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EXECUTIVE SUMMARY

Precinct Design Approach for a Catalyst site over 1,500 sq metres

The consolidated site includes lots 248 and 254-256 Flinders Street, with a total site area of 1,540 sq metres. It allows for a unique opportunity to develop a precinct approach to tie the overall development and adjoining mixed use apartment buildings that have all been designed by Loucas Zanos into a unique and cohesive streetscape whole.

260 Flinders Place follows on from the success of the ART apartments at 252 Flinders Street (to the west), ZEN 1 and ZEN 2 at 250B and 250A Dawkins Place (immediately to the north), SOHO Hotel apartment building on corner of Tucker Street and AQUA apartments on Flinders Street to the east of the site.

Concept Design

The concept design allows for the development of 2 (two) towers creating frontages to Flinders Street and Tucker Street and internal views to the common plaza area. A central plaza area between Tower 1 and Tower 2 will provide access from Flinders Street and will incorporate a green wall urban design feature that forms almost the whole of the southern elevations of ZEN 1 and ZEN 2 apartments. An overhead pedestrian bridge links Tower 1 and Tower 2.

Tower 1 provides for a mixed use apartment building with a retail (155 sq metres), commercial (140 sq metres) and cafe area (20 sq metres) - a total of 315 sq metres at the ground floor (and mezzanine) with a total of 23 levels (includes ground and mezzanine), with a penthouse and roof gardens. Tower 1 provides a mix of 1 bed plus study, 2 bed and 4 bed plus study - a total of 155 bedrooms and 86 apartments with 63 car parks.

Tower 2 allows for a hotel reception and cafe (57 sq metres) at ground level with a total of 25 levels (includes ground and mezzanine). It provides a mix of 1 plus study and 2 bed apartment types with a total of 34 residential apartments with 155 bedrooms. In addition, Tower 2 provides for 46 hotel or serviced apartments (ten types) providing a total of 64 hotel rooms. Tower 2 also incorporates a 5 star restaurant at the upper 23rd level (148 sq metres) and cafe at ground level (57 sq metres) with 34 car parks (a total of 27 Levels including ground, mezzanines and basements). The total cafe/retail area of Tower 2 is 205 sq metres.

In addition, the scheme provides for 6 affordable apartments with two levels of basement parking with a total of 66 car parks and 18 public bike racks (at plaza level - 12 bike racks for Tower 1 and 6 for Tower 2) with 117 private bike racks (1 per apartment) being provided.

At over 1,500 square metres, this site offers a unique opportunity to include a larger community node. In the form of a central open plaza area. This proposal presents a rare opportunity to create an innovative and exemplary open space for residents and visitors to the east end of the city. The proposed plaza both challenges and exceeds the Adelaide City Council Development Plan. While the planning provisions acknowledge the desire for continual frontage expressed in the Development Plan, it is considered that the benefits offered by the plaza outweigh any minor perceived misalignment of the desired street character as set out in the Development Plan. The plaza will include the front access and views to Tower 1 and Tower 2 and ZEN 1 and 2, increasing the quality and comfort of the dwellings within the overall precinct area, the current single storey brick buildings on the subject site are being used as office studio accommodation.

Architect’s Design Statement

The concept design aims to create a uniquely defined precinct that celebrates art, culture, exemplary architectural design with a community focus' hub in the form of a plaza at 260 Flinders Place. The precinct has already been defined on the western side by ART and on the northern side by ZEN 1 and ZEN 2 apartments. The overall design intent of this proposal is to provide a high quality architectural and urban design that yields two mixed use apartment buildings, Tower 1 predominantly residential and Tower 2 a mix of residential and serviced apartments with a central plaza space.

Plaza - The scheme aims to create a high level of landscape amenity. The plaza is approximately a generous 740 sq metres in area. The landscaping themes and existing green walled are proposed to be designed by Graeme Hopkins of Fifth Creek Studios has successfully designed vertical gardens and roof garden for ART and ZEN. These green wall theme will be continued throughout the plaza area and common decks and balconies.

CPTED - The plaza area has been designed with CPTED principles in mind. For example, the cafe and retail component at the ground floor is designed to provide passive surveillance and the cafes encourage street activation.

The approximate construction cost is of the order of $30 million.

Height - The site falls within the 53 metre height limit in the Capital City Zone as defined in Adelaide (City) Building Heights Concept Plan Figure CG/2 - consolidated 30 October 2014. However, the Capital City Zone Principal of Development Control (PCD) (a) (iii) and (b) allow an additional uplift in height. That is, due to the site being within 200 m of a major transport boulevard (Frome Street) (PCD (a) (iii) and also being over 1500 sq metres (a catalyst site) (PCD 19 (b)) the building height can be raised above the 53 metre height limit for the zone. The Adelaide (City) Airport Building Heights Map Adel/ (Overlay 5) calls for an Obstacle Limitation Surface (OLS) of 153.5 m AHD. The site’s ground level is 48.7 m AHD. The top of Tower 2 building is AHD 126.80 m i.e. Total Building height of Tower 2 is 78.1 m above ground. In addition, the PANS – OPS for the site is approx. 252 m AHD, which means the top of building plus the crane is significantly well below the PANS - OPS contour (i.e. 125.2 m below). The top of Tower 2 is approx. 26.7 m under the OLS. With a 30 m crane, this would piece the OLS by 3.3 m, however, the intention is to use a modern 18 -20 m height hammer head crane. The building plus a 20 m crane would provide a total height of 146.8 m for AHD, which is 6.7 m below the OLS.

Feedback from Brett Eaton, Airstide Operations Manager at Adelaide Airport to DPTI Case Manager Paraisi on the 5th of June 2015 is as follows: As the building is below the OLS at 153 5m AHD no requirement for referral.

The project would definitely need to see crane details once finalised by the proponent to confirm these stays below and wouldn’t require a referral.

Design Review - This report also summarises the key planning and design issues raised at the two ODASA Design Review sessions and Pre-lodgment meetings with relevant stakeholders, referral agencies and DPTI staff.
1. Description of project

1.1 LOCATION

The subject site is located at 260 Flinders Street, within the heart of the Adelaide CBD. The proposed site is positioned between Frome Street and Hutt Street on the northern side of Flinders Street. The site is provided with access from Tucker Street to the east and to the Dawkins Place north of the site. This not only provides critical off-street access but allows for access to northern light and ventilation to the proposed apartments. The site is also bonded by ART apartments to the west and ZEN apartments to the north. It has always been intended that he plaza provide amenity to the Zen apartments.

The consolidated site includes lots 248 and 254-256 Flinders Street, with a total site area of 1,540 sq metres, which, given its size, according to the Development Plan, makes it a catalyst site.

1.1.1 Adelaide City Council Development Plan

This Planning Statement and support documentation describes the proposed Residential Development at 260 Flinders Street, Adelaide, with regard to the planning process as required currently for projects over $10 million in construction value in the City of Adelaide with specific reference to the Adelaide City Council Development Plan consolidated 30 October 2014.

The current Adelaide City Council Development Plan locates the subject site within Concept Plan Figure CC2 and is referred to under the Capital City Zone policy area.

Refer to figure 1 below for location of subject site within Concept Plan Figure CC2 in the current Adelaide City Council Development Plan.

Building height limit

Concept Plan CC2 (figure 1) prescribes a height limit of 53 metres for the proposed 260 Flinders Street site. However, the Capital City Zone Principal of Development Control (PDC) 19 (a) (iii) and (b) allows an additional uplift in height. That is, due to the site being within 200 m of a major transport boulevard (Frome Street - refer to figure 3) (PDC 19 (a) (iii)) and also being over 1500 sq metres (a catalyst site) (PDC 19 (b)) the building height can be raised above the 53 metre height limit for the zone. The Adelaide (City) Airport Building Heights Map Adeli (Overlay 5) calls for an Obstacle Limitation Surface (OLS) of 153.5 m AHD. The site’s ground level is 48.7 m AHD. The Top of Tower 2 building is AHD 126.80 m i.e. Total Building height of Tower 2 is 78.1 m above ground. In addition, the PANS-OPS for the site is approx. 252 m AHD, which means the top of building plus the crane is significantly well below the PANS-OPS contour (i.e. 125.2 m below). The Top of Tower 2 is approx. 26.7 m under the OLS. With a 30 m crane, this would pierce the OLS by 3.3 m, however, the intention is to use a modern 18-30 m height hammer head crane. The building plus a 20 m crane would provide a total height of 146.8 m AHD, which is 6.7 m below the OLS. Refer to figure 4 for PANS-OPS contours from Adelaide Airport and figure 6 for height allowances.

1.2 TITLES

The current titles will be included in Appendix A. There are no easements shown on the current titles.

FIGURE 1: CONCEPT PLAN CC/2

Consolidated - 30 October 2014

ADELAIDE (CITY)
BUILDING HEIGHTS
Concept Plan Figure CC/2

Level4 251 Victoria Square, Adelaide SA 5000 | T: 08 8111 6300 F: 08 8111 6399 | http://www.ghd.com
1.3 NATURE OF LAND USE

The consolidated site includes lots 248 and 254-256 Flinders Street, with a total site area of 1,540 sq metres. It allows for a unique opportunity to develop a precinct approach to tie the overall development and adjoining mixed use apartment buildings that have all been designed by Loucas Zahos into a unique and cohesive streetscape whole.

250 Flinders Place follows on from the success of the ART apartments at 252 Flinders Street (to the west), ZEN 1 and ZEN 2 at 250A and 250B Dawkins Place (immediately to the north). SQHO Hotel apartment building on corner of Tucker Street and AQUA apartments on Flinders Street to the east of the site.

The concept design allows for the development of 2 (two) towers creating frontages to Flinders Street and Tucker Street. A central plaza area between Tower 1 and Tower 2 will provide pedestrian access from Flinders Street and will incorporate a green wall urban design feature that forms almost the whole of the southern elevations of ZEN 1 and ZEN 2 apartments. An overhead pedestrian bridge with pool links Tower 1 and Tower 2.

The current single storey brick buildings on the subject site are being used as office studio accommodation.

1.4 KEY PHYSICAL ATTRIBUTES

1.4.1 Site area

The consolidated site includes lots 248 and 254-256 Flinders Street, with a total site area of 1,540 sq metres which means it is a significant (catalyst) site in the City of Adelaide.

1.4.2 Tower 1

Tower 1 provides for a mixed use apartment building with a retail (155 sq metres), commercial (140 sq metres) and cafe area (20 sq metres) - a total of 315 sq metres at the ground floor (and mezzanine) with a total of 23 levels (includes ground and mezzanine), with a penthouse and roof gardens. Tower 1 provides a mix of 1 bed plus study, 2 bed and 4 bed plus study - a total of 155 bedrooms and 86 apartments with 63 car parks.

1.4.3 Tower 2 - the Iconic Building

Tower 2 allows for a hotel reception and cafe (57 sq metres) at ground level with a total of 25 levels (includes ground and mezzanine). It provides a mix of 1 plus study and 2 bed apartment types with a total of 34 residential apartments with 155 bedrooms. In addition, Tower 2 provides for 45 hotel or serviced apartments (ten types) providing a total of 64 hotel rooms. Tower 2 also incorporates a 5 star restaurant at the upper 23rd level (149 sq metres) and cafe at ground level (57 sq metres) with 34 car parks (a total of 27 Levels including ground, mezzanines and 2 basements). The total cafe/retail area of Tower 2 is 205 sq metres.

In addition, the scheme provides for 6 affordable apartments with two levels of basement parking with a total of 96 car parks and 18 public bike racks (at plaza level - 12 bike racks for Tower 1 and 6 for Tower 2) with 117 private bike racks (1 per apartment) being provided.

As the corner building, and the most prominent structure upon entering the city from the east on Flinders Street, it is the taller of the two, and of architectural significance. The design intent of Tower 2, given its corner location in the site is to provide for a higher, iconic gateway building to the east of the city.

1.4.4 Plaza

The overall design intent is to provide a high quality architectural and urban design that provides for two mixed use apartment buildings, predominately residential and hotel apartments with a central plaza. The scheme provides for a high level of landscape amenity and retail component at the ground floor to encourage street activation and create a uniquely defined precinct that celebrates art, culture, exemplary architectural design and a community hub at 250 Flinders Place. The scheme aims to create a high level of landscape amenity. The landscaping themes and existing green waiting are proposed to be designed by Graeme Hopkins of Fifth Creek Studios has successfully designed vertical gardens and roof garden for ART and ZEN. These green wall theme will be continued throughout the plaza area and common decks and balconies. The retail component at the ground floor is designed to provide passive surveillance and the cafes encourage street activation.

1.4.5 Design Elements / façade treatment

Balconies through the use of Fins or blade elements articulate architectural elements to the façade to articulate the building through the ground, mid and upper levels on both sides of the building.

In addition, the plaza will contain non urban design and art elements, including a green wall display which will form the southern elevation of ZEN 1 and ZEN 2.

The Vertical Green Wall elements are as follows:

- Climbers at 500 mm centres
- Start climbers 250 mm from end of planter
- Interplant every second cable for climbers, eg 1 m centres with Hardenbergia violacea. This will shrub up and cascade over the planter box. It has lilac flowers in late winter and spring.
- Climbers to be planted in groups of two of the same species:
  - Pandorea jasminoides (Wonga vine)
  - Pandorea pandorana
  - Trachelospermum jasminoides

Stainless steel cable and fittings to be equal to Ronstan or Tensile Design and Construct (Peter Boltero - pboltero@tenstite.com.au). Cables to have horizontal rods between cables. Connections to be 'rope clip for stainless steel rod'. Horizontal rods at 900mm centres and offset centres.

---

**FIGURE 2 : SITE PLAN**
2. General Locality

2.1 GENERAL LOCALITY

A description of the general locality is contained within the Capital City Zone in the Adelaide City Development Plan consolidated 30 October 2014, Concept Plan figure 1 (Figure CC/2) prescribes a south eastern area with a height limit of 53 metres for the proposed Flinders Street site.

The proposed site is located adjacent to a mix of land uses. Directly adjacent properties are largely residential, including residences on Dawkins Place, and the remaining buildings in the proposed precinct (ZEN1, ZEN 2, SOHO, ART apartments and Flinders Loft).

There are also some offices in the immediate surrounds.

Across the road are further residences and the Baha’i Learning Centre. To the north is the City Salvo (Salvation Army) Church, a public car park and the Hotel Tivoli. Additionally, Christian Brothers College is located across Flinders Street to the east.

The site is only 5 minutes away from the CBD and the Adelaide Park Lands and recreation trails and reserves.

The Baha’i Learning Centre is a Local Heritage Place - refer to figure 5 below. However it is on the southern side of Flinders Street and not directly impacted by the site, except for minor overshadowing in winter time.

2.2 THE PRECINCT

250 Flinders Street is contained within the Adelaide CBD and as such is envisioned as contributing to:

- The economic and cultural focus of the State,
- providing high-scale development
- Ground floor level that generate high levels of pedestrian activity such as shops, cafes and restaurants
- A rich display of art and Exemplary and outstanding building design with Innovative forms
- a distinctive grid pattern
- Minor streets and laneways, and
- access

2.2.1 Economic and cultural focus of the State

The site is within the general locality envisioned in the Adelaide City Development Plan as an economic and cultural focus of the State.

2.2.2 Street level activation during the day and evening

The Zone identifies the precinct as being active during the day, evening and late night. Licensed entertainment premises, nightclubs and bars are encouraged throughout the Zone, particularly where they are located above or below ground floor level to maintain street level activation during the day and evening.

The design intent provides for street level activation during the day and evening along Flinders Street through incorporating retail and hospitality components at the ground floor - including a bike store, cafe and hotel reception. This will provide vitality to the street and create a 'community hub' for local residents.
2. General Locality

2.2.3 High-scale development
The Capital City Zone envisions a higher scale development than what is currently present in the CBD.

High-scale development is envisaged in the Zone with high street walls that frame the streets.

The concept design allows for approximately 23 and 25 levels, including 2 levels of basement parking.

The Top of Tower 2 building is AHD 126.80 m i.e. Total Building height of Tower 2 is 78.1 m above ground.

Refer to figures 4, 6 and 7 for heights.

2.2.4 Ground floor level that generate high levels of pedestrian activity such as shops, cafes and restaurants

Ground floor activation is envisioned within the Capital City Zone.

Non-residential land uses at ground floor level that generate high levels of pedestrian activity such as shops, cafes and restaurants will occur throughout the Zone. At ground level, development will continue to provide visual interest after hours by being well lit and having no external shutters.

2.2.5 A rich display of art and Exemplary and outstanding building design with Innovative forms

The Zone also envisions best practice development which exemplifies outstanding building design, acknowledges the local context and provides for opportunities to incorporate public art. In addition, the ART apartments within the proposed precinct feature prominent artwork on the western elevation, contributing to the overall artistic intentions of the precinct and demonstrating the architect’s commitment to public art.

Innovative forms are expected in areas of identified street character, referencing the past, but with emphasis on modern design-based responses that support optimal site development.

It is worth noting that the SOHO and Flinders Loft developments include popular eateries - the Flinders Street Project and Decant Restaurant. It is envisaged that Flinders Place will include complementary cafes at ground floor plaza level in Tower 1, and a high end restaurant at the top of Tower 2.

FIGURE 4: PANS-OPS CONTOURS FOR SITE AND LOCALITY
2. General Locality

2.3 REINFORCING THE BUILT FORM CHARACTER OF THE PRECINCT

2.3.1 A distinctive grid pattern

The Adelaide City Development Plan describes the Adelaide CBD as having a distinctive grid pattern of Adelaide will be reinforced through the creation of a series of attractive boulevards as shown on Concept Plan Figures C1/1 and 2.

Currie, Grenfell, Franklin and Flinders streets, as wider east-west boulevards provide important entry points to the City. Currie and Grenfell streets will become a key focus for pedestrians, cycling and public transport. These streets also provide long views to the hills as their closing vistas and these view corridors should remain uncluttered.

The proposal for 260 Flinders Street provides mixed used development and incorporates a retail component on the ground floor to encourage street activation day and night.

2.3.2 Minor streets and laneways

There will be a strong emphasis on ground level activation through frequent window openings, land uses that spill out onto the footpath, and control of wind impacts.

The proposal responds to the ground level activation through window openings, retail and cafe uses.

2.3.3 Access

In addition, the site is located close to the Frome Street bikeway, and is well serviced by a network of bike lanes and paths through Flinders Street, the Adelaide Park Lands and more. It located close to Pulver Street and Hutt Street, identified as a High Concentration Public Transport Route and a Public Transport Pedestrian Route respectively in the Adelaide City Development Plan.

The site is only 5 minutes away from the CBD and the Adelaide Park Lands and recreation trails and reserves and is well serviced by public transport.

2.4 ADJACENT LAND USES

The proposed site is located adjacent to a mix of land uses. Directly adjacent properties are largely residential, including residences on Dawkins Place and the remaining buildings in the proposed precinct (ZEN 1, ZEN 2, SOHO, ART apartments and Flinders Loft). There are also some offices in the immediate surrounds. Across the road are further residences and the Bahai Learning Centre. To the north is the City Salvos (Salvation Army) Church, a public car park and the Hotel Tivoli. Additionally, Christian Brothers College is located across Flinders Street to the east.

The site is only 5 minutes away from the CBD and the Adelaide Park Lands and recreation trails and reserves.

2.3.4 Adjoining Residential Uses

The site adjoins residential uses as discussed above in section 2.4.
3. Key Development Plan Elements

3.1 CAPITAL CITY ZONE

The current Adelaide City Council Development Plan, consolidated on 30 October 2014, locates the subject site within Concept Plan Figure CC/2 and is referred to under the Capital City Zone policy area (pages 179 – 185).

Refer to figure 1 below for location of subject site within Concept Plan Figure CC/2 in the current Adelaide City Council Development Plan.

Concept Plan Figure CC/2 prescribes a height limit of 53 metres for the proposed Flinders Street site. In addition, Flinders Street is designated as a City Boulevard and Terrace.

3.1.1 Desired Character

The economic and cultural focus of the State

This Zone is envisioned as the economic and cultural focus of the State and includes a range of employment, community, educational, tourism and entertainment facilities. It is anticipated that an increased population within the Zone will complement the range of opportunities and experiences provided in the City and increase its vibrancy.

Street level activation during the day and evening

The Zone will be active during the day, evening and late night. Licensed entertainment premises, nightclubs and bars are encouraged throughout the Zone, particularly where they are located above or below floor level to maintain street level activation during the day and evening.

High-scale development

High-scale development is envisaged in the Zone with high street walls that frame the streets. However, an interesting pedestrian environment and human scale will be created at ground floor levels through careful building articulation and fenestration, frequent openings in building façades, verandahs, balconies, awnings and other features that provide weather protection.

In important pedestrian areas, buildings will be set back at higher levels above the street wall to provide views to the sky and create a comfortable pedestrian environment. In narrow streets and laneways the street setback above the street wall may be relatively shallow or non-existent to create intimate spaces through a greater sense of enclosure.

The concept design allows for approximately 23 levels for Tower 1 and 25 levels for Tower 2 above ground, including a ground floor and mezzanine retail components.

Ground floor level that generates high levels of pedestrian activity such as shops, cafes and restaurants

Non-residential land uses at ground floor level that generate high levels of pedestrian activity such as shops, cafes and restaurants will occur throughout the Zone. Within the Central Business Policy Area, residential land uses at ground level are discouraged. At ground level, development will continue to provide visual interest after hours by being well lit and having no external shutters.

The concept design allows for a ground floor retail and cafes (372 sq m combined) designed to provide continuous street activation and surveillance throughout the day and into the evening. With regard to pedestrian comfort and amenity, the proposed plaza space, as well as the green wall on the ZEN buildings will provide open space and comfort.

A rich display of art and Exemplary and outstanding building design with Innovative forms

There will also be a rich display of art that is accessible to the public and contextually relevant. Exemplary and outstanding building design is desired in recognition of the location as South Australia’s capital. Contemporary juxtapositions will provide new settings for heritage places.

Innovative forms are expected in areas of identified street character, referencing the past, but with emphasis on modern design-based responses that support optimal site development.

The Zone also envisions best practice development which exemplifies outstanding building design, acknowledges the local context and provides for opportunities to incorporate public art.

The architectural design provides for a modern based language which reinforces the streetscape character by contrasting the ground and level mezzanine with the upper levels to create interest and visual richness through the vertical facade elements.

3.2 KEY POLICY AIMS

3.2.1 Reinforcement of Adelaide’s pattern of streets and squares

The desired character for the Capital City Zone is described as reinforcing the distinctive grid pattern of Adelaide will be reinforced through the creation of a series of attractive boulevards as shown on Concept Plan Figures CC/1 and 2. These boulevards will provide a clear sense of arrival into the City and be characterised by buildings that are aligned to the street pattern, particularly at ground level.

Views to important civic landmarks, the Park Lands and the Adelaide Hills will be retained as an important part of the City’s charm and character.

Given the proposal site is located on Flinders Street and adjoins Tucker Street and Dawkins Place, the following policy provisions apply:

- CMC, Grenfell, Franklin and Flinders streets, as wider east-west boulevards provide important entry points to the City. Currie and Grenfell streets will become a key focus for pedestrians, cycling and public transport. These streets also provide long views to the hills as their closing vistas and these view corridors should remain uncluttered.

- The proposal for 260 Flinders Street provides mixed used development and incorporates a retail component on the ground floor to encourage street activation day and night.

A high quality system of bicycle or shared pedestrian and bicycle routes will be established within the Zone.

The proposal is within walking or cycling distance of the Frome Street bikeway, and all residents will be provided with a bicycle. There will also be 18 public bike racks – refer to figure 2 for site plan (at plaza level - 12 bike racks for Tower 1 and 6 for Tower 2) with 117 private bike racks (1 per apartment) being provided.

3.2.2 The Plaza

At over 1500 square metres, this precinct offers a unique opportunity to include a larger community node, in the form of a central open plaza. This proposal presents an extraordinarily rare opportunity to create an innovative and exemplary open space for residents of, and visitors to the east end. The proposed plaza, at 740 sq metres, both challenges and exceeds the Adelaide City Council Development Plan. While the planning provisions acknowledge the desire for continual frontage expressed in the Development Plan, it is considered that the benefits offered by the plaza vastly outweigh any minor misalignment of the desired street character as set out in the Development Plan. The plaza will increase the light access to and views from Tower 1 and Tower 2, increasing the quality and comfort of the dwellings. Additionally, it will be large enough to host gatherings of residents and visitors, and other community uses.

The plaza will also provide a quiet and reflective space, particularly with the inclusion of the green wall façade on ZEN 1 and ZEN 2 apartments. Importantly, the proposal meets the desired character of buildings being built to the street frontage in Dawkins Place and Currie Street, with continual boundary frontage reinforcing the continuity and rhythm of the built form. It is also important to note that approximately two thirds of the Flinders Street frontage of the site is occupied with buildings to the boundary.
3. Key Development Plan Elements

3.3 KEY STANDARDS

3.3.1 Key Policy Objectives

Key policy objectives of the Capital City Zone include the following:

Objective 1:

The principal focus for the economic, social and political life of metropolitan Adelaide and the State.

Objective 2:

A vibrant mix of commercial, retail, professional services, hospitality, entertainment, educational facilities, and medium and high density living.

Objective 3:

Design and management of City living to ensure the compatibility of residential amenity with the essential commercial and leisure functions of the Zone.

Objective 4:

City streets that provide a comfortable pedestrian environment.

Objective 5:

Innovative design approaches and contemporary architecture that respond to a building’s context.

Objective 6:

Buildings that reinforce the grid layout of Adelaide’s streets and respond to the underlying built-form framework of the City.

Objective 7:

Large sites developed to their full potential while ensuring a cohesive scale of development and responding to a building’s context.

Objective 8:

Development that contributes to the Desired Character of the Zone.

3.3.2 Principles of Development Control (PDC) Land Use

1. The following types of development, or combinations thereof, are envisaged:

   Affordable housing, aged persons accommodation, Community centre, consulting room, convention centre, educational establishment, emergency services facility, hospital, hotel, indoor recreation centre, licensed entertainment premises, library, motel, office, pre-school, personal service establishment, place of worship, serviced apartment, restaurant, residential flat building, Student accommodation, shop or group of shops and tourist accommodation.

2. Land uses that are typically closed during the day should be designed to maximise daytime and evening activation at street level and be compatible with surrounding land uses, in particular residential development.

3. Low impact industries should be located outside the Central Business Policy Area and have minimal on-site impacts with respect to noise, air, water and waste emissions, traffic generation and movement.

4. Development listed as non-complying is generally inappropriate.

   The proposed mixed uses at 260 Flinders Street comprising of residential apartments, hotel accommodation and ground floor retail/shops are considered to be complying forms of development.

Form and Character

5. Development should be consistent with the Desired Character for the Zone.

   The proposed mixed land uses at 260 Flinders Street comprising 98 – apartments with ground floor and mezzanine retail/shops, incorporating 20 levels above ground with a maximum of height of 61.4m (Tower 1) 69.1m (Tower 2), high quality architectural elements, are considered to be consistent with the Desired Character and Objectives 2, 4, 5, and 7 of the Capital City Zone.

Design and Appearance

6. Development should be of a high standard of architectural design and finish which is appropriate to the City’s role and image as the capital of the State.

7. Buildings should present an attractive pedestrian-oriented frontage that adds interest and vitality to City streets and laneways.

8. The finished ground floor level of buildings should be at grade and/or level with the footpath to provide direct pedestrian access and street level activation.

9. Providing footpath widths and street tree growth permit, development should contribute to the comfort of pedestrians through the incorporation of verandas, balconies, awnings and/or canopies that provide pedestrian shelter.

10. Buildings should be positioned regularly on the site and built to the street frontage, except where a setback is required to accommodate outdoor dining or provide a contextual response to a heritage place.

11. Other than in the Central Business Policy Area, buildings should be designed to include a podium/street wall height and upper level setback (in the order of 3-5 metres) that:

   (a) relates to the width of the street and achieves a suitable level of enclosure to the public realm;

   (b) provides a human scale at street level;

   (c) creates a well-defined and continuity of frontage;

   (d) gives emphasis and definition to street corners to clearly define the street grid; (e) contributes to the interest, vitality and security of the pedestrian environment;

   (f) maintains a sense of openness to the sky for pedestrians and brings daylight to the street; and

   (g) achieves pedestrian comfort by minimising micro climatic impacts (particularly wind tunneling and downwind drafts).

   Considering the architectural distinction between ground, middle and top sections of each tower, and the rich detailed facade, the aims of the podium have been met by this proposal.

13. Building facades should be strongly modelled, incorporate a vertical composition which reflects the proportions of existing frontages, and ensure that architectural detailing is consistent around corners and along minor streets and laneways.

Building Height

PDC 29 stipulates that Development should generally be compatible with the overall desire city form and not exceed the maximum building height shown in Concept Plan Figures CC/1 and 2, unless it meets one or more of the following:

(a) within 200 metres of a high concentration public transport route identified on Map Adel/1 (Overlay 4);

(b) the site area is greater than 1500 square metres and has side or rear vehicular access.

The Adelaide (City) Airport Building Heights Map Adel (Overlay 5) calls for an Obstacle Limitation Surface (OLS) of 153.5 m AHD. The site’s ground level is 48.7 m AHD. The Top of Tower 1 building is AHD 120.80 m. Total Building height of Tower 2 is 78.1 m above ground. In addition, the PANS – OPS for the site is approx. 252 m AHD, which means the top of building plus the crane is significantly below the PANS – OPS contour (i.e. 125.2 m below). The Top of Tower 2 is approx. 26,7 m under the OLS. With a 30 m crane, this would pierce the OLS by 3.3 m, however the intention is to use a modern 18-20m height hammer head crane. The building plus a 20 m crane would provide a total height of 148.8 m AHD, which is 6.7 m below the OLS.

Feedback from Brett Eaton, Airside Operations Manager at Adelaide Airport to OPP Case Manager Connie Parisi on the 5th of June 2015 is as follows:

As the building is below the OLS at 153.5 m AHD no requirement for referral.

The Airport would definitely need to see crane details once finalised by the proponent to confirm these stay below and wouldn’t require a referral.

Refer to figure
3. Key Development Plan Elements

Interface
PDC 21 Development should manage the interface with Residential Zones in relation to building height, overshadowing, massing, building proportions and traffic impacts and should avoid land uses, or intensity of land uses, that adversely affect residential amenity.

Movement
PDC 23 Pedestrian movement should be based on a network of pedestrian malls, arcades and lanes, linking the surrounding Zones and giving a variety of north-south and east-west links.

PDC 24 Development should provide pedestrian linkages for safe and convenient movement with arcades and lanes clearly designated and well-lit to encourage pedestrian access to public transport and areas of activity. Blank surfaces, shutters and solid infills lining such routes should be avoided.

PDC 25 Development should ensure existing through-site and on-street pedestrian links are maintained and new pedestrian links are developed in accordance with Map Adel/1 (Overlay 2A).

PDC 26 Car parking should be provided in accordance with Table Adel/7.

PDC 27 Multi-level car parks should locate vehicle access points away from the primary street frontage wherever possible and should not be located:
(a) within any of the following areas:
(i) the Core Pedestrian Area identified in Map Adel/1 (Overlays 2, 2A and 3)
(ii) on frontages to North Terrace, East Terrace, Rundle Street, Hindley Street, Currie Street, Waymouth Street (east of Light Square), Victoria Square or King William Street;
(b) where they conflict with existing or projected pedestrian movement and/or activity;
(c) where they would cause undue disruption to traffic flow; and
(d) where it involves creating new crossovers in North Terrace, Rundle Street, Hindley Street, Currie Street and Waymouth Street (east of Light Square), Grenfell Street and Pine Street (west of Pulleney Street), Victoria Square, Light Square, Hindmarsh Square, Gawler Place and King William Street or access across primary City access and secondary City access roads identified in Map Adel/1 (Overlay 1).

PDC 28 Multi-level, non-ancillary car parks are inappropriate within the Core Pedestrian Area as shown on Map Adel/1 (Overlays 2, 2A and 3).

PDC 29 Vehicle parking spaces and multi-level vehicle parking structures within buildings should:
(a) enhance active street frontages by providing land uses such as commercial, retail or other non-car park uses along ground floor street frontages;
(b) complement the surrounding built form in terms of height, massing and scale; and
(c) incorporate façade treatments along major street frontages that are sufficiently enclosed and detailed to complement neighbouring buildings consistent with the Desired Character of the locality.

Advertising
PDC 30 Other than signs along Hindley Street, advertisements should use simple graphics and be restrained in their size, design and colour.

PDC 31 In minor streets and laneways, a greater diversity of type, shape, numbers and design of advertisements are appropriate provided they are of a small-scale and located to present a consistent message band to pedestrians.

PDC 32 There should be an overall consistency achieved by advertisements along individual street frontages.

3.3.3 Procedural Matters
Complying Development
PDC 35 Complying developments are prescribed in Schedule 4 of the Development Regulations 2008.

In addition, the following forms of development are assigned as complying:
(a) Other than in relation to a State heritage place, Local heritage place (City Significance), or Local heritage place, work undertaken within a building which does not involve a change of use or affect the external appearance of the building;
(b) Temporary depots for Council for a period of no more than 3 months where it can be demonstrated that appropriate provision has been made for:
(i) dust control;
(ii) screening, including landscaping;
(iii) containment of litter and water; and
(iv) securing of the site.
(c) Change in the use of land from a non-residential use to an office, shop or consulting room (excluding any retail showroom, adult entertainment premises, adult products and services premises or licensed premises). The proposed mixed use lands at 260 Flinders Street comprising residential apartments and ground floor retail/shops, incorporating 20 levels and 24 levels of residential apartments and 5 Star restaurant, high quality architectural elements, are considered to be consistent and comply with the Capital City Zone, Non-complying Development.

PDC 36 The following kinds of development are non-complying:

A change in use of land to any of the following:
Amusement machine centre

Advertisements involving any of the following:
(a) Third party advertising except on Hindley Street, Rundle Mall or on allotments at the intersection of Rundle Street and Pulteney Street frontages (except where fronting King William Street), or temporary advertisements on construction sites;
(b) Advertisements located at roof level where the sky or another building forms the background when viewed from ground level;
(c) Advertisements in the area bounded by West Terrace, Grosvenor Street, Franklin Street and Grey Street;
(d) Animation of advertisements along and adjacent to the North Terrace, King William Street and Victoria Square frontages.
Demolition of a State heritage place (as identified in Table Adel/1) Vehicle parking except:
(a) where it is ancillary to an approved or existing use;
(b) it is a multi-level car park located outside the Core Pedestrian Area as indicated on Map Adel/1 (Overlay 2, 2A and 3); or
(c) it is within an existing building located outside the Core Pedestrian Area as indicated on Map Adel/1 (Overlay 2, 2A and 3).

Public Notification
PDC 37 Categories of public notification are prescribed in Schedule 9 of the Development Regulations 2008.

In addition, the following forms of development, or any combination of (except where the development is non-complying), are assigned:
(a) Category 1, public notification not required: All forms of development other than where it is assigned Category 2.
(b) Category 2, public notification required. Third parties do not have any appeal rights.

Any development where the site of the development is adjacent land to land in a Residential Zone and it exceeds 22 metres in building height.

Note: For Category 3 development, public notification is required. Third parties may make written representations, appear before the relevant authority on the matter, and may appeal against a development consent. This includes any development not classified as either Category 1 or Category 2.
3. Key Development Plan Elements

3.4 HERITAGE

Reference to the Adelaide City Development Plan Policy Areas Map(s) Adel/56, Adel/57, Adel/50, Adel/51 (figure 5) indicates that the subject site does not appear to contain a State Heritage Place or Local Heritage Place significance. That is, the site does not have any heritage buildings which need to be retained for their heritage value. There is a site adjacent on the south east corner - the Bahi Centre, is designated as a Local Heritage Place and may only be affected by minimal overshadowing in winter.

3.5 CONTAMINATION

Given the previous use of the existing building, there does not appear to be any further requirement for a site history report or environmental report to ascertain whether there is any current contamination of the site.

3.6 ADELAIDE BUILDING HEIGHTS

The site falls within the 53 metre Height limit in the Capital City Zone as defined in Adelaide (City) Building Heights Concept Plan Figure CC/2 – consolidated 30 October 2014. However, the Capital City Zone Principal of Development Control (PDC) 19 (a) (ii) and (b) allow an additional uplift in height. That is, due to the site being within 200 m of a major transport boulevard (Frome Street) (PDC 19 (a) (iii)) and also being over 1500 sq metres (a catalyst site) (PDC 19 (b)) the building height can be raised above the 53 metre height limit for the zone. The Adelaide (City) Airport Building Heights Map Adel/ (Overlay 5) calls for an Obstacle Limitation Surface (OLS) of 153.5 m AHD. The site’s ground level is 48.7 m AHD. The Top of Tower 2 building is AHD 126.80 m i.e. Total Building height of Tower 2 is 78.1 m above ground. In addition, the PANS – OPS for the site is approx. 252 m AHD, which means the top of building plus the crane is significantly well below the PANS - OPS contour (i.e. 125.2 m below). The Top of Tower 2 is approx. 26.7 m under the OLS. With a 30 m crane, this would place the OLS by 3.3 m, however, the intention is to use a modern 18-20 m height hammer head crane. The building plus a 20 m crane would provide a total height of 166.8 m AHD, which is 5.7 m below the OLS.

Feedback from Brett Eaton, Airside Operations Manager at Adelaide Airport to DPTI Case Manager Connie Parisi on the 5th of June 2015 is as follows:

As the building is below the OLS at 153.5m AHD no requirement for referral.

The Airport would definitely need to see crane details once finalised by the proponent to confirm these stay below and would not require a referral.

Refer to figures 4, 6 and 7 for heights.

FIGURE 5 : MAP ADEL/50, ADEL/51, ADEL 56, ADEL 57
3. Key Development Plan Elements

FIGURE 6: HEIGHT ALLOWANCES

FIGURE 7: MAP ADEL/1 (OVERLAY 5)
4. Key Design Findings

4 KEY DESIGN FINDINGS

A short summary of the findings of the specialist reports, ODA/SA Design Review Issues and design responses are provided below.

4.1 Traffic


Summary of Traffic Assessment

The proposed development comprises a mixed use development with (at most) 98 car parking spaces on site and will provide significant levels of on-site bicycle parking for the use of residents and the commercial component of the development.

I consider that the design of the onsite car parking will provide an appropriate and convenient car parking arrangement for residents and tenants to be located on site.

Vehicular access will occur via Tucker Street and Dawkins Place and will include traffic associated with on-site residential parking and also services / waste collection.

There should be no more than 20 additional vehicle movements entering Dawkins Place in any one hour period with, at most, a similar number exiting the car park to travel west along this roadway.

Such increased volumes of traffic would have minimal impact on the operation of this roadway and should not result in any significant changes to the intersection of this roadway with Frome Street or the intersection of Tucker Street with Dawkins Street / Daly Street.

The proposed development includes the provision of a waste collection area which will need to be serviced from an on-site loading area off Tucker Street. This facility will accommodate a range of vehicle types up to and including that of a Medium Rigid Vehicle (MRV) with these vehicles entering and exiting Tucker Street in a forward direction. Consequently, there should be no requirement for these vehicles to use either Dawkins Place or the one-way section of Tucker Street, to the north of the site.

Based on consideration of the above traffic, parking and access related aspects I therefore consider that the proposed development will not result in adverse traffic impacts on Tucker Street and Dawkins Place including the operation of these intersections with Flinders Street and Frome Street, respectively.

4.2 Acoustics

Refer to BESTEC Building Engineering Services Technologies Consultants Report, dated June 2015 with summary of findings provided below.

In summary:-

- A noise survey was conducted in the vicinity of the proposed development to establish the existing noise levels and major sources of noise on 20 March 2015.
- Appropriate acoustic design criteria were nominated.
- Preliminary acoustic design recommendations to achieve the selected criteria were provided, including:
  - Appropriate constructions of the building façade and glazing were nominated in order to provide sufficient attenuation to noise from traffic, air-conditioning condensing noise from the plant serving the ART apartments and noise associated with rubbish collection vehicles.
  - Appropriate constructions of the building elements forming the proposed gymnasium on the Ground floor north-western end of Tower 1 were nominated in order to prevent excessive noise impacting on the adjacent ZEN and ART apartments.
  - The noise impact on the adjacent ZEN apartments associated with rubbish collection vehicles was assessed.

4.3 Wind Study

Refer to Global Wind Technology Services Pty Ltd report dated 9 June 2015. A summary of recommendations are provided below.

The pedestrian level wind environment desktop assessment for Flinders Street, Adelaide was reported in March 2015. "GWTS-TR-1012-15-9 Flinders Tower 1 and 2 Adelaide Environmental report". This addendum addresses the recommended wind control methods required for the development to fulfill the required comfort criteria.

Ground Level: The wind speed in the plaza area can be reduced to acceptable level by using wind controlling mechanisms. The perforated screen incorporated in the landscape design of the ground level will assist in reducing the wind approaching the plaza area. In the northwest corner of the ground level using planter boxes at the southwest of the ground level is expected to reduce the wind speed approaching from the south.

The suggested arrangement of the planter boxes is shown in Figure 4 has been incorporated into the latest design drawings dated 10.5.2015 - refer to LZ drawing number 02.

Footbridge between the two towers: The wind speed under the bridge expected to reduce with the perforated screen incorporated in the design. Extending this screen in one of the section is recommended. The suggested area for perforated screen is shown in Figure 2. Perforated screens are prone to wind noise. However, random pattern and bigger sizes are less likely to create a problem.

The suggested perforated screen design has been incorporated in to the overall design - refer to LZ drawing number 19.

Ground Level base of Tower 1 & 2 Outside sitting area: The outside sitting areas are required to fulfill the sitting criteria. This requires the use of screens around the sitting area as shown in Figure 3.

Level 18, roof garden of Tower 1: The roof garden Tower 1 is exposed to strong westerly and southerly winds. To reduce the wind speed approaching to this area, increasing the parapet height to 1.5m is recommended. This recommendation is shown in Figure 4.

The above recommendations have been incorporated into the overall design.

4.4 Waste Collection Services


Summary:

The key characteristics of their proposal are:

- Some sample environmental credentials afforded to Flinders Place development include:
  - Implement Organics Recycling
  - Zero Waste Approved Facility
  - Implement Dry Recycling (front lift bins)
  - Periodical audits performed to promote best practice

One Contact: Veolia is able to provide a dedicated Waste Services Team and we will assign a major account executive to Flinders Place development. This provides one point of contact for Flinders Place development to monitor waste expenditure costs and recycling performance, enabling real improvements in both after the life of the contract.

Veolia will provide one phone number to Flinders Place development for all enquiries and this will be operational 24 hours a day, 7 days a week.

Bins will be stored in the ground level bin waste room. The bins will be clearly labelled with signage encouraging the tenants to recycle as much as possible. The bins will be managed by the Cleaners/ Facility Manager – the bins will be serviced from the loading bay off Tucker Street. This will be accessed by reversing into the loading bay off Tucker Street.

A Veolia truck will service the Residential refuse room.

4.5 Services Statement

Refer to Loucas Zanos Report dated 11 June 2015.

Electrical Infrastructure

An existing Transformer is located on Dawkins Place however it is not suitable for this project.
4. Key Design Findings

The most practical solution appears to be servicing each tower via a dedicated transformer situated on the site (as shown on drawings). The proposed transformers will connect into the existing high voltage street mains.

Tower 1 is proposed to have its own Transformer. Tower 2 is proposed to have its own Transformer.

Communications Infrastructure

The development is to incorporate more than 100 Apartments, triggering the requirement for a fibre (NBN or equivalent) based communications infrastructure. It is proposed to reticulate a single fibre main from Flinders Street into a dedicated Communications room (located ground level or basement level). This room will incorporate the main fibre termination equipment and breakout frames to service risers and upper level breakout equipment for each apartment.

Sewer Infrastructure

It is proposed to service the Apartment development with multiple connections via the Flinders Street main. Multiple connections will only be provided where required to satisfy buildings waste water demand. Each connection (where required) is to incorporate government inspection points located at the sites Southern boundary (works by SA Water Corporation).

Domestic Cold Water Infrastructure

A single 40mm water supply is proposed for each tower to be serviced via the Flinders Street SA Water Corporation town’s main. The 40mm incoming main shall supply a break located in a lower level plant room, complete with boost pressure pumps to service the upper levels of the apartment development. The main will require establishment of a 40mm water meter within a government inspection point at the site Southern boundary (works by SA Water Corporation).

Gas Infrastructure

A low pressure gas connection shall be made to the low pressure natural gas mains located in Flinders Street. Natural gas is proposed to service the retail tenancy and the apartments. Fire Services Infrastructure

It is proposed to incorporate a Class A (two dedicated feeds from separate mains) connection to the SA Water Infrastructure, to allow a fire water storage capacity of 50KL. Each 150mm connection (two, 2 in total) are proposed to be supplied via the 200mm (North and South Side) water mains located in Flinders Street.

Each Tower will incorporate the following:
- An SAMFS booster located at the site entry (recessed into the retail area) with 24/7 access for the SAMFS.
- A fire control room located directly off the fire stair with 24/7 access for the SAMFS, and
- A fire pump room incorporating a 50KL storage tank and two (2) fire boost pumps to service hydrants and sprinklers located in the building.

Mechanical Plant

All mechanical air conditioning plant is currently proposed to be installed on balconies. This plant will incorporate louvres or screening (final solution pending CFD analysis) to ensure mechanical plant is not visible from outside.

Roof Plant

The roof is only intended to incorporate minimal building services, comprising stair pressurisation fans (BCA requirement), a car park exhaust fan (BCA requirement) and the domestic hot water plant for the apartments.

4.6 ESD Elements

Refer to Loucas Zahos Letter dated 11 June 2015. A summary of the key ESD initiatives are provided below.

Passive Design Feature Summary

1. Natural Ventilation

Apartments corridors shall be connected to north and south communal courtyards which are naturally ventilated. All habitable rooms within the apartments incorporate operable windows that promote effective natural cross ventilation, with openings designed to suit the site characteristics.

2. Natural Daylight

External facade glazing shall be optimised to maximise penetration of natural daylight for the building footprint, without compromising internal comfort conditions or energy consumption with excessive solar radiation.

3. External Shading Structures

Apartment glazing shall be predominantly shaded by balcony overhang projections. North, East and West facing glazing shall be protected by either balconies or external shading devices such as perforated screens and vertical fin elements.

4. High Performance Materials

The development aims to achieve an average 6 stars rating with a minimum 5 stars rating for individual apartments in accordance with the Nationwide House Energy Rating Scheme (NABERS) framework.

Glazing and insulating materials will be selected based on high performance to ensure that:
- Heat gains in summer periods are minimised
- Free solar heating is harnessed in winter periods
- Zero-band air conditioning (zero heating/cooling) is maximised during summer seasons.

5. Artificial Light

Facade elements designed to minimise infiltration of outside air and migration of conditioned air in and out of the building.

6. Car Parking

No visitor’s car parking is proposed to the development whilst the development does provide residents and visitor’s bicycle parks to promote environmentally friendly transport by apartment owners and visitors.

Apartment Natural Ventilation

The ability for each apartment to have adequate access to effective natural ventilation is a key consideration for the building form and apartment layouts. Effective natural ventilation is considered extremely important as this design feature has the greatest ability to reduce operational energy consumption (air conditioning) and associated greenhouse gas emissions.

There are various design principles that each apartment will aim to satisfy in order to develop effective natural ventilation solutions:
- Size of ventilation openings (m2)
- Location of openings (high & low level)
- Cross ventilation: facade position
- Distance between openings (m)

Energy Efficiency

The following energy efficient initiatives are proposed to complement the passive design techniques:
- Optimise the building facade, building fabric performance and passive design of apartments to achieve a NABERS FirstRate Energy Rating of at least 5 stars for each individual apartment and targeting a development average of 6 stars.
- Passive infrared (PIR) motion detection system to activate lighting with manual overrides where appropriate (i.e. car park levels, apartment lobbies, etc).
- Low energy luminaires such as fluorescent and LED fittings with energy efficient controls in public and common areas comprising motion sensors, time clocks and photocells in outdoor applications.
4. Key Design Findings

4. KEY FINDINGS

- Demand management control of carpark ventilation, with fans served by variable speed drives (VSD) and activated by carbon monoxide (CO) sensor control.
- Variable speed drives to reduce energy consumption and peak power associated with mechanical plant such as pumps and fans.
- High efficiency lifts with regenerative braking systems and LED lighting.

The following section summarises the passive design principles proposed in order for the project to achieve the energy performance targets:

- Extension of slab/balconies to provide horizontal overhang shading devices.
- Vertical shading fins or projected veils/screens to serve north, east and west facing glazing.
- Glazing to facade ratios that don’t compromise daylight levels.
- High performance glazing.

Water Efficiency

The following water efficient initiatives are proposed to complement the passive design techniques. All fixtures and fittings shall be selected as low flow with appropriate Water Efficiency Labelling (WELS) where relevant.

- Bathroom taps with a WELS rating of not less than 5 Stars (4.5 L/min)
- Shower heads with a WELS rating of not less than 3 Stars (9 L/min)
- Water closets with a WELS rating of not less than 4 Stars (3.5 L/flush, dual flush)

Rainwater Harvesting

Based on the available roof catchment area, average monthly rain falls and expected landscaping water consumption, a 5 KL rainwater harvesting system is proposed.

Indoor Environment Quality (IEQ)

The following initiatives shall be considered to complement the passive design techniques:

- Selection of paints, sealants, adhesives, carpets and finishes to be low volatile organic compound (VOC).
- Selection of low formaldehyde composite/engineered wood products.
- Locate exhaust discharges in suitable locations such that contaminants do not enter the building from sources such as carpark, waste collection etc.

Emissions

The following initiatives shall be considered to complement the passive design techniques:

- Selection of air conditioning equipment with non-ozone depleting refrigerants.
- Selection of insulation (building fabric, pipework, ductwork) with zero ozone depleting potential (ODP).
- High filtration of air conditioning and ventilation systems to reduce particulates and odours being introduced into the building (where applicable)

Transport

The following initiatives shall be considered to complement the passive design techniques:

- Provision of cyclist storage facilities (visitors and residents).
- Provision of small car parking spaces.
- Deletion of visitors car parking.

4.7 Responses to ODASA Design Review 1 & 2, DPPT and ACC questions

The current set of drawings and amendments are seeking to address the following design issues raised at ODASA Design Reviews 1 and 2, DPPT and Adelaide City Council via David Bland, Trudy Angraves, Robyn Evans.

1. Affordable Housing

As per discussions with Robyn Evans and Affordable Apartments will be provided in the new development.

4.8 Sales

This information has been forwarded to Robyn Evans.

2. Adelaide City Council – Traffic

At the meeting with Louise Zehet, ACC and DPPT it was agreed that the Waste vehicle will enter into Tucker Street and Reverse into the site as requested by David Bland and Trudy Angraves. The proposed waste vehicle will be a 8.8 m MRV.

3. Climatic Conditions in the Plaza

The bridge linking Tower 1 & 2 will have multilayered perforated screens across the south face to improve street presence and to reduce microclimate effects of wind. The Screens will have large enough perforations to allow transparency and not be a CPTED issue. Trees in the plaza will also be in large concrete planter boxes with seating attached to sides, this will also help to reduce wind speed and increase amenity. Bestec have had input into these design features and the Bestec Wind Report recommendations regarding the screens will be included.

4. Landscape Species in the Plaza

Landscape Architect Graeme Hopkins has assisted in the design of the vertical gardens and roof garden for ART and ZEN. It is proposed that he will confirm suitably and irrigation design elements of the proposed landscaping and green walls.

The Green walls in the towers consist of conventional potted plants at the common terrace levels that have vertical trellis upon which they will grow up, similar to the ART entry area landscaping.

The trees, bushes and grasses in the plaza will be shade tolerant trees with shallow root structure and low branches will be trimmed so they will not create a CPTED issue.

5. Scale of drawings

Numerous drawings in the drawings set have been amended with their own scale at double the scale previously issued to assist in interpreting drawings.

6. Overshadowing Drawings

Overshadowing drawings have been amended to include buildings on the south side of Flinders Street and identify land uses, including the 53 m height line. The Zen building shadows have also been shown.

7. TOWER 1 Ground Floor Surveillance

The North Tenancy of Tower One has increased glazing and access doors to the East to increase pedestrian traffic through this area and increase casual surveillance from the commercial tenancy. The preferred operator of the is tenancy would be a 24 hour gym to further increase activation all hours to the plaza area. The basement escape stair to Tower 1 has been stepped to improve visibility – the service cupboard has also been relocated to further improve sight lines.

8. TOWER 2 Ground Floor Surveillance

The North Tenancy of Tower Two has increase glazing and access doors to the west to increase traffic through this area and increase casual surveillance from the commercial tenancy. The basement escape stairs to Tower 2 have been amended to become fully enclosed secure concrete elements. The doors are exit only with one way handles. A full time care taker, and 24 hour maintenance should oversee the ground floor of the development in general.

9. Transformer

Tower 1 will have its own transformer in the South West Corner as showing. Tower 2 will have its own transformer in the East elevation as show.

10. Balcony Air Conditioner Units

A/C units will be installed onto individual balconies with perforated anti climb screens.

11. Balcony Sizes

All apartments have a balcony of minimum 2 meters deep.

As per Development Plan Policies the Serviced apartments do not have balconies.
4. Key Design Findings

12. Common Balcony
There are common communal balconies throughout Tower 1 and Tower 2. These common balconies far exceed ACC requirement for private open space when added to the individual balcony areas. A schedule of areas is attached.

13. Window Set Back
All balconies and windows are set back at least 3 metres from property boundaries.

14. Bicycle Parking
There is one bicycle park for each residential apartment in Tower 1 and Tower 2.

There are numerous bicycle parking spaces at ground level for visitors/customers to Tower 1 and Tower 2.

15. Swimming Pool Pumps
The Swimming Pool Pump and Equipment Room is on level 1 of Tower 2 as shown on drawings.

16. Associated Reports
Materials/finishes have been added to elevations with photograph of samples.

ESO report is attached.

Wind Impact Assessment by BESTEC is attached.

CPTED Report by GHD is attached in the planning report.

Acoustic Report by BESTEC is attached.

Landscape plan and Lighting Locations are shown on drawings.

17. Encroachments
There are encroachments for balconies to apartments types E2 facing Flinders Street and minor balcony encroachments on Tucker street. A formal request for encroachment will be lodged with ACC in due course.

From the SA government Letter for ODASA Design Review No 2 for 260 Flinders Street dated 27 April 2015 please refer the following responses.

18. Towers Response to Precinct
The proposal is using similar architectural language and building typologies that are prevalent with the immediate Flinders Street Buildings in ART, ZEN 1 and 2, SOHO, AQUA apartments and the LOTF. In addition, the vision is for plaza, Tower 1 and 2 to be the pivotal element within this precinct. That is - the plaza provides a communal space and public amenity/community hub, while the Towers at ground level provide street activation and plaza activation through the café and gymnasium. The Towers then provide a strong vertical statement to define the centre of the precinct.

19. Increase in Height
The increase in height response to the development plan provides, including the additional advantage that the site enjoys being within 200m of a key boulevard (Fremantle Street) and is over 1,500 sqm - a key catalyst site. In addition, as above, Tower 1 and 2 are designed to mark the centre of the Flinders Place precinct the architects have been gradually developing over the years.

20. PLAZA Landscape Design and Amenity
The detailed design of the plaza is proposed to be undertaken by Graham Hopkins - a key innovator in green walling. He has already provided input into Zen 1 and 2. He will be responsible and provide a materials and plant palette board that will confirm the selected species will be suitable for the micro climate of the plaza area. In addition, it should be noted that there will not be any level difference between Zen 1 and 2 and the plaza area.

The updated wind study will also demonstrate the comfort and amenity of the plaza and how the screens will provide additional shelter from direct south westerly winds.

21. Waste
Waste from Tower 1 will now be taken to the north of the building and to the north of Tower 2 with the new reverse in drop-off / truck area off Tucker Street as suggested by ACC Waste and Planning Offices David Bland and.

It should also be noted that the ground level of Zen are not apartment areas, therefore noise from vehicle movements will less of an impact on the adjoining residents.

22. Apartment Configuration
The design of the apartments have been further revised and include 2m wide areas for the balconies/open space. In addition, it should be noted that the hotel serviced apartments - that is one bedroom apartments are not required under the current Development plan policies to provide a balcony/open space area. Tower 2 is also well within the 3m setback from the Zen apartments.

23. Borrowed Light
All the proposed new apartments have access to direct ventilation and natural light (refer to (Principal of Development Control) PDC 53). All habitable rooms are within 8 m to natural light and ventilation (refer to PDC 54). No light wall are being used as a primary source of daylight for living rooms (refer to PDC 55). Finally, all living areas, private open space or communal open space are the main recipient of sunlight (refer to PDC 56). That is - the proposal complies with the development plan in terms of providing access to natural light.

4.8 Summary of Yield tables and comparison with the Development Plan policies.

Refer to Appendix B for Revised Apartment Area Schedule dated 11 June 2015.

As per below, the summary includes comparisons with the provisions of Adelaide City Council Development Plan.

The tables now confirm as follows:

Tower 1
Private open space surplus: +280.0 sqm. - in terms of summation of overall balcony areas only.
The shortfall in individual balcony areas is balanced and offset by the overall communal deck areas & Roof garden area at Level 17 -
Total: +373.0 sqm.
Hence in reference to private open space provision. The Allowance is more than sufficient.

Apartment Area sizes comply.
Storage cub. m, capacity comply. There is a surplus of +311.37 cub.m.
Number of Apts. - 86 off.
Number of Car Parks - 63 off.
Table shows number of bedrooms as 142.

Tower 2
Private open space surplus: +121.0 sqm. - in terms of summation of overall balcony areas only.
Additional private open space included in the Communal & Lobby Decks - Total +144.0 sqm.

Apartment Area sizes comply. Studio Apt. areas now comply with requirement of 35 sqm min.

Note: Levels 11 to 22 will all be Serviced Apartments.

Storage cub. m capacity shortfall: -50.88 cub.m. The shortfall is offset by Basement 2 Store 65.0 cub.m. Hence Storage capacity complies.
Number of Apartments - 34 off.
Number of Car Parks - 32 off.
Table shows number of bedrooms as 45.
Number of Studio Apartments - 64.
4. Key Design Findings

4. Key Findings

4.9 Conclusion
The proposed mixed land uses at 260 Flinders Street comprising 2 (two) towers creating frontages to Flinders Street and Tucker Street and internal views in to the common plaza area will incorporate a green wall urban design feature that forms almost the whole of the southern elevations of ZEN 1 and ZEN 2 apartments. An overhead pedestrian bridge links Tower 1 and Tower 2.

Tower 1 provides for a mixed use apartment building with a retail (155 sq metres), commercial (140 sq metres) and cafe area (20 sq metres) - a total of 315 sq metres at the ground floor (and mezzanine) with a total of 23 levels (includes ground and mezzanine), with a penthouse and roof gardens. Tower 1 provides a mix of 1 bed plus study, 2 bed and 4 bed plus study - a total of 155 bedrooms and 86 apartments with 63 car parks.

Tower 2 allows for a hotel reception and cafe (57 sq metres) at ground level with a total of 25 levels (includes ground and mezzanine). It provides a mix of 1 plus study and 2 bed apartment types with a total of 34 residential apartments with 155 bedrooms. In addition, Tower 2 provides for 46 hotel or serviced apartments (ten types) providing a total of 64 hotel rooms. Tower 2 also incorporates a 5 star restaurant at the upper 23rd level (148 sq metres) and cafe at ground level (57 sq metres) with 34 car parks (a total of 27 Levels including ground, mezzanines and basements). The total cafe/retail area of Tower 2 is 205 sq metres.

In addition, the scheme provides for 6 affordable apartments with two levels of basement parking with a total of 95 car parks and 18 public bike racks (at plaza level- 12 bike racks for Tower 1 and 6 for Tower 2) with 117 private bike racks (1 per apartment) being provided.

Plaza
The proposal provides for high quality architectural elements consistent with the building designed by Loucas Zahos in the surrounding precinct, provides considerable public amenity in the form of a unique urban plaza, incorporates active street activation and frontages in the form of cafes and commercial premises on the ground floor. In addition, the overall height of Tower 1 and 2 are within the height restrictions in the Development Plan. Therefore, it is considered, on balance, that the proposal for 260 Flinders Place is consistent with the Desired Character of the Capital City Zone.
4. Key Design Findings
### TOWER 1 - 260 FLINDERS STREET, ADELAIDE

#### APARTMENT AREA SCHEDULE
(Realises Provisions of Adelaide City Council Development Plan)

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Communal Deck: 9

| 2  | 201 Apt. A     | 2                        | 65              | 65      | V                          | 3          | 1                 | 8.76           | 3.24         | 12             | 10         | 2                 | V           | 1        | 1                 |
|    | 202 Apt. B     | 2                        | 78              | 65      | V                          | 9          | 1                 | 14.03          | 1.62         | 16.65          | 10         | 5.65              | V           | 1        | 1                 |
|    | 203 Apt. C     | 2                        | 78              | 65      | V                          | 9          | 1                 | 9.7            | 6.3          | 16             | 10         | 6                 | V           | 1        | 1                 |
|    | 204 Apt. D1    | 1                        | 51              | 50      | V                          | 11         | 8                 | 10.3           | 3.4          | 13.7           | 8          | 5.7               | V           | 1        | 0                 |
|    | 205 Apt. E1    | 1                        | 65              | 50      | V                          | 9          | 8                 | 5.35           | 3.1          | 8.45           | 8          | 0.45              | V           | 1        | 0                 |

Communal Deck: 33

| 3  | 301 Apt. A     | 2                        | 65              | 65      | V                          | 13         | 11                | 8.76           | 3.24         | 12             | 10         | 2                 | V           | 1        | 1                 |
|    | 302 Apt. B     | 2                        | 78              | 65      | V                          | 9          | 1                 | 14.03          | 1.62         | 16.65          | 10         | 5.65              | V           | 1        | 1                 |
|    | 303 Apt. C     | 2                        | 78              | 65      | V                          | 9          | 1                 | 9.7            | 6.3          | 16             | 10         | 6                 | V           | 1        | 1                 |
|    | 304 Apt. D     | 1                        | 73              | 50      | V                          | 13         | 8                 | 6.62           | 2.3          | 8.92           | 8          | 0.92              | V           | 1        | 0                 |
|    | 305 Apt. E2    | 1                        | 73              | 50      | V                          | 9          | 8                 | 5.35           | 3.1          | 8.45           | 8          | 0.45              | V           | 1        | 0                 |

Communal Deck: 0

| 4  | 401 Apt. A     | 2                        | 65              | 65      | V                          | 13         | 11                | 8.76           | 3.24         | 12             | 10         | 2                 | V           | 1        | 1                 |
|    | 402 Apt. B     | 2                        | 78              | 65      | V                          | 9          | 1                 | 14.03          | 1.62         | 16.65          | 10         | 5.65              | V           | 1        | 1                 |
|    | 403 Apt. C     | 2                        | 78              | 65      | V                          | 9          | 1                 | 9.7            | 6.3          | 16             | 10         | 6                 | V           | 1        | 1                 |
|    | 404 Apt. D     | 1                        | 73              | 50      | V                          | 13         | 8                 | 6.62           | 2.3          | 8.92           | 8          | 0.92              | V           | 1        | 0                 |
|    | 405 Apt. E2    | 1                        | 73              | 50      | V                          | 9          | 8                 | 5.35           | 3.1          | 8.45           | 8          | 0.45              | V           | 1        | 0                 |

Communal Deck: 0

| 5  | 501 Apt. A     | 2                        | 65              | 65      | V                          | 13         | 11                | 8.76           | 3.24         | 12             | 10         | 2                 | V           | 1        | 1                 |
|    | 502 Apt. B     | 2                        | 78              | 65      | V                          | 9          | 1                 | 14.03          | 1.62         | 16.65          | 10         | 5.65              | V           | 1        | 1                 |
|    | 503 Apt. C     | 2                        | 78              | 65      | V                          | 9          | 1                 | 9.7            | 6.3          | 16             | 10         | 6                 | V           | 1        | 1                 |
|    | 504 Apt. D1    | 1                        | 51              | 50      | V                          | 11         | 8                 | 10.3           | 3.4          | 13.7           | 8          | 5.7               | V           | 1        | 0                 |
|    | 505 Apt. E2    | 1                        | 73              | 50      | V                          | 9          | 8                 | 5.35           | 3.1          | 8.45           | 8          | 0.45              | V           | 1        | 0                 |

Communal Deck: 33

| 6  | 601 Apt. A     | 2                        | 65              | 65      | V                          | 13         | 11                | 8.76           | 3.24         | 12             | 10         | 2                 | V           | 1        | 1                 |
|    | 602 Apt. B     | 2                        | 78              | 65      | V                          | 9          | 1                 | 14.03          | 1.62         | 16.65          | 10         | 5.65              | V           | 1        | 1                 |
|    | 603 Apt. C     | 2                        | 78              | 65      | V                          | 9          | 1                 | 9.7            | 6.3          | 16             | 10         | 6                 | V           | 1        | 1                 |
|    | 604 Apt. D     | 1                        | 73              | 50      | V                          | 13         | 8                 | 6.62           | 2.3          | 8.92           | 8          | 0.92              | V           | 1        | 0                 |
|    | 605 Apt. E2    | 1                        | 73              | 50      | V                          | 9          | 8                 | 5.35           | 3.1          | 8.45           | 8          | 0.45              | V           | 1        | 0                 |

Communal Deck: 0

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**Appendix B - Yield Tables**
### Appendix B - Yield Tables

#### TOWER 1 - 260 FLINDERS STREET, ADELAIDE

**APARTMENT AREA SCHEDULE** *(Includes Provisions of Adelaide City Council Development Plan)*

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### Appendix B - Yield Tables

#### TOWER 1 - 260 FLINDERS STREET, ADELAIDE

**APARTMENT AREA SCHEDULE** *(Includes Provisions of Adelaide City Council Development Plan)*

<table>
<thead>
<tr>
<th>Apartment Size</th>
<th>Min. Unit Space Required</th>
<th>Area Sufficient</th>
<th>Balcony</th>
<th>Private Open Space required</th>
<th>Difference</th>
<th>Apartment Storage</th>
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<th>Total Storage</th>
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<td>8</td>
<td>0.92 v</td>
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<td>1</td>
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</table>

**Communal Deck**

| 1401 Apt. A    | 65 65                    | v               | 13      | 11 2 8.76                  | 3.24       | 12                 | 10             | 2 v           | 1 1             | 1          | 1                   |             | 1        | 1                 |
| 1402 Apt. B    | 78 65                    | v               | 9 11    | -2 14.03                   | 1.62       | 15.65              | 10             | 5.65 v        | 1 1             | 1          | 1                   |             | 1        | 1                 |
| 1403 Apt. C    | 78 65                    | v               | 18      | 11 7 9.7                  | 6.3        | 16                 | 10             | 6 v           | 1 1             | 1          | 1                   |             | 1        | 1                 |
| 1404 Apt. D1   | 78 65                    | v               | 11      | 8 3 10.3                  | 3.4        | 13.7               | 8              | 5.7 v         | 1 1             | 1          | 1                   |             | 1        | 1                 |
| 1405 Apt. D2   | 78 65                    | v               | 9 8     | 1 5.35                     | 3.1        | 8.45               | 8              | 0.45 v        | 1 0             | 1          | 1                   |             | 1        | 1                 |

**Communal Deck**

| 1501 Apt. A    | 65 65                    | v               | 13      | 11 2 8.76                  | 3.24       | 12                 | 10             | 2 v           | 1 1             | 1          | 1                   |             | 1        | 1                 |
| 1502 Apt. B    | 78 65                    | v               | 9 11    | -2 14.03                   | 1.62       | 15.65              | 10             | 5.65 v        | 1 1             | 1          | 1                   |             | 1        | 1                 |
| 1503 Apt. C    | 78 65                    | v               | 18      | 11 7 9.7                  | 6.3        | 16                 | 10             | 6 v           | 1 1             | 1          | 1                   |             | 1        | 1                 |
| 1504 Apt. D1   | 78 65                    | v               | 13      | 8 5 6.62                   | 2.3        | 8.92               | 8              | 0.92 v        | 1 1             | 1          | 1                   |             | 1        | 1                 |
| 1505 Apt. D2   | 78 65                    | v               | 9 8     | 1 5.35                     | 3.1        | 8.45               | 8              | 0.45 v        | 1 0             | 1          | 1                   |             | 1        | 1                 |

**Communal Deck**

| 1601 Apt. A    | 65 65                    | v               | 13      | 11 2 8.76                  | 3.24       | 12                 | 10             | 2 v           | 1 1             | 1          | 1                   |             | 1        | 1                 |
| 1602 Apt. B    | 78 65                    | v               | 9 11    | -2 14.03                   | 1.62       | 15.65              | 10             | 5.65 v        | 1 1             | 1          | 1                   |             | 1        | 1                 |
| 1603 Apt. C    | 78 65                    | v               | 18      | 11 7 9.7                  | 6.3        | 16                 | 10             | 6 v           | 1 1             | 1          | 1                   |             | 1        | 1                 |
| 1604 Apt. D1   | 78 65                    | v               | 13      | 8 5 6.62                   | 2.3        | 8.92               | 8              | 0.92 v        | 1 1             | 1          | 1                   |             | 1        | 1                 |
| 1605 Apt. D2   | 78 65                    | v               | 9 8     | 1 5.35                     | 3.1        | 8.45               | 8              | 0.45 v        | 1 0             | 1          | 1                   |             | 1        | 1                 |

**Communal Deck**

| 1701 Apt. A    | 65 65                    | v               | 13      | 11 2 8.76                  | 3.24       | 12                 | 10             | 2 v           | 1 1             | 1          | 1                   |             | 1        | 1                 |
| 1702 Apt. B    | 78 65                    | v               | 9 11    | -2 14.03                   | 1.62       | 15.65              | 10             | 5.65 v        | 1 1             | 1          | 1                   |             | 1        | 1                 |

**Drying Balcony**

| 1703 Apt. C    | 78 65                    | v               | 18      | 11 7 9.7                  | 6.3        | 16                 | 10             | 6 v           | 1 1             | 1          | 1                   |             | 1        | 1                 |

**Roof Garden**

| 1722 Common Balcony | 9                      |

**Common Balcony**

| 1802 Apt. A    | 65 65                    | v               | 13      | 11 2 8.76                  | 3.24       | 12                 | 10             | 2 v           | 1 1             | 1          | 1                   |             | 1        | 1                 |
| 1803 Apt. B    | 78 65                    | v               | 9 11    | -2 14.03                   | 1.62       | 15.65              | 10             | 5.65 v        | 1 1             | 1          | 1                   |             | 1        | 1                 |

**Drying Balcony**

| 1903 Common Balcony | 9                      |

| 2004 Common Balcony | 9                      |

---

*GHD*
## Appendix B - Yield Tables

### Tower 1 - 260 Flinders Street, Adelaide

#### Apartment Area Schedule

<table>
<thead>
<tr>
<th>Unit</th>
<th>Foyer Area</th>
<th>Living Area</th>
<th>Office Area</th>
<th>Bathroom</th>
<th>Private Balcony</th>
<th>Garden Area</th>
<th>Storage</th>
<th>Total Area</th>
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<tbody>
<tr>
<td>101</td>
<td>6.0 sqm</td>
<td>32.0 sqm</td>
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<td>6.5 sqm</td>
<td>10.0 sqm</td>
<td>10.0 sqm</td>
<td>8.0 sqm</td>
<td>54.5 sqm</td>
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<td>10.0 sqm</td>
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<td>54.5 sqm</td>
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<td>54.5 sqm</td>
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<td>6.5 sqm</td>
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<td>10.0 sqm</td>
<td>8.0 sqm</td>
<td>54.5 sqm</td>
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</table>

*Note: The efficiency of individual Balcony Areas is enhanced and offers up to Commercial Balcony Area & Roof Garden Area as listed above.*

*Total Area: 54.5 sqm*
### Appendix B - Yield Tables

<table>
<thead>
<tr>
<th>Level</th>
<th>Apartment Type</th>
<th>Area (sqm)</th>
<th>Percentage</th>
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<tr>
<td></td>
<td>1B</td>
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<td>0.00%</td>
</tr>
<tr>
<td></td>
<td>1C</td>
<td>100</td>
<td>0.00%</td>
</tr>
<tr>
<td>L2</td>
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<td>100</td>
<td>0.00%</td>
</tr>
<tr>
<td></td>
<td>2B</td>
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<td>0.00%</td>
</tr>
<tr>
<td></td>
<td>2C</td>
<td>100</td>
<td>0.00%</td>
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<td>0.00%</td>
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<tr>
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<td>3B</td>
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<tr>
<td></td>
<td>3C</td>
<td>100</td>
<td>0.00%</td>
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Total Area: 300 sqm

---

**Note:** The above table is a simplified representation of the actual data. For full details, please refer to the original source.
## Appendix B - Yield Tables

### TOWER 2 - 260 FLINDERS STREET, ADELAIDE

**APARTMENT AREA SCHEDULE** (Includes Provisions of Adelaide City Council Development Plan)

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<th>Apartment Size</th>
<th>Min. Unit Space Required</th>
<th>Max. Unit Space Required</th>
<th>Area Sufficient</th>
<th>Balcony</th>
<th>Private Open Space required</th>
<th>Difference</th>
<th>Apartment Storage</th>
<th>Storage Lockers</th>
<th>Total Storage</th>
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<th>Storage Difference</th>
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### Communal Deck

- **SKYHOME 1** 74  
  - Lower
- **SKYHOME 2** 80  
  - Lower

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<th>Max. Unit Space Required</th>
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<th>Private Open Space required</th>
<th>Difference</th>
<th>Apartment Storage</th>
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### Communal Deck

- **SKYHOME 1** 3  
  - Upper
- **SKYHOME 2** 2  
  - Upper

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### Lobby Deck

- **SKYHOME 1** 0

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<th>Min. Unit Space Required</th>
<th>Max. Unit Space Required</th>
<th>Area Sufficient</th>
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<th>Difference</th>
<th>Apartment Storage</th>
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## Appendix B - Yield Tables

### Tower 3 - 260 Pirie Street, Adelaide

#### Apartment Area Schedule (Includes Provision of Adelaide City Council Development Plan)

<table>
<thead>
<tr>
<th>Level</th>
<th>Unit</th>
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<th>Bath</th>
<th>Balcony</th>
<th>Dining</th>
<th>Living</th>
<th>Screened</th>
<th>Study</th>
<th>Storage</th>
<th>Area (sqm)</th>
<th>Area (sqm)</th>
<th>Kitchen</th>
<th>Bathroom</th>
<th>Other</th>
<th>Rooftop Deck</th>
<th>Lobby Deck</th>
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<tbody>
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<td>Apt. 1</td>
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<td>No</td>
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### Appendix B - Yield Tables

#### TOWER 2 - 260 Punters Street, Adelaide

**APARTMENT AREA SCHEDULE** (Includes Provision of Adelaide City Council Development Plan)

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**Notes:**
- Storage Areas include: Wardrobes, Linen, Pantry, Misc. Cupboards and Storage Lockers (Internal).
- Storage cub. m. allowance for apartments generally complies with the Development Plan. The shortfall of -60.88cub. m is offset by Basement, 2 Store (65cub. m).
- Apartment area sizes also comply. (As indicated on the table.)
- Studio Apartment areas comply with requirement of 35sqm min. Note: Levels 11 to 22 will all be Serviced Apartments.
- Note: Private open space includes Communal Decks at Levels 5 to 9 and Lobby Decks at Levels 10 to 22. (As indicated on the table) 44sqm.
- There is no shortfall in Balcony areas. In fact there is a surplus of 12.5sqm.

**References:**
- TOWER 2 - NUMBER OF APARTMENTS - 34 off
- TOWER 2 - NUMBER OF CAR PARKS - 32 off
- TOWER 2 - NUMBER OF STUDIO APARTMENTS - 60 off
Appendix B - Yield Tables
Appendix B - Yield Tables
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PRELIMINARY SITE INVESTIGATION
(SITE HISTORY)

246-256 FLINDERS STREET,
1-17 DAWKINS PLACE AND
13 TUCKER STREET
ADELAIDE
SOUTH AUSTRALIA

Prepared for:

Flinders 260 Pty Ltd

Date: June 2014
Reference No: J126421
Report Version: J126421/03

Prepared by:

AEC Environmental Pty Ltd
EXECUTIVE SUMMARY

AEC Environmental Pty Ltd was commissioned by Flinders 260 Pty Ltd to prepare a Preliminary Site Investigation (Site History) report for the site located at 246 – 256 Flinders Street, 1-17 Dawkins Place and 13 Tucker Street, Adelaide, South Australia. The purpose of this assessment was to identify potential contamination issues associated with past and present land use prior to the proposed redevelopment of the site for high density residential purposes.

The available historical information indicates that the site was likely used for residential purposes until the mid-1940s. From the mid-1940s until the 1970s, printing operations were conducted in the western portion of the site and the remainder of the site was utilised for bedding manufacture, offices and storage and it is likely that the present day site buildings were constructed during this time. The buildings on the site have undergone numerous alterations throughout the years for commercial / office use. The buildings on the central and south eastern portions of the site are currently tenanted for commercial / office use whilst the remainder of the site is occupied with temporary site offices relating to the construction project being undertaken on the adjacent property. It is noted that the site buildings on the north western and north eastern portions of the site were partially demolished a short while ago.

A number of potential sources of contamination associated with past and present site uses were identified at the site primarily related to historical use of the site for storage, manufacturing and printing purposes. The nature and extent of any contamination in soils or groundwater could only be assessed via intrusive soil and / or groundwater investigations.
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   Appendix D Acid Sulfate Soils Map
   Appendix E Summary of historical occupancy
   Appendix F Historical aerial photographs
   Appendix G EPA Section 7 Search Responses, EPA Site Contamination Index Search and SafeWork SA responses
# AEC Document Control

**Report Title:** Preliminary Site Investigation (Site History), 246-256 Flinders Street, 1-17 Dawkins Place and 13 Tucker Street, Adelaide, South Australia  
**AEC Job Ref:** J126421

**Filename:** J126421 – 246-256 Flinders Street, Adelaide, SA – Preliminary Site Investigation (Site History).V3

**Written:**  
**Sarah Walkley**  
Environmental Scientist

**Approved:**  
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Contaminated Land Manager (SA)

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1.0 INTRODUCTION

1.1 Background

AEC Environmental Pty Ltd (AEC) was commissioned by Flinders 260 Pty Ltd to prepare a Preliminary Site Investigation (Site History) report for the site located at 246-256 Flinders Street, 1-17 Dawkins Place and 13 Tucker Street, Adelaide, South Australia. The purpose of this assessment was to identify potential contamination issues associated with past and present land use prior to redevelopment of the site for high density residential purposes. The location of the site is presented in Figure 1.

The scope of work has comprised:-
- research of the site history;
- a site inspection;
- review of local geology and hydrogeology; and
- identification of potential contaminants associated with current and past uses of the site.

This Preliminary Site Investigation has been prepared with reference to industry standards and guidelines including the National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 (No. 1) (NEPM, 2013) and the Australian Standard “Guide to the investigation and sampling of potentially contaminated soil”: AS4482.1-2005.
2.0 SITE DETAILS

2.1 Site Identification and Zoning

The site is described by three Certificates of Title, as summarised in Table 1.

Table 1 - Current Certificates of Title describing the site

<table>
<thead>
<tr>
<th>Certificate of Title (Volume / Folio)</th>
<th>Allotment No.</th>
<th>Plan Reference</th>
<th>Registered Proprietor</th>
</tr>
</thead>
<tbody>
<tr>
<td>5964 / 617</td>
<td>Allotment 2</td>
<td>FP 4323</td>
<td>Flinders 250 Pty Ltd</td>
</tr>
<tr>
<td>5964 / 618</td>
<td>Allotment 1</td>
<td>FP 14070</td>
<td>Dot Two Pty Ltd</td>
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<tr>
<td>5482 / 624</td>
<td>Allotment 2</td>
<td>FP 14070</td>
<td>Dot Two Pty Ltd</td>
</tr>
</tbody>
</table>

All Certificates of Title are in the area named Adelaide, Hundred of Adelaide.

A cadastre plan showing the layout of the current and surrounding certificates of title is presented in Figure 2.

Figure 2 – Current Certificate of Title Layout

The site is located within a Capital City Zone within the Adelaide City Council.

A copy of the current Certificates of Title and Council zoning information is provided in Appendix A.
2.2 Proposed Development

AEC has been provided with proposed development plans indicating that two multi storey residential buildings are to be constructed on the rear portion of the site. The majority of the site will be covered with the buildings; however, a small rear yard is included within the ground floor apartments which will be paved and contain garden beds. Copies of the proposed Development Plans for Zen 1 and Zen 2 provided to AEC are presented in Appendix B.

2.3 Physical Setting

The site is situated in the Adelaide CBD, located approximately 10 kilometres east of the coast (Gulf St Vincent). The nearest permanent watercourse is the River Torrens located approximately 1.1 kilometres to the north west of the site. There are a number of other surface water bodies in Rymill Park and the Botanical Gardens of Adelaide State Herbarium, which are located approximately 400 metres and 700 metres to the north east of the site, respectively. An ephemeral creek / unlined drain also flows in an east-west direction through the southern parklands approximately 1.1 kilometres to the south of the site. The site and surrounding areas are essentially level.

2.4 Site Description and Current Land Use

The site is a rectangular shaped parcel of land with a total area of approximately 2,200 square metres. The site comprises three permanent buildings, temporary portable buildings, a bitumen driveway and a partially bitumen paved vacant block at the rear of the allotments. The buildings are occupied by several tenants (for office purposes) and construction workers working on the adjacent property (to the west) for their site offices.

Figure 2 shows the current approximate site layout followed by photographs of the site (refer Photographs 1 - 3).
Figure 2 – Current approximate site layout (as at 14 May 2014)

Photograph 1 – View looking north-west across front of site (from Flinders Street) (14 May 2014)
2.5 Surrounding Land Use

The site is bound by Dawkins Place to the north, Tucker Street to the east and Flinders Street to the south. The site is surrounded by the following:-

- north – residential properties;
- east – commercial (offices and bar) and residential properties.
- south – commercial (offices); and
- west – construction site (apartment building) and commercial (offices).
2.6 Site Inspection for Contamination Indicators

An AEC environmental scientist inspected the site on 14 May 2014. The objectives of the inspection were to locate and identify:--

- structures and storage areas including underground tanks, waste pits and lagoons, hazardous materials storage, electrical transformers and hydraulic equipment, asbestos products, septic tanks and drain fields; and
- obvious visual contamination indicators such as disturbed vegetation, discoloured, oily or disturbed soil and / or the presence of any odours.

The following features were noted during the inspection: -

**Spills / Leaks from Large Machinery**

A large crane and a large piling rig were noted on a partially unpaved area in the rear portion of the site. It is possible the fuels / oils / hydraulic fluids have leaked from the machinery, however, no obvious spills or staining was noted during the site inspection (refer photographs 4 and 5).

![Photograph 4 – View looking east at the crane in the rear portion of the site (16 May 2014)](image.png)

**Electrical Transformer**

An electrical transformer (refer photograph 5) was located in the northern portion of the site adjacent Dawkins Place. The transformer was located on a concrete pad and there was no evidence of transformer oil leakage.
Imported Fill

Imported fill material was noted on the rear portion of the site. In addition, it is likely that imported fill material had been used on the site historically as a base course under the buildings and sealed areas of the site.

2.7 Geology and Hydrogeology

The Department of Mines and Energy Bulletin 51 'Engineering Geology of the Adelaide City Area' indicates the local near surface geology comprises a sequence of Quaternary and Tertiary sediments. Cross sections indicate the geological sequence under the area comprises a calcareous mantle up to 2.5 metres thick, 10 - 20 metres of high plasticity clay (Hindmarsh Clay), approximately 10 metres of calcareous sandstone (Hallett Cove Sandstone), and various other Tertiary sediments (sands, clays, limestones) below this.

The 1:250,000 scale Adelaide geological map produced by the former South Australian Department of Mines and Energy shows the surface geology in the area is the Pooraka formation. The Pooraka formation reportedly comprises alluvial / colluvial clays with varying amounts of sand and silt.

The site is situated in the Adelaide Plains in a landform area known as the upper alluvial plain. The general geological sequence in the upper alluvial plain comprises:-

- Quaternary Age sediments of fluvial and marine origin (generally clays with sands and gravel layers) of up to 50 metres thickness. The Soil Association Map of the Adelaide Region indicates the local near surface soils are typically red brown clay soils with granular structure over clay with variable lime content.
o Tertiary sediments of marine origin (limestones, sands and sandstones) up to 150 metres thickness.

o Precambrian Age basement rock below approximately 200 metres depth.

Groundwater in the upper alluvial plain occurs in sand and gravel layers within the Quaternary sediments, and also in underlying Tertiary sediments. There are reportedly up to five distinct aquifers within the Quaternary sediments, and up to three distinct aquifers in the Tertiary sediments.

Reference to the online South Australian Resource Information Map produced by the Department of Primary Industries and Resources of South Australia indicates that the expected depth to the water table is between 5 and 10 metres below ground level (m bgl). The groundwater salinity is expected to range between 1,500 and 3,000 parts per million (ppm) expressed as total dissolved solids (TDS). Information Sheet 21 produced by the former South Australian Department of Mines and Energy indicates the regional groundwater flow direction is west to north west, however it is possible there are local variations.

Groundwater information from wells located within a 900 metre radius of the approximate centre point of the site was obtained from the Department of Environment, Water and Natural Resources (DEWNR). The standing water level in shallow groundwater wells (<12 m bgl) in the local area ranged from 2.0 to 5.82 m bgl. The groundwater salinity ranged from 1,552 to 5,155 mg/L TDS. The groundwater data (from wells with relevant data) is presented in Appendix C and a summary of the information is presented in Table 2.

<table>
<thead>
<tr>
<th>Location</th>
<th>DEWNR Well ID</th>
<th>Total Depth (m)</th>
<th>Water Level (m) &amp; date</th>
<th>TDS (mg/L)</th>
<th>Yield (L/sec)</th>
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<td>6628-637</td>
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<td>~700 m SW</td>
<td>6628-638</td>
<td>10.06</td>
<td>- (-)</td>
<td>3,584</td>
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<td>~800 m W</td>
<td>6628-246</td>
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<td>1,889</td>
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### 2.8 Acid Sulfate Soils

The map produced by the Australian Soil Resource Information System indicates that the potential for acid sulfate soils to exist at the site is C3 Extremely Low Probability / Moderate Confidence. A copy of the map is presented in Appendix D.
3.0 SITE HISTORY

3.1 History of Ownership

An historical ownership search was conducted for each of the present day Certificates of Title. The present day Certificates of Title are a result of multiple merging and subdivision of previously titles over the years. A summary of the ownership and leases of interest from the late 1880s until the present day is as follows:-

Certificate of Title Volume 5964 Folio 617 (western allotment)
- 1874 – 1875. Heinrich Ralsfs Kruss (storeman).
- 1889 – 1892. Heinrich Ralsfs Kruss (warehouseman) and Edmund Andreas Kruss (warehouseman).
- 1900 – 1926. Albert Henry Kruss (printer)
- 1926 – 1934. Albert Henry Kruss (printer), Peter Jasper Kruss (fitter) and Walter Ralfs Kruss (printer).
  - 1972. Lease to Philips Industries Holdings Ltd for a term of three years from 1 January 1972.
  - 1972. Lease to Philips Industries Holdings Ltd for a term of three years from 1 January 1972 to 31 December 1974.
  - 1975. Lease to Philips Industries Holdings Ltd for a term of three years from 1 January 1975 to 31 December 1977.
- 1978 – 1996. 248 Flinders Street Pty. Ltd.
- 2012- 2013. Flinders 250 Pty Ltd.
- 2013 to present. Flinders 260 Pty Ltd**.

Small driveway area between western and central allotments
A separate title of ownership was reported for the small driveway between the western and central allotments as follows:-
- 1877 - 1908. Maria Ehmcke (widow)
- 1908 – 1919. George Heinrich Christopher Merier (agent) and Hermann Gaetjens (agent).
1936 – 1944. Carl Wilhelm Hermann Ehmcke (engineer) (portion) and Executor Trustee & Agency Company of South Australia Ltd and Flora Eveline Ehmcke (portion).
1944 – 1954. Albert Carl Ehmcke (accountant) (portion) and Executor Trustee & Agency Company of South Australia Ltd and Flora Eveline Ehmcke (portion).

After 1978, this portion of land was amalgamated with Certificate of Title Volume 5964 Folio 617.

Certificate of Title Volume 5964 Folio 618 (central allotment)
A summary of the ownership of the eastern portion of this Certificate of Title is as follows:
1874 – 1927. John Langdon Bonython (journalist)
1927 – 1940. William James Copeland (fruit merchant).
1987 – 1993. 250 Flinders Street Pty Ltd.
2012 - present. Dot Two Pty. Ltd.

Certificate of Title Volume 5482 Folio 624 (eastern allotment)
1878 - 1888. Maria Ehmcke (widow).
1888 – 1902. George Heinrich Christopher Merier (agent) and Johann Wilhelm Theodor Ehmcke.
3.2 History of Occupancy

A search of the Sands and McDougall’s South Australian Street, Trade, Professional, and Municipal Directory was conducted from 1893 (in approximately 10 year intervals) up to the final edition published in 1973. The past occupancy of the site and neighbouring properties is presented as a table in Appendix E. It is noted that the site occupants were listed under Flinders Street and, as a result, the occupancies of Dawkins Place and Tucker Street have not been reported.

From the list of occupants, it appears that the site comprised multiple residential properties including numerous wholesalers from the late 1800s until the early 1940s. During the 1940s and 1950s, the site occupants include a printer and a bedding manufacturer. The occupancy of the site during the 1960s and 1970s included a chemical company, a manufacturing chemist, a bulk store and a printer.

3.3 Aerial Photographs

Aerial photographs of the site dating from 1949 in approximate 10 year intervals have been reviewed by AEC. Copies of aerial photographs reviewed are presented in Appendix F.

The 1949 aerial photograph shows that the site comprises three buildings running north south on each of the three allotments. The buildings on the western and eastern allotments appear to be the present day buildings (prior to their partial demolition). The size of the building on the central portion of the site indicates that this building is being utilised for either residential purposes or as a shop. A small garden area is visible on the northern portion of this allotment. The present day Flinders Street, Tucker Street and Dawkins Place are visible bounding the site to the south, east and north, respectively. The land surrounding the site comprises a mixture of residential and commercial type buildings.
The 1959 aerial photograph shows no significant changes to the eastern and western allotments of the site. The building on the central portion of the site appears to have been replaced with a larger commercial / industrial type building which covers the majority of the allotment. It is unclear if the building on the central portion of the site is the present day building. The only change to the land surrounding the site is the replacement of some buildings to the north and west of the site with sealed car parks.

The 1968 aerial photograph shows no significant changes to the site. The land surrounding the site remains mostly unchanged with the exception of the replacement of the car park to the south of the site with a large commercial type building.

The 1979 aerial photograph shows that no significant changes to the buildings on the eastern and western allotments of the site. The northern portion of the building on the central allotment of the site appears to have been replaced with a sealed car park. The only significant changes to the land surrounding the site are the replacement of some buildings to the west of the site with sealed car parks.

The 1989 aerial photograph shows that the only significant change to the site is the extension of the building on the central portion of the site to the north with either a canopy / car port or building extension. No significant changes are visible on the land surrounding the site.

The 2001 aerial photograph shows that the northern portion of the building in the central portion of the site has been removed and replaced with a sealed car parking area. The land surrounding the site remains mostly unchanged with the exception of a tennis court noted as replacing the commercial type buildings to the south of the site.

The 2013 aerial photograph shows that a verandah / carport has been constructed on the central portion of the site. The remainder of the site remains unchanged. No significant changes are noted on the land surrounding the site.

3.4 Government Records

EPA SECTION 7 SEARCH

The South Australia Environment Protection Authority (EPA) has a statutory obligation under the Land and Business (Sale and Conveyancing) Act, 1994 to provide information relating to environment protection. As such, a search was conducted of the EPA database for information relating to the subject land in accordance with Section 7 of the Land and Business (Sale and Conveyancing) Act, 1994. The EPA advised in written form of records of issues associated with:-

- particulars of mortgages, charges, prescribed encumbrances affecting the land; or

- particulars relating to environmental protection including:
  - environmental assessments;
  - waste depots;
  - production of certain waste; and
- waste on land.

The searches found the EPA holds no records of the above activities being undertaken at the site.

Copies of the EPA’s written responses are presented in Appendix G.

EPA SITE CONTAMINATION (GROUNDWATER NOTIFICATIONS) INDEX

A search was conducted of the EPA’s on-line Site Contamination (Groundwater Notifications) Index for information relating to notifications and reports received by the EPA since 1 July 2009 under the Environment Protection Act 1993. The Index provides information relating to S83A and audit notifications and reports that relate to specific suburbs or towns. The suburb of Adelaide was searched. The results of Section 83A notifications only are provided in Table 3.

<table>
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<th>Notification No.</th>
<th>Address</th>
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<th>Approximate distance and direction from site</th>
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<td>60522-01</td>
<td>172-190 Gawler Place, Adelaide</td>
<td>Transport depots or loading sites</td>
<td>~600 m NE</td>
</tr>
<tr>
<td>60987-01</td>
<td>172-190 Gawler Place, Adelaide</td>
<td>Transport depots or loading sites</td>
<td>~680 m NE</td>
</tr>
<tr>
<td>60413-01</td>
<td>151-153 Gilles Street, Adelaide</td>
<td>Motor vehicle repair or maintenance</td>
<td>~900 m SW</td>
</tr>
<tr>
<td>60123-01</td>
<td>East Parklands Cnr Gilles Street &amp; East Terrace, Adelaide</td>
<td>Not recorded</td>
<td>~1 km SE</td>
</tr>
<tr>
<td>60104-01</td>
<td>Lots 20 and 30 North Terrace, Adelaide</td>
<td>Listed substances (storage), railway operations</td>
<td>~1.2 km NW</td>
</tr>
<tr>
<td>60841-01</td>
<td>Lot 101 Montefiore Road, Adelaide</td>
<td>Railway operations</td>
<td>~1.2 km NW</td>
</tr>
<tr>
<td>60923-01</td>
<td>35-37 Wright Street, Adelaide</td>
<td>Not recorded</td>
<td>~1.2 km NW</td>
</tr>
<tr>
<td>60784-01</td>
<td>43-69 Sturt Street, Adelaide</td>
<td>Electrical or electrical component manufacture, spray painting</td>
<td>~1.3 km SW</td>
</tr>
<tr>
<td>60482-01</td>
<td>Festival Drive, Adelaide</td>
<td>Listed substances (storage), railway operations</td>
<td>~1.4 km NW</td>
</tr>
<tr>
<td>60418-01</td>
<td>Franklin Street, Adelaide</td>
<td>Listed substances (storage)</td>
<td>~1.5 km W</td>
</tr>
<tr>
<td>60121-01</td>
<td>172-176 Gilbert Street, Adelaide</td>
<td>Service station</td>
<td>~1.7 km SW</td>
</tr>
<tr>
<td>61113-01</td>
<td>Hundred Plan 106100 Section 1639</td>
<td>Fill or soil importation</td>
<td>Location in relation to site unknown</td>
</tr>
</tbody>
</table>

A copy of the full search results are provided in Appendix G.
DANGEROUS SUBSTANCES LICENCE SEARCH

SafeWork SA (under the Department for Premier and Cabinet) was contacted regarding its knowledge of dangerous good storage at the site. SafeWork SA advised that they did not hold any records for current or cancelled dangerous goods licences at the site or on the properties surrounding the site.

Copies of SafeWork SA’s responses are presented in Appendix G.

ADELAIDE CITY ARCHIVES

A search was conducted of the Adelaide City Archives for information relating to the previous buildings on site and the historical occupancy of the site in approximately 10 year intervals from the year 1847 up to one of the last archives published in 1979 / 1980. Numerous building plans were reviewed at the Adelaide City Archives which dated between 1953 and 1980. The majority of the plans related to the alterations to the existing site buildings and generally minor demolition works. No plans indicated that basements were present in any of the site buildings. However, plans indicating the use of asbestos and man-made mineral fibre products were noted.

The site is situated in the Town Acre 223 of the Hindmarsh Ward. AEC notes that, based on the available data, it is difficult to correlate the exact occupancy of the site as Town Acre 223 extends off of the subject land. However, the results do give an indication as to the surrounding land use. The results of the search are set out in Table 4.

Table 4 – Summary of historical site occupancy

<table>
<thead>
<tr>
<th>Year</th>
<th>Occupier / owner</th>
<th>Description</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1847 / 1848</td>
<td>Unoccupied</td>
<td>Vacant land.</td>
<td>-</td>
</tr>
<tr>
<td>1857</td>
<td>Unoccupied / South Australian Company</td>
<td>Vacant land.</td>
<td>-</td>
</tr>
<tr>
<td>1867</td>
<td>Unable to read</td>
<td>No description for land use.</td>
<td>-</td>
</tr>
<tr>
<td>1877</td>
<td>Various</td>
<td>Houses.</td>
<td>Various owners including Kruss, Ehmcke and Bonython.</td>
</tr>
<tr>
<td>1887</td>
<td>Various</td>
<td>Houses.</td>
<td>Various owners including Kruss, Ehmcke and Bonython.</td>
</tr>
<tr>
<td>1897</td>
<td>Various</td>
<td>Houses.</td>
<td>Various owners including Kruss, Ehmcke and Bonython.</td>
</tr>
<tr>
<td>1907</td>
<td>Various</td>
<td>Houses.</td>
<td>Various owners including Kruss, Ehmcke and Bonython.</td>
</tr>
<tr>
<td>1918</td>
<td>Various</td>
<td>Houses.</td>
<td>Various owners including Kruss, Ehmcke and Bonython.</td>
</tr>
<tr>
<td>1927</td>
<td>Various</td>
<td>Houses.</td>
<td>Various owners including Kruss, Ehmcke and Bonython.</td>
</tr>
<tr>
<td>Year</td>
<td>Occupier / owner</td>
<td>Description</td>
<td>Comments</td>
</tr>
<tr>
<td>-----------</td>
<td>---------------------------------------</td>
<td>------------------------------------</td>
<td>------------------------------------------------------</td>
</tr>
<tr>
<td>1937 /</td>
<td>Various</td>
<td>Houses.</td>
<td>Various owners including Kruss, Ehmcke and Bonython.</td>
</tr>
<tr>
<td>1938</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1949 /</td>
<td>Various</td>
<td>Houses.</td>
<td>Various owners including Kruss, Ehmcke and Bonython.</td>
</tr>
<tr>
<td>1950</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Clovelly Ltd</td>
<td>Printing works.</td>
<td>Located at 246 Flinders Street.</td>
</tr>
<tr>
<td></td>
<td>John Galligan &amp; Co Pty Ltd</td>
<td>Showroom and factory</td>
<td>Located at 256 Flinders Street.</td>
</tr>
<tr>
<td>1960</td>
<td>Monsanto Chemicals Australia Pty Ltd</td>
<td>Store and office</td>
<td>Located at 256 Flinders Street.</td>
</tr>
<tr>
<td></td>
<td>British Insulated Callenders Cables</td>
<td>Office and store.</td>
<td>Located at 252 Flinders Street.</td>
</tr>
<tr>
<td></td>
<td>Clovelly Ltd and Thornquest</td>
<td>Printing works and office.</td>
<td>Located at 242-246 Flinders Street.</td>
</tr>
<tr>
<td>1969 /</td>
<td>Lawrence &amp; Co</td>
<td>Storeroom and office.</td>
<td>Located at 256 Flinders Street.</td>
</tr>
<tr>
<td>1970</td>
<td>Quelltaler Pty Ltd and Buring and Sobels</td>
<td>Office and store.</td>
<td>Located at 252 Flinders Street.</td>
</tr>
<tr>
<td></td>
<td>Clovelly Ltd</td>
<td>Printing works and office.</td>
<td>Located at 246 Flinders Street.</td>
</tr>
<tr>
<td>1979 /</td>
<td>Various</td>
<td>Offices and store.</td>
<td>-</td>
</tr>
<tr>
<td>1980</td>
<td>Philips Industries Pty Ltd</td>
<td>Warehouse.</td>
<td>-</td>
</tr>
</tbody>
</table>

### 3.5 Interviews

During the site inspection conducted on 14 May 2014, AEC spoke with Mr Joe Marcon from Loucas Zahos Architects. Mr Marcon advised as follows:

- The buildings were partially demolished about a month ago by GP Demolition.
- The building on the western allotment had contained asbestos within the toilet cubicle partitions and the building on the eastern allotment had contained asbestos roof sheets. The asbestos had been removed prior to demolition.
- No underground fuel storage tanks were identified during the demolition works.
- The remainder of the site buildings are currently either tenanted as office buildings or used by the construction workers building the Zen apartment building on the adjacent allotment for their site offices.
- The bitumen covered area at the rear of the central allotment was formerly used as a car park.

### 3.6 Information Sources

- Adelaide City Council – Information on zoning;
- Department of Agriculture, Fisheries and Forestry and CSIRO – Provision of acid sulfate soil information;
- Department for Environment, Water & Natural Resources, South Australia – Provision of aerial photographs and groundwater information;
Department for the Premier and Cabinet, SafeWork SA, South Australia – Provision of dangerous substance licence information;

Department for Transport, Energy and Infrastructure, Lands Titles Office, South Australia - Provision of Certificate of Title information;

Mr Joe Marcon from Loucas Zahos Architects – Information on past and present site use; and

South Australian Environment Protection Authority – Information on any known environmental issues on the site.
### 4.0 SUMMARY OF POTENTIAL CONTAMINANTS

The historical site review and site inspection have revealed several potentially contaminating activities (PCA). The details of each of the PCAs, contaminant persistence / mobility and the likelihood of significant contamination are presented in Table 5.

<table>
<thead>
<tr>
<th>PCA and likely location</th>
<th>Contaminants of Potential Concern</th>
<th>Persistence / mobility in soils and toxicity</th>
<th>Likelihood of significant contamination with regards to the proposed high density residential redevelopment of the site</th>
</tr>
</thead>
</table>
| Historical use of imported fill brought onto the site as a base course under buildings or car park areas. | Heavy metals, PAH and TPH | Heavy metals - Mobility = low, persistence = high, toxicity = high (in some instances)  
PAH - Mobility = low, persistence = high, toxicity = high (in some instances)  
TPH - Mobility = moderate, persistence = moderate, toxicity = moderate to high | Unknown. A visual inspection of the ground surface indicated that fill materials were present; however the depth of fill material is unknown. The Adelaide CBD is known to have been levelled with fill material from numerous unknown sources. |
| Use, storage and disposal of chemicals during site’s former use for printing operations, bedding manufacture, manufacturing chemist and chemical company. | Metals, solvents, acids, alkalis and organics (including ketones) | Heavy metals - Mobility = low, persistence = high, toxicity = high (in some instances)  
Solvents - Mobility = moderate, persistence = moderate, toxicity = moderate to high  
Acids and alkalis – Mobility = moderate, persistence = moderate.  
Ketones – Mobility = moderate to high, persistence = moderate to high | Low to moderate. Whilst a chemical company and manufacturing chemist were noted as occupying the site, the search of the Adelaide City Archives indicates that at this time, the portion of the site where these occupants were noted comprised of store / office areas. Accordingly, it is unlikely that these occupants manufactured chemicals on-site.  
Whilst printing operations and bedding manufacture were conducted on site, the historical aerial photographs indicate that a building covered the entire portion of the site where the printing operations and bedding manufacture were likely to have been conducted at that time. |
| Use of pest control chemicals under buildings across the site. | Heavy metals and OCPs | Heavy metals - Mobility = low, persistence = high, toxicity = high (in some instances)  
OCP - Mobility = low to moderate, persistence = high, toxicity = high | Low to moderate. The use of OCPs as termite control chemicals was not completely discontinued until 1995 (Australian Pesticide and Veterinary Medicines Authority). Any impacts would likely be limited to near surface soils under the existing and former buildings.  
It is noted that the plans of the proposed development indicate that the entire site will either be covered with a building or paved garden bed areas. |
## PCA and likely location

<table>
<thead>
<tr>
<th>Contaminants of Potential Concern</th>
<th>Persistence / mobility in soils and toxicity</th>
<th>Likelihood of significant contamination with regards to the proposed high density residential redevelopment of the site</th>
</tr>
</thead>
</table>
| Leakage of oil from electrical transformer in the northern portion of the site. | TPH, PCBs | PCBs - Mobility = low, persistence = high, toxicity = high  
TPH - Mobility = moderate, persistence = moderate, toxicity = moderate to high | Low. The electrical transformer was located on a concrete pad with no leakage / staining noted in the area. |
| Potential asbestos debris from the demolition / alteration of former site buildings | Asbestos | Asbestos – Mobility = low to high (depending on whether friable or non-friable), persistence = high | Unknown, but likely to be low. Former site buildings which have been demolished contained asbestos. However, any potential contamination would likely be limited to surface soils. |
| Leakage of oils / fuels from cars / earthmoving machinery in the unsealed areas of the site. | TPH and BTEX | TPH - Mobility = moderate, persistence = moderate, toxicity = moderate to high  
BTEX - Mobility = moderate, persistence = moderate, toxicity = high | Unknown, but likely to be low. Whilst no fuel / oil staining was noted on the unsealed areas, limited visual access was available during the site inspection. However, if fuel / oil leaks or spills had occurred, it would likely only be in small quantities and be limited to surface soils. |

### NOTES:
- OCP = organochlorine pesticides
- OPP = organophosphorous pesticides
- PAH = polycyclic aromatic hydrocarbons
- PCB = polychlorinated biphenyls
- TPH = total petroleum hydrocarbons
- BTEX = benzene, toluene, ethylbenzene, toluene
5.0 CONCLUSIONS

The available historical information indicates that the site was likely used for residential purposes until the mid-1940s. From the mid-1940s until the 1970s, printing operations were conducted in the western portion of the site and the remainder of the site was utilised for bedding manufacture, offices and storage. It is noted that a chemical company and manufacturing chemist were located on the site during this time, however, their use of the site was likely for storage and office purposes only. It is likely that the present day site buildings on the eastern and western portions of the site were constructed in the 1940s and the building in the central portion of the site was constructed during the 1950s. The buildings on the site have undergone numerous alterations throughout the years for commercial / office use. The buildings on the central and south eastern portions of the site are currently tenanted for commercial / office use whilst the remainder of the site is occupied for site offices relating to the construction project being undertaken on the adjacent property. It is noted that the site buildings were partially demolished a short while ago.

The land surrounding the site was likely utilised for residential purposes until the mid-1940s. Since that time, the land surrounding the site appears to have been used for residential and commercial (office) purposes.

The identified potential sources of contamination associated with past and present site uses include:-

- use of herbicides, pesticides and fertilisers across the whole of the site;
- historical use of imported fill materials brought onto the site for site levelling and as a base course under buildings and car park areas;
- potential asbestos debris from the demolition / alteration of former site buildings;
- leakage of oils from electrical transformer;
- storage, use and disposal of chemicals and fuels during printing operations and bedding manufacture and occupancy of the site by a manufacturing chemist and chemical company; and
- leakage of oils / fuels from cars and heavy machinery in the unsealed portions of the site.

The nature and extent of any contamination in soils or groundwater resulting from the abovementioned potential contamination sources could only be assessed via intrusive soil and / or groundwater investigations.
6.0 LIMITATIONS OF THIS REPORT

This environmental site assessment report has been prepared in accordance with industry recognised standards and procedures at the time of the work. The report presents the results of the assessment based on the quoted scope of works (unless otherwise agreed in writing) for the specific purposes of the commission. No warranties expressed or implied are offered to any third parties and no liability will be accepted for use of this report by any third parties.

Information provided by third parties has been assumed to be correct and complete. AEC does not assume any liability for misrepresentation of information by third parties or for matters not visible, accessible or present on the subject property during any site inspections conducted during the time of the work.

The first stage in the site assessment process generally involves site history research and/or a site inspection. This stage is intended to establish whether there is a likelihood of site contamination. Depending on the location of the site and surrounding land use, there could be contamination present which could not have been identified by preliminary investigation of this nature - for example, if there had been dumping of waste liquids which has left no visual evidence and past owners were not aware of. If recommendations have been made on whether or not to conduct further investigation, these have been based on the likelihood of site contamination, and are generally based on the sensitivity of the proposed future use of the site. A more conservative approach is generally adopted for a sensitive future use such as residential or a child care centre. Subsequent stages of soil or groundwater investigation may follow. The site assessment process is often ongoing, with additional stages of investigation being required to resolve issues raised in previous stages of the investigation.

In cases where sampling and analysis of soil and/or groundwater has been conducted, then the following standard limitations apply:-

- The results presented in the report apply only to the specific locations and the time the sampling was conducted. The nature and extent of contaminants present on a site can change due to physical disturbance or removal, chemical or biological transformation, or due to the migration of the contaminants to different areas.
- The borehole or test pit logs indicate the approximate subsurface conditions only at the specified test locations. Soil and rock formations are variable, and conditions in areas not sampled may differ from those at the actual sampling locations due to natural subsurface variation.
- The precision with which subsurface conditions are indicated depends largely on the frequency and method of sampling and investigation, and the degree of subsurface variation. There can be no complete guarantee that contaminants are not present at significant concentrations in some areas, even with the most thorough site assessment.
- Any conclusions or recommendations are based solely on the land use assumptions stated in the report. These conclusions or recommendations do not apply to any other land use for the site.

This report should be read in full. No responsibility is accepted for use of any part of this report in any other context or for any other purpose or by third parties. Opinions and judgements expressed herein are based on AEC’s understanding of current regulatory standards and should not be construed as legal opinions.
APPENDIX A

CURRENT CERTIFICATES OF TITLE
AND COUNCIL ZONING INFORMATION
REGISTER SEARCH OF CERTIFICATE OF TITLE  * VOLUME 5964 FOLIO 617  *

COST : $25.00 (GST exempt )  PARENT TITLE : CT 5140/386 & OTHERS
REGION : EMAIL  AUTHORITY : VE 10440529
AGENT : PUSH  BOX NO : 000  DATE OF ISSUE : 25/05/2006
SEARCHED ON : 15/05/2013 AT : 13:02:40  EDITION : 3

REGISTERED PROPRIETOR IN FEE SIMPLE
-----------------------------------
FLINDERS 250 PTY. LTD. OF C/- CARWARDINE & ASSOCIATES 27 LORNE STREET
ALDERLEY QLD 4051

DESCRIPTION OF LAND
-------------------
ALLOTMENT 2 FILED PLAN 4323
IN THE AREA NAMED ADELAIDE
HUNDRED OF ADELAIDE

EASEMENTS
--------
SUBJECT TO PARTY WALL RIGHTS OVER THE LAND MARKED A (T 4198298)
TOGETHER WITH PARTY WALL RIGHTS OVER THE LAND MARKED B (T 4198298)

SCHEDULE OF ENDORSEMENTS
------------------------
11787786  MORTGAGE TO BENDIGO & ADELAIDE BANK LTD.
11787788  CAVEAT BY FLINDERS INVESTORS GROUP PTY. LTD.

NOTATIONS
--------
DOCUMENTS AFFECTING THIS TITLE
-------------------------------
NIL

REGISTRAR-GENERAL'S NOTES
-------------------------
NIL

END OF TEXT.
REGISTER SEARCH OF CERTIFICATE OF TITLE  * VOLUME 5964  FOLIO 618  *

COST : $25.00 (GST exempt )  PARENT TITLE : CT 5140/386
REGION : EMAIL  AUTHORITY : VE 10440529
AGENT : PUSH BOX NO : 000  DATE OF ISSUE : 25/05/2006
SEARCHED ON : 15/05/2013 AT : 13:03:50  EDITION : 3

REGISTERED PROPRIETOR IN FEE SIMPLE

DOT TWO PTY. LTD. OF C/- CARWARDINE & ASSOCIATES 27 LORNE STREET ALDERLEY
QLD 4051

DESCRIPTION OF LAND

ALLOTMENT 1 FILED PLAN 14070
IN THE AREA NAMED ADELAIDE
HUNDRED OF ADELAIDE

EASEMENTS

NIL

SCHEDULE OF ENDORSEMENTS

11787760  MORTGAGE TO BENDIGO & ADELAIDE BANK LTD.
11787761  CAVEAT BY FLINDERS INVESTORS GROUP PTY. LTD.

NOTATIONS

DOCUMENTS AFFECTING THIS TITLE

NIL

REGISTRAR-GENERAL'S NOTES

NIL

END OF TEXT.
REGISTER SEARCH OF CERTIFICATE OF TITLE * VOLUME 5482 FOLIO 624 *

COST : $25.00 (GST exempt)  PARENT TITLE : CT 4192/976
REGION : EMAIL  AUTHORITY : CONVERTED TITLE
AGENT : PUSH  BOX NO : 000  DATE OF ISSUE : 15/12/1997
SEARCHED ON : 15/05/2013 AT : 13:09:29  EDITION : 5

REGISTERED PROPRIETOR IN FEE SIMPLE

DOT TWO PTY. LTD. OF C/- CARWARDINE & ASSOCIATES 27 LORNE STREET ALDERLEY
QLD 4051

DESCRIPTION OF LAND

ALLEMENT 2 FILED PLAN 14070
IN THE AREA NAMED ADELAIDE
HUNDRED OF ADELAIDE

EASEMENTS

NIL

SCHEDULE OF ENDORSEMENTS

11787760  MORTGAGE TO BENDIGO & ADELAIDE BANK LTD.

11787761  CAVEAT BY FLINDERS INVESTORS GROUP PTY. LTD.

NOTATIONS

DOCUMENTS AFFECTING THIS TITLE

NIL

REGISTRAR-GENERAL'S NOTES

APPROVED PLAN FOR LEASE PURPOSES FX48352

END OF TEXT.
Approximate site location (western portion of site)
Approximate site location (eastern portion of site)
CAPITAL CITY ZONE

Introduction

The Desired Character, Objectives and Principles of Development Control that follow apply in the whole of the Capital City Zone shown on Maps Adel/17 to 20, 23 to 26 and 29 to 31. They are additional to those expressed for the whole of the Council area and in cases of apparent conflict, take precedence over the more general provisions. In the assessment of development, the greatest weight is to be applied to satisfying the Desired Character for the Zone.

Desired Character

This Zone is the economic and cultural focus of the State and includes a range of employment, community, educational, tourism and entertainment facilities. It is anticipated that an increased population within the Zone will complement the range of opportunities and experiences provided in the City and increase its vibrancy.

The Zone will be active during the day, evening and late night. Licensed entertainment premises, nightclubs and bars are encouraged throughout the Zone, particularly where they are located above or below ground floor level to maintain street level activation during the day and evening.

High-scale development is envisaged in the Zone with high street walls that frame the streets. However an interesting pedestrian environment and human scale will be created at ground floor levels through careful building articulation and fenestration, frequent openings in building façades, verandahs, balconies, awnings and other features that provide weather protection.

In important pedestrian areas, buildings will be set back at higher levels above the street wall to provide views to the sky and create a comfortable pedestrian environment. In narrow streets and laneways the street setback above the street wall may be relatively shallow or non-existent to create intimate spaces through a greater sense of enclosure. In the Central Business Policy Areas, upper level setbacks are not envisaged.

Non-residential land uses at ground floor level that generate high levels of pedestrian activity such as shops, cafés and restaurants will occur throughout the Zone. Within the Central Business Policy Area, residential land uses at ground level are discouraged. At ground level, development will continue to provide visual interest after hours by being well lit and having no external shutters.

There will also be a rich display of art that is accessible to the public and contextually relevant.

Exemplary and outstanding building design is desired in recognition of the location as South Australia’s capital. Contemporary juxtapositions will provide new settings for heritage places. Innovative forms are expected in areas of identified street character, referencing the past, but with emphasis on modern design-based responses that support optimal site development.

Adelaide’s pattern of streets and squares

The distinctive grid pattern of Adelaide will be reinforced through the creation of a series of attractive boulevards as shown on Concept Plan Figures CC/1 and 2. These boulevards will provide a clear sense of arrival into the City and be characterised by buildings that are aligned to the street pattern, particularly at ground level.

Views to important civic landmarks, the Park Lands and the Adelaide Hills will be retained as an important part of the City’s charm and character.

The City’s boulevards, terraces and Squares will be developed as follows:

(a) North Terrace will be reinforced as an important pedestrian promenade and cultural boulevard that provides an important northern edge to the City square mile.

(b) King William Street will be enhanced as the City’s principal north-south boulevard and will be reinforced as the City’s commercial spine.
Maximum Building Height (metres) within Capital City zoned land
Note: Airport Building Height Restrictions Apply. Refer Map Adel/1 (Overlay 5).

City Boulevards and Terraces
Policy Areas of a ‘Main Street’ type

ADELAIDE (CITY)
BUILDING HEIGHTS
Concept Plan Figure CC/1

Consolidated - 30 January 2014
No Prescribed Height Limit

Maximum Building Height (Metres) within Capital City Zoned land
Note: Airport Building Height Restrictions Apply. Refer Map Adel/1 (Overlay 5).

City Boulevards and Terraces
Policy Areas of a ‘main Street’ type

ADELAIDE (CITY)
BUILDING HEIGHTS
Concept Plan Figure CC/2

Consolidated - 30 January 2014
(c) Grote Street-Wakefield Street will be enhanced as the City’s principal east-west boulevard and will be developed to provide a strong frame that presents a sense of enclosure to the street.

(d) East Terrace will be characterised by buildings that maximise views through to the Park Lands and provide a distinct City edge.

(e) West Terrace will be reinforced as the western ‘gateway’ to the City centre and will form an imposing frontage to the western City edge. Buildings will be constructed to the front and side boundaries, and designed to maximise views through to the Park Lands. Corner sites at the junctions of West Terrace and the major east-west streets will be developed as strongly defined visual gateways to the City. This will provide an imposing frontage to the western edge of the City, which comprises a mixture of commercial, showroom and residential development.

(f) Pulteney and Morphett streets are key north-south boulevards. A sense of activation and enclosure of these streets will be enhanced through mixed use development with a strong built form edge. Pulteney Street will include residential, office and institutional uses, and retail activities. These boulevards will become important tree-lined commercial corridors.

(g) Currie, Grenfell, Franklin and Flinders streets, as wider east-west boulevards provide important entry points to the City. Currie and Grenfell streets will become a key focus for pedestrians, cycling and public transport. These streets also provide long views to the hills as their closing vistas and these view corridors should remain uncluttered.

(h) Victoria, Hindmarsh and Light Squares will have a continuous edge of medium to high-scale development that frames the Squares and increases ground level activity.

The Zone also includes a number of Main Street areas, encompassing Rundle Mall, Rundle Street, Hindley Street and Gouger Street, which are envisaged to have a wide range of retail, commercial and community uses that generate high levels of activity. These areas will have an intimately scaled built form with narrow and frequent building frontages. These areas are shown on Concept Plan Figures CC/1 and 2.

Minor streets and laneways will have a sense of enclosure (a tall street wall compared to street width) and an intimate, welcoming and comfortable pedestrian environment with buildings sited and composed in a way that responds to the buildings’ context. There will be a strong emphasis on ground level activation through frequent window openings, land uses that spill out onto the footpath, and control of wind impacts.

Development in minor streets and laneways with a high value character will respond to important character elements and provide a comfortable pedestrian environment, particularly in the following streets: Gray, Leigh, Union, Chesser, Coromandel, Tucker, Cardwell, Kenton, Market, Ruthven, Cannon, Tatham, Benthem streets, Murrays Lane and Wright Court.

A comprehensive, safe and convenient movement network throughout the City will develop, focusing on the provision of linkages on both public and private land between important destinations and public transport. A high quality system of bicycle or shared pedestrian and bicycle routes will be established within the Zone.

OBJECTIVES

General

**Objective 1:** The principal focus for the economic, social and political life of metropolitan Adelaide and the State.

**Objective 2:** A vibrant mix of commercial, retail, professional services, hospitality, entertainment, educational facilities, and medium and high density living.

**Objective 3:** Design and management of City living to ensure the compatibility of residential amenity with the essential commercial and leisure functions of the Zone.
Objective 4: City streets that provide a comfortable pedestrian environment.

Objective 5: Innovative design approaches and contemporary architecture that respond to a building's context.

Objective 6: Buildings that reinforce the gridded layout of Adelaide’s streets and respond to the underlying built-form framework of the City.

Objective 7: Large sites developed to their full potential while ensuring a cohesive scale of development and responding to a building's context.

Objective 8: Development that contributes to the Desired Character of the Zone.

PRINCIPLES OF DEVELOPMENT CONTROL

Land Use

1 The following types of development, or combinations thereof, are envisaged:

- Affordable housing
- Aged persons accommodation
- Community centre
- Consulting room
- Convention centre
- Dwelling
- Educational establishment
- Emergency services facility
- Hospital
- Hotel
- Indoor recreation centre
- Licensed entertainment premises
- Library
- Motel
- Office
- Pre-school
- Personal service establishment
- Place of worship
- Serviced apartment
- Restaurant
- Residential flat building
- Student accommodation
- Shop or group of shops
- Tourist accommodation

2 Land uses that are typically closed during the day should be designed to maximise daytime and evening activation at street level and be compatible with surrounding land uses, in particular residential development.

3 Low impact industries should be located outside the Central Business Policy Area and have minimal off-site impacts with respect to noise, air, water and waste emissions, traffic generation and movement.

4 Development listed as non-complying is generally inappropriate.

Form and Character

5 Development should be consistent with the Desired Character for the Zone.

Design and Appearance

6 Development should be of a high standard of architectural design and finish which is appropriate to the City’s role and image as the capital of the State.
Buildings should present an attractive pedestrian-oriented frontage that adds interest and vitality to City streets and laneways.

The finished ground floor level of buildings should be at grade and/or level with the footpath to provide direct pedestrian access and street level activation.

Providing footpath widths and street tree growth permit, development should contribute to the comfort of pedestrians through the incorporation of verandahs, balconies, awnings and/or canopies that provide pedestrian shelter.

Buildings should be positioned regularly on the site and built to the street frontage, except where a setback is required to accommodate outdoor dining or provide a contextual response to a heritage place.

Other than in the Central Business Policy Area, buildings should be designed to include a podium/street wall height and upper level setback (in the order of 3-6 metres) that:

(a) relates to the width of the street and achieves a suitable level of enclosure to the public realm;

(b) provides a human scale at street level;

(c) creates a well-defined and continuity of frontage;

(d) gives emphasis and definition to street corners to clearly define the street grid;

(e) contributes to the interest, vitality and security of the pedestrian environment;

(f) maintains a sense of openness to the sky for pedestrians and brings daylight to the street; and

(g) achieves pedestrian comfort by minimising micro climatic impacts (particularly wind tunnelling and downward drafts).

Buildings north of Rundle Mall, Rundle Street, Hindley Street and Gouger Street should have a built form that incorporates slender tower elements, spaces between buildings or other design techniques that enable sunlight access to the southern footpath.

Buildings, advertisements, site landscaping, street planting and paving should have an integrated, coordinated appearance and should enhance the urban environment.

Building façades should be strongly modelled, incorporate a vertical composition which reflects the proportions of existing frontages, and ensure that architectural detailing is consistent around corners and along minor streets and laneways.

The Squares (Victoria, Hindmarsh and Light)

Outdoor eating and drinking facilities associated with cafés and restaurants are appropriate ground floor uses and should contribute to the vitality of the Squares and create a focus for leisure.

Buildings fronting the Squares should:

(a) provide a comfortable pedestrian and recreation environment by enabling direct sunlight to a minimum of 75 percent of the landscaped part of each Square at the September equinox; and

(b) reinforce the enclosure of the Squares with a continuous built-form with no upper level set-backs.
The Terraces (North, East and West)

17 Development along the terraces should contribute to a continuous built form to frame the City edge and activate the Park Lands.

18 Development along North Terrace should reinforce the predominant scale and ‘City wall’ character of the Terrace frontage.

Building Height

19 Development should generally be compatible with the overall desired city form and not exceed the maximum building height shown in Concept Plan Figures CC/1 and 2; unless it meets one or more of the following:

   (a) the proposed building is located in one of the following areas:

   (i) fronting North Terrace, West Terrace or East Terrace and/or at the junction of two City boulevards shown in Concept Plan Figures CC/1 and 2;

   (ii) on an allotment with frontage to Light Square;

   (iii) within 200 metres of a high concentration public transport route identified on Map Adel/1 (Overlay 4);

   (b) the site area is greater than 1500 square metres and has side or rear vehicle access;

   (c) the development provides an orderly transition up to an existing taller building or prescribed maximum building height in an adjoining Zone or Policy Area;

   (d) the proposal incorporates the retention and conservation of a character building.

20 Development should have optimal height and floor space yields to take advantage of the premium City location and should have a building height no less than half the maximum shown on Concept Plan Figures CC/1 and 2, or 28 metres in the Central Business Policy Area, except where one or more of the following applies:

   (a) a lower building height is necessary to achieve compliance with the Commonwealth Airports (Protection of Airspace) Regulations;

   (b) the site is adjacent to a Residential Zone and a lesser building height is required to manage the interface with low-rise residential development;

   (c) the site is adjacent to a heritage place, or includes a heritage place;

   (d) the development includes the construction of a building in the same, or substantially the same, position as a building which was demolished, as a result of significant damage caused by an event, within the previous 3 years where the new building has the same, or substantially the same, layout and external appearance as the previous building.

Interface

21 Development should manage the interface with Residential Zones in relation to building height, overshadowing, massing, building proportions and traffic impacts and should avoid land uses, or intensity of land uses, that adversely affect residential amenity.

22 Development on all sites on the southern side of Gouger Street - Angas Street and adjacent to a northern boundary of a Residential Zone should not exceed 22 metres in building height unless the Council Wide overshadowing Principles of Development Control are met.
Movement

23 Pedestrian movement should be based on a network of pedestrian malls, arcades and lanes, linking the surrounding Zones and giving a variety of north-south and east-west links.

24 Development should provide pedestrian linkages for safe and convenient movement with arcades and lanes clearly designated and well-lit to encourage pedestrian access to public transport and areas of activity. Blank surfaces, shutters and solid infills lining such routes should be avoided.

25 Development should ensure existing through-site and on-street pedestrian links are maintained and new pedestrian links are developed in accordance with Map Adel/1 (Overlay 2A).

26 Car parking should be provided in accordance with Table Adel/7.

27 Multi-level car parks should locate vehicle access points away from the primary street frontage wherever possible and should not be located:

   (a) within any of the following areas:

      (i) the Core Pedestrian Area identified in Map Adel/1 (Overlays 2, 2A and 3)

      (ii) on frontages to North Terrace, East Terrace, Rundle Street, Hindley Street, Currie Street, Waymouth Street (east of Light Square), Victoria Square or King William Street;

   (b) where they conflict with existing or projected pedestrian movement and/or activity;

   (c) where they would cause undue disruption to traffic flow; and

   (d) where it involves creating new crossovers in North Terrace, Rundle Street, Hindley Street, Currie Street and Waymouth Street (east of Light Square), Grenfell Street and Pirie Street (west of Pulteney Street), Victoria Square, Light Square, Hindmarsh Square, Gawler Place and King William Street or access across primary City access and secondary City access roads identified in Map Adel/1 (Overlay 1).

28 Multi-level, non-ancillary car parks are inappropriate within the Core Pedestrian Area as shown on Map Adel/1 (Overlays 2, 2A and 3).

29 Vehicle parking spaces and multi-level vehicle parking structures within buildings should:

   (a) enhance active street frontages by providing land uses such as commercial, retail or other non-car park uses along ground floor street frontages;

   (b) complement the surrounding built form in terms of height, massing and scale; and

   (c) incorporate façade treatments along major street frontages that are sufficiently enclosed and detailed to complement neighbouring buildings consistent with the Desired Character of the locality.

Advertising

30 Other than signs along Hindley Street, advertisements should use simple graphics and be restrained in their size, design and colour.

31 In minor streets and laneways, a greater diversity of type, shape, numbers and design of advertisements are appropriate provided they are of a small-scale and located to present a consistent message band to pedestrians.

32 There should be an overall consistency achieved by advertisements along individual street frontages.
33 In Chesser Street, French Street and Coromandel Place advertisements should be small and preferably square and should not be located more than 3.7 metres above natural ground level or an abutting footpath or street. However, advertisements in these streets may be considered above 3.7 metres at locations near the intersections with major streets.

34 Advertisements on the Currie Street frontages between Topham Mall and Gilbert Place and its north-south prolongation should be of a size, shape and location complementary to the desired townscape character, with particular regard to the following:

(a) On the southern side of Currie Street, advertisements should be fixed with their underside at a common height, except where the architectural detailing of building façades precludes it. At this ‘canopy’ level advertisements should be of a uniform size and fixed without the support of guy wires. Where architectural detailing permits, advertisements may mark the major entrances to buildings along the southern side of Currie Street with vertical projecting advertisements 1.5 metres high by 1.2 metres wide at, or marginally above, the existing canopy level. Painted wall or window signs should be restrained.

(b) On the northern side of Currie Street, advertisements should be of a uniform fixing height and consistent dimensions to match those prevailing in the area.

PROCEDURAL MATTERS

Complying Development

35 Complying developments are prescribed in Schedule 4 of the Development Regulations 2008.

In addition, the following forms of development are assigned as complying:

(a) Other than in relation to a State heritage place, Local heritage place (City Significance), or Local heritage place, work undertaken within a building which does not involve a change of use or affect the external appearance of the building;

(b) Temporary depot for Council for a period of no more than 3 months where it can be demonstrated that appropriate provision has been made for:

(i) dust control;
(ii) screening, including landscaping;
(iii) containment of litter and water; and
(iv) securing of the site.

(c) Change in the use of land from a non-residential use to an office, shop or consulting room (excluding any retail showroom, adult entertainment premises, adult products and services premises or licensed premises).

Non-complying Development

36 The following kinds of development are non-complying:

A change in use of land to any of the following:

Amusement machine centre

Advertisements involving any of the following:

(a) Third party advertising except on Hindley Street, Rundle Mall or on allotments at the intersection of Rundle Street and Pulteney Street frontages (except where fronting King William Street), or temporary advertisements on construction sites;

(b) Advertisements located at roof level where the sky or another building forms the background when viewed from ground level;
(c) Advertisements in the area bounded by West Terrace, Grote Street, Franklin Street and Gray Street;

(d) Animation of advertisements along and adjacent to the North Terrace, King William Street and Victoria Square frontages.

Demolition of a State heritage place (as identified in Table Adel/1)

Vehicle parking except:

(a) where it is ancillary to an approved or existing use;

(b) it is a multi-level car park located outside the Core Pedestrian Area as indicated on Map Adel/1 (Overlay 2, 2A and 3); or

(c) it is within an existing building located outside the Core Pedestrian Area as indicated on Map Adel/1 (Overlay 2, 2A and 3).

Public Notification

37 Categories of public notification are prescribed in Schedule 9 of the Development Regulations 2008.

In addition, the following forms of development, or any combination of (except where the development is non-complying), are assigned:

(a) **Category 1**, public notification not required:

All forms of development other than where it is assigned Category 2.

(b) **Category 2**, public notification required. Third parties do not have any appeal rights.

Any development where the site of the development is adjacent land to land in a Residential Zone and it exceeds 22 metres in building height.

*Note: For Category 3 development, public notification is required. Third parties may make written representations, appear before the relevant authority on the matter, and may appeal against a development consent. This includes any development not classified as either Category 1 or Category 2.*

Central Business Policy Area 13

Introduction

The Objectives and Principles of Development Control that follow apply to the Policy Area as shown on Maps Adel/49, 50, 55 and 56. They are additional to those expressed for the Zone and, in cases of apparent conflict, take precedence over the Zone provisions. In the assessment of development, the greatest weight is to be applied to satisfying the Desired Character for the Policy Area.

Desired Character

The Central Business Policy Area is the pre-eminent economic, governance and cultural hub for the State. This role will be supported by educational, hospitality and entertainment activities and increased opportunities for residential, student and tourist accommodation.

Buildings will exhibit innovative design approaches and produce stylish and evocative architecture, including tall and imposing buildings that provide a hard edge to the street and are of the highest design quality. A wide variety of design outcomes of enduring appeal are expected. Complementary and harmonious buildings in individual streets will create localised character and legible differences between streets, founded on the existing activity focus, building and settlement patterns, and street widths.
OBJECTIVES

Objective 1: A concentration of employment, governance, entertainment and residential land uses that form the heart of the City and central place for the State.

Objective 2: Development of a high standard of design and external appearance that integrates with the public realm.

Objective 3: Development that contributes to the Desired Character of the Policy Area.

PRINCIPLES OF DEVELOPMENT CONTROL

Land Use

1. Development should contribute to the area’s role and function as the State’s premier business district, having the highest concentration of office, retail, mixed business, cultural, public administration, hospitality, educational and tourist activities.

2. Buildings should be of a height that ensures airport operational safety is not adversely affected.

3. To enable an activated street level, residential development or similar should be located above ground floor level.

Main Street Policy Area 14

Introduction

The Objectives and Principles of Development Control that follow apply to the Policy Area as shown on Maps Adel/48, 49, 50, 51 and 55. They are additional to those expressed for the Zone and, in cases of apparent conflict, take precedence over the Zone provisions. In the assessment of development, the greatest weight is to be applied to satisfying the Desired Character for the Policy Area.

Desired Character

Main streets provide an important shopping, hospitality and gathering place that are a vital part of the City’s identity and image.

An atmosphere of bustle, excitement and activity is created by a vibrant mixture of land uses that support a strong retail base and a continuing program of on-street arts and activities. Activities including retail, restaurants, cafés and licensed premises will contribute to the day and evening economies and be managed to ensure a positive contribution to the character of the precinct. Licensed entertainment premises, nightclubs and bars will contribute to activation during the day and evening by generally being small in scale and located above or below ground floor level.

Development will abut the footpath and continue the established width, rhythm and pattern of façades to generally support a variety of tenancies with narrow frontages. Horizontally massed buildings will be broken into smaller façade elements. Above street level fenestration, balconies, parapets, architectural detailing and ornamentation will be used to contribute to a rich visual texture.

Upper levels of buildings are to be recessed behind a moderately scaled building street wall to maintain a sense of spaciousness and openness to the sky. At lower levels, the continuity of verandahs and other canopies or pedestrian shelters, and ceiling heights is desired to maintain a sheltered, high amenity pedestrian environment at a human scale.

Rundle Street

Development will be consistent with the intimate scale and intricate and diverse architectural features of Rundle Street and will reinforce the existing two and three storey built scale. This is derived from buildings of relatively uniform height and scale, mostly built in the nineteenth and early twentieth century.
Existing façades typically encompass a high proportion of solid to void and a high level of architectural detail (including ornamentation and fenestration and through a combination of materials).

Horizontal emphasis is achieved through the integration of masonry coursing, parapets, verandahs and balconies. The subtle variety of scale and massing adds texture to the streetscape. Upper levels of buildings are to be recessed to maintain a sense of spaciousness and openness to the sky.

**Rundle Mall**

Rundle Mall will be enhanced as Adelaide’s premier retail area incorporating a wide range of specialty and larger scale shops and mixed business. Rundle Mall will continue to grow and evolve in response to the needs of the retail and business sectors and the wider public, and enhance its iconic reputation as an important public space for a range of retail, business and cultural purposes. A range of activities will contribute to the day and evening economies.

Rundle Mall offers a strong and unique character and sense of place, established by a pedestrian space framed by a long enclosure of visual interest and vitality which is reached with a sense of arrival from King William Street and Pulteney Street and the adjoining minor streets, arcades and laneways.

**Hindley Street**

Hindley Street (east of Morphett Street) will be the City’s focus for late night entertainment and will be carefully designed and managed to integrate effectively with day time and evening land use activities.

Hindley Street (west of Morphett Street) will comprise a range of mixed business, educational, cultural, hospitality and retail activities. Activities, including licensed premises, will contribute to the day and evening economies.

The refurbishment of nineteenth century buildings in Hindley Street will be complemented by sensitive new development and will provide a colourful and cohesive character and intimate, human scale.

**Gouger Street**

Gouger Street will be characterised by a mix of retail, restaurant, commercial and mixed business uses, including professional services, wholesaling and community activities. Activities including restaurants, cafés and licensed premises will contribute to the vibrancy of the street during the day and evening.

Gouger and Grote streets will continue to develop as a colourful and active restaurant and shopping precinct which complements the liveliness of the Central Market and supports the retail, community, cultural and legal functions in this part of the City. ‘Chinatown’ around Moonta Street will be reinforced, and opportunities for new precincts, such as in minor streets and lanes, established.

**OBJECTIVES**

- **Objective 1:** Rundle Street enhanced as an important shopping, leisure and gathering place for metropolitan Adelaide.
- **Objective 2:** Rundle Mall enhanced as the State’s premier shopping destination around an attractive public space.
- **Objective 3:** Hindley Street (east of Morphett Street) as the pre-eminent evening and late night entertainment hub for metropolitan Adelaide, with complementary shopping, hospitality and mixed business together with high density living.
- **Objective 4:** Hindley Street (west of Morphett Street) reinforced as a main street with a mix of retail, educational, restaurant and business uses, together with high density living.
- **Objective 5:** Gouger Street reinforced as a colourful, intimate and active restaurant and shopping street which complements the vibrancy of the Central Market and supports the retail, community and cultural functions of the area.
- **Objective 6:** Development that contributes to the Desired Character of the Policy Area.
PRINCIPLES OF DEVELOPMENT CONTROL

Land Use

1 At ground level along any main street (including Rundle Mall) and in minor streets leading to them, development should provide active and vibrant frontages that contribute to continuous interest at street level.

2 Land uses that add to the vitality of the area and extend activities outside shop hours are envisaged, including restaurants; educational, community and cultural facilities; and visitor and residential accommodation.

3 To enable an activated street level, residential development or similar should be located above ground floor level.

4 Licensed entertainment premises, night clubs or bars should contribute to activation during the day and evening by generally being small in scale and located above or below ground floor level.

Design and Appearance

5 The ground level street frontage of buildings should be designed as activate street frontages, provide pedestrian interest, and maximise passive surveillance by:
   
   (a) providing at least 70 percent of the frontage as a non-residential use; and

   (b) 50 percent of the frontage as visually permeable, transparent or clear glazed and may include an entry/foyer or display window to a shop (including a café or restaurant).

Form and Character

6 Development should conserve, enhance and complement the colourful and visually rich and intimate character of the area.

7 Development should include a variety of architectural expression and finishes compatible with the many existing older buildings. Verandahs, balconies, awnings and parapets should be designed to complement those existing.

8 Development should strengthen the established character of narrow building frontage widths, vertical massing and above street level fenestrations, balconies, parapets, architectural detailing and ornamentation.

9 Buildings with frontage to Gouger Street, Hindley Street or Rundle Street, west of Frome Street, should be designed to:
   
   (a) reinforce the prevailing datum heights and parapet levels of the street through design elements that provide a clear distinction between levels above and below the prevailing datum line; and

   (b) include a maximum podium/street wall height in the order of six storeys, with an upper level setback, measured from the street wall in the order of 3 metres.

10 Buildings with frontage to Rundle Mall should have a maximum podium/street wall height of 6 storeys with upper building levels set back from the street in the order of 3 metres.

11 Buildings with frontage to Rundle Street, east of Frome Street should be designed to reinforce the prevailing datum heights and parapet levels of the street through:

   (a) a maximum podium/street wall height that is consistent with one of the adjacent buildings facing the street and does not exceed 13 metres;

   (b) an upper level setback, measured from the street wall, of at least 3 metres stepping up to a height of 6 storeys, then a further setback of at least 3 metres stepping up to the maximum overall height shown on Concept Plan Figures CC/1 and 2; and
(c) design elements that create a clear distinction between the 13 metre and 22 metre datum lines.

12 Development of both internal and external spaces on Rundle Street should maintain an environment which is intimately scaled, intricate and diverse.

Movement

13 Additional vehicle cross-overs to provide access should be avoided in Hindley Street, Bank Street and Leigh Street. Access for on-site servicing and deliveries should be from minor streets and private lanes wherever possible, rather than from Rundle Mall.

14 Pedestrian movement should be based on a network of pedestrian malls, arcades and lanes, linking the surrounding areas and giving a variety of north to south routes to Rundle Mall and east to west links for people moving between buildings.
APPENDIX B

DEVELOPMENT PLANS
(ZEN 1 AND ZEN 2)
APPENDIX C

LOCAL GROUNDWATER WELL INFORMATION
Approximate site location

Approximate extent of 900 metres radius around site
<table>
<thead>
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<th>Unit No</th>
<th>Max Depth (m)</th>
<th>Latest Depth (m)</th>
<th>SWL (m)</th>
<th>SWL Date</th>
<th>Yield (L/sec)</th>
<th>Yield Date</th>
<th>TDS (mg/L)</th>
<th>TDS Date</th>
<th>Date</th>
<th>Purpose</th>
<th>Obs No</th>
<th>SWL Status</th>
<th>Salinity Status</th>
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27 records
APPENDIX E

SUMMARY OF HISTORICAL OCCUPANCY
## Summary of Historical Occupancy

246-256 Flinders Street, Adelaide

*Note that there are no occupancy records located for 1-17 Dawkins Place or 13 Tucker Street*

<table>
<thead>
<tr>
<th>Year</th>
<th>Street Number &amp; Listed Occupants (possible site occupants in bold)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Flinders Street</td>
</tr>
<tr>
<td></td>
<td>North side</td>
</tr>
<tr>
<td></td>
<td>(west to east)</td>
</tr>
<tr>
<td>1973</td>
<td><em>Frome Street</em></td>
</tr>
<tr>
<td></td>
<td>216. Leyparts South Australia</td>
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<tr>
<td></td>
<td>240. Adelaide Motor Group used cars</td>
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<tr>
<td></td>
<td>242. Malvern Star Factory</td>
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<tr>
<td></td>
<td><strong>246. General Accessories bicycle division</strong></td>
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<tr>
<td></td>
<td>250-254. Penfolds Wines Pty Ltd</td>
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<tr>
<td></td>
<td><strong>256. Lawrence Alfred &amp; Co Pty Ltd, manufacturing chemist</strong></td>
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<tr>
<td>1962</td>
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<td>202. Ellis &amp; Clark Holdings Pty Ltd, electrical engineers</td>
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<tr>
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<td>202. Keen Graham (Sales) Limited</td>
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<td></td>
<td>204-214. Keen G Ltd manufacturing representatives</td>
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<td>204-214. Zelemite (Aust) Ltd, switchboards</td>
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<td>216-220. Gray &amp; Donaldson Ltd, engineers assembly shop</td>
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<td>240. Auto Salvage Company</td>
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<td><strong>242-246. Thornquest Press Limited, printers</strong></td>
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<td><strong>242-246. Clovelly Limited</strong></td>
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<td>252. Buring &amp; Sobels bulk store</td>
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<td><strong>256. Beetle Elliot Pty Limited</strong></td>
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<td></td>
<td>202-214. Shell Fertilisers Ltd</td>
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<td></td>
<td>216-220. Gray &amp; Donaldson Ltd, engineers assembly shop</td>
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<td>222. Metal Moulders Ltd, brass founders</td>
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<td>240. Truscott Ltd, car &amp; truck wreckers</td>
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<td>204. Victory Light Co.</td>
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### Flinders Street
North side
(west to east)

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<tr>
<th>Year</th>
<th>Street Number &amp; Listed Occupants</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(possible site occupants in bold)</td>
</tr>
</tbody>
</table>

#### 1932

**Frome Street**

214. Westwood, C. D., bricklayer
242. Pepper, Mrs. F. M.

246. Fraser, G.P., postal employee
248. Curven, D. M., sheet metal worker

252. Copeland, W. J., fruiterer
252. Linnett, F. W., grocer
252. Linnett, G. E.
252. Linnett, H. H., clicker

*Tucker Street (formerly Daly Street)*

#### 1923

**Frome Street**

208. Adelaide Box Manufacturing Co Ltd (The Factory)
214. Lewis & Reid Ltd, timber merchants

242. Kruss, Mrs Augusta
246. Kruss, A. H., printer
248. Nounan, F., carpenter

252. Copeland, W. J., fruiterer
256. Linnett, Mrs Elizabeth

*Tucker Street (formerly Daly Street)*

#### 1912

**Frome Street**

Adelaide Box Manufacturing Co Ltd (The Factory)

Reid Bros, timber merchants

242. Kruss, Mrs Augusta
242. Kruss, H. A., carpenter
244. Woltmann, C. H. J.

248. Staker, W. L., hairdresser
250. Copeland, W. J., fruiterer
250. Linnett, Mrs Elizabeth

*Tucker Street (formerly Daly Street)*

#### 1903

**Frome Street**

242. Kruss, Mrs Augusta
244. Woltmann, C. H. J.

248. Knox, Mrs C. E., hairdresser

*Right of way*

*Evans, E., coachman*

*Dowie, D., sailmaker*

250. Bonynthon, G.L.
<table>
<thead>
<tr>
<th>Year</th>
<th>Street Number &amp; Listed Occupants (possible site occupants in bold)</th>
</tr>
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<tr>
<td></td>
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<tr>
<td></td>
<td>North side</td>
</tr>
<tr>
<td></td>
<td>(west to east)</td>
</tr>
<tr>
<td>1893</td>
<td><strong>Frome Street</strong></td>
</tr>
<tr>
<td></td>
<td>242. Kruss, Henry, R., warehouseman</td>
</tr>
<tr>
<td></td>
<td>244. Wiseman, Arthur, warehouseman</td>
</tr>
<tr>
<td></td>
<td>248. Hellawell, John, novelty shopkeeper</td>
</tr>
<tr>
<td></td>
<td><strong>Right of way</strong></td>
</tr>
<tr>
<td></td>
<td>Salter, Frank, engineer</td>
</tr>
<tr>
<td></td>
<td>Hogan, Mrs Mary</td>
</tr>
<tr>
<td></td>
<td>Stentiford, Henry, storeman</td>
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<tr>
<td></td>
<td>250. Cleland, G. F., wine merchant</td>
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<tr>
<td></td>
<td>250. Vollmar, Gustav, musician</td>
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<tr>
<td></td>
<td>250. Hinicke, H., musician</td>
</tr>
<tr>
<td></td>
<td><em>Tucker Street (formerly Daly Street)</em></td>
</tr>
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APPENDIX F

HISTORICAL AERIAL PHOTOGRAPHS
Approximate site location
Approximate site location
Approximate site location

AEC Environmental Pty Ltd

<table>
<thead>
<tr>
<th>Project: Preliminary Site Investigation</th>
<th>1968 AERIAL PHOTOGRAPH</th>
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<tr>
<td>1-5 Dawkins Street, Adelaide</td>
<td>AEC Job Ref: J126421</td>
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<tr>
<td>Date: May 2014</td>
<td>Drawn: SKW</td>
</tr>
<tr>
<td></td>
<td>Checked: AD</td>
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</table>
APPENDIX G

EPA SECTION 7 SEARCH RESPONSES, EPA SITE CONTAMINATION INDEX SEARCH, AND SAFEWORK SA RESPONSES
Dear Sir/Madam,

Section 7 - Land and Business (Sale and Conveyancing) Act 1994

I refer to your enquiry concerning the parcel of land comprised in

Title Reference    CT Volume 5964 Folio 617
Address             248 Flinders Street, ADELAIDE SA 5000

I advise as follows:

PARTICULARS OF MORTGAGES, CHARGES PRESCRIBED ENCUMBRANCES AFFECTING THE LAND

9.1 Environment performance agreement under section 59 of the Environment Protection Act 1993 that is registered in relation to the land.  NO

9.2.1 Environment protection order issued under section 93 of the Environment Protection Act 1993 that is registered in relation to the land.  NO

9.2.2 Section 93A - Environment protection order relating to cessation of activity that is registered in relation to the land.  NO

9.3 Clean-up order issued under section 99 of the Environment Protection Act 1993 that is registered in relation to the land.  NO

9.4 Clean-up authorisation issued under section 100 of the Environment Protection Act 1993 that is registered in relation to the land.  NO

CT Volume 5964 Folio 617
9.5.1 Section 103H - Site contamination assessment order that is registered in relation to the land. NO

9.5.2 Section 103J - Site remediation order that is registered in relation to the land. NO

9.5.3 Section 103N - Notice of declaration of special management area in relation to the land (due to possible existence of site contamination). NO

9.5.4 Section 103P - Notation of site contamination audit report in relation to the land. NO

9.5.5 Section 103S - Notice of prohibition or restriction on taking water affected by site contamination in relation to the land. NO

PARTICULARS RELATING TO ENVIRONMENT PROTECTION
Section 7 - Land and Business (Sale and Conveyancing) Act 1994

3) Licences and exemptions recorded by EPA in public register

Does the EPA hold any of the following details in the public register:

a) details of a current licence issued under Part 6 of the Environment Protection Act 1993 to conduct, at the land-

i) a waste or recycling depot (as referred to in clause 3(3) of Schedule 1 Part A of that Act); or NO

ii) activities producing listed wastes (as referred to in clause 3(4) of Schedule 1 Part A of that Act)? NO

iii) any other prescribed activity of environmental significance under Schedule 1 of that Act? NO

b) details of a licence no longer in force issued under Part 6 of the Environment Protection Act 1993 to conduct, at the land-

i) a waste or recycling depot (as referred to in clause 3(3) of Schedule 1 Part A of that Act); or NO

ii) activities producing listed wastes (as referred to in clause 3(4) of Schedule 1 Part A of that Act)? NO
iii) any other prescribed activity of environmental significance under Schedule 1 of that Act? NO

c) details of a current exemption issued under Part 6 of the Environmental Protection Act 1993 from the application of a specified provision of that Act in relation to an activity carried on at the land. NO

d) details of an exemption that are no longer enforced, issued under Part 6 of the Environmental Protection Act 1993 from the application of a specified provision of that Act in relation to an activity carried on at the land. NO

e) details of a licence issued under the repealed *South Australian Waste Management Commission Act 1979* to operate a waste depot at the land. NO

f) details of a licence issued under the repealed *Waste Management Act 1987* to operate a waste depot at the land NO

g) details of a licence issued under the repealed *South Australian Waste Management Commission Act 1979* to produce waste of a prescribed kind (within the meaning of that Act) at the land. NO

h) details of a licence issued under the repealed *Waste Management Act 1987* to produce prescribed waste (within the meaning of that Act) at the land? NO

4) Pollution and site contamination on the land - details recorded by the EPA in public register

Does the EPA hold any of the following details in the public register in relation to the land or part of the land:

a) details of serious or material environmental harm caused or threatened in the course of an activity (whether or not notified under section 83 of the *Environment Protection Act 1993*)? NO

b) details of site contamination notified to the EPA under section 83A of the *Environment Protection Act 1993*? NO

c) a copy of a report of an environmental assessment (whether prepared by the EPA or some other person or body and whether or not required under legislation) that forms part of the information required to be recorded in the public register? NO

d) a copy of a site contamination audit report? NO
e) details of an agreement for the exclusion or limitation of liability for site contamination to which section 103E of the *Environment Protection Act 1993* applies? NO

f) details of an agreement entered into with the EPA relating to an approved voluntary site contamination assessment proposal under section 103I of the *Environment Protection Act 1993*? NO

g) details of an agreement entered into with the EPA relating to an approved voluntary site remediation proposal under section 103K of the *Environment Protection Act 1993*? NO

h) details of a notification under section 103Z(1) of the *Environment Protection Act 1993* relating to the commencement of a site contamination audit? NO

i) details of a notification under section 103Z(2) of the *Environment Protection Act 1993* relating to the termination before completion of a site contamination audit? NO

j) details of records, held by the former *South Australian Waste Management Commission* under the repealed *Waste Management Act 1987*, of waste (within the meaning of that Act) having been deposited on the land between 1 January 1983 and 30 April 1995? NO

5) Pollution and site contamination on the land - other details held by EPA

Does the EPA hold any of the following details in relation to the land or part of the land:

a) a copy of a report known as a "Health Commission Report" prepared by or on behalf of the *South Australian Health Commission* (under the repealed *South Australian Health Commission Act 1976*)? NO

b) details (which may include a report of an environmental assessment) relevant to an agreement entered into with the EPA relating to an approved voluntary site contamination assessment proposal under section 103I of the *Environment Protection Act 1993*? NO

c) details (which may include a report of an environmental assessment) relevant to an agreement entered into with the EPA relating to an approved voluntary site remediation proposal under section 103K of the *Environment Protection Act 1993*? NO

d) a copy of a pre-1 July 2009 site audit report? NO

e) details relating to the termination before completion of a pre-1 July 2009 site audit? NO
All care and diligence has been taken to access the above information from available records. Historical records provided to the EPA concerning matters arising prior to 1 May 1995 are limited and may not be accurate or complete and therefore the EPA cannot confirm the accuracy of the historical information provided.

[Signature]

Delegate for
ENVIRONMENT PROTECTION AUTHORITY
Dear Sir/Madam,

Section 7 - Land and Business (Sale and Conveyancing) Act 1984

I refer to your enquiry concerning the parcel of land comprised in

Title Reference CT Volume 5964 Folio 618
Address 250-252 Flinders Street, ADELAIDE SA 5000

I advise as follows:

PARTICULARS OF MORTGAGES, CHARGES PRESCRIBED ENCUMBRANCES AFFECTING THE LAND

9.1 Environment performance agreement under section 59 of the Environment Protection Act 1993 that is registered in relation to the land. NO

9.2.1 Environment protection order issued under section 93 of the Environment Protection Act 1993 that is registered in relation to the land. NO

9.2.2 Section 93A - Environment protection order relating to cessation of activity that is registered in relation to the land. NO

9.3 Clean-up order issued under section 99 of the Environment Protection Act 1993 that is registered in relation to the land. NO

9.4 Clean-up authorisation issued under section 100 of the Environment Protection Act 1993 that is registered in relation to the land. NO
9.5.1 Section 103H - Site contamination assessment order that is registered in relation to the land.

9.5.2 Section 103J - Site remediation order that is registered in relation to the land.

9.5.3 Section 103N - Notice of declaration of special management area in relation to the land (due to possible existence of site contamination).

9.5.4 Section 103P - Notation of site contamination audit report in relation to the land.

9.5.5 Section 103S - Notice of prohibition or restriction on taking water affected by site contamination in relation to the land.

PARTICULARS RELATING TO ENVIRONMENT PROTECTION

Section 7 - Land and Business (Sale and Conveyancing) Act 1994

3) Licences and exemptions recorded by EPA in public register

Does the EPA hold any of the following details in the public register:

a) details of a current licence issued under Part 6 of the Environment Protection Act 1993 to conduct, at the land-

   i) a waste or recycling depot (as referred to in clause 3(3) of Schedule 1 Part A of that Act); or

   ii) activities producing listed wastes (as referred to in clause 3(4) of Schedule 1 Part A of that Act)?

   iii) any other prescribed activity of environmental significance under Schedule 1 of that Act?

b) details of a licence no longer in force issued under Part 6 of the Environment Protection Act 1993 to conduct, at the land-

   i) a waste or recycling depot (as referred to in clause 3(3) of Schedule 1 Part A of that Act); or

   ii) activities producing listed wastes (as referred to in clause 3(4) of Schedule 1 Part A of that Act)?
iii) any other prescribed activity of environmental significance under Schedule 1 of that Act? NO

c) details of a current exemption issued under Part 6 of the Environmental Protection Act 1993 from the application of a specified provision of that Act in relation to an activity carried on at the land. NO

d) details of an exemption that are no longer enforced, issued under Part 6 of the Environmental Protection Act 1993 from the application of a specified provision of that Act in relation to an activity carried on at the land. NO

e) details of a licence issued under the repealed South Australian Waste Management Commission Act 1979 to operate a waste depot at the land. NO

f) details of a licence issued under the repealed Waste Management Act 1987 to operate a waste depot at the land NO

g) details of a licence issued under the repealed South Australian Waste Management Commission Act 1979 to produce waste of a prescribed kind (within the meaning of that Act) at the land. NO

h) details of a licence issued under the repealed Waste Management Act 1987 to produce prescribed waste (within the meaning of that Act) at the land? NO

4) Pollution and site contamination on the land - details recorded by the EPA in public register

Does the EPA hold any of the following details in the public register in relation to the land or part of the land:

a) details of serious or material environmental harm caused or threatened in the course of an activity (whether or not notified under section 83 of the Environment Protection Act 1993)? NO

b) details of site contamination notified to the EPA under section 83A of the Environment Protection Act 1993? NO

c) a copy of a report of an environmental assessment (whether prepared by the EPA or some other person or body and whether or not required under legislation) that forms part of the information required to be recorded in the public register? NO

d) a copy of a site contamination audit report? NO
e) details of an agreement for the exclusion or limitation of liability for site contamination to which section 103E of the Environment Protection Act 1993 applies? NO

f) details of an agreement entered into with the EPA relating to an approved voluntary site contamination assessment proposal under section 103I of the Environment Protection Act 1993? NO

g) details of an agreement entered into with the EPA relating to an approved voluntary site remediation proposal under section 103K of the Environment Protection Act 1993? NO

h) details of a notification under section 103Z(1) of the Environment Protection Act 1993 relating to the commencement of a site contamination audit? NO

i) details of a notification under section 103Z(2) of the Environment Protection Act 1993 relating to the termination before completion of a site contamination audit? NO

j) details of records, held by the former South Australian Waste Management Commission under the repealed Waste Management Act 1987, of waste (within the meaning of that Act) having been deposited on the land between 1 January 1983 and 30 April 1995? NO

5) Pollution and site contamination on the land - other details held by EPA

Does the EPA hold any of the following details in relation to the land or part of the land:

a) a copy of a report known as a "Health Commission Report" prepared by or on behalf of the South Australian Health Commission (under the repealed South Australian Health Commission Act 1976)? NO

b) details (which may include a report of an environmental assessment) relevant to an agreement entered into with the EPA relating to an approved voluntary site contamination assessment proposal under section 103I of the Environment Protection Act 1993? NO

c) details (which may include a report of an environmental assessment) relevant to an agreement entered into with the EPA relating to an approved voluntary site remediation proposal under section 103K of the Environment Protection Act 1993? NO

d) a copy of a pre-1 July 2009 site audit report? NO

e) details relating to the termination before completion of a pre-1 July 2009 site audit? NO
All care and diligence has been taken to access the above information from available records. Historical records provided to the EPA concerning matters arising prior to 1 May 1995 are limited and may not be accurate or complete and therefore the EPA cannot confirm the accuracy of the historical information provided.

Delegate for
ENVIRONMENT PROTECTION AUTHORITY
Dear Sir/Madam,

**Section 7 - Land and Business (Sale and Conveyancing) Act 1994**

I refer to your enquiry concerning the parcel of land comprised in

Title Reference  CT Volume 5482 Folio 624  
Address  254-258 Flinders Street, ADELAIDE SA 5000

I advise as follows:

**PARTICULARS OF MORTGAGES, CHARGES PRESCRIBED ENCUMBRANCES AFFECTING THE LAND**

9.1 Environment performance agreement under section 59 of the *Environment Protection Act 1993* that is registered in relation to the land.  

9.2.1 Environment protection order issued under section 93 of the *Environment Protection Act 1993* that is registered in relation to the land.  

9.2.2 Section 93A - Environment protection order relating to cessation of activity that is registered in relation to the land.  

9.3 Clean-up order issued under section 99 of the *Environment Protection Act 1993* that is registered in relation to the land.  

9.4 Clean-up authorisation issued under section 100 of the *Environment Protection Act 1993* that is registered in relation to the land.

27 May, 2014
9.5.1 Section 103H - Site contamination assessment order that is registered in relation to the land. NO
9.5.2 Section 103J - Site remediation order that is registered in relation to the land. NO
9.5.3 Section 103N - Notice of declaration of special management area in relation to the land (due to possible existence of site contamination). NO
9.5.4 Section 103P - Notation of site contamination audit report in relation to the land. NO
9.5.5 Section 103S - Notice of prohibition or restriction on taking water affected by site contamination in relation to the land. NO

PARTICULARS RELATING TO ENVIRONMENT PROTECTION
Section 7 - Land and Business (Sale and Conveyancing) Act 1994

3) Licences and exemptions recorded by EPA in public register

Does the EPA hold any of the following details in the public register:

a) details of a current licence issued under Part 6 of the Environment Protection Act 1993 to conduct, at the land-
   i) a waste or recycling depot (as referred to in clause 3(3) of Schedule 1 Part A of that Act); or NO
   ii) activities producing listed wastes (as referred to in clause 3(4) of Schedule 1 Part A of that Act)? NO
   iii) any other prescribed activity of environmental significance under Schedule 1 of that Act? NO

b) details of a licence no longer in force issued under Part 6 of the Environment Protection Act 1993 to conduct, at the land-
   i) a waste or recycling depot (as referred to in clause 3(3) of Schedule 1 Part A of that Act); or NO
   ii) activities producing listed wastes (as referred to in clause 3(4) of Schedule 1 Part A of that Act)? NO
iii) any other prescribed activity of environmental significance under Schedule 1 of that Act?

NO

c) details of a current exemption issued under Part 6 of the Environmental Protection Act 1993 from the application of a specified provision of that Act in relation to an activity carried on at the land.

NO

d) details of an exemption that are no longer enforced, issued under Part 6 of the Environmental Protection Act 1993 from the application of a specified provision of that Act in relation to an activity carried on at the land.

NO

e) details of a licence issued under the repealed South Australian Waste Management Commission Act 1979 to operate a waste depot at the land.

NO

f) details of a licence issued under the repealed Waste Management Act 1987 to operate a waste depot at the land

NO

g) details of a licence issued under the repealed South Australian Waste Management Commission Act 1979 to produce waste of a prescribed kind (within the meaning of that Act) at the land.

NO

h) details of a licence issued under the repealed Waste Management Act 1987 to produce prescribed waste (within the meaning of that Act) at the land?

NO

4) Pollution and site contamination on the land - details recorded by the EPA in public register

Does the EPA hold any of the following details in the public register in relation to the land or part of the land:

a) details of serious or material environmental harm caused or threatened in the course of an activity (whether or not notified under section 83 of the Environment Protection Act 1993)?

NO

b) details of site contamination notified to the EPA under section 83A of the Environment Protection Act 1993?

NO

c) a copy of a report of an environmental assessment (whether prepared by the EPA or some other person or body and whether or not required under legislation) that forms part of the information required to be recorded in the public register?

NO

d) a copy of a site contamination audit report?

NO
e) details of an agreement for the exclusion or limitation of liability for site contamination to which section 103E of the Environment Protection Act 1993 applies?

f) details of an agreement entered into with the EPA relating to an approved voluntary site contamination assessment proposal under section 103l of the Environment Protection Act 1993?

NO

g) details of an agreement entered into with the EPA relating to an approved voluntary site remediation proposal under section 103K of the Environment Protection Act 1993?

NO

h) details of a notification under section 103Z(1) of the Environment Protection Act 1993 relating to the commencement of a site contamination audit?

NO

i) details of a notification under section 103Z(2) of the Environment Protection Act 1993 relating to the termination before completion of a site contamination audit?

NO

j) details of records, held by the former South Australian Waste Management Commission under the repealed Waste Management Act 1987, of waste (within the meaning of that Act) having been deposited on the land between 1 January 1983 and 30 April 1995?

NO

5) Pollution and site contamination on the land - other details held by EPA

Does the EPA hold any of the following details in relation to the land or part of the land:

a) a copy of a report known as a "Health Commission Report" prepared by or on behalf of the South Australian Health Commission (under the repealed South Australian Health Commission Act 1976)?

NO

b) details (which may include a report of an environmental assessment) relevant to an agreement entered into with the EPA relating to an approved voluntary site contamination assessment proposal under section 103l of the Environment Protection Act 1993?

NO

c) details (which may include a report of an environmental assessment) relevant to an agreement entered into with the EPA relating to an approved voluntary site remediation proposal under section 103K of the Environment Protection Act 1993?

NO

d) a copy of a pre-1 July 2009 site audit report?

NO

e) details relating to the termination before completion of a pre-1 July 2009 site audit?

NO
All care and diligence has been taken to access the above information from available records. Historical records provided to the EPA concerning matters arising prior to 1 May 1995 are limited and may not be accurate or complete and therefore the EPA cannot confirm the accuracy of the historical information provided.

Delegate for
ENVIRONMENT PROTECTION AUTHORITY
This index lists the following notifications and reports received by the EPA since 1 July 2009 under the Environment Protection Act 1993 - S83A notification, Audit notification, Audit termination, and Audit report.

This index is provided to help you find out about notifications and reports that relate to your suburb or town. Specific information on each of these sites can be obtained from the EPA.

You can make an appointment to view information or request a copy of information held on the register by contacting 8204 2004 or 1800 623 445 (freecall for country users), or email. Please quote the EPA notification number and suburb of the record you are interested. Requests for copies of documents listed on the website index will be met at no charge.

More information:
- Bore water users
- How site contamination is managed
- FAQs

This index was last updated 15 April 2014

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<th>Notification no</th>
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<th>Potentially contaminating activity</th>
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<tbody>
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<td>60184</td>
<td>Audit Notification</td>
<td>Sturt Street Carpark Sturt Street ADELAIDE SA 5000</td>
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<tr>
<td>60088</td>
<td>Audit Notification</td>
<td>North Terrace ADELAIDE SA 5000</td>
<td>Not recorded</td>
</tr>
<tr>
<td>60074</td>
<td>Audit Notification</td>
<td>Lot 101 Montefiore Road ADELAIDE SA 5000</td>
<td>Not recorded</td>
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<tr>
<td>60079</td>
<td>Audit Notification</td>
<td>231-241 Waymouth and 17 Crowther Street ADELAIDE SA 5000</td>
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<td>60380</td>
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<td>60261</td>
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<td>60314</td>
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<td>445-449A Pulteney Street ADELAIDE SA 5000</td>
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<td>Cnr Port &amp; James Congdon Roads ADELAIDE SA 5000</td>
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<td>60768</td>
<td>Audit Notification</td>
<td>43-69 Sturt Street ADELAIDE SA 5000</td>
<td>Electrical or electronics component manufacture; Spray painting</td>
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<tr>
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<td>Fill or soil importation; Motor vehicle repair or maintenance; Spray painting</td>
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<td>Fill or soil importation; Liquid organic chemical substances-storage</td>
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<td>Service stations</td>
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<td>Listed Substances (storage); Railway operations</td>
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<td>172-190 Gawler Place ADELAIDE SA 5000</td>
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<td>43-69 Sturt Street ADELAIDE SA 5000</td>
<td>Electrical or electronics component manufacture; Spray painting</td>
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<td>35-37 Wright Street ADELAIDE SA 5000</td>
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<td>60987 - 01</td>
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<td>Listed Substances (storage); Metal processing, smelting, refining or metallurgical works</td>
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<td>Audit Notification</td>
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<td>S83A Notification</td>
<td>Lot 3 Ocean Steamer Road PORT ADELAIDE SA 5015</td>
<td>Scrap metal recovery</td>
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**Did you find the information useful?**  Yes  No

Environment Protection Authority

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http://www.epa.sa.gov.au/what_we_do/public_register_directory/site_contamination...  12/05/2014
30 May 2014

Sarah Walkley
AEC Environmental
PO Box 582
UNLEY SA 5061

Dear Sarah,

DANGEROUS SUBSTANCES LICENCE SEARCH

RE: 218-270 FLINDERS STREET, ADELAIDE SA 5000

According to the records available to SafeWork SA, the site listed above has no licenced items.

Yours sincerely

Janet Tieste
MANAGER
LICENSING UNIT
SAFEWORK SA
27 May 2014

Sarah Walkley
AEC Environmental
PO Box 582
UNLEY SA 5061

Dear Sarah,

DANGEROUS SUBSTANCES LICENCE SEARCH

RE: 18 – 42 DAWKINS PLACE, ADELAIDE SA

According to the records available to SafeWork SA, the site listed above has no licenced items.

Yours sincerely

[Signature]

Janet Tieste
MANAGER
LICENSING UNIT
SAFEWORK SA
27 May 2014

Sarah Walkley
AEC Environmental
PO Box 582
UNLEY SA 5061

Dear Sarah,

DANGEROUS SUBSTANCES LICENCE SEARCH

RE: 1 – 20 TUCKER STREET, ADELAIDE SA

According to the records available to SafeWork SA, the site listed above has no licenced items.

Yours sincerely

Janet Tieste
MANAGER LICENSING UNIT
SAFEWORK SA
4 June 2014

Sarah Walkley
AEC Environmental
PO Box 582
UNLEY SA 5061

Dear Sarah,

DANGEROUS SUBSTANCES LICENCE SEARCH

RE: 1-5 DAWKINS PLACE, ADELAIDE SA 5000

According to the records available to SafeWork SA, the site listed above has no licenced items.

Yours sincerely

Janet Tieste
MANAGER
LICENSING UNIT
SAFEWORK SA
Mr Louis Petridis  
Loucas Zahos Pty Ltd  
270 Flinders Street  
ADELAIDE SA 5000

Dear Mr Petridis,

PROPOSED MIXED USE DEVELOPMENT – 260 FLINDERS STREET, ADELAIDE - TRAFFIC AND PARKING ASSESSMENT

I refer to our previous discussions with respect to the above development.

As requested I have prepared the following assessment of the traffic related aspects of the subject development.

Existing Situation

The subject site is located on the north-western corner of the intersection of Tucker Street with Flinders Street, Adelaide. The site has a frontage of approximately 50m to Flinders Street and approximately 27m to Tucker Street.

The subject building will adjoin three existing buildings, namely:-

- The Art Building, located directly west of the subject site and bounded by Flinders Street to the south and Dawkins Place to the north, and

- The Zen 1 and Zen 2 Buildings, located directly to the north of the subject site. The Zen 1 Building has a frontage to Dawkins Place and the Zen 2 Building (currently under construction) has frontages to both Dawkins Place and Tucker Street.

Tucker Street is configured as a two way roadway adjacent to the subject site, i.e. between Flinders Street and Dawkins Place. North of Dawkins Place, Tucker Street is configured as a one way road with traffic exiting onto Hutt Street. The two way section of Tucker Street provides a kerb-to-kerb width of approximately 8.6m adjacent to the subject site together with footpath widths of 1.8m on each side of this road. The one way section of Tucker Street has a kerb-to-kerb width of 3.4m and kerb widths of 1.2m on both sides. Parking along the one-way east-west section of Tucker Street is prohibited by No Stopping Anytime restrictions along both sides of this roadway.
Flinders Street provides a verge width of approximately 2.6m adjacent to the subject site and short term angled parking on both sides of this roadway.

Dawkins Place is configured as a one-way (westbound) roadway with a kerb-to-kerb width of approximately 4.9m and verge widths of approximately 0.7m, immediately to the north of the subject site. The carriageway of Dawkins Place widens to the west of the subject site, providing ticketed parking along the northern kerb and two hour parking between 8.00am and 6.00pm Monday to Friday and between 8.00am and 12 noon on Saturday along the southern kerb.

Short term parking is available on sections of the roads surrounding the subject site, including:-

- One hour parking for approximately 4 cars located approximately 6m from the southern boundary of the subject site, on the western side of Tucker Street. These parking restrictions operate between 8.00am and 6.00pm Monday to Friday and between 8.00am and 12 noon on Saturdays and are otherwise unrestricted spaces,

- Loading zones between the one hour parking spaces described above and Dawkins Place. The capacity of the loading zones is currently unknown due to ongoing construction works associated with the Zen 2 Building,

- One hour parking for approximately 4 cars located approximately 5.7m from the southern boundary of the subject site, on the eastern side of Tucker Street. These spaces are separated by the section of roadway which provides access from the one way section to the two way section of Tucker Street. These parking restrictions operate between 8.00am and 6.00pm Monday to Friday and between 8.00am and 12 noon on Saturdays and are otherwise unrestricted spaces, and

- Sixty degree, half hour parking for 6 cars and two motorcycles on the northern side of Flinders Street, immediately adjacent the subject site. These parking restrictions operate between 9.00am and 5.30pm Monday to Friday and between 9.00am and 12 noon on Saturdays and are otherwise unrestricted spaces.

Additional short term parking spaces in the area surrounding the subject building are not included above.

Traffic currently using Tucker Street includes construction vehicles associated with the Zen 2 development located on the south-western corner of the intersection of Dawkins Place and Tucker Street.

**Traffic Surveys**

In order to determine the current level of traffic using the adjoining road network traffic surveys have been recently conducted in both Tucker Street and Dawkins Place.

Surveys of traffic were conducted in Tucker Street on Wednesday 25th March 2015 over the following periods:-

- From 7.30am to 9.30am, and
- From 3.00pm to 6.00pm.

The above traffic surveys were conducted in 15 minute intervals within the following areas:-
• The intersection of Flinders Street with the north-south section of Tucker Street and Daly Street,

• The intersection of the north-south section of Tucker Street with Dawkins Place, and

• The intersection of the north-south section of Tucker Street with the east-west section of Tucker Street and the laneway directly to the north of this intersection.

Surveys of traffic exiting Dawkins Place onto Frome Street were conducted on the 4th May 2015 over the following periods:

• from 7.30am to 9.30am, and

• from 3.00pm to 6.00pm.

Since Dawkins Place is a one-way street, the traffic survey included counts of cars exiting left and right from Dawkins Place onto Frome Street, again in 15 minute intervals.

Details of the above traffic surveys are summarised as an appendix included with this report (Attachment A).

Figure 1 below identifies the am and pm peak hour traffic volumes on Tucker Street and exiting from Dawkins Place onto Frome Street, based on the results of the above surveys.

Figure 1: Existing am (pm) peak hour traffic volumes on Tucker Street and exiting Dawkins Place
Analysis of the survey results in the am period has identified that:

- 75 vehicles entered / exited (71 in / 5 out) Tucker Street to and from the intersection with Flinders Street / Daly Street during the morning survey period,

- 36 vehicles entered Dawkins Place from the north-south section of Tucker Street during the morning survey period,

- 30 vehicles entered the east-west section of Tucker Street from the north-south section of Tucker Street during the am peak hour period, and

- A peak of 19 vehicles were recorded turning out of Dawkins Place onto Frome Street in the am peak hour period. This included 16 left and 3 right turn movements.

Analysis of the survey results in the pm period has identified:

- 34 vehicles entered / exited Tucker Street (30 in / 4 out) at the intersection with Flinders Street / Daly Street in the pm peak hour period,

- 10 vehicles entered Dawkins Place from the north-south section of Tucker Street during the afternoon period,

- 13 vehicles entered the east-west section of Tucker Street from the north-south section of this roadway during the pm peak hour period,

- The peak pm period occurred between 4.30pm and 5.30pm, when 23 vehicles exited from Dawkins Place onto Frome Street, and

- The maximum number of vehicles to turn out of Dawkins Place in any 15 minute period was 9 vehicles, which occurred between 4.30pm and 4.45pm.

In addition to the traffic counts, we have conducted a review of traffic exiting Dawkins Place onto Frome Street during peak periods. This included a detailed review conducted on Tuesday 2nd June 2015 between 4.50pm and 5.40pm.

The above review identified:

- There were at most, two cars queued in Dawkins Place. This occurred on only two occasions during this period,

- At no time did any of the vehicles exiting from Dawkins Place queue across the bicycle lane,

- Drivers queuing in both directions on Frome Street gave way to vehicles exiting out of Dawkins Place, and

- It was very rare that traffic queued in both directions on Frome Street during this period.

The results of the above surveys and reviews would indicate that there is significant capacity within the road network during both the am and pm peak hour periods.
Proposed Development

The proposed development will comprise: -

- Construction of a multi storey residential building (Tower 1) with a total of 87 residential apartments,
- Construction of a multi storey building (Tower 2) with 30 residential apartments and 64 serviced apartments,
- An on-site two level underground car parking facility with a total of 95 car parking spaces consisting of 45 spaces on the upper basement level (Basement 1) and 50 spaces on the lower basement level (Basement 2). This car parking area will extend across the entire footprint of the subject site. The underground parking area will be accessed from Dawkins Place via an existing two way ramp which is located underneath the Zen 1 Building,
- Ground floor retail and restaurant areas within Tower 1 of 230m², a ground floor retail area of 85m² within Tower 1 and a 250m² restaurant within Level 21 of Tower resulting in a total restaurant and retail area of 565m², and
- A central ground floor plaza between the two proposed buildings.

The on-site car parking areas will be allocated as follows:-

- 63 spaces allocated to Tower 1, and
- 32 spaces allocated to Tower 2.

The majority of the above parking spaces will be allocated to the residential apartments.

The plans identify that the majority of the individual car parking spaces will have a depth of 5.4m and a width of 2.4m. However the design includes 7 small cars on each level (14 in total) with these spaces being 5.0 m in length and 2.4 in width.

The proposed development will also include provision for disability parking within the basement car parking areas consisting of two such spaces to be provided on Basement 1. These spaces will be located on either side of a shared area.

Aisle widths of at least 5.8m will be provided for access into and out of the various car parking spaces.

The above dimensions would meet the minimum requirements of AS/NZS 2890.1:2004 for parking associated with a residential development.

As identified above the proposed car parking areas will be accessed via an existing ramp off Dawkins Place. This ramp has an overall length of at least 15.5m and has been designed with:-

- A 4.5m long transition at the top of the ramp with a grade of at least 1 in 15 in order to provide a ‘near flat’ area for cars exiting the car park. While such a grade and length are slightly less than the requirements within the relevant Australian Standard, I am aware that these lesser standards have previously been accepted by Council for similar car park designs,
- A main grade of no more than 1 in 5, and
A transition of at least 1 in 6.7 over a distance of 2m at the bottom of the ramp.

Consequently the upper basement will have a level of approximately 2.6m below natural ground.

A two way ramp will be provided between the two car parking levels on the western side of the site and will nominally provide:

- An approximately 2m long transition at the top of the ramp of 1 in 8,
- A main grade of 1 in 5, and
- An approximately 2m long transition at the bottom of the ramp of 1 in 6.7.

The car park design would essentially provide two ‘discreet’ levels of car parking without the need for drivers to travel through Basement 1 to access Basement 2. However, in order to accommodate sufficient clearance within Basements 1 and 2, the car park ramp between Basements 1 and 2 would extend marginally into the adjoining car park aisles. This would require some potential regrading of the adjoining aisles.

I also note that there will be a need to increase in the extent of ramping in the north-western corner of this car parking area in order to provide sufficient head height (vertical clearance) under the ramp connecting Basements 1 and 2 as shown on the northern side of Basement 2.

The proposed on-site car parking areas will be accessed via an existing crossover on Dawkins Place. This crossover is located adjacent to an adjoining residential development (Zen apartments). Consequently, sight distance to the east of the access point is restricted. It is therefore suggested that a mirror be installed at the access to increase the level of sight distance to the east along Dawkins Place of both oncoming pedestrians and traffic movements.

I understand that the subject development will include a ground floor service area on the eastern side of the site adjacent to Tucker Street. This waste / service area will be serviced by trucks up to and including an MRV design vehicle with these vehicles reversing into the area from Tucker Street.

The above service arrangements have been subject to detailed discussions with Council staff and will require prohibition of car parking in a number of the on-street parking spaces in Tucker Street during periods when collections are to be (6.00am to 7.00am). Attachment B identifies the potential for an MRV to reverse into this area.

However, the service area could accommodate a smaller vehicle (such as an SRV) throughout the day with minimal need to remove on-street parking with the exception of the area in front of the service area. The turning path of such a vehicle is identified by Attachment C.

All service vehicles will enter / exit Tucker Street in a forward direction to and from Flinders Street.

**Bicycle Parking**

I note that the proposed development will provide:-

- 113 spaces for residential dwellings i.e. one space per unit, and
- 16 spaces for use by visitors, tenants and customers of the non-residential components of the subject development.
I consider that such an on-site car parking provision would meet the anticipated bicycle car parking requirements of the subject development.

**Traffic Assessment**

Traffic generated by the proposed development will primarily relate to the on-site car parking spaces.

The “Guide to Traffic Generating Developments” report produced by the former Roads and Traffic Authority of NSW identifies a peak hour traffic generation rate of 0.24 trips per unit for a medium to high density residential development, albeit this would assume that each unit would be provided with on-site car parking.

However I am aware that the Roads and Maritime Services of NSW (the former RTA) has undertaken more recent surveys of traffic generation rates associated with high density residential flat dwellings. These dwellings are described as being:

(i) close to public transport,
(ii) greater than 6 storeys, and
(iii) almost exclusively residential in nature.

The results of the recent surveys conducted by RMS identified, inter alia, the following trip generation rates: -

- an average of 0.15 trips per car space in the am peak hour,
- a range of between 0.09 and 0.29 trips per car space in the am peak hour,
- an average of 0.12 trips per car space in the pm peak hour, and
- a range of between 0.05 and 0.28 trips per car space in the pm peak hour.

On a worst case basis, I therefore consider that the residential component of the subject development should generate of the order of: -

- 28 vehicle trips in the am period i.e. 0.29 trips per car parking space by 95 spaces, and
- 27 trips in the pm peak hour period i.e. 0.28 trips per space by 95 spaces.

There will also be some additional traffic movements associated with servicing of the buildings and the serviced apartments. However, I estimate that these additional traffic movements would be no more than 10 vph in any one hour period.

I therefore estimate that this component of the development would generate at most 40 vehicle movements (rounded up) in any one hour including those movements accessing the basement car parking area to and from Dawkins Place. I consider that this would have minimal impact on the capacity of this lane.
Assuming an approximately equal split of traffic entering / exiting the car park, half of the vehicle movements would occur from Flinders Street (via Tucker Street) with the remaining half exiting the subject site to Frome Street via Dawkins Place. On this basis there would be the equivalent of at most 20 vehicles in any one hour within each of these two sections of roadway.

Based on the traffic surveys undertaken on Wednesday 25th March 2015, it is identified that:-

- The am peak hour traffic movements accessing Dawkins Place via Tucker Street would increase from a maximum of approximately 36 vph to 56 vph, and
- The pm peak hour traffic movements accessing Dawkins Place via Tucker Street would increase from a maximum of approximately 10 vph to 30 vph.

In comparison the volume of traffic exiting Dawkins Place onto Frome Street would increase from:-

- 19 vph to 23 vph in the am peak hour period. Based on a pro-rata increase in the proportion of traffic turning left out and right out onto Frome Street, the right turn exit movement would increase from 3 vph to approximately 6 vph with the left turn exit increasing from approximately 10 vph to 33 vph, and
- 23 vph to 43 vph in the pm peak hour period. Based on a pro-rata increase in the proportion of traffic turning left out and right out onto Frome Street, the right turn exit movement would also increase from approximately 3 vph to 6 vph with the left turn exit increasing from 20 vph to approximately 37 vph.

Consequently, I consider that there would be minimal traffic impact on the adjoining road network as a result of the proposed development.

In particular, the forecast increase in the volumes of traffic turning right out of Dawkins Place onto Frome Street would be equivalent to a maximum of approximately 3 vph in any one hour period, which I consider could be readily accommodated by the subject road network.

As previously identified, the proposed development will include on-site storage of waste and recycling within a ground level waste storage room.

Based on my experience of similar facilities and the Waste Management report prepared by Veolia Environmental Services this would consist of:-

- 2 collections of general waste,
- 2 collections of dry recyclables, and
- 2 collections of organics.

There will also be infrequent collections of E Waste and servicing of the grease arrestor.

Typically there should be no more than 2 waste / recycling collections per day.
Summary and Conclusions

The proposed development comprises a mixed use development with (at most) 98 car parking spaces on site and will provide significant levels of on-site bicycle parking for the use of residents and the commercial component of the development.

I consider that the design of the onsite car parking will provide an appropriate and convenient car parking arrangement for residents and tenants to be located on site.

Vehicular access will occur via Tucker Street and Dawkins Place and will include traffic associated with on-site residential parking and also services / waste collection.

There should be no more than 20 additional vehicle movements entering Dawkins Place in any one hour period with, at most, a similar number exiting the car park to travel west along this roadway. Such increased volumes of traffic would have minimal impact on the operation of this roadway and should not result in any significant changes to the intersection of this roadway with Frome Street or the intersection of Tucker Street with Flinders Street / Daly Street.

The proposed development includes the provision of a waste collection area which will need to be serviced from an on-site loading area off Tucker Street. This facility will accommodate a range of vehicle types up to and including that of a Medium Rigid Vehicle (MRV) with these vehicles entering and exiting Tucker Street in a forward direction. Consequently, there should be no requirement for these vehicles to use either Dawkins Place or the one-way section of Tucker Street, to the north of the site.

Based on consideration of the above traffic, parking and access related aspects I therefore consider that the proposed development will not result in adverse traffic impacts on Tucker Street and Dawkins Place including the operation of these intersections with Flinders Street and Frome Street, respectively.

Yours sincerely

[Signature]

Phil Weaver
Phil Weaver and Associates Pty Ltd
Attachment C: SRV design vehicle turning path
<table>
<thead>
<tr>
<th>Period</th>
<th>Left Out</th>
<th>Right Out</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.30 am</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>7.45 am</td>
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<td>0</td>
</tr>
<tr>
<td>8.00 am</td>
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<td>0</td>
</tr>
<tr>
<td>8.15 am</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>8.30 am</td>
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<td>2</td>
</tr>
<tr>
<td>8.45 am</td>
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<td>0</td>
</tr>
<tr>
<td>9.00 am</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>9.15 am</td>
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<td>1</td>
</tr>
<tr>
<td>3.00 pm</td>
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<td>3.15 pm</td>
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<td>3.30 pm</td>
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<td>1</td>
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<td>4.00 pm</td>
<td>0</td>
<td>3</td>
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<td>3</td>
<td>0</td>
</tr>
<tr>
<td>4.30 pm</td>
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</tr>
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<td>4.45 pm</td>
<td>6</td>
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</tr>
<tr>
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<td>4</td>
<td>1</td>
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<td>5.15 pm</td>
<td>3</td>
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</tr>
<tr>
<td>5.30 pm</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>5.45 pm</td>
<td>5</td>
<td>1</td>
</tr>
</tbody>
</table>
### Traffic Survey – Tucker Street, Adelaide - Wednesday, 25th March 2015

<table>
<thead>
<tr>
<th>Period</th>
<th>Flinders Street / Tucker Street Intersection</th>
<th>Entering Dawkins Place</th>
<th>Tucker Street – north-south approach to east-west leg</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Flinders Street / Tucker Street Intersection</td>
<td>Across northbound</td>
<td>Across southbound</td>
</tr>
<tr>
<td>7.30 am</td>
<td>7.45 am</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>7.45 am</td>
<td>8.00 am</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>8.00 am</td>
<td>8.15 am</td>
<td>5</td>
<td>0</td>
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<td>4.00 pm</td>
<td>3</td>
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<td>4.15 pm</td>
<td>2</td>
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<tr>
<td>4.15 pm</td>
<td>4.30 pm</td>
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<td>0</td>
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<td>4.30 pm</td>
<td>4.45 pm</td>
<td>4</td>
<td>1</td>
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<tr>
<td>4.45 pm</td>
<td>5.00 pm</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>5.00 pm</td>
<td>5.15 pm</td>
<td>2</td>
<td>0</td>
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<tr>
<td>5.15 pm</td>
<td>5.30 pm</td>
<td>2</td>
<td>0</td>
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<tr>
<td>5.30 pm</td>
<td>5.45 pm</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>5.45 pm</td>
<td>6.00 pm</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>
254 FLINDERS STREET TOWERS 1 & 2

ACOUSTIC SERVICES

June 2015
Dear Sir

254 FLINDERS STREET TOWERS 1 & 2
ACOUSTIC SERVICES

As requested, we enclose a copy of the report on the Acoustic Services for the above project.

We trust that the report provides sufficient information for your immediate purpose and we would be most pleased to further discuss any aspect upon your request.

Yours faithfully
BESTEC PTY LTD

IVAILO DIMITROV
ASSOCIATE

Encl
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Introduction

BESTEC Pty Ltd was engaged to provide acoustic engineering services during the design and construction stages of the mixed use development on 254 Flinders Street, Adelaide. This document presents the proposed acoustic design criteria, the results of our traffic noise survey and preliminary recommendations for acoustic treatment to achieve the selected design criteria.

Executive Summary

In summary:-

- A noise survey was conducted in the vicinity of the proposed development to establish the existing noise levels and major sources of noise on 20 March 2015.
- Appropriate acoustic design criteria were nominated.
- Preliminary acoustic design recommendations to achieve the selected criteria were provided, including:
  - Appropriate constructions of the building façade and glazing were nominated in order to provide sufficient attenuation to noise from traffic, air-conditioning condensing noise from the plant serving the ART apartments and noise associated with rubbish collection vehicles.
  - Appropriate constructions of the building elements forming the proposed gymnasium on the Ground floor north-western end of Tower 1 were nominated in order to prevent excessive noise impacting on the adjacent ZEN and ART apartments.
- The noise impact on the adjacent ZEN apartments associated with rubbish collection vehicles was assessed.
Acoustic Analysis

References

The following documents have been referenced within the preparation of this report:-

[9] Preliminary architectural plans provided by Loucas Zahos in their correspondence of 6 March 2015.

Existing Development

The site is located in a zone designated Capital City Zone (CC) in the Adelaide (City) Development Plan [1] with the following boundaries:-

- North and West – adjacent residential developments;
- South – Flinders St separating the proposed development from the Christian Brothers College;
- East – Tucker St separating the proposed development from a mixed use development.

Proposed Development and Conditions

It is proposed a new mixed use development to be constructed on the site, comprising of two towers with the following components:-

- Basement carpark.
- Tower 1:-
  - Basement carpark with total of 63 spaces.
  - Retail component – retail and cafe.
  - Commercial component (two floors)
  - Residential component – total of 86 apartments.
- Tower 2:-
  - Basement carpark with total of 32 spaces.
  - Retail component – café.
  - Residential component – total of 34 apartments.
  - Serviced apartments – total of 64 rooms.
Noise Survey

In order to determine the existing noise levels impacting on the building envelope, a traffic noise survey was conducted on 20 March 2015 between 17:00 and 18:30. The noise levels were measured at the southern façade of the existing building on 124 Wakefield St, the western façade of the proposed development (between the existing car park and the boundary of the proposed building), on Pultney St and at the back lane north of the proposed development using a Brüel & Kjær 2270 Analyser (SN 3006966, due for calibration on 21 October 2015), fitted with ½” microphone and wind shield and set on F time weighting. The calibration of the unit was checked before and after the survey and no drift was detected. The following noise descriptors were measured over 15-minute intervals (for explanation refer to the attached Glossary of Acoustic Terms):

- A-weighted Equivalent Continuous Noise Level ($L_{Aeq,15min}$)
- A-weighted Maximum Noise Level ($L_{Amax}$)

The results of the survey are summarized in Table 1 (refer to Figure 1 for measurement locations):

<table>
<thead>
<tr>
<th>Measurement Locations</th>
<th>Start Time</th>
<th>Noise Descriptor</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – 254 Flinders St</td>
<td>17:00</td>
<td>70</td>
<td>80</td>
</tr>
<tr>
<td>2 – Tucker St</td>
<td>17:20</td>
<td>68</td>
<td>75</td>
</tr>
</tbody>
</table>

![Figure 1: The site of the proposed redevelopment](image)

Table 1: Summary of the noise survey results on 254 Flinders St

No tonal, impulse or low frequency characteristics were detected during the survey.
Design Criteria

Environmental Noise

Continuous Noise

This criterion will be relevant to noise emitted from the proposed development resulting from operation of engineering services, operational noise from the commercial component, car park etc.

The continuous noise emissions will be assessed against the criteria set EPA Environment Protection (Noise) Policy 2007 [2] and the principles of development control in the Adelaide City Council Development Plan [1].

The Adelaide City Council principle of development control 94 sets the criteria for continuous noise in accordance with the Zone where the proposed development is located as follows:-

“94 Mechanical plant or equipment, should be designed, sited and screened to minimise noise impact on adjacent premises or properties. The noise level associated with the combined operation of plant and equipment such as air conditioning, ventilation and refrigeration systems when assessed at the nearest existing or envisaged noise sensitive location in or adjacent to the site should not exceed:

(a) 55 dB(A) during daytime (7.00am to 10.00pm) and 45 dB(A) during night time (10.00pm to 7.00am) when measured and adjusted in accordance with the relevant environmental noise legislation except where it can be demonstrated that a high background noise exists.

(b) 50 dB(A) during daytime (7.00am to 10.00pm) and 40 dB(A) during night time (10.00pm to 7.00am) in or adjacent to a Residential Zone, the North Adelaide Historic (Conservation) Zone or the Park Lands Zone when measured and adjusted in accordance with the relevant environmental noise legislation except where it can be demonstrated that a high background noise exists.”

The Environment Protection (Noise) Policy 2007 [2] sets out the maximum allowable continuous noise in terms of A-weighted Equivalent Continuous Noise Level (L_{Aeq}) based on the time of day and zoning / use of land in which the noise source and receiver are located. With reference to the Adelaide City Council Development Plan [1], we note that the proposed development is located within the Capital City Zone. The Capital City Zone is an essentially Mixed Use zone comprising a mixture of Commercial and Residential uses. Table 2 shows the indicative noise factors based on time of day and land-use as stipulated in Table 2 of the EPP 2007 [2].

<table>
<thead>
<tr>
<th>Land Use Category</th>
<th>Day Time (7:00 to 22:00)</th>
<th>Night Time (22:00 to 7:00)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial</td>
<td>62</td>
<td>55</td>
</tr>
<tr>
<td>Residential</td>
<td>52</td>
<td>45</td>
</tr>
</tbody>
</table>

Table 2: Indicative noise factors based on time of day and land use

Since the Mixed Use area is intended for commercial and residential purposes, the Environment Protection (Noise) Policy 2007 [2] states that the indicative noise level is the average of the indicative noise factors for the land use categories. In addition, the EPP 2007 states that the predicted continuous noise due to the proposed development (for application for development authorisation) should not exceed the indicative noise level, minus 5dBA. Based on the average of the “Commercial” and “Residential” land use categories, minus 5dBA for planning purposes, the applicable day and night time noise criteria would be as follows:-

- Day-time (7:00 a.m. to 10:00 p.m.): 52dBA
- Night-time (10:00 p.m. to 7:00 a.m.): 45dBA

Note that if noise emitted by the proposed development contains any tones, modulation, impulsive or low frequency characteristics, the continuous noise level of the noise source must be adjusted as follows:-

- Noise containing 1 characteristic – 5dBA penalty added to source continuous noise level;
- Noise containing 2 characteristics – 8dBA penalty added to source continuous noise level;
- Noise containing 3 or 4 characteristics – 10dBA penalty added to source continuous noise level.
Intermittent Noise

This criterion will be relevant to noise emitted from the proposed development resulting from short term noise events – rubbish collection, car door slams, etc.

The criteria provided in the above sections relate to continuous noise sources, and do not cater for intermittent noise events, such as slamming of car doors, car horns sounding, etc. We recommend the use of the World Health Organisation (WHO) Guidelines [3], which recommends a maximum A-weighted noise level $L_{A\text{max}}$ of 45dBA in a bedroom, which is equivalent to approximately 55dBA to 60dBA at the façade of the residential building with windows partially open.

It should be noted that the Adelaide City Council principle of development control 95 regulates the intermittent emissions from a proposed development and makes a reference to the WHO Guidelines as follows:-

“95 To ensure minimal disturbance to residents:–

(a) ancillary activities such as deliveries, collection, movement of private waste bins, goods, empty bottles and the like should not occur:

(i) after 10.00pm; and

(ii) before 7.00am Monday to Saturday or before 9.00am on a Sunday or Public Holiday.

(b) typical activity within any car park area including vehicles being started, doors closing and vehicles moving away from the premises should not result in sleep disturbance when proposed for use after 10.00pm as defined by the limits recommended by the World Health Organisation.”

In addition, the EPP 2007 provides assessment criterion of $L_{A\text{max}}$ of 60dBA for night-time for the proposed development (for application for development authorisation) [2], which agrees with the criterion stipulated by the WHO [3].

Building Acoustics

The level of background and transient/intermittent noise, the speech privacy rating and the room acoustics define the quality of the acoustics within a building. The recommended criteria for each space are shown in Table 3 below. Please refer to each individual section below for interpretation of the criteria.

<table>
<thead>
<tr>
<th>Type of occupancy/activity</th>
<th>Background Noise $L_{A\text{eq}}$, dBA</th>
<th>Reverberation Time, sec</th>
<th>Weighted Sound Reduction Index with Spectrum Adaptation Term, $R_W+C_T$</th>
<th>Speech Privacy Rating, $D_W$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apartments</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bedrooms</td>
<td>30 – 40</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Living Areas</td>
<td>35 – 45</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work Areas</td>
<td>35 – 45</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retail</td>
<td>45 – 50</td>
<td>Minimise as practical</td>
<td></td>
<td>40 – 45</td>
</tr>
<tr>
<td>Amenities</td>
<td>50 – 55</td>
<td>N/A</td>
<td></td>
<td>40 – 45</td>
</tr>
<tr>
<td>Carpark</td>
<td>55 – 65</td>
<td>N/A</td>
<td></td>
<td>N/A</td>
</tr>
</tbody>
</table>

Table 3: Proposed building acoustic design criteria for the 124 Wakefield Street Development

---

1 Between apartments
Background Noise

These criteria will be relevant to the assessment of continuous noise from sources such as traffic, engineering services etc.

Residential Component

AS 2107-2000 [4] sets the criteria for background noise in terms of A-weighted equivalent continuous sound pressure level over 15-minute intervals (L_{Aeq, 15min}) in accordance with the use of the spaces and the location of the buildings. For apartments and houses located near major roads, the Standard recommends criteria for background noise levels for bedrooms, living areas and work areas with no reference to the time of the day.

In addition, the Minister’s Specification SA 78B [7] stipulates that the attenuation provided by the building envelope must be sufficient to provide sufficient attenuation of traffic noise so the internal sound levels do not exceed the internal sound criteria values stated in Table 2 of the Specification [7] as follows:-

<table>
<thead>
<tr>
<th>Type of room</th>
<th>Internal sound criteria</th>
<th>Applicable time period</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Building design target</td>
<td>Maximum allowable for</td>
</tr>
<tr>
<td></td>
<td>averaged over the total</td>
<td>individual rooms in the</td>
</tr>
<tr>
<td></td>
<td>number of such rooms in</td>
<td>building</td>
</tr>
<tr>
<td></td>
<td>the building</td>
<td></td>
</tr>
<tr>
<td>Bedroom</td>
<td>30dBA L_{eq, 9hr} (transport)</td>
<td>35dBA L_{eq, 9hr} (transport)</td>
</tr>
<tr>
<td></td>
<td>30dBA L_{eq, 15min} (people)</td>
<td>35dBA L_{eq, 15min} (people)</td>
</tr>
<tr>
<td>Habitable rooms other than bedroom</td>
<td>35dBA L_{eq, 15hr}</td>
<td>40dBA L_{eq, 15hr}</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4: Minister’s Specification SA 78B criteria for noise intrusion (Table 2 of Specification SA 78B reproduced)

The Specification also specifies the traffic noise levels to be used in the assessment (Minister’s Specification SA 78B, Table 3: Road source levels) in accordance with the road type, determined in by the relevant Development Plan. The Adelaide (City) Development Plan [1] identifies Flinders Street (speed limit of 50km/h) as Type B, Secondary road in the section where the proposed development is located. We note that the Specification [7] does not set assessment road noise levels for road with speed limit of 50km/h. Instead, the assessment noise levels for speed limit of 60km/h will be used and therefore, the traffic noise levels to be used in the assessment are as follows:-

- $L_{eq, 9hr}$ 68dBA at 10m (night); and
- $L_{eq, 15hr}$ 71dBA at 10m (day).

The octave band sound levels must be calculated from the above overall sound levels using the frequency corrections in accordance with the recommendations in [7].

Sound Insulation

Residential Component

For enclosed spaces, the noise from activities in the adjacent rooms transmitted through walls, floors, ceilings etc. increase the background noise level similarly to the noise intrusion from any outside sources. The level of noise transmitted from the adjacent rooms and the level of sound insulation/speech privacy is controlled by the design of building elements and providing adequate level of sound attenuation through specifying appropriate construction types for walls, floors, doors, ceilings etc.

The minimum requirements for sound insulation for the residential component (Buildings Class 3) are set by the National Construction Code Series 2014, Building Code of Australia [5] stipulates the required weighted sound reduction index ($R_W$), weighted sound reduction index with spectrum adaptation term ($R_W + C_I$) and weighted normalised impact sound pressure level with spectrum adaptation term ($L_{n,w} + C_I$) for building elements separating sole-occupancy units. We note that the proposed residential apartments and hotel suites would be classified as Class 2 or 3 buildings, and therefore note the following criteria are applicable to the proposed development:

“A floor in a Class 2 or 3 building must have $R_W + C_I$ (airborne) not less than 50 and an $L_{n,w} + C_I$ not more than 62 (impact) if it separates –

(i) Sole occupancy units; or
(ii) A sole occupancy unit from a plant room, lift shaft, stairway, public corridor, public lobby or the like, or parts of different classification

“A wall in Class 2 or 3 building must –
(i) Have an $R_W + C_v$ (airborne) not less than 50, if it separates sole-occupancy units; and
(ii) Have an $R_W$ (airborne) not less than 50, if it separates a sole-occupancy unit from a plant room, lift shaft, stairway, public corridor, public lobby or the like, or parts of a different classification; and
(iii) Is of discontinuous construction if it separates –
(A) A bathroom, sanitary compartment, laundry or kitchen in one sole-occupancy unit from a habitable room (other than kitchen) in an adjoining unit; or
(B) A sole-occupancy unit from a plant room or lift shaft.”

“A door may be incorporated in a wall of Class 2 or 3 building that separates a sole-occupancy unit from a stairway, public corridor, public lobby or the like, provided the door assembly has an $R_W$ not less than 30.”

“Where a wall required to have sound insulation rating has a floor above, the wall must continue to-
(i) The underside of the floor above; or
(ii) A ceiling that provides the sound insulation required for the wall.”

“If a duct, soil, waste or water supply pipe, including a duct or pipe that is located in a wall or floor cavity, serves or passes through more than one sole-occupancy unit, the duct or pipe must be separated from the rooms of any sole-occupancy unit by construction with an $R_W + C_v$ (airborne) not less than –
(i) 40 if the adjacent room is a habitable room (other than a kitchen); or
(ii) 25 if the adjacent room is a kitchen or non-habitable room.”

Assessment and Recommendations

General

Acoustic Sealants

We note that for the acoustic integrity of building elements to be maintained, all gaps and interfaces along the junctions and joints of linings must be sealed with an appropriate acoustic grade sealant. Penetrations for mechanical or electrical services must be properly caulked and sealed around the ductwork and cabling to ensure the intended acoustic rating of the partition is retained.

Appropriate acoustic caulking products include:-

- Bostik Firemastic.
- Bostik Seal-n-flex 2637.
- Pyropanel Multiflex.
- Boral Fyreflex.
- Dow-Corning 790 Silicone.
- Dow-Corning 795 Silicone.
- Sika Sikaflex-11 FC.
- Fosroc Flamex 3.

Cavity Infill

Where a cavity infill is recommended, equivalent alternatives are:-

- Fibreglass – 50mm, 12kg/m³.
- Rockwool – 50mm, 38kg/m³.
- Polyester – 900gsm.
Ceiling Overlay

Where a ceiling overlay is recommended, equivalent alternatives are:

- Glasswool – 100mm, 12kg/m$^3$.
- Rockwool – 100mm, 38kg/m$^3$.
- Polyester – 100mm, 32kg/m$^3$.

Where higher durability and/or water resistance is required, 6mm compressed fibre cement sheeting could be used in lieu of the 13mm fire-rated plasterboard and 9mm CFC in-lieu of 16mm fire-rated plasterboard.

Noise Intrusion

The recommendations below are made based on the measured traffic noise levels around the building, the specified traffic assessment sound level as per the Minister’s Specification 78B [7] and the sound levels resulting from operation of the air-conditioning outdoor condensers serving the adjacent ART apartments (LG LUU247HV with noise level of 52dBA at 1m). Please note that the proposed constructions of the building envelope have been designed to achieve the interior design sound levels set by AS/NZS 2107-2000 [4] with windows/doors closed as the Standard is intended for design and selection of building components that exclude noise that is external to the building (e.g., traffic noise, industrial noise and plant noise).

Based on the results of our assessment, we make the following preliminary recommendations for construction of the building envelope:

- Retail component:
  - Shopfront – minimum 6.38mm laminated glass or as required structurally.

- Commercial component:
  - Glazing – minimum 6.38mm laminated glass as required structurally.

- Residential component:
  - Glazing:
    - Flinders St and Eastern façade:
      - Bedrooms - minimum 12.76mm laminated glass to the bedrooms up to residential Level 10 and 6.38mm laminated glass to the levels above.
      - Living and work rooms – 10.38mm laminated glass to the living rooms up to Level 10 and 6.38mm laminated glass to the levels above.
    - Northern facade – 6.38mm laminated glass to bedrooms, living and work rooms.
    - Western façade
      - Bedrooms facing the air-conditioning condensers serving the ART apartments (across the light and air void - minimum double glazing consisting of 12.76mm laminated glass. The rest of the bedrooms - 6.38mm laminated glass.
      - Living and work rooms facing the air-conditioning condensers serving the ART apartments (across the light and air void – 10.38mm laminated glass. The rest of the living and work areas - 6.38mm laminated glass.

Please note that the operable glazing should be fitted with acoustic seals (Raven or Schlegel ranges).

- Solid façade – the following constructions are acceptable from acoustic point of view:
  - 150mm precast concrete. Please note that this construction is sufficient from acoustic point of view, however, it might require additional thermal insulation; or

---

2 Please note that these recommendations are based on traffic noise only and will be revised once details about the engineering services plant are available.
- 200mm aerated autoclaved concrete block with 1 layer of 13mm plasterboard on 25mm furring channels and cavity infill of 25mm, 14kg/m³ glasswool or equivalent; or
- 75mm Hebel Powerpanel to the external side of 92mm steel studs and 1 layer of 13mm plasterboard to the internal side and cavity infill as specified; or
- Composite light weight façade constructed of 9mm FC to the external side of minimum 92mm steel studs and 2 layers of 13mm PB to the internal side with cavity infill as specified above.

**Sound Insulation**

**Retail Component**

To achieve the selected criterion, we recommend the partitions separating the retail tenancies from each other be constructed of 2 layers of 13mm PB to one side of minimum 76mm steel studs and 1 layer PB to the other side extending to the structure above with cavity infill as specified with all interfaces blocked off and caulked with acoustic sealant. The glazing between the tenancies and any adjacent trafficable areas could be 10.38mm laminated glass.

**Commercial Component**

We recommend the partitions separating adjacent tenancies be constructed of 2 layers of 13mm plasterboard to each side of minimum 76mm steel studs with cavity infill as specified.

**Residential Component**

To achieve the BCA 2014 requirements, we recommend:-

- Walls between sole-occupancy units – 2 layers of 13mm PB to one side of two rows 64mm separate steel studs offset from each other by minimum 20mm air space and 2 layers of 13mm PB to the other side extending to the structure above and with cavity infill as specified above. The same construction should be used to separate apartment A1 from the adjacent retail tenancy (Tower 1).
- Floors – minimum 150mm concrete with ceiling of 1 layer of 13mm PB with ceiling overlay as specified above. Where hard floor finishes (tiles or timber) are used above habitable areas (living rooms and bedrooms), resilient underlay (Acoustifloor, Regupol etc.) will be required to comply with the BCA 2014 requirements for impact noise.
- Walls separating sole-occupancy units from corridors and lobbies – 2 layers of 13mm PB to one side of 64mm staggered steel studs in minimum 92mm track and 1 layer of 13mm PB to the other side extending to the structure above and cavity infill as specified.
- Apartments’ entry doors – minimum 45mm thick solid core doors with compressible seals (e.g. Raven or Schlegel ranges).

**Room Acoustics**

In order to control reverberation and achieve the selected room acoustics criteria in the large public spaces, retail and commercial tenancies, we recommend acoustic ceiling tiles or other absorptive ceilings be used, however, detailed recommendations will be provided once the arrangements between base building and fit-out components are advised.

**Environmental Noise**

**Continuous Noise**

**Noise Associated with Mechanical Plant**

Details of the engineering plant that will be serving the development are not available yet, however, we note that the airborne noise associated with engineering services will be controlled by design of appropriate attenuators, duct lagging and acoustic enclosures. The vibration and structure borne noise will be controlled by design of appropriate vibration isolators (double deflection mounts, spring isolators etc.).

**Noise Associated with Delivery Vehicles**

Continuous noise from delivery vehicles is mainly associated with refrigeration condensers running during the vehicle is being loaded / unloaded. We will assess the noise impact from deliveries once the design is sufficiently developed.
Noise Associated with Rubbish Collection

We understand that the rubbish will be stored in the waste rooms on the Ground floor at Tower 1 and Tower 2. It is proposed the rubbish collection from Tower 1 be circulated to the waste collection zone, the rubbish collection vehicles to reverse in the waste loading zone between the proposed development and ZEN apartments from Tucker St, collect the rubbish from the waste collection zone and then leave via Tucker St. We assessed the noise impact on the adjacent ZEN apartments resulting from noise emissions from typical rubbish collection vehicle including the following activities:

- Rubbish collection vehicle accessing the waste loading zone (including reverse alarm).
- Rubbish collection.
- Rubbish collection vehicle departing.

We calculated the A-weighted Equivalent Continuous Noise Level over a typical 15-minute interval ($L_{Aeq,15min}$) assuming the following activity durations and measured noise levels from similar activities on a previous project:

- Rubbish collection vehicle accessing the waste loading zone (including reverse alarm) – 30 seconds, 70dBA at 5m.
- Rubbish collection – 10 minutes, 65dBA at 5m.
- Rubbish collection vehicle departing – 30 seconds, 73dBA at 5m.
- The balance of a 15-minute interval – 5 minutes, 60dBA (ambient noise level).

The calculated A-weighted Equivalent Continuous Noise Level over a typical 15-minute interval ($L_{Aeq,15min}$) resulting from loading / unloading activities, which we used in the assessment was 66dBA at 5m. Taking into account the sound transmission loss of the building envelope elements of the proposed development as described above (refer Section Noise Intrusion above) and the construction of the façade and the glazing of the adjacent ZEN apartments (the façade is 150mm precast concrete panel to Level 6 with 6.38mm laminated glass (typical for multi-storey residential buildings)), we calculated noise level of 38dBA inside the nearest bedroom at the ZEN apartments, which complies with the design sound level of 35 – 40dBA set by AS/NZS 2107-2000 [4] for bedrooms near major roads. However, in order to ensure the amenity of the residents is preserved, we recommend the rubbish collection be restricted to the EPA stipulated day time only (i.e., after 7:00AM) Monday to Friday and after 9:00AM on Saturday and Sunday (if applicable).

Noise Associated with Operation of the Proposed Gymnasium

We understand that the commercial tenancy at the Ground floor in the north-western end of the proposed development is to be a communal gymnasium and assessed the noise impact resulting from its operation on the adjacent ART and ZEN apartments based on the following:

- Reverberant noise level inside the gymnasium resulting from group fitness class (including music) – 90dBA.
- Glazing to the gymnasium – minimum 6;38mm laminated glass.
- Façade construction – 150mm precast concrete.
- Roof/ceiling construction – conventional metal roof decking with R1.5 insulation and ceiling of acoustic ceiling tiles.

Our assessment revealed that the incident noise levels at the nearest neighbouring façade (approximately 5m) resulting from group fitness classes and propagating through the gymnasium building structure would be 55dBA. Taking into account the assumed glazing to the ZEN and ART apartments (6.38mm laminated glass as noted above), we consider that the design sound level of 35 – 40dBA set by AS/NZS 2107-2000 [4] for bedrooms near major roads would be achieved.
Transient Noise
Noise Associated with Delivery Vehicles

The $L_{A\text{max}}$ noise levels associated with loading / unloading activities result mainly from reverse alarm when the vehicle is manoeuvring and impacts when the goods are wheeled in and out. We will assess the noise impact associated with deliveries once the design is sufficiently developed.
GLOSSARY OF ACOUSTIC TERMINOLOGY

**dB(A)** Also referred to as dBA. A unit of measurement, decibels (A), of sound pressure level which has its frequency characteristics modified by a filter ("A-weighted") so as to more closely approximate human ear response at a loudness level of 40 phons. The table below outlines the subjective rating of different sound pressure levels.

<table>
<thead>
<tr>
<th>Noise Level (dBA)</th>
<th>Subjective Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>25-30</td>
<td>Barely audible and very unobtrusive.</td>
</tr>
<tr>
<td>30-35</td>
<td>Audible but very unobtrusive.</td>
</tr>
<tr>
<td>35-40</td>
<td>Audible but unobtrusive.</td>
</tr>
<tr>
<td>40-45</td>
<td>Moderate but unobtrusive.</td>
</tr>
<tr>
<td>45-50</td>
<td>Unobtrusive with low levels of surrounding activity.</td>
</tr>
<tr>
<td>50-55</td>
<td>Unobtrusive with high levels of surrounding activity.</td>
</tr>
</tbody>
</table>

**L₁** The noise level which is equalled or exceeded for 1% of the measurement period. L₁ is an indicator of the impulse noise level, and is used in Australia as the descriptor for intrusive noise (usually in dBA).

**L₁₀** The noise level which is equalled or exceeded for 10% of the measurement period. L₁₀ is an indicator of the mean maximum noise level, and is used in Australia as the descriptor for intrusive noise (usually in dBA).

**L₉₀, L₉₅** The noise level which is equalled or exceeded for 90% of the measurement period. L₉₀ or L₉₅ is an indicator of the mean minimum noise level, and is used in Australia as the descriptor for background or ambient noise (usually in dBA).

**Lₑₐq** The equivalent continuous noise level for the measurement period. Lₑₐq is an indicator of the average noise level (usually in dBA).

**Lₘₐₓ** The maximum noise level for the measurement period (usually in dBA).

**Note:** The subjective reaction or response to changes in noise levels can be summarised as follows: A 3dBA increase in sound pressure level is required for the average human ear to notice a change; a 5dBA increase is quite noticeable and a 10dBA increase is typically perceived as a doubling in loudness.
STC/R\textsubscript{W} Sound Transmission Class or Weighted Sound Reduction Index. Provides a single number rating (from the sound transmission loss or sound reduction index for each frequency band) of the sound insulation performance of a partition. The higher the value, the better the performance of the partition. The subjective impression of different ratings is shown in the table below.

<table>
<thead>
<tr>
<th>Type of noise source</th>
<th>STC/R\textsubscript{W} Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>40</td>
</tr>
<tr>
<td>Normal Speech</td>
<td>Audible</td>
</tr>
<tr>
<td>Raised speech</td>
<td>Clearly Audible</td>
</tr>
<tr>
<td>Shouting</td>
<td>Clearly Audible</td>
</tr>
<tr>
<td>Small television/small entertainment system</td>
<td>Clearly Audible</td>
</tr>
<tr>
<td>Large television/large hi-fi music system</td>
<td>Clearly Audible</td>
</tr>
<tr>
<td>DVD with surround sound</td>
<td>Clearly Audible</td>
</tr>
<tr>
<td>Digital television with surround sound</td>
<td>Clearly Audible</td>
</tr>
</tbody>
</table>

FSTC/R\textsubscript{W}' The equivalent of STC/R\textsubscript{W}, unit for sound insulation performance of a building element measured in the field.

C\textsubscript{t}, C\textsubscript{r} The ratings (R\textsubscript{W}, D\textsubscript{NTW}, L\textsubscript{nTw}) are weighted in accordance to a spectrum suited to speech. This term modifies the overall rating to account for noise with different spectra, such as traffic (C\textsubscript{t}) or footfalls (C\textsubscript{r}). The ratings may be written as R\textsubscript{W}+C\textsubscript{r}, or D\textsubscript{NTW}/L\textsubscript{nTw}+C\textsubscript{r}.

NNIC/D\textsubscript{NTW} Normalised Noise Isolation Class, or Weighted Standardised Sound Level Difference. Provides a single number rating of the sound level difference between two spaces, and incorporates the effects of flanking noise between two spaces. This rating is generally accepted to be about 5 points less than the STC/R\textsubscript{W} rating.

IIC/L\textsubscript{nTw} Impact Insulation Class, or Weighted Normalised Impact Sound Level. L\textsubscript{nTw} = 110 - IIC. The higher the IIC rating, or the lower the L\textsubscript{nTw} rating the better the performance of the building element at insulating impact noise. The table below gives the subjective impression of different ratings:

<table>
<thead>
<tr>
<th>IIC</th>
<th>L\textsubscript{nTw}</th>
<th>Subjective Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>70</td>
<td>Clearly Audible</td>
</tr>
<tr>
<td>45</td>
<td>65</td>
<td>Clearly Audible</td>
</tr>
<tr>
<td>50</td>
<td>60</td>
<td>Audible</td>
</tr>
<tr>
<td>55</td>
<td>55</td>
<td>Audible</td>
</tr>
<tr>
<td>60</td>
<td>50</td>
<td>Just Audible</td>
</tr>
<tr>
<td>65</td>
<td>45</td>
<td>Inaudible</td>
</tr>
</tbody>
</table>

FIIC/L\textsubscript{nTw}' The equivalent of IIC/L\textsubscript{nTw}, but the performance is for the building element measured in the field.
9 June 2015

Ref: GWTS-RPT-1013-15-1

BESTEC
144 Gawler Place
Adelaide, S A  5 0 0 1

Project: Desktop pedestrian level wind study for Flinders Street
Subject: Addendum on GWTS wind assessment report for Flinders lane development
Adelaide.

The pedestrian level wind environment desktop assessment for Flinders Street, Adelaide was reported in March 2015, “GWTS-TR-1012-15-0 Flinders Tower 1 and 2 Adelaide Environmental report”. This addendum address the recommended wind control methods required for the development to fulfill the required comfort criteria.

**Ground Level:** The wind speed in the plaza area can be reduced to acceptable level by using wind controlling mechanisms. The perforated screen incorporated in the landscape design of the ground level will assist in reducing the wind approaching the plaza area. In the northwest corner of the ground level Using planter boxes at the southwest of the ground level is expected to reduce the wind speed approaching form the south. The suggested arrangement of the planter boxes is shown in Figure 1.

![Planter Box](Planter Box)

**Figure 1.** Ground level, suggested planter box arrangement.
**Footbridge between the two towers:** The wind speed under the bridge expected to reduce with the perforated screen incorporated in the design. Extending this screen in one of the section is recommended. The suggested area for perforated screen is shown in Figure 2. Perforated screens are prone to wind noise. However, random pattern and bigger sizes are less likely to create a problem.

![Perforated Screen](image)

**Figure 2.** Bridge between the buildings and suggested perforated screen
Ground Level base of Tower 1 & 2 Outside sitting area: The outside sitting areas are required to fulfill the sitting criteria. This requires the use of screens around the sitting area as shown in Figure 3.

Figure 3. Ground level, suggested Porous Screen.
Level 18, roof garden of Tower 1: The roof garden Tower 1 is exposed to strong westerly and southwesterly winds. To reduce the wind speed approaching to this area, increasing the parapet height to 1.5m is recommended. This recommendation is shown in Figure 4.

Figure 4. Recommended increase of parapet height around roof garden of Tower 1, Level 18
The above recommendations are based on experience for the preliminary design. It is recommended to have a detail evolution of the wind controlling mechanisms during the detail design stage.

Yours sincerely,

Global Wind Technology Services Ltd

Seifu Bekele, PhD, FIEAust
Principal Wind Engineer
seifub@gwts.com.au
11th June 2015

Connie Parisi
Case Manager
Investment Management • Development Division
Department of Planning, Transport and Infrastructure
Level 5, 136 North Terrace,
Roma Mitchell House,

ATTENTION: Connie Parisi

Dear Connie

260 FLINDERS STREET APARTMENT
DEVELOPMENT BUILDING SERVICES
INFRASTRUCTURE STATEMENT

The purpose of this letter is to provide preliminary site services infrastructure information as required for the 260 Flinders Street Apartment Development.

Project Overview

The Project consists of 2 residential Towers and a common central plaza with 2 levels of basement parking.

Tower 1 is a multi-storey residential apartment development with ground floor retail. The building comprises the following arrangement:

Ground Level: Retail and commercial
Mezzanine: Retail and commercial
Level 1: Residential Apartments and pool deck
Level 2-21: Residential Apartments

Tower 2 is a multi-storey residential apartment development, with serviced apartments to higher levels top level restaurant and ground floor retail. The building comprises the following arrangement:

Ground Level: Retail and commercial
Mezzanine: Amenities
Level 1-8: Residential Apartments
Level 9-10: Sky home Apartments
Level 11-18: Serviced Apartments
Level 19-22: Serviced Apartments
Level 23: Restaurant Level

Electrical Infrastructure
An existing Transformer is located on Dawkins Place however it is not suitable for this project.

The most practical solution appears to be servicing each tower via a dedicated transformer situated on the site (as shown on drawings). The proposed transformers will connect into the existing high voltage street mains. Tower 1 is proposed to have its own Transformer. Tower 2 is proposed to have its own Transformer.

Communications Infrastructure
The development is proposed to incorporate more than 100 Apartments, triggering the requirement for a fibre (NBN or equivalent) based communications infrastructure. It is proposed to reticulate a single fibre
main from Flinders Street into a dedicated Communications room (located ground level or basement level). This room will incorporate the main fibre termination equipment and breakout frames to service risers and upper level breakout equipment for each apartment.

**Sewer Infrastructure**

It is proposed to service the Apartment development with multiple connections via the Flinders Street main. Multiple connections will only be provided where required to satisfy buildings waste water demand. Each connection (where required) is proposed to incorporate government inspection points located at the sites Southern boundary (works by SA Water Corporation).

**Domestic Cold Water Infrastructure**

A single 40mm water supply is proposed for each tower to be serviced via the Flinders Street SA Water Corporation town’s main. The 40mm incoming main shall supply a break located in a lower level plant room, complete with boost pressure pumps to service the upper levels of the apartment development. The main will require establishment of a 40mm water meter within a government inspection point at the sites Southern boundary (works by SA Water Corporation).

**Gas Infrastructure**

A low pressure gas connection shall be made to the low pressure natural gas mains located in Flinders Street. Natural gas is proposed to service the Retail tenancy and the apartments.

**Fire Services Infrastructure**

It is proposed to incorporate a Class A (two dedicated feeds from separate mains) connection to the SA Water Infrastructure, to allow a fire water storage capacity of 50KL. Each 150mm connection (two, 2, in total) are proposed to be supplied via the 200mm (North and South Side) water mains located in Flinders Street.

Each Tower will incorporate the following:
- An SAMFS booster located at the site entry (recessed into the retail area) with 24/7 access for the SAMFS,
- A fire control room located directly off the fire stair with 24/7 access for the SAMFS, and
- A fire pump room incorporating a 50KL storage tank and two (2) fire boost pumps to service hydrants and sprinklers located in the building.

**Mechanical Plant**

All mechanical air conditioning plant is currently proposed to be installed on balconies. These balcony units will incorporate louvres or screening (final solution pending CFD analysis) to ensure mechanical plant is not visible from outside.

**Roof Plant**

The roof is only intended to incorporate minimal building services, comprising stair pressurisation fans (BCA requirement), a car park exhaust fan (BCA requirement) and the domestic hot water plant for the apartments.

If there is anything further required please do not hesitate to contact the undersigned.

Yours Faithfully
Loucas & Zahos Pty Ltd

Louis Petridis
Senior Architect
Leader in sustainable waste management and recycling solutions

Flinders Place – Flinders Street, Adelaide
Submission for Waste Collection Services
Prepared by Veolia Environmental Services (Australia) Pty Ltd
March 2015
CONFIDENTIALITY CONDITIONS

(a) All information whether oral, electronic, printed or graphic contained in this document or obtained by you from Veolia (Information) is confidential to Veolia and shall not be used by you other than for the purpose of reviewing this document and the proposal contained herein.

(b) You shall not copy or reproduce any Information except when, and then only to the extent, reasonably necessary for the purpose of reviewing this document and the proposal contained herein.

(c) Upon receiving notice that our proposal has not been accepted, and if notified by Veolia, you shall destroy, in a secure manner, this document and any Information.

(d) You shall ensure that any employee or any other person to whom you supply the Information is bound by the terms of these conditions.
Dear Con

Veolia is pleased to submit the following Waste Management Plan for the proposed development located in Flinders Street, Adelaide.

Veolia will have a strong focus on diverting your waste streams to recycling centres to work towards achieving cost minimisation and increasing diversion from landfill by implementing the following systems:

- Liquid Waste – recycled through our liquid plant.
  - Various sizes
- Organics Bin – all food material from kitchens
  - 660ltr MGB
- General Waste – for all contaminated wet waste streams
  - 1100ltr MGB
- Dry recycling – recycled through IWS recycling centre
  - 1100ltr MGB
- E Waste – For all electronic equipment. TBA
- Education Material to help reduce contamination

*All these services are in line with the Adelaide City Council residential recycling plan.

Please see a copy of the waste management plan below for your consideration. I am confident Veolia can implement the above services and systems to work towards achieving cost minimisation and supply the waste management services in a safe & environmentally friendly manner.

We look forward to working with you throughout this process and into the future. Should you require additional information or clarification relating to this document, please do not hesitate to contact myself on 0419 301 449.

Regards

Anton Ianni
Account Manager
Executive Summary

Veolia’s aim is to deliver viable collection, handling and transport of all waste streams for all sites whilst diverting 100% of its waste streams through a recycling process.

Flinders Place are also mindful of promoting the correct management of its waste by decreasing the amount of waste going to landfill and increasing the quantity of waste that is recyclable through a “value for money” service.

Veolia Environmental Services (Veolia) is Australia’s leading provider of environmental waste management services to industry, commerce and the public. Veolia has worked closely with government, industry and commerce for over 42 years to satisfy people’s essential daily needs while respecting natural resources. Veolia’s strong and stable management team have taken the organisation from a small operation in 1969 to the current Australia-wide and international network generating Australian revenues in excess of $700 million per annum from in excess of 100 operating sites.

Veolia is the Australian waste management, industrial cleaning and resource recovery division of the global company Veolia Environnement (VE), generating revenue in excess of AUD $55 billion annually.

The worldwide strength of Veolia is underpinned by a strategy of long-term investment, continuous innovation and mutual partnering with our customers. Veolia works in partnership with nationally aligned accounts such as Coles, Spotless and Health Scope. Locally, Veolia has forged strong working partnerships with ISS, Burnside Village, Makris Corporation and performs municipal services for Councils such as Mt Barker, Pt Augusta, Whyalla and Pt Lincoln. Veolia has significant experience within the Local Government sector throughout Australia in areas of environmentally recognised and sustainable waste management and recycling services.

This experience enables Veolia to provide the suite of services required by Flinders Place development, whilst maintaining the necessary standards of environmental health and safety compliance. Veolia is proud of its commitment and compliance to all aspects of Quality, Occupational Health Safety & Welfare and Environmental Management Systems to support our commitment to sustainable development.

Our proposal recognises the need to address the disposal of all waste streams generated from each area of Flinders Place development. Our model will focus on effective waste minimisation strategies, including the recycling or beneficial re-use of product wherever appropriate at extremely competitive rates. Veolia has adopted the principle of ‘World’s Best Practice’ and is dedicated to achieving the highest standards in our field.
In the waste management sector, disposal of biodegradable waste will ultimately attract a higher landfill cost at poorly run landfill operations. Government and commerce are becoming increasingly aware of the environmental and economic benefits of sorting all waste streams to recover high yields of recyclable waste. The increased recycling of plastics, paper, cardboard, waste oily waters, sludges, greases and other recyclable materials will improve Flinders Place life-cycle Greenhouse Gas (GHG) Emissions and ecological footprint. Veolia can provide monthly reports on GHG emission savings, in addition to data on volumes and weights diverted from landfill.

A major component of our proposal provides for not only the minimisation of waste, but more importantly for the diversion from landfill to our recycling facility to ensure where possible 100% of your waste streams are diverted through the recycling process. This is the key to supporting Flinders Place commitment to sustainable development and will also assist in the better management of costs. Veolia believes in conducting regular audits of its waste segregation management system to ensure that it complies with Flinders Place environmental directives. The evaluation of the effectiveness of this system may be monitored through regular agreed KPI reporting.

The impact of the Australian Carbon Tax on the Adelaide Wine centre’s operations, including the area of waste management, will conceivably be significant. In this resource and carbon constrained world, it is important that Flinders Place develops a waste and recycling management program and aligns with an environmental service provider who is strategically positioned to help Flinders Place mitigate its environmental footprint.
The key characteristics of our proposal are:

**Deliver Long Term Cost Savings**: Through a structured program focusing on waste diversion from conventional landfill, Veolia can deliver cost savings through lower disposal costs across Flinders Place development. With waste now included in the Australian Carbon Tax, waste sent to conventional landfills will attract a significantly higher carbon emissions penalty than material going through Veolia’s resource recovery facilities.

**Towards Zero Waste to Landfill**: Veolia provides access to various technologies developed both locally and overseas, which are already proven within the Veolia Group. Our proposal offers solutions that address a range of environmental concerns, with the primary focus being the diversion of waste from landfill to a recycling centre. Some sample environmental credentials afforded to Flinders Place development include:

- Implement Organics Recycling
- Zero Waste Approved Facility
- Implement Dry Recycling (front lift bins)
- Periodical audits performed to promote best practice

**One Contact**: Veolia is able to provide a dedicated Waste Services Team and we will assign a major account executive to Flinders Place development. This provides one point of contact for Flinders Place development to monitor waste expenditure costs and recycling performance, enabling real improvements in both over the life of the contract. Veolia will provide one phone number to Flinders Place development for all enquiries and this will be operational 24 hours a day, 7 days a week.

**Leading Edge Reports**: A monthly national report, which not only captures recycling and waste data, but calculates waste related Greenhouse Gas Emissions and savings from transport and waste disposal is available on a monthly basis for Flinders Place development.

We are also able to provide reporting based on:

- Cost Centre volumes and costs, waste volumes & weights, waste types, recycling volumes, recycling types, disposal costs etc.
- A feature of our reporting will be a Green House Gas (GHG) calculation, which will detail what impact Flinders Place development has had on the environment and the benefits they have delivered through increased recycling.
Educational Material: Veolia can supply a full range of educational material to help understand and increase the recycling outcomes.

1. Waste Management Hierarchy

2. Recycle Pak – Maximise diversion from landfill with the correct receptacles.
Triple National Certification: Flinders Place development will have peace-of-mind that their waste is being collected, recycled and disposed of in a safe and environmentally compliant manner. This is backed up by our highly enviable triple certification of ISO 14001 (Environment), ISO 9001 (Quality) and AS 4801 (Safety) management systems.

Award Winning Business: Veolia is the recipient of the 2011 Australian Business Award for Environmental Sustainability. This was the second consecutive year that Veolia won this award, selected from numerous national businesses by an independent committee.

Veolia is also an Australian Quarantine and Inspection Service accredited service provider. The strategic direction of Veolia is one of continuous improvement in environmental technologies for the handling, processing and treatment of waste as well as improvements in education and environmental awareness programs for our customers.

As the organisation has grown, it has earned a reputation for quality, reliability, customer service and commitment to sustainable development based on ‘World’s Best Practice’. We look forward to working with Flinders Place development throughout this period and into the future. Should you require additional information or clarification relating to this document, please do not hesitate to contact myself on (08) 8260 2122.

Anton Ianni
Account Manager SA
## Waste Management Plan – Residential Refuse Area

### Flinders Place Tower 1

<table>
<thead>
<tr>
<th>Subject</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development Details</td>
<td>Flinders Place Adelaide Tower 1</td>
</tr>
</tbody>
</table>

#### Bin Compound
- **Organics Bin** – All food material from residents & Restaurant
  - 2 x 660ltr MGB
- **General Waste** – For wall Contaminated wet waste
  - 3 x 1100ltr MGB
- **Dry recycling** – Recycled through IWS recycling centre
  - 2 x 1100ltr MGB
- **Grease Arrestor** – Liquid waste
  - 1000ltr Grease Arrestor

**Please refer to waste generation table attached**

### Bin Dimensions:

<table>
<thead>
<tr>
<th>Bin Size</th>
<th>Wheel Diameter</th>
<th>Max. Weight in Bin</th>
<th>Bin Weight</th>
<th>Height (mm)</th>
<th>Width (mm)</th>
<th>Depth (mm)</th>
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<tbody>
<tr>
<td>140</td>
<td>200</td>
<td>45kg</td>
<td>11.4kg</td>
<td>920</td>
<td>535</td>
<td>640</td>
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<td>240</td>
<td>200</td>
<td>95kg</td>
<td>15.5kg</td>
<td>1060</td>
<td>580</td>
<td>730</td>
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<tr>
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<td>200</td>
<td>440kg</td>
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<td>1360</td>
<td>1360</td>
<td>1090</td>
</tr>
</tbody>
</table>

### Rear Lift Truck Dimensions:

<table>
<thead>
<tr>
<th>Size</th>
<th>Length (mtrs)</th>
<th>Width (mtrs)</th>
<th>Height (mtrs)</th>
<th>Operating Clearance</th>
<th>Turning Circle (Mtrs)</th>
<th>Gross Vehicle Mass (GVM)</th>
<th>Tare weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.2</td>
<td>8.66</td>
<td>2.20</td>
<td>3.10</td>
<td>NA</td>
<td>15.00</td>
<td>14t</td>
<td>9.67t</td>
</tr>
<tr>
<td>8m</td>
<td>10.10</td>
<td>2.50</td>
<td>3.30</td>
<td>NA</td>
<td>15.30</td>
<td>22.5t</td>
<td>12t</td>
</tr>
</tbody>
</table>

**Notes**
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Volume – 6.6m3 per week</td>
<td>Volume – 4.4m3 per week</td>
<td>Volume – 2.64 m3 per week</td>
<td>Volume 1000ltr, to be serviced Quarterly</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3 x 1100ltr bins</td>
<td>2 x 1100ltr bins</td>
<td>2x 660ltr bins</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Service schedule twice per week</td>
<td>Serviced twice per week</td>
<td>Serviced schedule twice per week</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bin Storage Locations &amp; movement of bins</th>
<th>Bins will be stored in the ground level bin waste room. The bins will be clearly labelled with signage encouraging the tenants to recycle as much as possible. ** As per plan attached</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The bins will be managed by the Cleaners/Facility Manager— the bins will be serviced from the loading bay off Tuckers street. This will be accessed by reversing into the loading bay off Tucker Street.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Collection Points</th>
<th>Waste &amp; Recycling</th>
<th>Specialised Facilities &amp; Equipment</th>
<th>Account Management &amp; Customer Education</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A Veolia truck will service the Residential refuse room</td>
<td>There will be no specialised equipment for this project</td>
<td>Veolia will have a dedicated Account Manager to oversee the waste management services for the Flinders Place. We can supply signage to help achieve improved recycling.</td>
</tr>
</tbody>
</table>
Waste Management Plan – Residential Refuse Area

Flinders Place Tower 2

<table>
<thead>
<tr>
<th>Subject</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development Details</td>
<td>Flinders Place Adelaide Tower 2</td>
</tr>
</tbody>
</table>

**Bin Compound**
- Organics Bin – All food material from residents & Restaurant
  - 4 x 660ltr MGB
- General Waste – For wall Contaminated wet waste
  - 3 x 1100ltr MGB
- Dry recycling – Recycled through IWS recycling centre
  - 2 x 1100ltr MGB
- E Waste POA

**Please refer to waste generation table attached**

**Bin Dimensions:**

<table>
<thead>
<tr>
<th>Bin Size (Ltrs)</th>
<th>Wheel Diameter</th>
<th>Max weight in Ein</th>
<th>Ein Weight</th>
<th>Height (mm)</th>
<th>Width (mm)</th>
<th>Depth (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>140</td>
<td>200</td>
<td>45kg</td>
<td>11.4kg</td>
<td>320</td>
<td>535</td>
<td>640</td>
</tr>
<tr>
<td>240</td>
<td>200</td>
<td>96kg</td>
<td>15.5kg</td>
<td>1060</td>
<td>550</td>
<td>730</td>
</tr>
<tr>
<td>660</td>
<td>200</td>
<td>265kg</td>
<td>45kg</td>
<td>1200</td>
<td>1360</td>
<td>770</td>
</tr>
<tr>
<td>1100</td>
<td>200</td>
<td>440kg</td>
<td>58kg</td>
<td>1380</td>
<td>1360</td>
<td>1090</td>
</tr>
</tbody>
</table>

**Rear Lift Truck Dimensions:**

<table>
<thead>
<tr>
<th>Size</th>
<th>length (mtrs)</th>
<th>width (mtrs)</th>
<th>height (Mtrs)</th>
<th>Operating Clearance</th>
<th>Turning Circle (Mtrs)</th>
<th>Gross Vehicle Mass (GVM)</th>
<th>Tare weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 x 2</td>
<td>8.66</td>
<td>2.20</td>
<td>3.10</td>
<td>NA</td>
<td>15.00</td>
<td>14t</td>
<td>9.67t</td>
</tr>
<tr>
<td>8 x 4</td>
<td>10.10</td>
<td>2.50</td>
<td>3.30</td>
<td>NA</td>
<td>15.30</td>
<td>22.5t</td>
<td>12t</td>
</tr>
</tbody>
</table>

**Notes**
| Service Frequency & Waste Volumes | General Waste  
|  | - Volume – 6.6m³ per week  
|  | - 3 x 1100ltr bins  
|  | - Service schedule twice per week  
| Dry Recycling  
|  | - Volume – 4.4m³ per week  
|  | - 2 x 1100ltr bins  
|  | - Serviced twice per week  
| Organics  
|  | - Volume – 5.280 m³ per week  
|  | - 4 x 660ltr bins  
|  | - Serviced twice per week  
| Grease Arrestor  
|  | - Volume 2400ltr, serviced Quarterly  
| E Waste - POA |  |

| Bin Storage Locations & movement of bins | Bins will be stored in the ground level bin Waste room. The bins will be clearly labelled with signage encouraging the tenants to recycle as much as possible. **As per plan attached**  
|  | The bins will be managed by the Cleaners/Facility Manager – the bins will be serviced from the loading bay off Tuckers street. This will be accessed by reversing into the loading bay off Tucker Street. |

| Collection Points | Waste & Recycling  
|  | A Veolia truck will service the Waste room |

| Specialised Facilities & Equipment | There will be no specialised equipment for this project |

| Account Management & Customer Education | Veolia will have a dedicated Account Manager to oversee the waste management services for the Flinders Place. We can supply signage to help achieve improved recycling. |
1. Definitions

‘Agreement’ means the agreement and the terms set out in this document.

‘Contract Price’ means the Contract Price as specified in this document or, if no Contract Price is specified, means the total of the Service Fees multiplied by the corresponding quantities of the Services supplied for the term of the Agreement plus all adjustments and costs in accordance with this Agreement.

‘Equipment’ means all containers and other plant and equipment supplied by Veolia for or under this Agreement, all of which remain the property of Veolia.

‘Site’ means those of the Client’s premises at which the Services are carried out, and includes any new premises that the Client may relocate to for any reason.

‘Service Fee’ means the specified rate, price or lump sum amount for the performance of each item of the Services, as adjusted in accordance with this Agreement.

‘Services’ means all services of the type and nature as described in this Agreement.

2. Client Responsibilities

The Client agrees:

2.1 Service

(a) that Veolia has the exclusive right to supply all Services to the Site;

(b) to provide Veolia with reasonable opportunity to offer to provide Services to the Client at premises other than the Site;

(c) to promptly inform Veolia of any change in the Client’s Services’ requirements;

(d) to disclose to Veolia all information in the Client’s possession relevant to the provision of the Services;

(e) to comply with all legal requirements and the requirements of all relevant regulatory authorities relating to the Services;

(f) that Veolia has the right to suspend the provision of the Services in the event of non-payment for the same by the Client;

2.2 Equipment

(a) to use the Equipment only for its proper and intended purpose;

(b) to provide Veolia such access to the Equipment and the Site as is reasonably required to enable Veolia to provide the Services safely and in accordance with this Agreement;

(c) to maintain the cleanliness of the Equipment;

(d) not to damage, deface or remove identifying marks from the Equipment;

(e) to report to Veolia immediately any damage to, misuse of, or unsafe, Equipment;

(f) to reimburse Veolia for the cost of any stolen Equipment, whether from the Site or the vicinity of the Site;

2.3 Service

(a) to ensure that all waste supplied for collection is of the type or nature specified in this Agreement and, unless otherwise agreed by Veolia, uncompacted;

(b) not to overload the Equipment (either by weight or volume)

2.4 Payment

(a) to pay Veolia:

(i) the Contract Price as a debt due and payable to Veolia upon signing of the Agreement, such debt to be paid by monthly instalments payable over the term of this Agreement; and

(ii) any adjustments made by Veolia in accordance with this Agreement; and

(b) any and all amounts invoiced in accordance with this Agreement must be paid within 14 days from the date of the invoice; and

(c) if this Agreement is renewed, that the provisions of clause 2.4(a) will apply upon renewal to the Contract Price payable in respect of such renewed period.

2.5 Assignment

not to assign its interest under this Agreement without the prior written consent of Veolia.

3. Veolia Responsibilities

Veolia shall perform the Services in accordance with this Agreement.

4. Liabilities

4.1 Additional Charges and Fee Increases

The Client acknowledges that amounts payable by it to Veolia under this agreement may be adjusted from time to time by Veolia, acting reasonably, as a result of:

(a) Veolia having incurred extra costs or suffered loss and damage as a result of a breach by the Client of its responsibilities under this Agreement;

(b) the actual weight of the waste the subject of the Services exceeding the estimated weight thereof;

(c) a change in the nature, density, quantity or timing of the Services (including any change in the type, density, weight or quantity of the waste the subject of the Services);

(d) any increase in the Service Fees as a result of:

(i) any increase in the Adelaide All Groups CPI;

(ii) any increase in the cost of the performance of Veolia’s obligations under this Agreement (including labour costs, fuel, government taxes or charges, disposal fees); or

(iii) any other relevant circumstance.

Veolia undertakes to provide notice to the Client of any such increases.

4.2 Client Indemnity

The Client indemnifies Veolia against loss or damage to Veolia’s property and against any claim or action which may be brought or made by any person against Veolia, its employees or agents in respect of personal injury or death of any person or loss of or damage to property caused by a negligent or wrongful act or omission of the Client, its employees, other contractors or agents.

The Client’s liability to indemnify Veolia is reduced proportionally to the extent that Veolia, its employees, subcontractors or agents have contributed to the injury, death, loss or damage.

4.3 Veolia Liability

Veolia’s liability at law is limited to:

(a) the resupply of the Services; or

(b) at Veolia’s option, the payment of the cost of resupply of those Services.

Except for this and to the extent permitted by law, Veolia accepts no liability whatsoever for any claim for loss or damage of any kind without limitation. Veolia will not be liable for the non-performance of the Services caused by an act, omission or event beyond its control.

5. Term

5.1 The offer in this document is valid for fourteen (14) days from the date it is made.

5.2 The operation of the Agreement is subject to Veolia having first obtained a satisfactory credit check of the Client.

5.3 The term of this Agreement:

(a) is an initial fixed period of three (3) years from the Contract Commencement Date (“Initial Period”) specified in this Agreement, and thereafter, shall continue for successive fixed periods of three (3) years each, subject to termination in accordance with clause 6.1; or

(b) where the Services comprise a one-off project, expires upon their completion.

5.4 The term of this Agreement continues regardless of whether the Client moves from one Site to another Site (New Site). In the event of such relocation, Veolia will provide the Services at the New Site, on the terms of this Agreement.

6. Termination

6.1 Either party may terminate the Agreement:

(a) immediately by written notice to the other where that other;

(i) becomes bankrupt, or insolvent, or becomes subject to external administration; or
(ii) commits a substantial breach or default under the Agreement; or
(iii) repudiates the Agreement; or
(b) by giving to the other party no less than 60 days’ written notice of intention to terminate, such notice to take effect at the end of the Initial Period or at the end of any further fixed period pursuant to clause 5.3.

6.2 If the Agreement is terminated by Veolia under clause 6.1(a) or by the Client under clause 6.1(b), the Client must pay Veolia the sum of:
(a) all monies due and payable under any invoices rendered but unpaid; and
(b) as liquidated damages, fifty per cent (50%) of the average monthly revenue for the number of months from termination until expiry of the then current term of the Agreement and which the Client agrees are a genuine pre-estimate of Veolia’s loss. ‘Average monthly revenue’ is the average monthly gross amount paid or payable by the Client to Veolia under the Agreement.

7. Disputes
(a) If any dispute or difference arises between Veolia and the Client, other than pursuant to clause 6, it shall be referred to their respective representatives for resolution. In the event that the representatives are themselves unable to resolve the dispute, the representatives’ superiors will attempt to resolve it speedily by negotiation and in good faith.
(b) In the event that Services are terminated or suspended pending resolution of a dispute under this Agreement, at Veolia’s sole discretion Veolia’s bin/s may remain on the Site and Veolia reserves the right to lock the bin/s until the dispute in question has been resolved or the Agreement terminated. In the event of termination, at Veolia’s sole discretion, the bin/s may remain on the Site until payment of all liquidated damages, if applicable, in accordance with clause 6.2(b).
# Waste Generation: Tower 1

<table>
<thead>
<tr>
<th>Area</th>
<th>Waste</th>
<th>Co Mingling Recycling</th>
<th>Green Organics</th>
<th>Hard/Electrical Waste</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Medium or High Density Dwelling</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apartments</td>
<td>86</td>
<td>4260</td>
<td>3550</td>
<td>1420</td>
</tr>
<tr>
<td>Bedrooms</td>
<td>27 L/10 m sq/day</td>
<td>13 L/10 m sq/day</td>
<td>40 L/10 m sq/day</td>
<td></td>
</tr>
<tr>
<td>Café (Ground Floor)</td>
<td>20 m sq</td>
<td>270</td>
<td>130</td>
<td>400</td>
</tr>
<tr>
<td>Retail</td>
<td>155 m sq</td>
<td>387.5</td>
<td>193.75</td>
<td>19.375</td>
</tr>
<tr>
<td>Commercial</td>
<td>140 m sq</td>
<td>350</td>
<td>525</td>
<td>87.5</td>
</tr>
<tr>
<td><strong>Totals Per Week (L)</strong></td>
<td>5267.5</td>
<td>4398.8</td>
<td>1926.9</td>
<td>1.27</td>
</tr>
<tr>
<td>Collected Twice a Week</td>
<td>/ 2</td>
<td>2633.8</td>
<td>2199.4</td>
<td>963.4</td>
</tr>
<tr>
<td>Required Number of Bins</td>
<td>3 of 1100</td>
<td>2 of 1100</td>
<td>2 of 660</td>
<td>Pick Up Area (M Cubed)</td>
</tr>
<tr>
<td></td>
<td>3300</td>
<td>2200</td>
<td>1320</td>
<td></td>
</tr>
</tbody>
</table>
### Waste Generation: Tower 2

**21/05/15**

<table>
<thead>
<tr>
<th>Area</th>
<th>Waste</th>
<th>Co-Mingling Recycling</th>
<th>Green Organics</th>
<th>Hard/Electrical Waste</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Medium or High Density Dwelling</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apartments</td>
<td>30 L/Bedroom/Week</td>
<td>25 L/Bedroom/Week</td>
<td>10 L/Bedroom/Week</td>
<td>0.77 M Cubed/Household/Year</td>
</tr>
<tr>
<td>Bedrooms</td>
<td>46</td>
<td>1380</td>
<td>1150</td>
<td>460</td>
</tr>
<tr>
<td><strong>Serviced Apartments</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apartments</td>
<td>32</td>
<td>2240</td>
<td>448</td>
<td>448</td>
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<tr>
<td>Bedrooms</td>
<td>64</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>27 L/10 m sq/day</td>
<td>13 L/10 m sq/day</td>
<td>40 L/10 m sq/day</td>
<td></td>
</tr>
<tr>
<td><strong>Café</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>60 m sq</td>
<td>810</td>
<td>390</td>
<td>1200</td>
</tr>
<tr>
<td></td>
<td>Per Week</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>25 L/10 m sq/day</td>
<td>5 L/10 m sq/day</td>
<td>40 L/10 m sq/day</td>
<td></td>
</tr>
<tr>
<td><strong>Restaurant</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>150 m sq</td>
<td>1875</td>
<td>275</td>
<td>3000</td>
</tr>
<tr>
<td></td>
<td>Per Week</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6305</td>
<td>2363</td>
<td>5108</td>
<td>0.98</td>
</tr>
<tr>
<td><strong>Totals Per Week (L)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3152.5</td>
<td>1181.5</td>
<td>2554</td>
<td>0.49</td>
</tr>
<tr>
<td><strong>Collected Twice a Week</strong></td>
<td>3 of 1100</td>
<td>2 of 1100</td>
<td>4 of 660</td>
<td>Pick Up Area (M Cubed)</td>
</tr>
<tr>
<td></td>
<td>3200</td>
<td>2200</td>
<td>2640</td>
<td></td>
</tr>
</tbody>
</table>
Our ecologically sustainable design focuses on improving the efficiency of energy consumption within a building, with a primary intent to minimise CO2 emissions and the impact of inefficient buildings harming the environment.

The importance of energy efficiency in the building industry has increased significantly in recent years, the benefits of ecologically sustainable design (ESD) extend to long term energy cost savings as well as a public perception of environmental responsibility.

The design team have developed energy efficiency/sustainability initiatives.

The features outlined below are to be developed during the design development phase of the project and considered for inclusion in the development subject to feasibility and cost effectiveness.

**Project Overview**

The Project consists of 2 residential Towers and a common central plaza with 2 levels of basement parking.

Tower 1 is a multi-storey residential apartment development with ground floor retail.

The building comprises the following arrangement:

Ground Level: Retail and commercial  
Mezzanine: Retail and commercial  
Level 1: Residential Apartments and pool deck  
Level 2-21: Residential Apartments

Tower 2 is a multi-storey residential apartment development, with serviced apartments to higher levels, top level restaurant and ground floor retail.

The building comprises the following arrangement:

Ground Level: Retail and commercial  
Mezzanine: Amenities  
Level 1-8: Residential Apartments  
Level 9-10: Sky home Apartments  
Level 11-18: Serviced Apartments  
Level 19-22: Serviced Apartments  
Level 23: Restaurant Level

This report provides a summary of the sustainability measures that are to be integrated within the development through the adoption of a holistic design process.
Passive Design Feature Summary

1. Natural Ventilation
   Apartment corridors shall be connected to north and south communal courtyards which are naturally ventilated. All habitable rooms within the apartments incorporate operable windows that promote effective natural cross ventilation, with openings designed to suit the site characteristics.

2. Natural Daylight
   External facade glazing shall be optimised to maximise penetration of natural daylight for the building footprint, without compromising internal comfort conditions or energy consumption with excessive solar radiation.

3. External Shading Structures
   Apartment glazing shall be predominantly shaded by balcony overhang projections. North, East and West facing glazing shall be protected by either balconies or external shading devices such as perforated screens and vertical fin elements.

4. High Performance Materials
   The development aims to achieve an average 6 Stars rating with a minimum 5 star rating for individual apartments in accordance with the Nationwide House Energy Rating Scheme (NatHERS) framework.

   Glazing and insulating materials will be selected based on high performance to ensure that:
   - Heat gains in summer periods are minimised
   - Free solar heating is harnessed in winter periods
   - Zero-band air conditioning (zero heating/cooling) is maximised during shoulder seasons.

5. Airtightness
   Facade elements designed to minimise infiltration of outside air and migration of conditioned air and humidity.

6. Car Parking
   No visitor’s car parking is proposed to the development whilst the development does provide residents and visitor’s bicycle parks to promote environmentally friendly transport by apartment owners and visitors.

Apartment Natural Ventilation
   The ability for each apartment to have adequate access to effective natural ventilation is a key consideration for the building form and apartment layouts. Effective natural ventilation is considered extremely important as this design feature has the greatest ability to reduce operational energy consumption (air conditioning) and associated greenhouse gas emissions.

   There are various design principles that each apartment will aim to satisfy in order to develop effective natural ventilation solutions:
   - Size of ventilation openings (m²)
   - Location of openings (high & low level)
   - Cross ventilation (facade position)
   - Distance between openings (m)

Energy Efficiency
   The following energy efficient initiatives are proposed to complement the passive design techniques.
   - Opt optimise the building facade, building fabric performance and passive design of apartments to achieve a NatHERS FirstRate Energy Rating of at least 5 Stars for each individual apartment and targeting a development average of 6 Stars.
   - Passive infrared (PIR) motion detection system to activate lighting with manual overrides where appropriate (i.e. car park levels, apartment lobbies, etc).
   - Low energy luminaires such as fluorescent and LED fittings with energy efficient controls in public and common areas comprising motion sensors, time clocks and photocells in outdoor applications.
   - Demand management control of carpark ventilation, with fans served by variable speed drives (VSD)
and activated by carbon monoxide (CO) sensor control.
- Variable speed drives to reduce energy consumption and peak power associated with mechanical plant such as pumps and fans.
- High efficiency lifts with regenerative breaking systems and LED lighting.

The following section summarises the passive design principles proposed in order for the project to achieve the energy performance targets:-
- Extension of slab/balconies to provide horizontal overhang shading devices.
- Vertical shading fins or projected veils/screens to serve north, east and west facing glazing.
- Glazing to facade ratios that don't compromise daylight levels.
- High performance glazing.

**Water Efficiency**
The following water efficient initiatives are proposed to complement the passive design techniques. All fixtures and fittings shall be selected as low flow with appropriate Water Efficiency Labeling (WELS) where relevant.
- Bathroom taps with a WELS rating of not less than 5 Stars (4.5 L/min)
- Shower heads with a WELS rating of not less than 3 Stars (9 L/min)
- Water closets with a WELS rating of not less than 4 Stars (3.5 L/flush, dual flush)

**Rainwater Harvesting**
Based on the available roof catchment area, average monthly rain falls and expected landscaping water consumption, a 5 KL rainwater harvesting system is proposed.

**Indoor Environment Quality (IEQ)**
The following initiatives shall be considered to complement the passive design techniques.
- Selection of paints, sealants, adhesives, carpets and finishes to be low volatile organic compound (VOC).
- Selection of low formaldehyde composite/engineered wood products.
- Locate exhaust discharges in suitable locations such that contaminants do not enter the building from sources such as carpark, waste collection etc.

**Emissions**
The following initiatives shall be considered to complement the passive design techniques.
- Selection of air conditioning equipment with non-ozone depleting refrigerants.
- Selection of insulation (building fabric, pipework, ductwork) with zero ozone depleting potential (ODP).
- High filtration of air conditioning and ventilation systems to reduce particulates and odours being introduced into the building (where applicable)

**Transport**
The following initiatives shall be considered to complement the passive design techniques.
- Provision of cyclist storage facilities (visitors and residents).
- Provision of small car parking spaces.
- Deletion of visitors car parking.

Yours Faithfully
Loucas & Zahos Pty Ltd

Louis Petridis
Senior Architect
Hi Connie,

As the building id below the OLS at 153.5m AHD no requirement for referral.

The Airport would definitely need to see crane details once finalised by the proponent to confirm these stay below and wouldn’t require a referral.

Cheers

Brett Eaton
Airside Operations Manager

P: 08 8308 9245
M: 0438 890 111
F: 08 8308 9311
E: beaton@aal.com.au

The proponent for 260 Flinders Street (which is currently being reviewed in the Pre lodgement service) has prepared information relating to the overall height of Tower 2 showing, OLS, Crane Heights and PANS-OPS height.

https://www.dropbox.com/sh/ayo3nhk7ijqe89p/AABPkpPpYtbQ73qYawj9foCGa?dl=0

In summary, the heights in AHD are as follows:

- Ground level of site is AHD 48.70 m
- Top of Tower 2 building is AHD 126.80 m i.e. Total Building height of Tower 2 is 78.1 m above ground
- The OLS is 153.50 m AHD i.e. Top of Tower 2 is approx. 26.7 m under the OLS. With a 30 m crane, this would penetrate the OLS by 3.3 m, however, the intention is to use a modern 18 -20 m height hammer head
crane. The building plus a 20 m crane would provide a total height is 146.8 m AHD, which is 6.7 m below the OLS.

- In addition, the PANS – OPS for the site is approx. 252 m AHD, which means the top of building plus the crane is significantly well below the PANS-OPS contour (ie 125.2 m below).

Can you please confirm whether referral will be required once the application is lodged.

With thanks and Kind Regards

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**Connie Parisi**  
Case Manager  
Investment Management • Development Division  
Department of Planning, Transport and Infrastructure  
T 7109 7027 (internal 97027) • E connie.parisi@sa.gov.au  
Level 5, 136 North Terrace, Roma Mitchell House, Adelaide SA 5000 • GPO Box 1815 Adelaide SA 5000 • DX 171 • www.dpti.sa.gov.au
File No: 2014/11234/01

Ref No: 9669149

9 July 2015

Ms Connie Parisi
Planning Officer
Department of Planning Transport and Infrastructure
Roma Mitchell House,
136 North Terrace
Adelaide SA 5000

For the attention of the Development Assessment Commission,

260 Flinders Street, Adelaide

Further to the referral 480 – 020/A045/15 received 26 June 2015 pertaining to the development application at the above address and in my capacity as a statutory referral in the Development Assessment Commission, I am pleased to provide the final recommendations from the Design Review process for your consideration.

The proposal was presented to the Capital City Design Review Panel at two review sessions, during which period the proposal progressed.

The proposal is for two buildings, offering a total of 119 apartments and 64 hotel rooms across 20 levels plus a penthouse in Tower 1 and 21 levels in Tower 2, with a double storey restaurant space on the top floor. A connecting bridge incorporating a lap pool at the mezzanine levels above an open-air plaza links the towers. Both towers have podium frontages to Flinders Street and Tucker Street, which I support in principle. Overall, I support the intensity and diversity of uses for development and I commend the commitment to invest in this part of the city.

The subject land is located close to the Hutt Street – Flinders Street intersection, adjacent to recent development of seven storeys to the east and north, and 13 storeys to the west. The proposed buildings represent a substantial increase in height for the precinct challenging the established scale of Flinders Street. As such, development of this scale has a responsibility to establish a benchmark of quality both for the immediate context and in terms of the impact on long views. Critical to fulfilling this responsibility will be providing generous public amenity, particularly in relation to the plaza between the buildings. Consequently my support for this proposal is contingent on fulfilling the ambition for design excellence and exceptional amenity for both the public and residents.

The architectural expression seeks to create a unique identity to each building through a variation of screening elements, balcony expression and landscaped sections, which I support in principle. I note that the success of landscaped sections will rely on a robust management plan and careful plant selection that responds to local climate conditions.

Two basement levels of car parking are provided that include direct access to the plaza and both buildings, which I support. Bike parking is provided on the ground floor to the northern-western end of Tower 1, which I also support.
The current proposal includes a public plaza at ground level, bounded by the proposed buildings and the existing Zen building, which I support. An activated and high quality contribution to the streetscape, as well as a distinctive sense of address to Flinders Street, will be critical to the overall success of the proposal. The activation and use of the plaza will rely on successful delivery of a welcoming and high quality space that is supported by a comfortable microclimate. I note that screen and planting elements within the plaza will be important to mitigating wind impact in this area.

The proposed Tower 1 incorporates 18 levels of residential accommodation above two levels allocated to retail and lobby uses. Tower 2 incorporates a double height lobby and retail space with 8 levels of residential accommodation above. A further 10 levels of hotel accommodation is proposed above the residential offering, as well as a double height restaurant space on the top floor. Overall, I support the approach to articulate the towers by the distribution and mix of uses.

The proposal typically includes five 1 and 2 bedroom apartments per level for Tower 1, configured along a double-loaded corridor, with an oblique axis to assist in the southern façade articulation. My support for the Tower 1 apartment layouts is contingent on the provision of access to natural daylight and ventilation to offset the potentially poor outlook for north and west facing apartments at lower levels.

Tower 2 proposes four apartments with a north-south axial orientation separated by a communal lobby accessing a total of three lifts. The floor plans have a distinct quality due to the irregular geometries introduced by the vertical and horizontal circulation, which I support in principle.

While I acknowledge that the approach to apartment layouts seeks to achieve efficiency while also delivering a unique range of apartment types, it will be important that future stages of design development support the best possible amenity for the most apartments and in particular achieve good daylight and ventilation.

To ensure the most successful design outcome is achieved the Development Assessment Commission may like to consider particular aspects of the project, which would benefit from protection as part of the planning permission, such as:

- Specification of species type and landscaping strategy for the plaza and other indicated planted areas.
- Final detailed schedule of proposed material finishes.

Yours sincerely

Kirsteen Mackay
South Australian Government Architect
Dear Ms Parisi

DESCRIPTION: DEVELOPMENT MATERIALLY AFFECTING CONTEXT OF A STATE HERITAGE PLACE - SCHOOL OF MUSIC 265-279 FLINDERS STREET - CONSTRUCTION OF TWO (2) MIXED USE BUILDINGS COMPRISING RESIDENTIAL, RETAIL, HOTEL AND BASEMENT CAR PARKING WITH A COMMUNAL GROUND FLOOR PLAZA - 248-256 FLINDERS STREET, ADELAIDE

Application number: 020/A045/15
Received: 26/06/2015
State heritage place: School of Music (former Flinders Street Primary School), 265-279 Flinders Street ADELAIDE

The above application has been referred to the Minister for Sustainability, Environment and Conservation in accordance with the Development Regulations 2008 Schedule 8 Table item 5(1), as development that directly affects a State heritage place or, in the opinion of the relevant authority, materially affects the context within which the State heritage place is situated.

I have assessed the proposed development in its impact on the heritage significance of the above State heritage place. I consider its heritage impact to be acceptable for the following reason/s.

- The proposed development has no effect on the physical fabric or the site of the State heritage place.
- The proposed development is located diagonally opposite the State heritage place, where its impact on important views of the heritage place and on its visual setting is marginal and peripheral.
- The disposition of building footprints and open space retains a built form rhythm appropriate to historic and current streetscape patterns in the locality.
- The proposed towers incorporate various modes of vertical articulation to differentiate their lower levels, reinforcing to a reasonable degree the range of building heights typical of the historic and current streetscapes.

**General notes**

1. Any changes to the proposal on which this report is based may give rise to heritage impacts requiring further consultation with the Department of Environment, Water and Natural Resources, or an additional referral to the Minister for Sustainability, Environment and Conservation. Such changes would include for example (a) an application to vary the planning consent, or (b) Building Rules documentation that incorporates differences from the proposal described in the planning documentation.
2. In accordance with Regulation 43 of the Development Regulations 2008, please send the Department of Environment, Water and Natural Resources a copy of the Decision Notification.

3. The Commission is requested to inform the applicant of the following requirements of the Heritage Places Act 1993.
   (a) If an archaeological artefact believed to be of heritage significance is encountered during excavation works, disturbance in the vicinity shall cease and the SA Heritage Council shall be notified.
   (b) Where it is known in advance (or there is reasonable cause to suspect) that significant archaeological artefacts may be encountered, a permit is required prior to commencing excavation works.

   For further information, contact the Department of Environment, Water and Natural Resources.

4. The Commission is requested to inform the applicant of the following requirements of the Aboriginal Heritage Act 1988.
   (a) If Aboriginal sites, objects or remains are discovered during excavation works, the Aboriginal Heritage Branch of the Aboriginal Affairs and Reconciliation Division of the Department of the Premier and Cabinet (as delegate of the Minister) should be notified under Section 20 of the Aboriginal Heritage Act 1988.

For any enquiries in relation to this application, I can be contacted on telephone 8124 4935 or e-mail peter.wells@sa.gov.au.

Yours sincerely

Peter Wells
Principal Conservation Architect
DEPARTMENT OF ENVIRONMENT, WATER AND NATURAL RESOURCES
as delegate of the
MINISTER FOR SUSTAINABILITY, ENVIRONMENT AND CONSERVATION
15 July 2015
Ref 2016/00634

To: Development Assessment Commission

<table>
<thead>
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<th>Application Number</th>
<th>020/A045/15</th>
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<tbody>
<tr>
<td>Applicant</td>
<td>Loucas &amp; Zahos Pty Ltd</td>
</tr>
<tr>
<td>Subject Land</td>
<td>248 – 256 Flinders St Adelaide</td>
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</tbody>
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The Applicant has entered into a Land Management Agreement under s57A of the Development Act 1993.

This agreement commits the Developer to include develop and offer for sale as Affordable Housing Apartments not less six (6) of the dwellings to be created on the Land or such higher number that, together with the 18 apartments already offered for approval under the National Rental Affordability Scheme, in the development adjacent to the Land known as Zen 1, will equate to 15% of the total number of residential apartments provided on the Land and Zen 1, considered as a whole.

Yours sincerely

Robyn Evans
Senior Project Manager