

## APPLICATION ON NOTIFICATION –211/M015/19

<b>Applicant:</b>	Plympton Apartments Pty Ltd C/Future Urban
<b>Development Number:</b>	211/M015/19
<b>Nature of Development:</b>	Demolition of existing structures and construction of a six level residential flat building comprising 32 dwellings and associated car parking
<b>Development Type:</b>	Merit
<b>Subject Land:</b>	1 & 1A Glenburnie Terrace, Plympton
<b>Development Plan:</b>	West Torrens Council, consolidated 12 July 2018
<b>Zone / Policy Area:</b>	Urban Corridor Zone/ Boulevard Policy Area 34
<b>Contact Officer:</b>	Janaki Benson
<b>Phone Number:</b>	08 8343 2339
<b>Consultation Start Date:</b>	08 August 2019
<b>Consultation Close Date:</b>	5pm 21 August 2019
<p><b>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).</b></p>	

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](mailto:scapreps@sa.gov.au)

**South Australian  
DEVELOPMENT ACT, 1993  
REPRESENTATION ON APPLICATION – CATEGORY 2**

**Applicant:** Plympton Apartments Pty Ltd C/Future Urban  
**Development Number:** 211/M015/19  
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**Subject Land:** 1 & 1A Glenburnie Terrace, Plympton  
**Contact Officer:** Janaki Benson  
**Phone Number:** 08 8343 2339  
**Close Date:** 5pm 21 August 2019

My Name: \_\_\_\_\_ My phone number: \_\_\_\_\_

**Primary method(s) of contact:** Email: \_\_\_\_\_  
Postal Address: \_\_\_\_\_ Postcode: \_\_\_\_\_

**You may be contacted via your nominated PRIMARY METHOD(s) OF CONTACT if you indicate below that you wish to be heard by the State Commission Assessment Panel in support of your submission.**

**My interests are:**  
(please tick one)

☐ owner of local property  
☐ occupier of local property  
☐ a representative of a company/other organisation affected by the proposal  
☐ a private citizen

**The address of the property affected is:** \_\_\_\_\_  
Postcode \_\_\_\_\_

**My interests are:**  
(please tick one)

☐ I support the development  
☐ I support the development with some concerns  
☐ I oppose the development

**The specific aspects of the application to which I make comment on are:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**I:** ☐ wish to be heard in support of my submission  
(please tick one) ☐ do not wish to be heard in support of my submission  
(Please tick one)

**By:** ☐ appearing personally  
(please tick one) ☐ being represented by the following person  
(Please tick one)

**Signature:** \_\_\_\_\_

**Date:** \_\_\_\_\_

### **Why have I received this notice?**

The role of the State Commission Assessment Panel (SCAP) is to independently assess and determine specified kinds of development applications in South Australia in accordance with the *Development Act 1993*.

Some types of development application require public notification. This is determined by the relevant Development Plan and Schedule 9 of the *Development Regulations 2008*. Development applications fall into one of the following categories:

- Category 1: No public notification
- Category 2: Notice of the application to be given to an owner/occupier of adjacent land to where the development is proposed. A person contacted in this way has the right to make a written representation to the SCAP. Representations from those with a right to be heard must be taken into consideration by SCAP when assessing the development application.
- Category 3: Written notice of the application to be given to an owner/occupier of adjacent land to where the development is proposed and to any owner/occupier of land which the SCAP believes would be directly affected to a significant degree if the development were to proceed. Notice by newspaper advertisement to be given to the general public.

### **What is a valid representation?**

Your representation must be made within the public notification period as described upon the notice you have received. Pursuant to the *Development Act 1993*, this period is 10 business days from the date notice is given.

Your representation must be signed, dated, set out the reasons for the representation and include your full name and address contact details.

### **What can I comment on?**

It is important to be mindful that your representation should avoid raising matters that are not relevant to the planning assessment of the application. A planning assessment can only have regard to the relevant provisions of the Development Plan. A representation can raise issues both in support and in opposition to a development.

You can access the relevant Development Plan here: <https://www.sa.gov.au/topics/planning-and-property/development-plans>

### **What happens next?**

All valid representations received through either a Category 2 or Category 3 process are forwarded to the applicant for a response and taken into consideration by a Planning Officer from the Department of Planning, Transport and Infrastructure in preparing their assessment.

Pursuant to the *Freedom of Information Act 1991* and *Development Act 1993* any information provided may become part of a public document and may be published as an attachment to the Planning Officer's report.

If you have indicated that you wish to be heard you will receive an invitation to appear personally before the SCAP, or be represented by counsel, solicitor or agent. This invitation must give five (5) business days notice of the meeting but, dependent on other issues to be assessed, this meeting may not occur for an indefinite period of time after your representation is made. Unfortunately, the meeting time and date cannot be adjusted to accommodate all attendees.

If you have not indicated that you wish to be heard in support of your submission, you will not receive any further correspondence on this matter until a decision is made.

### **What is a SCAP meeting?**

SCAP meetings are generally held on the second and fourth Thursdays of each month in the Kardi Munaintya meeting room on the ground floor at 50 Flinders Street, Adelaide.

The SCAP will be assessing the development application against the relevant Council Development Plan. To assist, an assessment report will be prepared by a Planning Officer from the Department of Planning, Transport and Infrastructure. This report is publicly available from [https://www.saplanningcommission.sa.gov.au/scap/agendas\\_minutes](https://www.saplanningcommission.sa.gov.au/scap/agendas_minutes) on the Monday afternoon prior to the meeting. This report will include a copy of your representation.

Representors wishing to be heard will be given the opportunity to make a short (5 minute maximum) verbal presentation to the SCAP. Please note that Representors are only provided with the opportunity to make a verbal presentation at the initial hearing of an application. At this meeting, the SCAP may also hear comments from the applicant, relevant agencies, and Council.

### **How do I know what decision is made?**

You will be able to ascertain the outcome of the SCAP's deliberation when the meeting minutes are made available on the SCAP website on the afternoon of the day after a meeting.

Once a decision is made by the SCAP, valid representors will be sent a copy of the Decision Notification Form which includes any conditions relevant to the application.

*Note: Dependent on the assessment process for the application, and if no Representors indicate that they wish to be heard, a decision may be made by a Delegate of the SCAP without the application being heard at a SCAP meeting.*

### **Appeal rights**

If the proposal is a Category 3 application, then you can appeal a decision made by the SCAP if you have made a valid representation

Such an appeal must be lodged at the Environment, Resources and Development Court fifteen (15) business days from the date of decision. The Court is located in the Sir Samuel Way Building, Victoria Square, Adelaide (telephone number 8204 0300).



Representors do not have a right of appeal in relation to Category 2 development applications.

**For more information**

Contact the SCAP Secretariat on:

Telephone: 1800 752 664 (Select Option 4)

Direct: 7109 7061

E-mail: [scapadmin@sa.gov.au](mailto:scapadmin@sa.gov.au)

Postal: GPO Box 1815, Adelaide SA 5001

Street: Level 5, 50 Flinders Street, Adelaide SA 5000

Website: <https://www.saplanningcommission.sa.gov.au/scap>



## PLANNING REPORT

### 1 & 1A GLENBURNIE TERRACE, PLYMPTON

CONSTRUCTION OF A FIVE STOREY RESIDENTIAL FLAT BUILDING

Prepared for:  
Griffin Group

Date:  
11 July 2019



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### Document Control

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## 1. INTRODUCTION

The proponent seeks Development Plan Consent to demolish all existing structures on the subject site and construct a five (5) storey residential flat building comprising ground level car parking (36 car parking spaces), residential lobby, communal lounge area, mezzanine storage area, and four (4) residential levels comprising 32 two-bedroom dwellings.

In undertaking inspections of the site and locality, reviewing consultant reports, and assessing the proposed development against what we consider to be the most relevant Development Plan provisions, we have formed the opinion that the proposal warrants Development Plan Consent.

The following supporting documents are submitted along with this Planning Report:

- Appendix 1 - Signed Development Application Form;
- Appendix 2 - Signed Electricity Declaration Form;
- Appendix 3 - Certificates of Title;
- Appendix 4 – Architectural Package prepared by Urbanize Architects dated 27 June 2019;
- Appendix 5 – Traffic and Parking Assessment prepared by Phil Weaver and Associates dated 22 May 2019;
- Appendix 6 – Waste Management Plan prepared by Colby Phillips Advisory dated 21 May 2019;
- Appendix 7 – Landscaping Plan prepared by LCS Landscapes dated 17 May 2019; and
- Appendix 8 – Stormwater Management Plan prepared by MLEI and dated 29 April 2019.

## 2. SUBJECT SITE AND LOCALITY

The subject site is located on the southern corner of Glenburnie Terrace and Gray Street, and to the north-west of Anzac Highway.

The subject site is commonly known as 1 and 1A Glenburnie Terrace, Plympton, and comprises a single allotment legally described as Allotment 181 Certificate of Title Volume 5731 Folio 830.

**Figure 2.1** *Subject Site and Locality.*



The subject site is irregular in shape and generally flat. It has frontages of 32.93 metres to Glenburnie Terrace and 15.38 metres to Gray Street and a total site area of approximately 1018 square metres.

Existing on the subject site is a single storey building which accommodates two dwellings both with single width driveways and crossovers from Gray Street (along the south-eastern boundary) and Glenburnie Terrace (along the western boundary). There are no regulated trees on the site.

These are established street trees along both sides of the Glenburnie Terrace and Gray Street. Overhead powerlines are located along the southern side of Glenburnie Terrace, and run parallel to the frontage of the subject site.

The immediate locality of the subject site is characterised by single storey detached dwellings, however the Sorrento Meridian Serviced Apartment buildings, of five and nine storeys, are also a notable element. These buildings front Anzac Highway, but are visible from Gray Street, Glenburnie Street, James Street and Netherby Street.

We are aware that three, three storey residential flat buildings were recently approved by the West Torrens Council on the land at 181 and 183 Anzac Highway. We also understand that a nine storey mixed-use development was recently approved by the State Commission Assessment Panel (SCAP) at 200-202 Anzac Highway, Plympton (approximately 150 metres south of the subject site).



The Kurralta Central Shopping Centre is approximately 430 metres (walking distance to main entrance) to the north east. The centre includes a range of retail shops, take away restaurants, supermarkets, pharmacy, banks and other services.

Glenburnie Terrace and Gray Street are both two-way, two lane road ways of approximately 9 metres in width. On-street car parking on Glenburnie Terrace is unrestricted on both sides, whereas Gray Street has “No Stopping Anytime” restrictions along both sides within reasonable proximity of the subject site.

The site is highly accessible by public transport. The nearest public bus stops are located on Gray Street, within 80 – 130 metres to the north of the subject site. Other bus stops are located on the northern and southern sides of Anzac Highway within approximately 150 metres walking distance. The tram service is also approximately 550 metres walking distance to the south.

### **3. PROPOSAL DESCRIPTION**

#### **3.1 OVERVIEW**

The proponent seeks Development Plan Consent to demolish all existing structures on the subject site and construct a five (5) storey residential flat building comprising ground level car parking, residential lobby, communal lounge area, and four (4) residential levels comprising 32 dwellings.

#### **3.2 SITING**

At ground level, the proposed building is to be set back:

- 0 – 1 metre from the primary frontage;
- 0 – 1.2 metres from the north eastern boundary (running parallel with Gray Street);
- 0 metres from the rear boundary (south eastern boundary); and
- 0 metres from the western boundary.

Level 1 and above is to be set back:

- 0 – 1 metre from the primary frontage;
- 0 – 2.5 metres from the north eastern boundary (running parallel with Gray Street);
- 0 – 3 metres from the rear boundary (south eastern boundary); and
- 0 – 3 metres from the western boundary.

#### **3.3 BUILDING HEIGHT**

The proposed building will comprise five (5) storeys and have a total building height of 19.1 metres (to the highest point of the roof).

#### **3.4 GROUND LEVEL**

The ground level includes the building entrance, lobby area and communal lounge (for use by all residents) and letter boxes. Also at this level will be the resident and visitor car parking, resident and visitor bicycle parking, waste storage area and services (transformer, pump room, gas, hydrant, booster, comms. elect.).

#### **3.5 MEZZANINE**

The mezzanine level will accommodate resident storage cages.

#### **3.6 DWELLING COMPOSITION**

Each residential level (Level 1 to Level 4) will comprise eight (8) dwellings, with each dwelling including two bedrooms and two bathrooms.



The composition of each dwelling is set out in Table 3.1 below.

**Table 3.1** *Composition of dwellings on Level 1 – Level 4.*

Apartment Number	Internal Floor Area	Private Open Space	Storage Totals and Locations	Satisfies Development Plan Requirements?
1, 9, 17 and 25	75.01 square metres	12.75 square metres	8 cubic metres in the storage cages at Mezzanine Level	Yes
2, 10, 18 and 26	75.46 square metres	12.74 square metres	8 cubic metres in the storage cages at Mezzanine Level	Yes
3, 11, and 19	75 square metres	11.2 square metres	8 cubic metres in storage cages on the ground floor	Yes
4, 12, 20 and 28	75.86 square metres	11.45 square metres	8 cubic metres in the storage cages at Mezzanine Level	Yes
5, 13, 21 and 29	77.89 square metres	14.47 square metres	8 cubic metres in the storage cages at Mezzanine Level	Yes
6, 14, 22 and 30	77.89 square metres	14.47 square metres	8 cubic metres in the storage cages at Mezzanine Level	Yes
7, 15, 23 and 31	75.86 square metres	11.45 square metres	8 cubic metres in the storage cages at Mezzanine Level	Yes
8 and 16	75.01 square metres	11.06 square metres	8 cubic metres in storage cages on the ground floor	Yes
24 and 32	75.01 square metres	11.06 square metres	8 cubic metres in the storage cages at Mezzanine Level	Yes
27	75 square metres	11.2 square metres	8 cubic metres in the storage cages at Mezzanine Level	Yes

### 3.7 FLOOR TO CEILING HEIGHTS

The floor to ceiling height at Ground Level will be 5.6 metres generally, and 2.8m below the mezzanine level. The residential levels (Level 1 to Level 4) will include floor to ceiling heights of 2.7 metres.

### 3.8 LANDSCAPING

The applicant has engaged LCS Landscapes to prepare a Landscaping Plan for the proposed development (included at Appendix 7).

The selected plant species, pot sizes and maintenance strategies are considered appropriate for the this particular development.

The proposed planting schedule includes the following:

- Ground Covers:
  - » Licorice plant (*Helichrysum petiolare*); and
  - » Groundcover Jasmine (*Trachelospermum asiaticum*);

- Low/ Medium Shrubs and Strappys:
  - » Cast Iron Plant (*Aspidistra elatior*);
  - » Bush lily (*Clivia miniata*);
  - » Turf Lily (*Liriope 'Evergreen Giant'*); and
  - » Indian Hawthorn (*Rhaphiolepis umbellata*);
- Tall Shrubs:
  - » Orange jessamine (*Murraya paniculata*);
- Trees:
  - » Lady Palm (*Rhapis excelsa*); and
  - » Kanooka (*Tristaniaopsis laurina 'Luscious'*).

### 3.9 EXTERNAL MATERIALS

The proposed building features a variety of quality external materials which contribute to its visual interest by creating texture, play of light and shadow and contrast through colour selections. The external materials include;

- face brick;
- Adelaide stone corbelling;
- timber battens;
- glass and steel canopies and balustrades;
- Cemintel 'Barestone' feature panels;
- Cemintel 'Surround' Wall cladding ("Greyish"); and
- Trowelled texturecoat on flushed FRC sheeting.

### 3.10 ACCESS

An existing single width crossover to Glenburnie Terrace is proposed to be extended to double-width in order to facilitate the simultaneous entry and exit of vehicles from/to Glenburnie Terrace.

Adequate area for manoeuvring is provided onsite to allow all anticipated vehicle types to enter and exit the site in a forward direction, with the exception of the waste collection vehicle, which will need to reverse into the site from Glenburnie Terrace.

Access to the residential car parking area will be controlled by an automated sliding gate between carparks "V4" and "32" setback 9.3 metres from the northern boundary of the site. Residents and waste contractors will be able to control this gate via remote control.

### 3.11 PARKING

#### 3.11.1 CAR PARKING

A total of 36 car parking spaces will be provided on site.

Residential car parking spaces will be provided in the form of ten at grade spaces and 22 spaces within two sets of cassette car stackers (11 spaces within each set).

The car parking stacker system proposed to be used is the “Hercules Expanderpark - 1+2” (or similar). An information brochure on this system has been included with Appendix 5. Using this particular car stacker system, residents will be able to “call” available bays and retrieve their vehicles via codes, swipes cards or remote controls.

A total of four car parking spaces for visitors will be provided in the north-western corner of the subject site, along Glenburnie Terrace. These spaces will be conveniently located within close proximity of the building entrance, accessible to visitors at all times and appropriately signed.

### 3.11.2 BICYCLE PARKING

A total of 12 bicycle parking spaces are provided at the Ground Level.

Two vertical bike racks are provided at the entrance to the car parking area for visitor use. Another eight vertical and two standard bicycle racks are provided along the northern wall of the car park.

## 3.12 WASTE

The applicant has engaged Colby Phillips Advisory to prepare a Waste Management Plan for the proposed development. A copy of this Plan is included at Appendix 6.

Waste associated with the proposed development is to be separated and stored in bins for general, recycling and organic/food waste. The number of bins provided for each waste stream has been calculated based on the estimated volumes for each apartment and a weekly collection frequency.

Residents will be required to transport their personal waste to the waste storage room for collection. Garden waste is to be collected and removed from the site by a landscape contractor.

Each waste stream will be collected on a weekly basis by a private contractor using an 8.8 metre, rear-lift collection vehicle. This equates to three collection events per week, all of which will be scheduled to occur after 7:00am and before 9:00pm and outside of peak traffic hours. On collection days, the private contractor will reverse the waste collection vehicle into the car park from Glenburnie Terrace, use a remote control to open the sliding gate, then park on the western side of the entrance. The contractor will then access the waste storage room, wheel out each bin individually, unload its contents, then return it to the waste storage room. The contractor will then exit the site in a forward direction. As there is a maximum of only two bins for any waste stream, it is expected that these events will take approximately 5 – 10 minutes to complete.

Collection of hard waste is to be organised between the residents or by building management. This waste can be stored temporarily on the street frontage prior to collection.

A temporary bin wash down area is also provided within the waste storage room, so that the waste contractors or building management can conveniently wash down the bins on a regular basis.

The waste storage room is adequately sized to support the required number of bins, with room for manoeuvring. The enclosed waste storage room will be mechanically ventilated to the street (in accordance with the relevant Australian Standards).

### 3.13 STORMWATER

The proponent has engaged MLEI Consulting Engineers to prepare preliminary stormwater drainage advice. A copy of this advice is provided at Appendix 8.

MLEI recommend the following strategies to manage stormwater, which will be adopted in the proposal:

- inclusion of a 16,500 litre rainwater detention tank, to achieve the pre-development flow rate during a 1 in 20-year storm event with an adopted coefficient of 0.25; and
- inclusion of an Enviro Australis 'G' series pollutant trap under the ground floor carpark area to treat the stormwater runoff to exceed the discharge water quality standards outlined by the City of West Torrens.

### 3.14 ENVIRONMENTAL SUSTAINABILITY

The development includes the following environmentally sustainable design initiatives:

- double glazed and high solar gain windows;
- insulated internal walls, ceilings and roof;
- provision for photovoltaic panels on the roof;
- high level of indoor environment and air quality through natural ventilation strategies;
- natural ventilation;
- energy efficient LED lighting; and
- low environmental impact by use of low embodied energy materials and finishes and low water usage features and plantings.

### 3.15 CONTAMINATION

Given the existing and historical use of the site as a residential property, it is considered that there would be a very low risk of contamination being present which would pose unacceptable health or environmental risks to future residents, visitors and other users accessing the site.

## 4. PROCEDURAL MATTERS

### 4.1 THE RELEVANT AUTHORITY

In accordance with Schedule 10 Part 4C (1)(a)(v) of the *Development Regulations 2008*, the State Commission Assessment Panel (SCAP) is to be the relevant authority as the proposed development involves the erection of a building which will exceed four storeys in height on land in the Urban Corridor Zone within the City of West Torrens.

### 4.2 THE RELEVANT DEVELOPMENT PLAN

The relevant version of the Development Plan for procedural and assessment purposes was gazetted and subsequently consolidated 12 July 2018.

The subject site, under this version of the Development Plan, is located within Boulevard Policy Area 34 of the Urban Corridor Zone. Properties on the northern side of Glenburnie Terrace are located in Medium Density Policy Area 18 of the Residential Zone.

### 4.3 KIND OF DEVELOPMENT

According to the Procedural Matters section of the Urban Corridor Zone, the proposal involves a kind of development which is not listed as complying or non-complying. As such, the proposal should be assessed and determined on its merits by SCAP in its capacity as the relevant authority.

### 4.4 CATEGORY OF DEVELOPMENT

In accordance with Schedule 1 of the *Development Regulations 2008*, the proposed development is defined as a residential flat building as it comprises “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”.

The Public Notification section of the Urban Corridor Zone lists a residential flat building as a category 1 form of development, where the subject site is not adjacent land in a Residential Zone or Historic Conservation Zone.

As the subject site is adjacent to land in a Residential Zone, the proposed development is a category 2 form of development for the purposes of public notification.

## 5. PLANNING ASSESSMENT

We have had regard to the following relevant provisions of the West Torrens Council Development Plan (consolidated version 12 July 2018).

### ***GENERAL SECTION***

#### ***Building Near Airfields***

Objective: 1.

PDC: 1 – 4.

#### ***Crime Prevention***

Objective: 1.

PDC: 1 – 8 and 10.

#### ***Design and Appearance***

Objective: 1.

PDC: 1 – 5, 9 – 17, 19, 20, 22 and 23.

#### ***Energy Efficiency***

Objective: 1 and 2.

PDC: 1 – 3.

#### ***Landscaping, Fencing and Walls***

Objective: 1.

PDC: 1 – 4.

#### ***Medium and High Rise Development (3 or more storeys)***

Objective: 1 – 5 and 7.

PDC: 1, 3 – 11, 14 – 16 and 19 – 28.

#### ***Natural Resources***

Objective: 1 – 7, 10 and 11.

PDC: 1 – 14.

#### ***Orderly and Sustainable Development***

Objective: 1 – 5.

PDC: 1, 3, 5 and 6.

### ***Residential Development***

Objective: 1 – 4.

PDC: 3, 4, 7 – 13, 18, 22, 23 and 27 – 30.

### ***Transportation and Access***

Objective: 2.

PDC: 1, 8 – 11, 14, 21 – 24, 26, 27, 31, 32 and 34 – 45.

### ***Waste***

Objective: 1.

PDC: 1 – 6.

### ***URBAN CORRIDOR ZONE***

Objective: 1, 2, 4 – 7 and 9.

PDC: 1, 2, 4 – 13, and 15 – 22.

### ***BOULEVARD POLICY AREA 34***

Objective: 1 – 4.

PDC: 1 – 3, 5 and 6.

In considering the above provisions, we have identified the following as the key planning matters related to the proposed development:

- desired character;
- building height;
- setbacks;
- building design and appearance;
- apartment design;
- landscaping;
- energy efficiency;
- traffic management;
- waste;
- overshadowing;
- overlooking; and
- stormwater.

## 5.1 DESIRED CHARACTER

Development within the Urban Corridor Zone, and more particularly, Boulevard Policy Area 34, is envisaged to take place at medium and high densities and at a scale that is proportionate to the width of Anzac Highway.

Even though the subject site does not front Anzac Highway, the proposed development achieves the intent of this policy. We have formed this opinion as the proposal is of a high density and the building height is three storeys less than the maximum building height envisaged, therefore respecting its context fronting a local road, instead of Anzac Highway.

Both mixed use and wholly residential developments are encouraged within the Zone and Policy Area. In both circumstances, the buildings should achieve design excellence with lower levels encouraged to have a human scale. Corner allotments are encouraged to provide *“strong, built-form edges combined with careful detailing at a pedestrian scale to both street frontages”*.

As discussed further in the following sections, the wholly residential building has been carefully designed in consideration of its irregular shaped allotment, corner position, and location at the interface with Medium Density Policy Area 18 of the Residential Zone to the north. We believe that the proposed land use and design achieves an appropriate and contextual response on the constrained site.

In our opinion, the proposed development is consistent with the desired character.

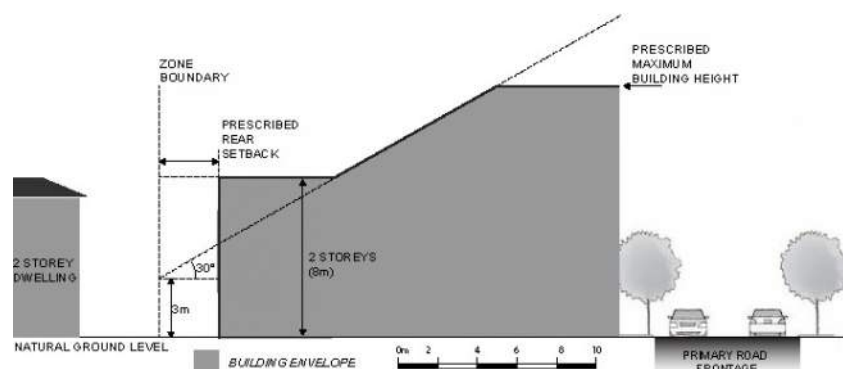
## 5.2 BUILDING HEIGHT

In accordance with Zone PDC 13, a maximum height of 8 storeys and 32.5 metres is envisaged for the subject site and the adjoining sites to the south and west.

In the circumstances applicable to this case, Zone PDC 15 is not strictly applicable, as the Residential Zone boundary to the north of the subject site is also a primary road frontage. This provision is extracted below, with our emphasis:

**PDC 15** *Any portion of a development above two storeys (8 metres) in height should be constructed within a building envelope provided by a 30 degree plane measured from a point 3 metres above natural ground level at the zone boundary (except where this boundary is a primary road frontage), as illustrated in Figure 1, unless it is demonstrated that the proposed development minimises interface impacts including from building massing, overshadowing and overlooking with adjoining residential development:*

**Figure 1**





Adjacent to the north of the subject site is Medium Density Policy Area 18 of the Residential Zone, where buildings of up to three storeys in height are envisaged.

In considering the context above, we believe the proposed building height of five storeys is appropriate.

### 5.3 SETBACKS

For comparison purposes, the following setbacks may be applicable to a development on the subject site:

- primary road frontage— 2 metres from either Glenburnie Terrace or Gray Street, depending on which is considered the “primary road frontage”;
- Secondary frontage – 0 metres from either Glenburnie Terrace or Gray Street, depending on which is considered the “secondary road frontage”;
- Podium – an additional setback of 2 metres from a defined podium or street wall at Level 1 or 2 and above;
- Side setbacks – depending on whether Glenburnie Terrace or Gray Street is considered the “primary road frontage”:
  - » If Glenburnie Terrace, a 3 metre setback would be envisaged from the western boundary as the site’s frontage width would exceed 20 metres;
  - » If Gray Street, a setback of nil would be envisaged from the south-eastern boundary as the site’s frontage width would not exceed 20 metres.
- Rear setback – nil from either the western boundary or the south-eastern boundary, depending on whether Glenburnie Terrace or Gray Street is considered the primary road frontage.

It is key to also consider the following desired character for the Policy Area when determining the envisaged setbacks:

*Development on corner allotments will enhance the gateway function of such corners by providing strong, built-form edges combined with careful detailing at a pedestrian scale to both street frontages.*

In our opinion, it is clear that the provisions relating to setbacks can be applied a number of ways to the subject site, but in any case, its corner location warrants strong, built-form edges.

We consider the proposed setbacks appropriate as:

- the minimal setbacks provided to the primary and secondary frontages create strong built form edges as envisaged by the desired character of the Policy Area;
- the built form to the street allows canopies to be provided over the pedestrian footpath, therefore contributing positively to pedestrian amenity and scale;
- they do not limit the ability for the development to provide adequate landscaping, as 17.27 percent of the subject site is proposed to be landscaped;
- the boundary walls will be constructed using articulated concrete to add an element of visual interest rather than presenting a blank facade;

- adjoining properties will receive adequate winter sunlight in consideration of their location within the Urban Corridor Zone;
- side setbacks of nil up to a height of 2 storeys and 3 metres to the levels above would be envisaged for the neighbouring site to the west (if not amalgamated at the time of re-development) under the current Development Plan, as the site's frontage width is less than 20 metres; and
- the neighbouring properties to the south, under the current Development Plan, will be permitted rear setbacks of nil as the primary road frontages will most likely be Anzac Highway.

## 5.4 BUILDING DESIGN AND APPEARANCE

The desired character acknowledges that there will be a transformation in built form in the Urban Corridor Zone and Boulevard Policy Area 34, and as such new buildings are to achieve design excellence, including a high quality pedestrian environment and human-scale at ground level. It is suggested that this can be achieved through building articulation and fenestration, verandas, balconies, canopies and landscaping. As previously mentioned, corner allotments are encouraged to provide *“strong, built-form edges combined with careful detailing at a pedestrian scale to both street frontages”*.

In our opinion, design and appearance are much matters of individual taste and as such, a developer should be allowed a certain freedom of choice. A proposal should only be refused if it is significantly out of harmony with its existing and/or desired context, and/or will have detrimental impacts upon the amenity of a neighbouring allotment.

The proposed building is considered to achieve design excellence as it:

- reinforces the corner by presenting a built form edge to its street boundaries and providing canopies over the pedestrian footpaths (Medium and High Rise Development PDC 5);
- responds to key features of the prevailing local context by including materials such as brick, stone, render, glass and steel which are common in the locality (Medium and High Rise Development PDC 1);
- includes mostly durable and low-maintenance external materials which are not highly luminous, and as such will not result in glare to neighbouring properties, passing motorists, cyclists or pedestrians (Design and Appearance PDC 2 and Medium and High Rise Development PDC 6);
- includes complementary external materials and landscaping (Design and Appearance PDC 13);
- allows variations of light and shadow through the use of windows, balconies, and canopies (Medium and High Rise Development PDC 3);
- utilises articulated concrete on boundary walls to add an element of visual interest and ensure that they will not present as blank façades (Design and appearance PDC 14);
- includes balconies which are integrated into the building form, feature clear balustrading to street frontages, and are appropriately plumbed for stormwater drainage (Design and Appearance PDC 5);
- locates the waste storage and loading areas within the building, screened from public view (Design and Appearance PDC 19); and
- includes adequately sized lift, lobby and corridors to accommodate movement of bicycles, strollers, mobility aids and visitor waiting areas (Medium and High Rise Development PDC 28).

The importance of providing a high quality pedestrian environment was highlighted during pre-lodgement discussions between the Department of Planning, Transport and Infrastructure (DPTI) and the City of West Torrens. When presented with an earlier version of the Ground Level plan, both agencies encouraged the applicant to explore ways of improving the design to create a more high-quality interface between the proposed building and the public realm.

In direct response to these discussions, significant changes have been made to the ground level of the proposal. The changes have involved:

- the introduction of car stackers to allow more area to be dedicated to uses other than car parking;
- increasing the size of the lobby area to allow the introduction of more glazing and create a more welcoming and inviting space which transitions from the public realm into the private area;
- introduction of an active use presenting to the street in the form of a north-facing communal lounge area for residential use;
- inclusion of Ground Level landscaping (along with landscaping at Level 1) within the building's frontage, with the intent to soften the lower levels of the built form;
- incorporation of a public art element to the corner of the building, adding further visual interest and establishing a "land mark"; and
- increasing the setback of the access gate to the internal car park in order to allow sufficient length for vehicle queuing and creating space for landscaping and a more open character within the building's frontage.

The applicant has also entered into negotiations with Council in relation to upgrading the pedestrian footpaths and verges surrounding the subject site. It was identified during pre-lodgement discussions that the proposed development presented a great opportunity to upgrade these public areas. The applicant is also taking the opportunity to improve the connection between the public and the private realms. This is to be achieved by including the same landscaping species in the verge as used onsite and allowing the footpath paving to flow from the pedestrian footpath into the subject site.

The process of upgrading the public land will run concurrently, but separately to the assessment of the proposed development.

In consideration of the above, we have formed the opinion that the proposed development and public works will create a high-quality pedestrian environment and human scale as:

- 57.9 percent of the ground floor primary frontage will be visually permeable or clear glazed (Policy Area PDC 6);
- visual interest and activity will be provided at ground level through the incorporation of public art, landscaping, a large lobby entrance and a communal lounge area for residents (Medium and High Rise Development Objective 5);
- canopies have been incorporated to provide shelter to pedestrians from rain and wind (Design and Appearance PDC 17 and Medium and High Rise Development PDC 22);
- the ground level includes floor to ceiling heights of between 2.8 metres and 5.6 metres which provides the opportunity for the building to be adapted to accommodate a future commercial use without significant alteration to the built form (Policy Area PDC 5 and Medium and High Rise Development PDC 19);

- the floor to ceiling heights at ground level provide the opportunity for the building to be adapted to accommodate a future commercial use without significant alteration to the built form (Medium and High Rise Development PDC 19);
- the main pedestrian entrance has been emphasised through the use of landscaping, glazing, and a canopy (Medium and High Rise Development PDC 10);
- with reference to Medium and High Rise Development PDC 8 (b), we say that deep soil zones are not specifically envisaged for the subject site, as, being a corner site within Boulevard Policy Area 34, it has a similar desired built form to that of the High Street Policy Area, in that a strong, built-form edge is envisaged. Notwithstanding, landscaping has been included at Ground Level in the building's frontage to contribute to the "*careful detailing at a pedestrian scale*";
- services (such as the transformer, fire hydrant and gas) are all integrated with the façade and located in the western-most and southern-most extremes of the site's frontage, thereby allowing the central and corner portion of the frontage to provide activity and visual interest to the street (Medium and High Rise Development PDC 8 (d));
- although visitor car parking will be partially visible from the street to facilitate ease of use, the visual impact of these car parking spaces will be softened through the use of low/medium height landscaping (Medium and High Rise Development PDC 8 (e)); and
- the proposed development will remove one existing crossover and driveway from Gray Street, thereby reducing the visual dominance of vehicle access points, improving pedestrian amenity, and potentially allowing an additional street tree to be planted in this location (Medium and High Rise Development PDC 8 (f)).

In addition to the above, the proposal includes the following crime prevention strategies:

- balconies presenting to the Glenburnie Terrace and Gray Street which assist in casual surveillance of the street (Crime Prevention PDC 2);
- high quality and robust external materials incorporated into the ground floor to increase resistance to vandalism and graffiti (Crime Prevention PDC 3);
- external lighting which will improve visibility and safety during the evening hours (Crime Prevention PDC 4);
- signage located throughout the building to assist in wayfinding (Crime Prevention PDC 5);
- carefully selected and positioned landscaping to achieve a balance between softening the built form and permitting adequate sightlines (Crime Prevention PDC 6);
- a physical separation defining the public and the private realms in the form of a glass door at the entry to the lobby area (Crime Prevention PDC 7);
- balconies which minimise the ability for access between roofs, balconies and windows (Crime Prevention PDC 8); and
- the creation of pedestrian entrapment spots has been avoided and visual permeability has been maximised where possible (Crime Prevention PDC 10).

We consider that the proposed development reasonably satisfies the provisions most relevant to building appearance and design, and as such it is acceptable.

## 5.5 APARTMENT DESIGN

With regard to the relevant quantitative provisions relating to apartment design, the proposed development achieves the following:

- 8 cubic metres of covered storage area will be provided to all apartments in either the dwelling (but not in a habitable room) or in the storage cages on the ground and mezzanine levels (Medium and High Rise Development PDC 25);
- all two-bedroom dwellings comprise internal floor areas of 75 square metres or more (Residential Development PDC 9); and
- all two-bedroom dwellings are provided with more than 11 square metres of private open space accessible from a living area and with a minimum dimension of 2 metres (Residential Development PDC 22 and PDC 23).

The Development Plan also encourages qualitative outcomes for dwellings to ensure that future residents will be provided with adequate amenity. Each of these qualitative outcomes will be addressed under the respective headings below.

### 5.5.1 DWELLING TYPES

Objective 2 in the Residential Development module of the General Section encourages an increased range and number of dwelling types, with the intent that it should assist in catering to changing demographics, particularly smaller household sizes and supported accommodation. More particularly, PDC 16 in the Medium and High Rise Development module of the General Section encourages buildings comprising more than 10 dwellings to provide a variety of dwelling sizes and a range in the number of bedrooms per dwelling.

Market research attained by the applicant concluded that two bedroom, two bathroom dwellings were the most highly sought after dwelling type in the locality. This, when considered with other factors, made them the most viable dwelling type for inclusion in the proposed development.

The dwelling types proposed are adaptable. They can be easily amended to accommodate one bedroom and a study, or amalgamated to create three or four bedroom apartments. This allows the applicant and potential purchasers to customise each apartment to suit the purchaser's preferences.

The floor plates can also be adjusted without significant impact to the external form of the building. The applicant is aware that any internal changes may still require a future and separate variation application.

Respecting the above, we consider that the proposed dwelling types are suitable and viable in the locality, and adaptable to any changes in demographics.

### 5.5.2 PRIVATE OPEN SPACE

With reference to PDC 18 of the Residential Development module in the General Section, private open space provided to each dwelling within a residential flat building should be sited and designed to:

- be accessed directly from the internal living areas of the dwelling;
- minimise overlooking from adjacent buildings;
- achieve separation from bedroom windows on adjoining sites;

- have a northerly aspect to provide for comfortable year round use;
- not be significantly shaded during winter by the associated dwelling or adjacent development;
- be partly shaded in summer;
- minimise noise or air quality impacts that may arise from traffic, industry or other business activities within the locality; and
- have sufficient area and shape to be functional, taking into consideration the location of the dwelling, and the dimension and gradient of the site.

The areas of private open space provided generally achieve the above outcomes, with the exception of access to winter sun and separation distance to some balconies.

The south-eastern balconies will receive direct winter sunlight prior to and just after 9:00am, but will be shaded from 10:00am onwards. Given the high density and scale of built forms envisaged in the Policy Area and the fact that these balconies are predominately south-facing, limited exposure to winter sunlight is somewhat inevitable. The slightly eastern orientation of the balconies permits some direct exposure to morning sun, which, given the circumstances, is considered acceptable. During the summer months, we note that these balconies will be provided with ample sunlight and screened from the harsh western sun.

PDC 14 of the Medium and High Rise Development module in the General Section encourages habitable rooms, windows and balconies to be appropriately separated and/or screened from one another to allow visual and acoustic privacy, natural ventilation and sunlight into interior and outdoor spaces. The provision goes on to say:

*“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.”*

(Our Emphasis)

As outlined at the start of the Medium and High Rise Development Module:

*Note: Some of the following Principles of Development Control (PDC) prescribe a measurable design solution as one way of achieving the intent of the PDC. Where this solution is met, it should be taken as meeting the intent of the principle. Alternative design solutions may also achieve the intent of the PDC and, when proposed should be assessed on their merits.*

(Our Emphasis)

The majority of windows and balconies proposed are setback the suggested 3 metres from side and rear boundaries, thereby meeting the intent of PDC 14.

Given the constrained nature of the subject site, the suggested separation distances are not able to be achieved for all balconies. This being the case, the applicant has opted to use screening, as a suggested alternative design solution by PDC 14.

In our opinion the proposed obscured glazed screening of 1.7 metres in height achieves the intent of the provision without adversely impacting the proposed building layout or function. Specifically, the height and material of the screening proposed allows for sunlight and air, whilst interrupting direct lines of site between balconies proposed as part of this development or a future development on an adjoining site.

We consider that the envisaged visual and acoustic privacy, natural ventilation and sunlight for interior and outdoor spaces will be achieved.

### 5.5.3 VISUAL OUTLOOK

PDC 15 in the Medium and High Rise Development module states:

***PDC 15** Living rooms should have a satisfactory short range visual outlook to public, communal or private open space.*

(Our Emphasis)

All of the living rooms proposed overlook areas of private open space, Glenburnie Terrace and/or Gray Street, therefore the above provision is achieved.

## 5.6 LANDSCAPING

PDC 23 of the Medium and High Rise Development module encourages that deep soil zones be provided, “to retain existing vegetation or provide areas that can accommodate new deep root vegetation, including tall trees with large canopies”. The provision includes a table, offering one way these deep soil zones can be achieved. As mentioned in Section 5.5.2, this provision does not say that the table should or will be adopted, rather, it offers options as to how the intent of the provision can be satisfied. In our opinion, the intent of this provision is to encourage the retention/accommodation of tall trees in order to soften potential visual and/or physical impacts of high-rise buildings and positively contribute to pedestrian amenity and scale.

There is no existing, meaningful vegetation on the site to retain. Further, due to the irregular shape of the subject site and the driveways, pedestrian entrances, fire exits, and services required for the proposed development (which is aligned with the Policy Area’s desired character), the ability to provide extensive landscaping at ground level is restricted.

Notwithstanding, in accordance with PDC 4 of the Landscaping, Fences and Walls module in the General Section, the total amount of landscaping proposed on-site equates to approximately 175.89 square metres or 17.27 percent. We consider that landscaping proposed is appropriate as it will:

- contribute positively to the amenity of the proposed dwellings and the pedestrian environment;
- contribute positively to the visual appearance and amenity of the streetscape;
- complement and soften the built form;
- assist in climate control; and
- minimise heat absorption and reflection.

## 5.7 ENERGY EFFICIENCY

The proposed building has been designed to achieve an average energy star rating of 6.87, with apartment ratings ranging between 5.1 and 8.6. The roof has also been designed to accommodate a large array of photovoltaic cells, which have been located and orientated to ensure maximum exposure to the sun for the foreseeable future.

In consideration of the environmentally sustainable initiatives included in the building (as listed in Section 3.14) and the average energy star rating, we believe that the building is acceptably energy efficient.

## 5.8 TRAFFIC MANAGEMENT

### 5.8.1 CAR PARKING

The applicant has engaged Mr Phil Weaver of Phil Weaver and Associates to undertake a Traffic and Parking Assessment. A copy of this advice is provided at Appendix 5.

Mr Weaver observed the following in relation to the availability of on-street car parking along both sides of Glenburnie Terrace, between James Street and Gray Street (the “subject area”):

- there is an overall capacity of up to 38 on-street car parking spaces in the subject area;
- during a weekday survey (undertaken on a Tuesday), a maximum of four cars were parked in the subject area at any of the surveyed times;
- during a Friday survey, 8 cars were parked in the subject area at 7:30pm;
- during a Sunday survey, 9 cars were parked in the subject area at 1:30pm;
- the slightly higher number of occupied on-street car parking spaces over the weekend periods relate to peak visitor parking demand; and
- the peak on-street car parking demand is still considered to be relatively low (below 25 percent capacity).

In relation to the on-site car parking provided, Mr Weaver is of the opinion that:

- in accordance with Table WeTo/6, the proposed development, comprising 32 two-bedroom dwellings, generates a theoretical car parking demand for 40 car parking spaces of which:
  - » 32 spaces should be dedicated for use by residents; and
  - » 8 spaces should be dedicated for use by visitors;
- 36 car parking spaces are proposed on site, of which:
  - » 32 spaces are dedicated for use by residents; and
  - » 4 spaces are dedicated for use by visitors;
- there will be a theoretical shortfall of 4 onsite visitor car parking spaces;
- a lesser number of car parking spaces is warranted as, with reference to Table WeTo/6 (3):
  - » a generous amount of unrestricted on-street car parking is available on both sides of Glenburnie Terrace;



- » the site is well serviced by public transport as it is:
  - within 150 metres of bus stops on Anzac Highway connected to the high frequency public transport routes;
  - within 80 – 130 metres bus stops on Gray Street connected to the public transport; and
  - approximately 550 metres from the high frequency tram line (although slightly more than the 400 metre limit);
- the visitor car parking spaces are accessible at all times; and
- the on-site car parking areas would conform to the relevant Australian Standard (AS/NZS 2890.1:2004).

In consideration of Mr Weaver’s expertise in traffic engineering and his support for the proposed development, we believe that the number of onsite car parking spaces proposed is acceptable.

The car parking area has been designed and sited to satisfy PDC 36 of the Transportation and Access module, in that:

- safe and convenient traffic circulation will be facilitated;
- the aisle widths are adequate to ensure that the potential for conflict between residents and the waste collection vehicle is minimised;
- an existing crossover to Gray Street will be closed and returned to kerb (in accordance with Council’s standards);
- all vehicles will enter and exit the site in a forward direction, with the exception of the waste collection vehicle which will be required to reverse into the subject site;
- car parking for residents is located wholly within the proposed building, with only visitor car parking being visible from the street; and
- the visitor car parking area is screened behind landscaping of appropriate heights.

#### 5.8.2 BICYCLE PARKING

In relation to the on-site bicycle parking, Mr Weaver notes the following:

- in accordance with Table WeTo/7, the proposed development, comprising 32 two-bedroom dwellings, generates a theoretical demand for 11 bicycle parking spaces of which:
  - » 8 spaces should be dedicated for use by residents; and
  - » 3 spaces should be dedicated for use by visitors;
- 12 bicycle parking spaces are proposed on-site, therefore the theoretical demand will be accommodated.

In accordance with Transportation and Access PDC 21 in the General Section, the bicycle parking spaces will be located in prominent, well-lit locations which are close to the building entrances, at ground level, and undercover.

We consider that bicycle parking is appropriate.

### 5.8.3 TRAFFIC ACCESS

In relation to traffic access, Mr Weaver noted:

- there is adequate separation between the access gate and the northern site boundary to permit all anticipated vehicles types (including waste vehicles) to stand wholly within the boundaries of the subject site prior to entering the residential parking area;
- the proposed aisle widths are adequate to facilitate simultaneous entry/exit of cars and waste collection vehicles (as demonstrated in the turning path diagrams);
- the pedestrian-vehicular sight line splay requirement is addressed by the car park access design so long as landscaping on the western side of the access is limited to 1 metre in height; and
- the waste collection frequency and weekday peak hour trips estimated to be generated by the proposed development would not have a detrimental impact on the adjoining road network, particularly because access to the site is gained from Glenburnie Terrace and not the busier Gray Street.

The proposed traffic access arrangements are considered to be safe and convenient, and therefore appropriate for the proposed development.

## 5.9 WASTE

The Waste Management Plan prepared by Colby Phillips Advisory achieves the following:

- provides a dedicated area for the on-site storage of general, recyclable and organic waste in the south-western corner of the subject site (Medium and High Rise Development PDC 26);
- in accordance with PDC 6 of the Waste module, an on-site bin storage room is provided which will:
  - » include a bin wash down area (drained to sewer) to control odours associated with the waste;
  - » be located on an impervious sealed area graded to a collection point;
  - » be protected from weather elements as it is contained within the proposed building;
  - » ensure all waste is contained within the boundaries of the subject site prior to collection; and
  - » be ventilated to the street to minimise impacts of odour on neighbouring properties;
- waste collection will be undertaken by a private contractor (Medium and High Rise Development PDC 27).

We consider that the proposed Waste Management Plan is aligned with Council's expectations and is appropriate for the proposed development.

## 5.10 OVERSHADOWING

The desired character of the Urban Corridor Zone encourages buildings to be carefully designed to minimise impacts, such as overshadowing, on adjoining zones of a lower existing and envisaged scale.

Zone PDC 16 also supports this, as it states:

- PDC 16** *To minimise overshadowing of sensitive development outside of the zone, buildings should ensure that:*
- (a) north-facing windows to habitable rooms of existing dwellings in adjacent zones receive at least 3 hours of direct sunlight over a portion of their surface between 9.00 am and 3.00 pm on 21 June*
  - (b) ground level open space of existing residential buildings in adjacent zones receive direct sunlight for a minimum of 2 hours between 9.00 am and 3.00 pm on 21 June to at least the smaller of the following:*
    - i. half of the existing ground level open space*
    - ii. 35 square metres of the existing ground level open space (with at least one of the area's dimensions measuring no less than 2.5 metres)*
  - (c) sunlight to solar panels should be maintained for a minimum of 2 consecutive hours between 9.00 am and 3.00 pm on 22 June.*

It is specifically stated that these provisions apply to development outside of the Zone only, as it is generally accepted that within the Urban Corridor Zone, a higher degree of overshadowing will occur. To this end, we note that the subject site is located on the northern edge of the Urban Corridor Zone and will only overshadow other properties also located within Zone.

We also note that the position of the subject site along the northern boundary of the Urban Corridor Zone and in the south-eastern corner of an intersection, means that the proposed development will only be subject to potential overshadowing from a development to the west.

We do not consider that the overshadowing is unreasonable or unexpected in this zone.

## 5.11 OVERLOOKING

The proposed development includes obscured glazed screening to 1.7 metres in height to balconies and windows along the south-eastern and western facades. Balconies in the south western corner on Level 1 and 2 are also provided with obscured glazed screening to 1.7 metres in height in order to minimise opportunities for overlooking into neighbouring habitable rooms and private open spaces.

We consider that the proposed development is in accordance with PDC 27 of the Residential Development module in the General Section, and appropriately minimises opportunities for overlooking.

## 5.12 STORMWATER

The proposed Stormwater Management Plan prepared by MLEI Consulting Engineers achieves the following:

- the peak flows and the rate and duration of stormwater discharges satisfy the pre-development flow rate during a 1 in 20-year storm event with an adopted coefficient of 0.25 (Natural Resources PDC 10);
- stormwater detained will be reused for irrigation of verge landscaped areas (Natural Resources PDC 13); and
- an “Enviro Australis ‘G’ series pollutant trap” will be installed to minimise the discharge of sediment, suspended solids, organic matter, nutrients, bacteria, litter and other contaminants to the stormwater system (Natural Resources PDC 11).

It is clear that stormwater can be managed on site in a manner that exceeds Council’s expectations.

## 6. CONCLUSION

In our opinion, the proposal satisfies the majority of the relevant Development Plan provisions and represents a form of development that is envisaged within the Urban Corridor Zone and specifically, in Boulevard Policy Area 34. As such, we believe it warrants Development Plan Consent.

Importantly, we note that the proposal:

- displays a building appearance and design that responds to and respects the existing and envisaged character of the locality;
- creates a high quality pedestrian environment which is intended to extend beyond the boundary of the subject site;
- creates a human scale through the use of canopies and landscaping;
- represents a built form which is envisaged for corner sites;
- adequately minimises potential overshadowing and overlooking impacts;
- provides dwellings which satisfy the envisaged minimums in relation to internal floor area, private open space and storage;
- provides dwellings which are provided with adequate natural daylight, ventilation to all habitable rooms and short-range visual outlooks to private open space;
- contributes to the range of dwelling types available in the locality, within close proximity of high frequency public transport;
- provides adequate car and bicycle parking spaces;
- allows safe and convenient vehicle and pedestrian movements;
- includes an appropriate waste management plan;
- assists in creating a safe, secure and crime resistant environment;
- incorporates a number of environmentally sustainable design features;
- provides an appropriate stormwater management plan; and
- includes adequate onsite landscaping, which is to be supported by drip irrigation.

Accordingly, we believe the State Commission Assessment Panel should grant Development Plan Consent.



## APPENDIX 1. DEVELOPMENT APPLICATION FORM

# DEVELOPMENT APPLICATION FORM

**AUTHORITY:** STATE COMMISSION ASSESSMENT PANEL

**APPLICANT:** PLYMPTON APARTMENTS PTY LTD ATF PLYMPTON APARTMENTS UNIT TRUST

Postal Address: C / - FUTURE URBAN PTY LTD  
GPO BOX 2403, ADELAIDE, SOUTH AUSTRALIA, 5001

**OWNER:** PLYMPTON APARTMENTS PTY LTD

Postal Address: 2/180 NEWCASTLE STREET  
NORTHBRIDGE WA 6003

**BUILDER:** TO BE CONFIRMED

Postal Address: \_\_\_\_\_

Licence No: \_\_\_\_\_

**CONTACT PERSON FOR FURTHER INFORMATION:**

Name: MISS MILLY NOTT

Telephone: (08) 8221 5511

Email: MILLY@FUTUREURBANGROUP.COM

Mobile: 0450 965 858

**EXISTING USE:**

RESIDENTIAL

**FOR OFFICE USE**

Development No: \_\_\_\_\_

Previous Development No: \_\_\_\_\_

Assessment No: \_\_\_\_\_

☐ Complying

☐ Non-complying

☐ Notification Cat 2

☐ Notification Cat 3

☐ Referrals/Concurrence

☐ DA Commission

Application forwarded to DA

Commission/Council on:

/ /

Decision:

Type:

Date:

/ /

	Decision	Fees	Receipt No	Date
Planning:	YES			
Building:				
Land Division:				
Additional:				
Dev Approval:				

**DESCRIPTION OF PROPOSED DEVELOPMENT:**

DEMOLITION OF ALL EXISTING STRUCTURES ON THE SUBJECT SITE AND CONSTRUCTION OF A FIVE-STORY RESIDENTIAL FLAT BUILDING

**LOCATION OF PROPOSED DEVELOPMENT:**

House No: 1 & 1A Lot No: 181 Road: GLENBURNIE TERRACE Town/Suburb: PLYMPTON

Section No (full/part): \_\_\_\_\_ Hundred: \_\_\_\_\_ Volume: 5731 Folio: 830

**LAND DIVISION:**

Site Area (m<sup>2</sup>): \_\_\_\_\_ Reserve Area (m<sup>2</sup>): \_\_\_\_\_ No of Existing Allotments: \_\_\_\_\_

Number of Additional Allotments - (Excluding Road and Reserve): \_\_\_\_\_ Lease: YES: ☐ NO: ☐

**DOES EITHER SCHEDULE 21 OR 22 OF THE *DEVELOPMENT REGULATIONS 2008* APPLY?**

YES: ☐ NO: ☒

**HAS THE *CONSTRUCTION INDUSTRY TRAINING FUND ACT 1993* LEVY BEEN PAID?**

YES: ☐ NO: ☒

**DEVELOPMENT COST** (Do not include any fit-out costs): \$6,420,000.00

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

**SIGNATURE:** \_\_\_\_\_

**Dated:** 17 JULY 2019

ON BEHALF OF PLYMPTON APARTMENTS PTY LTD  
ATF PLYMPTON APARTMENTS UNIT TRUST



## APPENDIX 2. ELECTRICITY DECLARATION FORM



**DEVELOPMENT REGULATIONS 2008**

**Form of Declaration  
(Schedule 5, Clause 2A)**

To: State Commission Assessment Panel

From: Plympton Apartments Pty Ltd AFT Plympton Apartments Unit Trust  
c/- Future Urban Pty Ltd

Date of Application: 17 July 2019

**Location of Proposed Development:**

House Number:	1 & 1A	Lot Number:	181
Street:	Glenburnie Terrace	Town/Suburb:	Plympton
Section No (full/part):		Hundred:	
Volume:	5731	Folio:	830

**Nature of Proposed Development:**

*Demolition of all existing structures on the subject site, and construction of a five-storey residential flat building.*


I, Milly Nott, in my capacity as a representative of the Applicant, declare that the proposed development will involve the construction of a building which would, if constructed in accordance with the accompanying drawings, 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*.

17 July 2019

.....

Date



.....

Signed



### APPENDIX 3. CERTIFICATE OF TITLE

REAL PROPERTY ACT, 1986



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 5731 Folio 830

**Parent Title(s)** CT 1684/181  
**Creating Dealing(s)** CONVERTED TITLE  
**Title Issued** 07/02/2000      **Edition** 3      **Edition Issued** 07/11/2018

## Estate Type

FEE SIMPLE

## Registered Proprietor

PLYMPTON APARTMENTS PTY. LTD. (ACN: 626 371 373)  
OF PO BOX 969 WEST PERTH WA 6872

## Description of Land

ALLOTMENT 181 DEPOSITED PLAN 3690  
IN THE AREA NAMED PLYMPTON  
HUNDRED OF ADELAIDE

## Easements

NIL

## Schedule of Dealings

Dealing Number	Description
13010198	MORTGAGE TO COMMERCE PTY. LTD. (ACN: 074 619 033)

## Notations

**Dealings Affecting Title** NIL

**Priority Notices** NIL

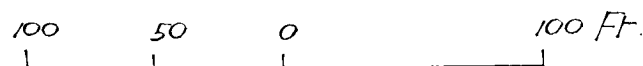
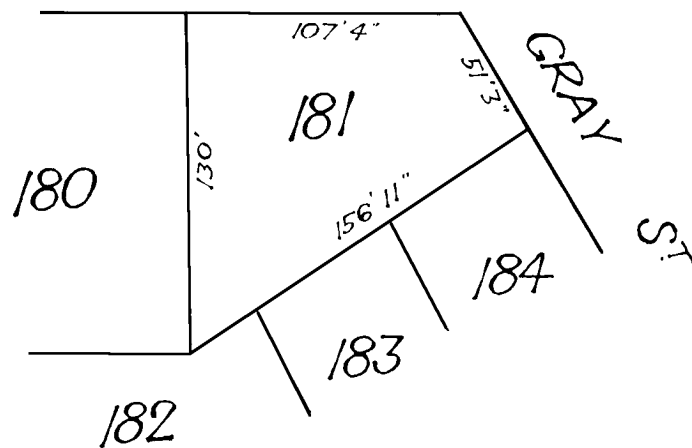
**Notations on Plan** NIL

### Registrar-General's Notes

APPROVED FX20247

**Administrative Interests** NIL

*GLENBURNIE TCE*



DISTANCES ARE IN FEET AND INCHES  
FOR METRIC CONVERSION

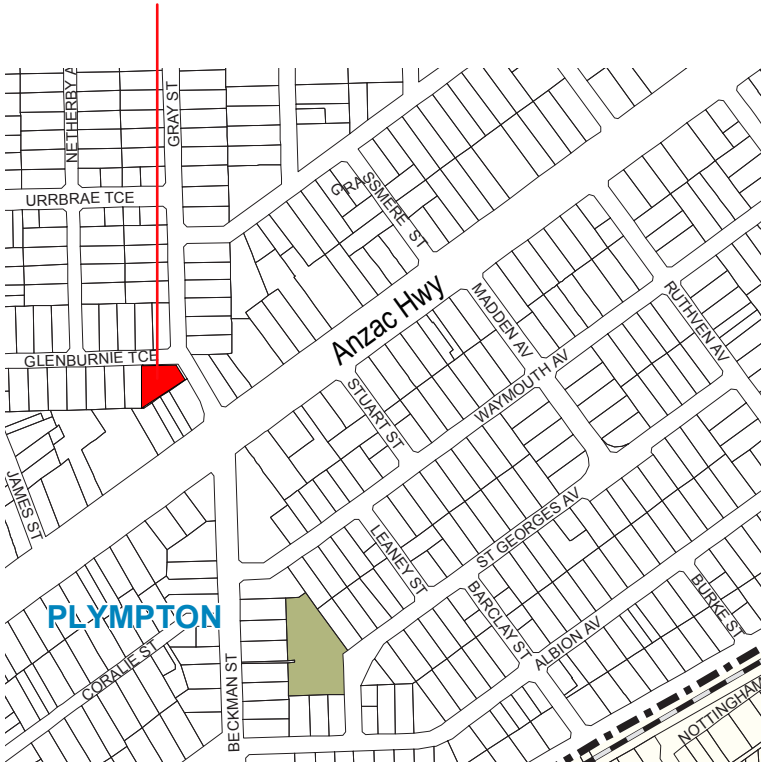
1 FOOT = 0.3048 metres  
1 INCH = 0.0254 metres



APPENDIX 4. ARCHITECTURAL PACKAGE  
PREPARED BY URBANIZE



THE SITE



PLANNING APPLICATION  
Proposed apartments  
1 Glenburnie Terrace PLYMPTON

PL-00	COVER
PL-01	Site Plans
PL-02	Ground - Level Parking
PL-03	Carpark Mezzanine
PL-04	Podium - Level 1 Apartments
PL-05	Upper floors - Levels 2-4 Apartments
PL-06	Roof Top - Part Section 1.
PL-07	Elevations 1
PL-08	Elevations 2
PL-09	Elevations 3
PL-10	3D Montage
PL-11	Planning Areas
PL-12	Shadow Diagrams

REV.	DATE	DESCRIPTION
E	27-6-19	For Planning Submission
D	24-5-19	Store mezzanine added
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B	17-4-19	Response to feedback
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1 (Lot 181) Glenburnie Tce Plympton  
32 Apartments  
for The Griffin Group.

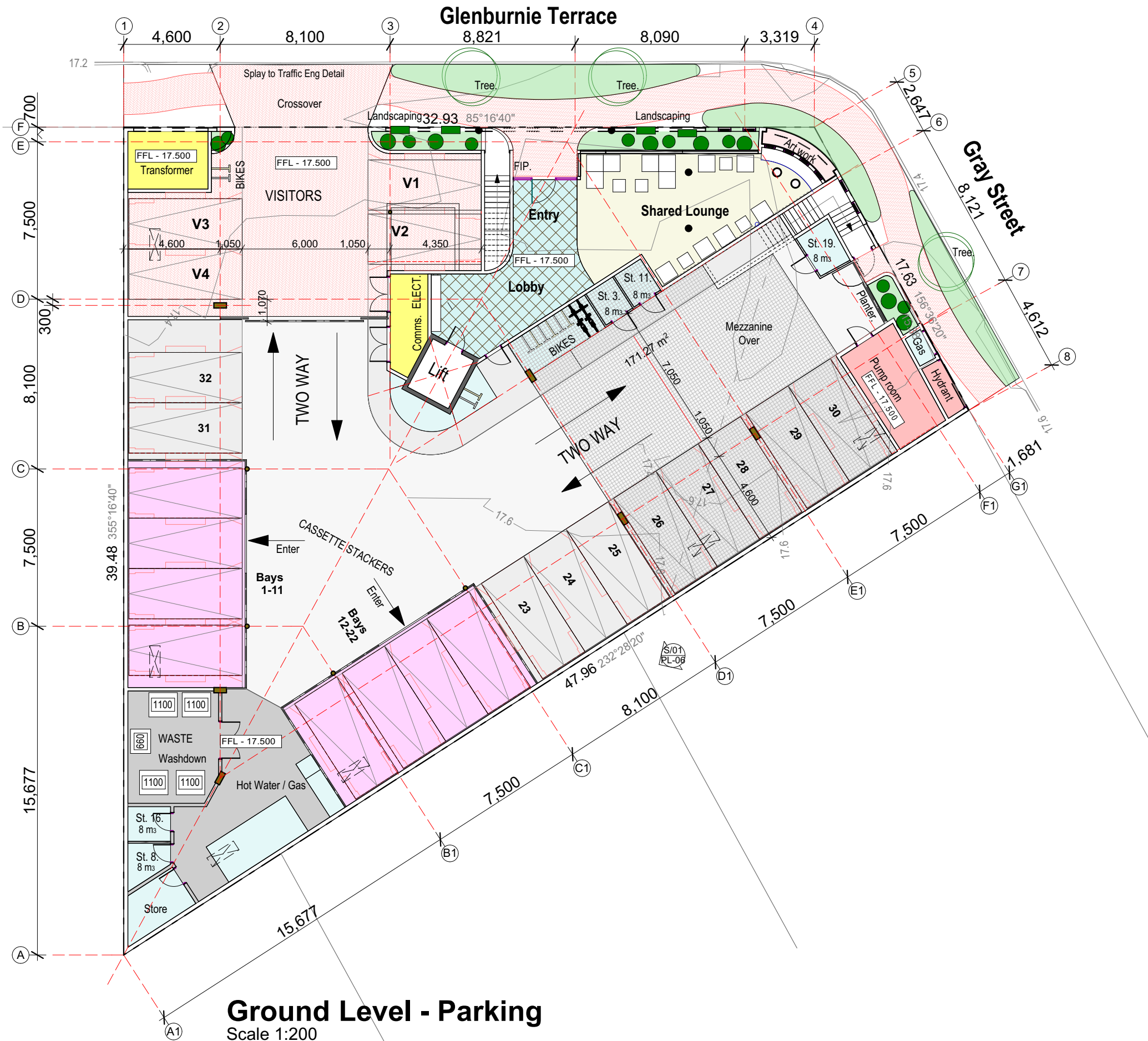
## PLANNING APPLICATION

REV.	DATE	DESCRIPTION
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**PTY. LTD. A.B.N. 21 093 044 427**  
TEL. 9388 1988 FAX. 9382 8477  
233 BAGOT RD SUBIACO 6008  
PO Box 1940 SUBIACO 6904





#### REFER THIRD PARTY REPORTS for:

1. Landscaping
2. Traffic Management
3. Waste Management

#### Parking Study

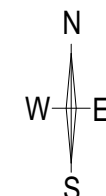
<b>Provided</b>	<b>36 Bays</b>
Secured -	<b>32 Bays</b>
Off street -	<b>4 Bays</b>
<b>being:</b>	
Residents -	<b>32 Bays</b>
Visitors	<b>4 Bays</b>

**Bike racks**  
Wall hung brackets 12 Bikes

Refer Traffic Report.



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Ground Floor, 180 Newcastle St,  
Northbridge, WA 6003  
TEL: +61 8 9221 1144  
WEB: griffin-group.com.au

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**PLANNING APPLICATION**



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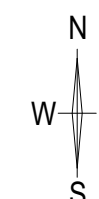


**Apartment Storerooms**  
Minimum volume 8 cubic meters

**Apartments 3,11,19, 8 & 16**  
On ground storerooms at carpark level.  
Direct access from carpark.

**Remaining 27 Apartments**  
Mezzanine level storerooms  
Access via lift or fire stairs.

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**PLANNING APPLICATION**



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**Level 1 - Podium Apartments**  
Scale 1:200

**REFER THIRD PARTY REPORTS for:**

1. Landscaping
2. Traffic Management
3. Waste Management

**Dwellings this level - 8**

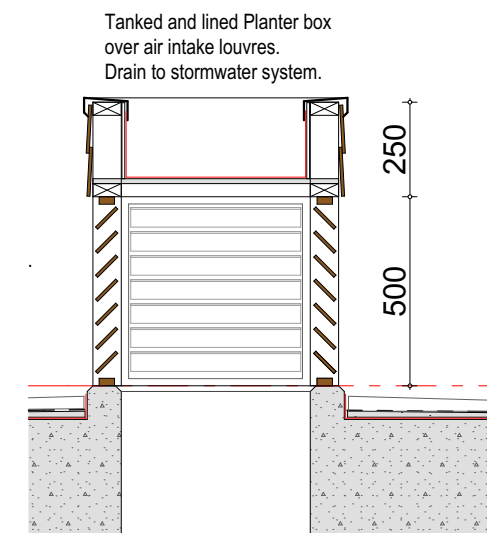
**Minimum strata areas**

Living area - 75 sqm  
Balcony - 11 sqm  
Plus store - 8 cm  
carbay - 13 sqm

**Min Total Strata 99 sqm**

**Landscaping.**

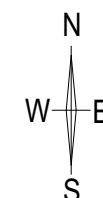
180sqm External landscaping  
22sqm Internal landscaping  
**202sqm Total**



CARPARK

**Podium Planter/Vent**  
Scale 1:20

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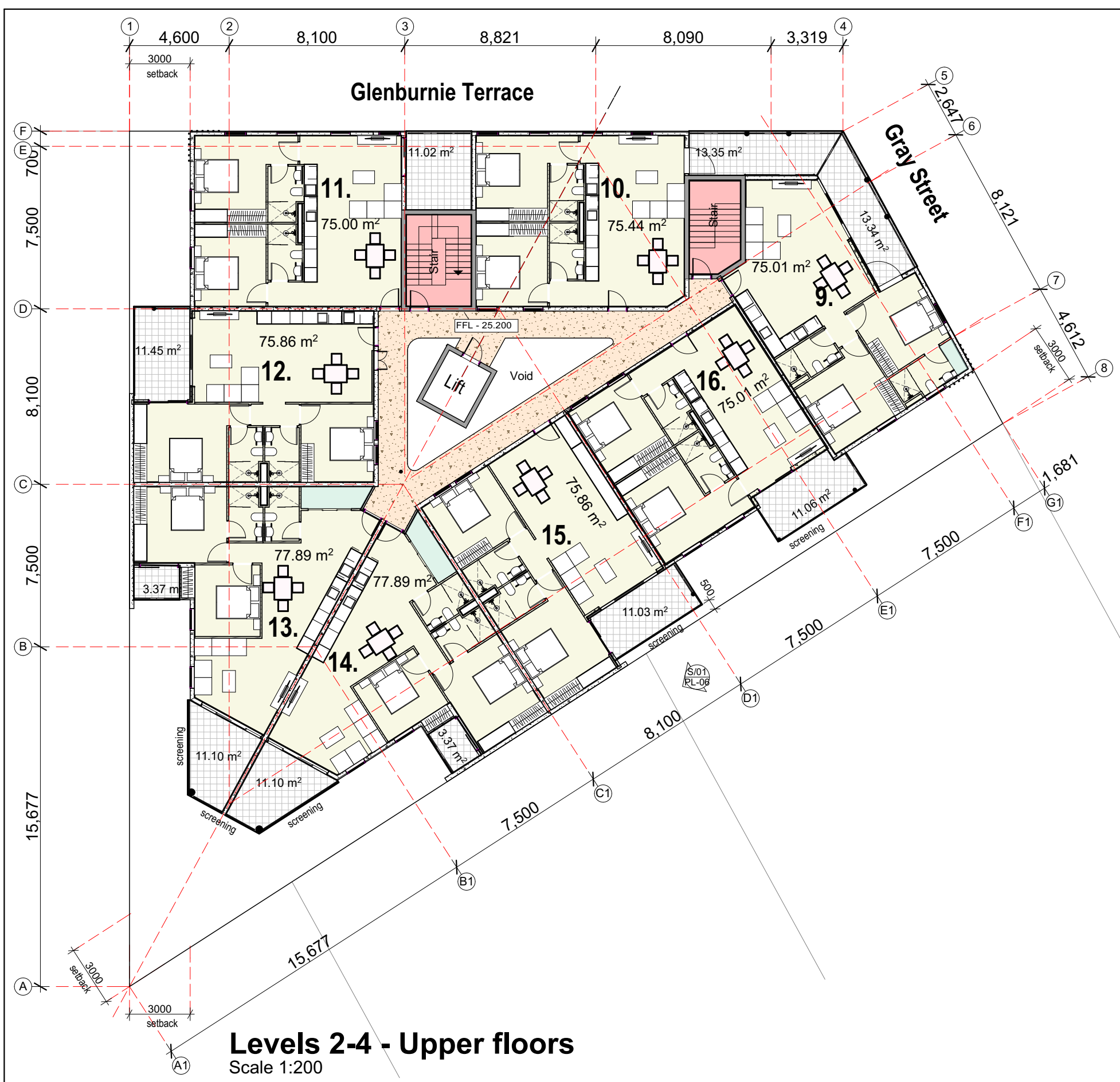


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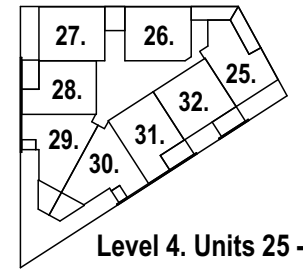
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**PLANNING APPLICATION**

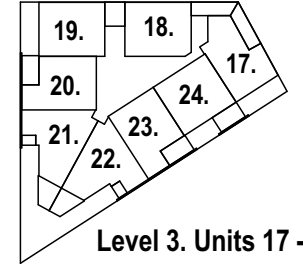


**Levels 2-4 - Upper floors**  
Scale 1:200

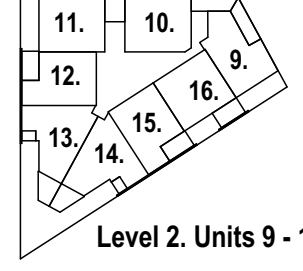
<b>Dwellings levels 2,3 &amp; 4.</b>	
<b>8 per level</b>	
<b>Minimum strata areas</b>	
Living area -	75 sqm
Balcony -	11 sqm
Plus store -	8 cm
carbay -	13 sqm
<b>Min Total Strata</b>	<b>99 sqm</b>



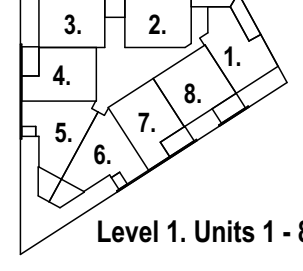
**Level 4. Units 25 - 32**



**Level 3. Units 17 - 24**



**Level 2. Units 9 - 16**



**Level 1. Units 1 - 8**

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**Griffin**  
Ground Floor, 180 Newcastle St,  
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TEL: +61 8 9221 1144  
WEB: griffin-group.com.au

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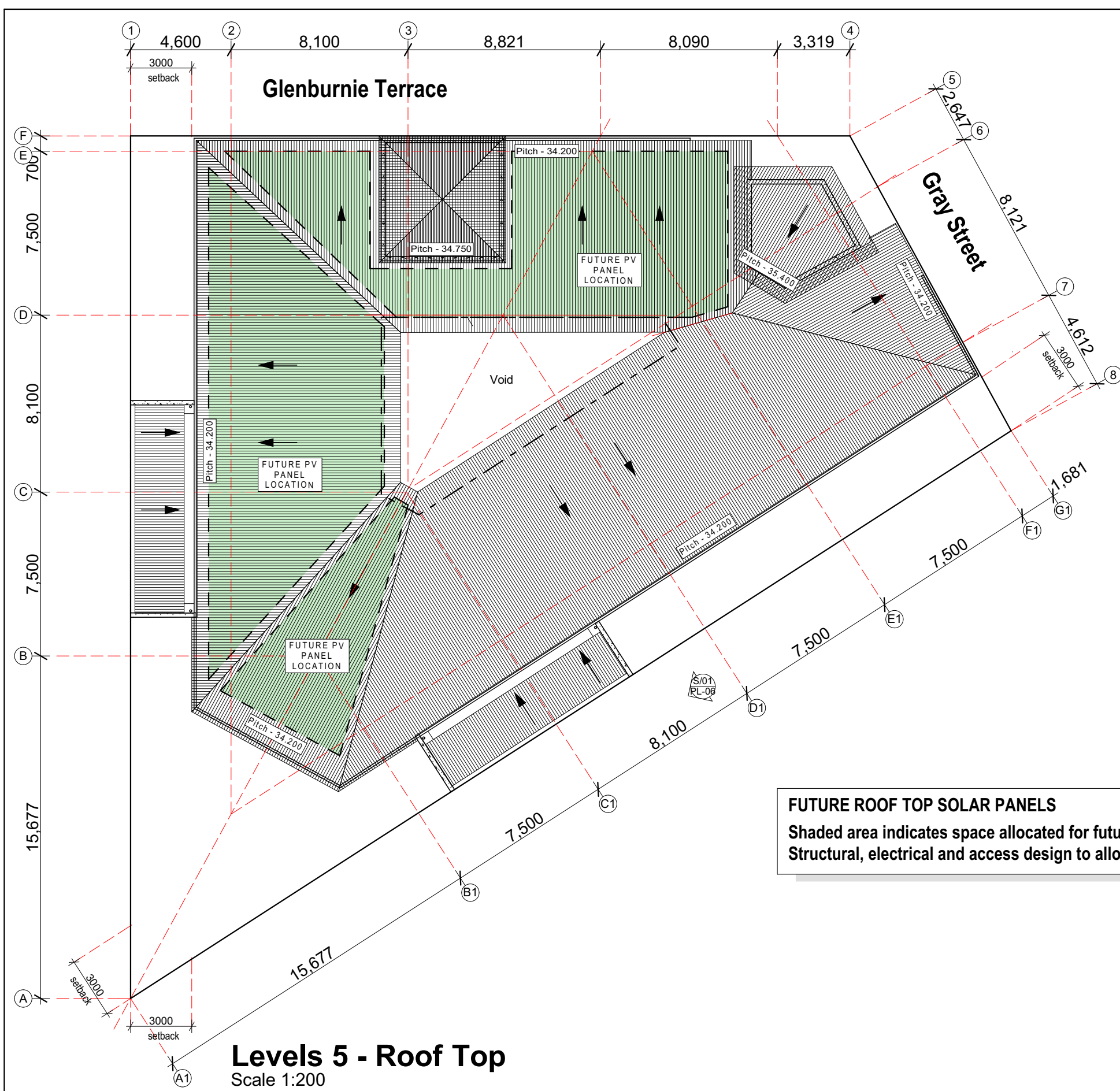
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**PLANNING APPLICATION**

**URBANize**  
ARCHITECT

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PO Box 1940 SUBIACO 6904





**Levels 5 - Roof Top**  
Scale 1:200

**FUTURE ROOF TOP SOLAR PANELS**  
Shaded area indicates space allocated for future Solar system.  
Structural, electrical and access design to allow for future installation.



**S01 - Part Section 1**  
Scale 1:200

Griffin & Partners  
Ground Floor, 180 Newcastle St,  
Northbridge, WA 6003  
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WEB: griffin-group.com.au

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**PLANNING APPLICATION**





Glass and Steel Canopy



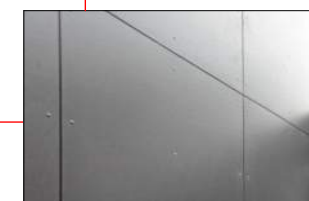
Walls General  
Trowelled texturecoat  
on flushed FRC sheeting



## GREY STREET

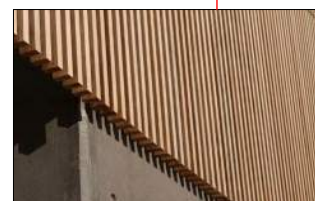


Feature Blades  
Cemintel Barestone panels



Wall Panels  
Cemintel Surround - Greyish

- WINDOWS**  
Powdercoat commercial frames - Colour Selection W1.
- RAINHEADS & DOWNPIPES**  
Galv. painted to match windows - Colour Selection W1.
- ALUMINIUM FENCING PANELS, GATES**  
Powdercoat to match windows - Colour Selection W1.
- AWNING STRUCTURE**  
Galv. painted to match windows - Colour Selection W1.
- Balustrading**  
Glazed, Patch fixed.



Timber Wall Slats



Face Brick Podium  
Heritage or recycled



Public Art Zone

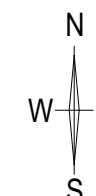


Adelaide Stone Corbelling



Glass and Steel Canopies

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PLANNING APPLICATION



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Glass and Steel Canopy



Feature Blades  
Cemintel Barestone panels



Wall Panels  
Cemintel Surround - Greyish



## GLENBURNIE TERRACE



Walls General  
Trowelled texturecoat  
on flushed FRC sheeting

- WINDOWS**  
Powdercoat commercial frames - Colour Selection W1.
- RAINHEADS & DOWNPIPES**  
Galv. painted to match windows - Colour Selection W1.
- ALUMINIUM FENCING PANELS, GATES**  
Powdercoat to match windows - Colour Selection W1.
- AWNING STRUCTURE**  
Galv. painted to match windows - Colour Selection W1.
- Balustrading**  
Glazed, Patch fixed.



Public Art Zone



Adelaide Stone Corbelling



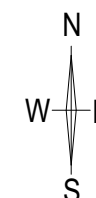
Face Brick Podium  
Heritage or recycled



Glass and Steel Canopies



Timber Wall Slats



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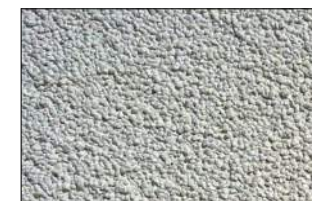




WEST ELEVATION



SOUTH ELEVATION



Walls General  
Trowelled texturecoat  
on flushed FRC sheeting



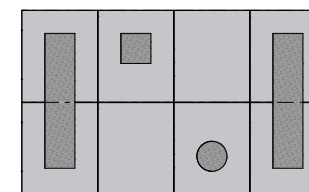
Glazed Balustrading



Timber Wall Slats



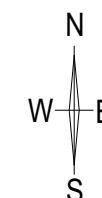
Obscured Glazed Screening  
1700 high to Balconies



Prefinished Precast Panels  
Textural and Colour differential



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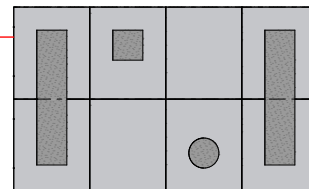




Glass and Steel Canopy



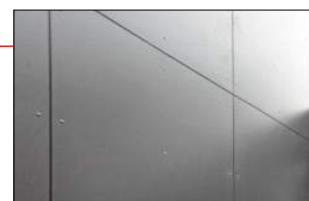
Walls General  
Trowelled texturecoat  
on flushed FRC sheeting



Prefinished Precast Panels  
Textural and Colour differential



Feature Blades  
Cemintel Barestone panels



Wall Panels  
Cemintel Surround - Greyish



Public Art Zone



Adelaide Stone Corbelling



Face Brick Podium  
Heritage or recycled

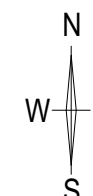


Glass and Steel Canopys



Timber Wall Slats

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PLANNING APPLICATION

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1 Glenburnie Terrace, Plympton. 32 Apartments  
Areas shown are nominal.

Level 1 Units 1-8  
Living Space includes 8 cubic metres of storage

<b>UNIT 1</b>	Living Space	Balconies
2 Bed 2 Bath	75	12
Total Area	87 sqm	
<b>UNIT 2</b>	Living Space	Balconies
2 Bed 2 Bath	75	12
Total Area	87 sqm	
<b>UNIT 3</b>	Living Space	Balconies
2 Bed 2 Bath	75	11
Total Area	86 sqm	
<b>UNIT 4</b>	Living Space	Balconies
2 Bed 2 Bath	75	11
Total Area	86 sqm	
<b>UNIT 5</b>	Living Space	Balconies
2 Bed 2 Bath	77	11 3
Total Area	91 sqm	
<b>UNIT 6</b>	Living Space	Balconies
2 Bed 2 Bath	77	11 3
Total Area	91 sqm	
<b>UNIT 7</b>	Living Space	Balconies
2 Bed 2 Bath	75	11
Total Area	86 sqm	
<b>UNIT 8</b>	Living Space	Balconies
2 Bed 2 Bath	75	11
Total Area	86 sqm	
SUB TOTAL AREAS LEVEL 2		702

Level 2 Units 9-16  
Living Space includes 8 cubic metres of storage

<b>UNIT 9</b>	Living Space	Balconies
2 Bed 2 Bath	75	13
Total Area	88 sqm	
<b>UNIT 10</b>	Living Space	Balconies
2 Bed 2 Bath	75	13
Total Area	88 sqm	
<b>UNIT 11</b>	Living Space	Balconies
2 Bed 2 Bath	75	11
Total Area	86 sqm	
<b>UNIT 12</b>	Living Space	Balconies
2 Bed 2 Bath	75	11
Total Area	86 sqm	
<b>UNIT 13</b>	Living Space	Balconies
2 Bed 2 Bath 2 Bed 2 Bath	77	11 3
Total Area	91 sqm	
<b>UNIT 14</b>	Living Space	Balconies
2 Bed 2 Bath	77	11 3
Total Area	91 sqm	
<b>UNIT 15</b>	Living Space	Balconies
2 Bed 2 Bath	75	11
Total Area	86 sqm	
<b>UNIT 16</b>	Living Space	Balconies
2 Bed 2 Bath	75	11
Total Area	86 sqm	
SUB TOTAL AREAS LEVEL 3		705

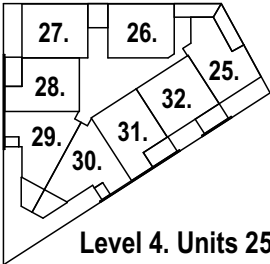
Level 3 Units 17-24  
Living Space includes 8 cubic metres of storage

<b>UNIT 17</b>	Living Space	Balconies
2 Bed 2 Bath	75	13
Total Area	88 sqm	
<b>UNIT 18</b>	Living Space	Balconies
2 Bed 2 Bath	75	13
Total Area	88 sqm	
<b>UNIT 19</b>	Living Space	Balconies
2 Bed 2 Bath	75	11
Total Area	86 sqm	
<b>UNIT 20</b>	Living Space	Balconies
2 Bed 2 Bath	75	11
Total Area	86 sqm	
<b>UNIT 21</b>	Living Space	Balconies
2 Bed 2 Bath	77	11 3
Total Area	91 sqm	
<b>UNIT 22</b>	Living Space	Balconies
2 Bed 2 Bath	77	11 3
Total Area	91 sqm	
<b>UNIT 23</b>	Living Space	Balconies
2 Bed 2 Bath	75	11
Total Area	86 sqm	
<b>UNIT 24</b>	Living Space	Balconies
2 Bed 2 Bath	75	11
Total Area	86 sqm	
SUB TOTAL AREAS LEVEL 4		705

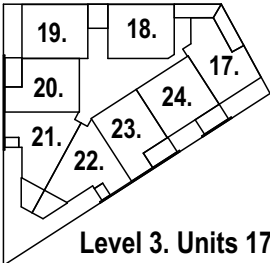
Level 4 Units 25-32  
Living Space includes 8 cubic metres of storage

<b>UNIT 25</b>	Living Space	Balconies
2 Bed 2 Bath	75	13
Total Area	88 sqm	
<b>UNIT 26</b>	Living Space	Balconies
2 Bed 2 Bath	75	13
Total Area	88 sqm	
<b>UNIT 27</b>	Living Space	Balconies
2 Bed 2 Bath	75	11
Total Area	86 sqm	
<b>UNIT 28</b>	Living Space	Balconies
2 Bed 2 Bath	75	11
Total Area	86 sqm	
<b>UNIT 29</b>	Living Space	Balconies
2 Bed 2 Bath	77	11 3
Total Area	91 sqm	
<b>UNIT 30</b>	Living Space	Balconies
2 Bed 2 Bath	77	11 3
Total Area	91 sqm	
<b>UNIT 31</b>	Living Space	Balconies
2 Bed 2 Bath	75	11
Total Area	86 sqm	
<b>UNIT 32</b>	Living Space	Balconies
2 Bed 2 Bath	75	11
Total Area	86 sqm	
SUB TOTAL AREAS LEVEL 5		705

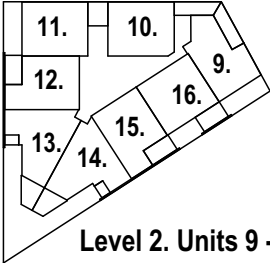
TOTAL STRATA AREAS 2816



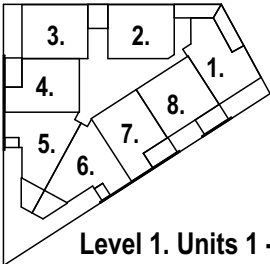
Level 4. Units 25 - 32



Level 3. Units 17 - 24



Level 2. Units 9 - 16



Level 1. Units 1 - 8



<b>SITE AREA</b>	1018 sqm
<b>BUILT AREA</b>	
Ground.- Lobby, Services and Parking	1016 sqm
<b>Level 1 Units 1-8</b>	
Footprint	814 sqm
Landscaping	202 sqm
Total	1016 sqm
<b>Level 2 Units 9-16</b>	848 sqm
<b>Level 3 Units 17-24</b>	848 sqm
<b>Level 4 Units 25-32</b>	848 sqm
<b>TOTAL BUILT AREA</b>	4576 sqm

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for The Griffin Group.

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PLANNING APPLICATION

REV.	DATE	DESCRIPTION
E	27-6-19	For Planning Submission
D	24-5-19	Store mezzanine added
C	14-5-19	For Planning Submission
B	17-4-19	Response to feedback
A	31-3-19	For Council Discussion



PTY. LTD. A.B.N. 21 093 044 427  
TEL. 9388 1988 FAX. 9382 8477  
233 BAGOT RD SUBIACO 6008  
PO Box 1940 SUBIACO 6904





JUNE 21 - 9AM



JUNE 21 - 10AM



JUNE 21 - 11AM



JUNE 21 - 12PM



JUNE 21 - 1PM



JUNE 21 - 2PM



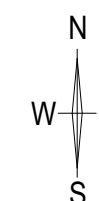
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JUNE 21 - 4PM



JUNE 21 - 5PM





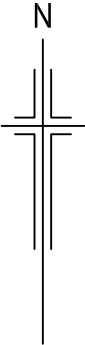




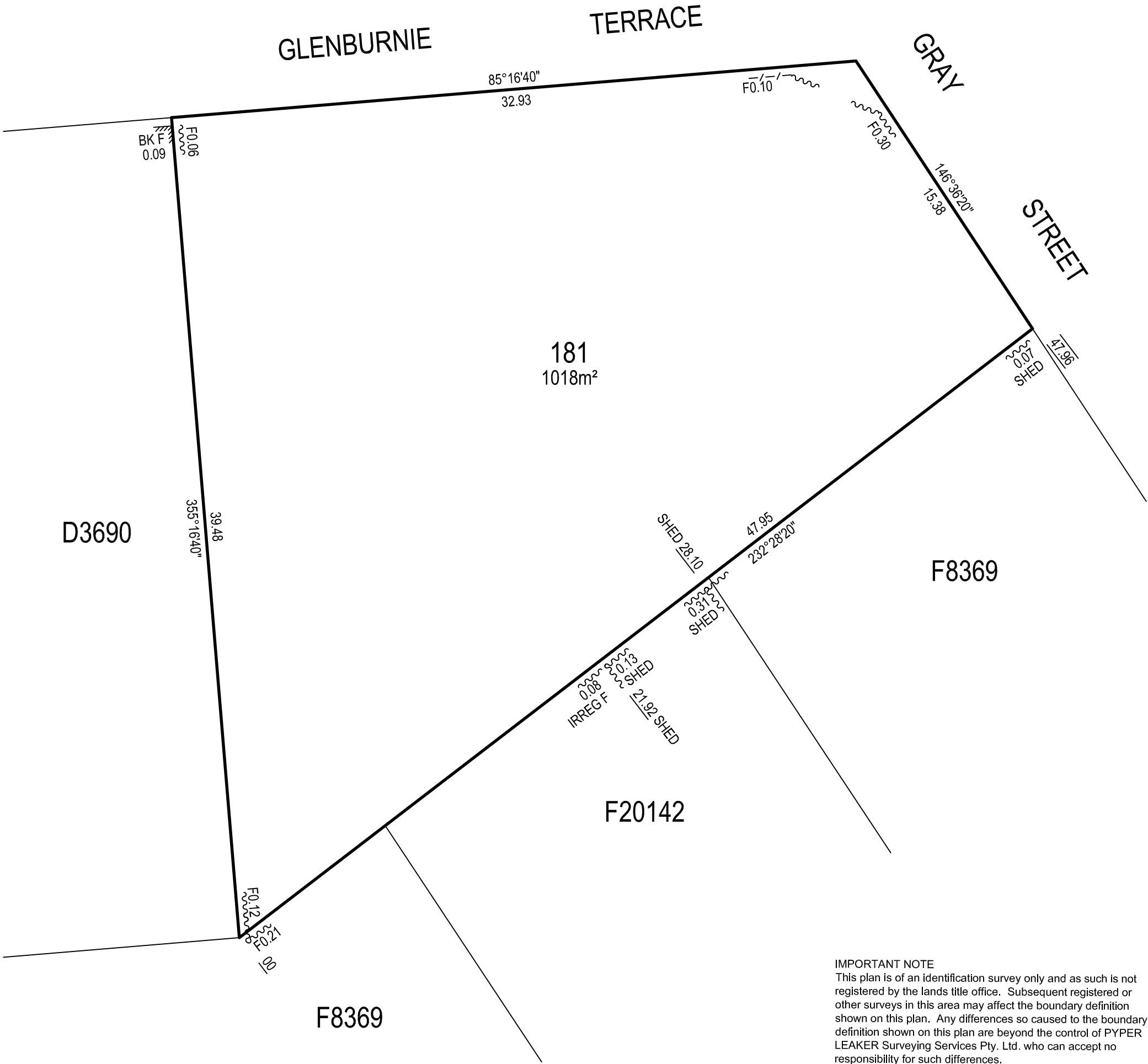




IDENTIFICATION SURVEY  
ALLOTMENT 181  
IN D3690  
HUNDRED OF ADELAIDE  
IN THE AREA NAMED  
**PLYMPTON**  
CT 5731/830



AUTHORITY FOR BOUNDARY DATA VIDE FP 20247  
FINAL DIMENSIONS SUBJECT TO APPROVED CERTIFIED SURVEY



IMPORTANT NOTE  
This plan is of an identification survey only and as such is not registered by the lands title office. Subsequent registered or other surveys in this area may affect the boundary definition shown on this plan. Any differences so caused to the boundary definition shown on this plan are beyond the control of PYPER LEAKER Surveying Services Pty. Ltd. who can accept no responsibility for such differences.

**PyperLeaker**  
surveying services  
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Wayville SA 5034  
e info@plsurvey.com.au

LEGEND	
IRREG	: IREGGULAR
BK	: BRICK
F	: FENCE
CBOND	: COLORBOND
MP ●	: METAL PIN
MN ●	: MASONRY NAIL
GIN ●	: GALVANISED NAIL

INFO

SCALE:	1:200 (A3)
SURVEY DATE:	28 / 02 / 19
SURVEYED BY:	MWH
DRAWN BY:	JP
PROJECT REF:	PL 9508

CERTIFIED CORRECT

MICHAEL W. HARMER

LICENSED SURVEYOR  
07 / 03 / 2019



## APPENDIX 5. TRAFFIC AND PARKING ASSESSMENT

PREPARED BY PHIL WEAVER AND ASSOCIATES

Consultant Traffic Engineers

ABN 67 093 665 680

204 Young Street

Unley SA 5061

P: 08 8271 5999

F: 08 8271 5666

E: mail@philweaver.com.au

File: 19-035

22 May 2019

Ms. Milly Nott  
Urban Planner  
Future Urban  
Ground Floor, 89 King William Street  
GPO Box 2403  
ADELAIDE SA 5001

Dear Milly,

## **PROPOSED RESIDENTIAL DEVELOPMENT – 1 GLENBURNIE TERRACE, PLYMPTON – TRAFFIC AND PARKING ASSESSMENT**

I refer to our previous discussions with respect to the proposed residential development on the above site. I understand that it is proposed to construct a five-storey residential building with 32 two-bedroom dwellings and associated undercroft car parking.

As requested, I have undertaken the following review of the traffic and parking related aspects of the subject development.

### **EXISTING SITUATION**

The subject site is located on the south-western corner of the intersection of Glenburnie Terrace with Gray Street, Plympton. The subject site is located within an 'Urban Corridor Zone' as identified on *Zone Map WeTo/13* of the West Torrens Council Development Plan as consolidated 12<sup>th</sup> July 2018.

The subject site currently accommodates a single building accommodating two residential dwellings namely 1 and 1A Glenburnie Terrace. The subject land has frontages of approximately 16.6m to Gray Street and 34.2m to Glenburnie Terrace.

There are two existing access points associated with the subject land, one of which is located on Gray Street, adjacent to the south-eastern boundary of the site, and the other is located on Glenburnie Terrace, adjacent to the western boundary of the site.

The subject site and adjoining locality are identified in the image below.



**1 Glenburnie Terrace, Plympton and adjoining locality**

Glenburnie Terrace is a two-way two-lane roadway with a speed limit of 50km/h. Glenburnie Terrace has a kerb to kerb width of approximately 9m and kerbside parking is unrestricted on both sides of this roadway.

Gray Street, adjacent to the subject site, is a two-way roadway with a kerb to kerb width of approximately 9m. This section of roadway is separated by a painted island incorporating pavement bars, with the south-eastbound lane providing separate right turn and left turn / through lanes on the approach to the intersection of this roadway with Anzac Highway and Beckman Street.

No Stopping Anytime restrictions apply on both sides of Gray Street in the locality of the site.

Details of traffic volumes on the adjoining road network have been sourced from both Council and the Department of Planning Transport and Infrastructure (DPTI) as well as surveys undertaken by this firm at the intersection of Glenburnie Terrace with Gray Street.

From a vehicle turning movement summary undertaken by DPTI at the intersection of Anzac Highway with Gray Street and Beckman Street on Wednesday 23<sup>rd</sup> November 2016 it is identified that the annual average daily traffic (AADT) volume on Gray Street between Anzac Highway and Glenburnie Terrace is approximately 5600 vehicles per day (vpd).

In the five-year period from 2013 to 2017 (inclusive), there were two recorded road crashes directly adjacent to the subject site, one of which occurred at the intersection of Glenburnie Terrace with Gray Street. This crash related to a right-angle collision which resulted in property damage only. The second recorded crash was a rear-end collision on Gray Street midblock between Glenburnie Terrace and Anzac Highway which also resulted in property damage only.

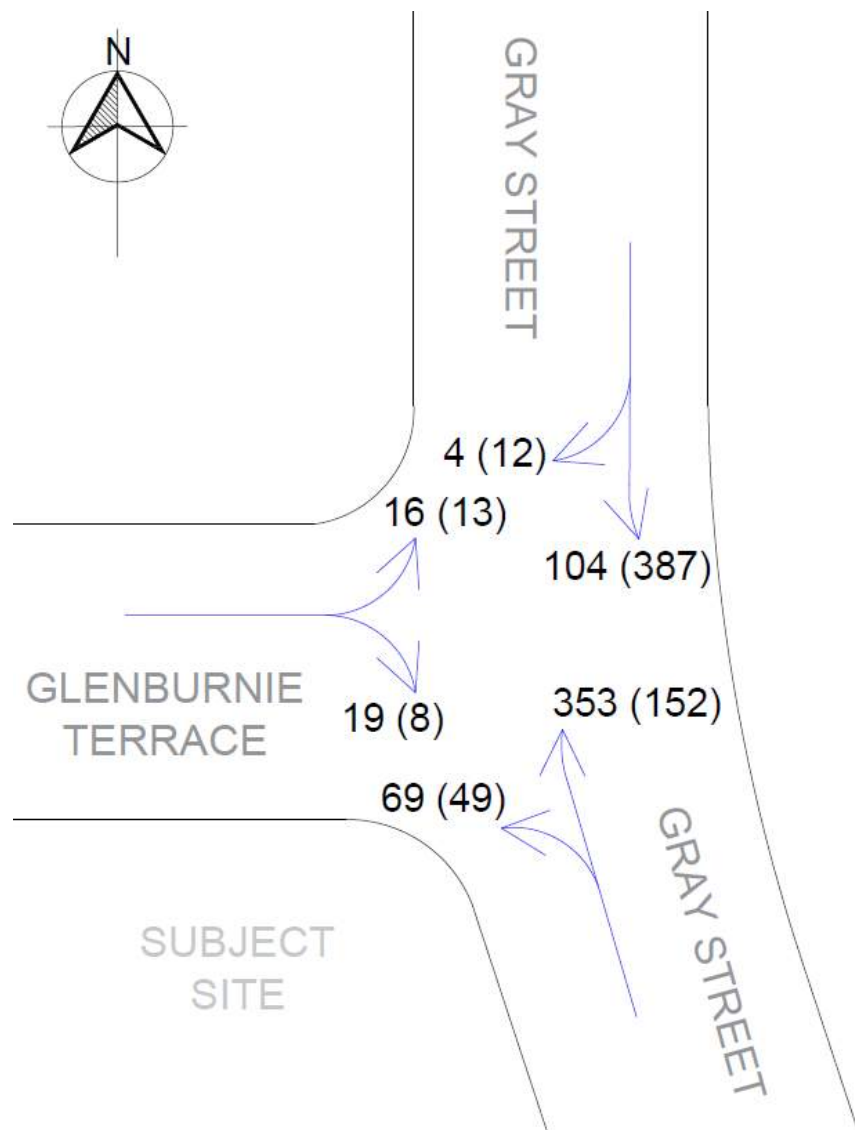
On the above basis, it is apparent that there is therefore a very low crash history (i.e. less than one crash per year) directly adjacent to the subject site.



Surveys of traffic entering the intersection of Gray Street with Glenburnie Terrace were conducted by this firm on Tuesday 2<sup>nd</sup> April 2019 during morning and afternoon periods namely:

- 7:30am to 9:30am; and
- 3:00pm to 6:00pm.

The image below summarises the peak hour traffic movements during both the morning and afternoon surveys.



**Summary of am (pm) peak hour traffic volumes - Gray Street / Glenburnie Terrace, Kurralta Park – Tuesday 2<sup>nd</sup> April 2019**

From the above image, it is identified that:

- A total of 108 traffic movements recorded on Glenburnie Terrace in the period between 8:00am and 9:00am; and
- A total of 82 traffic movements recorded on Glenburnie Terrace in the period between 4:45pm and 5:45pm.

In addition to the surveys of traffic movements on the above intersection, a survey of parking demand within the on-street parking areas of Glenburnie Terrace was also conducted on Tuesday, 2<sup>nd</sup> April 2019. This survey included counts of cars parked on Glenburnie Terrace, on both sides the section of this roadway between James Street and Gray Street. These counts were undertaken on five occasions throughout the day and summarised in *Table 1* below.

**Table 1: Glenburnie Terrace on-street parking survey results**

<b>Tuesday 02/04/19 (Time)</b>	<b>James Street - Netherby Street (Northern side)</b>	<b>Netherby Street - Gray Street (Northern side)</b>	<b>James Street - Netherby Street (Southern side)</b>	<b>Netherby Street - Gray Street (Southern side)</b>	<b>Total</b>
<i>Capacity</i>	9	10	10	9	38
7:30am	0	2	0	0	2
9:30am	2	1	0	1	4
12:00pm	2	1	0	0	3
3:00pm	2	1	0	1	4
6:00pm	0	0	2	1	3

The above survey identified, inter alia:

- An overall capacity to accommodate up to 38 cars within that section (both sides) of Glenburnie Terrace between James Street and Gray Street; and
- A maximum of only four cars parked in the above on-street areas at any of the surveyed weekday times.

Additional surveys have been conducted on a Friday evening and Sunday afternoon. The results of these surveys have identified that there were:

- 8 cars in total parked on the subject section of Glenburnie Terrace between James Street and Gray Street (both sides) at 7:30pm on Friday 12<sup>th</sup> April 2019; and
- 9 cars in total parked on the subject section of Glenburnie Terrace between James Street and Gray Street (both sides) at 1:30pm on Sunday 14<sup>th</sup> April 2019.

Such periods typically relate to peak visitor parking demand, i.e. peak on-street parking demand associated with residential localities. These weekend inspections identified a higher parking demand than during the weekday period, however on-street parking demand remained relatively low (below 25% capacity).

## **PROPOSED DEVELOPMENT**

The proposed residential development is identified on a series of plans prepared by Urbanize Architect including drawing SK02 (*Ground – Level 1 Parking*) Rev C dated 14<sup>th</sup> June 2019.

The proposed development will provide:

- 32 two-bedroom apartments over the upper four floors; and
- A ground floor car parking area including 36 car parking spaces comprising 32 spaces for use by residents and 4 on-site visitor car parking spaces.

The design of this car parking area will provide:

- Car parking spaces with lengths of 5.4m;
- Car parking spaces with minimum widths of 2.4m; and
- Clear aisle widths of 6.0m.

The four dedicated visitor parking spaces will each have widths of 2.6m.

The design will provide a total of 14 individually accessible car parking spaces and a further 22 spaces to be provided within two cassette car stackers each of which will accommodate 11 cars.

The two cassette car stackers will be similar to a **Hercules Expanderpark -1+2** system, which will accommodate 11 spaces within both 4-space wide bays.

The proposed development will include an on-site waste storage facility within the south-western corner of the car park.

The undercroft car parking area will have a vertical clearance of approximately 4.15 metres based on a floor to floor difference in levels between the ground floor and the first-floor level of 4.7 metres.

The design of the on-site car parking area will include an access gate set back into the car park distance of approximately 9.3 m from the northern boundary of the site. This access gate will be operated by means of remote control and will provide access into and out of the residential component of the subject car park.

Four visitor spaces will be located between the access gate and the northern boundary of the subject development and will therefore be freely accessible at all times.

The separation between the access gate and the northern site boundary would permit all vehicles anticipated to access the car parking area to store internally on-site when waiting for entry into the residential car parking area. This will include waste collection vehicles reversing into the car park in order to collect waste and recyclables.

While the width of the gate will narrow to approximately 5.5m, the width (6.0m) of the car park aisle adjacent to the four visitor parking spaces will allow for simultaneous entry / exit of cars into and out of the subject car park.

The pedestrian-vehicular sight line splay requirement (**Figure 3.3 Minimum Sight Lines for Pedestrian Safety** within AS/NZS 2890.1:2004) would essentially be addressed by the car park access design provided that the landscaping on the western side of the proposed access point is kept to low level vegetation of less than 1.0m in height.

As such, I consider that the design of the on-site car parking areas would conform to the relevant off-street car parking standard (AS/NZS 2890.1:2004).

## ACCESS ASSESSMENT

The proposed development will provide a two-way access point on Glenburnie Terrace which will be utilised by all vehicles accessing the proposed on-site car parking area.

Pedestrian access into and out of the building will include an entry lobby to be accessed directly to and from Glenburnie Terrace and access between this lobby and the on-site car parking area.

Waste will be collected by vehicles similar in size to a Medium Rigid Vehicle (MRV). These vehicles will reverse into the subject site from Glenburnie Terrace, collect waste from the waste storage area at the southern end of the site and proceed to exit the site in a forward direction.

Vehicle turning (swept) paths diagrams have been prepared identifying critical passenger vehicle movements on-site and also manoeuvring of waste collection vehicles into and out of the ground floor (parking) area of the proposed development. These are attached as an appendix to this report and include drawings identifying the following manoeuvres, namely:-

- *Figure 1 - MRV reverse site entry / forward exit and B85 critical space (30) entry / exit;*
- *Figure 2 - Simultaneous B99 site entry / exit and B99 passing a loading MRV;*
- *Figure 3 - B85 critical space (V1) entry / exit and B85 stacker bays 1-11 entry / exit; and*
- *Figure 4 - B85 critical space (V3) entry / exit and B85 stacker bays 12-22 entry / exit.*

## PARKING ASSESSMENT

The subject site satisfies the requirements for a 'Designated Area' as it is located within an Urban Corridor Zone.

**Table WeTo/6 - Off Street Vehicle Parking Requirements for Designated Areas** within the West Torrens Council Development Plan identifies car parking provisions for residential developments as follows:

Location of Development	Rate for each dwelling based on number of bedrooms per dwelling	Plus number of required visitor parking spaces
<b>Boulevard Policy Area 34</b> within the <b>Urban Corridor Zone</b>	0.25 per studio 0.75 per 1 bedroom dwelling 1 per 2 bedroom dwelling 1.25 per 3 + bedroom dwelling	0.25 per dwelling

On the above basis, the proposed development, comprising 32 two-bedroom dwellings, would require a total of 40 car parking spaces consisting of 32 resident parking spaces and 8 visitor parking spaces. The subject development will satisfy the resident parking requirements with the provision of 36 undercroft car parking spaces. There will therefore be a theoretical shortfall of 4 on-site car parking spaces associated with the visitor parking requirements.

**Table WeTo/6** also identifies that:

*"A lesser number of parking spaces may be provided based on the nature of development and parking condition 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 condition applicable to Designated Areas for at least two different public transit modes.”*

The subject site would partially satisfy points (e) and (f) given that:

- Generous unrestricted on-street parking is available on both sides of Glenburnie Terrace, noting that there was low level of demand identified during the aforementioned surveys with an available capacity for approximately 29 on-street cars to park between James Street and Gray Street; and
- The site is well serviced by public transport as it is located:
  - Within 200m of the Anzac Highway high frequency bus route;
  - Directly adjacent to the Route 241 bus line (Gray Street – not high frequency); and
  - Approximately 550m from the high frequency tram line Stop 8 – Beckham Street (slightly greater than the 400m limit identified within **Table WeTo/6**).

**Table WeTo/7 - Off Street Bicycle Parking Requirements for Urban Corridor Zone** within Council's Development Plan identifies the following bicycle parking requirements relevant to the proposed development:

Form of development	Resident bicycle parking spaces	Visitor bicycle parking spaces
Residential component of multi-storey building / residential flat building	1 for every 4 dwellings	1 for every 10 dwellings

On the above basis, the proposed development of 32 residential dwellings would require approximately 11 on-site bicycle parking spaces, including 8 for resident use and 3 for visitor use. Such a requirement will effectively be met by the provision of 10 on-site bicycle parking spaces in the form of wall hung brackets.

Although Council's Development Plan for on-site visitor car parking provisions have not been strictly met, I consider that 4 on-site visitor car parking spaces will be appropriate, given:

- All resident car parking will be satisfied on-site;

- Four spaces will be allocated specifically for visitor use with these spaces freely available at all times;
- There is capacity for additional on-street car parking to be accommodated on Glenburnie Terrace, as evidenced by reviews on-site during anticipated peak periods of weekday and weekend residential visitor parking demands;
- On-site bicycle parking will be effectively be satisfied, with convenient nearby public cycling facilities (dedicated lanes during peak hour periods on Anzac Highway and the nearby 'Westside Bikeway'); and
- The subject site is serviced by various nearby public transport routes, which may reduce the demand for passenger vehicle parking.

## TRAFFIC ASSESSMENT

The '**Guide to Traffic Generating Developments**' report produced by the (former) Roads and Traffic Authority of NSW identifies the following relevant trip generation rates:

Form of Development	Weekday peak hour vehicle trips (per unit)	Subject site (units)	Resultant peak hour trips (rounded up)
Dwelling house	0.85	<i>2 Existing</i>	2
High density residential flat building	0.29	<i>32 Proposed</i>	10

On the above basis, the proposed development will result in an additional 8 weekday peak hour vehicle trips associated with the subject site.

I consider that such a trip generation rate (10 peak hour trips) would realistically be generated by the subject site, given:

- The high-density nature of the subject development;
- The provision of only one resident parking space per unit; and
- The appropriate alternate methods of transport including public transport and nearby cycling facilities. It is also noted that the Kurralta Central Shopping Centre is located within convenient walking distance (i.e. less than 400m) of the subject site, likely further reducing vehicular trips in some instances.

Such an increase in weekday peak hour trips would not have a detrimental impact on the adjoining road network, noting that the access point associated with the subject site is located on Glenburnie Terrace and not the busier Gray Street.

As previously identified, waste and recycling associated with the subject development will be undertaken by waste contractor with collections occurring from within the on-site car parking area. This will involve collections by an MRV or similarly sized vehicle being reversed into the car parking area from Glenburnie Terrace with these vehicles being driven forward out the car on completion of each collection.

Advice from the waste management consultant (Chris Colby – Colby Phillips Advisory) identifies that there will be 5 weekly waste collection movements, which each will take between 5 and 10 minutes. More specifically, these will include:

- Two collections per week of general waste;
- Two collections per week of dry comingled recycling; and
- One collection per week of Food/Garden organics.

A dedicated waste storage area and wash-down facility is proposed within the south-eastern corner of the car park with a capacity to accommodate at least:

- Four (4) 1100 litre bins; and
- One (1) 660 litre bin.

## **SUMMARY**

The subject development relates to a proposed residential development on land located on the south-western corner of the intersection of Glenburnie Terrace with Gray Street, Kurralta Park.

The proposed development will provide a five-storey residential building and associated undercroft car parking, for use by both residents and visitors to the subject development.

The proposed development will provide:

- 32 two-bedroom apartments over the upper four floors; and
- A ground floor car parking area including 36 car parking spaces comprising 32 spaces for use by residents and 4 on-site visitor car parking spaces.

The proposed development will provide a two-way access point on Glenburnie Terrace which will be utilised by all vehicles accessing the proposed on-site car parking area.

The design of the on-site car parking area will meet the requirements of the relevant off-street car parking standard (*AS/NZS 2890.1:2004*).

The proposed development will include an on-site waste storage facility within the south-western corner of the car parking area with this facility to be serviced by waste contractors.

The design of the on-site car parking area will include an access gate set back into the car park distance of approximately 9.3 m from the northern boundary of the site. This access gate will be operated by means of remote control and will provide access into and out of the residential component of the subject car park.

The four visitor spaces will be located between the access gate and the northern boundary of the subject development and will therefore be freely accessible at all times.

The separation between the access gate on the northern site boundary would permit all vehicles anticipated to access the car parking area to store internally on-site when waiting for entry into the residential car parking area.

Pedestrian access into and out of the building will include an entry lobby to be accessed directly to and from Glenburnie Terrace and access between this lobby and the on-site car parking area.

Waste will be collected by vehicles similar in size to a Medium Rigid Vehicle (MRV). These vehicles will reverse into the subject site from Glenburnie Terrace, collect waste from the waste storage area at the southern end of the site and proceed to exit the site in a forward direction

On the basis of the site being located within a Designated Area, Council's Development Plan provisions, would require a total of 40 car parking spaces consisting of 32 resident parking spaces and 8 visitor parking spaces.

The subject development will fully satisfy the resident parking requirements with the provision of 36 undercroft car parking spaces, but there would be a theoretical shortfall of 4 on-site car parking spaces associated with the visitor parking requirements.

However, it should be noted that **Table WeTo/6** within Council's Development Plan identifies that:

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

- (g) 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*
- (h) 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*
- (i) the development involves the retention and reuse of a place of heritage value, where the provision of on-site parking is constrained*
- (j) suitable arrangements are made for any parking shortfall to be met elsewhere or by other means (including a contribution to a car parking fund)*
- (k) 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*
- (l) the site of the development is located within distances specified in the condition applicable to Designated Areas for at least two different public transit modes."*

The subject site would partially satisfy points (e) and (f) given that:

- Generous unrestricted on-street parking is available on both sides of Glenburnie Terrace, noting that there was low level of existing on-street car parking demand identified during the surveys with an available capacity for approximately 29 on-street cars to park between James Street and Gray Street; and
- The site is well serviced by public transport as it is located:
  - Within 200m of the Anzac Highway high frequency bus route;



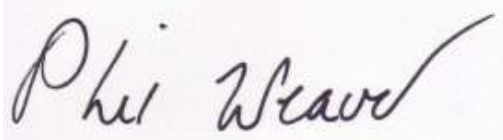
- Directly adjacent to the Route 241 bus line operating along Gray Street; and
- Approximately 550m from the high frequency tram line Stop 8 – Beckham Street (which is only slightly greater than the 400m limit relating to a designated area as identified within *Table WeTo/6*).

On the above basis, it is considered that the minor shortfall in visitor car parking associated with the subject development can be readily accommodated by use of existing on street parking and furthermore the demand for such car parking is likely to be lower than anticipated by Council's development plan provisions given the close proximity of the subject site to convenient and frequent public transport.

In terms of forecast traffic volumes, the proposed development should generate at most 10 trips in peak hour periods, which is considered to be well within the capacity of the adjoining road network.

In summary, I consider that the proposed development will not result in adverse traffic, parking or access related matters.

Yours sincerely

A handwritten signature in dark ink, reading "Phil Weaver", with a stylized flourish at the end.

Phil Weaver  
Phil Weaver and Associates Pty Ltd

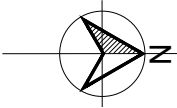
Enc



PHIL WEAVER & ASSOCIATES

TRAFFIC ENGINEERING CONSULTANTS

<b>For:</b> Future Urban Group	<b>REF:</b> 19-035	204 Young Street
	<b>DATE:</b> 15/05/19	UNLEY SA 5061
<b>Address:</b> 1 Glenburnie Terrace, Plympton	<b>DWG BY:</b> AH	P: 08 8271 5599
	<b>CHK BY:</b> PW	E: mail@phillweaver.com.au



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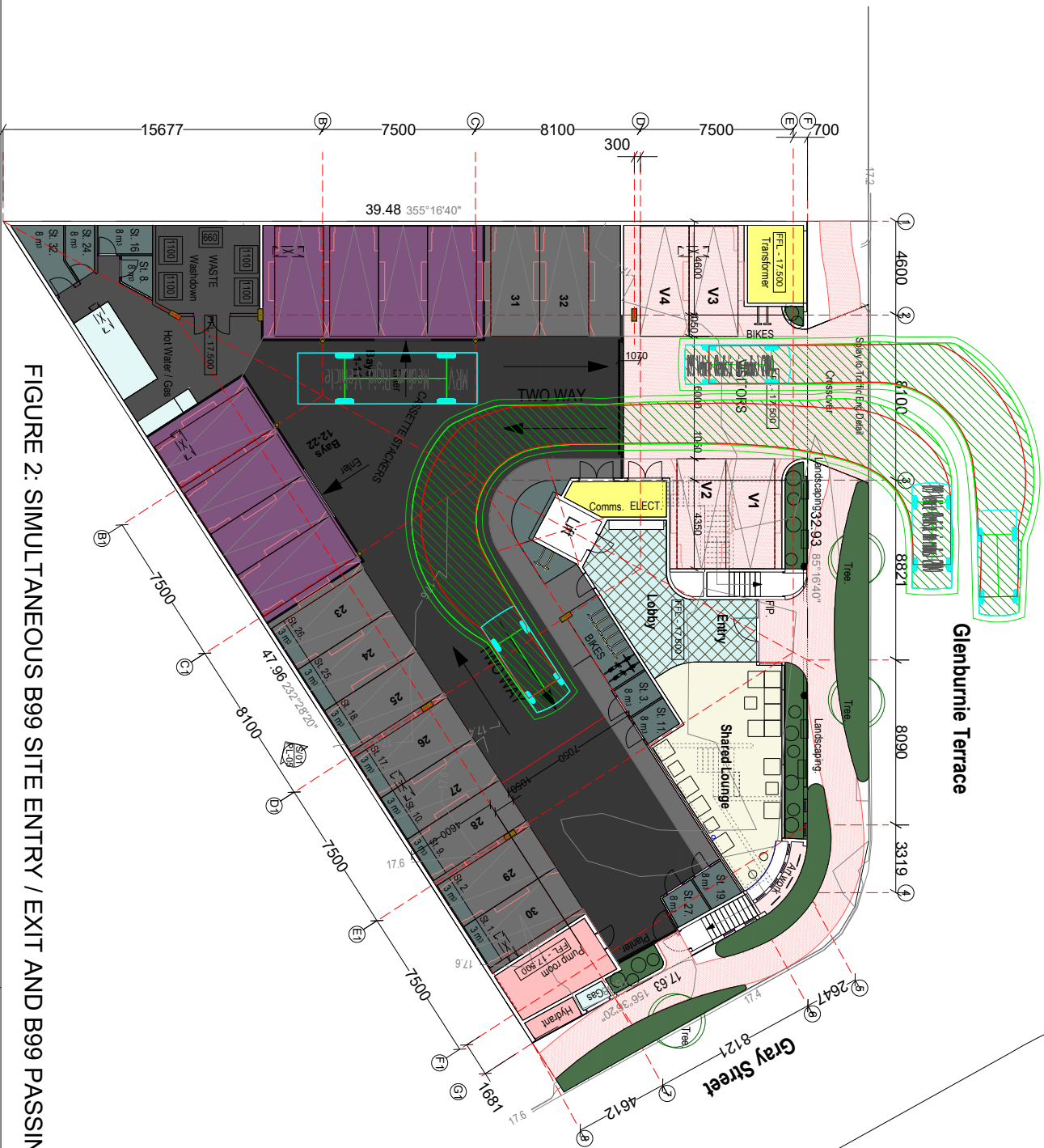
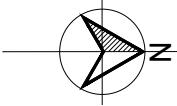


FIGURE 2: SIMULTANEOUS B99 SITE ENTRY / EXIT AND B99 PASSING A LOADING MRV

PHIL WEAVER & ASSOCIATES

TRAFFIC ENGINEERING CONSULTANTS

For: Future Urban Group	REF: 19-035	204 Young Street
Address: 1 Glenburnie Terrace, Plympton	DATE: 15/05/19	UNILEY SA 5061
	DWG BY: AH	P: 08 8271 5999
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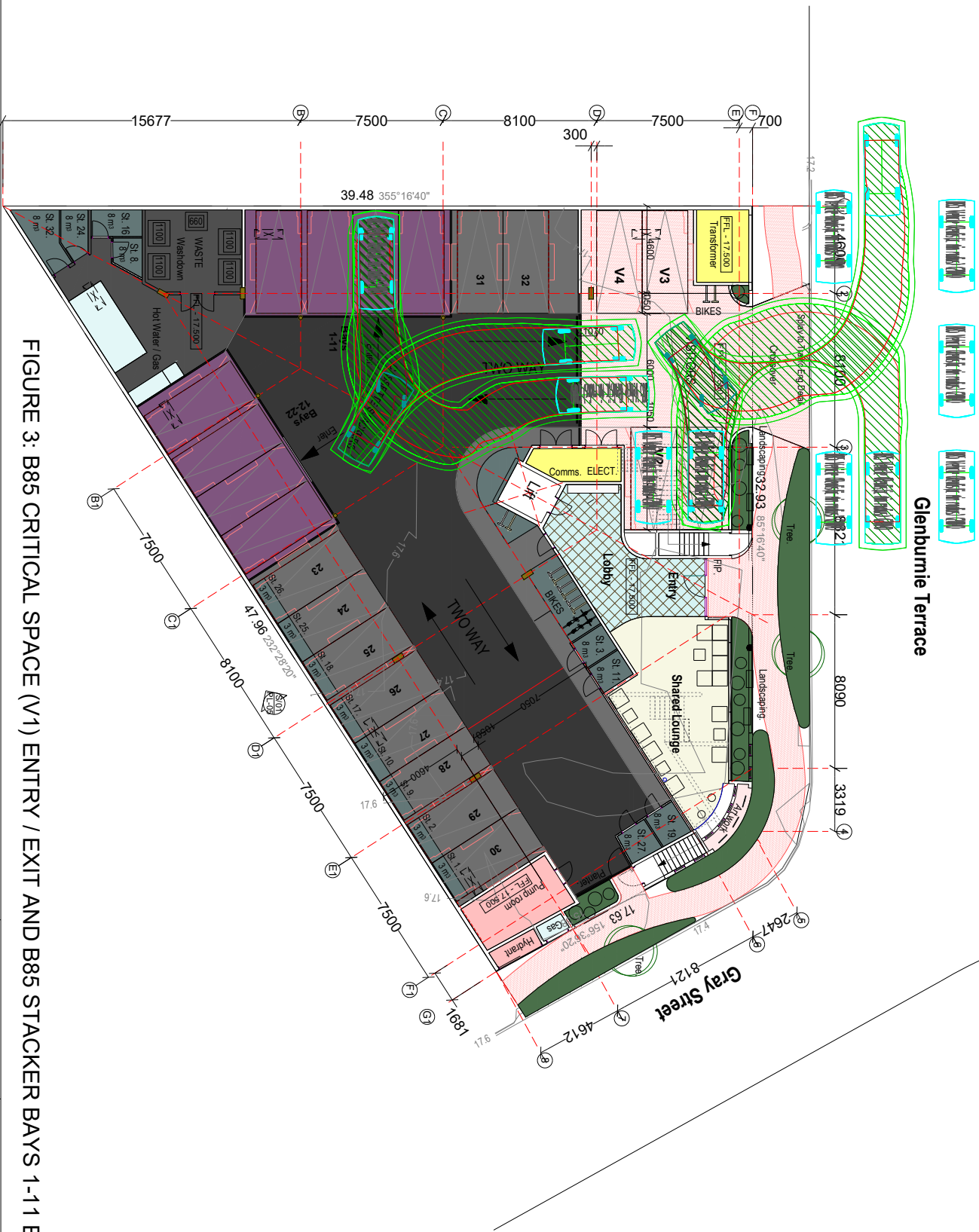


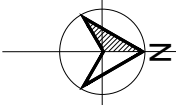
FIGURE 3: B85 CRITICAL SPACE (V1) ENTRY / EXIT AND B85 STACKER BAYS 1-11 ENTRY / EXIT

PHIL WEAVER & ASSOCIATES

TRAFFIC ENGINEERING CONSULTANTS

For: Future Urban Group	REF: 19-035	204 Young Street
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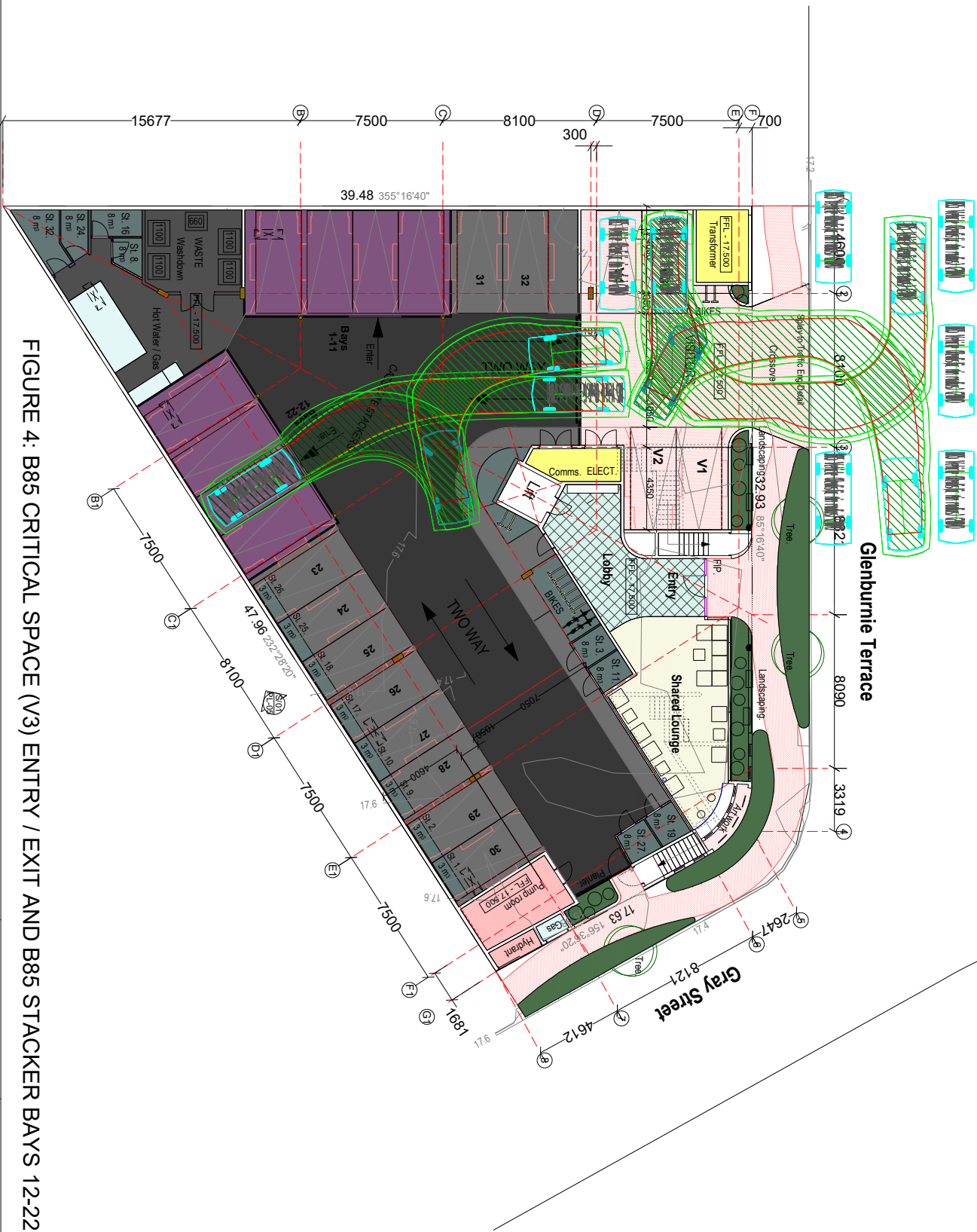


FIGURE 4: B85 CRITICAL SPACE (V3) ENTRY / EXIT AND B85 STACKER BAYS 12-22 ENTRY / EXIT

PHIL WEAVER & ASSOCIATES

TRAFFIC ENGINEERING CONSULTANTS

For: Future Urban Group	REF: 19-035	204 Young Street
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Address: 1 Glenburnie Terrace, Plympton	DWG BY: AH	P: 08 8271 5999
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## **Hercules Expanderpark –1 + 2**

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#### **Hercules Carparking Systems 2004 Pty Ltd**

Unit 1, 87 Reserve Road  
ARTARMON NSW 2064  
Toll Free: 1800 649 603  
Ph: (02) 9966 5600 Fax: (02) 9966 5622  
[info@hercules.com.au](mailto:info@hercules.com.au)  
[www.hercules.com.au](http://www.hercules.com.au)  
[www.herculescarparking.com.au](http://www.herculescarparking.com.au)



## **FEATURES and BENEFITS of the HERCULES EXPANDERPARK -1 + 2:**

- 100% flexible design. Ability to be adapted to any pit length, width, depth or height.
- Commercial grade design.
- Meets European Standards.
- Extremely high level of reliability.
- Maximum length cars achieved through unique lifting at rear.
- Fully galvanised platforms.
- Platforms are high heel safe as standard.
- Fast 4 metre per minute lifting speed.
- 20 year structural warranty.
- 24 hour factory backed warranty.
- Extremely solid structural integrity.
- Unique draining system for any liquid which falls into the platforms, which takes the liquid to the rear of the platform and onto the extreme outer edges.
- Vehicles parked below are fully protected.
- Provides independent parking at a cost per park which is much lower than the cost of a conventional concrete carpark.



### **Hercules Carparking Systems 2004 Pty Ltd**

Unit 1, 87 Reserve Road  
ARTARMON NSW 2064  
Toll Free: 1800 649 603  
Ph: (02) 9966 5600 Fax: (02) 9966 5622  
[info@hercules.com.au](mailto:info@hercules.com.au)  
[www.hercules.com.au](http://www.hercules.com.au)  
[www.herculescarparking.com.au](http://www.herculescarparking.com.au)



**HERCULES**  
CARPARKING SYSTEMS

### **MECHANICAL FEATURES:**

- Very quiet operation.
- Industrial mechanical anti-drop locks.
- Anti-slip corrugated deck, protects both the vehicles and drivers from possible slip/damage.
- Touch screen control.
- Auto, manual and service modes.
- Cars can be called via 2 digit, 4 digit, 8 digit codes, or individual swipe cars, or remote control.

### **DESIGN FEATURES:**

- The Expanderpark –1 + 2 can be designed to fit into overall width of each parking space from 2.400 to 3.000 metres.
- The machine length can be varied from 5.500 metres to 6.000 metres.
- The machine height can be varied from 3.200 metres to 4.500 metres.
- The machine can be adapted to provide DDA spaces.
- Design can be reconfigured to allow another row of cars to be parked behind the front row of cars.
- Front frames can be attached to columns or placed in the aisle-way in front of the machine.
- If one row of cars is to be in front of another row, the front row of cars can also have a pit, courtesy of our unique slider system.

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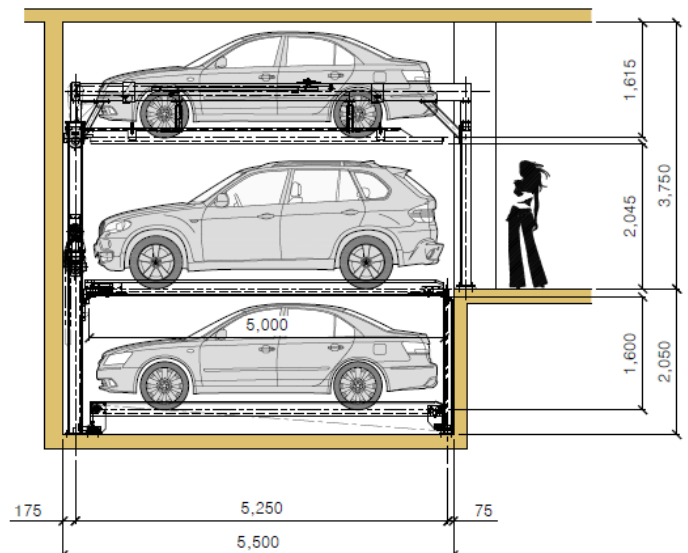
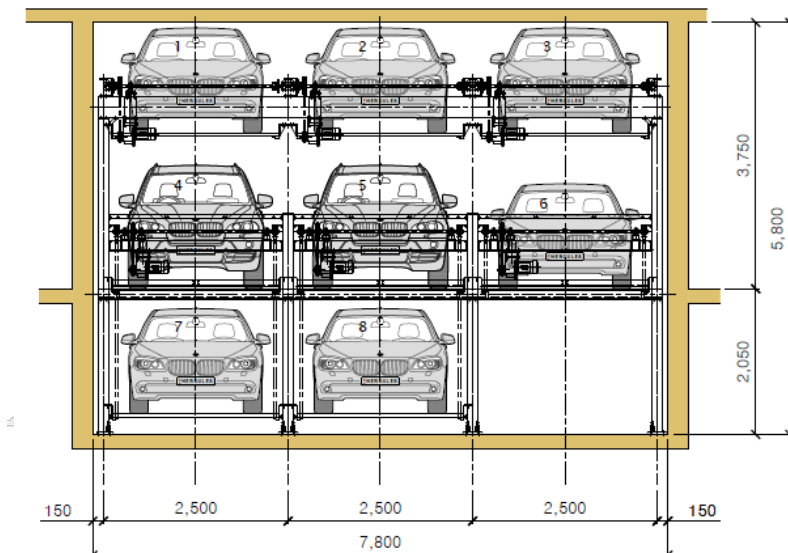


**HERCULES**  
CARPARKING SYSTEMS

## **SPECIFICATIONS OF THE EXPANDERPARK -1 + 2:**

MODEL	EXPANDERPARK -1 + 2
Lifting Motors	2.2 kW
Sliding Motors	0.4 kW
Standard Lift Capacity	2000 kg
Standard Configuration	2.5 metre width per car space, 5.5 metre length, 3.6 metre height. All can be varied.
Standard Car Dimensions	2.25 metre width, 5.0 metre length, 1.6-1.8 metre height. All can be varied.
Maximum No. of Cars in a row per system	No limit on total width. Groups of no more than 12 cars wide.
Maximum No. of Cars in multiple systems	No limit

SPECIFICATION			
AVAILABLE VEHICLE	LENGTH	5,000 mm	
	WIDTH	2,250 mm	
	HEIGHT	GL	2,000 mm
		1F, PIT	1,550 mm
	WEIGHT	2,000 kg	
LIFTING SPEED ( UPPER FLOOR )		4.0 m/min	
TRAVELLING SPEED ( GROUND FLOOR )		6.0 m/min	
LIFTING SPEED ( LOWER FLOOR )		4.0 m/min	
LIFTING MOTOR	GEARED MOTOR		
	2.2Kw × 4P × 1/90 (BRAKE TYPE)		
TRAVELING MOTOR	GEARED MOTOR		
	0.4Kw × 4P × 1/75 (BRAKE TYPE)		
POWER SOURCE		240/415V × 50 Hz × 3Φ ( 10A )	



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## APPENDIX 6. WASTE MANAGEMENT PLAN

PREPARED BY COLBY PHILLIPS ADVISORY

# **1 Glenburnie Terrace PLYMPTON:**

## *Apartment Development*

# **Waste Management Plan**

*Prepared for: The Griffin Group*

21 May 2019

### **- IMPORTANT NOTES -**

*This document has been prepared by Colby Phillips Advisory for a specific purpose and client (as named in this document) and is intended to be used solely for that purpose by that client.*

*The information contained within this document is based upon sources, experimentation and methodology which at the time of preparing this document were believed to be reasonably reliable and the accuracy of this information subsequent to this date may not necessarily be valid.*

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#### **Document verification**

<b>Description</b>	Waste Management Plan for: 1 Glenburnie Terrace PLYMPTON: Apartment Development		
<b>Version</b>	FINAL		
<b>Issued</b>	22/05/2019		
<b>Verification</b>	Prepared by	Checked by	Approved by
<b>Name</b>	C. Colby		C Colby
<b>Signature</b>			

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# 1 Introduction

This document presents a waste management plan (WMP) for the proposed (Residential Apartment) Development at 1 Glenburnie Terrace PLYMPTON (the “Development”). The Developer is The Griffin Group, Project Planner is Future Urban Group, Project Architect is Urbanise Architects, and Traffic Engineer is Phil Weaver & Associates. The Development is in the City of West Torrens (Council).

The WMP explains how the Development would 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

Per plans (Drawings, Nos. PL-01 to PL-10, issued 14/5/18) and other information provided by the Project Architect, the Development is on a ca. 1,018m<sup>2</sup> site – see Ground-level plan in Figure 1 overleaf – and comprises:

- *Single five-storey apartment building on corner of Gray St and Glenburnie Tce with 32x2-bed apartments on Levels 1 to 4 and car parking at Ground Level*

*Note: Figure 1 overleaf illustrates some of the proposed waste management arrangements described later herein.*

Table 1 below summarises the Development’s land use metrics (for waste system design).

- *This table 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.*

**Table 1 – Summary of land uses for the Development, their WRGR Description(s) and relevant Development Metric(s)**

Land Use	Description	Site Location	Land Use Type/WRGR Classification*	Development Metric(s)	
Apartment Building	Residential Dwellings	Levels 1 - 4	High Density Residential Dwelling	32	Dwellings
				64	Bedrooms
	Public access / lobby areas	Ground Level	Showroom	50	m <sup>2</sup> GFA Provision

*\* Per classification for Waste Resource Generation Rates (WRGRs) in the State Guidelines (Zero Waste SA, 2014)*





## 3 Design Assumptions

### 3.1 Council Requirements

This type of Development is not compatible with the (current or future) Council kerbside collection service due to its size. It would therefore require a skip or bulk bin collection service using a rear-lift truck. Previous discussions (by Colby Phillips Advisory) with Council on waste management for other similar developments proposed in the City of West Torrens have identified a range of general preferences or requirements for design of waste systems in these types of developments. These preferences or requirements include:

- Collection access – On-site collection is desired, with forward entry-exit preferred, but reverse entry-forward exit acceptable so long as it can be demonstrated as safely achievable.
  - *On-street collection (off main roads) may be acceptable in certain circumstances but must be confirmed with Council in advance.*
  - *The collection access arrangement must be supported by traffic assessment including swept path modelling assuming an at least 8.8m MRV sized vehicle.*
  - *The collection access design should be “future-proofed” to enable a future Council skip bin collection service.*
- Design and operation –
  - *Design should align to South Australian Better Practice Guide – Waste Management in Residential or Mixed-Use Developments (Zero Waste SA, 2014).*
  - *Residents should have access to a 3-bin equivalent service (in line with Waste Hierarchy expectation, Council recycling objectives, and to exempt waste collected from a further resource recovery requirement<sup>1</sup>):*
    - *General waste;*
    - *Dry recycling; and*
    - *Food waste.*
  - *Access to waste disposal should be convenient and accessible to residents including mobility impaired residents.*
  - *Waste disposal and bin storage areas should be designed where possible to be unobtrusive and minimise visual detracting and nuisances, including screening from public view and neighbours.*
  - *Bin storage should provide for weekly collection frequency (which is what a future Council rear-lift service would most likely provide).*
  - *The waste system should provide convenient access for bin collection from waste storages to accommodate a future Council waste collection (i.e. The collection point should be within 30m of the bin storage area).*
  - *Collections should ideally be scheduled 7am-7pm weekdays and Saturdays and 9am-7pm Sundays to avoid potential noise nuisances in line with the South Australian Environment Protection Policy (Noise) Policy 2007 and Local Nuisance & Litter Control Act 2017.*
  - *Council may be willing to provide residents with access to their at-call hard waste collection service*  
*([www.westtorrens.sa.gov.au/CWT/content/Waste\\_and\\_recycling/Hard\\_waste](http://www.westtorrens.sa.gov.au/CWT/content/Waste_and_recycling/Hard_waste)) if site provision can be made and agreed with Council for suitable presentation and collection arrangements.*

---

<sup>1</sup> Per the South Australian Environment Protection Policy (Waste-to-Resources) Policy 2010



The waste system concept proposed in this WMP is therefore designed to reflect the above Council preferences or requirements. This included future-proofing the design so that Council could (in the future, if it elected to do so) introduce its own bulk bin collection service to the Development.

## 3.2 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 for residential development usually include general waste, recyclables and garden/food waste.
- **On-call services** – These involve non-frequent collections, such as Hard waste and are organised on an as-needed basis.
- **Maintenance services** – Some waste items (e.g. lighting in the common areas of apartment building) may 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	Apartment Building	
	Dwellings	Public Access Areas
<b>Routine (regularly scheduled)</b>	<ul style="list-style-type: none"> <li>• General Waste</li> <li>• Recycling</li> <li>• Food Organics</li> </ul>	<ul style="list-style-type: none"> <li>• General Waste</li> </ul>
<b>On-call (as needed)</b>	<ul style="list-style-type: none"> <li>• Hard/E-waste</li> </ul>	
<b>Maintenance (waste removed by contractor)</b>	<ul style="list-style-type: none"> <li>• Garden Waste (Common Areas)</li> <li>• Lighting (where applicable)</li> </ul>	
<b>External (by tenant off-site)</b>	<ul style="list-style-type: none"> <li>• Lighting</li> <li>• Printer Cartridges</li> <li>• Batteries</li> </ul>	

## 3.3 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 lighting, printer cartridge or battery waste. Volumes of these waste items, however, are relatively small, and thus, have not been estimated.

**Table 3 – Estimated waste & recycling volumes (Litres/week) for proposed development.** *N/A – Not Applicable; NE – Not estimated*

Waste/Recycling Service	Apartment Building	
	Dwellings	Public Access Areas
	L/week	L/week
General Waste	1,920	184
Dry Comingled Recycling	1,600	
Food/Garden Organics	640	
Hard waste	448	9
E-waste	80	0.7
Lighting waste	Not estimated (Minor volumes)	
Printer Cartridges/Batteries	NE (minimal volumes)	
Garden Waste	Not applicable (Maintenance waste)	
TOTAL	1,978	290

### 3.4 Project Team input

Discussions were held with the Project Architect (Urbanise Architects) and the Traffic Consultant (Phil Weaver & Associates), to confirm most appropriate types of waste storage, the location and space available for this storage to be located, and how waste and recycling bins could be collected. These requirements and/or preferences were also incorporated into the design and operation of the waste system proposed herein.

## 4 Waste Management System

### 4.1 Waste Storage Area(s)

There would be there the following waste bin storage area (Waste Storage Area) at the Development, located at Ground Level as shown in Figure 1 (on pg. 3).

- **Apartment Building Waste Area –**
  - *This would be shared local disposal and waste storage room for all residents, who would access the room via lift (to Ground Level) and car park area to dispose their waste and recycling.*
  - *On designated collection days, the waste contractor for each Routine service would reverse their truck from Glenburnie Terrace into the Ground Level car park, temporarily park, retrieve bins from this room, empty them, then return empty bins*

Table 4 below gives a schedule of recommended bin storage in the above Waste Storage Area for Routine Services (required by the Development). This Table includes for each service:

- *Number and type of bins;*
- *Collection frequency (expected or proposed); and*
- *Service provider and expected collection truck type.*

Potential configurations in these Waste Storage Areas for recommended bin storage (per Table 4) are illustrated in Figure 1.

- *This illustration demonstrates that adequate space is provided or should be available in this Waste Storage Area 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**

Waste Storage Area(s)	Location	Routine Service	Estimated Waste/Recycling Volumes (L/week)	Provider	Collection Frequency (Events/week)	Max. Bins/Items Stored & Collected (per Event)		
						No.	Size (L)	Type
<b>Apartment Building</b>	<i>Ground Level car park area</i>	General Waste	2104	Private/ Future Council	Weekly	2	1,100	Skip
		Dry Comingled Recycling	1600		Weekly	2	1,100	Skip
		Food/Garden Organics	640		Weekly	1	660	Skip

### 4.2 System Operation – Routine Services

#### 4.2.1 User Storage

All residents would be provided with suitable kitchen bins with handles to enable easy carriage from dwellings to their Waste Storage Areas for disposal, e.g. see Figure 2 overleaf:

- 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: West Torrens' residents can collect a free kitchen caddy and one roll of compostable bags from the Civic Centre at 165 Sir Donald Bradman Drive. Additional bags are also available free from the Civic Centre and the Hamra Centre Library. See:*

*[https://www.westtorrens.sa.gov.au/CWT/content/Waste\\_and\\_recycling/Food\\_waste\\_recycling](https://www.westtorrens.sa.gov.au/CWT/content/Waste_and_recycling/Food_waste_recycling)*

{Cont. overleaf}



**Figure 2 – Examples of suitable waste and recycling kitchen bins:** (a) General waste & recycling - 2x20L Buckets with carry-handles in pull-out draw (Adelaide City Council, 2016 ); and (b): Bench-top food waste kitchen caddy with handles (Source: [https://www.westtorrens.sa.gov.au/CWT/content/Waste\\_and\\_recycling/Food\\_waste\\_recycling](https://www.westtorrens.sa.gov.au/CWT/content/Waste_and_recycling/Food_waste_recycling))

#### 4.2.2 Local Disposal (inc. Transfer Pathways)

The Waste Storage Area (described in Section 4.1) would be the local disposal point. Residents would carry waste/recycling (in kitchen bins) from their apartments via corridors, Lift, Lobby and car park to the Waste Storage Area at Ground Level and dispose into shared bin(s) provided in this area (per Figure 1).

- *The transfer path from apartments to the Waste Storage Area should be free of steps, grades  $\leq 1:12$ , with appropriate hard/even surfaces, and wide enough (i.e.  $\geq 0.9\text{m}$ ) for residents to safely navigate when carrying or transferring their waste or recycling.*

#### 4.2.3 Waste/Recycling Collection

On designated collection days, the waste contractor for each Routine service would reverse their truck from Glenburnie Terrace into the Ground Level car park (per Figure 1), temporarily park, retrieve bins from the Waste Storage Area, empty them, then return empty bins to the Waste Storage Area.

- *All collection or bin transfer paths should be free of steps, grades  $\leq 1:10$ , with appropriate hard /even surfaces, and wide enough to accommodate the types of bins/skips being transferred.*

#### 4.2.4 Collection Point & Collection events

The collection point would in the Ground Level car park where the rear-lift truck would temporarily park during collection events (per Figure 1).

- *Collections (for each service) would be weekly (on same or different day), and the time required for collection events should be less than 5-10min (per service) to lift all bins (per event for each service).*
- *Scheduling of collections should be between 7am – 9pm weekdays or Saturday or 7am-9pm Sunday.*
  - *The timing should ideally be outside peak traffic periods along Gray St and access activity to and from the Ground Level car park by residents.*
  - *The final timing should be negotiated with the waste service provider when the building becomes operational.*

#### 4.2.5 Collection Vehicles & Access

These rear-lift trucks can come on a variety of sizes, but Council has requested that provision is made for an at least *MRV-sized vehicle (i.e. 8.8m in length)*.

- *Access to the Ground level car park by reverse entry and forward exit from and to Glenburnie Ave has reviewed and confirmed by swept path modelling performed by the Traffic Engineer – please refer to Traffic Engineer’s separate report for more details.*
- *The Ground Level car park should have a clearance (from floor to soffit) of at least 4m (based on Elevation drawings in the Plans), which should accommodate rear-lift (and other type of trucks) trucks providing these (and other) services.*
- *Consequently, there should be no issues with providing this service at the Development.*

### 4.3 At-call Hard/ E-Waste collection services

Residents should be able to access the Council’s at-call hard waste collection, where each household is eligible for two (free) hard waste collections per year (see:

[www.westtorrens.sa.gov.au/CWT/content/Waste\\_and\\_recycling/Hard\\_waste](http://www.westtorrens.sa.gov.au/CWT/content/Waste_and_recycling/Hard_waste)), as follows.

- *The Community / Strata Corporation (on residents’ behalf) should inquire with Council regarding how residents can access the Council hard waste collection when the building becomes operational, including establishing suitable arrangements and a (kerbside or on-site) presentation location for the service.*
  - *This presentation location can be at front of Development along Glenburnie Tce or even along Gray St.*
- *In event that a Council service is not available, the Community / Strata Corporation would facilitate private hard waste collection services for residents.*
  - *This would involve at-call hard waste collection by a private contractor organised by residents direct from their dwellings (or using a temporary on-site presentation area).*
  - *The waste contractor could temporarily use the Ground Level car park, accessing it in the same way as described for Routine Services above.*

### 4.4 Maintenance Services

These will include garden waste and lighting in common areas, which will be handled by maintenance contractors that will take waste generated off-site at end of maintenance activity; and thus, on-site storage is not needed.

### 4.5 External Services

Residents can drop-off these waste items for disposal at external locations, following advice provided by Council: [https://www.westtorrens.sa.gov.au/CWT/content/Waste\\_and\\_recycling](https://www.westtorrens.sa.gov.au/CWT/content/Waste_and_recycling).

### 4.6 Collection & Traffic Issues

The proposed collection arrangements were described in Section 4.2 above.

- *For rear-lift collection services to the Development, we recommend that collections should be scheduled on weekdays or Saturdays and between 7am and 9pm on Sundays between 7am and 7pm, ideally at times outside peak access periods (by residents) to (and from) the Development and peak traffic periods along Gray St.*
  - *The final timing should be negotiated with the waste service provider when the building becomes operational.*
- *There are 3 Routine Service collection events proposed per week which, apart from entry/exit manoeuvres from Glenburnie Tce, would occur on-site within the Ground Level car park, each event lasting for a period of 5-10min.*

- *The Traffic Engineer has already confirmed (by swept path modelling) that (MRV-sized) rear-lift trucks can access to the Ground level car park by reverse entry and forward exit from and to Glenburnie Ave – please refer to Traffic Engineer’s separate report for more details*
- *We do not expect that the collection services proposed for the Development should prove problematic for local traffic or cause any other significant traffic issues.*

## 4.7 Bin Cleaning

A temporary on-site bin cleaning area (for Routine Service bins) is provided on-site and multipurposed within the Ground Level waste area – see Figure 1.

- *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 (temporary) bunds and screens for use during bin wash events.*
- *Bin washing activity would be managed by the Strata/Community Corporation.*

As an alternative to on-site bin washing, bin cleaning may be outsourced to an external contractor, e.g. <http://binforce.com.au/>).

- *These external contractors generally have self-contained bin washing systems on back of ute or truck that enable them to clean bins on site – **Error! Reference source not found.** overleaf.*
  - *Or some will remove bins from site, replacing them with an empty spare, clean the bins, then return them to site.*
- *Their vehicles can usually access basements, undercrofts or other on-site covered parking areas where waste storage areas are located (e.g. to min. clearance of 2.2m).*

## 4.8 Operation, Management & Communication

- **Waste system operation and management –**
  - *The Community / Strata Corporation would be responsible for managing and operating the waste system at the site.*
    - *Council may be consulted on waste system operation and management and may elect to provide advice and support to the Community / Strata Corporations and their residents on waste management practices.*
- **Building User Manual –**
  - *Advice and instructions on waste management and using the waste systems should be included by the Developer in the Building User Manuals developed for residents, including contact information for further information, questions and issues.*
    - *Council may be consulted on this advice and instructions and can provide relevant information to include in the Building User Manual.*
    - *This may include advice to residents on how to access Council hard waste services and/or properly dispose of other waste / recycling items including lighting, batteries and hazardous household waste.*
- **Community/Strata title and/or tenancy arrangements for Apartment property owners and residents –**
  - *Obligations for residents and/or property owners to properly access, operate and use the waste systems provided would be written into the (various) Community/Strata plan(s) lodged with the Lands Titles Office, and should be included in rental or lease tenancy agreements with non-property owner residents.*
- **Emergency Response / Site Managements Plan –**
  - *Should include response measures (or contingencies) for:*
    - *Waste collection services suspended or not available; and*
    - *Lift access failure (to Ground Level Waste Storage Areas, with focus on impact and contingency measures for mobility impaired residents).*

## 4.9 Other Waste System Design or Management Issues

The following should be considered and/or implemented. More details for some of these items can be resolved at detailed design stage with the waste contractor 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 in event that they provide a future collection service.*
- 2) **Signage** – Appropriate signage in all shared 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 State Guideline (Zero Waste SA, 2014) for other Waste Storage Areas.*
  - *Council should be consulted on signage for 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, including ensuring that surfaces and floors around disposal areas, transfer pathways and waste storage and/or presentation areas are kept clean and hygienic and free of loose waste and recycling materials.*
      - *The Waste Storage area should be graded to a sewer drain with tiling or epoxy coating to floors and adjacent walls to waterproof the area and for cleaning.*
  - Odour Control –
    - *The Waste Storage area should be mechanically ventilated to ensure negative pressure for control of odours.*
      - *The ventilation would extract to atmosphere, to prevent odour build up.*
      - *The extraction vent discharge location would be selected to avoid impact on residents, tenants and/or neighbours.*
    - *It should be a requirement for food waste bin(s) that lids are closed after disposal events.*
  - Bin cleaning (& On-site Bin Wash Area) –
    - *As already mentioned, a temporary on-site bin cleaning area is provided on-site within the Waste Storage Area – see Figure 1.*
      - *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 (temporary) bunds and screens for use during bin wash events.*
      - *Bin washing activity would be managed by the Strata/Community Corporation.*
    - *Alternatively, bin cleaning may be outsourced to an external contractor as part of the above hygiene and odour management programs at the Development.*
- 4) **Access & security** –
  - *Access to the Apartment Waste Storage Areas for disposal or collection should be secure and only accessible by key or fob or access code.*
    - *This key or fob or access code would be provided to residents and waste contractor(s) delivering services to the Development.*
    - *CCTV is recommended to monitor waste disposal practices in all Waste Storage Areas.*



## 5 References

Adelaide City Council. ( 2016 ). *Guide to waste & recycling bins*.

Zero Waste SA. (2014). South Australian Better Practice Guide – Waste Management in Residential or Mixed Use Developments.



## APPENDIX 7. LANDSCAPING PLAN

PREPARED BY LCS LANDSCAPES

17 May 2019

Milly Nott  
Future Urban Group  
GPO Box 2403  
Adelaide SA 5001

**Re: Covering letter for proposed landscape development of 1 & 1a Glenburnie Terrace Plympton**

To whom it may concern

The purpose of this letter is to provide Landscape Architectural Design advice for the proposed development at 1 & 1a Glenburnie Terrace Plympton SA and accompanies the landscape concept LS.028.19 dated 17.05.2019.

The landscape design incorporates low maintenance hardy trees and shrubs that provide good amenity for the site. Species have been selected for their drought tolerant characteristics and proven success in these types of landscapes within the Adelaide area.

The landscape treatments aim to soften the built form with use of newly proposed street trees, attractive climbing plants and feature planting. The *Trachelospermum jasminoides* is hardy and well suited for the northern aspect. This climber is intended to spread up the building façade by the incorporation of a tensile cable system. This is to be fixed vertically to the buildings external structure. A mix of *Dianella brevicaulis*, *Lomandra 'Katrinus Deluxe'* and *Anigozanthos 'Amber Velvet'* creates uniformity and interest at ground level with low maintenance foliage and long lasting seasonal colour.

Appropriate soil zones have been designed through strategic placement of podium level garden beds and raised planters. Small sized feature trees such as *Tristanopsis laurina 'Luscious'* and a hardy mix of shrubs and strappy species have been selected for these zones to maximise the inclusion of greenspace across the site. A raised internal planter approx. 800mm (H) provides contrast through foliage, form and texture. This planter is located within the buildings central void and will be in shade during most parts of the day with limited access to rain.

Selection of a suitable light weight soil mix for planters and inclusion of organic matter will assist with the establishment of these landscaped areas. An automatically controlled irrigation system with inline drippers is crucial for the landscape as a whole. Water connections would be required from adjacent areas where there are landscape treatments. Water runoff and soakage through the soil profile is to be engineered offsite.

Maintenance at podium level would need external access through the apartments to access the landscape. Maintenance requirements would be simple horticultural tasks such as pruning, weeding and fertilizing.

Overall the landscape areas for the proposed development are appropriate to the site's conditions and restrictions. The planting palette selected will provide vital greenspace and compliment the architecture of the development.

Please don't hesitate to contact me for further information.

Yours faithfully,



Steve Kindstrom  
Registered Landscape Architect #3222  
skindstrom@lcslandscapes.com.au  
Mobile: 0448 075 035









PROPOSED LANDSCAPE - LEVEL 1  
SCALE 1:100 AT A1

MOOD IMAGERY



REFER TO GROUND LEVEL  
LANDSCAPE ON SHEET 1

VOID GARDEN ZONE  
• Aspidistra elatior  
• Rhaps excelsa  
• Clivia miniata

LARGE GRC PLANTER BOXES  
WITH SMALL FEATURE TREES  
• Tristaniopsis laurina luscious  
WITH UNDER-PLANTING OF  
GROUND COVERS TO CASCADE  
OVER POTS  
• Trachelospermum asiaticum

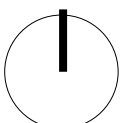
SCREENING SHRUBS TO  
SOFTEN BOUNDARY  
• Murraya paniculata

PODIUM PLANTER/VENT WITH  
CASCADING PLANTS  
• Helichrysum petiolare

UNDER-PLANTING WITH A  
MIX OF SMALL SHRUBS AND  
STRAPPY LEAF PLANTS  
• Liriope 'Evergreen Giant'  
• Rhapsiolepis umbellata

PLANTING SCHEDULE

SPECIES	COMMON NAME	POT SIZE	INDICATIVE SIZE (Height x spread)
GROUND COVERS			
Helichrysum petiolare	Licorice plant	140mm	300mm x 900mm
Trachelospermum asiaticum	Groundcover Jasmine	140mm	300mm x 2m
LOW/ MEDIUM SHRUBS + STRAPPYS			
Aspidistra elatior	Cast Iron Plant	140mm	700mm x 700mm
Clivia miniata	Bush lily	140mm	600mm x 600mm
Liriope 'Evergreen Giant'	Turf Lily	140mm	600mm x 600mm
Rhapsiolepis umbellata	Indian Hawthorn	140mm	500mm x 800mm
TALL SHRUBS			
Murraya paniculata	Orange jessamine	300mm	3m x 2m
TREES			
Rhaps excelsa	Lady Palm	45L	2m x 4m
Tristaniopsis laurina 'Luscious'	Kanooka	45L	6m x 6m







## APPENDIX 8. STORMWATER MANAGEMENT PLAN

PREPARED BY MLEI CONSULTING ENGINEERS



29<sup>th</sup> of April 2019

Reference: 2019-8832

Andrew Burrow  
Secon Consulting Engineers  
456 Pulteney Street  
Adelaide SA 5000  
Email: [andrewb@secon.net.au](mailto:andrewb@secon.net.au)

Dear Mr. Burrow,

**PRELIMINARY STORMWATER DRAINAGE ADVICE FOR DEVELOPMENT AT 1 GLENBURNIE TERRACE,  
PLYMPTON**

MLEI have been engaged to assess the implications of a potential development at 1 Glenburnie Terrace, Plympton in relation to the existing adjacent stormwater drainage system and provide a preliminary stormwater drainage assessment based on our findings.

**Site Description**

The subject site has an approximate area of 1020m<sup>2</sup>. It is bounded to the north and east by Glenburnie Terrace and Gray Street, respectively, and existing residential allotments along the western and southern boundaries. The subject site is relatively flat with the high point being the existing building located central to the lot with a gentle grade of approximately 1.5% towards Glenburnie Terrace.

The existing site consists predominately of an existing residential allotment with surrounding landscaped areas. The existing building currently discharges via a street water table outlet along Glenburnie Terrace, which is in turn captured by the side entry pit located on the north east corner of the site.

**Proposed Development**

The potential development comprises of a 4-storey apartment with a ground level undercroft car parking area, providing vehicle access onto Glenburnie Terrace.

Adopting the standard stormwater requirements of the City of West Torrens Council the proposal will include the following;

- Stormwater detention system to restrict the post-development 20-year storm event back to the pre-development 20-year storm event. Adopt pre-development runoff coefficient of 0.25.
- Stormwater to be discharged to Glenburnie Terrace kerb and water table.
- Stormwater quality treatment effectiveness to achieve the following:
  - Total suspended solids (TSS) – 80% reduction
  - Total phosphorus (TP) – 60% reduction
  - Total nitrogen (TN) – 45% reduction
  - Total gross pollutants – 90% reduction

## Catchment Analysis

Based upon the existing site conditions and the proposed development, MLEI have determined that a total detention volume required for the 1 in 20-year storm event limited to the pre-development flow rate during the 1 in 20-year storm event with an adopted runoff coefficient of 0.25 would be approximately 16,500L. The rainwater detention tank is to be located under the ground level carpark, located downstream of the proposed stormwater treatment unit to prevent silt build up within the tank system.

## Music modelling

The industry recognised software package 'MUSIC' by eWater has been used to assess the reduction in pollutants for this development. Unless noted below as an input, the default data from eWater has been used in the assessment.

The treatment train utilises an Enviro Australis 'G' series pollutant trap located under the ground floor carpark area to treat the stormwater runoff.

The following reduction in pollutants were achieved with the inclusion of the proposed treatment train as shown in Figure 1.

Pollutant Type	City of West Torrens requirement	Treatment train effectiveness
Total suspended solids	80%	85%
Total phosphorus	60%	65%
Total nitrogen	45%	45%
Total gross pollutants	90%	90%



Figure 1 - Proposed treatment train

The achieved reductions are a betterment than the requirements outlined by the City of West Torrens and in the opinion of MLEI is an acceptable solution for this development.

We trust that the preliminary stormwater drainage advice has demonstrated a strategy to ensure the receiving stormwater drainage channel is not adversely affected by the potential development at 1 Glenburnie Terrace, Plympton. If you have any queries regarding this letter, please contact the undersigned on 8231 2832 or by email [hpho@mlei.com.au](mailto:hpho@mlei.com.au).

Kind Regards,  
**MLEI Consulting Engineers**

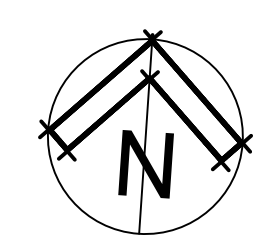
**Huy Pho** B.E(Civil)  
**Civil Engineer**

*Enc:*

- *Stormwater management and site works plan*
- *Stormwater calculations*



GLENBURNIE TERRACE



LEGEND


- XX.X% SURFACE GRADE AND DRAINAGE DIRECTION  
XX.XX x DESIGN SPOT LEVEL  
XX.XX EX x EXISTING SPOT LEVEL  
XX.XX TK x EXISTING TOP OF KERB  
XX.XX BK x EXISTING BOTTOM OF KERB  
XX.XX WT x EXISTING WATERTABLE LEVEL
- BUILDING** EXISTING OR PROPOSED BUILDING IDENTIFICATION  
FFL: X.XX FINISHED FLOOR LEVEL  
DP O INDICATIVE 90mmØ DOWN PIPE (REFER ARCHITECTURAL DRAWING FOR SPECIFICATIONS)  
300 SQ JUNCTION BOX  
450 SQ GRATED INLET PIT  
SUMP FITTED WITH DUAL PUMP SYSTEM CAPABLE OF A 2.0L/s DESIGN FLOW WITH A BACK-UP POWER SUPPLY TO ACCOUNT FOR PUMP FAILURE. GLOBAL WATER DAP11 PUMP STATION OR APPROVED EQUIVALENT.  
SUMP FITTED WITH SINGLE PUMP SYSTEM TO ALLOW DRAINAGE OF CAR STACKERS DURING EMERGENCIES. GLOBAL WATER DAP06 PUMP STATION OR APPROVED EQUIVALENT  
SUMP FITTED WITH SINGLE PUMP SYSTEM FOR REUSE AS VERGE IRRIGATION. IRRIGATION SYSTEM TO BE INSTALLED BY PLUMBER. PUMP TO BE ACTIVATED WHEN REQUIRED. PUMP SUMP INVERT TO BE AS REQUIRED FOR PUMP OPERATION.
- > RISING MAIN  
---> uPVC STORMWATER PIPE MIN. 0.5% GRADE UNO. SIZE AS SHOWN
- DRIVEWAY PAVING (REFER ARCHITECTURAL DRAWING FOR SPECIFICATIONS)  
BLOCK PAVING (REFER ARCHITECTURAL DRAWING FOR SPECIFICATIONS)  
LANDSCAPE/GARDEN AREA  
ENVIRO AUSTRALIS 'G' SERIES GROSS POLLUTANT TRAP
- 16,500L UNDERGROUND DETENTION TANK (TO BE TRAFFICABLE)

GENERAL NOTES

- THESE DRAWINGS ARE NOT CADASTRAL PLANS AND MUST NOT BE USED IN DETERMINING PRECISE DETAILS WITH RESPECT TO BOUNDARIES.
- ALL DIMENSIONS AND LEVELS SHALL BE VERIFIED ON SITE.
- SPOIL TO BE STOCKPILED AS DIRECTED BY THE SUPERINTENDENT AND EXCESS NOT USED IS TO BE REMOVED FROM SITE BY CONTRACTOR.
- ANY REQUIRED FILLING OF THE SITE IS TO BE CARRIED OUT IN ACCORDANCE WITH AS1289.
- SITES REQUIRING LEVEL 1 SUPERVISION ARE TO SATISFY AS3789.
- THESE DRAWINGS ARE A SCHEMATIC REPRESENTATION OF SERVICES INFORMATION CONTAINED IN THE SITE SURVEY. OTHER SERVICES MAY EXIST, WHICH WERE NOT KNOWN OR IDENTIFIED AT THE TIME OF SURVEY. THE INFORMATION CONTAINED IN THESE DRAWINGS IS INDICATIVE ONLY, AND REFERENCE SHOULD BE MADE TO THE RELEVANT AUTHORITIES DOCUMENTATION TO CONFIRM ACCURACY AND COMPLETENESS. WHERE INFORMATION IS AVAILABLE, THE SUB-SURFACE SERVICES INSTALLED BY CONTRACTORS OTHER THAN THE AUTHORITIES HAVE BEEN SHOWN, BUT ADDITIONAL UNDOCUMENTED SERVICES MAY BE PRESENT. SHOULD THE CONTRACTOR BELIEVE THAT SUB-SURFACE SERVICES ARE AT RISK OF DAMAGE DURING CONSTRUCTION, THE CONTRACTOR SHOULD NOTIFY THE RELEVANT AUTHORITIES AND ESTABLISH THE EXACT LOCATION OF THE SERVICE.
- FOOTPATHS TO BE LOCALLY REINSTATED WHERE REQUIRED AS A RESULT OF DRIVEWAY CROSSOVER WORKS TO THE SATISFACTION OF COUNCIL.
- THE FINISHED SURFACE SHALL BE EVENLY GRADED BETWEEN DESIGN SURFACE LEVELS.
- EXISTING SITE LEVELS TO BE MAINTAINED WHERE DESIGN LEVELS ARE NOT NOTED.
- 20mm STEPDOWN HAS BEEN ALLOWED FOR, FROM GARAGE TO DRIVEWAY LEVEL.
- PROVIDE CONCRETE PLINTH AT BOUNDARY WHERE REQUIRED UNLESS OTHERWISE SPECIFIED.
- DEMOLISH AND REMOVE ALL EXISTING INSTALLATIONS WHICH ARE TO BE AFFECTED BY NEW WORKS. EXTENT OF DEMOLITION TO BE CONFIRMED ON SITE WITH THE SUPERINTENDENT PRIOR TO WORKS.
- CONTRACTOR TO ADJUST LIDS OF EXISTING SERVICE PITS TO MATCH FINISHED SURFACE LEVEL. PROVIDE HEAVY DUTY COVER IF IN PAVED AREA TO THE REQUIREMENTS OF THE RELEVANT AUTHORITY, IF APPLICABLE. RELOCATE SERVICES AS REQUIRED.
- CONFIRMATION FROM COUNCIL MUST BE OBTAINED FOR THE REMOVAL OF ANY TREES THAT MAY BE OF SIGNIFICANCE.
- ALL STORMWATER DRAINAGE TO BE IN ACCORDANCE WITH AS3500.
- DRIVEWAY CONSTRUCTION TO BE IN ACCORDANCE WITH AS2890 PART 1: OFF-STREET CAR PARKING.
- DRAWINGS TO BE READ IN CONJUNCTION WITH ARCHITECTURAL DRAWINGS AND ANY OTHER ASSOCIATED SERVICES DRAWINGS.
- PROVIDE ADEQUATE PROTECTION OR COVER TO STORMWATER PIPES SUBJECTED TO VEHICULAR LOADING.
- STORMWATER LAYOUT IS INDICATIVE ONLY AND MAY CHANGE TO SUIT SITE CONDITIONS HOWEVER THE INTEGRITY OF THE STORMWATER SYSTEM SHALL BE MAINTAINED AT ALL TIMES.

REVISION			
ISSUE	DATE	DESCRIPTION	INITIAL
A1	29/04/2019	ISSUE FOR APPROVAL	RD
A2	15/05/2019	ISSUE FOR APPROVAL	RD
A3	17/05/2019	ISSUE FOR APPROVAL	HP

ISSUED FOR APPROVAL  
NOT FOR CONSTRUCTION

 Consulting Engineers  
TALENTED | APPROACHABLE | RESPONSIVE | PIONEERING  
452 Pulleney street  
Adelaide SA 5000  
Telephone (08) 8231 2832  
Facsimile (08) 8311 1742  
www.mlei.com.au

DRAFTER  
RD

ENGINEER  
HP

MANAGER  
TN

PROJECT  
1 GLENBURNIE TCE,  
PLYMPTON

CLIENT  
SECON CONSULTING  
ENGINEERS

DATE  
APR 2019

PROJECT NUMBER  
2019-8832

DRAWING SCALE  
1:100

DRAWING NUMBER  
C01

SHEET SIZE  
A1

REV  
A3

DO NOT SCALE FROM THIS DRAWING

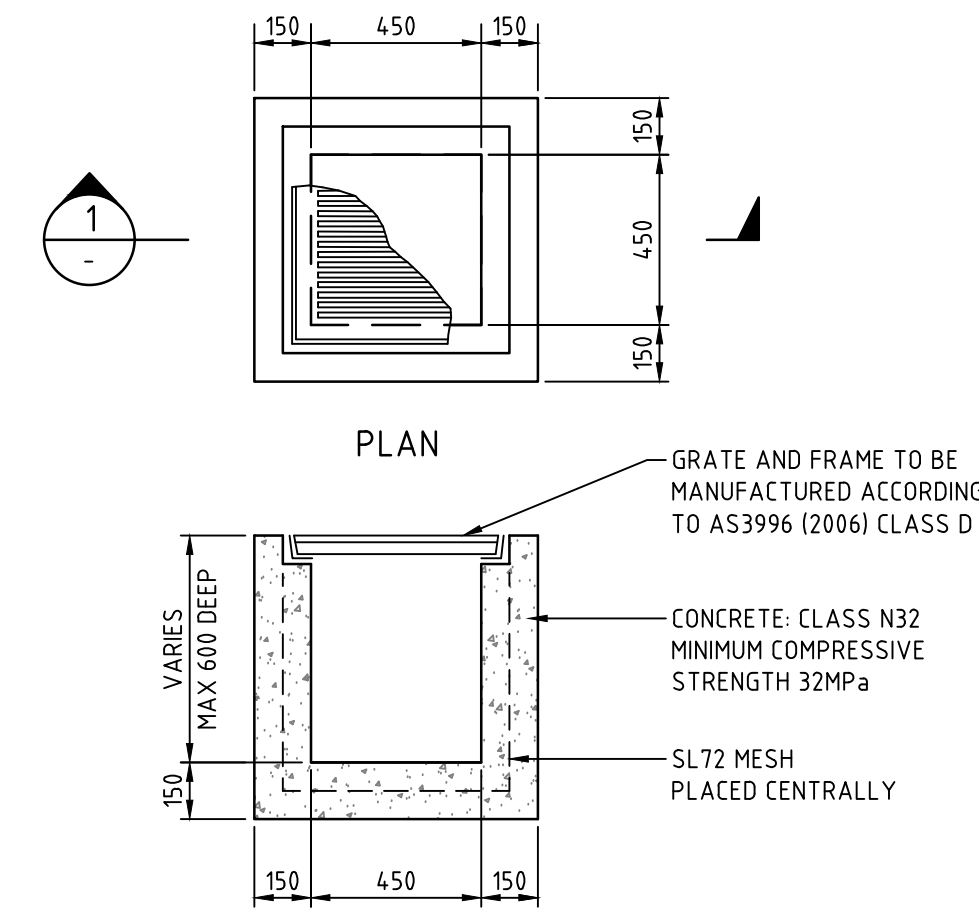
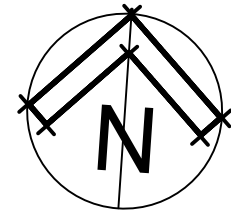
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STORMWATER MANAGEMENT  
AND SITE WORKS PLAN

DRAWING NUMBER  
C01

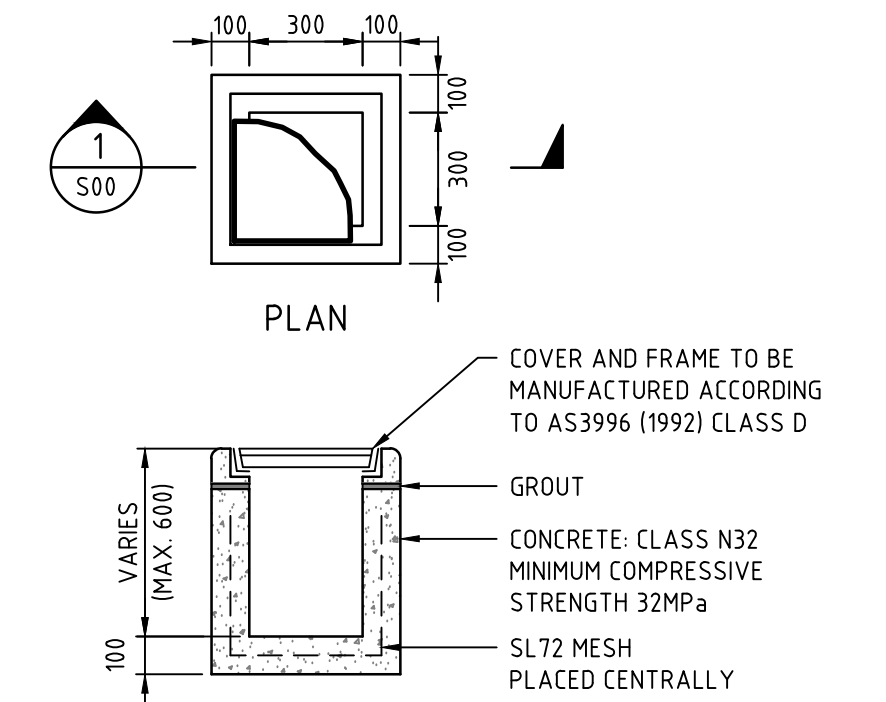
SHEET SIZE  
A1

REV  
A3






450 X 450 GRATED INLET PIT  
SCALE: 1:20



300x300 JUNCTION BOX  
SCALE: 1:20

REVISION			
ISSUE	DATE	DESCRIPTION	INITIAL
A1	29/04/2019	ISSUE FOR APPROVAL	RD

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 Consulting Engineers TALENTED   APPROACHABLE   RESPONSIVE   PIONEERING		
452 Pulteney Street Adelaide SA 5000 Telephone (08) 8231 2832 Facsimile (08) 8311 1742 www.mlei.com.au		
DRAFTER RD	ENGINEER HP	MANAGER TN

PROJECT 1 GLENBURNIE TCE, PLYMPTON

CLIENT SECON CONSULTING ENGINEERS		
DATE APR 2019	PROJECT NUMBER 2019-8832	DRAWING SCALE 1:100
DO NOT SCALE FROM THIS DRAWING		

DRAWING TITLE		
STORMWATER MANAGEMENT PLAN, LEVEL 1 & DETAILS		
DRAWING NUMBER	SHEET SIZE	REV
C02	A1	A1



Reference: 2019-8832

Project: 1 Glenburnie Tce, Plympton

Checked by: CJG

Designer: HP

Date:

18/04/2019

Index: 1

STORMWATER CALCULATIONS		REF./COMMENT
<p><b>Adopting the following City of West Torrens stormwater requirements:</b></p> <ul style="list-style-type: none"><li>- Restrict post-development 20-year storm event back to the pre-development 20-year storm event</li><li>- Adopt pre-developmen runoff coefficient of 0.25</li></ul> <p>- Stormwater quality treatment effectiveness to achieve the following: 80% reduction in Total suspended solids (TSS) 60% reduction in Total phosphorus (TP) 45% reduction in Total nitrogen (TN) 90% reduction in Total gross pollutants</p> <p><b>Result:</b></p> <ul style="list-style-type: none"><li>- Required detention volume of 16,500L</li><li>- Adopt an Enviro Australis 'G' Series treatment device which achieves the following: 85% reduction in TSS 65% reduction in TP 45% reduction in TN 90% reduction in Total gross pollutants</li></ul>		



Reference: 2019-8832

Project: 1 Glenburnie Tce, Plympton

Checked by: CJG

Designer: HP

Date: 18/04/2019

Index: 2

### STORMWATER CALCULATIONS

### REF./COMMENT

#### Council Requirements

	Pre	Post
ARI (years)	20	20
tc (min)	5	5

#### Site BOM IFDs

I(10/1) (mm/h)	25
Pre-dev I(20/5) (mm/h)	30
Post-dev I(20/5) (mm/h)	30

BOM IFD

BOM IFD

BOM IFD

#### Council Specified Pre-Development Runoff Coefficient

Yes	0.25
-----	------

#### Pre-Development Flow

Site Surfaces	Area (m <sup>2</sup> )	f
Roof	227.84	1.0
Concrete/Paved/Bitumen	99.84	0.9
Landscaped	690.16	0.1

Pre-Development  
Catchment Plan

Total Area = 1017.84 m<sup>2</sup>  
favg = 0.380

C(10/1) = 0.100  
C10 = 0.404

C20 = 0.250

#### ARR Table 14.6

ARI (years)	Frequency Factor, F <sub>y</sub>
1	0.8
2	0.85
5	0.95
10	1
20	1.05
50	1.15
100	1.2

1017.84

ARR Eq. 14.12

ARR Eq. 14.11

ARR Eq. 14.13

Pre Development Flow, Q<sub>pre</sub> = 2.12 L/s

Q<sub>pre</sub> = 2.12

#### 5.3.2 Rational Method

##### (a) The Formula

As used in design, the formula of the Rational Method is:

$$Q_Y = 0.278 C_Y \cdot I_{t_c, Y} \cdot A \quad (5.1)$$

where  $Q_Y$  = peak flow rate (m<sup>3</sup>/s) of average recurrence interval (ARI) of  $Y$  years

$C_Y$  = runoff coefficient (dimensionless) for ARI of  $Y$  years

$A$  = area of catchment (km<sup>2</sup>)

$I_{t_c, Y}$  = average rainfall intensity (mm/h) for design duration of  $t_c$  hours and ARI of  $Y$  years.

The value of 0.278 (or 1/3.6) is merely a conversion factor to balance the units used. If area is in hectares instead of km<sup>2</sup>, the conversion factor is 0.00278 (or 1/360).

$$C_{10}^{10} = 0.1 + (0.7 - 0.1) \times (I_{10} - 25) / (70 - 25) \\ = 0.1 + 0.0133 \times (I_{10} - 25) \quad (14.12)$$

$$C_{10} = 0.9 \times f + C_{10}^{10} \times (1 - f) \quad (14.11)$$

$$C_Y = F_Y \cdot C_{10} \quad (14.13)$$



Reference: 2019-8832

Project: 1 Glenburnie Tce, Plympton

Checked by: CJG

Designer: HP

Date: 18/04/2019

Index: 3

## STORMWATER DETENTION CALCULATIONS

## REF./COMMENT

Post-Development FlowUnrestricted Flow: *Runoff considered to be undetained*

Site Surfaces	Area (m <sup>2</sup> )	f
Roof	0	1.0
Concrete/Paved/Bitumen	0	0.9
Landscaped	0	0.1

Total Area = 0 m<sup>2</sup>  
favg = 0.000

C10 = 0.100  
C20 = 0.105

Unrestricted Post Development Flow, Qun-post = 0.00 L/s

Allowable Flow, Qall = 2.12 L/s

Restricted Flow: *Runoff considered to be detained*

Site Surface	Area (m <sup>2</sup> )	f
Impervious	810.64	1.0
Landscaped	207.2	0.1

Total Area = 1017.84 m<sup>2</sup>  
favg = 0.817

C10 = 0.753  
C20 = 0.791

*Refer to attached detention calculations*Post-Development  
Catchment PlanARR Eq. 14.11  
ARR Eq. 14.13

Qun-post = 0.00

Qall = 2.12

Post-Development  
Catchment PlanARR Eq. 14.11  
ARR Eq. 14.13  
C20 = 0.791





### STORMWATER DETENTION CALCULATIONS

#### Detention Calculations

ARI = 20 years

Area = 1017.84 m<sup>2</sup>

tc = 5 min

C20 = 0.791

Detention Volume Required = 16417 L

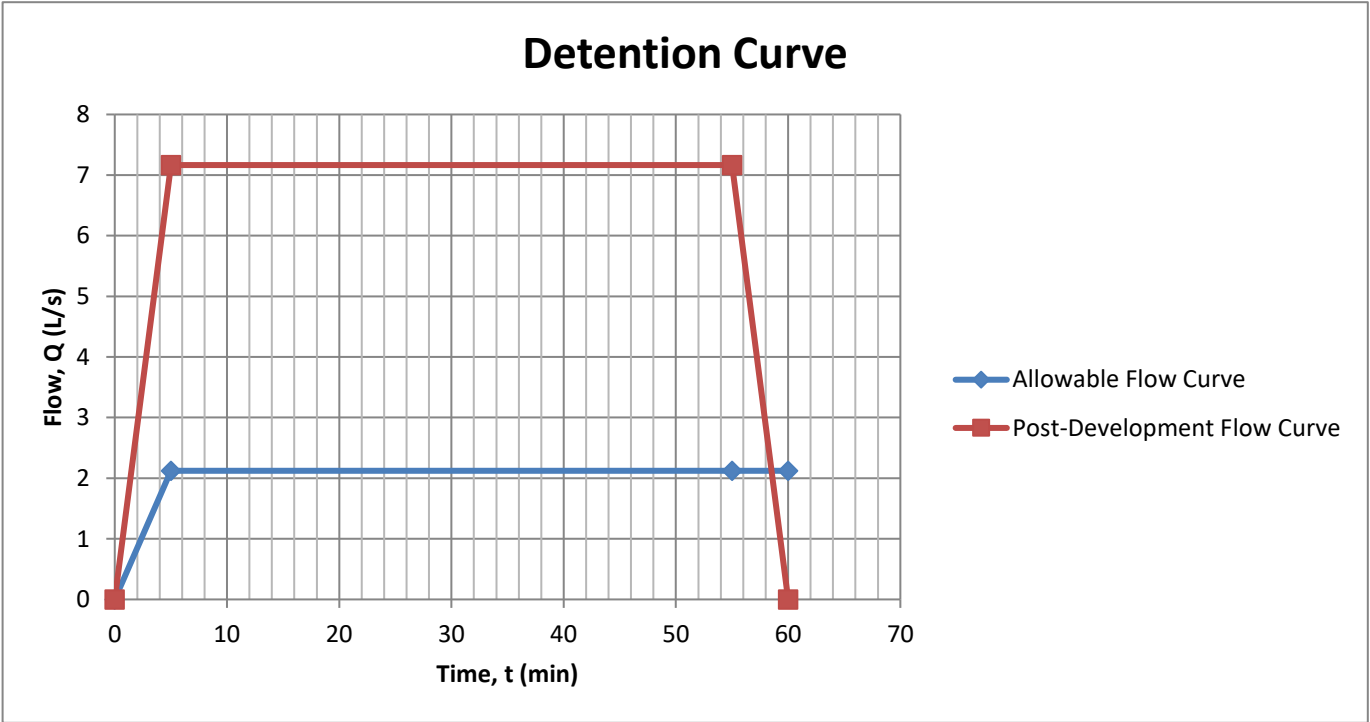
Storm Duration (min)	Intensity (mm/h)	In flow (L/s)	Target Outflow (L/s)	Detention Required (L)
5	120.0	26.8	2.1	7122
6	113.4	25.4	2.1	8074
7	106.8	23.9	2.1	8848
8	100.1	22.4	2.1	9444
9	93.5	20.9	2.1	9864
10	86.9	19.4	2.1	10105
11	83.5	18.7	2.1	10647
12	80.1	17.9	2.1	11097
13	76.8	17.2	2.1	11458
14	73.4	16.4	2.1	11727
15	70.0	15.7	2.1	11906
16	67.9	15.2	2.1	12264
17	65.8	14.7	2.1	12566
18	63.6	14.2	2.1	12810
19	61.5	13.8	2.1	12998
20	59.4	13.3	2.1	13129
21	57.9	13.0	2.1	13383
22	56.4	12.6	2.1	13598
23	55.0	12.3	2.1	13772
24	53.5	12.0	2.1	13907
25	52.0	11.6	2.1	14003
26	50.9	11.4	2.1	14198
27	49.8	11.1	2.1	14364
28	48.8	10.9	2.1	14501
29	47.7	10.7	2.1	14609
30	46.6	10.4	2.1	14688
31	45.9	10.3	2.1	14896
32	45.2	10.1	2.1	15085
33	44.5	10.0	2.1	15255
34	43.8	9.8	2.1	15407
35	43.1	9.6	2.1	15540
36	42.4	9.5	2.1	15654
37	41.7	9.3	2.1	15749
38	41.0	9.2	2.1	15825
39	40.3	9.0	2.1	15883
40	39.6	8.9	2.1	15922
41	38.9	8.7	2.1	15943

42	38.2	8.5	2.1	15944
43	37.5	8.4	2.1	15927
44	36.8	8.2	2.1	15891
45	36.1	8.1	2.1	15837
46	35.7	8.0	2.1	15944
47	35.3	7.9	2.1	16040
48	34.9	7.8	2.1	16125
49	34.5	7.7	2.1	16199
50	34.1	7.6	2.1	16263
51	33.7	7.5	2.1	16316
52	33.3	7.4	2.1	16357
53	32.8	7.3	2.1	16388
54	32.4	7.3	2.1	16408
55	32.0	7.2	2.1	16417
56	31.6	7.1	2.1	16415
57	31.2	7.0	2.1	16402
58	30.8	6.9	2.1	16379
59	30.4	6.8	2.1	16344
60	30.0	6.7	2.1	16299

Maximum Detention Volume (L)	Critical Storm Duration (min)	Peak Inflow (L/s)
16417	55	7.16

**Detention Curve Data**    - Detention volume equal to area between curves

Allowable Flow Curve		Post-Development Flow Curve	
Time (min)	Flow (L/s)	Time (min)	Flow (L/s)
0	0	0	0
5	2.12	5	7.16
55	2.12	55	7.16
60	2.12	60	0







## Location

**Label:** Not provided

**Latitude:** -34.958 [Nearest grid cell: 34.9625 (S)]

**Longitude:** 138.5627 [Nearest grid cell: 138.5625 (E)]

## IFD Design Rainfall Intensity (mm/h)

Issued: 18 April 2019

Rainfall intensity for Durations, Exceedance per Year (EY), and Annual Exceedance Probabilities (AEP).

[FAQ for New ARR probability terminology.](#)

Unit: mm/h ▼

Duration	Annual Exceedance Probability (AEP)						
	63.2%	50%#	20%*	10%	5%	2%	1%
<b>1 min</b>	77.5	88.2	125	154	185	230	269
<b>2 min</b>	67.8	77.1	110	135	162	203	238
<b>3 min</b>	60.5	68.8	97.8	120	144	181	211
<b>4 min</b>	54.8	62.3	88.6	109	131	163	191
<b>5 min</b>	50.2	57.2	81.3	99.8	120	149	174
<b>10 min</b>	36.5	41.5	59.1	72.5	86.9	108	126
<b>15 min</b>	29.3	33.4	47.5	58.4	70.0	87.1	102
<b>20 min</b>	24.9	28.3	40.3	49.5	59.4	74.0	86.3
<b>25 min</b>	21.8	24.8	35.3	43.4	52.0	64.8	75.7
<b>30 min</b>	19.5	22.2	31.6	38.8	46.6	58.0	67.8
<b>45 min</b>	15.1	17.2	24.5	30.1	36.1	45.0	52.6
<b>1 hour</b>	12.6	14.3	20.3	25.0	30.0	37.3	43.6
<b>1.5 hour</b>	9.67	11.0	15.6	19.1	22.9	28.5	33.3
<b>2 hour</b>	8.01	9.09	12.9	15.7	18.8	23.4	27.3
<b>3 hour</b>	6.12	6.94	9.77	11.9	14.2	17.6	20.5
<b>4.5 hour</b>	4.67	5.28	7.40	9.00	10.7	13.2	15.3
<b>6 hour</b>	3.84	4.34	6.05	7.34	8.71	10.7	12.3
<b>9 hour</b>	2.90	3.28	4.54	5.48	6.48	7.89	9.06
<b>12 hour</b>	2.37	2.67	3.68	4.43	5.22	6.32	7.23
<b>18 hour</b>	1.77	1.99	2.72	3.26	3.82	4.59	5.22

Note:

# The 50% AEP IFD **does not** correspond to the 2 year Average Recurrence Interval (ARI) IFD. Rather it corresponds to the 1.44 ARI.

\* The 20% AEP IFD **does not** correspond to the 5 year Average Recurrence Interval (ARI) IFD. Rather it corresponds to the 4.48 ARI.

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GLENBURNIE

TERRACE

GRAY

STREET

D3690

F8369

F20142

# 2019.04.23 PRE DEVELOPMENT PLAN

TOTAL SITE AREA,  $A_{site} = 1017.84m^2$

TOTAL ROOF AREA,  $A_{roof} = 227.84m^2$

TOTAL LANDSCAPE AREA,  $A_{land} = 690.16m^2$

TOTAL IMPERVIOUS AREA,  $A_{imp} = 99.84m^2$

LEGEND			
<ul style="list-style-type: none"> <li>SURVEY MARK</li> <li>GI NAIL</li> <li>BOLLARD</li> <li>ETSA CONN</li> <li>SIP</li> <li>FIRE HYDRANT</li> <li>FIRE PLUG / STOP VALVE</li> <li>GRATING</li> </ul>	<ul style="list-style-type: none"> <li>BRICK PAVERS</li> <li>WALL</li> <li>BUILDING</li> <li>CENTRE OF CORNICE</li> <li>BANK TOP</li> <li>BANKBOT</li> <li>EDGE BITUMEN</li> <li>EDGE TRACK</li> </ul>	<ul style="list-style-type: none"> <li>GRATING</li> <li>TREE</li> <li>CABLE MARKER</li> <li>TELCO PIT</li> <li>GM GAS METER</li> <li>ICV IRRIGATION</li> <li>TAP</li> <li>SHRUB</li> </ul>	<ul style="list-style-type: none"> <li>SHRUB</li> <li>EDGE TRACK</li> <li>EDGE CONC</li> <li>VERANDAH</li> <li>ROOF LINE</li> <li>WALL</li> <li>EDGE VEGETATION</li> <li>BUILDING GI</li> <li>EDGE GARDEN</li> </ul>
<ul style="list-style-type: none"> <li>ETSA CONN</li> <li>SIP</li> <li>FIRE HYDRANT</li> <li>FIRE PLUG / STOP VALVE</li> <li>GRATING</li> </ul>	<ul style="list-style-type: none"> <li>BRICK PAVERS</li> <li>WALL</li> <li>BUILDING</li> <li>CENTRE OF CORNICE</li> <li>BANK TOP</li> <li>BANKBOT</li> <li>EDGE BITUMEN</li> <li>EDGE TRACK</li> </ul>	<ul style="list-style-type: none"> <li>SHRUB</li> <li>EDGE TRACK</li> <li>EDGE CONC</li> <li>VERANDAH</li> <li>ROOF LINE</li> <li>WALL</li> <li>EDGE VEGETATION</li> <li>BUILDING GI</li> <li>EDGE GARDEN</li> </ul>	<ul style="list-style-type: none"> <li>SHRUB</li> <li>EDGE TRACK</li> <li>EDGE CONC</li> <li>VERANDAH</li> <li>ROOF LINE</li> <li>WALL</li> <li>EDGE VEGETATION</li> <li>BUILDING GI</li> <li>EDGE GARDEN</li> </ul>

NOTES:  
PROPERTY BOUNDARIES PLOTTED HEREON  
HAVE BEEN SURVEYED, BUT NOT MARKED.

SCALE: 1:200  
SURVEY DATE: 21/02/2019  
SURVEYED BY: MC  
COORDS BASED ON: MGA94  
PSM 6628/8076 RL:17.408m  
HEIGHT DATUM: AHD  
CONTOUR INTERVAL: 0.20m

DETAIL & LEVELS SURVEY  
1A & 1B GLENBURNIE TERRACE  
PLYMPTON

PROJECT REF: PL 9508 SHT: 1 OF 1 REV: 0



Glenburnie Terrace

# 2019.04.23 POST DEVELOPMENT PLAN



TOTAL SITE AREA,  $A_{site} = 1017.84m^2$

TOTAL IMPERVIOUS AREA,  $A_{imp} = 810.64m^2$

TOTAL LANDSCAPE AREA,  $A_{land} = 207.20m^2$