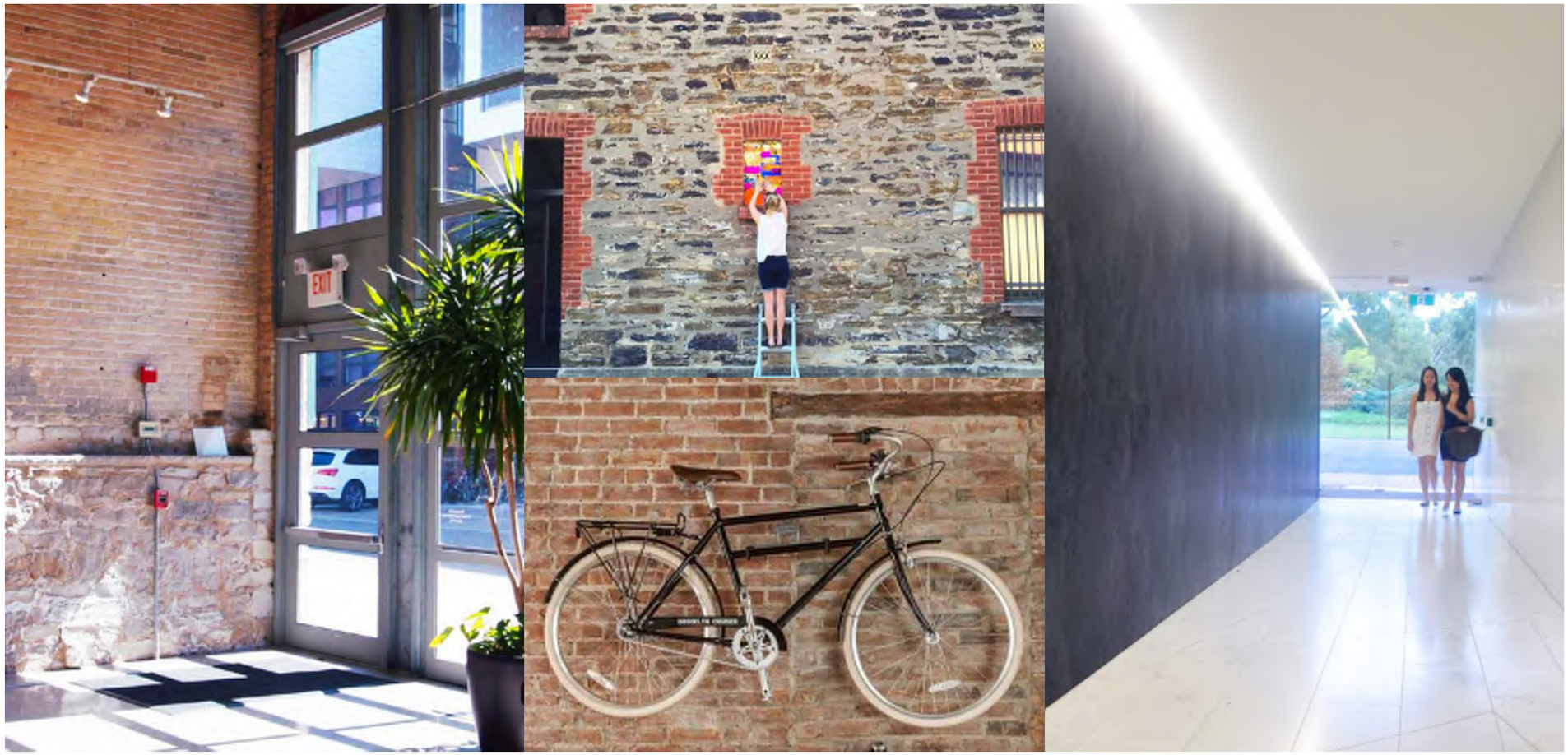
TOWNHOUSES

Townhouses are proposed to reflect the nearby lane culture and industrial history of the site. Two and Three storey townhouses will create a laneway feel, with brickwork, blockwork and colour combining with various roof lines to add character.

Palette

ENTRIES

Entryways are proposed to be creative, contemporary in their conversation with the former industrial nature of the site.



Pictured clockwise from left:
- Light filled entrances meet rich materiality
- Field Street Offices by Tectvs
- Alta Apartments by Tectvs
- Bike storage

ENTRIES

Entries and lobby areas are made apparent through their height, scale and colour.

Statements made to the street and reserves strengthen their presence and assist in wayfinding gestures through block coloured lobbies.

ENTRY OFF MAGILL ROAD

ENTRY OFF PRIVATE RESERVE

Cameo

MAGILL ROAD ENTRANCE

A study of the pedestrian entrance off Magill Road highlights a prominent and inviting space drawing movement in and through the site.

The required transformer is appropriately treated and visually screened through mesh further softened by landscaping.

Cameo

SOUTH EASTERN ENTRANCE

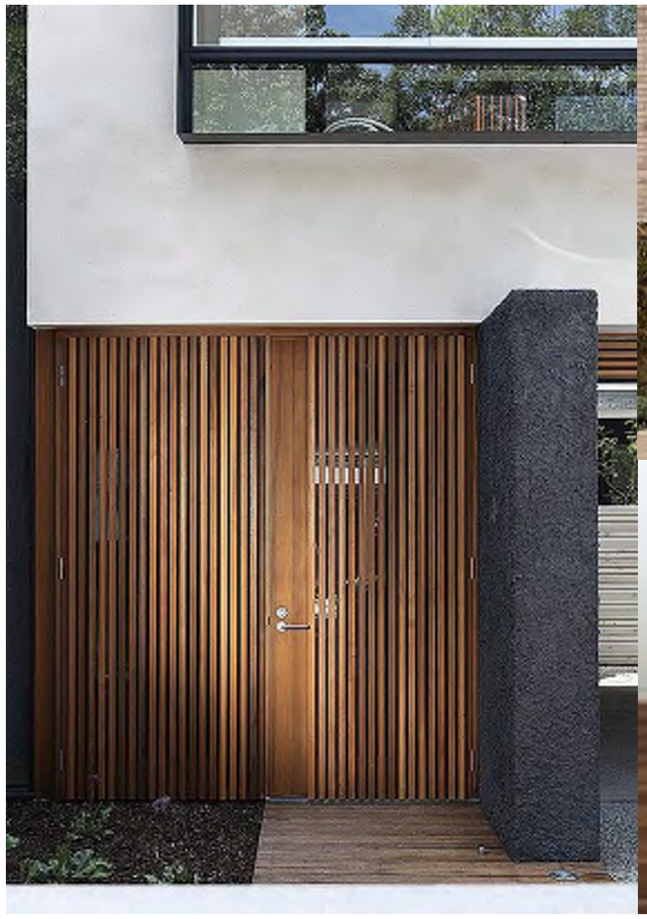
A study of the proposed entrance at the south east corner of the site off Stephen Street.

An inviting and open entrance from the south east corner of the site provides another connection promoting pedestrian circulation through the site.

The waste presentation area is accommodated and visually treated, softening its impact through strategic landscaping.

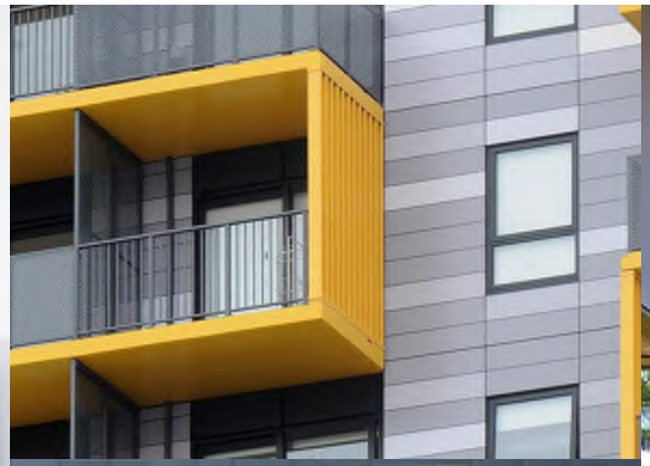
Cameo

STEPHEN STREET ENTRANCE



DOORS

Doors are proposed to be creative, contemporary in their conversation with the former industrial nature of the site.

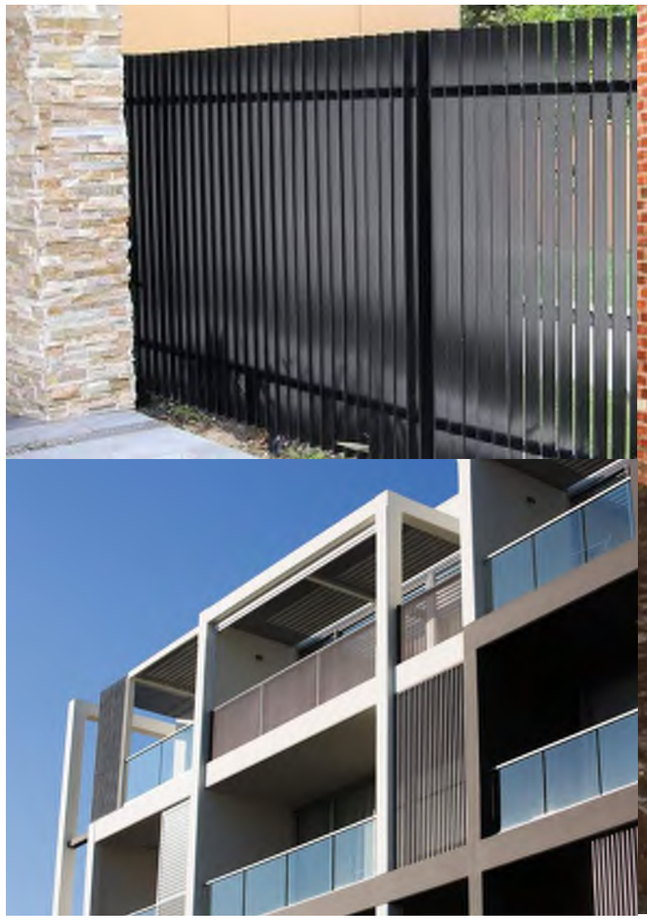


WINDOWS

Clean lines, contemporary and hard-wearing windows are proposed. A variation between open and framed views will be played with to direct and express advantageous viewpoints.

BALUSTRADES

Clean lines, contemporary and hard-wearing balustrades are proposed. Colour will be used in key locations to articulate and animate the facade.



FENCING/SCREENS

Proposed fencing ranges from steel and timber styles, and adds character to the Stephens Street lane.

GARAGE DOORS

The townhouse entries and garage doors are proposed to speak to the urban and industrial nature of the site. Materiality such as brick, timber and metal cladding is proposed to be used alongside similar, hard wearing solutions.

Private, sheltered and secure entries will be integrated and detailed to bring character to each townhouse type.

Materiality

Contemporary finishes are paired with hard-wearing industrial materials.

Paint Finish Type 1
Black Magic

Paint Finish Type 2
China White

Paint Finish Type 3
Quagmire

Paint Finish Type 4
Burnished Russet

Paint Finish Type 5
Arid Land

Face Brick Type 1
Charcoal

Face Brick Type 2
White

Face Brick Type 3
Red

Face Block Type 4
Grey

Glass Type 1
Clear

Glass Type 2
Grey

Glass Type 3
Translucent

Window Frame 1
Anodised

Window Frame 2
Black

Window Frame 3
White

Balustrade 1
Clear Glass

Balustrade 2
Grey Glass

Balustrade 3
Opaque Panel

Balustrade 4
Metal Screen

Metal Cladding 1
Monument

Metal Cladding 2
Surfmist

Metal Cladding 3
Heritage Galv

Garage Door 1
Monument

Garage Door 2
Surfmist

Garage Door 3
Polycarbonate

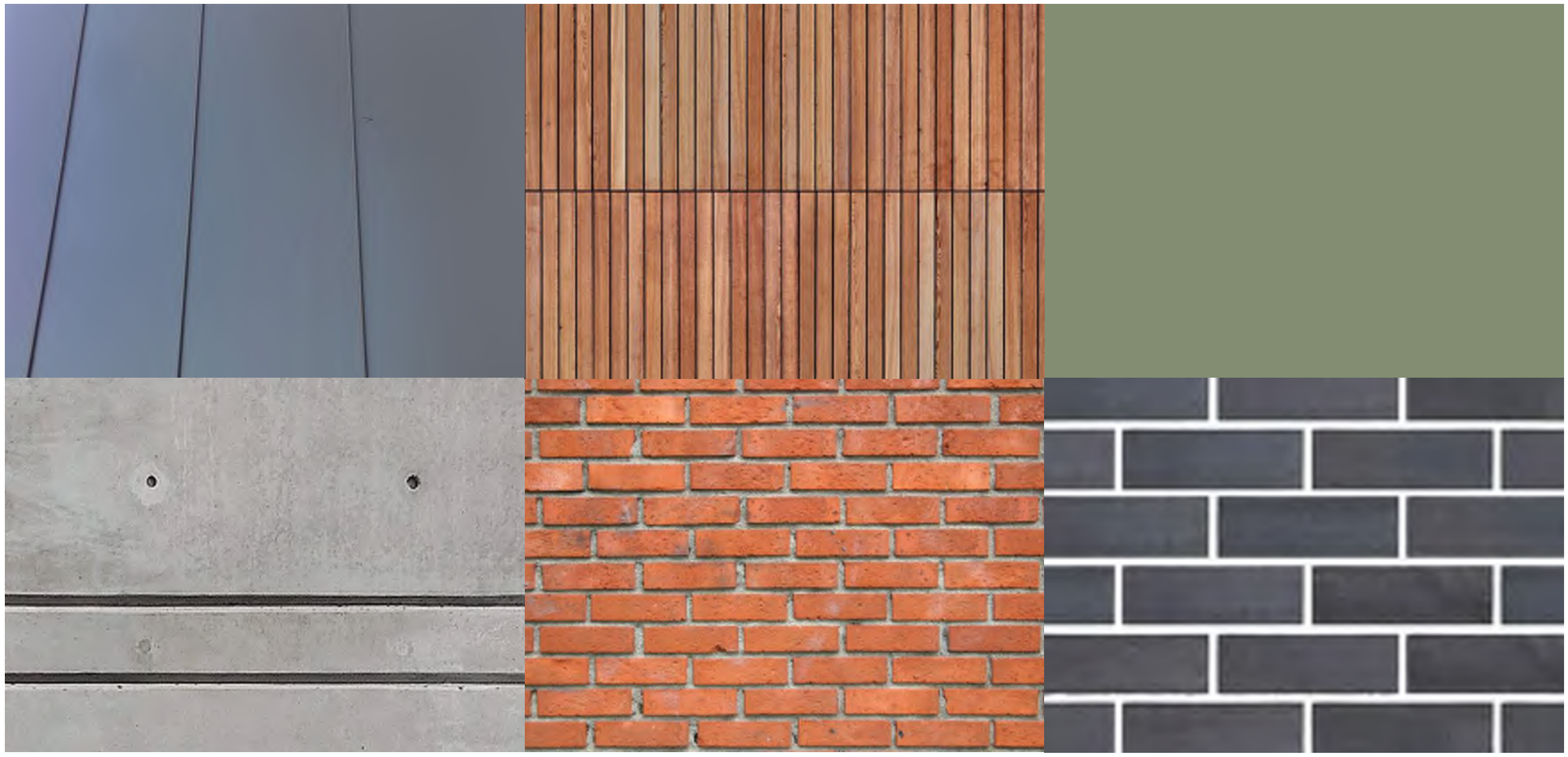
Timber 1
Spotted Gum

Timber 2
Painted

APARTMENTS

Proposed apartment materials speak to the contemporary, with pops of colour

Pictured are a sample selection of the proposed materials.



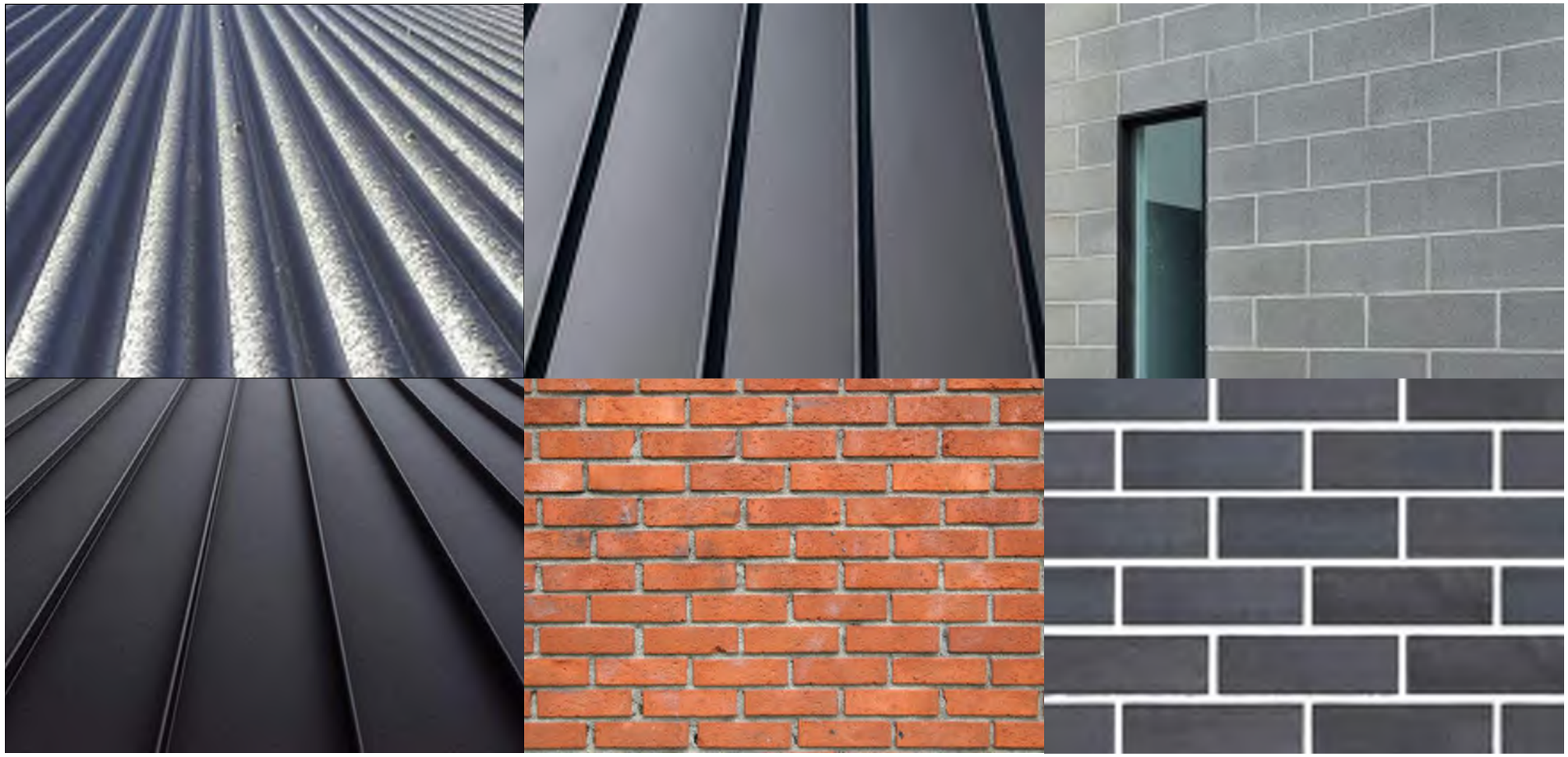
Clockwise from top left:

- Balustrade panel
- Timber: spotted gum
- Paint finish
- Charcoal brick
- Red brick
- Pre-cast concrete

TOWNHOUSES

Proposed townhouse materials play on the laneway culture, with a combination of brickwork and blockwork interspersed with pops of colour and rich materiality such as timber.

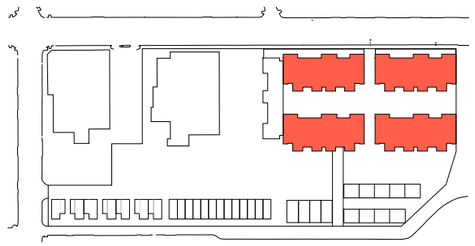
Pictured are a sample selection of the proposed materials.

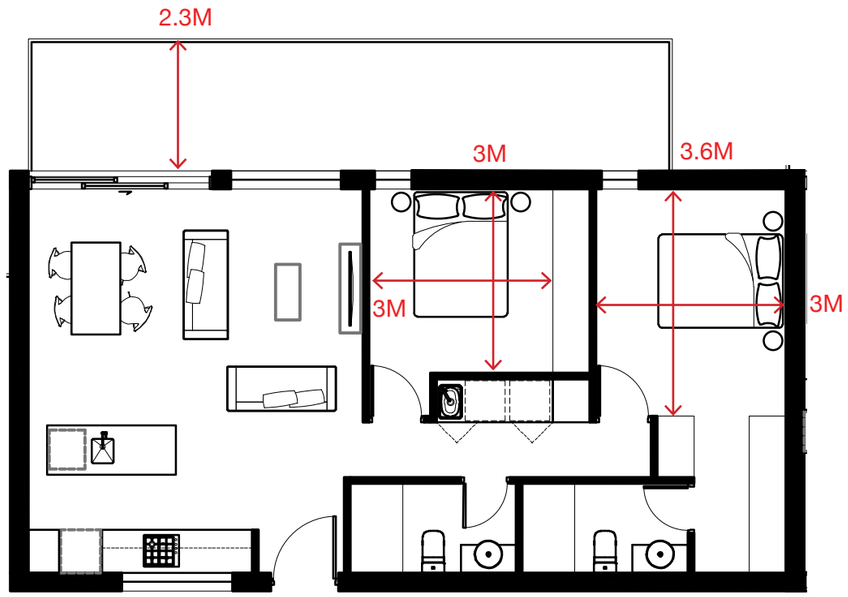


Clockwise from top left:

- Heritage Galv
- Garage door: Monument
- Blockwork: grey
- Charcoal brick
- Red brick
- Metal cladding: monument

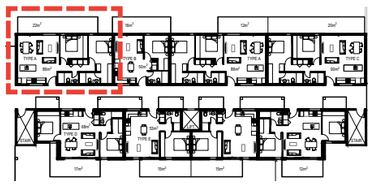
APARTMENTS TYPE A-H

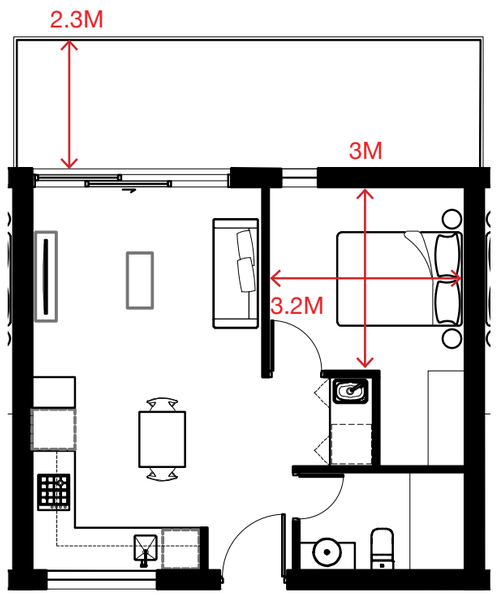




APARTMENT TYPE A

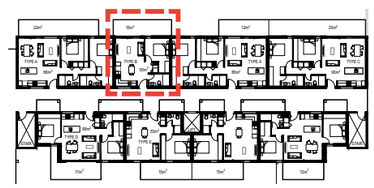
BEDROOMS	2
BATHROOMS	2
AREA	86m²
POS	Varies
STORAGE	6m³
ORIENTATION	N
PARKING	1 (U/ground)
LOCATION (BLDGS)	A, B, C, D
LOCATION (FL(S))	1, 2, 3, 4, 5
TOTALS	38

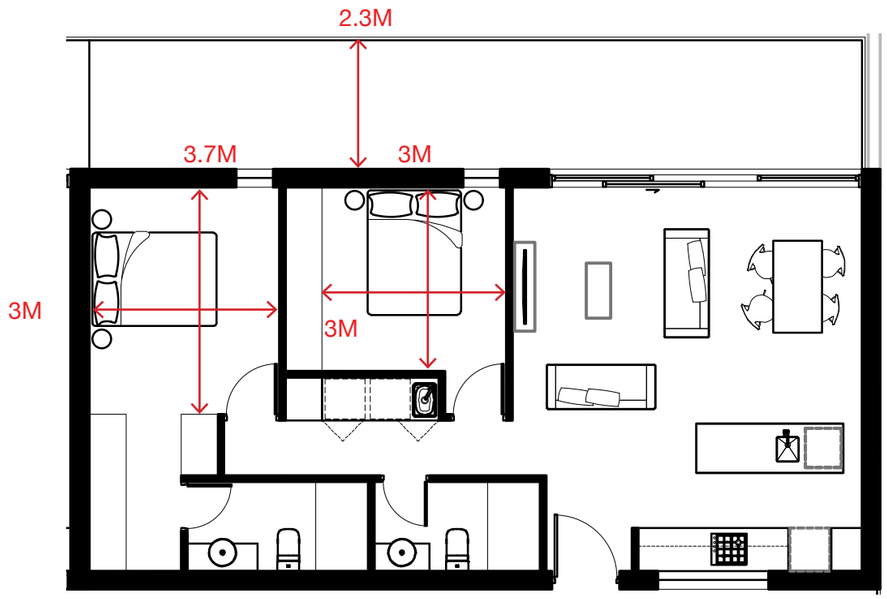




APARTMENT TYPE B

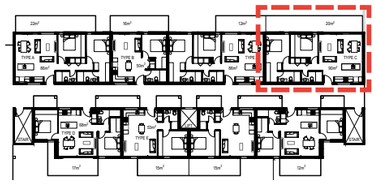
BEDROOMS	1
BATHROOMS	1
AREA	50m²
POS	Varies
STORAGE	3m³
ORIENTATION	N
PARKING	1 (U/ground)
LOCATION (BLDGS)	A, B, C, D
LOCATION (FL(S))	1, 2, 3, 4, 5
TOTALS	18

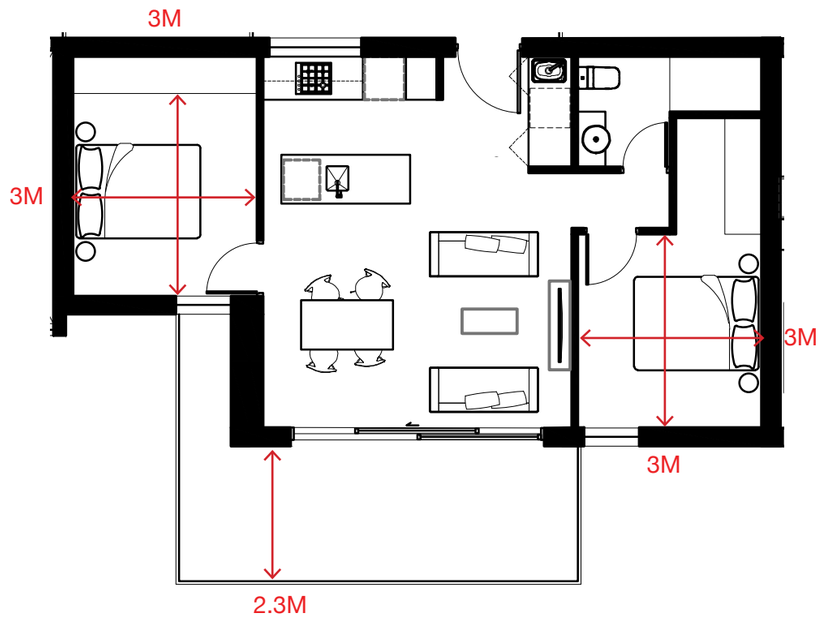




APARTMENT TYPE C

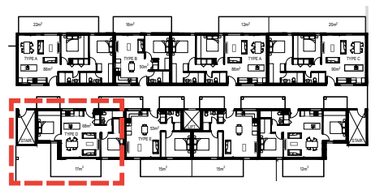
BEDROOMS	2
BATHROOMS	2
AREA	90m²
POS	Varies
STORAGE	6m³
ORIENTATION	N
PARKING	1 (U/ground)
LOCATION (BLDGS)	A, B, C, D
LOCATION (FL(S))	1, 2, 3, 4, 5
TOTALS	20

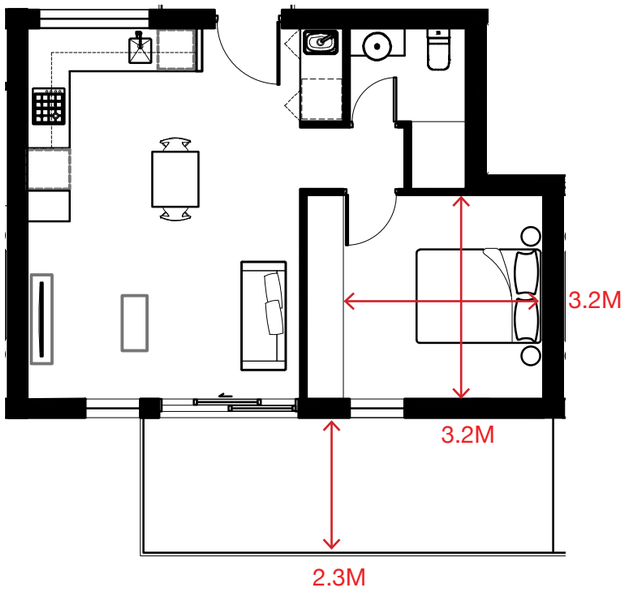




APARTMENT TYPE D

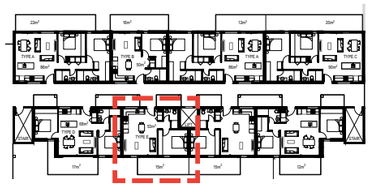
BEDROOMS	2
BATHROOMS	1
AREA	68m²
POS	Varies
STORAGE	3m³
ORIENTATION	S
PARKING	1 (U/ground)
LOCATION (BLDGS)	A, B, C, D
LOCATION (FL(S))	1, 2, 3, 4, 5, 6
TOTALS	38

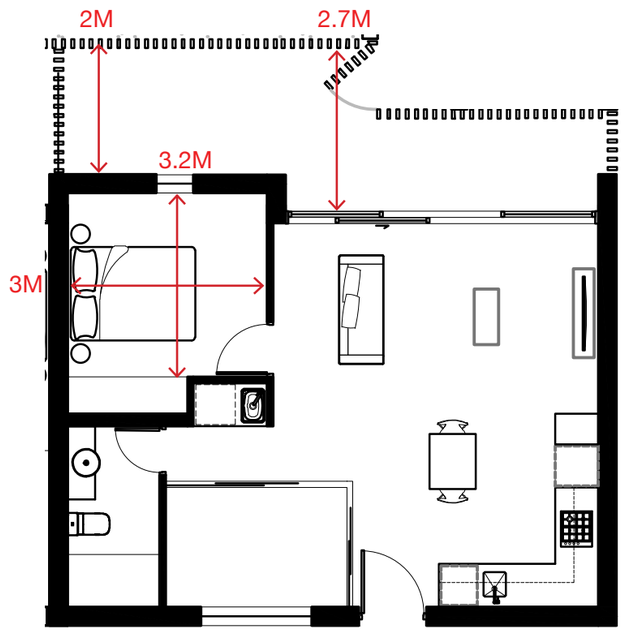




APARTMENT TYPE E

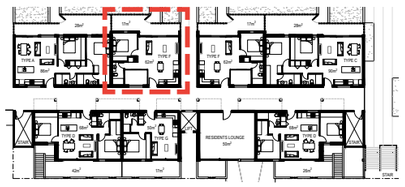
BEDROOMS	1
BATHROOMS	1
AREA	53
POS	Varies
STORAGE	External
ORIENTATION	S
PARKING	1 (U/ground)
LOCATION (BLDGS)	A, B, C, D
LOCATION (FL(S))	1, 2, 3, 4, 5, 6
TOTALS	44

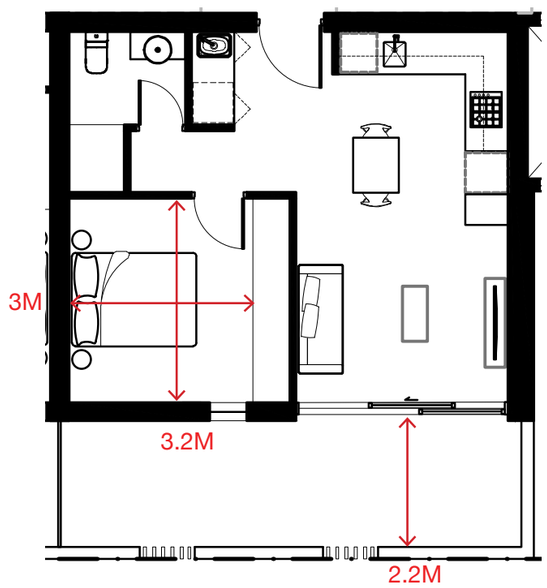




APARTMENT TYPE F

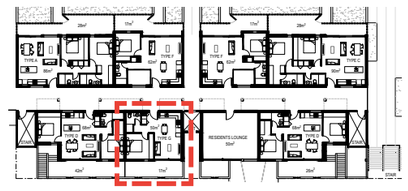
BEDROOMS	1.5
BATHROOMS	1
AREA	62m²
POS	Varies
STORAGE	External
ORIENTATION	N
PARKING	1 (U/ground)
LOCATION (BLDGS)	C, D
LOCATION (FL(S))	1
TOTALS	4

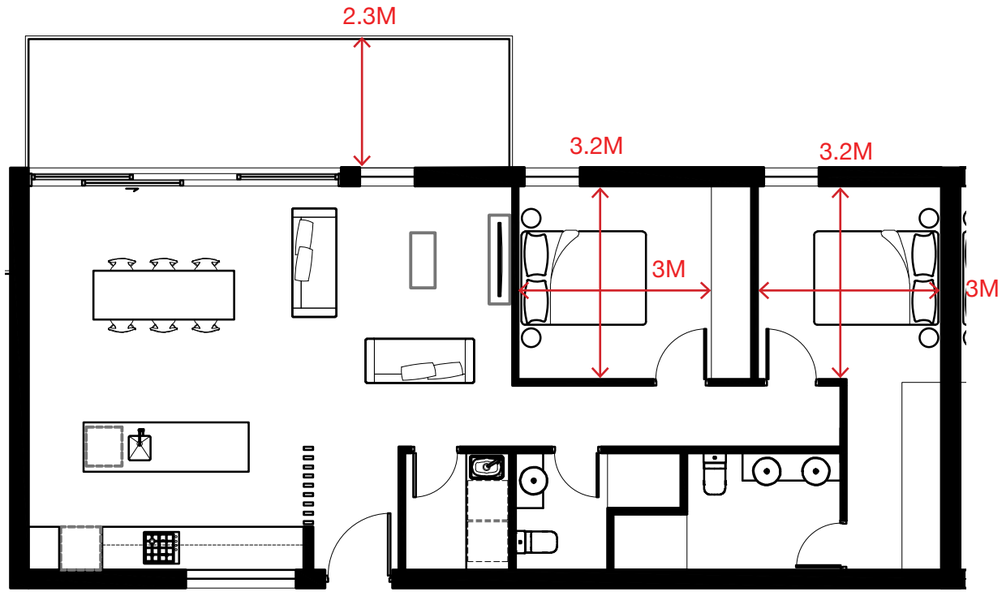




APARTMENT TYPE G

BEDROOMS	1
BATHROOMS	1
AREA	50m²
POS	Varies
STORAGE	External
ORIENTATION	S
PARKING	1 (U/ground)
LOCATION (BLDGS)	C, D
LOCATION (FL(S))	1
TOTALS	3

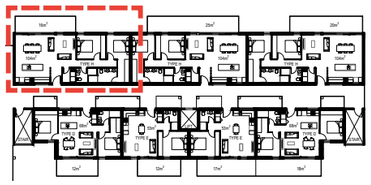




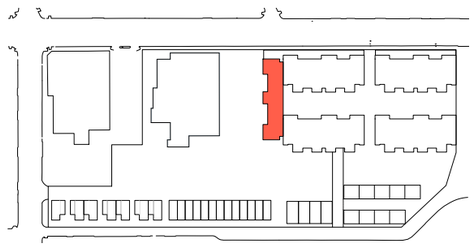
APARTMENT TYPE H

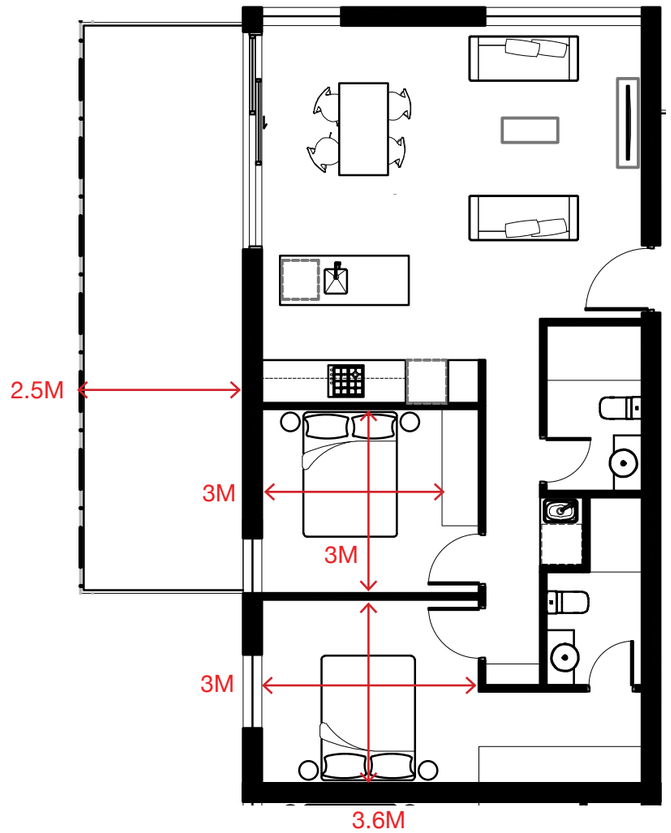
BEDROOMS	2
BATHROOMS	2
AREA	104m²
POS	Varies
STORAGE	5m³
ORIENTATION	N
PARKING	1 (U/ground)
LOCATION (BLDGS)	A, B, C, D
LOCATION (FL(S))	6
TOTALS	12

TYPICAL - H



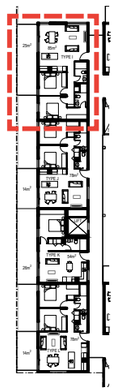
APARTMENTS TYPE I-J

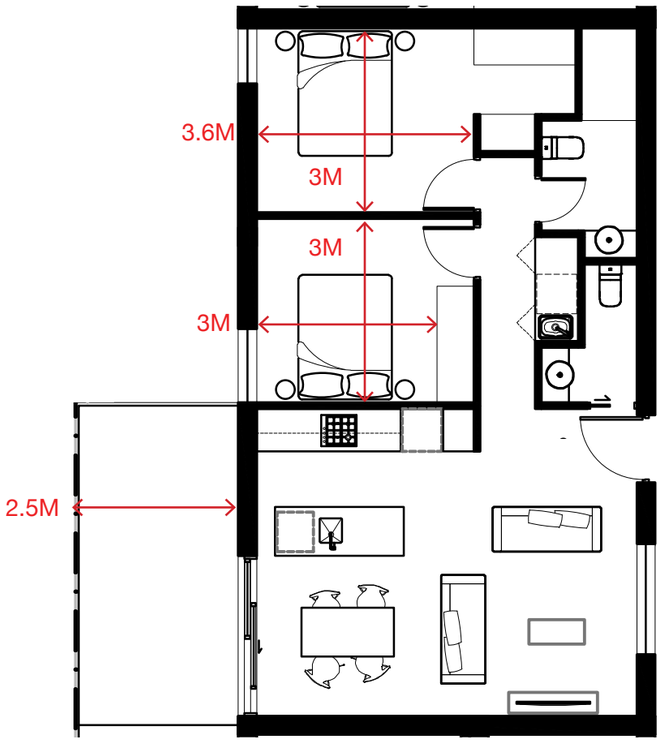




APARTMENT TYPE I

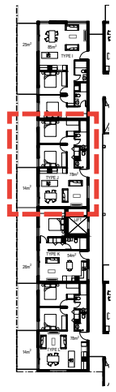
BEDROOMS	2
BATHROOMS	2
AREA	85m²
POS	Varies
STORAGE	5m³
ORIENTATION	W
PARKING	1 (U/ground)
LOCATION (BLDGS)	E
LOCATION (FL(S))	1, 2, 3
TOTALS	3

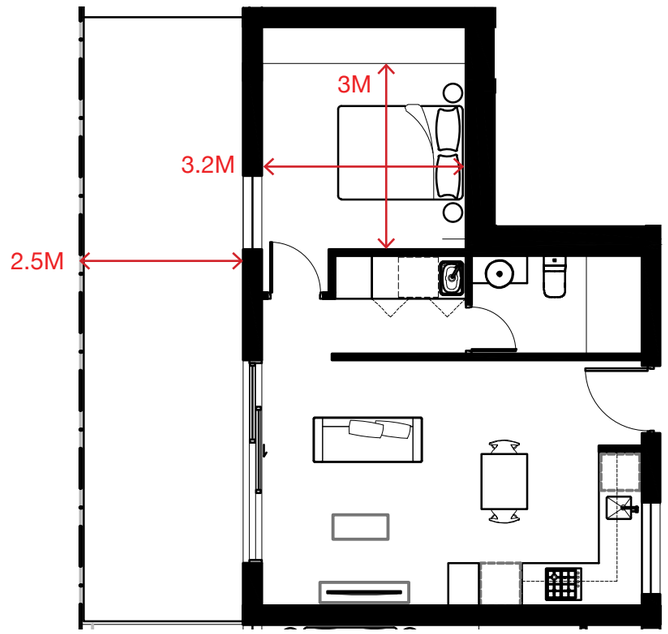




APARTMENT TYPE J

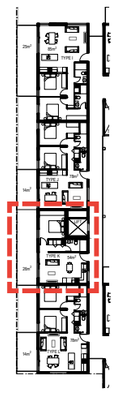
BEDROOMS	2
BATHROOMS	1.5B
AREA	78m²
POS	Varies
STORAGE	4m³
ORIENTATION	W
PARKING	1 (U/ground)
LOCATION (BLDGS)	E
LOCATION (FL(S))	1, 2, 3
TOTALS	3

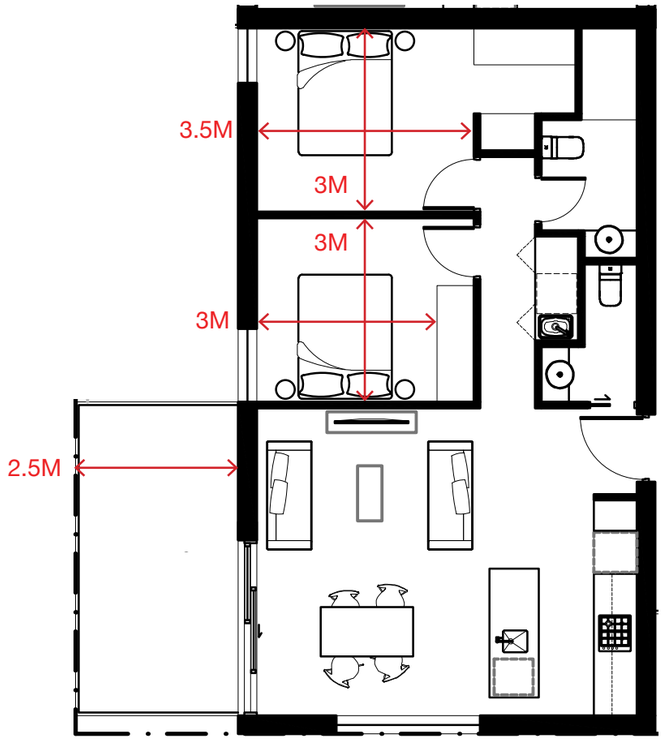




APARTMENT TYPE K

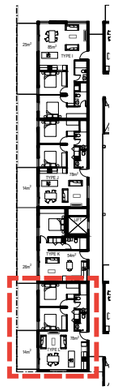
BEDROOMS	1
BATHROOMS	1
AREA	54m²
POS	Varies
STORAGE	2m³
ORIENTATION	W
PARKING	1 (U/ground)
LOCATION (BLDGS)	E
LOCATION (FL(S))	1, 2, 3
TOTALS	3

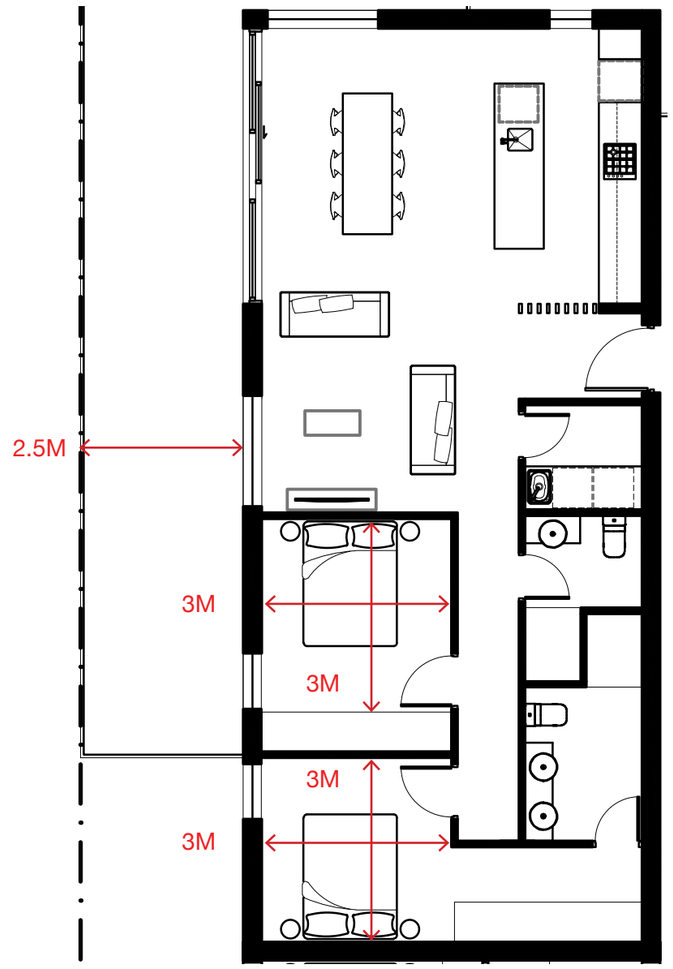




APARTMENT TYPE L

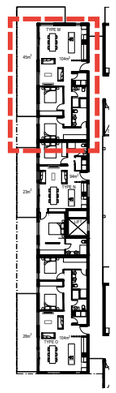
BEDROOMS	2
BATHROOMS	2
AREA	78m²
POS	Varies
STORAGE	5m³
ORIENTATION	W
PARKING	1 (U/ground)
LOCATION (BLDGS)	E
LOCATION (FL(S))	1, 2, 3
TOTALS	3

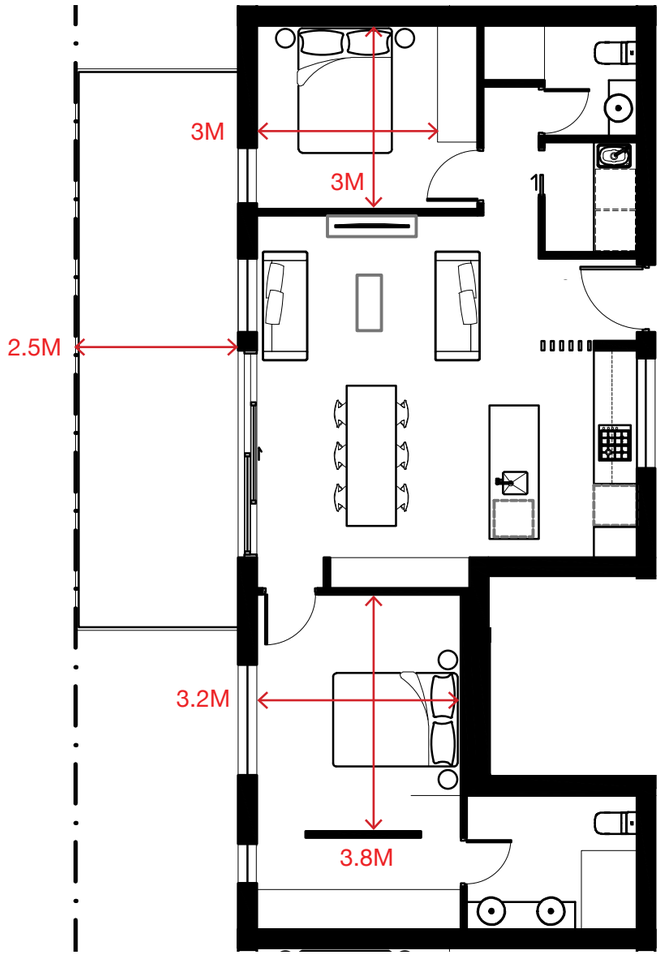




APARTMENT TYPE M

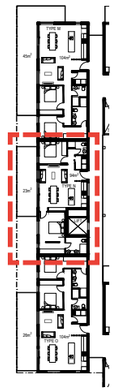
BEDROOMS	2
BATHROOMS	2
AREA	104m²
POS	Varies
STORAGE	5m³
ORIENTATION	W
PARKING	1 (U/ground)
LOCATION (BLDGS)	E
LOCATION (FL(S))	4, 5, 6
TOTALS	3

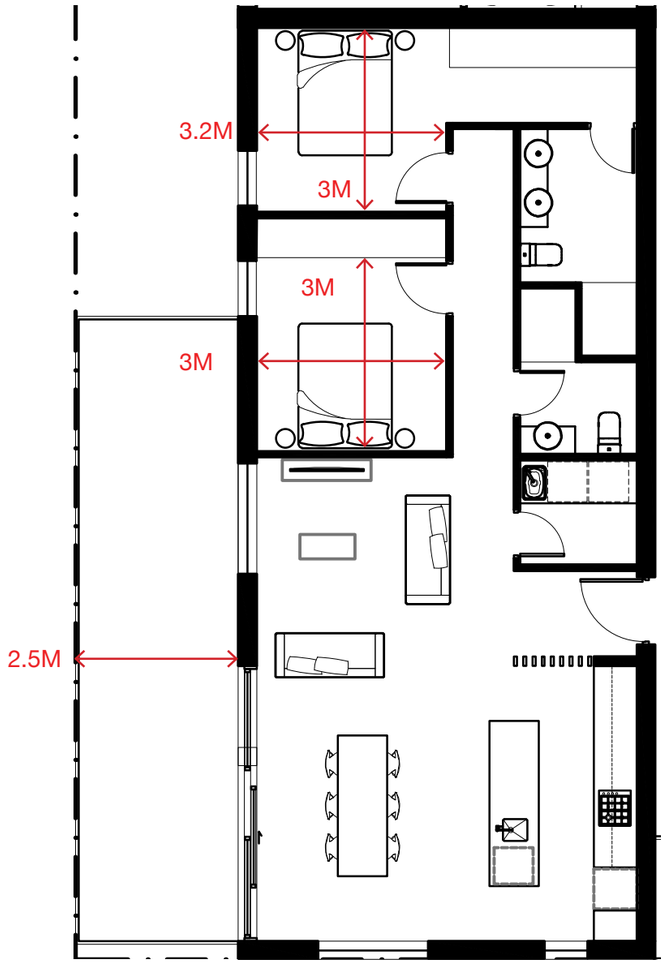




APARTMENT TYPE N

BEDROOMS	2
BATHROOMS	2
AREA	94m²
POS	Varies
STORAGE	5m³
ORIENTATION	W
PARKING	1 (U/ground)
LOCATION (BLDGS)	E
LOCATION (FL(S))	4, 5, 6
TOTALS	3

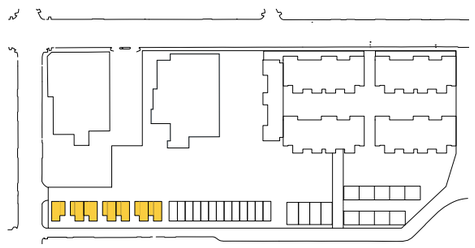


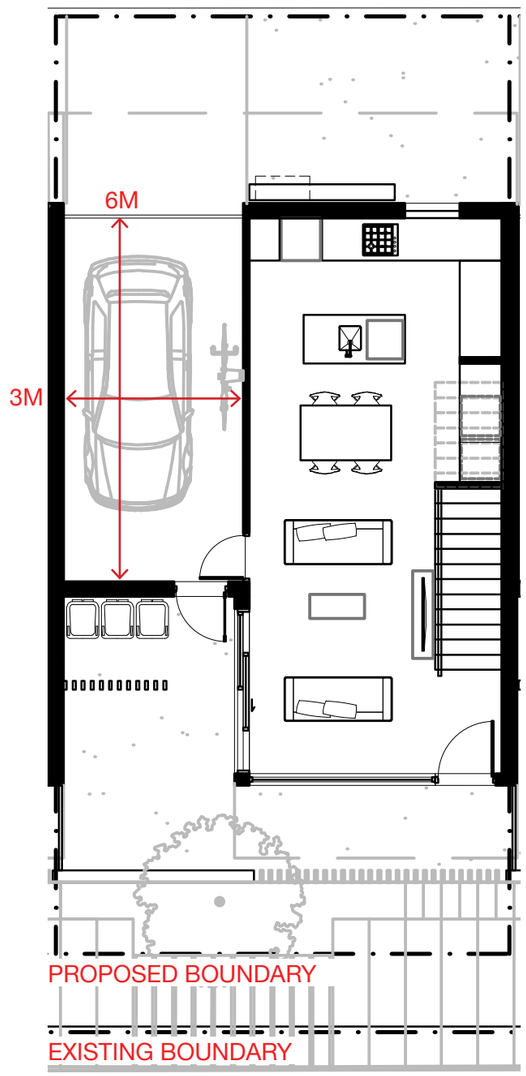


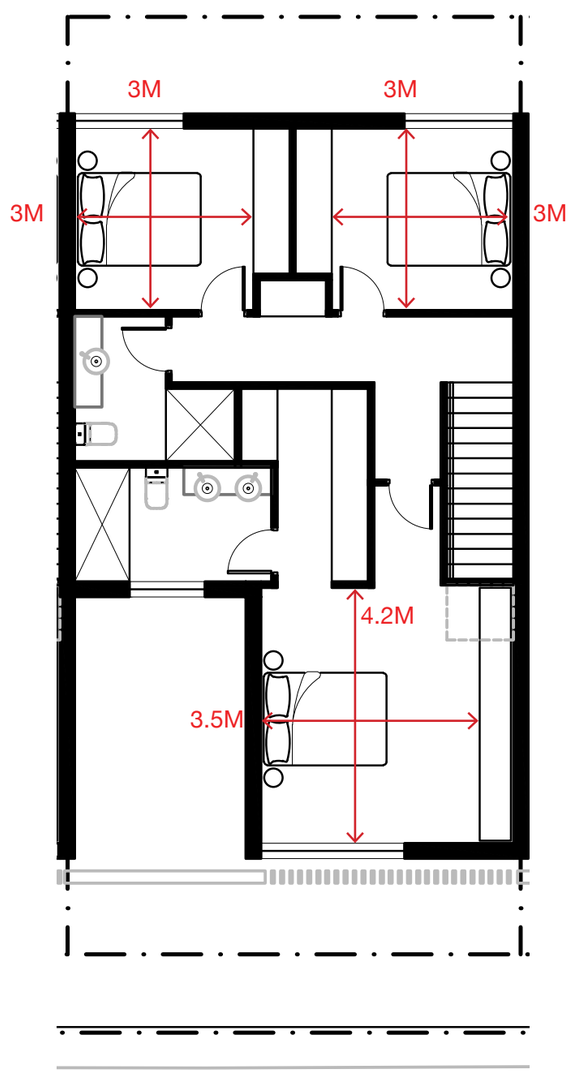
APARTMENT TYPE O

BEDROOMS	2
BATHROOMS	2
AREA	104m²
POS	Varies
STORAGE	5m³
ORIENTATION	W
PARKING	1 (U/ground)
LOCATION (BLDGS)	E
LOCATION (FL(S))	4, 5, 6
TOTALS	3

TOWNHOUSE TYPE A

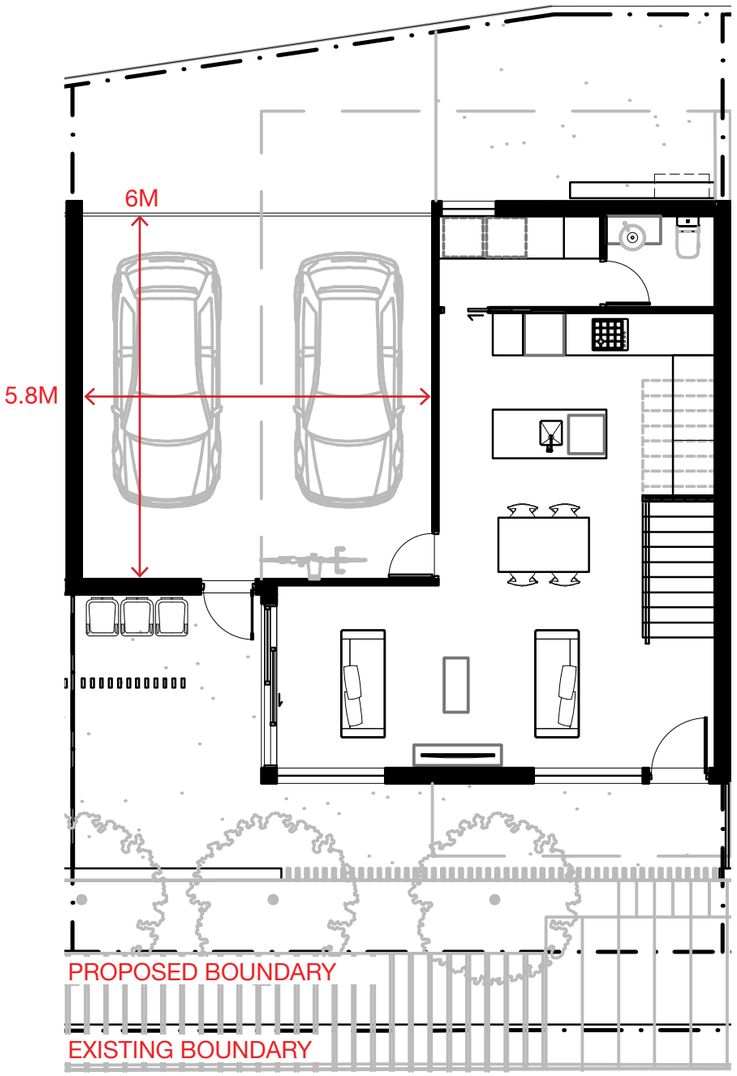


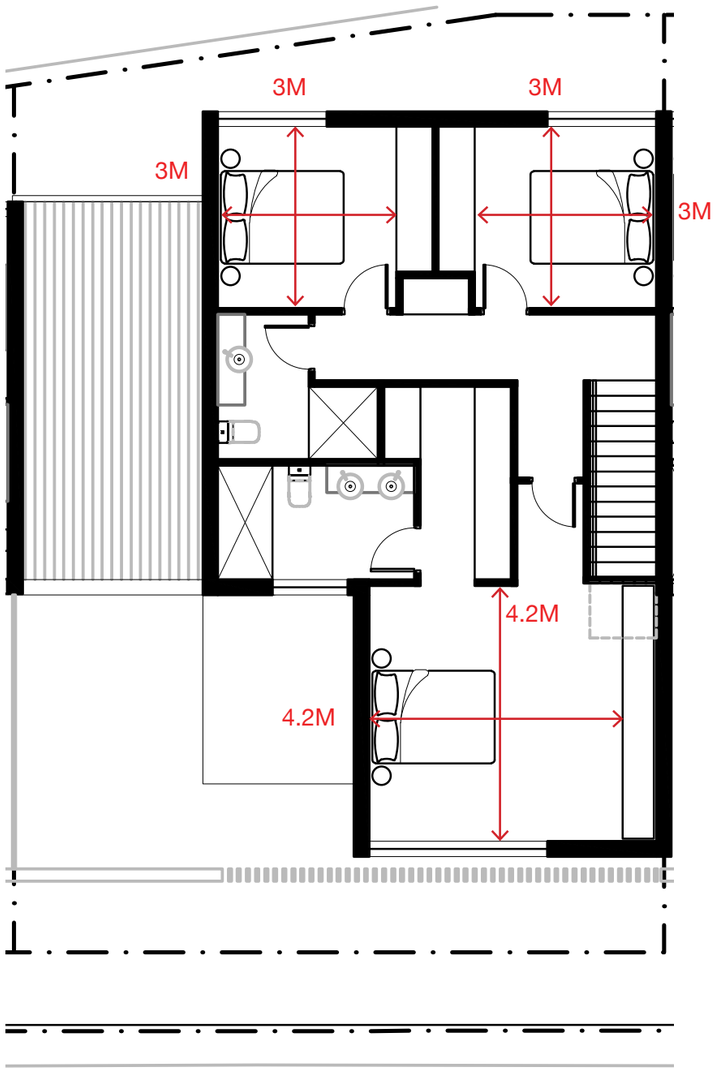




TOWNHOUSE TYPE A1

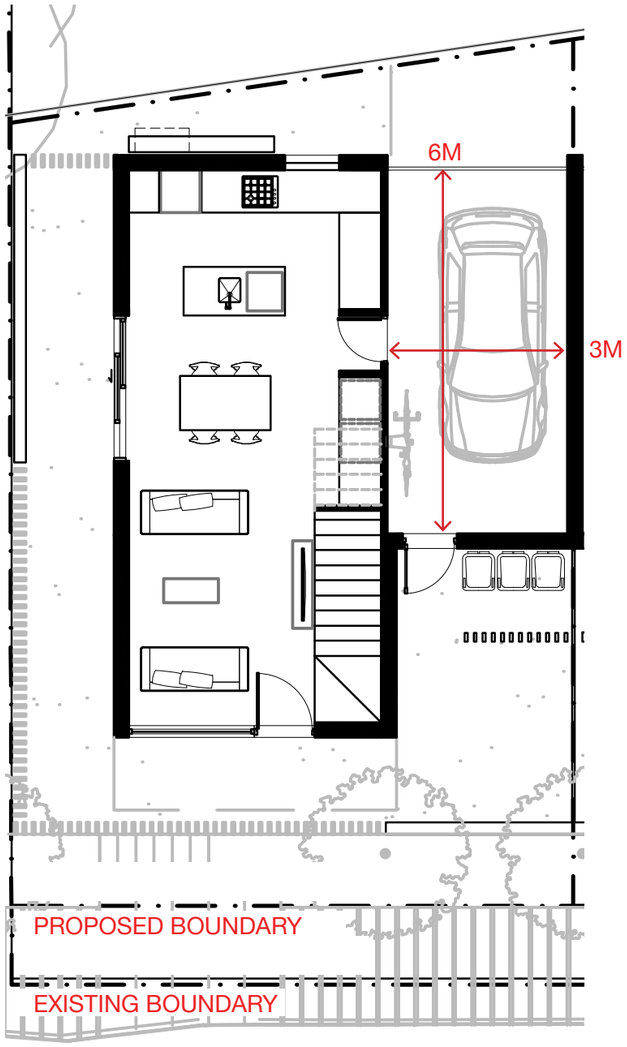
BEDROOMS	3
BATHROOMS	2
AREA	138m²
POS	19m²
STORAGE	9m³
ORIENTATION	NS
PARKING	1
TOTALS	2

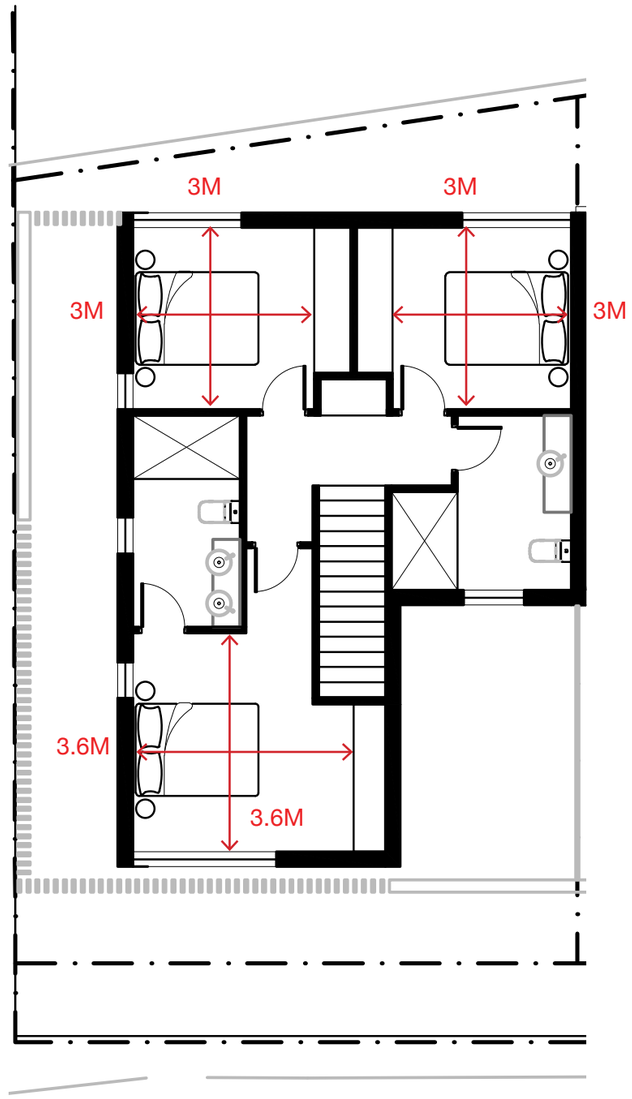




TOWNHOUSE TYPE A2

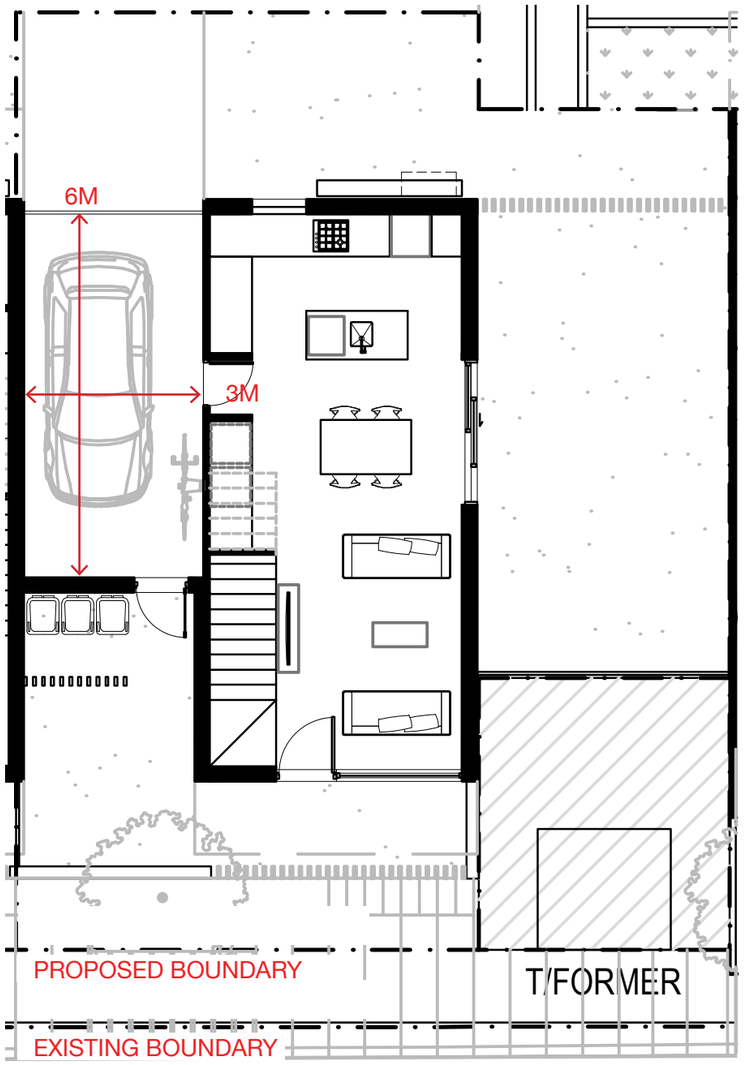
BEDROOMS	3
BATHROOMS	2
AREA	168m²
POS	24m²
STORAGE	10m³
ORIENTATION	NS
PARKING	2
TOTALS	3

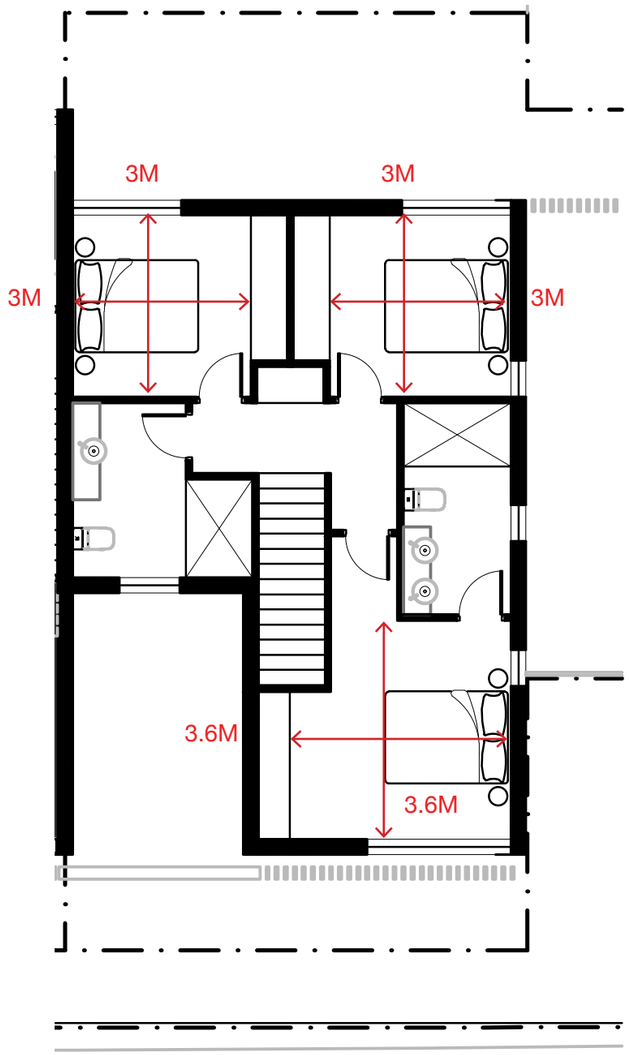




TOWNHOUSE TYPE A3

BEDROOMS	3
BATHROOMS	2
AREA	132m²
POS	35m²
STORAGE	4m³
ORIENTATION	NS
PARKING	1
TOTALS	1

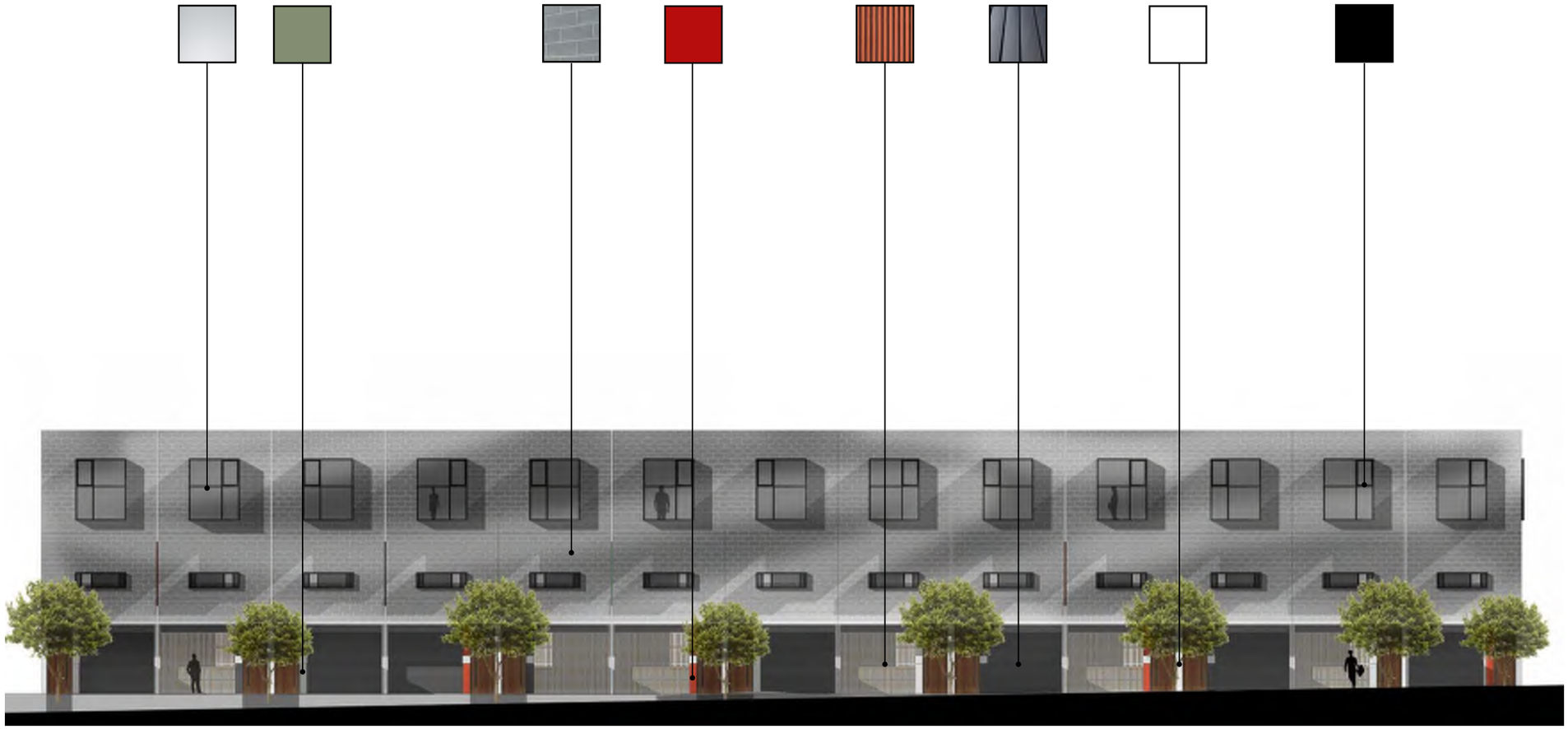


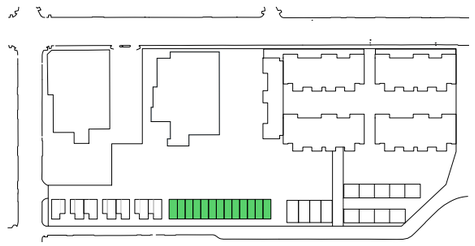


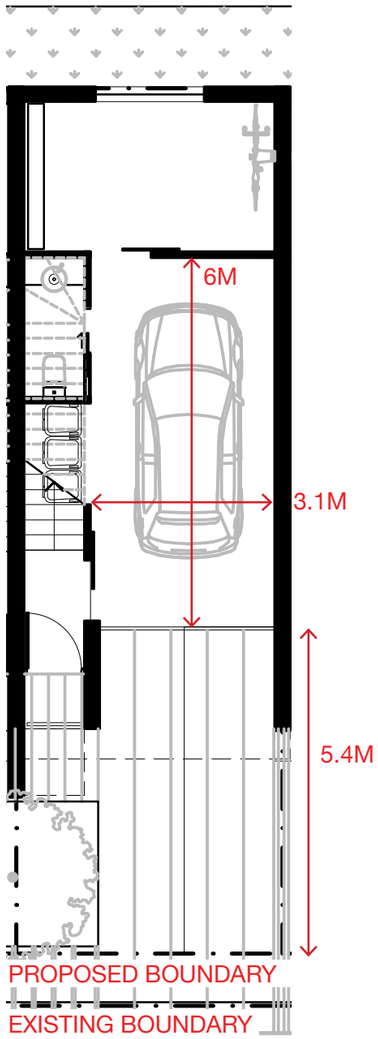
TOWNHOUSE TYPE A4

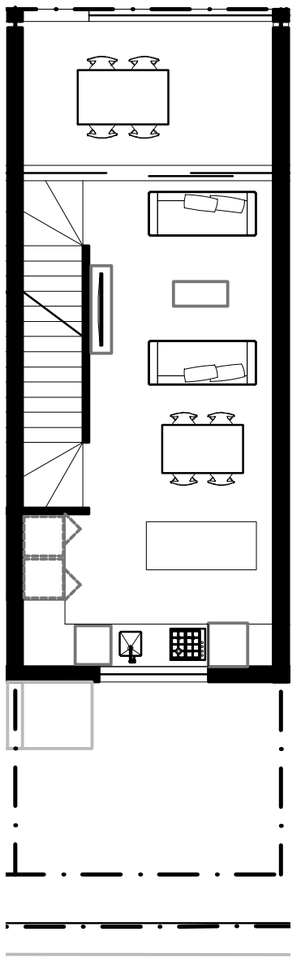
BEDROOMS	3
BATHROOMS	2
AREA	132m²
POS	58m²
STORAGE	4m³
ORIENTATION	NS
PARKING	1
TOTALS	1

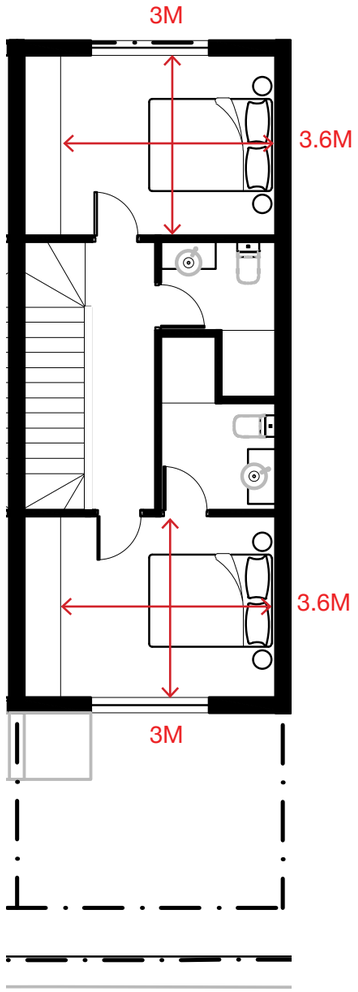
TOWNHOUSE TYPE B





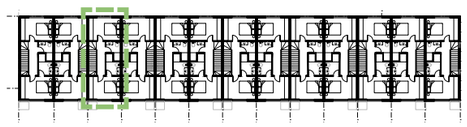






TOWNHOUSE TYPE B

BEDROOMS	2
BATHROOMS	2.5
AREA	133m²
POS	10m²
STORAGE	3m³
ORIENTATION	NS
PARKING	2 (1)
TOTALS	13

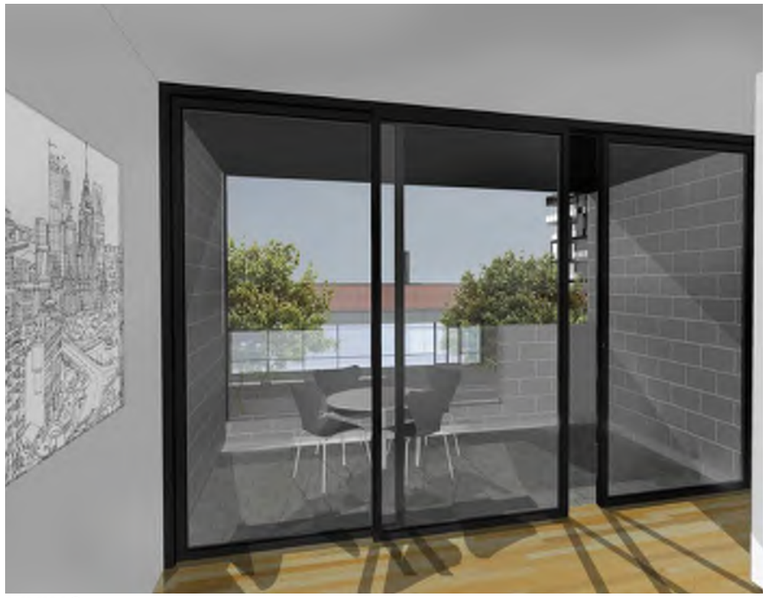


Cameo

TYPE B

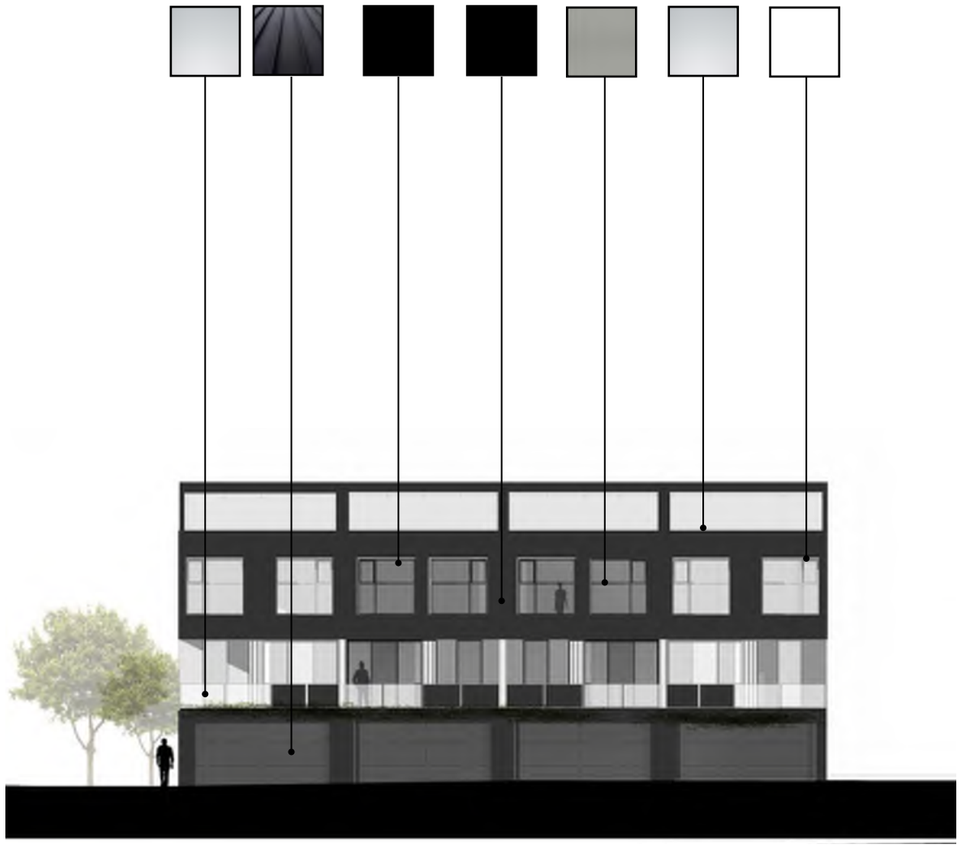
STEPHEN STREET

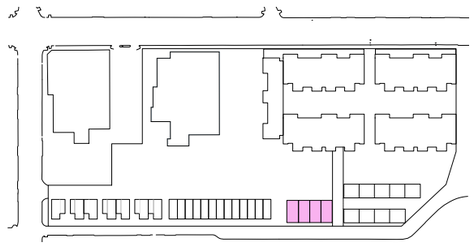
FROM ALDI

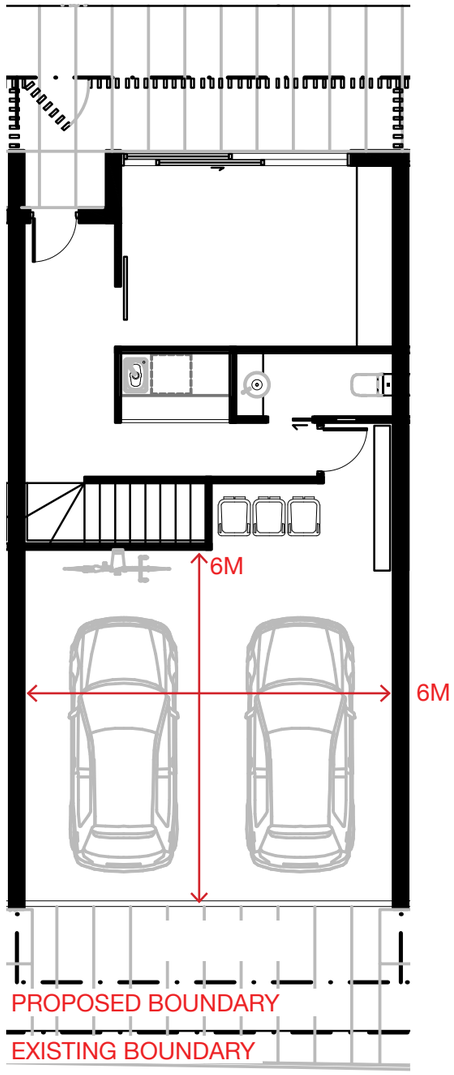


LIVING

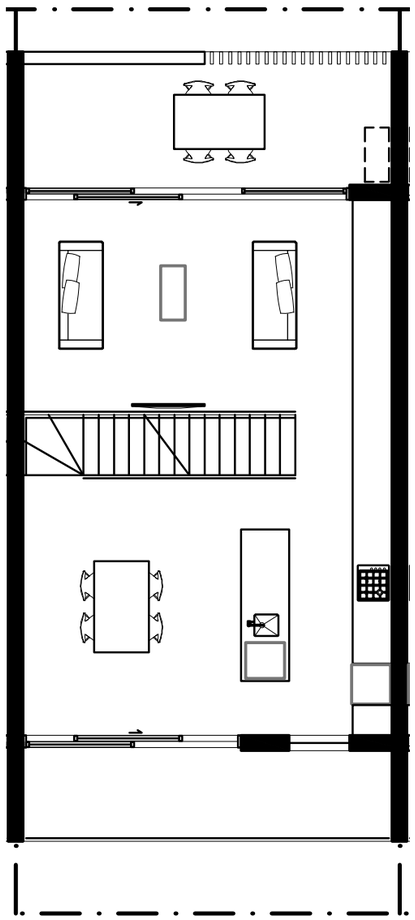
TOWNHOUSE TYPE C

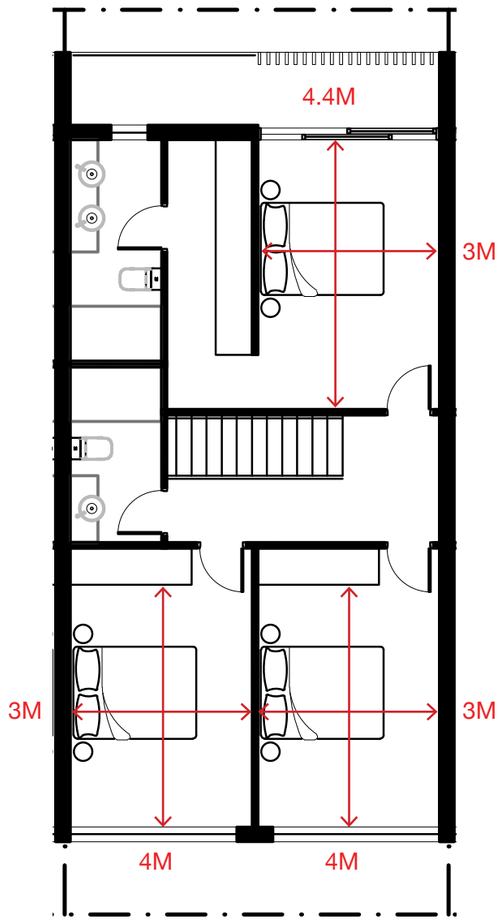






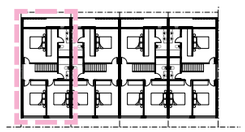
TYPE C TOWNHOUSE



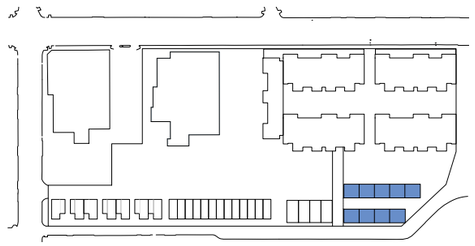


TOWNHOUSE TYPE C

BEDROOMS	3
BATHROOMS	2.5
AREA	214m²
POS	38m²
STORAGE	10m³
ORIENTATION	NS
PARKING	2
TOTALS	4

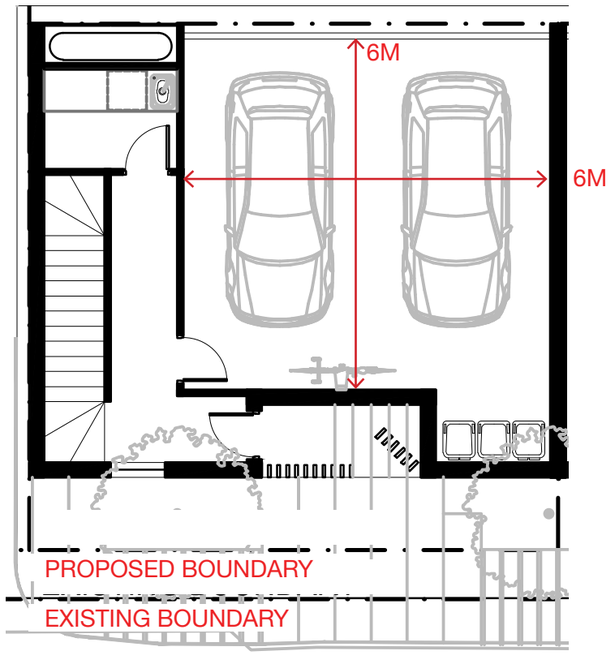


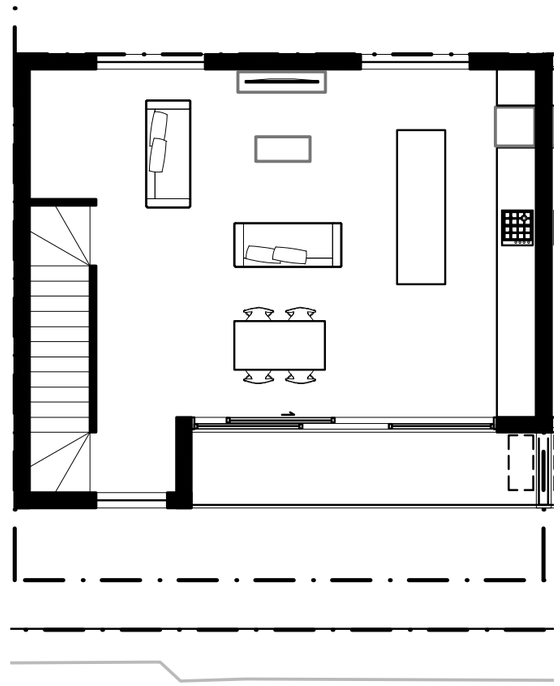
TOWNHOUSE TYPE D

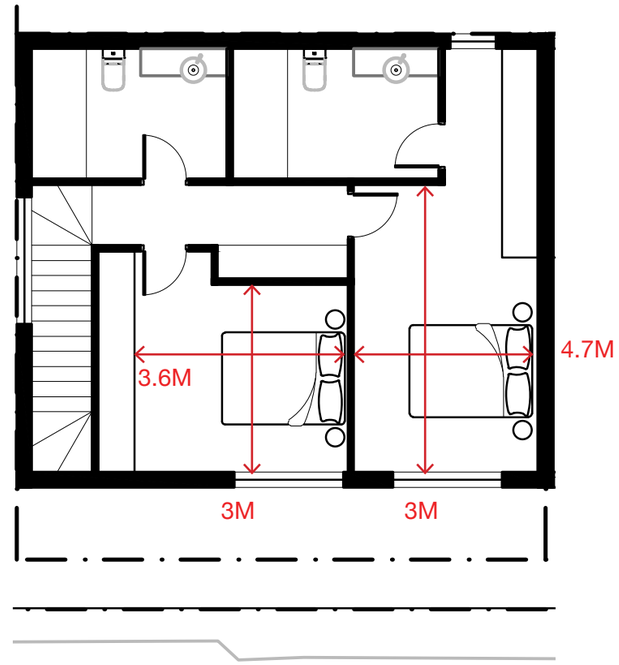


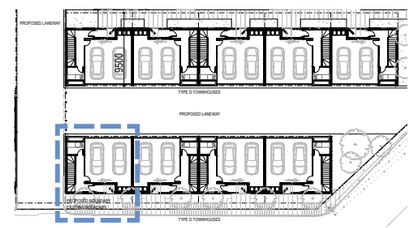
TOWNHOUSE TYPE D

BEDROOMS	2
BATHROOMS	2
AREA	183m²
POS	7m²
STORAGE	10m³
ORIENTATION	NS
PARKING	2
TOTALS	9





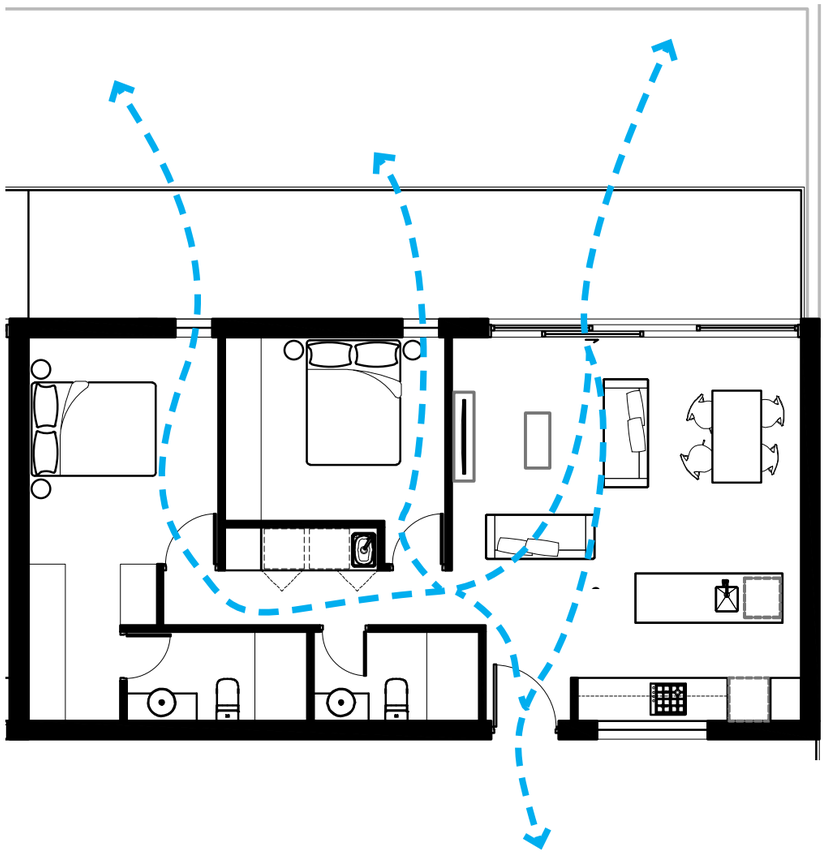




Sustainability

APARTMENTS

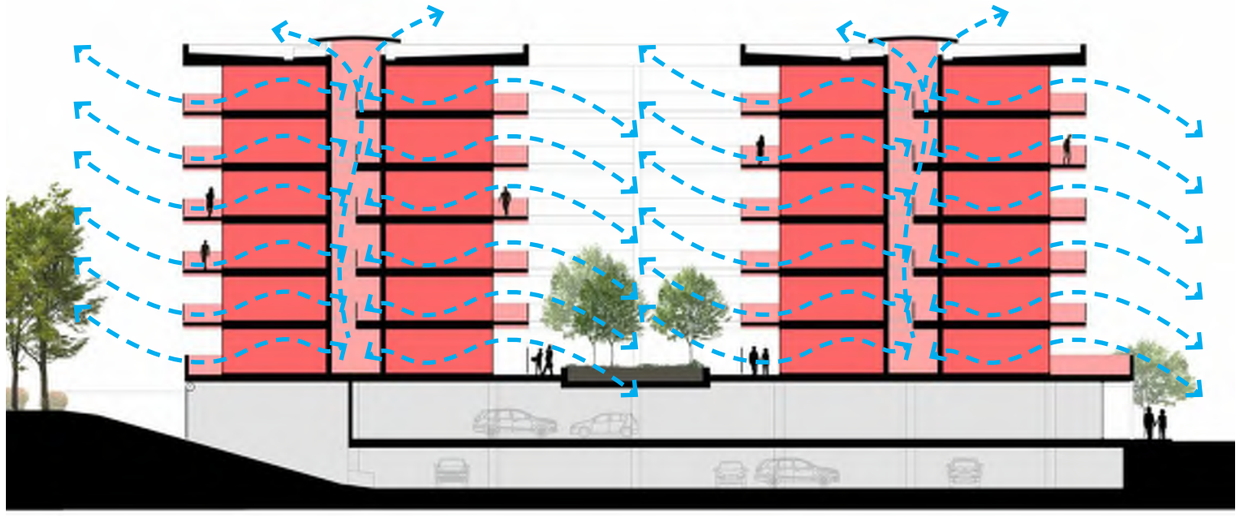
Apartments have been designed with consideration to cross-ventilation and other passive design considerations.



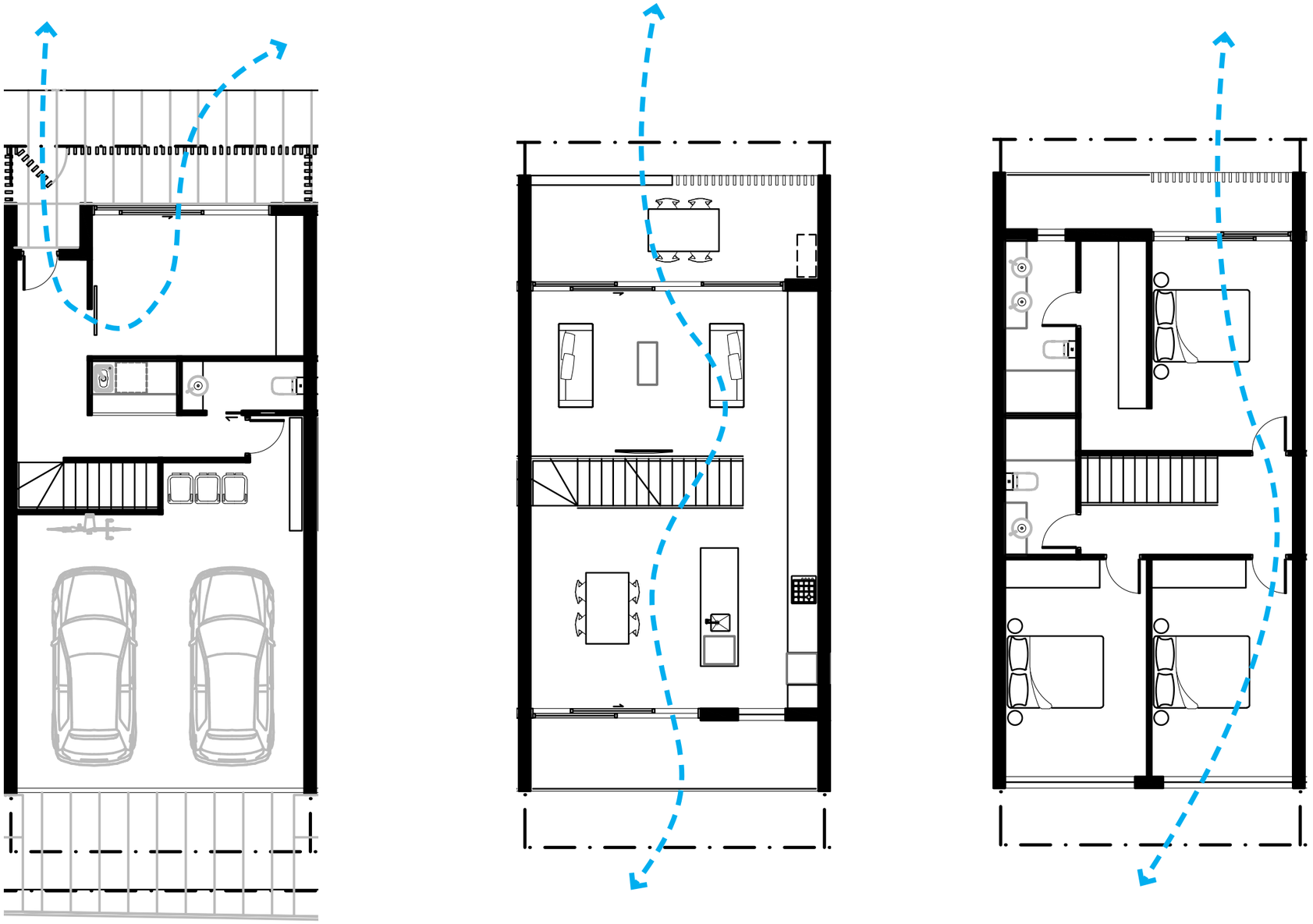
Pictured: Apartment Type C

APARTMENTS

Apartments corridor spaces feature strong principles of passive ventilation and access to natural light, providing both a high level of amenity and good environmentally sustainable principles.



Pictured on right: Lumiere apartments, Halifax Street, by Tectvs

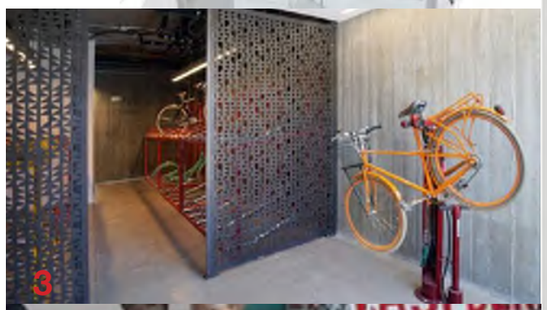


TOWNHOUSES

Townhouses have been designed with consideration to cross-ventilation and other passive design considerations.

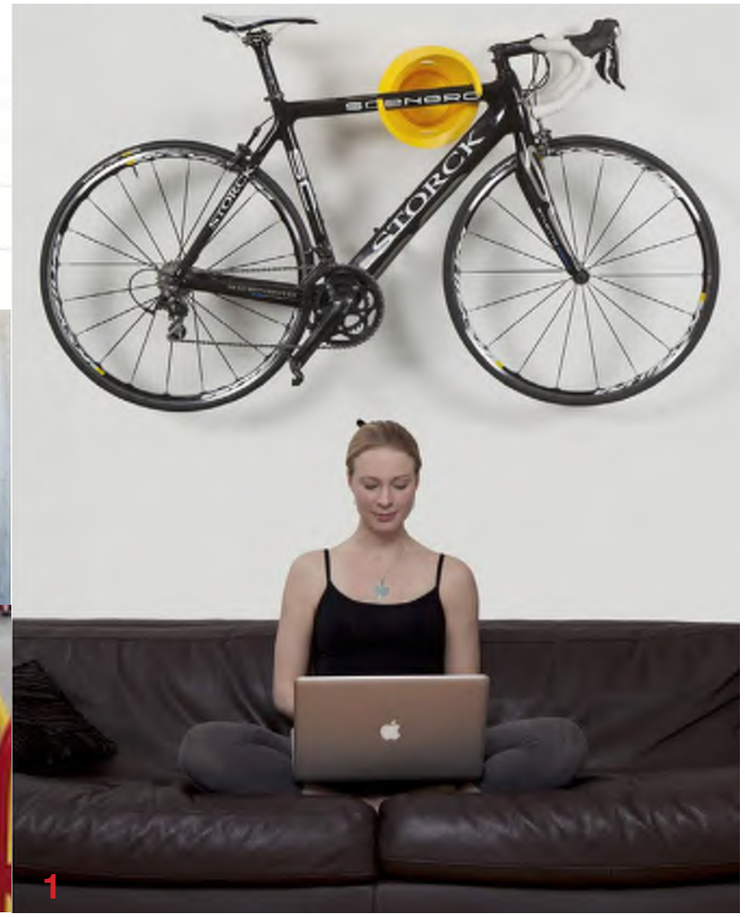
Pictured: Townhouse Type C

2



3

4



1

BICYCLES

Bicycles form an integral part of the approach to movement. Four typologies for bike storage/parking have been highlighted:

- Within each apartment and townhouse residents also have bicycle hangers

  (Image 1)

- Apartments have the option to store bikes in a locker within the basement carpark

  (Image 2)

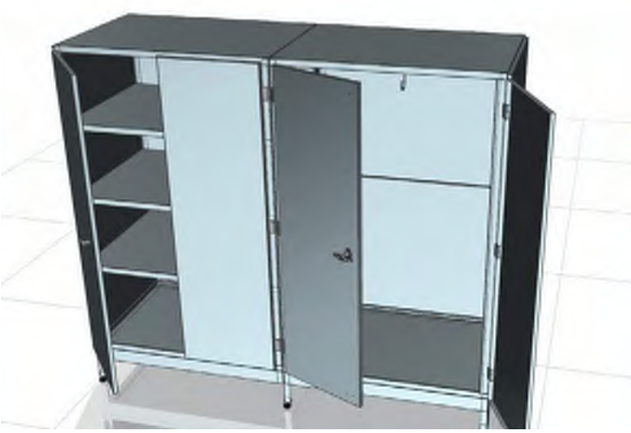
- Apartments have an integrated bicycle storage

  (Image 3)

- Public visitor bike parking to be provided at selected points throughtout the Site

  (Image 4)

1 Precedent Only



2

STORAGE

The following typologies for storage are highlighted:

- Each apartment and townhouse has been designed to include storage areas of varying size and shape.

  (Image 1)

- Apartments are offered the option for addtional storage within the proposed basement.

  (Image 2)

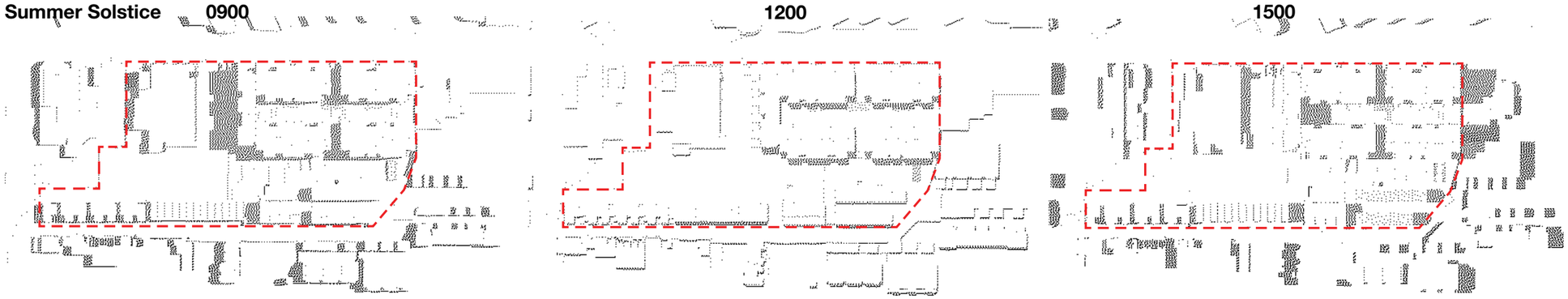
- Detailed storage capacity for each apartment/townhouse, refer to Site Matrix.

Shadows

OVERSHADOWING

The following diagrams indicate shadows cast across the Site and beyond at both Solstices and Equinox.

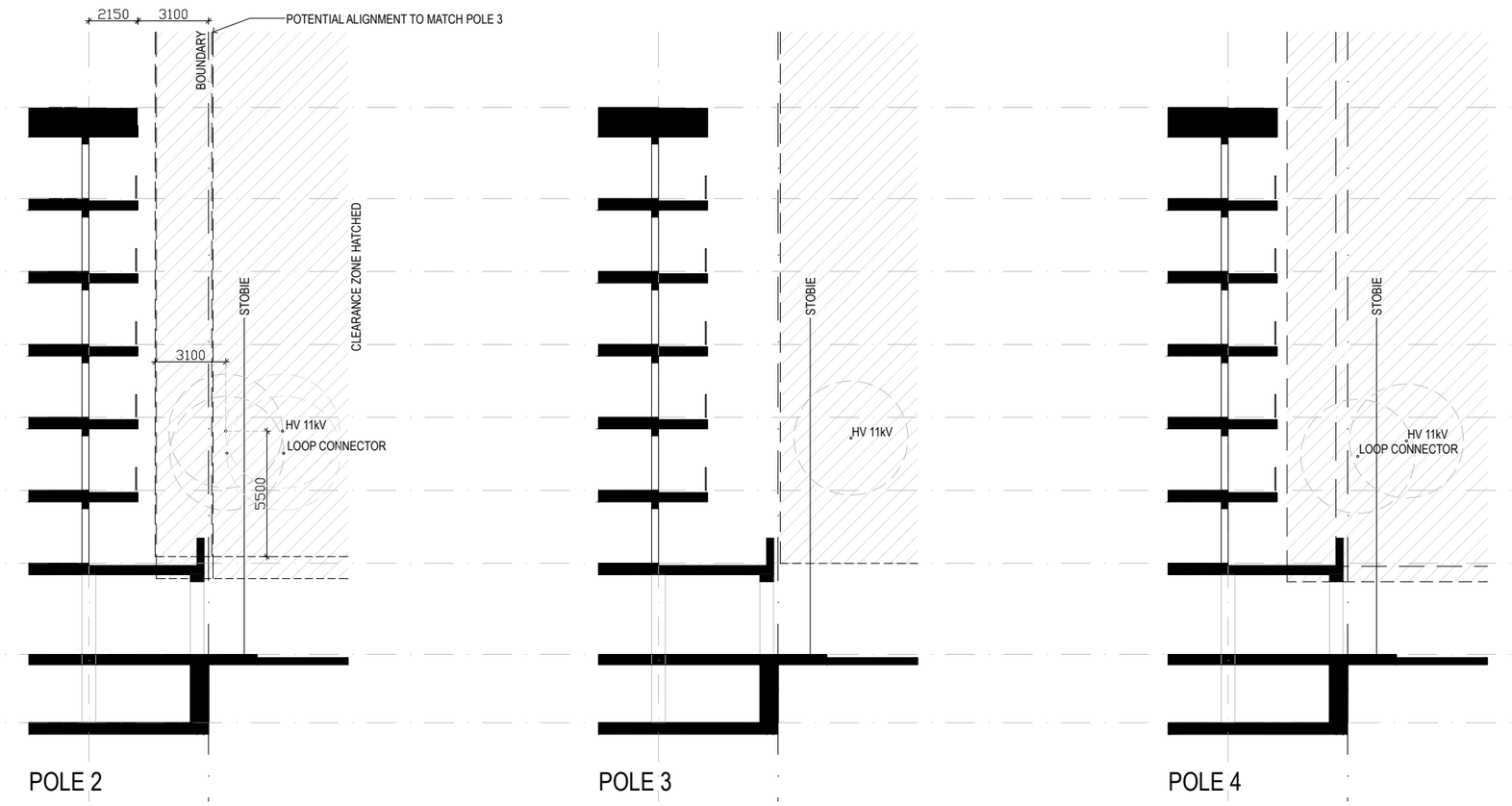
Summer Solstice 0900 1200 1500

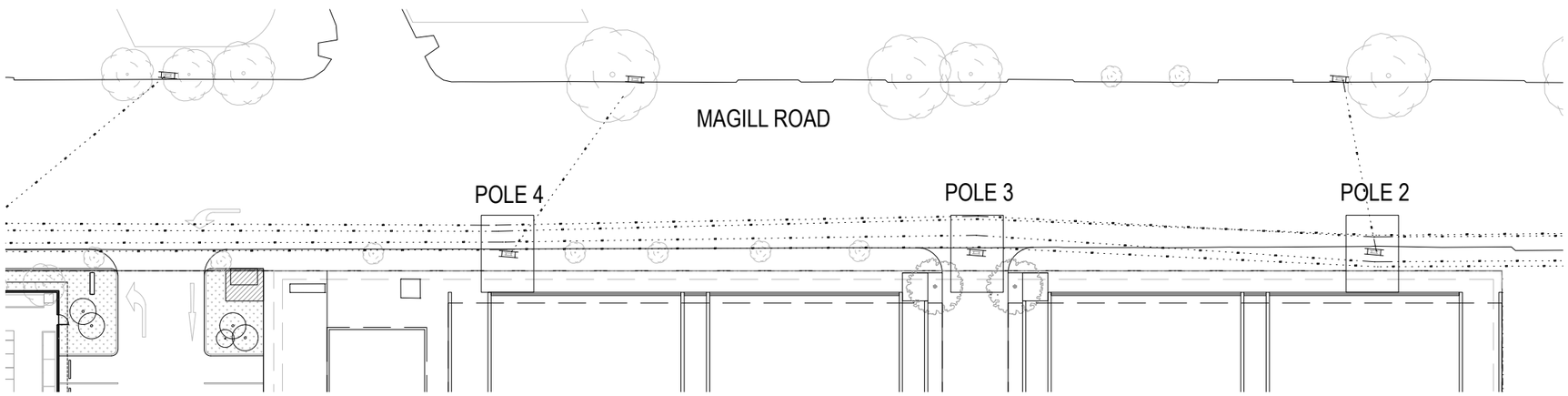


Winter Solstice 0900 1200 1500

Equinox 0900 1200 1500

Powerline Analysis





NOT TO SCALE

Site Matrix

Corresponding Drawing Revision - v1-0

General	
Site Area	18990 approx
Proposed Tenancies	x13 TBC
Total Tenancy Area	1300 NFA approx EXC ALDI

Carparks	**Totals**
ALDI	89
Ground Retail & Visitor	107
Private (Basement)	198
Townhouse Type A1	2
Townhouse Type A2	6
Townhouse Type A3	2
Townhouse Type B	13 (26)
Townhouse Type C	8
Townhouse Type D	18

Areas (GFA) approx	**Stage 2 (exc Reserve & driveway/ramp to basement)**	**Stage 3(A) (exc POS & Type D)**
Ground		
Retail	880	530
Carpark	1820	1570
Storage/Services	240	250
Lobby/Circ	570	310

Apartments	**Building A (NW)**	**Building B (NE)**	**Building C (SW)**	**Building D (SE)**	**Building E (W)**	**Totals**	**L1 Plaza**
First	1054	1054	918	932	570	**4528**	**1556**
Second	857	843	863	847	465	**3875**	
Third	883	885	883	889	475	**4015**	
Fourth	890	886	870	882	476	**4004**	
Fifth	869	861	895	877	484	**3986**	
Sixth	864	885	880	874	469	**3972**	
Totals	**5417**	**5414**	**5309**	**5301**	**2939**	**24380**	

Private Apartments (General)	**Building A (NW)**	**Building B (NE)**	**Building C (SW)**	**Building D (SE)**	**Building E (W)**	**Totals**
Ground	0	0	0	0	0	0
First	8	8	7	8	4	35
Second	8	8	8	8	4	36
Third	8	8	8	8	4	36
Fourth	8	8	8	8	3	35
Fifth	8	8	8	8	3	35
Sixth	7	7	7	7	3	31
Totals	**47**	**47**	**46**	**47**	**21**	**208**
Stage	**2**	**3A**	**2**	**3A**	**2**	

Apartment Types	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**	**O**	
Product Type	2B2B	1B1B	2B2B	2B1B	1B1B	1.5B1B	1B1B	2B2B	2B2B	2B1.5B	1B1B	2B2B	2B2B	2B2B	2B2B	
Internal Area	86	50	90	68	53	62	50	104	85	78	54	78	104	94	104	
POS [First floor in brackets]					**Varies - Refer To Plans For Detail**											
Storage [internal only] (cbm)	6	3	6	3	External	External	External	5	5	4	2	5	5	5	5	
Location (Building(s))	A,B,C,D	A,B,C,D	A,B,C,D	A,B,C,D	A,B,C,D	C,D	C,D	A,B,C,D	E	E	E	E	E	E	E	
Location (Floor(s))	1,2,3,4,5	1,2,3,4,5	1,2,3,4,5	1,2,3,4,5,6	1,2,3,4,5,6	1	1	6	1,2,3	1,2,3	1,2,3	1,2,3	4,5,6	4,5,6	4,5,6	
Location (Orientation)	N	N	N	S	S	N	S	N	W	W	W	W	W	W	W	
Totals	38	18	20	48	44	4	3	12	3	3	3	3	3	3	3	**208**

Private Apartments (Overview)	**TOTALS**
1 Bed 1 Bath	**68**
1.5 Bed 1 Bath	**4**
2 Bed 1 Bath	**48**
2 Bed 1.5 Bath	**3**
2 Bed 2 Bath	**85**
	208

Townhouses	**Area (internal)**	**Area (POS/BALC)**	**Storage**	**Totals**
Type A1	138	19	9	2
Type A2	168	24	10	3
Type A3	132	35	4	1
Type A4	132	58	4	1
Type B	133	10	3	13
Type C	214	38	10	4
Type D	183	7	10	9

Notes
External/additional storage in basement where possible
All areas given in square metres (U.N.O)
All areas approximate and subject to change
To be read in conjunction with relevant drawing revision

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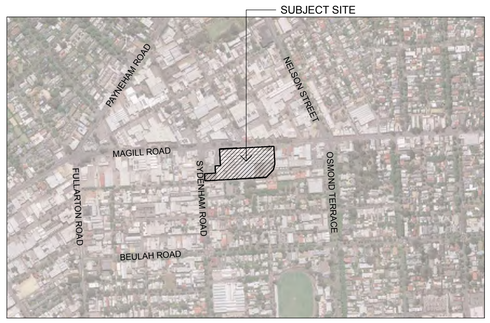

LOCALITY PLAN
1:10000 @ A1

NORWOOD GREEN
76 MAGILL ROAD NORWOOD
28055 AUGUST 2018
DPC ISSUE v1.0

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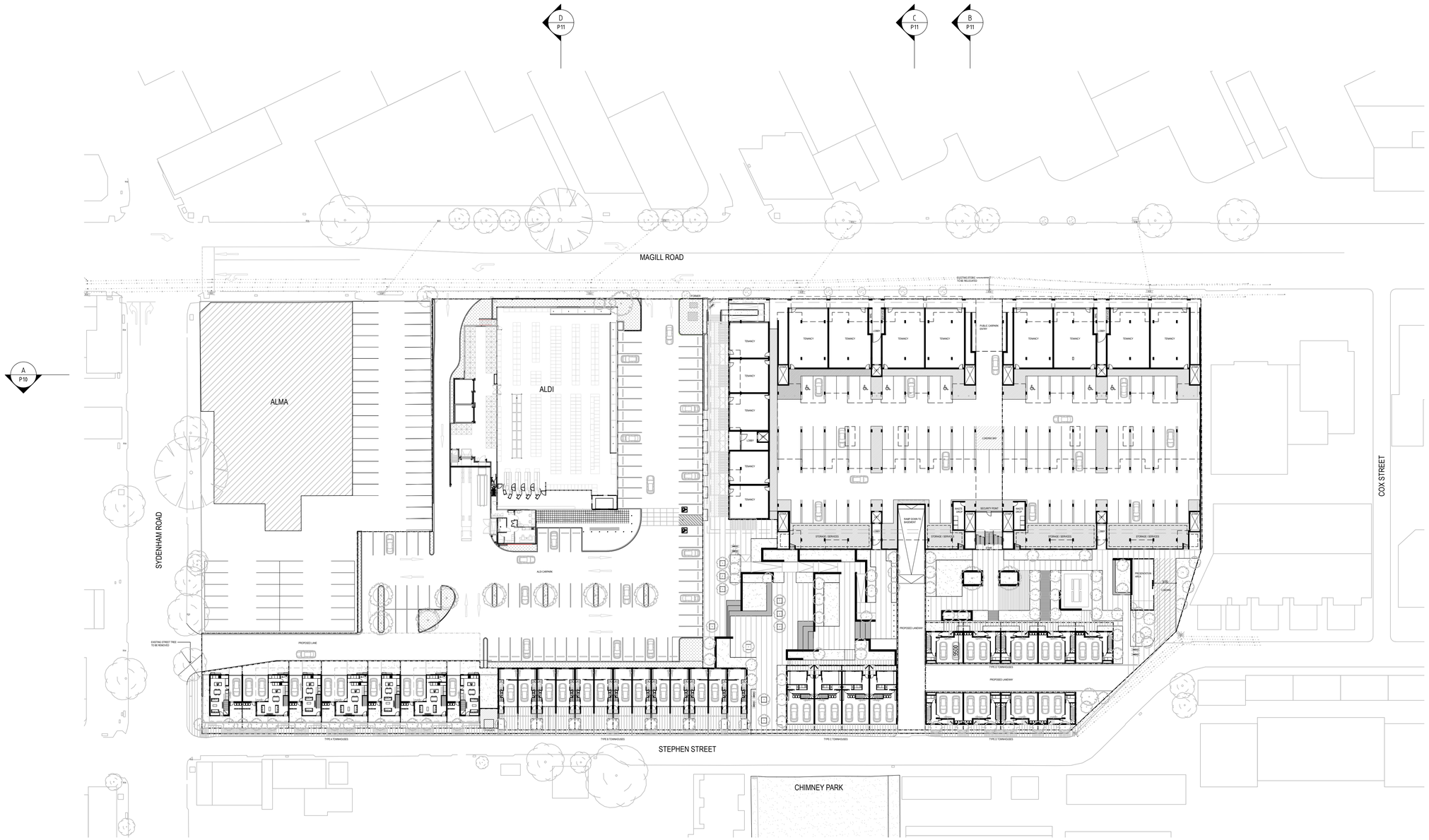

GROUND FLOOR PLAN
1:500 @ A1

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DRAWING
GROUND FLOOR PLAN

NORTH

SCALE
AS SHOWN

DATE
AUGUST 2018

PROJECT NO
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DWG NO
P01

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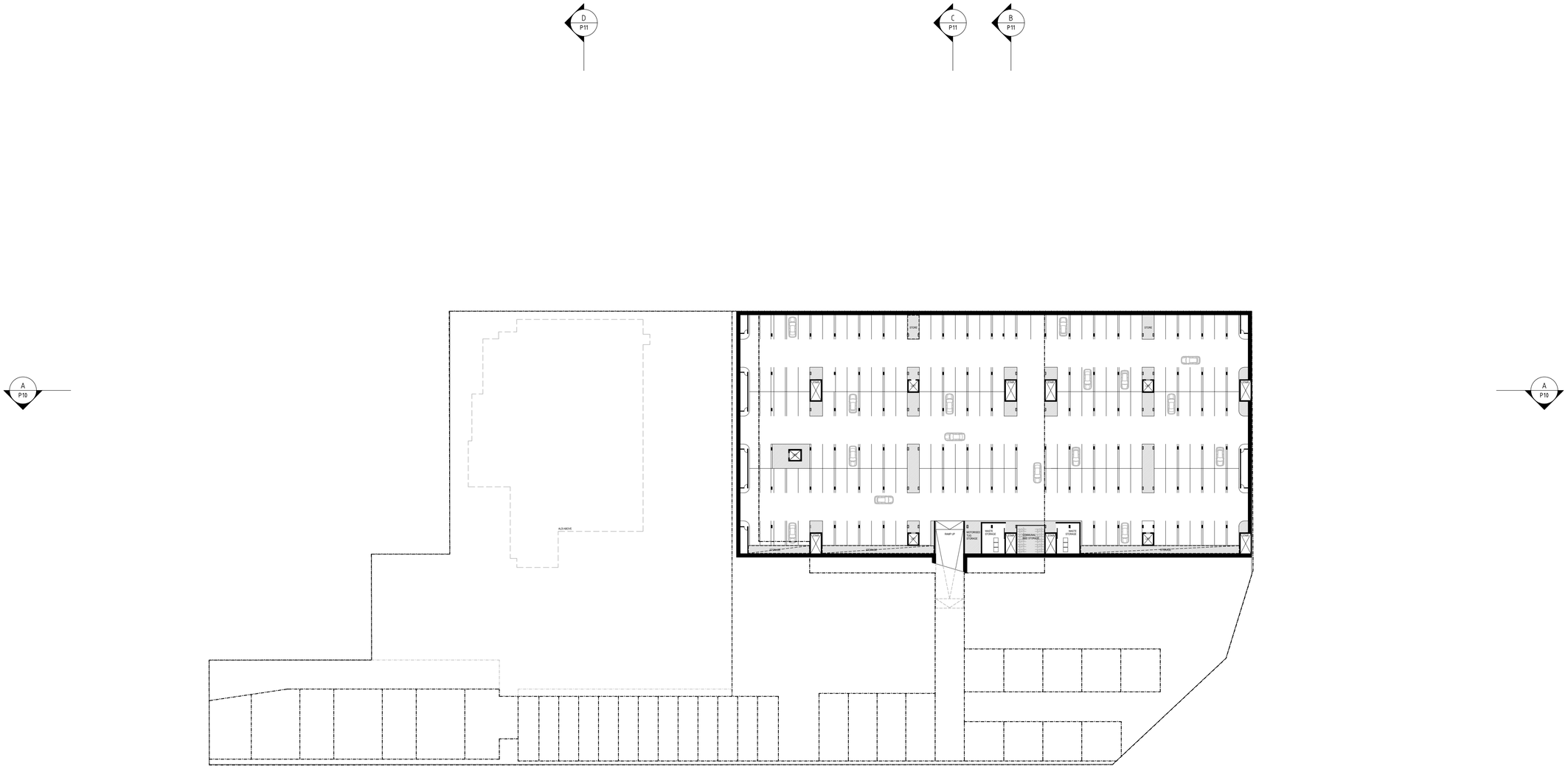

BASEMENT FLOOR

1:500 @ A1

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BASEMENT FLOOR PLAN

NORTH

SCALE
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DWG NO
P02

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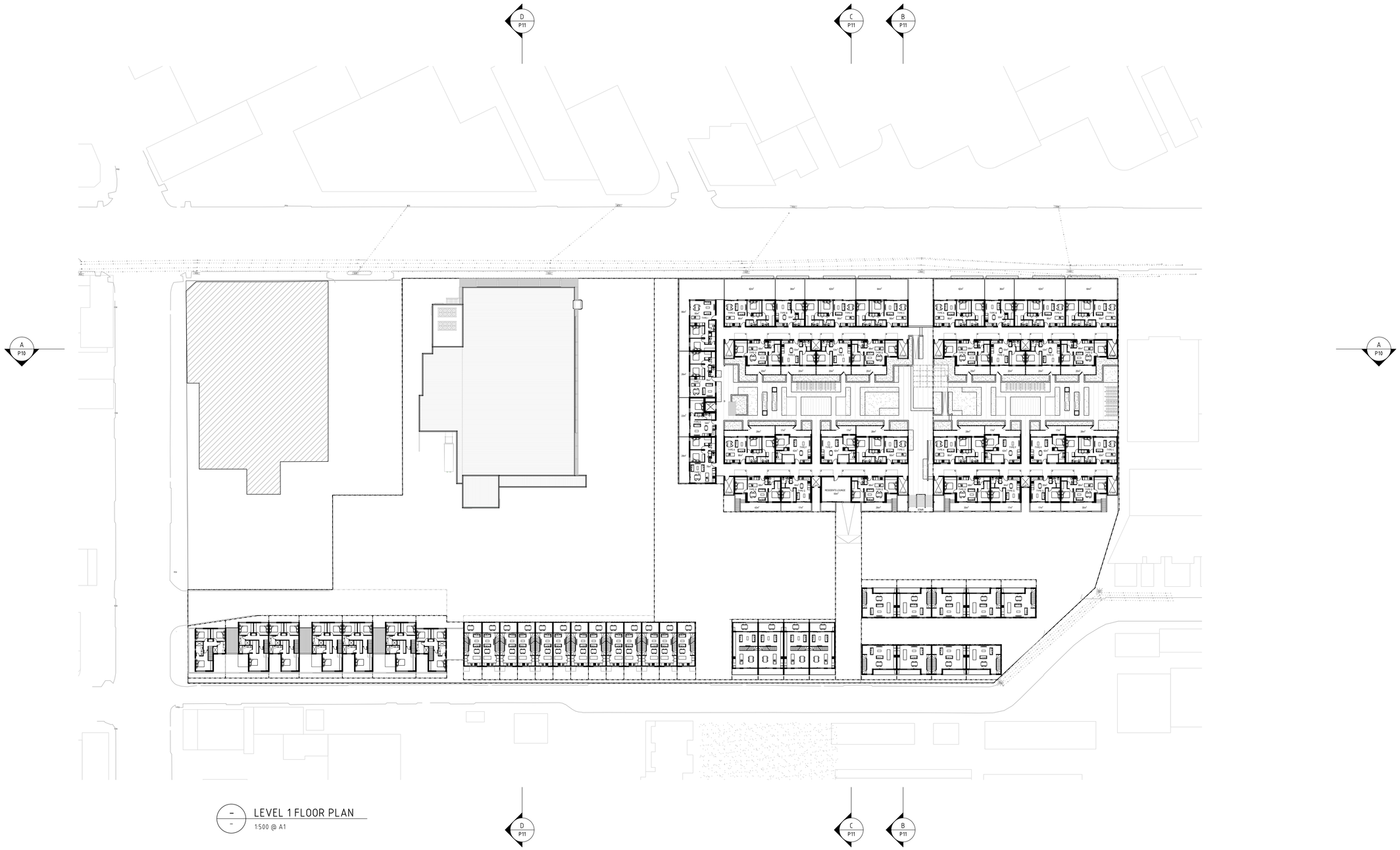

LEVEL 1 FLOOR PLAN

1:500 @ A1

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76 MAGILL ROAD
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DRAWING
FIRST FLOOR PLAN

NORTH

SCALE
AS SHOWN

DATE
AUGUST 2018

PROJECT NO
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DWG NO
P03

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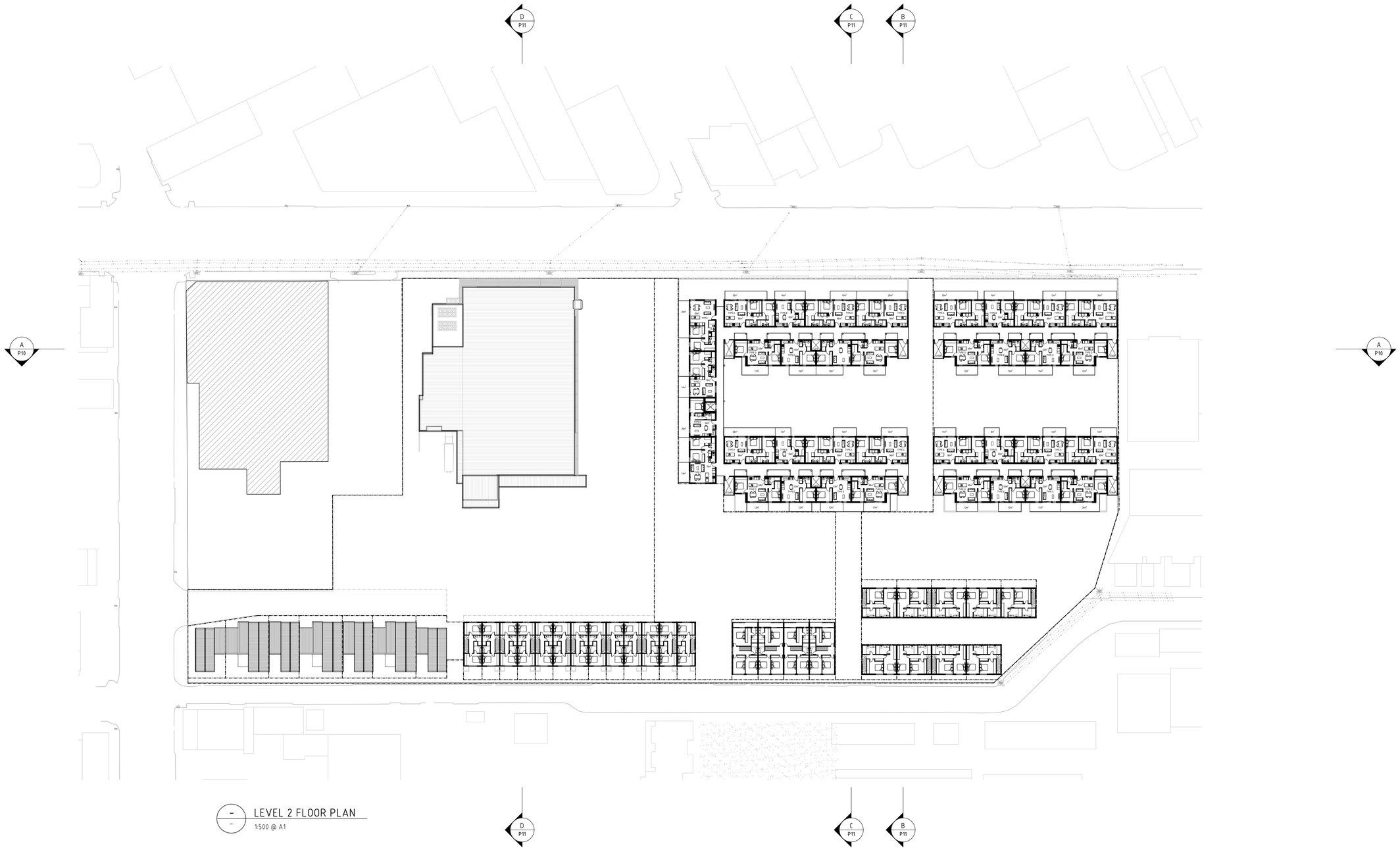

LEVEL 2 FLOOR PLAN

1:500 @ A1

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PROJECT
NORWOOD GREEN
76 MAGILL ROAD
NORWOOD

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DRAWING
SECOND FLOOR PLAN

NORTH

SCALE
AS SHOWN

DATE
AUGUST 2018

PROJECT NO
28055

DWG NO
P04

REVISION	CHECKED	DRAWN
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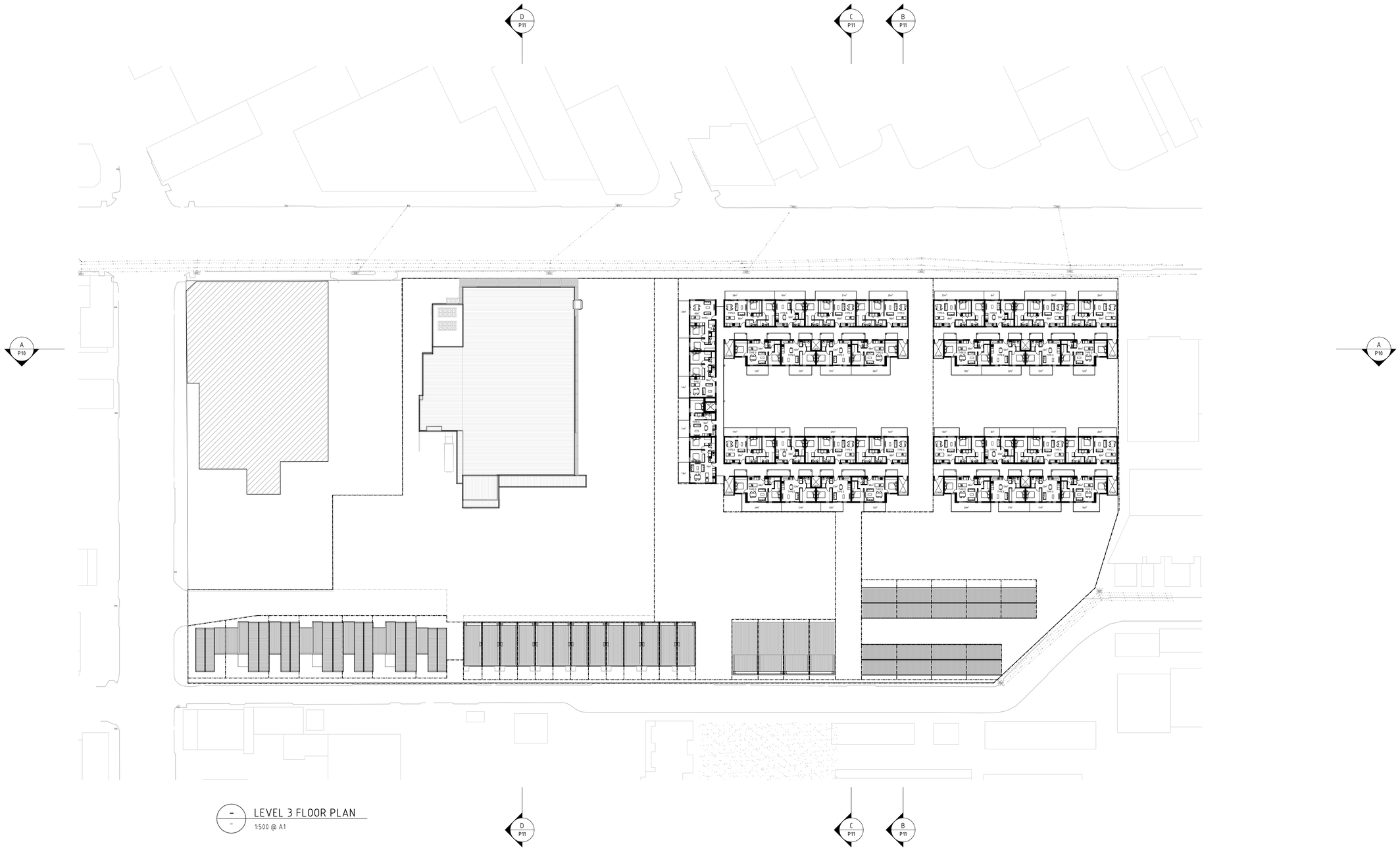

LEVEL 3 FLOOR PLAN

1:500 @ A1

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NORWOOD

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DRAWING
THIRD FLOOR PLAN

NORTH

SCALE
AS SHOWN

DATE
AUGUST 2018

PROJECT NO
28055

DWG NO
P05

REVISION	CHECKED	DRAWN
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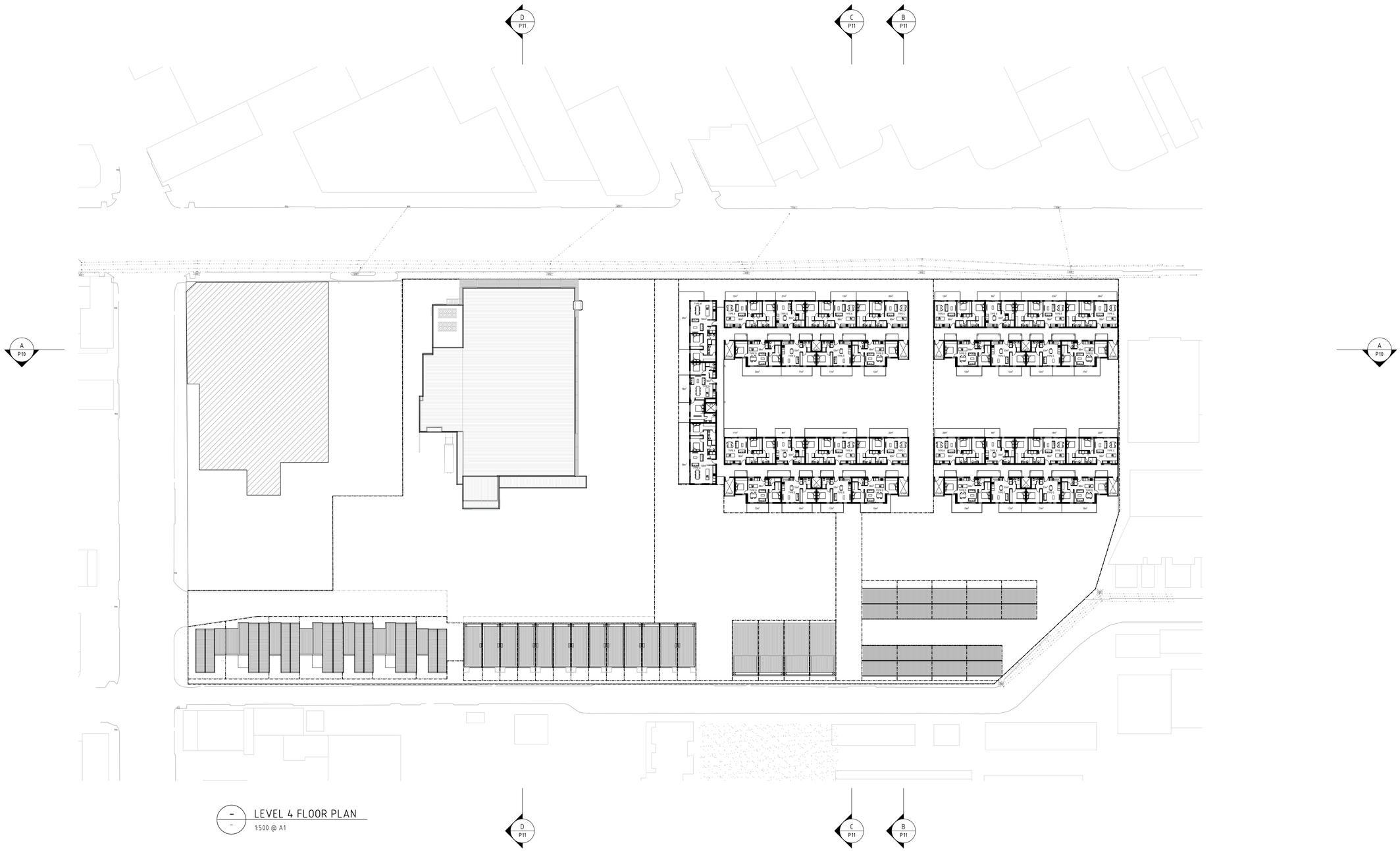

LEVEL 4 FLOOR PLAN

1:500 @ A1

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PROJECT
NORWOOD GREEN
76 MAGILL ROAD
NORWOOD

CLIENT
ALDI | CA CA

DRAWING
FOURTH FLOOR PLAN

NORTH

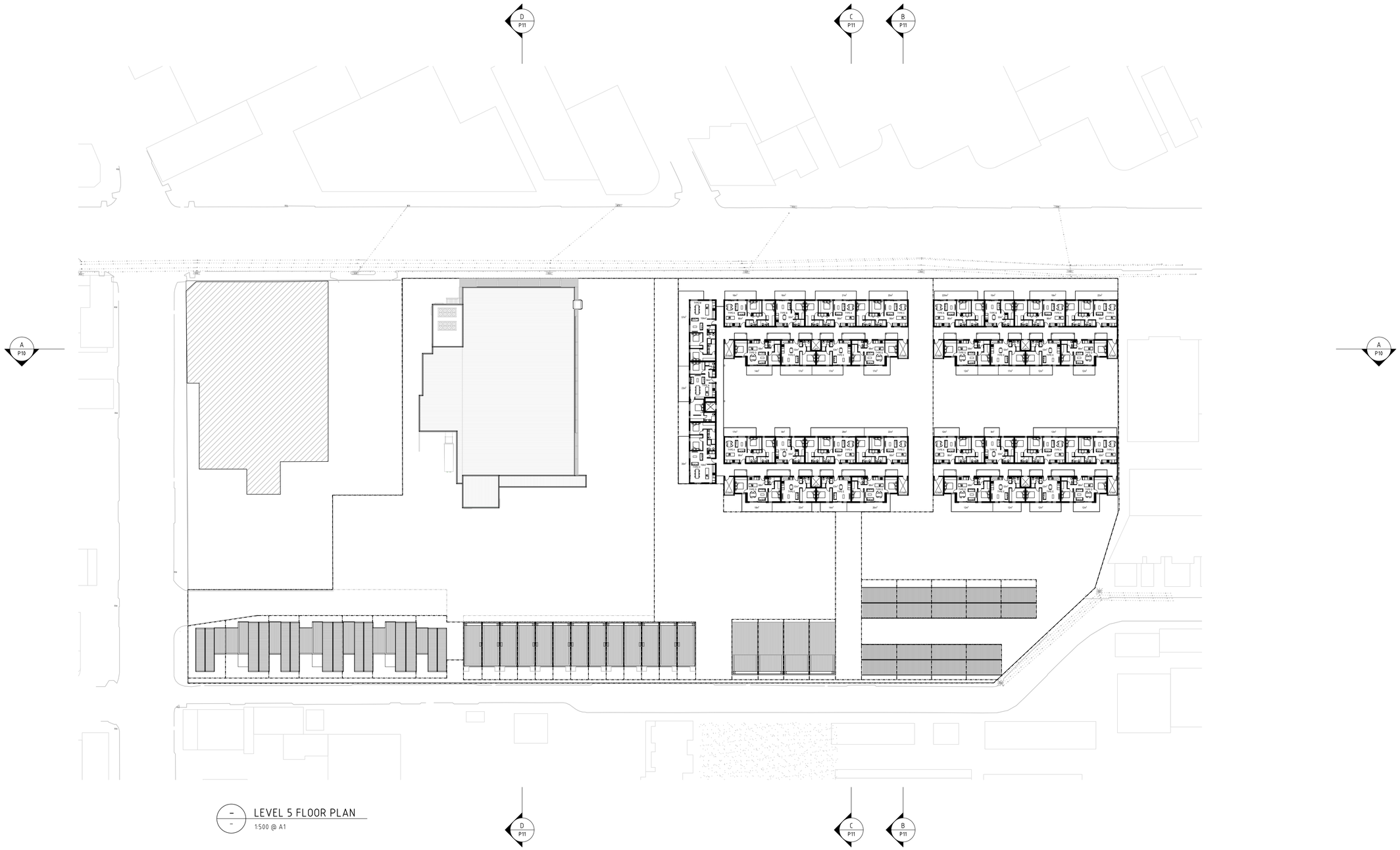
SCALE
AS SHOWN

DATE
AUGUST 2018

PROJECT NO
28055

DWG NO
P06

REVISION	CHECKED	DRAWN
1.0	FB	mdf



LEVEL 5 FLOOR PLAN

1:500 @ A1

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PROJECT
NORWOOD GREEN
76 MAGILL ROAD
NORWOOD

CLIENT
ALDI | CA CA

DRAWING
FIFTH FLOOR PLAN

NORTH

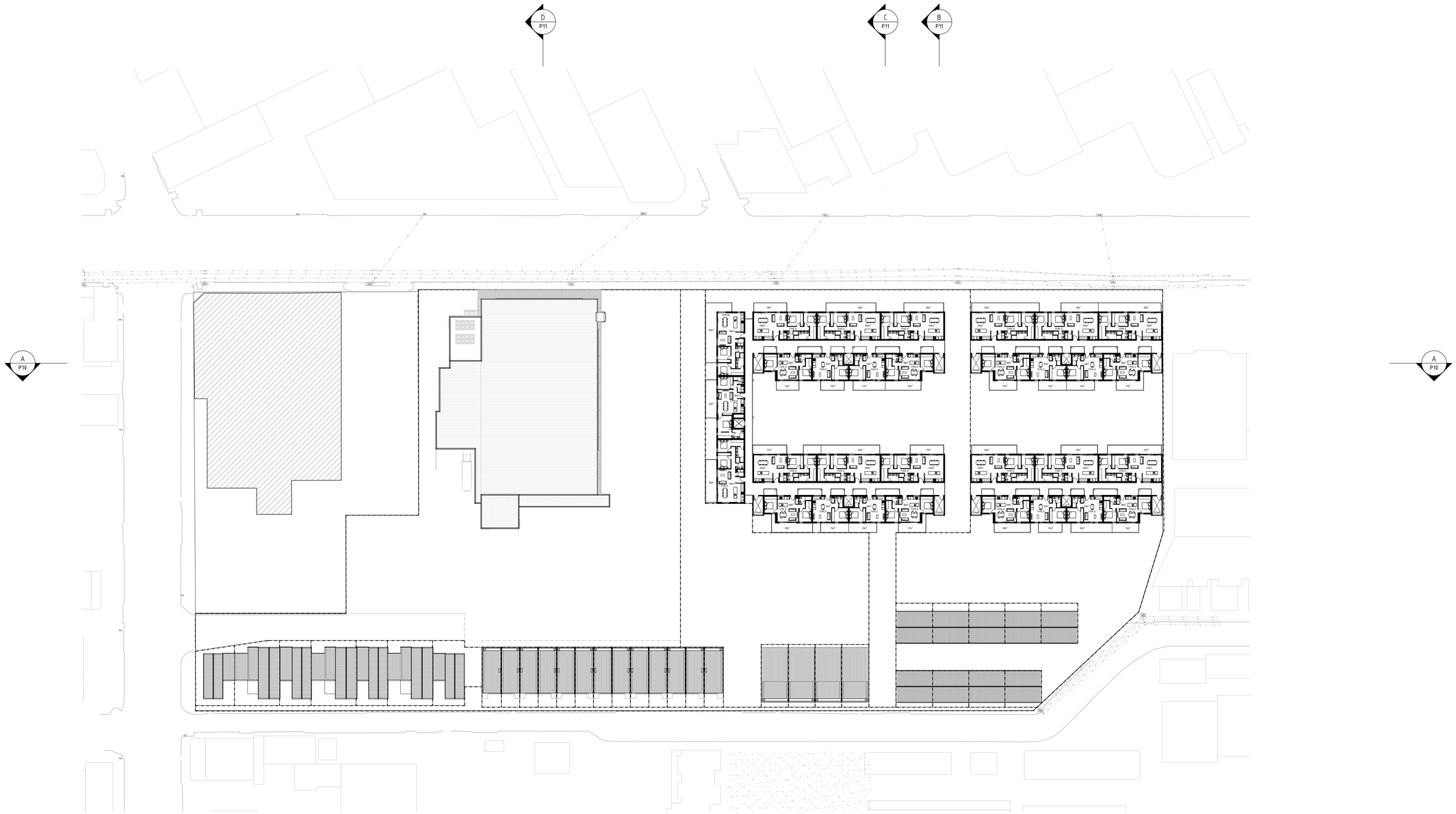
SCALE
AS SHOWN

DATE
AUGUST 2018

PROJECT NO
28055

DWG NO
P07

REVISION	CHECKED	DRAWN
1.0	FB	mdf



LEVEL 6 FLOOR PLAN

1:500 @ A1

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PROJECT
NORWOOD GREEN
76 MAGILL ROAD
NORWOOD

CLIENT
ALDI | CA CA

DRAWING
SIXTH FLOOR PLAN

NORTH

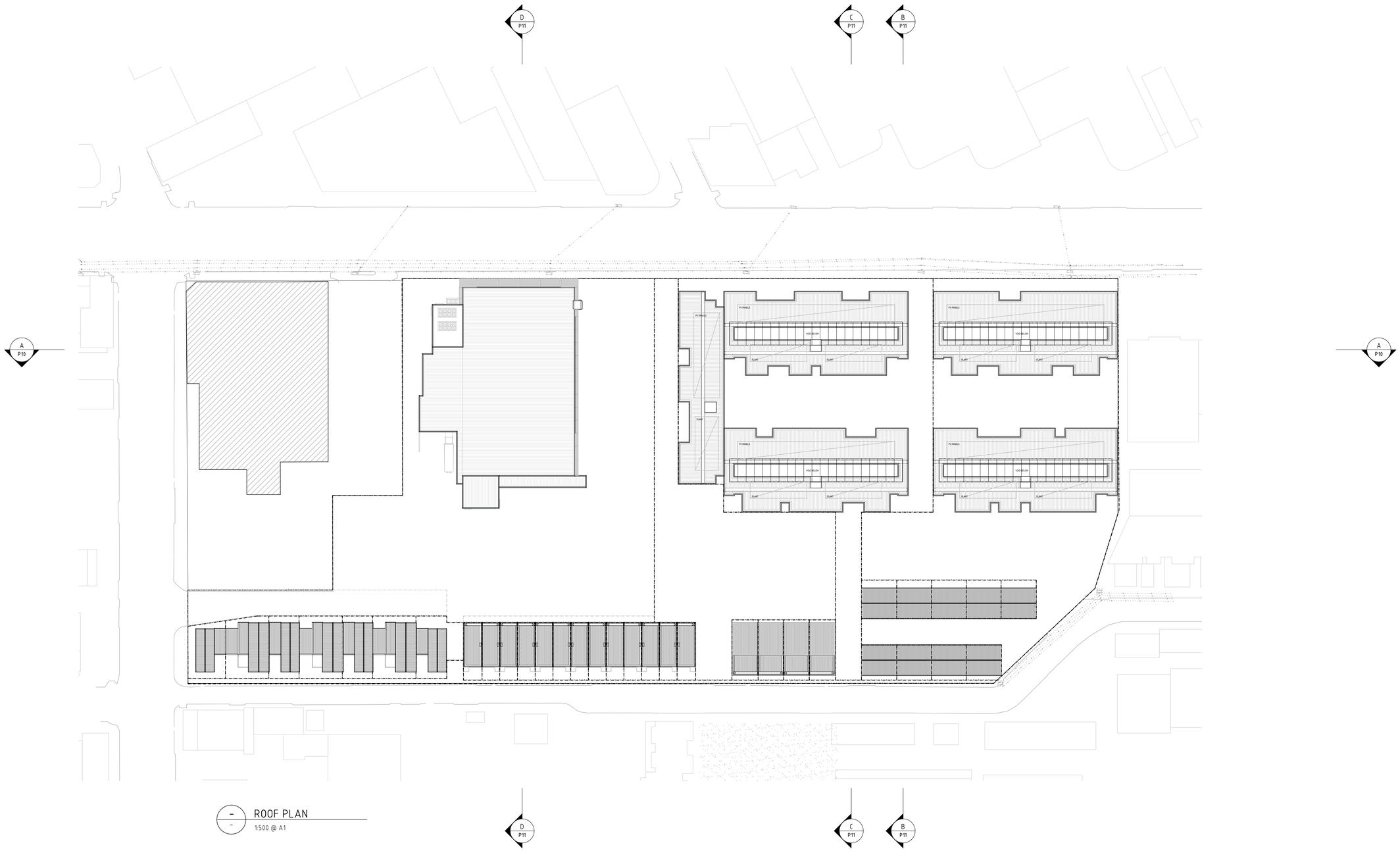
SCALE
AS SHOWN

DATE
AUGUST 2018

PROJECT NO
28055

DWG NO
P08

REVISION	CHECKED	DRAWN
1.0	FB	mdf



ROOF PLAN
1:500 @ A1

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PROJECT
NORWOOD GREEN
76 MAGILL ROAD
NORWOOD

CLIENT
ALDI | CA CA

DRAWING
ROOF PLAN

SCALE
AS SHOWN

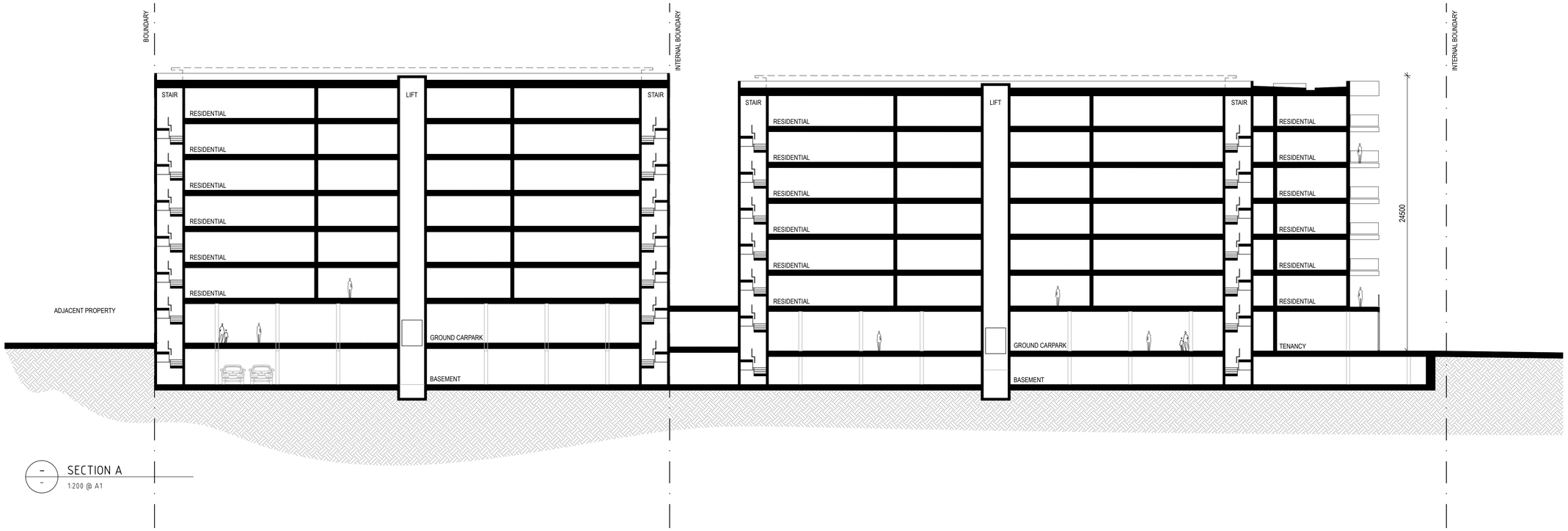
DATE
AUGUST 2018

NORTH

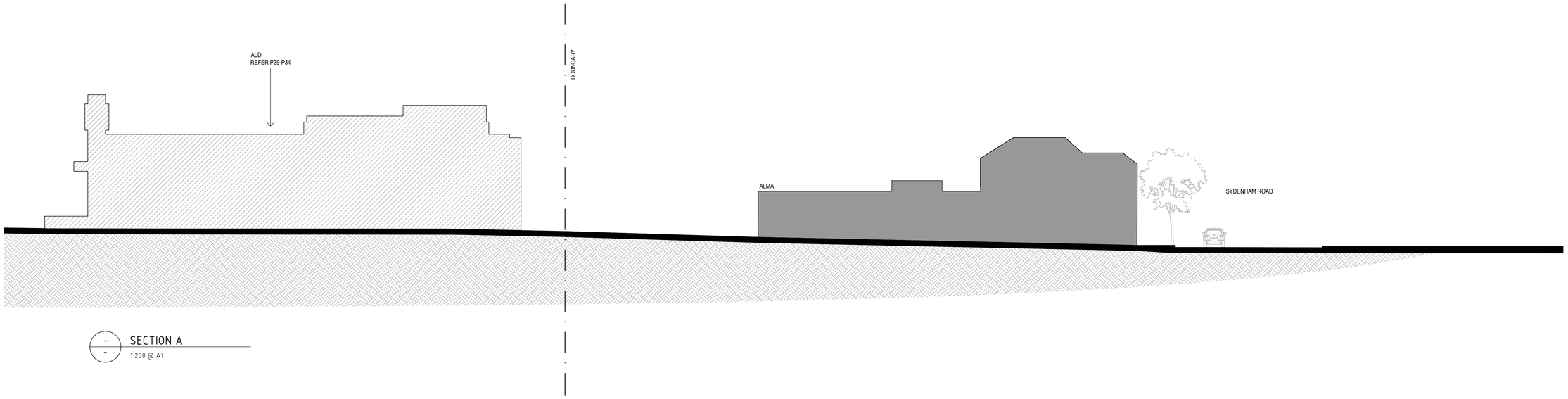
PROJECT NO
28055

DWG NO
P09

REVISION	CHECKED	DRAWN
1.0	FB	mdf



SECTION A
1:200 @ A1



SECTION A
1:200 @ A1

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PROJECT
NORWOOD GREEN
76 MAGILL ROAD
NORWOOD
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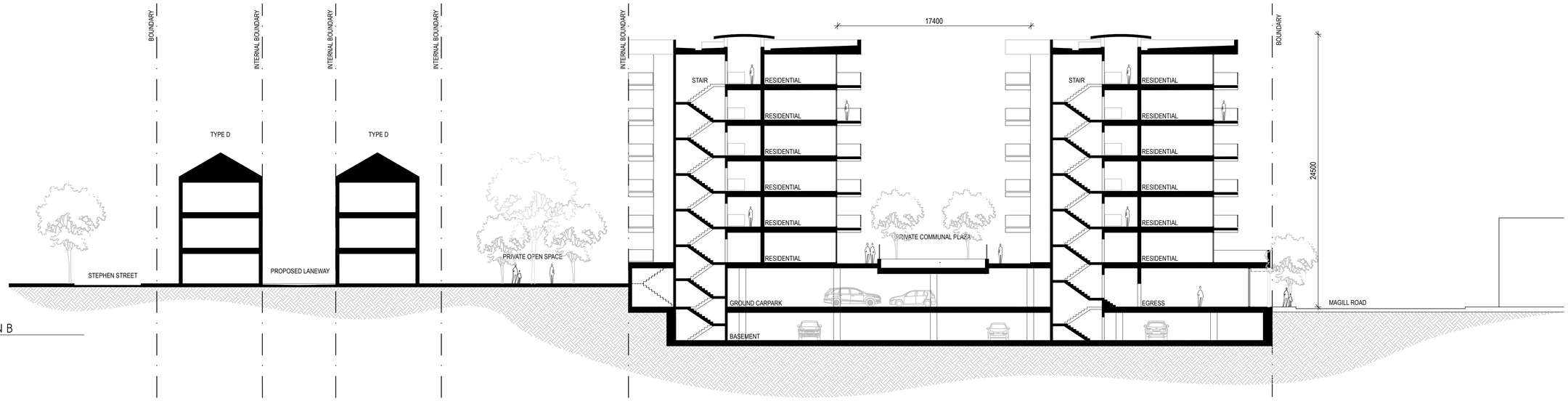
SECTIONS
SCALE
AS SHOWN
DATE
AUGUST 2018
NORTH
PROJECT NO
28055
DWG NO
P10
REVISION 1.0
CHECKED FB
DRAWN mdf



SECTION B
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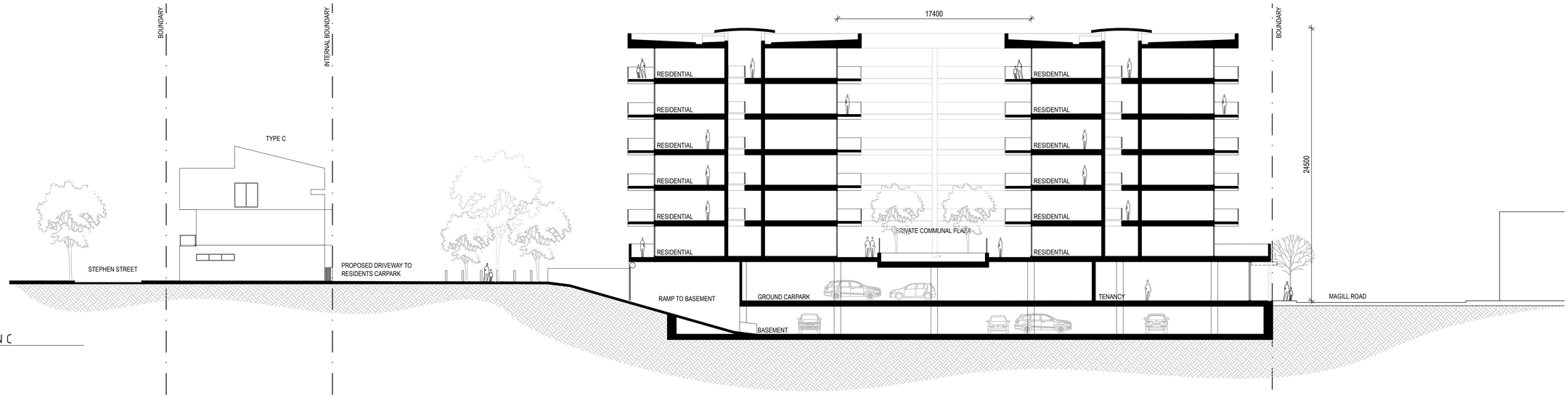
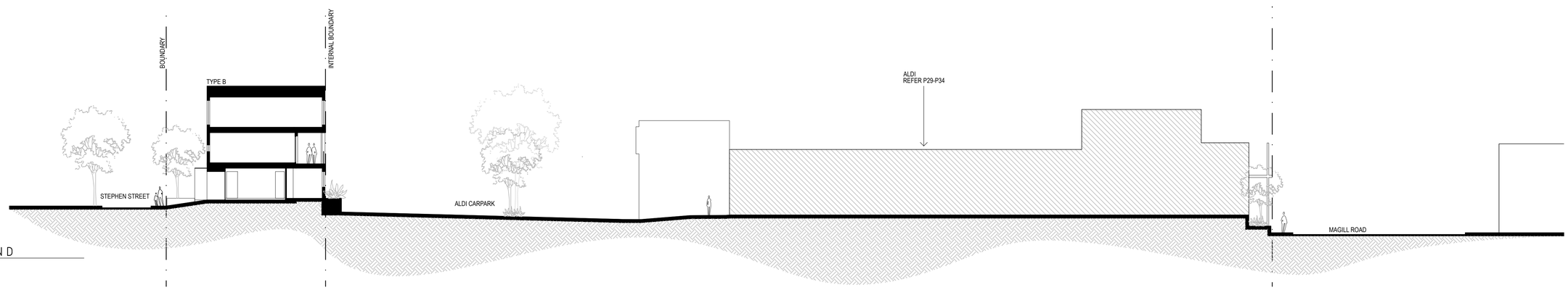


SECTION C
1:200 @ A1



SECTION D
1:200 @ A1

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PROJECT
NORWOOD GREEN
76 MAGILL ROAD
NORWOOD
CLIENT
ALDI | CA CA

DRAWING
SECTIONS

NORTH

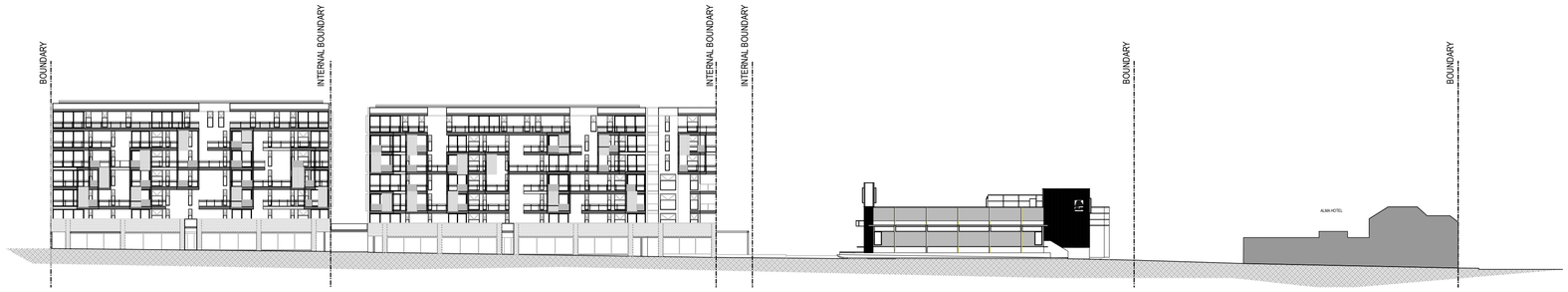
SCALE
AS SHOWN

DATE
AUGUST 2018

PROJECT NO
28055

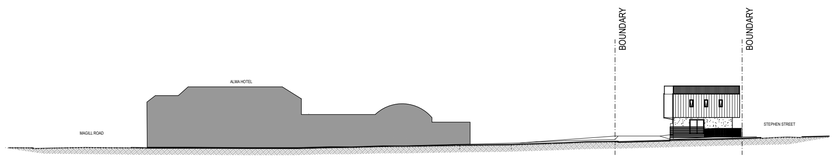
DWG NO
P11

REVISION	CHECKED	DRAWN
1.0	FB	mdf



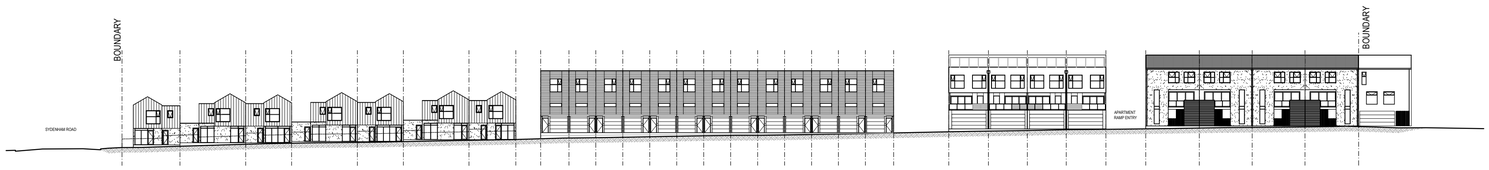
MAGILL ROAD ELEVATION (NORTH)

1:500 @ A1



SYDENHAM STREET ELEVATION (WEST)

1:500 @ A1



STEPHEN STREET ELEVATION (SOUTH)

1:500 @ A1

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PROJECT
NORWOOD GREEN
76 MAGILL ROAD
NORWOOD

CLIENT
ALDI | CA CA

DRAWING
SECTIONS

NORTH

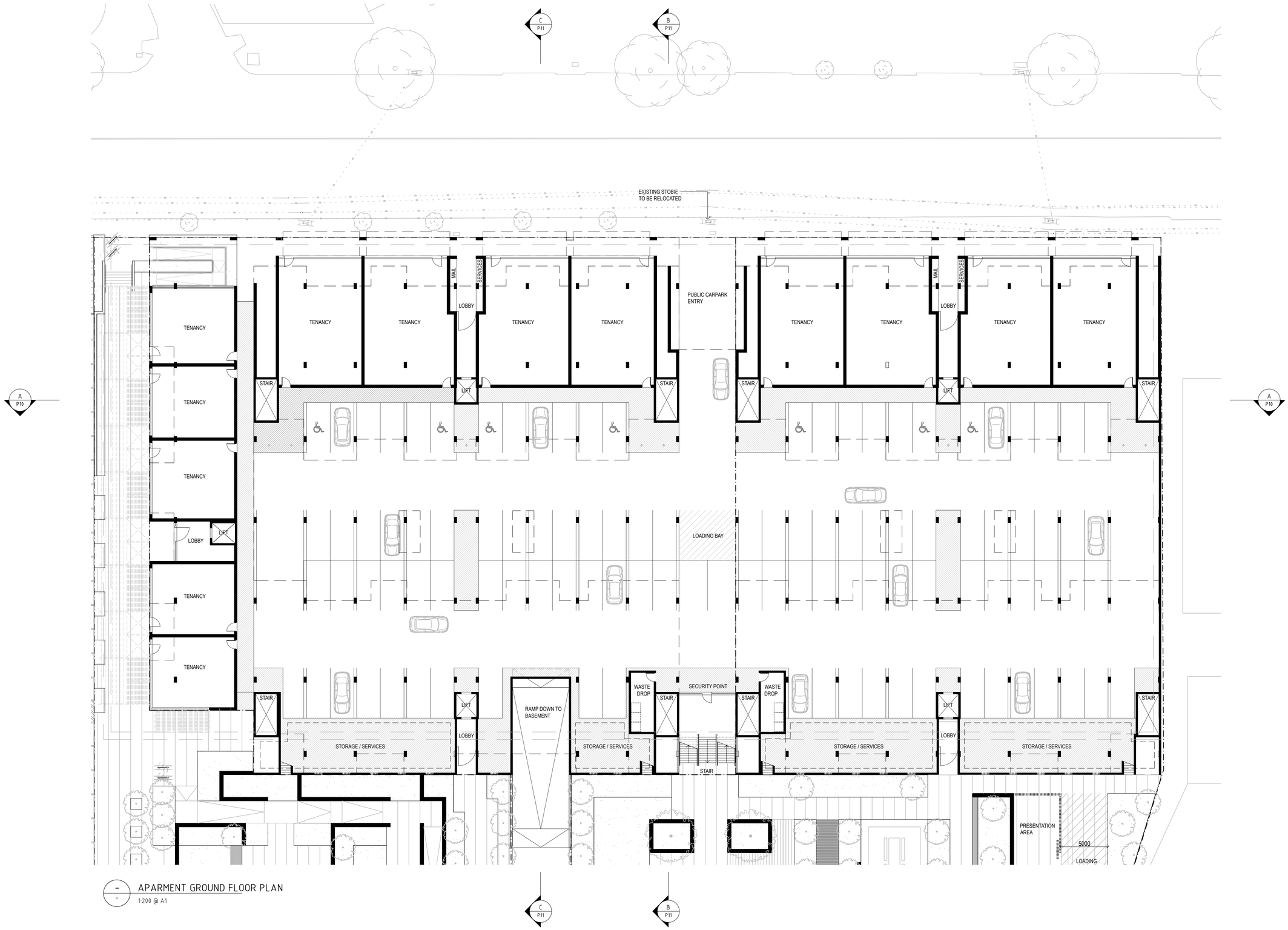
SCALE
AS SHOWN

DATE
AUGUST 2018

PROJECT NO
28055

DWG NO
P12

REVISION	CHECKED	DRAWN
1.0	FB	mdf



APARMENT GROUND FLOOR PLAN

1:200 @ A1

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PROJECT
NORWOOD GREEN
76 MAGILL ROAD
NORWOOD

CLIENT
ALDI | CA CA

DRAWING
GROUND FLOOR PLAN
APARTMENTS

NORTH

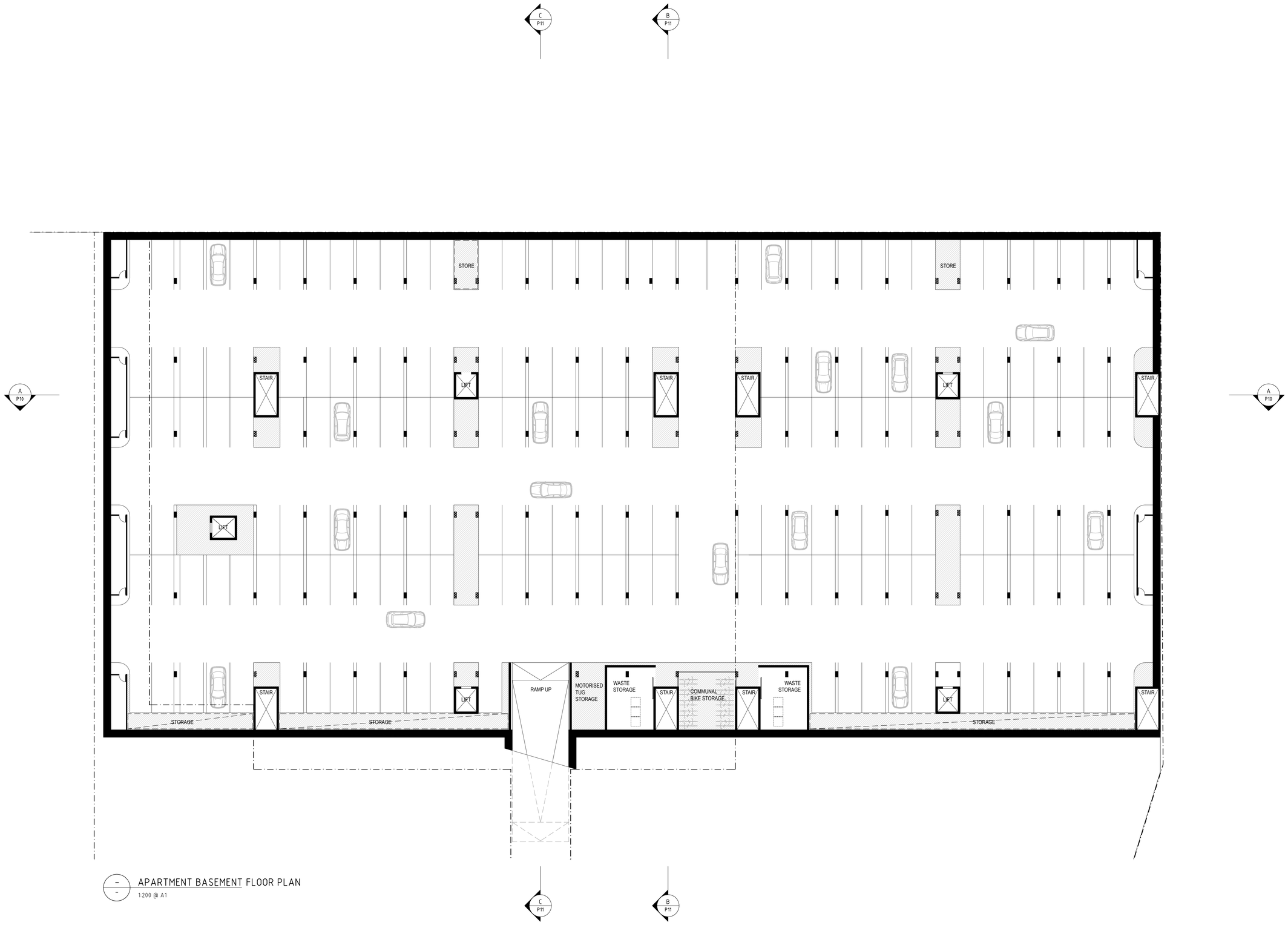
SCALE
AS SHOWN

DATE
AUGUST 2018

PROJECT NO
28055

DWG NO
P13

REVISION	CHECKED	DRAWN
1.0	FB	mdf



APARTMENT BASEMENT FLOOR PLAN

1:200 @ A1

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PROJECT
NORWOOD GREEN
76 MAGILL ROAD
NORWOOD

CLIENT
ALDI | CA CA

DRAWING
BASEMENT
APARTMENTS

NORTH

SCALE
AS SHOWN

DATE
AUGUST 2018

PROJECT NO
28055

DWG NO
P14

REVISION	CHECKED	DRAWN
1.0	FB	mdf

APARTMENT LEVEL 1 FLOOR PLAN

1:200 @ A1

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PROJECT
NORWOOD GREEN
76 MAGILL ROAD
NORWOOD

CLIENT
ALDI | CA CA

DRAWING
FIRST FLOOR PLAN
APARTMENTS

NORTH

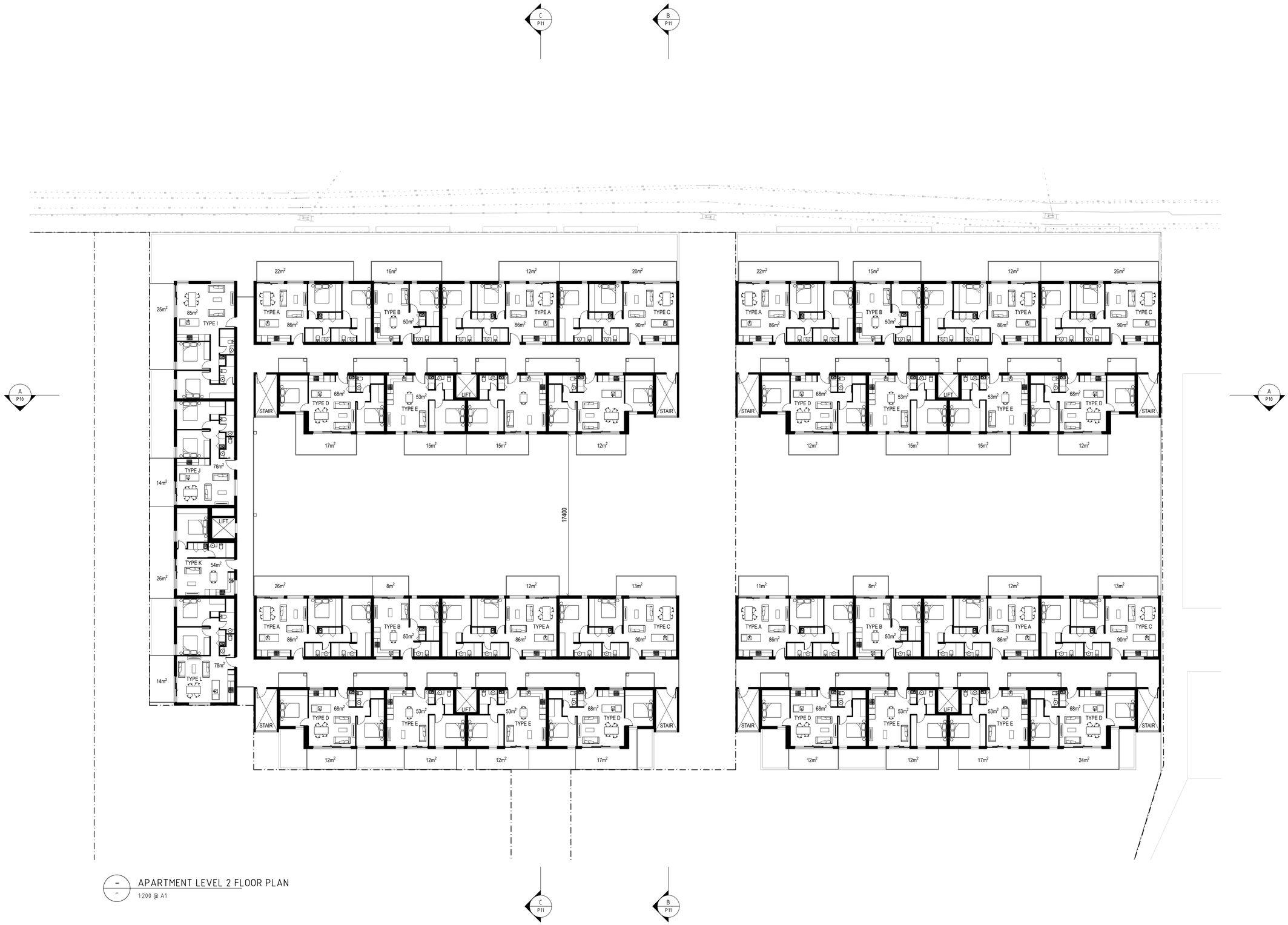
SCALE
AS SHOWN

DATE
AUGUST 2018

PROJECT NO
28055

DWG NO
P15

REVISION	CHECKED	DRAWN
1.0	FB	mdf



APARTMENT LEVEL 2 FLOOR PLAN

1:200 @ A1

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PROJECT
NORWOOD GREEN
76 MAGILL ROAD
NORWOOD

CLIENT
ALDI | CA CA

DRAWING
SECOND FLOOR PLAN
APARTMENTS

NORTH

SCALE
AS SHOWN

DATE
AUGUST 2018

PROJECT NO
28055

DWG NO
P16

REVISION	CHECKED	DRAWN
1.0	FB	mdf

APARTMENT LEVEL 3 FLOOR PLAN

1:200 @ A1

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PROJECT
NORWOOD GREEN
76 MAGILL ROAD
NORWOOD

CLIENT
ALDI | CA CA

DRAWING
THIRD FLOOR PLAN
APARTMENTS

NORTH

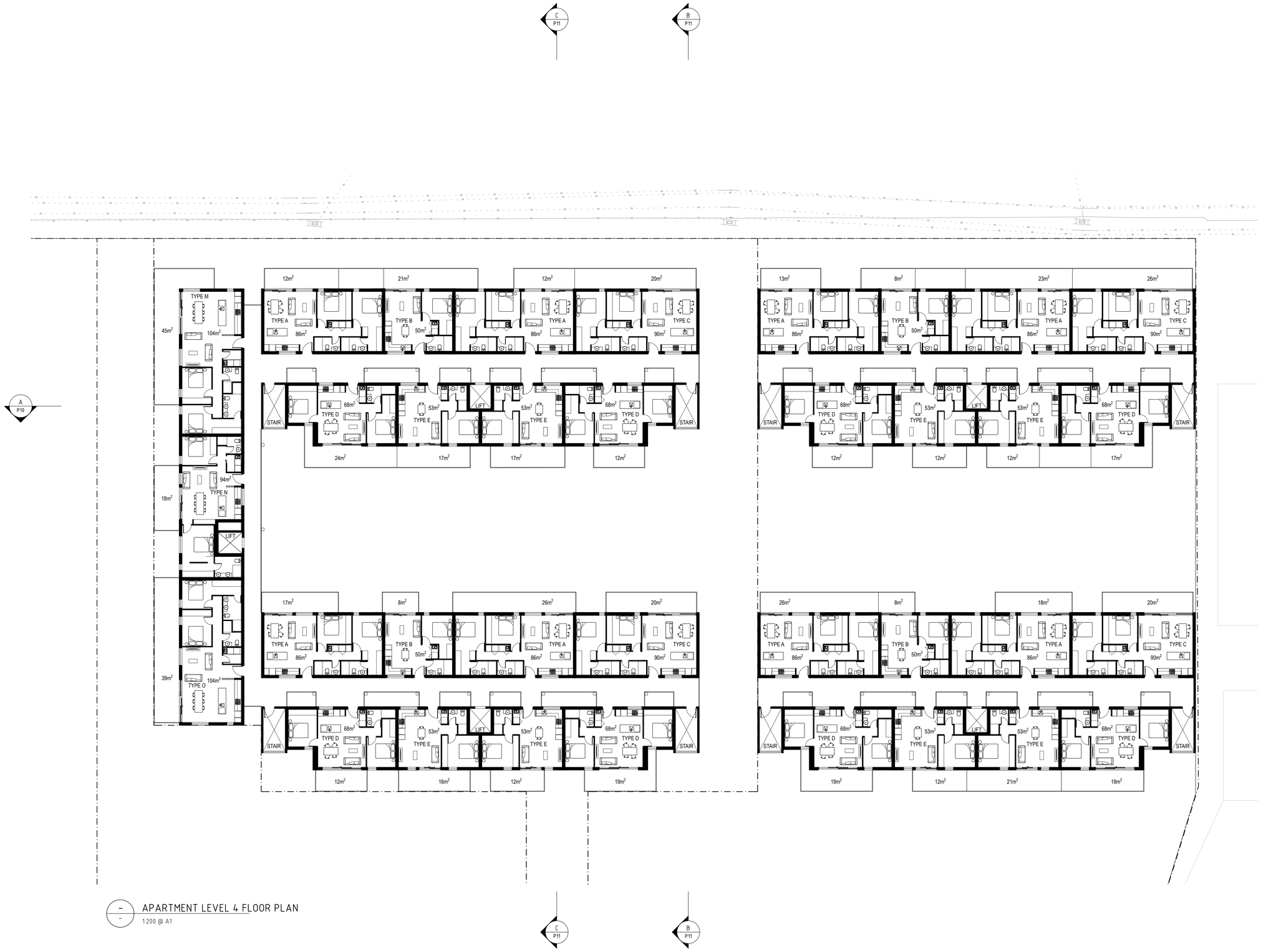
SCALE
AS SHOWN

DATE
AUGUST 2018

PROJECT NO
28055

DWG NO
P17

REVISION	CHECKED	DRAWN
1.0	FB	mdf



APARTMENT LEVEL 4 FLOOR PLAN

1:200 @ A1

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PROJECT
NORWOOD GREEN
76 MAGILL ROAD
NORWOOD

CLIENT
ALDI | CA CA

DRAWING
FOURTH FLOOR PLAN
APARTMENTS

NORTH

SCALE
AS SHOWN

DATE
AUGUST 2018

PROJECT NO
28055

DWG NO
P18

REVISION	CHECKED	DRAWN
1.0	FB	mdf

APARTMENT LEVEL 5 FLOOR PLAN

1:200 @ A1

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PROJECT
NORWOOD GREEN
76 MAGILL ROAD
NORWOOD

CLIENT
ALDI | CA CA

DRAWING
FIFTH FLOOR PLAN
APARTMENTS

NORTH

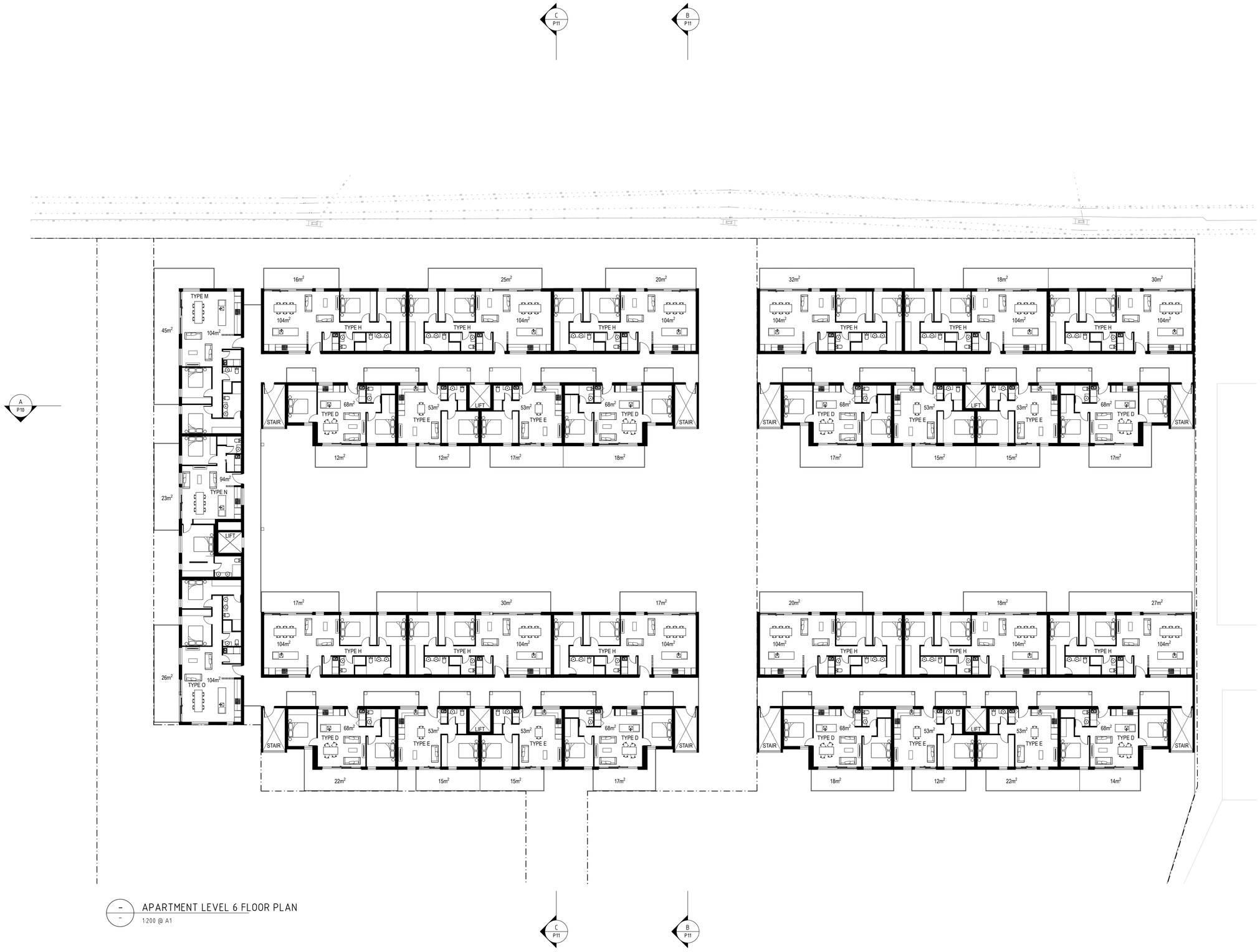
SCALE
AS SHOWN

DATE
AUGUST 2018

PROJECT NO
28055

DWG NO
P19

REVISION	CHECKED	DRAWN
1.0	FB	mdf



APARTMENT LEVEL 6 FLOOR PLAN

1:200 @ A1

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PROJECT
NORWOOD GREEN
76 MAGILL ROAD
NORWOOD

CLIENT
ALDI | CA CA

DRAWING
SIXTH FLOOR PLAN
APARTMENTS

NORTH

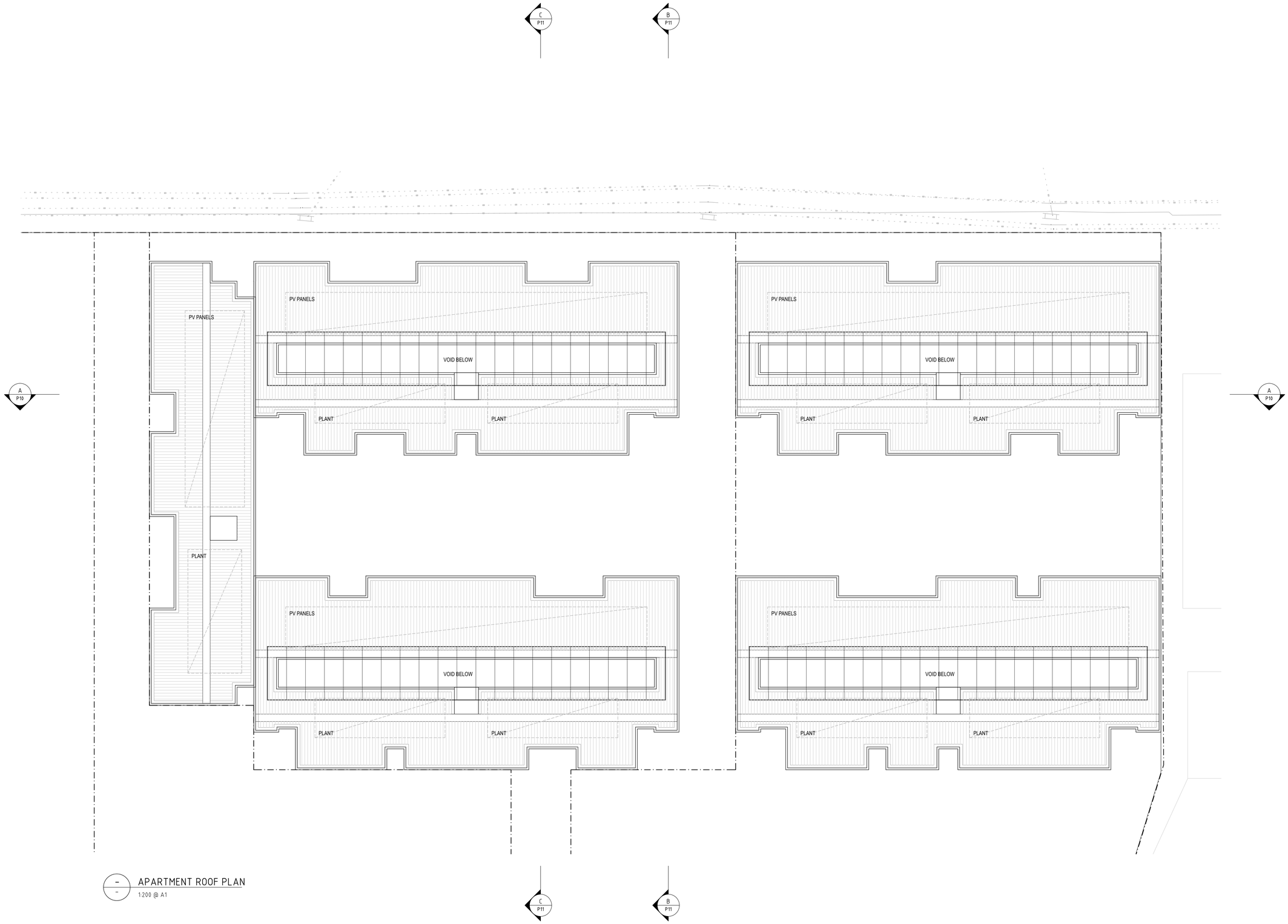
SCALE
AS SHOWN

DATE
AUGUST 2018

PROJECT NO
28055

DWG NO
P20

REVISION	CHECKED	DRAWN
1.0	FB	mdf



APARTMENT ROOF PLAN

1:200 @ A1

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PROJECT
NORWOOD GREEN
76 MAGILL ROAD
NORWOOD
CLIENT
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DRAWING
ROOF PLAN
APARTMENTS

NORTH

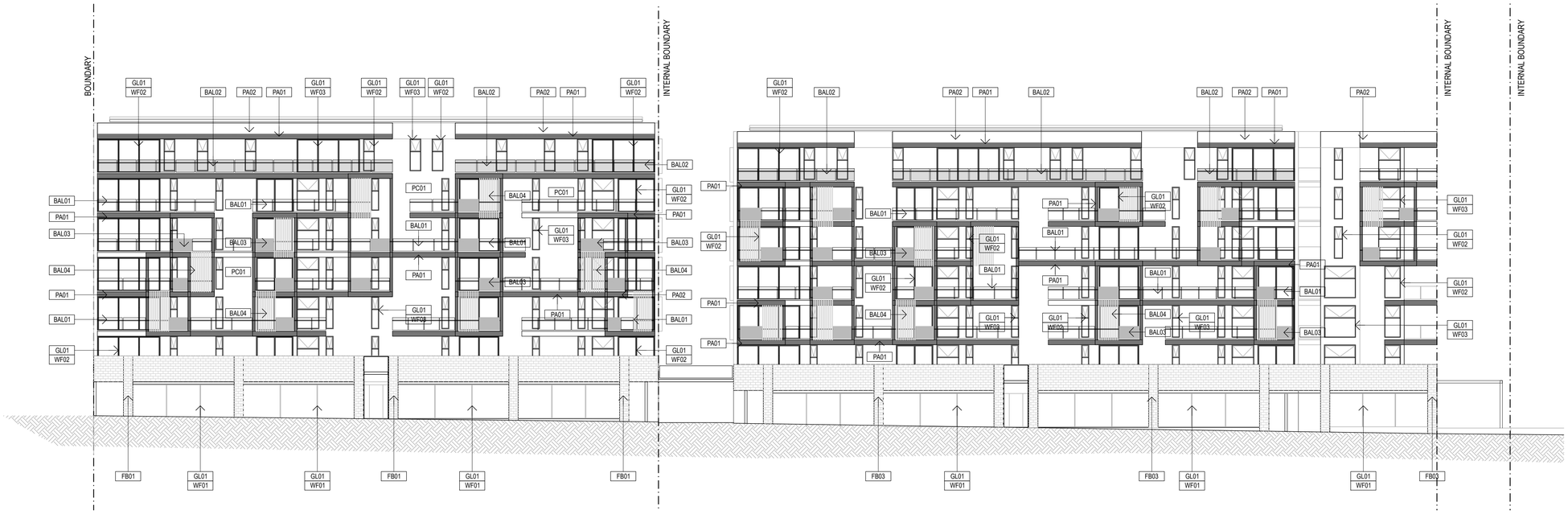
SCALE
AS SHOWN

DATE
AUGUST 2018

PROJECT NO
28055

DWG NO
P21

REVISION	CHECKED	DRAWN
1.0	FB	mdf



NORTH ELEVATION (MAGILL)

1:200 @ A1

SOUTH ELEVATION

1:200 @ A1

ELEVATIONS LEGEND

PC01	TREATED PRECAST (OFF WHITE)
PA01	PAINT FINISH TYPE 1 (BLACK MAGIC)
PA02	PAINT FINISH TYPE 2 (CHINA WHITE)
PA03	PAINT FINISH TYPE 3 (QUAGMIRE)
PA04	PAINT FINISH TYPE 4 (BURNISHED RUSSET)
PA05	PAINT FINISH TYPE 5 (ARID LAND)
FB01	FACE BRICK TYPE 1 (CHARCOAL)
FB02	FACE BRICK TYPE 2 (WHITE)
FB03	FACE BRICK TYPE 3 (RED)
FB04	FACE BLOCK TYPE 4 (GREY)
GL01	GLASS TYPE 1 (CLEAR)
GL02	GLASS TYPE 2 (GREY)
GL03	GLASS TYPE 3 (TRANSLUCENT)
WF01	WINDOW FRAME 1 (ANODIDSED)
WF02	WINDOW FRAME 2 (BLACK)
WF03	WINDOW FRAME 3 (WHITE)
BAL01	BALUSTRADE 1 (CLEAR GLASS)
BAL02	BALUSTRADE 2 (GREY GLASS)
BAL03	BALUSTRADE 3 (OPAQUE PANEL)
BAL04	BALUSTRADE 4 (METAL SCREEN)
MC01	METAL CLADDING 1 (MONUMENT)
MC02	METAL CLADDING 2 (SURFMIST)
MC03	METAL CLADDING 2 (HERITAGE GALV)
MC04	METAL CLADDING 3 (ZINCALUME)
GA01	GARAGE DOOR 1 (MONUMENT)
GA02	GARAGE DOOR 2 (SURFMIST)
GA03	GARAGE DOOR 3 (POLYCARBONATE)
GA04	GARAGE DOOR 4 (TIMBER)
TI01	TIMBER 1 (SPOTTED GUM)
TI02	TIMBER 2 (PAINTED)

NOTE: LANDSCAPING OMITTED FOR CLARITY

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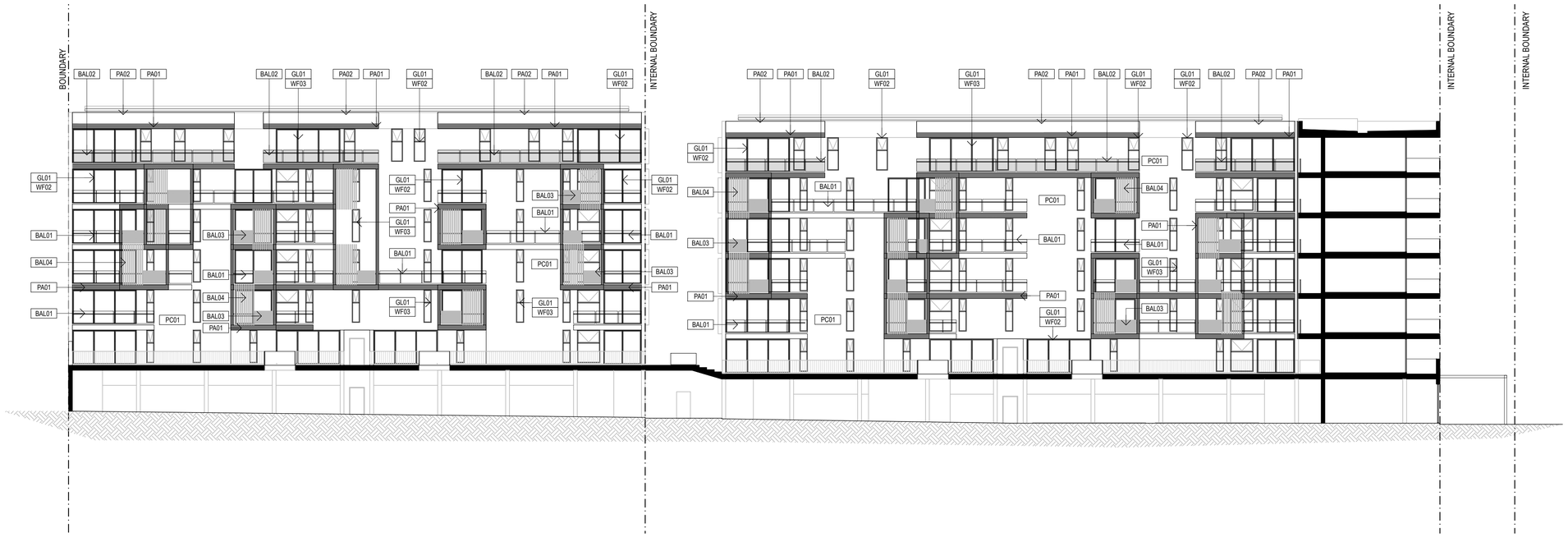
PROJECT: NORWOOD GREEN, 76 MAGILL ROAD, NORWOOD
CLIENT: ALDI | CA CA

DRAWING: ELEVATIONS APARTMENTS
NORTH
SCALE: AS SHOWN
DATE: AUGUST 2018

PROJECT NO: 28055
DWG NO: P22
REVISION: 1.0
CHECKED: FB
DRAWN: mdf

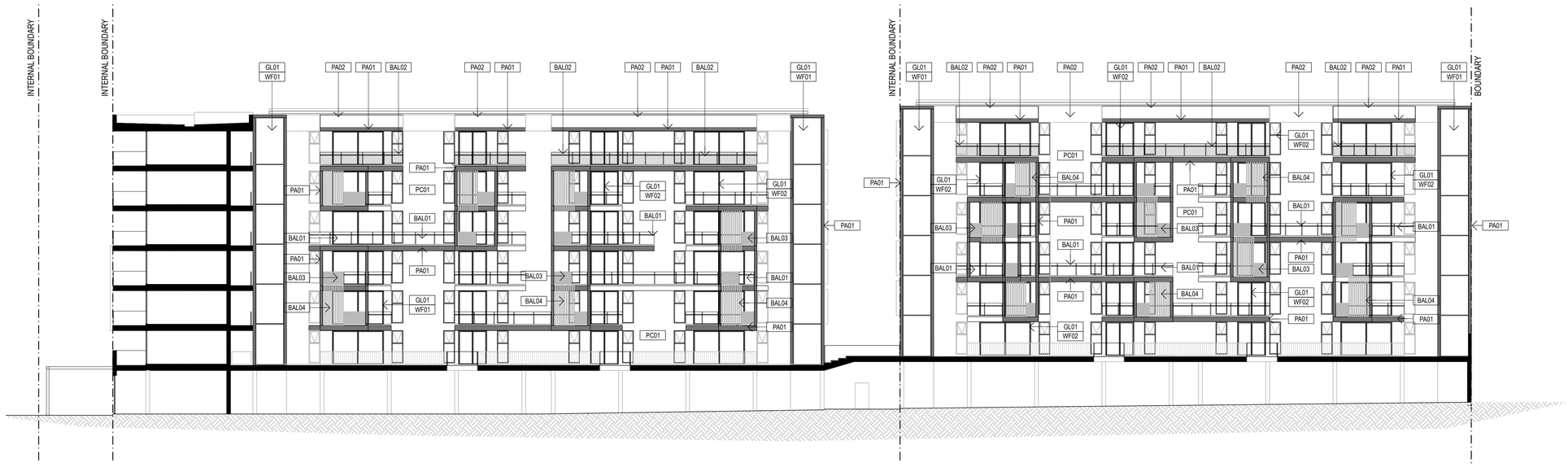


NORTH ELEVATION (INTERNAL)

1:200 @ A1

ELEVATIONS LEGEND

PC01	TREATED PRECAST (OFF WHITE)
PA01	PAINT FINISH TYPE 1 (BLACK MAGIC)
PA02	PAINT FINISH TYPE 2 (CHINA WHITE)
PA03	PAINT FINISH TYPE 3 (QUAGMIRE)
PA04	PAINT FINISH TYPE 4 (BURNISHED RUSSET)
PA05	PAINT FINISH TYPE 5 (ARID LAND)
FB01	FACE BRICK TYPE 1 (CHARCOAL)
FB02	FACE BRICK TYPE 2 (WHITE)
FB03	FACE BRICK TYPE 3 (RED)
FB04	FACE BLOCK TYPE 4 (GREY)
GL01	GLASS TYPE 1 (CLEAR)
GL02	GLASS TYPE 2 (GREY)
GL03	GLASS TYPE 3 (TRANSLUCENT)
WF01	WINDOW FRAME 1 (ANODIOSED)
WF02	WINDOW FRAME 2 (BLACK)
WF03	WINDOW FRAME 3 (WHITE)
BAL01	BALUSTRADE 1 (CLEAR GLASS)
BAL02	BALUSTRADE 2 (GREY GLASS)
BAL03	BALUSTRADE 3 (OPAQUE PANEL)
BAL04	BALUSTRADE 4 (METAL SCREEN)
MC01	METAL CLADDING 1 (MONUMENT)
MC02	METAL CLADDING 2 (SURFMIST)
MC03	METAL CLADDING 2 (HERITAGE GALV)
MC04	METAL CLADDING 3 (ZINCALUME)
GA01	GARAGE DOOR 1 (MONUMENT)
GA02	GARAGE DOOR 2 (SURFMIST)
GA03	GARAGE DOOR 3 (POLYCARBONATE)
GA04	GARAGE DOOR 4 (TIMBER)
TI01	TIMBER 1 (SPOTTED GUM)
TI02	TIMBER 2 (PAINTED)



SOUTH ELEVATION (INTERNAL)

1:200 @ A1

NOTE: LANDSCAPING OMITTED FOR CLARITY

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REV	DATE	DESCRIPTION
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PROJECT
NORWOOD GREEN
76 MAGILL ROAD
NORWOOD

CLIENT
ALDI | CA CA

DRAWING
APARTMENTS
ELEVATIONS

NORTH

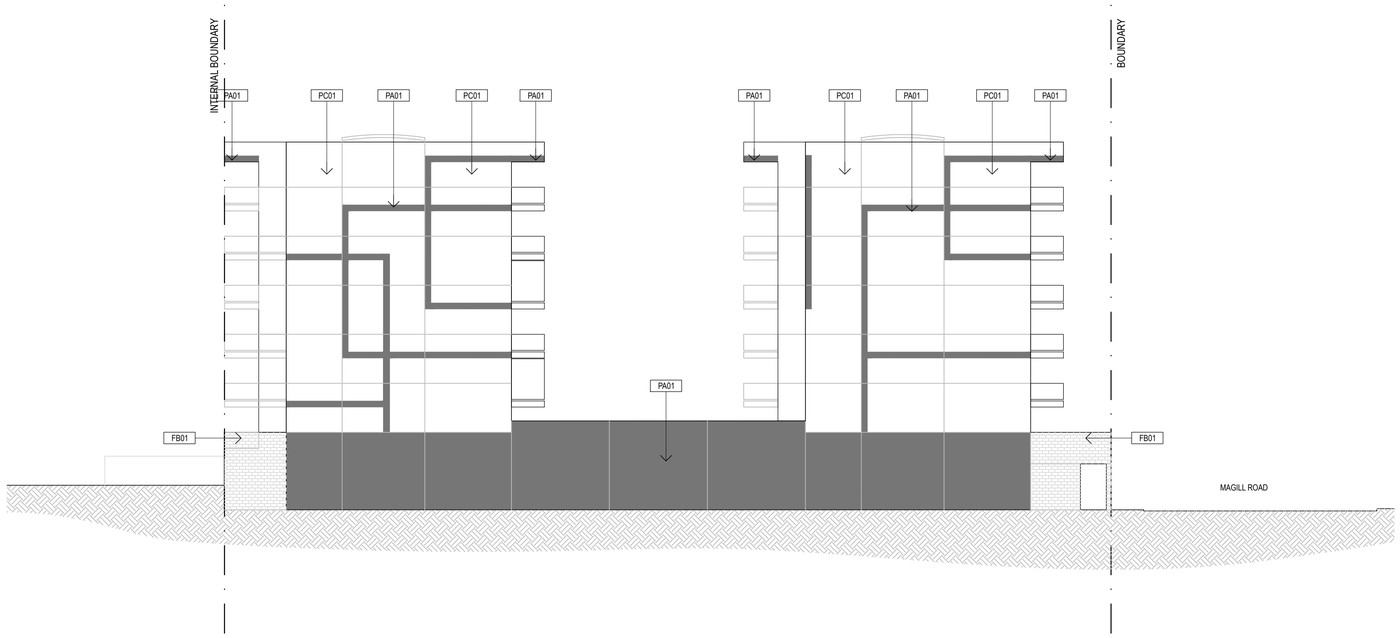
SCALE
AS SHOWN

DATE
AUGUST 2018

PROJECT NO
28055

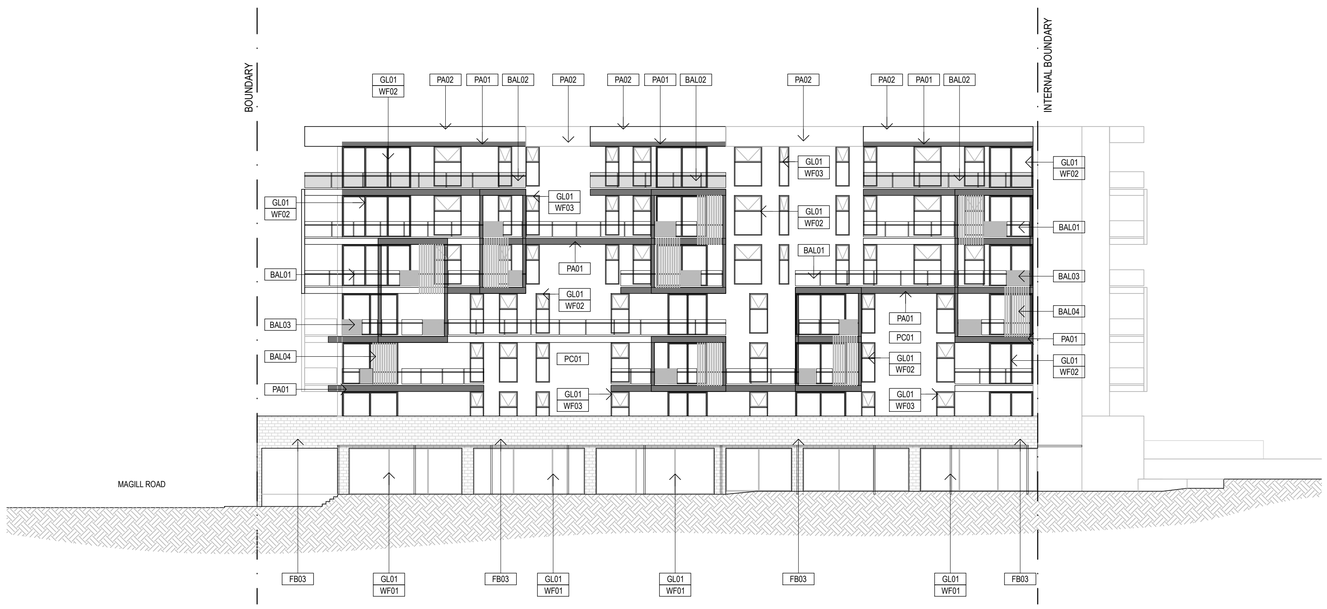
DWG NO
P23

REVISION	CHECKED	DRAWN
1.0	FB	mdf



EAST ELEVATION

1:200 @ A1



WEST ELEVATION

1:200 @ A1

ELEVATIONS LEGEND

PC01	TREATED PRECAST (OFF WHITE)
PA01	PAINT FINISH TYPE 1 (BLACK MAGIC)
PA02	PAINT FINISH TYPE 2 (CHINA WHITE)
PA03	PAINT FINISH TYPE 3 (QUAGMIRE)
PA04	PAINT FINISH TYPE 4 (BURNISHED RUSSET)
PA05	PAINT FINISH TYPE 5 (ARID LAND)
FB01	FACE BRICK TYPE 1 (CHARCOAL)
FB02	FACE BRICK TYPE 2 (WHITE)
FB03	FACE BRICK TYPE 3 (RED)
FB04	FACE BLOCK TYPE 4 (GREY)
GL01	GLASS TYPE 1 (CLEAR)
GL02	GLASS TYPE 2 (GREY)
GL03	GLASS TYPE 3 (TRANSLUCENT)
WF01	WINDOW FRAME 1 (ANODIOSED)
WF02	WINDOW FRAME 2 (BLACK)
WF03	WINDOW FRAME 3 (WHITE)
BAL01	BALUSTRADE 1 (CLEAR GLASS)
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BAL03	BALUSTRADE 3 (OPAQUE PANEL)
BAL04	BALUSTRADE 4 (METAL SCREEN)
MC01	METAL CLADDING 1 (MONUMENT)
MC02	METAL CLADDING 2 (SURFMIST)
MC03	METAL CLADDING 2 (HERITAGE GALV)
MC04	METAL CLADDING 3 (ZINCALUME)
GA01	GARAGE DOOR 1 (MONUMENT)
GA02	GARAGE DOOR 2 (SURFMIST)
GA03	GARAGE DOOR 3 (POLYCARBONATE)
GA04	GARAGE DOOR 4 (TIMBER)
TI01	TIMBER 1 (SPOTTED GUM)
TI02	TIMBER 2 (PAINTED)

NOTE: LANDSCAPING OMITTED FOR CLARITY

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REV	DATE	DESCRIPTION
1.0	23/08/18	ISSUED FOR DPC

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PROJECT
NORWOOD GREEN
76 MAGILL ROAD
NORWOOD

CLIENT
ALDI | CA CA

DRAWING
ELEVATIONS
APARTMENTS

NORTH

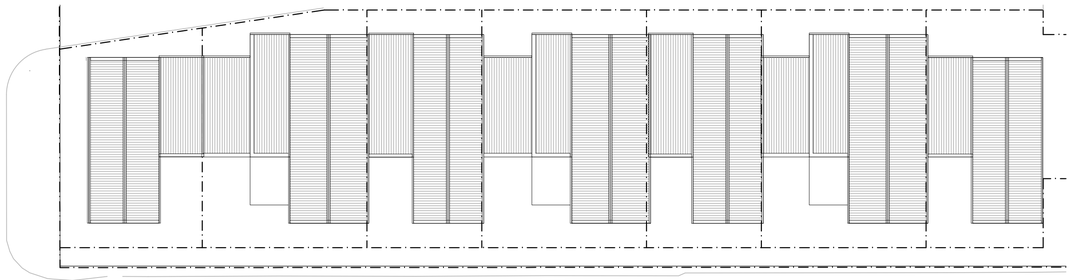
SCALE
AS SHOWN

DATE
AUGUST 2018

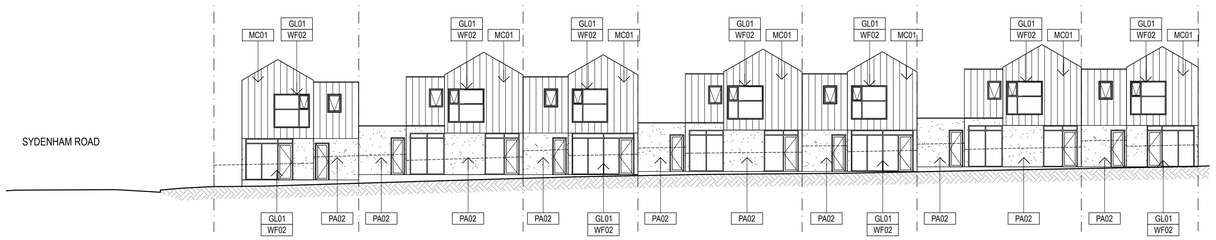
PROJECT NO
28055

DWG NO
P24

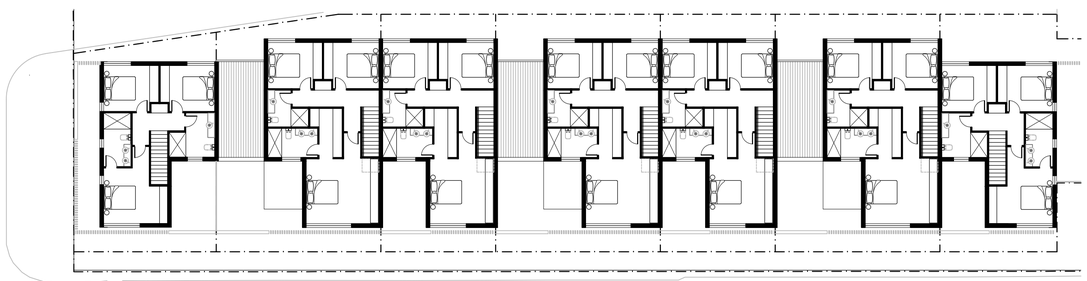
REVISION	CHECKED	DRAWN
1.0	FB	mdf



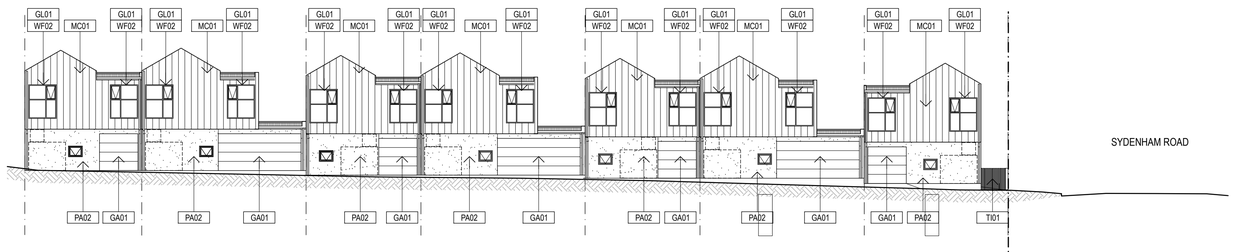
ROOF PLAN
1:200 @ A1



SOUTH ELEVATION (STEPHEN STREET)
1:200 @ A1

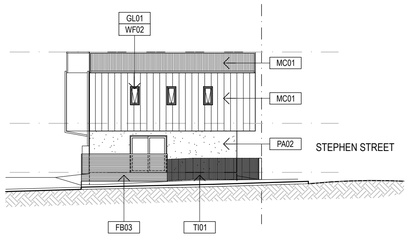


LEVEL 1 FLOOR PLAN
1:200 @ A1

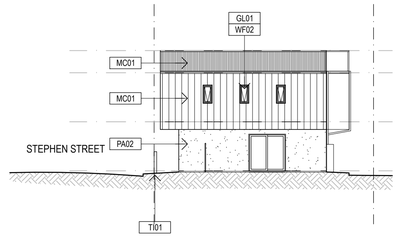


NORTH ELEVATION
1:200 @ A1

GROUND FLOOR PLAN
1:200 @ A1



WEST ELEVATION (SYDENHAM ROAD)
1:200 @ A1



EAST ELEVATION
1:200 @ A1

ELEVATIONS LEGEND

PC01	TREATED PRECAST (OFF WHITE)
PA01	PAINT FINISH TYPE 1 (BLACK MAGIC)
PA02	PAINT FINISH TYPE 2 (CHINA WHITE)
PA03	PAINT FINISH TYPE 3 (QUAGMIRE)
PA04	PAINT FINISH TYPE 4 (BURNISHED RUSSET)
PA05	PAINT FINISH TYPE 5 (ARID LAND)
FB01	FACE BRICK TYPE 1 (CHARCOAL)
FB02	FACE BRICK TYPE 2 (WHITE)
FB03	FACE BRICK TYPE 3 (RED)
FB04	FACE BLOCK TYPE 4 (GREY)
GL01	GLASS TYPE 1 (CLEAR)
GL02	GLASS TYPE 2 (GREY)
GL03	GLASS TYPE 3 (TRANSLUCENT)
WF01	WINDOW FRAME 1 (ANODIOSED)
WF02	WINDOW FRAME 2 (BLACK)
WF03	WINDOW FRAME 3 (WHITE)
BAL01	BALUSTRADE 1 (CLEAR GLASS)
BAL02	BALUSTRADE 2 (GREY GLASS)
BAL03	BALUSTRADE 3 (OPAQUE PANEL)
BAL04	BALUSTRADE 4 (METAL SCREEN)
MC01	METAL CLADDING 1 (MONUMENT)
MC02	METAL CLADDING 2 (SURFMIST)
MC03	METAL CLADDING 2 (HERITAGE GALV)
MC04	METAL CLADDING 3 (ZINCALUME)
GA01	GARAGE DOOR 1 (MONUMENT)
GA02	GARAGE DOOR 2 (SURFMIST)
GA03	GARAGE DOOR 3 (POLYCARBONATE)
GA04	GARAGE DOOR 4 (TIMBER)
TI01	TIMBER 1 (SPOTTED GUM)
TI02	TIMBER 2 (PAINTED)

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REV	DATE	DESCRIPTION
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PROJECT
NORWOOD GREEN
76 MAGILL ROAD
NORWOOD
CLIENT
ALDI | CA CA

DRAWING
TYPE A
TOWNHOUSES

NORTH

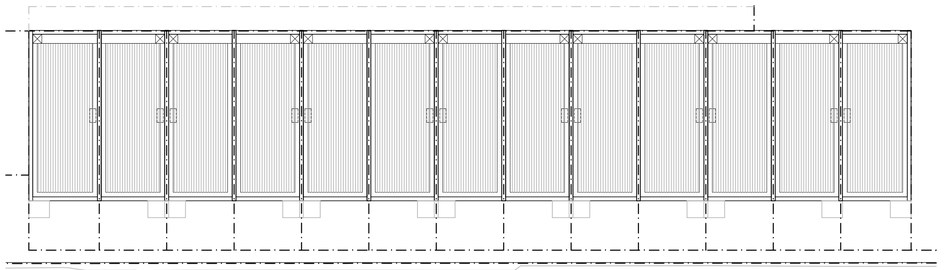
SCALE
AS SHOWN

DATE
AUGUST 2018

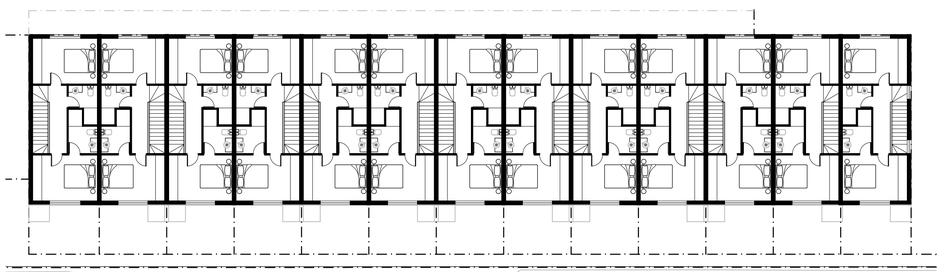
PROJECT NO
28055

DWG NO
P25

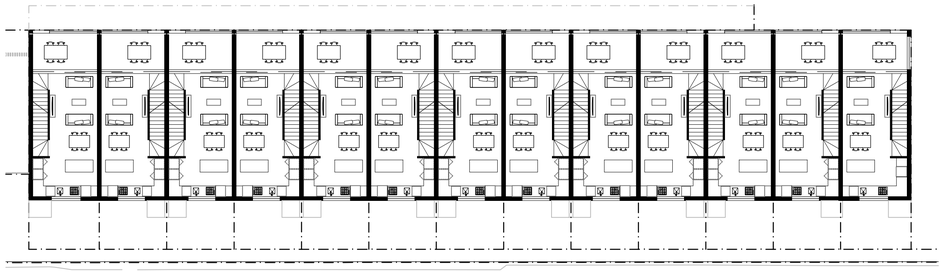
REVISION	CHECKED	DRAWN
1.0	FB	mdf



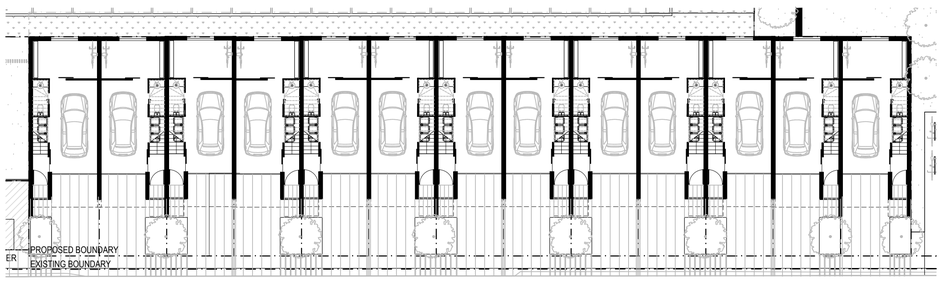
ROOF PLAN
1:200 @ A1



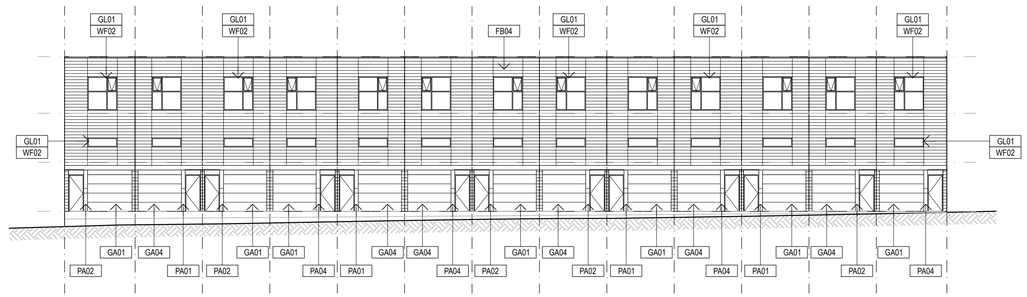
LEVEL 2 FLOOR PLAN
1:200 @ A1



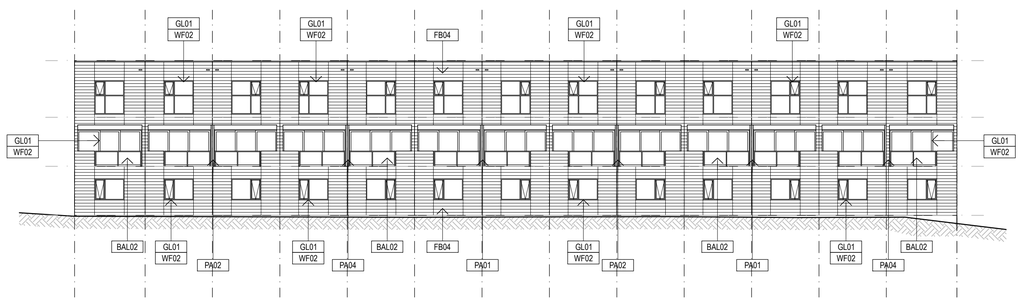
LEVEL 1 FLOOR PLAN
1:200 @ A1



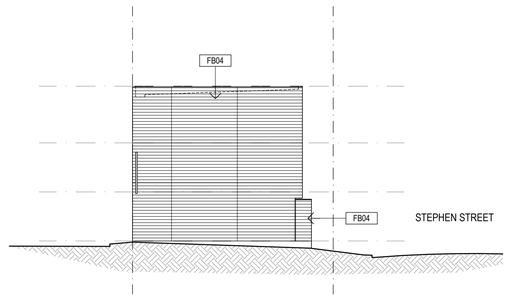
GROUND FLOOR PLAN
1:200 @ A1



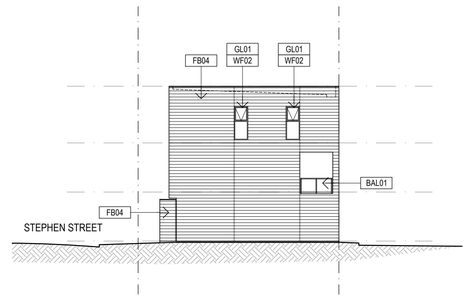
SOUTH ELEVATION (STEPHEN STREET)
1:200 @ A1



NORTH ELEVATION
1:200 @ A1



WEST ELEVATION
1:200 @ A1



EAST ELEVATION
1:200 @ A1

ELEVATIONS LEGEND

PC01	TREATED PRECAST (OFF WHITE)
PA01	PAINT FINISH TYPE 1 (BLACK MAGIC)
PA02	PAINT FINISH TYPE 2 (CHINA WHITE)
PA03	PAINT FINISH TYPE 3 (QUAGMIRE)
PA04	PAINT FINISH TYPE 4 (BURNISHED RUSSET)
PA05	PAINT FINISH TYPE 5 (ARID LAND)
FB01	FACE BRICK TYPE 1 (CHARCOAL)
FB02	FACE BRICK TYPE 2 (WHITE)
FB03	FACE BRICK TYPE 3 (RED)
FB04	FACE BLOCK TYPE 4 (GREY)
GL01	GLASS TYPE 1 (CLEAR)
GL02	GLASS TYPE 2 (GREY)
GL03	GLASS TYPE 3 (TRANSLUCENT)
WF01	WINDOW FRAME 1 (ANODIOSED)
WF02	WINDOW FRAME 2 (BLACK)
WF03	WINDOW FRAME 3 (WHITE)
BAL01	BALUSTRADE 1 (CLEAR GLASS)
BAL02	BALUSTRADE 2 (GREY GLASS)
BAL03	BALUSTRADE 3 (OPAQUE PANEL)
BAL04	BALUSTRADE 4 (METAL SCREEN)
MC01	METAL CLADDING 1 (MONUMENT)
MC02	METAL CLADDING 2 (SURFMIST)
MC03	METAL CLADDING 2 (HERITAGE GALV)
MC04	METAL CLADDING 3 (ZINCALUME)
GA01	GARAGE DOOR 1 (MONUMENT)
GA02	GARAGE DOOR 2 (SURFMIST)
GA03	GARAGE DOOR 3 (POLYCARBONATE)
GA04	GARAGE DOOR 4 (TIMBER)
TI01	TIMBER 1 (SPOTTED GUM)
TI02	TIMBER 2 (PAINTED)

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REV	DATE	DESCRIPTION
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PROJECT
NORWOOD GREEN
76 MAGILL ROAD
NORWOOD
CLIENT
ALDI | CA CA

DRAWING
TYPE B
TOWNHOUSES

NORTH

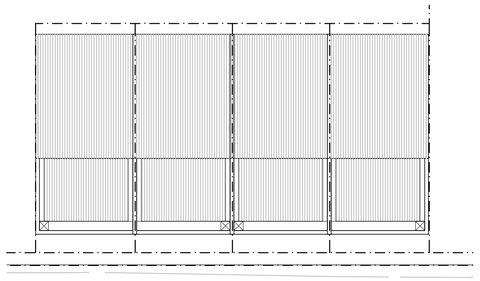
SCALE
AS SHOWN

DATE
AUGUST 2018

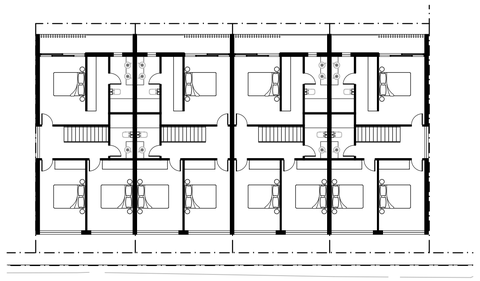
PROJECT NO
28055

DWG NO
P26

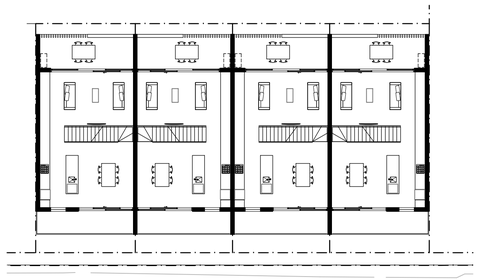
REVISION	CHECKED	DRAWN
1.0	FB	mdf



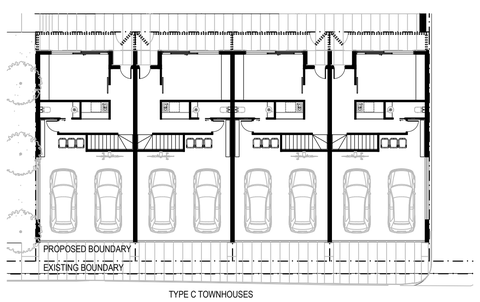
ROOF FLOOR PLAN
1:200 @ A1



LEVEL 2 FLOOR PLAN
1:200 @ A1



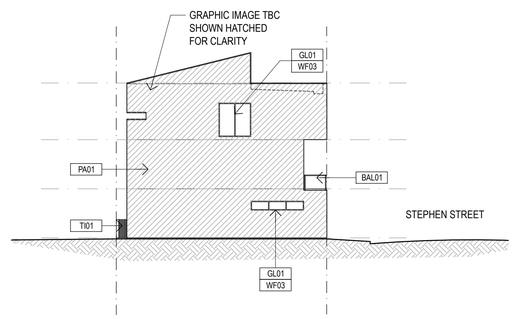
LEVEL 1 FLOOR PLAN
1:200 @ A1



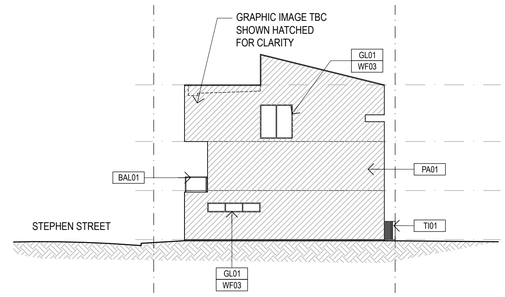
GROUND FLOOR PLAN
1:200 @ A1

SOUTH ELEVATION (STEPHEN STREET)
1:200 @ A1

NORTH ELEVATION
1:200 @ A1



WEST ELEVATION
1:200 @ A1



EAST ELEVATION
1:200 @ A1

ELEVATIONS LEGEND

PC01	TREATED PRECAST (OFF WHITE)
PA01	PAINT FINISH TYPE 1 (BLACK MAGIC)
PA02	PAINT FINISH TYPE 2 (CHINA WHITE)
PA03	PAINT FINISH TYPE 3 (QUAGMIRE)
PA04	PAINT FINISH TYPE 4 (BURNISHED RUSSET)
PA05	PAINT FINISH TYPE 5 (ARID LAND)
FB01	FACE BRICK TYPE 1 (CHARCOAL)
FB02	FACE BRICK TYPE 2 (WHITE)
FB03	FACE BRICK TYPE 3 (RED)
FB04	FACE BLOCK TYPE 4 (GREY)
GL01	GLASS TYPE 1 (CLEAR)
GL02	GLASS TYPE 2 (GREY)
GL03	GLASS TYPE 3 (TRANSLUCENT)
WF01	WINDOW FRAME 1 (ANODIOSED)
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BAL01	BALUSTRADE 1 (CLEAR GLASS)
BAL02	BALUSTRADE 2 (GREY GLASS)
BAL03	BALUSTRADE 3 (OPAQUE PANEL)
BAL04	BALUSTRADE 4 (METAL SCREEN)
MC01	METAL CLADDING 1 (MONUMENT)
MC02	METAL CLADDING 2 (SURFMIST)
MC03	METAL CLADDING 2 (HERITAGE GALV)
MC04	METAL CLADDING 3 (ZINCALUME)
GA01	GARAGE DOOR 1 (MONUMENT)
GA02	GARAGE DOOR 2 (SURFMIST)
GA03	GARAGE DOOR 3 (POLYCARBONATE)
GA04	GARAGE DOOR 4 (TIMBER)
TI01	TIMBER 1 (SPOTTED GUM)
TI02	TIMBER 2 (PAINTED)

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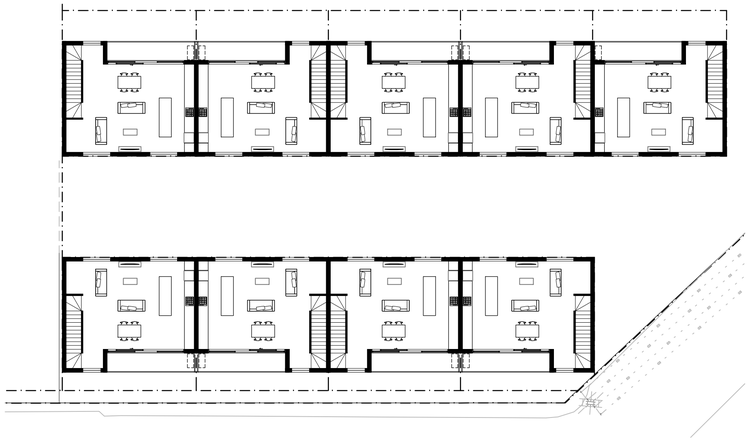
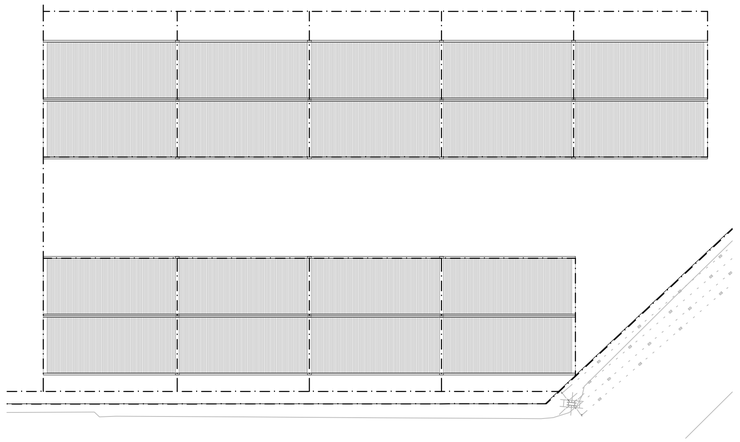
PROJECT: NORWOOD GREEN, 76 MAGILL ROAD, NORWOOD
CLIENT: ALDI | CA CA

DRAWING: TYPE C TOWNHOUSES
SCALE: AS SHOWN
DATE: AUGUST 2018
NORTH

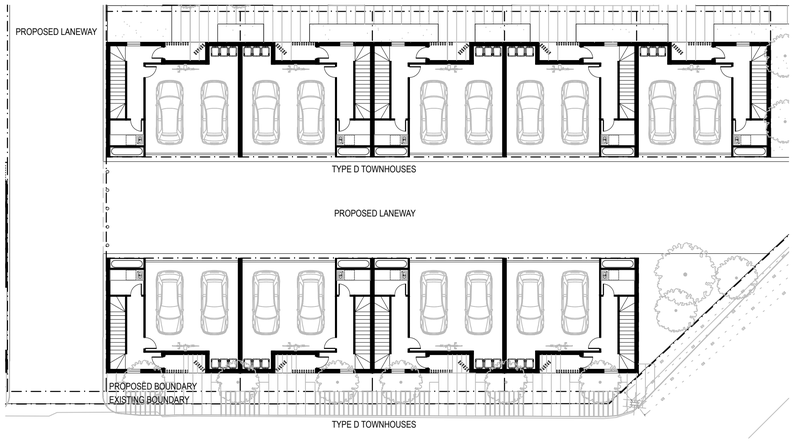
PROJECT NO: 28055
DWG NO: P27
REVISION: 1.0
CHECKED: FB
DRAWN: mdf



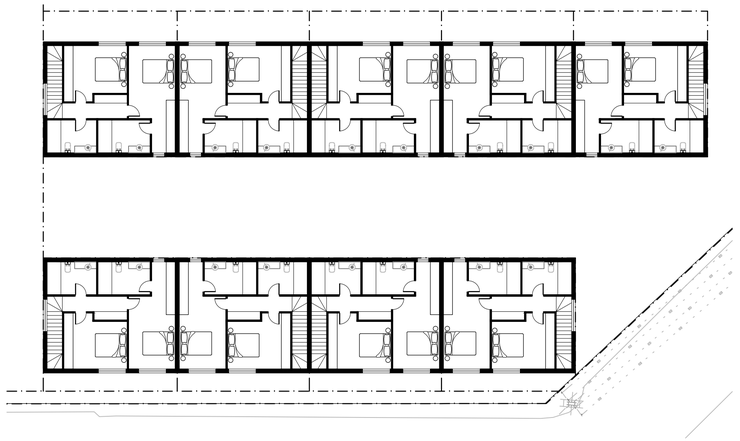
LEVEL 1 FLOOR PLAN
1:200 @ A1



ROOF FLOOR PLAN
1:200 @ A1



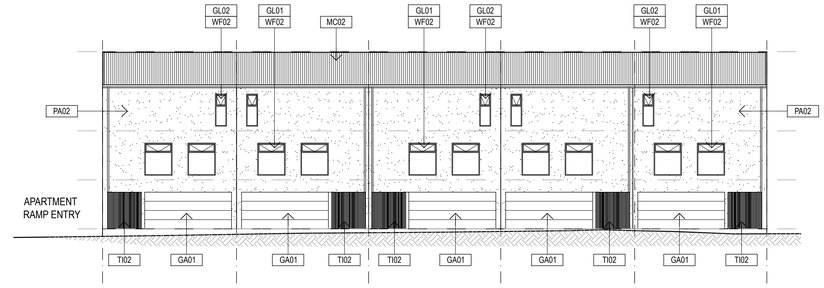
GROUND FLOOR PLAN
1:200 @ A1



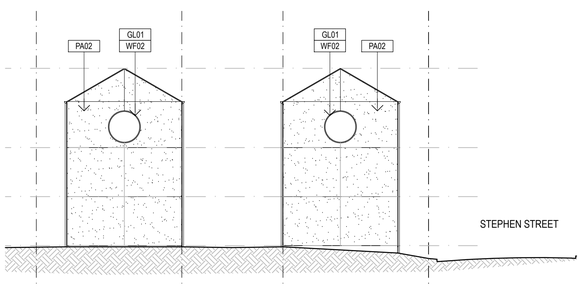
LEVEL 2 FLOOR PLAN
1:200 @ A1

SOUTH ELEVATION (STEPHEN STREET)
1:200 @ A1

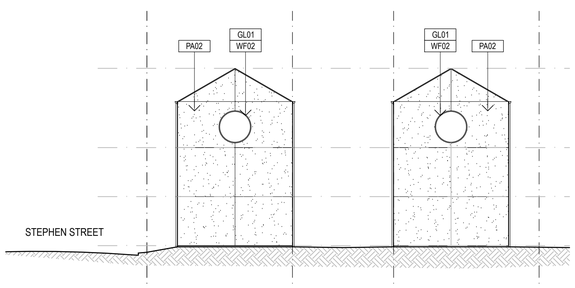
NORTH ELEVATION
1:200 @ A1



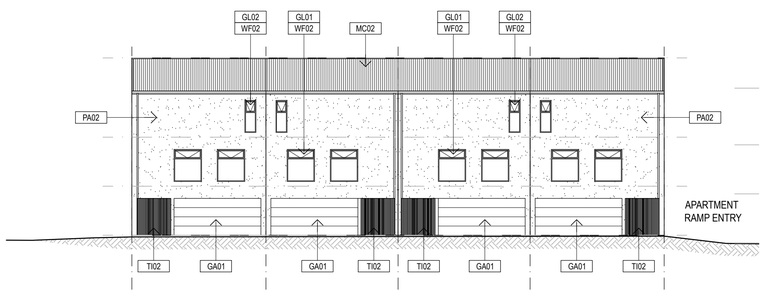
SOUTH INTERNAL ELEVATION
1:200 @ A1



WEST ELEVATION
1:200 @ A1



EAST ELEVATION
1:200 @ A1



NORTH INTERNAL ELEVATION
1:200 @ A1

ELEVATIONS LEGEND

PC01	TREATED PRECAST (OFF WHITE)
PA01	PAINT FINISH TYPE 1 (BLACK MAGIC)
PA02	PAINT FINISH TYPE 2 (CHINA WHITE)
PA03	PAINT FINISH TYPE 3 (QUAGMIRE)
PA04	PAINT FINISH TYPE 4 (BURNISHED RUSSET)
PA05	PAINT FINISH TYPE 5 (ARID LAND)
FB01	FACE BRICK TYPE 1 (CHARCOAL)
FB02	FACE BRICK TYPE 2 (WHITE)
FB03	FACE BRICK TYPE 3 (RED)
FB04	FACE BLOCK TYPE 4 (GREY)
GL01	GLASS TYPE 1 (CLEAR)
GL02	GLASS TYPE 2 (GREY)
GL03	GLASS TYPE 3 (TRANSLUCENT)
WF01	WINDOW FRAME 1 (ANODIOSED)
WF02	WINDOW FRAME 2 (BLACK)
WF03	WINDOW FRAME 3 (WHITE)
BAL01	BALUSTRADE 1 (CLEAR GLASS)
BAL02	BALUSTRADE 2 (GREY GLASS)
BAL03	BALUSTRADE 3 (OPAQUE PANEL)
BAL04	BALUSTRADE 4 (METAL SCREEN)
MC01	METAL CLADDING 1 (MONUMENT)
MC02	METAL CLADDING 2 (SURFMIST)
MC03	METAL CLADDING 2 (HERITAGE GALV)
MC04	METAL CLADDING 3 (ZINCALUME)
GA01	GARAGE DOOR 1 (MONUMENT)
GA02	GARAGE DOOR 2 (SURFMIST)
GA03	GARAGE DOOR 3 (POLYCARBONATE)
GA04	GARAGE DOOR 4 (TIMBER)
TI01	TIMBER 1 (SPOTTED GUM)
TI02	TIMBER 2 (PAINTED)

NOTE: LANDSCAPING OMITTED FOR CLARITY

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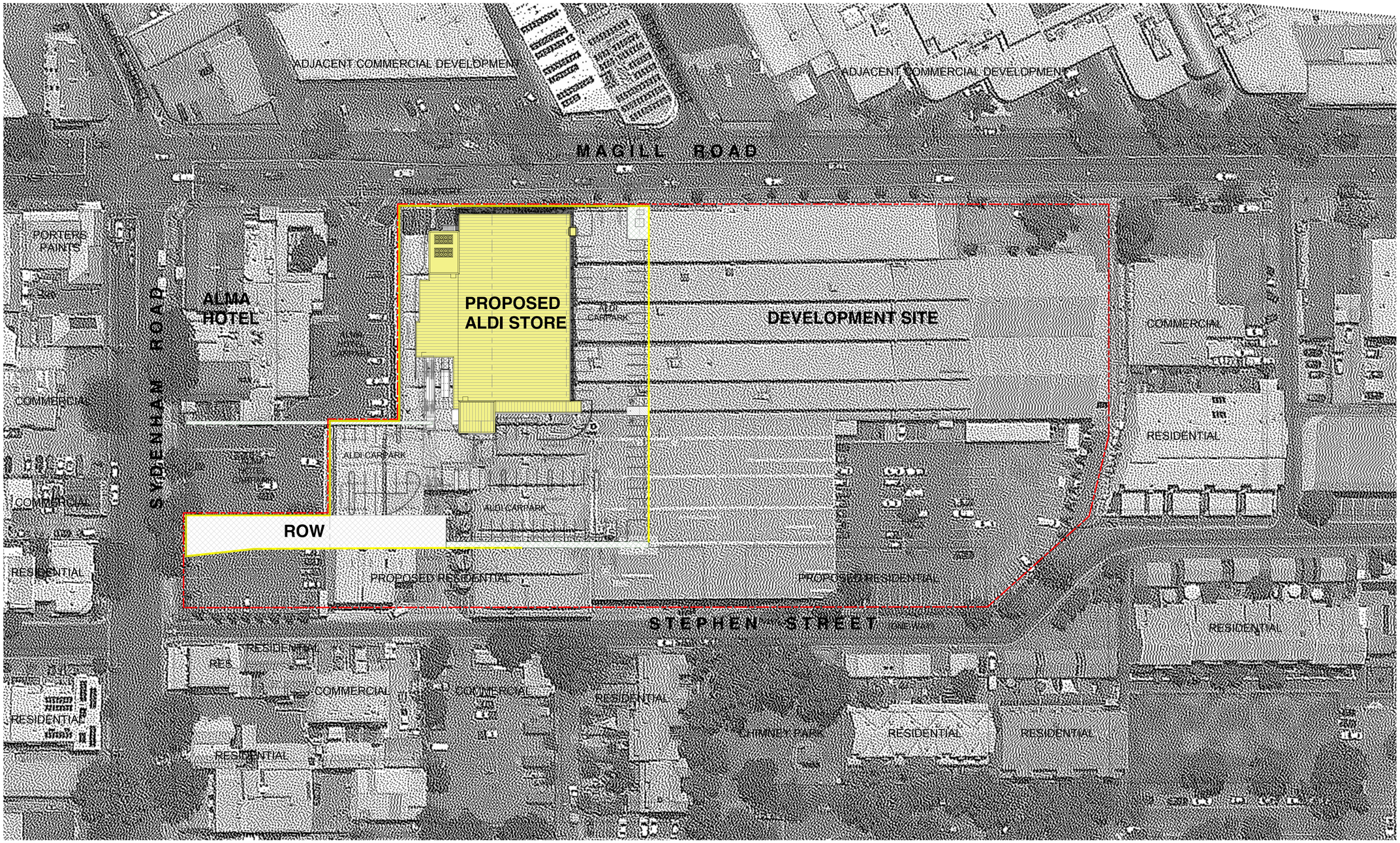
PROJECT: NORWOOD GREEN, 76 MAGILL ROAD, NORWOOD
CLIENT: ALDI | CA CA

DRAWING: TYPE D TOWNHOUSES
SCALE: AS SHOWN
DATE: AUGUST 2018
NORTH

PROJECT NO: 28055
DWG NO: P28
REVISION: 1.0
CHECKED: FB
DRAWN: mdf



PROPERTY DESCRIPTION	
TOTAL SITE AREA	18,978m²
TOTAL ALDI SITE AREA	6,201m²
ALDI BUILDING GROSS AREA	1,663m²
ALDI BUILDING NETT AREA	1,634m²
ALDI RETAIL NETT AREA	1,274m²
ALDI BOH NETT AREA	286m²
ALDI AMENITIES NETT AREA	78m²
ALDI REMAINING NETT AREA	364m²
RESERVE AREA	-
PARK / TRAFFICE AREA	3,675m²
NUMBER OF CARPARKS	89
NUMBER OF BOH PALLETS	66
CAR SPACES REQUIRED BY COUNCIL	-
LANDSCAPED AREA	
EASEMENT (EXISTING)	
EASEMENT (NEW)	
RIGHT OF WAY	
CONCRETE PAVEMENT (TRUCK PATH)	
ALDI SITE BOUNDARY	
SITE BOUNDARY	

1 LOCATION PLAN
1 : 500

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PROJECT: NORWOOD GREEN, 76 MAGILL ROAD, NORWOOD
CLIENT: ALDI | CA CA

DRAWING: ALDI - LOCATION PLAN
NORTH
SCALE: 1 : 500
DATE: 13/07/18
PROJECT NO: 28055
DWG NO: P29
REVISION: 1.0
CHECKED: BE
DRAWN: DA

MAGILL ROAD

SYDENHAM ROAD

ALMA HOTEL

ALMA HOTEL CARPARK

ALMA HOTEL CARPARK

PROPOSED ALDI STORE

RL 49.1

DEVELOPMENT SITE

TRUCK ENTRY ONLY

ENTRY / EXIT

ENTRY / EXIT

HIGH LEVEL WINDOWS

CANOPY OVER

EXISTING STOBIE POLE

TRANSFORMER + EASEMENT

LANDSCAPE ZONE

LANDSCAPE ZONE

LANDSCAPE ZONE

LANDSCAPE ZONE

GABLE SIGNS

GABLE SIGNS

GABLE SIGNS

COLORBOND FENCING

SITE BOUNDARY

SERVICE ROAD

EXTENT OF SOLAR PANELS ON ROOF

ALDI CARPARK

SUNSHADE OVER

HIGH LEVEL WINDOWS

COLONINADE

SITE BOUNDARY

LOADING DOCK SCREEN WALL

INTEGRATED GRADING OF RAMP

19m TRUCK

COMPACTOR

LOADING BAY

EXISTING EASEMENT

SITE BOUNDARY

ALDI CARPARK

ALDI CARPARK

ROLL OVER KERB

SITE BOUNDARY

SITE BOUNDARY

SITE BOUNDARY

EASEMENT

RIGHT OF LIGHT EASEMENT

ENTRY / EXIT

PROPERTY DESCRIPTION	
TOTAL SITE AREA	18,978m²
TOTAL ALDI SITE AREA	6,201m²
ALDI BUILDING GROSS AREA	1,663m²
ALDI BUILDING NETT AREA	1,634m²
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NUMBER OF CARPARKS	89
NUMBER OF BOH PALLETS	66
CAR SPACES REQUIRED BY COUNCIL	-
LANDSCAPED AREA	
EASEMENT (EXISTING)	
EASEMENT (NEW)	
RIGHT OF WAY	
CONCRETE PAVEMENT (TRUCK PATH)	
ALDI SITE BOUNDARY	
SITE BOUNDARY	

1 SITE PLAN
1 : 200

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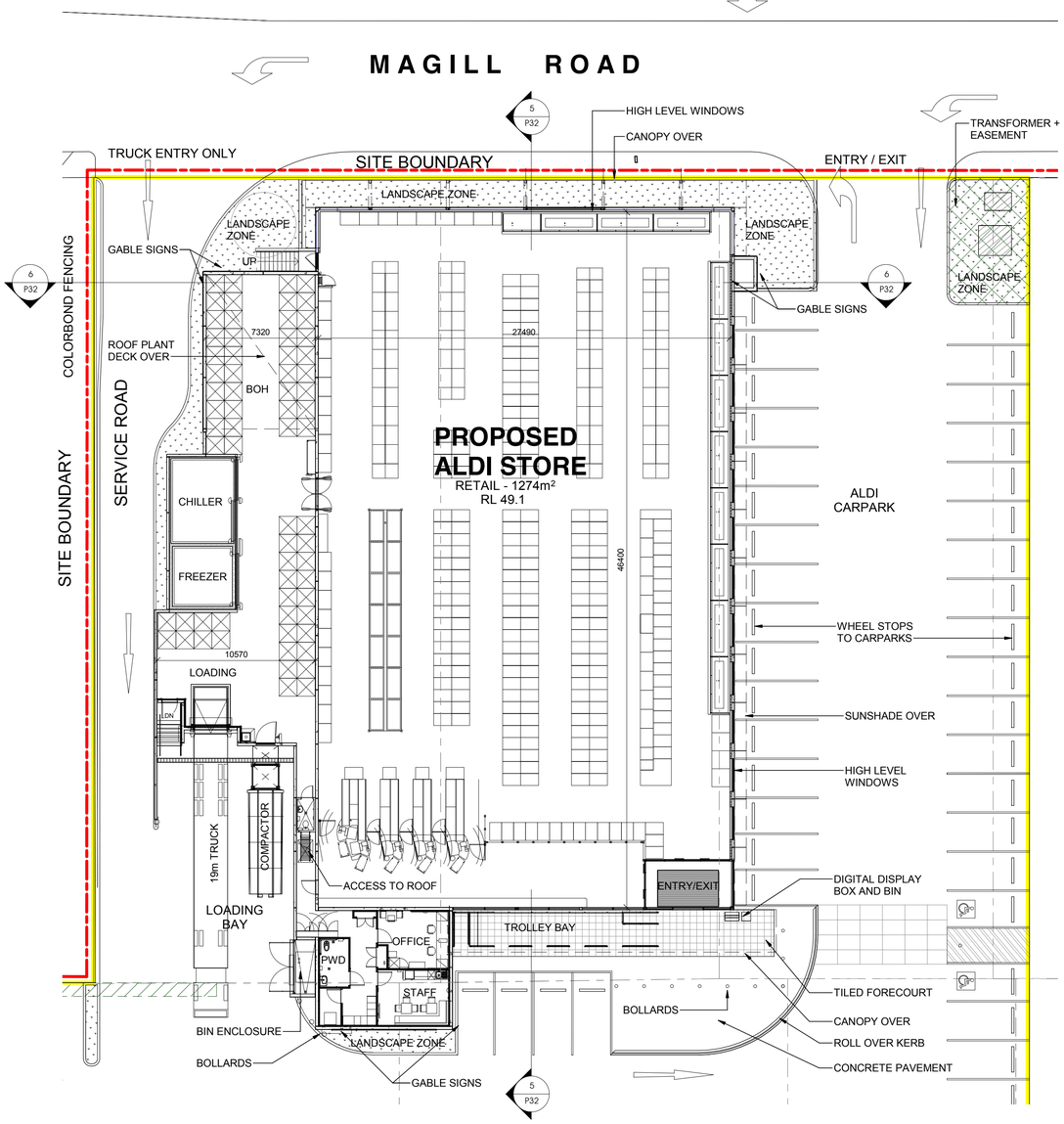
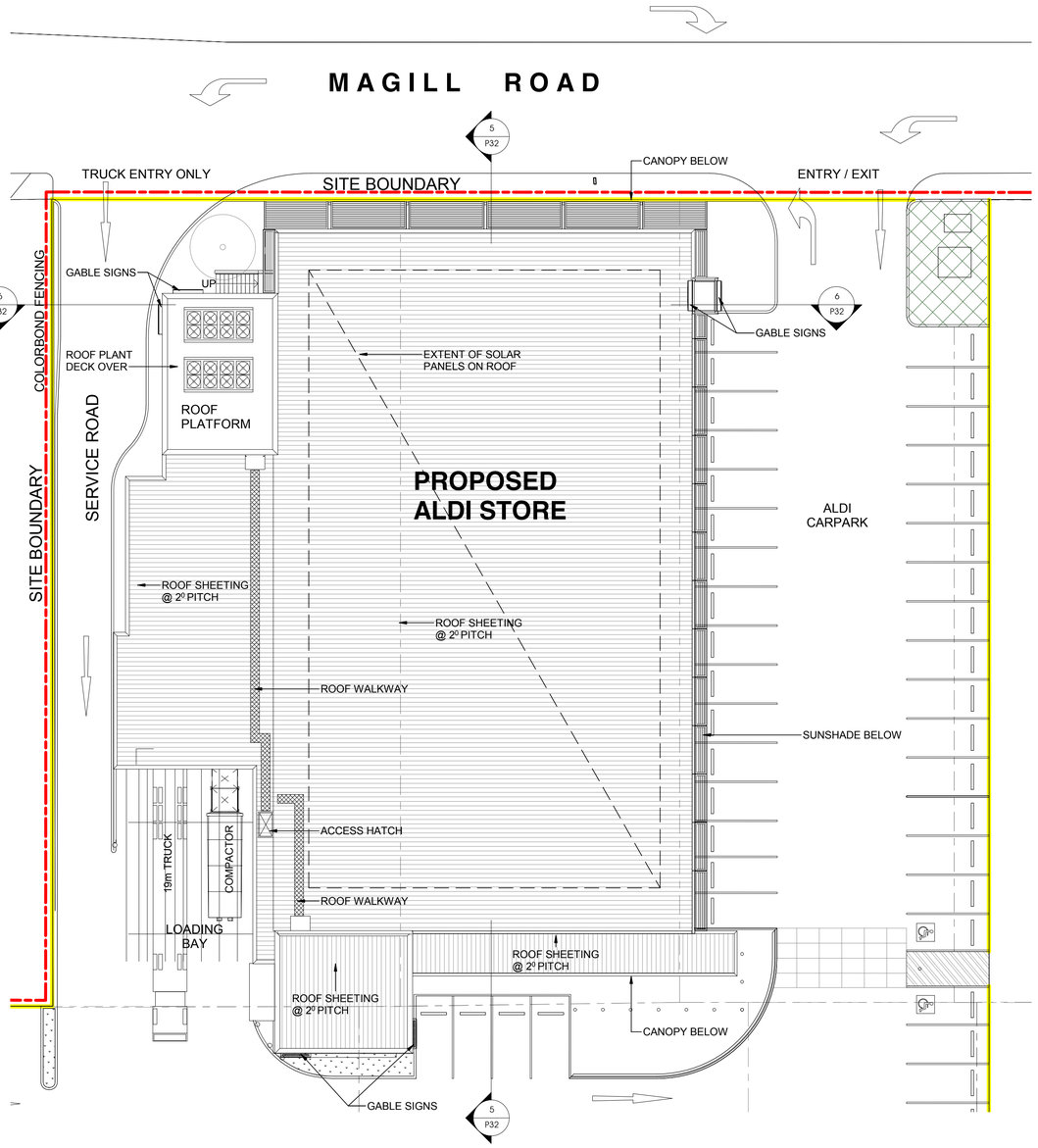
PROJECT: NORWOOD GREEN, 76 MAGILL ROAD, NORWOOD
CLIENT: ALDI | CA CA

DRAWING: ADLI - SITE PLAN
SCALE: 1 : 200
DATE: 13/07/18
NORTH

PROJECT NO: 28055
DWG NO: P30
REVISION: 1.0
CHECKED: BE
DRAWN: DA



1 GROUND FLOOR PLAN
1 : 200



2 ROOF PLAN
1 : 200

PROPERTY DESCRIPTION	
TOTAL SITE AREA	18,978m²
TOTAL ALDI SITE AREA	6,201m²
ALDI BUILDING GROSS AREA	1,663m²
ALDI BUILDING NETT AREA	1,634m²
ALDI RETAIL NETT AREA	1,274m²
ALDI BOH NETT AREA	286m²
ALDI AMENITIES NETT AREA	78m²
ALDI REMAINING NETT AREA	364m²
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PARK / TRAFFICE AREA	3,675m²
NUMBER OF CARPARKS	89
NUMBER OF BOH PALLETS	66
CAR SPACES REQUIRED BY COUNCIL	-
LANDSCAPED AREA	
EASEMENT (EXISTING)	
EASEMENT (NEW)	
RIGHT OF WAY	
CONCRETE PAVEMENT (TRUCK PATH)	
ALDI SITE BOUNDARY	
SITE BOUNDARY	

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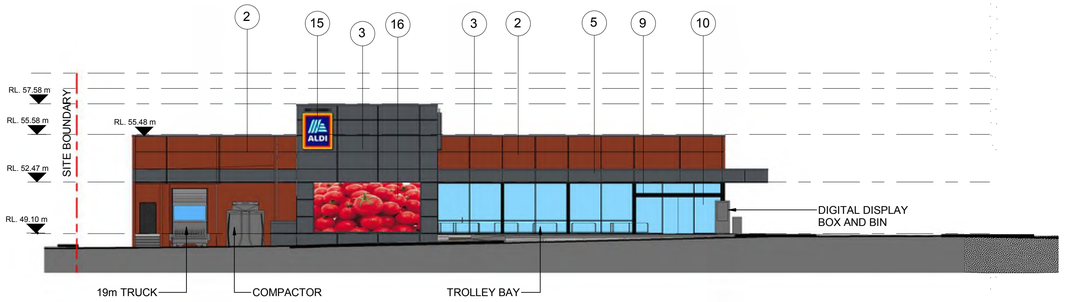
PROJECT: NORWOOD GREEN, 76 MAGILL ROAD, NORWOOD
CLIENT: ALDI | CA CA

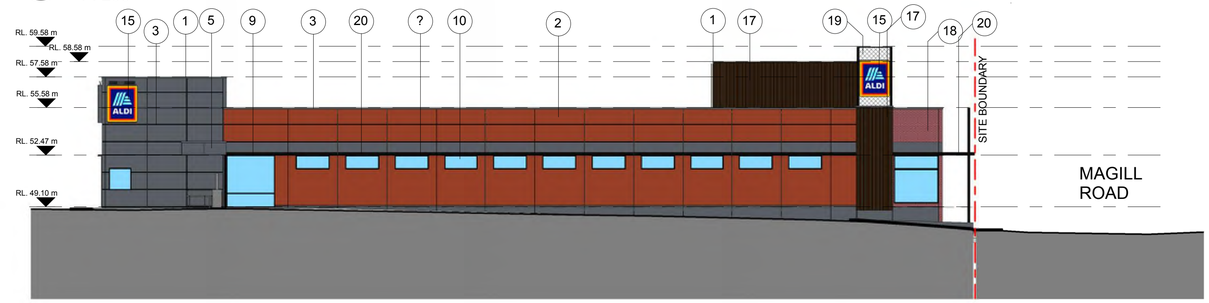
DRAWING: ADLI - FLOOR PLANS
SCALE: 1 : 200
DATE: 13/07/18
NORTH

PROJECT NO: 28055
DWG NO: P31
REVISION: 1.0
CHECKED: BE
DRAWN: DA



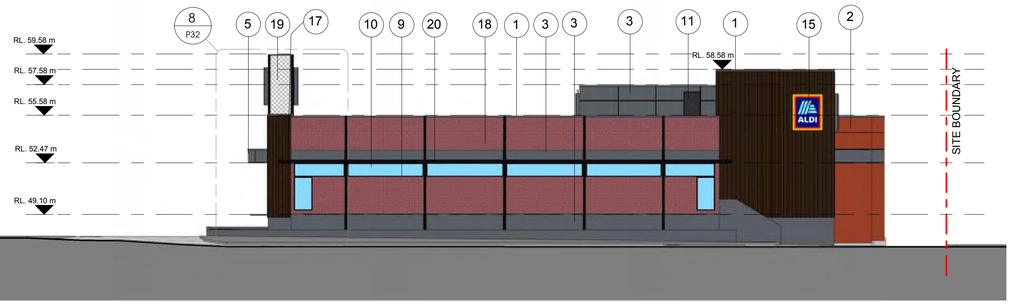
1 SOUTH ELEVATION
1 : 200

5 SECTION A - A
1 : 200

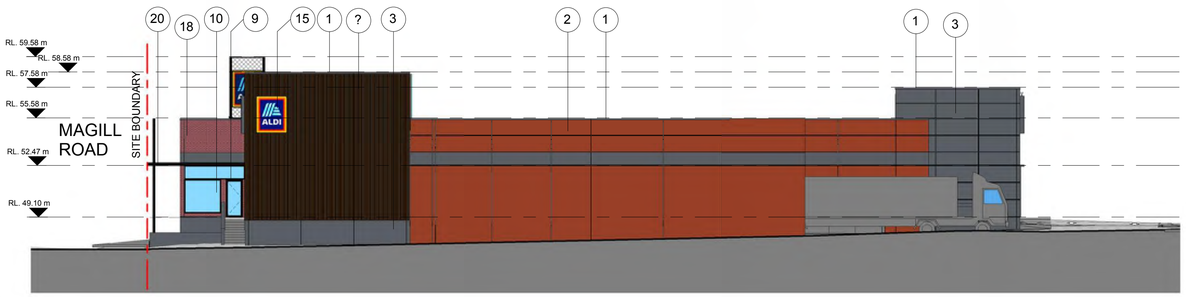


2 EAST ELEVATION
1 : 200

6 SECTION B - B
1 : 200

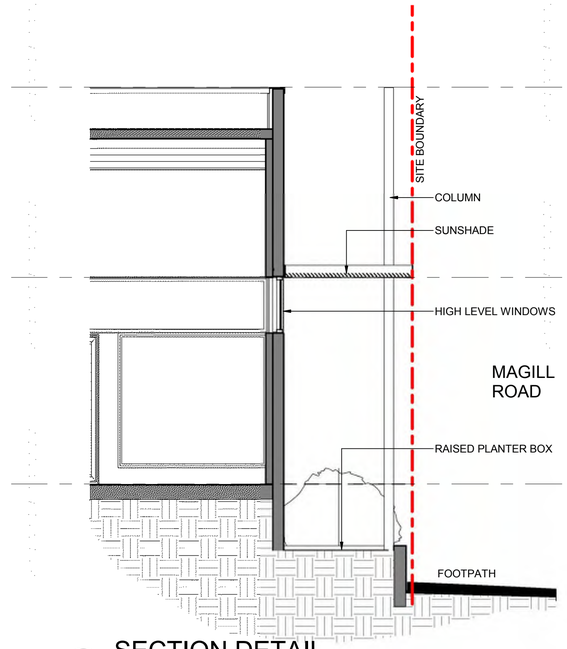


3 NORTH ELEVATION
1 : 200

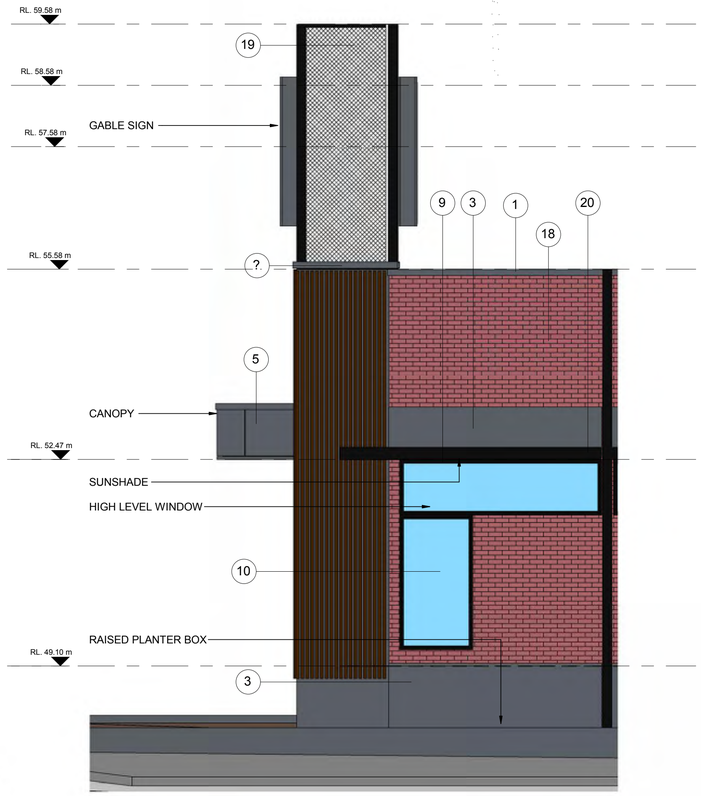


4 WEST ELEVATION
1 : 200

REFER TO SHEET P34 FOR METERIALS SCHEDULE



7 SECTION DETAIL
1 : 50



8 ELEVATION DETAIL
1 : 50

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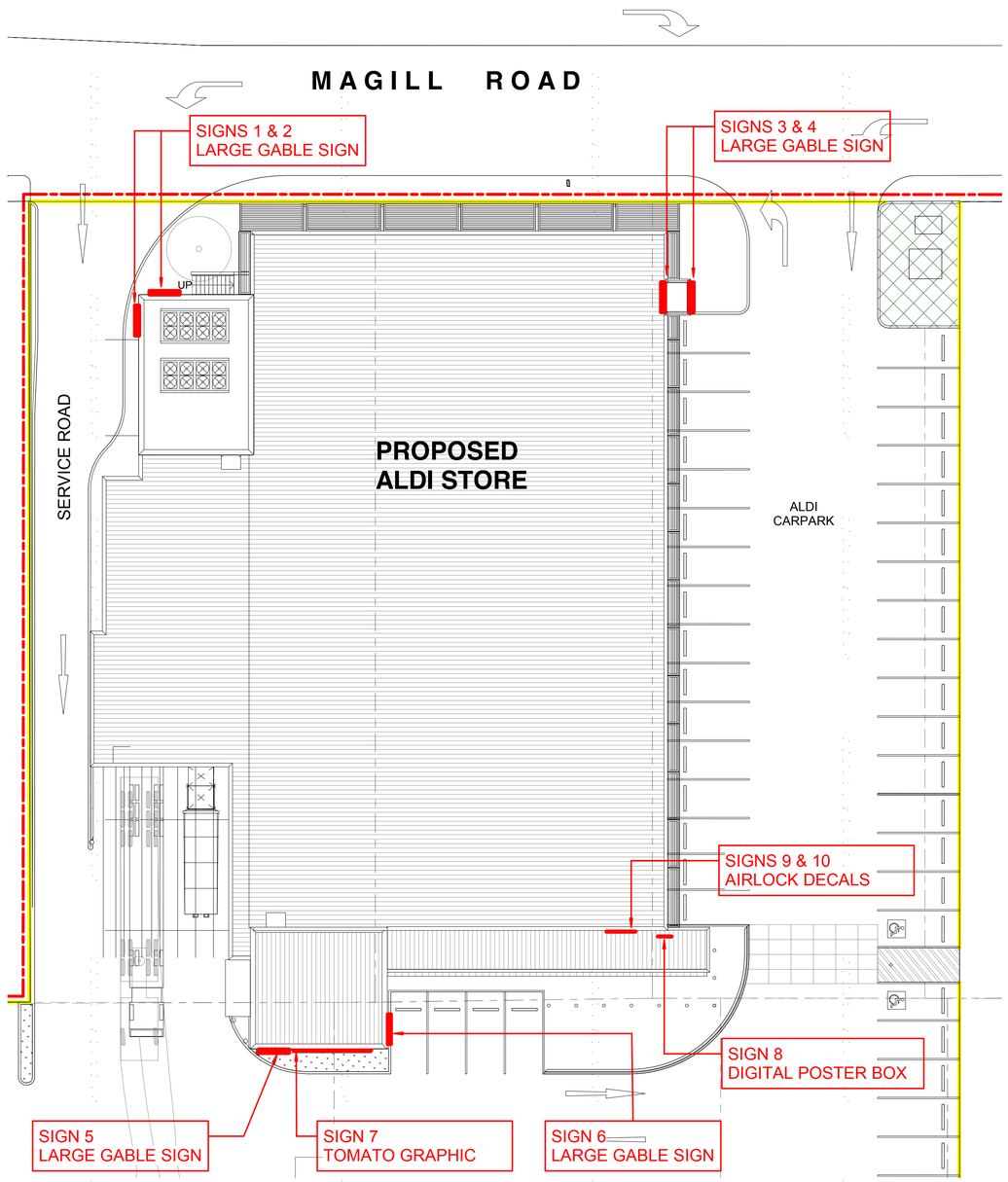
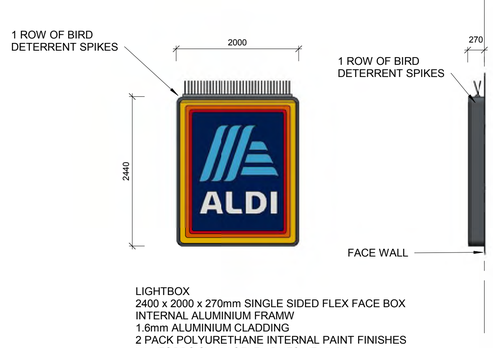
PROJECT: NORWOOD GREEN, 76 MAGILL ROAD, NORWOOD
CLIENT: ALDI | CA CA

DRAWING: ALDI - ELEVATIONS
NORTH
SCALE: As indicated
DATE: JULY 2018

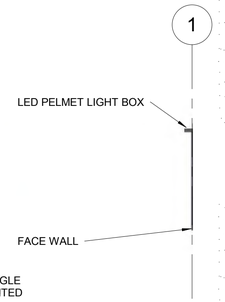
PROJECT NO: 28055
DWG NO: P32
REVISION: 1.0
CHECKED: BE
DRAWN: DA



1 SIGNAGE PLAN
1 : 200



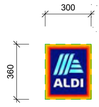
2 LARGE GABLE SIGN (SIGNS 1, 2, 3, 4, 5 & 6)
1 : 50



NOM 7000mm X 3310mm HIGH X 36mm DEEP SINGLE SIDED EXTERNALLY ILLUMINATED DIGITAL PRINTED BANNER.
BANNER MATERIAL IS AVERY MP14120 GLOSS BILLBOARD 400gsm FRONTLIT BANNER WITH 'ECO TUFF' ANTI GRAFFITI

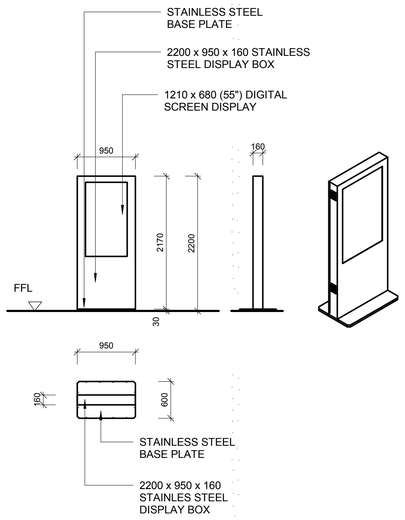
ILLUMINATION: LED PELMET DOWNLIGHTING BUILT INTO PELMET ABOVE.

3 WALL MOUNTED SIGN (SIGN 7)
1 : 100



DOUBLE SIDED SCREENPRINTED DECAL 300mm x 360mm
APPLIED TO REVERSE SIDE OF ENTRY DOORS

5 AIRLOCK DECAL SIGN (SIGN 9 & 10)
1 : 20



4 DIGITAL POSTER BOX (SIGN 8)
1 : 50

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PROJECT: NORWOOD GREEN, 76 MAGILL ROAD, NORWOOD
CLIENT: ALDI | CA CA

DRAWING: SIGNAGE DETAILS
SCALE: As indicated
DATE: 13/07/18
NORTH
PROJECT NO: 28055
DWG NO: P33
REVISION: 1.0
CHECKED: BE
DRAWN: DA

1 PERSPECTIVE 1
1 : 50

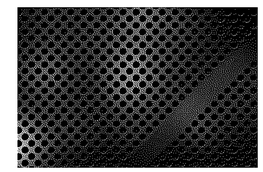
3 PERSPECTIVE 3
1 : 50

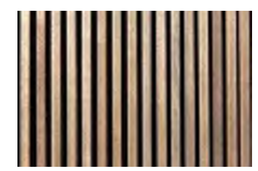
MATERIAL SCHEDULE

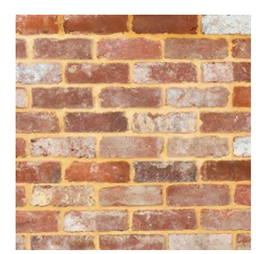
1	CAPPING - COLORBOND 'BASALT'	11	DOOR & FRAME - 'BASALT'
2	PRECAST CONCRETE PANEL 'FLUORESCENT FIRE'	12	DOOR & FRAME - 'FLUORESCENT FIRE'
3	PRECAST CONCRETE PANEL 'DRIVE TIME'	13	ROOF - ZINCULAME SHEETING 'SURFMIST'
4	FIBRE CEMENT PANEL WITH EXPRESS JOINTS 'FLUORESCENT FIRE'	14	PANEL LIFT DOOR - COLORBOND 'BASALT'
5	FIBRE CEMENT PANEL WITH EXPRESS JOINTS 'DRIVE TIME'	15	ALDI ILLUMINATED SIGN
6	DOWNPIPE - COLORBOND 'BASALT'	16	GRAPHIC IMAGE
7	GUTTER - COLORBOND 'BASALT'	17	TIMBER BATTENS
8	WINDOWS - COLORBOND 'NIGHT SKY'	18	FACE BRICK - SELECTED RED BRICK
9	SHOPFRONT - COLORBOND 'NIGHT SKY'	19	MESH SCREEN - COLORBOND 'NIGHT SKY'
10	CLEAR GALZING	20	METAL WORK - COLORBOND 'NIGHT SKY'

2 PERSPECTIVE 2
1 : 50

4 PERSPECTIVE 4
1 : 50







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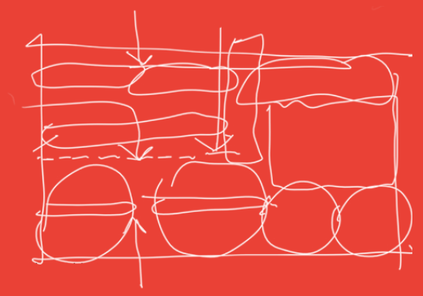
PROJECT
NORWOOD GREEN,
76 MAGILL ROAD,
NORWOOD
CLIENT
ALDI | CA CA

DRAWING
PERSPECTIVE
SCALE
As indicated
DATE
13/07/18
NORTH

PROJECT NO 28055
DWG NO P34
REVISION 1.0 | CHECKED BE | DRAWN DA



Architecture
Interior Design
Landscape Architecture
Planning
Urban Design

Australia
China
Hong Kong
Singapore
United Kingdom
United States of America

CAROMA DEVELOPMENT 76 MAGILL ROAD NORWOOD

Landscape Architecture Master Plan

Prepared for CA CA Nominees / ALDI
21 August 2018

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Contents

01 Design Statement

Page 03

02 Site Analysis

Page 04

Site History
Existing Context
Neighbourhood & Site Materiality
Neighbourhood fabric
Environmental Considerations

03 Opportunities

Page 11

Potential Users
Activity & Experiences
Urban Design Opportunities
Experience Precedents
Scale Study
Access & Circulation

04 Landscape Master Plan

Page 22

Vision & Design Narrative
Key Moves
Landscape Master Plan
Public & Communal Open Space
Level 1 - Private Open Space
Stephen St Streetscape
Urban Promenade
Townhouse Type A rear laneway
Townhouse Type B carpark interface
Plant & Material Palette

Front cover image: Google Maps

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Document control

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01	20 July 2018	N Pearson	Draft for review
02	27 July 2018	N Pearson	Draft for review
03	31 July 2018	N Pearson	Issue for PLP#4
04	21 August 2018	N Pearson	Issue for SCAP Lodgement

Our design vision is to create a hard working urban park, which sets a new benchmark in Adelaide for private open space within large scale multi - use developments. A public realm which supports a flexible indoor - outdoor lifestyle to create a community within a community.

Our design narrative responds to the unique context and heritage of the site - its past usage as a box factory, before becoming the Caroma factory as it remains today, as well as the surrounding neighbourhood history as brickworks in the early settlement days of Adelaide. The design concept draws inspiration from the shape, form and stacking nature of boxes and brickwork. The proposed materiality balances requirements for robust and resilient materials which consider long term maintenance with the finer grain detailing which brings a richness to the public realm.

The landscape master plan provides a home and community that integrates within an existing neighbourhood context and open space network that is key to lifestyle, health and happiness.

The developed landscape master plan maximises opportunities for a pedestrian permeable and landscape focussed ground plane which unifies the development within the surrounding neighbourhood context and establishes a healthy communal offer.

The layered programme that links internal and external living with passive and active lifestyle activity encourages incidental contact and connection – fundamental to a sense of community.

An open and permeable site allows for connection and interaction between:
_Existing neighbours/residents
_Apartment residents
_Townhouse residents
_ALDI and retail shoppers

Providing a connected and integrated place for living that brings together the residents groups and provides a catalyst for positive interaction, a place for social and cultural exchange, and is an underlying premise for the landscape master plan.

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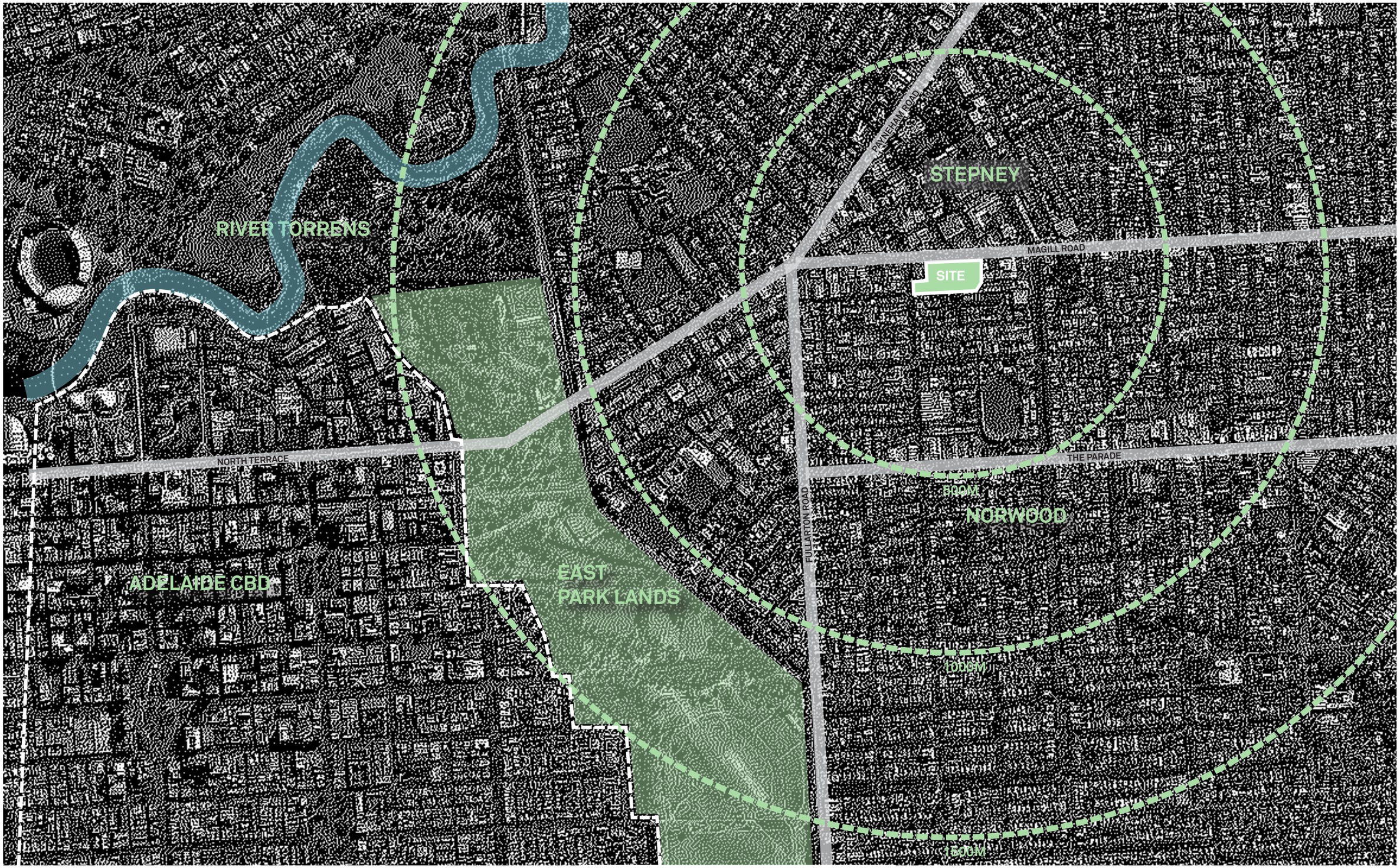
RIVER TORRENS
STEPNEY
PAYNEHAM ROAD
MAGILL ROAD
SITE
NORTH TERRACE
THE PARADE
FULLARTON ROAD
FROM
NORWOOD
ADELAIDE CBD
EAST
PARK LANDS
500M
1500M

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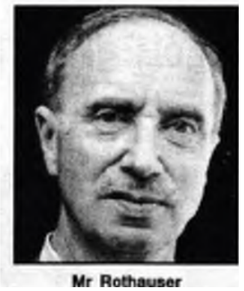
76 Magill Road was originally the homeland of the Kaurna people the land has now become known as the City of Norwood Payneham & St Peters. The Kaurna lived around the four creeks which traverse the City, gathering for ceremony and cultural activities prior to European settlement in the 1830's.

Second creek
Photo taken in 1870's shows second creek as cleared land once a magnificent gum forest, with an undergrowth of kangaroo grass along the creek.

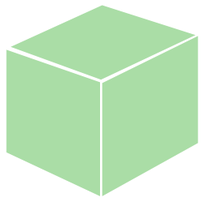
1939-1950's
Charles Rothaurser and his wife Christine began a doll making business called ' Quality Toy Company'. It was Charles interest to find a material for an unbreakable dolls face which led to their later global success in bathroom fittings.



1941-2017
In the 1940's the site began manufacturing plastic bathroom fittings. In 1956 Rothauser renamed the company 'Caroma' and the business began manufacturing toilets and bathroom fittings and has since contributed to serval innovative inventions transforming the market globally in particularly with the pioneering flushing system.

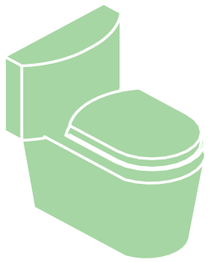
What's Next ?

1849-1912
Early industries outside the city of Adelaide included brickworks and breweries.
This industrial site was the base of Cox's Brickworks and represents an era of successful industrial progress and invaluable development of Adelaide. The Chimney still remains today at Chimney Park.



1900-1930's
The environmental site assessment indicates paper bags and box manufacturers, Silver & Co Ltd, were located on Chapel Street, Norwood also showed evidence used on the site of 76 Magill Road

1997
Township councils Norwood, St Peters and Payneham were amalgamated in 1997 which unified a richly multicultural community now called City of Norwood Payneham & St Peters.



02 Site Analysis
Existing context

The existing site is bounded by Magill Road to the North, development to the east, Stephen St to the south and Sydneham Rd to the West.

The Magill Rd frontage can be characterised by narrow verges, limited street trees on the southern aide and overhead powerlines. Combined with high traffic volumes this makes for an undesirable pedestrian environment with low amenity.

Stephen Street is a narrow one way roadway with laneway characteristics, which are exemplified with the high prevalences of garages interfacing with the streetscape. There is limited space for pedestrians and very little amenity by way of street trees or streetscape, apart from where Chimney Park fronts Stephen Street.

Chimney Park is a large parcel of open space, predominantly featuring grass and a mature tree canopy and is home to the historic incinerator. There is limited amenity provided within the open space except for a couple of park benches and pathway circulation through the space. A number of townhouse on the western edge address the open space.

The surrounding neighbourhood context is one of a mix of heritage buildings, workers cottages and new townhouse developments. Located on narrow green leafy streets.

01 Appelbee Crescent tree lined streetscape

02 Typical residential townhouses

03 Caroma frontage on Magill Road

04 Garage frontages on Stephen Street

05 Osmond Terrace

06 Caroma frontage on Magill Road

07 Adjacent commercial tenancies

08 Alma Tavern

09 Stephen Street address to Chimney Park

10 Pedestrian linkage to Stephen Street connecting to Eastern boundary of site

11 Chapel St Streetscape

12 Chimney Park

13 Magill Road streetscape along Caroma frontage

14 Western end of Stephen Street

15 Open space on Applebee Crescent

16 Typical surrounding footpath and verge

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02 Site Analysis
Neighbourhood & Site Materiality

The neighbourhood character features a high proportion of brick and stone building facades, with pockets of newer development and materials.

The brick and stone character provide a fine grain tapestry which is complimented by the presence of mature tree plantings, and an interconnected open space network.

The emerging Magill Road precinct near the corner of Osmond Terrace features a variety of retail shop fronts, with architecture featuring street awnings and decorative glazed bricks and other facade embellishments.

The Caroma frontages features a brick facade which is continuous across the project site frontage, but with limited engagement or activation to this frontage.

02 Site Analysis
Neighbourhood Fabric

The existing neighbourhood fabric presents a tapestry of small interconnected open spaces, which run from west to east, from the project site to Osmond Terrace and Richards Park.

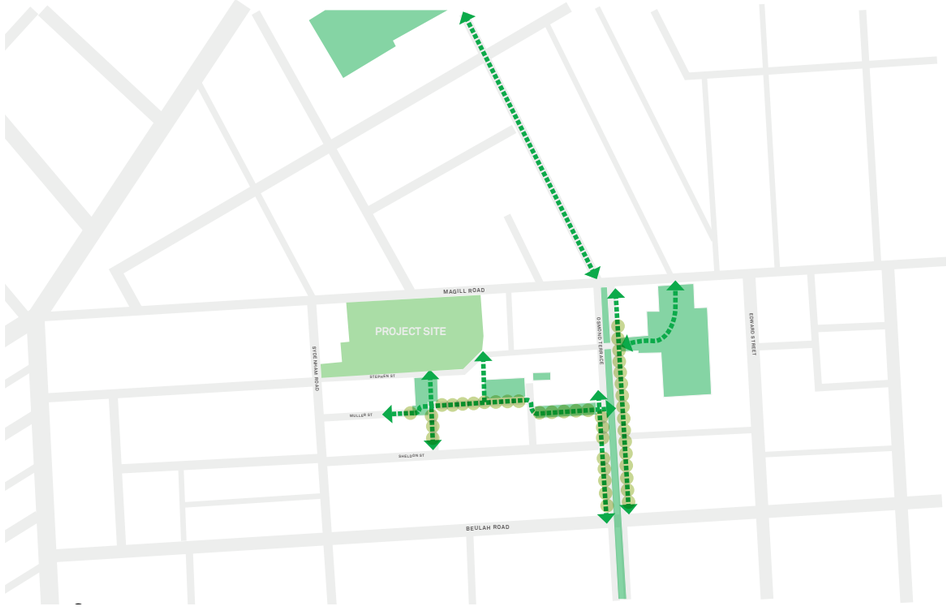
To the south of Stephen St, the general streetscape character is narrow tree lined residential streets with narrow, but appropriate footpaths.

The combination of interconnected open space and pedestrian network creates a high level of pedestrian permeability.

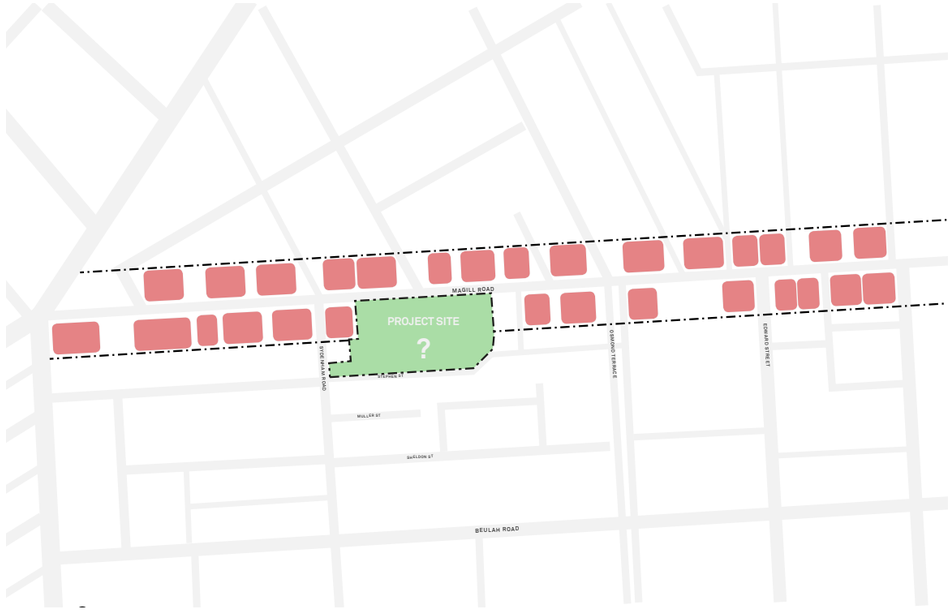
The project site represents a large parcel with wide frontage to Magill Road. This represents a unique scenario with the predominant frontage of blocks along the Urban Corridor Zone of Magill Road been significantly smaller.

The landscape master plan arrangement addresses the likely future built form by creating three separate apartment towers which front Magill Rd.

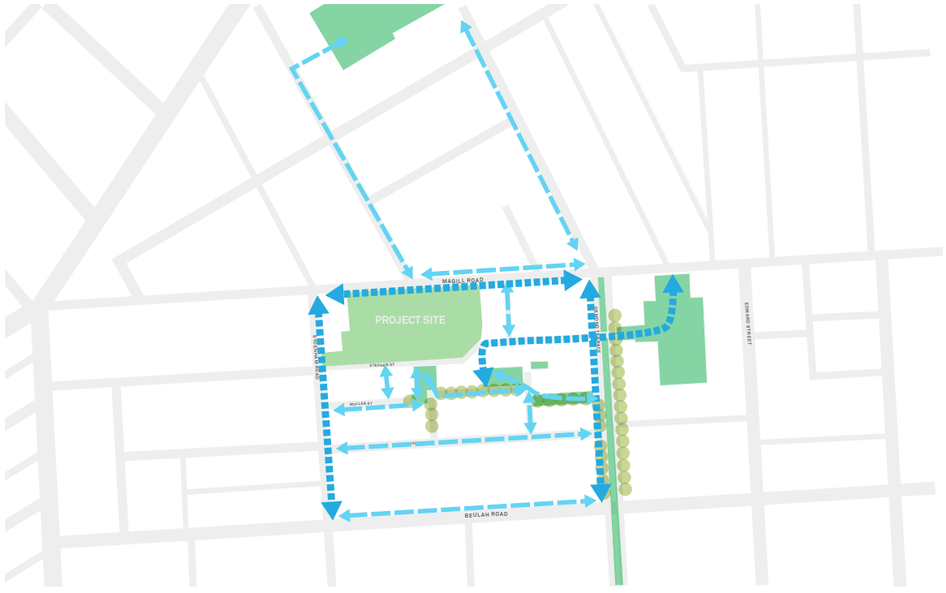
Green space network



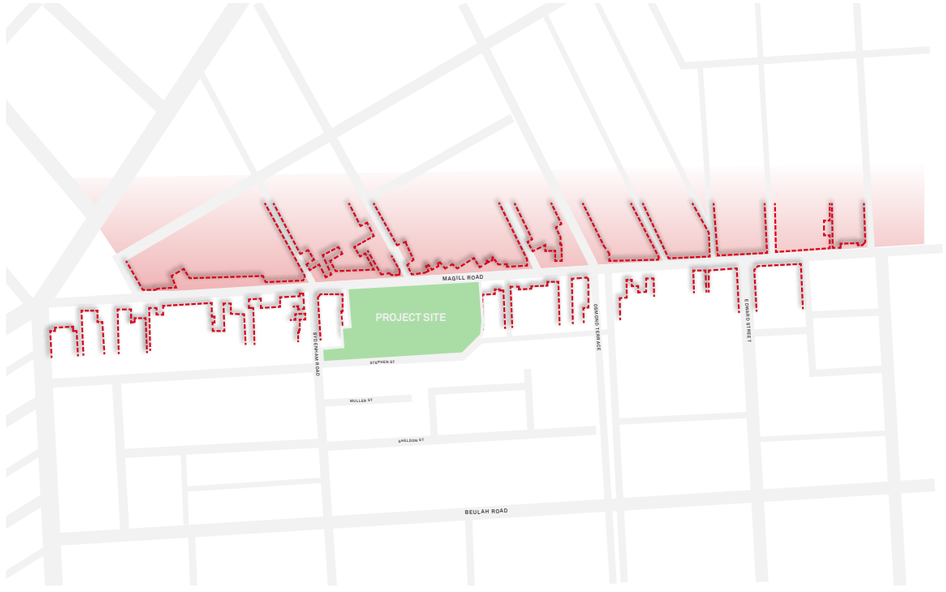
A developing urban corridor form



Existing pedestrian network



Existing building setbacks



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02 Site Analysis
Environmental Considerations

The project site stretches East - West with primary frontage to the North onto Magill Road, and secondary frontage onto Stephen St to the South.

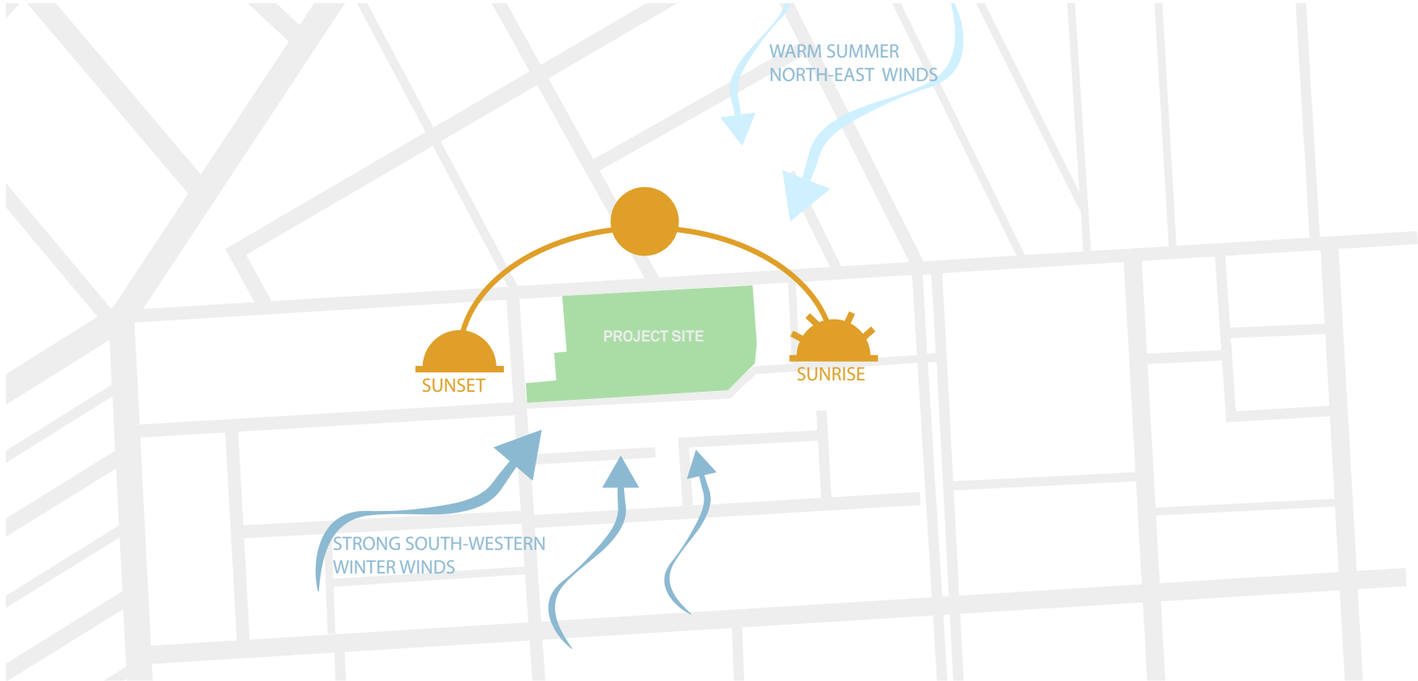
The Urban Corridor Zone allows for 7 storey development at Magill Road transitioning to 3 storeys to the South. This arrangement of built form will provide some protection to open space users by shielding the strong winter SW winds and the hot Northerly Summer winds.

The built form will also provide overshadowing to the open space which stretches east - west centrally within the development, both at ground level and at level 1 between the apartment towers.

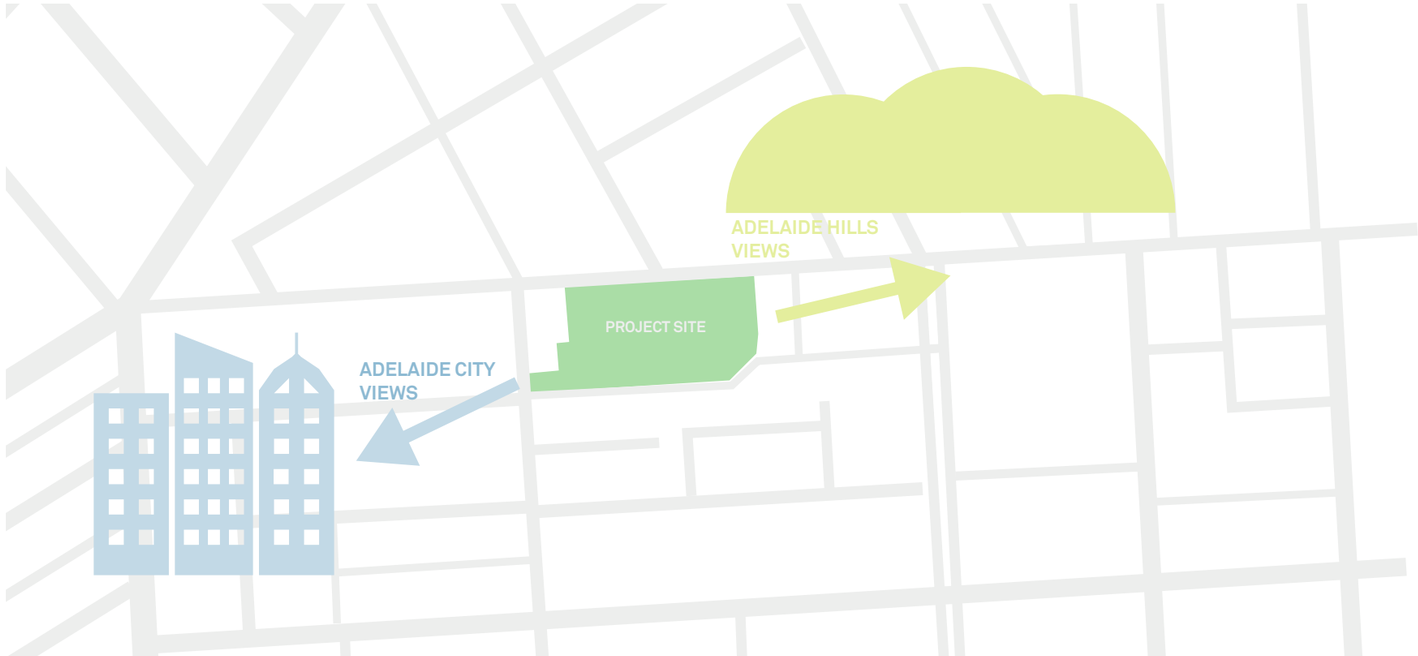
The open space configuration will need to carefully consider the placement of activity zones within it to ensure that access to winter sun and shading of hot summer sun is provided for users.

From apartments views to both the Adelaide Hills and the CBD skyline are afforded.

Environmental conditions



Vistas available from elevation within site



Westin Hotel, Perth, WA by HASSELL
Photography by Peter Bennetts

03

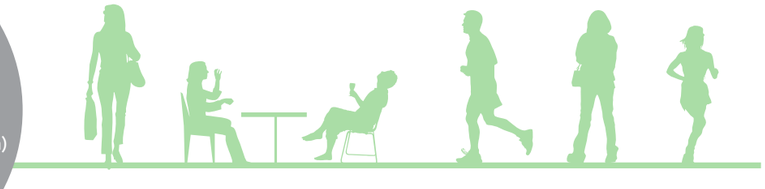
03 Opportunities
Who are the potential users?

WEEKDAYS

_Local Residents morning activities
_Local Shoppers (ALDI/Retail/F&B)
_Local Community and Development Residents (passive & active recreation)
_Lunch meetings
_Morning tea/afternoon tea
_School children after school

WEEKNIGHTS

_Late night shoppers ALDI / F&B
_Friends and couples for dinner
_Local Community and Development Residents (passive & active recreation)



WEEKENDS

_Morning people grabbing coffee/ brunch
_Friends/families grabbing lunch
_Local Community and Development Residents (passive & active recreation)
_Local residents shopping
_Local Shoppers (ALDI/Retail/F&B)

SPECIAL EVENTS

_Local community groups
_Residents beyond Council area
_Local residents shoppers
_people grabbing food and beverages

WEEKENDS NIGHTS

_Families/friends grabbing dinner
_Local residents leisure walks
_Evening socialising (dinners / drinks)
_Local Community and Development Residents
(passive & active recreation)

03 Opportunities
Activity and Experiences

The landscape master plan creates an open space with opportunities to provide a layered programme that links internal and external living with passive and active lifestyle activity which encourages incidental contact and connection – fundamental to a sense of community.

The landscape master plan creates an open and permeable site which allows for connection and interaction between residents, shoppers and the local community. Providing a connected and integrated place for living that brings together the residents groups and provides a catalyst for positive interaction, a place for social and cultural exchange, and is an underlying premise for the landscape master plan.

The landscape master plan has shaped a series of spaces which provide opportunity for a variety of activities and experiences, as identified in the adjacent diagram, to be provided within the developments public realm.

The final configuration of experience and activities to be provided within the public realm will be shaped through further conversations with City of NPSP, in subsequent design phases.

03 Opportunities
Urban Design Opportunities

1. Level 1 Courtyard
2. Communal Open Space
3. Laneway Setting
4. Existing Public Open Space
5. Urban Promenade
6. Streetscape Setting
7. Town Piazza
8. Carpark Setting

Attractor Nodes
Active Retail Frontages
Townhouse/ Apartment addressing
Street Address
Transition threshold
External linkages to site

The site master plan and building arrangement presents a number of opportunities to provide positive contributions to the surrounding urban environment.

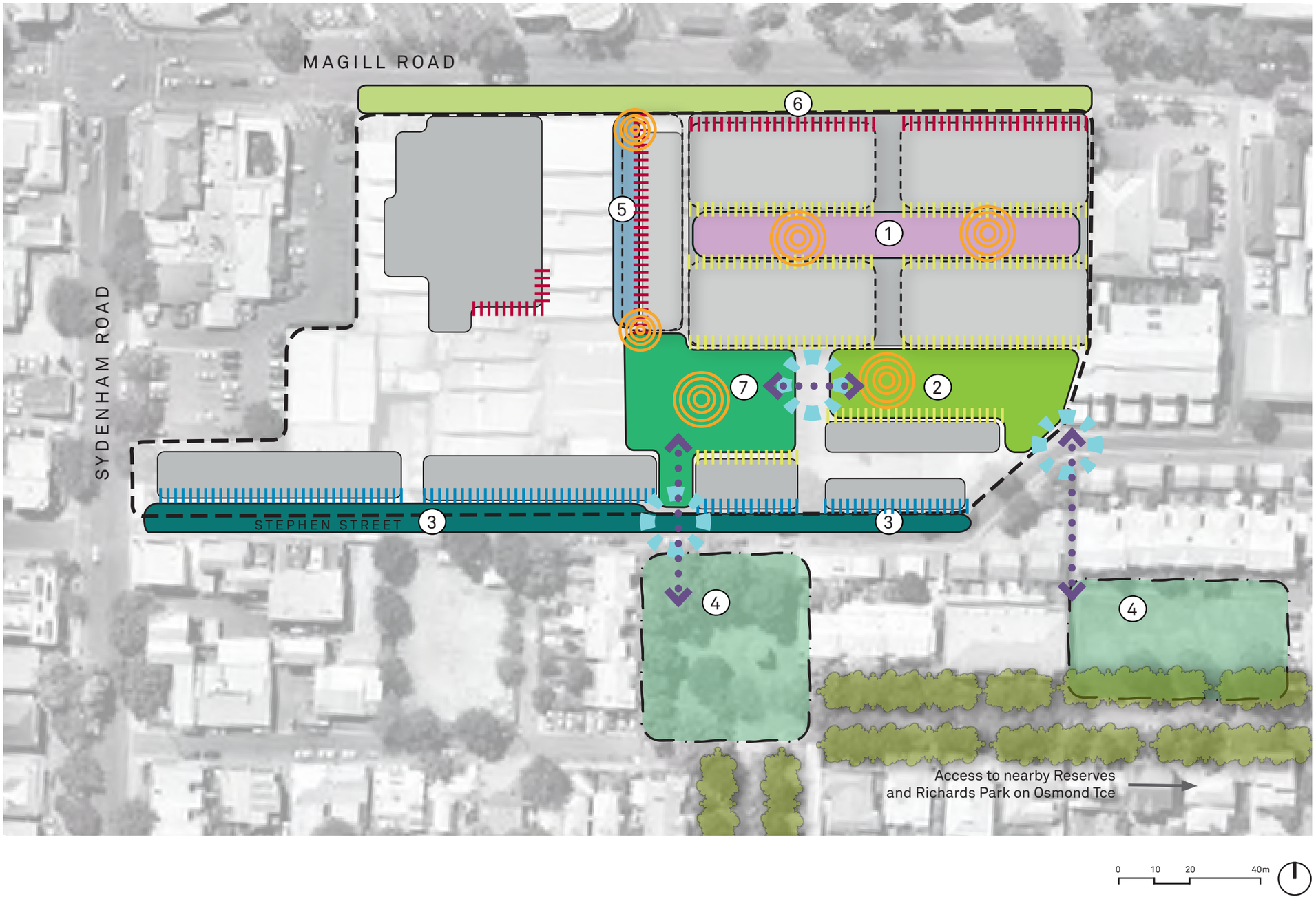
Connecting the development into the wider neighbourhood through pedestrian linkages into and through the site are critical to the success of the public realm. The green space network for the site facilitate access through the site and provides connection to the wider open space network which exists to the south of the project site. Access across Stephens Street can be improved through the provision of flush threshold roadway crossing points.

The Urban Promenade provides a north south linkage to Magill Road via a greened colonnade with active Retail and Food & Beverage frontages.

The setback of the ground floor commercial premises fronting Magill Road provides an opportunity to green the Magill road frontage with low level planters which compliment the existing street tree plantings. The setback also provides a more open, comfortable and inviting street frontage than the existing Caroma frontage which has built form to the boundary line, in conjunction with an existing narrow verge width.

The positioning of both the town piazza and publicly accessible private open space provides opportunities to address and engage with the adjacent built form. Activation to the open space is provided through apartment balconies and direct access from the open space into both individual apartments, townhouses and into the apartment complex.

There are opportunities to change the character of Stephen Street through the addressing of townhouses onto Stephen Street, removing the presences of garages, which is complimented by the provision of footpaths and streetscape treatments in the form of street tree plantings and low level garden beds.



Green Laneway

Retail Laneway Experience

Residential Courtyard Outlook

Passive - circulation, addressing out-look and small group gathering

Functional Amenity and Large Group Gathering

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03 Opportunities
Scale Study

Town Piazza & Public Open Space

_combined the Town Piazza & Publicly accessible Private open space represent a significant contribution of more than 2500 m2 to the public realm of the proposed development

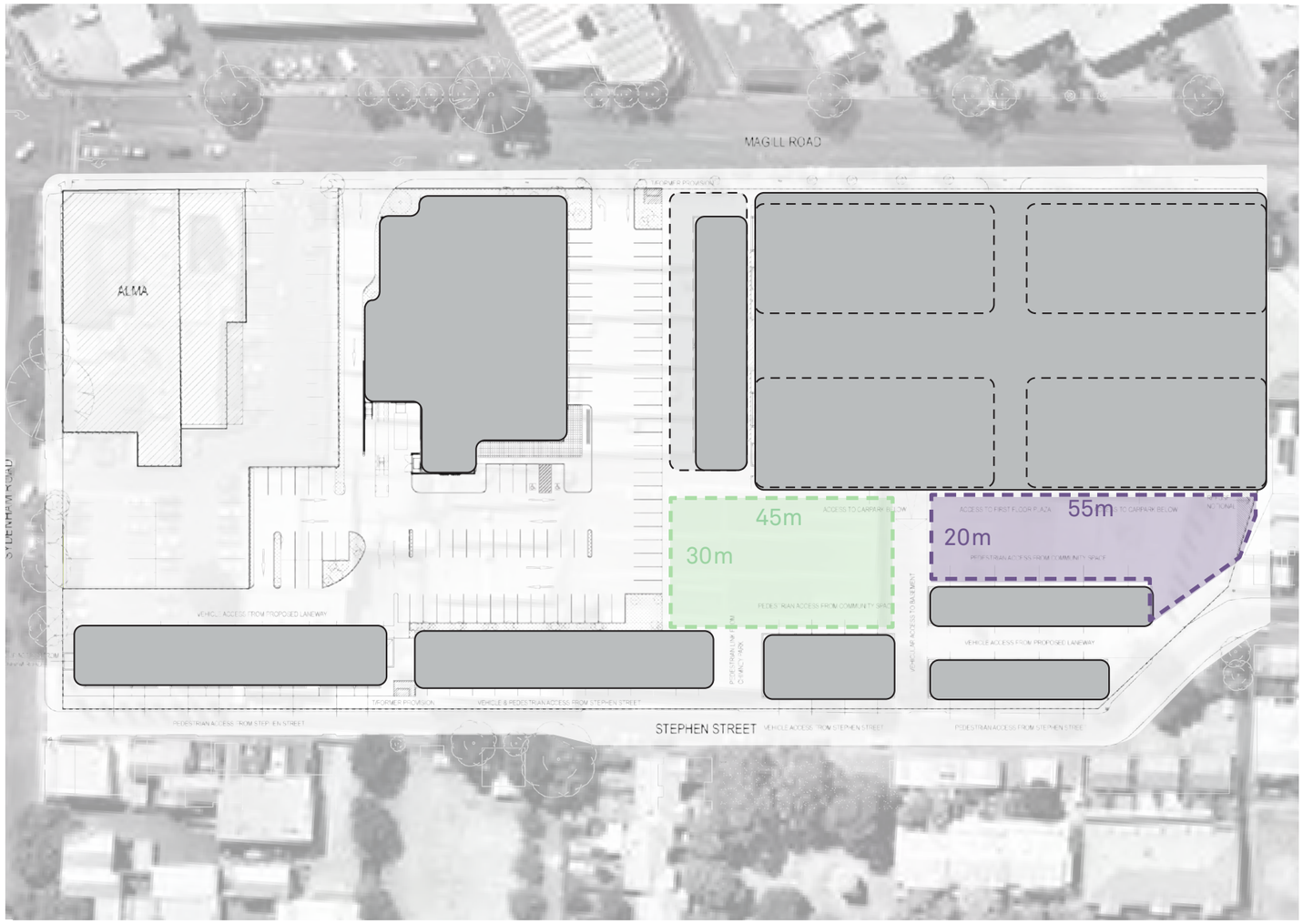
_the individual spaces represent significant offerings of space equivalent to some of the Adelaide's most well known and utilised public spaces.

Henley Square, Henley Beach

Bowden Town Square, Bowden

Moseley Square, Glenelg

Museum Frontage North Terrace



03 Opportunities
Scale Study

Urban Promenade

_6m width enables outdoor dining opportunities in line with City of NPSP Outdoor Dining Policy

_Enables shop front / verge trading displays without interrupting pedestrian circulation space

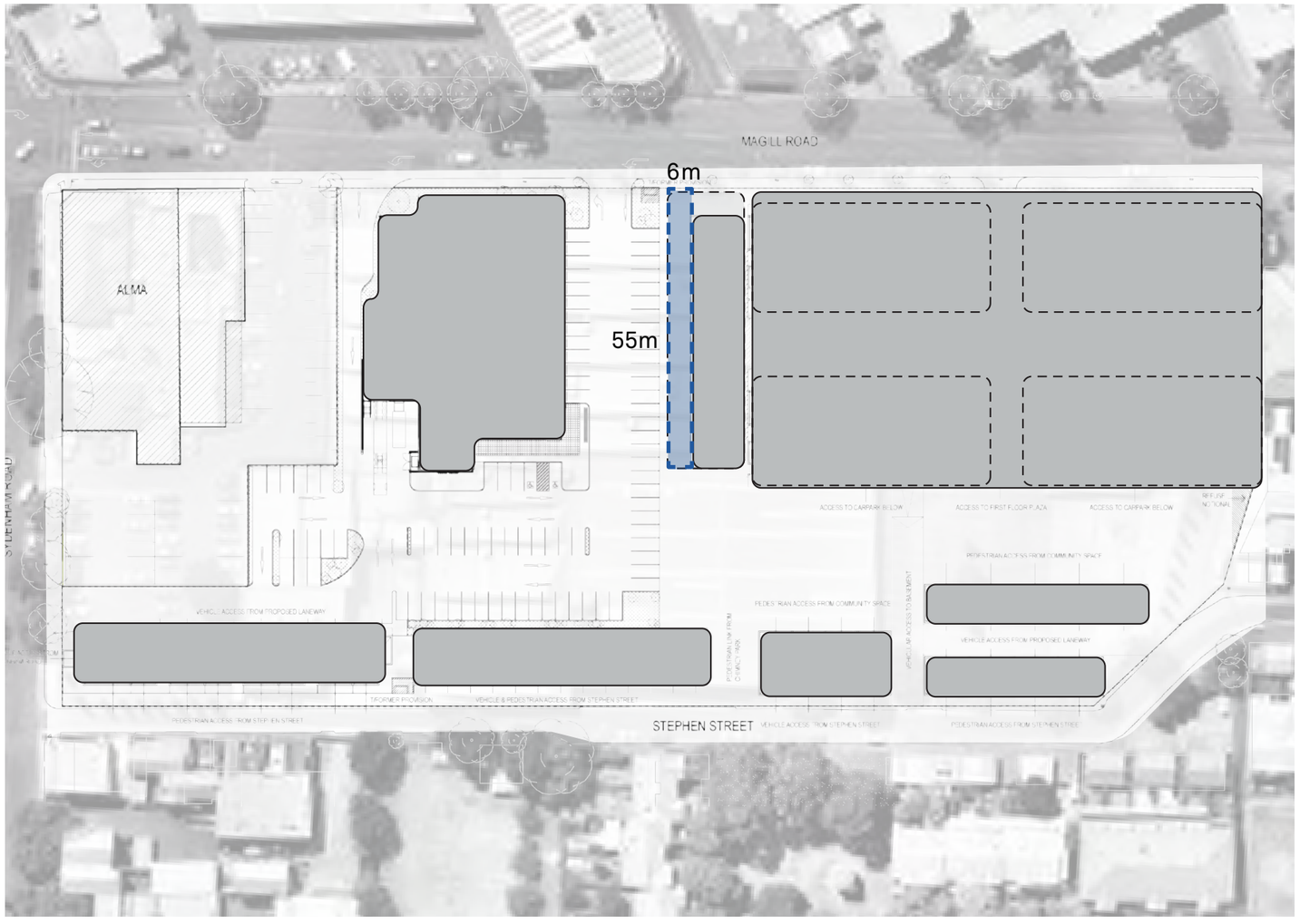
_Active frontages and transparency will contribute further to the vibrancy of this space

Chesser Street - 6.5m width

Peel Street - 6m width

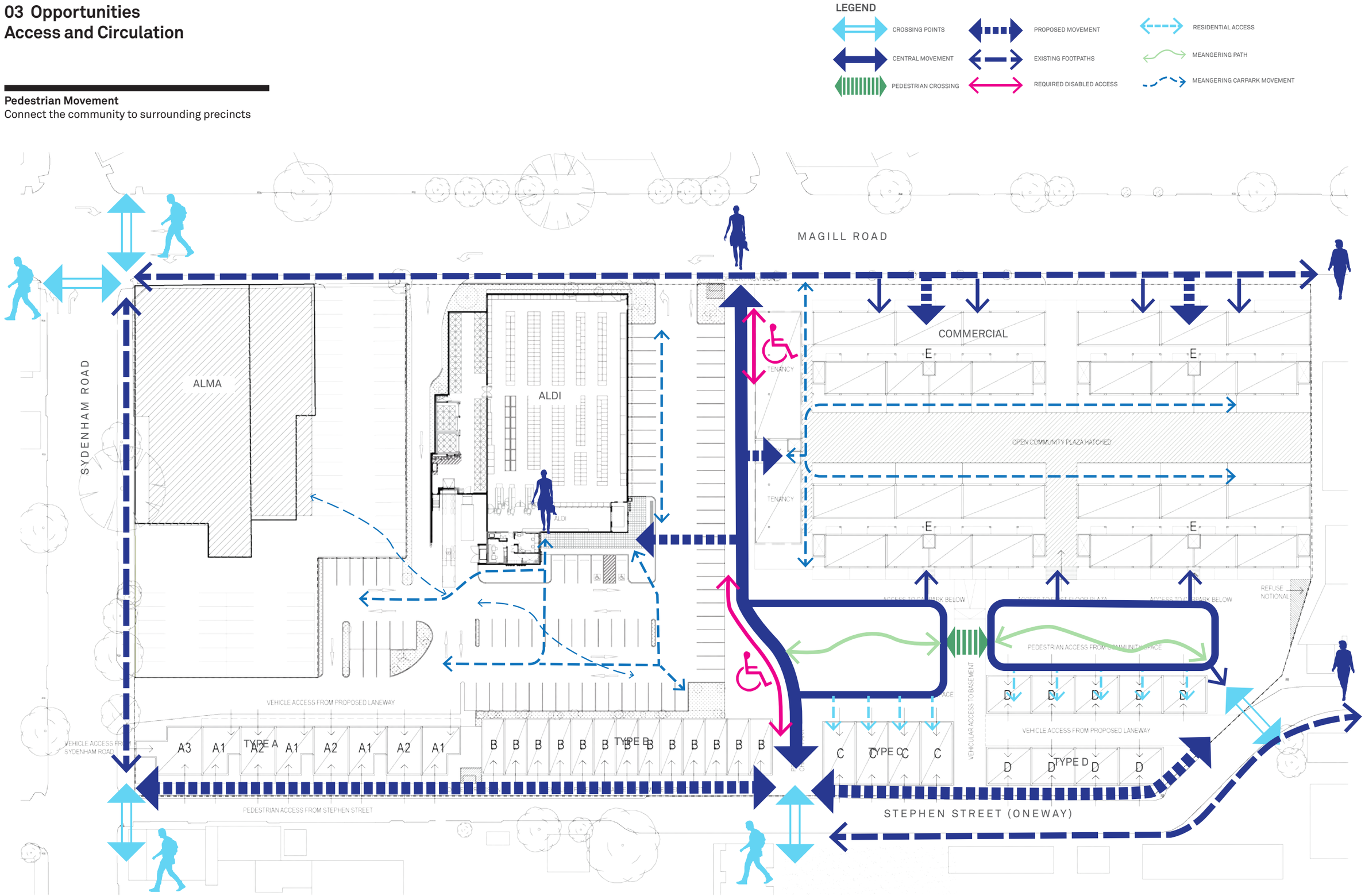
Rundle Street - 5.0 - 6.0m

Norwood Parade - varies between 4.0m to 6.0m



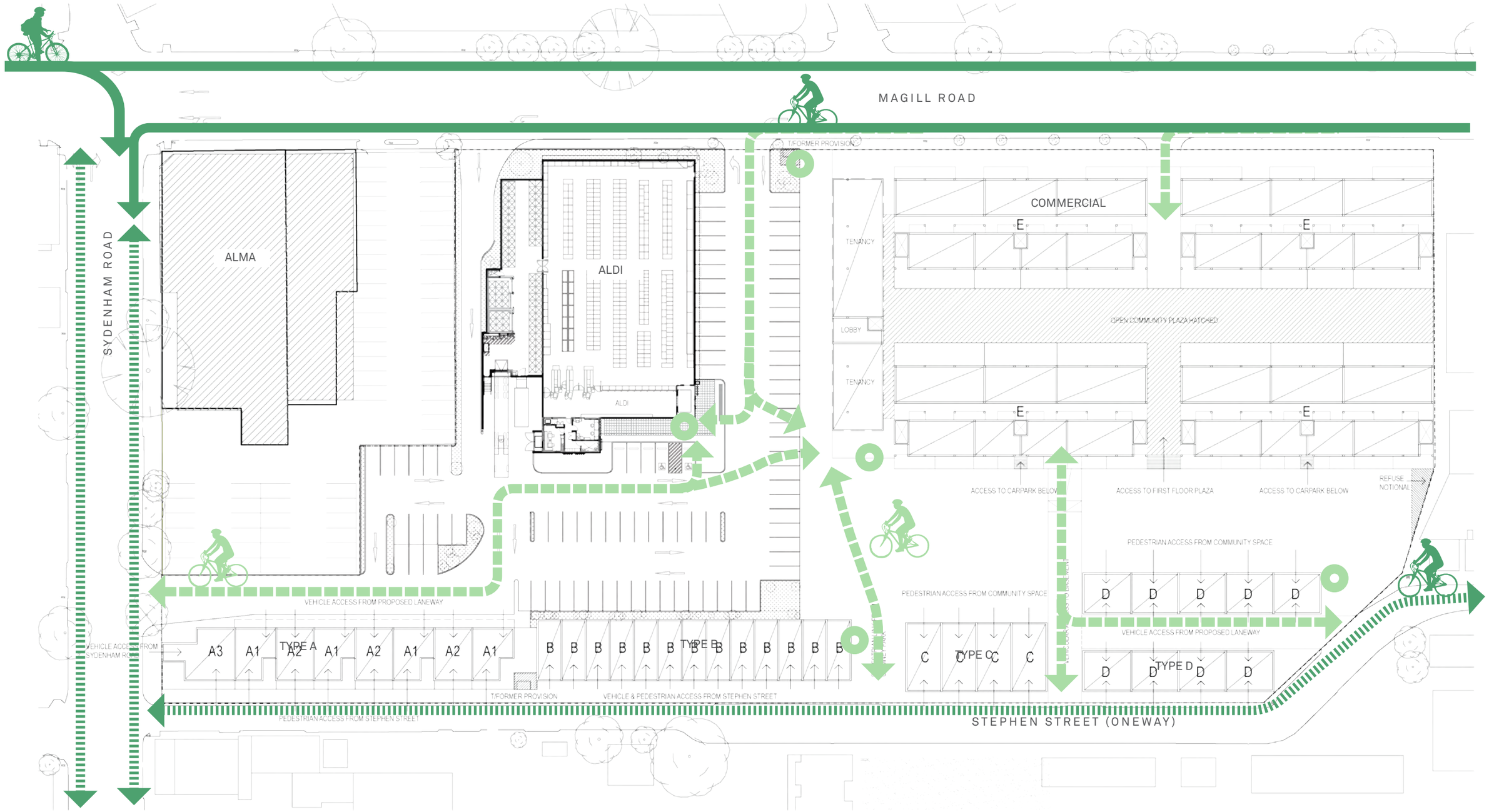
03 Opportunities
Access and Circulation

Pedestrian Movement
Connect the community to surrounding precincts



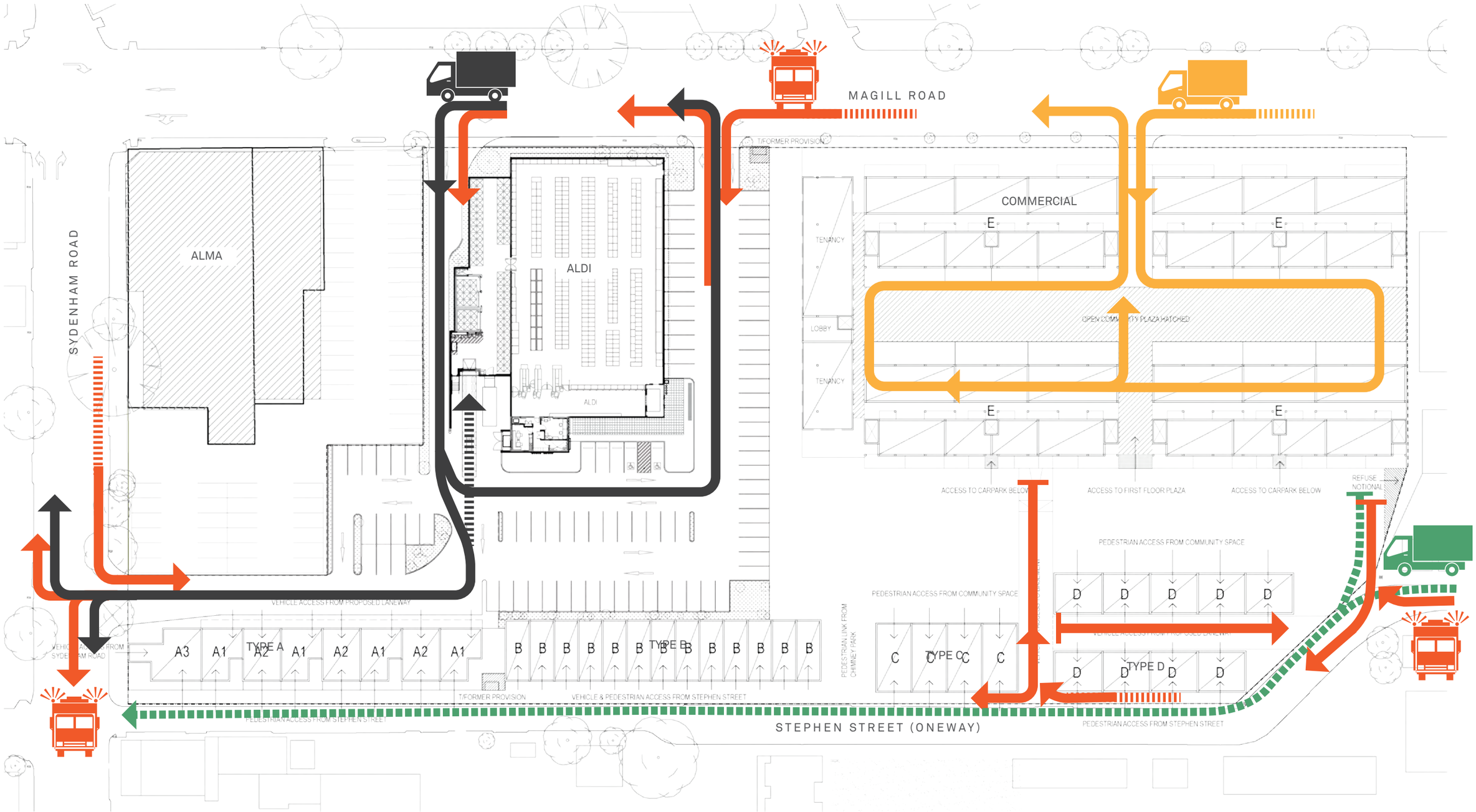
03 Opportunities
Access and Circulation

Cyclist Movement
Connect the community to surrounding precincts



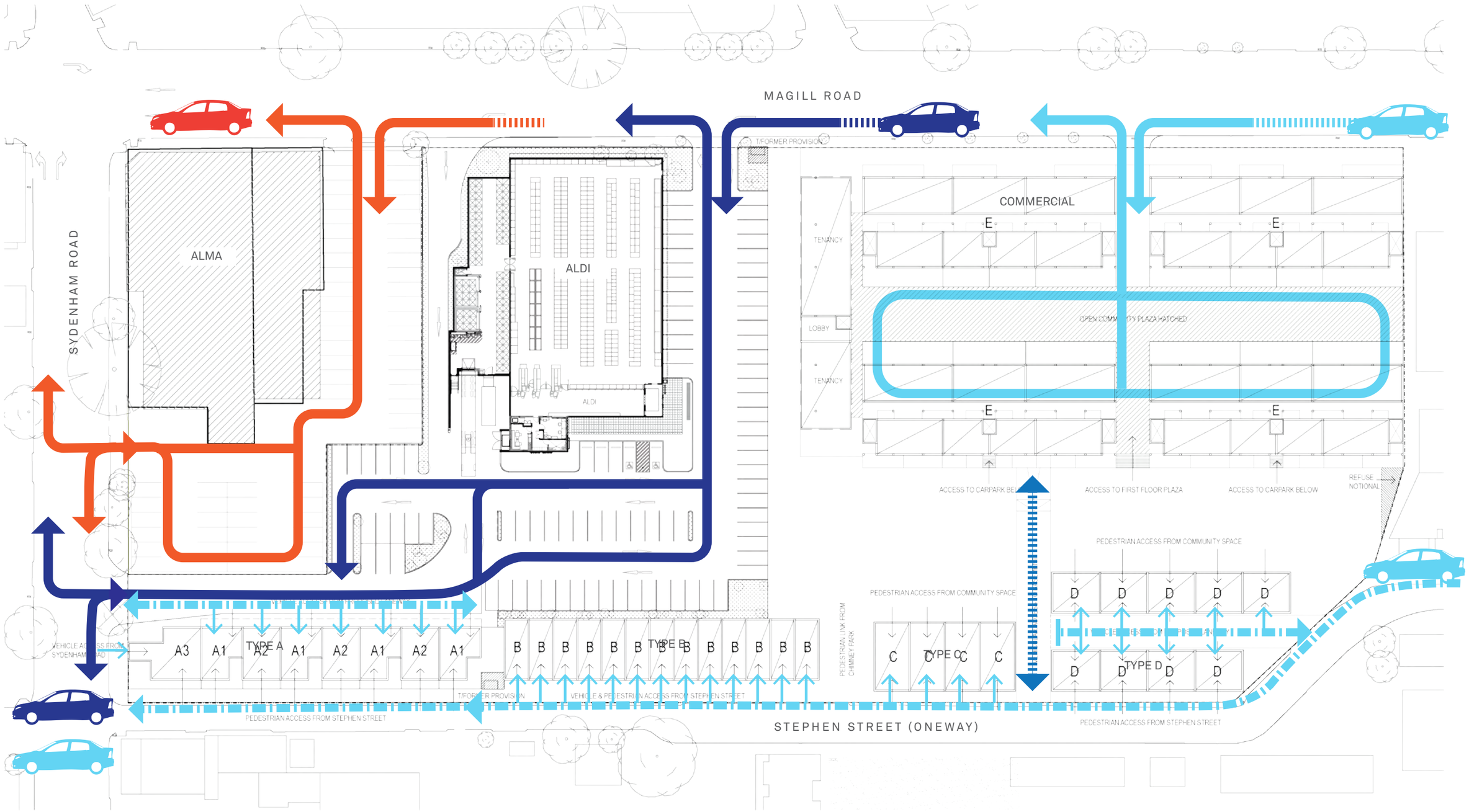
03 Opportunities
Access and Circulation

Loading and Vehicle Movement
Connect the community to surrounding precincts



03 Opportunities
Access and Circulation

Motor Vehicle Movement
Connect the community to surrounding precincts



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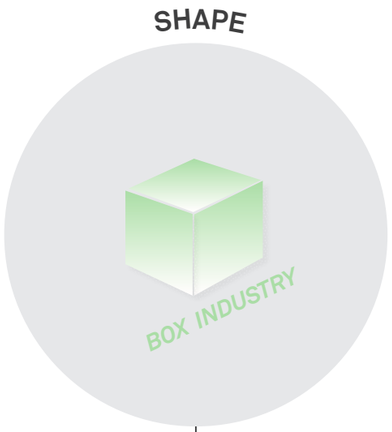
Brookfield Place, Perth, WA by HASSELL
Photography by Peter Bennetts

Vision

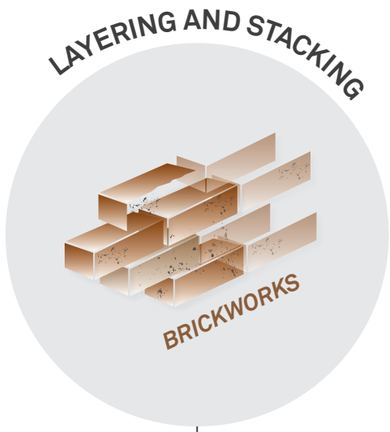
A hard working inner urban park. A green heart, a place for social and cultural exchange for residents and the local community.

Design Narrative

Drawing inspiration from the historical context of the site a design narrative has been established to inform the development of the concept designs for the public realm, influencing the shape and form of the space as well as the materiality and plant palettes.

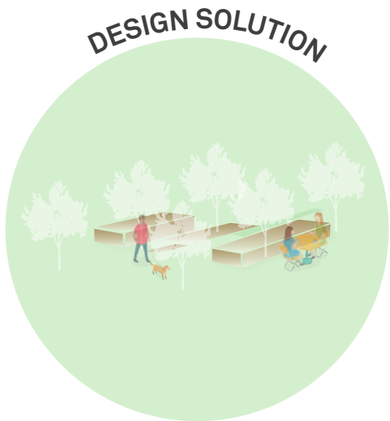


Industrial purposes since 1910 including boot and box manufacturing



Early industries in Norwood included famous brickwords such as Cox's brickworks on Stephens Street

Caroma's innovative industry developed the first dual flush systems and created poreclain designs.

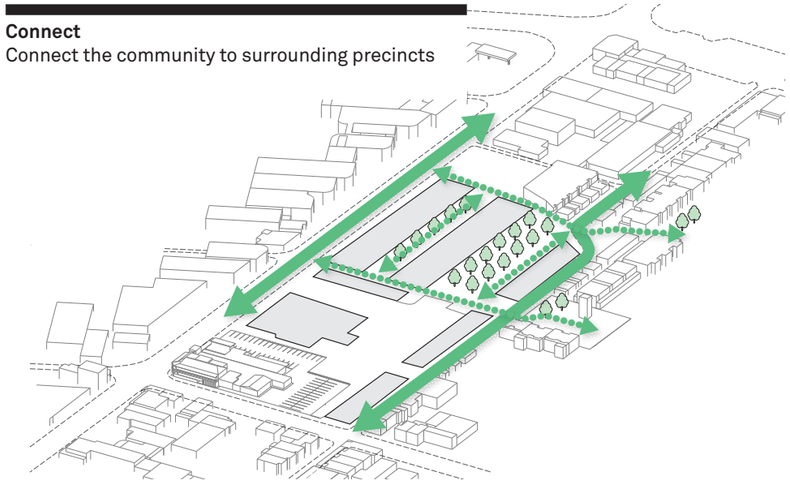


04 Landscape Master Plan
Key Moves

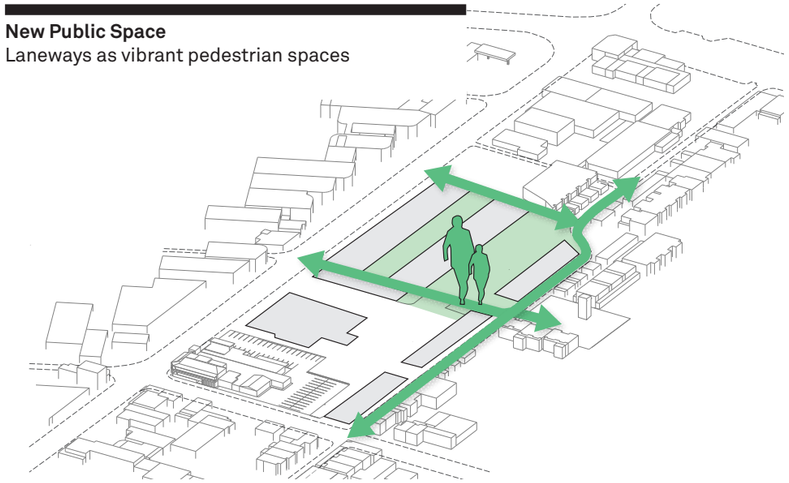
Key Moves

A series of key moves were established to assist in the development of the landscape master plan for the site, which looked at connecting and integrating the proposed development into the existing fabric of the neighbourhood and to drawing inspiration from and celebrating the local historical context.

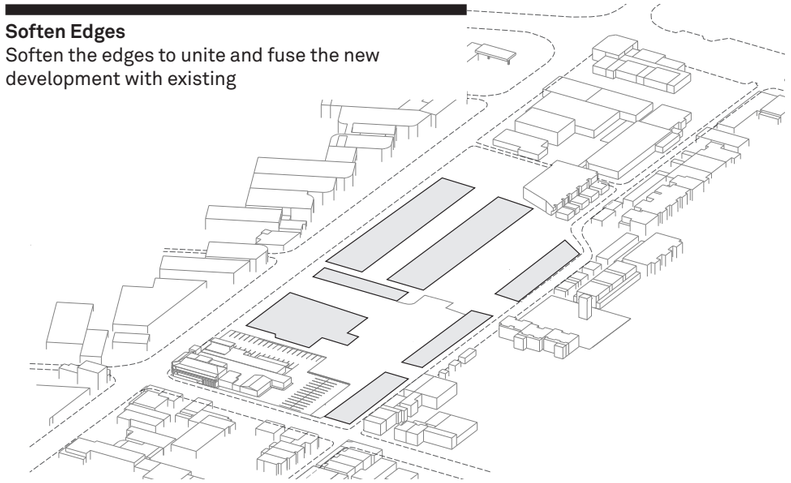
Connect
Connect the community to surrounding precincts



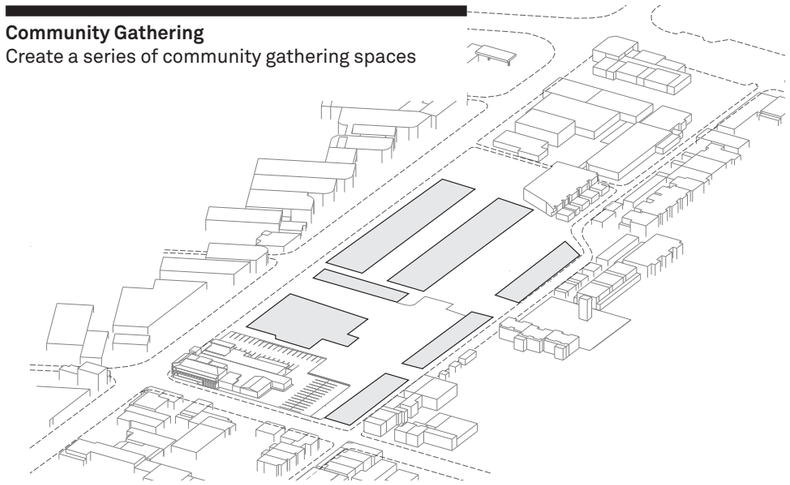
New Public Space
Laneways as vibrant pedestrian spaces



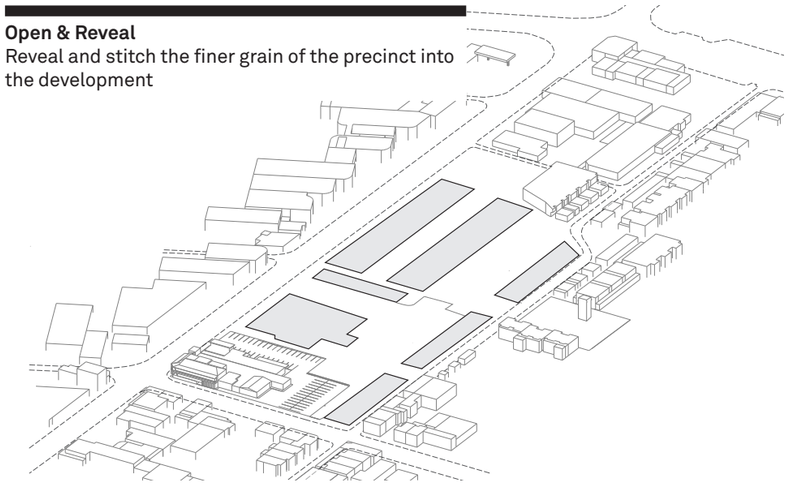
Soften Edges
Soften the edges to unite and fuse the new development with existing



Community Gathering
Create a series of community gathering spaces



Open & Reveal
Reveal and stitch the finer grain of the precinct into the development



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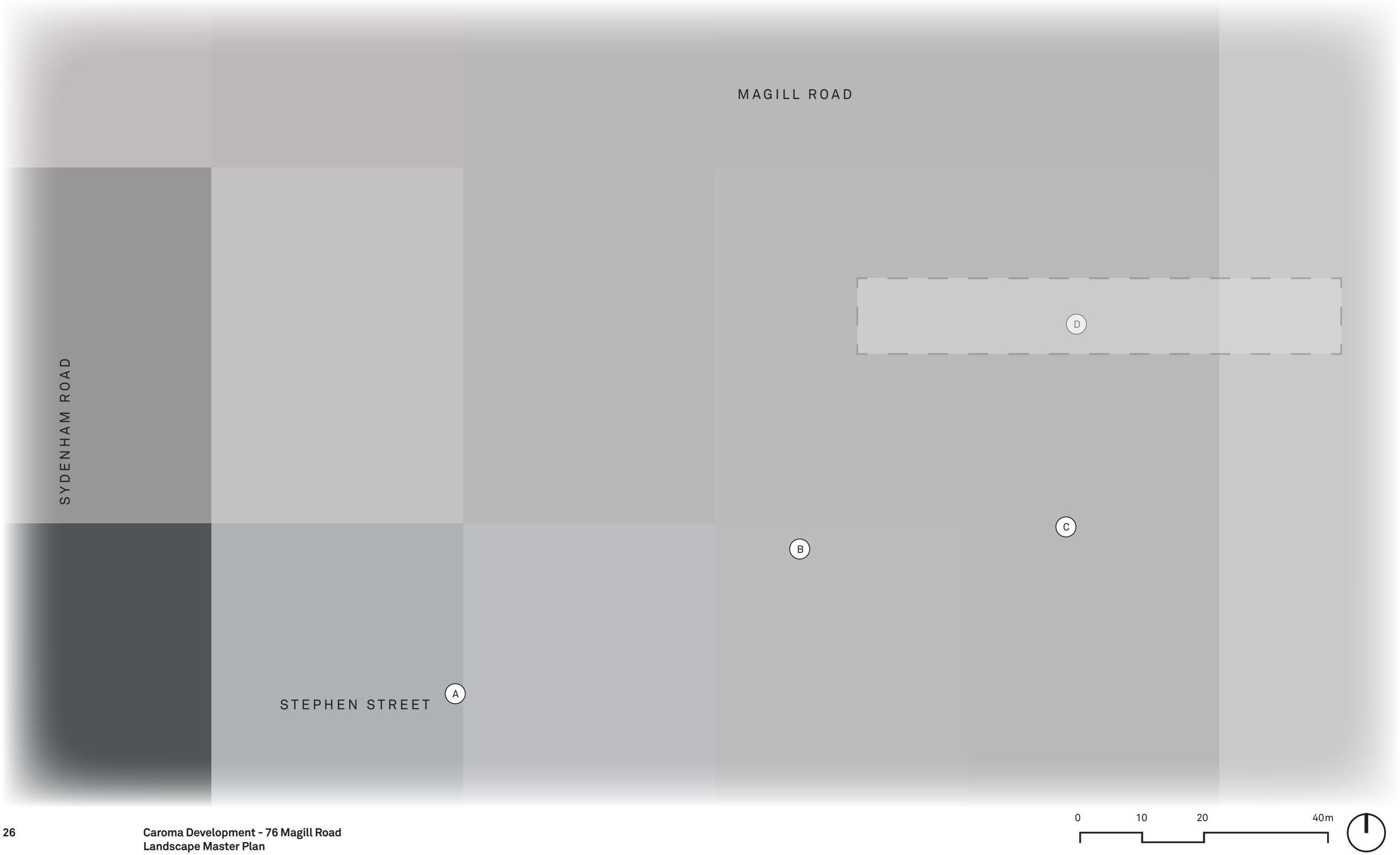
04 Landscape Master Plan
Ground Level

LEGEND

- (A) STEPHEN STREET STREETSCAPE
- (B) TOWN PIAZZA
- (C) COMMUNAL OPEN SPACE
- (D) LEVEL 1 PLAZA



04 Landscape Master Plan
Level 1

LEGEND

- (A) STEPHEN STREET STREETSCAPE
- (B) TOWN PIAZZA
- (C) COMMUNAL OPEN SPACE
- (D) LEVEL 1 PLAZA

0 10 20 40m

HASSELL
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04 Landscape Master Plan
Public & Communal Open Space

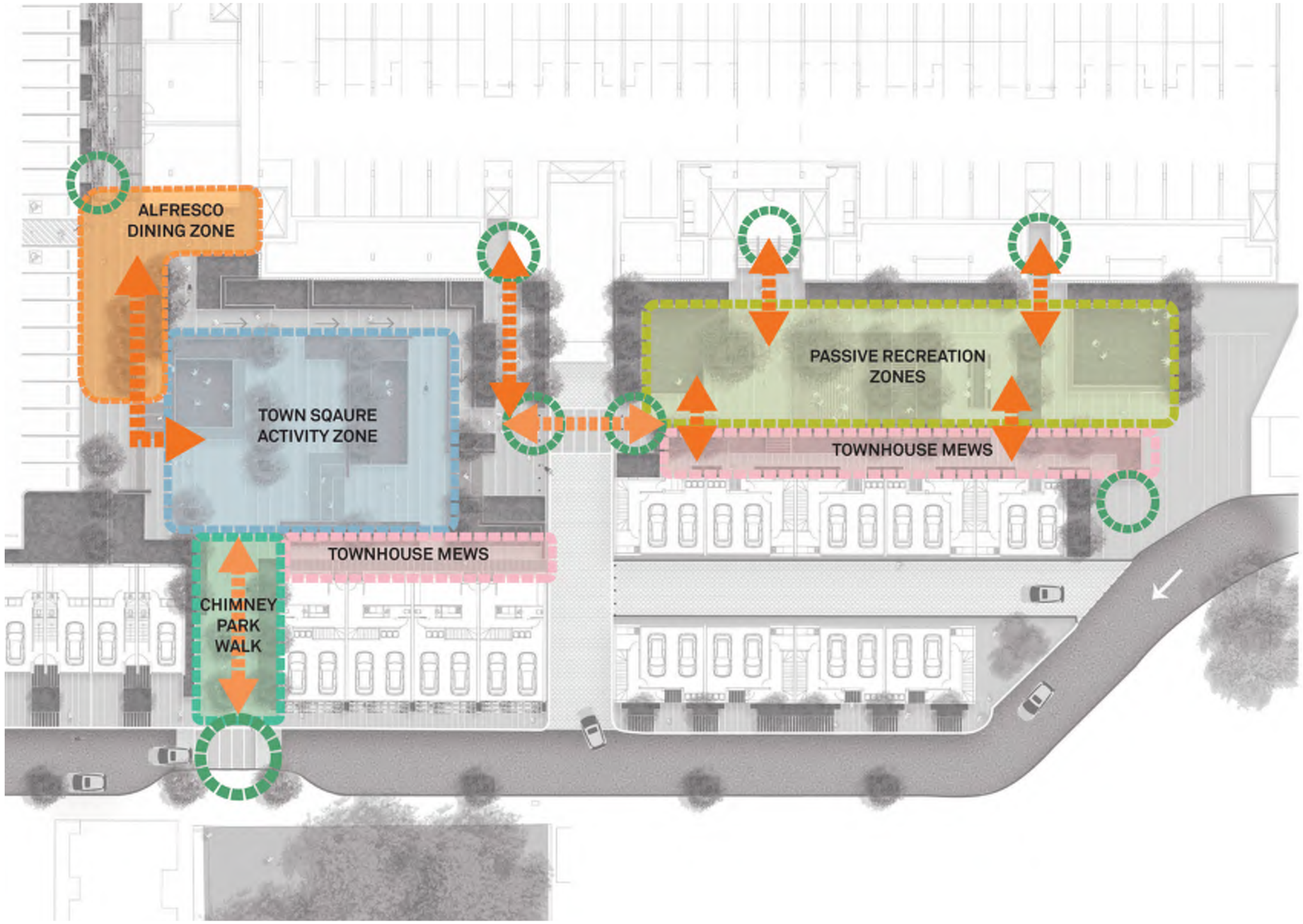
Public & Communal Open Space

The public open space consists of the Town Piazza and the publicly accessible communal open space, providing more than 2500m2 of accessible and usable open space for residents and the local community.

The intent is for the Town Piazza to be vested to the City of Norwood Payneham & St Peters and the Private Open Space to be owned and managed as part of the Community Title for the proposed development.

The shape and form draw inspiration from the design narrative, resulting in a hard working urban park. A park which creates a series of outdoor rooms and plateaus for social and cultural exchange to occur for residents and the local community.

Spatial Zoning



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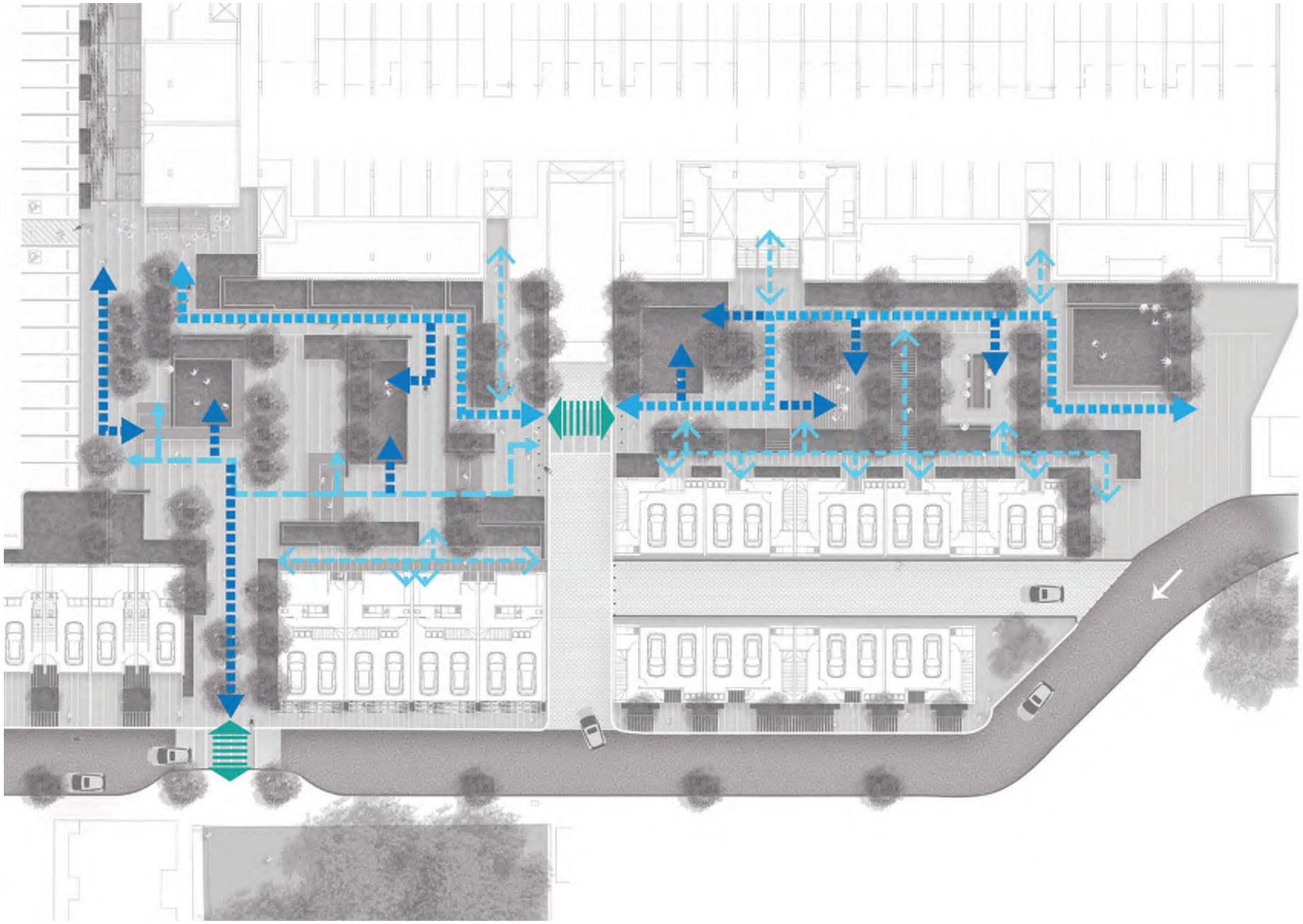
Legend

- Roadway Crossing
- Roadway Crossing
- Destinations
- DDA Pathways
- Apartment & Townhouse access

Circulation



04 Landscape Master Plan
Public & Communal Open Space

Experience & Activities

The landscape master plan for the open space creates a series of outdoor rooms which can host a variety of activities and offer a variety of experiences.

The open space will provide an urban park which offers opportunities for passive and active recreation, for members of the community and residents of the development. The space caters for small and large groups, providing flexibility for users to find more private intimate spaces or open communal zones.

The diagram adjacent shows a variety of experiences, through precedent images, which can be provided within the space. The final mix of activities and experiences within the public realm will be shaped through conversations with the City of Norwood Payneham and St Peters, in subsequent design phases, to ensure that the offering within the developments proposed open space complements the existing adjacent open space network and NPSP's long term vision for their open space network.

0 5 10 20m

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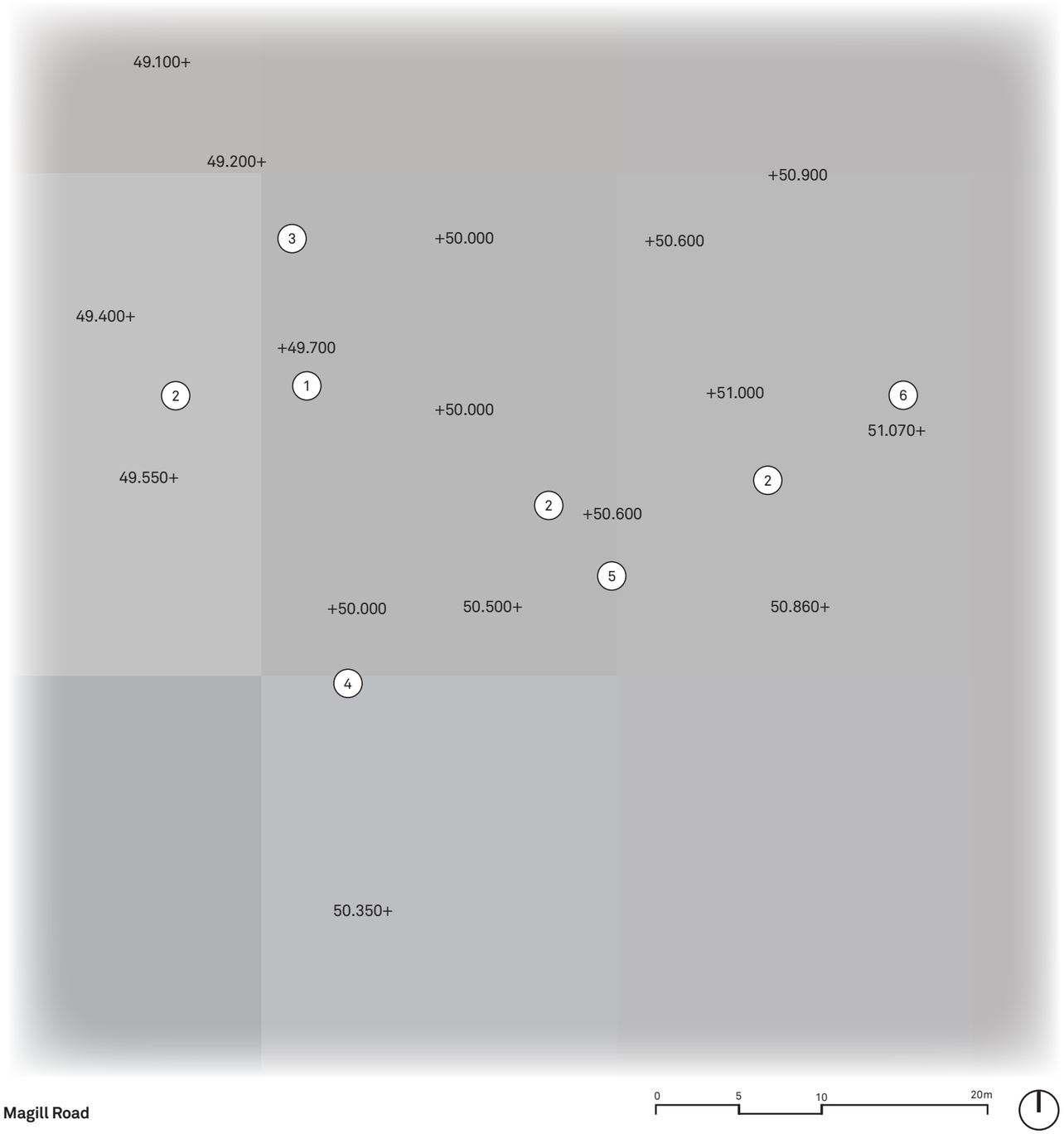
Town Piazza

The town piazza features approximately 2m of level difference from west to east, resulting in 4 distinct levels. Universal access is provided between levels by a 1:14 ramp located on the northern edge of the open space.
Direct access through the space is provided by a series of stairs, which transition into low height retaining walls, which also double as informal seats and ledges.

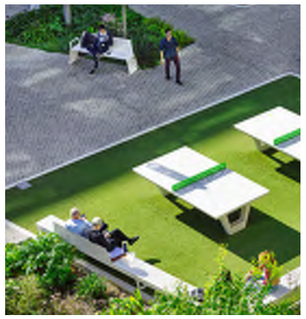
The lowest plateau closest to the carpark will provide outdoor dining opportunities in a hard paved environment with tree canopy above.

The second plateau which is the largest space in the town piazza provides flexibility to host events or to enable larger group gathering on the lawn area or beneath the trees.

The two eastern most plateaus are smaller than the western two spaces and predominantly provide circulation through the space, access to the apartments and more intimate settings for people to sit, read and engage with nature.

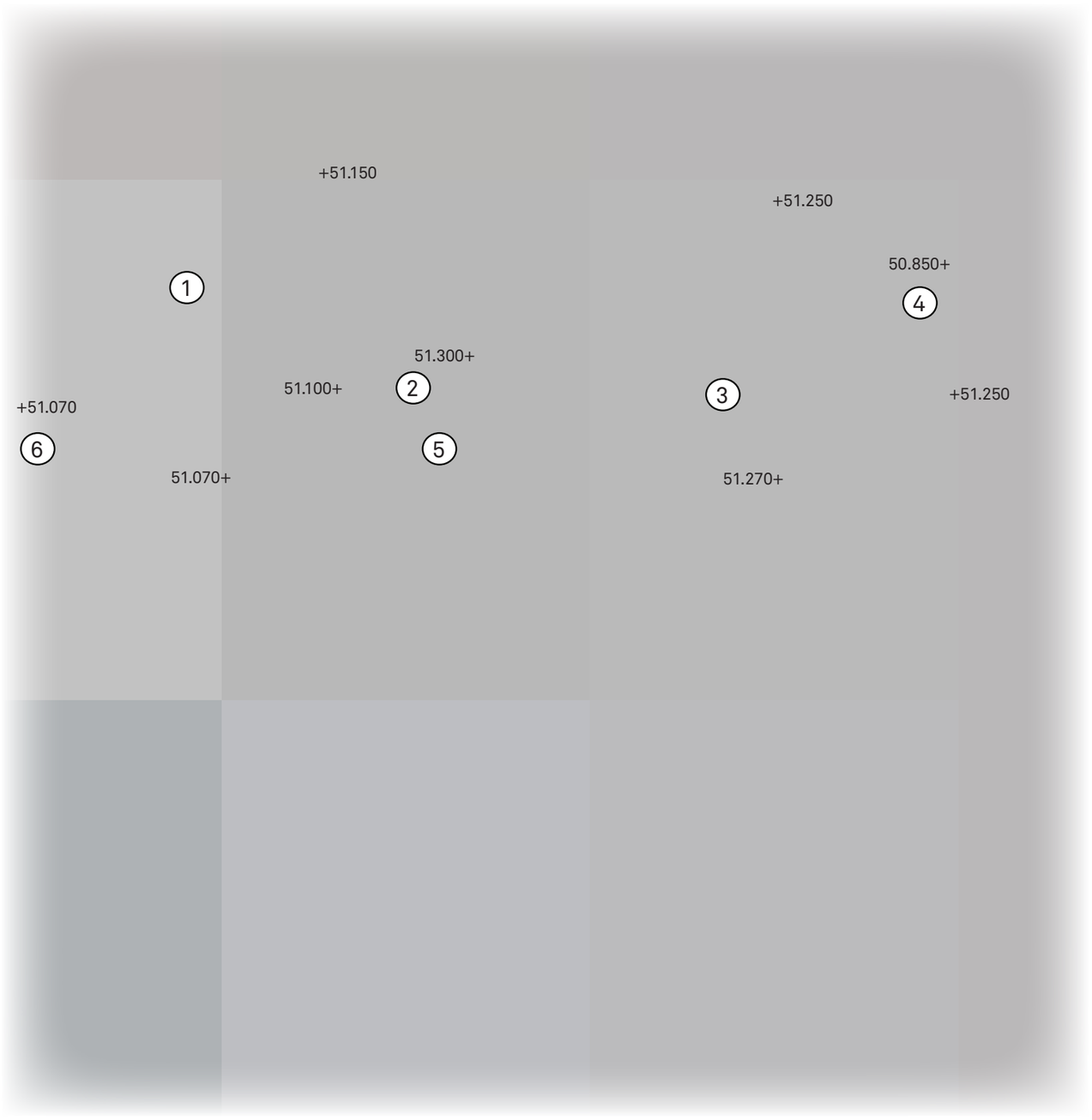


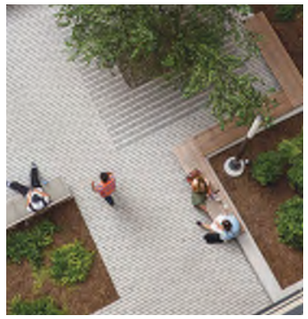
1. Turf areas for passive activities
2. Stairways to transition to level plateaus
3. Universal access via 1:14 ramps
4. Urban park landscape connection to chimney park via raised pedestrian threshold
5. Landscape screen to townhouse entrances
6. Flush pedestrian connection to communal open space. Material change and bollards to delineate driveway



Private Open Space (Publicly Accessible)

The publicly accessible Private Open space provides a series of small outdoor rooms. Each room caters for differing experiences and activities.
The rooms consist of an outdoor turf activity zone associated with the internal rec room, a raised timber deck alfresco area, a large communal table and a sunken turf lounge area with perimeter retaining wall.





1. Turf areas for passive activities
2. Raised timber deck alfresco area for small group gatherings
3. Large group gathering outdoor communal table
4. Sunken turf lounge with low seating wall
5. Landscape screen to townhouse entrances
6. Flush pedestrian connection to communal open space.

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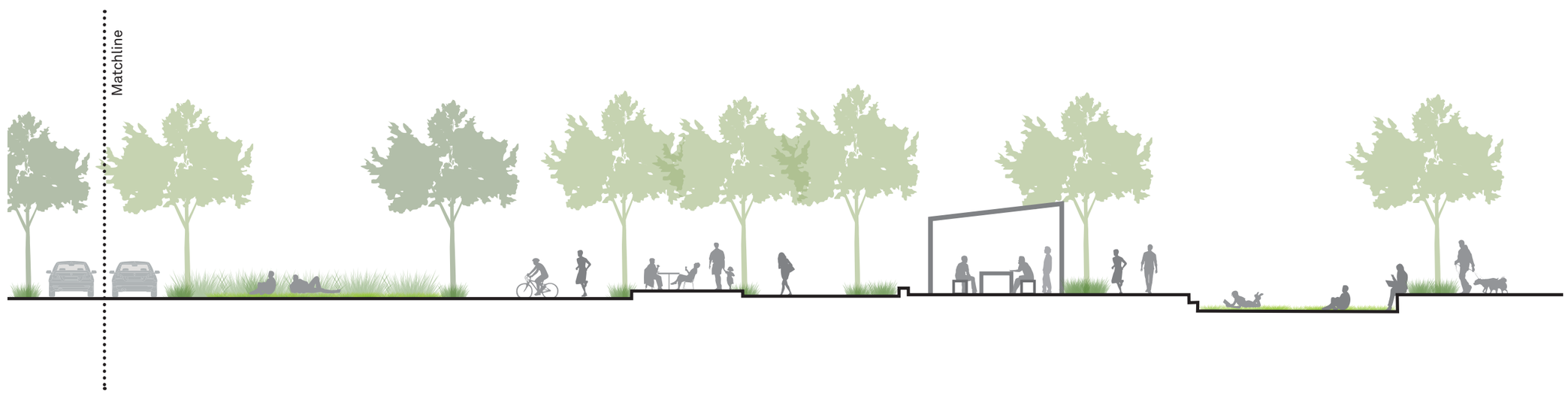
Long Section (East - West)



Town Piazza looking East

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04 Landscape Master Plan
Level 1 - Private Open Space

Level 1 Building Courtyard

The Level 1 Building Courtyard space provides an open spaces accessible only to residents of the apartments.
Utilising the same design narrative and form as the public open space the building courtyard provides a series of outdoor rooms which provide users with opportunities to seek solace or socially engage with other residents. Spaces are sized from intimate small gathering spaces to large communal group gathering spaces.

Level 1 apartments which address the building courtyard have their own private spaces, which physically separated from the communal area with a palisade fence, which is scaled and softened with raised planters.

Large group gathering spaces are concentrated at the centre of the courtyard space, which is also aligned with the main access from the external public open space. This central space features a large pavilion and BBQ facilities, with a paved plaza and tree canopy supported by large turf areas directly adjacent, allowing residents to spill from the pavilion onto the turf areas.

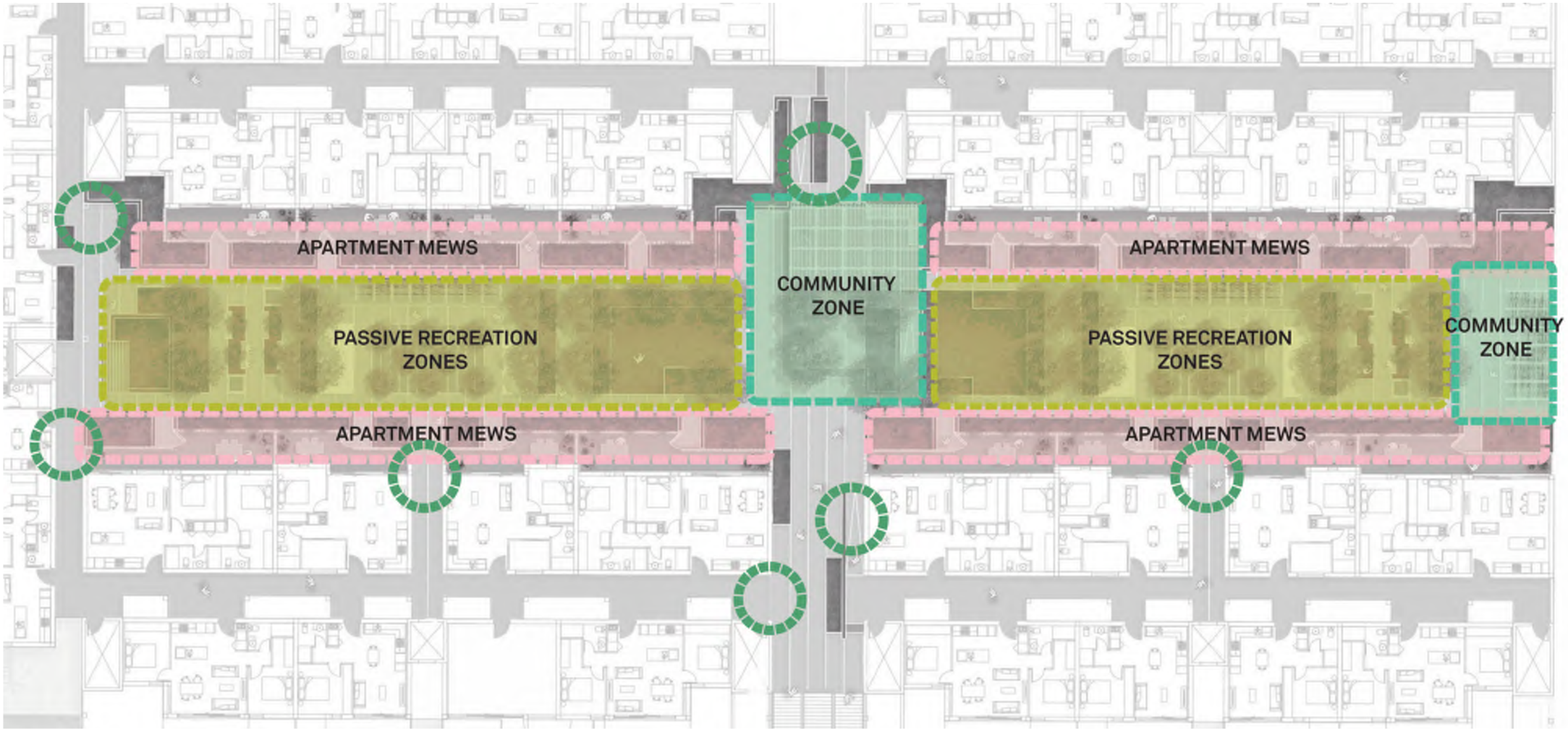
The smaller rooms provide a variety of smaller communal seating environments enclosed with vegetation and a tree canopy above. Water features provide a background noise to help residents immerse themselves into the landscaped environment of the courtyard.

The outdoor rooms adjacent to the apartment entries form the lifts feature a paved bosque with informal seating arrangement.

0 5 10 20m

04 Landscape Master Plan
Level 1 - Private Open Space

Spatial Zoning



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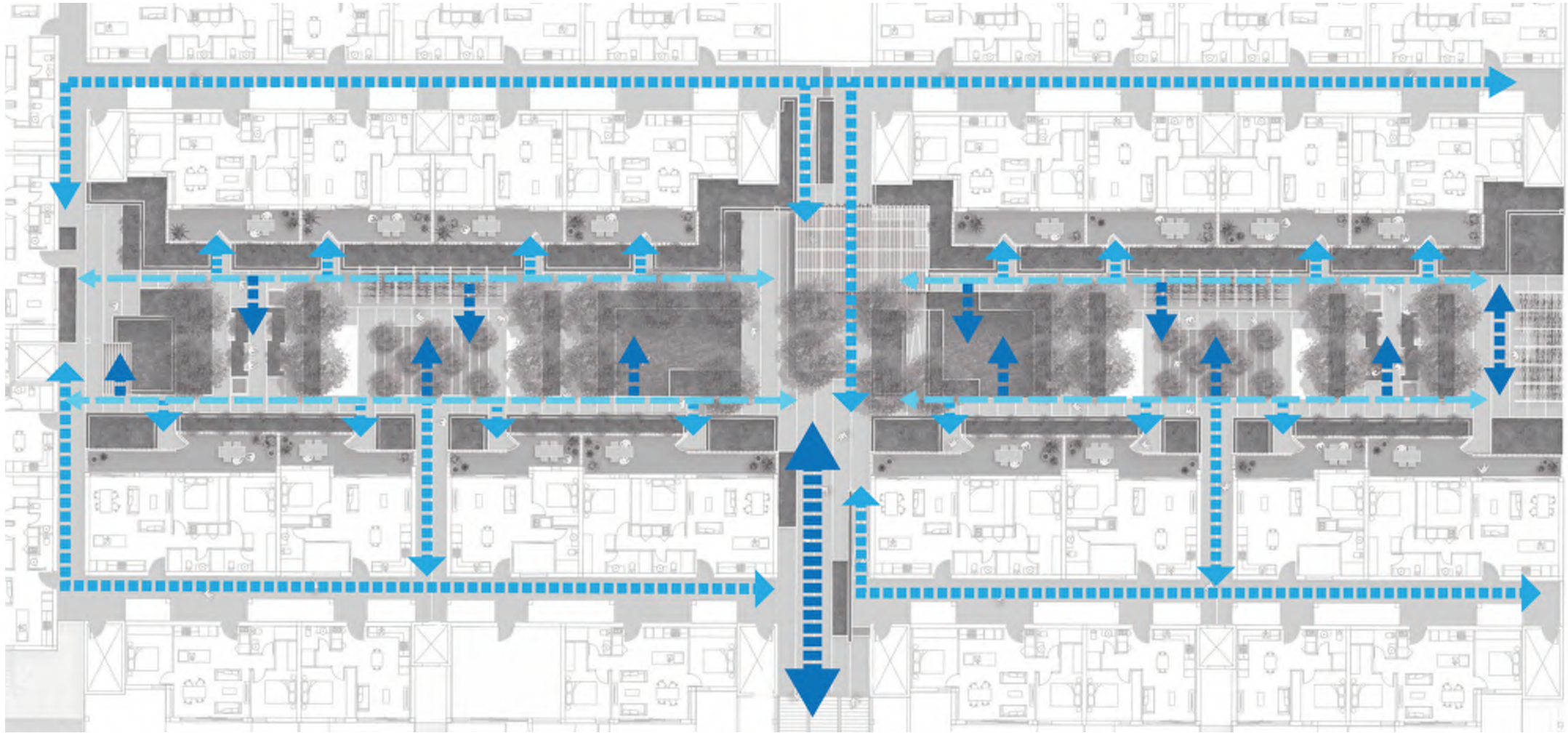
Circulation



Legend

Primary access routes

Access to destinations

Apartment access

04 Landscape Master Plan
Level 1 - Private Open Space

Experience & Activities

The landscape master plan for the building courtyard space creates a series of outdoor rooms which can host a variety of activities and offer a variety of experiences.

The open space is a private extension to the external urban park, offering opportunities for passive and active recreation, for members of the community and residents of the development. The space caters for small and large groups of residents, their families and friends, providing flexibility for users to find more private intimate spaces or open communal zones.

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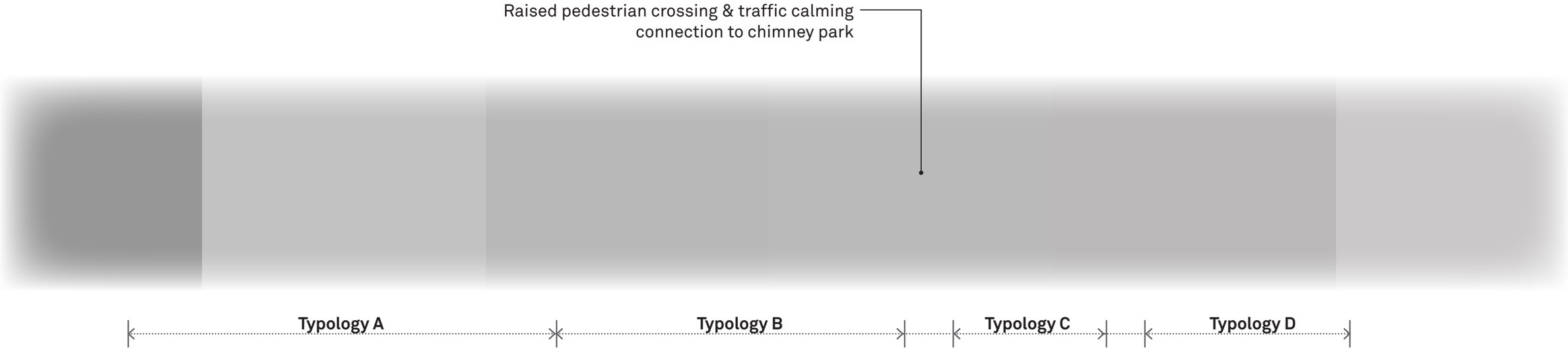
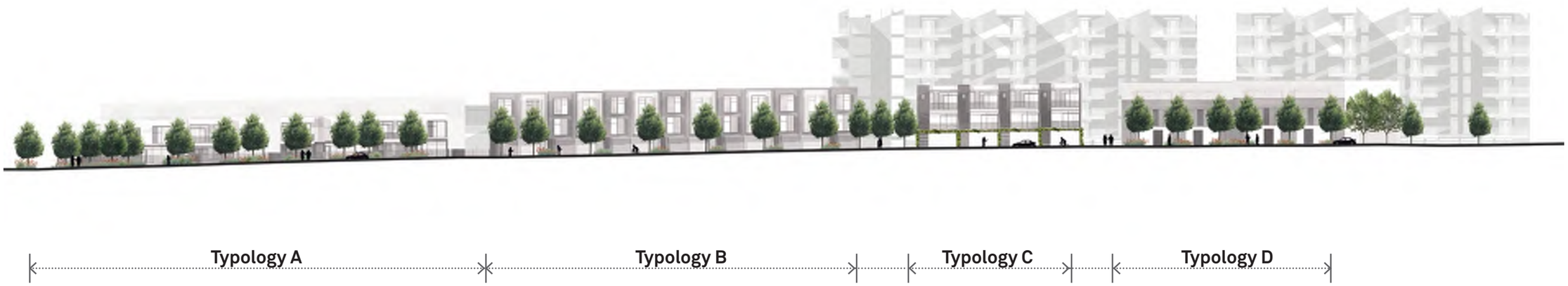
04 Landscape Master Plan
Level 1 - Private Open Space

Building Courtyard looking East from Lift

Streetscape Plan



Streetscape Elevation



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04 Landscape Master Plan
Stephen St Streetscape

Streetscape Typology A - Detail Plan

The approach to Stephen Street is to create a pedestrian friendly and green laneway environment.

Maintaining the existing roadway width and one way configuration the project development aims to provide a landscape setting with street trees to cool the environment and provide scale and softening to the townhouse facades.

Drawing form the design narrative the footpath treatment plays up the strong banding, using scale changes to delineate between circulation zones and private residence entry points. Subtle material or textural changes will also be used to demarcate the property boundary for easy understanding of maintenance responsibilities between the Body Corporate and City of Norwood Payneham and St Peters.

Pavement treatments above the street tree root zone will be either a permeable paver of paving bands with infill of planting or resin bound gravel, to enable the tree root zone to breathe and for infiltration of moisture during the winter months. Final pavement materiality and treatment will be subject to further discussions and agreement with City of NPSP.

Garden bed steps back at Property entries to provide zone for refuge off of circulation path

One-way vehicular traffic

Intimate scale banded paving to entrance frontages

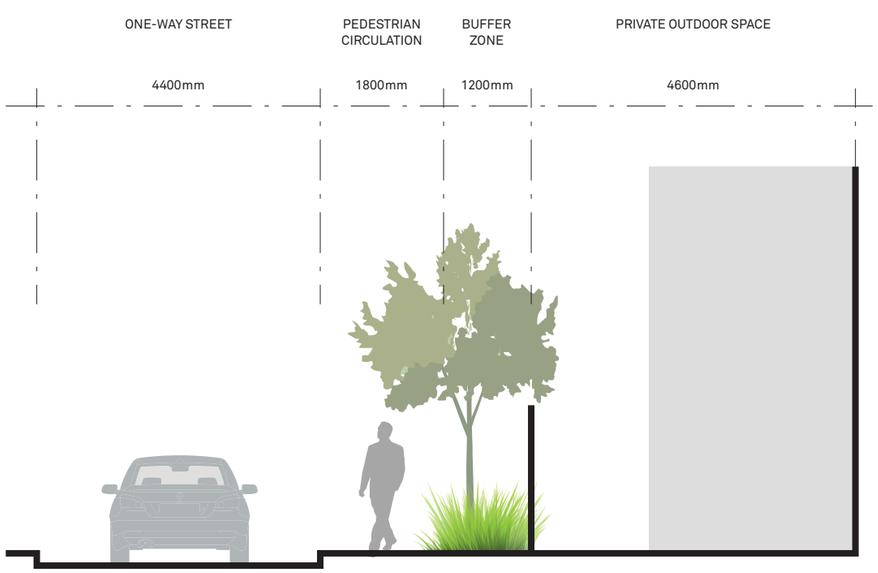
Street tree location

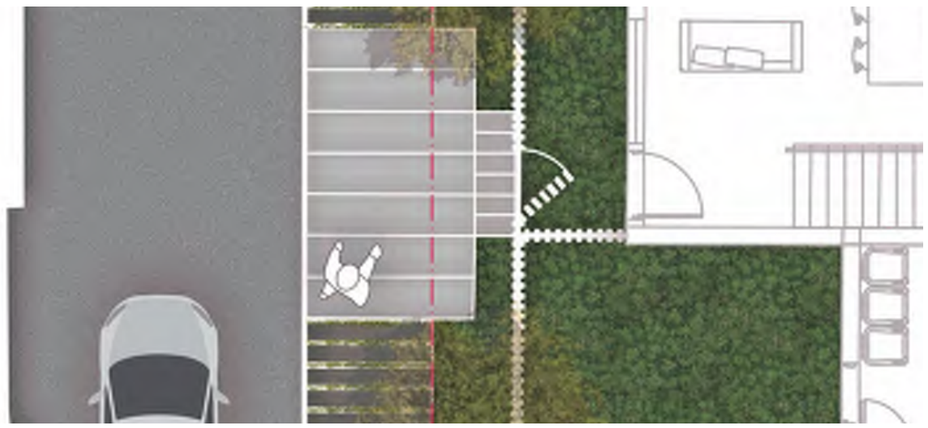
Permeable paving or planted strips above tree root zones

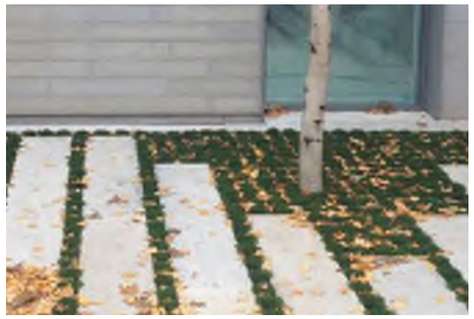
Banded pavement (exposed concrete or unit pavers)

0 1 2 4m

Streetscape Typology A - Section







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04 Landscape Master Plan
Stephen St Streetscape

Streetscape Typology B - Detail Plan

The approach to Stephen Street is to create a pedestrian friendly and green laneway environment.

Maintaining the existing roadway width and one way configuration the project development aims to provide a landscape setting with street trees to cool the environment and provide scale and softening to the townhouse facades.

Drawing form the design narrative the footpath treatment plays up the strong banding, using scale changes to delineate between circulation zones and private residence entry points. Subtle material or textural changes will also be used to demarcate the property boundary for easy understanding of maintenance responsibilities between the Body Corporate and City of Norwood Payneham and St Peters.

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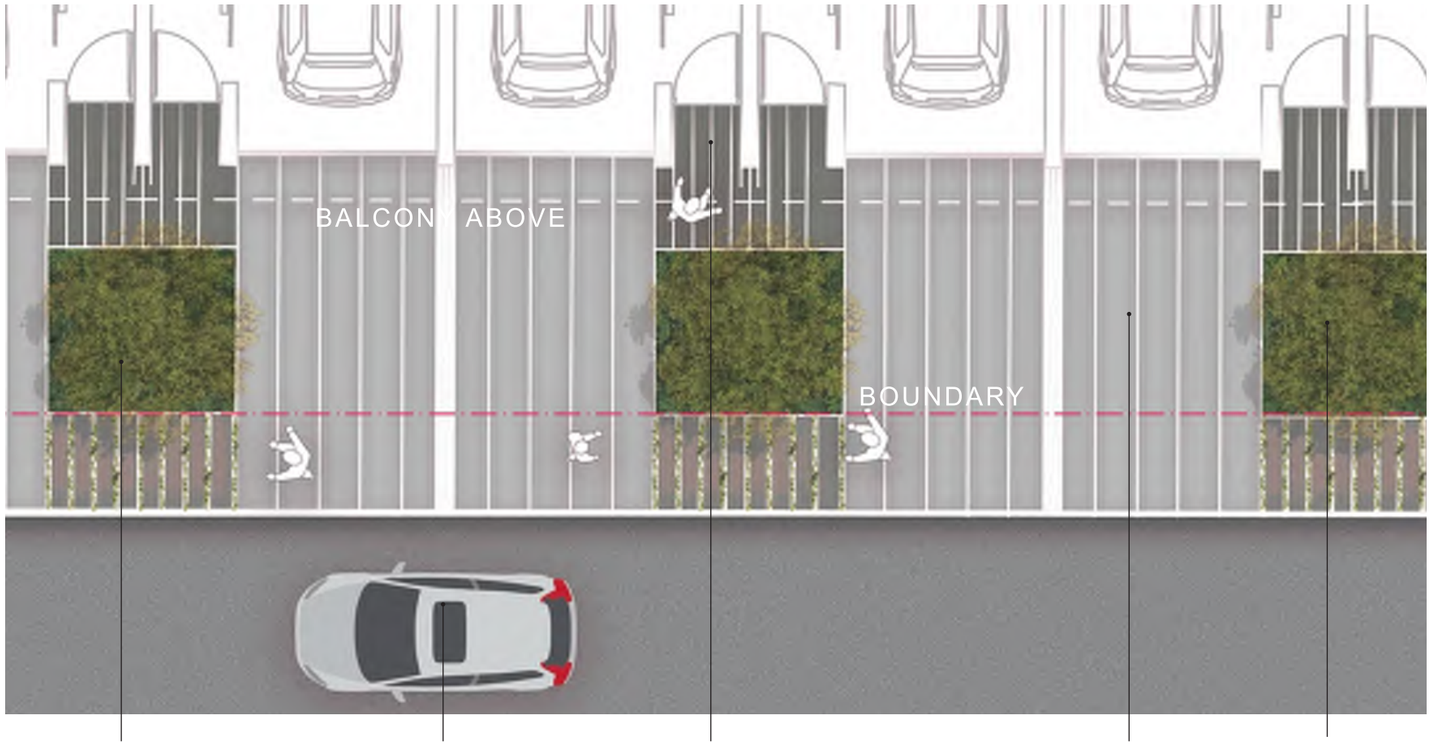


Garden bed with Street tree planting. Provides privacy and screening to residence entry

One-way vehicular traffic

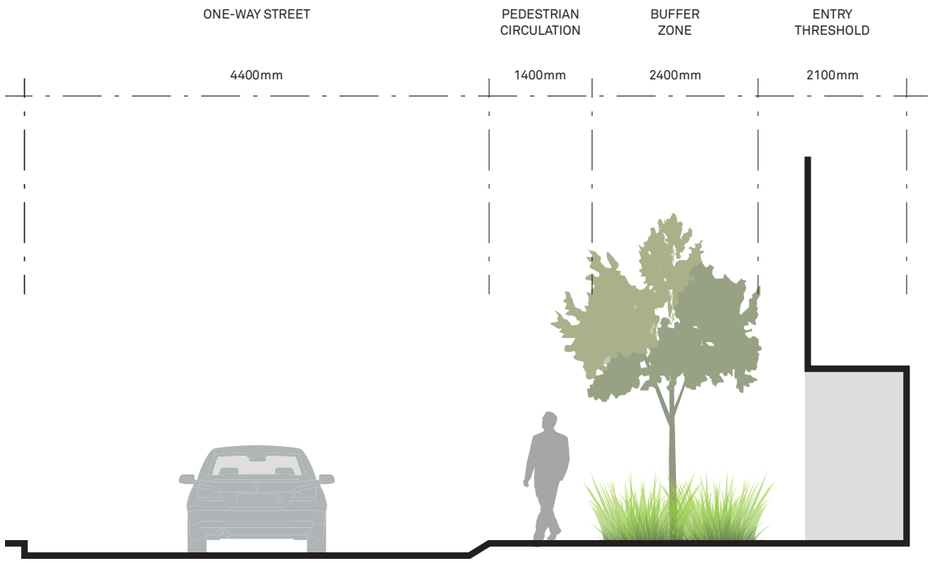
Intimate scale banded paving to entrance frontages

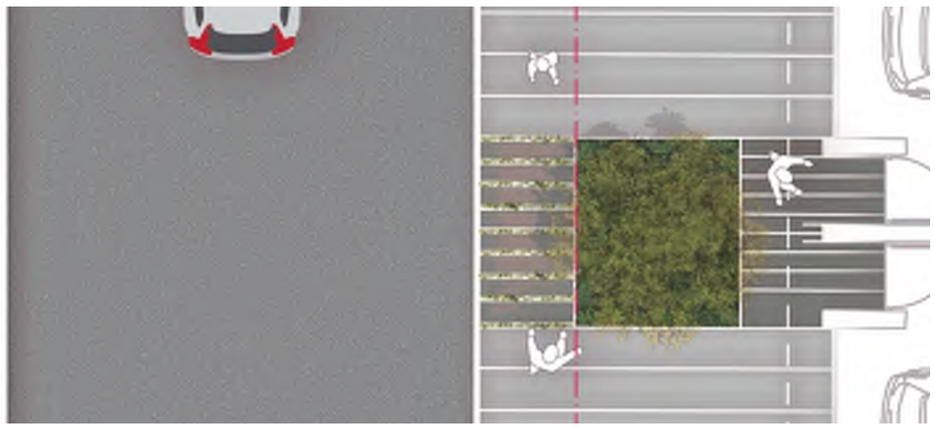
Banded pavement (exposed concrete or unit pavers)

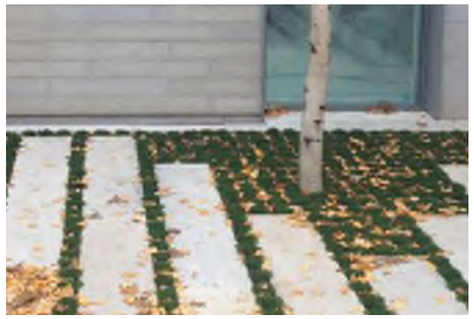
Permeable paving or planted strips above tree root zones

0 1 2 4m

Streetscape Typology B - Section







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04 Landscape Master Plan
Stephen St Streetscape

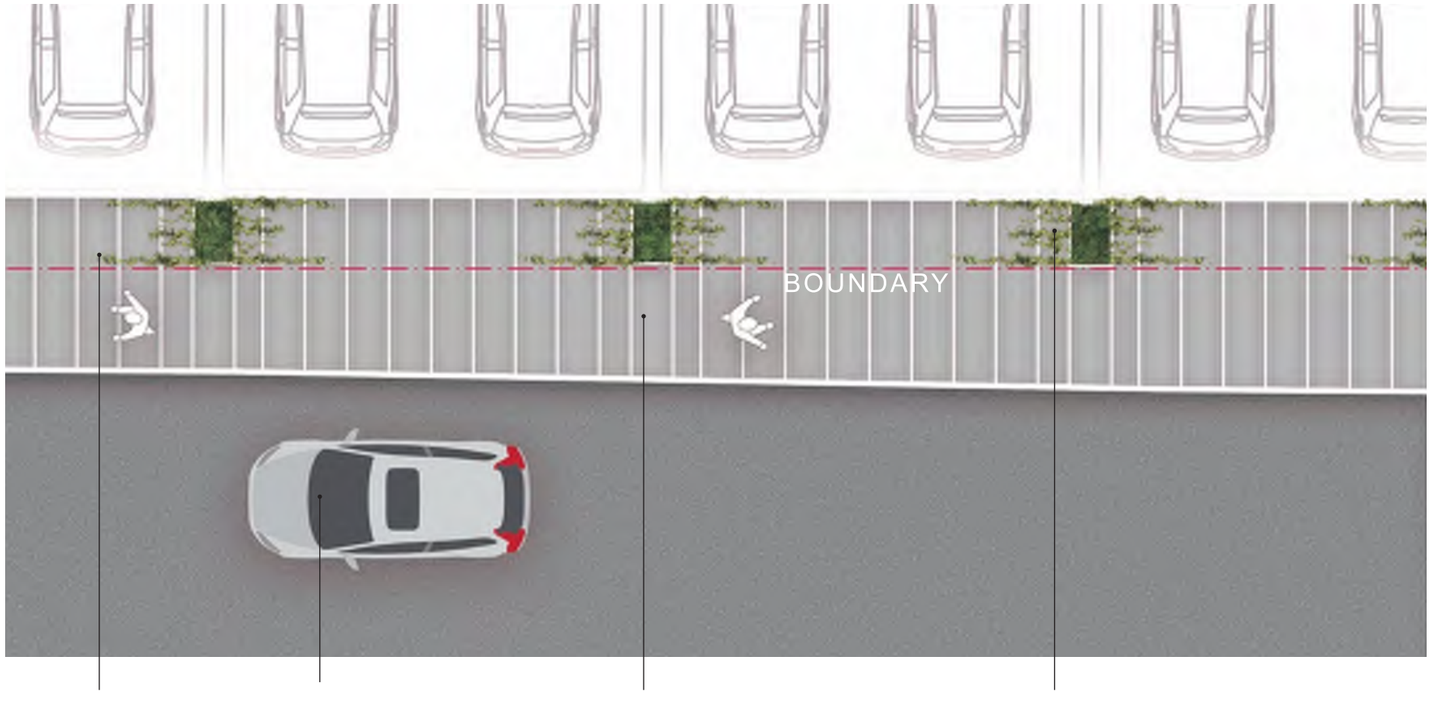
Streetscape Typology C - Detail Plan

The approach to Stephen Street is to create a pedestrian friendly and green laneway environment.

Maintaining the existing roadway width and one way configuration the project development aims to provide a landscape setting with street trees to cool the environment and provide scale and softening to the townhouse facades.

Drawing form the design narrative the footpath treatment plays up the strong banding, using scale changes to delineate between circulation zones and private residence entry points. Subtle material or textural changes will also be used to demarcate the property boundary for easy understanding of maintenance responsibilities between the Body Corporate and City of Norwood Payneham and St Peters.

For this streetscape frontage there is no opportunity for street tree or understorey planting, due to the continuous run of garages. To continue the greened street presence across this frontage a living trellis awning will be provided off of the architectural facade.



Banded pavement (exposed concrete or unit pavers)

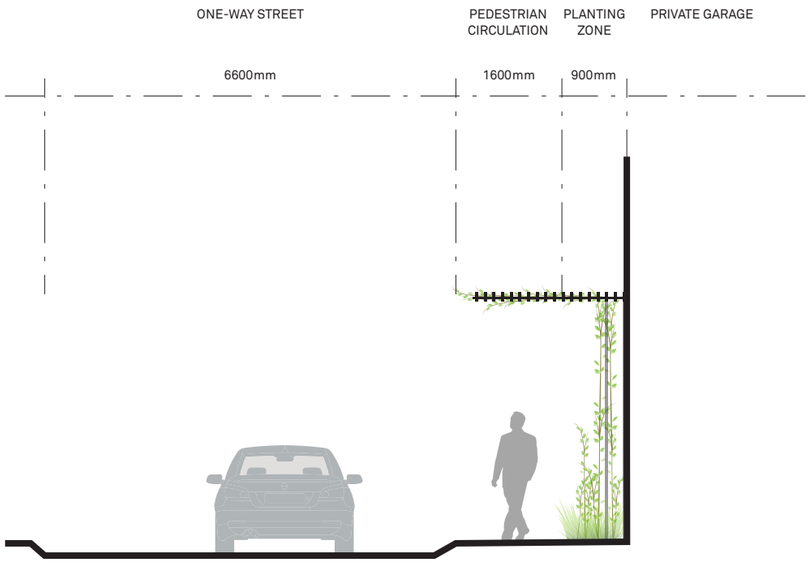
One-way vehicular traffic

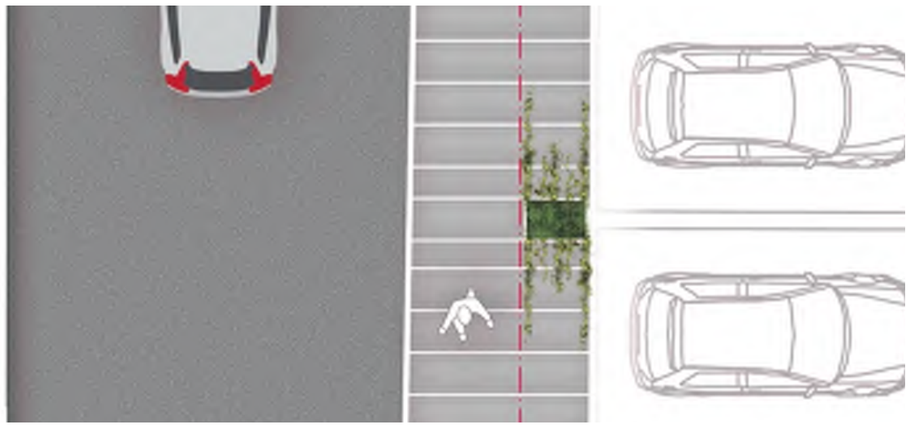
Pedestrian circulation

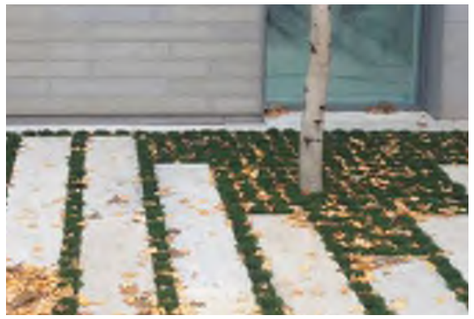
Trellis above garage entrance to continue green street presence along the entire Stephen St frontage

0 1 2 4m

Streetscape Typology C - Section







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04 Landscape Master Plan
Stephen St Streetscape

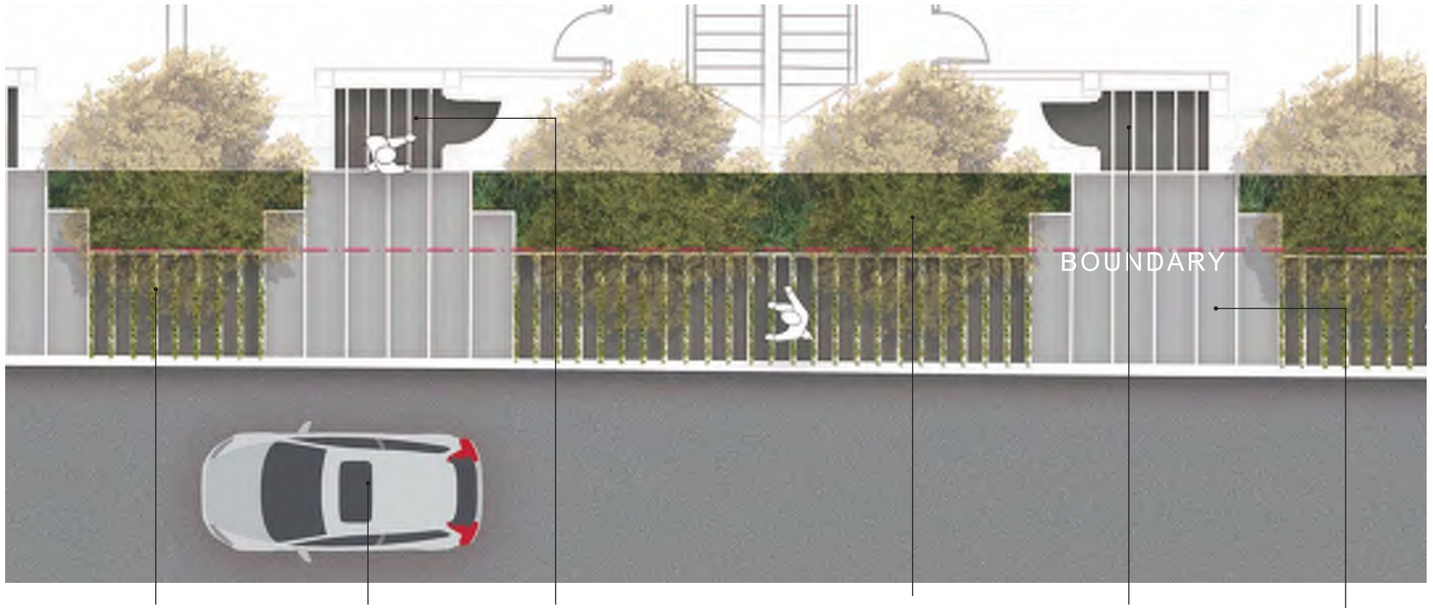
Streetscape Typology D - Detail Plan

The approach to Stephen Street is to create a pedestrian friendly and green laneway environment.

Maintaining the existing roadway width and one way configuration the project development aims to provide a landscape setting with street trees to cool the environment and provide scale and softening to the townhouse facades.

Drawing form the design narrative the footpath treatment plays up the strong banding, using scale changes to delineate between circulation zones and private residence entry points. Subtle material or textural changes will also be used to demarcate the property boundary for easy understanding of maintenance responsibilities between the Body Corporate and City of Norwood Payneham and St Peters.

Pavement treatments above the street tree root zone will be either a permeable paver of paving bands with infill of planting or resin bound gravel, to enable the tree root zone to breathe and for infiltration of moisture during the winter months. Final pavement materiality and treatment will be subject to further discussions and agreement with City of NPSP.



Permeable paving or planted strips above tree root zones

One-way vehicular traffic

Garden bed steps back at Property entries to provide zone for refuge off of circulation path

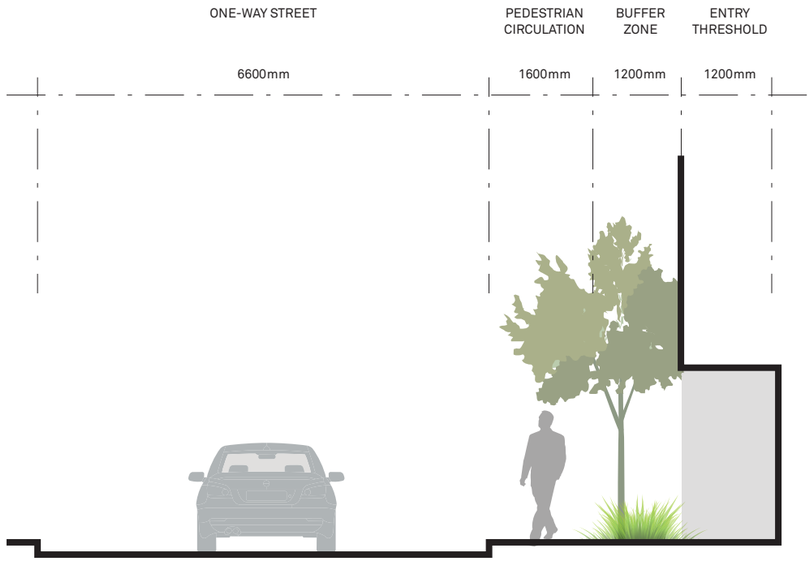
Street tree and understorey planting

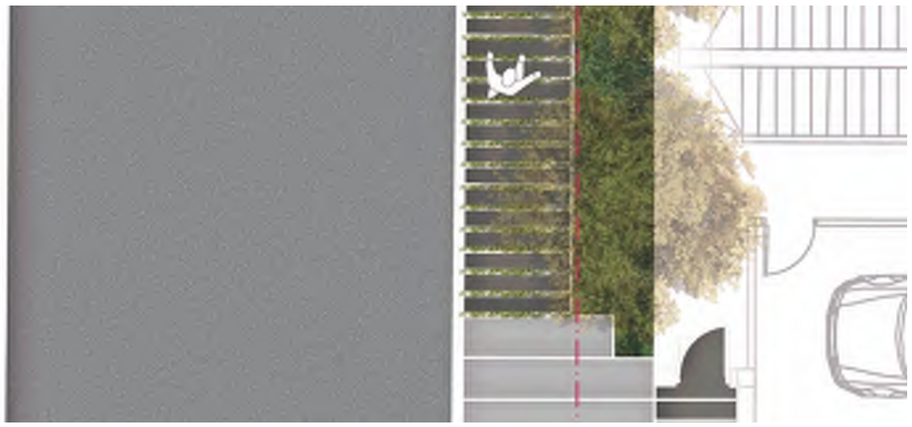
Intimate scale banded paving to entrance frontages

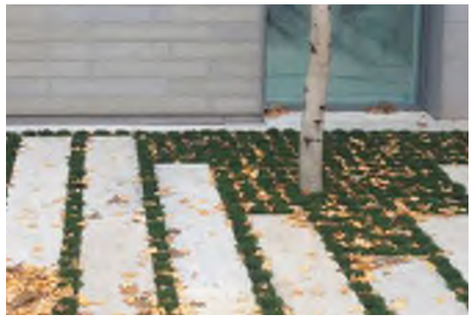
Banded pavement (exposed concrete or unit pavers)

0 1 2 4m

Streetscape Typology D - Section







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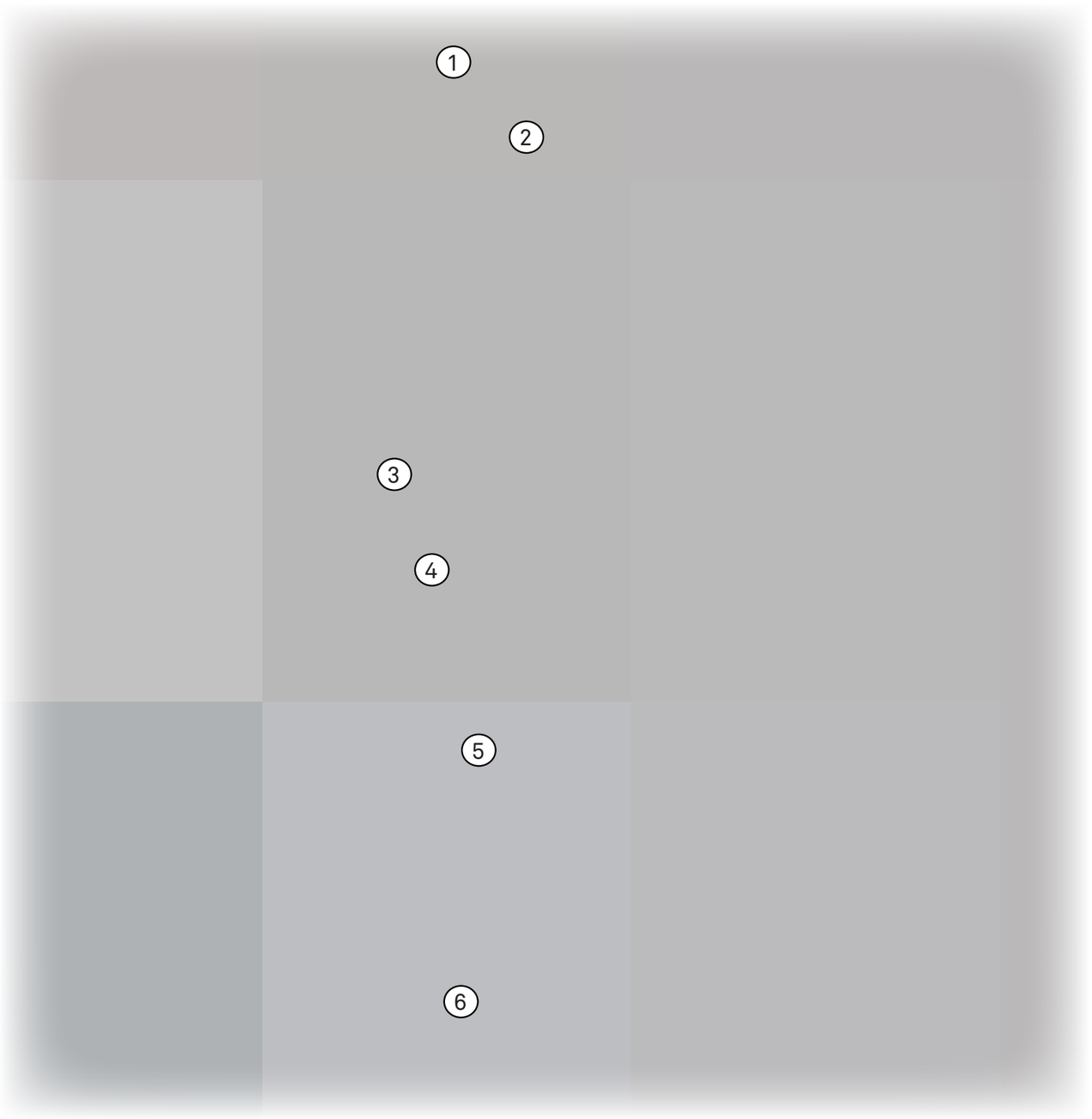
Urban Promenade

The urban promenade provides the main north south pedestrian connection through the site, connecting Stephen St, Chimney Park and community to Magill Road.

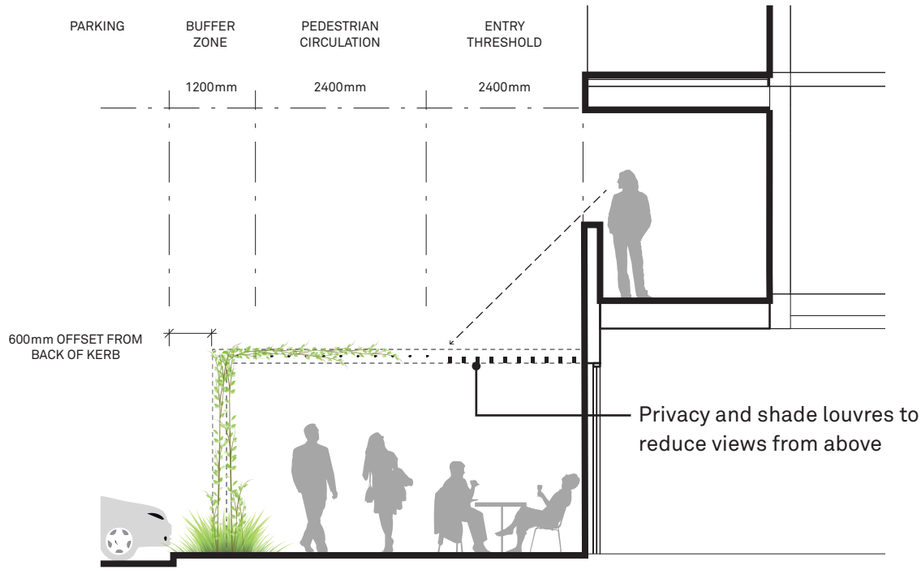
A generous 6m urban promenade is provided through a green colonnade consisting of living trellis, along a retail frontage. The space is broken down into a 2.4m wide dinning / street trading zone along the building edge, a 2.4m circulation zone in the centre and a 1.2m garden bed and carpark unloading zone kerb side.

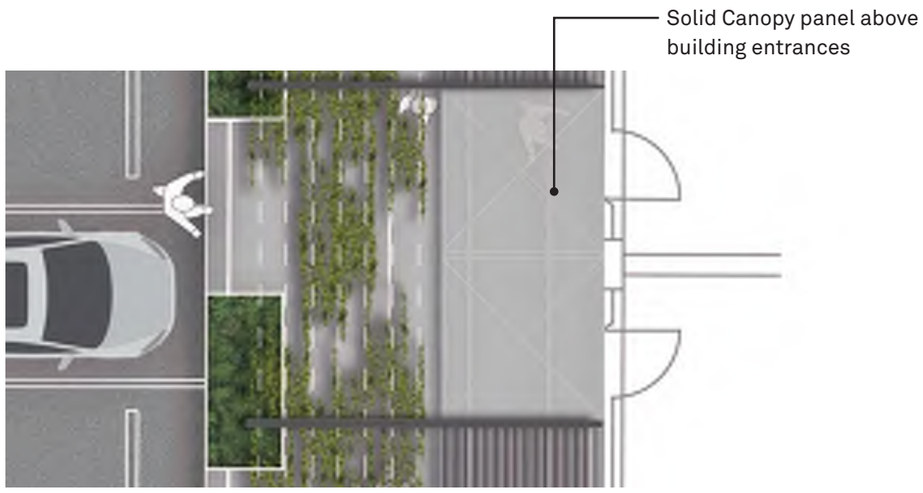
The living trellis system consist of a continuous awning to the retail frontage, featuring battens and solid panels at retail tenancy doorways. The outer portion of the portal structure provides opportunities for a living trellis, which has been arranged in a hit and miss style arrangement, creating a sense of enclosure but also providing visual connection to sky, carpark and retail tenancies.

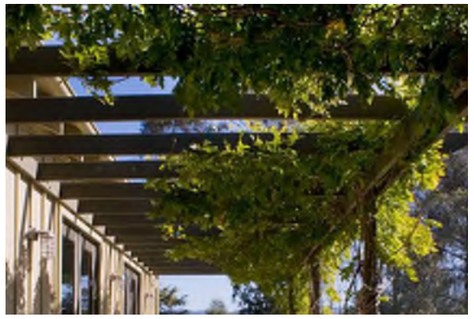
1. Key pedestrian entrance and Magill Road interface
2. Equal access opportunities
3. Vegetation buffer to adjacent car parking
4. Climbing trellis to provide softening and shade along pedestrian circulation zone and northern facade of retail offer
5. Sheltered alfresco dining
6. Interface with Public Plaza

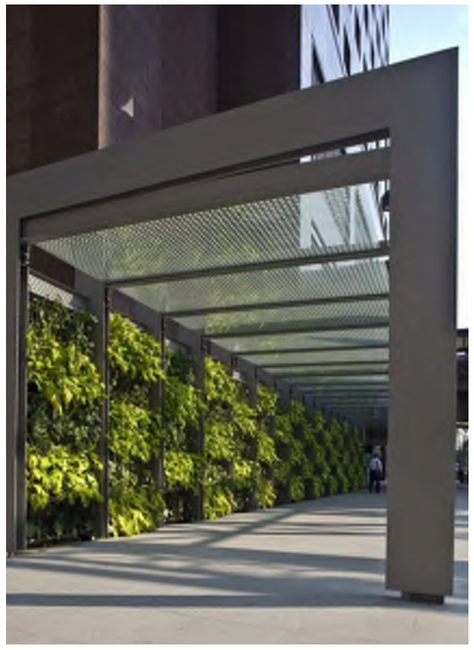


Urban Promenade - Section









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04 Landscape Master Plan
Townhouse Type A rear laneway

Townhouse Type A rear lane addressing

The rear laneway address to Townhouse Type A consists of low level garden beds, between garages to assist in softening the hardness of the laneway.

The adjacent existing chain link fence to the north, which sits on the boundary between the development site and the Alma, will be planted with a climber. This is an intermediate solution to help green and soften this boundary interface until further understanding of the intentions of the Alma are understood.

Climbing plants trained to existing chain link fence to create a green screen on the boundary between the Alma and the development site.

Low level garden bed planting between townhouse garages to help soften interface with laneway

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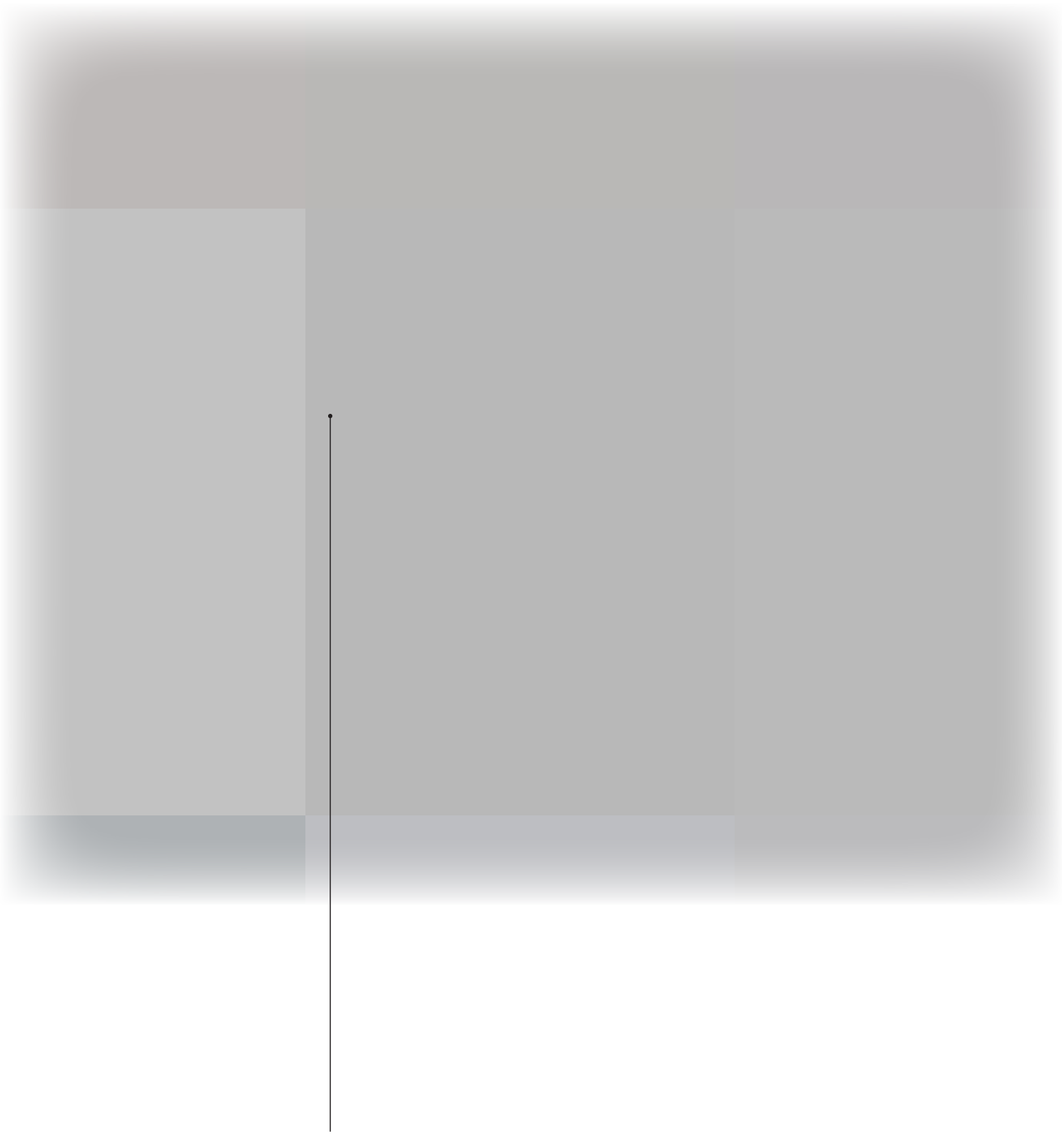
04 Landscape Master Plan
Townhouse Type B carpark interface

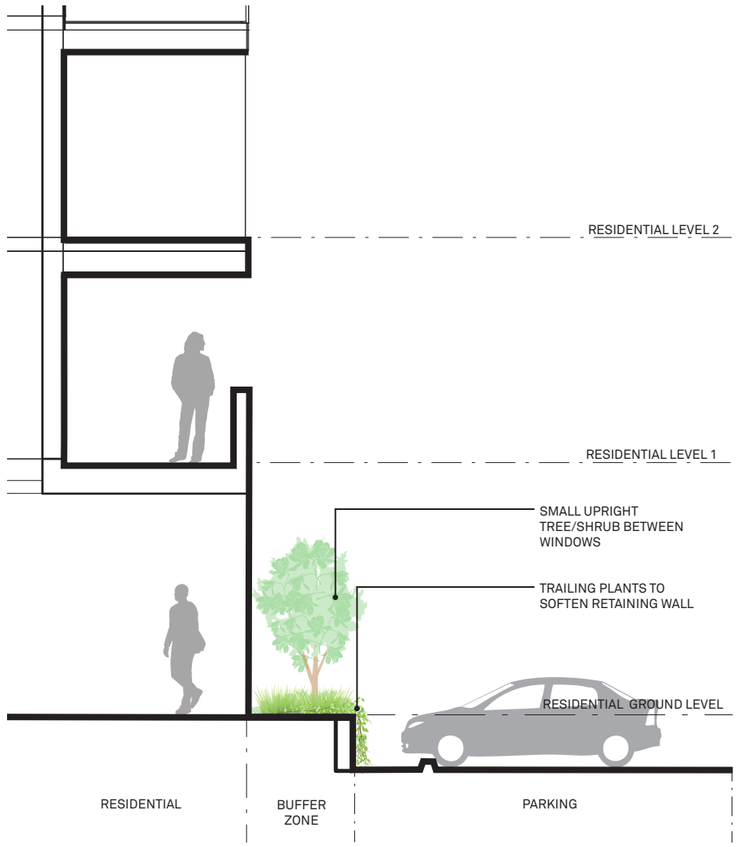
Townhouse Type B carpark interface

The northern interface between the at grade carpark and Townhouse Type B's consists of a 1m high retaining wall and raised garden bed to scale between the garden bed and townhouse elevation.

The raised garden bed will feature cascading and trailing plant mix to soften retaining wall face when viewed from carpark, as well as upright shrubs / small trees, cited between ground level windows, to help soften the townhouse elevation.



Raised planter bed to scale and soften the northern facade of Townhouse Type B and the interface with the at grade carpark



04 Landscape Concept
Plant and Materials Palette

Tree Planting

Plant & Material Palette

The imagery provided on this page is indicative of the proposed look and feel for the proposed landscaping to the streetscape, carpark and the public, communal and private open space.

Further refinement and final selections of plant palette and materials will be developed in consultation with the City of Norwood Payneham and St Peters in subsequent design phases, to ensure that the proposed plant and hard surface materiality meets Councils expectations from an operational and maintenance perspective, whilst providing a high qulaity outcome for the public realm.

Understorey Planting

Surface Materials

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REAL PROPERTY ACT, 1886
South Australia

The Registrar-General certifies that this Title Register Search displays the records maintained in the Register Book and other notations at the time of searching.

Certificate of Title - Volume 6198 Folio 719

Parent Title(s)

Creating Dealing(s) TT 12640705

Title Issued 27/10/2017 **Edition** 1 **Edition Issued** 27/10/2017

Estate Type

FEE SIMPLE

Registered Proprietor

URBAN RENEWAL AUTHORITY
OF L9 RIVERSIDE CENTRE NORTH TERRACE ADELAIDE SA 5000

Description of Land

ALLOTMENTS 50, 51, 52 AND 53 FILED PLAN 250838
IN THE AREA NAMED NORWOOD
HUNDRED OF ADELAIDE

Easements

NIL

Schedule of Dealings

NIL

Notations

Dealings Affecting Title	NIL
Priority Notices	NIL
Notations on Plan	NIL
Registrar-General's Notes	NIL
Administrative Interests	NIL

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Product	Register Search (CT 6153/845)
Date/Time	28/06/2018 01:14PM
Customer Reference	A001018.BULD
Order ID	20180628007878
Cost	$282.50

REAL PROPERTY ACT, 1886
South Australia

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Certificate of Title - Volume 6153 Folio 845

Parent Title(s)	CT 6148/97				
Creating Dealing(s)	DDA 12269126				
Title Issued	16/03/2015	**Edition**	1	**Edition Issued**	16/03/2015

Estate Type

FEE SIMPLE

Registered Proprietor

URBAN RENEWAL AUTHORITY
OF LEVEL 9 (WEST) RIVERSIDE CENTRE NORTH TERRACE ADELAIDE SA 5000

Description of Land

ALLOTMENT 35 FILED PLAN 100169
IN THE AREA NAMED NORWOOD
HUNDRED OF ADELAIDE

Easements

NIL

Schedule of Dealings

Dealing Number	Description
11770488	LEASE TO CAROMA INDUSTRIES LTD. COMMENCING ON 5/6/2012 AND EXPIRING ON 5/6/2018

Notations

Dealings Affecting Title	NIL
Priority Notices	NIL
Notations on Plan	NIL
Registrar-General's Notes	NIL
Administrative Interests	NIL

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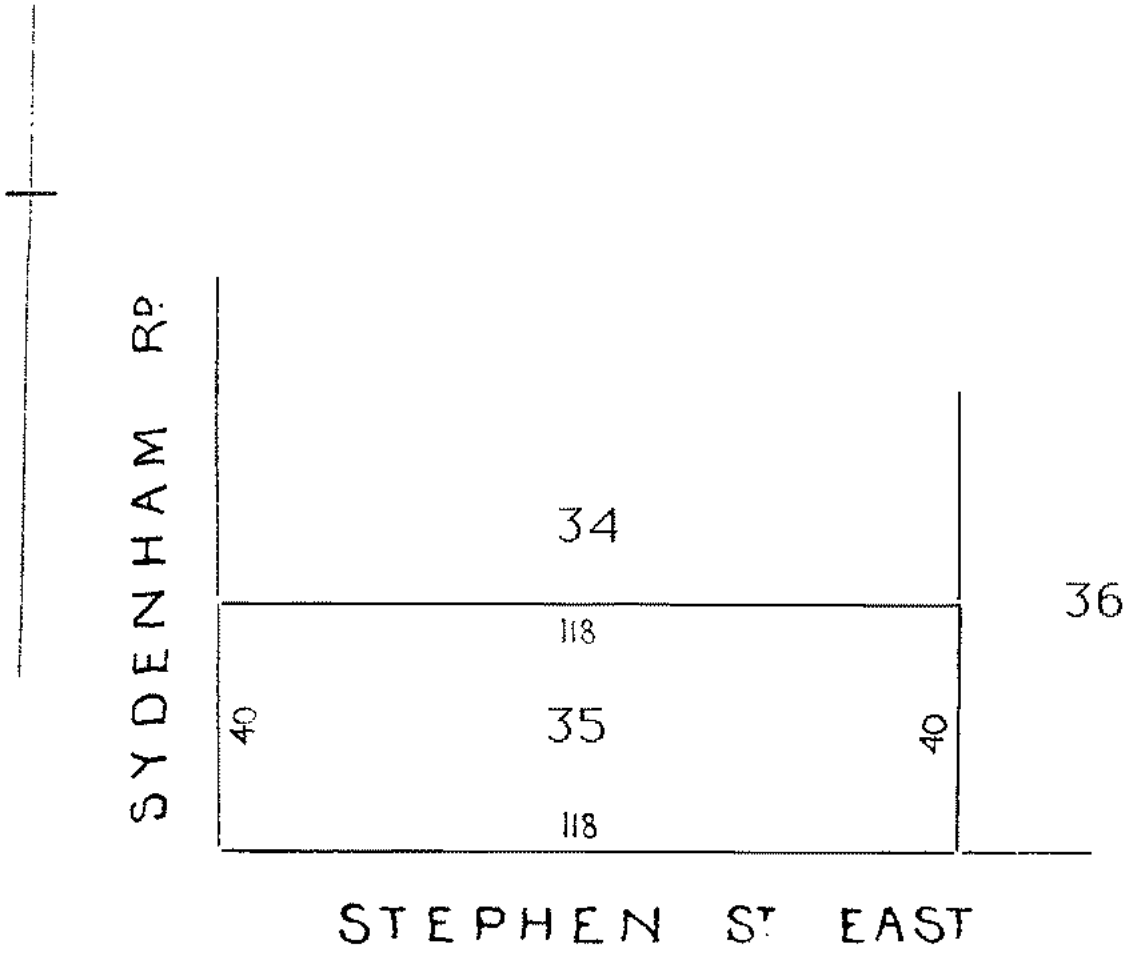

DISTANCES ARE IN FEET AND INCHES
FOR METRIC CONVERSION

1 FOOT	=	0.3048 metres
1 INCH	=	0.0254 metres

Note: Subject to all lawfully existing plans of division

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REAL PROPERTY ACT, 1886
South Australia

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Certificate of Title - Volume 6153 Folio 846

Parent Title(s)	CT 6148/98				
Creating Dealing(s)	DDA 12269126				
Title Issued	16/03/2015	**Edition**	1	**Edition Issued**	16/03/2015

Estate Type

FEE SIMPLE

Registered Proprietor

URBAN RENEWAL AUTHORITY
OF LEVEL 9 (WEST) RIVERSIDE CENTRE NORTH TERRACE ADELAIDE SA 5000

Description of Land

ALLOTMENT 17 FILED PLAN 100166
IN THE AREA NAMED NORWOOD
HUNDRED OF ADELAIDE

Easements

NIL

Schedule of Dealings

Dealing Number	Description
11770488	LEASE TO CAROMA INDUSTRIES LTD. COMMENCING ON 5/6/2012 AND EXPIRING ON 5/6/2018

Notations

Dealings Affecting Title	NIL
Priority Notices	NIL
Notations on Plan	NIL
Registrar-General's Notes	NIL
Administrative Interests	NIL

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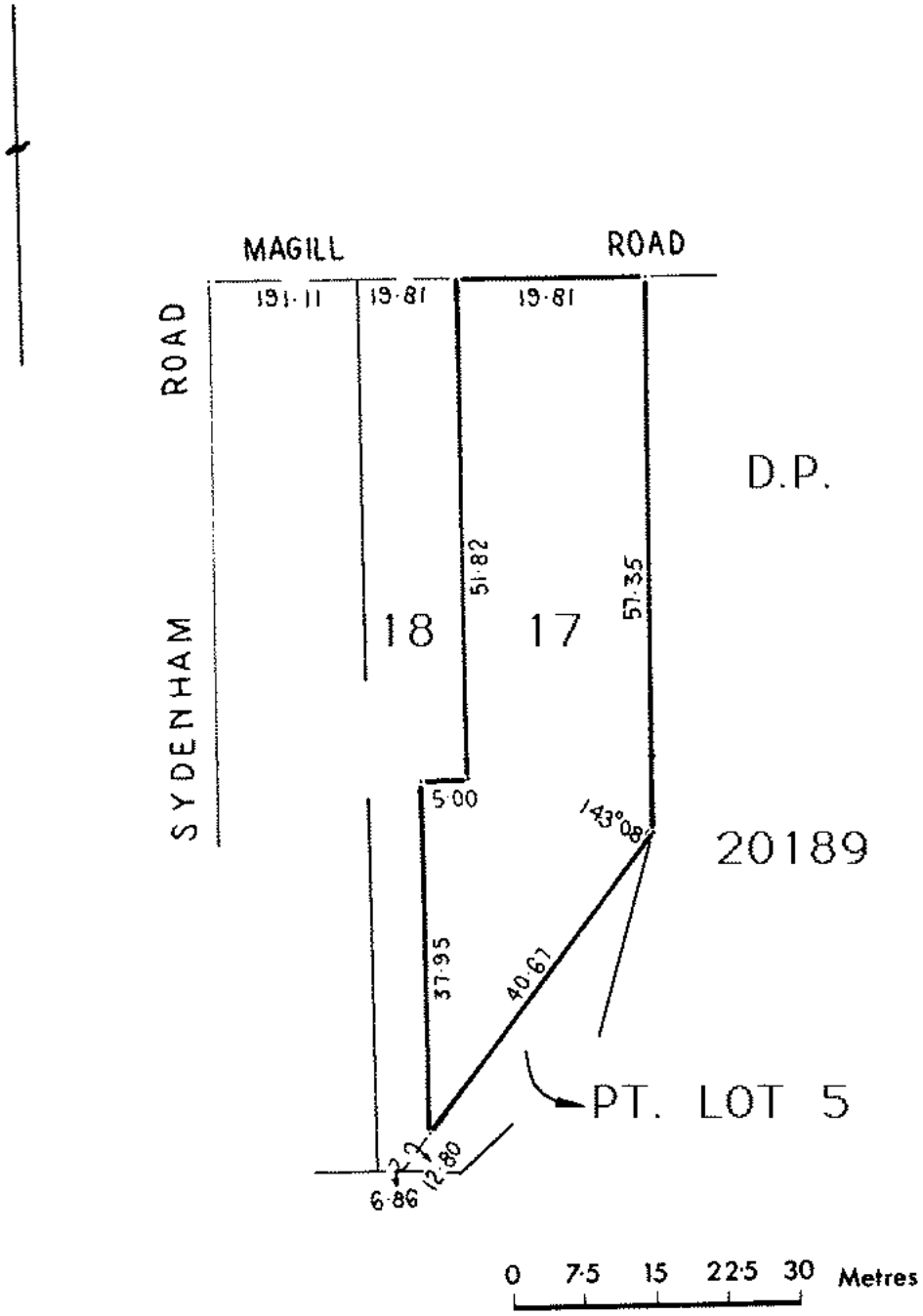

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REAL PROPERTY ACT, 1886
South Australia

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Certificate of Title - Volume 6153 Folio 847

Parent Title(s) CT 6148/99

Creating Dealing(s) DDA 12269126

Title Issued 16/03/2015 **Edition** 1 **Edition Issued** 16/03/2015

Estate Type

FEE SIMPLE

Registered Proprietor

URBAN RENEWAL AUTHORITY
OF LEVEL 9 (WEST) RIVERSIDE CENTRE NORTH TERRACE ADELAIDE SA 5000

Description of Land

ALLOTMENT 18 FILED PLAN 100166
IN THE AREA NAMED NORWOOD
HUNDRED OF ADELAIDE

Easements

NIL

Schedule of Dealings

Dealing Number	Description
11770488	LEASE TO CAROMA INDUSTRIES LTD. COMMENCING ON 5/6/2012 AND EXPIRING ON 5/6/2018

Notations

Dealings Affecting Title	NIL
Priority Notices	NIL
Notations on Plan	NIL
Registrar-General's Notes	NIL
Administrative Interests	NIL

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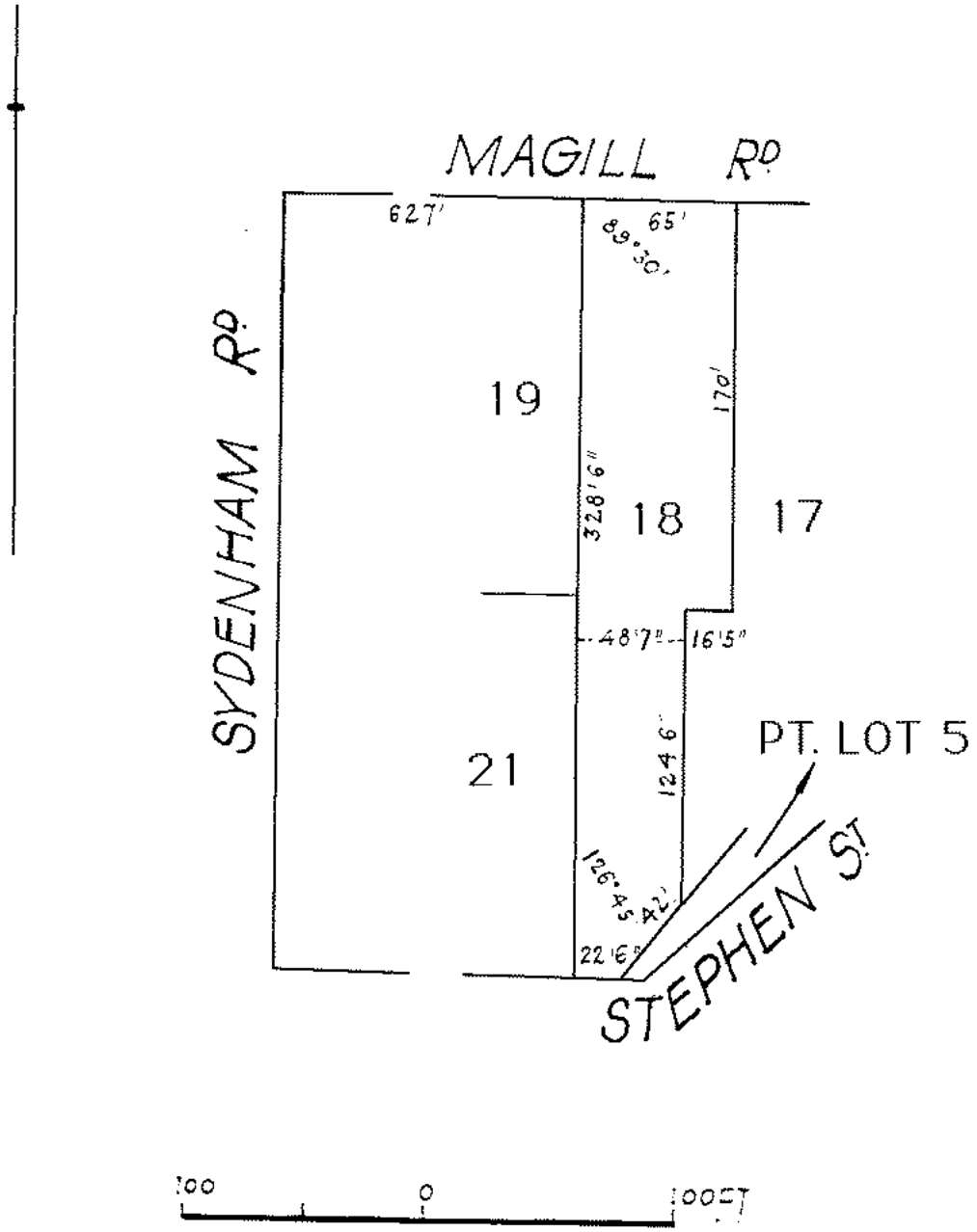

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REAL PROPERTY ACT, 1886
South Australia

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Certificate of Title - Volume 6153 Folio 848

Parent Title(s) CT 6148/100

Creating Dealing(s) DDA 12269126

Title Issued 16/03/2015 **Edition** 1 **Edition Issued** 16/03/2015

Estate Type

FEE SIMPLE

Registered Proprietor

URBAN RENEWAL AUTHORITY
OF LEVEL 9 (WEST) RIVERSIDE CENTRE NORTH TERRACE ADELAIDE SA 5000

Description of Land

ALLOTMENT 19 FILED PLAN 100166
IN THE AREA NAMED NORWOOD
HUNDRED OF ADELAIDE

Easements

NIL

Schedule of Dealings

Dealing Number	Description
11770488	LEASE TO CAROMA INDUSTRIES LTD. COMMENCING ON 5/6/2012 AND EXPIRING ON 5/6/2018

Notations

Dealings Affecting Title	NIL
Priority Notices	NIL
Notations on Plan	NIL
Registrar-General's Notes	NIL
Administrative Interests	NIL

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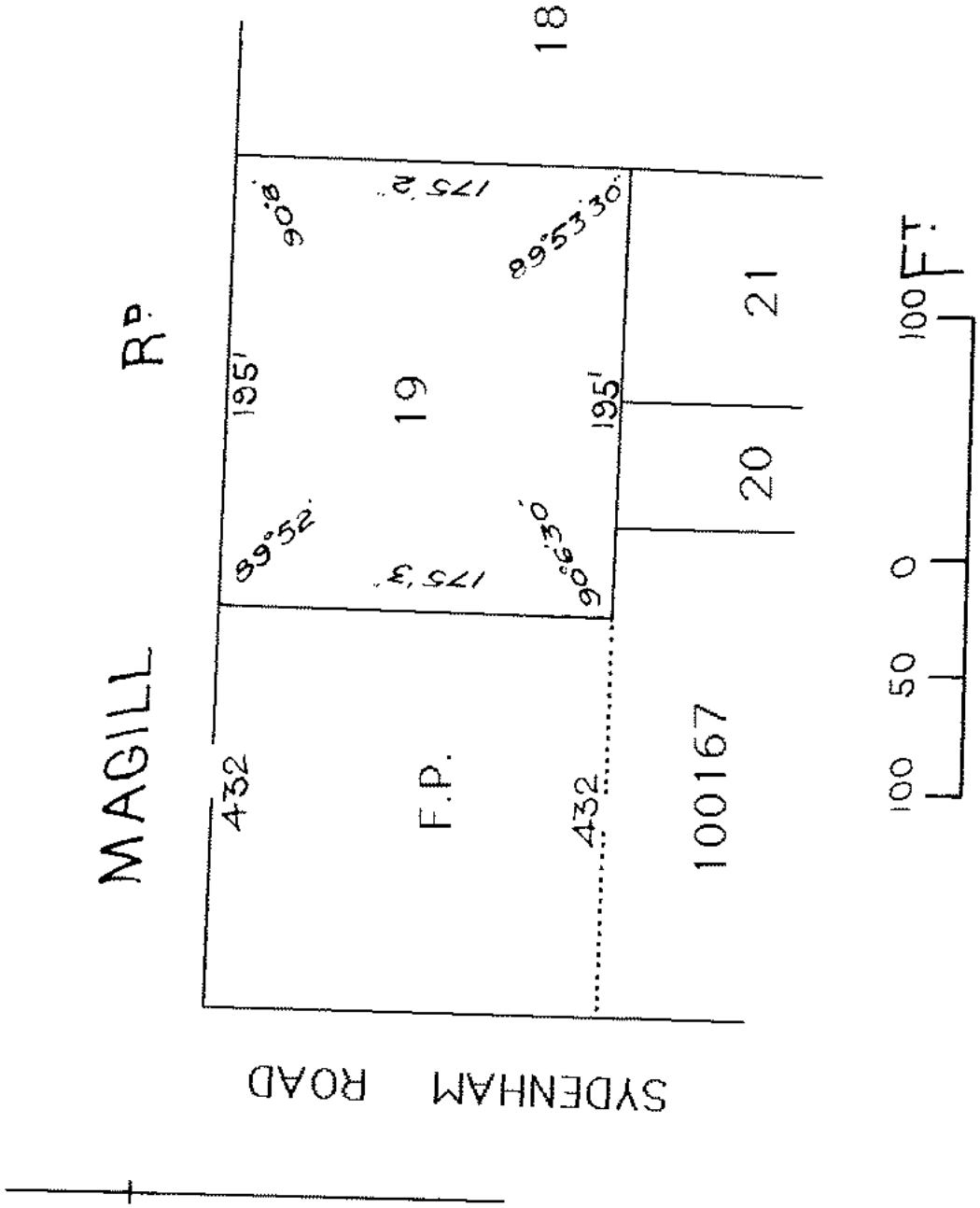

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Product	Register Search (CT 6153/849)
Date/Time	28/06/2018 01:14PM
Customer Reference	A001018.BULD
Order ID	20180628007878
Cost	$282.50

REAL PROPERTY ACT, 1886
South Australia

The Registrar-General certifies that this Title Register Search displays the records maintained in the Register Book and other notations at the time of searching.

Certificate of Title - Volume 6153 Folio 849

Parent Title(s)	CT 6148/101				
Creating Dealing(s)	DDA 12269126				
Title Issued	16/03/2015	**Edition**	1	**Edition Issued**	16/03/2015

Estate Type

FEE SIMPLE

Registered Proprietor

URBAN RENEWAL AUTHORITY
OF LEVEL 9 (WEST) RIVERSIDE CENTRE NORTH TERRACE ADELAIDE SA 5000

Description of Land

ALLOTMENT 20 FILED PLAN 100166
IN THE AREA NAMED NORWOOD
HUNDRED OF ADELAIDE

Easements

NIL

Schedule of Dealings

Dealing Number	Description
11770488	LEASE TO CAROMA INDUSTRIES LTD. COMMENCING ON 5/6/2012 AND EXPIRING ON 5/6/2018

Notations

Dealings Affecting Title	NIL
Priority Notices	NIL
Notations on Plan	NIL
Registrar-General's Notes	NIL
Administrative Interests	NIL

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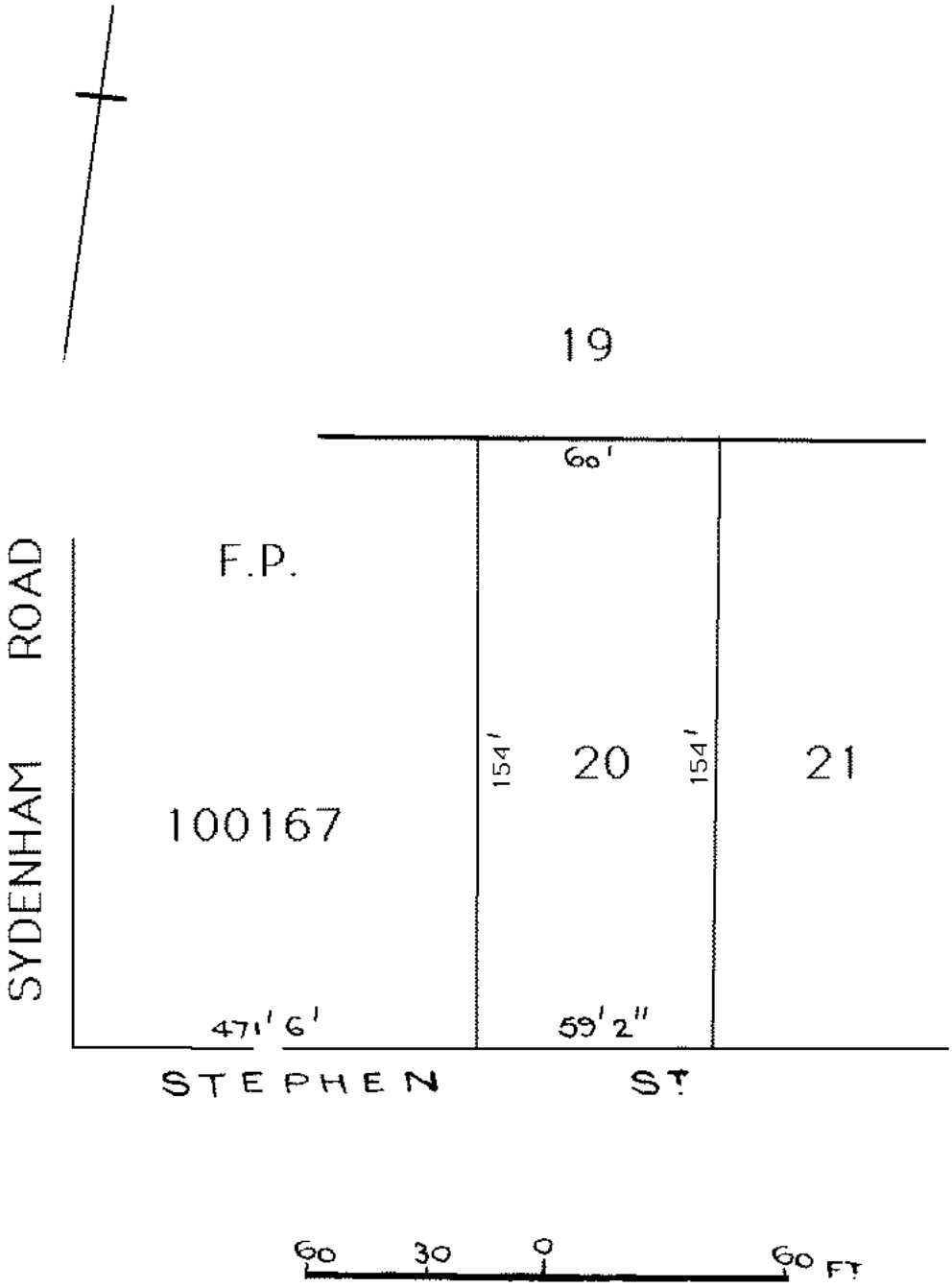

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REAL PROPERTY ACT, 1886
South Australia

The Registrar-General certifies that this Title Register Search displays the records maintained in the Register Book and other notations at the time of searching.

Certificate of Title - Volume 6153 Folio 850

Parent Title(s)	CT 6148/102				
Creating Dealing(s)	DDA 12269126				
Title Issued	16/03/2015	**Edition**	1	**Edition Issued**	16/03/2015

Estate Type

FEE SIMPLE

Registered Proprietor

URBAN RENEWAL AUTHORITY
OF LEVEL 9 (WEST) RIVERSIDE CENTRE NORTH TERRACE ADELAIDE SA 5000

Description of Land

ALLOTMENT 21 FILED PLAN 100166
IN THE AREA NAMED NORWOOD
HUNDRED OF ADELAIDE

Easements

NIL

Schedule of Dealings

Dealing Number	Description
11770488	LEASE TO CAROMA INDUSTRIES LTD. COMMENCING ON 5/6/2012 AND EXPIRING ON 5/6/2018

Notations

Dealings Affecting Title	NIL
Priority Notices	NIL
Notations on Plan	NIL
Registrar-General's Notes	NIL
Administrative Interests	NIL

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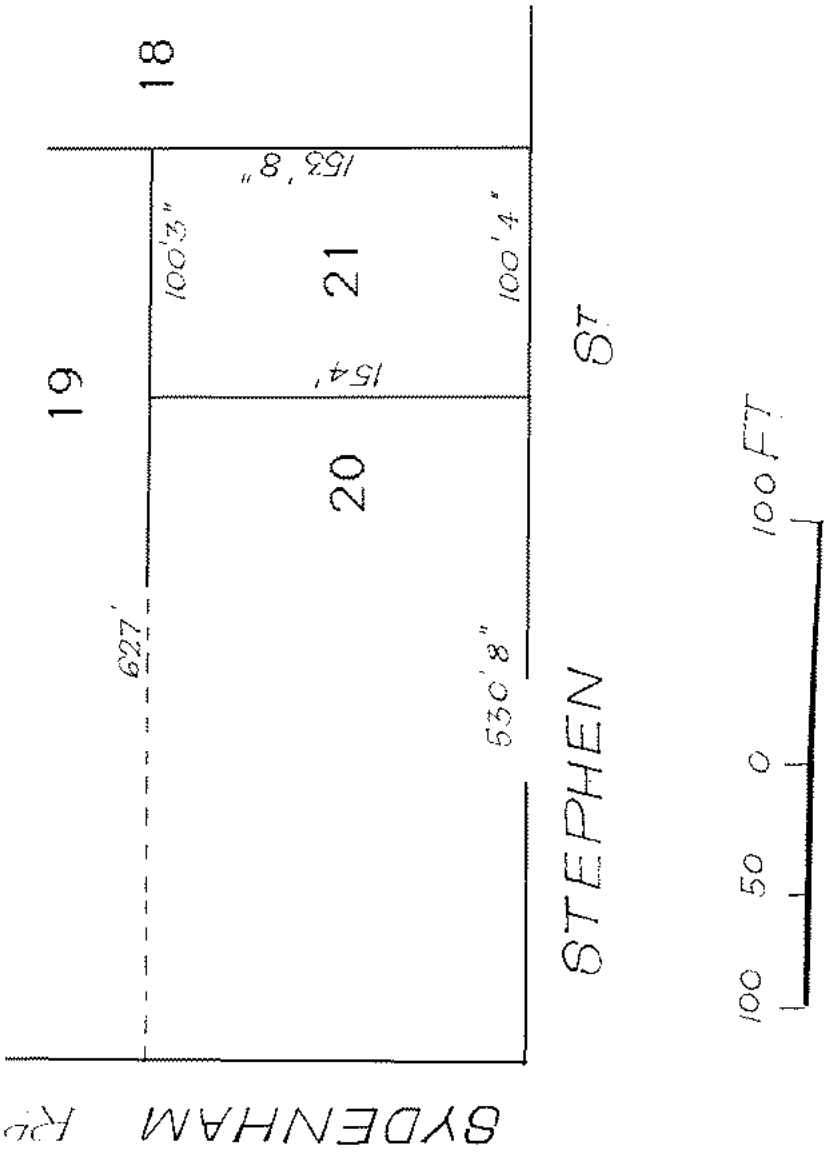

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Government of South Australia
Department of Planning, Transport and Infrastructure

Product	Register Search
Date/Time	18/11/2016 10:07AM
Customer Reference	
Order ID	20161118002807
Cost	$754.25

The Registrar-General certifies that this Title Register Search displays the records maintained in the Register Book and other notations at the time of searching.

Registrar-General

Certificate of Title - Volume 6153 Folio 851

REAL PROPERTY ACT, 1886
South Australia

Parent Title(s)	CT 6148/103
Dealing(s) Creating Title	DDA 12269126
Title Issued	16/03/2015
Edition	1
Edition Issued	16/03/2015

Estate Type

FEE SIMPLE

Registered Proprietor

URBAN RENEWAL AUTHORITY
OF LEVEL 9 (WEST) RIVERSIDE CENTRE NORTH TERRACE ADELAIDE SA 5000

Description of Land

ALLOTMENT 28 FILED PLAN 100168
IN THE AREA NAMED NORWOOD
HUNDRED OF ADELAIDE

Easements

NIL

Schedule of Dealings

Dealing Number	Description
11770488	LEASE TO CAROMA INDUSTRIES LTD. COMMENCING ON 5/6/2012 AND EXPIRING ON 5/6/2018

Notations

Dealings Affecting Title

NIL

Priority Notices

NIL

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Notations on Plan

NIL

Registrar-General's Notes

NIL

Administrative Interests

NIL

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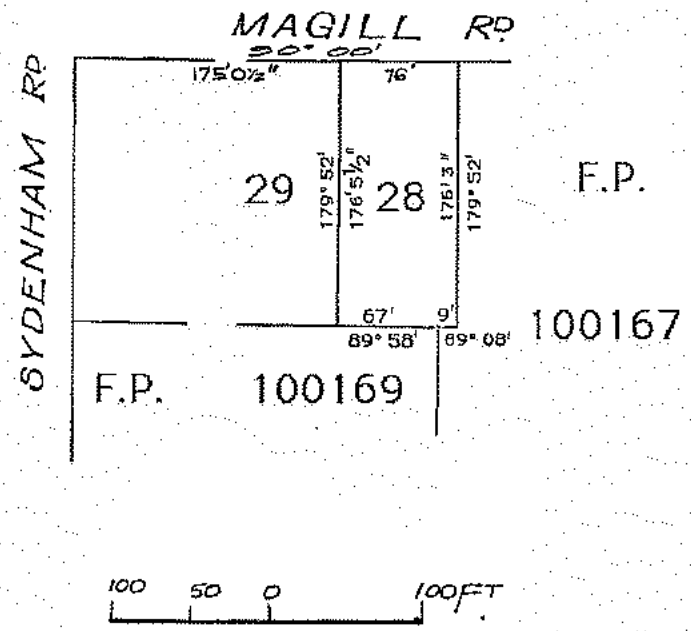

DISTANCES ARE IN FEET AND INCHES FOR METRIC CONVERSION		
1 FOOT	=	0.3048 metres
1 INCH	=	0.0254 metres

Note: Subject to all lawfully existing plans of division

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REAL PROPERTY ACT, 1886
South Australia

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Certificate of Title - Volume 6153 Folio 852

Parent Title(s)	CT 6148/104				
Creating Dealing(s)	DDA 12269126				
Title Issued	16/03/2015	**Edition**	1	**Edition Issued**	16/03/2015

Estate Type

FEE SIMPLE

Registered Proprietor

URBAN RENEWAL AUTHORITY
OF LEVEL 9 (WEST) RIVERSIDE CENTRE NORTH TERRACE ADELAIDE SA 5000

Description of Land

ALLOTMENT 22 FILED PLAN 100167
IN THE AREA NAMED NORWOOD
HUNDRED OF ADELAIDE

Easements

NIL

Schedule of Dealings

Dealing Number	Description
11770488	LEASE TO CAROMA INDUSTRIES LTD. COMMENCING ON 5/6/2012 AND EXPIRING ON 5/6/2018

Notations

Dealings Affecting Title	NIL
Priority Notices	NIL
Notations on Plan	NIL
Registrar-General's Notes	NIL
Administrative Interests	NIL

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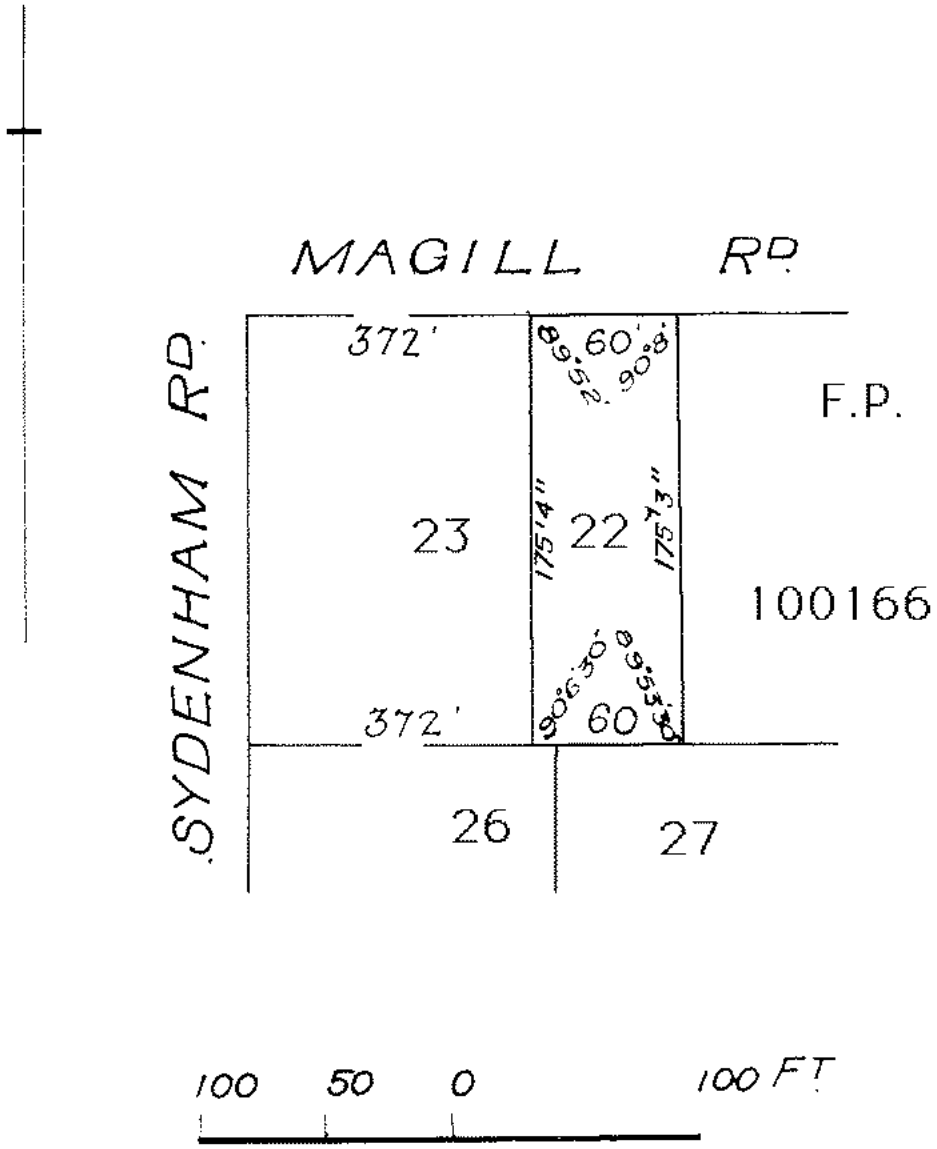

DISTANCES ARE IN FEET AND INCHES
FOR METRIC CONVERSION

1 FOOT	=	0.3048 metres
1 INCH	=	0.0254 metres

Note: Subject to all lawfully existing plans of division

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Government of South Australia
Department of Planning, Transport and Infrastructure

Product	Register Search
Date/Time	18/11/2016 10:07AM
Customer Reference	
Order ID	20161118002807
Cost	$754.25

The Registrar-General certifies that this Title Register Search displays the records maintained in the Register Book and other notations at the time of searching.

Registrar-General

Certificate of Title - Volume 6153 Folio 853

Parent Title(s)	CT 6148/105
Dealing(s) Creating Title	DDA 12269126
Title Issued	16/03/2015
Edition	1
Edition Issued	16/03/2015

REAL PROPERTY ACT, 1886
South Australia

Estate Type

FEE SIMPLE

Registered Proprietor

URBAN RENEWAL AUTHORITY
OF LEVEL 9 (WEST) RIVERSIDE CENTRE NORTH TERRACE ADELAIDE SA 5000

Description of Land

ALLOTMENT 23 FILED PLAN 100167
IN THE AREA NAMED NORWOOD
HUNDRED OF ADELAIDE

Easements

NIL

Schedule of Dealings

Dealing Number	Description
11770488	LEASE TO CAROMA INDUSTRIES LTD. COMMENCING ON 5/6/2012 AND EXPIRING ON 5/6/2018

Notations

Dealings Affecting Title

NIL

Priority Notices

NIL

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Notations on Plan

NIL

Registrar-General's Notes

NIL

Administrative Interests

NIL

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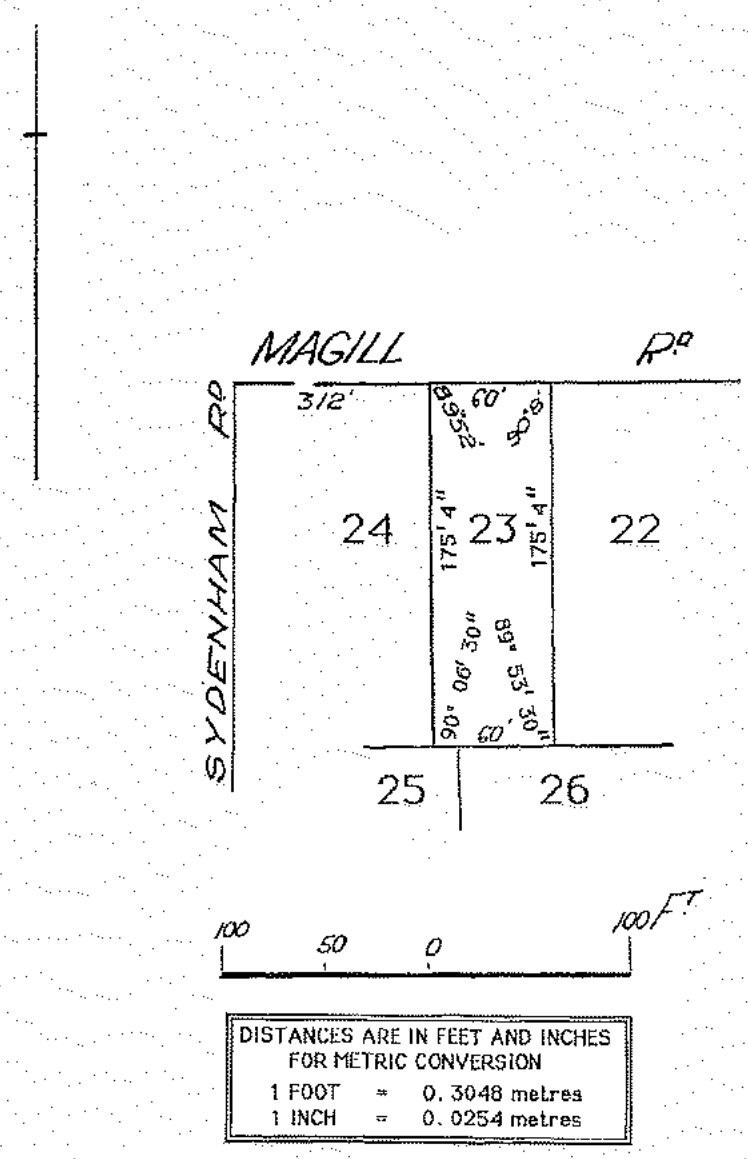

DISTANCES ARE IN FEET AND INCHES FOR METRIC CONVERSION		
1 FOOT	=	0.3048 metres
1 INCH	=	0.0254 metres

Note: Subject to all lawfully existing plans of division

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Government of South Australia
Department of Planning, Transport and Infrastructure

Product	Register Search
Date/Time	18/11/2016 10:07AM
Customer Reference	
Order ID	20161118002807
Cost	$754.25

The Registrar-General certifies that this Title Register Search displays the records maintained in the Register Book and other notations at the time of searching.

Registrar-General

Certificate of Title - Volume 6153 Folio 854

REAL PROPERTY ACT, 1886
South Australia

Parent Title(s)	CT 6148/106
Dealing(s) Creating Title	DDA 12269126
Title Issued	16/03/2015
Edition	1
Edition Issued	16/03/2015

Estate Type

FEE SIMPLE

Registered Proprietor

URBAN RENEWAL AUTHORITY
OF LEVEL 9 (WEST) RIVERSIDE CENTRE NORTH TERRACE ADELAIDE SA 5000

Description of Land

ALLOTMENT 24 FILED PLAN 100167
IN THE AREA NAMED NORWOOD
HUNDRED OF ADELAIDE

Easements

NIL

Schedule of Dealings

Dealing Number	Description
11770488	LEASE TO CAROMA INDUSTRIES LTD. COMMENCING ON 5/6/2012 AND EXPIRING ON 5/6/2018

Notations

Dealings Affecting Title

NIL

Priority Notices

NIL

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Notations on Plan

NIL

Registrar-General's Notes

NIL

Administrative Interests

NIL

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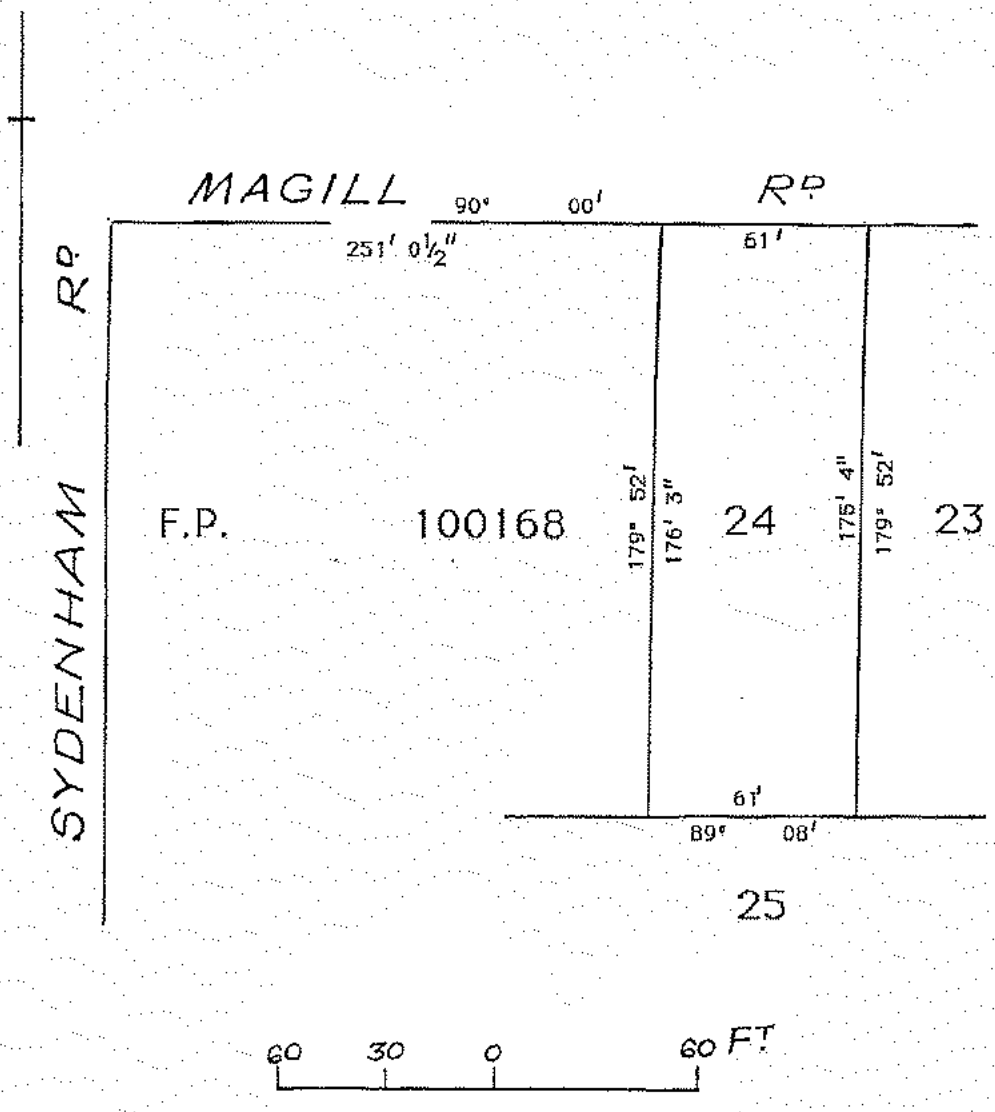

DISTANCES ARE IN FEET AND INCHES FOR METRIC CONVERSION		
1 FOOT	=	0.3048 metres
1 INCH	=	0.0254 metres

Note: Subject to all lawfully existing plans of division

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Government of South Australia
Department of Planning, Transport and Infrastructure

Product	Register Search
Date/Time	18/11/2016 10:07AM
Customer Reference	
Order ID	20161118002607
Cost	$754.25

The Registrar-General certifies that this Title Register Search displays the records maintained in the Register Book and other notations at the time of searching.

Registrar-General

Certificate of Title - Volume 6153 Folio 855

REAL PROPERTY ACT, 1886
South Australia

Parent Title(s)	CT 6148/107
Dealing(s) Creating Title	DDA 12269126
Title Issued	16/03/2015
Edition	1
Edition Issued	16/03/2015

Estate Type

FEE SIMPLE

Registered Proprietor

URBAN RENEWAL AUTHORITY
OF LEVEL 9 (WEST) RIVERSIDE CENTRE NORTH TERRACE ADELAIDE SA 5000

Description of Land

ALLOTMENT 25 FILED PLAN 100167
IN THE AREA NAMED NORWOOD
HUNDRED OF ADELAIDE

Easements

NIL

Schedule of Dealings

Dealing Number	Description
11770488	LEASE TO CAROMA INDUSTRIES LTD. COMMENCING ON 5/6/2012 AND EXPIRING ON 5/6/2018

Notations

Dealings Affecting Title

NIL

Priority Notices

NIL

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Notations on Plan

NIL

Registrar-General's Notes

NIL

Administrative Interests

NIL

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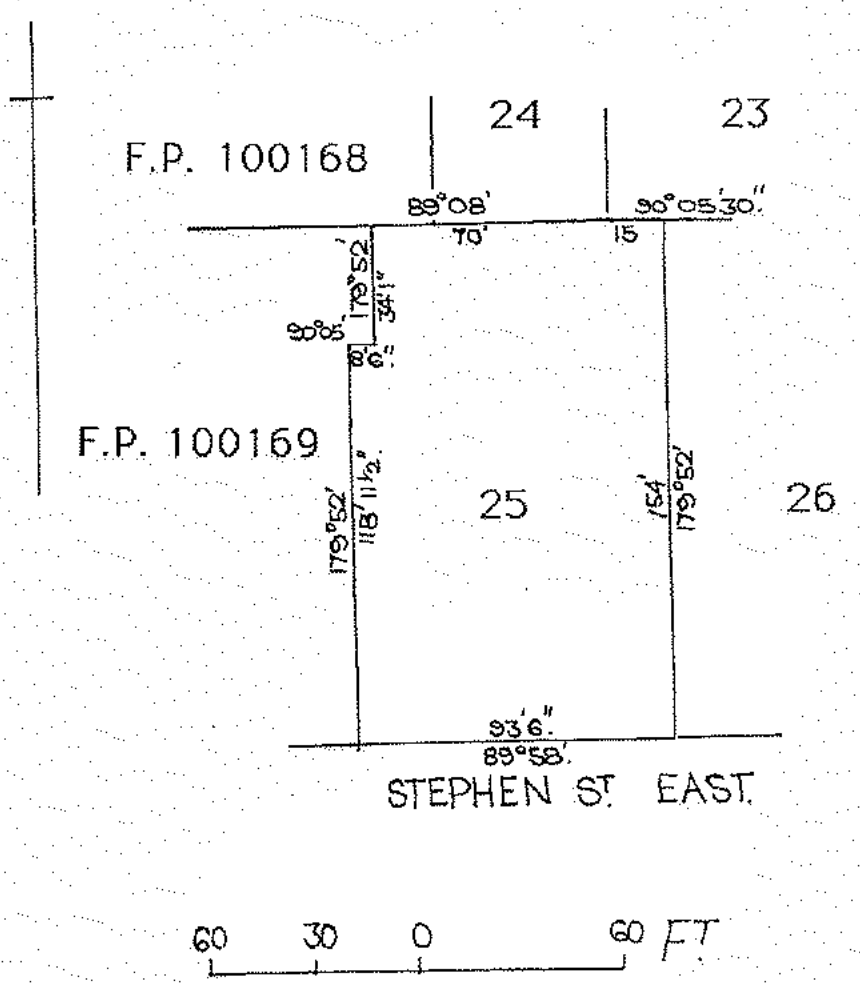

DISTANCES ARE IN FEET AND INCHES FOR METRIC CONVERSION		
1 FOOT	=	0.3048 metres
1 INCH	=	0.0254 metres

Note: Subject to all lawfully existing plans of division

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Government of South Australia
Department of Planning, Transport and Infrastructure

Product	Register Search
Date/Time	18/11/2016 10:07AM
Customer Reference	
Order ID	20161118002807
Cost	$754.25

The Registrar-General certifies that this Title Register Search displays the records maintained in the Register Book and other notations at the time of searching.

Registrar-General

Certificate of Title - Volume 6153 Folio 856

REAL PROPERTY ACT, 1886
South Australia

Parent Title(s)	CT 6148/108
Dealing(s) Creating Title	DDA 12269126
Title Issued	16/03/2015
Edition	1
Edition Issued	16/03/2015

Estate Type

FEE SIMPLE

Registered Proprietor

URBAN RENEWAL AUTHORITY
OF LEVEL 9 (WEST) RIVERSIDE CENTRE NORTH TERRACE ADELAIDE SA 5000

Description of Land

ALLOTMENT 26 FILED PLAN 100167
IN THE AREA NAMED NORWOOD
HUNDRED OF ADELAIDE

Easements

NIL

Schedule of Dealings

Dealing Number	Description
11770488	LEASE TO CAROMA INDUSTRIES LTD. COMMENCING ON 5/6/2012 AND EXPIRING ON 5/6/2018

Notations

Dealings Affecting Title

NIL

Priority Notices

NIL

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Notations on Plan

NIL

Registrar-General's Notes

NIL

Administrative Interests

NIL

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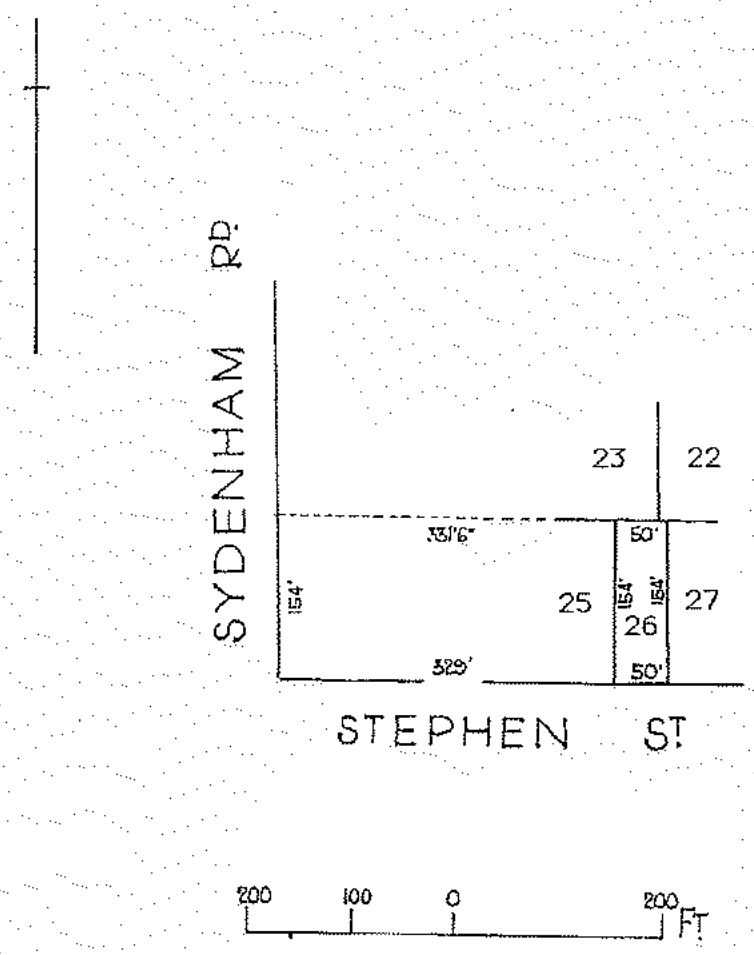

DISTANCES ARE IN FEET AND INCHES FOR METRIC CONVERSION		
1 FOOT	=	0.3048 metres
1 INCH	=	0.0254 metres

Note: Subject to all lawfully existing plans of division

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REAL PROPERTY ACT, 1886
South Australia

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Certificate of Title - Volume 6153 Folio 857

Parent Title(s)	CT 6148/109				
Creating Dealing(s)	DDA 12269126				
Title Issued	16/03/2015	**Edition**	1	**Edition Issued**	16/03/2015

Estate Type

FEE SIMPLE

Registered Proprietor

URBAN RENEWAL AUTHORITY
OF LEVEL 9 (WEST) RIVERSIDE CENTRE NORTH TERRACE ADELAIDE SA 5000

Description of Land

ALLOTMENT 27 FILED PLAN 100167
IN THE AREA NAMED NORWOOD
HUNDRED OF ADELAIDE

Easements

NIL

Schedule of Dealings

Dealing Number	Description
11770488	LEASE TO CAROMA INDUSTRIES LTD. COMMENCING ON 5/6/2012 AND EXPIRING ON 5/6/2018

Notations

Dealings Affecting Title	NIL
Priority Notices	NIL
Notations on Plan	NIL
Registrar-General's Notes	NIL
Administrative Interests	NIL

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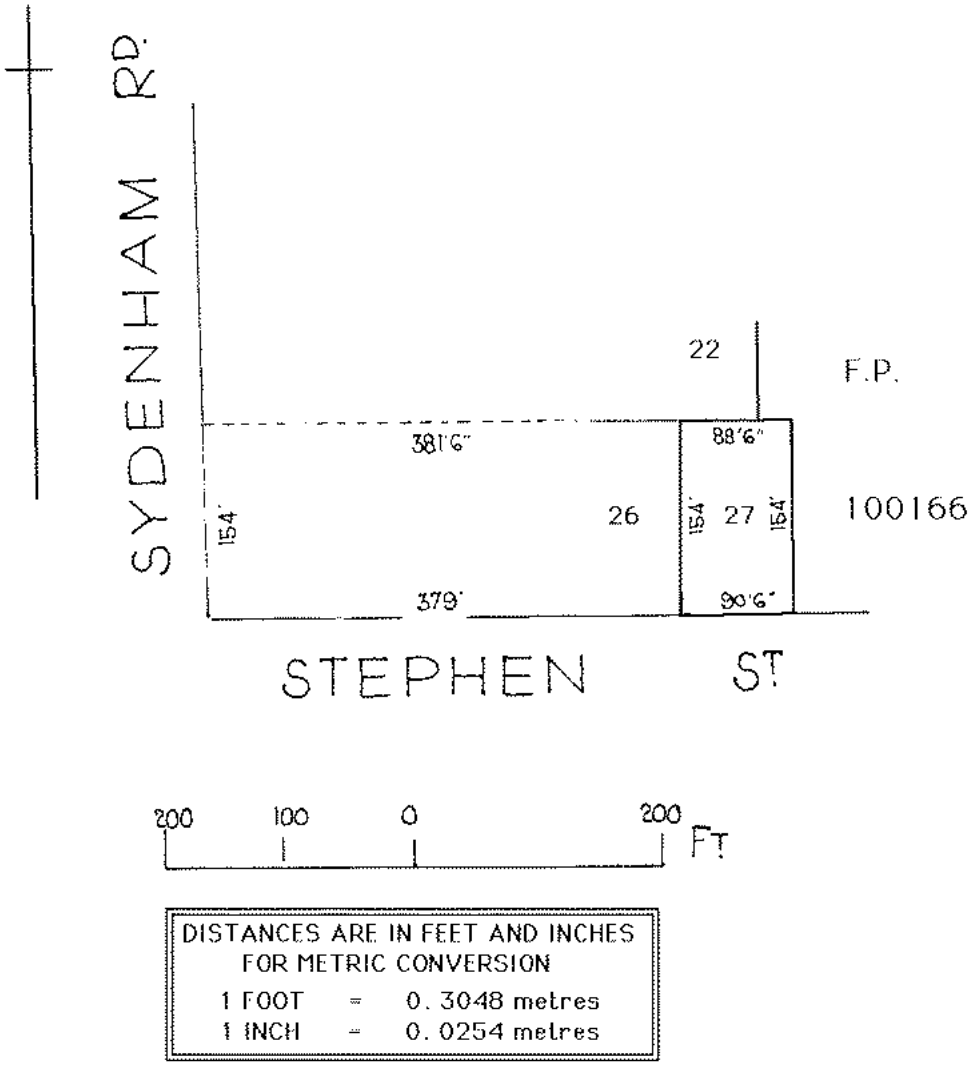

Note: Subject to all lawfully existing plans of division

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REAL PROPERTY ACT, 1886
South Australia

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Certificate of Title - Volume 6153 Folio 860

Parent Title(s) CT 6148/122

Creating Dealing(s) DDA 12269126

Title Issued 16/03/2015 **Edition** 1 **Edition Issued** 16/03/2015

Estate Type

FEE SIMPLE

Registered Proprietor

URBAN RENEWAL AUTHORITY
OF LEVEL 9 (WEST) RIVERSIDE CENTRE NORTH TERRACE ADELAIDE SA 5000

Description of Land

ALLOTMENT 701 DEPOSITED PLAN 49943
IN THE AREA NAMED NORWOOD
HUNDRED OF ADELAIDE

Easements

NIL

Schedule of Dealings

Dealing Number	Description
11770488	LEASE TO CAROMA INDUSTRIES LTD. COMMENCING ON 5/6/2012 AND EXPIRING ON 5/6/2018

Notations

Dealings Affecting Title	NIL
Priority Notices	NIL
Notations on Plan	NIL
Registrar-General's Notes	NIL
Administrative Interests	NIL

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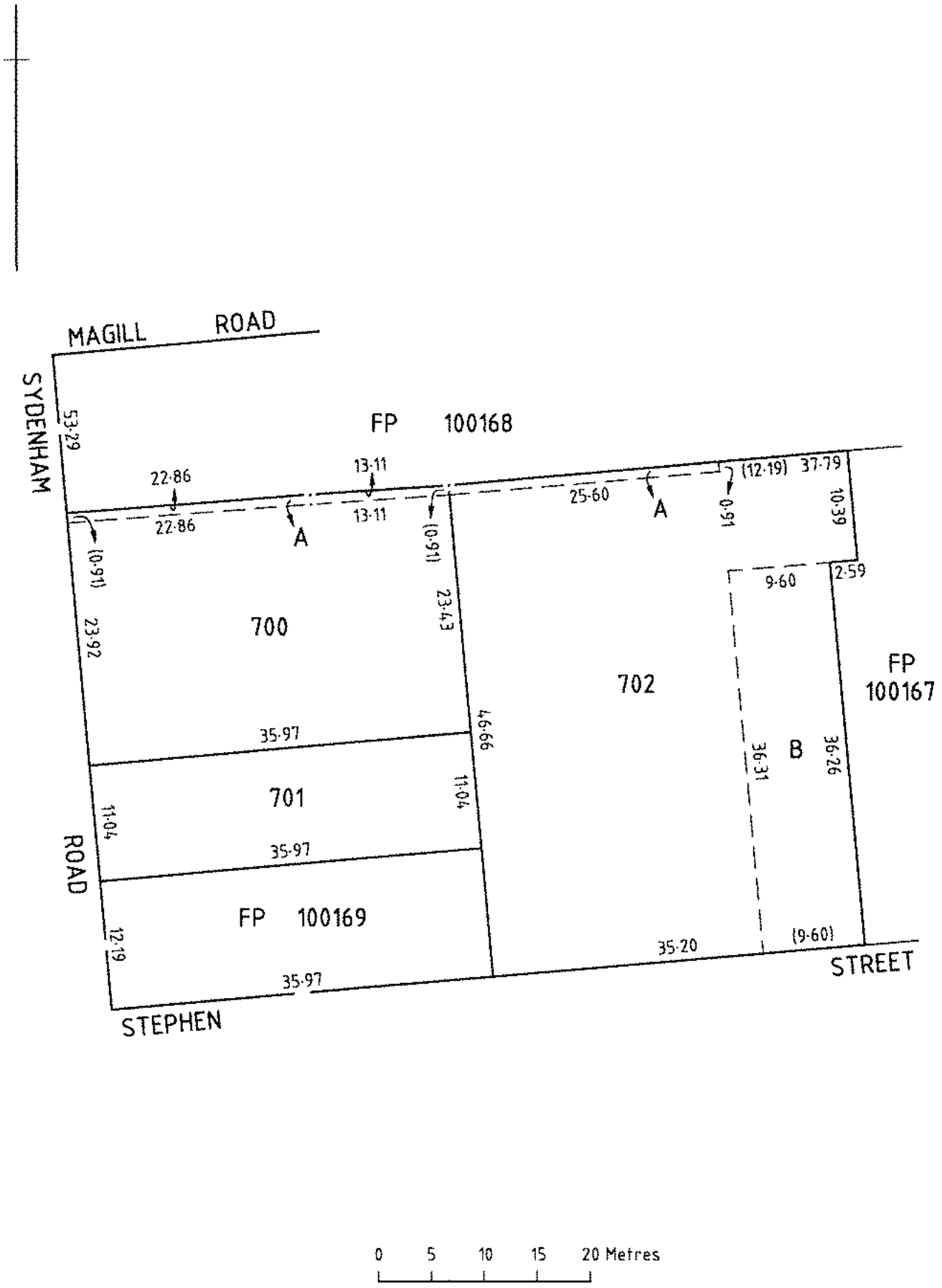

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REAL PROPERTY ACT, 1886
South Australia

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Certificate of Title - Volume 6176 Folio 954

Parent Title(s) CT 6176/217, CT 6176/218

Creating Dealing(s) VE 12420382

Title Issued 12/07/2016 **Edition** 1 **Edition Issued** 12/07/2016

Estate Type

FEE SIMPLE

Registered Proprietor

URBAN RENEWAL AUTHORITY
OF LEVEL 9 (WEST) RIVERSIDE CENTRE NORTH TERRACE ADELAIDE SA 5000

Description of Land

ALLOTMENT 702 DEPOSITED PLAN 49943
IN THE AREA NAMED NORWOOD
HUNDRED OF ADELAIDE

Easements

NIL

Schedule of Dealings

Dealing Number	Description
11770488	LEASE TO CAROMA INDUSTRIES LTD. COMMENCING ON 5/6/2012 AND EXPIRING ON 5/6/2018

Notations

Dealings Affecting Title	NIL
Priority Notices	NIL
Notations on Plan	NIL
Registrar-General's Notes	NIL
Administrative Interests	NIL

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DEVELOPMENT AND LANDS TITLES OFFICE
LODGEMENT SEQUENCE

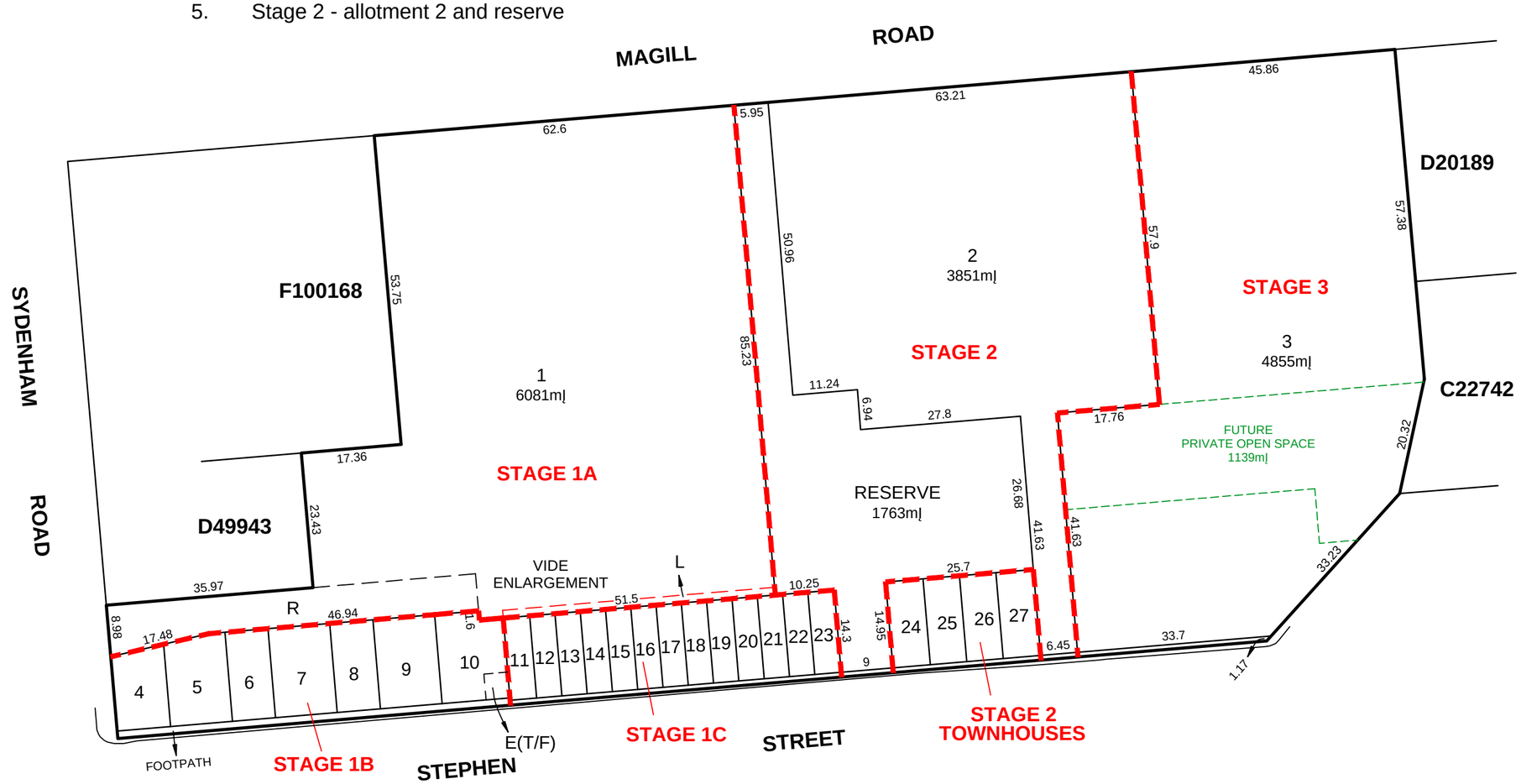
1. Superlot plan to create stages 1A, 1B, 1C, 2 & 3 superlots and Stephen Street road widening
2. Stage 1B - allotments 4 to 10
3. Stage 1C - allotments 11 to 23
4. Stage 2 Townhouses - allotments 24 to 27
5. Stage 2 - allotment 2 and reserve

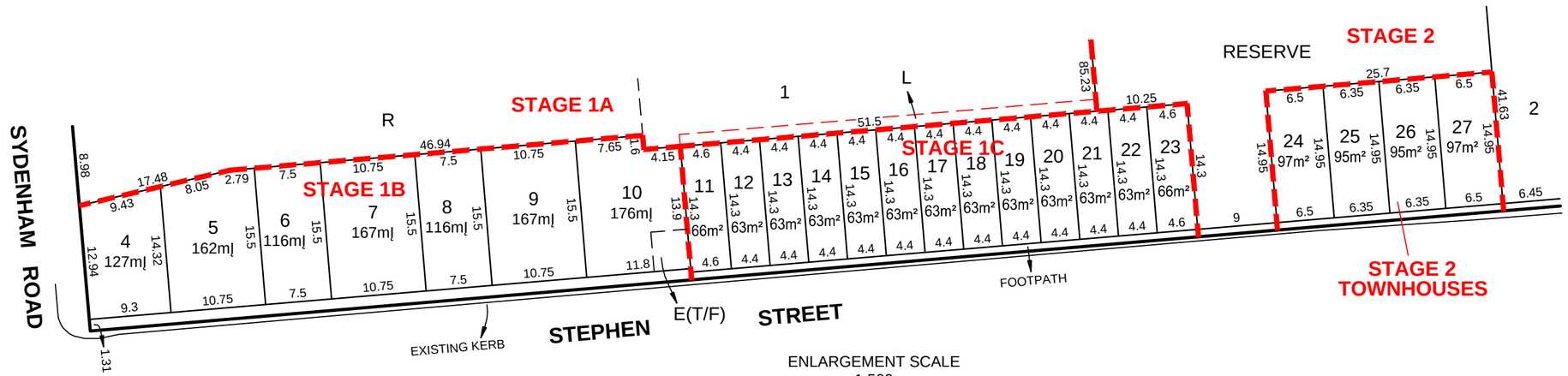
AMENDED PLAN 29.06.2018
AMENDED PLAN 30.07.2018
AMENDED PLAN 22.08.2018

Development No. 155 / D047 / 18
City of Norwood Payneham & St Peters

Proposed Plan of Division
Allotments 701 & 702 in D49943
Allotments 17 to 21 in F100166
Allotments 22 to 27 in F100167
Allotment 28 in F100168
Allotment 35 in F100169
Allotments 50 to 53 in F250838
Hundred of Adelaide
in the area named
NORWOOD

C'ST 6153/860, 6176/954, 6153/846, 6153/847, 6153/848, 6153/849, 6153/850, 6153/852, 6153/853, 6153/854, 6153/855, 6153/856, 6153/857, 6153/851, 6153/845, 6198/719





ENLARGEMENT SCALE
1:500

0 7.5 15 30 45 60 75 m

1:750 @ B3

Proposed Easement

E(T/F) SAPN transformer
L Light and air in favour of allotments 11 to 21
R Right of way in favour of allotments 4 to 10

No. of original allotments	20
No. of proposed allotments	27
Total Area	1.899ha
Reserve	(9.3%) 1766ml

Dimensions and areas are subject to survey.

É ALEXANDER & SYMONDS PTY. LTD.
Original Sheet Size B3

Mark Antony Peter Williams
LICENSED SURVEYOR

REF:	A001018.BULD
DWG NO.:	A001018PROP5(E)
REVISION:	E
RHF 22.08.2018	

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DEVELOPMENT AND LANDS TITLES OFFICE
LODGEMENT SEQUENCE

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AMENDED PLAN 29.06.2018
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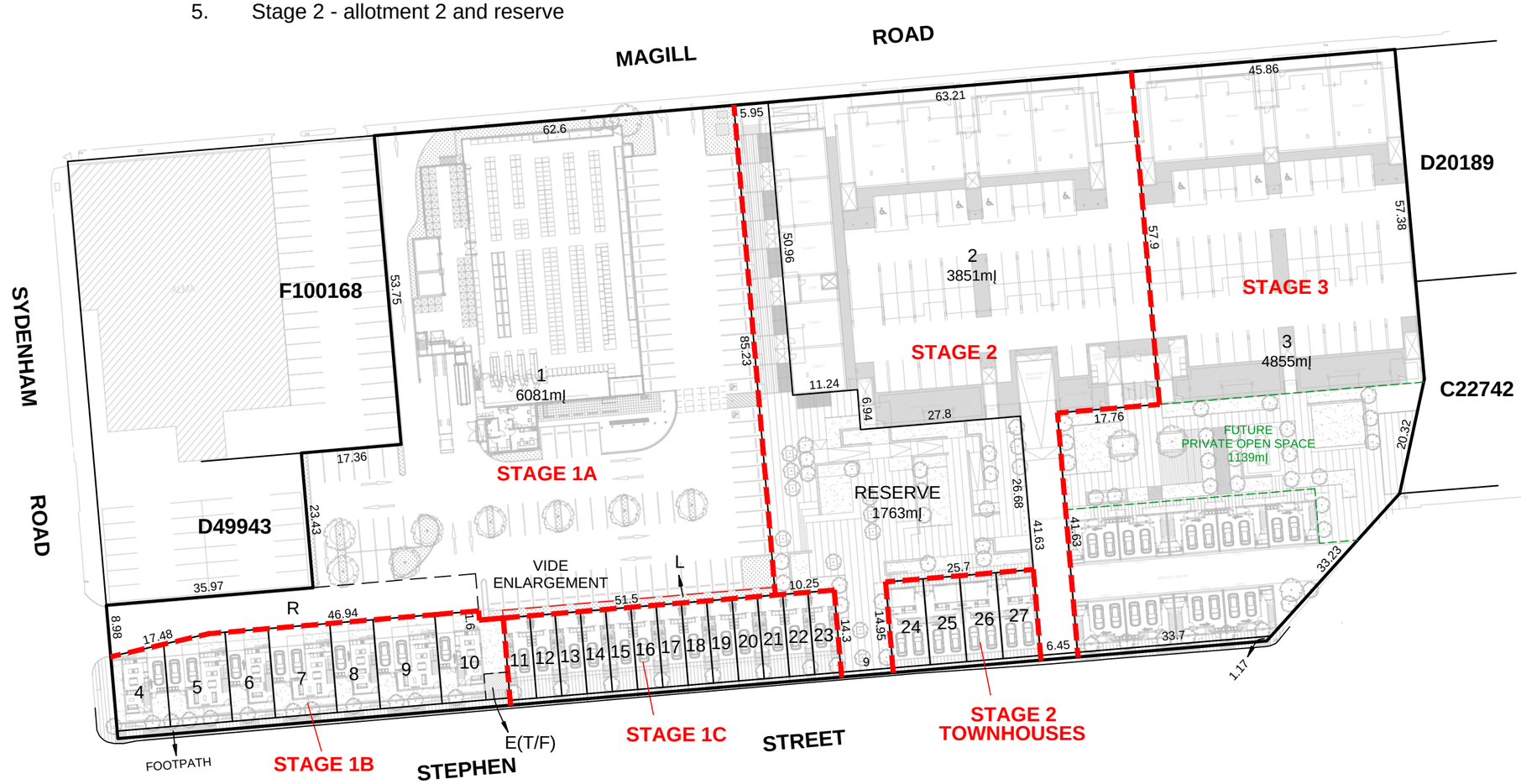

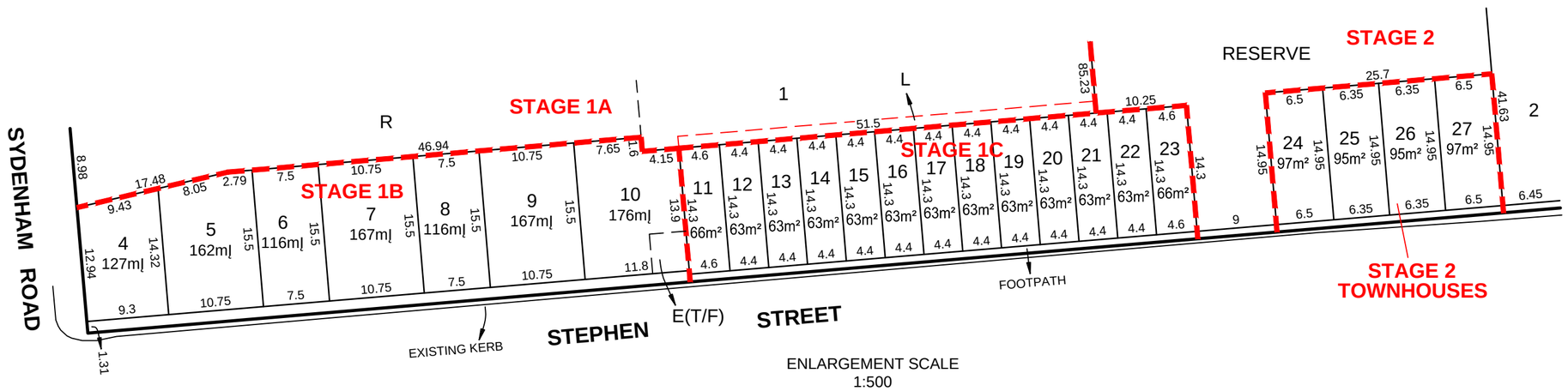

ENLARGEMENT SCALE
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Development No. 155 / D047 / 18
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Allotments 50 to 53 in F250838
Hundred of Adelaide
in the area named

NORWOOD

C'ST 6153/860, 6176/954, 6153/846, 6153/847, 6153/848, 6153/849, 6153/850, 6153/852, 6153/853, 6153/854, 6153/855, 6153/856, 6153/857, 6153/851, 6153/845, 6198/719

0 7.5 15 30 45 60 75 m

1:750 @ B3

Proposed Easement

E(T/F) SAPN transformer
L Light and air in favour of allotments 11 to 21
R Right of way in favour of allotments 4 to 10

No. of original allotments	20
No. of proposed allotments	27
Total Area	1.899ha
Reserve	(9.3%) 1766m²

Dimensions and areas are subject to survey.

É ALEXANDER & SYMONDS PTY. LTD.
Original Sheet Size B3

Mark Antony Peter Williams
LICENSED SURVEYOR

REF: A001018.BULD	
DWG NO.: A001018PROP5(E)	
REVISION: E	
RHF 22.08.2018	

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REV	DATE	DESCRIPTION	CALC	FIELD
		ADDITIONS, AMENDMENTS AND APPROVALS		

LEGEND

47.87VER VERANDAH
47.87OUT EDGE OF GUTTER
48.12OH OH WIRE LEVEL
47.51TK TOP KERB
47.50WT WATER TABLE
45.15FL FLOOR LEVEL
48.12IL INVERT LEVEL
TAP
WATER METER
SPRINKLR / IRRIG VALVE
HYDRANT
DOMESTIC OUTLET
DOWNPIPE
DOMESTIC SUMP
STORMWATER MYKOLE
SEP / GRATING
47.51TC TOP OF CAPPING
47.51R TOP OF RIDGE
47.51TP TOP OF PARAPET
TEL COMM. COLUMNPIT
TRAFFIC LIGHT
SIGN / BUS SIGN
LITTER BIN
MAIL BOX / SIGNAL BOX
TICKET MACHINE
ROAD / ELEC. SERVICE
WATER SV / FP
ELEC. / GAS METER
GAS SERVICE
PSM
PEG / TBM
SURVEY MARKS
BOREHOLE
POWER / LIGHT POLE
CABLE MARKER
STOBE / WOODEN POLE
POST / BOLLARD
SEWER MH / IO / SIP
UNKNOWN POINT / SERVICE
EDGE OF VEGETN
ROAD SIGN / HOARD.
TREE / SHRUB
Possible REGULATED / SIGNIFICANT TREE by measurement only (trunk greater than 2.0m circumference). Professional advice from council / arborist required.
DCDB LINE
EDGE OF PAVING
BOTTOM OF BANK
TOP OF BANK
CHANGE OF GRADE
DRAIN
SEWER PIPE UG
TEL COMM UG
WATER PIPE UG
BUILDING
WALL
GI BUILDING
CONCRETE
FENCE
GATE

COORDINATE SYSTEM	
VERTICAL:	AHD
HORIZONTAL:	GROUND PLANE ORIENTED TO: MGA 94 ZONE 54
SCALE: GROUND	(CSF = 1.0001688)

ADOPTED STATION & AUTHORITY		
PSM 6628/42411	RL:	51.482 SDB
PSM	E:	283437.105 SDB
	N:	6133667.828 SDB

SDB denotes SA Government survey data base

0 2 4 8 12 16 20 m

1:200

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Notes:
Property boundaries shown hereon have been compiled from the government records and have not been verified by field survey.

CONTOUR INTERVAL:	0.2m	
SURVEY:	TLH	JAN 2018
DRAWN:	TLH	23.01.2018
CHECKED:	RSW	23.01.2018

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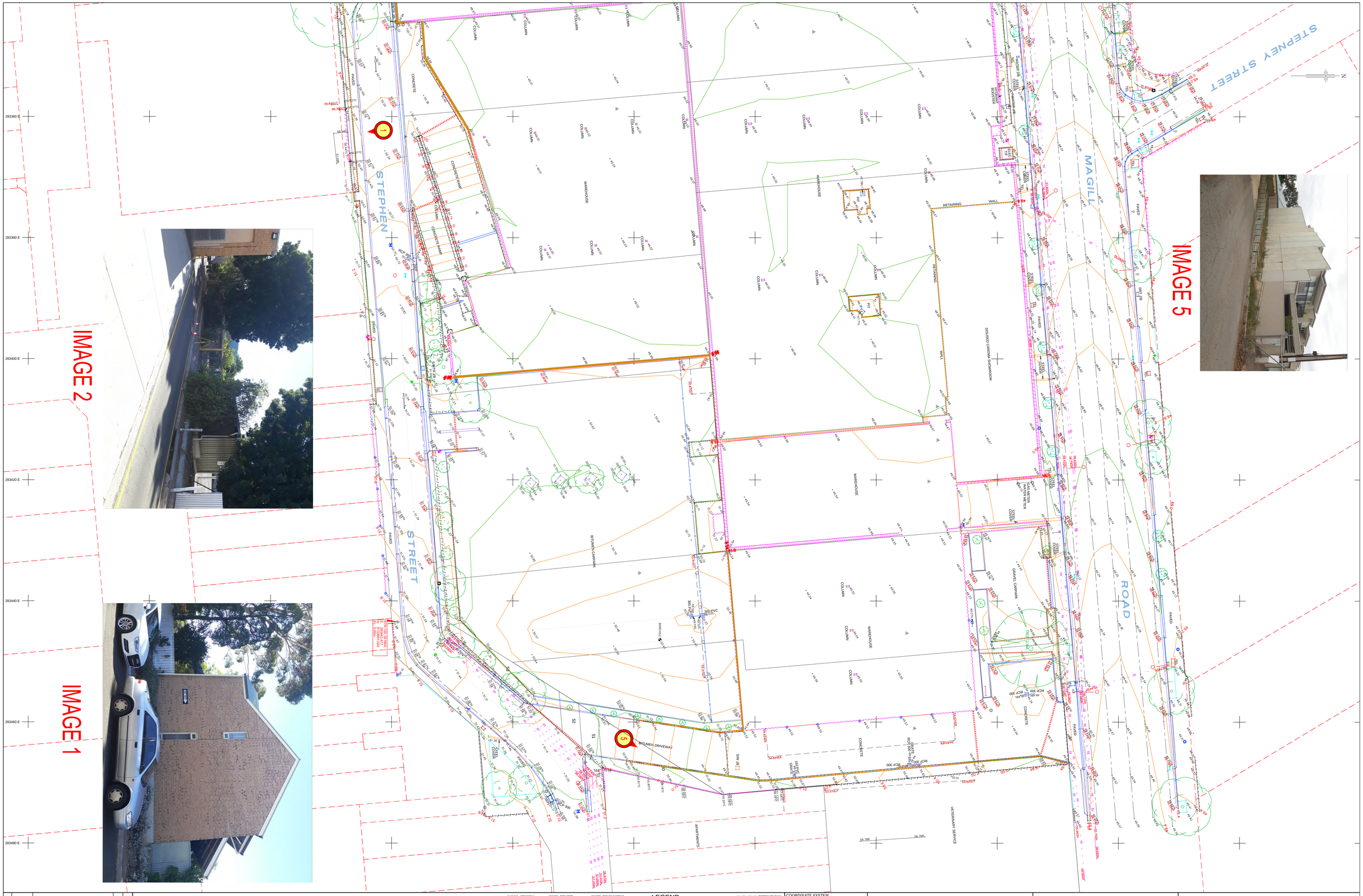
DETAIL AND LEVEL SURVEY
MAGILL ROAD
NORWOOD

DRAWING No. A001018_DETAIL(0) 2D

SHEET 1 OF 2

REVISION 0



REV	DATE	DESCRIPTION	CALC	FIELD
		ADDITIONS, AMENDMENTS AND APPROVALS		

LEGEND

47.67VER VERANDAH
47.67GUT EDGE OF GUTTER
48.12OH OH WIRE LEVEL
47.51TK TOP KERB
47.26WT WATER TABLE
45.18FL FLOOR LEVEL
48.12IL INVERT LEVEL
TAP
WATER METER
SPRINKLR / IRRIG VALVE
HYDRANT
DOMESTIC OUTLET
DOWNPIPE
DOMESTIC SUMP
STORMWATER MHOLE
SEP / GRATING
47.51TC TOP OF CAPPING
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47.51TP TOP OF PARAPET
TEL. COMM. COLUMNART
TRAFFIC LIGHT
SIGN / BUS SIGN
LITTER BIN
MAIL BOX / SIGNAL BOX
TICKET MACHINE
ROAD / ELEC. SERVICE
WATER SV / FP
ELEC. / GAS METER
GAS SERVICE
PSM PEG / TRIM
SURVEY MARKS
BOREHOLE
POWER / LIGHT POLE
CABLE MARKER
STOBIE / WOODEN POLE
POST / BOLLARD
SEWER MH / JO / SP
UNKNOWN POINT / SERVICE
Possible REGULATED / SIGNIFICANT TREE by measurement only (trunk greater than 2.0 metres girth). Arborist advice from council / arborist required.
EDGE OF VEGETN
ROAD SIGN / HOARD.
TREE / SHRUB
CHANGE OF GRADE
DRAIN
SEWER PIPE UG
TEL. COMM. UG
WATER PIPE UG
BUILDING
WALL
W BUILDING
CONCRETE
FENCE
GATE
BOTTOM OF BANK
TOP OF BANK
DCDB LINE
EDGE OF PAVING

COORDINATE SYSTEM	
VERTICAL:	AHD
HORIZONTAL:	GROUND PLANE ORIENTED TO: MGA 94 ZONE 54
SCALE: GROUND	(CSF = 1.0001688)

ADOPTED STATION & AUTHORITY			
PSM 6628/42411	RL:	51.482	SDB
PSM	E:	283437.105	SDB
	N:	6133667.828	SDB

SDB denotes SA Government survey data base

0 2 4 8 12 16 20 m

1:200

ORIGINAL SHEET SIZE A0

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Notes:
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CONTOUR INTERVAL:	0.2m
SURVEY:	TLH JAN 2018
DRAWN:	TLH 23.01.2018
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DETAIL AND LEVEL SURVEY
MAGILL ROAD
NORWOOD

DRAWING No. A001018_DETAIL(0) 2D

SHEET 2 OF 2

REVISION 0

masterplanning
architecture
consultation
heritage + interpretation
cultural tourism
urban design

mulloway studio

76 MAGILL RD, NORWOOD
(FORMER CAROMA FACTORY)

CULTURAL HERITAGE INTEGRATION + INTERPRETATION

MULLOWAY studio

for **CACA NOMINEES PTY LTD / ALDI STORES**

mulloway

[01 AUG 2018]

TECT02-04

DOCUMENT CONTROL

issue number	revision issue date	revision notes
00	8 May 2018	Preliminary – In Progress Issue
01	9 May 2018	Preliminary – In Progress Issue
02	20 July 2018	Draft Issue
03	27 July 2018	Issue
04	01 Aug 2018	Issue

INTRODUCTION

Mulloway Studio were engaged by CACA/ALDI to provide cultural heritage integration and interpretation for the proposed redevelopment of the former Caroma site on Magill Road, Norwood.

Essentially Mulloway's participation is about finding opportunities for integrating cultural representation into the architecture, landscape, and public space within the redeveloped site. Consideration of the cultural heritage will enrich the project in a number of ways:

- Helps to create a thematic narrative for the project.
- Informs and enriches the overall identity and experience of the place.
- Assists in integrating the new development into the existing community and urban environment.

We have undertaken research to identify the history, key people, stories, and significance of the place. We have identified background documentation sources and records that will assist in constructing a detailed understanding of the site and will provide a foundation for integrated interpretation. From this research the key themes and storylines that will be presented in the redevelopment have been distilled. Ultimately these sources will inform the final text and image content to be embedded in the outcomes on-site.

Evaluation of the site, the existing layout and building fabric, work processes and traces of former uses has been undertaken. We are liaising with the City of Norwood Payneham & St Peters Cultural Centre and have contacted former Caroma employees that worked at the factory, to understand both technical and personal experiences of the Place.

While the work in this report provides a basis for sound decision making and design progress, it is anticipated that further research and investigation will be undertaken at a more detailed level in line with the development of the design proposals.

BACKGROUND COMPONENTS

background documentation/resources

- 76 Magill Rd Masterplan report v6 (22 March 2018).
- Series of historic aerial photographs providing site layout + surrounds.
- Refer also following section for list of site background sources.

historic aerial images

SITE BACKGROUND

History of area

The suburb of Norwood was first laid out in 1847. It is part of the City of Norwood Payneham and St Peters. Prior to local government amalgamation, the City of Norwood was the oldest South Australian local government municipality.

History of surrounding sites of interest

The remnants of the East Torrens Destructor are located at Chimney Park, 64 Appelbee Crescent, across the road from 76 Magill Road (the former Caroma Norwood factory). The East Torrens Destructor officially opened on 6 February 1930 and burned the refuse of households and trades for the councils of Kensington and Norwood. It was not well-received by the residents, who complained about the smell and claimed that the smoke was affecting the value of their properties.

History of site

From the mid 19th Century, until the early twentieth, the area was the site of a Cox's 'brick yard.' The place incorporated the base material clay pits, pug mills, kilns and associated activities.

> "The brickyards of Messrs. Cox Brothers, of Norwood, are situated on seven and a half acres of ground which lie between the north end of Sydenham-road and Osmond-terrace. Here the whole process of converting the natural soil of the ground into hard bricks has been for the last ten years actively carried on, so that many of the best buildings in Adelaide may be said to have been dug out of Norwood — a city sprung from its own suburbs" *South Australian Register* 15th December 1859, p.3

Paper bags and box manufacturers, Silver & Co ltd, were located on Chapel Street Norwood. Based on its presence in local newspapers, it was in operation from 1900 to approximately 1930. According to the Progressive Risk Management Pty Ltd (PRM)'s *Environmental site assessment: Caroma Manufacturing Facility* (2016), there is evidence that some type of box factory used the site of 76 Magill Road, it is likely this was Silver & Co given the close proximity from Chapel Street.

History of Caroma

Charles Rothauser arrived in Australia in 1938. Charles and his wife Christine began a doll making business in 1939 in Gay's Arcade, Adelaide, named Quality Toy Company.

> "There is an interesting little story in progress in a doll factory that you find wandering up rambling stairs and along dark passages in old Gay's Arcade. It is the story of Budapest Bachelor of Engineering, and his wife who came to Australia three years ago."
> *The Advertiser*, Saturday 29 November 1941, p.11.

Christine dressed the dolls in costumes, but when she did not have enough dolls to keep up with production, Charles started making the dolls. According to an article from *The Advertiser* in 1941 Charles was trying to find an unbreakable material for the dolls faces. In this business Charles found a niche in the embryonic plastics field.

He continued to make dolls until the 1950s but also manufacturing other plastic products under the name Industrial Products Limited. In 1948 Harry Whillis a detailer for AM Bickford and Sons (South Australian company now known as Bickfords, which at the time manufactured pharmaceutical products), designed the world's first disposable polypropylene syringe. Prior to 1948 glass syringes were used, but penicillin would become clogged. At first the disposable syringes were made of polyether, but this material softened when heated and would have to be sterilised prior to packaging, which was very expensive. The injected moulded syringe made from polypropylene could be heat sterilised. Rothauser (Industrial Products Limited) manufactured the syringe for AM Bickfords and Sons.

In 1956 Rothauser renamed the company 'Caroma'. Caroma began manufacturing toilets and bathroom fittings, and has since contributed several innovative inventions that have transformed sanitary ware globally.

Rothauser's doll making, *The Advertiser* 1941

J. & T. Cox brickyard and kilns, Osmond Terrace, Norwood.1913 *State Library SA*

In late 1950s Caroma developed the world first one-piece plastic cistern, which was designed to combat Adelaide's corrosive water. In 1980 with a $130,000 Commonwealth Industry Grant a designer at Caroma, Bruce Thompson, developed a duel flush system that had different volumes: full flush (11.0 litres) and half flush (5.5 litres). The toilet bowl also had to be redesigned to ensure less water could still remove the waste. The duel flush saved each household 32000 litres of water a year. This later led to legislation around Australia that all new buildings would have duel flush toilets. When released the 'duo-set' was available in five colours Royal Blue, Chocolate, Avocado, Almond and Ivory.

Caroma gained a global reputation, known for its combination of style and environmental awareness. Today it continues to be at the forefront of design and manufacturing, and is the market leader for water efficient sanitary ware.

According to ABC news The Norwood Caroma factory had been operating in Norwood for 73 years (1951-2014). The Norwood factory officially closed 24 February 2017. Manufacturing in Australia has now ceased and most of Caroma's production is completed in China. Australia will continue to be a distributor.

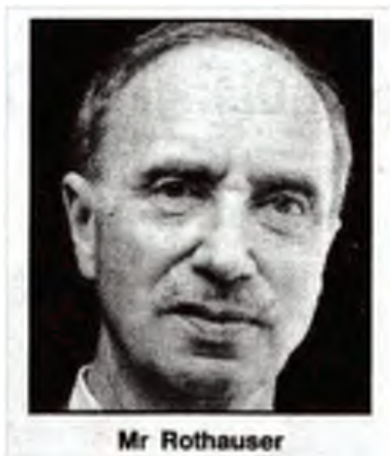
Michael Atchison cartoon-*The Advertiser, 1981,*

Stories of people

Charles Rothauser

Born 25 November 1913 in Budapest Hungary, Rothauser was educated as an architect in Vienna. He passed away at age 83 (May 18 1997) in Versailles, France from a stroke. He had a home there which he would use to escape the South Australian winter.

Married to Christine Rothauser, they had three daughters. Rothauser was a member of long list of associations: foundation member of P*lastics Institute of Australian* in SA in 1947, founding member of the *Mental Health Association Australia*, former president of the *Plastics Institute of Australia* and committee member of the *Richard Wagner Association*. In an article for the *Sunday Mail* (1997) Christine reflected "One important one was his work with the Mental Health Association- he fought for people not to be locked in cages." In 1987 he was also awarded an Officer of the Order of Australia (Charles Rothauser AO) for his service to secondary industry, particularly the design and manufacturing of plastics.



Christine Rothauser (right), *National Archives*

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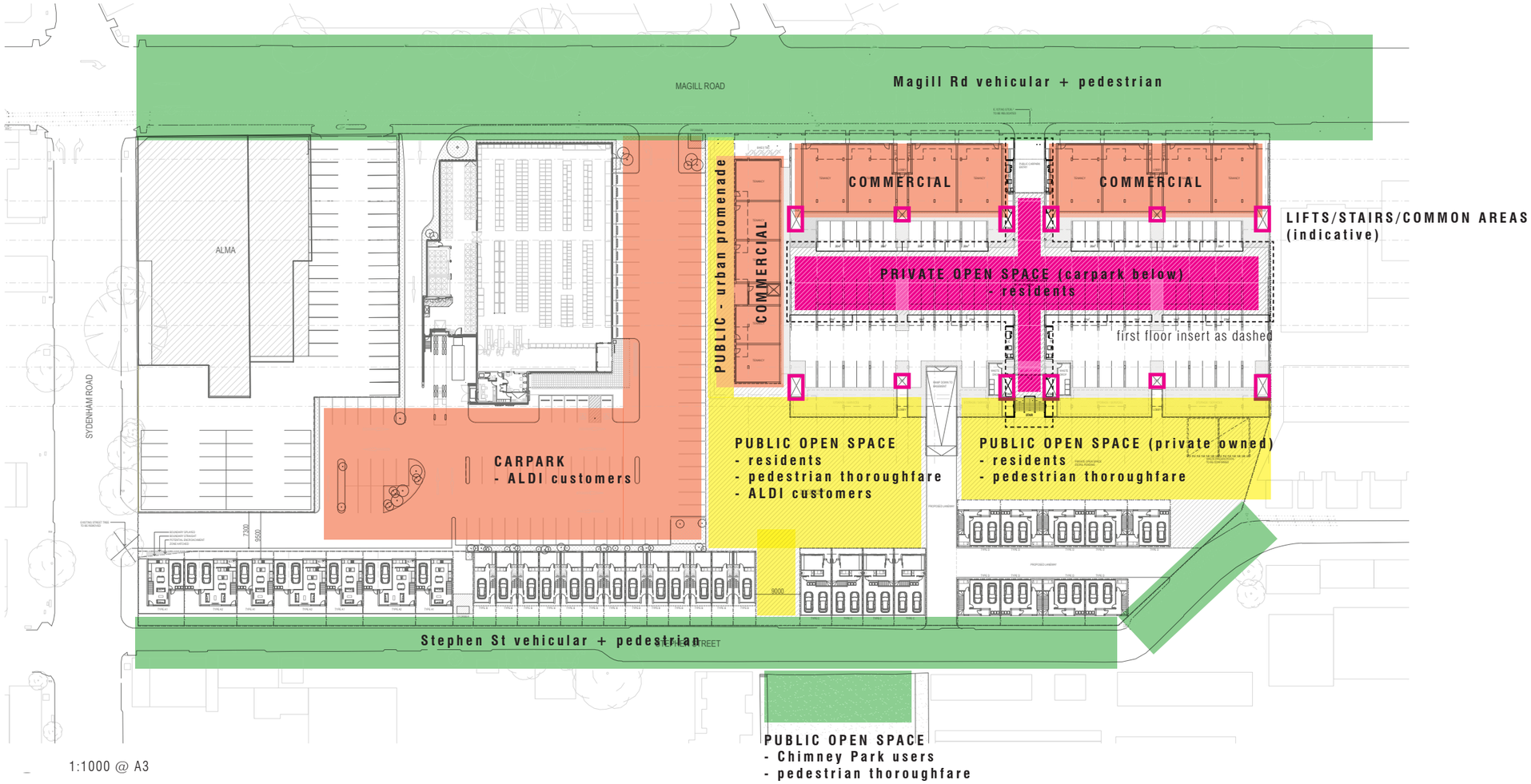

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AUDIENCE ANALYSIS

It is important to understand who the audience will be and how they will use the site, to establish how the interpretive material should be targeted.

The majority of the audience will be residents and ALDI/ commercial customers and therefore exposed to the material incidentally. Visitors from outside the site will approach the site as a destination (e.g. ALDI), or use the open space for recreation or as as a throughway.

The experience of the site will be either once-off, or repeat/ regular visititation for residents and ALDI customers.

Audience groups:

- ALDI customers – around entrance, carpark, spillover into public open space.
- Other commercial – Magill Rd frontage.
- On-site residential (open spaces, internalised courtyard, common/circulation areas, lifts).
- Public through-ways – Chimney park/Stephen St through to ALDI/Magill Rd. Audiences include recreational/exercise/dog walkers, etc.
- Public edges of site – pedestrian/vehicular traffic.

PUBLIC (site external)

PUBLIC (site internal)

SEMI-PRIVATE (commercial)

SEMI-PRIVATE (residential)

PRIVATE/ALDI – not shaded

base site plan is based on drawings supplied 13 July 2018 – first floor private open space inserted over ground plan for diagrammatic purpose

THEMES

The site is of significance because it is associated with:

- Caroma owner/founder/inventor Charles Rothauser – invented;
  - Injection moulding plastic
  - Syringe
  - Dual flush toilets – arguably the most significant development in water saving technologies.
- Caroma factory operations were significant – at a state and national level.
- Caroma factory employed significant numbers of people and was a well-known enterprise contributing to the identity of this part of Norwood.
- The surrounding locale is significant because it retains early settlement patterns of street layout, houses, and hotels.
- Urban development and land-use economics is in a constant state of change and evolution.
- Second Creek (together with other waterways) formed a key movement path for Kaurna people around the Adelaide plains.
- The understanding of the relationship of urban development patterns over the pre-existing topography and landscape.
- Brick, made from local material is often one of the earliest signifiers of settlement, evident in the built environment.

STORYLINES

- The proximity of urban development to the city centre.
- Changes in urban development patterns and land-use economics
- Residential to industrial to residential changes.
- Local identities
- Former uses of the site: Boot factory and Box factory
- Adjacent hotel (Alma)
- East Torrens destructor
- Second Creek
- Caroma operations
- Key individuals associated with Caroma
- Cox's Brickyard

Second Creek route

INTERPRETATION STRATEGIES OVERVIEW

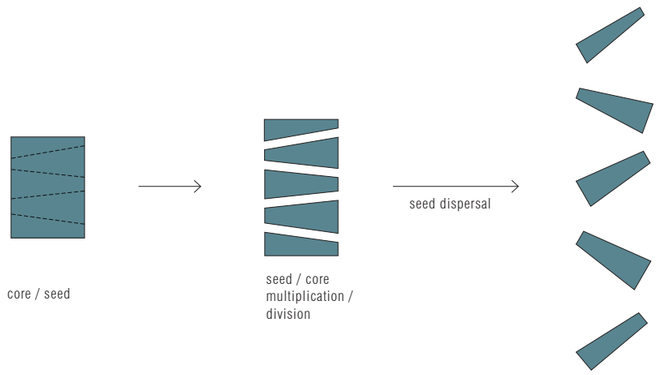
The following are preliminary strategies that can inform the design in a number of ways within a three-tiered approach. There will be some degree of overlap between the tiers as strategies are developed.

This is an in-progress, non-exhaustive list based on our initial observations of the site as well as general interpretive strategies for public and semi-private spaces.

These are generic strategies that will need to be developed to specifically reflect the themes and storylines pertaining to the site and surrounding area.

Cultural integration + interpretation may also be considered within any **programmes or events** that may take place on the site, such as markets, gatherings, art events, etc.

The whole cultural integration + interpretation strategy will work as an **integrated system**, operating as a series of clues and metaphors that provide a holistic narrative when understood as a whole. This system can be represented by the following diagram:



TIER 1 – Broader planning / Informing design decisions

Principles to enrich the design outcomes of the site – layout, views, materials, retaining any remnant fabric, building location and design, traffic movement patterns, arrival.

Following our preliminary review of the existing site, principles and motifs that may inform the broader design include:

- Retaining or re-using elements of the existing building fabric.
- Overlay/re-folding of existing site/factory/production line layout.
- Sawtooth patterning – achieving light penetration into buildings and transparency viewing South.
- Lightweight and exposed structure and services.
- Semi-compartmentalised spaces – as existing enclosed/glazed/upper storey offices, partitioning.
- Factory colour scheme.
- Sightlines and visibility around corners – as factory safety methods.
- Former showroom public interface on Magill Rd – has parallel with proposed commercial frontages and residential showroom.
- Principles relating to the broader history of the site and local context e.g. materiality – to be further developed.

TIER 2 – Provocative interpretation

Strategies for embedding heritage interpretation in a variety of provocative, incidental ways that set up questions and engender curiosity – integrated with pavements, landscaping, facades, playgrounds, artworks.

- Interpretation in the ground surface – in carparks/paths/landscaping. May be text-based or patterning. Small scale for pedestrian view, large scale for view from upper storeys.
- Embed within open space furniture.
- Interpretive playground/water feature.
- Text, patterning, murals embedded in building facades.
- 3D sculptural elements.
- Interpretation in eaves/overhangs.
- Incorporating remnant artefacts – factory clock, signage, safe work posters, convex mirrors, gantry structures.
- Existing factory floor patterning and colour scheme. delineating pedestrian/equipment/vehicular zones, high visibility.
- Treatment around ramped vehicle entry – former access to National Warehouse off Stephen St coincides with possible carpark ramp.
- Interpretive artworks.

TIER 3 – Didactic information

Strategies for detailed information delivery. Text and image-based information to be provided on-site – potentially wall-mounted of totem elements.

- Graphic panels (2D or 3D elements) – text & images.
- May also link digitally to external apps or websites – e.g. Caroma, City of Norwood Payneham St Peters heritage, walks and trails.

OPPORTUNITIES FOR INTERPRETATION

The following site plan provides an overview of key opportunities for interpretation and possible distribution of storylines across the site.

The interpretation is focussed around the **central public open space** at the intersection of North-South and East-West pedestrian movement. A **primary interpretive node,** for example an artwork interpreting Caroma's innovation in materials and processes, would provide an overview of the Caroma story and act as a central anchor for other provocative interpretation dispered across the site.

The placement of storylines is indicative and aims to demonstrate a strategic approach to targeting the different audiences, and providing a comprehensive, yet varied, experience across the site.

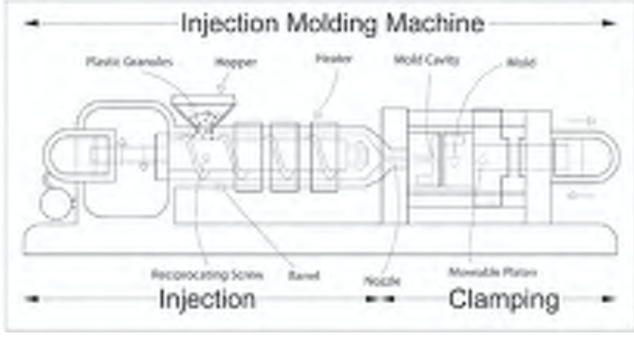
As an **integrated system**, the 'answers' to the key storylines will be located within the central public zone, with the 'questions' or 'clues' distributed throughout the site, including the more private zones and site edges.

Ultimately there will be a degree of overlap and re-folding of storylines throughout the different areas.

The following plan indicates opportunities under the three tiers described: **Tier 1 – Broader planning** / **informing design decisions**, **Tier 2 – Provocative interpretation** and **Tier 3 – Didactic information**.

While some specific references are made to Tier 1 relating to conceptual approaches to the site, this tier also provides general principles to enrich design outcomes throughout, such as re-use of existing fabric and materials that reflect the area's history. Specific opportunities will emerge through further assessment of the existing site and the demolition process.

Following the plan, the key strategies are demonstrated by diagrams, design precedents and references images.



manufacturing processes e.g. injection moulding machine
image: Wikipedia

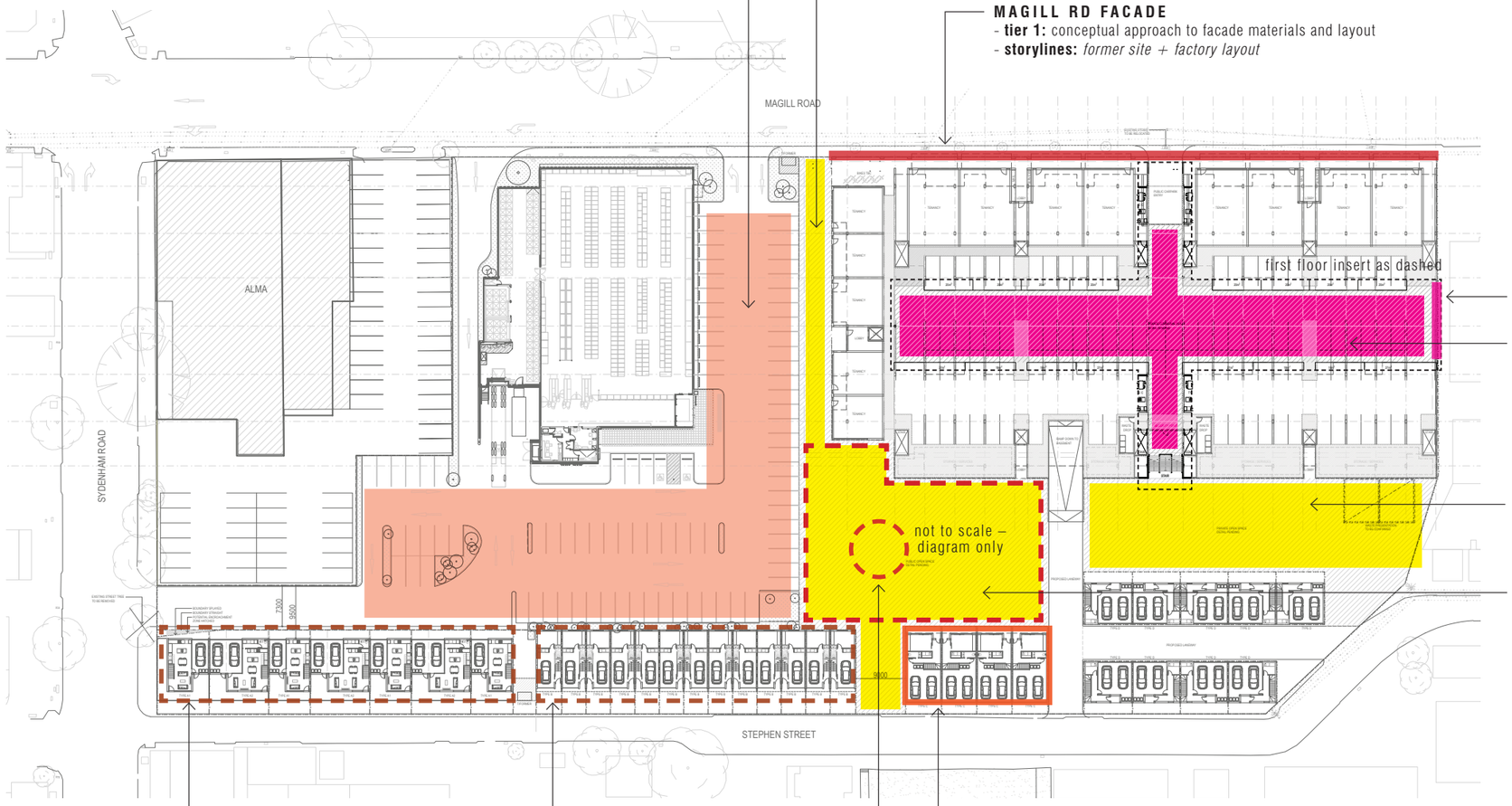
'dual flush' symbols

example forms referencing key Caroma innovations that could inform a primary interpretive node on-site

ALDI CARPARK
- **tier 2:** provocative interpretation to road surface and/or kerbing, e.g. etched or painted
- **storylines:**
  - *former commercial uses of the site: boot factory and box factory*

URBAN PROMENADE
- **tier 2:** provocative interpretation in ground surface, architecture, furniture
- **tier 3:** didactic information, signage- freestanding or integrated with architecture
- **storylines:** provides an introduction to key storylines, possibly via a series of nodes along the thoroughfare

MAGILL RD FACADE
- **tier 1:** conceptual approach to facade materials and layout
- **storylines:** *former site + factory layout*



END WALL SURFACE
- **tier 2:** provocative interpretation, e.g. mural, mosaic, text, or a retained artefact

PRIVATE OPEN SPACE
- **tier 2:** provocative interpretation in landscape: ground, furniture, could be designed for view from pedestrian level + balconies above
- **storylines:**
  - *residential to industrial to residential changes, key individuals*

PUBLIC OPEN SPACE (private owned)
- **tier 2:** provocative interpretation in landscape: ground, retaining walls, furniture
- **tier 3:** may include some supporting didactic information
- **storylines:** *clues supporting storylines in western open space*

PUBLIC OPEN SPACE – <u>PRIMARY INTERPRETATION AREA</u>
- **tier 2:** provocative interpretation in landscape: ground, steps retaining walls, furniture
- **tier 3:** didactic information, signage- freestanding or integrated with landscape
- **storylines:**
  - *Caroma*
  - *Kaurna people and Second Creek*
  - *changes in urban development patterns and land-use economics*
  - *local identities*
  - *former uses of the site: boot factory and box factory*
  - *adjacent hotel (Alma)*
  - *East Torrens Destructor*

APARTMENTS TYPE A
- **tier 1:** row of apartments conceptually interpretive of brick cottages

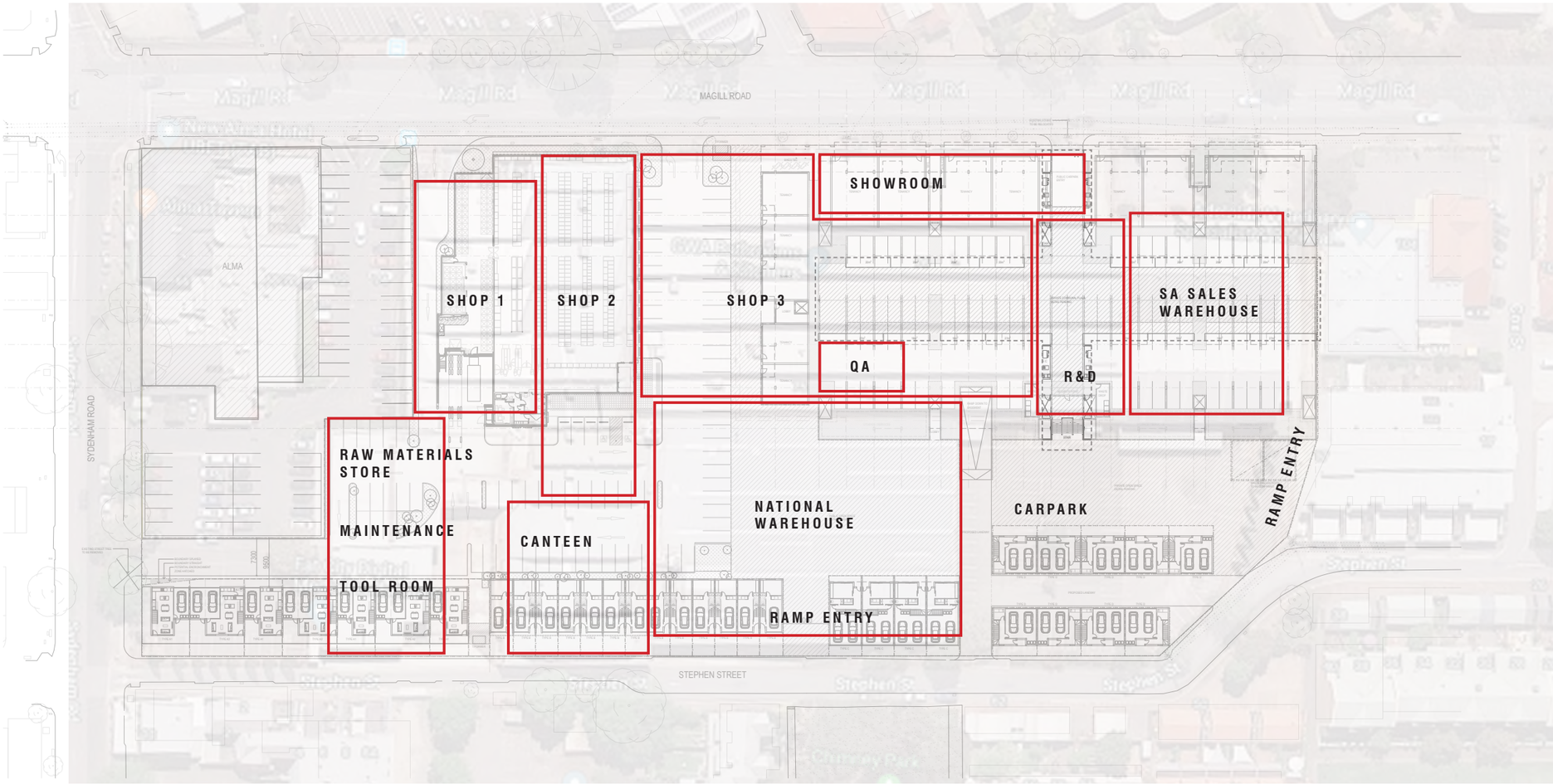
APARTMENTS TYPE B
- **tier 1:** row of apartments conceptually interpretive of box factory

APARTMENTS TYPE C – 'STREET ART' TO PERIMETER WALL SURFACES
- **tier 2:** provocative interpretation, e.g. mural, mosaic, text
- **storylines:** *to be developed*

<u>PRIMARY INTERPRETIVE NODE</u>
- a central anchor for other interpretation across the site
- more complex and layered than other interpretation
- subject to further investigation of the landscape, could be an in-ground treatment/ artwork/installation with both provocative and didactic interpretation
- **storylines:** *Caroma- processes, materials, operations, key individuals*

OPPORTUNITIES FOR INTERPRETATION – SITE DIAGRAM

base site plan is based on drawings supplied 13 July 2018 – first floor private open space inserted over ground plan for diagrammatic purpose



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OVERLAY OF EXISTING CAROMA FACTORY LAYOUT

– indicative, based on aerial image and on-site evacuation plan

This overlay is included as reference, to begin to understand the footprint and layout of the former factory and past uses in relation to the proposed redeveloped site.

base site plan is based on drawings supplied 13 July 2018 – first floor private open space inserted over ground plan for diagrammatic purpose

INTERPRETATION STRATEGIES

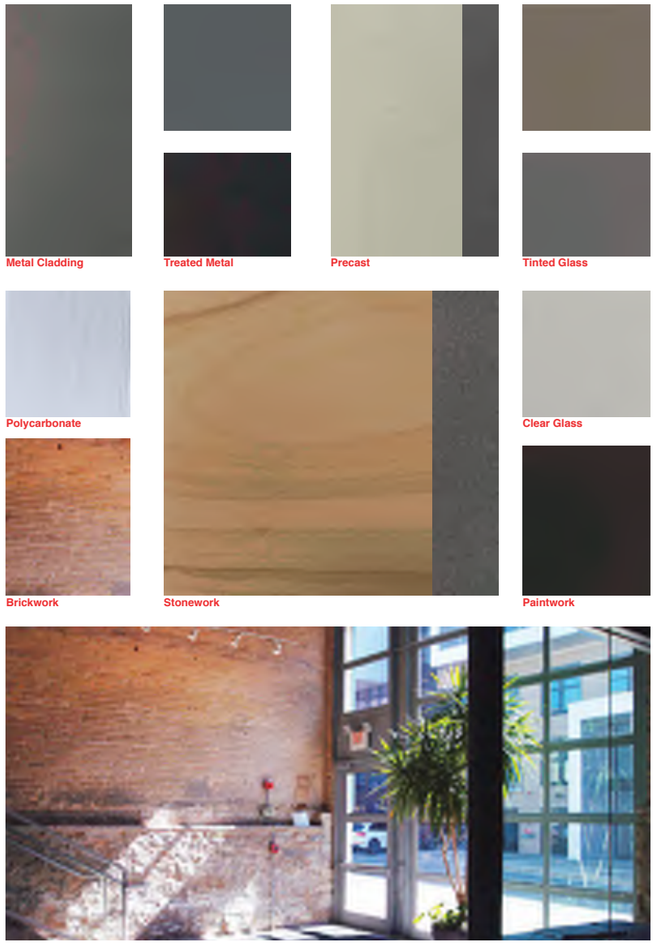
The following section demonstrates the three tiers and key strategies for interpretation through a number of site photos, diagrams, precedents and visual reference images.

Interpretation strategies can be demonstrated by design precedents that show how the strategies have been executed in other places.

The precedents are not intended to be read as directly transferrable to the site, rather they demonstrate similar approaches and outcomes that may inform and inspire development.

TIER 1: BROADER PLANNING / INFORMING DESIGN DECISIONS

Principles relating to the broader history of the site and local context e.g. materiality

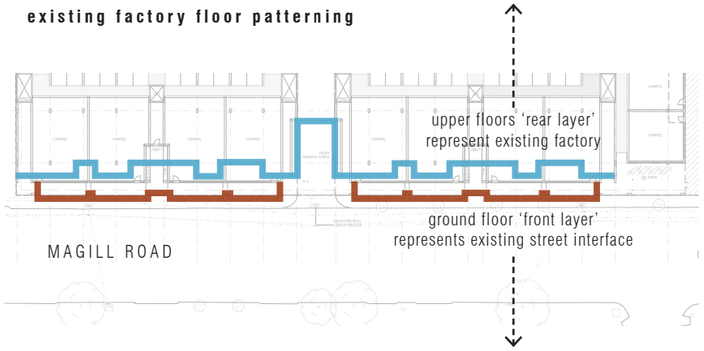


proposed material palette for Magill Rd – reflecting brick cottages, industrial uses
(extracts from PLP submission v0-2)

precedent:
material selections + colours reflective of the site/surrounds informing new built outcomes
project: Hart's Mill Precinct
image: Don Brice/Mulloway Studio

Re-folding of existing site/factory/production line layout

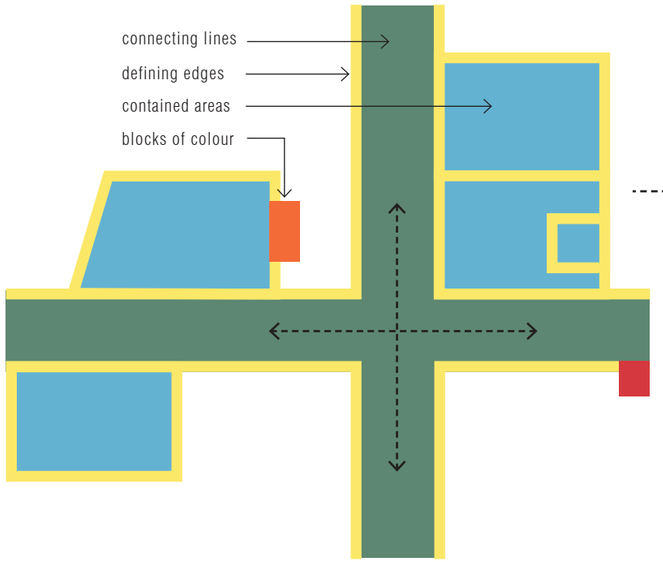
existing factory floor patterning



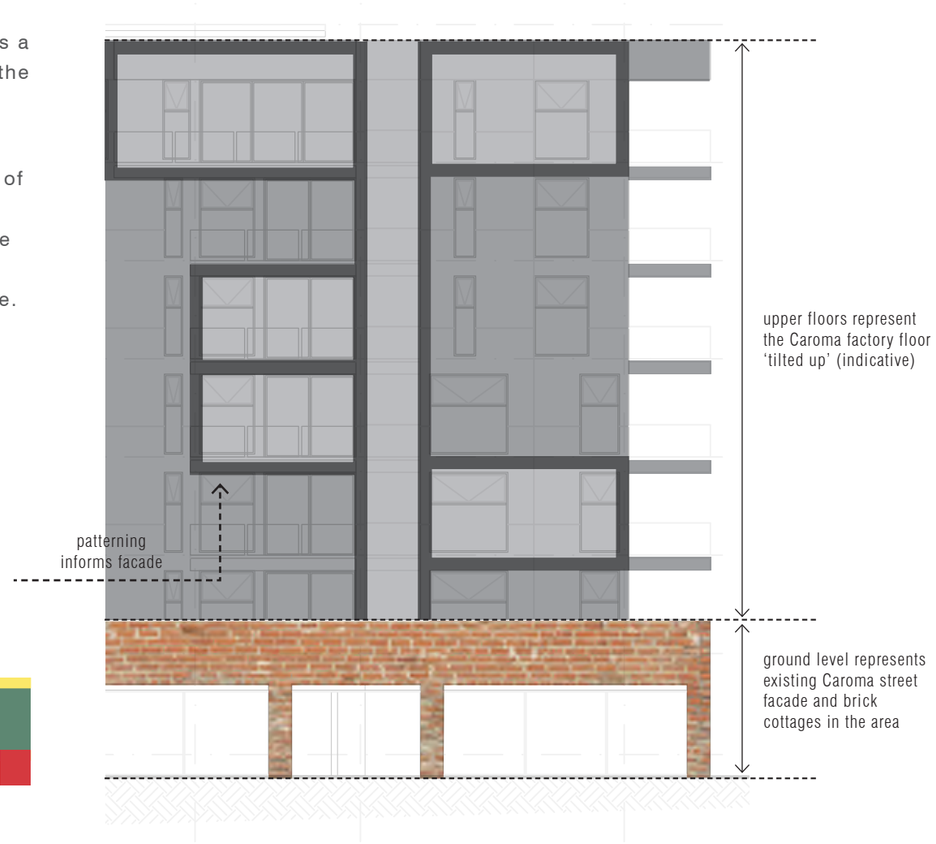
existing Magill Rd facade
(photo from PLP submission #2)

The Magill Road facade can be considered conceptually as a cross-section through the existing site, 'tilted up' to form the new elevation.

At ground level, a new brickwork facade represents the existing Caroma Magill Rd interface, and is also reflective of the history of brick cottages in the area. The upper floors, set back from the ground facade, is then interpretive of the Caroma industrial spaces behind, and could incorporate motifs from the factory floor patterning into the new facade.

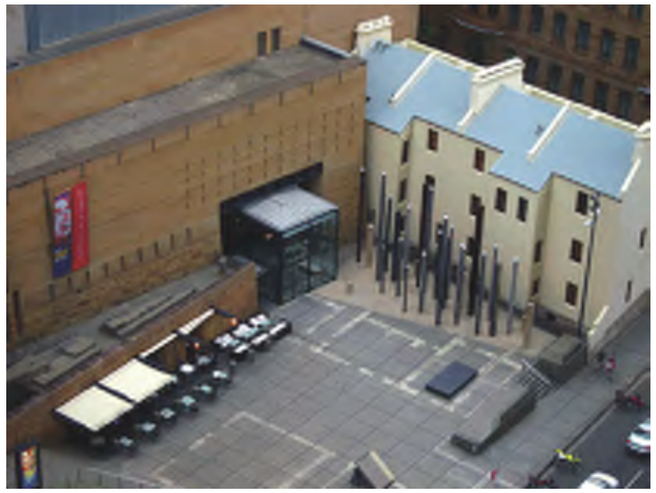


factory floor patterning – conceptual analysis



Magill Road facade elevation – conceptual approach, diagrammatic only

Overlaying aspects of the existing footprint within the new site

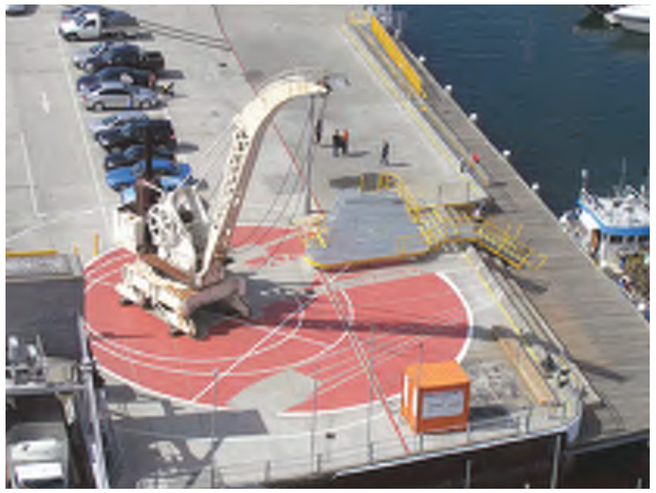


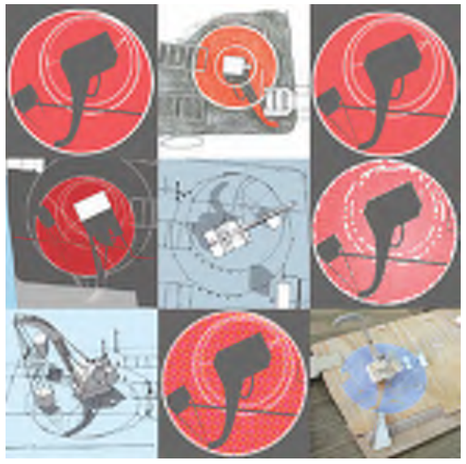
precedent:
historic floor plan layout on ground surface
project: Museum of Sydney
image: Kara Brugman via Flickr

precedent:
former church outlined on ground, materials reflect metallurgic past of the town
image: Pinterest

Retaining or re-using elements of the existing building fabric

example artefacts at existing site that could be retained and re-used

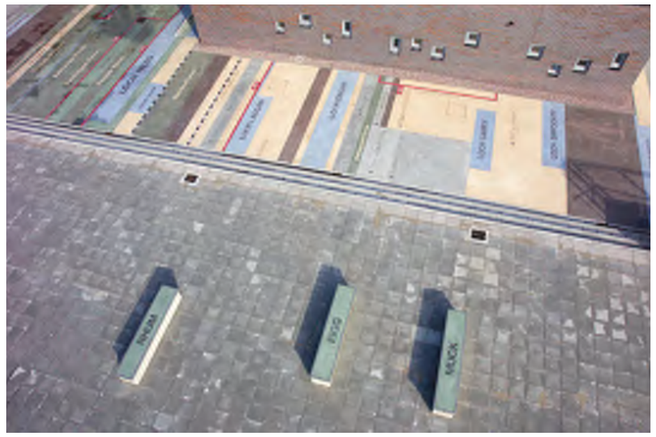




precedent:
adaptation + ground plane interpretation of remnant industrial equipment
project: Franklin Wharf project, Hobart
images: landezine.com

TIER 2: PROVOCATIVE INTERPRETATION

Interpretation in the ground surface – hardscape



precedent:
in-ground text/graphics
project: works by Gordon Young

precedent:
in-ground machinery diagram
project: Midland Railway Square
image: LinkedIn

precedent:
text in-lay within paving
project: 140 William St Interpretation, Perth
image: Mulloway Studio

Interpretation in the ground surface – carpark

precedent:
carpark surface treatment
project: Dans ma benne benne benne by Dientre!
images: landezine.com

precedent:
text within parking lines
project: Central Greenough Installations
image: Mulloway Studio

precedent:
graphics within parking bays
images: Pinterest

Interpretive open space furniture

precedent:
text-based urban furniture,
also designed for viewing from height
project: POBL + Machines, Gordon Young
image: gordonyoung.net

precedent:
text-based urban furniture
project: Bezos Centre for Innovation
image: studiomatthews.com

precedent:
interpretive furniture based on thematic 'surveying' dimensions, considered materials, with embedded artefacts
project: Willunga Main Street
image: Mulloway Studio

precedent:
urban furniture integrated with remnant site artefacts
project: Old Port Fremantle interpretation
image: Mulloway Studio

precedent:
thematic sculptural elements

Interpretive playground

precedent:
thematic playground referencing industrial milling processes – cultural heritage through interpretive play
project: Harts Mill Surrounds
images: Don Brice/Mulloway Studio

Water playground

project: Rings Fountain, Boston
images: Heidi Harting Photography

project: Rings Fountain, Boston
images: Heidi Harting Photography

water playground or feature can interpret the significance of water technology, water conservation, significance of Second Creek to Aboriginal people

Interpretive water feature in landscape

project: Midland Railway Square
image: Metropolitan Redevelopment Authority

image: Jason Hawkes, ArchDaily

image: hansn via Flickr

image: unknown via Pinterest

project: decorative water feature, Bergen plaza, Bard Breivik
image: Pinterest

interpretation of natural creek flow + artificial drainage

Text or patterning embedded in building facades, retaining walls etc

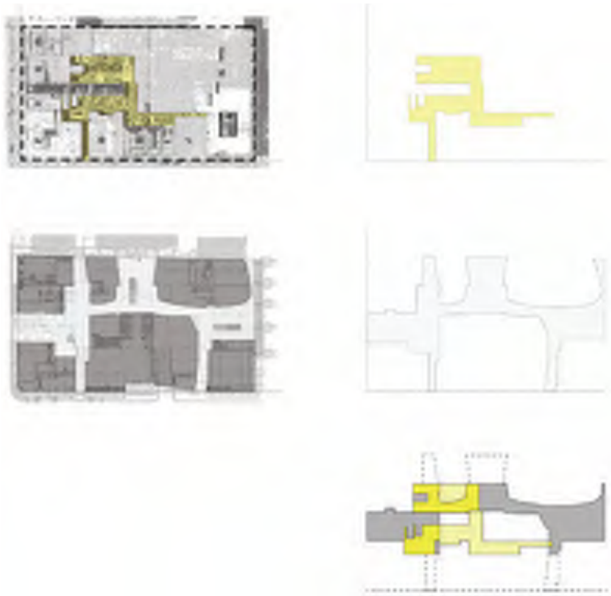
precedents:
facade patterning techniques

precedent:
text embedded digitally within building fabric
project: by Jenny Holzer
image: unknown

precedent:
etched text in retaining walls/seating plinths
project: Elizabeth Quay Heritage Interpretation Strategy
image: Mulloway Studio

precedent:
interpretation through light and shadow
image: Pinterest

3D sculptural elements



precedent:
interpretation of changes to urban layout over time – urban installation mounted to retaining wall
project: one40 William St interpretation, Perth
images: Mulloway Studio

Referencing sightlines and visibility around corners – as factory safety methods

precedent:
convex and concave reflective installations
project: various, Anish Kapoor
images: via Pinterest

precedent:
'Sky Mirror' provides view to the sky
project: one40 William St interpretation, Perth
image: Mulloway Studio

TIER 3: DIDACTIC INFORMATION

Detailed text + images presented on signage within the public open space

'totem' signage embedded within seating terraces/hardscape
project: Elizabeth Quay Heritage Interpretation Strategy
image: Mulloway Studio

waist level signage
project: one40 William St interpretation
image: Mulloway Studio

ground level incidental signage
project: Old Port Fremantle interpretation
image: Mulloway Studio

Detailed interpretation within commercial spaces, residential foyers

GTAconsultants

Proposed Mixed Use Development
76 Magill Road, Norwood
Transport Impact Assessment

Client // CACA / ALDI

Office // SA

Reference // S146860

Date // 24/08/2018

Proposed Mixed Use Development

76 Magill Road, Norwood

Transport Impact Assessment

Issue: B 24/08/2018

Client: CACA / ALDI
Reference: S146860
GTA Consultants Office: SA

Quality Record

Issue	Date	Description	Prepared By	Checked By	Approved By	Signed
A	23/08/2018	Final	Ian Bishop	Paul Morris	Paul Morris	PMO
B	24/08/18	Minor amendments	Ian Bishop	Paul Morris	Paul Morris	

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Table of Contents

1. Introduction 1

1.1 Background 1

1.2 Purpose of this Report 1

1.3 References 1

2. Existing Conditions 1

2.1 Subject Site 1

2.2 Road Network 1

2.3 Sustainable Transport Infrastructure 6

3. Development Proposal 8

3.1 Land Uses 8

3.2 Car Parking 8

3.3 Vehicle Access 9

3.4 Pedestrian Access 9

4. Car Parking 10

4.1 Development Plan Car Parking Requirements 10

4.2 Parking Analysis 11

4.3 Adequacy of Parking Supply 11

4.4 Car Parking Layout 11

4.5 Access 12

4.6 Magill Road Access – Proposed Painted Median 14

5. Sustainable Transport Infrastructure 16

5.2 Walking Cycling Network 16

5.3 Public Transport 16

6. Loading Facilities 17

6.1 Proposed Loading Arrangements 17

7. Traffic Impact Assessment 22

7.1 Traffic Generation 22

7.2 Traffic Impact 24

8. Conclusion 29

1. Introduction

1.1 Background

A mixed-use development is proposed at a site located at 76 Magill Road, Norwood. The proposed development comprises of retail and residential uses with associated parking.

GTA Consultants was engaged to undertake a transport impact assessment of the proposed development to accompany a development application.

1.2 Purpose of this Report

This report sets out an assessment of the anticipated transport implications of the proposed development, including consideration of the following:

- existing traffic and parking conditions surrounding the site
- parking demand likely to be generated by the proposed development
- suitability of the proposed parking in terms of supply (quantum) and layout
- traffic generation characteristics of the proposed development
- proposed access arrangements for the site

1.3 References

In preparing this report, reference has been made to the following:

1. Norwood Payneham and St Peters (City) Development Plan, consolidated 19 December 2017
2. Roads & Maritime Services (RMS) Technical Direction – TDT2013/04a – Guide to Traffic Generating Developments – Updated Traffic Surveys
3. Australian Standard/ New Zealand Standard, Parking Facilities, Part 1: Off-Street Car Parking AS/NZS 2890.1:2004
4. Australian Standard, Parking Facilities, Part 2: Off-Street Commercial Vehicle Facilities AS 2890.2:2002
5. Australian Standard / New Zealand Standard, Parking Facilities, Part 6: Off-Street Parking for People with Disabilities AS/NZS 2890.6:2009
6. plans for the proposed development prepared by Select Architects and Tectvs
7. various technical data as referenced in this report
8. other documents as nominated.

2. Existing Conditions

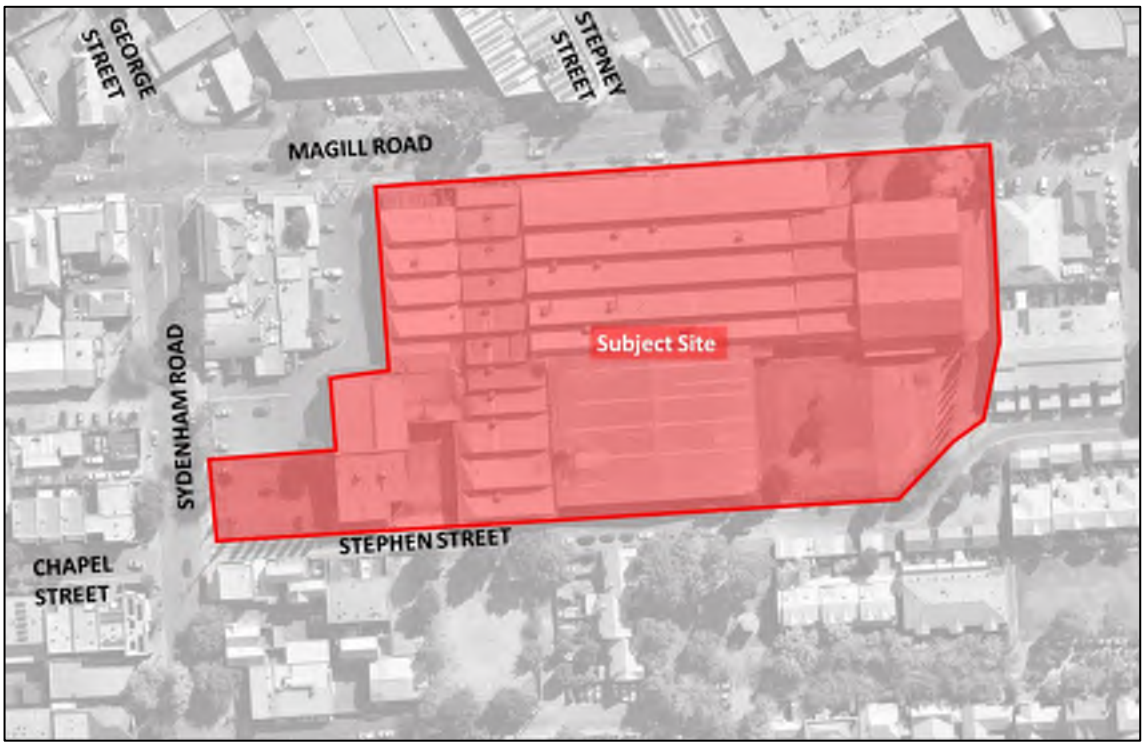
2.1 Subject Site

The subject site is located between Magill Road and Stephen Street, Norwood. The site of approximately 1.899 ha has a frontage of approximately 178 metres to Magill Road, 233 metres to Stephen Street and 23 metres to Sydenham Road.

The site is located within an Urban Corridor Zone and was previously occupied by Caroma Industries. The existing site has a number of access points to Magill Road and Stephen Street which were used by light and heavy vehicles associated with the former manufacturing and retail sales uses associated with the previous use. The surrounding properties include a mix of residential and commercial land uses.

The location of the subject site and the surrounding environs is shown in Figure 2.1.

Figure 2.1: Subject Site and its Environs



2.2 Road Network

2.2.1 Adjoining Roads

Magill Road

Magill Road is an arterial road managed and maintained by the Department of Planning, Transport and Infrastructure (DPTI). It is a single carriageway two-way road configured with two travel lanes in each direction and aligned in an approximately east – west direction. The carriageway is approximately 15.2 metres wide set within a road corridor approximately 20 metres wide. Bicycle lanes are provided on the southern and northern side of Magill Road

adjacent the site, which operate 7:30am – 9:00am and 4:30pm – 6:00pm respectively Monday to Friday. Outside of these times, on-street parking is permitted on both sides of Magill Road.

The carriageway cross section comprises 3.5m and 2.6m wide traffic lanes on the northern side and 3.0 to 3.2 metre traffic lanes on the southern side with 1.2 metre part-time bicycle lanes on both sides. The footpath on the southern side is approximately 3 metres wide along the site frontage.

Magill Road is subject to a sign posted speed limit of 60 km/h and carries approximately 22,400 vehicles per day[1].

Figure 2.2: View south of Magill Road adjacent site (looking west)

Sydenham Road

Sydenham Road is a collector road managed and maintained by the City of Norwood, Payneham & St Peters (Council) and links between The Parade and Magill Road. It is a single carriageway two-way road configured with one travel lane in each direction and aligned in an approximately north – south direction. The road comprises a carriageway approximately 13 metres wide set within a road corridor approximately 20 metres wide. On-street parking is permitted on both sides of Sydenham Road, which are subject to time restricted parking control. Traffic signals are located at its intersection with Magill Road.

Sydenham Road is subject to a default urban speed limit of 50km/h and carries approximately 6,000 vehicles per day[1].

[1] Department of Planning Transport and Infrastructure Annual Average Daily Traffic Volume Estimates (2015),

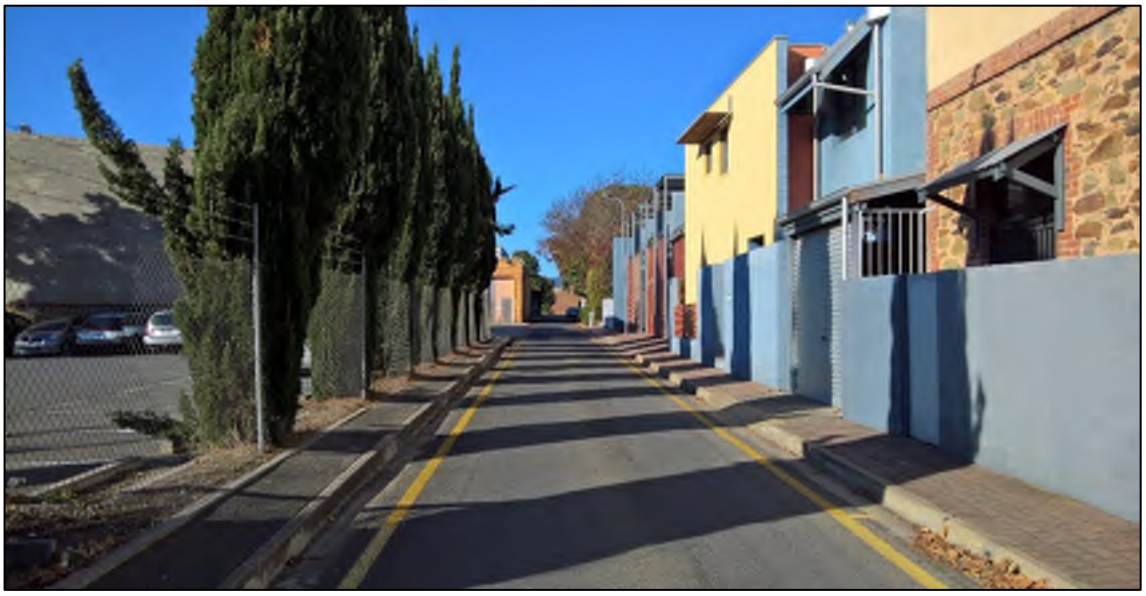
Figure 2.3: View south of Sydenham Road (looking south)

Stephen Street

Stephen Street is a local street managed and maintained by Council. It comprises a single carriageway ranging from 3.6 metres to 6.4 metres wide adjacent the site. It is aligned in an approximately east to west direction, with movements permitted only in the westbound direction. On-street parking is generally not permitted on Stephen Street except for a short section on the southern side mid-block adjacent the site.

Stephen Street is subject to a default urban speed limit of 50 km/h and carries less than 500 vehicles per day[2].

Figure 2.4: View of Stephen Street (looking east)



[2] Based on first principles assessment undertaken by GTA Consultants

2.2.2 Surrounding Intersections

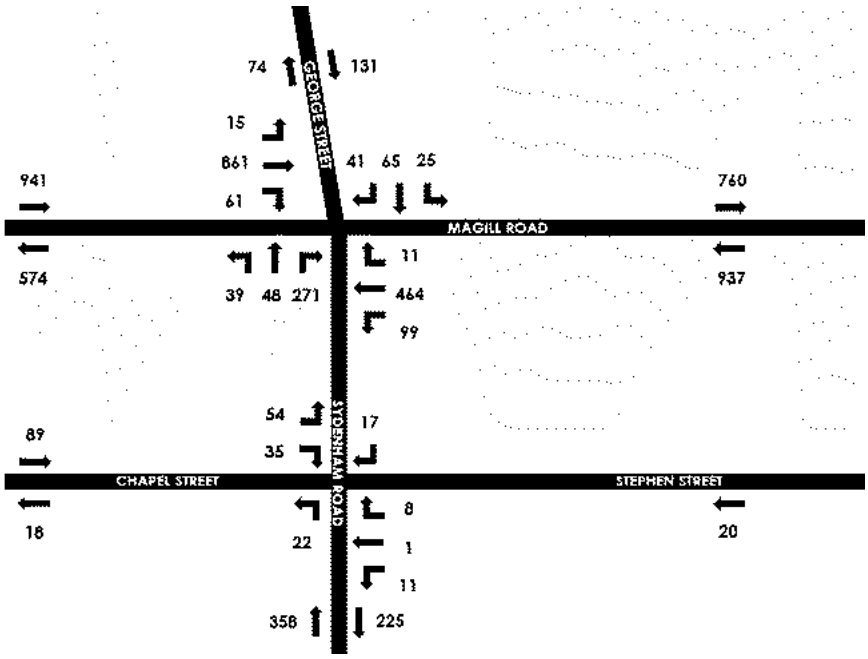
The following intersections are located in the vicinity of the site:

- Magill Road / Sydenham Road / George Street (signalised)
- Magill Road / Stepney Street (unsignalised)
- Magill Road / Cox Street (unsignalised)
- Sydenham Road / Chapel Street / Stephen Street (unsignalised)
- Stephen Street / Cox Street (unsignalised)

2.2.3 Traffic Volumes

GTA Consultants undertook a traffic survey on key roads in the vicinity of the site on 9 May 2018 between 4:45pm and 5:45pm. The turning movements recorded during the survey are shown in Figure 2.5.

Figure 2.5: Existing PM Peak Hour Traffic Volumes



2.2.4 Crash Data

A review of the crash history for the roads and intersections adjoining the subject site has been sourced from the Department of Planning, Transport and Infrastructure (DPTI). The locations of the crashes for the five-year period (2012 to 2016) are shown in Figure 2.6 and a summary of the crashes is presented in Table 2.1.

Figure 2.6: Crash Data (2012-2016)

Table 2.1: Crash Statistics Summary (2012 – 2016)

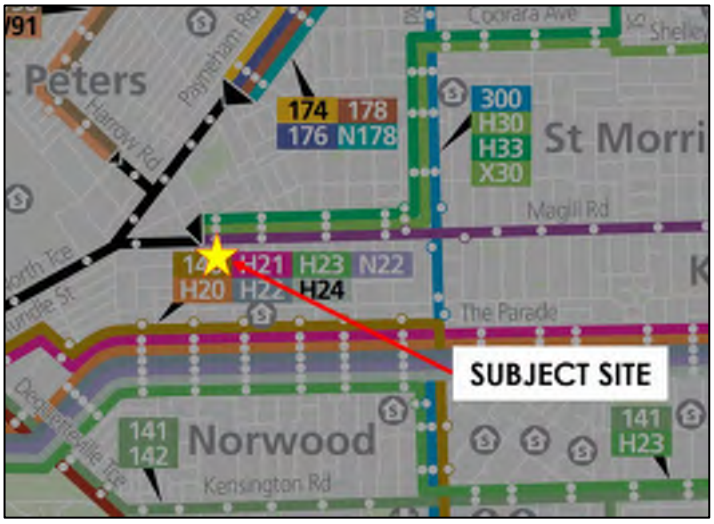
Location	No. of Crashes	Type of Crash	Crash Severity			
			Fatal	Serious Injury	Minor Injury	Property Damage
Magill Road / Sydenham Road (Intersection)	19	4x Rear End 1x Hit Fixed Object 1x Side Swipe 3x Right Angle 1x Hit Pedestrian 9x Right Turn	0	1	9	11
Stephen Street / Sydenham Road (Intersection)	3	1x Rear End 1x Right Angle 1x Hit Parked Vehicle	0	0	1	2
Sydenham Road Midblock (between Magill Road and Stephen Street)	3	1x Side Swipe 2x Hit Parked Vehicle	0	0	0	3
Magill Road Midblock (between George Street and Stepney Street)	3	2x Rear End 1x Side Swipe	0	0	1	3

Based on the above, right turn and rear end crashes were the most common crashes at the intersections while hit parked vehicle and rear end crashes were the most common along mid-block sections. There were no recorded crashes on Stephen Street during the period.

2.3 Sustainable Transport Infrastructure

Figure 2.7 shows the subject site in relation to existing public transport routes within its vicinity.

Figure 2.7: Public Transport Map



Based on the above, the site is located within a go-zone, with bus services operating at a minimum 15 minute frequency between 7:30am and 6:30pm Monday to Friday. There are three (3) bus services with different route variations:

- B10, which operates between Magill and West Lakes Interchange via the City;
- H30 which operates between Paradise Interchange and West Lakes Interchange via the City;
- H33 which operates between Rostrevor and Henley Beach via the City;
- Bus Stop 4 on Magill Road is located immediately adjacent site.

2.3.1 Pedestrian Infrastructure

Pedestrian paths are located on both sides of Magill Road, Sydenham Road and Stephen Street adjacent the subject site. The intersection of Magill Road/Sydenham Road is located to the west within 70 metres from the subject site and incorporates signalised pedestrian crossings.

2.3.2 Cycle Infrastructure

Bicycle lanes are provided on the southern and northern side of Magill Road with operation Monday to Friday between 7:30am – 9:00am and 4:30pm – 6:00pm respectively.

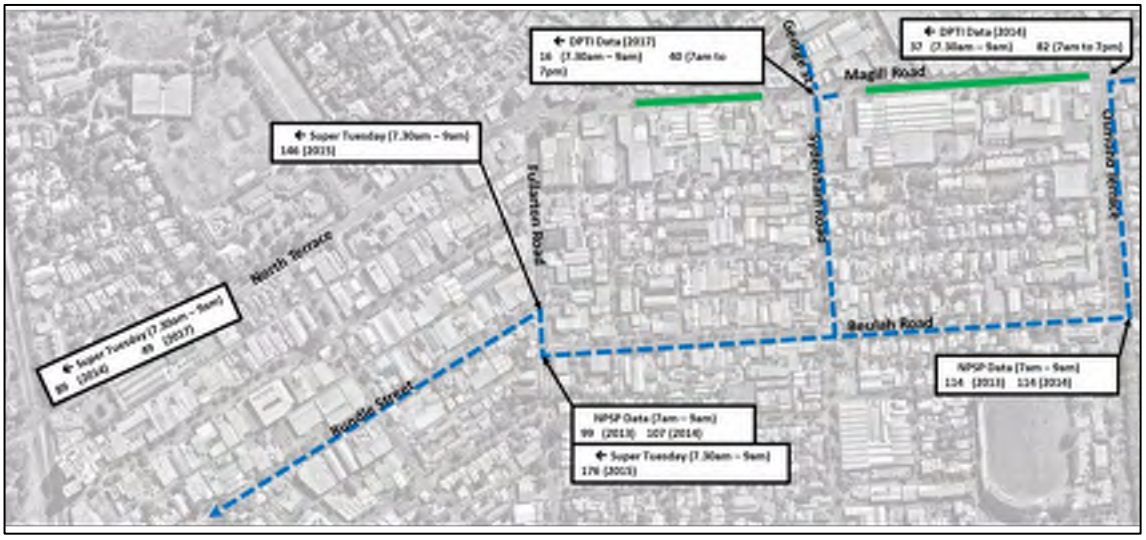
Cycling data was obtained for the following intersections:

- Magill Road / Osmond Terrace / Nelson Street
- Magill Road / Sydenham Road / George Street

The data indicates that in 2014, the AM cycle lane operation period was typically the busiest peak with 38 cyclists travelling in the eastbound direction and a total of 87 cyclists eastbound between 7am and 7 pm. Further data from 2017 recorded 14 cyclists travelling in the eastbound direction during the lane's operational time and a total of 40 cyclists eastbound between 7am and 7 pm. The reduction in cyclists on Magill Road suggests potential redistribution to the Beulah Road route located to the south of Magill Road. This route has been upgraded between Portrush Road and Fullarton Road to provide improved cyclist crossing and lane facilities in various

locations. Beulah Road will be upgraded as a "Bicycle Boulevard" by the City of Norwood Payneham and St Peters in conjunction with DPTI to provide a safe cycling environment between the eastern suburbs and the city. The distribution of bicycle volumes between Magill Road and Beulah Road are shown in Figure 2.8.

Figure 2.8: Cycle Volume Data (2013-2017)



3. Development Proposal

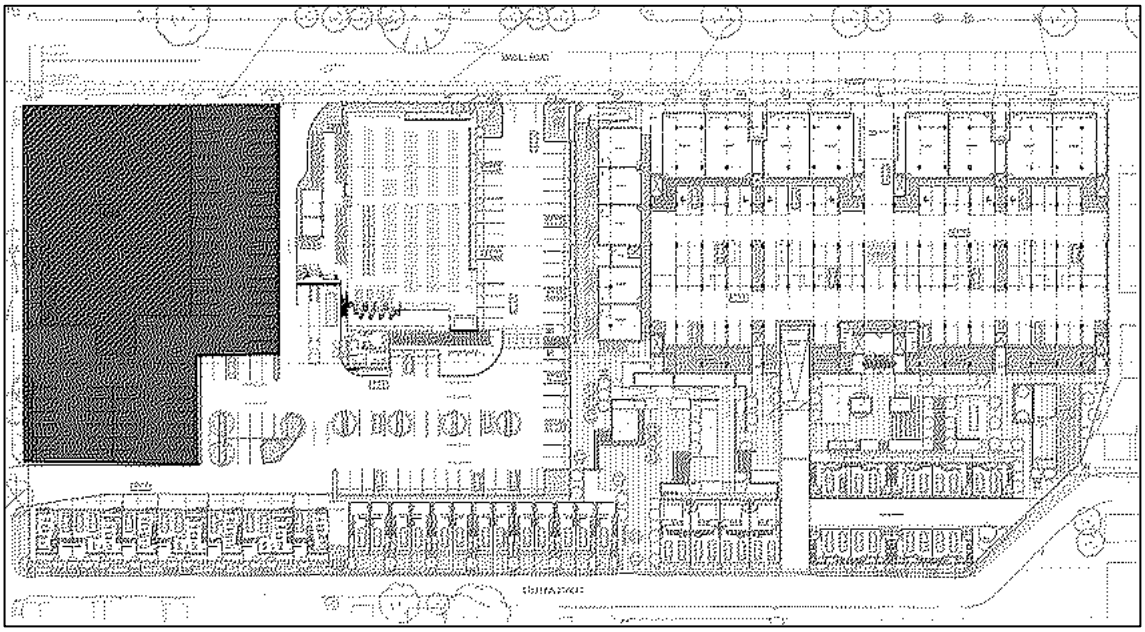
3.1 Land Uses

The proposed development comprises:

- Retail tenancies, including an ALDI store with a total gross floor area of approximately 1,657 sq. m and speciality retail tenancies with a GFLA of 1,300 sq. m.
- 33 townhouses with parking for up to 62 vehicles
- 208 apartments (dwellings)
- Ground level car park with 89 public parking spaces
- Under croft car park with 107 public parking spaces
- Private basement car park with 198 parking spaces
- Community & private open space

The proposed site layout is shown in Figure 3.1.

Figure 3.1: Proposed Site Layout Plan



3.2 Car Parking

The proposed development includes car parking provision as follows:

- ALDI car park– 89 spaces including 2 parking spaces for people with disabilities
- Apartment building car park – 305 spaces including 7 parking spaces for people with disabilities with 107 spaces under croft and 198 spaces in the basement. Approximately 9 spaces in the undercroft car park will be reserved for residential use with the balance of the residential spaces supplied in the basement car park.
- Townhouses – 62 Parking spaces

3.3 Vehicle Access

The following access points have been proposed for the site:

- ALDI car park access point on Magill Road (entry and exit)
- ALDI delivery vehicle access point on Magill Road (entry only)
- Apartment building access point on Magill Road
- ALDI car park and townhouse access to Sydenham Road (entry and exit)
- Residential Apartment Access – Stephen Street (entry and exit)
- Residential Townhouse Access – Stephen Street (entry and exit)
- Residential Town House Access (7 Townhouses) – via ALDI car park Sydenham, Road access (entry and exit)
- Waste Collection Access – Stephen Street (entry and exit)

There are also 17 townhouses which are proposed to have direct access from Stephen Street.

3.4 Pedestrian Access

Access to the site will be available from each frontage being Magill Road, Sydenham Road and Stephen Street.

4. Car Parking

4.1 Development Plan Car Parking Requirements

The Development Plan provides the following rates for parking in the Urban Corridor Zone as per Tables 4.1 to 4.3 below.

Table 4.1: Non-residential development excluding tourist accommodation

Location of development	Desired minimum number of vehicle parking spaces	Maximum number of vehicle parking spaces
All Designated Areas (unless otherwise stated)	3 spaces per 100 square metres of gross leasable floor area	6 spaces per 100 square metres of gross leasable floor area
Urban Corridor Zone	3 spaces per 100 square metres of gross leasable floor area	5 spaces per 100 square metres of gross leasable floor area

Table 4.2: Residential development, in the form of residential flat buildings and residential development in multi-storey buildings

Location of development	Rate for each dwelling based on number of bedrooms per dwelling	Plus, number of required visitor parking spaces
Urban Corridor Zone	1 per studio (no separate bedroom), 1, or 2-bedroom dwelling	0.25 per dwelling

Table 4.3: Row, semi-detached and detached dwellings

Location of development	Number of bedrooms, or rooms capable of being used as a bedroom	Number of required vehicle parking spaces
Urban Corridor Zone	1 or 2 bedrooms	1
	3 + bedrooms	2

Based on the above, a summary of the parking requirements for the proposed land uses is provided in Table 4.4.

Table 4.4: Parking Requirement Summary

Land Use	Minimum Parking Rate	Maximum Parking Rate	Floor Area / Number of Dwellings	Minimum Parking Requirement	Maximum Parking Requirement
Retail (ALDI & Other Tenancies)	3 spaces per 100 square metres of gross leasable floor area	5 spaces per 100 square metres of gross leasable floor area	2,957 sq. m	89	148
Residential Apartments	1 per studio (no separate bedroom), 1, or 2-bedroom dwelling	N/A	72 x 1 BR 136 x 2 BR	208	208
Residential Apartments	Visitor = 0.25 per dwelling	N/A	208	52	52
Townhouses	1 per 1 or 2 bedrooms 2 per 3+ bedrooms	N/A	22 x 2 BR 11 x 3 BR	22 22	22 22
	Total			**393**	**452**

4.2 Parking Analysis

The proposed 208 (72 x 1BR and 136 x 2BR) apartments would require 208 parking spaces and 52 visitor spaces for a total of 260 parking spaces (based on the Development Plan).

The retail tenancies of some 3,000 sq. m across the site would have a minimum requirement of 89 car parking spaces and a maximum provision of 148 car parking spaces based on the Development Plan for non-residential uses. There would be 134 spaces available for the retail uses from the open and undercroft car park which would be within the range specified in the Development Plan for non-residential uses (between 3 and 5 spaces per 100sq.m).

The townhouses will feature garages for their own parking with the proposed supply shown in Table 5:

Table 5: Townhouse Parking Summary

Townhouse Type	Bedrooms	Total Dwellings	Parking Supplied	Parking Required
A1	3	2	2	4
A2	3	3	6	6
A3	3	2	2	4
B	2	13	26	13
C	3	4	8	8
D	2	9	18	9
TOTAL		**33**	**62**	**44**

Visitor parking for the townhouses would be available on Sydenham Road, Stephen Street (in existing parking areas) and the apartment/retail ground level car park.

The townhouses would require 44 residential parking spaces based on the Development Plan, and 62 spaces are proposed in total.

4.3 Adequacy of Parking Supply

The parking available for retail uses on the site will total 134 spaces including the open car park and part of the undercroft car park which would be appropriate for anticipated demands and in accordance with desired minimum and maximum range of parking in the Development Plan.

The apartments will provide 208 parking spaces for residents and 52 spaces for visitors to total 260 parking spaces in accordance with the Development Plan.

Parking for individual townhouses will vary against the Development Plan but overall a total of 62 spaces will be provided.

The total parking available within the development meet the minimum and maximum requirements of the development plan and is therefore considered appropriate.

Furthermore, due to the nature of the mixed-use development, the parking peaks will occur at different times, resulting in a lower occupancy throughout the day. For example, residential parking will peak from the evening through to the morning and the retail will occur during the day and in the early evening.

4.4 Car Parking Layout

The parking layout has been reviewed in accordance with Australian Standard/New Zealand Standard for Off Street Car parking (AS/NZS2890.1:2004 and AS/NZS2890.6:2009).

Some of the key design features are detailed below:

- parking spaces within the ALDI development will be a minimum 2.6m wide and 5.5m long set within a minimum 7.0m wide aisle, which meets the requirements for a User Class 3A parking facility;
- parking spaces for people with disabilities will be a minimum 2.4m wide and 5.4m long, set within a minimum 7.0m wide aisle, with the adjacent associated shared space.
- Parking spaces within undercroft and basement carparks for the apartment building are 2.5 metres wide by 5.4 metres long set within an aisle 6.2 metres wide, which meets the requirements for a User Class 2 parking facility.

In locations where aisles are adjacent walls or other structures, an additional 300 mm clearance will be provided for any type of parking space.

- Seven parking spaces for people with disabilities will be provided in the undercroft car park for retail, residential and visitor use.
- Two parking spaces for people with disabilities will be provided in the ALDI ground level car park.

Further to the above, the grades within the parking area must conform to the following requirements (as per AS/NZS2890.1:2004, AS/NZS2890.6:2009 and AS2890.2:2002):

- Maximum grade of 1 in 20 (5%) across nature strip
- Maximum grade of 1 in 40 (2.5%) across any footpath
- Maximum grade of 1 in 20 (5%) for 15 metres into the site (where commercial vehicles use the driveway)
- A maximum grade of 1 in 6.5 (15.4%) along commercial vehicles circulation roads, the maximum grade shall be 1 in 8 (12.5%) where reverse manoeuvres are required
- A maximum grade of 1 in 20 (5%) measured parallel to the angle of parking
- Maximum grade of 1 in 16 (6.25%) measured in any other direction to the angle of parking.

These requirements will need to be confirmed through detailed design.

4.5 Access

Public Access – Magill Road

Access to the public and car park servicing the retail tenancies and residential apartments will be provided via a two-way crossover on Magill Road. The proposed access will accommodate left and right turns into the site and left turn exits onto Magill Road. A channelised right turn lane has been proposed for Magill Road to ensure right turning traffic is separated from through traffic. This is shown in Figure 4.3.

The access will primarily cater for light vehicles however will also cater for a small volume of commercial traffic requiring loading access for the speciality retail tenancies.

ALDI Access 1 – Eastern Access on Magill Road

A light vehicle entry has been proposed east of the proposed store location. This access point will facilitate left and right turn entry and left turn exit. A channelised right turn lane has been proposed for the access.

ALDI Access 2 – Western Access on Magill Road

The access point west of the proposed store will facilitate ingress movements for trucks only.

Bus Stop 4 on Magill Road will require relocation to between the western and eastern ALDI access on Magill Road to accommodate the installation of the western access

ALDI Access 3 – Access on Sydenham Road

Access to and from Sydenham Road will be provided via the proposed laneway. The proposed carriageway width will be suitable for two-way movements for ALDI traffic and residential traffic from the adjacent townhouses. The access will also facilitate the ALDI delivery vehicle exiting the site to return to Magill Road via Sydenham Road. Seven of the proposed town houses will have garages facing the laneway. These garages will be setback 3 metres to provide improved access and sight lines for vehicles reversing from a garage. This will assist with managing safe access to these garages during peak times of the adjacent uses.

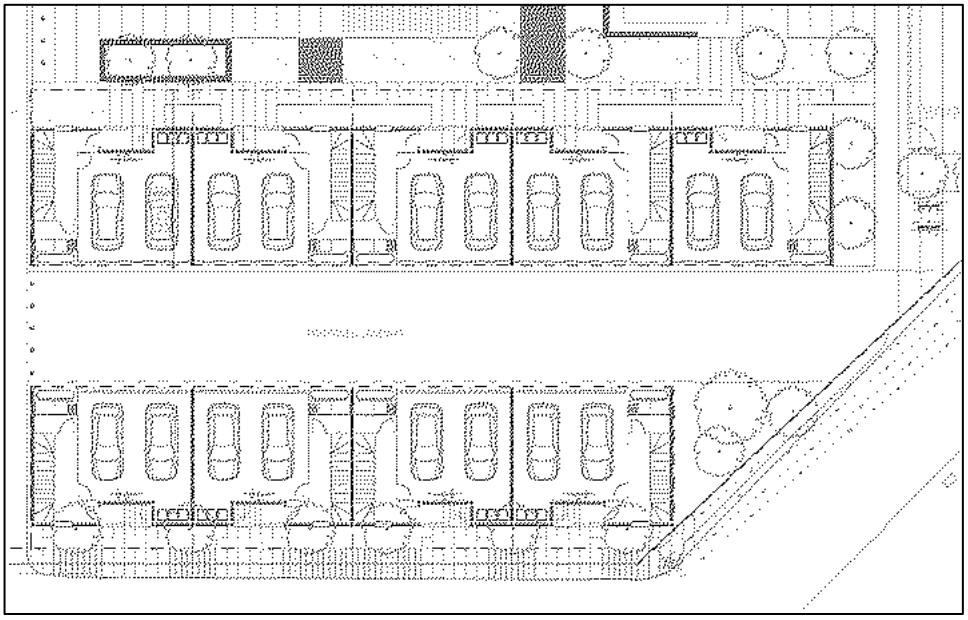
Residential Apartment Driveway – Access on Stephen Street

A residential apartment driveway has been proposed from Stephen Street to the basement car park. It will accommodate two-way traffic. Pedestrian sight lines for the access will be appropriate at its intersection with Stephen Street due to setback of the adjacent buildings.

Residential Townhouse Laneway – Access on Stephen Street

An access for nine (9) townhouse dwellings is proposed onto Stephen Street. The access will be 6.0 metres wide and facilitate two-way traffic to and from Stephen Street. This lane will not enable access to the apartment driveway to the west. A review of the laneway intersection with Stephen Street has been undertaken with minor modifications recommended in Figure 4.1 to ensure separation from the proposed waste collection driveway.

Figure 4.1: Stephen Street – Proposed Townhouse Access

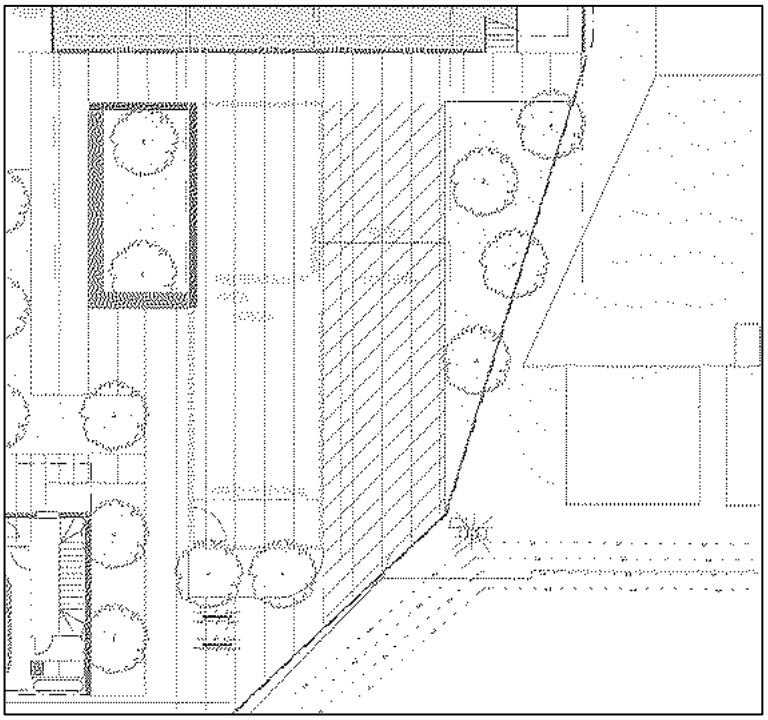


Waste Collection Driveway– Access on Stephen Street

A driveway from Stephen Street is proposed to facilitate refuse collection for a 10.6 metre refuse vehicle. The proposed refuse access is shown in Figure 4.2. Based on rear-loading by this vehicle, the vehicle will reverse into the driveway, and then exit with a forward movement back to Stephen Street. The low volumes on Stephen Street will enable this reverse manoeuvre to be

undertaken safely and efficiently. It is understood this may occur approximately 3 times per week.

Figure 4.2: Stephen Street – Waste Vehicle Access



4.6 Magill Road Access – Proposed Painted Median

The Guide to Road Design Part 4: Intersections and Crossings – General (Austroads, 2017) provides information regarding warrants for the provision of turning treatments at intersections. Figure A.10 (in that Guide) considers the warrants for turn treatments on the major road at unsignalised intersections. It is noted that this figure refers to intersections and is not relevant to access points and driveways.

Notwithstanding, based on Figure A.10 and the traffic volumes at the access in Section A, a channelised right turn lane (CHR) is required. A channelised right turn lane into the ALDI site has been proposed backing onto the right turn lane onto George Street. A full width channelised right turn lane cannot be provided without reducing the capacity of the right turn lane onto George Street. A back-to-back right turn lane has also been provided for the public car park and Stepney Street with a 17.5-metre-long travel lane and 20 metre taper. This will facilitate 3 – 4 vehicle storage and has been designed in accordance with the DPTI Road Design Standard S-4069 'Typical Median Opening Treatment'. Based on the SIDRA Analysis shown provided in Section 8, the 95th percentile storage capacity for right turn movements into the site will not exceed one vehicle. Therefore, the proposed treatment is considered acceptable.

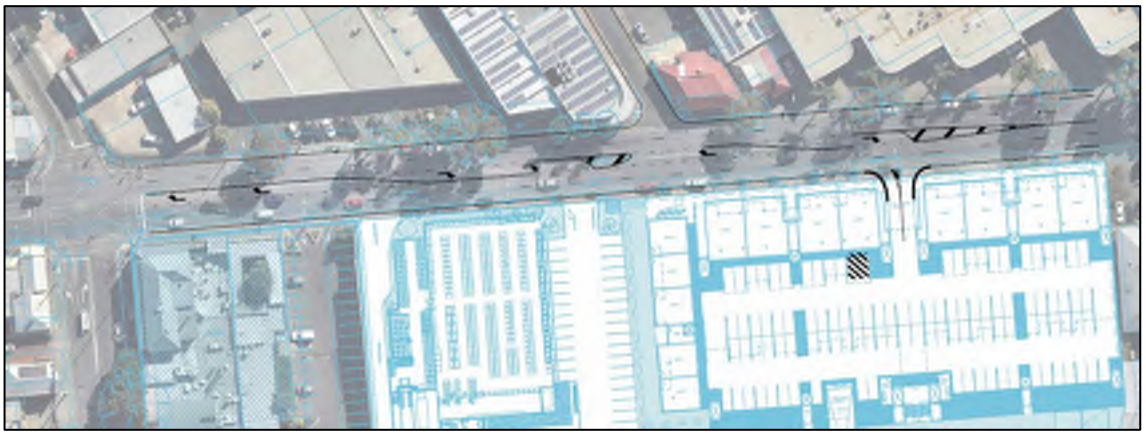
Figure 4.3 illustrates the proposed treatment along Magill Road. It is acknowledged the part-time bicycle lanes along Magill Road will need to be removed to facilitate the median treatment however the bicycle lane presently ends just prior to the Sydenham Road intersection. The actual impact on cycling is considered minor since bicycle lanes to the west on Magill Road are discontinuous and there are no cycling facilities into the city along North Terrace.

Alternative bicycle routes are available (via Beulah Road 300 metres to the south) for safer travel by cyclists not confident enough to contend with sharing the kerbside lane with traffic – the lack

of bicycle lane will not deter the more experienced commuter cyclists using Magill Road. Inexperienced cyclists are able to use the footpath along Magill Road if desired, or preferably divert to Beulah Road for an alternative route.

Cycling data obtained within the vicinity of the site suggests that cycle traffic has redistributed since 2014 as a result of other improvement works to cycle facilities in alternative corridors including Beulah Road as a key cycling corridor between the eastern suburbs and the city.

Figure 4.3: Proposed Right Turn Median Treatment on Magill Road



5. Sustainable Transport Infrastructure

5.1 Bicycle End of Trip Facilities

Bicycle parking rates are set out in Table NPSP/10 of the Norwood, Payneham & St Peters Development Plan for a shop as follows:

Residential component of a multi-storey / residential flat building:

Resident:	*1 for every 2 dwellings*
Visitor :	*1 for every 5 dwellings*

Shop:

Employee:	*1 for every 150 sq. m GLFA*
Shopper :	*1 for every 300 sq. m GLFA*

Application of the above rates to the proposed development will result in a bicycle parking requirement of 104 spaces for residents, 42 spaces for visitors, 20 spaces for employees and 10 spaces for retail.

The proposed development will provide at least 208 bicycle parking spaces in the form of bike racks within each of the apartment dwellings. Communal bicycle storage areas are also provided on the south side of the basement car park.

A bicycle rail will be provided within the ALDI component of the development for customer and staff bicycle parking.

The proposed bicycle parking will generally accord with the demands anticipated by the site and exceed the requirements in the Development Plan.

5.2 Walking Cycling Network

The pedestrian connection between the car park and ALDI Store entrance is suitable. Direct pedestrian access from Magill Road will also be available to the retail tenancies and apartments.

To facilitate the provision of right turn lanes on Magill road into the site, the cycle lane on either side of Magill Road will require removal within the vicinity of the site due to road width constraints. It is estimated that approximately 180 metres of cycle lane will require removal.

5.3 Public Transport

The site is accessible by public transport as discussed in Section 2.3.

As outlined in Section 4.5, Bus Stop 4 is located immediately adjacent to the site and is proposed to be relocated to between the eastern and western ALDI access to facilitate construction of the western ALDI access on Magill Road.

Agreement with DPTI will be sought for the relocation of the bus stop.

6. Loading Facilities

6.1 Proposed Loading Arrangements

6.1.1 ALDI Store

A loading area is proposed to be located adjacent the building at the western side of the site, with entry proposed via Magill Road and egress proposed via Sydenham Road. The loading dock will be provided in accordance with ALDI's standard detail. A bin store will also be located in the loading dock area. GTA understands ALDI deliveries will be made using vehicles up to 19.0 metre semi-trailers and will require approximately 2 deliveries per day. A swept path analysis has been carried out to assess the adequacy of the proposed loading arrangements for a semi-trailer.

Figure 6.1considers a 19.0 metre semi-trailer turning left from Magill Road, straightening and reversing into the loading dock.

Figure 6.2 shows the 19.0 metre semi-trailer exiting the site onto Sydenham Road via the proposed laneway.

Figure 6.1: Site Ingress – 19.0m Semi Trailer

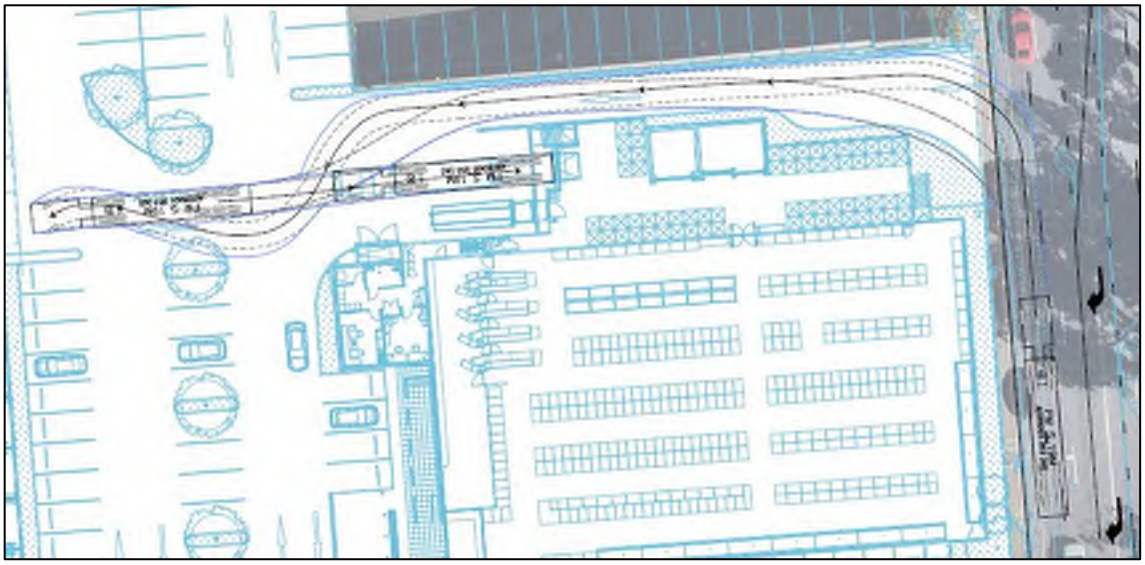
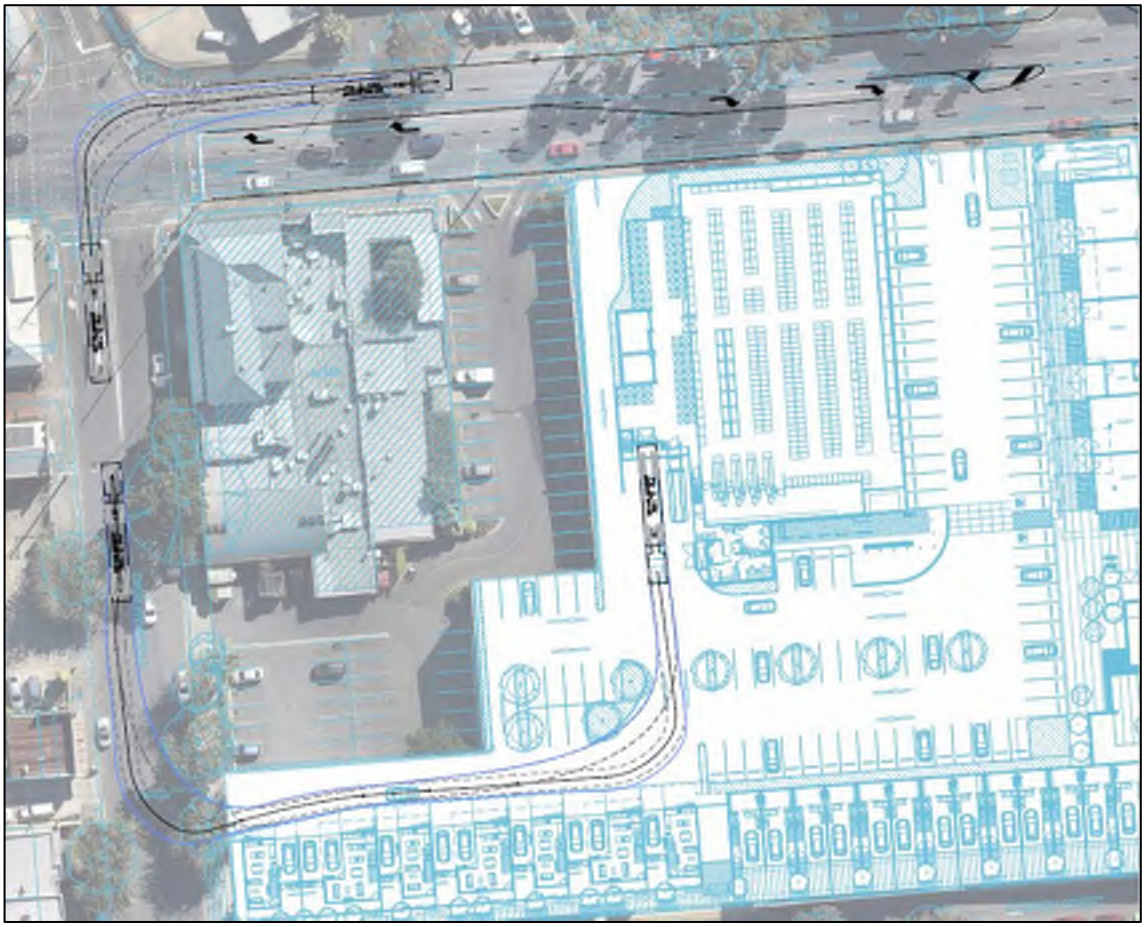


Figure 6.2: Site Egress – 19.0m Semi Trailer



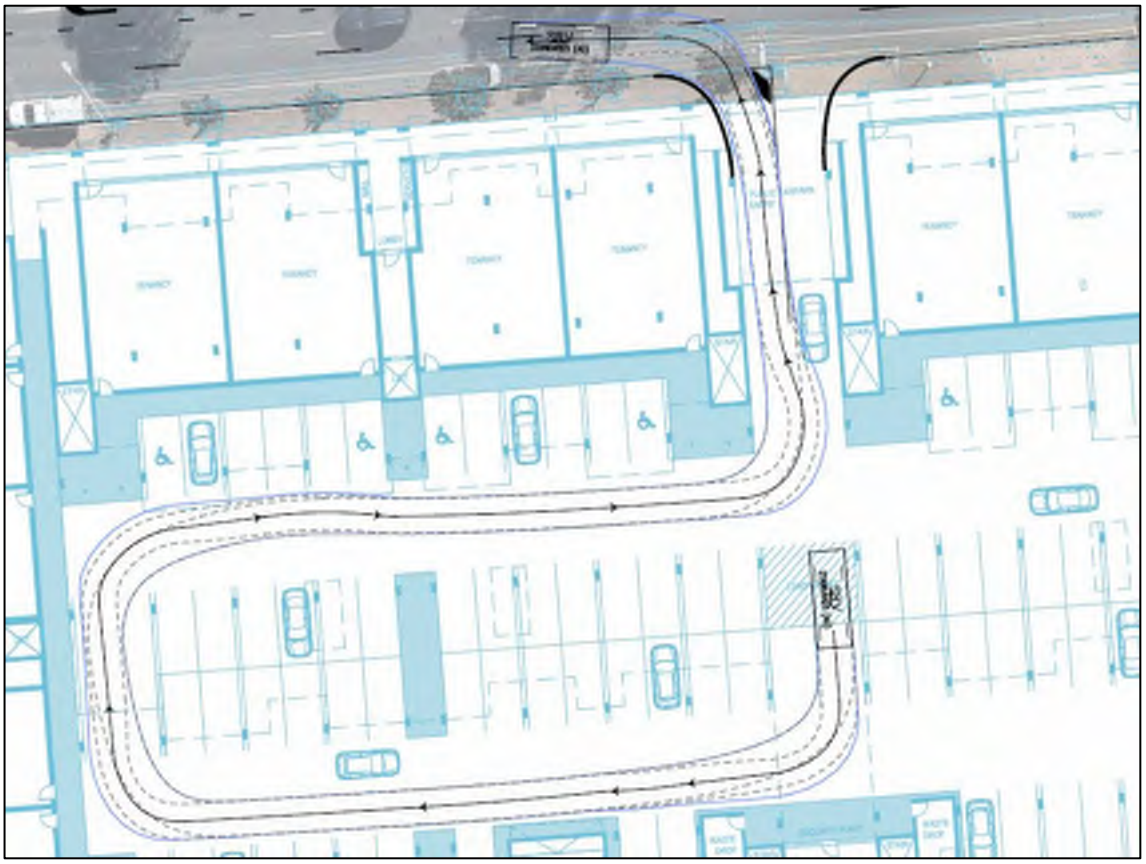
It is noted that the site has been designed for access by 20.0 metre semi-trailers for deliveries to the ALDI Store. These vehicles may be used in the future based on approval of access routes when required subject to necessary approvals and/or permits. Magill Road is currently an approved route for PBS Level 1A vehicles (up to 20 metres) whilst Sydenham Road would require a route to be approved if required.

6.1.2 Retail Tenancies Deliveries

Deliveries for the retail tenancies will take place by vehicles up to a 6.4 metre Small Rigid Vehicle (SRV). Entry and exit will occur via Magill Road as shown in Figure 6.3 and **Figure 6.4**respectively. Minor kerb modifications and line marking changes will be made to the access to ensure simultaneous movements will be maintained.

Figure 6.3: Retail Tenancy – SRV Entry

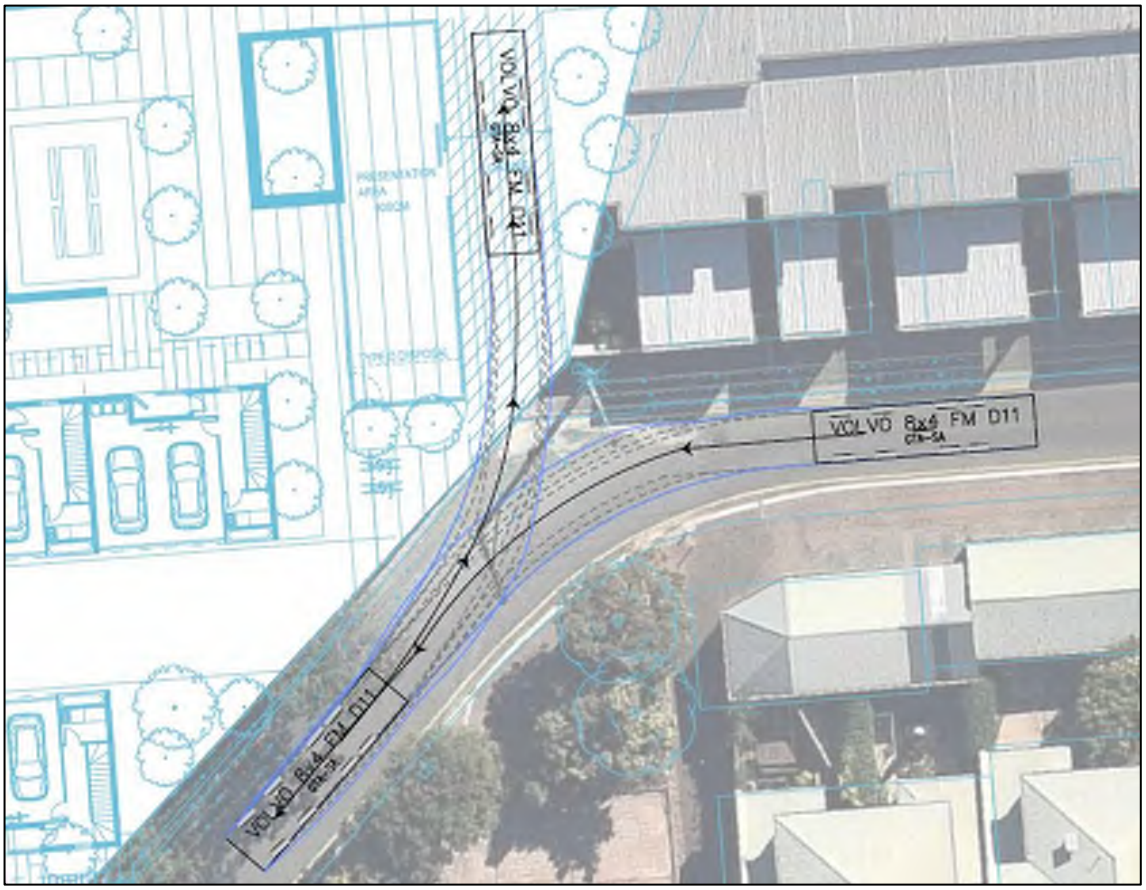
Figure 6.4: Retail Tenancy – SRV Exit



6.1.3 Residential Apartment and Retail Waste Collection

Waste collection for the residential apartments and retail tenancies will occur at the south-east corner of the site, with entry and exit proposed via Stephen Street. Collection will occur by vehicles up to 10.6 metre refuse vehicle with entry occurring via a reverse manoeuvre from Stephen Street. The truck will then exit in a forward direction westbound along Stephen Street as shown in as shown in Figure 6.5. The driveway will be designed to ensure there is suitable sight distance along Stephen Street and adequate separation from the adjacent access servicing the townhouses. The low volume of traffic on Stephen Street will facilitate safe and efficient access.

Figure 6.5: Waste Collection – 10.6 Metre Refuse Vehicle



6.1.4 ALDI Waste Collection

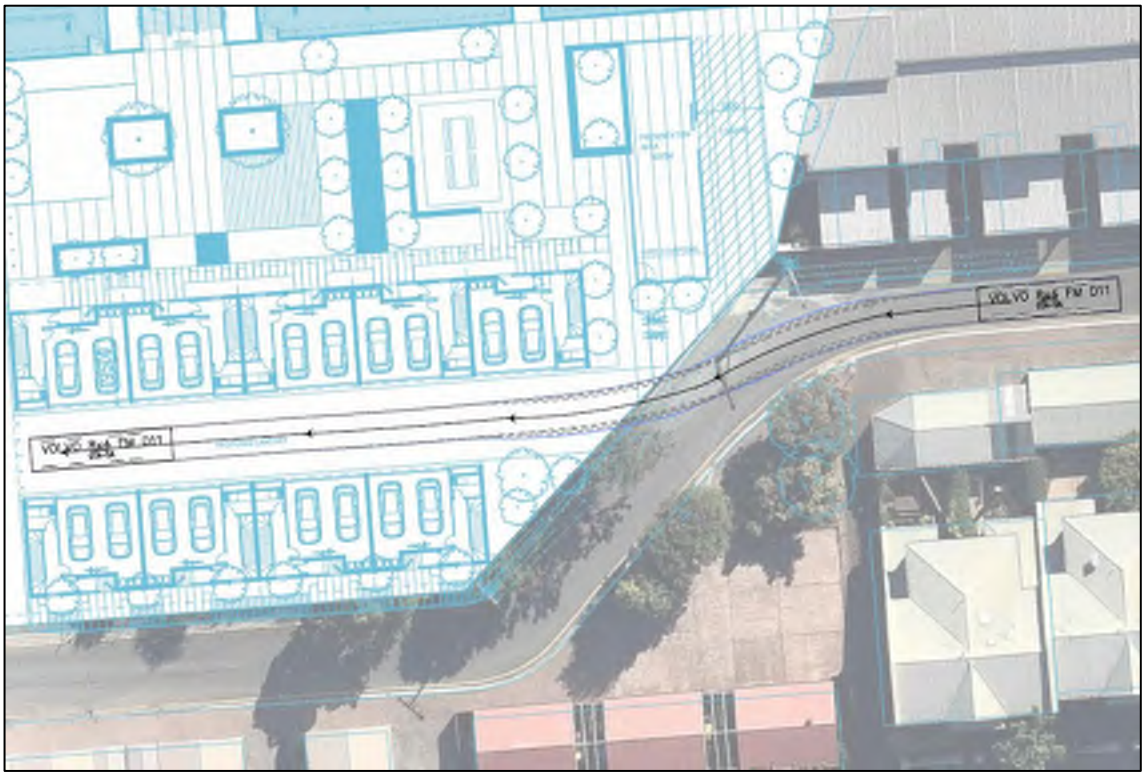
Waste collection vehicles for ALDI will be via the proposed loading dock, using the same routes and manoeuvres as the delivery vehicles shown in Figures 6.1 and 6.2 The vehicles would be a typical commercial waste collection vehicles up to 10.6 metres in length. No turn paths are shown for this vehicle given it has been designed for up to 20.0 metre vehicles. These vehicles would access the ALDI site on generally a weekly basis.

6.1.5 Kerbside Collection

Townhouse refuse collection will be via kerbside collections which will require parking restrictions or marked bin placement areas to be provided along Stephen Street, Sydenham Street and the Sydenham Street access lane into the ALDI car park.

Kerb side refuse collection will also be provided for the townhouses at the east side of the site, located on the north side of the proposed access lane. A 10.6 metre refuse vehicle can enter into the access lane in a forward direction, collect refuse then reverse back onto Stephen Street. The turn path for refuse collection from the access lane is shown in Figure 6.6.

Figure 6.6: Turn path for refuse collection from the access lane



7. Traffic Impact Assessment

7.1 Traffic Generation

7.1.1 Design Rates

An estimate of the traffic generated by the proposed development was made with reference to the RMS Guide to Traffic Developments – Updated Surveys (2013) and empirical data collated by GTA for ALDI sites.

Traffic generation rates for each development have been summarised in Table 7.1.

Table 7.1: Traffic Generation Rates

Use	Quantity	Peak Trip Rate	AM Peak Trips	PM Peak Trips	Daily Trip Rate	Daily Trips
Apartments	208	0.5 trips per dwelling	104	104	5 trips per dwelling	1,040
Townhouses	33	0.6 trips per dwelling	20	20	6 trips per dwelling	198
Retail Tenancy	1,300 sq. m	10 trips per 100 sq. m	13	130	100 trips per 100 sq. m	1,300
ALDI	1,657 sq. m	15 trips per 100 sq. m	25	249	150 trips per 100 sq. m	2,486
TOTAL			**162**	**503**		**5,024**

Based on the above, the site will generate in the order of 500 trips during the PM peak hour and 5,024 daily trips. The AM peak hour would be much less with 162 trips anticipated consisting mostly of residential trips.

7.1.2 Distribution and Assignment

The directional distribution and assignment of traffic generated by the proposed development will be influenced by a number of factors, including the:

i configuration of the arterial road network in the immediate vicinity of the site;
ii existing operation of intersections providing access between the local and arterial road network;
iii distribution of households in the vicinity of the site;
iv configuration of access points to the site.

It is assumed that all apartment residents will park in the basement car park which would cater for these trips via the rear driveway to Stephen Street.

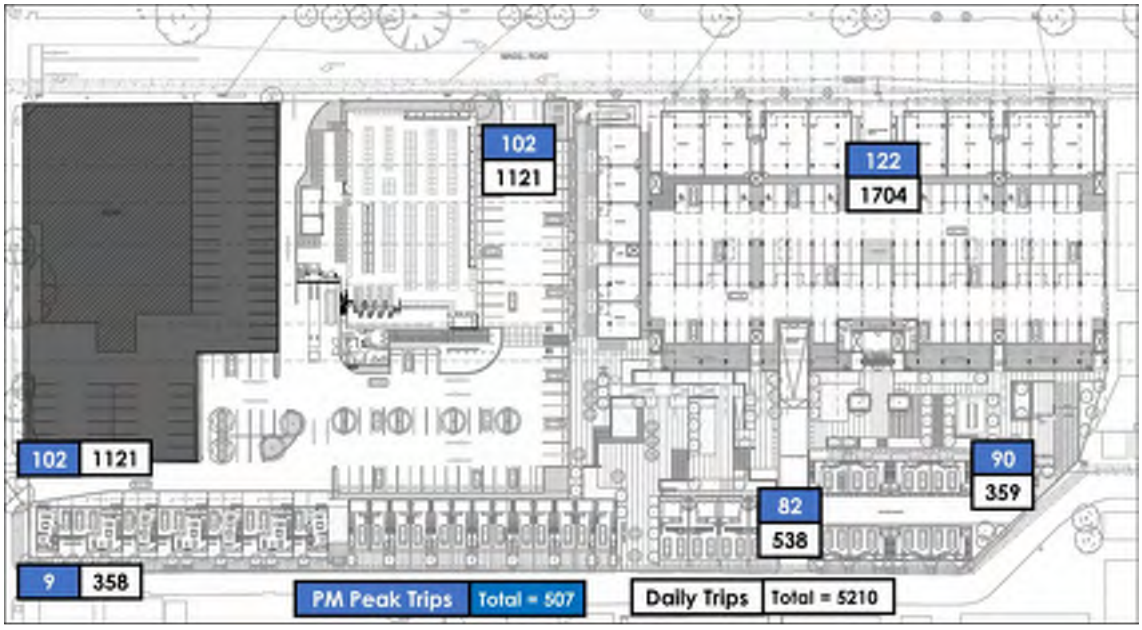
The Magill Road driveway for the apartment/retail would cater for retail trips and visitors to the apartments.

There would be some reduction in traffic volumes due to linked trips (i.e. trips associated with more than one land use on the site), but these have not been considered in the assessment. It is likely that linked trips would be in the order of 10 to 20% but will depend on the actual retail uses proposed on the site.

A passing trade discount would also apply based on traffic already on Magill Road and, in particular, accessing the ALDI store (but has not been considered within the review and as such the analysis presents a "worst case" scenario).

The peak hour and daily traffic volumes for each access is shown in Figure 7.1.

Figure 7.1: Distribution of Daily and PM peak Hour Trips Between Accesses



Based on the above, Figure 7.2 has been prepared to show the additional development generated traffic movements on the surrounding network and Figure 7.3 shows the total network traffic post development.

Figure 7.2: Development Generated Traffic Movements

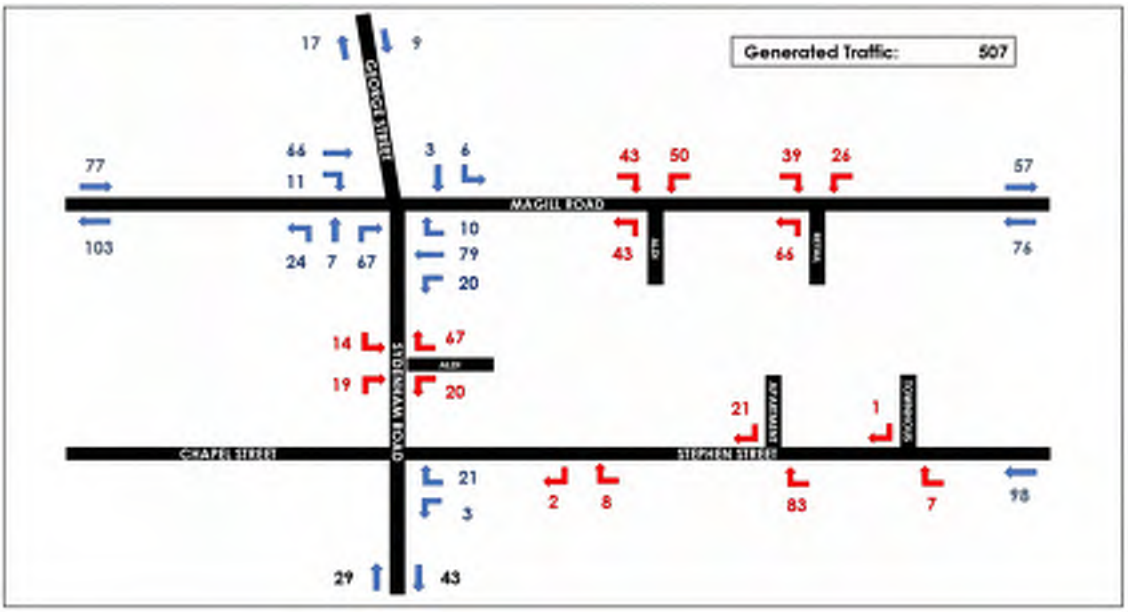
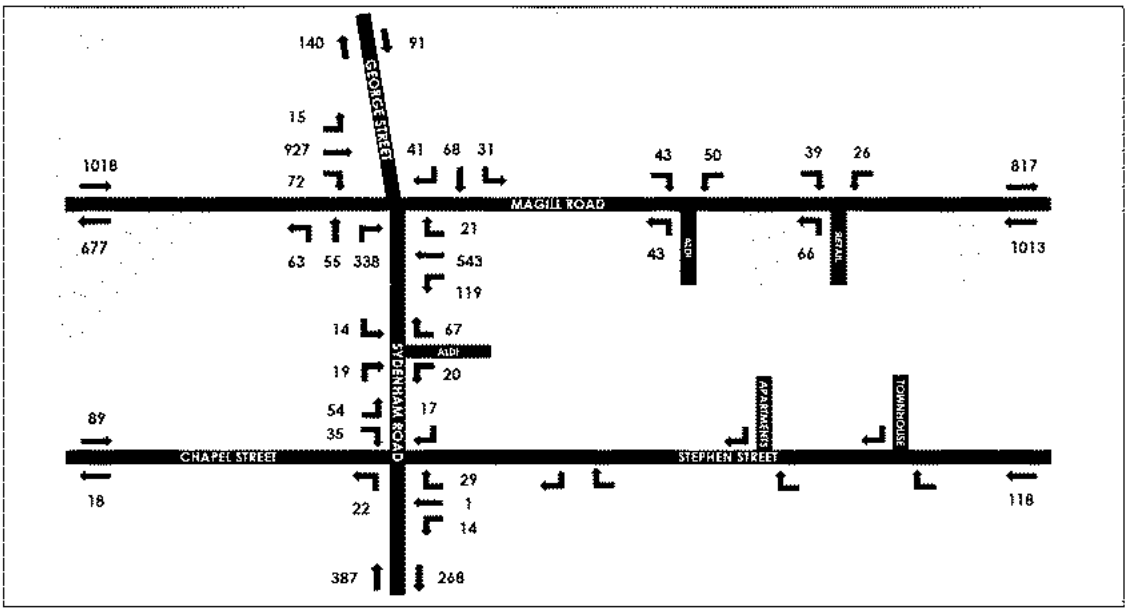


Figure 7.3: Total Traffic Volume Post Development



7.2 Traffic Impact

GTA has undertaken an analysis of the development accesses and surrounding intersections pre and post development. The results are presented in the following sections.

7.2.1 Sydenham Road, Magill Road and George Street

An analysis of the existing traffic at the intersection of Sydenham Road, Magill Road and George Street Intersection is shown in Figure 7.4.

Figure 7.4: SIDRA Results: Sydenham Street, Magill Road and George Street – Existing Traffic

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Sydenham Road											
1	L2	41	2.4	0.178	44.0	LOS D	4.4	31.3	0.80	0.69	35.3
2	T1	51	2.4	0.178	38.5	LOS D	4.4	31.3	0.80	0.69	35.9
3	R2	285	2.4	0.582	49.5	LOS D	15.6	111.3	0.92	0.83	32.7
Approach		377	2.4	0.582	47.4	LOS D	15.6	111.3	0.89	0.80	33.4
East: Magill Road											
4	L2	104	4.1	0.353	28.4	LOS C	11.9	86.2	0.68	0.65	41.7
5	T1	488	4.1	0.353	23.4	LOS C	11.9	86.2	0.68	0.62	42.9
6	R2	12	4.1	0.071	45.1	LOS D	0.6	4.1	0.78	0.70	33.7
Approach		604	4.1	0.353	24.7	LOS C	11.9	86.2	0.68	0.62	42.5
North: George Street											
7	L2	26	3.2	0.556	63.5	LOS E	8.3	60.0	0.99	0.80	29.6
8	T1	68	3.2	0.556	57.9	LOS E	8.3	60.0	0.99	0.80	30.1
9	R2	43	3.2	0.556	63.5	LOS E	8.3	60.0	0.99	0.80	29.6
Approach		138	3.2	0.556	60.7	LOS E	8.3	60.0	0.99	0.80	29.9
West: Magill Road											
10	L2	16	4.4	0.584	32.5	LOS C	23.3	169.6	0.79	0.71	40.6
11	T1	906	4.4	0.584	26.5	LOS C	23.3	169.6	0.77	0.69	41.8
12	R2	64	4.4	0.215	36.6	LOS D	2.8	20.6	0.73	0.74	36.9
Approach		986	4.4	0.584	27.2	LOS C	23.3	169.6	0.77	0.69	41.4
All Vehicles		2105	3.9	0.584	32.3	LOS C	23.3	169.6	0.78	0.70	39.0

The results show that the intersection is operating at Level of Service (LOS) C with a degree of saturation (DOS) of 0.584. This is well within accepted performance criteria. The average delay through the intersection is approximately 32 seconds and the 95th percentile back of queue is approximately 170 metres.

An analysis was undertaken for the intersection incorporating development traffic for the ALDI and mixed-use portions of the development. The results of the analysis are shown in Figure 7.5.

Figure 7.5: SIDRA Results: Sydenham Street, Magill Road and George Street – Post Development Traffic

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Sydenham Road											
1	L2	66	2.4	0.223	42.3	LOS D	5.9	41.9	0.80	0.71	35.7
2	T1	58	2.4	0.223	36.7	LOS D	5.9	41.9	0.80	0.71	36.4
3	R2	356	2.4	0.668	48.7	LOS D	19.7	140.7	0.94	0.85	32.9
Approach		480	2.4	0.668	46.3	LOS D	19.7	140.7	0.90	0.81	33.7
East: Magill Road											
4	L2	125	4.1	0.441	30.9	LOS C	15.5	112.2	0.73	0.69	40.6
5	T1	572	4.1	0.441	25.6	LOS C	15.5	112.2	0.73	0.66	41.8
6	R2	22	4.1	0.167	52.8	LOS D	1.2	8.7	0.85	0.73	31.5
Approach		719	4.1	0.441	27.4	LOS C	15.5	112.2	0.73	0.66	41.2
North: George Street											
7	L2	33	3.2	0.632	65.2	LOS E	9.1	65.4	1.00	0.81	29.2
8	T1	72	3.2	0.632	59.6	LOS E	9.1	65.4	1.00	0.81	29.6
9	R2	43	3.2	0.632	65.2	LOS E	9.1	65.4	1.00	0.81	29.2
Approach		147	3.2	0.632	62.5	LOS E	9.1	65.4	1.00	0.81	29.4
West: Magill Road											
10	L2	16	4.4	0.667	35.3	LOS D	27.6	200.7	0.85	0.76	39.4
11	T1	976	4.4	0.667	28.9	LOS C	27.6	200.7	0.82	0.73	40.7
12	R2	76	4.4	0.311	41.8	LOS D	3.7	26.8	0.79	0.77	35.0
Approach		1067	4.4	0.667	29.9	LOS C	27.6	200.7	0.82	0.73	40.2
All Vehicles		2414	3.8	0.668	34.4	LOS C	27.6	200.7	0.82	0.73	38.1

The results show that the intersection would continue to operate at LOS C post development. There is a slight increase in the DOS to from 0.584 to 0.668. Notwithstanding, the intersection will continue to operate below capacity. There is an increase in the average delay (2.1 seconds) and 95th percentile queue (31 metres. Notwithstanding, the intersection would continue to operate well within acceptable performance criteria and the impact of the development is considered low.

7.2.2 Sydenham Road / Stephen Street

The results of the analysis of existing traffic conditions at the intersection of Sydenham Road and Stephen Street are shown in Figure 7.6.

Figure 7.6: SIDRA Results: Sydenham Road and Stephen Street – Existing Traffic

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Sydenham Road											
1	L2	23	0.0	0.162	5.6	LOS A	0.0	0.0	0.00	0.04	58.0
2	T1	319	0.0	0.162	0.0	LOS A	0.0	0.0	0.00	0.04	59.6
Approach		342	0.0	0.162	0.4	NA	0.0	0.0	0.00	0.04	59.5
East: Stephen Street											
4	L2	12	0.0	0.025	6.2	LOS A	0.1	0.6	0.36	0.60	52.2
5	T1	1	0.0	0.025	7.4	LOS A	0.1	0.6	0.36	0.60	52.6
6	R2	8	0.0	0.025	9.2	LOS A	0.1	0.6	0.36	0.60	52.0
Approach		21	0.0	0.025	7.5	LOS A	0.1	0.6	0.36	0.60	52.1
North: Sydenham Road											
8	T1	212	0.0	0.114	0.2	LOS A	0.2	1.1	0.09	0.05	59.2
9	R2	18	0.0	0.114	6.8	LOS A	0.2	1.1	0.09	0.05	57.6
Approach		229	0.0	0.114	0.7	NA	0.2	1.1	0.09	0.05	59.1
West: Chapel Street											
10	L2	57	0.0	0.108	6.7	LOS A	0.4	2.8	0.43	0.67	52.0
12	R2	37	0.0	0.108	9.4	LOS A	0.4	2.8	0.43	0.67	52.0
Approach		94	0.0	0.108	7.7	LOS A	0.4	2.8	0.43	0.67	52.0
All Vehicles		686	0.0	0.162	1.7	NA	0.4	2.8	0.10	0.15	58.0

The results show that the intersection would operate at LOS A and low DOS (0.162). The average delay through the intersections is only 2 seconds and the 95th percentile queue is approximately 3 metres.

Figure 7.7: SIDRA Results: Sydenham Road and Stephen Street – Post Development Traffic

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Sydenham Road											
1	L2	23	0.0	0.192	5.6	LOS A	0.0	0.0	0.00	0.03	58.0
2	T1	384	0.0	0.192	0.0	LOS A	0.0	0.0	0.00	0.03	59.7
Approach		407	0.0	0.192	0.3	NA	0.0	0.0	0.00	0.03	59.6
East: Stephen Street											
4	L2	15	0.0	0.077	6.5	LOS A	0.3	1.8	0.49	0.73	50.7
5	T1	1	0.0	0.077	8.7	LOS A	0.3	1.8	0.49	0.73	51.1
6	R2	31	0.0	0.077	11.0	LOS B	0.3	1.8	0.49	0.73	50.7
Approach		46	0.0	0.077	9.5	LOS A	0.3	1.8	0.49	0.73	50.7
North: Sydenham Road											
8	T1	282	0.0	0.153	0.2	LOS A	0.2	1.6	0.10	0.05	59.2
9	R2	23	0.0	0.153	7.3	LOS A	0.2	1.6	0.10	0.05	57.6
Approach		305	0.0	0.153	0.8	NA	0.2	1.6	0.10	0.05	59.0
West: Chapel Street											
10	L2	57	0.0	0.125	7.0	LOS A	0.4	3.1	0.49	0.71	51.4
12	R2	37	0.0	0.125	11.0	LOS B	0.4	3.1	0.49	0.71	51.4
Approach		94	0.0	0.125	8.5	LOS A	0.4	3.1	0.49	0.71	51.4
All Vehicles		853	0.0	0.192	1.9	NA	0.4	3.1	0.12	0.15	57.8

The results show post development, the intersection broadly would remain at LOS A. The right turn movements on Stephen Street and Chapel Street are LOS B however this is considered satisfactory. The average delay through the intersection remains 2 seconds and the 95th percentile queue remains approximately 3 metres. The development therefore appears to have a minimal impact on the intersection.

7.2.3 Sydenham Road Laneway

The results of the analysis of the intersection of Sydenham Road and the proposed laneway is shown in Figure 7.8.

Figure 7.8: SIDRA Results: Sydenham Road Laneway

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Sydenham Road											
2	T1	384	2.4	0.199	0.1	LOS A	0.2	1.3	0.05	0.03	59.1
3	R2	20	0.0	0.199	6.7	LOS A	0.2	1.3	0.05	0.03	58.2
Approach		404	2.3	0.199	0.4	NA	0.2	1.3	0.05	0.03	59.1
East: ALDI Access											
4	L2	21	0.0	0.125	6.4	LOS A	0.4	2.9	0.47	0.73	51.4
6	R2	71	0.0	0.125	9.2	LOS A	0.4	2.9	0.47	0.73	30.4
Approach		92	0.0	0.125	8.5	LOS A	0.4	2.9	0.47	0.73	35.3
North: Sydenham Road											
7	L2	15	0.0	0.134	5.1	LOS A	0.0	0.0	0.00	0.03	56.8
8	T1	264	2.4	0.134	0.0	LOS A	0.0	0.0	0.00	0.03	59.5
Approach		279	2.3	0.134	0.3	NA	0.0	0.0	0.00	0.03	59.4
All Vehicles		775	2.0	0.199	1.3	NA	0.4	2.9	0.08	0.11	54.3

Based on the above the intersection would operate at LOS A with a low DOS of 0.198. The average delay is approximately 1 second and the 95th percentile back of queue is approximately 3 metres. The intersection is therefore considered to operate satisfactorily.

7.2.4 Magill Road Western (ALDI Car Park) Access

The results of the analysis of the intersection of Magill and the ALDI car park access is shown in Figure 7.9

Figure 7.9: SIDRA Results: Magill Road Western (ALDI Car Park) Access

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: ALDI Access											
1	L2	45	0.0	0.058	8.1	LOS A	0.2	1.4	0.48	0.70	47.5
Approach		45	0.0	0.058	8.1	LOS A	0.2	1.4	0.48	0.70	47.5
East: Magill Road											
4	L2	53	0.0	0.291	5.6	LOS A	0.0	0.0	0.00	0.06	57.8
5	T1	1039	4.1	0.291	0.0	LOS A	0.0	0.0	0.00	0.03	59.5
Approach		1092	3.9	0.291	0.3	NA	0.0	0.0	0.00	0.03	59.4
West: Magill Road											
11	T1	901	4.1	0.399	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
12	R2	45	0.0	0.122	14.6	LOS B	0.4	2.9	0.77	0.90	41.4
Approach		946	3.9	0.399	0.7	NA	0.4	2.9	0.04	0.04	58.7
All Vehicles		2083	3.8	0.399	0.7	NA	0.4	2.9	0.03	0.05	58.8

Based on the above the intersection would primarily operate at LOS A (right turn movement into ALDI will operate at LOS B) with a low DOS of 0.399. The average delay is approximately 1 second and the 95th percentile back of queue is approximately 3 metres. The intersection is therefore considered to operate satisfactorily.

7.2.5 Magill Road Eastern (Residential Building) Access

The results of the analysis of the intersection of Magill and the proposed eastern access point is shown in Figure 7.10.

Figure 7.10: SIDRA Results: Magill Road Eastern (Residential Building) Access

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Residential Access											
1	L2	69	0.0	0.091	8.3	LOS A	0.3	2.2	0.49	0.73	48.4
Approach		69	0.0	0.091	8.3	LOS A	0.3	2.2	0.49	0.73	48.4
East: Magill Road											
4	L2	27	0.0	0.284	5.6	LOS A	0.0	0.0	0.00	0.03	58.0
5	T1	1039	4.1	0.284	0.0	LOS A	0.0	0.0	0.00	0.01	59.7
Approach		1066	4.0	0.284	0.2	NA	0.0	0.0	0.00	0.02	59.7
West: Magill Road											
11	T1	860	4.1	0.381	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
12	R2	41	0.0	0.106	14.1	LOS B	0.4	2.6	0.75	0.90	43.2
Approach		901	3.9	0.381	0.7	NA	0.4	2.6	0.03	0.04	58.9
All Vehicles		2037	3.8	0.381	0.7	NA	0.4	2.6	0.03	0.05	58.9

Based on the above the intersection will primarily operate at LOS A (right turn movement into under croft car park will operate at LOS B) with a low DOS of 0.381. The average delay is approximately 1 second and the 95th percentile back of queue is approximately 2.5 metres. The intersection is therefore considered to operate satisfactorily.

The above SIDRA Analysis indicates that all intersections associated within the proposed development will continue to operate at a suitable Level of Service (LOS). While the intersections can expect an increase in the average queue length and delay, this will only be minor.

8. Conclusion

Based on the analysis and discussions presented within this report, the following conclusions are made:

i The proposed development generates a minimum parking requirement of 393 spaces and a maximum requirement of 452 spaces in accordance with the Development Plan for the combined land uses proposed for the site.

ii The parking available for retail uses on the site will total 134 spaces and is in accordance with desired minimum and maximum range of parking in the Development Plan.

iii The apartments will provide a total of 260 parking spaces in accordance with the Development Plan.

iv Parking for individual townhouses will vary against the Development Plan but overall a total of 62 spaces will be provided.

v The provision of parking will be suitable to cater for typical demands associated with retail and residential uses in a mixed use development, and in a location where public transport, walking and cycling will provide transport modes instead of catering for unsustainable private vehicle only travel.

vi The proposed parking layout is consistent with the dimensional requirements as set out in the Australian/New Zealand Standards for Off Street Car Parking (AS/NZS2890.1:2004 and AS/NZS2890.6:2009) for a Class 2 and Class 3A facility.

vii The proposed development plan generates a bicycle parking requirement of 176 spaces.

viii The development will provide at least 208 bicycle parking spaces for residents in the form of a bike rack in each apartment and at least a further 8 bicycle parking spaces within the outdoor public spaces and a cycle rail will be provided within the ALDI car park. Secure communal bicycle storage will be provided on the southern side of the basement car park.

ix A loading area for the ALDI store is proposed on the western side of the building. A 19m semi-trailer can enter the site in a forward direction via a dedicated access on Magill Road for delivery vehicles, reverse into the loading bay and then exit the site in a forward direction onto Sydenham Road. After 10pm, delivery vehicles can exit in a forward direction back out onto Magill Road through the eastern ALDI access.

x Construction of the western ALDI access on Magill Road will require Bus Stop 4 to be relocated between the eastern and western ALDI accesses.

xi Loading for the retail tenancies will be undertaken by vehicles up to a 6.4 metre SRV. Delivery vehicles can enter the under-croft car park in a forward direction, access the loading bay and exit the car park in a forward direction.

xii Refuse collection will occur at the south-east corner of the site via Stephen Street using up to a 10.6 metre refuse vehicle. The vehicle will reverse into the site refuse collection area, collect refuse and then exit onto Stephen Street in a forward direction.

xiii Kerbside refuse collection for the townhouses will require parking restrictions or marked bin storage areas to be provided on Stephen Street, Sydenham Street and the ALDI car park access lane from Sydenham Street, to facilitate refuse collection.

xiv The site is expected to generate in total 500 trips per hour during the PM peak period. The AM period would be much less with 162 trips anticipated consisting mostly of residential trips with the retail uses not generating very much traffic at this time.

xv The intersections adjacent the site have been modelled using SIDRA Intersection 7.0. The outputs from the results confirm that all intersections would operate at a suitable level of Service with average queue lengths and delays within acceptable limits. The existing Magill Road/Sydenham Road/George Street Intersection will maintain the same level of service with marginal increases in the average delay and 95th percentile queue length.

xvi The impact on the adjacent road network will be minor based on the anticipated traffic generation of the site and proposed median treatment on Magill Road.

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76 Magill Rd Mixed Use Residential (High-density) Development

Waste Management Plan

Prepared for: Buildtec

16 August 2018

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- IMPORTANT NOTES -

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Document verification

Description	76 Magill Rd Mixed Use Residential (High-density) Development		
Version	FINAL DRAFT (Amended per Client instructions)		
Issued	16/8/2018		
Verification	Prepared by	Checked by	Approved by
Name	C. Colby	Client	C Colby
Signature			

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Contents

Contents 1
1 Introduction 2
2 Development Description 2
3 Stakeholder Engagement 5
4 Waste & Recycling Service Provision 7
5 Waste & Recycling Volumes 7
6 Waste Management System 9
6.1 Waste Storage Area(s) 9
6.2 System Operation 16
6.3 Collection & Traffic Issues 24
6.4 Bin cleaning (& On-site Bin Wash Area) 25
6.5 Transfer pathways 25
6.6 Operation, Management & Communication 26
6.7 Other Waste System Design or Management Issues 27
7 References 28

1 Introduction

This document presents a waste management plan (WMP) for the 76 Magill Rd Mixed Use Residential (High-density) Development (the "Development"). The Developer is Buildtec, Project Architect is Tectvs, and Traffic Engineer is GTA Consultants.

The scope of this WMP is the mixed-use residential component of the site excluding proposed Aldi supermarket – see Section 2 below.

The WMP explains how the Development can manage waste effectively to achieve regulatory requirements and desired design and operating objectives, including those recommended by the South Australian Better Practice Guide (State Guideline) (Zero Waste SA, 2014) and Council expectations for waste management in these types of development. The WMP should be read in conjunction with other planning approval documentation for the Development referenced herein.

2 Development Description

The Development would be in the City of Norwood, St Peters & Payneham (Council). Per plans provided (Drawing No. PA-01 and PA-01A, issued July 2018 by Tectvs; and 76 Magill Rd Development Report issued by Buildtec (undated)), the Development is on a *ca.* 20,000m^2 site – see Figure 1 overleaf – bounded by Magill Rd to the North, the Alma Hotel and Sydenham Rd to the West, Stephen St to the South, and private property(ies) to the East. The Development is expected to be built in three stages as follows (but this is not fixed) and highlighted in Figure 1.

- ***Stage 1 (S1)*** –
  - *Aldi Supermarket (excluded from WMP scope);*
  - *Seven (7) Type A Torrens-titled townhouses facing Stephen St;*
  - *Thirteen (13) Type B Torrens-titled townhouses facing Stephen St;*
- ***Stage 2 (S2)*** –
  - *Three multi-storey (6 levels + Basement) Apartment Buildings A, B & C:*
    - *110 apartments;*
    - *ca. 810m^2 of Ground floor commercial tenancies in Buildings A & B;*
  - *Four (4) Type C Torrens-titled townhouses facing Stephen St;*
- ***Stage 3 (S3)*** –
  - *Two multi-storey (6 levels + Basement) Apartment Buildings D & E:*
    - *88 apartments;*
    - *ca. 470m^2 of Ground floor commercial tenancies in Building D;*
  - *Nine (9) Type D Community-titled townhouses with rear-lane access to car parking.*

The Stage 2 and 3 Apartment Buildings would be built over a common Ground-level podium and Basement car park (and thus would be interconnected by a shared public space on the Level 1 platform).

Table 1 two pages over summarises the Development's land use metrics (used for waste system design) (excluding the Aldi Supermarket). *Table 1 includes the recommended Waste Resource Generation Rate (WRGR) classification (for each land use) based on the State Guideline (Zero Waste SA, 2014), which are used for estimation of waste and recycling volumes to assess waste storage required for the site.*

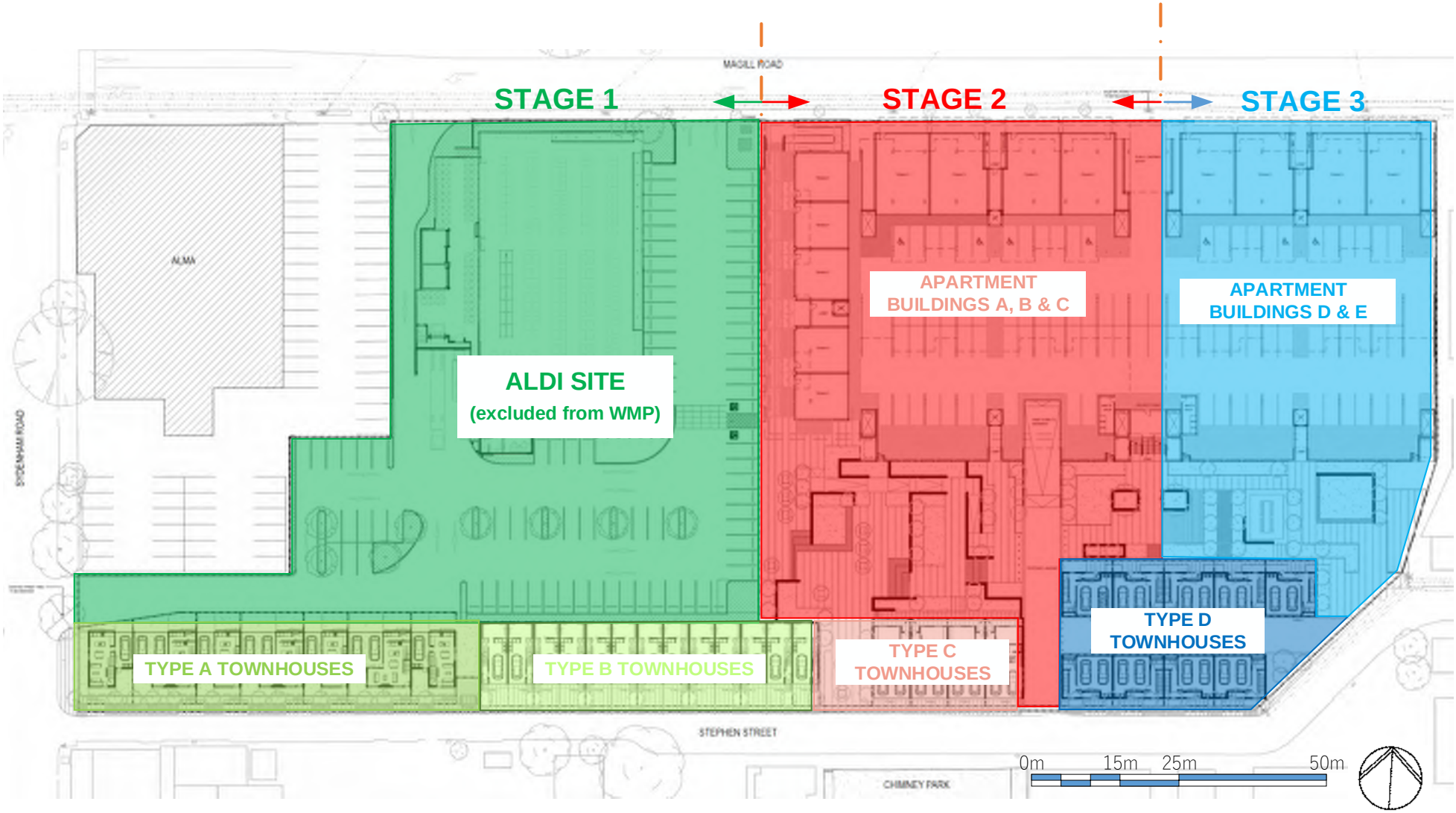

Figure 1 – Ground Level plan and site boundary for Development, reproduced from the Drawings. *Illustrates main land uses and proposed staging of Development*

Table 1 – Summary of land uses for the Development, their WRGR Description(s) and relevant Development Metric(s)

Land Use	Description	Plan Reference	WRGR Classification*	Development. Metric(s)	
Residential	Townhouses (Torrens Titled) (S1)	Type A, Stephen St West	High Density Residential Dwelling with Rear/Front Yard Garden Waste Allowance^	7	Dwellings
				21	Bedrooms
	Townhouses (Torrens Titled) (S1)	Type B, Stephen St Central		13	Dwellings
				39	Bedrooms
	Townhouses (Torrens Titled) (S2)	Type C, Stephen St Central		4	Dwellings
				12	Bedrooms
	Townhouses (Community Titled) (S3)	Type D, Stephen St East & Rear Access Lane	High Density Residential Dwelling	9	Dwellings
				18	Bedrooms
	Apartment Building A (S2)	West		22	Apartments
				46	Bedrooms
	Apartment Building B (S2)	North West		44	Apartments
				92	Bedrooms
	Apartment Building C (S2)	South West		44	Apartments
				92	Bedrooms
	Apartment Building D (S3)	North East		44	Apartments
				92	Bedrooms
	Apartment Building E (S3)	South East		44	Apartments
				92	Bedrooms
Public & Common Space (Residential)	Apartment Buildings A-C Other Internal/Semi-External Trafficked Areas (S2)	Apartment Buildings A-C	Showroom	300	m^2 GFA
	Apartment Buildings D & E-Other Internal/Semi-External Trafficked Areas (S3)	Apartment Buildings D & E		200	m^2 GFA
Commercial	Apartment Building A (S2)	West	Retail ≤ or > $100m^2$	270	m^2 GFA
			Café/Restaurant - Modified#	70	m^2 GFA
	Apartment Building B (S2)	North West	Retail > $100m^2$	350	m^2 GFA
			Café/Restaurant - Modified#	120	m^2 GFA
	Apartment Building D (S3)	North East	Retail > $100m^2$	350	m^2 GFA
			Café/Restaurant - Modified#	120	m^2 GFA

* Per classification for Waste Resource Generation Rates (WRGRs) in the State Guidelines (Zero Waste SA, 2014)

^ Additional 10L/bed/week organics provision for Rear/Front Yard Clippings waste from Torrens-titled townhouses

Modified Café / Restaurant WRGR to reflect Light Café tenant: General waste WRGR derated by 40%, recycling by 20%, and food waste by 50%.

3 Stakeholder Engagement

Discussions were held with the Developer (Buildtec) and Traffic Consultant (GTA consultants) to confirm most appropriate types of waste storage, the location and space available for this storage, and how waste and recycling bins could be collected.

Buildtec separately engaged with Council (specific details not available) about access to the kerbside service for Torrens-titled townhouses (Types A-C) on Stephen St and whether kerbside bins could be presented on the opposite of Stephen St given this road was one way and side-lifting trucks could not lift bins from the north side of this street.

- Council indicated that it was open to presentation of bins on the opposite side of Stephen St, this approach already occurred elsewhere in the Council area, so long as it did not impede access to other properties and was performed in an organised and controlled manner acceptable to East Waste (Council's waste contractor).

East Waste was consulted on the proposed waste management arrangements (as outlined in this WMP) (Powa, 2018), with the following advice received.

- Collections are available to residential land uses, not commercial land uses, which will need to organise their own private collection services.
- Kerbside collection services to (Type A-C) Torrens-titled townhouses:
    - These could be (and are already) provided along Sydenham Rd and Stephen St.
    - Kerbside presentation on the opposite side of Stephen St was considered not an issue so long as Council was willing to approve it, and the following approach is acceptable at other locations.
        - Bin presentation on road immediately inside but slightly set (e.g. 20cm) in front of kerb;
        - Parking controls on collection days to ensure bin presentation space is free collection truck access to kerbside to lift bins; and
        - Bin presentation positions to be marked to ensure bins are presented in correct location and in controlled and organised manner.
- Collections to apartment buildings and community-titled townhouses:
    - These buildings and townhouses would not be suitable for access to kerbside collection.
    - East Waste was commencing rear-lift services to these types of developments in the Council area:
        - These services would provide up to twice weekly collections of skip bins and/or MGBs for general waste, recycling and food waste.
        - Collection access would need to be provided to an on-site bin presentation location, where standard-sized rear-lift trucks (e.g. up to 10m length, up to 3.5m travel and operating height) could park, and bins were easily accessible (within 30m, transfer path with no steps or grades greater than 1:10) for emptying.
        - Where reversing was required for collection access, this should be during entry, not exit, and needed to be designed to ensure public safety and avoid traffic impact. *[Note: East Waste trucks were equipped with 360° cameras and proximity sensors for this purpose.]*
- Hard waste collections:
    - Council residents are entitled to up to two (2) free at call hard waste collections per year provided by East Waste: https://www.npsp.sa.gov.au/our_services/waste_and_recycling/hard_waste_and_e_waste
    - The Torrens-titled townhouses can automatically access this service subject to agreeing on a suitable kerbside presentation location with Council and/or East Waste.

    - The apartment buildings and community-titled townhouses can access this service too if provision can be made and agreed with Council or East Waste for suitable on-site presentation arrangements.
- The other following general waste system design and operating requirements should be achieved or considered.
    - The South Australian Environment Protection (Waste to Resources) Policy 2010 (W2REPP) (Government of South Australia, 2011), e.g.
        - *A 3-bin service is expected for Council collections in Metropolitan Adelaide, otherwise waste would need to be separately (i.e. privately) collected and subject to resource recovery processes before disposal to landfill.*
        - *A weekly collection of general waste from residential premises is required.*
    - City of Norwood, Payneham and St Peters Development Plan (Department of Planning, Transport & Infrastructure, 19 December 2017), e.g.
        - *Infrastructure:*
            - *141 Development should enable economic and effective servicing for … recycling and waste collection …*
        - *Residential Development:*
            - *208 Site coverage should ensure that sufficient space is provided for: … (g) convenient storage of household waste and recycling receptacles*
            - *233 Site facilities for group dwellings and residential flat buildings of greater than six dwellings should include: … c) household waste and recyclable material storage areas away from dwellings*
        - *Medium and High-Rise Development (3 or More Storeys):*
            - *285 Development should provide a dedicated area for the on-site collection and sorting of recyclable materials and refuse, green organic waste and wash-bay facilities for the ongoing maintenance of bins. This area should be screened from view from public areas so as to not to detract from the visual appearance of the ground floor.*
        - *Centres, Shops & Business:*
            - *292 Provision for the movement of people and goods within business, centre and shopping zones or areas should comply with the following: (e) adequate and convenient provision should be made for service vehicles and the storage and removal of waste goods and materials*
        - *CITY WIDE:*
            - *12 Development should take place in a manner which is not liable to cause an unreasonable nuisance to neighbours or the community or significantly detrimentally affect the amenity, use or enjoyment of nearby properties.*
            - *13 Development fronting a laneway (including a service lane), or other minor or unserviced street should only take place where: … (c) existing infrastructure and services, including the collection of waste are available …;*
    - South Australian Better Practice Guide – Waste Management in Residential or Mixed-Use Developments (Zero Waste SA, 2014), which:
        - *Provides guidance on expected design and operation of waste management systems for medium to high density residential and mixed-use developments.*

The above Developer and/or Council and East Waste guidance has been incorporated into the waste system design for this Development.

4 Waste & Recycling Service Provision

Table 2 below outlines the recommended waste services by land use per Table 1. The different waste service classifications listed in Table 2 are explained below.

- ***Routine Services –*** These require on-site waste storage and routine and regular collections, which would include general waste, dry (comingled) recyclables and food waste & yard clippings (where applicable).
- ***On-call services –*** These involve non-frequent collections, such as Hard waste and are organised and provided on an as-needed basis.
- ***Maintenance services –*** Some waste items (e.g. lighting in the common areas of apartment building, garden waste in common areas) would be removed and disposed of by the contractor providing the related maintenance service (and hence on-site waste storage is not usually needed or provided).
- ***External Services –*** These are where waste items (e.g. printer cartridges, lighting) can be dropped off by tenants/residents at external locations (e.g. Officeworks, waste depot) (and thus, separate on-site waste storage is not usually needed or provided).

Table 2 – Expected or recommended waste & recycling services for the Development

Service Type	Residential			Commercial	
	Apartments	*Townhouses*	*Public & Common Space*	*Cafés*	*Retail*
Routine (regularly scheduled)	• General Waste • Recycling • Food Organics		• General Waste	• General Waste • Recycling • Food Organics • Recycled deposit containers (OPTION) • Cooking Oil (OPTION)	• General Waste • Recycling
On-call (as needed)	• Hard/E-waste				
Maintenance (waste removed by contractor)	• Garden Waste (Common Areas) • Sanitary (public and commercial toilets) • Lighting (where applicable)				
External (by tenant off-site)	• Lighting • Printer Cartridges • Batteries				

5 Waste & Recycling Volumes

Table 3 overleaf estimates expected waste and recycling volumes for the Development (in Litres/week). *WRGRs (in the State Guideline) do not exist for sanitary, lighting, printer cartridge or battery waste. Volumes of these waste items, however, are relatively small, and thus, have not been estimated. The waste generation for garden waste from common areas is not estimated as this is a maintenance service and on-site storage is not needed. The waste/recycling volumes for Torrens-titled townhouses allow for yard clippings in the food waste stream (see Table footnote). The café commercial tenancy WRGRs are derated to more reasonably reflect a Light Café situation (not a full-service restaurant, which the WRGRs in the State Guidelines are based on).*

Note: For the Apartment Buildings, these WRGRs project the expected peak week generation rate if every bedroom in these Buildings is occupied. This is unlikely or rarely to be the case, and thus, the Apartment Buildings' waste and recycling volumes in Table 3 could overestimate actual generation taking place and bin collection requirements. Consequently, many of the bins allocated for storage (based on the volumes projected in Table 3) at site may not be presented during each collection event. This has been considered when allocating space in the presentation room (see later) and by proposing the following management actions should this space not be enough.

- *Extra (private) collections above the 2 per week provided by East Waste (see later) may be scheduled by Building Management in weeks where there are more full bins than space allowed for in the presentation room (as described later).*
- *Alternatively, the temporary hard waste presentation area allowed for at the presentation point (as described later) may be temporarily used for presentation of bins when space in the presentation room is not able to accommodate.*

Table 3 – Estimated waste & recycling volumes (Litres/week) for Development. *N/A – Not Applicable; NE – Not estimated*

Waste/Recycling Service	Residential					Commercial tenancies, Apartment Buildings A, B & D	
	Apartment Buildings A-C S2	*Apartment Building D & E S3*	*Torrens-Titled Townhouses (Types A-C) S1 & S2*	*Community-Titled Townhouses (Type D) S3*	*Public & Common Space: Apartment Buildings S2 & S3*	*Cafés S2 & S3*	*Retail S2 & S3*
	L/week	*L/week*	*L/week*	*L/week*	*L/week*	*L/week*	*L/week*
General Waste	6,900*	5,520*	2,160	540	1,838	3,906	4,278
Dry Comingled Recycling	5,750*	4,600*	1,800	450		3,472	4,074
Food/Garden Organics	2,300	1,840	1,440	180		4,340	
Hard waste	1,610	1,288	504	126	88	109	170
E-waste	288	230	90	23	7	7	14
Garden Waste (Common Areas)	Not Estimated: Maintenance Waste item, no on-site storage needed						
Lighting waste	Not Estimated: Minor volumes						
Printer Cartridges/Batteries	Not Estimated: Minor volumes						
Sanitary Waste (Common Areas/Commercial tenancies)	Not Estimated: Minor volumes						
TOTAL	**16,848**	**13,478**	**5,994**	**1,319**	**1,932**	**11,833**	**8,535**

* Uncompacted

^ Residential waste generation based on High Density Dwelling generation rates in State Guidelines (Zero Waste SA, 2014) with extra 10L/bed/week applied to organics generation for Torrens-titled townhouses, and an extra 5L/bed/week for Community-titles townhouses to provide for Rear/Front Yard Clippings

Modified Café / Restaurant WRGR to reflect Light Café tenant: General waste WRGR derated by 40%, recycling by 20%, and food waste by 50%.

6 Waste Management System

6.1 Waste Storage Area(s)

There would be the following different types or areas of waste bin storage (Waste Storage Areas) at the Development, which are illustrated in Figure 2, Figure 3, Figure 4 and Figure 6(on pages overleaf).

1) **Torrens-titled Type A Townhouses – *see illustration in Figure 2 overleaf***
    - *These townhouses are entitled to a standard Council kerbside collection and would store their 3-bin set (140/240/240L MGBs) in their garages.*
    - *On Council designated kerbside collection days, these residents would transfer these bins (via private rear lane) to a kerbside collection point on Sydenham Rd (agreed with Council and East Waste).*
2) ***Torrens-titled Types B & C Townhouses – see illustration in Figure 3 two pages overleaf***
    - *These townhouses are entitled to a standard Council kerbside collection and would store their 3-bin set (140/240/240L MGBs) in their garages.*
    - *On Council designated kerbside collection days, these residents would transfer these bins (via private rear lane) to an on-road kerbside collection point on opposite side of Stephen St (as agreed with Council and East Waste).*
3) **Community-Title Type D Townhouses – *see illustration in Figure 4 three pages overleaf***
    - *These residents would dispose of waste into shared skip bins located within a purpose designed bin station enclosure on the western boundary of the site.*
    - *These bins would be transferred (and replaced with an empty) in a nearby common (shared with apartment building residents) skip bin presentation room for (weekly) collection by East Waste via Loading area.*
4) **Apartment Buildings A-E residential (inc. public place) waste – *see illustrations in Figure 4, Figure 5 and Figure 6 (four pages overleaf)***
    - *Residents in these buildings would have access to local disposal rooms at Ground Level (per Figure 4) on the Southern side of the building complex:*
        - *One of these would be built during Stage 2 for Apartment Buildings A, B & C*
        - *The other would be built at Stage 3 for Apartment Buildings D & E*
    - *Residents would access these local disposal rooms using corridors, lifts and/or walkways within or interconnecting the apartment buildings at Ground and Level 1 (refer Figure 4 and Development plans for Level 1)*
    - *The local disposal room would contain waste-chute like access disposal points (or waste drops) that discharge to a waste room below at Basement level – see Figure 6 – where bins would be located and swapped over with empties when full.*
        - *The local disposal rooms would include a 660L skip bin for disposal of flat-packed large cardboard items/boxes by residents to minimise potential blockage of the waste-chute like access disposal points.*
        - *The chutes or waste drops for general waste & recycling would include a compactor that would reduce volume (up to 2.5× for general waste and up to 1.75× for recycling, which would reduce number of bins required (use of these compactors has been reviewed and confirmed as acceptable with East Waste* (Powa, 2018)*)*
        - *The waste rooms at Basement level would include extra bins for public place waste disposal by the Body Corporate.*
    - *Full bins would be transferred using tug and vehicular driveway and ramp to Ground Level to the common (shared with Townhouse Type D) skip bin presentation room for (twice weekly) collection by East Waste via adjacent Loading area*

{Cont. five pages overleaf}

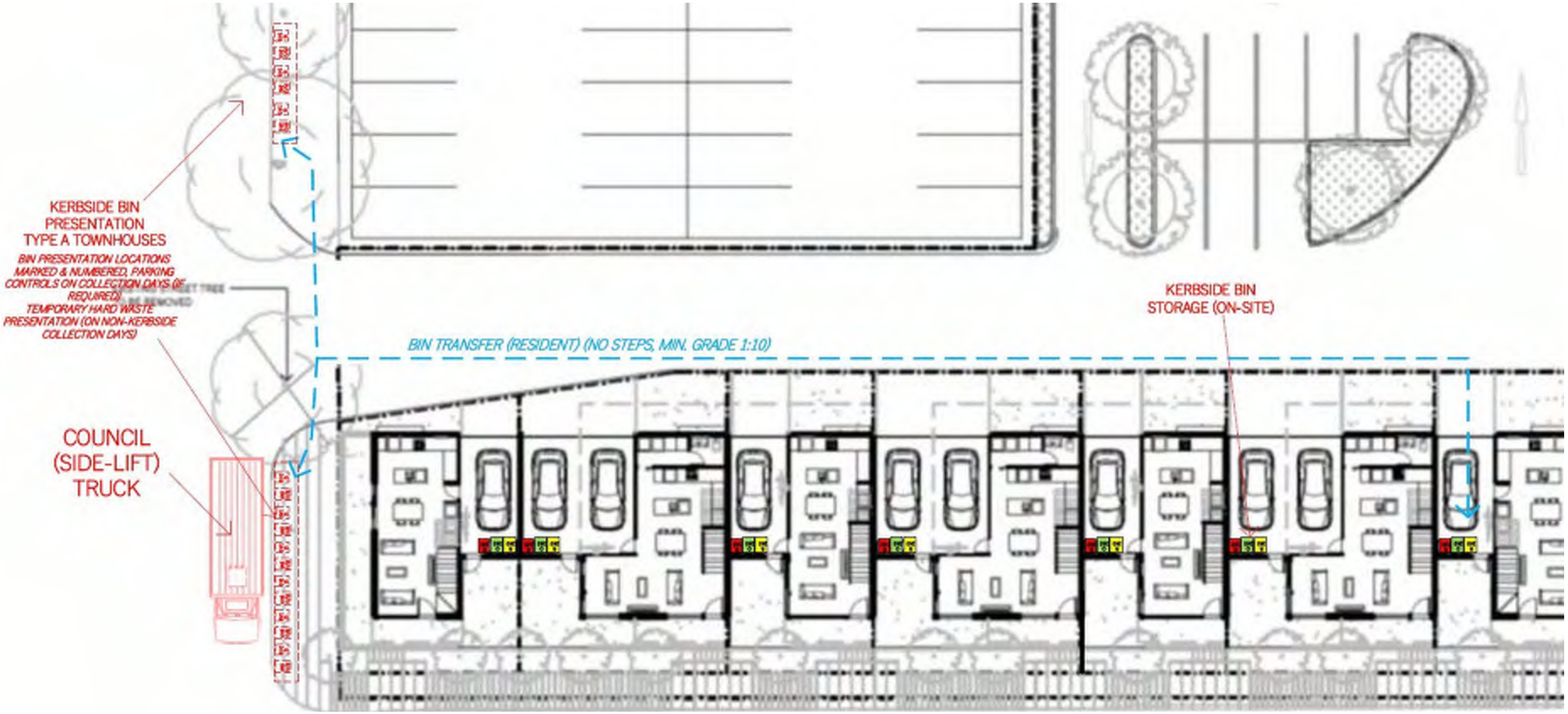

Figure 2 – Illustration of waste storage areas and systems for Type A townhouses, including proposed kerbside presentation locations on Sydenham Rd.

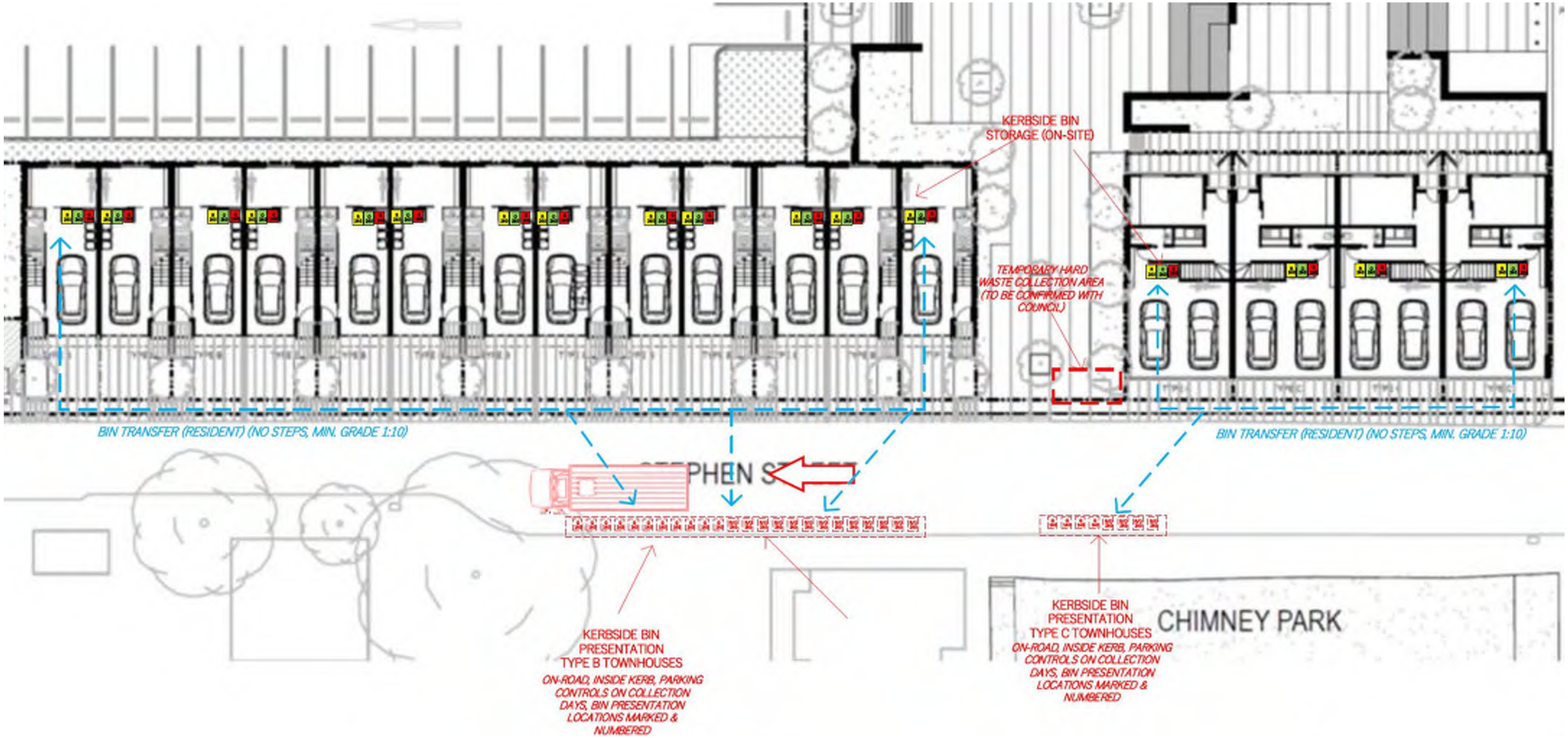

Figure 3 – Waste storage areas and systems for Type B & C townhouses, including proposed kerbside presentation locations on opposite side of Stephen St.

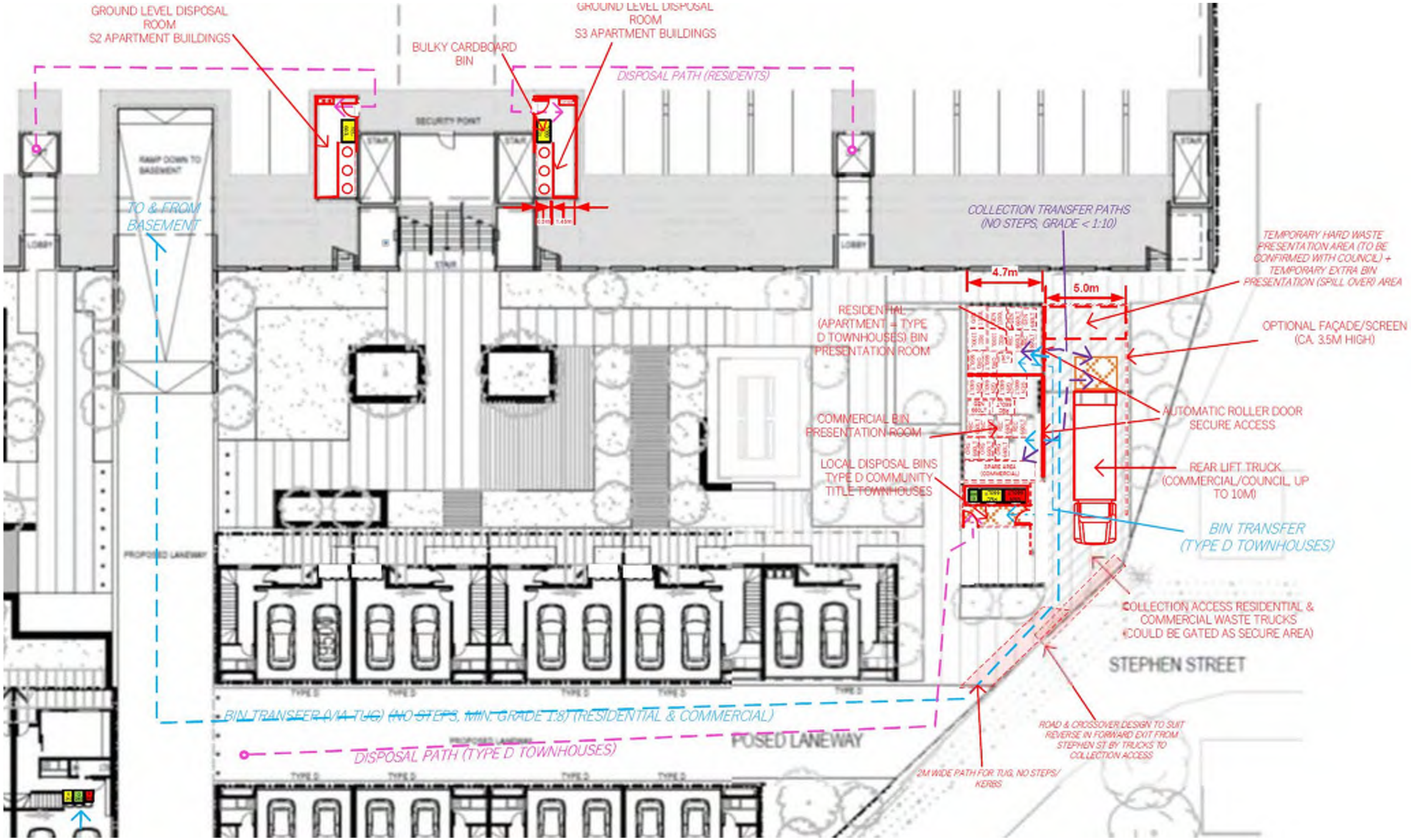

Figure 4 – Waste storage areas and/or systems for Type D townhouses and at Ground Level for apartment buildings – residential and commercial – including Loading area for rear-lift collection services. *See Figure 5 for Close of Apartment Building and Type D townhouse presentation rooms and Loading area*

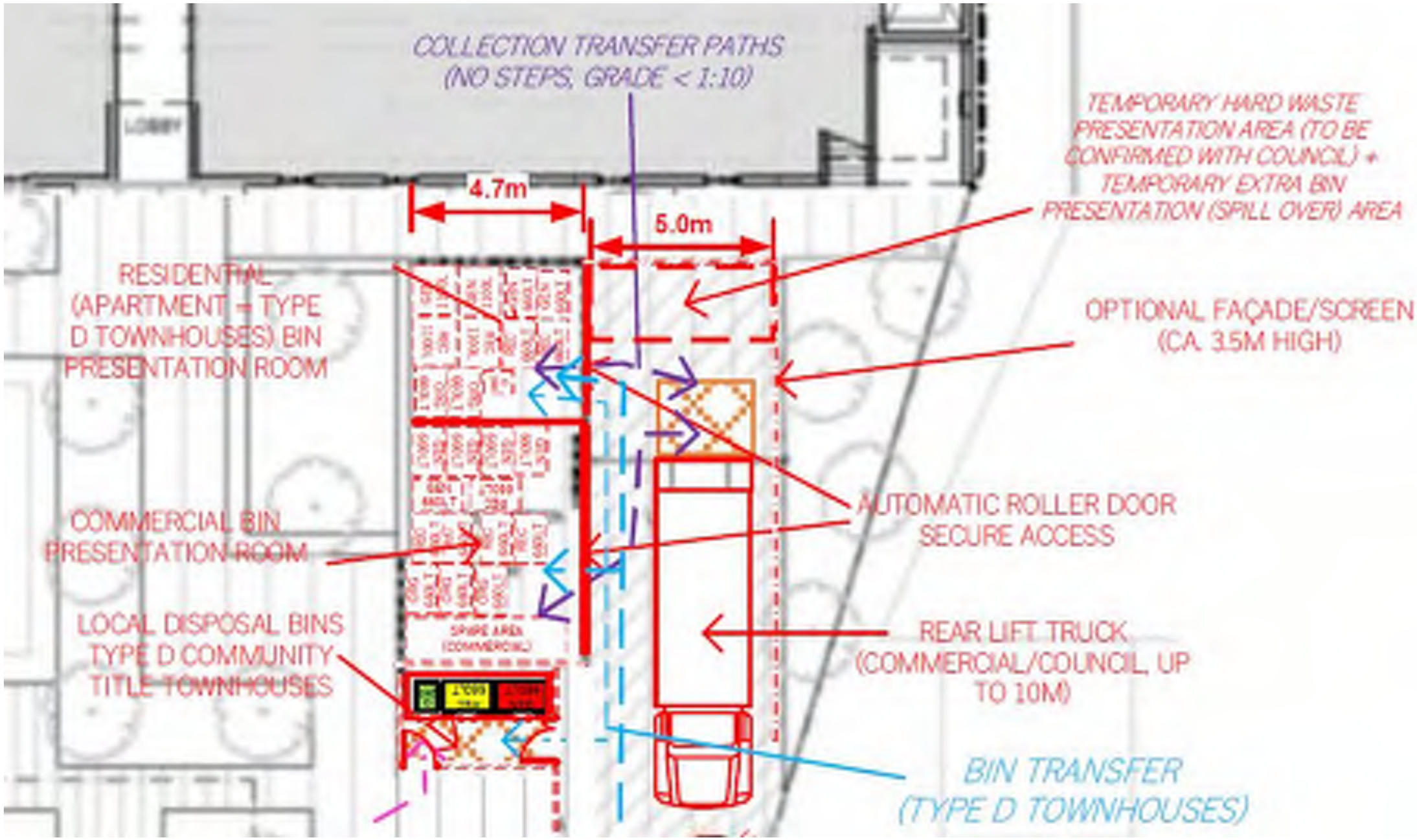

Figure 5 – Close up from Figure 4 of Apartment Building and Type D townhouse presentation rooms and Loading area.

Figure 6 – Waste storage areas and/or systems at Basement Level for apartment buildings – residential and commercial tenancies, including bin transfer pathways to Ground Level and tug parking area.

5) **Apartment Buildings, commercial tenancies – *see illustrations in Figure 4 and Figure 6***

- *Commercial tenancies would be provided with dedicated or shared (walk-in) waste rooms in the Basement, accessible using lifts and corridors, for disposal of waste & recycling.*
- *Before designated collection days, the commercial tenants would arrange for bins to be transferred (and swapped over with empties) using a tug to a separate Ground-level shared presentation room – see Figure 4 – for collection by private contractor.*
- *The final configuration of these waste rooms, types and size of bins and collection services would be decided when the tenancy is leased.*

Table 4 below gives a schedule of recommended bin storage in each of these Waste Storage Areas for Routine Services. This Table includes for each land use and service:

- *Number and type of bins;*
- *Collection frequency (expected or proposed); and*
- *Service provider and expected collection truck type.*

For commercial tenancies, these details are based on the Development Metrics assumed in Table 1, which are believed to reasonably reflect the likely leasing outcomes for these areas. But as will be noted in Figure 4 and Figure 6 additional space is allowed in event that these requirements are different (e.g. additional food hospitality tenants) and/or commercial tenancies elect other and additional services (e.g. recycled deposit container, cooking oil, etc.)

Potential bin configurations in these Waste Storage Areas for recommended bin storage (per Table 4) are illustrated in Figure 2, Figure 3, Figure 4 and Figure 6.

- *These illustrations demonstrate that adequate space is provided in these Waste Storage Areas to meet the site's waste management requirements.*

Table 4 – Waste storage and bin schedule for Routine Services, including collection frequency and collection service provider (assuming Development Metrics in Table 1 and Waste / Recycling volumes in Table 3)

Waste Storage Area(s)		Routine Service	Estimated Waste/Recycling Volumes (L/week)	Provider	Collection Frequency (Events/week)	Max. Bins/Items Stored & Collected (per Event)		
						No.	*Size (L)*	*Type*
1. Torrens Titled Townhouses, Types A-C (S1 & S2)		General Waste	2208	East Waste Council kerbside	Weekly	21	140	MGB
		Recycling	3067		Fortnightly	21	240	MGB
		Food Organics	1840		Fortnightly	21	240	MGB
2. Community Titled Townhouses, Type D (S3)		General Waste	540	East Waste Council Rear-Lift	Weekly	1	660	Skip
		Recycling	450		Weekly	1	660	Skip
		Food Organics	180		Weekly	1	240	MGB
3. Apartment Buildings	*a. Apartment Buildings A-C Residential (S2)*	General Waste	2760		2	2	1,100	Skip
		Recycling	3833		2	2	1,100	Skip
		Food Organics	2300		2	2	660	Skip
	b. Apartment Buildings D + E Residential (S3)	General Waste	2208		2	2	1,100	Skip
		Recycling	3067		2	2	1,100	Skip
		Food Organics	1840		2	2	660	Skip
	Public Place (S2 & S3)	General Waste	1838		2	2	660	Skip
4. Café tenancies (Shared &/or Separate Bin Sets)		General Waste	3906	Private contractor	3	3	660	Skip
		Recycling	3472		3	3	660	Skip
		Food Organics	4340		3	3	660	Skip
5. Retail (Shared)		General Waste	4278		3	3	660	Skip
		Recycling	4074		3	3	660	Skip

* Compacted waste/recycling volumes – up to 2.5-3× for general waste and up to 1.75× for recycling

6.2 System Operation

6.2.1 Routine Services

The following summarise how the waste systems would operate for Routine Services to each land use at the Development. It includes guidance and details on how these systems should be designed and operate.

6.2.1.1 Torrens-titled Townhouses, Types A-C

User Storage – Residents would be provided with suitable kitchen bins with handles to enable easy carriage from their dwellings to their Local Disposal Area, e.g. Figure 7 below:

a) *General waste bin – at least 20L in size (bag lined)*
b) *Commingled recycling waste bin - at least 20L in size*
c) *Food organics bin (as specified or otherwise agreed with Council) (compostable bag lined)*

Note: Council supplies every house with a ventilated kitchen organics basket and also provides an annual supply of compostable bags (see: https://www.npsp.sa.gov.au/our_services/waste_and_recycling/kitchen_organics_service).

(a) *(b)*

Figure 7 – Examples of suitable waste and recycling kitchen bins: *(a) General waste & recycling - 2×20L Buckets in pull-our draw; and (b): Bench-top food waste kitchen caddy* **(Adelaide City Council, 2016)**

Local Disposal – The residents would carry waste in their kitchen bins to their kerbside bin set stored in their garages, for disposal.

Waste Storage –

- This would be the 3-bin kerbside set located in their garages – see Figure 2 and Figure 3
- These storage areas should be naturally or mechanically ventilated to minimise odour issues.

Presentation/Collection Transfer –

- On designated Council kerbside collection days, residents would transfer relevant bins (usually the evening before) from their garage storage area to their kerbside presentation point.
  - For Type A townhouses, this kerbside presentation point would be marked bin locations on Sydenham Rd (per Figure 2) agreed with Council and East Waste.
  - For Types B & C townhouses, the kerbside presentation point would be marked bin locations on opposite side of Stephen St (per Figure 3) agreed with Council and East Waste.
- The Council kerbside contractor (East Waste) would empty the bins.

- Residents would retrieve and return their empty bins to their garages (that day).

Collection –

- Kerbside collection occurs from the street with the (side-lifting) truck lifting and emptying the MGBs presented on the road verge.
- Collection time per bin is usually up to 5 seconds.
    - All bins per service on Sydenham Rd should be emptied within 1-2 minutes (allowing for truck movements between bins)
    - All bins per service on Stephen St should be emptied within 3-4 minutes.

6.2.1.2 Type D Community-titled Townhouses

User Storage – Like Torrens-titled townhouses above, these residents would similarly be provided with suitable kitchen bins for each service with handles to enable easy carriage from their dwellings to their Local Disposal Area (e.g. Figure 7).

Local Disposal – The residents would carry waste in their kitchen bins via their garage exit and rear lane to a nearby local disposal bin station – see Figure 4 and Figure 6.

Waste Storage –

- The local disposal bin station would also be the waste storage area and include a 660L skip bins each for general waste and recycling disposal plus 240L MGB for food waste disposal (per Table 4 and illustrated in Figure 4 and Figure 6).
    - The access doors or disposal points to these bins should be designed to accommodate larger waste items including bulky cardboard and access should be secured by access code.
- Each bin would be equipped with level sensors providing text message notification or alerts to Body Corporate property management staff if these bins were becoming full.

Presentation/Collection Transfer –

- On weekly basis (or earlier if bins happen to be filled) the Body Corporate property management staff would swap the bins in the bin station over with empties and transfer the bins to the nearby common (shared with apartment building residents) skip bin presentation room for collection (per Figure 4).

Collection –

- Would be performed by the Council contractor, East Waste, using rear-lift collection truck.
- The Council contractor would reverse in from Stephen St into the adjacent Loading area provided – see swept path modelling for up to 10.2m vehicle prepared by the Traffic Engineer in Figure 8 overleaf.
- overleaf, which demonstrates reversing entry and forward exit to and from Stephen St into this Loading area.
    - *Note: Council may require the Community Corporation(s) owning this part of the site to indemnify Council's waste contractor when driving their vehicle or collecting waste on-property.*
- The Council contractor would open (using key or secure access code) the bin presentation room's access door, pull bins out, empty them, then return empty bins back to the room.
- Collections for these bins would generally be required on weekly basis.
- The time required (on-site) to empty these bins should be less than 5min (per service) to empty bins.

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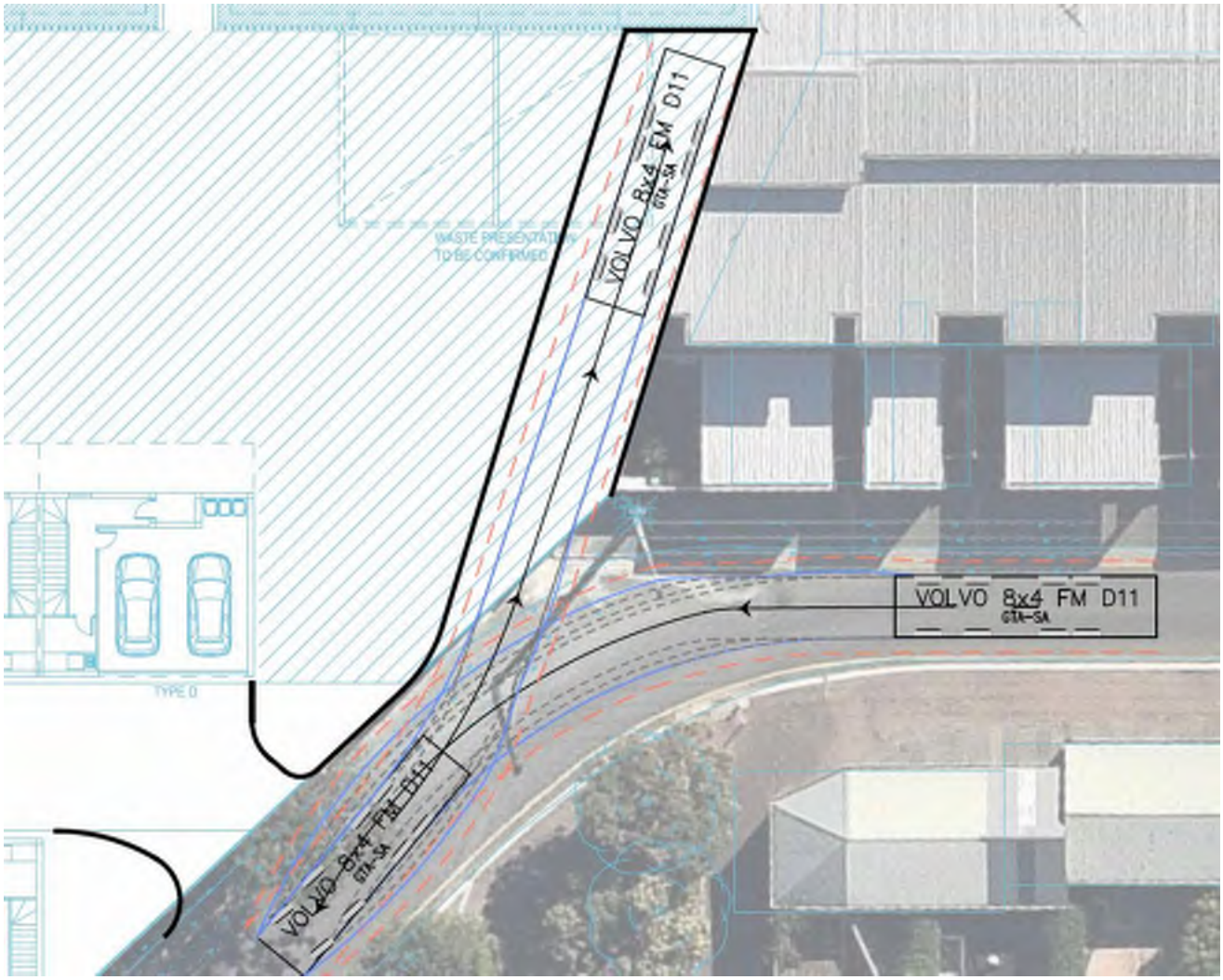

Figure 8 – Swept path modelling of reverse entry from and forward exit to Stephen St for collection from presentation areas for apartment buildings, Type D townhouses and commercial tenancies at Development (GTA Consultants, 25 July 2018). *Note: This figure is yet to be updated to reflect most recent site configuration for loading area. Not to scale, refer to final Traffic Report by GTA Consultants for updated drawing with swept path modelling.*

6.2.1.3 Apartment Buildings – Residential Waste (Stages 2 & 3)

User Storage – Again, (like the townhouses) these residents would be provided with suitable kitchen bins with handles for each service to enable easy carriage from their dwellings to their Local Disposal Area for disposal (e.g. Figure 7).

Local Disposal –

- The residents would carry waste in their kitchen bins via corridors, Lifts and/or walkways to the Local Disposal Room at Ground Level – see Figure 4 – and empty them using the access disposal points (e.g. like waste chute disposal points) on the Waste Wall or for bulky cardboard waste (flat packed) into the 660L skip bin provided.

- The access disposal points would empty into chutes (or waste drops) discharging to bins below in a Waste Room at Basement level – see Figure 6.
    - The general waste and recycling chutes would be equipped with suitable chute or overhead compactors to reduce waste volume.
- When these (chute discharge) bins were full, they would be swapped over with empties located within this Waste Room.
    - Each bin would be equipped with level sensors providing text message notification or alerts to Body Corporate property management staff when bins were becoming full.

Waste Storage – These would be skip bins, size and number per Table 4 and illustrated in Figure 6.

Presentation/Collection Transfer –

- On twice weekly (or more frequent) basis the Body Corporate property management staff would swap the full bins in the waste rooms over with empties and transfer the bins to the nearby common (shared with Townhouse D residents) skip bin presentation room for collection (per Figure 4).
- These transfers would be performed using a motorised tug – see example in Figure 9 overleaf.
    - This tug would be securely parked in the basement when not in use – e.g. see Figure 6.
    - The tug would be specified and selected so it was able to easily transfer up to 3×1,100L bins filled with compacted general waste or 3×660L bins filled with food waste (whichever was deemed heavier), at a time from Basement up ramp to Ground level presentation room.

Collection –

- Would be performed in the same way as described for Type D townhouses (see Section 6.2.1.2 above) with Council waste contractor providing up to twice weekly collection of bins from the presentation room.
    - *In event that more bins (in Waste Storage Areas) are full than space available for presentation in the presentation room, Building Management may:*
        1) *Organise for these bins to be separately collected by a private contractor, from the presentation room on a separate day; and/or*
        2) *Present these bins in the temporary hard waste area at the Loading Area for East Waste to collect.*
- The time required to collect and empty all the bins presented from (all five) apartment buildings at the Development could be up to 15-20min (per service).

6.2.1.4 Apartment Buildings 1/A & 2/B – Public place waste

The public areas in the Apartment Buildings would have public bins (in common areas) serviced by the Body Corporate. These bins are usually for general waste only, about 60-80L, and are lined (or bagged) (although larger 140L MGBs can be used sometimes in outside areas). Cleaners or Body Corporate property management staff would empty these bins and dispose the waste into dedicated public place waste skip bins in one of the two basement-level Waste Storage areas for the apartment buildings (per Figure 6). These bins when full would be transferred with residential waste skips to the Ground Level presentation room for collection by the Council contractor, East Waste (in the same way as outlined above).

{Cont. overleaf}

Figure 9 – Picture example of commercially available motorised tug pulling 1,100L bins, final selection to be decided at detailed design

6.2.1.5 Commercial tenancies – Apartment Buildings (A, B & D)

User Storage – These tenancies would have bins located in-tenancy for disposal of their waste and recycling. The types and size of bins would be decided during tenancy fit-out as they depend on type of commercial activity, but they would allow staff and/or cleaners to safely transfer the waste and recycling to the Basement-level waste storage area(s) for disposal.

Local Disposal – Tenancy staff and/or cleaners would transfer waste & recycling via corridors and Lifts to the Basement-level storage area(s) – per Figure 6 – and empty it into the tenancy or shared skip bins or MGBs provided (as decided at tenancy fit-out).

Waste Storage area(s) –

- The commercial tenancies would be provided with shared and / or separate rooms as show in Figure 6.
- As an example, Table 4 gives a list of bin types and numbers to service the assumed tenancy configuration in Table 1, and Figure 6 illustrates that these bins can be accommodated across proposed waste storage areas that have been nominally allocated.

Presentation/Collection Transfer –

- Like the apartment building waste/recycling bins, the commercial waste/recycling bins would be transferred via tug to a separate commercial Ground-level presentation room (adjacent the residential presentation room).
- A private waste contractor would park in the adjacent Loading area, would open (using key or secure access code) the commercial presentation room's access door, pull bins out, transfer to the collection point, empty them, then return empty bins back to the enclosure.

Collection –

- Would be by a private contractor, parking in the proposed Loading Area next to this presentation room (per Figure 4)
- The trucks used by the private contractor would be similar in size to those used by the Council contractor and access the loading area in the same way (as explained above and illustrated in Figure 8).

        - *Note: These Private Contractors may require the Community/Strata Corporation(s) that owns this section of the site to indemnify them when driving their vehicle or collecting waste on-property.*
    - We recommend that the Body Corporate(s) for Apartment Buildings engage a common waste contractor for all commercial tenancies at the Development, which would minimise collection visits and traffic activity along Stephen St.

6.2.2 On-call

6.2.2.1 Hard waste/E waste – All Land Use Activities

These would be provided for residents as follows.

- ***Type A Townhouses*** – Would access the Council hard waste service.
    - Council presently provides up to two at-call free collection service to residents.
    - Residents would book hard waste collection with Council's waste contractor, East Waste – see https://www.eastwaste.com.au/.
    - The presentation area for hard waste would be a suitable road verge area on Sydenham Rd as agreed with Council and East Waste on a day outside designated collection days (i.e. when this area was not used for kerbside bin presentation).
- ***Type B & C Townhouses*** – Would access the Council hard waste service too.
    - These residents would organise and book a hard waste collection service in the same way as described above.
    - However, they will need to confirm with Council and East Waste a suitable and secure hard waste presentation area on the northern side of Stephen St.
        - For this purpose, it is proposed that an area in the public thoroughfare between (easternmost) Type B and (westernmost) Type C townhouses is set aside as a temporary and shared hard waste presentation area – as illustrated in Figure 3 – subject to confirmation and approval by Council when the Development becomes operational.
        - Alternatively, another suitable location(s) for hard waste presentation by these residents could be identified with Council and/or East Waste.
- ***Type D Townhouses & Apartment Buildings*** – Could also access the Council hard waste service or organise a private collection direct from their townhouse or apartment.
    - The rear of the existing Loading area – see Figure 4 – could serve as a common or shared temporary hard waste presentation area for Council (or private) collections.
        - If such temporary hard waste drop-off location can be agreed with Council and East Waste, these residents could book and use the Council's at-call hard waste collection in the same way as described above for Type A-C Townhouse residents.
        - The Council contractor would park their vehicle in the adjacent Loading Area (per Figure 4).
        - *Note: East Waste may require that the Community/Strata Corporation(s) and/or Body Corporate Manager(s) align Council hard waste collection events for residents in Type D townhouses and Apartment buildings (e.g. on one day per month).*
        - *It is recommended hard waste bookings should be made outside designated residential waste collection days to avoid any potential conflict with Loading area use and presentation area access for these collections.*

    - Alternatively, Townhouse D and Apartment Building residents would organise hard waste collection direct from their apartments.
        - The Community Corporation(s) and/or Body Corporate Manager(s) would provide residents with relevant information about available services.
- ***Commercial tenants, Apartment Buildings*** – These tenants would organise their own hard waste collections, direct from their tenancies, using private contractors.
    - The private contractors providing these services would use the Loading area provided at site to deliver these services.
    - We recommend that these services to commercial tenants are coordinated by Community Corporation(s) and/or Body Corporate Manager(s) to avoid access conflicts to the Loading area.

The Building User Manuals for residents and/or commercial tenants at the Development would advise on availability and/or organizing Hard /E-waste collection services.

6.2.3 Maintenance

Common or public grounds at the proposed development would generate garden and public place waste. In addition, waste would be generated by maintenance activities in Apartment Buildings, Townhouses, or to other common area or shared infrastructure (e.g. lighting, repair work, roads, public lighting etc.). These maintenance-generated waste materials would be handled and disposed of by the contractor undertaking these services. [Dedicated on-site storage for these waste materials is therefore not needed.]

6.2.4 External

Residents and commercial tenants would be able to dispose of smaller waste items, such as printer cartridges, batteries and lighting, to publicly available external drop off points, which accept these materials.

The Building User Manual for residents and commercial tenants at the Development will include advice on external drop-off points for these waste items.

6.2.5 Collection Point & Collection events

The waste collection points for the Development introduced above are listed and reiterated below, including additional general notes and guidance on how these should be designed and/or operate.

- **Council kerbside collections to (Types A-C) Torrens-titled Townhouses –**
    - Kerbside collection occurs from the street (Sydenham Rd or Stephen St) with the (side-lifting) truck lifting and emptying the MGBs presented on the road verge.
    - For this purpose, there would need be to be the following arrangements in place.
        - Type A townhouses –
            - Garage vehicle access paths and the rear private lane would be used by residents to transport bins to the Sydenham Rd kerbside presentation zone.
            - The Sydenham Rd kerbside presentation road verges should have marked locations for bins to ensure they are allocated and placed correctly with suitable separation distances (between bins).
            - Parking controls may also need to be considered to ensure collection trucks can access the bins on collection days, this should be reviewed with Council and East Waste.
        - Type B & C townhouses –
            - Resident would use their garage vehicle access paths, pedestrian path and cross Stephen St with bins to access their marked kerbside presentation areas.
            - Kerbside presentation zones on Stephen St would require –

        - Marking of bin presentation locations to ensure they are allocated and placed correctly with suitable separation distances (between bins); and
        - Parking controls on kerbside collection days so bins can be presented, and collection trucks were able to access the bins.
    - Collection time per bin is usually less than 5 seconds (per service collection).
        - All bins presented on Sydenham Rd should be emptied within 1-2 minutes (per service) (allowing for truck movements between bins).
        - Bins presented on Stephen St should be emptied within 3-4 minutes (per service) (allowing for truck movements between bins).
- **Rear-lift skip bin & MGB collections for Type D townhouse & Apartment Building residential waste –**
    - The collection point would be the proposed Loading area next to presentation rooms (or the temporary hard waste area may be occasionally used if there are extra bins to be collected than space in this room), which would be accessible from Stephen St (per Figure 4 and Figure 8) and where the Council waste contractor would park their collection truck to access and empty waste and recycling bins.
        - This Loading area and the presentation rooms would be screened so they are visually unobtrusive to nearby apartment building and townhouse residents, visitors to adjacent public/private areas, neighbouring properties and/or the public from Stephen St.
        - The design of the Loading area should reflect access clearances noted below.
    - This Loading area should make provision for an up to 10.24m rear-lift collection vehicle in line with City of Charles Sturt Guidelines (City of Charles Sturt, 2010) – see Figure 10 overleaf – and we recommend that it is gated (with keypad or remote access) to secure the area against unauthorised access.
    - If the Loading area is covered, it should make provision for a minimum height clearance of 3.7m (from Ground to lowest cover structure) to accommodate access and operation by rear-lift trucks.
    - The collection frequency and times at this location would be as follows.
        - Twice weekly per Routine service or 6 collection events per week (unless extra collections are scheduled when bins to be collected exceed space available in presentation room).
        - Collection time per event – up to 15-20min per service.
        - Collections should be scheduled during daytime hours on weekdays to minimise impact on residents and traffic (along Stephen St and nearby streets).
- **Rear-lift skip bin & MGB collections for Apartment Building commercial tenancies –**
    - The collection point would the same Loading Area for residential collections (per Figure 4 and Figure 8).
    - Collections could be up to three times per week, and the time required (on-site) for collection events should be less than 15-20min (per service) to empty bins.
        - Collection frequencies and times, however, will depend on the service and type of tenancies located at the Development.
        - We recommend the Body Corporate(s) engage a common private waste contractor across all commercial tenancies to minimise collection events.
        - These private collections should be scheduled during daytime hours on weekdays and weekends to minimise impact on residents and traffic, but at times to avoid conflict with Council waste collections to the Development.

6.2.6 Collection Vehicles & Access

- **Council kerbside collections to Torrens-titled Townhouses –**
    - East Waste already operates kerbside collections for Council along Stephen St and other surrounding streets in Norwood using standard-sized (side-lifting) collection vehicles.

- Consequently, there should be no issues with providing this service for kerbside collection to Torrens-titled Townhouses at the Development (as proposed in this WMP) so long as suitable kerbside presentation zones are designed, and parking controls are applied (on Sydenham Rd and Stephen St) as already set out above.

- **Rear-lift collections to Apartment Buildings and Type D Townhouses–**
  - These rear-lift trucks can come on a variety of sizes.
    - We recommend that the City of Charles Sturt Waste Guidelines (City of Charles Sturt, 2010) are used to specify minimum requirements, Figure 10 below reproduces the specifications for rear-lift collection trucks from these Guidelines.
    - Swept path modelling by the Traffic Engineer – see Figure 8 – has already demonstrated that trucks of these size can access the proposed Loading Area (per Figure 4).
    - For manoeuvering collection trucks on-site, the clearance at Ground Level along this swept path and inside the Loading area should be ≥ 3.7m, which is greater than the minimum (travel) height clearance required for rear-lift trucks specified in Figure 10.

Rear loading collection vehicle	
Length overall	10.24m
Width overall	2.5m
Operational height	3.5m
Travel height	3.5m
Weight (vehicle only)	12.4 tonnes
Weight (payload)	9.5 tonnes
Turning circle	18.0m
Gross vehicle weight (when full)	21.9 tonnes

Figure 10 –Recommended specifications for rear-lift trucks from City of Charles Sturt Guidelines (City of Charles Sturt, 2010).

6.3 Collection & Traffic Issues

The proposed collection arrangements were described in Section 6.2.5 and 6.2.6 above.

During detailed design, the Developer should confirm with Council and East Waste the collection access arrangements to:

- Proposed kerbside presentation zones on Sydenham Rd and Stephen St for Torrens-titled Type A-C townhouses.
- Proposed Loading area and collection access from Stephen St for rear-lift collection services to Type D townhouses and apartments buildings.

This confirmation should include any proposed parking controls or street/road modifications or markings to support collection access when the Development becomes operational.

For rear-lift collection services to the Type D townhouses and apartments buildings, the Community / Strata Corporation(s) owning the section of the site required for collection access, loading area and

presentation rooms may be required by Council and/or East Waste to sign a liability waiver, so they can access and use this collection point (to provide services).

For all residential rear-lift services to the Development, we recommend that collections should be scheduled on week days and between 7am and 6pm, ideally at times outside peak traffic periods along surrounding streets and connecting main roads. The same should apply to rear-lift services to commercial tenancies in apartment buildings except where weekend collections are required which should be restricted to 9am-5pm periods.

6.4 Bin cleaning (& On-site Bin Wash Area)

A temporary on-site bin cleaning area is provided for waste/recycling bins used by Type D townhouse and apartment building waste systems, this is in co-located in (one or both of the) the Basement waste storage area(s) and multipurposed with bin storage area – see Figure 6.

- *This bin wash area would require grading to a sewer drain with basket screen to remove gross solids, tiles or epoxy coating to water-proof adjacent walls and flooring, standard cold-water supply faucet and commercial-grade electrical power supply (if pressure washer system is to be used), plus bunds and screens for use during bin wash events.*
- *Bin washing activity would be managed by the relevant Strata/Community Corporation(s).*
- *Bin washing would be timed to occur immediately after bins are emptied.*
- *During bin washing, bins ordinarily stored on the bin wash area would be temporarily relocated outside the waste storage room.*

Alternatively, bin cleaning at the Development may be outsourced to an external contractor (which may remove the requirement for an on-site bin wash area).

- *In this event, an external contractor can remove bins from site, replacing them with an empty spare, clean the bins, then return them to site.*

6.5 Transfer pathways

The transfer pathways for the waste systems at the Development are described above and illustrated in Figure 2, Figure 3, Figure 4 and Figure 6. The following is provided as a guide for sizing and designing transfer pathways which should be referred to during detailed design.

- *Transfer pathways –*
  - *User disposal – less than 30m and free of steps, no grades greater than 1:15, to cater for mobility impaired users.*
  - *Local disposal points to central storage – sufficient width to accommodate relevant bins or waste loads being transferred (see below), free of steps, with no grades greater than 1:12*
  - *Collection – less than 15m with no grades greater than 1:10 with ramps installed where navigating kerbs*
- *Corridor/Path widths where transferring bins –*
  - *240L MGBs or smaller bins / loads – min. 1,000 mm (1,200mm preferred)*
  - *660L skip bins – min. 1,200mm (1,400mm preferred)*
  - *1,100L skip skips and/or other waste loads – min. 1,500mm (1,600mm preferred)*
- *Doors –*
  - *Local disposal access – 800mm*
  - *Transfer pathways– Appropriate to the size of bin to be transported, e.g.*
    - *240L MGB – min. 800mm*
    - *660L skip – min. 1,200mm*
    - *1,100L skip – min 1,500mm*
- *Floors – Hard surfaces where bins and skips are to be carted*
- *Lifts – All lifts should be sized to allow for bulky hard waste items.*

Based on current plans, these requirements for transfer pathways in the Development appear to be generally satisfied. All relevant transfer pathways should, however, be reviewed and confirmed at detailed design stage to ensure they are appropriate.

6.6 Operation, Management & Communication

- ***Waste system operation and management*** –
    - **Type A-C Torrens-titled townhouse residents** – Would be responsible for managing their waste systems following advice from Council regarding access, operation and use of their kerbside collection service.
    - **Apartment and Type D townhouse residents** – The relevant Community / Strata Corporation(s) would be responsible for managing and operating the waste systems at the site.
        - *For shared components of these waste systems (e.g. transfer paths, presentation rooms/areas, collection point, organising collections), this may require delegation of responsibilities and creation of rights-of-access between different Community / Strata Corporations operating at the Development.*
        - *Council should be consulted on waste system operation and management and may provide advice and support to the Community / Strata Corporations and their residents.*
    - **Commercial tenancies** – The relevant Apartment Building Community / Strata Corporation(s) would be responsible for managing these waste systems in conjunction with property owners and/or commercial tenants.
        - *Again, where shared components of these waste systems exist, there may need to be delegation of responsibilities and establishment of rights-of-access.*
- ***Building User Manual*** – Advice and instructions on waste management and using the waste systems would be included by the Developer in the Building User Manuals developed for residents and commercial tenants, including contact information for further information, questions and issues.
    - *Council should be consulted on this advice and instructions and may provide relevant information to include in the Building User Manual, particularly for the Torrens-titled townhouse residents.*
    - *This may include advice to residents on how to properly dispose of other waste / recycling items including lighting, batteries and hazardous household waste.*
- ***Community/Strata title arrangements for Apartment Building and Type D Townhouse residents and commercial property owners –*** Obligations for these residents and/or property owners to properly access, operate and use the waste systems would be written into the Community/Strata plan lodged with the Lands Titles Office (including delegation of responsibilities and creation of rights-of-access).
- ***Residential and Commercial tenancy agreements for Apartment Building and Type D Townhouse residents and commercial tenants –*** Should include requirements to comply with the above obligations to use waste systems correctly and responsibly.
- ***Emergency Response Plan for Type D Townhouse Community/Strata Corporations –*** Should include response measures (or contingencies) for:
    - Waste collection services suspended or not available; and
    - For Apartment Buildings:
        - Lift access failure to Ground Level Local Disposal Areas for residents (including contingency measures to support mobility impaired residents) and to Basement storage areas for tenants;
        - Motorised tug failure for transport of bins from Basement waste storage areas to Ground Level presentation areas; and
        - Waste chute/drop blockage.

6.7 Other Waste System Design or Management Issues

The following would be considered and/or implemented for waste systems at the Development. More details for some of these items can be resolved at detailed design stage with waste contractors and/or Council.

1) **Bins** – These would align to Council bin colours or otherwise comply with Australian Standard for Mobile Waste Containers (AS 4213).
    - *Council should be consulted on bin selection and colours for residential waste bins and should provide these bins where they are delivering the collection service.*
2) **Signage** –
    - Appropriate signage in all Local Disposal (and walk-in Waste Storage) Areas should be used to ensure correct disposal of waste and recycling.
    - This signage should conform to the signage requirements of Council and/or the State Guideline (Zero Waste SA, 2014).
        - *Council should be consulted on signage for residential waste systems and may supply signage to the Development for this purpose.*
3) **Vermin, hygiene & odour management (inc. ventilation) –**
    - Inspection & Cleaning –
        - An inspection and cleaning regime would be developed and implemented by Community / Strata Corporation(s) for waste systems at the Development, including ensuring that surfaces and floors around disposal areas, transfer pathways and waste storage areas are kept clean and hygienic and free of loose waste and recycling materials.
            - *All Local Disposal and Waste Storage areas should be graded to a sewer drain with tiling or epoxy coating to floors and adjacent walls to waterproof the area and for cleaning.*
            - *If not covered and with separate sewer drain for cleaning, any waste spillage in the residential or commercial apartment building presentation areas should be swept up immediately and not hosed into stormwater drains, which should be equipped with temporary stoppers which can be fitted during such cleaning activity.*
        - Similar obligations for commercial tenants to inspect and clean their waste systems and storage areas would be included in their tenancy agreements.
    - Odour Control –
        - All Local Disposal, Waste Storage and Presentation rooms in waste systems for the Apartment Buildings and Type D townhouses –
            - *Should be mechanically (or naturally) ventilated for control of odours.*
            - *The ventilation would extract to atmosphere, to prevent odour build up.*
            - *The extraction vent discharge location(s) would be selected to avoid impact on residents, tenants and/or neighbours.*
            - *It should be a requirement for food waste bins in these areas that lids are closed after disposal events or during presentation.*
        - Torrens-titled townhouses – *These bins are located inside garages and it is recommended that ventilation if provided to minimise odour issues and residents are encouraged to ensure the bins are closed after use and kept clean such that they should not negatively impact on themselves (and/or neighbours).*
    - Waste chutes / drops –
        - These chutes or drops to be installed in the apartment buildings (between Local Disposal Rooms at Ground and the discharge bins in the Basement) should be designed to include:
            - *Odour control – Access disposal points should close when not in use and the chute or drop should operate under negative pressure, so odours do*

not emanate into the Local Disposal Room during operations, with vent to external area that does not impact on residents or neighbours.

- *Cleaning – Automated or manual sprinkler system for cleaning of the chute/drop internals (which can discharge to sewer drain in Waste area below).*
- *Maintenance access – Access points for easy maintenance or removal or blockages in event these were to occur.*

4) **Access & security** –
   - Access to the Apartment Building and Type D Townhouses' Residential and/or Commercial Local Disposal, Waste Storage and Presentation Rooms/Areas should be secure and only accessible by key or fob or access code.
     - *The relevant key or fob or access code(s) would be provided to residents, Body Corporate staff and/or waste contractor(s) delivering services to the Development.*
     - *CCTV is recommended to monitor waste disposal practices in all Local Disposal (and walk-in Waste) Areas and presentation rooms and the Loading area.*

7 References

Adelaide City Council. (2016). *Guide to waste & recycling bins.*

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Zero Waste SA. (2014). South Australian Better Practice Guide – Waste Management in Residential or Mixed Use Developments.

ALDI Stores
(A Limited Partnership)
ABN 90 196 565 019

84 Gallipoli Drive, Regency Park SA 5010

SOUTH AUSTRALIA

PO Box 82
Enfield Plaza SA 5085
Tel: (08) 8249 8000
Fax: (08) 8249 8053

Friday, 27 July 2018

Mr Richard Dwyer
Managing Director
Ekistics
PO Box 32
Goodwood, SA 5034

Dear Richard,

Re: ALDI Food Stores - Waste Management Overview & Management - proposed Norwood Store

ALDI Stores (ALDI) is committed to improving sustainability. ALDI strives to sustain its local and global environment, organisational health and ability to create a positive, viable future. ALDI includes environmental sustainability principles and targets in all aspects of its decision-making.

In order to plan sustainable and effective waste and recycling programs, ALDI receives data on current recycling services from our appointed waste and recycling contractors, these include audits of quantities from different waste streams, rates of contamination and weights of each collection. Analysis of this data results in improvements being communicated and implemented to further improve ongoing initiatives and develop others as required.

ALDI's in store operation is considerably different when compared with other supermarkets. All products ALDI retails are delivered pre-packaged. ALDI do not undertake the preparation of food for sale on site, we do not have an in store delicatessen, butcher, bakery or green grocer. This results in the waste streams and quantities of waste generated being a small proportion of that generated by a conventional supermarket.

The waste generated by an ALDI store is limited to four key areas and is managed and disposed as outlined further below;

General: Waste disposed of in the general/waste bin is limited to waste generated by staff on their lunch breaks (food packaging) and office based waste. All the waste is collected in and disposed in sealed/tied heavy duty plastic rubbish bags prior to being placed in the external bin for collection

Organic: Organic waste which is generated by fruit/vegetables and meat that does not meet the strict quality controls that ALDI require and/or are nearing/past the products best before date. This waste stream is very minimal. In line with our corporate responsibly policy we have partnered with two companies, Foodbank and SecondBite. SecondBite collect from each of our stores every day, they collect 99% of the organic waste referred to above. Foodbank collect from our distribution centre

Cardboard: Cardboard waste is generated from used cardboard packaging - waste cardboard is to be collected and stored in an onsite compactor within our back of house store

	area and collected and returned by ALDI transport to our Distribution Centre for recycling
Plastic:	Plastic wrapping is collected by ALDI transport and recycled at the ALDI distribution centre.
Bin size:	Each store is supplied with a single 1.5 cubic metre bin. The bins are fully contained and equipped with a hinged lid and contained in the Bin Enclosure in the loading dock.
Bin location:	Each store bin is located within a secure enclosure, as per the attached photos of our Victor Harbor store.
Collection frequency:	The collection of the bin is undertaken by a third party contractor. The contractor will attend the store on average three times per week to collect the contents of the bin. The collection will be managed at ALDI's request at specified times and coordinated to avoid any conflict with ALDI Transport deliveries.
Collection duration:	The third party contractor will be on site for approximately 3 minutes.
Truck size:	10.5m front load truck

Please refer to the included pictures for your reference and reassurance.

Should you require any further information or seek to clarify the contents of this please contact me

Yours sincerely,
ALDI Stores

Nigel Uren
Property Director

Example of standard bin enclosure (ALDI Victor Harbor)

Example of 10.5m front load truck

WALLBRIDGE GILBERT AZTEC

76 Magill Road, Norwood

STORMWATER MANAGEMENT REPORT

Project No. ADL189138 / ADL170773
Rev. C

01 August 2018

Revision History

Rev	Date	Issue	Originator	Checker	Approver
A	24/07/2018	For Information	WRS	WRS	WRS
B	31/07/2018	Preliminary Issue	WRS	WRS	WRS
C	01/08/2018	Preliminary Issue	WRS	WRS	WRS

CONTENTS

1 Introduction **3**
1.1 Background 3
1.2 Scope of the Assessment 3
1.2.1 Documentation 3
2 Detailed Report **4**
2.1 Development Description 4
2.2 Catchment Description 4
2.3 Existing Stormwater Drainage 4
2.4 Council Requirements 5
2.5 Stormwater Management Methodology 5
2.6 Summary 6

Appendices

Appendix A Site Aerial Photograph & Council Stormwater

Appendix B Engineering Survey

Appendix C Architectural Plans

Appendix D Flood Mapping Extract

Appendix E Council Stormwater Infrastructure Plans

Appendix F Civil Concept Calculations

Appendix G Site Civil Concept

1 INTRODUCTION

1.1 BACKGROUND

WGA has been engaged to prepare a Stormwater Management Plan and Concept for an ALDI supermarket and multi-level residential complex at 76 Magill Road in Norwood. The proposal also includes separately placed and titled residences to the rear of both sites, with access to Stephen Street.

This report is intended to conceptually outline the stormwater management design for the proposed development and detail the stormwater management methodology for the site. Consideration is given to possible site levels and adjacent developments. A final detailed design must be carried out to provide construction documentation and incorporate the stormwater design principles outlined in this report, as well as ensure level and grade compliances are assured. The final documentation is considered to be beyond the scope of this report.

1.2 SCOPE OF THE ASSESSMENT

The preparation of the plan comprises the scope of services listed below:

- Site visit
- Liaise with the City of Norwood Payneham St Peters (Council) to determine appropriate and relevant stormwater requirements for the specific site
- Prepare a Stormwater Management Plan detailing the proposed method of collection and the disposal of site generated stormwater runoff
- Prepare preliminary sketch concept plans showing likely site drainage infrastructure, detention capacities and discharge points
- Provide supporting stormwater calculations to match the intent of the concept plans

1.2.1 Documentation

The client has provided preliminary Architectural Plans for the proposed developments and structures.

2 DETAILED REPORT

2.1 DEVELOPMENT DESCRIPTION

The proposed development fronts the southern side of Magill Road in Norwood, broadly in the area between Cox Street to the east and Sydenham Road to the west. The development of the proposed ALDI store is in the westernmost section, and comprises 89 carparks. A mixed use multi storey development is proposed for the eastern portion of the site whilst the southern portion of the site, adjacent Stephen Street, is intended to accommodate 33 residential townhouses. Refer to Appendix A for an Aerial Photograph of the subject site with an overlay of the intended precincts.

2.2 CATCHMENT DESCRIPTION

Covering a combined total of over 18990m^2 (of which the proposed ALDI site precinct utilises 6201m^2), the subject site is currently occupied by the existing, uninhabited 'Caroma' commercial / industrial complex. The existing site is fully developed to total impermeability, with most of the area being covered by large roofs and the remainder consisting of sealed industrial pavements.

The site land falls steadily to the north-northwest, with both Magill Road and nearby Sydenham Road dropping down towards their combined intersection. Stephen Street, on the site's southern fringe, similarly grades down to the west, although not as markedly. A copy of the current engineering survey is attached in Appendix B.

Copies of the proposed architectural plans may be found attached within Appendix C. The drawings outline the proposed 'post-development' catchment.

2.3 EXISTING STORMWATER DRAINAGE

Whilst some aspects of the internal stormwater drainage system finds its way to the Stephen Street system currently, a large portion of the existing site generally discharges into the Magill Street watertable via a substantial number of galvanised box drains. Appendix A's Aerial Photograph also indicates the available Council stormwater systems, and demonstrates that no in-ground stormwater system passes the Magill Road frontage of the site.

The City of Norwood Payneham St Peters has provided some detail of the expected flooding risk, as well as existing underground drainage systems in the nearby streets. An extract from the "First to Fifth Creeks 1 in 100 year Flood Inundation Map" is to be found within Appendix D, and shows that the project site is not impinged upon by these events. Magill Road flooding issues, however, are evident a distance further to the west.

The Council drawings of existing stormwater pipe systems show a 375mm diameter pipe main extending along Stephen Street at the higher level and discharging into an 825mm diameter main at Sydenham Road. It also shows a pipe system reaching towards the south-eastern section of the site from the Stephen and Cox Street intersection. Refer to Appendix E for details.

2.4 COUNCIL REQUIREMENTS

Council have confirmed the following storm water requirements with respect to the site:

- On site detention storage (to reduce the peak flow rate) is required to reduce the site outflow. Although the future site will be more permeable than it currently is, downstream Council systems are often over-capacity with public flooding being the result. We are to limit the 'post-development' stormwater outflow in 1 in 5 year ARI events to no greater than the existing 'pre-development' outflows occurring in 1 in 100 year ARI events. This is a significant reduction in what currently leaves the site to be collected on Magill Road itself.

- Site levels are to be set to provide a clear overland flow path for the 1 in 100 year flows where possible

- Stormwater quality improvement measures (such as GPTs) are encouraged to treat the quality of the stormwater runoff from any trafficable areas (outdoors car parks etc).

2.5 STORMWATER MANAGEMENT METHODOLOGY

Based on the information received from, and our meeting with, Council representatives, the following stormwater management methodology is proposed. The site will be divided into two individual precincts (Aldi & Mixed Use), to minimize the need for future easements on titles.

Some discharge from the Aldi precinct will be directed, in a controlled manner, to the Magill Road watertable, whilst the bulk will be directed to the existing underground stormwater main located within Sydenham Road. The discharge from the ALDI precinct is to be limited to approximately 102L/Sec in total, and so the discharge to the Sydenham Road system will be limited by an orifice fitting within the system. Oversized underground pipes are intended to provide the majority of this storage, with use also made of the loading dock recess during more extreme events.

The ground floor levels of the Mixed Use buildings will likely follow the Magill Road grade down to the west, with the central car park entrance level pivotal. Tenancy accessibility along the northern elevation will also be key and the easternmost tenancies must remain above the Magill Road kerb level.

The townhouse dwellings to the south, fronting Stephen Street, will be built above the kerb level, with most dwellings discharging their collected stormwater to the south directly into the Stephen Street watertable. There will be a driveway entry from Stephen Street into the basement of the multi storey buildings with relatively steep grades down to basement level. There is also a common driveway between the easternmost townhouses unit which is to be graded slightly down to the east, towards Stephen Street.

Preliminary stormwater calculations to meet Council's discharge requirements for the 100 year ARI event indicate that a portion of the stormwater may be discharged immediately from the site whilst a significantly larger volume is required to be temporarily stored (detained). The immediate discharge is to be directed to both the Magill Road and Stephen Street water tables with the detention volume balance captured in large underground tanks placed below the basement level. Multiple pumps will gradually empty these tanks towards Magill Road via spaced box drains, each limited to 20 L/sec output.

Relatively clean roof water could potentially be separated for re-use, whilst the majority of the external carpark collection is to pass through an adequately sized pollution control device prior to entering the detention tank. This may be a Rocla First Defence FD450 or similar approved.

In this multi-use precinct proposed, a detention capacity of 212m^3 and a maximum outflow of 108.1 L/sec must be met.

Refer to Appendix F and Appendix G for the relevant Stormwater Detention Calculations and Concept Plans.

2.6 SUMMARY

The Preliminary Concept Plans and Calculations contained within this report have been prepared to demonstrate the philosophy behind the proposed treatment of the stormwater runoff from both the proposed ALDI store and the adjacent Mixed Use developments. Consideration has been given to both the surface levels and discharge issues. The information provided is preliminary and will be subject to the detailed design and documentation of both precincts

APPENDIX A

SITE AERIAL PHOTOGRAPH & COUNCIL STORMWATER

SITE AERIAL PHOTOGRAPH & COUNCIL STORMWATER LOCATIONS

APPENDIX B

ENGINEERING SURVEY

CHAPEL STREET
SYDENHAM ROAD
GEORGE STREET
MAGILL ROAD
STEPHEN STREET
THE ALMA TAVERN
WAREHOUSE
BITUMEN CARPARK
IMAGE 4
IMAGE 3
LEGEND
COORDINATE SYSTEM
VERTICAL: AHD
HORIZONTAL: GROUND PLANE ORIENTED TO: MGA 94 ZONE 54
SCALE: GROUND (CSF = 1.0001688)
ADOPTED STATION & AUTHORITY
PSM 662824211 RL: 51.482 SDB
PSM E: 283437.105 SDB
N: 6133667.828 SDB
SDB denotes SA Government survey data base
1:200
ORIGINAL SHEET SIZE A0
© ALEXANDER & SYMONDS PTY. LTD.
Notes:
Property boundaries shown hereon have been compiled from the government records and have not been verified by field survey.
CONTOUR INTERVAL: 0.2m
SURVEY: TLH JAN 2018
DRAWN: TLH 23.01.2018
CHECKED: RSW 23.01.2018
Alexander & Symonds Pty Ltd
11 King William Street Kent Town,
South Australia 5067
PO Box 1000 Kent Town, SA 5071
ABN 93007 753 988
T (08) 8130 1666
F (08) 8362 0099
W www.alexander.com.au
E adelaide@alexander.com.au
+ Property + Land Development +
+ Construction + Mining +
+ Spatial Information Management +
Alexander Symonds Surveying Consultants
DETAIL AND LEVEL SURVEY
MAGILL ROAD
NORWOOD
DRAWING No. A001018_DETAIL(0) 2D
SHEET 1 OF 2
REVISION 0
REV DATE DESCRIPTION CALC FIELD
ADDITIONS, AMENDMENTS AND APPROVALS

DETAIL AND LEVEL SURVEY
MAGILL ROAD
NORWOOD

DRAWING No. A001018_DETAIL(0) 2D

SHEET 2 OF 2

REVISION 0

Alexander Symonds Surveying Consulting

Alexander & Symonds Pty Ltd
5 King William Street Kent Town,
South Australia 5067
PO Box 1800 Kent Town, SA 5071
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www.alexanderandsymonds.com.au
adelaide@alexander.com.au
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+ Construction + Mining +
+ Spatial Information Management +

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0 2 4 8 12 16 20 m
1:200
ORIGINAL SHEET SIZE A0

CONTOUR INTERVAL	0.2m
SURVEY: TLH	JAN 2018
DRAWN: TLH	23/01/2018
CHECKED: RSW	23/01/2018

NOTE:
Property boundaries shown thereon have been compiled from the previous records and have not been verified by field survey.

COORDINATE SYSTEM
VERTICAL: AHD
HORIZONTAL: GROUND PLANE ORIENTED TO MGA 94 ZONE 54
SCALE GROUND (CSF = 1.0001588)

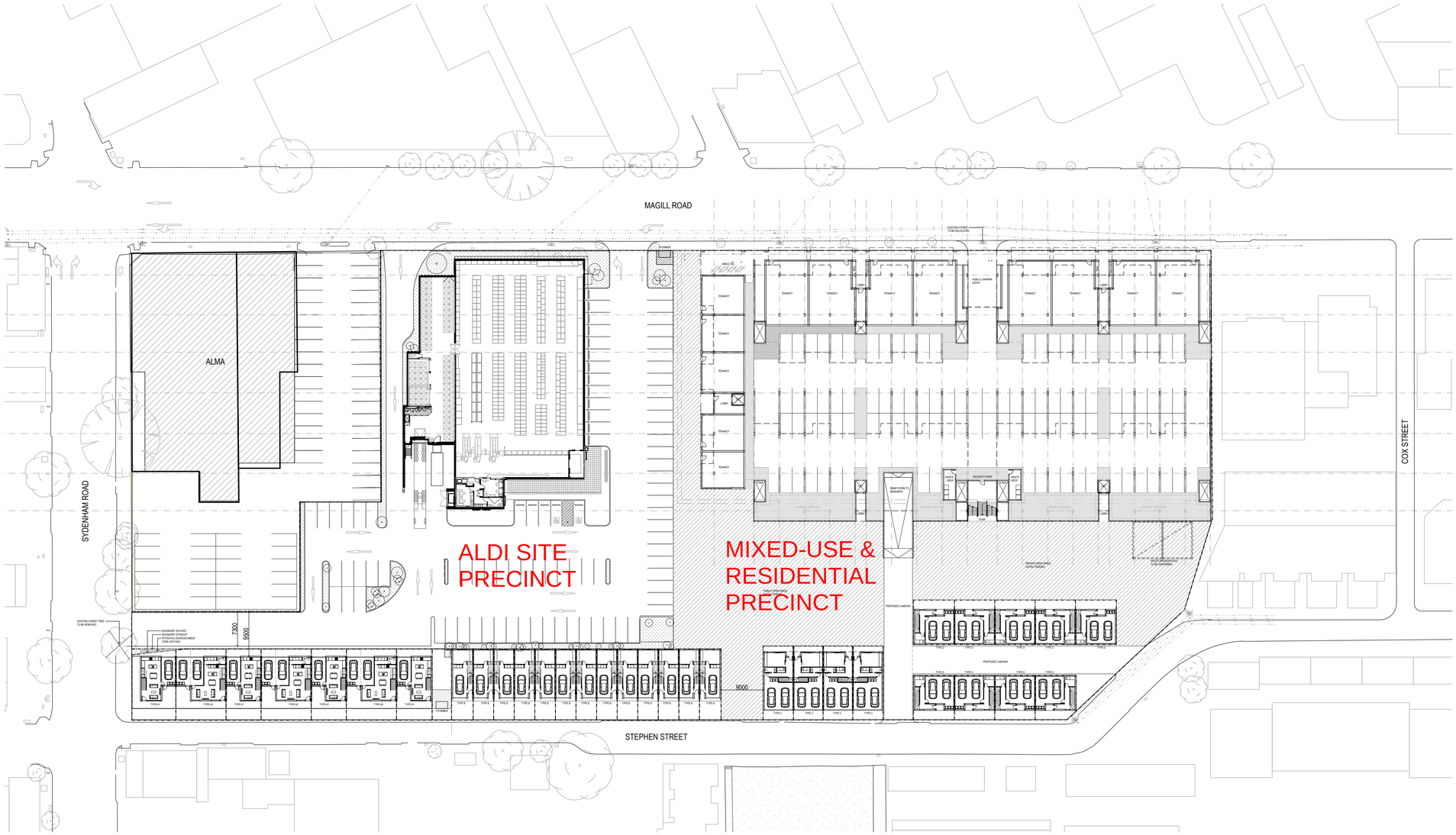
ADOPTED STATION & AUTHORITY
PSM 66293/4311 RL 51.482 SDB
E: 283437.705 SDB
PSM 66293/4311 N: 6133681.328 SDB
SDB denotes SA Government survey data base

LEGEND

REV	DATE	DESCRIPTION	CALC	FIELD
		ADDITIONS, AMENDMENTS AND APPROVALS		

APPENDIX C

ARCHITECTURAL PLANS



GROUND FLOOR PLAN
1:500 @ A1

PRELIMINARY
13/07/18

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PROJECT
76 MAGILL ROAD
NORWOOD

CLIENT
ALDI | CA CA

DRAWING
GROUND FLOOR PLAN

NORTH

SCALE
AS SHOWN

DATE
JULY 2018

PROJECT NO
28055

DWG NO
P01

REVISION	CHECKED	DRAWN
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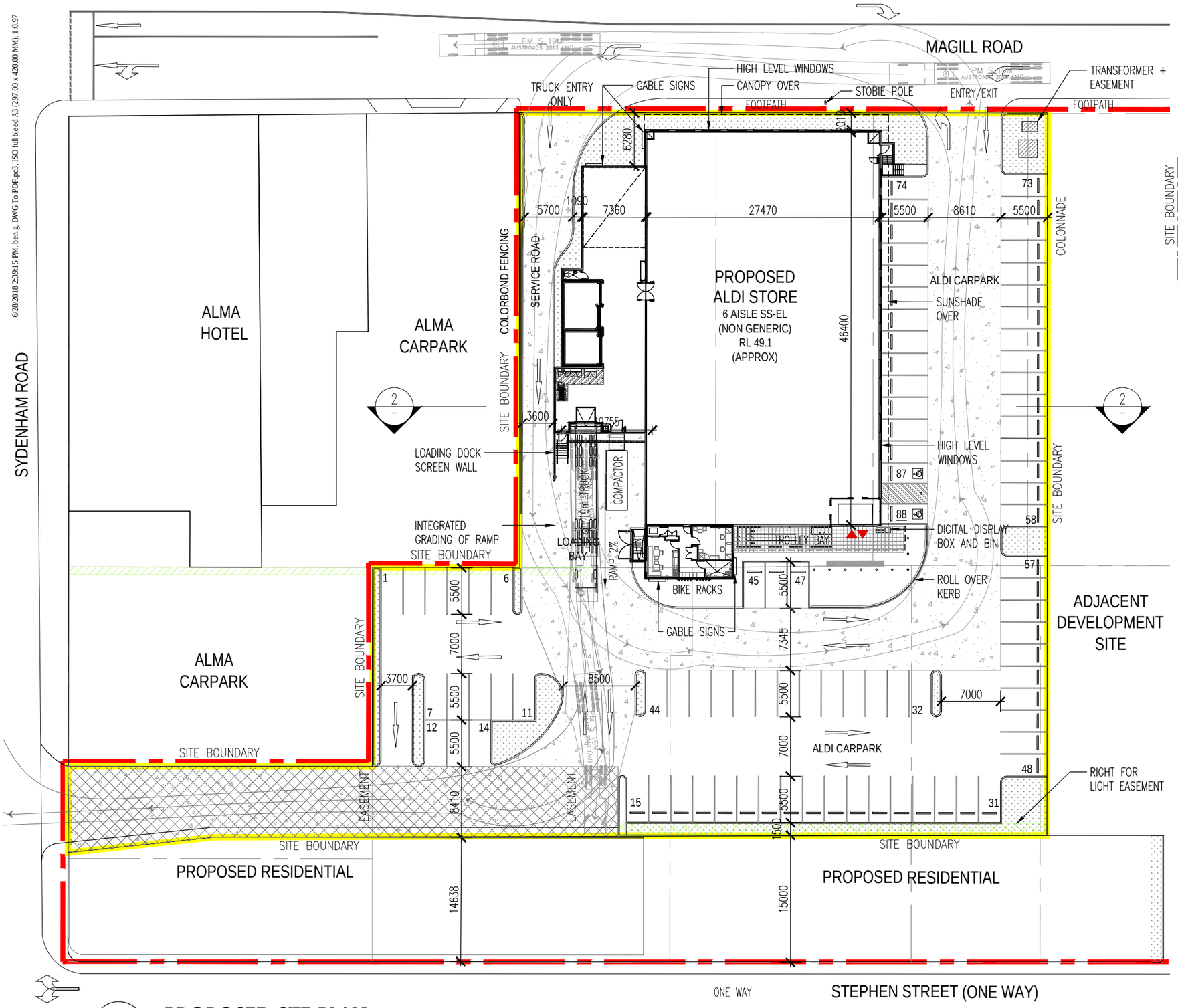

1 - PROPOSED SITE PLAN
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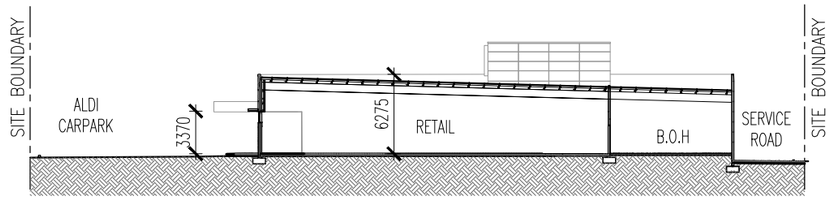

2 - PROPOSED SECTION
1:500

PROPERTY DESCRIPTION	
TOTAL SITE AREA	18978m²
TOTAL ALDI SITE AREA	6201m²
ALDI BUILDING GROSS AREA	1663m²
ALDI BUILDING NETT AREA	1634m²
ALDI RETAIL NETT AREA	1274m²
BOH NETT AREA	286m²
AMENITIES NETT AREA	78m²
REMAINING NETT AREA	364m²
RESERVE AREA	-
PARK / TRAFFIC AREA	3675m²
NUMBER OF CAR PARKS	88
NUMBER OF BOH PALLETS	62
CAR SPACES REQUIRED BY COUNCIL	-
LANDSCAPED AREA	
EASEMENT (EXISTING)	
EASEMENT (NEW)	
RIGHT OF WAY	
CONCRETE PAVEMENT (TRUCK PATH)	
ALDI SITE BOUNDARY	
SITE BOUNDARY	

PRELIMINARY ONLY
FOR CLIENT COMMENT

0 5 10 20

N

REV	DATE	DESCRIPTION	DRN / CHKD
P1	28.06.18	SITE PACK	BG BE

ALDI NORWOOD

76 MAGILL ROAD, NORWOOD, SA 5067

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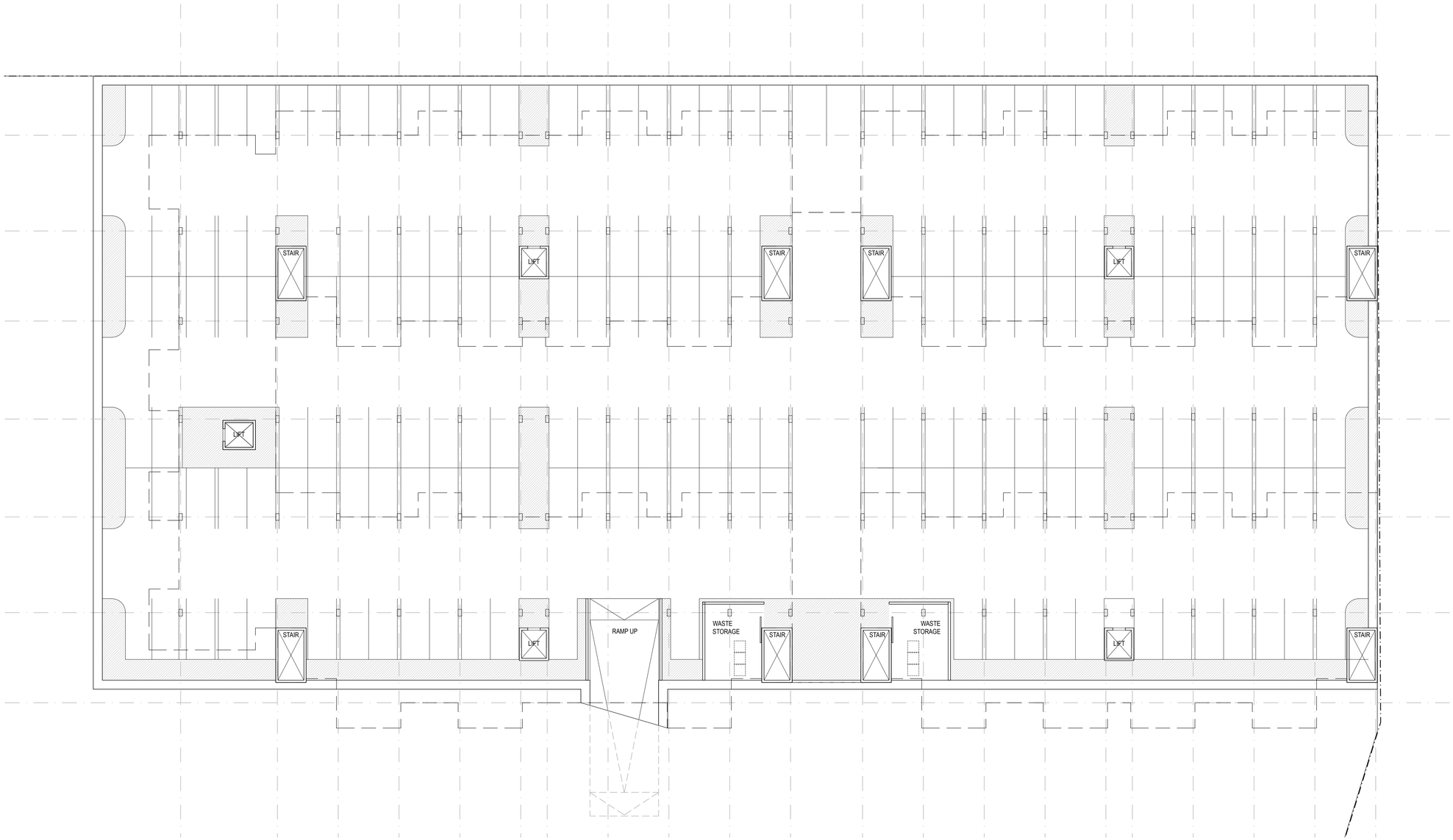
Level 2 390 St Kilda Road Melbourne VIC 3004 AUSTRALIA
135 Greenhill Road Unley SA 5061 AUSTRALIA
Select Architects Pty Ltd ABN:60 120 640 349
Director: Peter Serra AIA - Architect Reg: 15818



APARTMENT BASEMENT FLOOR PLAN

1:200 @ A1

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BASEMENT
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DWG NO
P14

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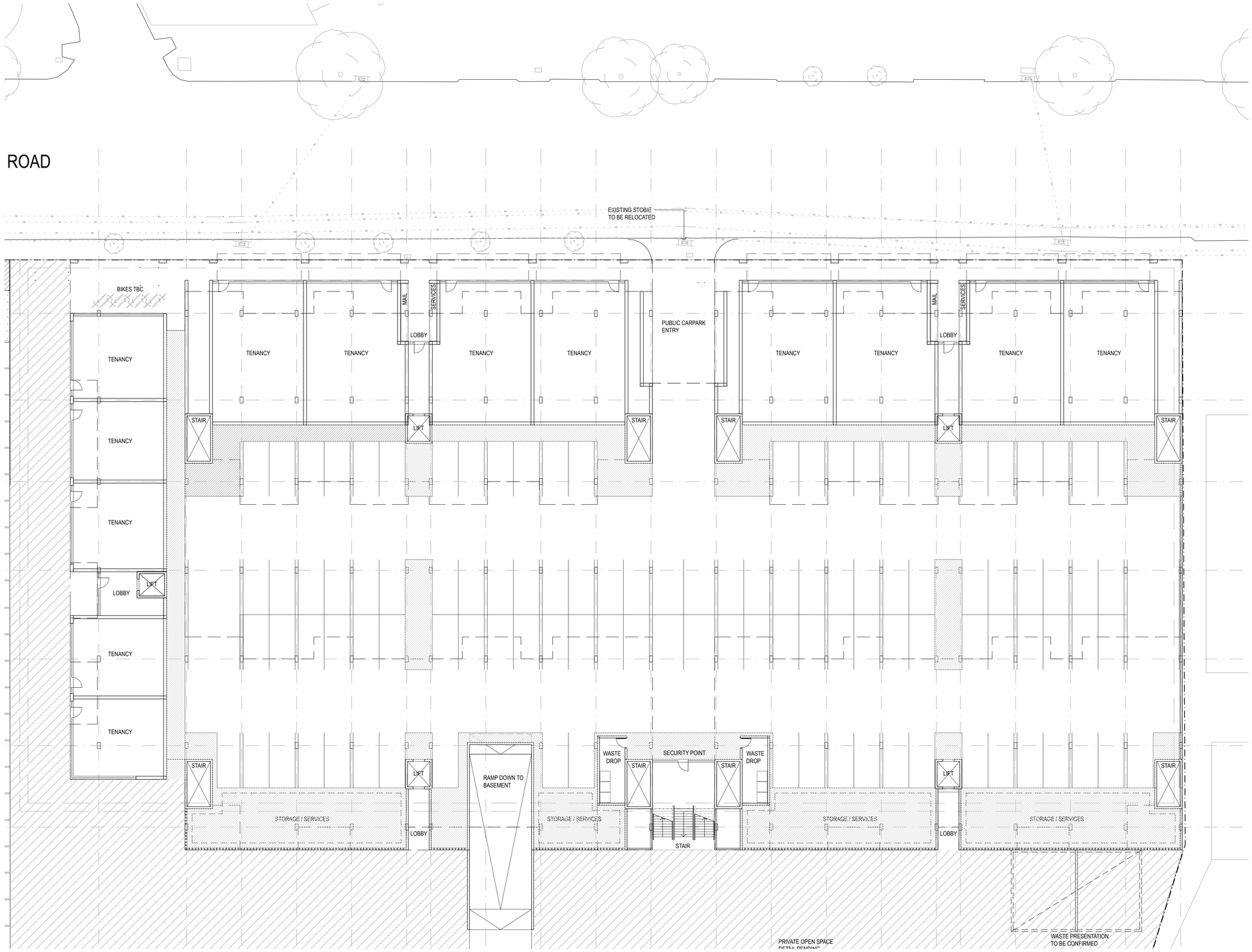

APARMENT GROUND FLOOR PLAN

1:200 @ A1

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PROJECT
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DRAWING
GROUND FLOOR PLAN
APARTMENTS

NORTH

SCALE
AS SHOWN

DATE
JULY 2018

PROJECT NO
28055

DWG NO
P13

REVISION	CHECKED	DRAWN
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APARTMENT LEVEL 1 FLOOR PLAN

1:200 @ A1

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76 MAGILL ROAD
NORWOOD

CLIENT
ALDI | CA CA

DRAWING
FIRST FLOOR PLAN
APARTMENTS

NORTH

SCALE
AS SHOWN

DATE
JULY 2018

PROJECT NO
28055

DWG NO
P15

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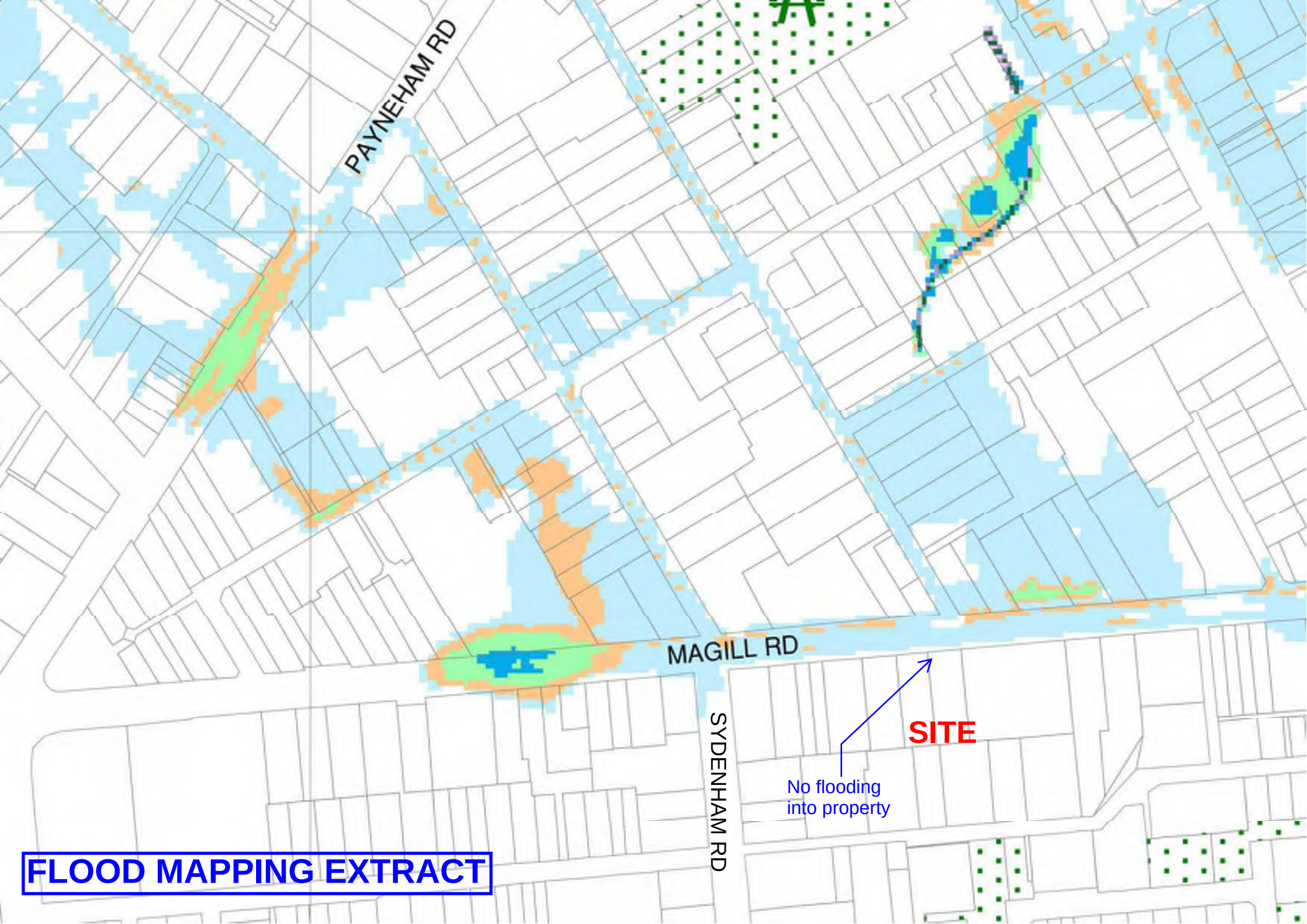
APPENDIX D

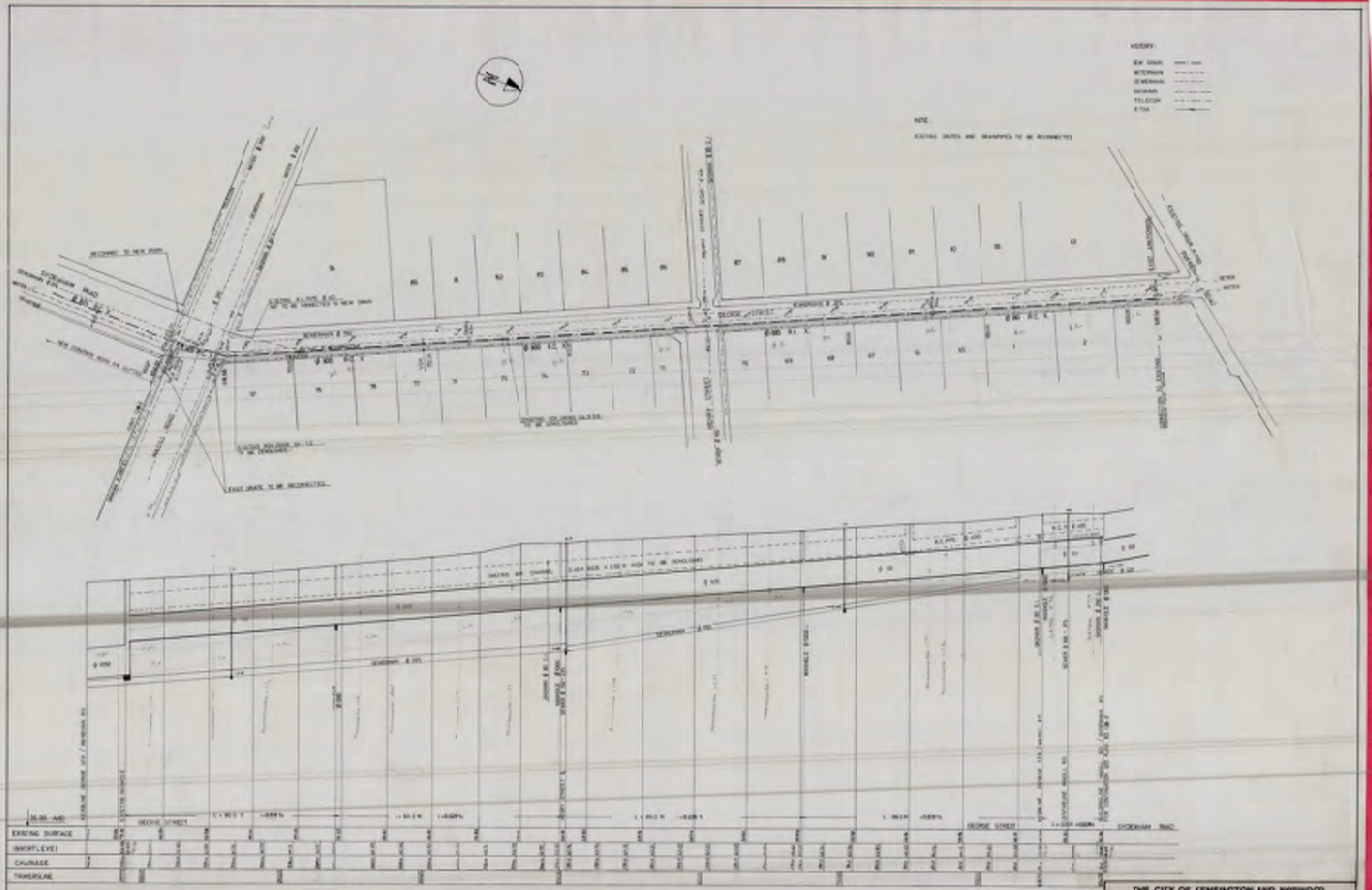
FLOOD MAPPING EXTRACT



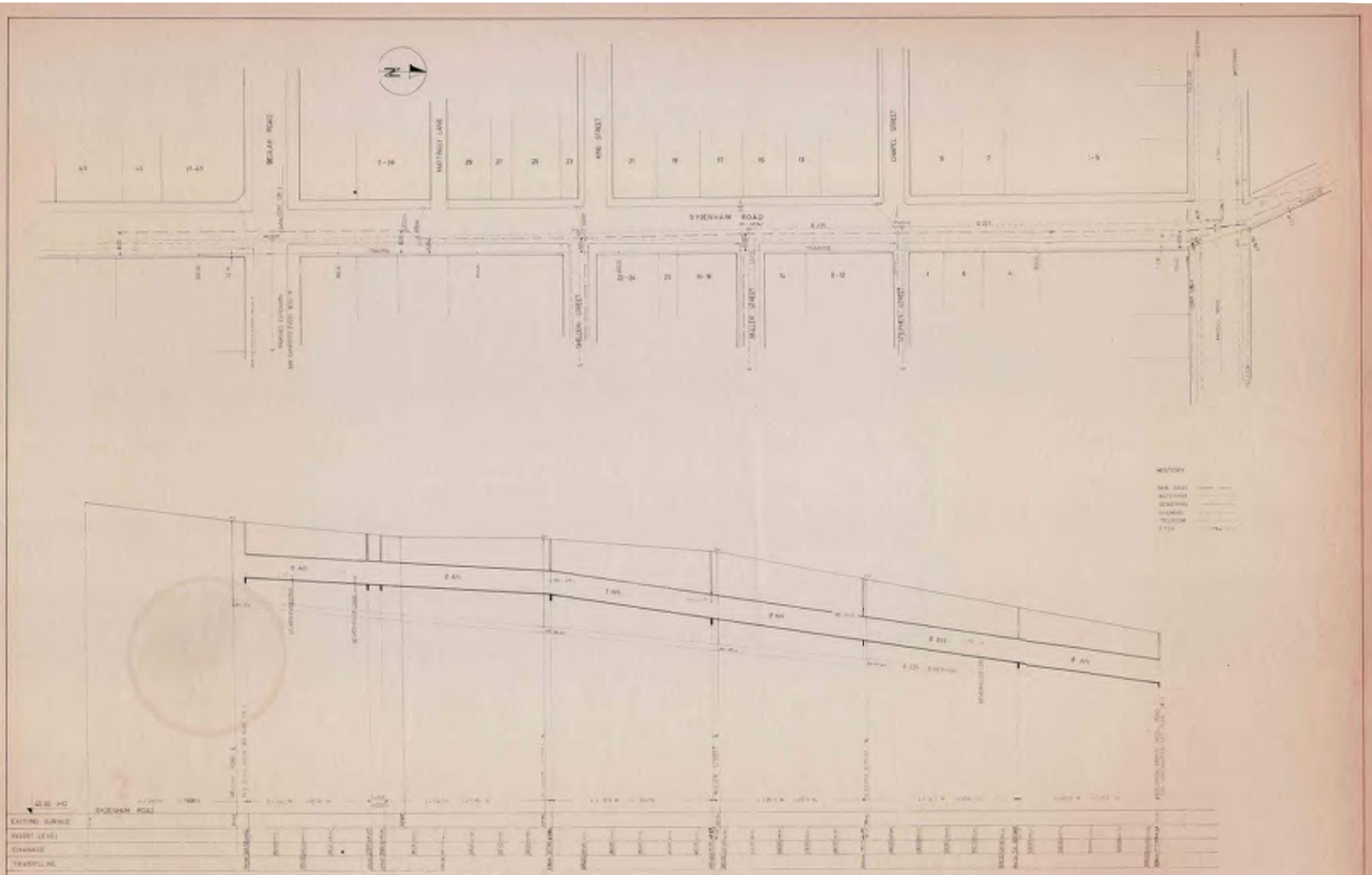
FLOOD MAPPING EXTRACT

APPENDIX E

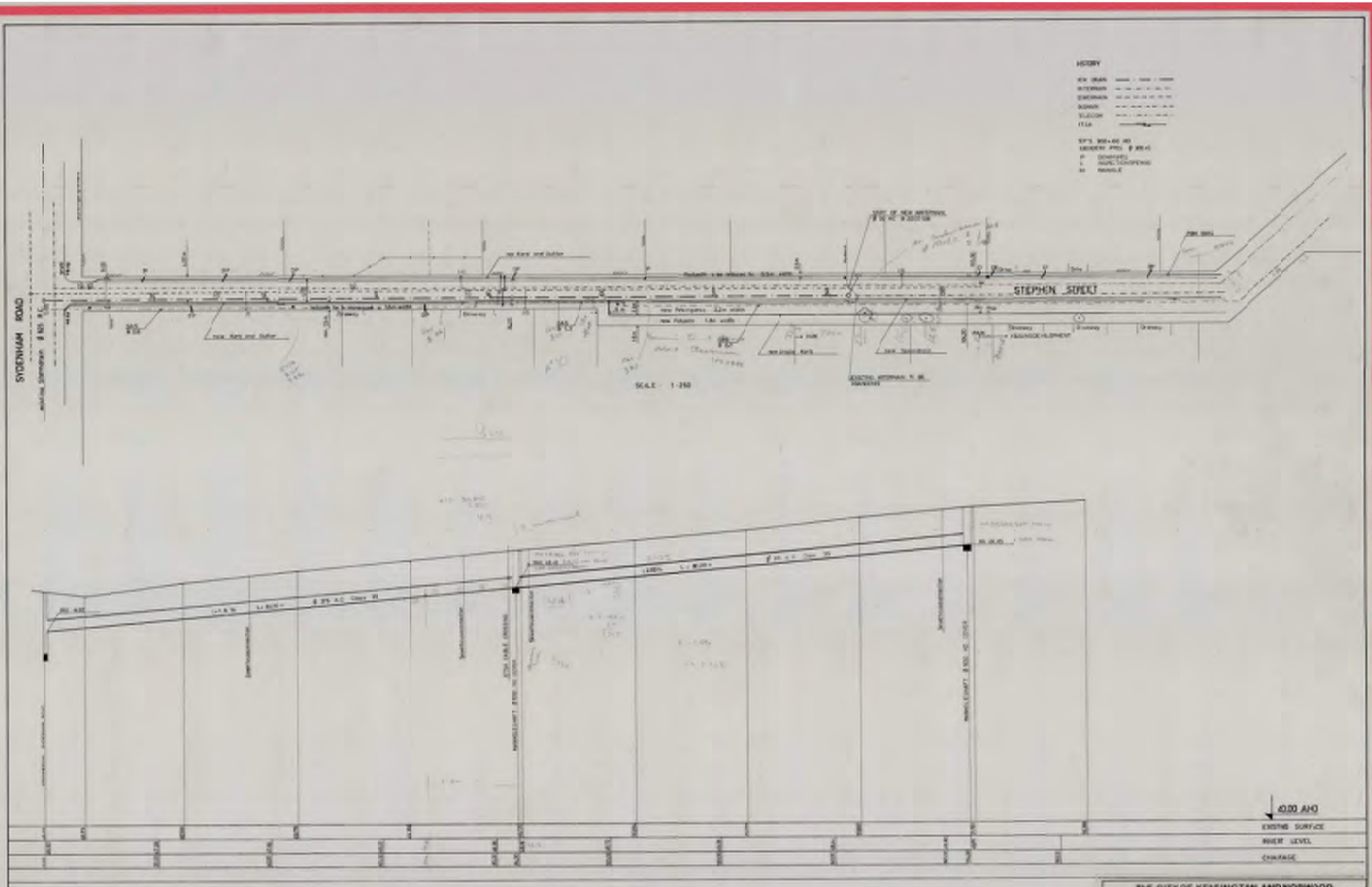
COUNCIL STORMWATER INFRASTRUCTURE PLANS



HISTORY:
NOTE:
EXISTING GATES AND DRAINPIPES TO BE RECONNECTED
SYDENHAM ROAD
GEORGE STREET
EXISTING SURFACE
INVERT LEVEL
CHAINAGE
TRAVERSLINE
THE CITY OF KENSINGTON AND NORWOOD
SYDENHAM ROAD DRAINAGE
EXTENSION GEORGE ST. ST. PETERS
PLAN — PROFILE
1:500/50
ED 128-1
G.P.A.
15.04.83



THE CITY OF KENSINGTON AND NORWOOD		
SYDENHAM ROAD DRAINAGE		1500 / 50
BEULAH ROAD TO NAGILL ROAD		ED 128·2
PLAN — PROFILE		
G.P.A.	7.06.83	



THE CITY OF KENSINGTON AND NORWOOD		
SYDENHAM ROAD DRAINAGE STEPHEN STREET WEST		AS SHOWN ED 137-1
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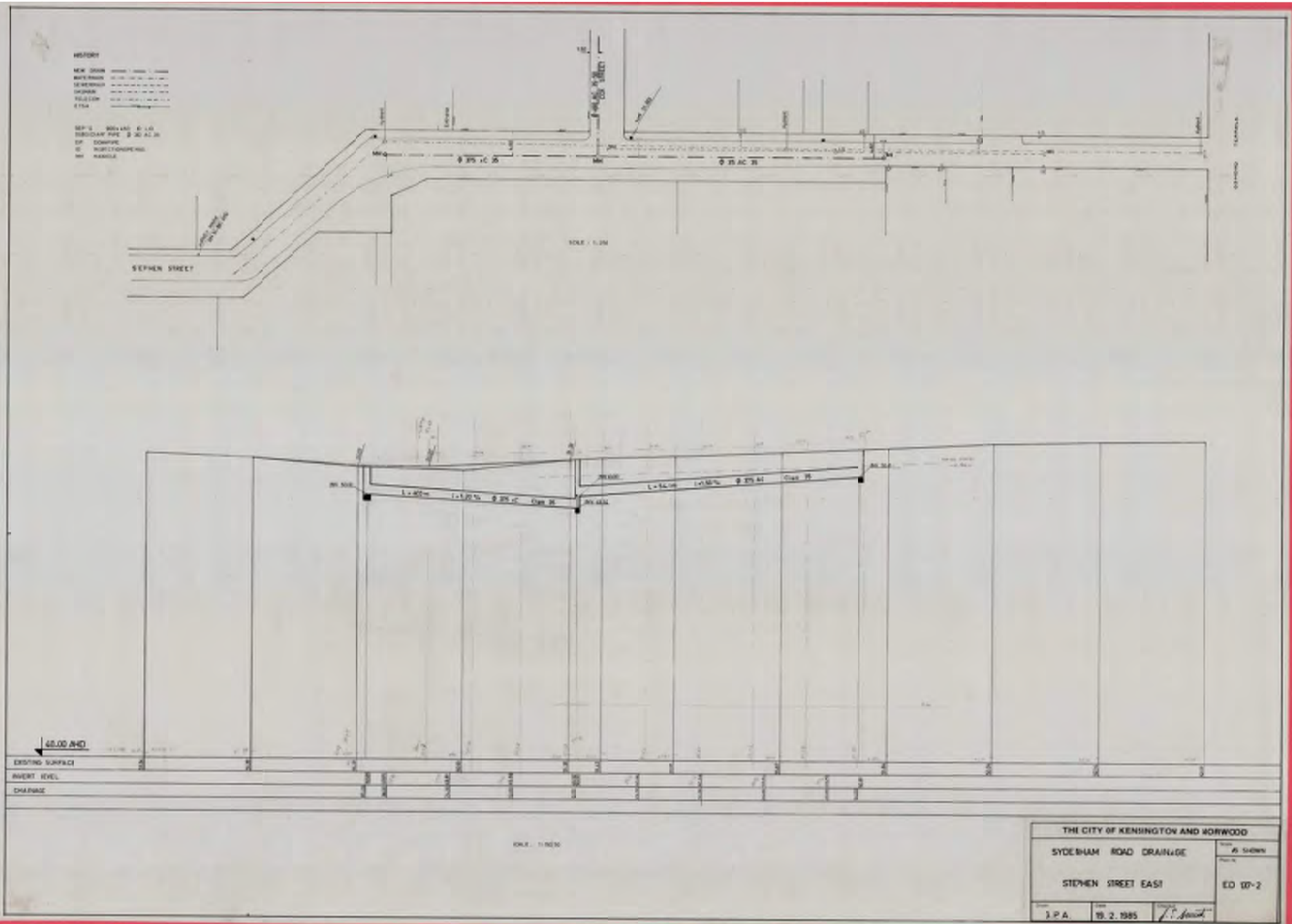
HISTORY
STEPHEN STREET
40.00 AHD
EXISTING SURFACE
INVERT LEVEL
CHAINAGE
THE CITY OF KENSINGTON AND NORWOOD
SYDENHAM ROAD DRAINAGE
STEPHEN STREET EAST
AS SHOWN
ED 137-2
J.P.A.
19. 2. 1985

APPENDIX F

CIVIL CONCEPT CALCULATIONS

ALDI STORE PROPOSAL

MAGILL ROAD, NORWOOD

Stormwater Detention Calcs – concept phase.

- Flooding on Magill Rd of concern to Council, as is capacity of nearby stormwater system. No 100 year ARI ponding breaches the site
- "Post-Development" 100 year ARI events are to be detained on site, such that no more stormwater outflow is discharged than that from a critical "Pre-Development" 5 year ARI event.

PRE-DEVELOPMENT

Site Area = 6201 m²

Currently = 90% roof, 10% conc. pavement

$$\Rightarrow C_W = \underset{\%}{(0.9 \times 1.0)} + \underset{\%}{(0.1 \times 0.9)} = 0.99$$

∴ CRITICAL 5 YEAR OUTFLOW (PRE)

$$\Rightarrow I^{5yr}_{10min} = 60.1 \text{ mm/hr}$$

$$Q^{5yr}_{10min} = (0.99 \times 60.1 \times 6201)/3600$$

$$= \underline{\underline{102.5 \text{ L/sec}}}$$

* ie LIMIT POST DEVELOPMENT OUTFLOW TO 102.5 L/SEC

– Based on 10 min time of concentrations, allow 2 x 15 L/sec max., to discharge to Magill Rd. via galvanized box drains

· Post-Development Impermeability Coefficient

$A_{total} = 6201\ m^2$

Roof total	= 1950 m²	C = 1.0	$\Rightarrow C_{W\,post} = 0.90$
Landscape	= 251 m²	C = 0.1	
Pavement	= 4000 m²	C = 0.9	

In terms of 30 L/sec maximum to Magill Rd, based on $C_W = 0.95$ we'd be looking to target 2 x 415 m² of area (ie 415 m² at $C_W = 0.95$ would give 15 L/sec max. outflow in a 100yr, 10 min event).

∴ Say 2 x 415 m² = 830 m² of site area discharged to the front direct

⇒ Remaining Area = 6201 − 830 = 5371 m², from which only 102.5 − 30 = 72.5 L/sec may result

Refer to conceptual Stormwater Detention Calcs on sheet SWC3-ALD1 and onwards

Critical Detention Component V = 90.6 m3, restricted by a 170mm Ø orifice plate on outlet pipe plumbed into Sydenham Road system.

Detention Capacity to be provided throughout site in oversized pipework and in Loading Dock recess itself (which would be the last of the volume visible)

Wallbridge and Gilbert
60 Wyatt Street
Adelaide SA 5000

Basic Stormwater Detention Assessment

Title: ALDI Norwood - part to Sydenham Rd

Job No: WAD170773 **Page: SWC3-ALDI**

Location: Norwood

Area remaining	5371	m²
Coeff Permeability	0.9	
Time of conc.	10	min
ARI Storm	100 Year	
Max Outflow Qp	72.5	l/sec

Duration min	Intensity mm/hr	Inflow rate Ip l/sec	Inflow Vol Vi m3	Max Storage Smax m3	
5	186	249.8	74.93	42.30	
5.5	178	239.0	78.87	45.16	
6	172	231.0	83.14	48.34	
6.5	166	222.9	86.93	51.04	
7	161	216.2	90.80	53.82	
7.5	156	209.5	94.26	56.20	
8	151	202.8	97.32	58.17	
8.5	147	197.4	100.67	60.43	
9	143	192.0	103.69	62.36	
9.5	139	186.6	106.39	63.97	
10	136	182.6	109.57	66.07	
11	129	173.2	114.32	68.65	
12	124	166.5	119.88	72.03	
13	119	159.8	124.63	74.61	
14	114	153.1	128.58	76.38	
15	110	147.7	132.93	78.56	
16	106	142.3	136.64	80.09	
17	103	138.3	141.07	82.34	
18	99	132.9	143.57	82.67	
19	96	128.9	146.95	83.88	
20	94	126.2	151.46	86.21	
21	91	122.2	153.96	86.53	
22	88	118.2	155.97	86.37	
23	86	115.5	159.36	87.58	
24	84	112.8	162.42	88.47	
25	82	110.1	165.16	89.03	
26	80	107.4	167.58	89.28	
27	78	104.7	169.67	89.19	
28	76	102.0	171.44	88.79	
29	75	100.7	175.23	90.40	
30	73	98.0	176.44	89.44	
32	70	94.0	180.47	89.12	
34	68	91.3	186.27	90.57	CRITICAL
36	65	87.3	188.52	88.47	

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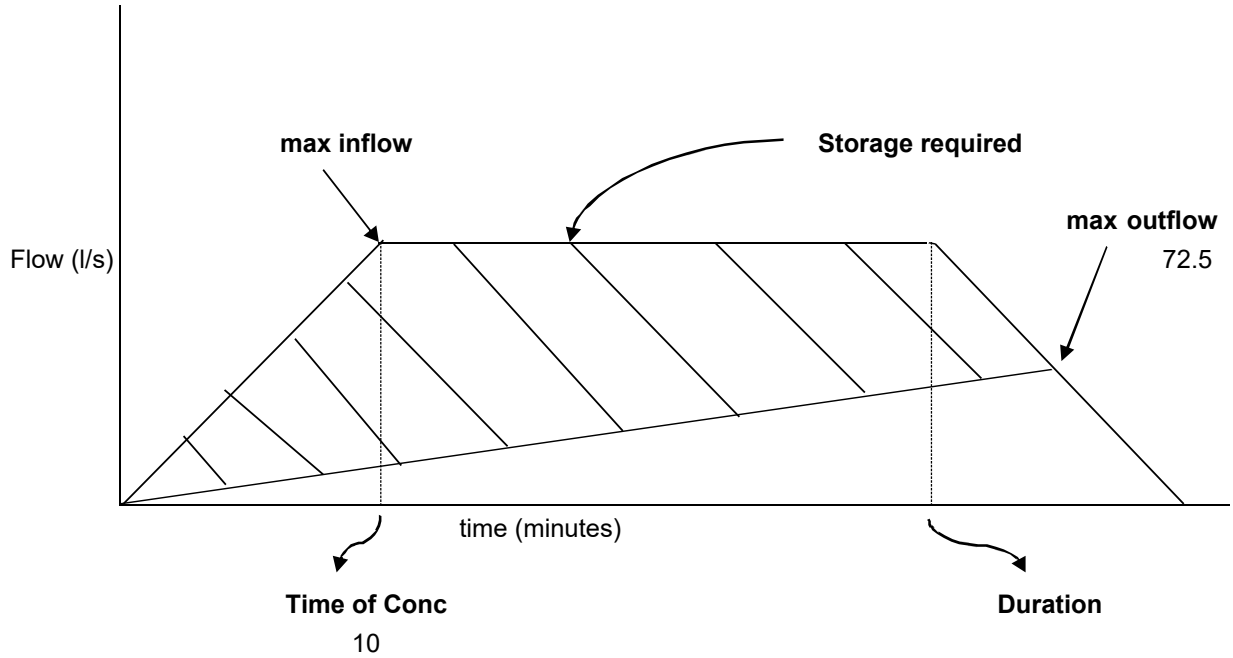
	38	63	84.6	192.87	88.47
	40	61	81.9	196.58	87.83
	45	57	76.5	206.65	87.02
	50	53	71.2	213.50	83.00
(hours)	55	49.5	66.5	219.34	77.96
1	60	46.6	62.6	225.26	73.01
1.25	75	40.2	54.0	242.90	58.03
1.5	90	35.5	47.7	257.41	39.91
1.75	105	31.9	42.8	269.85	19.73
2	120	29.1	39.1	281.33	-1.42
2.25	135	26.8	36.0	291.48	-23.89
2.5	150	24.9	33.4	300.91	-47.09
2.75	165	23.3	31.3	309.73	-70.89
3	180	21.9	29.4	317.59	-95.66



Orifice Flow Calculation

Hydrostatic Head	1.5	m (difference upstream/ downstream)
Required Flow	0.0725	m3/sec
Cd	0.65	
Hole width	0.02	m (if Rectangular)
Hole Ht	1.028	m (if rectangular)
Hole Dia	0.162	m - ORIFICE RESTRICTION

Print Date : 31/07/2018

WGA

WALLBRIDGE GILBERT AZTEC

Job Number ADL189138
Designer WRS
Date JULY 2018
Page Number SWC1

CONCEPTUAL STORMWATER DETENTION CALCS
FOR
76 MAGILL ROAD, NORWOOD.

Following meeting with Scott Dearman and Mark Thomson at City of Norwood Payneham St Peters, we understand strict, strong detention measures are required to limit the site output — due largely to significant flooding issues further west along Magill Rd (sag past Sydenham Rd particularly)

"First to Fifth Creeks 1 in 100 year Flood Inundation Maps" indicate no flooding currently threatens or enters the project site property

- Post-Development 100 year ARI events are to be detained all the way back to that outflow occurring in a Pre-Development 5 year ARI event

PRE-DEVELOPMENT

Site Area total, incl. future separate units is 12840 m²

Site currently in mostly roofed (commercial or industrial) with concrete pavements making up the balance.

$C_{w\,pre} = 0.985$ $\quad I^{5yr}_{10min} = 60.1$ mm/hr

CRITICAL 5 YEAR OUTFLOW $\quad Q^{5yr}_{pre\ 10min} = (0.985 \times 60.1 \times 12840)/3600$

$= \underline{211.1 \text{ L/sec}}$

CONT

∴ LIMIT POST-DEVELOPMENT OUTFLOW TO 211.1 L/SEC
— IF IT CAN BE SPREAD ACCORDINGLY.

POST-DEVELOPMENT

Overall Post-Development site areas (including separate units) is expected to be

- 9500 m² roof C = 1.0
- 800 m² garden C = 0.1
- 2540 m² pavement C = 0.9

$C_W = 0.924$ accordingly

Refer to SWC4

→ If all contained V = 183.7 m² required.

However, much of this will require pumping from tanks below Basement level, so take westernmost and easternmost units out to Stephen St. system directly. Central section of 4 units over 405m² to be connected and detained via surface area's system

Others — westernmost (20 residences) — 1945m² and easternmost (9 residences + roadway) — 1080m² to go out separated to main building
May be difficult to detain effectively

∴ A = 3025m², C_W = 0.9, I = 136.3 mm/h (100yr, 10min)

$Q^{100}_{10} = (0.9 \times 136.3 \times 3025)/3600 = \underline{\underline{103 \text{ L/sec}}}$

going out directly.

∴ 211.1 allowable less 103

= 108.1 L/sec maximum to be discharged from other areas (ie — the balance)

Remaining Area = 12840 − 3025 = 9815 m²

Remaining Surfaces −

6800 Roof C = 1.0 (2700 in units)
475 Garden C = 0.10 (325 in units)
2540 Pavement C = 0.9 (Unchanged)

⟹ $C_W = 0.930$

Refer to Sheet SWC5 for resultant detention capacity required for the remaining area — using this proposed outflow method.

∴ DETENTION CAPACITY REQUIRED = 211.85 m³
OUTFLOW MAXIMUM = 108.1 L/SEC

PROVIDE MOSTLY WITHIN SUB-BASEMENT TANKS WITH PUMP (MULTIPLE) OUTFLOWS TO BOX DRAIN OUTLETS TO MAGILL ROAD, SPREAD OVER 6 OUTLETS

BASEMENT GRADED ACCORDINGLY TO ALLOW SOME TEMPORARY STORAGE MAY PROVIDE AN OPPORTUNITY WHEN DESIGN PLANS ARE MORE ADVANCED.

⟹ REFER TO CONCEPT CIVIL PLAN

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60 Wyatt Street
Adelaide SA 5000

Basic Stormwater Detention Assessment

Title: 76 Magill Road Apartments - overall

Job No: ADL189138 **Page: SWC4**

Area	12840	m²
Coeff Permeability	0.924	
Time of conc.	10	min
ARI Storm	100 Year	
Max Outflow Qp	211.1	l/sec

Location: Norwood

Duration min	Intensity mm/hr	Inflow rate Ip l/sec	Inflow Vol Vi m3	Max Storage Smax m3	
5	186	613.0	183.89	88.90	
5.5	178	586.6	193.58	95.42	
6	172	566.8	204.06	102.74	
6.5	166	547.1	213.36	108.86	
7	161	530.6	222.85	115.19	
7.5	156	514.1	231.35	120.52	
8	151	497.6	238.87	124.87	
8.5	147	484.5	247.07	129.91	
9	143	471.3	254.49	134.16	
9.5	139	458.1	261.11	137.62	
10	136	448.2	268.92	142.26	
11	129	425.1	280.59	147.59	
12	124	408.7	294.23	154.91	
13	119	392.2	305.90	160.24	
14	114	375.7	315.59	163.59	
15	110	362.5	326.26	167.94	
16	106	349.3	335.36	170.70	
17	103	339.4	346.24	175.24	
18	99	326.3	352.37	175.04	
19	96	316.4	360.67	177.01	
20	94	309.8	371.74	181.75	
21	91	299.9	377.87	181.55	
22	88	290.0	382.82	180.16	
23	86	283.4	391.12	182.13	
24	84	276.8	398.64	183.31	
25	82	270.2	405.36	183.70	CRITICAL
26	80	263.6	411.29	183.30	
27	78	257.1	416.43	182.11	
28	76	250.5	420.78	180.13	
29	75	247.2	430.08	183.09	
30	73	240.6	433.04	179.72	
32	70	230.7	442.93	176.94	
34	68	224.1	457.17	178.51	
36	65	214.2	462.70	171.38	

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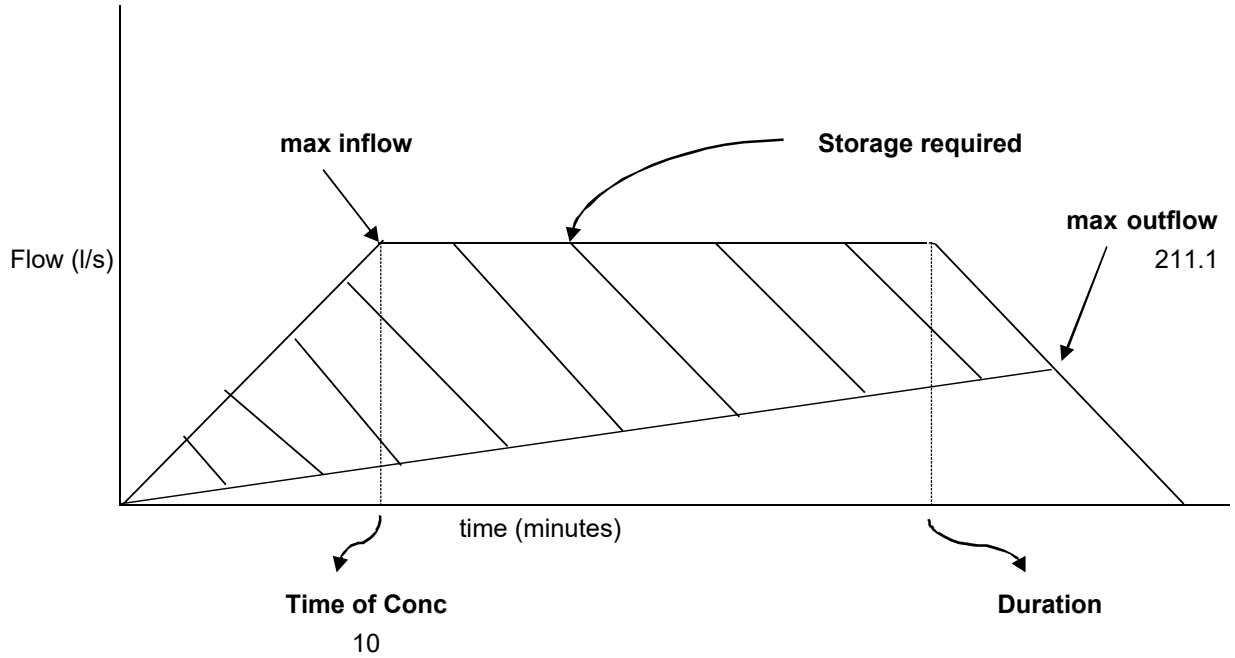
	38	63	207.6	473.38	169.40
	40	61	201.0	482.48	165.83
	45	57	187.8	507.19	158.88
	50	53	174.7	524.00	144.02
(hours)	55	49.5	163.1	538.34	126.69
1	60	46.6	153.6	552.87	109.56
1.25	75	40.2	132.5	596.17	57.87
1.5	90	35.5	117.0	631.77	-1.53
1.75	105	31.9	105.1	662.32	-65.98
2	120	29.1	95.9	690.49	-132.80
2.25	135	26.8	88.3	715.41	-202.88
2.5	150	24.9	82.1	738.54	-274.74
2.75	165	23.3	76.8	760.20	-348.08
3	180	21.9	72.2	779.48	-423.79



Wallbridge and Gilbert
60 Wyatt Street
Adelaide SA 5000

Basic Stormwater Detention Assessment

Title: 76 Magill Road Apartments - less units

Job No: ADL189138 **Page: SWC5**

Area remaining	9815	m²
Coeff Permeability	0.93	
Time of conc.	10	min
ARI Storm	100 Year	
Max Outflow Qp	108.1	l/sec

Location: Norwood

Duration min	Intensity mm/hr	Inflow rate Ip l/sec	Inflow Vol Vi m3	Max Storage Smax m3
5	186	471.6	141.48	92.84
5.5	178	451.3	148.94	98.67
6	172	436.1	157.00	105.11
6.5	166	420.9	164.15	110.64
7	161	408.2	171.45	116.32
7.5	156	395.5	178.00	121.24
8	151	382.9	183.78	125.40
8.5	147	372.7	190.09	130.09
9	143	362.6	195.79	134.18
9.5	139	352.4	200.89	137.65
10	136	344.8	206.90	142.04
11	129	327.1	215.88	147.77
12	124	314.4	226.37	155.03
13	119	301.7	235.35	160.76
14	114	289.1	242.80	164.97
15	110	278.9	251.02	169.94
16	106	268.8	258.02	173.70
17	103	261.2	266.38	178.82
18	99	251.0	271.10	180.30
19	96	243.4	277.49	183.44
20	94	238.3	286.01	188.72
21	91	230.7	290.73	190.19
22	88	223.1	294.53	190.75
23	86	218.1	300.92	193.90
24	84	213.0	306.70	196.44
25	82	207.9	311.87	198.37
26	80	202.8	316.44	199.69
27	78	197.8	320.39	200.40
28	76	192.7	323.74	200.50
29	75	190.2	330.89	204.41
30	73	185.1	333.17	203.45
32	70	177.5	340.78	204.57
34	68	172.4	351.73	209.04
36	65	164.8	355.99	206.81

Print Date : 24/07/2018

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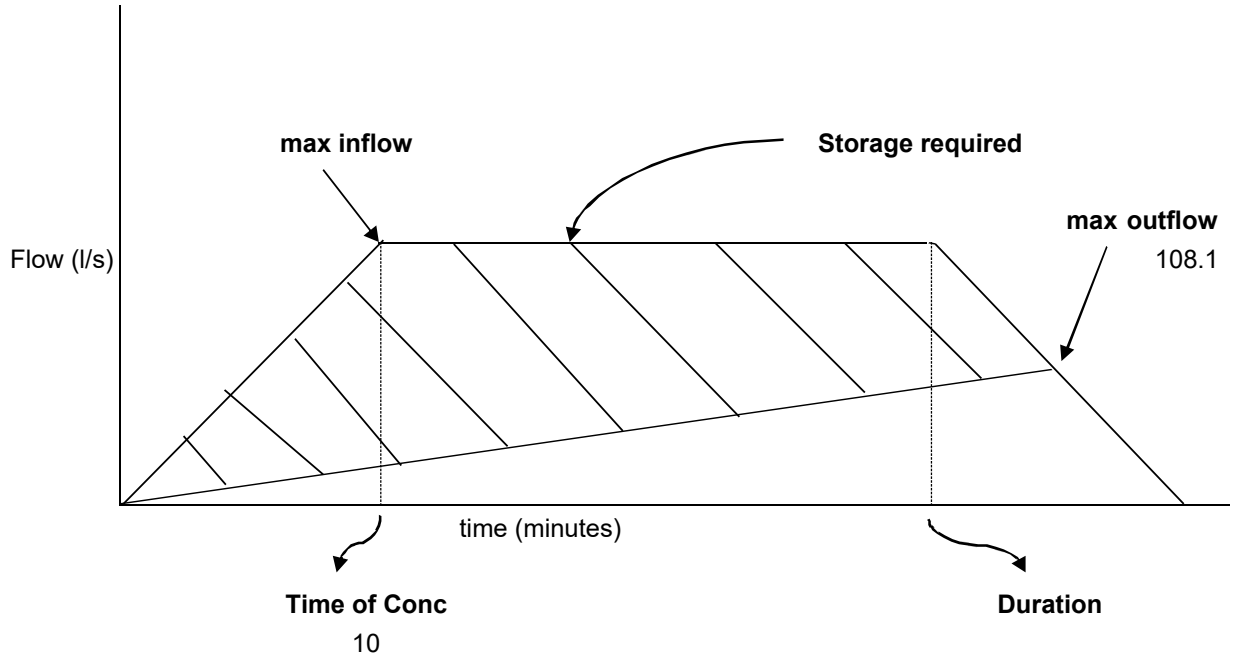
Adelaide SA 5000

	38	63	159.7	364.21	208.54	
	40	61	154.7	371.20	209.05	
	45	57	144.5	390.22	211.85	CRITICAL
	50	53	134.4	403.15	208.57	
(hours)	55	49.5	125.5	414.18	203.39	
1	60	46.6	118.2	425.36	198.35	
1.25	75	40.2	101.9	458.68	183.02	
1.5	90	35.5	90.0	486.06	161.76	
1.75	105	31.9	80.9	509.57	136.62	
2	120	29.1	73.8	531.25	109.66	
2.25	135	26.8	68.0	550.42	80.18	
2.5	150	24.9	63.1	568.21	49.33	
2.75	165	23.3	59.1	584.87	17.35	
3	180	21.9	55.5	599.71	-16.46	



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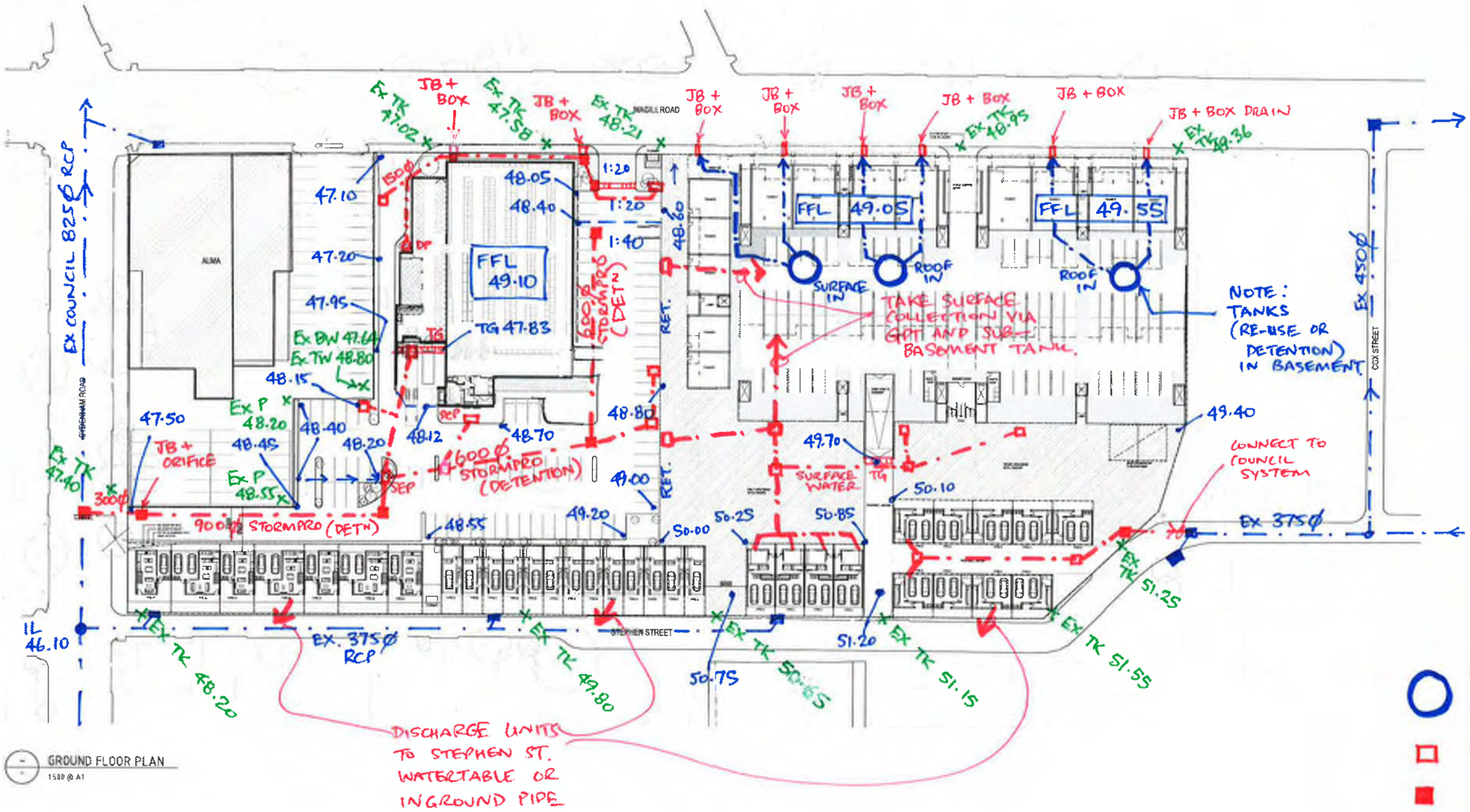
APPENDIX G

SITE CIVIL CONCEPT

CIVIL CONCEPT



GROUND FLOOR PLAN
1:500 @ A1

PRELIMINARY 13/07/18

HASSELL | select architects | tectvs

FOR APPROVAL ONLY
NOT FOR CONSTRUCTION

PROJECT: 76 MAGILL ROAD NORWOOD
CLIENT: ALDI | CA CA

DRAWING: GROUND FLOOR PLAN
SCALE: AS SHOWN
DATE: JULY 2018

PROJECT NO: 28055
DRAWING NO: P01
REVISION: 03
CHECKED: FB
DRAWN: MGF

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LUCID
CONSULTING AUSTRALIA

FORMER CAROMA SITE REDEVELOPMENT

76 MAGILL ROAD, NORWOOD

SITE SERVICES INFRASTRUCTURE REPORT

Date: 30 July 2018

Document Number: LCE12541-002B

DOCUMENTATION ISSUE REGISTER

REVISION	DESCRIPTION	DATE ISSUED	ENGINEER	REVIEWED
-	Site Services Infrastructure Report	19 July 2018	PC	-
A	Site Services Infrastructure Report	27 July 2018	PC	-
B	Site Services Infrastructure Report	30 July 2018	PC	-

CONTENTS

1. INTRODUCTION 2

2. ELECTRICAL INFRASTRUCTURE 3

2.1 EXISTING SA POWER NETWORK SERVICES 3

2.2 PROPOSED MODIFICATIONS TO SA POWER NETWORKS INFRASTRUCTURE 7

3. COMMUNICATIONS INFRASTRUCTURE 10

3.1 COMMUNICATION SERVICES 10

4. SEWER INFRASTRUCTURE 11

4.1 EXISTING SEWER INFRASTRUCTURE 11

5. DOMESTIC COLD WATER INFRASTRUCTURE 12

5.1 EXISTING DOMESTIC COLD WATER INFRASTRUCTURE 12

6. NATURAL GAS INFRASTRUCTURE 13

7. FIRE SERVICES INFRASTRUCTURE 14

APPENDIX A 15

1. INTRODUCTION

The purpose of this report is to provide preliminary information in relation to the Services Utilities infrastructure located adjacent the subject development site, and to confirm that sufficient investigations have been carried out with the Services Utilities to verify that sufficient capacity is available or can be made available to service the proposed redevelopment of the former 'Caroma' site at 76 Magill Road, Norwood.

The proposed redevelopment of the former 'Caroma' site at 76 Magill Road Norwood is a joint venture between CACA Nominees Pty Ltd and ALDI Stores. The overall site redevelopment will comprise an ALDI Store, a Mixed-Use Residential/Commercial development, both fronting Magill Road and a mix of Torrens and Community Title townhouses at the rear of the site off Stephen Street. The ALDI Store and Residential/Commercial Mixed-Use sites will be configured as individual Torrens Title allotments, with both sites to be provided with access off Magill Road and Stephen Street at the rear.

The overall site redevelopment will be undertaken in stages as follows;

Stage 1 – Proposed ALDI Store and the rear Torrens Title Townhouses

Stage 2 – Western half of the Mixed-Use Residential/Commercial development plus 4 x Torrens Title Townhouses.

Stage 3 – Eastern half of the Mixed-Use Residential/Commercial development plus Community Title Townhouse development on eastern side of Stephen Street.

This report assesses the following key issues;

- Capacity of existing Services Utilities infrastructure to cater for the overall site redevelopment.
- Modifications/upgrade required to existing Services Utilities infrastructure to cater for the site redevelopment and to establish suitably sized services connections to the site.
- Assess the opportunities to share infrastructure between the adjacent developments

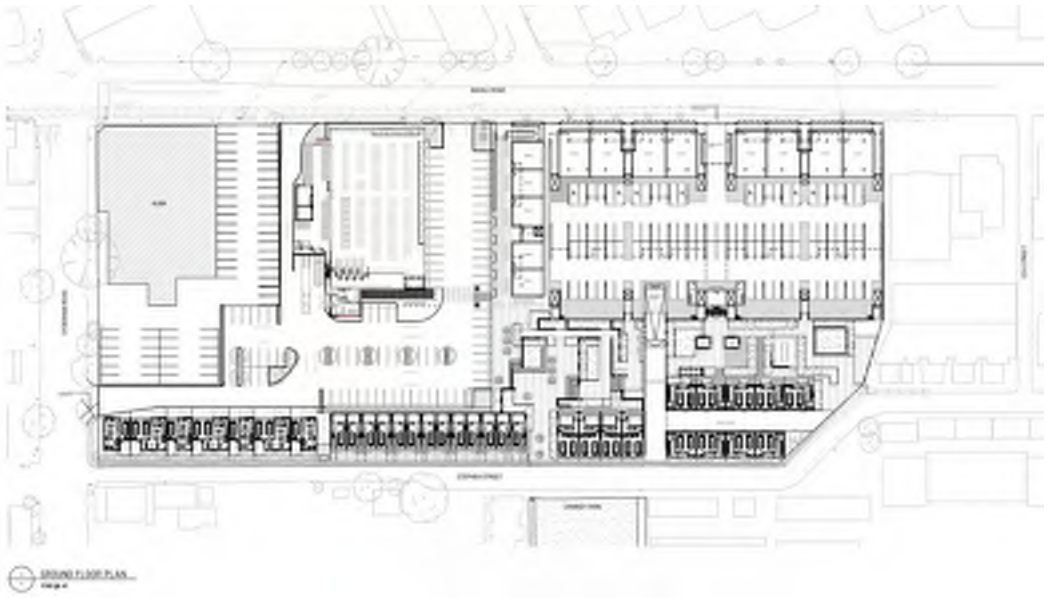


Fig 1 – 'Caroma' Site Redevelopment Proposed Site Plan

(image courtesy of TECTVS Architectss)

2. ELECTRICAL INFRASTRUCTURE

2.1 EXISTING SA POWER NETWORK SERVICES

2.1.1 EXISTING SITE POWER SUPPLY

The 'Caroma' site comprises 3 x existing SAPN Transformers of which 2 are positioned within close proximity to each other off Magill Road, and the third located within an on-site transformer room located off Stephen Street. Refer **Appendix A** for Option 1 - *Electrical Services Infrastructure Site Plan* for the entire 'Caroma' site redevelopment indicating the location of all existing transformers which are to be made redundant and location of proposed new transformers

SAPN have confirmed that the Magill Road transformers are both 1Mva capacity transformers *(SAPN Identification No. TX 35905 and TX18925)* and are dedicated to the site, with the exception of transformer ID No TX18925 which provides a high voltage connection facility, with an outgoing high voltage feed providing a service connection to a transformer *(Identification TX No 24913)* located on a retail site on the northern side of Magill Road directly opposite the proposed ALDI development.

Fig 2 – Google Streetview image of the Magill Road transformers. The 2nd transformer is setback into the building behind the chainmesh gates to right of image.

Both above referenced transformers positioned off Magill Road, derive a dedicated high voltage feed (dedicated feed per each transformer) off a stobie pole (*reference stobie pole No 5 – refer Section 2.1.2 below)* positioned to the west of the transformers and directly in front of the ALDI development site.

The above-mentioned transformers will be made redundant as part of the overall site redevelopment works. SAPN works will include reconfiguring of the existing high voltage infrastructure to maintain supply to the existing transformer TX24913 located on the northern

side of Magill Road. Refer *Section* 2.2.2 for details of the proposed new site power supply arrangement including associated high voltage modifications.

As mentioned above, the existing 'Caroma' site comprises a third transformer which is located within an on-site transformer room at the rear of the site, off Stephen Street. Refer **Fig 3 -*Google Streetview*** below for image of the Transformer Room external façade.

SAPN have confirmed that this transformer *(identification No TX 116)* is a 2Mva transformer which derives a high voltage feed from overhead lines in Sydenham Road, and also includes an out-going low voltage feed to serve customers along Sydneham Road.

Fig 3 – Google Streetview image of the Stephen Street Transformer Room

This transformer will require abolishment as part of the overall site redevelopment. SAPN have confirmed that the existing outgoing service to customers on Sydneham Road will need to be maintained and therefore a suitably sized replacement transformer will need to be established within close proximity to the redundant transformer to provide the new feed to the existing service connection.

In collaboration with SAPN and CACA Nominees Pty Ltd, a suitable location for a new 500Kva transformer has been agreed on the proposed 'Green Space' in between 2 groups of the Torrens Title townhouses, just west of the existing transformer. The new transformer will derive its high voltage feed via a cut-in and re-diversion of the existing high voltage feed serving the redundant transformer.

The new transformer off Stephen Street will also provide a new connection to the existing low voltage service to customers on Sydenham Road. The new transformer will also provide a low voltage service to the proposed new residential townhouses proposed to be constructed along Stephen Street by CACA Nominees Pty Ltd.

2.1.2 EXISTING OVERHEAD LINES EXISTING BUILDING SUPPLY – MAGILL ROAD

Overhead high voltage(11Kv) and low voltage cables run directly adjacent the entire length of the former 'Caroma' site. As mentioned above, Stobie No 5 (refer **Fig 4**) is positioned directly in front of the proposed ALDI development and comprises 2 x high voltage over/under connections which provide a feed to the transformers currently serving the 'Caroma' site that will become redundant.

With reference to **Figure 4** – survey photo of Stobie Pole No 5, the bare cables associated with the existing high voltage connections present a potential high voltage cable proximity issue to the ALDI building, however given that the redundant transformers are being removed, this risk need not be further considered.

With reference to **Figure 4**, the set-out of the proposed ALDI building on the site will still need to maintain the minimum set-back and clearance from the high voltage terminals (surveyed at 1090mm from site front boundary) and nearest high voltage line (Surveyed at 2.49m from site front boundary) The reference standard published by the Office of the Technical Regulator and titled "*Building Safely Near Power lines"* stipulates a minimum setback dimension from bare 11Kv cables or equipment of 3.1m.

Taking the HV terminal at the top of the stobie pole as worst case, the proposed ALDI building will be set back a minimum of 2010mm from the front boundary to achieve the minimum set back dimension of 3.1m. As mentioned above, the bare conductive loops in the photo can be ignored as they will be removed.

The main overhead cables fixed to Stobie Pole 5 are installed on an alley arm which extends the high voltage cables away from the boundary with closest conductor aligned 2.49m from the boundary. With the proposed Aldi building set-back, the resultant clearance from the nearest conductor is in excess of the minimum stipulated horizontal clearance from 11kv high voltage cables of 3.1m. Also refer to *Section 2.2 - Proposed SA Power Networks Supply*.

In total there are 4 stobie poles postioned in front of the Caroma site. The remaining 3 stobie poles are postioned in front of the Mixed Use Residential/Commercial site. Whilst Stobie Poles 3 and 4 are also provided with alley arms the easternmost Stobie Pole (reference Stobie Pole No 2 – **Fig 5**) is not fitted with an alley arm hence presents the worse case for proximity of high voltage cables to buildings. Accordingly the set back of the apartment building has been determined based on the nearest high voltage cable/equipment of 760mm from the boundary to achieve the required minimum of 3.1m clearance.

Addtionally, Stobie pole No 3 has been indentified as clashing with a vehicular exit from the proposed ground floor carpark of the Mixed-Use Residential/Commercial building. Discussions have been undertaken with SAPN in relation to relocating this stobie pole west to clear the driveway.

In addtion to the requirement for buildng minimum clearance proximity requirementts near power lines, the Office of the Techanical Regulator also monitors and regulates working safely near power lines. Accordingly, the constructability issues will need to be considered. Where applicable, delivery and erection of large precaast panels in the vicinity of overhead lines is particulalry problematic . In the case of the Caroma site redevelopment site, rear site access off Stephen Street is available for both the Aldi and the Mixed Use developent sites hence expect that constructability issues relating to overhead power lines can be mitigated.

Figure 4 – Reference Stobie Pole No 5
(image courtesy of Alexander Symonds Surveyors)

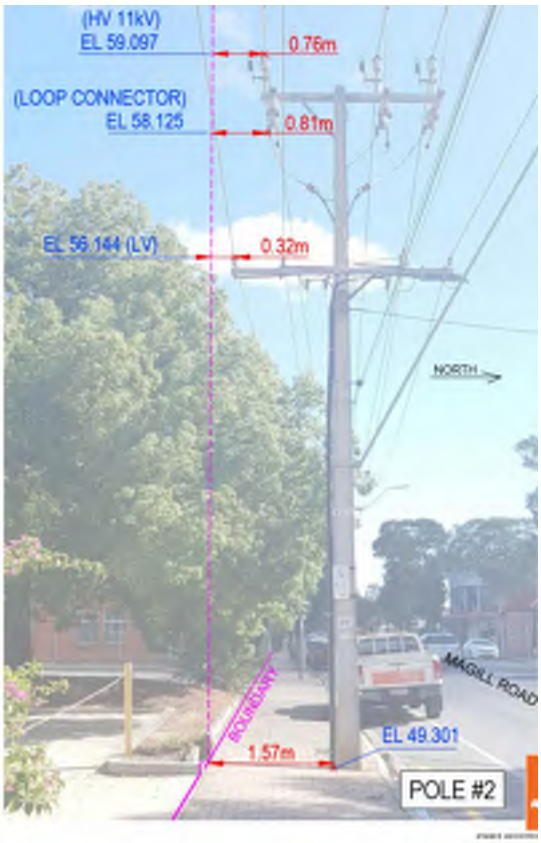


Figure 4 – Reference Stobie Pole No 2
(image courtesy of Alexander Symonds Surveyors)

2.2 PROPOSED MODIFICATIONS TO SA POWER NETWORKS INFRASTRUCTURE

2.2.1 ABOLISHMENT WORKS

With reference to *Section 2.1.1 Existing Site Power Supply*, the site comprises 3 x SAPN transformers which will require abolishment to suit the site redevelopment including reconfiguring of site land titles. Refer **Appendix A** for details on location of existing site transformers.

Prior to commencing any demolition works on the site it is recommended that an application be made with SAPN to disconnect any physical connections to the former 'Caroma' site within the transformer cubicles.

The staging of the abolishment of the Stephen Street transformer including demolition of the associated transformer room and establishment of the new transformer is reliant on the extent of Stage 1 demolition works and/or the timing for construction for the proposed Torrens Title residential townhouses being constructed by CACA Nominees Pty Ltd which will derive a low voltage feed from the new transformer.

As previously mentioned, abolishment of the existing Stephen Street transformer cannot occur until the proposed new 500Kva transformer is established and the existing high and low voltage feeds to/from the existing transformer are rediverted to the new transformer.

A possible location for the new transformer has been identified just west of the existing transformer within planned 'green space' in between 2 groups of proposed townhouses.

For the 2 x transformers positioned off Magill Road, these may only be removed after the new 1.5MVa transformer is established on the ALDI site. As part of this works, the high voltage feed serving the transformer on the Retail site on the northern side of Magill Road, which is currently arranged as loop-in/loop-out connection from one of the transformers to be made redundant, will be re-connected in a similar configuration to the new site transformer. The existing high voltage feed extends directly past the location of proposed new site transformer; hence the high voltage joint will be undertaken in vicinity of the new transformer.

2.2.2 NEW SITE POWER SUPPLY

<u>OPTION 1</u>

When considering options for providing power to the overall development, it has been resolved with SAPN that the most cost-effective solution is to establish a single 1.5Mva transformer with 2 x outgoing feeds to independently service both the proposed ALDI Store and the Mixed-Use Residential/Commercial developments.

As mentioned previously the Torrens and Community Title townhouses will each derive a power supply connection from a new low voltage supply derived from the proposed new 500kva transformer to be established off Stephen Street.

The abolishment works associated with the existing transformers will form a shared responsibility between the 2 major site stakeholders.

The below summarises the benefits presented by the proposed power supply solution;

- By abolishing the 2 x transformers on Magill Road, and relinquishing the high voltage connections on the stobie pole (no 5) adjacent the ALDI building, removes the proximity

issue of bare high voltage cabling which is currently very close to the front boundary of the proposed ALDI development.

- The proposed solution also includes the establishment of a new stobie pole in vicinity of the proposed new shared site transformer which allows the installation of a new high voltage over/under connection to feed the new 1.5Mva transformer without re-introducing a HV proximity issue on the stobie pole positioned directly in front of the proposed ALDI building.

- The new 1.5Mva transformer also allows a connection facility to allow a high voltage loop-in/loop-out feed to re-connect to the underground high voltage feed to the existing transformer on the northern side of Magill Road.

In summary the proposed power supply solution for the commercial aspects of the development comprises the establishment of a new 1.5Mva transformer in the garden bed adjacent the eastern boundary at the front of the proposed ALDI development. The 1 x 1.5Mva transformer will have sufficient capacity to service both the ALDI and Mixed-Use Residential/Commercial development site.

As previously described, the new transformer will derive its high voltage feed from a proposed new stobie pole to be positioned within close proximity of the proposed new transformer.

SAPN have confirmed that the 1.5Mva transformer can be configured with a fused connection to service the ALDI development and a circuit breaker to service the Mixed-Use Residential/Commercial development.

Refer **Figure 6** below depicting the conceptual arrangement for the proposed shared power supply connection to the site.

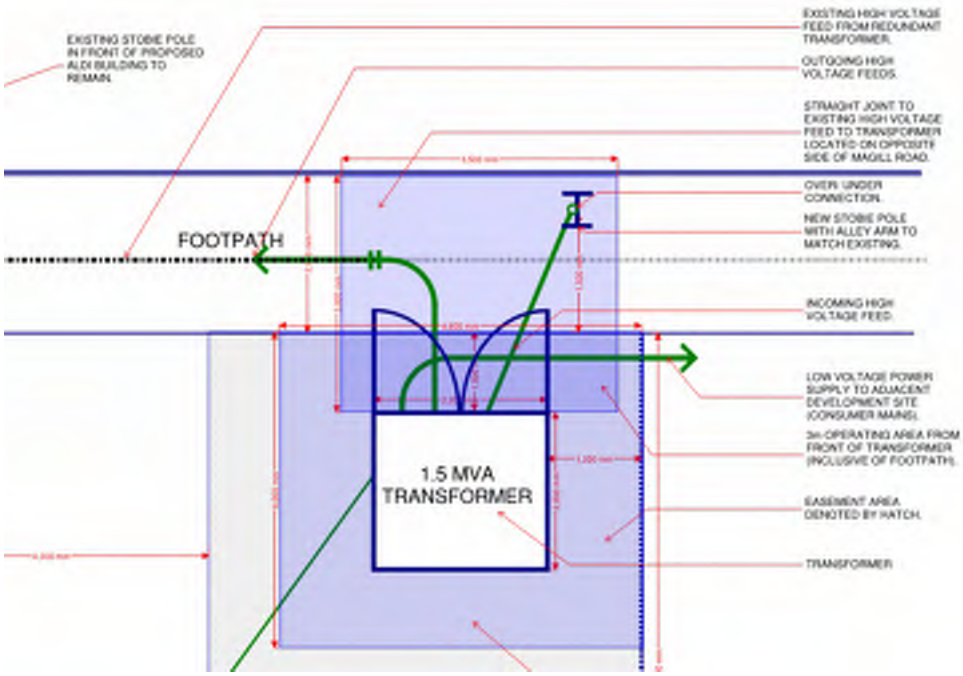


Figure 6 – Option 1 - Proposed Power Supply Arrangement
(Refer Appendix B for full version of layout)

OPTION 2

Discussions with CACA Nominees Pty Ltd indicates that undergrounding the overhead lines positioned directly in front of the Mixed-Use Residential/Commercial development is being considered. SAPN have confirmed that the underground option will require that a switching cubicle be established, which would need to be positioned adjacent the proposed site transformer. Refer Figure 7 below for the associated equipment arrangement relating to the undergrounding option.

It should however be noted that whilst this option is being considered, due to the significant cost involved in undergrounding the high and low voltage cabling for the entire length of the site's Magill Road street frontage, it is highly unlikely that it will be economically feasible to implement.

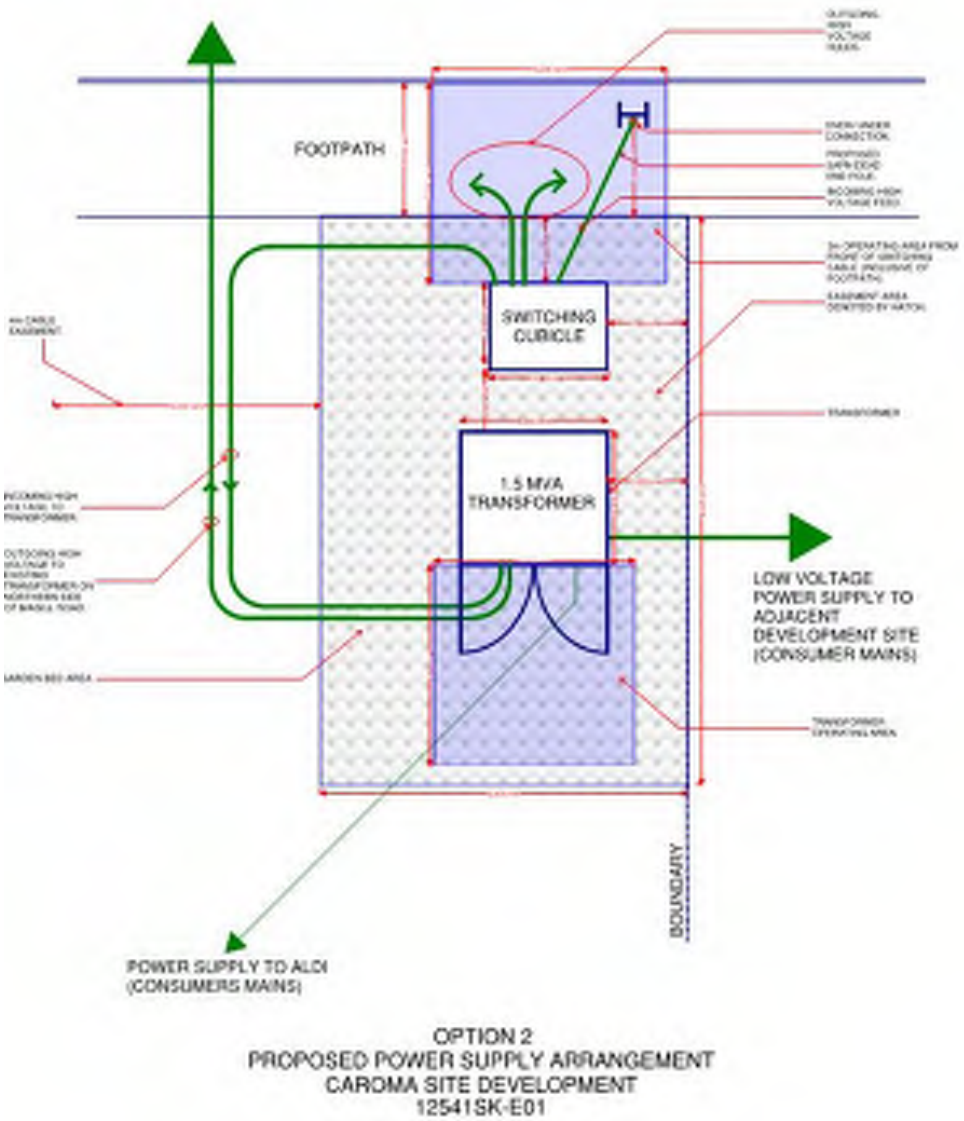


Figure 7 – Option 2 - Proposed Power Supply Arrangement based on undergrounding o/head powerlines to the east of ALDI development

3. COMMUNICATIONS INFRASTRUCTURE

3.1 COMMUNICATION SERVICES

This overall site redevelopment will be serviced by the NBN Network. NBN have advised that the nearest fibre connection will be derived from the corner of Elizabeth Street and the Parade, Norwood and extend to connection points along Stephen Street.

NBN have confirmed that the proposed staging of the overall site redevelopment is suitable for their purposes and that an NBN connection can be provided to suit the staging.

Previous preliminary feasibility investigations were based on servicing the site redevelopment from Magill Road which would have involved backhaul charges in addition to the standard connection fee of $400 per customer. Following review of current masterplan drawings for the site redevelopment, it was resolved in coordination with Jim Kellett and Jodie Lunn from NBN, that the entire site redevelopment could be serviced from Stephen Street which would reduce the extent of fibre cabling required and as a result, no backhaul charges would be applicable.

The first stage of development will comprise the construction of the ALDI supermarket and most of the townhouses along Stephen Street. Whilst no backhaul charges apply to extending the fibre network to the corner of Sydenham Road, the Residential Townhouse developer (CACA Nominees Pty Ltd) would be required to undertake a pit and pipe design for the conduit access in Stephen Street, as per residential sub division requirements.

The residential townhouses would be serviced via pits providing fibre connections to up to 5 dwellings whereas the ALDI and the Mixed-Use Residential/Commercial development would each be provided with a dedicated connection pit. The final location of NBN connection pits would be coordinated with NBN during the final pit and pipe shop drawing process.

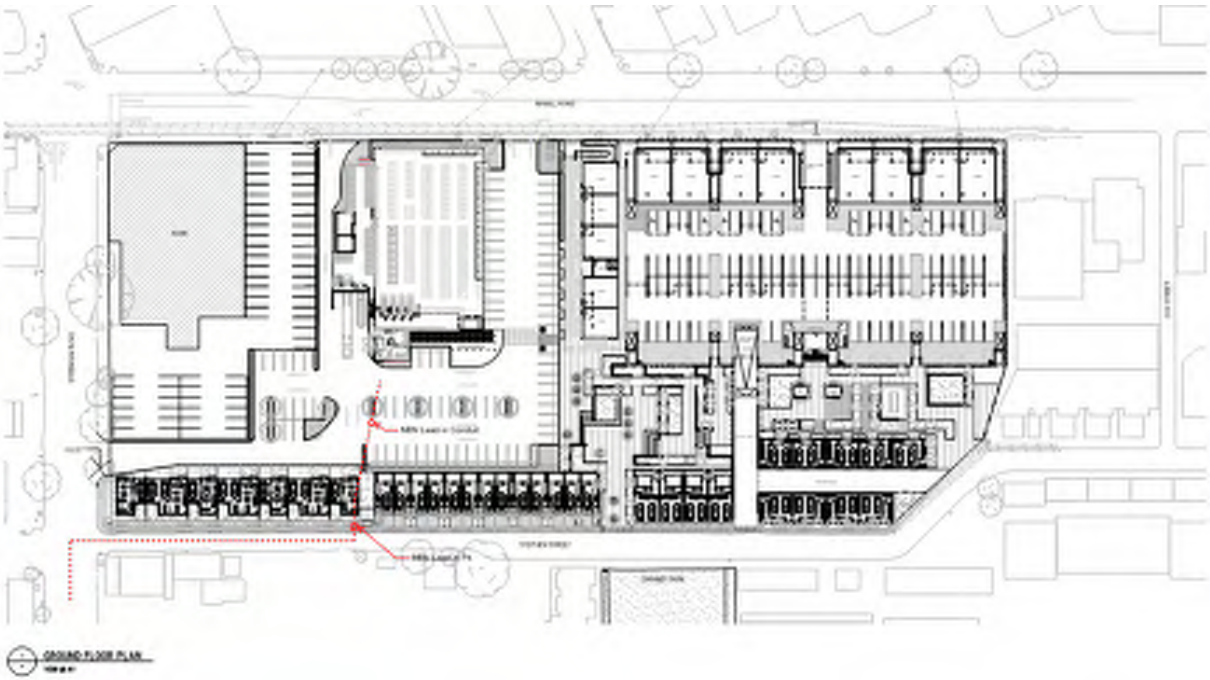


Figure 8 - Proposed NBN connection point to ALDI

4. SEWER INFRASTRUCTURE

4.1 EXISTING SEWER INFRASTRUCTURE

SA Water Corporation have undertaken an evaluation of their infrastructure in vicinity of the development site and confirmed that there is sufficient capacity to cater for the site redevelopment.

The Aldi and Mixed-Use Residential/Commercial development will be connected to infrastructure in Magill Road whereas the residential Torrens and Community Title townhouses in Stephen Street will derive their sewer connection (1 per each Torrens Title and the Community lot) from the SAWC sewer drain in Stephen Street.

A 300mm VC sewer drain is located in Magill Road, adjacent the development site. There are currently multiple sewer connections located directly adjacent both the ALDI and Mixed-Use development sites of which suitably sized connections will be retained for re-use and/or new connections established to suit the final design.

Redundant sewer connections will be disconnected.

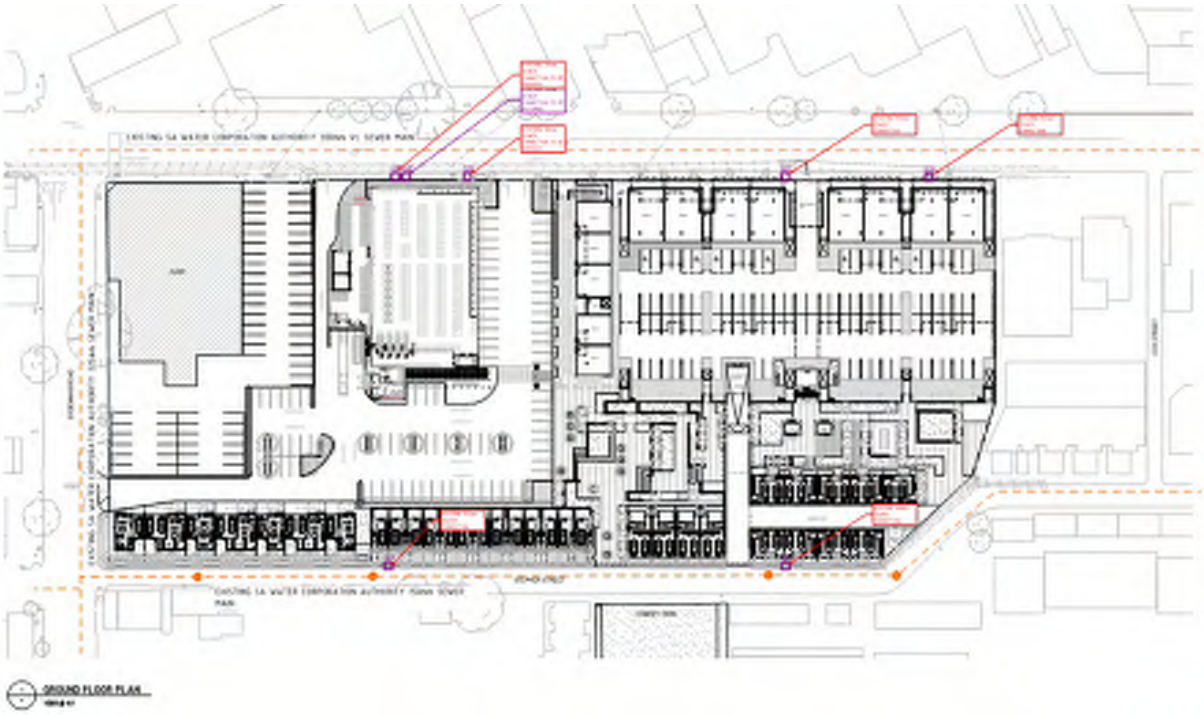


Figure 9 – location of existing sewer connections

5. DOMESTIC (POTABLE) COLD WATER INFRASTRUCTURE

5.1 EXISTING DOMESTIC COLD WATER INFRASTRUCTURE

A 150mm towns mains is located in Magill Road, directly adjacent the site.

There are multiple water meter connections on the site.

Preliminary investigations with SA Water have determined that the following water meter connections are suitable for re-use;

- 32mm water meter positioned in a cast iron footpath box adjacent the ALDI development site.
- 2 x 50mm water meter connections adjacent the Mixed-Use development site

Redundant water meter connections will be disconnected.

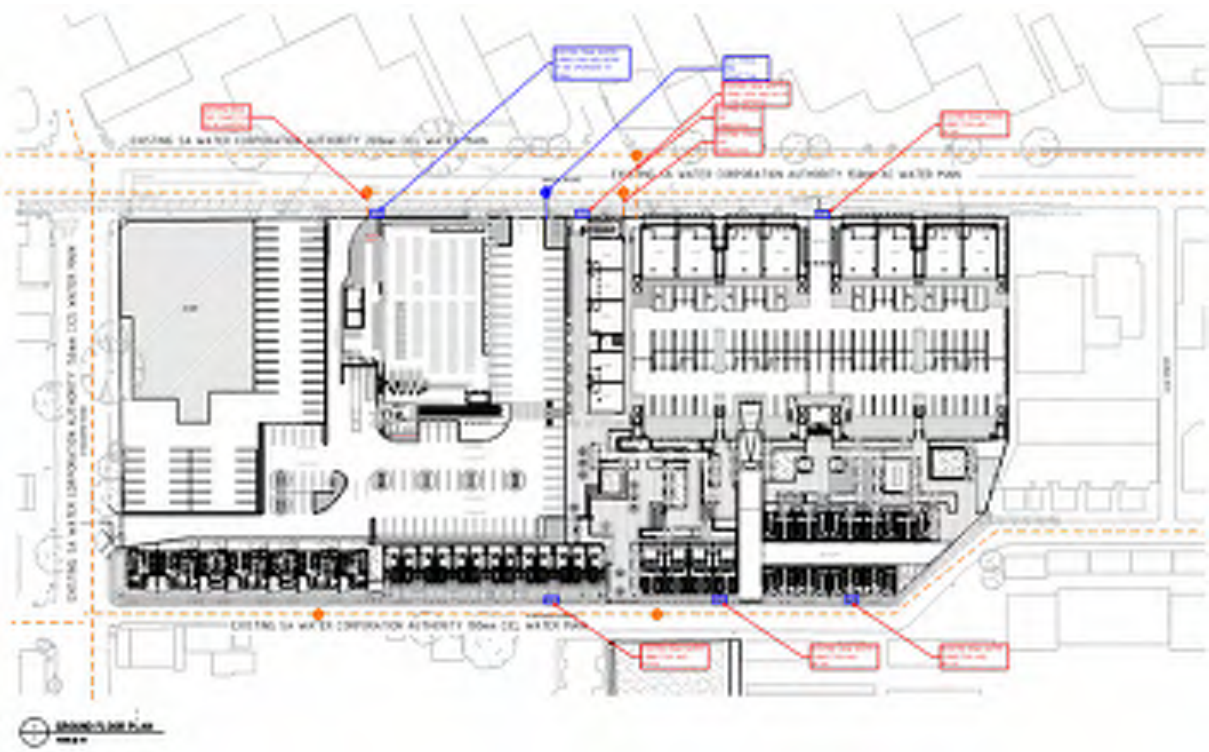


Figure 10 – location of existing water meter connections

6. NATURAL GAS INFRASTRUCTURE

Medium pressure gas mains are positioned in both Magill Road and Stephen Street.

There is no requirement for a natural gas connection to the ALDI development.

The Mixed-Use Residential/Commercial development will require multiple gas meters to service the apartment central hot water systems and individual gas meters to food preparation tenancies. APA will provide a single tapping to the gas meter manifold which will connect to the final required number of gas meters which will be positioned within a vented gas meter enclosure recessed into the façade of the Mixed-Use building at ground level.

The residential Torrens and Community Title townhouses will derive their natural gas connections from the Stephen Street gas mains.

APA have confirmed that there is sufficient capacity in their infrastructure to service the development.

An existing natural gas connection is provided to the former 'Caroma' site. This connection will be disconnected to suit the demolition staging.

7. FIRE SERVICES INFRASTRUCTURE

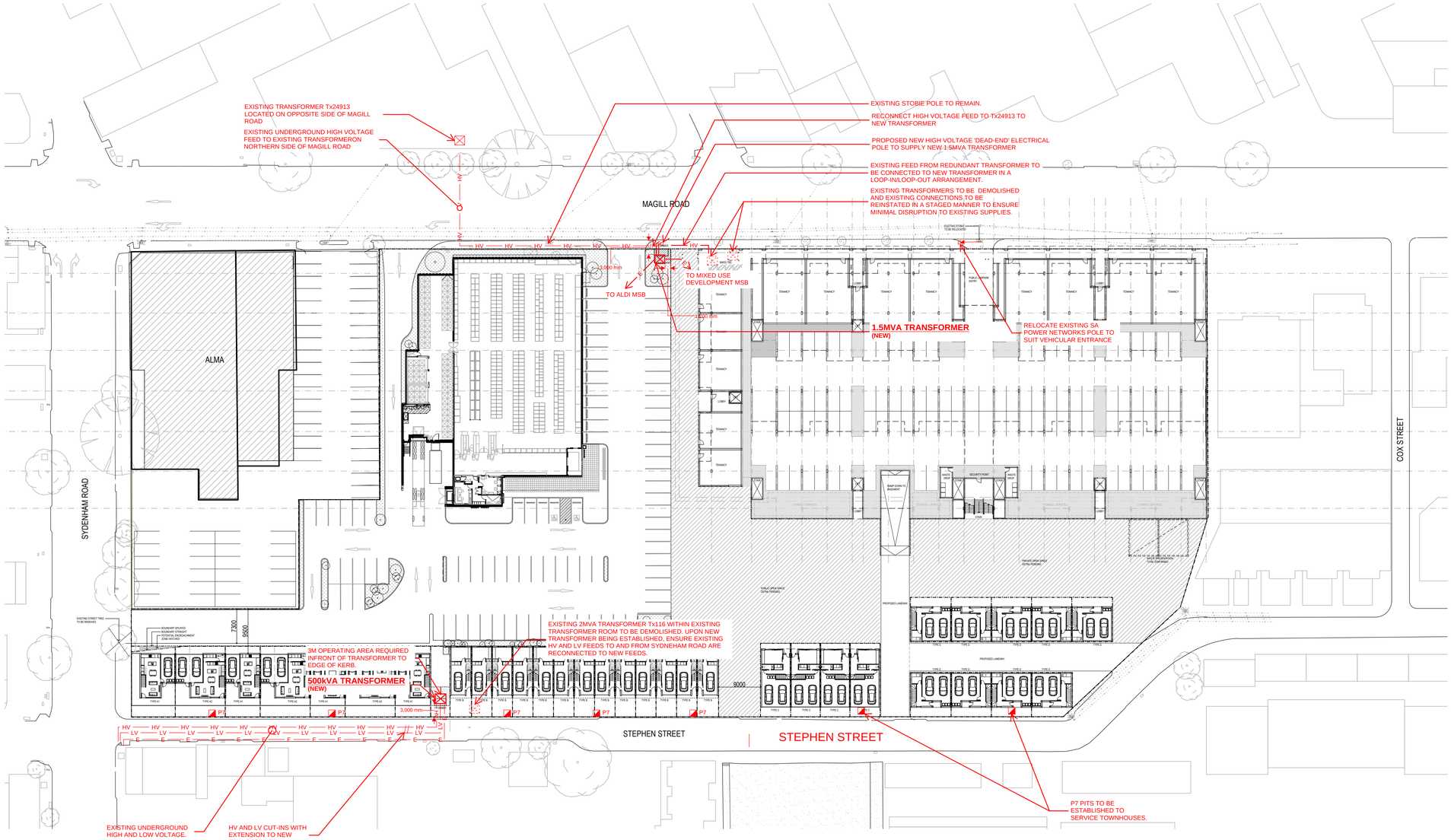
A 150mm towns mains is located in Magill Road, directly adjacent the site.

There are multiple existing fire connections afforded to the site.

An existing 80mm fire service connection is positioned adjacent the proposed ALDI development. This connection size does not meet current requirements and will require upgrade to a minimum 100mm fire service connection which will be dedicated to the proposed ALDI development. The 100mm fire service connection to the proposed ALDI development will service 3 x external site fire hydrants.

An existing 150mm fire service connection is located adjacent the proposed Mixed-Use Residential/Commercial development. This connection will be retained and provide the fire service connection to the combined hydrant & sprinkler system which will serve the development. A SAMFS booster facility will also be established off Magill Road which will derive its feed from the existing fire service connection.

APPENDIX A



GROUND FLOOR PLAN
1:500 @ A1

LUCID CONSULTING AUSTRALIA
Level 3/169, Pirie St Adelaide SA 5000
Phone: (08) 8407 9700
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Title:	LCE12541-ESK01
Project:	CAROMA SITE
Engineer:	CB
Date:	19.07.18
Revision:	A

PRELIMINARY 13/07/18

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REV	DATE	DESCRIPTION

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PROJECT: 76 MAGILL ROAD NORWOOD
CLIENT: ALDI | CA CA
DRAWING: GROUND FLOOR PLAN
NORTH
SCALE: AS SHOWN
DATE: JULY 2018
PROJECT NO: 28055
DWG NO: P01
REVISION: 0.3
CHECKED: FB
DRAWN: mdf

ESD and Sustainability Consultants
Master Planning
Resource Management
Strategic Advice
Governance
Advocacy

76 Magill Road

(former Caroma Site)

Sustainability Strategy

Preliminary

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green building council australia
MEMBER 2017-2018

Document Control

Issue	Date	Change	Checked	Approved
1	1/5/2018	First Draft issue	DD	PD
2	9/5/2018	DA Issue	DD	PD
3	8/6/2018	Updated DA issue	DD	PD
4	17/7/2018	Updated following design development	DD	PD
5	23/7/2018	Daylight access section added, PV sizes added	DD	PD
6	30/7/18	Updated with Architect comments	DD	PD
7	31/7/2018	Updated with Aldi comments	DD	PD
8	31/7/2018	Updated with Aldi comments	DD	PD

Contents

1 Introduction....4
2 The Vision....5
3 Daylight Access Assessment of Apartments....6
4 Sustainability Initiatives....7
4.1 Community and Social Sustainability....7
4.2 Energy....7
4.3 Water....8
4.4 Waste....9
4.5 Indoor Environment Quality....9
4.6 Construction....9
5 Benchmarking....10
5.1 Green Star....10
5.2 NatHERS....10

1 Introduction

This report proposes the Sustainability Strategies and ESD initiatives which will be applied to the redevelopment of the former Caroma Site at 76 Magill Road, in order to reduce the development's impact on the environment in both construction and operation.

The proposed development includes a combination of apartment living and townhouses, public open space, and retail, including an ALDI Supermarket.

This report follows the development of the master plan and building designs by the integrated design team lead by Tectvs Architects and Select Architects, using computer building simulation design techniques to optimise the built form.

This report has been prepared Paul Davy, a Director of consultancy firm dsquared. Paul has over 30 years' experience in the UK, Europe, Asia and Australia as an engineering, ESD, and sustainability consultant. Paul holds IEng and MCIBSE Accreditation, is a Green Star Certified Assessor, a Green Building Council of Australia Teaching Faculty Member, an Ambassador for the Living Futures Institute of Australia, a WELL Accredited Professional, and a member of the South Australian Government ODASA Design Review Panel.

"A Place for Wellness"

The sustainability vision for the development is to create *a place designed for wellness*, *where the residents can be healthy*, *and* are helped by the built environment to *feel good*.

Drawing on the initiatives and concepts of the International Well Building Institute, the development will offer every opportunity for the residents to experience:

A Healthy Mind

- extensive access to outside views, landscaping, and nature
- community-orientated master planning
- opportunities for shared activities in communal spaces

A Healthy Body

- promotion of cycling
- easy connectivity to local shops by foot
- open and safe access through the development

Thermal Comfort

- NatHERS ratings 20% better than code
- high performance facades and thermal insulation
- computer optimised façade design

Daylight *see section 3*

- high quality daylight to all levels
- high quality daylight to all communal spaces
- shading to reduce solar loads, meaning clearer glass

Connectivity

- natural ventilation
- views to outside
- views through communal areas

Images courtesy of the International Well Building Institute

3 Daylight Access Assessment of Apartments

We have undertaken a computer modelling simulation of the daylight access in the apartments.

The modelling has been undertaken in accordance with the GBCA Recognised Provider – Daylight Simulation standards, using the Green Star Design & As-Built Daylight Credit as the benchmark.

The simulation uses a performance glass with a VLT of 50%, and is a worst case scenario model using a uniform overcast sky as the daylight source. A clear sky will result in a significantly improved result. The simulation ignores the borrowed light available from the link corridors, which have overhead daylight access.

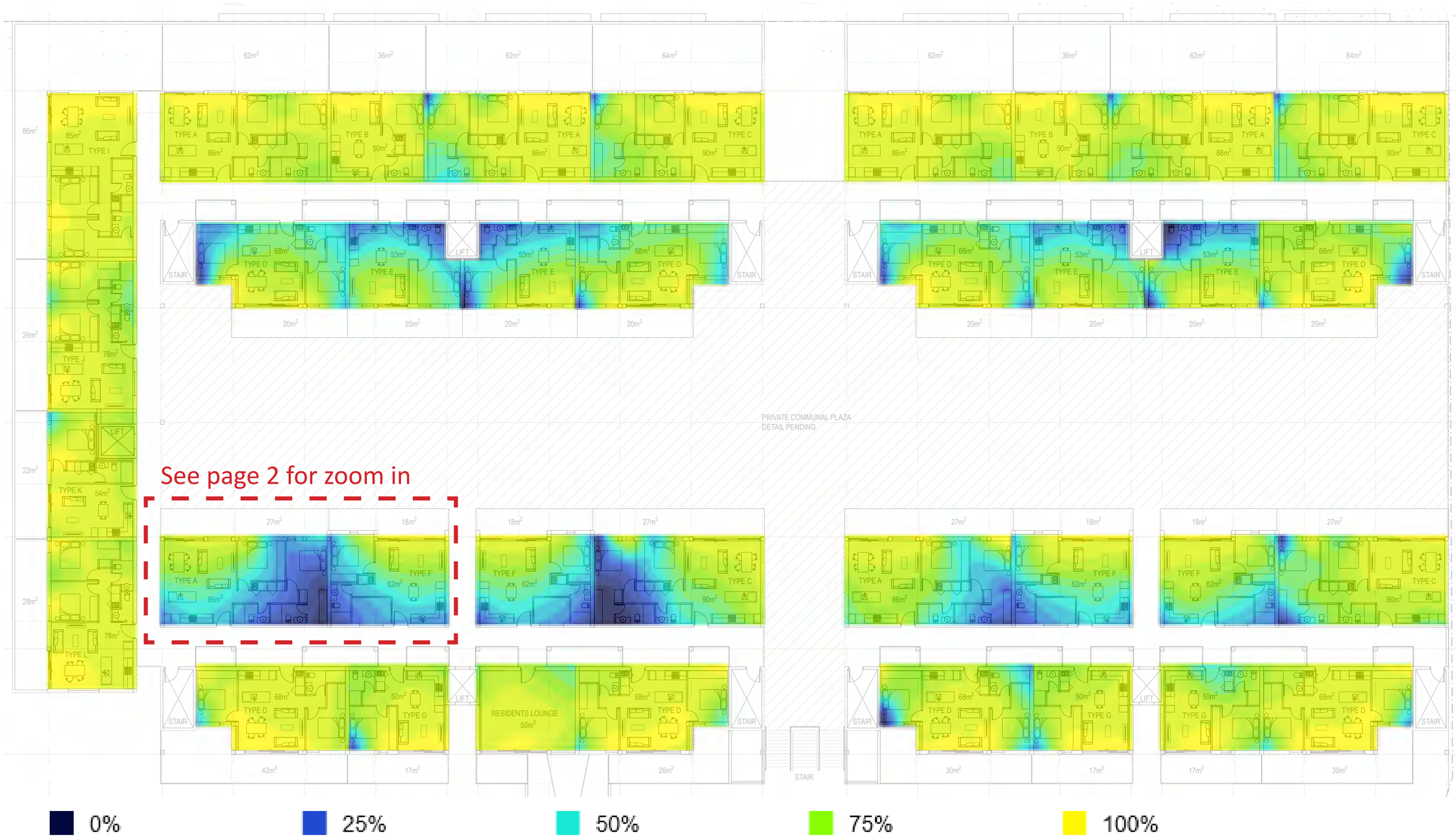
The Green Star criteria is based on lighting autonomy, with 1 point awarded where at least 40% of the living and bedroom space has a daylight autonomy level of at least 160 Lux for 80% or more of the occupied hours, and 2 points awarded where at least 60% of the space has this level of daylight autonomy. Toilets, laundry, bathrooms, stores and robes are excluded from the eligible area.

The modelling results indicate that all apartments are compliant for the full 2 points, except for apartment type A and F that sit in the south west corner, facing the courtyard, at levels 1, 2, and 3. These still have 40% of the floor space over 160 Lux so would get 1 point. These apartments at level 4, 5, and 6 comply for 2 points.

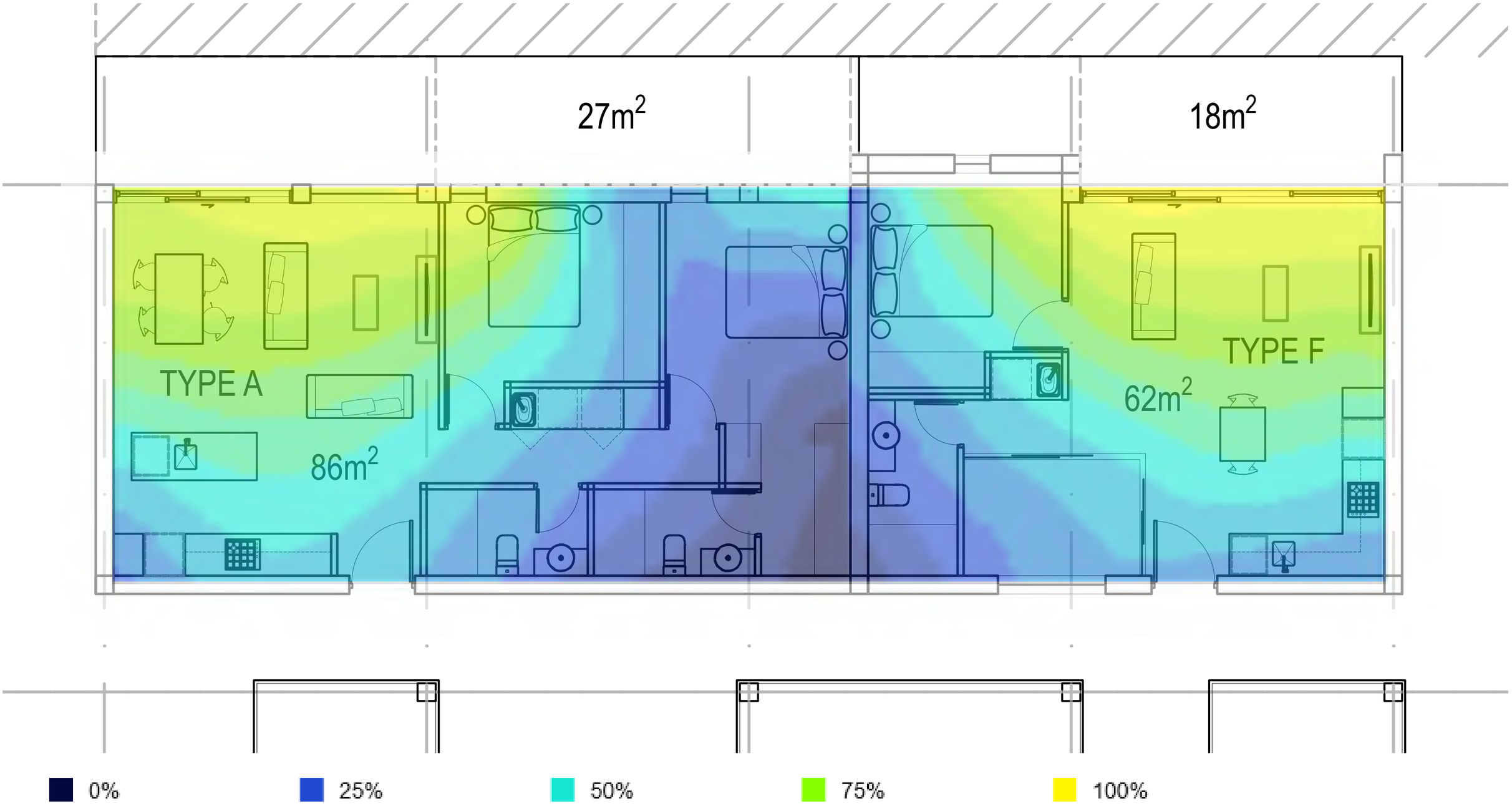
Images generated from the daylight model are included overleaf and demonstrate the extent and quality of daylight autonomy provided by the proposed design.

76 Magill Road_Daylight Analysis

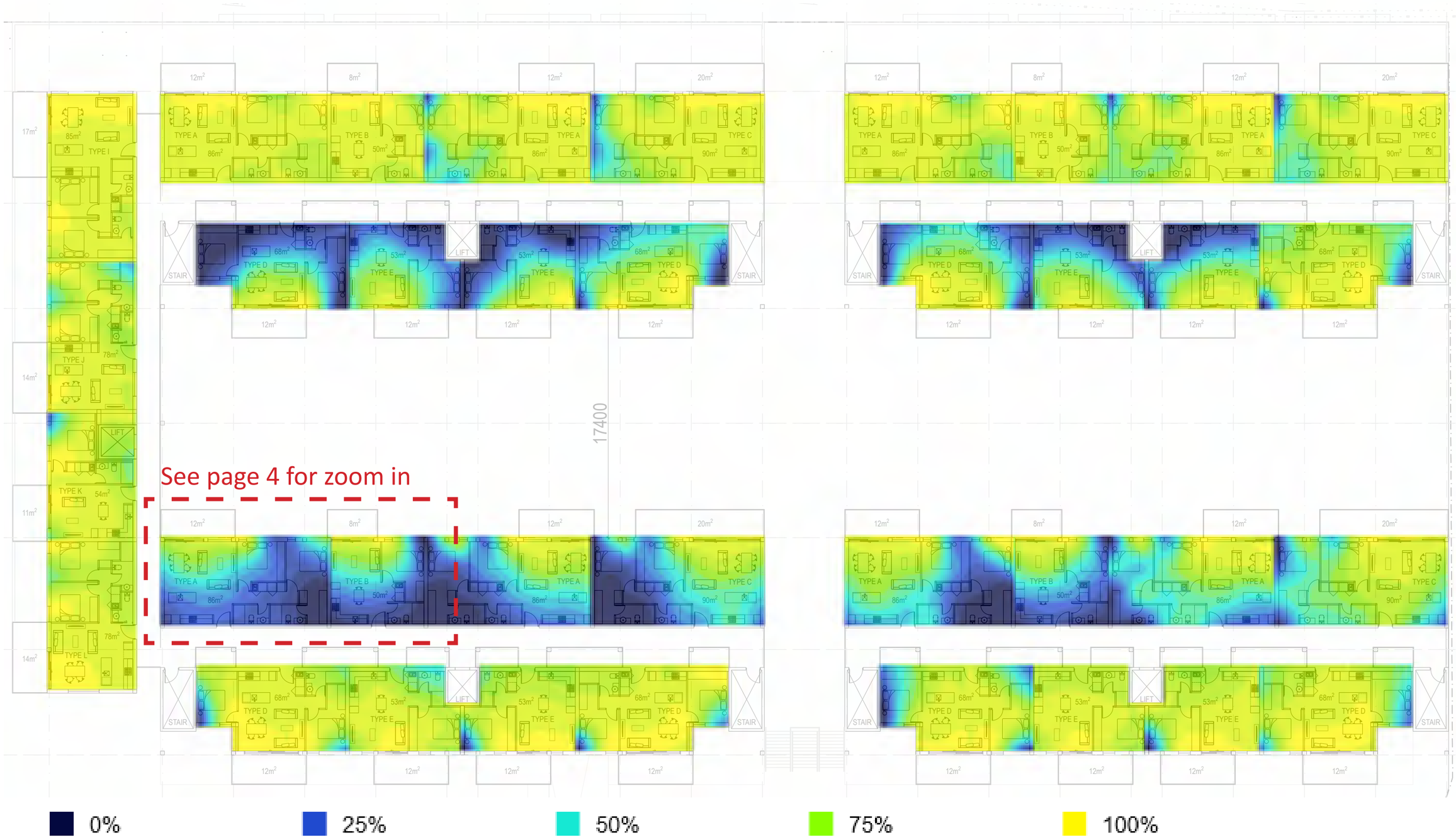
Level 1 - Area Above 160 lux



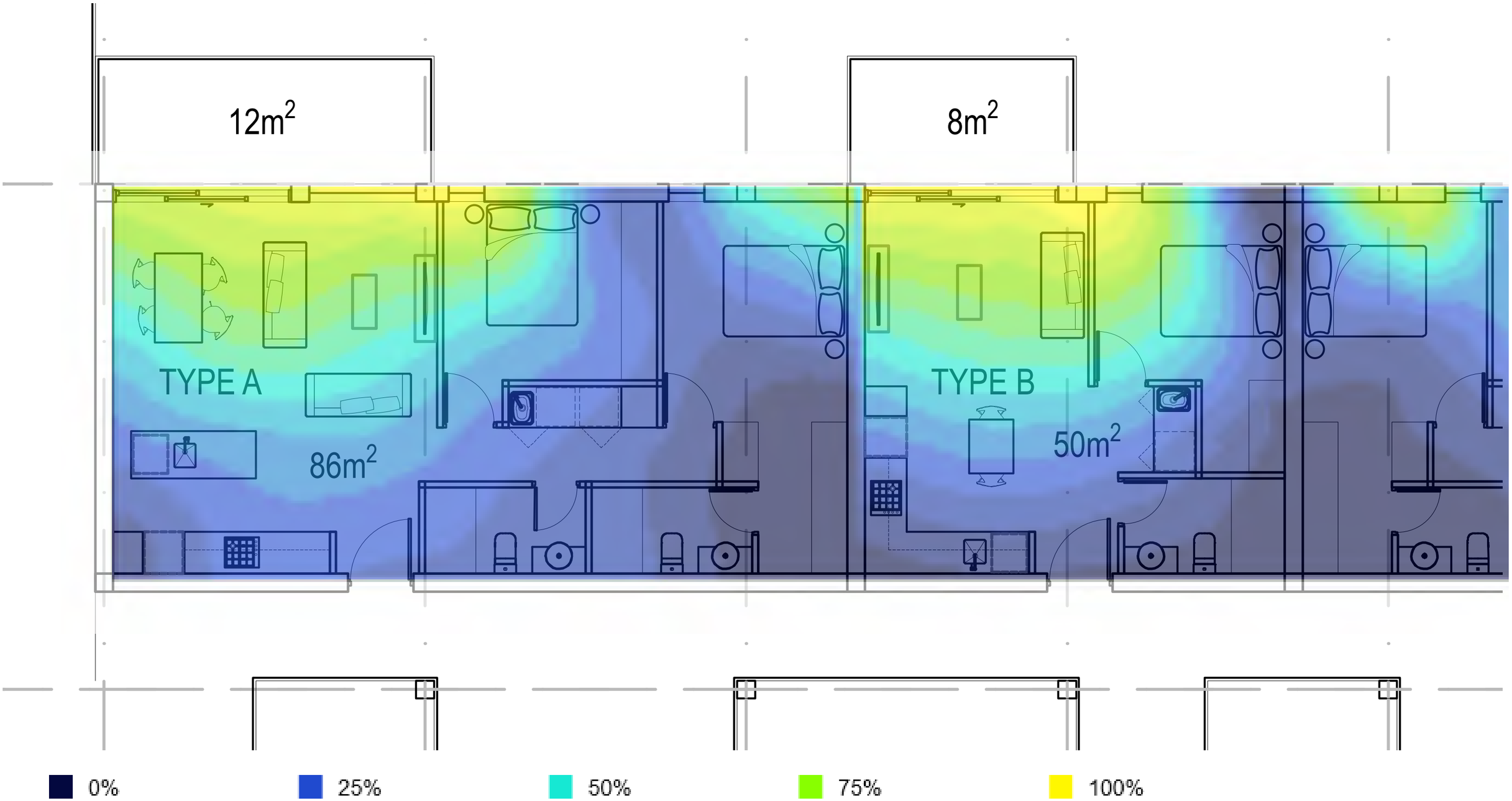
Level 1 - Unit Zoom In



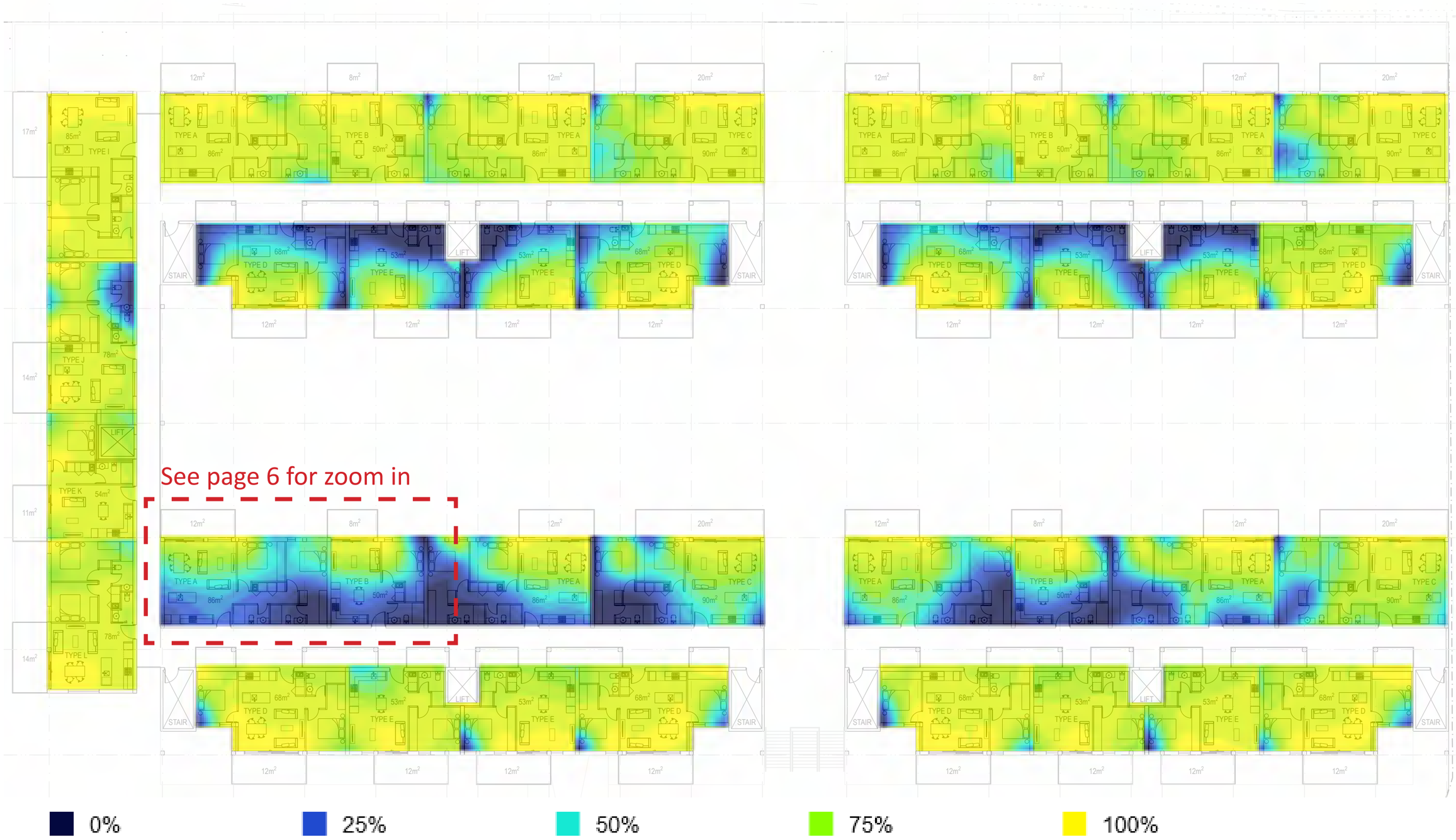
Level 2 - Area Above 160 lux



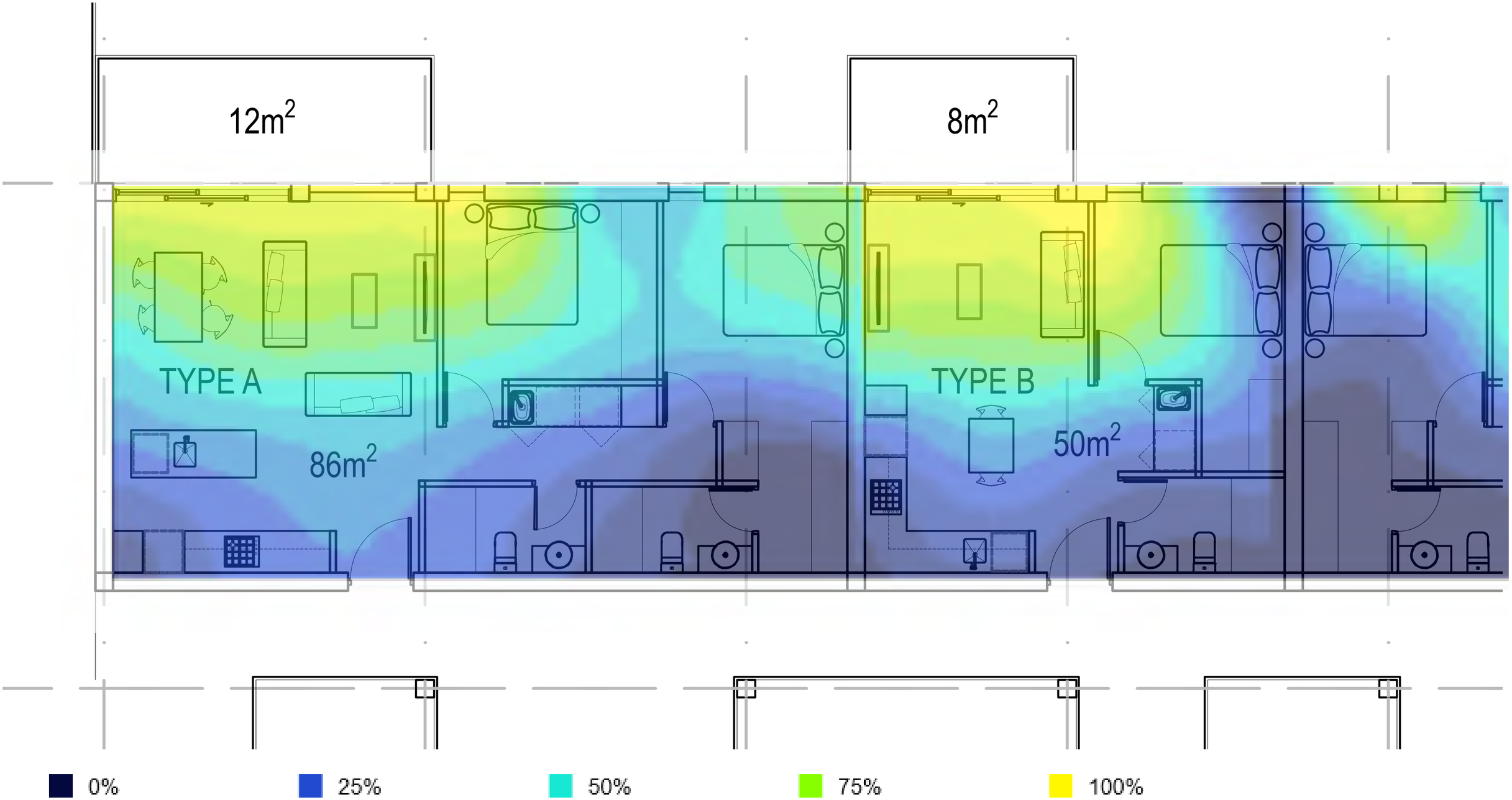
Level 2 - Unit Zoom In



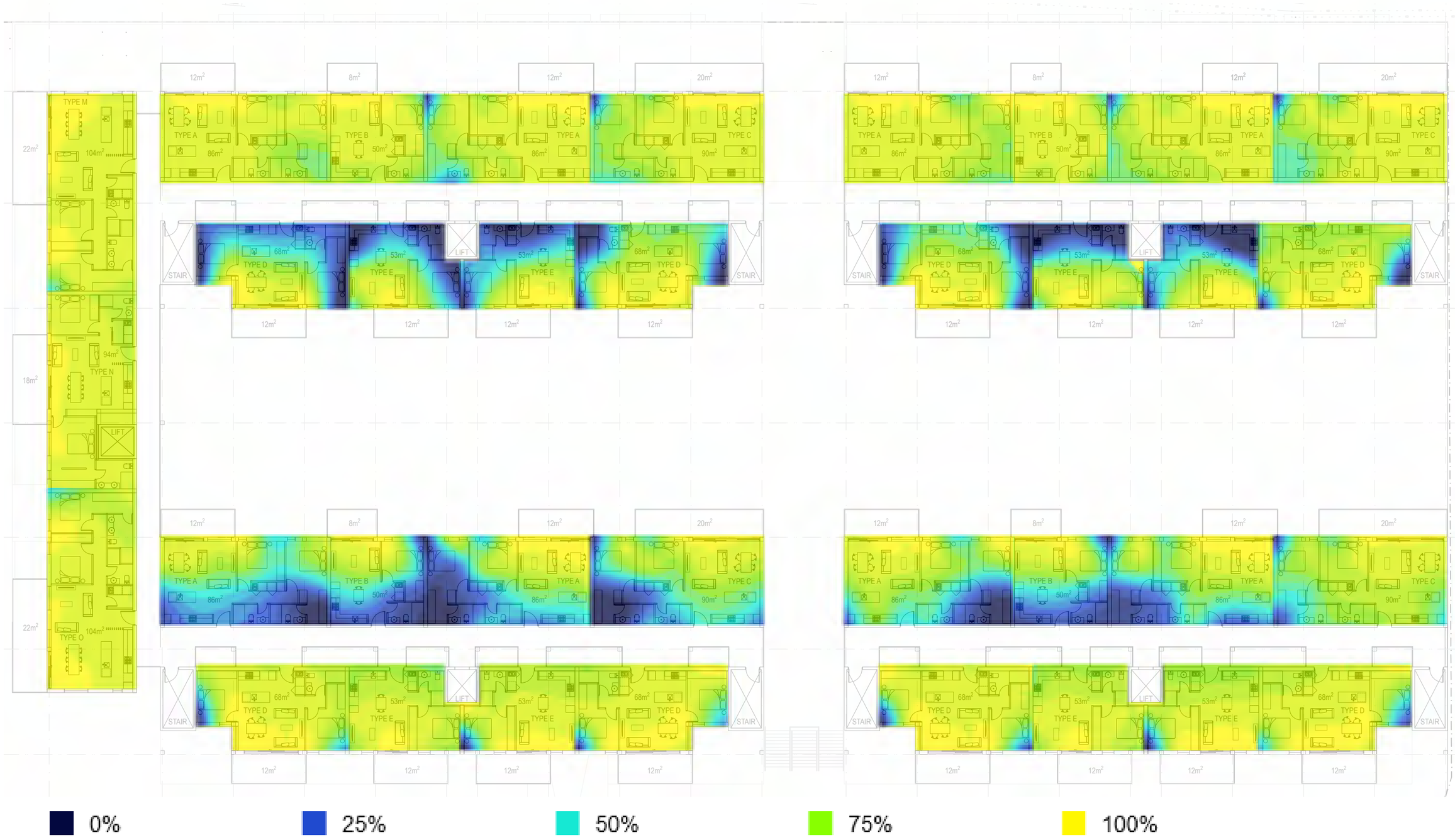
Level 3 - Area Above 160 lux



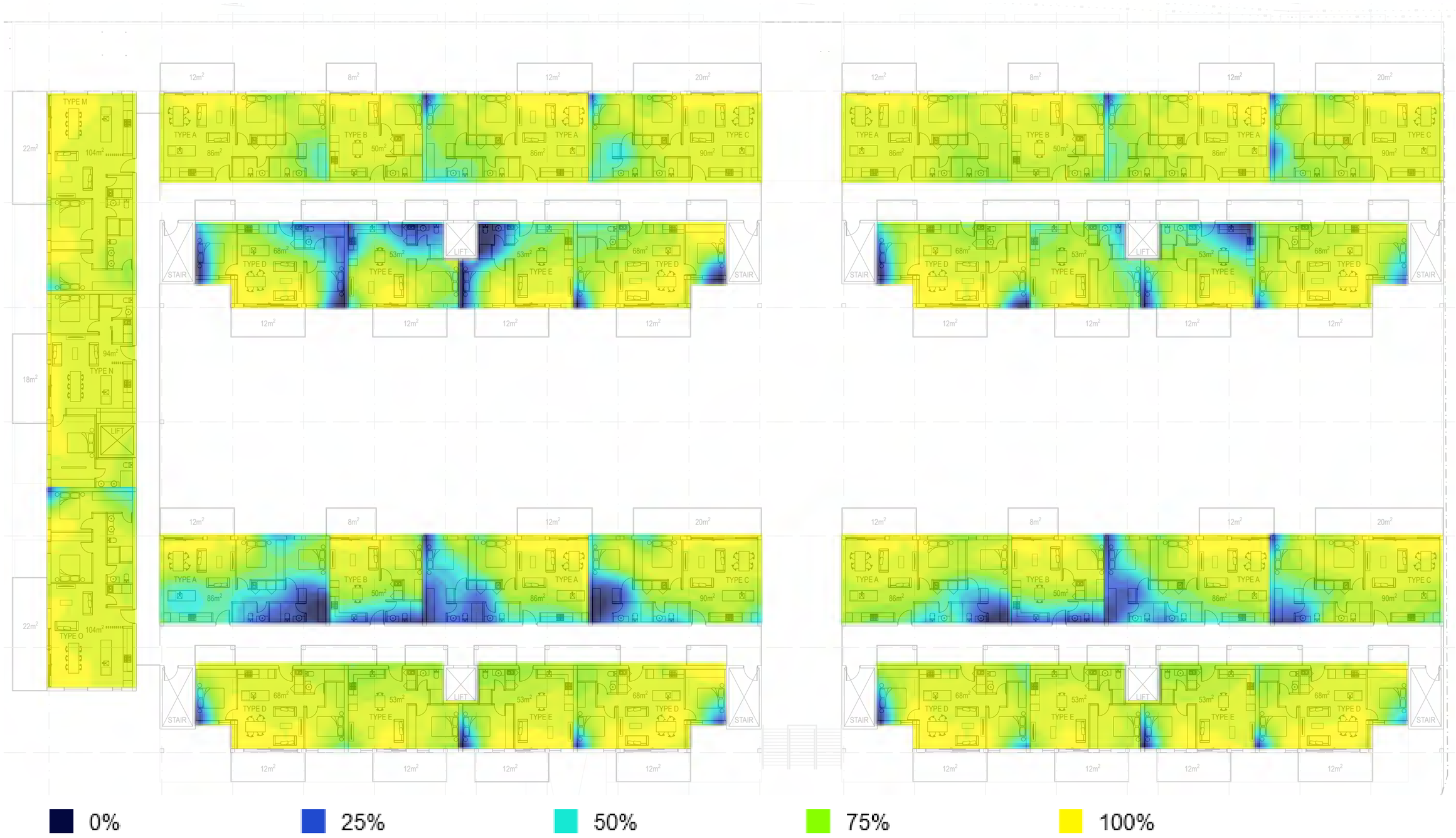
Level 3 - Unit Zoom In



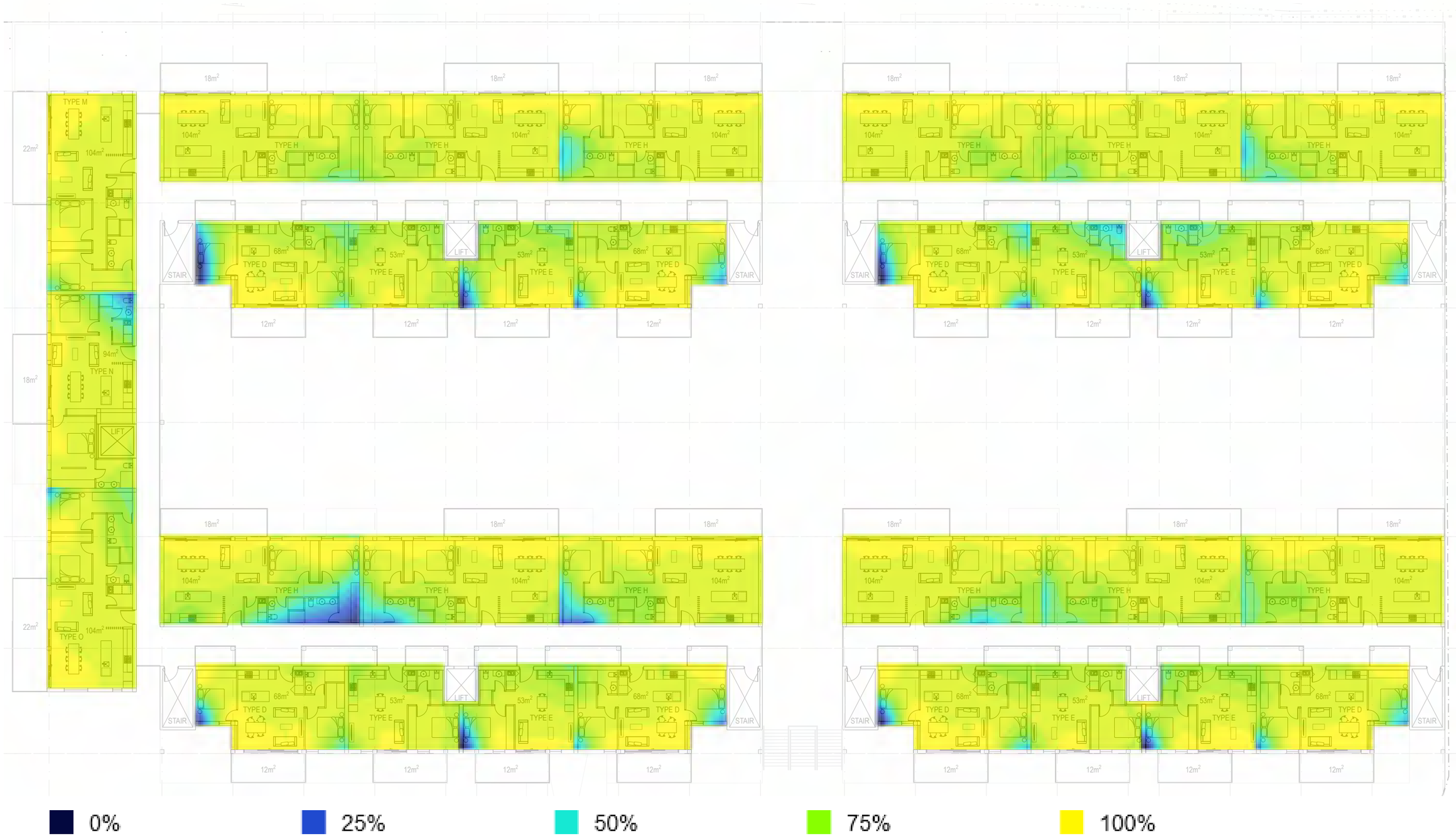
Level 4 - Area Above 160 lux



Level 5 - Area Above 160 lux



Level 6 - Area Above 160 lux



4 Sustainability Initiatives

4.1 Community and Social Sustainability

The following social sustainability initiatives are included:

1. The site layout is designed around a courtyard and open space layout to maximise community connection, and views from and to dwellings to provide transparency and a visual connection between residents and the community and environment.
2. The building design allows for connection the local environment through passive design and landscaping, and allowing residents and the general public to connect to nature and to adjust how they live in their dwellings according to the seasons.
3. Provision of a mixed-use site, with retail adjacent to the residential development, reduces the need for car journeys and provides a community within the development.
4. Provide easily accessible communal areas to both residents and visitors to the building.
5. Utilise courtyard space for edible plants, vegetable gardens, fruit trees, alongside areas for socialising and rest.
6. Providing bicycle storage facilities for apartment residents and visitors, with a minimum of one secure rack provided per apartment. Additional racks will be provided for visitors at ground floor level.
7. Providing infrastructure for the future charging or electric vehicles.

4.2 Energy

The following Energy initiatives are included:

1. The residential building design allows for the full natural ventilation of all dwellings though openable doors and windows.
2. All residential common areas at Ground level and above will be naturally ventilated and provided with daylight access.
3. Glazing to be performance glass with optimised external shading specific to each orientation.
4. Selection of energy efficient lighting fittings (LED) with automated lighting control systems.
5. Zoning the air conditioning systems into functional areas and providing automatic and manual controls. All air conditioning units will be inverter controlled and rated to the highest available Energy Star rating. All units can be operated in fan mode providing low energy air circulation.
6. Solar PV arrays of total capacity 95kW will be installed on the roofs of the apartment buildings, providing sufficient generated power to offset 30% of the common area power demand.
7. Solar PV arrays of total capacity 99kW will be installed on the roof of the Aldi Supermarket.
8. The Town Houses will be designed to allow the installation of up to 3kW of Solar PV on the rooftops, as a cost option for purchasers, allowing the Town Houses to be zero net carbon for energy if required. The installation of a battery storage unit, again as a purchaser cost option, will facilitate the town houses being self-sufficient for energy.
9. Extensive metering and sub-metering for apartment energy management, connected to a fully integrated Energy Management System.

10. An embedded network will be used in the apartment buildings with electricity being supplied via an inset network, so that residents can benefit from the option of reduced electricity supply rates, and the ability to share renewable energy from the building solar PV array.
11. Demand controlled car park ventilation systems with inverter controlled variable speed fans and carbon monoxide sensor control.
12. Using light coloured external finishes (in particular roof coverings) to reflect heat and reduce solar gain, and reduce the heat island effect.
13. Using zero ODP refrigerants and insulation.
14. Designing and certifying the apartments and town houses to achieve an energy performance at least 20% better than current Building Code minimum NatHERS rating of 6 Stars average, representing a dwelling average NatHERS Rating of 7 Stars.
15. Using gas for hot water supply (with solar boost) and gas cooktops where appropriate in order to reduce peak electricity demands and reduce the overall development carbon footprint.
16. Providing apartment owners with retractable clothes racks in their apartments, to minimise electric clothes drier use. These facilities will also minimise the incidence of clothes drying on exposed balconies.

4.3 Water

The following Water initiatives are included as part of the residential development:

1. Water efficient fittings with the minimum WELS ratings:
    - Taps 6 Stars
    - WCs 4 Stars
    - Showers 3 Stars
2. Selecting water efficient white goods within one Star rating of the highest available rating.
3. Selecting appropriate landscape planting to minimise irrigation water use.
4. Stormwater systems designed such that historic peak stormwater outflows should not be exceeded, and all stormwater is appropriately treated before discharge to sewer. If required by Council, water storage may be provided and utilised as a shared resource for irrigation to landscaping.
5. Providing the firefighting systems with a test water recycling facility.

4.4 Waste

The following Waste initiatives are included:

1. Construction waste will be minimised through efficient design techniques including standardisation and wherever practicable off-site pre-fabrication. A minimum 90% diversion from landfill rate will be targeted.
2. Provisions will be made for the location and use of separate bins for general, organic and recyclable waste, in accordance with advice from Chris Colby (Waste Management specialist).
3. The development will incorporate ventilated and weather proof storage facilities for the collection and disposal of general, recyclable, organic waste, and bulky waste, which will be separated on site to facilitate ease of disposal for recycling.
4. Waste management operations for the ALDI supermarket will be in accordance with the ALDI waste management statement. ALDI's waste management strategy includes the minimisation of packaging and food preparation waste on site, and the recycling of waste materials off-site.

4.5 Indoor Environment Quality

The following Indoor Environment Quality initiatives are included:

1. Using paints, sealants, adhesives, carpets, coverings and furniture which have low off-gassing properties (low VOC, low formaldehyde).
2. Maximising access to daylight to all residential areas whilst minimising glare.
3. All dwellings will be fully naturally ventilated.
4. All residential common areas at ground level and above will be fully naturally cross ventilated.

4.6 Construction

The development will seek to select locally sourced materials wherever viable.

The following Construction initiatives are included for the residential development:

1. Select recycled and recovered materials wherever viable, particularly sourced from the local area in order to build in a recognition of the local area and heritage.
2. Select materials with a comparatively low embodied energy/carbon profile e.g. timber in preference to steel, where practicable.
3. Select building materials with a recycled material content e.g. thermal insulation, reinforcement bar, fly ash in concrete, recycled content floor coverings, where viable.
4. Using off site pre-fabrication techniques to reduce on site construction time, waste, and greenhouse gas emissions, wherever practicable.

5 Benchmarking

5.1 Green Star

Benchmarking for the residential part of this project (excluding Aldi) will be simplified to providing a self-assessed rating against the Green Star Design & As-Built v1.2 tool.

Whilst an official rating is not being sought, Green Star reviews will be carried out throughout the project, with an audit report provided by dsquared.

The Green Star rating tool by the Green Building Council of Australia (GBCA) is the most widely recognised sustainability assessment tool in Australia. A Green Star certification provides a third party verification of the sustainability performance of a project. It is assessed at both Design (voluntary) and As-Built (mandatory) stages of a project, providing the ability to track sustainability performance throughout the project.

The tool covers the following key topics:

- Management
- Indoor Environment Quality
- Energy
- Water
- Transport
- Materials
- Ecology
- Emissions
- Innovation

The design team will target a 5 Star Green Star self-assessed rating to benchmark the building against 'Australian Leadership' in sustainable design.

5.2 NatHERS

Preliminary modelling has been undertaken using AccuRATE software to BDAV standards in order to establish the expected apartment and town house NatHERS rating.

The residential development benchmarks at an expected average 7 Star NatHERS rating, demonstrating a 20% improvement over the NCC/BCA minimum requirement of 6 Star average.

Resonate

76 Magill Road

Acoustic Assessment

A180159RP1 Revision F

Tuesday, 31 July 18

Resonate

Document Information

Project	76 Magill Road	
Client	Buildtec Group	
Report title	Preliminary Acoustic Assessment	
Project Number	A180159	
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Reviewed by	Darren Jurevicious	

Revision Table

Report revision	Date	Comments
0	18 April 2018	First Issue
A	14 May 2018	Revised
B	8 June 2018	Revised site layout
C	26 July 2018	Final Draft
D	27 July 2018	Preliminary
E	30 July 2018	Preliminary - Revised site layout
F	31 July 2018	Preliminary – Response to Select Architects Review

Glossary

A-weighting	A spectrum adaption that is applied to measured noise levels to represent human hearing. A-weighted levels are used as human hearing does not respond equally at all frequencies.
Day	Between 7 am and 10 pm as defined in the Noise EPP
dB	Decibel—a unit of measurement used to express sound level. It is based on a logarithmic scale which means a sound that is 3 dB higher has twice as much energy. We typically perceive a 10 dB increase in sound as a doubling of that sound level.
dB(A)	Units of the A-weighted sound level.
Facade sound reduction	means the reduction in external to internal sound level provided by the *building envelope*.
Floor area	means, in relation to a room, the area of the room measured within the finished surfaces of the walls, and includes the area occupied by any cupboard or other built-in furniture, fixture or fitting.
Frequency (Hz)	The number of times a vibrating object oscillates (moves back and forth) in one second. Fast movements produce high frequency sound (high pitch/tone), but slow movements mean the frequency (pitch/tone) is low. 1 Hz is equal to 1 cycle per second.
Indicative noise level	Indicative noise level determined under clause 5 of the Noise EPP.
L_{90}	Noise level exceeded for 90 % of the measurement time. The L_{90} level is commonly referred to as the background noise level.
L_{eq}	Equivalent Noise Level—Energy averaged noise level over the measurement time.
L_{max}	The maximum instantaneous noise level.
Night	Between 10.00 p.m. on one day and 7.00 a.m. on the following day as defined in the Noise EPP
Noise source	Premises or a place at which an activity is undertaken, or a machine or device is operated, resulting in the emission of noise
R_W	Weighted Sound Reduction Index—means a measure of the sound attenuation performance of a building element, measured in controlled conditions in a laboratory.
R_W+C_{tr}	means a weighted sound reduction index with spectrum adaptation placing greater emphasis on low frequency performance.
Separation distance	means the shortest distance (to the nearest metre), from an existing or future *designated sound source* to the nearest exposed point of the *building envelope* bounding a *habitable room*.
Sound Exposure Category (SEC)	means the degree to which a *habitable room* within a building is likely to be affected by external sound received by the *building envelope*.

Resonate

Table of Contents

1 Introduction 1

2 Proposed development 2

3 Development plan 3

4 Environmental Protection (Noise) Policy 6

5 Environmental noise assessment 8

5.1 Mechanical Plant 8

5.2 Vehicle movements 8

6 Minister's Specification SA 78B 9

6.1 Road noise 9

6.2 Music noise 9

6.3 Sound insulation ratings 11

6.4 Construction requirements 12

6.4.1 External walls 12

6.4.2 External windows and doors 13

6.4.3 Roof and ceiling 14

6.4.4 Ventilation 14

6.4.5 Construction requirements for control of music noise 14

7 Noise intrusion from other sources 16

8 National Construction Code 17

9 Conclusion 19

1 Introduction

This report outlines the preliminary external noise intrusion and environmental noise emission assessment for the proposed residential development at 76 Magill Road, Norwood. It details the indicative acoustic requirements and recommended conceptual construction requirements for this proposed development.

The acoustic requirements are based on:

- Norwood Payneham and St Peters Council Development Plan (consolidated 19 December 2017)
- Minister's Specification SA 78B *Construction Requirements for the Control of External Sound*

The main acoustic issues addressed in this report are:

- facade construction to control traffic noise, music and patron noise from the Alma Tavern, and noise from the proposed ALDI supermarket; and
- environmental noise emissions from external mechanical plant and vehicle movements associated with the development.

This assessment does not address noise emissions from the ALDI site, other than in relation to noise intrusion to residences within the site. We understand that noise emissions from the ALDI to receivers outside the site has been addressed by Sonus.

2 Proposed development

The proposed development is located at 76 Magill Road, Norwood, in the block bounded by Magill Road, Sydenham Street and Stephen Street as shown in Figure 1 below. The proposed development will consist of terraced housing, apartments, and retail including an ALDI Supermarket.

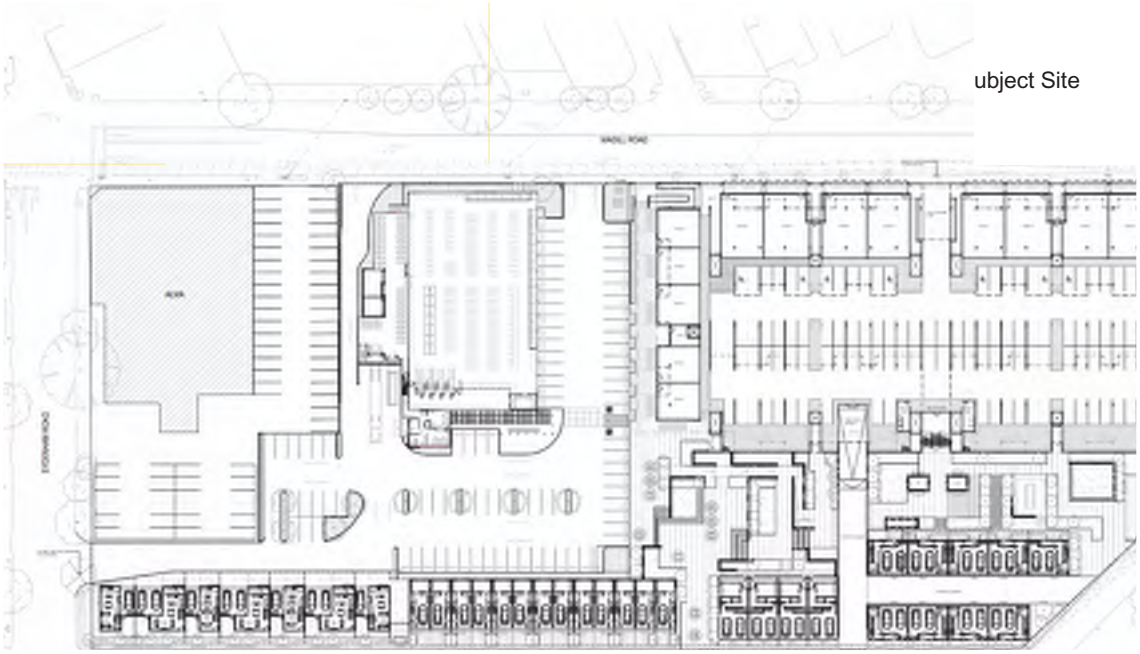


Figure 1 Proposed site location and layout

3 Development plan

The proposed development is located within the Norwood Payneham and St Peters Council Area and the development needs to have regard to the Council Development Plan.

The proposed site is located in the Urban Corridor Zone (High Street Policy Area H). The land uses principally promoted in the Urban Corridor Zone are residential and commercial. Objective 7 for this zone is that *"Noise and air quality impacts are mitigated through appropriate building design and orientation".* The Desired Character for this zone also includes the following statement:

> *The residential component of all buildings will be designed having regard to the amenity of the occupants and will ensure that individual units have reasonable access to light, ventilation and views. Noise attenuation and air emission control measures will be included in the design of residential units where there is the potential for acceptable noise and air emissions levels to be exceeded.*

Land adjacent to the site is zoned Urban Corridor, Business, Residential, Mixed Use, or Light Industrial as shown in Figure 2 below.

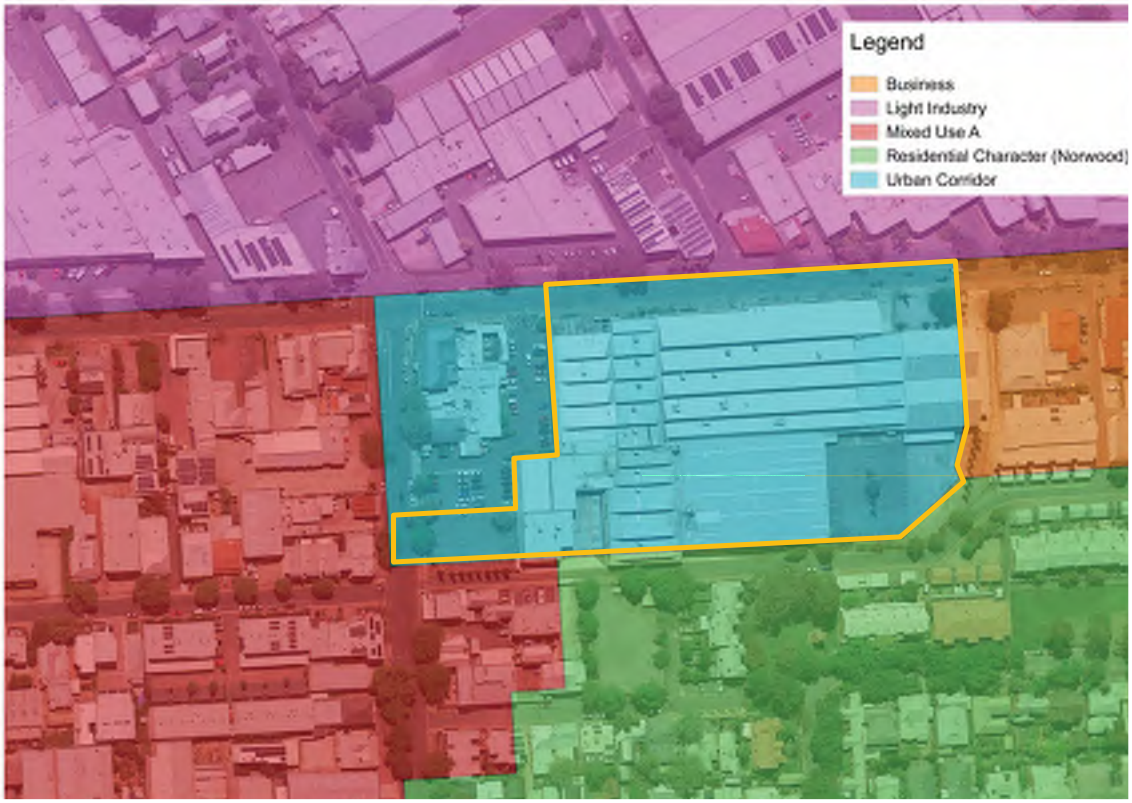


Figure 2 Zoning of the site and surrounding area

There are no relevant Principles of Development Control (PDCs) relating to noise for the above Zones. However, the following council wide PDCs for interfaces between land uses; residential development; and centres, shops and businesses apply as follows:

Interface between land uses

80 Development should not detrimentally affect the amenity of the locality or cause unreasonable interference through any of the following:

(a) …
(b) noise;
(c) vibration;
(d) …

81 Residential development adjacent to a non-residential land use or zone or within a non-residential zone should be located, designed and sited in a manner which:

(d) protects residents from any adverse effects of non-residential activities; and
(e) minimises negative impact on existing and potential future land uses considered appropriate in the locality.

…

84 Non-residential development on land abutting a residential zone or within a residential zone should be designed to minimise noise impacts and achieve adequate levels of compatibility between existing and proposed uses.

85 Sensitive land uses which are likely to conflict with the continuation of lawfully existing developments and land uses considered appropriate for the zone should not be developed.

86 Development that emits noise (other than music noise) should include noise attenuation measures that achieve the relevant *Environment Protection (Noise) Policy* criteria when assessed at the nearest existing noise sensitive premises.

87 Development with the potential to emit significant noise (e.g. industry) should incorporate noise attenuation measures that prevent noise from causing unreasonable interference with the amenity of noise sensitive premises.

Residential development

273 Residential buildings (or the residential floors of mixed use buildings) should have habitable rooms, windows and balconies designed and positioned with adequate separation and screening from one another to provide visual and acoustic privacy and allow for natural ventilation and the infiltration of daylight into interior and outdoor spaces.

One way of achieving this is to ensure any habitable room windows and/or balconies are separated by at least 6 metres from one another where there is a direct 'line of sight' between them and be at least 3 metres from a side or rear property boundary. Where a lesser separation is proposed, alternative design solutions may be applied (such as changes to orientation, staggering of windows or the provision of screens or blade walls, or locating facing balconies on alternating floors as part of double floor apartments), provided a similar level of occupant visual and acoustic privacy, as well as light access, can be demonstrated.

Centres, shops and business

293 The location and design of centres and shopping development should ensure that all sources of noise, including refrigeration and air conditioning equipment, garbage collection and car parking, do not cause excessive or disturbing noise at neighbouring properties.

308 Development within business, centre and shopping zones should conform to the following design principles:

(a) …
(d) Development should not cause nuisance or hazard arising from:
  (ii) …
  (iii) excessive noise
  (iv) ….
(e) …

Noise and air emissions overlay

The site is also located in a 'Designated Area' and adjacent to a 'Designated Road: Type B road' in the Noise and Air Emissions overlay in the Development Plan. Relevant Objectives and Principles of Development Control for sites affected by the overlay are:

> **Objective 1:** Protect community health and amenity from adverse impacts of noise and air emissions.
>
> **PDC 1** Noise and air quality sensitive development located adjacent to high noise and/or air pollution
>
> sources should:
>
> (a) shield sensitive uses and areas through one or more of the following measures:
>
> (i) placing buildings containing less sensitive uses between the emission source and sensitive land uses and areas;
>
> (ii) within individual buildings, place rooms more sensitive to air quality and noise impacts (e.g. bedrooms) further away from the emission source;
>
> (iii) erecting noise attenuation barriers provided the requirements for safety, urban design and access can be met;
>
> (b) use building design elements such as varying building heights, widths, articulation, setbacks and shapes to increase wind turbulence and the dispersion of air pollutants provided wind impacts on pedestrian amenity are acceptable;
>
> (c) locate ground level private open space, communal open space and outdoor play areas within educational establishments (including childcare centres) away from the emission source.

Application of Minister's Specification SA 78B *Construction Requirements for the Control of External Sound* is triggered based on the above and application of this specification will demonstrate compliance with the PDCs relating to noise ingress.

Noise emissions from mechanical plant and vehicle movements associated with the development should be assessed in accordance with the SA Environmental Protection (Noise) Policy (the Noise EPP). Compliance with the noise goals within the Noise EPP will demonstrate compliance with the relevant PDCs relating to noise emissions received at neighbouring noise sensitive premises.

Application of the National Construction Code (NCC) Part F5 *'Sound Transmission and Insulation'* during the design and construction of the development will ensure that the intent of PDC 273 is achieved in relation to acoustic privacy.

4 Environmental Protection (Noise) Policy

The noise goals in the Noise EPP are based on the zoning of the development and the closest noise affected premises in the relevant development plan. The land uses primarily promoted by the zones are used to determine the environmental noise criteria with the indicative noise factors shown in Table 1.

Table 1 Excerpt from Noise EPP—Table 2(subclause(1)(b))

Land use category	Indicative noise factor dB(A)	
	Day (7 am to 10 pm)	Night (10 pm to 7 am)
Rural living	47	40
Residential	52	45
Rural industry	57	50
Light industry	57	50
Commercial	62	55
General industry	65	55
Special industry	70	60

As noted in Section 3, the development is located in the Urban Corridor Zone, while the most affected noise sensitive premises are located in the Urban Corridor, Business, Light Industry, Mixed Use A, or Residential Character (Norwood) Zones. The following land uses are primarily promoted in each zone are as shown in Table 2.

Table 2 Land use promoted in each zone

Zone	Land use primarily promoted
Urban Corridor	Commercial and residential
Business	Commercial
Light Industry	Light industry
Mixed Use A	Commercial and residential
Residential Character (Norwood)	Residential

Environmental noise criteria for the Urban Corridor zone are the average of indicative noise factors for Commercial and Residential land use categories. For receivers in other zones, the criteria are the average of indicative noise factors for the relevant land uses, and the averaged criteria for the Urban Corridor zone

In accordance with Part 5 of the Noise EPP, the relevant criteria for this development will be the relevant indicative noise factors less 5 dB(A). The application of Part 5 results in the following environmental noise criteria.

Table 3 Environmental noise criteria by receiver zone

Receiver zone	Noise criteria, dB(A)	
	Day (7 am to 10 pm)	Night (10 pm to 7 am)
Urban Corridor	52	45
Business	55	48
Light Industry	52	45
Mixed Use A	52	45
Residential Character (Norwood)	50	43

Penalties can also be applied to a noise source for a variety of characteristics, such as impulsive, low frequency, modulating or tonal characters. For a characteristic penalty to be applied to a noise source is must be fundamental to the impact of the noise and dominate the overall noise impact. Application of the characteristic penalty is discussed in the noise emission assessment.

We note that under Part 5, Clause 20(6) of the Noise EPP, exceedance of the recommended criterion does not necessarily mean action is required under the Noise EPP. Some of the following matters should be considered when considering action:

- the amount by which the criterion is exceeded (in dB(A))
- the frequency and duration for which the criterion is exceeded
- the ambient noise that has a noise level similar to the predicted noise level
- the times of occurrence of the noise source
- the number of persons likely to be adversely affected by the noise source and whether there is any special need for quiet.

5 Environmental noise assessment

Noise sources associated with the proposed development include external mechanical plant and vehicle movements.

5.1 Mechanical Plant

It is expected that noise emissions from external mechanical plant can meet the relevant criteria in Section 4 with standard mitigation measures, for example location of significant plant items away from noise sensitive receivers where practicable, the use of low-noise plant, and/or acoustic screens.

5.2 Vehicle movements

The peak daytime and night time 15 minute volumes of vehicles associated with the development (excluding ALDI) have been provided by GTA consultants as detailed in Table 4 below.

Table 4 Peak 15 minute vehicle movements

Site access location	Peak 15 minute vehicle movements	
	Daytime (7am to 10pm)	Night time (10pm to 7am)
Sydenham Road	8	1
Magill Road (ALDI)	N/A(1)	N/A(1)
Magill Road (Public carpark access)	33	3
Stephen Street – Western townhouses	3	1
Stephen Street – Private basement access	26	3
Stephen Street – Eastern townhouses	2	0

(1) Noise from vehicles associate with ALDI are assessed by Sonus.

Heavy commercial vehicles (HCV) associated with refuse collection and delivery to commercial tenancies are also required. In a worst case 15 minute period only one HCV is expected. We recommend that any heavy vehicle movements (other than those associated with ALDI) are limited to the daytime hours of 7am to 10pm where practicable.

Based on the above, noise emissions from vehicles associated with the proposed development are expected to comply with the daytime and night time noise criteria described in Section 4.

6 Minister's Specification SA 78B

6.1 Road noise

The facades within the 'Designated Area' of the Development Plan are separated from Magill Road by approximately 5 m – 100 m. The relevant Sound Exposure Category (SEC), which determines the acoustic rating of the facade is based on distance from the road. For facades not directly exposed to the noise source, the SEC has been determined in accordance with SA 78B.

The SECs for the facades of the building are shown in mark-ups in Appendix A. Note that the minimum SEC for the facade of a building within a 'Designated Area' is SEC 1.

6.2 Music noise

Buildings in a mixed use land area that are exposed to music noise from an entertainment venue (such as the Alma Tavern) have an SEC of 5 within 65 m of the allotment boundary of the venue.

SA 78B requires that the level of attenuation provided by the *building envelope* and ventilation system against the intrusion of external airborne sound from music must be sufficient to maintain sound levels not exceeding suitable internal sound criteria obtained from either the council or the South Australian Environment Protection Authority. We note that the Norwood Payneham and St Peters Development plan does not contain relevant internal sound criteria.

Appropriate criteria can be found in the EPA Guideline *Music noise from indoor venues and the South Australian Planning System*. For encroaching residential development it is recommended that:

> *Noise from any music venue must not exceed 43dB L_{eq} in any one-third octave band between and including 31.5Hz and 125Hz when assessed* ***inside*** *a noise sensitive development, including a bedroom and living room of a residential or short term accommodation premises with windows closed.*

The level of exposure to music noise was determined based on noise measurements at the site between 10pm and 11:00pm on Saturday 21 July 2018. Noise was measured at the location shown in Figure 3, representative of the most exposed proposed residential façade within 65m of the Alma.

Figure 3: Music noise monitoring location

The highest measured noise levels (15 minute average) during monitoring are presented in Table 5. Whilst music noise was audible at the measurement location, noise from traffic on Magill Road and Sydenham Road, vehicles within the Alma car park, and noise from Alma patrons also contributed to the measured noise levels. Vehicle noise was generally the controlling noise source. It was not possible to separate the contribution of music to overall measured levels.

Table 5 Maximum measured noise levels during monitoring

Measured noise levels, dB L_{eq}								
Octave band centre frequency, Hz								
								58

6.3 Sound insulation ratings

The appropriate sound insulation ratings for the different relevant SECs based on the *Deemed to Satisfy Provisions* of SA 78B are outlined in Table 6.

Table 6 Minimum acoustic requirements for habitable rooms

SEC	Building element	Location	Acoustic rating
1	External walls	All habitable rooms	$R_W + C_{tr} \geq 45$
	Windows & external glass doors	Refer to Table 7	
2	Ground floor	All habitable rooms	$R_W + C_{tr} \geq 50$
	External walls	All habitable rooms	$R_W + C_{tr} \geq 50$
	Windows & external glass doors	Refer to Table 7	
	External doors other than glass doors	All habitable rooms	$R_W \geq 27$
	Roof and ceiling	Bedrooms	$R_W + C_{tr} \geq 35$
3	Ground floor	All habitable rooms	$R_W + C_{tr} \geq 50$
	External walls	All habitable rooms	$R_W + C_{tr} \geq 50$
	Windows & external glass doors	Refer to Table 7	
	External doors other than glass doors	All habitable rooms	$R_W \geq 30$
	Roof and ceiling	Bedrooms	$R_W + C_{tr} \geq 40$
		All other habitable rooms	$R_W + C_{tr} \geq 35$
4	Ground floor	All habitable rooms	$R_W + C_{tr} \geq 50$
	External walls	All habitable rooms	$R_W + C_{tr} \geq 50$
	Windows & external glass doors	Refer to Table 7	
	External doors other than glass doors	All habitable rooms	$R_W \geq 30$
	Roof and ceiling	Bedrooms	$R_W + C_{tr} \geq 45$
		All other habitable rooms	$R_W + C_{tr} \geq 40$
5	Outside the scope of the *Deemed to Satisfy Provisions*		

The sound insulation ratings for windows and external glass doors are outlined in Table 7 based on the area of the window/glass door divided by floor area of the room.

Table 7 Minimum acoustic requirements for windows and external glass doors($R_W + C_{tr}$)

Room	Area of window and external glass doors as a percentage of the floor area of the room	Designated sound exposure category				
		1	2	3	4	5
Bedroom and attached non-habitable rooms	Not more than 20%	25	28	31	34	*
	More than 20% but not more than 40%	28	31	34	37(1)	*
	More than 40% but not more than 60%	31	34	37(1)	*	*

Room	Area of window and external glass doors as a percentage of the floor area of the room	Designated sound exposure category				
		1	2	3	4	5
	More than 60% but not more than 80%	34	37(1)	*	*	*
	More than 80%	37	*	*	*	*
Habitable rooms (other than bedrooms and enclosed kitchens) and attached non-habitable rooms	Not more than 20%	22	25	28	31	*
	More than 20% but not more than 40%	25	28	31	34	*
	More than 40% but not more than 60%	28	31	34	*	*
	More than 60% but not more than 80%	31	34	*	*	*
	More than 80%	34	*	*	*	*

Notes: (1) An $R_W + C_{tr}$ 37 rating is not specified in SA 78B; however, it is appropriate considering the incremental increase in ratings and SEC levels and the $R_W + C_{tr}$ 37 rating specified for SEC 1 bedrooms with a window area of more than 80% of the floor area.

* Windows and external glass doors are outside the scope of the Deemed-to-Satisfy provisions.

We note that SEC 5 does not necessarily entail a higher level of acoustic insulation compared to SEC 1-4. The requirements are based on the measured music noise spectra and predicted level at each facade, and may be more or less than other SECs.

6.4 Construction requirements

6.4.1 External walls

The external cladding material has not been finalised at this stage. Based on the Deemed-to-Satisfy provisions of SA 78B, the following constructions are appropriate:

- The construction techniques that are suitable for use in external applications specified in **Table 2** of **Specification F5.2** of the NCC; or

$R_w + C_{tr}$ 50 (SEC 2 – 4)

- Two leaves of 110mm clay brick masonry with –
  - a 50mm *cavity* between leaves; and
  - 50mm thick glass wool insulation with a density of 11kg/m^3 or 50mm thick polyester insulation with a density of 20 kg/m^3 in the *cavity*.
- Two leaves of 110mm clay brick masonry with –
  - a 50mm *cavity* between leaves; and
  - 50mm thick glass wool insulation with a density of 11kg/m^3 or 50mm thick polyester insulation with a density of 20 kg/m^3 in the *cavity*; and
  - one layer of 13mm plasterboard battened 50mm from the inside face.

- Single leaf of 90mm clay brick masonry with –
  - a row of 70mm x 35mm timber studs or 64mm steel studs at 600mm centres; and
  - a *cavity* of 25mm between leaves; and
  - 75mm thick glass or mineral wool insulation with a density of 11kg/m3 or 75mm thick polyester insulation with a density of 14kg/m3, positioned between studs; and
  - one layer of 10mm plasterboard fixed to the inside face.
- Single leaf of 220mm clay brick masonry with –

- 13mm render on the outside face; and
- one layer of 13mm plasterboard fixed to the inside face.

R_w + C_{tr} 45 (SEC 1)

- One row of 90mm studs at 600mm centres with –
  - resilient steel channels fixed to the outside of the studs; and
  - 9.5mm hardboard or 9mm fibre cement sheeting or 11mm fibre cement weatherboards fixed to the outside of the channels; and
  - 75mm thick glass or mineral wool insulation with a density of 11kg/m^3 or 75mm thick polyester insulation with a density of 14 kg/m^3 , positioned between the studs; and
  - two layers of 16mm fire-protective grade plasterboard fixed to the inside face of the studs.
- One row of 90mm studs at 600mm centres with –
  - resilient steel channels fixed to the outside of the studs; and
  - one layer of 19mm board cladding fixed to the outside of the channels and 6mm fibre cement sheets fixed to the inside of the channels; and
  - 75mm thick glass or mineral wool insulation with a density of 11kg/m^3 or 75mm thick polyester insulation with a density of 14 kg/m^3 , positioned between the studs; and
  - two layers of 16mm fire-protective grade plasterboard fixed to the inside face of the studs.

The above constructions are intended as examples of suitable systems. Alternative walls systems may be used where it can be demonstrated that the system meets the required rating.

6.4.2 External windows and doors

Indicative external window and door constructions are shown below in Table 8. Finalised constructions will be determined based on the window and floor areas of each habitable room. Note that acoustically equivalent constructions (such as thermal double glazing) can be adopted; however, the constructions are provided as a guide as to the types of constructions required.

Table 8 Indicative window and door constructions

Window or door construction	R_W + C_{tr}
Window construction	
3mm thick monolithic or laminated glass with sliding or double hung type opening	22
3mm thick monolithic or laminated glass with awning type opening	25
6mm thick monolithic or laminated glass with sliding or double hung type opening	28
6mm thick monolithic or laminated glass with awning type opening	31
10mm thick monolithic or laminated glass with awning type opening	34
Door construction	
5mm or 6mm thick monolithic or laminated glass sliding door	28

5mm or 6mm thick monolithic or laminated glass side-hung door	31
10mm thick monolithic or laminated glass sliding door	31
10mm thick monolithic or laminated glass side-hung door	34
40mm thick solid core door, side hinged	30

All openable windows and doors should have the following or acoustically equivalent seals:

- sliding doors are to have:
  - Schlegel Q-Lon T-Slot seals on the lock and mullion
  - Schlegel Fin-Seal on the rails
- windows awning style with rubber compression seals around the perimeter such as Schlegel Q-Lon T-Slot seals, or sliding with seals as indicated for the sliding doors
- hinged doors are to have:
  - high quality rubber contact seals for the head and the jambs acoustically equivalent to Kilargo IS1212/1515 or Raven RP120/150
  - dropdown seal at the bottom acoustically equivalent to Kilgaro IS8090si or Raven RP38.

6.4.3 Roof and ceiling

Typical constructions for roof and ceiling are as follows:

- Roof tiles or sheet metal roofing
- Minimum 165mm glass wool insulation with a minimum density of 7 kg/m^3 or minimum 185mm polyester insulation with a minimum density of 11 kg/m^3
- Plasterboard fixed to the underside of joists or trusses as detailed in Table 5 to meet the $R_w + C_{tr}$ requirement.

Table 9 Indicative upper floor ceiling construction

Ceiling construction	$R_w + C_{tr}$
1 x 10mm plasterboard	35
2 x 10mm plasterboard	40
1 x 16mm fire rated plasterboard	40
2 x 13mm fire rated plasterboard fixed to furring channels to the underside of the joists or trusses	45

6.4.4 Ventilation

Natural ventilation

In SEC 1 – 3 natural ventilation must be provided in accordance with the NCC. To meet this requirement, fresh air ventilation can be provided with operable windows.

6.4.5 Construction requirements for control of music noise

Indicative constructions are shown in Table 9 are suitable for the control of music noise to achieve the recommended criteria in the 63 and 125 Hz octave bands, for habitable spaces within 65m of the boundary of the Alma site. This applies to all Type A and most Type B townhouses.

We note that sound transmission data for typical construction materials is not generally available in the 31.5 Hz band, therefore it is not practicable to predict internal noise levels at this frequency. However we expect that control of noise at 63 Hz and above is expected to provide an acceptable internal acoustic environment, noting that significant bass noise was not observed from the Alma Tavern, and that other external noise sources (other than music) generally controlled the overall noise environment.

Table 10 Indicative façade construction requirements for the control of music noise for habitable spaces within 65 of the Alma Tavern.

Façade element	Construction requirement
Walls	Minimum $R_W + C_{tr}$ 45 walls, for example those described in Section 6.4.1.
Glazing	Minimum 10.38mm acoustic laminate
Roof and ceiling	Minimum $R_W + C_{tr}$ 40 roof and ceiling, for example those described in Section 6.4.3.

Alternative constructions may be adopted at the detailed design stage where it can be demonstrated that appropriate internal music noise levels can be achieved in habitable spaces.

7 Noise intrusion from other sources

Noise intrusion from sources other than road, rail and music noise sources is not specifically addressed in SA 78B. As such, noise intrusion from the proposed ALDI store and any other significant noise sources is assessed separately.

Advice from Sonus (received via email 10 April 2018) in relation to the ALDI is that:

> *…proposed residences should be designed to achieve the relevant internal noise criteria of the Environment Protection (Noise) Policy 2007, based on the following noise levels being experienced at any facades with line of sight to the ALDI delivery truck movements:*

	Noise Level in Octave Band Centre Frequency (dB(A))							***Total (dB(A))***
	63Hz	***125Hz***	***250Hz***	***500Hz***	***1000Hz***	***2000Hz***	***4000Hz***	
Average noise level (L_{Aeq}) during the day	*40*	*44*	*48*	*50*	*52*	*50*	*47*	*57*
Average noise level (L_{Aeq}) during the Night	*31*	*35*	*39*	*44*	*47*	*44*	*39*	*51*
Maximum (L_{Amax}) Noise Level	*56*	*66*	*68*	*68*	*75*	*73*	*66*	*79*

Further advice was provided by Sonus on 19 July 2018 is that ALDI delivery and refuse collection trucks will not use the Sydenham Road exit during night time hours (and will instead exit directly onto Magill Road), and that noise levels of 3 dB less than those given above are expected at the most distant Type B townhouses.

We note that the internal noise level criterion in the Noise EPP are based on AS/NZS 2107:2000, which does not contain criteria expressed in $L_{Amax.}$ A night time internal noise criteria of 50 dB(A) L_{Amax} within bedrooms is considered suitable based on only 1-2 truck delivery or refuse collection truck movements each night. We note that Sonus and Resonate are in agreement that achieving this internal level (in addition to Noise EPP criteria) will be sufficient to mitigate any adverse amenity effects resulting from night time ALDI delivery vehicle noise.

Based on the above, an external to internal noise reduction of 29 dB(A) is required for the most exposed proposed townhouse residences. With the adoption of SEC 1 façade construction as required by SA 78B, and any additional treatment as required for control of music noise (as described in Section 6.4.5), the above criteria are expected to be achieved without requiring any further treatment. We recommend that the treatment recommended in Section 6.4.5 is adopted for all Type A and B Townhouses and all west-facing apartments, unless a higher level of treatment is required for control of Magill Road traffic noise.

We expect that ALDI external plant noise can be mitigated at the noise source such that further facade mitigation is not required. We are not aware of any other significant industrial or other noise sources in the area surrounding the site.

8 National Construction Code

The residential elements of the proposed development will be classified as Class 2/3 under the NCC. Class 2/3 buildings must achieve the objectives outlined in Part F5 of the NCC *Sound Transmission and Insulation*. The acoustic requirements applicable to this development are outlined in Table 11.

Table 11 NCC requirements for Class 2 and 3 buildings

Building element	Description	Impact noise requirements	Airborne noise criteria
Floors	Separating sole-occupancy units and separating sole-occupancy units and a plant room, lift shaft, stairway, public corridor, public lobby or the like.	$L_{n,w} \leq 62$	$R_w + C_{tr} \geq 50$
Walls	Separating sole occupancy units	—	$R_w + C_{tr} \geq 50$
	Separating a habitable room of a sole occupancy unit from a bathroom, sanitary compartment, laundry or kitchen in an adjacent sole occupancy unit	Discontinuous construction(1)	$R_w + C_{tr} \geq 50$
	Separating a sole occupancy unit and a stairway, public corridor, public lobby or the like	—	$R_w \geq 50$
	Separating a sole occupancy unit and a plant room and lift shaft	Discontinuous construction(1)	$R_w \geq 50$
	A door between a sole occupancy unit and a stairway, public corridor, lobby or the like.	—	$R_w \geq 30$
Ducts, water supply, waste and soil pipes	A duct, soil, waste or water supply pipe located in a wall or floor cavity, serves or passes through more than one sole occupancy unit if the adjacent room is a habitable room (other than a kitchen)	—	$R_w + C_{tr} \geq 40$
	A duct, soil, waste or water supply pipe located in a wall or floor cavity, serves or passes through more than one sole occupancy unit if the adjacent room is a kitchen or any other room.	—	$R_w + C_{tr} \geq 25$
Stormwater pipes	If a storm water pipe passes through a habitable room (other than a kitchen).	—	$R_w + C_{tr} \geq 40$
	If a storm water pipe passes through a kitchen or any other room.	—	$R_w + C_{tr} \geq 25$
Services	A duct, soil, waste, water supply pipe and stormwater pipe located in a wall or floor cavity, serves or passes through more than one sole occupancy unit if the adjacent room is a habitable room (other than a kitchen(2))	—	$R_w + C_{tr} \geq 40$
	A duct, soil, waste, water supply pipe and stormwater pipe located in a wall or floor cavity, serves or passes through more than one sole occupancy unit if the adjacent room is a kitchen(2) or any other room.	—	$R_w + C_{tr} \geq 25$

Building element	Description	Impact noise requirements	Airborne noise criteria
Pumps	The point of connection between the service pipes in a building and any circulating or other pump.	A flexible coupling at the connection	—

(1) Discontinuous construction is defined such that walls are to have a minimum 20 mm gap between separate leaves. Cavity masonry walls are to have resilient wall ties or no wall ties. For other walls there are to be no mechanical linkages between wall leaves except at the wall periphery. A staggered stud wall is not deemed to be discontinuous.

(2) If the kitchen is open to the living area, the $R_w + C_{tr} \geq 40$ criterion is applicable rather than the $R_W + C_{tr} \geq 25$ criterion.

The proposed development will be designed and constructed to achieve the above requirements. Additional balcony screening or fins may be required in some locations to comply with Residential Development PDC 273.

9 Conclusion

An external noise intrusion and environmental noise emission assessment has been undertaken for the proposed mixed use development at 76 Magill Road. The assessment has taken into account the relevant noise requirements of the Norwood Payneham and St Peters Council Development Plan, Minister's Specification SA 78B and the SA Noise EPP.

Indicative facade treatments to mitigate Magill Road traffic noise and Alma Tavern music noise have been provided. Noise from loading dock activity and delivery/refuse collection vehicles associated with the proposed ALDI supermarket has also been considered, based on predicted external noise levels and other advice provided by Sonus. The mitigation required for control of external traffic and music noise (if applied to all Type A and B Townhouses, and all west-facing apartments) is sufficient to also control loading dock and delivery vehicle noise from the ALDI such that acceptable internal noise levels are achieved.

We note that alternative constructions may be adopted at the detailed design stage where it can be demonstrated that the relevant criteria can be achieved in habitable spaces.

The development will be designed to achieve the requirements of the NCC Part F5 in relation to acoustic separation between sole occupancy units.

Whilst mechanical plant selections and noise data are not available at this stage, it is expected that noise emissions from external mechanical plant associated with the development can meet the relevant criteria with standard mitigation measures as required.

Noise from vehicles associated with the development is expected to comply with the relevant noise limits at all locations. We recommend that heavy vehicle movements for refuse collection and deliveries (other than those associated with ALDI) are limited to daytime hours (7am to 10pm) only.

The objective noise criteria within the Norwood Payneham and St Peters Council Development Plan, Minister's Specification SA 78B and the SA Noise EPP can be achieved with the adoption of appropriate façade construction and environmental noise mitigation techniques.

Appendix A – Sound Exposure Category Mark-up

SA 78B Markup
Date: 23.07.2018
Revision: 0
Project: 76 Magill Road, Norwood
Project Number: A180159

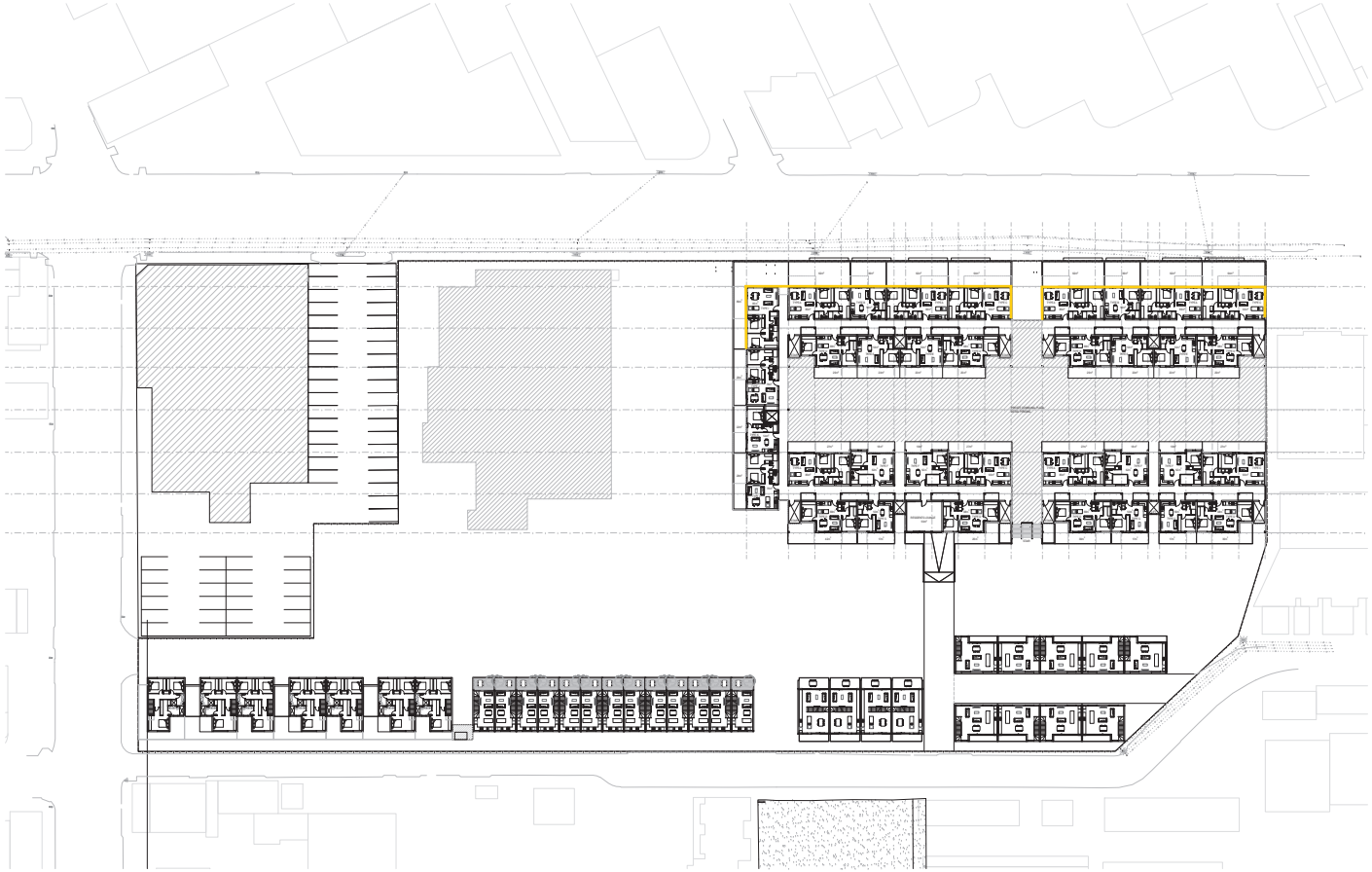
Resonate

LEVEL1

SEC 2

SEC 3

Note: All other habitable room external facades are SEC 1



LEVEL 1 FLOOR PLAN
1:500 @ A1

PRELIMINARY
13/07/18

HASSELL select architects tectvs

REV	DATE	DESCRIPTION

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PROJECT: 76 MAGILL ROAD NORWOOD
CLIENT: ALDI | CA CA

DRAWING: FIRST FLOOR PLAN
NORTH
SCALE: AS SHOWN
DATE: JULY 2018

PROJECT NO: 28055
DWG NO: P03
REVISION: 0.3
CHECKED: FB
DRAWN: mdf

SA 78B Markup
Date: 23.07.2018
Revision: 0
Project: 76 Magill Road, Norwood
Project Number: A180159

Resonate

LEVELS 2-5

SEC 2

SEC 3

Note: All other habitable room external facades are SEC 1

LEVEL 2 FLOOR PLAN
1:500 @ A1

PRELIMINARY
13/07/18

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PROJECT: 76 MAGILL ROAD NORWOOD
CLIENT: ALDI | CA CA

DRAWING: SECOND FLOOR PLAN
NORTH
SCALE: AS SHOWN
DATE: JULY 2018

PROJECT NO: 28055
DWG NO: P04
REVISION: 0.3
CHECKED: FB
DRAWN: mdf

SA 78B Markup
Date: 23.07.2018
Revision: 0
Project: 76 Magill Road, Norwood
Project Number: A180159

Resonate

LEVEL 6

SEC 2

SEC 3

Note: All other habitable room external facades are SEC 1

LEVEL 6 FLOOR PLAN
1:500 @ A1

PRELIMINARY
13/07/18

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PROJECT: 76 MAGILL ROAD NORWOOD
CLIENT: ALDI | CA CA
DRAWING: SIXTH FLOOR PLAN
NORTH
SCALE: AS SHOWN
DATE: JULY 2018
PROJECT NO: 28055
DWG NO: P08
REVISION: 0.3
CHECKED: FB
DRAWN: mdf

ALDI Norwood

Environmental Noise Assessment

July 2017

S4217.23C5

sonus.

Chris Turnbull
Principal
Email: ct@sonus.com.au
www.sonus.com.au

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INTRODUCTION

An environmental noise assessment has been made of the ALDI supermarket proposed on Magill Road, Norwood as shown in Appendix A.

The closest noise sensitive receivers to the proposed ALDI supermarket are the proposed residences on the same development site (as shown in Appendix A). Existing residences are also located to the south of the site, on the opposite side of Stephen Street.

The overall development is well considered from an environmental noise perspective with the ALDI supermarket located closest to the highest existing noise sources (Magill Road and the ALMA Hotel). This provides a greater distance between the proposed residential use to the south of the site and the existing noise sources. The proposed residences on the site (which will be designed to protect occupants from noise) also provide a barrier between the commercial activity at the ALDI supermarket and the closest existing residences on the opposite side of Stephen Street.

This assessment considers noise levels at the existing and proposed noise sensitive receivers from the following activity at the site:

- car park activity and vehicle movements;
- operation of mechanical plant;
- deliveries; and,
- rubbish collection.

The assessment has been based on the following:

- *Select Architects* drawings “SP03-1-P3” with project number “A1611”, dated 13 July 2018;
- the assumption that the ALDI supermarket will not trade before 7am or after 10pm;
- implementation of measures described in the ALDI SA, "Delivery and loading procedures" (such as turning off refrigeration and reversing beepers when delivering) to minimise the noise;
- low level exhausts and attenuated compressed air release on all trucks that attend the site; and,
- mechanical plant being located on the roof in the north western corner of the building.

This assessment summarises the prediction of noise from the proposed ALDI supermarket, compares the predictions with the relevant criteria, and provides recommendations for acoustic treatment to ensure that the noise from the proposal does not detrimentally affect the amenity of the locality.

CRITERIA

Development Plan

The proposed site (including the proposed residences on the same development site as the ALDI supermarket) is located within an Urban Corridor Zone, and the existing noise sensitive land uses on the opposite side of Stephen Street and Sydenham Road are located within two different types of zones, being a Mixed Use and a Residential Zone. The proposed site and the noise sensitive land uses are all located with the Norwood Payneham and St Peters Council Development Plan[1]. The Development Plan has been reviewed and the following provisions are considered relevant to the noise assessment.

Interface between Land Uses

OBJECTIVES

Objective 26: Development located and designed to minimise adverse impact and conflict between land uses.

Objective 27: Protect community health and amenity from the adverse impacts of development and support the continued operation of all desired land uses.

PRINCIPLES OF DEVELOPMENT CONTROL

80. *Development should not detrimentally affect the amenity of the locality or cause unreasonable interference through any of the following:*

...

(b) Noise;

....

84. Non-residential development on land abutting a residential zone or within a residential zone should be designed to minimise noise impacts and achieve adequate levels of compatibility between existing and proposed uses.

Noise Generating Activities

86. Development that emits noise (other than music noise) should include noise attenuation measures that achieve the relevant Environment Protection (Noise) Policy criteria when assessed at the nearest existing noise sensitive premises.

87. Development with the potential to emit significant noise (e.g. industry) should incorporate noise attenuation measures that prevent noise from causing unreasonable interference with the amenity of noise sensitive premises.

[1] Consolidated – 19 December 2017

Centres, Shops & Business

PRINCIPLES OF DEVELOPMENT CONTROL

293. The location and design of centres and shopping development should ensure that all sources of noise, including refrigeration and air conditioning equipment, garbage collection and car parking, do not cause excessive or disturbing noise at neighbouring properties.

308. Development within business, centre and shopping zones should conform to the following design principles:

…

(d) Development should not cause nuisance or hazard arising from:

…

(ii) excessive noise;

…

Environment Protection (Noise) Policy

Interface between Land Uses Principle of Development Control 86 makes reference to the Environment Protection (Noise) Policy. The current version is the Environment Protection (Noise) Policy 2007 (the Policy).

The Policy is based on the World Health Organisation Guidelines to prevent annoyance, sleep disturbance and unreasonable interference on the amenity of an area. Therefore, compliance with the Policy is considered to be sufficient to satisfy the provisions of the Development Plan relating to environmental noise.

Noise from Rubbish Collection

The Policy deals with rubbish collection by limiting the collection hours to the least sensitive period of the day. Division 3 of the Policy requires rubbish collection to only occur between the hours of 9am and 7pm on Sunday or public holiday, and between 7am and 7pm on any other day, except where it can be shown that the maximum (L_{max}) noise level from such activity is less than 60 dB(A).

Noise from all other Activity

The Policy sets goal noise levels based on the principally promoted land use in which the noise source (proposed ALDI supermarket) and noise sensitive receivers are located, and adjusts these noise levels based on the characteristics of the proposed noise sources and the existing acoustic environment in the vicinity.

For a development located in a zone that promotes a combination of residential and commercial uses, the following external goal noise levels apply to the existing residences:

	Average noise level (L_{Aeq}) during the day	Average noise level (L_{Aeq}) during the Night	Maximum (L_{Amax}) Noise Level
Existing residences in Residential Zone	45	38	60
Existing residences in Mixed Use Zone	47	40	-

For the proposed residences on same development site as the ALDI supermarket, the Policy provides an approach whereby the facade can be designed to achieve suitable internal noise levels. The Policy provides the appropriate noise criteria in these circumstances such that an appropriate level of amenity is achieved and the ALDI supermarket is protected from future complaint.

ASSESSMENT

By providing the acoustic treatments detailed below, the noise levels at existing residences are predicted to achieve the assessment criteria:

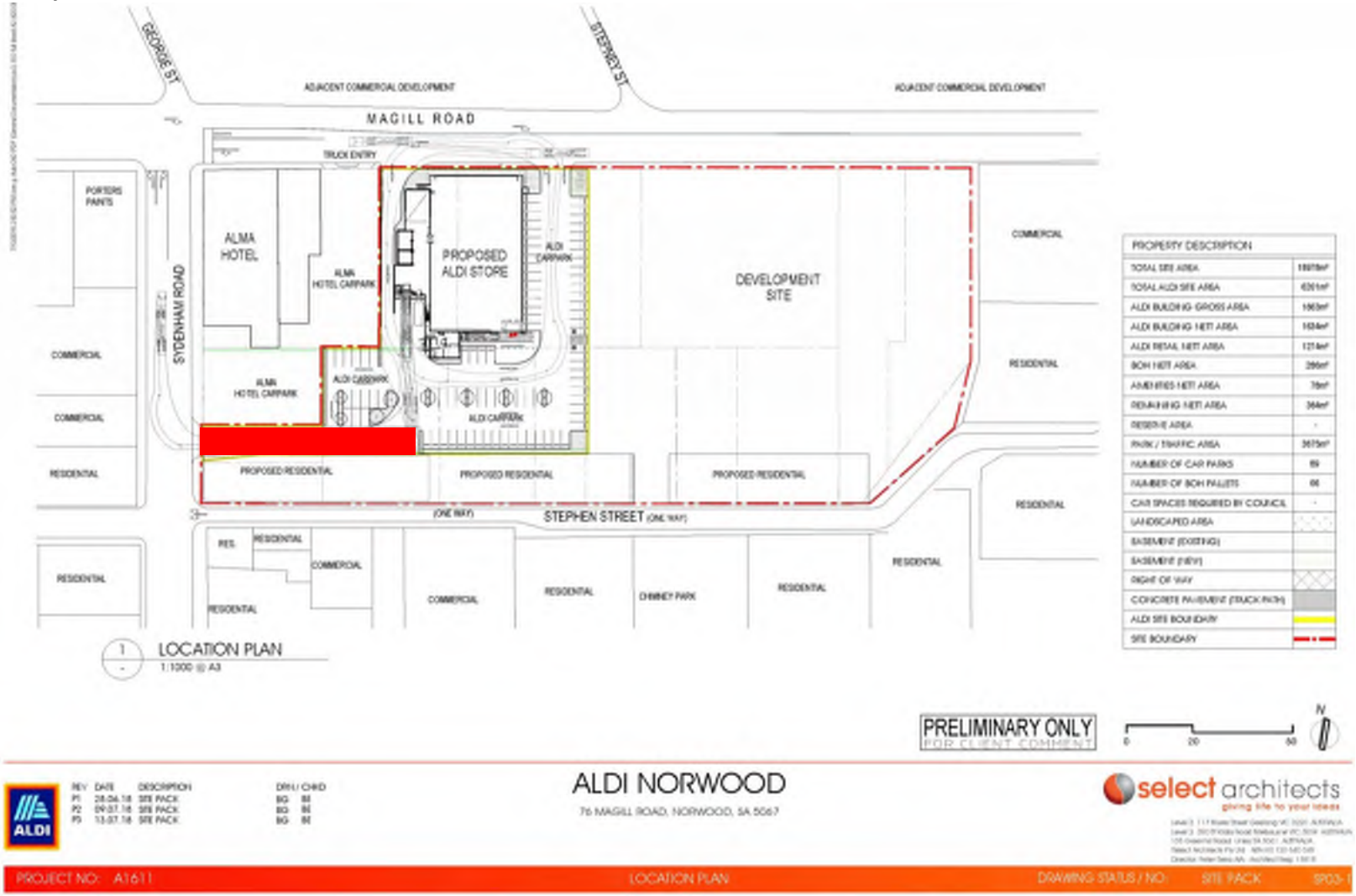
- Restrict the operation of the compactor to the hours between 7am and 10pm.
- Restrict the hours of rubbish collection from the site and any use of the refuse area to the hours of Division 3 of the Environment Protection (Noise) Policy 2007. That is, only between the hours of 9am and 7pm on a Sunday or public holiday, and 7am and 7pm on any other day.
- Restrict the exit of trucks to Sydenham Road to the hours between 7am and 10pm. For truck deliveries outside of these hours, the truck should not enter the area shaded as red in Appendix A but rather exit the site directly onto Magill Road.

The proposed residences on same development site will be designed to achieve the relevant internal noise criteria of the *Environment Protection (Noise) Policy 2007*, based on the following external noise levels:

	Noise Level in Octave Band Centre Frequency (dB(A))							Total (dB(A))
	63Hz	125Hz	250Hz	500Hz	1000Hz	2000Hz	4000Hz	
Average noise level (L_{Aeq}) during the day	40	44	48	50	52	50	47	57
Average noise level (L_{Aeq}) during the Night	31	35	39	44	47	44	39	51
Maximum (L_{Amax}) Noise Level	56	66	68	68	75	73	66	79

sonus.

Appendix A: Site Layout



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www.buildsurv.com.au

BuildSurv
Building Surveyors & Certifiers

BCA Advice

To:	Brian Emmett (Select Architects)	Page/s: (incl. this page)	4
CC:	Ben George (Select Architects), Andrew Woods (WGA), Pat Callisto (Lucid), Patrick Campbell (BCAE), Ashley Greiner (ALDI)		
Reference:	ALDI Norwood – Design Feasibility - BCA Comments		
File/Ref No.	2018.4018	Date:	29/07/2018

Hi Brian,

In reference to your email of the 30th of April, 2018 containing the Feasibility Plans for the new ALDI Norwood freehold store at Magill Road, Norwood. We have also received updated plans and details on the 27th of July, 2018.

In relation to the new store (excluding the Retail and Residential Development on the site) we can provide the following preliminary advice with regards to Building Code of Australia (BCA) Compliance.

Administration:

- We noted that the site has not yet been created as yet and there are existing buildings on the site which will need to be demolished. It is assumed that the application for the ALDI store will be on a clear site with the current site being cleared of all buildings and infrastructure and as such, our scope will be to assesses and grant Building Rules Consent for the new ALDI building only.

A Classification:

- The proposed building will be a Class 6 (shop/supermarket) building.

B Structure:

- As part of the Building Rules assessment we will require a footing design report and also structural calculations to conduct a 3rd party review of the design. This will need to be provided by WGA. They will also need to cover ancillary items (such as the effect of the demolition of the existing buildings on the foundation, the design for any retaining walls as required and, the roof loads for the solar panels).

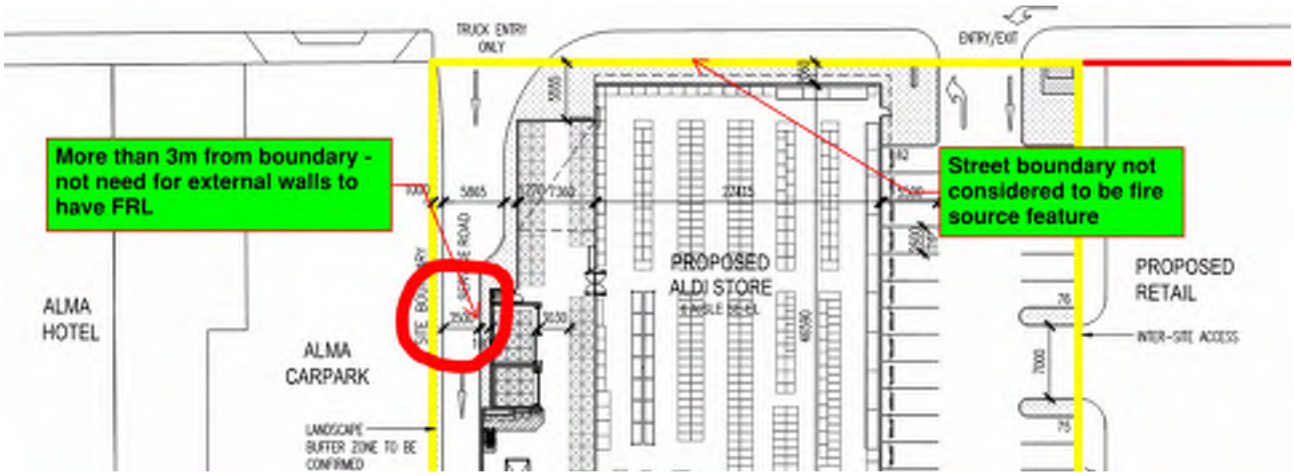
C Fire Resistance:

- The proposed building will be of Type C construction. The size of the building is less than the 2000 m2 permitted for a Class 6 building which complies.

- The preliminary plans indicate that the external walls will be greater than 3 metres from the western boundary (3.6m) and that the other walls are not exposed to any boundaries or other buildings (i.e. no fire source features). As such, the external walls and openings within will not be required to have any fire ratings (see diagram below).

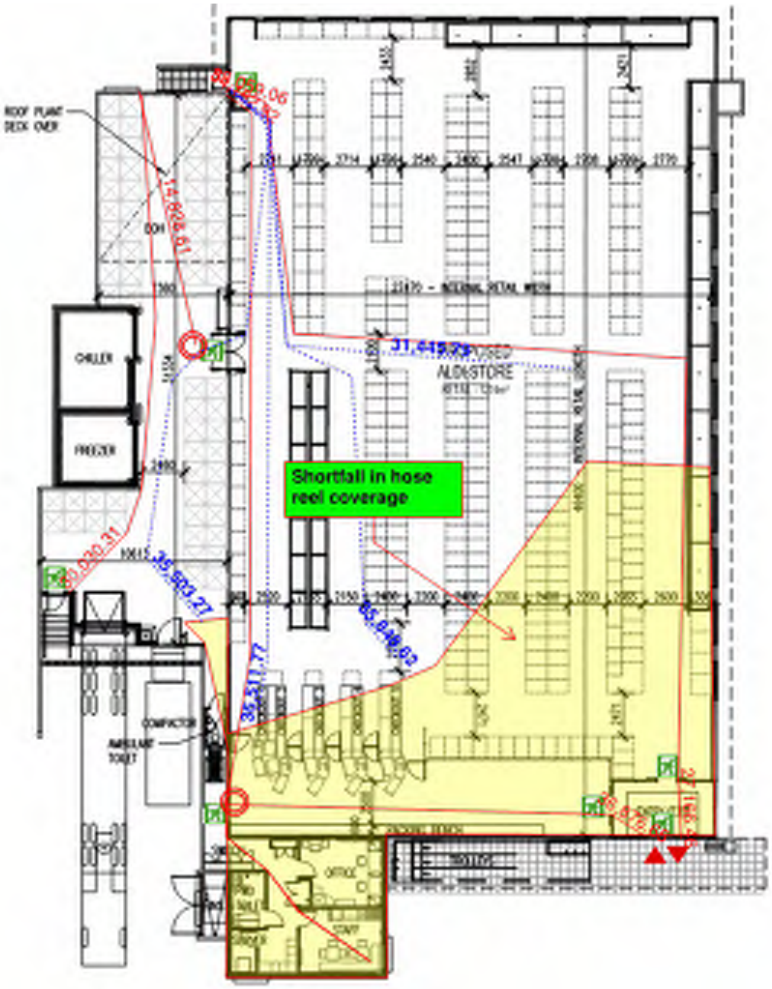
- As the building is single storey none of the internal wall or load bearing elements will be required to be fire rated.

- It is noted that the store will be a 6 isle non-generic store and that all surface linings and finishes will be as per the standard ALDI specification.



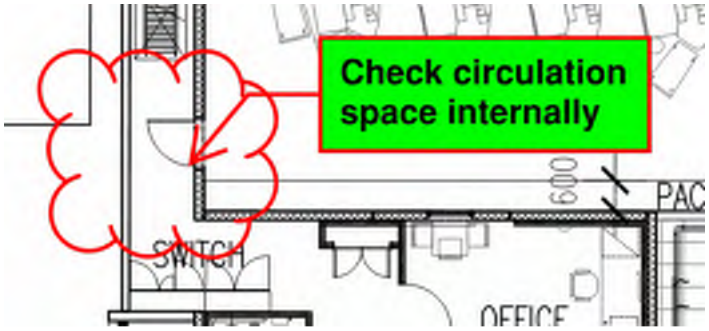
D Access and Egress:

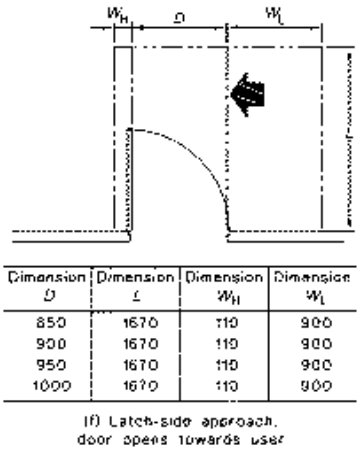
- The store will require 2 egress doors not more than 40m from any part of the store and not more than 60 m apart.
- As per the below and attached, we have assumed the egress paths out of the building which look to be less than 40m. The layout also complies with the distance between exit doors which is less than 60 m



- Disabled access is required to the building. The 2 allocated carparks comply (only 2 required) and, the placement of tactile indicators as shown on the floor plan is considered to generally comply (depth and distance from bollards to be confirmed). The path of travel from the carpark to the main entry will need to be at a gradient of 1:40 per permit access for a persons with a disability access.

- We noted that the access from the retail floor to the passage leading to the offices does not comply for disabled access. We would recommend that this area be reviewed to ensure compliance with the figure below by providing a passage width of at least 1670 to allow a person with a disability for the offices to travel back into the retail area.





Dimension D	Dimension L	Dimension W_H	Dimension W_L
850	1670	110	900
900	1670	110	900
950	1670	110	900
1000	1670	110	900

- As previously discussed with ALDI, we are assuming that the store can provide for 200 persons but, will never achieve this occupancy on a frequent basis and, that the AC system will be designed for less as directed by ALDI. A total of 200 persons will be reflected on the Certificate of Occupancy issued at the completion of the project.

E Services and Equipment:

- The building is required to be provided with a hydrant, hose reel and portable fire extinguishers.

- The services engineer will need to provide their location and evidence that the location of the hydrants and the flows and pressures comply with AS2419.1. The store is located in a SAMFS region.

- We observed that the current plan has a hose reel located at the rear exit which does not provide complete coverage to the floor area (refer yellow highlighted space on egress plan). This is a Generic Performance Solution and as such, we will need to submit the plans to the SAMFS for a Reg 28 comment **(see Performance Solutions below)**

- We have also noted on the egress plan above that there are some shortfalls in the store for hose reel coverage (as per shaded yellow parts). Its assusmed that this will be a Performance Solution pursued with the SAMFS **(see Performance Solutions below).**

F Health and Amenity:

- The store will need to have a unisex accessible sanitary facility in the staff area in addition to the drivers toilet shown. This has been shown on the current drawings. The toilet provisions will permit 20 employees.

J Energy Efficiency:

- The proposed building is in Climate zone 5 meaning that the following R-values to the conditioned spaces will need to be achieved for Deemed to Satisfy (DTS) BCA compliance:

    - Roof/Ceiling - R3.7 (assuming a medium roof colour – we can confirm value once selected)
    - Walls – R2.8 (or R1.4 using tilt-panel with furring channels only)

- If there are to be non-conditioned areas, the walls between conditioned and non-conditioned spaces will need to achieve a R-value of R1.8. The mechanical consultant will need to provide information about what areas are conditioned and non-conditioned.

- The services consultant will need to seek direction from ALDI whether a DTS approach or a performance solution using the JV3 method will be used to satisfy the Part J provisions of the BCA.

Performance solutions:

As part of our review the follow Performance provisions will need to be addressed as part of the design and documentation:

Relevant *Performance Requirement(s)*	Relevant *Deemed-to-Satisfy Provision(s)*	***Performance Solution(s)* Assessed** *(Building Solution* which complies with the *Performance Requirements)*
a) BCA-EP1.1	**BCA-E1.4**	To permit a shortfall in fire hose reel coverage.

These Performance Solutions will need to be justified by Service Engineer as part of the Fire Engineering Report which we will liaise with the SAMFS as part of the Reg 28 Submission once the hydrant performance information has been provided.

We hope that this report assists in the design feasibility and please do not hesitate to call me if you need to clarify the items above.

Regards,

Brett Fennell
Director
Building Surveyor and Private Certifier

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Buildtec
99 King William Street
Kent Town SA 5067

25 July, 2018

Attention: Daniel De Conno

Re: 76 Magill Road, Norwood – NCC – BCA – Vol1 – Initial Comments

Dear Daniel

This correspondence is to confirm that Katnich Dodd has been engaged as the Private Certifiers for the abovementioned project. To date we have undertaken a preliminary review of the planning documentation and feel that the building (subject to performance based alternate solutions to be further reviewed and supported by the SAMFS) will be able to satisfy the minimum requirements of the NCC BCA Vol 1 & Vol 2 with regards to a mixed use building of Class 2, 6 & 7a classifications as well as the Class 1 dwellings detached from the main complex.

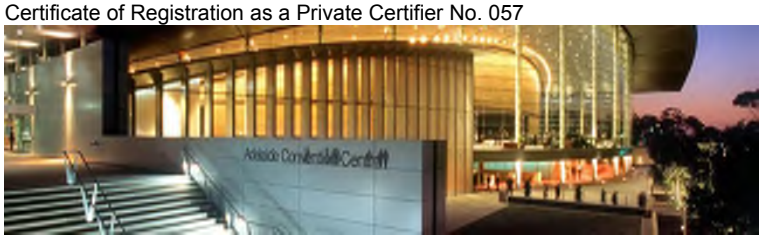
The review has been based on the following documentation:

- 76 Magill Road Design Report Version 1 dated 23 Jul 2018, and
- Carom 76 Magill Road Norwood 28055 July 2018 DPC Issue V.0.4 dated 23 July 2018

This correspondence does not constitute a certificate of compliance with the Building Rules as it is to be considered only for the planning application process only.

Yours faithfully

Vic Barone 25 July, 2018
Certificate of Registration as a Private Certifier No. 057



©

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54526-116823 L03 (Rev1)

30 July 2018

Mr Daniel De Conno
Development Director
Buildtec
Via email: dd@buildtec.com.au

Summary of Environmental Status of the Caca Portion of 76 Magill Road, Norwood, South Australia

Dear Daniel,

JBS&G Australia Pty Ltd (JBS&G) have undertaken a review of environmental works completed to date and provided a summary of the environmental status of the Caca portion of 76 Magill Road, Norwood, South Australia (the site). The Caca portion is defined as all Stages with the exception of Stage 1A shown in the attached plan (**Attachment A**).

The works undertaken at the site to date include desktop review of the history of the site[1], soil investigation[2,3,4], groundwater investigation[2,4,5] and soil vapour investigation[6]. These reports have been included as attachments to this letter.

Based on the environmental investigations completed to date (referenced above and included in **Attachment B** to **Attachment H**), significant contamination which would preclude the use of the site for the proposed use as a mixed-use development (including a shopping centre, low / medium / high density residential landuse and a park / recreational public use area) has not been identified, subject to the appropriate management of surface fill material.

It is noted preliminary classifications and volume estimates were calculated for the Caca portion of the site and provided to RenewalSA[7] for review along with soil data for the Caca portion of the site. Following review of this data, RenewalSA stated they will accept the entirety of the material described within JBS&G (2018), which includes all fill material and some natural soils across the Caca portion of the site. This proposed development measure (removal of these soils from site to the RenewalSA Soil Bank) will result in appropriate management of the surface fill material. Correspondence from RenewalSA regarding the soils is included in **Attachment I**.

---

1 *Preliminary Environmental Site Assessment, GWA Bathrooms and Kitchens, 76 Magill Road, Norwood, South Australia*, Noel Arnold & Associates, July 2011 (Noel Arnold & Associates 2011a).

2 *Environmental Assessment, 76 Magill Road, Norwood, South Australia,* Noel Arnold & Associates, November 2011 (Noel Arnold & Associates 2011b).

3 *Environmental Update Letter Report, 76 Magill Road, Norwood, South Australia,* Greencap, 23 December 2015 (Greencap 2015).

4 *Environmental Assessment, Caroma Manufacturing Facility, 76 Magill Road, Norwood, South Australia,* Progressive Risk Management (PRM), October 2016 (PRM 2016).

5 *Groundwater Assessment – 76 Magill Road, Norwood, South Australia (DRAFT),* LBWco Pty Ltd, 23 March 2018 (LBWco 2018).

6 *Results from Stage 1 Environmental Investigation (Vapour Screening) at 76 Magill Road, Norwood, South Australia,* JBS&G Australia Pty Ltd, 13 June 2017 (JBS&G 2017).

7 *Preliminary Soil Classification and Volume Estimates for the Caca Portion of 76 Magill Road, Norwood, South Australia,* JBS&G Australia Pty Ltd, 31 May 2018 (JBS&G 2018).

Should you require clarification, please contact the undersigned on 08 8431 7113 or by email klough@jbsg.com.au.

Yours sincerely:

Kate Lough
Associate Environmental Scientist
JBS&G Australia Pty Ltd

Reviewed/Approved by:

Will Ellis
Principal Engineer
JBS&G Australia Pty Ltd

Attachments
Attachment A – Site Development Stage Plan
Attachment B – Preliminary Environmental Site Assessment, GWA Bathrooms and Kitchens, 76 Magill Road, Norwood, South Australia, Noel Arnold & Associates, July 2011 (Noel Arnold & Associates 2011a)
Attachment C – Environmental Assessment, 76 Magill Road, Norwood, South Australia, Noel Arnold & Associates, November 2011 (Noel Arnold & Associates 2011b)
Attachment D – Environmental Update Letter Report, 76 Magill Road, Norwood, South Australia, Greencap, 23 December 2015 (Greencap 2015)
Attachment E – Environmental Assessment, Caroma Manufacturing Facility, 76 Magill Road, Norwood, South Australia, Progressive Risk Management (PRM), October 2016 (PRM 2016)
Attachment F – Groundwater Assessment – 76 Magill Road, Norwood, South Australia (DRAFT), LBWco Pty Ltd, 23 March 2018 (LBWco 2018)
Attachment G – Results from Stage 1 Environmental Investigation (Vapour Screening) at 76 Magill Road, Norwood, South Australia, JBS&G Australia Pty Ltd, 13 June 2017 (JBS&G 2017)
Attachment H – Preliminary Soil Classification and Volume Estimates for the Caca Portion of 76 Magill Road, Norwood, South Australia, JBS&G Australia Pty Ltd, 31 May 2018 (JBS&G 2018)
Attachment I – Correspondence from RenewalSA

Our ref: 170917 L04

26 July 2018

LBW co Pty Ltd
ABN 58 126 992 274
184 Magill Road, Norwood SA 5067
PO Box 225 Stepney SA 5069
08 8331 2417
www.lbwco.com.au

Mr Nigel Uren
ALDI Stores
84 Gallipoli Drive
Regency Park SA 5010

Dear Nigel,

Proposed ALDI Store at 76 Magill Road, Norwood SA
Environmental Suitability of Land for Commercial Land Use

In April 2017, LBW co Pty Ltd (LBWco) was engaged by ALDI Stores to provide environmental review, assessment and advisory services regarding the acquisition and proposed retail redevelopment of a portion of the property at 76 Magill Road, Norwood SA. Extensive environmental investigations have been undertaken at the site by LBWco and others, which collectively constitute a Detailed Site Investigation consistent with the *National Environment Protection (Assessment of Site Contamination) Measure* 1999 (as amended 2013) and provide a high confidence characterisation of the contamination status of the site. A summary listing of all known environmental assessment works to date for the above property is provided below.

1. A site history investigation in 2011 for GWA Bathrooms and Kitchens (Caroma)
2. A soil and groundwater investigation in 2011 for Caroma
3. An update letter report in 2015 for Renewal SA to compare the 2011 site data against current environmental risk screening criteria (ASC NEPM 1999, as amended 2013)
4. A soil and groundwater investigation in 2016 for Caroma and Renewal SA in respect of lease exit by Caroma
5. A soil vapour investigation in 2017 for Buildtec
6. An additional soil investigation of the ALDI portion of the site in 2017 for ALDI Stores
7. An additional groundwater investigation in 2017 for ALDI Stores

Refer to page 2 for a full reference list.

LBWco reviewed the reports produced by others for work items 1 – 5 and undertook work items 6 and 7. Based on the comprehensive assessment information available, LBW co concluded that there was no evidence of site contamination within the ALDI portion of the site that would preclude the proposed commercial land use and therefore no remediation is required to make the site suitable for ALDI's purpose.

Together with representatives of ALDI's joint venture partners, LBWco provided advice on the waste characteristics of the fill materials and soils that will be surplus to redevelopment needs onsite. The advice was considered by Renewal SA in regard to suitability of the waste soils to be transferred to Renewal SA's Soil Bank site at Gillman SA. Renewal SA confirmed to the joint venture that all surplus materials from the redevelopment works are acceptable to be transferred to the Soil Bank, where the materials will be beneficially and sustainably reused as Waste Derived Fill.

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