APP Corporation

Statement of Environmental Effects

RESIDENTIAL DEVELOPMENT
7 – 9 CASTLEREAGH STREET AND
8 – 12 COPELAND STREET, LIVERPOOL

Date: July 2015

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1. Introduction

This Statement of Environmental Effects (SEE) is submitted to Liverpool Council (the Council) in support of a Development Application (DA) for two 9 storey residential buildings at 7 and 9 Castlereagh Street and 8-12 Copeland Street, Liverpool (hereafter referred to as the site).

The DA seeks approval for:

- excavation of the site including demolition of existing building structures other improvements and tree removal;
- construction of two 9 storey residential building with two basement levels comprising 120 residential apartments:
  - 17 x 1 bedroom apartments;
  - 92 x 2 bedroom apartments;
  - 11 x 3 bedroom apartments;
- a Gross Floor Area (GFA) of 10,808 m^2;
- Floor Space Ratio (FSR) of 3:1;
- vehicular access from Castlereagh Street;
- car parking for 140 vehicles (including 12 disabled adaptable spaces);
- 1,321 m^2 of landscaped communal open space; and
- upgrade of existing footpath and new street tree planting along Castlereagh and Copeland Streets.

This SEE has been prepared by APP Corporation on behalf of Glory Property Group. It is based on the plans prepared by Mosca Pserras Architects and other supporting technical information appended to the report (see Table of Contents).

This report describes the site, its environs, the proposed development and provides an assessment of the proposal in terms of the relevant matters for consideration under section 79C(1) of the *Environmental Planning and Assessment Act 1979* (the Act).

2. Site Analysis

2.1. Site Location and Context

The site is located on the north-western edge of the Liverpool City Centre (refer to **Error! Reference source not found.**). It is approximately 1km north-west of Liverpool Railway Station and approximately 450m north-west of Westfield Liverpool.

Both Castlereagh Street and Copeland Street are characterised by a mix of low density single residential dwellings and residential flat buildings up to 9 storeys in height. In the area immediately surrounding the site, the western side of Castlereagh Street features predominantly single residential dwellings, with the eastern side of the street comprising higher density residential flat buildings. Further to the west and north of the site is an expanse of public open space, with Wadel Park located to the west on the opposite side of Copeland Street and Military Park to the north.

Council's Liverpool City Centre Development Control Plan (Part 4) identifies the site as within a residential area. Under Council's development controls, the site and surrounding area is envisaged to comprise high density residential uses of up to 35 m (11-12 storeys). It is expected that over the coming years, as the older residential flat buildings and detached dwellings are redeveloped, the character of this area will change with significantly more dense and taller building forms.

2.2. Site Description

The site has an area of approximately 3,602.9m^2 and is irregular in shape. It is legally described as comprising the following lots:

- Lot A in DP 374032;
- Lot B in DP 374032;
- Lot B in DP 433791;
- Lot D in DP 374032; and
- Lot C in DP 374032.

The site is bounded by Castlereagh Street to the east and Copeland Street to the west.

A Site Survey, prepared by Project Surveyors is included at **Appendix A**.

Figure 1 Site location

2.3. Topography

The site is generally level with a slight fall towards Castlereagh Street to enable the site to be drained to Council's street system. Refer to **Appendix A**.

2.4. Existing Development

The site is currently occupied by five single storey detached dwellings which are utilised for private residential purposes. Two of these have frontage to Castlereagh Street (refer to Figure 2) with the remaining three facing Copeland Street (refer to Figure 3).

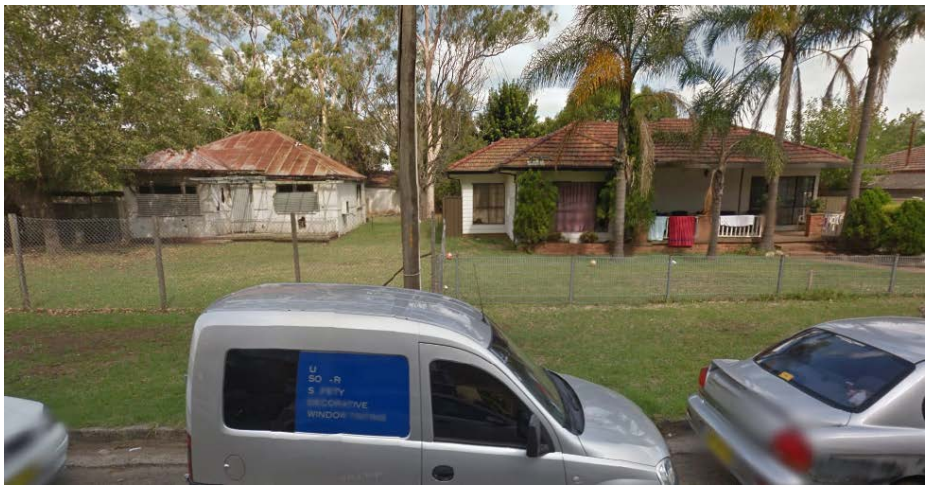

Figure 2 Existing dwellings on site with frontage to Castlereagh Street (looking west)

Figure 3 Existing dwellings on site with frontage to Copeland Street (looking east)

2.5. Surrounding Development

The site is surrounded by a mix of low density residential dwellings and higher density residential flat buildings, as well as public open space further to the north and west.

To the north

Immediately to the north are a number of single residential dwellings facing Castlereagh Street and Copeland Street. Further north on the other side of the Hume Highway is Military Park.

Figure 4 Surrounding residential dwellings along Castlereagh Street, looking north-east

Figure 5 Surrounding residential dwellings along Copeland Street, looking north-east

To the south

Immediately to the south are a number of single residential dwellings facing Castlereagh Street and Copeland Street. Further south on Copeland Street is an 8 storey residential flat building. Further south of Castlereagh Street are a number of other residential flat buildings.

Figure 6 Surrounding residential dwellings along Castlereagh Street, looking south-west

Figure 7 Surrounding residential dwellings along Castlereagh Street, looking south-west

To the east

To the east of the site is Castlereagh Street. On the opposite side of Castlereagh Street are a number of residential flat buildings, a 9 storey building immediately opposite the site, a 4-5 storey building further to the north-east and another 8-9 storey building to the south east. Further east fronting Bathurst Street are a number of 5-6 storey residential flat buildlings.

Figure 8 9 storey residential flat building immediately opposite the site

Figure 9 Existing development along Castlereagh Street, looking north-east

Figure 10 Existing development along Castlereagh Street, looking south-west

To the west

To the west of the site is Copeland Street. Immediately opposite the street is Wadel Park, a large area of public open space which extends along Copeland Street north to the intersection of the Cumberland Highway/Orange Grove Road and south to Campbell Street.

Figure 11 Wadel Park located opposite the site on Copeland Street

Figure 12 Existing development along Copeland Street, looking south-west

Figure 13 Existing development along Copeland Street, looking north-east

3. Proposed Development

This section of the report provides a detailed description of the proposed development, which comprises the following:

- excavation of the site including demolition of existing building structures other improvements and tree removal;
- construction of two 9 storey residential buildings with two basement levels comprising 120 residential apartments:
  - 17 x 1 bedroom apartments;
  - 92 x 2 bedroom apartments;
  - 11 x 3 bedroom apartments;
- a Gross Floor Area (GFA) of 10,808m^2;
- Floor Space Ratio (FSR) of 3:1;
- vehicular access from Castlereagh Street;
- car parking for 140 vehicles (including 12 disabled adaptable spaces);
- 1,321 m^2 of landscaped communal open space; and
- upgrade of existing footpath and new street tree planting along Castlereagh and Copeland Streets.

Architectural Drawings, Photomontages and a SEPP 65 Design Statement prepared by Mosca Pserras Architects are included at **Appendix B** respectively. Photomontages of the proposed development are reproduced in Figures 14 and 15.

Figure 14 Photomontages of the proposed development on Castlereagh Street

Figure 15 Photomontage of the proposed development on Copeland Street

3.1. Site Layout

The proposed development comprises two 9 storey residential flat buildings (Blocks A and B) (refer to Figure 16). Block A is located within the eastern portion of the site, with its long axis running north and south and fronting onto Castlereagh Street. Block B is located within the western portion of the site and fronts onto Copeland Street. The proposed buildings sit above two levels of car parking for residents and visitors. The buildings are connected at ground level by a generous area of communal open space.

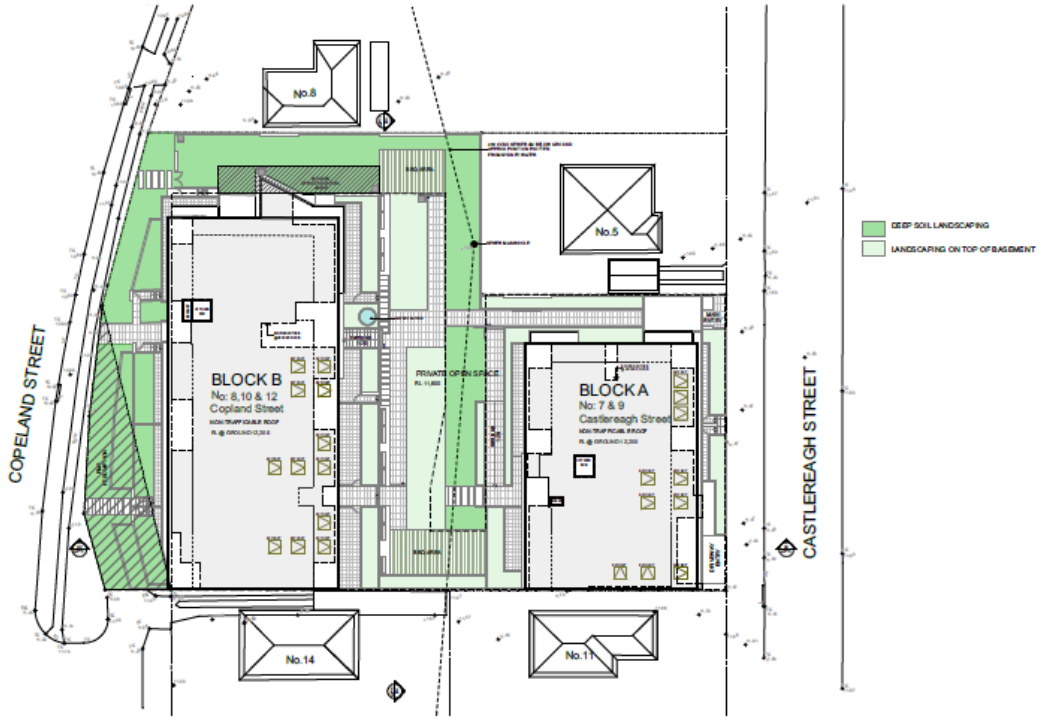

Figure 16 Proposed site planning

3.2. Design Principles

Principle 1: Context and neighbourhood character

Good design responds and contributes to its context. Context is the key natural and built features of an area, their relationship and the character they create when combined. It also includes social, economic, health and environmental conditions. Responding to context involves identifying the desirable elements of an area's existing or future character. Well-designed buildings respond to and enhance the qualities and identity of the area including the adjacent sites, streetscape and neighbourhood. Consideration of local context is important for all sites, including sites in established areas, those undergoing change or identified for change.

From the outset, the decision to employ a distinctly contemporary language was taken to avoid architectural pastiche via the replication of the old. Urban design principles, which align with Development Control Plans and the concept of human scale, are adopted. This will create a rhythm and grain that will be reflected throughout this precinct. The site is located between Castlereagh Street and Copeland Street. This precinct is undergoing a major transition. The development is intended not to replicate, but to complement and positively contribute to its future surrounding context.

Principle 2: Built form and scale

Good design achieves a scale, bulk and height appropriate to the existing or desired future character of the street and surrounding buildings. Good design also achieves an appropriate built form for a site and the building's purpose in terms of building alignments, proportions, building type, articulation and the manipulation of building elements. Appropriate built form defines the public domain, contributes to the character of streetscapes and parks, including their views and vistas, and provides internal amenity and outlook.

Compliance with this principle is demonstrated by following good urban design concepts that affect scale and build form. Street elevation heights should relate to future neighbouring context. Layers of buildings are hierarchically

diminutive in scale and language. Corners are identified with positive, well proportioned form, built to complement the development.

As the precinct is undergoing a transition as described in Principle 1 heights of the proposed development have been carefully considered and will be compatible with future neighbouring buildings.

The development will address both street frontages and link them together with a common open space which can relate to both. This communal open space creates a play of positive/negative and active/passive spaces within the site. Both street facades are articulated to have a base, middle and upper façade. The main communal open space is accessed by both buildings and also provides a buffer between them. The development is punctuated and broken down into distinct building forms and landscape zones with logical circulation around them and at the same time allowing for excellent daylight penetration.

Principle 3: Density
Good design has a density appropriate for a site and its context, in terms of floor space yields (or number of units or residents).Appropriate densities are sustainable and consistent with the existing density in an area or, in precincts undergoing a transition, are consistent with the stated desired future density. Sustainable densities respond to the regional context, availability of infrastructure, public transport, community facilities and environmental quality.

The site has height and FSR controls set out in the LEP and DCP. The development fits well within its context and will be reflective of future developments. There is a mix of units types to best serve the community and is consistent with the DCP vision for development in an area that is anticipated and is undergo major transition. The proposed density is appropriate based on the sites attributes such as accessibility to multi-modal transport and local and nearby facilities.The development is therefore consistent with this principle.

Principle 4: Sustainability
Good design combines positive environmental, social and economic outcomes. Good sustainable design includes use of natural cross ventilation and sunlight for the amenity and liveability of residents and passive thermal design for ventilation, heating and cooling reducing reliance on technology and operation costs. Other elements include recycling and reuse of materials and waste, use of sustainable materials and deep soil zones for groundwater recharge and vegetation.

The development meets the provisions under SEPP and BASIX which seeks to achieve energy and water efficiency and improved thermal performance of the proposed development. As part of the compliance with the SEPP and to meet the provisions contained within this part, the proposal will incorporate features relating to ESD in the design and construction of the development, including water efficient fixtures, energy saving devices and rainwater retention for irrigation of the courtyard. In terms of design elements, the residential components have been designed to achieve a high level of cross flow ventilation and good solar access consistent with the provisions contained within the Residential Flat Design Guide. These design principles ensure consistency with this principle.

Principle 5: Landscape
Good design recognises that together landscape and buildings operate as an integrated and sustainable system, resulting in attractive developments with good amenity. A positive image and contextual fit of well designed developments is achieved by contributing to the landscape character of the streetscape and neighbourhood. Good landscape design enhances the development's environmental performance by retaining positive natural features which contribute to the local context, co-ordinating water and soil management, solar access, micro-climate, tree canopy, habitat values and preserving green networks. Good landscape design optimises useability, privacy and opportunities for social interaction, equitable access, respect for neighbours' amenity and provides for practical establishment and long term management

The proposed development provides for communal open space, which this in excess of the required percentage of the overall site area. The landscaping will be carried out in accordance with the Landscape Concept Plan submitted with the development application. The scheme provides for active and passive and scaped areas facing north that

greatly add to the amenity of the development. Additionally each apartment has its own private open space in the form of balconies. These design principles ensure consistency with this principle.

Principle 6: Amenity
Good design positively influences internal and external amenity for residents and neighbours. Achieving good amenity contributes to positive living environments and resident well being. Good amenity combines appropriate room dimensions and shapes, access to sunlight, natural ventilation, outlook, visual and acoustic privacy, storage, indoor and outdoor space, efficient layouts and service areas and ease of access for all age groups and degrees of mobility.

The design provides adequate levels of internal amenity for future occupants. All apartments within the residential component of the development will have good sunlight and solar access, natural ventilation and have suitable visual and acoustic privacy. This is consistent with the provisions contained under the RFDC. The apartments will have appropriate storage and effective floor plan layouts with private open space in the form of a balcony. Common open space provides areas of outdoor recreation for all residents. The development will be required to comply with the requirements contained under the Building Code of Australia (BCA) which defines minimum acceptable construction outcomes to minimise noise transfer between units and provide for natural ventilation and daylight.

Principle 7: Safety
Good design optimises safety and security within the development and the public domain. It provides for quality public and private spaces that are clearly defined and fit for the intended purpose. Opportunities to maximise passive surveillance of public and communal areas promote safety.

The proposal provides good passive surveillance with sight lines across the site and to the adjacent streets. The ground floor residential component of the development will provide active usage, which in turn will have the positive outcome in lengthened surveillance during the day and in the evening by residents within the complex. This is encouraged as a design element under the Crime Prevention through Environmental Design Principles (CPTED). Suitable street and ground level lighting will be provided within the development to maximise surveillance opportunities at night and to reduce concealed areas. The basement car park will have security doors restricting access to resident parking and suitable lighting will be provided within the basement. As demonstrated within the accompanying plans and information, the development is consistent with the principles contained within CPTED.

Principle 8: Housing diversity and social interaction
Good design achieves a mix of apartment sizes, providing housing choice for different demographics, living needs and household budgets. Well designed apartment developments respond to social context by providing housing and facilities to suit the existing and future social mix. Good design involves practical and flexible features, including different types of communal spaces for a broad range of people and providing opportunities for social interaction among residents.

The proposal will provide for a wide variety of apartment layouts and sizes which will complement the type of housing within the available area. Communal open space areas provide for and allow opportunities for social interaction and recreation. Affordability has been a key driver in the design of the apartments. The site is highly sustainable in terms of its location to transport, leisure and infrastructure. These design principles ensure consistency with this principle.

Principle 9: Aesthetics
Good design achieves a built form that has good proportions and a balanced composition of elements, reflecting the internal layout and structure. Good design uses a variety of materials, colours and textures. The visual appearance of a well designed apartment development responds to the existing or future local context, particularly desirable elements and repetitions of the streetscape

As described in Principle 1, from the outset, the decision to employ a distinctly contemporary language was taken. Form, material, finish and colour all reinforce this development proposal. Addressing both street frontages with careful architectural façade language not only frames the street but also creates a positive street edge. The aesthetic of the architectural design is therefore consistent with the objectives of principle 10.

3.3. Development Statistics

Table 1 provides a summary of the key development statistics for the proposed development.

Table 1 Development Statistics

Element	Proposed
Site Area	3,602.9 m^2
Gross Floor Area (GFA)	
– Residential	10,808 m^2
FSR	3:1
Building Height[1] (maximum)	
Block A	29.1 m including lift over run (ground level RL 11.67) 27.8 m to top of parapet
Block B	29.7 m to top of lift over run (ground level RL 11.09) 28.4 m to top of parapet
Building Setbacks	
– Copeland Street (west)	8 m (generally)
– Castlereagh Street (east)	4.0 m (Ground level) 4.0 m (Level 1-2), 2.9 m to balcony 4.0 m (Levels 3 to 8)
– North	Building A - 4.6 m and 5.95 m (to balcony) Building B - 5.5 m and 10.5 m (to balcony)
– South	0.1 m
Development Mix	
– 1 bedroom	17
– 2 bedroom	92
– 3 bedroom	11
– Total	120
Adaptable apartments	12
Communal Open Space	1,321 m^2
Car Parking Spaces	140 spaces

[1] ***building height*** (or ***height of building***) means the vertical distance between ground level (existing) and the highest point of the building, including plant and lift overruns, but excluding communication devices, antennae, satellite dishes, masts, flagpoles, chimneys, flues and the like.

3.4. Land Uses

The proposed development seeks development consent for 10,808.7m^2 of residential GFA.

3.5. External Materials and Finishes

The proposed external materials and finishes are shown in Table 2 and on the Architectural Drawings prepared by Mosca Pserras Architects included at **Appendix B** and reproduced below in Figure 17.

Table 2 Proposed External materials and finishes

Element	Proposed
External wall, concrete slabs, hobs and upstands	Painted finish – Dulux "Western"
External wall and framing	Painted finish – Dulux "Vivid White"
External wall, concrete slabs, hobs, and upstands	Painted finish - "Finger Banana"
External wall, concrete slabs, hobs, and upstands	Painted finish – "Fluorescent Fire"
External wall, concrete slabs, hobs, and upstands	Painted finish – "Casper White"
Balustrades	Performance Glazing
Garage Door, Open Grill, Commercials Door, Windows, Doors, Balustrades and Louvers	Dulux Powdercoat: "Zeus-Silver Grey Matt (900-51272)
Balustrade Cladding	ALUCABOND "Grey Metallic – 502"

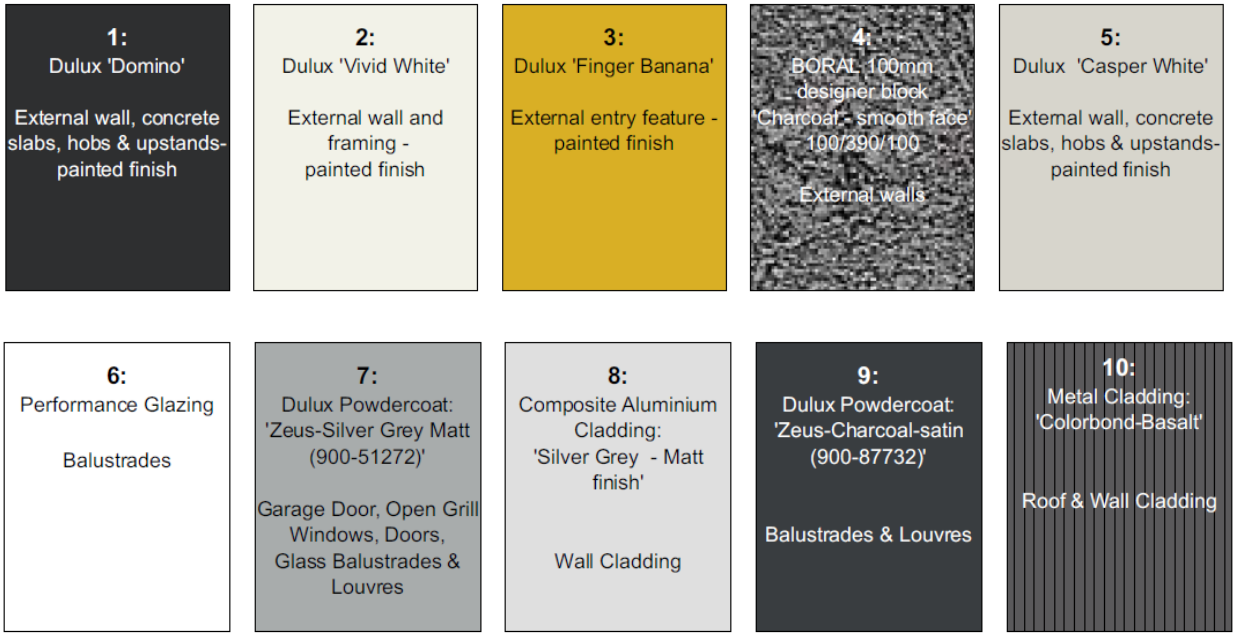

Figure 17 Proposed materials and finishes

3.6. Vehicular Access and Parking

Vehicular access to the proposed development is from Castlereagh Street via a 6 m wide combined ingress / egress driveway, located at the southern end of the site. From here, access to the basement level car parks (Basement 1 and 2) is proposed via an internal access road and ramps.

Car parking within the proposed development is distributed as follows (Table 2):

Table 3 Car parking

Level	Number of spaces
Basement Level 1	
Residential	56 (including 6 disable spaces)
Visitor	12 (includes 1 disabled space)
Subtotal	68
Basement Level 2	
Residential	72 (including 6 adaptable spaces)
Service / Car wash	3
Total	75
Bicycle parking	10 racks for visitors
Motor cycle	7 spaces

3.7. Pedestrian Access

Pedestrian access to Block A is available directly from the Castlereagh Street, at the northern end of the site. From here, pedestrians access the residential lobby on the western side of the building through a secure gate and the communal area of open space. Pedestrian access to Levels 1 – 8 is proposed via a residential lobby and lift. The lift provides access to all levels of the building including car parking areas. Access to the two residential apartments at ground level (i.e. Apartments AG02 and AG03) is available directly from the street via a small number of stairs. Within Block A, a maximum of 6 apartments are arranged off a lobby within each level of the residential building.

Pedestrian access to Block B is available from Castlereagh Street at the northern end of the site. From here pedestrians can access the residential lobby on the eastern side of the building through a secure gate and the communal area of open space. From here, residents can then either access their apartments directly from the corridor or via a lift to apartments on Levels 1 – 8. The lift also provides access to the basement car parking areas. Access to the four residential apartments at ground level in Block B (i.e. Apartments BG08, BG07, BG06 and BG05) is available directly from the street via separate entrances from the street. A maximum of 8 residential apartments are arranged off a lobby within each storey of the development. Secondary pedestrian access is also provided from Copeland Street.

3.8. Demolition and Tree Removal

Development consent is sought for the demolition of all existing building structures on the site and the removal of thirty-five (35) trees on the site.

3.9. Landscaping and Open Space

The proposed development provides 1,321 m^2 of landscaped communal open space (or 36% of the site) of which 928m^2 (or 26% of the site) comprise deep soil planting. A north facing area of communal open space is provided between Blocks A and B.

A Landscape Plan prepared by NBRS+ Partners is included at **Appendix C** (refer also to Figure 18). The key elements of the proposed landscape plan are:

Communal open space

Communal areas of open space will have controlled access for residents use only. These spaces will provide residents with a number of amenities including:

- BBQ area with architectural shade structure, communal benches and tables and gas barbeques;
- Lawn area with feature tree planting and water features; and
- Paved areas including decorative pebbles.

Hard Materials

Paving materials will be selected for attractiveness, durability and ease of maintenance.

Irrigation

All areas of landscape planting will be irrigated (including lawns, shrub and hedge planting and tree planting). Irrigation systems will make use of stormwater collected from the rooftops and hard landscaped areas on site.

Lighting

Lighting within the development will focus on lighting the pedestrian desire lines whilst minimising light spill in to adjacent residential apartments.

Footpath upgrade and street tree planting

The proposed development also includes an upgrade (new street trees and paving) along Castlereagh and Copeland Streets as per the Liverpool CBD Streetscape and Paving Guidelines.

It is noted that the Landscape Plan propose some landscaping over the Council owned land along Copeland Street. The applicant raises no issue with the inclusion of a condition of consent requiring this area to be landscaped in accordance with the proposed landscape concept plan.

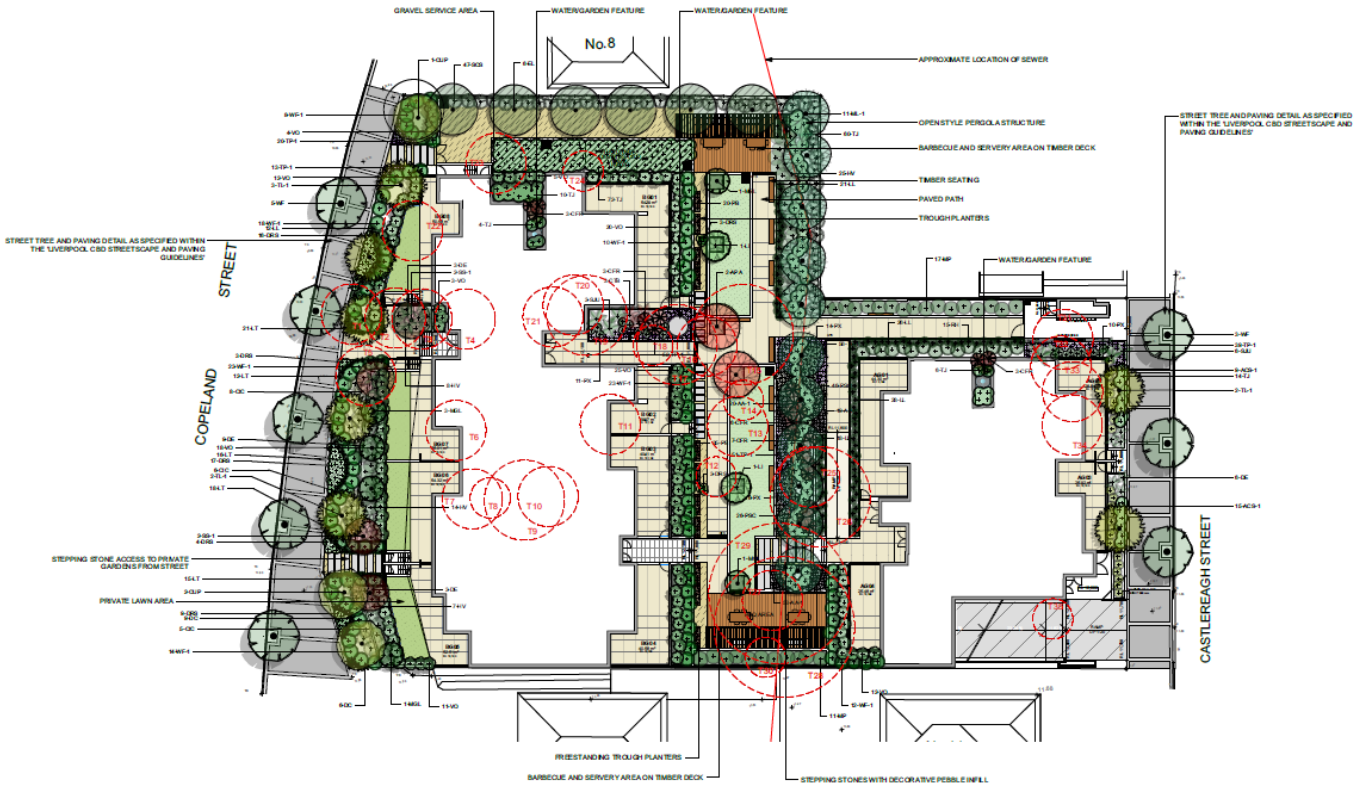

Figure 18 Proposed Landscape Plan

3.10. Residential Amenity

The proposed development provides for a high level of residential amenity.

Unit size

The proposed development provides for generous apartment sizes, ranging from:

- 44 m^2 – for studio
- 51 m^2 – 54 m^2 for 1 bedroom apartments;
- 79 m^2 – 108 m^2 for 2 bedroom apartments; and
- 97 m^2 – 113 m^2 for 3 bedroom apartments.

The proposed apartment sizes are generally consistent with the minimum requirements as set out in the NSW Government's Residential Flat Design Code (SEPP 65), enabling well organised, functional, high quality apartment layouts.

A schedule of unit sizes (internal and external areas) and areas of storage is included at **Appendix B**.

Private Open Space

Each apartment is provided with an area of open space in the form of a balcony or terrace area accessed from the main living room. The proposed areas of private open space range from:

- 11 m^2 - 29 m^2 for 1 bedroom apartments;
- 7 m^2 – 42 m^2 for 2 bedroom apartments; and
- 19 m^2 – 71 m^2 for 3 bedroom apartments.

All areas of private open space have a minimum depth of 2 m and are capable of accommodating a table and chairs.

Storage

Each apartment within the proposed development has been provided with an adequate area for storage. The area of storage provided to each apartment is detailed in **Appendix B**.

Natural Ventilation

The proposed configuration of the buildings and apartments results in the majority benefiting from reasonable levels of natural ventilation. Mosca Pserras Architects have confirmed that 65% of all apartments (i.e. 78 apartments) are cross ventilated.

Outlook and Views

The proposed apartments overlook either the central area of communal open space or a street. The amenity of apartments in terms of outlook and views is considered excellent.

Daylight and Sunlight Access

Shadow Diagrams, prepared by Mosca Pserras Architects is included at **Appendix B**. Mosca Pserras Architects have confirmed that 94% of apartments (i.e. 113 apartments) achieve a minimum 2-3 hours of sunlight to the living rooms and private open spaces between 9.00 am and 3.00 pm in mid-winter.

3.11. Civil and Engineering Design

A Stormwater Concept Plan and Report for the proposed development has been prepared by Central Engineers Consultant Engineers and is included at **Appendix D**. It has been prepared in accordance with the 'Liverpool City Council's On-site Stormwater Detention Technical Specification (June 2003) and Floodplain Management Plan.

3.12. Waste Management

Garbage is proposed to be collected from the garbage holding room located on the Castlereagh Street frontage immediately adjoining the driveway. A caretaker will arrange to take the bins from the two garbage store rooms located within Basement 1 to the garbage holding room for weekly collection. The number of bins and size of compactors required will be detailed in a Waste Management Plan.

Council will be responsible for the pick-up of residential waste. Building Managers will be responsible for managing all other waste, the cleanliness of all areas and the entering into and management of removal contracts.

4. Planning Framework

4.1. Relevant Legislation, Plans and Policies

In accordance with s.79C(1)(a) of the EP&A Act, the relevant strategies, policies, planning instruments and development controls applying to the proposed development are:

- State Environmental Planning Policy No. 55 – Remediation of Land (SEPP 55);
- State Environmental Planning Policy No. 65 – Design Quality of Residential Flat Development (SEPP 65);
- State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004;
- State Environmental Planning Policy (Infrastructure) 2007;
- Liverpool Local Environmental Plan 2008 (Liverpool LEP 2008); and
- Liverpool Development Control Plan 2008 (Liverpool DCP 2008).

4.2. Zoning and Objectives

The site is zoned R4 High Density Residential under Liverpool LEP 2008 (refer to extract provided in Figure 19). Within the R4 High Density Residential, "residential flat buildings[2]" are permissible with development consent.

The objectives of the R4 High Density Residential zone are:

- To provide for the housing needs of the community within a high density residential environment.
- To provide a variety of housing types within a high density residential environment.
- To enable other land uses that provide facilities or services to meet the day to day needs of residents.
- To provide for a high concentration of housing with good access to transport, services and facilities.
- To minimise the fragmentation of land that would prevent the achievement of high density residential development.

The proposed development is consistent with the objectives of the R4 High Density Residential zone in that it provides for the housing needs of the community within a high density residential environment, and is likely to provide accommodation for workers, in close proximity to the city centre, which has excellent access to transport, services and facilities.

[2] In accordance with Liverpool LEP 2008:
"***residential flat building*** means a building containing 3 or more dwellings, but does not include an attached dwelling or multi dwelling housing.

Figure 19 Extract of Zoning Plan (Liverpool LEP 2008)

4.3. Key Planning Controls

The key planning controls relevant to the proposed development are set out in Table 4 below.

Table 4 Key Planning Controls

Legislation, Plan, Policy	Key Development Standard / Control
SEPP 55	This Policy requires Council's to consider potential site contamination in the assessment of DAs.
SEPP 65 and RFDC	This Policy aims to raise the design quality of residential flat development across the state through the application of a series of design principles. An explanation of the design, based on the achievement of the design quality principles, is to accompany a DA.
BASIX SEPP 2004	All residential development is to comply with BASIX in relation to water, energy. BASIX certificates to accompany a DA.
Liverpool LEP 2008	
- Height of Buildings (Clause 4.3)	Maximum 35 m
- FSR (Clause 4.4)	
- Floor Space Map	2.0:1
- Maximum	3:1
- Lot Size (Clause 4.1)	Minimum 1,000m^2

Car Parking in Liverpool City Centre (Clause 7.3)	Car parking to be provided at the following minimum rates: • one car parking space per 200 m2 of any new gross floor area that is on the ground floor level of the building, and • one car parking space per 100 m2 of any new gross floor area that is to be used for the purposes of retail premises, and • one car parking space per 150 m2 of any new gross floor area that is to be used for any other purpose.
Building Separation in Liverpool City Centre (Clause 7.4)	Development consent must not be granted to development for the purposes of a building on land in Liverpool city centre unless the separation distance from neighbouring buildings and between separate towers, or other separate raised parts, of the same building is at least: • 9 metres for parts of buildings between 12 metres and 25 metres above ground level (finished) on land in Zone R4 High Residential, and • 12 metres for parts of buildings between 25 metres and 35 metres above ground level (finished) on land in Zone R4 High Density Residential.
Design excellence in Liverpool City Centre	Development consent must not be granted to development involving the construction of a new building or external alterations to an existing building in the Liverpool city centre unless the consent authority considers that the development exhibits design excellence.
Minimum Building Street Frontage (Clause 7.14)	The building is to have a frontage to a public street of at least 24m.
Liverpool DCP 2008	Proposed development to address controls set out in Parts 1 and 4 (including street alignment and setbacks, car parking, landscaping, overshadowing, CPTED, water and energy management etc.).

An assessment of the proposed development's consistency and / or compliance with the relevant planning instruments and controls identified in Section 5.1 is included in **Appendix F**.

5. Environmental and Planning Assessment

The following is our assessment of the environmental effects of the proposed development as described in the preceding sections of this report. The assessment includes only those matters under section 79C(1) of the Act that are relevant to the proposal.

The key planning issues associated with the proposed development are as follows:

- Compliance with Planning Framework;
- Built Environment;
- Density;
- Streetscape and the Public Domain;
- Energy Efficiency;
- Impact on Adjoining Properties;
- Access, Traffic and Parking;
- Equitable Access;
- Safety and Security;
- Construction Management;
- Social and Economic Impacts;
- Contamination; and
- Site Suitability.

5.1. Compliance with Planning Framework

An assessment of the proposed development against the provisions of the relevant statutory planning instruments and controls as set out in Section 5.1 is included at **Appendix H**. In summary, the proposed development complies with the majority of the relevant planning controls outlined in section 4 of this report in that it:

- complies with the maximum height and FSR development standards;
- does not cause any material environmental impacts to adjoining properties or the public domain in terms of overshadowing, privacy, access to daylight and ventilation;
- does not result in any unacceptable visual impact or view loss;
- achieve appropriate massing and spaces between buildings;
- exhibits design excellence;
- has acceptable impacts on adjoining properties; and
- is consistent with the desired future character of the area which encourages contemporary buildings in a higher density setting.

5.1.1. Building Separation and Privacy

The objectives of the building separation ‘rule of thumb’ are to:

- achieve appropriate massing and spaces between buildings;
- provide visual and acoustic privacy for residents;
- control overshadowing;
- provide for communal open space; and
- provide deep soil zones and tree planting.

Part 01 of the SEPP 65 Residential Flat Design Code (RFDC) suggests that for buildings up to 4 storeys in height there should be at least 12m separation between habitable rooms / balconies, 9 m between habitable rooms / balconies and non-habitable rooms and for buildings 5 to 8 storeys this distance should increase to 18 m and 13 m, respectively.

From Ground to Level 7 (up to 8 storeys), the distance between habitable rooms and balconies within Blocks A and B is 19.8 m (at ground level) and 24.2 m (at Levels 1 – 7) and complies with the recommended rules of thumb as set out in the SEPP 65 RFDC. For buildings over 9 storeys (or 25 m) the recommended distance increases to 24 m between habitable rooms / balconies, 18 m between habitable rooms / balconies and non-habitable rooms and 12 m between non-habitable rooms. At Level 9 (9 storeys) the proposed development maintains a separation distance of 24.2 m and also complies with the recommended rules of thumb as set out in the SEPP 65 RFDC and achieves appropriate massing and spaces between buildings, provides visual and acoustic privacy for residents and controls overshadowing.

Lourves are proposed to the west facing balconies in Block A and to the east facing balconies of Block B. The predominant view from these balconies is likely to be down onto the landscaped communal area of open space at ground level.

5.2. Built Environment

The redevelopment of the site is consistent with Council's vision for the high density residential and is compatible with existing and future land uses surrounding the site. The redevelopment of the site will significantly improve the vitality and amenity of the area and the site itself. The proposal has been designed to respond to the urban design parameters determined by the existing built context, site conditions and relevant planning controls. It is considered that the redevelopment of the site and the proposal's high quality urban and architectural design will significantly improve the visual character of the site and may act as a positive catalyst for other quality redevelopment in the area.

5.3. Streetscape and Public Domain

The proposed development will result in considerable improvements to the streetscape in terms of aesthetics, amenity and activity.

5.3.1. Castlereagh Street

The proposal addresses Castlereagh Street and in doing so will improve the character of this street. It will also improve opportunities for casual surveillance, by providing balconies and living rooms which overlook the street, thereby creating a more active street edge. The proposed streetscape improvements along this frontage (street tree planting and new paving) will further result in a positive streetscape impact.

5.3.2. Copeland Street

The design of the proposed development, along this site frontage as well the secondary entrance to the development will make a positive contribution to Copeland Street. The development is of a high quality design that will establish a benchmark for other sites within the immediate area. The proposed upgrade of the footpath along Copeland Street and new street trees will have positive streetscape impacts.

In summary, the proposed development:

- provides high quality and durable finishes which positively contribute to the residential character and visual amenity of the locality;
- has a high level of architectural design which will make a positive contribution to the residential amenity for future occupants in terms of solar access, natural ventilation, visual and acoustic privacy, overlooking, overshadowing, outlook and views;
- has been designed to physically and architecturally address all the street frontages with a similar orientation to that of surrounding development; and
- will shield car parking from view from the street.

The proposed development has positive streetscape impacts.

5.4. Energy Efficiency

The proposed residential development has been assessed against the compulsory requirements of BASIX (refer to BASIX certificates, prepared by Building & Energy Consultants Australia included at **Appendix G**). In summary, the proposed development achieves:

- 40% reduction in mains supply for water use (target is 40%);
- 22% reduction in energy / greenhouse gas emissions (target is 20%); and
- a 'pass' in terms of thermal comfort (target is a 'pass').

5.5. Safety and Security

The proposed development optimises safety and security both internal to the development and for the public domain, in that it:

- provides clear sightlines within the street and public domain areas. Building entries are obvious and clearly defined and will be appropriately lit;
- promotes casual surveillance of proposed and existing streets and minimises crime risk by providing balconies and windows to habitable rooms which face the street;
- includes appropriate lighting at street level in all public areas (subject to appropriate conditions);
- has been designed so that no concealed areas are proposed that would provide a hiding place; and
- all areas at ground level will have clear delineation between public and private spaces.

5.6. Access, Traffic and Parking

A Traffic Report, prepared by Varga Traffic Planning Pty Ltd is included at **Appendix H**. The report report assesses the traffic and parking implications of the proposed development, including:

- describes the site and provides details of the development proposal
- reviews the road network in the vicinity of the site, and the traffic conditions on that road network
- estimates the traffic generation potential of the development proposal, and assigns that traffic generation to the road network serving the site
- assesses the traffic implications of the development proposal in terms of road network capacity
- reviews the geometric design features of the proposed car parking facilities for compliance with the relevant codes and standards; and
- assesses the adequacy and suitability of the quantum of off-street car parking provided on the site.

The key aspects of the assessment are outlined below:

Existing Traffic Controls

The existing traffic controls which apply to the road network in the vicinity of the site are:

- 60 km/h speed limit which applies to Copeland Street;
- 50 km/h speed limit which applies to Castlereagh Street and all other local roads in the area;
- Traffic signals in Copeland Street where it intersects with Orange Grove Road and Campbell Street; and
- Give way signs in Castlereagh Street where it intersects with Campbell Street.

Projected Traffic Generation

An indication of the traffic generation potential of the development proposal is provided by reference to the Roads and Maritime Services publication Guide to Traffic Generating Developments, Section 3 – Land use Traffic Generation (October 2002).

The RMS Guidelines also make the following observation in respect of high density residential flat buildings:

> **High Density Residential Flat Buildings in Sub-Regional Centres**
> 0.29 peak hour vehicle trips/dwelling

The RMS Guidelines also make the following observation in respect of high density residential flat buildings:

> ***Definition***
> *A high density residential flat building refers to a building containing 20 or more dwellings. This does not include aged or disabled persons housing. High density residential flat buildings are usually more than 5 levels, have basement level car parking and are located in close proximity to public transport services. The building may contain a component of commercial use.*
>
> ***Factors***
> *The above rates include visitors, staff, service/delivery and on-street movements such as taxis and pick-up/set-down activities.*

Application of the above traffic generation rates to the new 120 residential apartments of the development proposal yields a traffic generation potential of approximately 35 vehicle trips per hour during commuter peak periods. That projected future level of traffic generation potential should however, be offset or discounted by the volume of traffic which could reasonably be expected to be generated by the existing uses of the site, in order to determine the nett increase in traffic generation potential of the site expected to occur as a consequence of the development proposal when compared with the previously approved development on the site.

Application of the “dwelling house” traffic generation rate nominated in the RMS Guidelines to the five existing dwelling houses on the site yields a traffic generation potential of approximately 4 peak hour vehicle trips.

Accordingly, it is likely that the proposed development will result in an increase in the traffic generation potential the site of approximately 31 vph as set out below:

Projected Nett Increase in Peak Hour Traffic Generation Potential

Projected future traffic generation potential:	34.8 vehicle trips
Less existing traffic generation potential:	-4.3 vehicle trips
Nett Increase in traffic generation potential:	30.5 vehicle trips

That projected increase in traffic activity as a consequence of the development proposal is minimal, is consistent with the rezoning objectives of the area, and will clearly not have any unacceptable traffic implications in terms of road network capacity or traffic-related environmental effects.

Off-Street Parking Provisions

The off-street parking requirements applicable to the development proposal are specified in Council's Development Control Plan 2008, Part 4 – Liverpool City Centre, 4. Traffic and Access document in the following terms:

Car Parking for Residential Development

1 or 2 Bedroom Apartment:	1.0 space per dwelling
3 Bedroom Apartment:	1.5 spaces per dwelling
Visitors:	1.0 space per 10 dwelling
Services:	1.0 space per 40 dwelling (for removalist and car wash bay, maximum of 4 spaces)

Application of the above parking requirements to the residential development proposal yields an off-street parking requirement of 141 parking spaces as set out below:

Residents (120 Apartments):	125.5 spaces
Visitors:	12.0 spaces
Service/Vehicle Bays:	3.0 spaces
Total:	140.5 spaces

The proposed development makes provision for a total of 140 off-street parking spaces, comprising of 128 residential spaces and 12 visitor spaces, thereby complying with Council's parking code requirements.

The geometric design layout of the proposed car parking facilities have been designed to comply with the relevant requirements specified in the Standards Australia publication Parking Facilities Part 1 - Off-Street Car Parking AS2890.1 - 2004 in respect of parking bay dimensions and aisle widths.

In summary, the proposed parking facilities satisfy the relevant requirements specified in Council's Development Control 2013 as well as the Australian Standards and it is therefore concluded that the proposed development will not have any unacceptable parking implications.

5.7. Noise

An acoustic assessment of the proposed development has been carried out by Acouras Consultancy in accordance with the requirements of Liverpool DCP 2008 and the Department of Planning *'Development Near Rail Corridors and Busy Roads'*, the relevant Australian Standards and NSW EPA Industrial Noise Policy (refer to **Appendix I**). An unattended noise survey of the site was carried out between 23–28 of April 2015. Table 5 below is a summary of the measured ambient noise level and traffic noise recorded during the survey.

Table 5 Measured Ambient and Traffic Noise and Levels, dBA

Location	Period	Average L_{eq}	Highest L_{eq} 1hr
Castlereagh (1)	Day (07:00-22:00)	57	64
	Night (22:00-07:00)	54	59
Copeland (2)	Day (07:00-22:00)	67	72
	Night (22:00-07:00)	64	69

Table 6below presents a summary of the measured background noise level and the allowable intrusive noise limit for this project in accordance with the DCP. For the purpose of the assessment, the background noise level has been determined using the RBL in accordance with the method given in the EPA INP.

Table 6 Noise Survey Summary and Project Limits, dBA

Location	Time Period	Existing Noise Levels		EPA Noise Limits, Leq
		$L_{eq\ (period)}$	RBL	
1	Day	58	50	55
	Evening	56	50	55
	Night	54	42	47
2	Day	67	53	58
	Evening	67	55	60
	Night	64	44	49

During detailed design stage, the design and selection of the mechanical equipment required to service the proposed development will be required to achieve the DCP noise limits as presented in the table above. During the monitoring period any adverse weather conditions have been excluded.

Assessment and recommendations

The report recommends the following as noise mitigation methods:

Acoustic glazing

The below table outlines the recommended acoustic glazing for all apartments:

Table 7 Schedule of Window and Glazing (Rw)

Building	Level	Façade	Space	Glazing Thickness	Minimum R_w (Glazing+Frame)
A	All	All	Living & Bedroom	6.38mm laminated	30
B	All	West	Living	10.38mm laminated	32
			Bedroom	12.5mm laminated (Viridian)	40
		East	Living & Bedroom	6.38mm laminated	30
		North	Living & Bedroom	10.38mm laminated	32

All other non-habitable spaces, such as bathrooms and laundries require minimum 6mm monolithic glass (Rw 28). All Windows/doors should be well sealed (air tight) when closed with good acoustic seals around the top and bottom sliders. Mohair seals are not considered to be acoustic seals.

Building Façade Construction

To provide sufficient acoustic attention of noise, the general external construction of the proposed building would need to be constructed as detailed in the table below:

Table 8 External Façade Construction (Rw

Building Element	Proposed Construction	Minimum R_w
External Wall	Masonry or brick veneer	50
Roof and ceiling	Concrete with a plasterboard cavity ceiling	50

Mechanical Services

At the stage of construction a detailed assessment of the mechanical plant and equipment will be conducted to ensure compliance with the EPA and Liverpool DCP 2008.

In summary, provided that the above recommendations are implemented, the noise from the proposed development is predicted to comply with acoustic requirements of the Liverpool DCP 2008, EPA noise limits, Department of Planning, BCA Part F5 and relevant Australian standards.

5.8. Social and Economic Impacts

In relation to social impacts, the proposed development:

- provides day and night time activation of the site, particularly along Castlereagh and Copeland Streets through the introduction of residential uses and entrances along these frontages;

- allows for greater casual surveillance of internal and external spaces on the site promoting safety;
- provides a mix of apartment types to suit a range of people including 11 adaptable apartments;
- 65% of apartments benefit from good levels of natural ventilation; and
- promotes state government initiatives in relation to urban consolidation by increasing residential density in close proximity to required services and facilities, in particular public transport,

In relation to employment, the proposed development will:

- increase employment opportunities during the construction phase;
- increase the demand for local employment opportunities from the 120 households located in the proposed development; and
- during construction and once completed generate additional economic activity both locally and outside of the area.

The proposed development will have an overall positive social and economic impact on the existing local community.

5.1. Overshadowing

Shadow diagrams for 9am, 12 noon and 3pm on June 21 and December 21 are provided in the set of architectural drawings prepared by Mosca Pserras Architect, included at **Appendix B**. The proposed overshadowing impacts are as follows.

June 21

- Overshadowing extends predominantly over the residential properties located to the south and west of the subject site between 9am and 3pm.
- At 9am an area of Copeland Street and the residential properties adjoining the site to the south west are predominantly overshadowed.
- By 12 noon the shadow has tracked further south, with the majority of the adjoining residential properties remaining overshadowed.
- By 3pm the shadow has progressed south east and the adjacent residential properties continue to be overshadowed. Additional overshadowing also occurs over the majority of the residential flat building located at 18-22 Castlereagh Street.
- The proposed development does not result in any overshadowing to the north or east of the site

21 December

- Between 9am and 3pm there would be minimal to no overshadowing on properties located to the south west of the development.
- There would be some overshadowing to the west and east of the proposed development, however, as this overshadowing would impact the road areas of Copeland Street and Castlereagh Street respectively, this overshadowing is not considered to result in any adverse impacts to the amenity of surrounding properties.

The extent of the overshadowing will most likely be contained to the residential properties located on Castlereagh Street and Copeland Street, to the south west of the site and the residential flat building located on the opposite side of the road at 18-22 Castlereagh Street. The proposed overshadowing will result in negligible amenity impacts

to No. 18-22 as the development will achieve a minimum of 3 hours of sunlight between 9am and 5pm in accordance with the requirements of the RFDC (refer to shadow diagrams included at **Appendix B**).

With respect to the likely overshadowing of the residential adjacent properties, it should be noted that the areas surrounding the site have been marked for future redevelopment. It is expected that over the coming years, the older residential flat buildings and detached dwellings will be redeveloped, resulting in more dense and taller building forms. Specifically, the site and surrounding area is envisaged to comprise high density residential uses of up to 35 m (11-12 storeys). Taking into account the likely future context of the area, the extent of the proposed overshadowing is not considered to be unreasonable.

5.2. Site Suitability

Having regard to the characteristics of the site and its location, the site is considered suitable for the development of the nature proposed in that:

- it is of a sufficient size and dimension to accommodate the proposal;
- it has excellent access to existing and planned public transport opportunities;
- existing utility services are available to service the demand generated by the proposal; and
- it does not contain any natural features that would impede the development.

5.3. Public Interest

The public interest is best served by the orderly and economic use of land for permissible purposes in a form which is cognisant of and does not impact unreasonably on development on surrounding land, and which satisfies a market demand for more affordable housing within Western Sydney, within proximity to where residents work.

6. Conclusion

The proposed development at 7 and 9 Castlereagh and 8-12 Copeland Streets, Liverpool and is permissible within the R4 High Density Residential zone under Liverpool LEP 2008. The proposal is also consistent with the zone objectives in that it:

- provides for the housing needs of the community within a high density residential environment;
- provides a residential apartment building within a high density residential environment;
- increases population which can support other facilities and services in the area;
- increases residential densities within close proximity to existing public transport services, maximising public transport usage, walking and cycling; and
- amalgamates five lots of land to achieve high density residential development.

The key benefits of the proposed development are as follows:

- provision of 12 adaptable apartments and accommodation for some 120 new households;
- provision of apartments with naturally ventilation and solar access;
- streetscape works including street tree planting along Castlereagh and Copeland Streets;
- more opportunities to provide casual surveillance of all streets; and
- it provides high quality and durable finishes which positively contribute to the residential character and visual amenity of the locality.

The proposed development either complies with the key development standards contained in Liverpool LEP 2008 and Liverpool DCP 2008 including floor space ratio, building height, landscaped area, car parking and adaptable units.

In terms of traffic and parking, impact on adjoining properties, safety and security, and social and economic considerations, the proposed development has acceptable impacts. The proposed development is also consistent with State Government objectives which call for higher forms of residential development within close proximity to public transport.

In light of the merits of the proposal and the absence of any significant adverse environmental effects, the DA is considered worthy of Council's support. We therefore have no hesitation in recommending that the application be approved subject to Council's standard conditions.