Project Application
Environmental Assessment Report

Block 2 Frasers Broadway

Construction of a mixed use retail, commercial and residential building and associated public domain MP 09_0078

Submitted to
Department of Planning
On Behalf of Frasers Broadway Pty Ltd

September 2009 ■ 09112

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This report has been prepared by: Jennie Masson

Signature Date 15/09/09

This report has been reviewed by: Gordon Kirkby

Signature Date 15/09/09

Statement of Validity

This Environmental Assessment has been prepared and submitted under Part 3A of the *Environmental Planning and Assessment Act* 1979 (as amended) by:

Environmental Assessment

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Qualifications	BPlan (Hons) MPIA
Company	JBA Urban Planning Consultants Pty Ltd
Address	Level 7, 77 Berry Street North Sydney NSW 2060
In respect of	Block 2 Project Application

Project Application

Applicant	Frasers Broadway Pty Ltd
Address	488 Kent Street Sydney NSW 2000
Land to be developed	26 Broadway, Chippendale
Proposed development	Construction of mixed use retail, commercial and residential building and associated public domain.
Environmental Assessment	An Environmental Assessment (EA) is attached
Certificate	I certify that I have prepared the content of this Environmental Assessment and to the best of my knowledge: ▪ It is in accordance with the Environmental Planning and Assessment Act and Regulation. ▪ It is true in all material particulars and does not, by its presentation or omission of information, materially mislead.
Signature	
Name	Jennie Masson
Date	15 September 2009

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Executive Summary

Purpose of Report

The purpose of this report is to provide the Department of Planning with an Environmental Assessment for a Project Application under Part 3A of the Environmental Planning and Assessment Act 1979 (EP&A Act).

The Proponent, Frasers Broadway Pty Ltd, made a written request for the Director General's Requirements (DGRs) in April 2009. The DGRs for the project were issued by the Minister in May 2009. Revised DGRs were issued in August 2009, following the decision to include stratum subdivision in the scope of works.

This submission is in accordance with the Department's guidelines for applications lodged under Part 3A, and addresses the issues raised in the DGRs as well as the conditions imposed as part of the approval of the Frasers Broadway Concept Plan (as modified).

The site

The site comprises Block 2 on the Frasers Broadway site in Chippendale. The site is owned by Frasers Broadway Pty Ltd and has an area of approximately 7,550m^2. A detailed site analysis is provided in Section 2 of this report.

Overview of the Project

The PA seeks approval for:

- Construction of a new mixed use retail, commercial and residential building (66,698m^2 GFA) with ancillary retail uses on Block 2, accommodating:
  - 46,939m^2 of residential floor space comprising 593 residential apartments
  - 15,481m^2 retail floor space comprising a food court, speciality retail and a supermarket
  - 4,278m^2 of commercial floorspace;
- Construction of terraces (landscaped platforms) which rise from the plaza to the podium level 2 of the new building on Block 2;
- Installation of a heliostat (consisting of mirrors which are orientated to focus sunlight onto the landscaped platforms);
- Construction of the surrounding public domain; and
- Stratum subdivision of Super Lot 3 in Lot 1 of DP1131320

The EAR is based on the Architectural Drawings provided by Atelier Jean Nouvel in collaboration with JPW Architects (found at **Appendix A**), and other supporting technical information appended to the report (see Table of Contents). In addition, a Materials Sample Board and physical model have been submitted under separate cover.

Relevant Environmental Planning Instruments

The following legislation, strategies and planning instruments are relevant to the proposed development:

- Draft Sydney City Subregional Strategy 2008
- Frasers Broadway Concept Plan Approval and Statement of Commitments, as amended, January 2009
- Draft Major Projects SEPP Amendment relating to the Frasers Broadway site
- State Environmental Planning Policy 55 – Remediation of Contaminated Land
- State Environmental Planning Policy 65 – Residential Flat Design
- State Planning Policy (Infrastructure) 2007
- City of Sydney Access Development Control Plan 2004
- City of Sydney Childcare Development Control Plan 2004

The proposed development complies with the relevant controls, standards and guidelines in particular it is consistent with:

- Land use zoning (as prescribed by the Draft SEPP (Major Development) Frasers Broadway Amendment)
- Maximum building height (as prescribed by the Draft SEPP (Major Development) Frasers Broadway Amendment)
- Land Use Mix (as prescribed by the Frasers Broadway Concept Plan (Mod 2))
- Number of parking spaces (as prescribed by the City of Sydney LEP)
- Minimum BASIX requirements as stipulated by SEPP (BASIX) 2004
- Public domain finishes along Broadway as prescribed by the City of Sydney Public Domain Strategy.

Variations to the following planning controls are discussed in more detail in the report below:

- Residential Flat Design Code – Rules of Thumb for solar access (refer Section 5.4)
- City of Sydney DCP – Unit mix (refer Section 5.4)
- City of Sydney Childcare Centres DCP (refer to Section 5.5)

Built Form

The proposed building has been design by Atelier Jean Nouvel in accordance with the Frasers Broadway Design Excellence Strategy. The proposed building has been presented to the Design Integrity Panel on several occasions.

The scale of the eastern tower has been designed so as to have a positive relationship with the existing development on the opposite side of Broadway. The proposed tower will have a height of RL 133.0m which is consistent with the height of the UTS tower.

The western tower has been scaled such that it has a positive relationship with the proposed building on Blocks 1 and 4. Together these buildings will provide a consistent street wall to Balfour Street.

The building proposed does involve some changes to the approved concept plan envelope for Block 2, including:

- A reduction in the length of the cantilever by 8.05m;
- A reduction in the height of the podium by 3.11m;
- A reduction in the width of the eastern tower at the following heights:
  - 3.45m (at 71.5mAHD);
  - 5.45m (at 111.75mAHD);
  - 8.05m (at 119.7mAHD);
  - 4.05m (at 129.6mAHD); and
  - 1.58m (at 133mAHD).
- An increase in the width (5.8m) and eave height by 1.65m(west) and 5.95m (east) of the western tower.

The above changes have occurred as a result of the design development of the building and are discussed further in Section 5.2.

Heritage

Urbis has prepared an Heritage Impact Statement (HIS) for the proposed development. The items which are of relevance to this application are the Heritage Gate and the provision of a City Datum Line.

Urbis are supportive of the proposed relationship between the proposed building and the existing gate. This is because the Main Entry Gateway is retained in context with the County Clare Hotel and Kent Road. Its function as an entry marker is also preserved. Urbis recommend that further consideration be given to the resolution of the separation between the heritage listed gateway portal and the awning that wraps around Broadway and into Kent Road, and the resolution of any wind issues.

With regard to the City Datum Line, the proposed building on Block 2 makes reference to the scale of the administration buildings (heritage listed) in the design of the façade. This is achieved by providing a change of detail at the height of the administration buildings. A datum line is also created along the Broadway frontage which takes reference from the height of the heritage gate.

Urbis has also prepared a Heritage Interpretation Strategy in accordance with the NSW Heritage Manual. The strategy is intended to inform and guide collaborative interpretation planning with stakeholders and relevant parties so that the cultural and historic significance of the site is readily apparent to those who visit or are involved with the site.

The Principal and Secondary Interpretative Themes identified for the site are:

- The Kent Brewery – the Brewery Giant / Expansion and Redevelopment (1835 – 2004)
- Aboriginal Cultures and Interaction (c. 5000BP – c.1788)
- Pre Contact landscape – the natural environment (pre European environment)
- The pre-brewery landscape (1788 – 1834)
- Residential Development, industries, slums and resumptions
- Industrial Sydney
- Contemporary Architecture
- Sustainability

Landscaping and Public Domain Management

Major components of the proposed building are the landscape and public domain elements. In particular the proposed green walls / vertical garden will become a feature of the proposed building. Details of the installation and management of the wall are provided in the landscape document prepared by Atelier jean Nouvel.

The proposed treatment of the Broadway and Kent Road finishes are consistent with the City of Sydney Public Domain Strategy. The internal streets have also been designed so that they merge with the City of Sydney design palate. The site will provide a place for pedestrians that ensure logical ground level access to all destinations within the site.

A Publicly Accessible Areas Management Plan (PAMP) will be prepared for the publicly accessible areas of the Frasers Broadway site which will detail:

- Ownership;
- Maintenance responsibilities; and
- Hours of access.

This PAMP will also apply to the through site links proposed as part of the development of Block 2.

Public Art Strategy

Jennifer Turpin Studio and Michealie Crawford have prepared a Public Art Strategy for the Frasers Broadway site. The building on block 2 will be the most iconic on the site, offering vegetated walls designed by Atelier Jean Nouvel and Patrick Blanc and an external lighting scheme by artist Yann Kersale.

Additional opportunities for public art within the building on Block 2 are available within the ground floor atrium. The atrium space is 7 storeys high and offers "*the potential to create a work that engages the height of the space, the growing trees and the architecture's language of layers, light, veils, reflection and transparency*".

Transport and Accessibility

Traffic, access and parking issues were assessed by Halcrow MWT as part MP09_0042. The proposed basement design was considered to:

- comply with the City of Sydney LEP parking provision rates;
- comply with the City of Sydney Access DCP in terms of provision of accessible parking spaces;
- comply with the design requirements of the relevant Australian Standards;
- provide a suitable level of service vehicle spaces for the needs of the occupants of the building; and
- include sustainable design features such as small car spaces and car share spaces.

Ecologically Sustainable Development

Frasers Broadway Pty Ltd is targeting a 5 star Green Star rating for all buildings on the site and a 6 Star rating for the Frasers Broadway Precinct. ARUP has been advising on the ESD credentials of the project.

For Block two, the relevant Green Star rating tools which have guided design development are:

- Retail Centre Design v1
- Mixed Use PILOT
- Multi Unit Residential (MUR) PILOT

Several design initiatives have been incorporated into the proposed building design to achieve the targeted 5 star rating under the tools listed above. These include:

- Inclusion of a Green Star accredited professional on the design team
- Ensuring that effective natural ventilation can be achieved for 65% of the dwellings
- Target of a high level of natural light penetration
- Use of high performance glazing and insulated building envelope which reduces reliance and use of the HVAC system and the energy associated with cooling, heating, fans etc when compared to a similar conventional building
- Use of sub-meters for water and energy use
- Provision of a car share scheme and parking spaces for small vehicles
- Installation of energy efficient appliances and fittings
- Rainwater harvesting and reuse
- Use of sustainable and recycled materials where possible during construction phase and provision of recycling storage areas for future occupants of the site

ARUP have had discussions with the Green Building Council of Australia who have advised that the MUR Version 1 Tool will be released soon, but that the rating requirements will be different to those in the pilot tool.

Frasers have therefore requested that the Department allow the BASIX assessment for this proposal to be undertaken once the rating requirements of the MUR Tool are known so that the assessment does not need to be undertaken twice. It is noted that the design response required to meet the MUR pilot Tool exceeds the minimum design response required for compliance with BASIX.

Frasers have given an undertaking that a BASIX certificate demonstrating compliance with the BASIX SEPP will be submitted prior to determination of this application.

Acoustic impacts

Acoustic Logic has undertaken an Environmental Noise Assessment for the project. They are of the opinion that the proposed development can be constructed to comply with the Noise Objectives established for the project so that there will not be any adverse noise impacts on neighbouring properties. The external façade of the building will also be acoustically treated so as to ensure a suitable level of residential amenity is achieved for future occupants of the building.

Environmental and Construction Management

Frasers Broadway Pty Ltd has prepared a preliminary Construction Environmental Management Plan (**Appendix W**). The preliminary CEMP outlines the key issues and mitigative measures which will be included in the detailed CEMP which will be prepared by the building contractor once appointed. The main elements of the preliminary CMEP are:

- Site Management
- Site Establishment
- Water Quality Management
- Noise and Vibration Management Plan
- Air Quality
- Waste and Chemical Management
- Protection of Heritage Buildings
- Traffic Management Plan
- Health and Safety Management Plan

Contamination

Remediation and transitional works on the Frasers Broadway site were approved by the Minister on 15 August 2008 (MP 07_0163). In order to ensure that the site is made suitable for the proposed residential and retail uses, a commitment has been made which requires the submission of a copy of a Site Audit Statement for the site which outlines that the site has been successfully remediated and is suitable for the proposed use prior to the occupation of the building.

Wind

In order to ensure that a suitable environment for pedestrians is provided at ground level, CPP were asked to undertake a Wind Impact assessment for the project. The assessment revealed that the wind environment around the proposed development will be generally satisfactory and that no dangerous locations were recorded.

There are two locations (11 and 16) which are suitable for able bodied pedestrians but not general bodied pedestrians. In the case of location 11 (corner of Broadway and Kent Road) CPP recommend that awning be extended around the corner of the building.

With regard to location 16 (south east corner on Tooth Avenue) the spatial extent of the high wind zone in the vicinity is likely to be reasonably short and as such amelioration treatment is not required.

For the upper levels of the building, CPP expect that these areas will be suitable for sitting outside for at least 75% of the time. These areas will only be used when conditions are considered appropriate.

A commitment to implement the above amelioration treatment has been made in Section 6 of this report.

Reflectivity

CPP were engaged by Frasers Broadway Pty Ltd to assess the proposal in terms of solar reflectivity.

In order to avoid glare impacts the architects have incorporated vertical fin elements on the northern facade to block high incident angle reflections. Mesh will be installed between the outmost glazing pane and the stainless steel wire which will be attached to the building to support the vertical gardens.

In addition to the above CPP recommend that the entire northern façade and parts of the eastern and western facades are finished with cladding or glazing with a reflectivity coefficient below 10%. All other parts of the building will have a reflectivity coefficient of 20% or less.

A commitment to implement the above façade treatments is made in Section 6 of this report.

BCA and Fire Safety

City Plan Services are of the opinion that although alternative design solutions will be required, the proposed building is capable of complying with the BCA without significant changes to the proposed design.

ARUP have reviewed the proposal in terms of fire safety design and note that alternative solutions will be required to satisfy the Deemed to Satisfy provisions for fire engineering design but that these solutions will not require major changes to the current design and as such should not materially affect the building layout.

Safety and Security

Elton Consulting were commissioned to prepare a Safety Management Plan for the project and to review the proposals compliance with the principles of Crime Prevention Through Environmental Design (CPTED). In their conclusion, Elton Consulting note that Block 2 is a high quality building design that exceeds safety and crime compliance requirements.

Consultation

Since purchasing the site in June 2007, Frasers Broadway Pty Ltd have held a series of community consultation sessions, have regularly updated local residents and interested stakeholders via newsletters, a website and emails and have employed a community consultation liaison officer.

The most recent community consultation session was held on Wednesday 4th March and was specifically focused on the upcoming project applications. The key issues raised in relation to the proposed building on Blocks 2 and 2a:

- Vertical garden – maintenance responsibilities
- Concern that the demographic of the new residents will be car users rather than public transport patrons
- What residential and other user demographic is envisaged by the developer for the site?

Site suitability

The site is considered suitable for the proposed development in that it is:

- Of a suitable size to accommodate the proposed building envelope
- Located in close proximity to major public transport facilities
- Appropriately zoned for the proposed uses
- Unconstrained by existing vegetation or protected species

Conclusion

The proposed building will result in the following benefits:

- Construction of a new iconic building, exhibiting design excellence;
- Provision of 593 new dwellings with a high level of residential amenity;
- Provision of a new supermarket and retail facilities for new and existing residents;
- Provision of new open space and public domain for the use by existing residents of Chippendale and future occupants of the Frasers Broadway site; and
- Creation of 500 new construction jobs and between 440-575 new retail jobs.

1.0 Introduction

This Environmental Assessment Report (EAR) is submitted to the Department of Planning in support of a Project Application (PA) for construction of a mixed use residential, commercial and retail building on Block 2 Frasers Broadway.

The PA seeks approval for:

- Construction of a new mixed use retail, commercial and residential building (66,698m^2 GFA) with ancillary retail uses on Block 2, accommodating:
  - 46,939m^2 of residential floor space comprising 593 residential apartments
  - 15,481m^2 retail floor space comprising a food court, speciality retail and a supermarket
  - 4,278m^2 of commercial floorspace;
- Construction of terraces (landscaped platforms) which rise from the plaza to the podium level 2 of the new building on Block 2;
- Installation of a heliostat (consisting of mirrors which are orientated to focus sunlight onto the landscaped platforms);
- Construction of the surrounding public domain; and
- Stratum subdivision of Super Lot 3 in Lot 1 of DP1131320

This EAR has been prepared by JBA Urban Planning Consultants Pty Ltd on behalf of Frasers Broadway Pty Ltd. It describes the site, its environs, the proposed development in the context of the approved Concept Plan, and includes an assessment of the proposal in accordance with the Director-General's Environmental Assessment Requirements issued under Part 3A of the EP&A Act.

The EAR is based on the Architectural Drawings provided by Atelier Jean Nouvel in collaboration with JPW Architects (found at **Appendix A**), and other supporting technical information appended to the report (see Table of Contents). In addition, a Materials Sample Board and physical model have been submitted under separate cover.

1.1 Planning History

On 9 February 2007, the Minister for Planning granted Concept Plan approval for the redevelopment of Frasers Broadway. The approval provided for the following:

- The layout of development into 11 development blocks, a major new park, and other areas of open space and street layout.
- Land uses across the site and for specific blocks / floor levels where specified.
- Built envelopes including floor plates and maximum heights.
- Maximum floor space (GFA) within each development block and a total 235,000m^2 GFA across the site.
- Retention of a range of heritage items of significance.
- Street hierarchy for specific streets (including road and pavement widths and provision for bicycles).
- Landscape concept.
- Access arrangements and car parking based on the recommended rate and the assumed dwelling mix.
- Storm-water management concept.
- Voluntary Planning Agreements and Statement of Commitments.

Demolition / Recycling Project Application

In March 2008 the DoP granted consent for demolition and recycling works on the Frasers Broadway site. The works approved under this consent were completed in December 2008.

Remediation and Transitional Works Application

Consent (mp_07_0163) has also been granted to undertake remediation works on the site. The works approved include the removal of a layer of contaminated fill and the installation of a barrier wall along the southern boundary of the site which will prevent the continued cross flow of contaminated groundwater onto the site. The works under this consent are expected to commence in January / February 2009.

A modification to this consent, made under Section 75W of the Act, was approved by the Minister on 6 November 2008. The modification allows for the revised staging of the remediation works.

Remediation reports are progressively being submitted for approval.

Concept Plan Modification Application

In July 2008, Frasers Broadway Pty Ltd submitted an application to the Minister proposing the following modifications to the approved concept plan:

- reconfiguration of the development blocks on the site;
- an increase in the amount of public domain on the site;
- alterations to the building massing across the site;
- a 20,500m^2 increase in floor space across the site;
- a change in the mix of uses on the site (increase in commercial floor space and decrease in residential floor space);
- installation of sustainable infrastructure including a tri-generation plant and a black water treatment plant; and
- combined basements.

The modification application was approved by the Minister in February 2009 (see **Appendix E**). It is noted that the proposed works in this application are consistent with the modifications made to the concept plan.

Superlot Subdivision

The City of Sydney has approved a subdivision application for the subdivision of the Frasers Broadway site into 8 super lots. The Notice of Determination and approved plan of subdivision are included at **Appendix F**.

1.2 Combined Basement Project Application

In July 2009 Frasers Broadway lodged a Project Application (MP09_0042) for the construction of a combined basement under Blocks 2, 5 9. The application seeks consent for the following:

- Bulk excavation;
- Construction of a combined basement under Blocks 2, 5 and 9 containing 1,230 parking spaces; and
- Establishment of a shell for a black water treatment plant within the basement under Block 5.

The application was publicly exhibited during August / September 2009. The relevant documentation for the combined basement application will be available on the Department of Planning's website, www.planning.nsw.gov.au during the public exhibition period.

Separate applications for the commercial building on Blocks 1 and 4 (MP08_0253) and the Main Park and Stage 1 Infrastructure (MP 08_0210) have also been lodged and publicly exhibited and are still under the assessment of the DoP.

2.0 Site Analysis

2.1 Local Context

Frasers Broadway is located on the southern edge of the Sydney Central Business District (CBD). As shown in **Figure 1**, the site is in close proximity to Central Station, Broadway Shopping Centre and the University of Technology, Sydney.

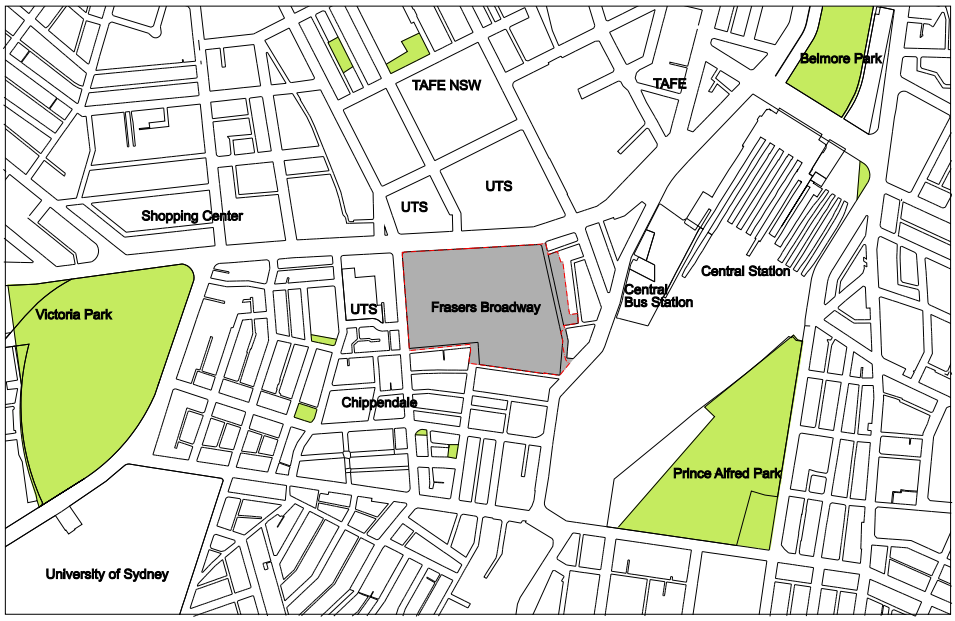

Figure 1 – Locality Plan

2.2 Site Description

The site is L-shaped (see **Figure 2**) with an area of 7,550m^2. It has a frontage to Broadway and Kent and Balfour Streets with Tooth Lane running through the site.

The site has been cleared in accordance with the Demolition and Recycling application approval is currently in the process of being remediated (**Figure 4**). The site is owned by Frasers Broadway Pty Ltd as shown in **Figure 3**.

A survey plan showing the site levels prior to demolition and remediation works commencing is included at **Appendix F**.

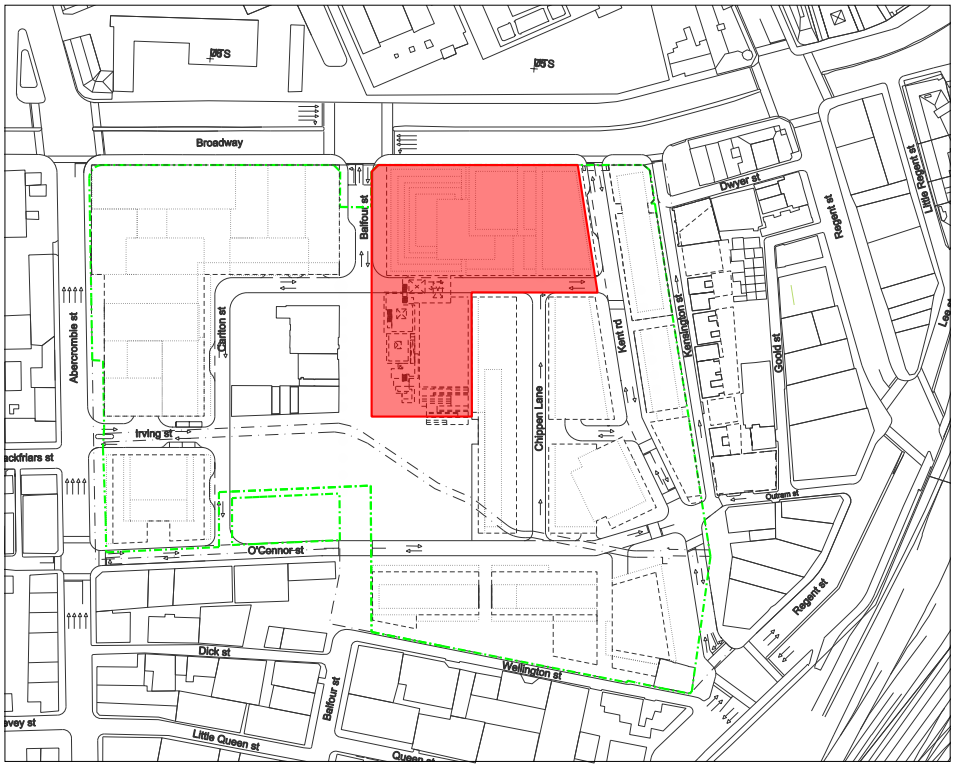

Figure 2 – Site Plan

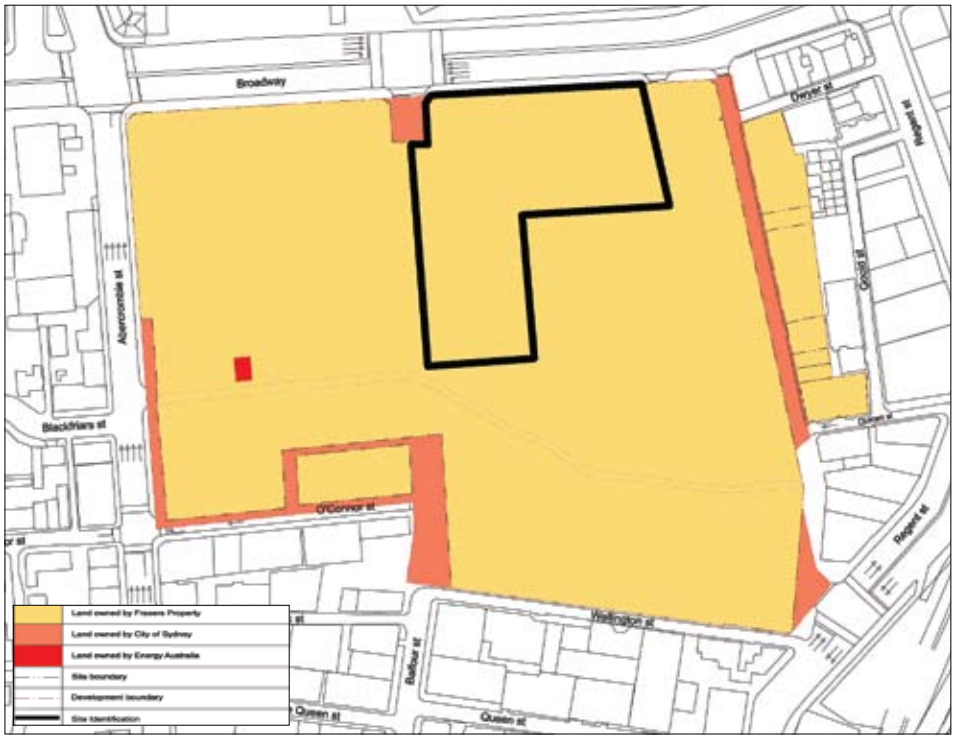

Figure 3 – Site Ownership Plan

Figure 4 – Photograph of the site following demolition works

2.3 Surrounding Development

To the North

To the immediate north of the site is the University of Technology Sydney (UTS). UTS have lodge a Concept Plan application (MP08_0116) with the Department of Planning for the construction, extension, refurbishment and demolition of certain buildings on the Broadway Precinct of the UTS City Campus to enable the University to provide improved education, social and sporting facilities for use by existing and future students and the local community.

To the East

To the immediate east are the County Clare Hotel, the Tooths Brewery Administration Buildings (identified as buildings 10a and 10b and the Tooth and Co Brewery Gate (Building 51 – **Figure 5**) all of which are heritage listed.

Building 10a was designed by Robertson and Marks architects (circa 1930) and features brown face brickwork with rendered trim and Art Nouveau inspired iron grilles. Building 10b originated as a two storey building in 1910, design by Spain and Cosh in 'Federation Free Style', with a symmetrical façade of dark face brickwork above a rusticated stone base, in 1930 Robertson and Marks added a more 'Classical' third floor with little notable alteration to the exterior facades. Internally however the buildings have undergone significant changes.

The Tooth's Brewery gateway was built in 1939 in the position of the original access to the brewery site from George Street west (Broadway). The gateway and the Invicta white horse rampart symbolises the Kentish origins of the brewery. The gateway has high integrity value for its substantially intact fabric. Fabric of high significance includes: the Broadway façade; the overall form; terracotta cladding; metal gates (removed); granite plinth; bronze clad doors; steel frame windows and mechanical equipment.

Figure 5 – County Clare Hotel and Administration Buildings as viewed from Broadway

To the South

South of the site are the Main Park and Block 5. Block 5 will accommodate two new residential buildings with ground level retail. The residential buildings have been design by Johnson Pilton Walker (JPW) and will accommodate 320 apartments and 1,100m^2 of floor space. An indicative image of the JPW buildings as viewed from the Main Park are shown in **Figure 6**.

Further south of the park and Block 5 are Blocks 9 and 11. Both of which will accommodate residential development. Further south of the Frasers Broadway site is the suburb of Chippendale which comprises a mix of residential and commercial development.

Figure 6 – Proposed JPW residential buildings on Block 5 of the Frasers Broadway site as viewed from the main park
Source: JPW

To the West

To the immediate west of Block 2 will be the Foster + Partners commercial building which is located on Blocks 1 and 4 of the Frasers Broadway site. The commercial building, shown in **Figure 7**, will accommodate 68,640m^2 of commercial floor space, an 80 place child care centre and 4,140m^2 of retail floor space. A Project Application for this building was lodged in July 2009 and was publicly exhibited in August / September 2009.

Abercrombie Street forms a physical barrier on the western side of the Frasers Broadway site. On the opposite side of Abercrombie Street is Notre Dame University. Further west is City Road, Victoria Park and Sydney University.

Figure 7 – Foster + Partners commercial building on Block 4 of the Frasers Broadway site as viewed from Broadway
Source: Foster + Partners

3.0 Relevant Environmental Planning Instruments and Controls

3.1 Relevant Approvals, Strategies and Planning Instruments

The following legislation, strategies and planning instruments are relevant to the proposed development:

- Draft Sydney City Subregional Strategy 2008
- Frasers Broadway Concept Plan Approval and Statement of Commitments, as amended, January 2009
- Draft Major Development SEPP Amendment relating to the Frasers Broadway site
- State Environmental Planning Policy 55 – Remediation of Contaminated Land
- State Environmental Planning Policy 65 – Residential Flat Design
- State Planning Policy (Infrastructure) 2007
- City of Sydney Access Development Control Plan 2004
- City of Sydney Childcare Development Control Plan 2004

3.2 Key Planning Controls

The key planning controls established in the Frasers Broadway Concept Plan (as modified) are set out in Table 1 below. An assessment of the proposal against these controls is provided in **Chapter 5**.

Table 1 – Key Planning Controls Applying to Blocks 1 and 4

Instrument	Standard Development Control
Draft Major Development SEPP Amendment	
Height	Maximum height RL133.0m AHD
Gross Floor Area	Maximum 68,000m^2
Use	Zone B4 Mixed Use
Parking	As per Central Sydney LEP rates
Frasers Broadway Concept Plan	
Permissible Uses	Residential / Retail
Height	Maximum height RL133.0m AHD
GFA	Maximum 68,000m^2 (Maximum 55,000m^2 residential)

4.0 Description of Proposed Development

This chapter of the report provides a detailed description of the proposed development. Architectural drawings, landscape drawings and public domain plans are included at **Appendices A**, **B** and **C** respectively. The development consists of the following elements:

- Construction of a new mixed use retail, commercial and residential building (66,698m^2 GFA) with ancillary retail uses on Block 2, accommodating:
  - 46,939m^2 of residential floor space comprising 593 residential apartments
  - 15,481m^2 retail floor space comprising a food court, speciality retail and a supermarket
  - 4,278m^2 of commercial floorspace;
- Construction of terraces (landscaped platforms) which rise from the plaza to the podium level 2 of the new building on Block 2;
- Installation of a heliostat (consisting of mirrors which are orientated to focus sunlight onto the landscaped platforms);
- Construction of the surrounding public domain; and
- Stratum subdivision of Super Lot 3 in Lot 1 of DP1131320

Photomontages of the proposed development are given in **Figures 8** to **10** below.

Figure 8 – Photomontage of proposed development as viewed when travelling east along Broadway
Source: Atelier Jean Nouvel

Figure 9 – Photomontage of proposed development as viewed when travelling west along Broadway
Source: Atelier Jean Nouvel

Figure 10 – Photomontage of proposed development as viewed from the Main Park
Source: Atelier Jean Nouvel

4.1 Design Objectives

AJN has prepared a Design Statement (**Appendix D**) which outlines the following design objectives which have been adopted:

- To create a high level of residential amenity for future occupants;
- To create an iconic building for the Frasers Broadway site;
- To design a building which exhibits design excellence;
- To create a sustainable development appropriate to the character of the site and the way we live and work;
- To enable future Green Star certification (based on the Multi-Residential tool which is currently in Pilot status);
- To provide attractive and amenable landscaped spaces for residents and the neighbourhood of Chippendale and to provide continuity with the Chippendale ecology and cultural features;
- To provide functional apartment layouts which cater for a range of occupants;
- To create greater interaction between the public open space provided on the site and the new built form;
- To provide new public domain areas which encourage activity within the site.

4.2 Numerical Overview

Table 2 – Key Development Information

Component	Proposal
GFA	66,698m^2
Height - Eastern Tower - Western Tower	 34 Storeys (RL133.0m) 17 storeys (RL 79.5m)
Retail GFA	15,481m^2
Commercial GFA	4,278m^2
Residential Apartments	Total: 593 88 x studio 281 x 1 bedroom 202 x 2 bedroom 22 x 3+ bedroom
Total proposed car parking spaces (NB the basement is the subject of a separate application)	447 residential 58 retail 43 servicing (including 79 accessible spaces)

4.3 Gross Floor Area and Land Use

The proposed development generates a total GFA 66,698m^2. **Tables 3** and **4** provide a split of the proposed uses and a break down of the proposed gross floor area and uses throughout the building on a floor by floor basis (respectively).

Table 3 – Land Use GFA summary

Use	Gross Floor Area
Residential	46,939
Retail	15,481
Commercial	4,278
Total	**66,698**

Table 4 – Land Use and GFA on a floor by floor basis

Level	Land Use	Total GFA (m^2)
Basement Level 2	Retail / Commercial amenities	40
Basement Level 1	Retail (supermarket and speciality retail)	3,156
	Plaza retail / restaurant	462
Basement Level 1 Mezzanine	BOH Office	457
Ground Level	Retail (specialty retail)	2,669
	Residential Lobbies (3)	739
	Kiosk	28
Level 1	Retail	2,826
	Residential common recreation area	321
Level 1 C Landscape platform	Café	13
Level 2	Retail (food court)	3,902
Level 3	Retail	3,782
Level 4	Retail / Commercial	3,472
Level 5 to 14 (inclusive)	Residential	22,517
Level 15	Residential	2,252
Level 16	Residential	1,640
Levels 17 to 27 (inclusive)	Residential	11,840
Level 28	Residential	1,045
Level 29	Residential	1,391
Level 30	Residential	1,402
Level 31	Residential	1,008
Level 32	Residential	918
Level 33	Residential	819
Level 34	Plant	0
Total		**66,698**

4.4 Building Description

The proposal involves the construction of two residential towers over a commercial podium. These elements are described further below.

Podium

The podium will rise to a height of 4 storeys (21.8m Kent Road – 23.8m Balfour Street), a length of approximately 51.5m and a width of 95m (90.58m Broadway and 98.75m Tooth Avenue).

Within the podium is a central atrium area which provides natural light to all levels of the podium. At the bottom of the atrium will be a planted area with a walkway running through so that pedestrians can appreciate the volume of the space. A glass roof will enclose the atrium space.

A datum line relating to the height of the heritage gate has been incorporated into the podium. It aligns with the level 2 floor spandrel and is expressed as a continuous double slab along Broadway (see **Figure 11**) and a continuous planted balcony along Balfour Street, Tooth Lane and Kent Road. The double height lobbies and public passageway ceilings also align with the datum line.

Two residential lobbies are proposed on the eastern side of the podium entered from Kent Road, one for the low rise residential apartments and the other for the high rise apartments. The lobby for the residential apartments in the western tower is accessed from the southern side of the building on Tooth Lane.

The remainder of the ground level and first floor will comprise specialty retail while on level 2 a food court is proposed. On the third level of the podium a gym is proposed which will be operated by a third party. The third level will also contain commercial office space.

On the fourth level of the podium will be commercial or retail space. The final use of this level is yet to be determined but is likely to be a commercial gym. The final use will be confirmed at the time a fitout development application is lodged for the space.

On the roof of the podium (Level 5) will be two separate residential recreational areas. The northern space will be available to residents in the eastern tower while the western tower residents will have access to the southern roof garden. Both gardens will be accessible from stairs on Level 4.

Within the basement level of the building will be a supermarket and potentially specialty retail dependent on the supermarket lessee.

Figure 11 – City Datum line along Broadway
Source: AJN

Eastern Tower

The eastern tower is the taller of the two towers rising to a height of RL 133.0m (approx 116m). The tower has a width of 90.84m and a length of 47.08m. On the eastern elevation of the tower are two light wells which occur up the length of the façade. The light wells are 3m wide and approximately 8m – 10m deep.

A cantilever projects westwards out of the eastern tower at levels 29 and 30 which accommodates 2 three bedroom apartments over two storeys. The cantilever extends approximately 25m out over the atrium and is supported by four concealed trusses and diagonal tension struts. Large openings in the cantilever admit light into the apartments below the cantilever. The underside of the cantilever has a polished surface that reflects light from the western tower heliostat into the apartments beneath the cantilever. Attached to the eastern tower cantilever is a fixed heliostat. The operation of the heliostat is described further in Section 4.11. 368 residential apartments will be accommodated in the eastern tower.

Western Tower

The western tower will rise to a height of RL 79.5m (approximately 70m), consistent with the height of the commercial building on Blocks 1 and 4, and accommodate 225 residential apartments.

A heliostat will sit on the roof of the western tower which will capture sunlight and reflect it to the higher level heliostat (see Section 4.11).

4.5 Building Setbacks

The proposed building is set within the property boundaries with the exception of awnings which project over the public footpath on Broadway.

4.6 Residential Apartment Design

The proposed development will deliver 593 new residential dwellings within the Sydney City subregion. Each apartment has been designed to be a functional space, capable of accommodating a range of occupants and lifestyles. Each unit is laid out so that there is a degree of privacy between rooms and the outlook from the apartments are maximised.

The provision of 'slots' within the façade ensures that units are naturally ventilated and that daylight will penetrate further into the building.

The units are provided within a private balcony extended by a modular planted area which is accessed from the main living area of the apartment. In many cases a secondary balcony is also provided which is typically accessed from the main bedroom. A description of the proposed apartment design is provided in the Architectural Design Statement at **Appendix D**.

4.7 Retail

Approximately 15,481m^2 of retail floor space will be provided in the proposed development. Assuming one retail employee per 30 - 35m^2, the proposal will generate approximately 440 - 515 new retail jobs. The different types of retail to be provided within the building are described below.

Supermarket

A supermarket is proposed on Basement Level 1 to service the needs of the future residents and employees on the site. Back of house services and a loading dock are also proposed on Basement Level 1. A supermarket of this size will ensure that future residents and occupants will have convenient access to fresh food.

Fit out and operational details of the supermarket space will be the subject of a separate application once a tenant is found for the space.

Speciality retail

In order to activate the ground and first floor levels of the proposed development speciality retail spaces and a restaurant are proposed. The retail spaces vary between 45m^2 and 220m^2 in size and are capable of being amalgamated into larger stores. The restaurant is approximately 1,100m^2 size. All of the retail spaces proposed will be the subject of a separate fit out applications.

Food Court

A 3,900m^2 (approximately) food court is proposed which will occupy level 2 of the podium. 9 kiosks ranging between 30m^2 and 40m^2 are proposed which will see a variety of food options. The food court will spill out into the top landscape tier and as such will be accessible either through the internal escalators within the building or alternatively via the landscape platforms from the Main Park. The fitout of this space will also be the subject of a separate application.

4.8 Energy Efficiency

Frasers Broadway Pty Ltd is targeting a 5 star rating for all buildings on the Frasers Broadway site and a 6 star overall precinct rating. Achieving the 6 star rating will be dependent on the co-operation of the relevant authorities in granting consent to the installation of a Tri-generation plant and Blackwater Treatment plant on the site.

As outlined in the ESD report prepared by ARUP at **Appendix I**, the following ESD features have been included in the design of the building.

Building Envelope

The proposed building envelope has been designed so that it can operate in mixed modes. The building is capable of being naturally ventilated when outside conditions are favourable and mechanically ventilated when conditions are not.

The envelope will be treated with appropriate levels of thermal insulation to reduce heat gains on hot days and to minimise heat losses in cold days through conduction. The benefit of this is that the building will have a significantly reduced level of energy consumption compared to that of a standard residential building.

In addition the above, the glazing on the façade will be double glazed so as to further reduce heat loss and gains.

Water Reduction

The Blackwater Treatment plant will be used to treat sewer and rainwater to produce Grade A water for non-potable uses such as WC flushing, irrigation of the green walls on the façade and landscaping, cooling towers, washing machines and any cleaning down of the site areas.

It is also proposed that any stormwater leaving the site, at any time up to a 1 in 100 year event, will be treated in order to improve the quality of stormwater leaving the site.

Water conservation strategies will include:

- Reducing town's main water supply;
- Reuse of fire test drain water,
- Harvesting rainwater,
- Black water treatment by centralised plant,
- Reducing water usage in toilets by the use of:
  - Dual flush WCs
  - Waterless urinals or alternatively low flow urinals with timed operation;

- Reducing water usage by utilising water pressure reducing devices where appropriate;
- Reducing water usage in basins, sinks, showers etc by utilising low flow tapware and outlets; and
- Hot water system management and minimisation of deadlegs.

Lincolne Scott has prepared a Water Management Strategy which is included at **Appendix J**.

Energy Reduction

The primary means of reducing energy consumption on the Frasers Broadway site will be through the provision of a central trigeneration energy plant which supplies electricity, heating and cooling for the site. Passive building design measures will also reduce energy consumption.

Transport

The building is located in close proximity to major public transport facilities, including central station. With this in mind, the following transport initiatives have been catered for in the proposed design:

- Encouraging of walking and cycling by ensuring provision of bicycle facilities for building users and occupiers;
- Provision of car share spaces; and
- Provision of small car spaces.

Operation Management

An Energy Savings Action Plan will be developed for the site and updated during the design, construction and post occupancy stages. The plan will deal with the following 5 areas:

- Determining Energy use – Metering will be provided to identify baseline energy use. This will be developed during the design phase of the project.
- Planning and management. An energy management review will be carried out by Management before the implementation of the plan.
- Metering and monitoring – Breakdown of energy use will be provided by the metering plan developed during the detailed design phase and actual energy use will be monitored against expected use.
- Putting the plan together – Operational energy savings measures will be identified during the operational phase and prioritised for possible implementation.
- Implementation – Targets will be set looking four years ahead and an annual report will be compiled to track implementation.

4.9 External Materials and Finishes

A materials board has been prepared by Atelier Jean Nouvel and submitted under separate cover. In summary the following materials are proposed:

North Elevation (East / West towers + Podium) and East Elevation (East Tower only)

- Full height glazing and sliding system
- Vegetal walls combined with planter cables (refer Section 4.10)
- Perforated metal panels
- Winter garden enclosure: slide and turn full height glass panel system

Southern elevation (East / West towers + Podium), West Elevation (East Tower) and East Elevation (West Tower)

- Full height glazing and sliding system
- Light weight planter boxes on balconies
- Balcony enclosure: slide and turn full height perforated metal panel system

Western Elevation (Western Tower)

- Full height glazing and sliding system
- Vertical and horizontal planted areas

4.10 Landscaping and Public Domain

AJN have prepared a landscape concept design for the public and private elements of the proposal. The landscape concepts are included in a report at **Appendix B** and are described below.

Landscaped Platforms and Plaza

A series of landscaped platforms will rise from the northern edge of Main Park up to the level 2 food court of the proposed building. The platforms will be of concrete construction and will cascade over one another as shown in **Figure 12**.

In order to allow natural light to penetrate to the levels below, voids will be cut out of the platforms (see **Figure 13**) which will allow trees to grow between the levels. The voids will be lined with safety balustrades. On the level which bridges across over Tooth Lane the voids will be in filled with glass for safety reasons.

The concrete platforms will then be finished with timber decking and granite paving. Planters of various thicknesses have been incorporated in the design of the platforms so as to allow for the planting of trees, small bushes and lawns. The proposed species include:

- Eucalyptus maculate
- Eucalyptus papuana
- Grevilla robusta
- Melalueca quinquenervia
- Brachychiton acerifolius
- Spaium sebirferum

A new scenic lift will be installed within the platforms which will provide equitable access from Tooth Avenue up to the highest and second highest levels of the platforms. The lift will provide equitable access to the café proposed on Level 1C.

The plaza will spill out from the basement level retail space. It will comprise a series of water features / reflection pools and tree planting. Seating will be provided in the plaza.

The French steps will link the plaza area to the Main Park providing a landscaped feature between the two. The provision of leisure activities such as outdoor chessboards will further activate the public domain areas.

Figure 12 – Image of the proposed landscape platforms
Source: Atelier Jean Nouvel

Figure 13 – Image of the areas below the landscape platforms
Source: Atelier Jean Nouvel

Vertical Garden / Vegetal Walls

The main features of the northern and eastern elevations of the proposed building are the proposed vertical gardens which have been designed by Atelier Jean Nouvel in consultation with Patrick Blanc.

The method of constructing the vertical garden is outlined in the landscape report at **Appendix B**. The walls generally consist of three layers:

- The first layer is solid, rigid and tight. It is made out of expanded PVC of 1 cm thickness. It is fixed at a distance of 4 cm from the surface of the wall to maintain circulation of air.

- The second layer consists of a synthetic felt, 3 mm thickness. The roots of the plants develop on this felt similar to the surface of a rock or a trunk. The nutritive water and elements are distributed all along the felt, by a bored pipe placed in the top of the structure.
- The third layer is another layer of synthetic felt, 3 mm thickness. The composition of this felt makes it possible to create pockets into which the plants are placed.

The plant species to be planted within the vegetal walls have been selected according to the prevailing climatic conditions of the site. They are all native to Australia, resistant and with low water needs. **Figure 14** provides an example of Patrick Blanc's work in conjunction with Atelier Jean Nouvel at the Quai Branly Museum in Paris, France.

Modular Planter System

In addition to the vegetal walls design by Patrick Blanc, AJN have designed a modular planting system which will be installed on all four elevations of the proposed building as extensions of the balconies. The low profile balcony planters will accommodate climbing and spreading plants (**Figure 15**). The planters will be flush to the building balconies to give an impression that the plants are growing directly out of the building and to reinforce the facades horizontal elements.

The completed modules are approximately 50cm x 50cm x 20cm deep. Multiple modules fit snugly within the envelope box. The planting trays are perforated; nutrient water and rain water penetrate through the plant substrate, the solution into the drainage layer. Watering will be carefully controlled by a centralised automated system so as to minimize this flow-through and thereby minimize water consumption. In case of violent rain or drain blockage, the envelope box is fitted with an overflow that directs excess water into the terrace gutter. Water runoff from the system, whether rain or excess irrigation water, is drained via gravity from the terraces and retreated via the irrigation system shown in **Figure 16**.

The plants will be managed and maintained by the Body Corporate of the building. Should plants in one of the modules die, the planting tray can be lifted out via the building maintenance unit and replaced with a new tray containing new plants. This will ensure that the building is of a continuous green appearance.

Figure 14 – Quai Branly museum in Paris design by Atelier Jean Nouvel in conjunction with Patrick Blanc
Source: Atelier Jean Nouvel

Figure 15 – Modular Planting System
Source AJN

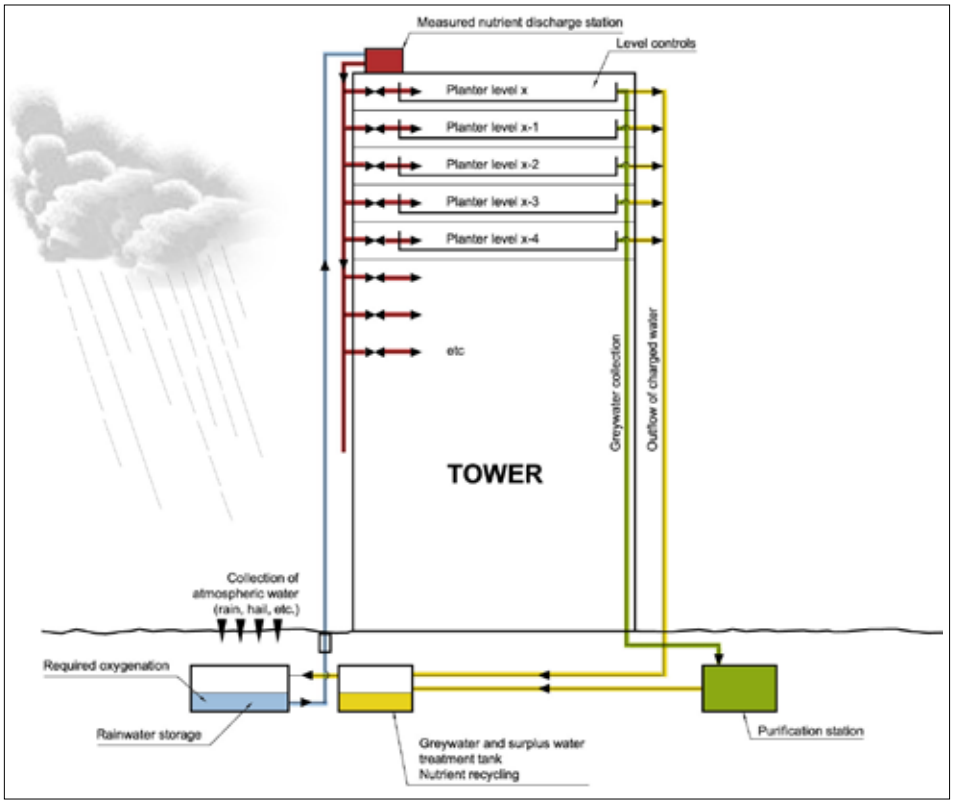

Figure 16 – Landscape irrigation system
Source: Atelier Jean Nouvel

Podium

Within the podium of the building is a central atrium area which will be landscaped with trees and shrubs. The space will be themed as a Eucalyptus woodland as shown in **Figure 17**. The atrium space will be to the height of the podium and as such will form a large open area that will provide natural daylight to all levels of the podium.

Stair access will be provided from Level 4 to the residential roof gardens provided on Level 5 of the podium. Two separate gardens are proposed, one for the residents of the apartments in the western tower and one for the residents of the apartments in the eastern tower. Both gardens will have an Australian heathland theme.

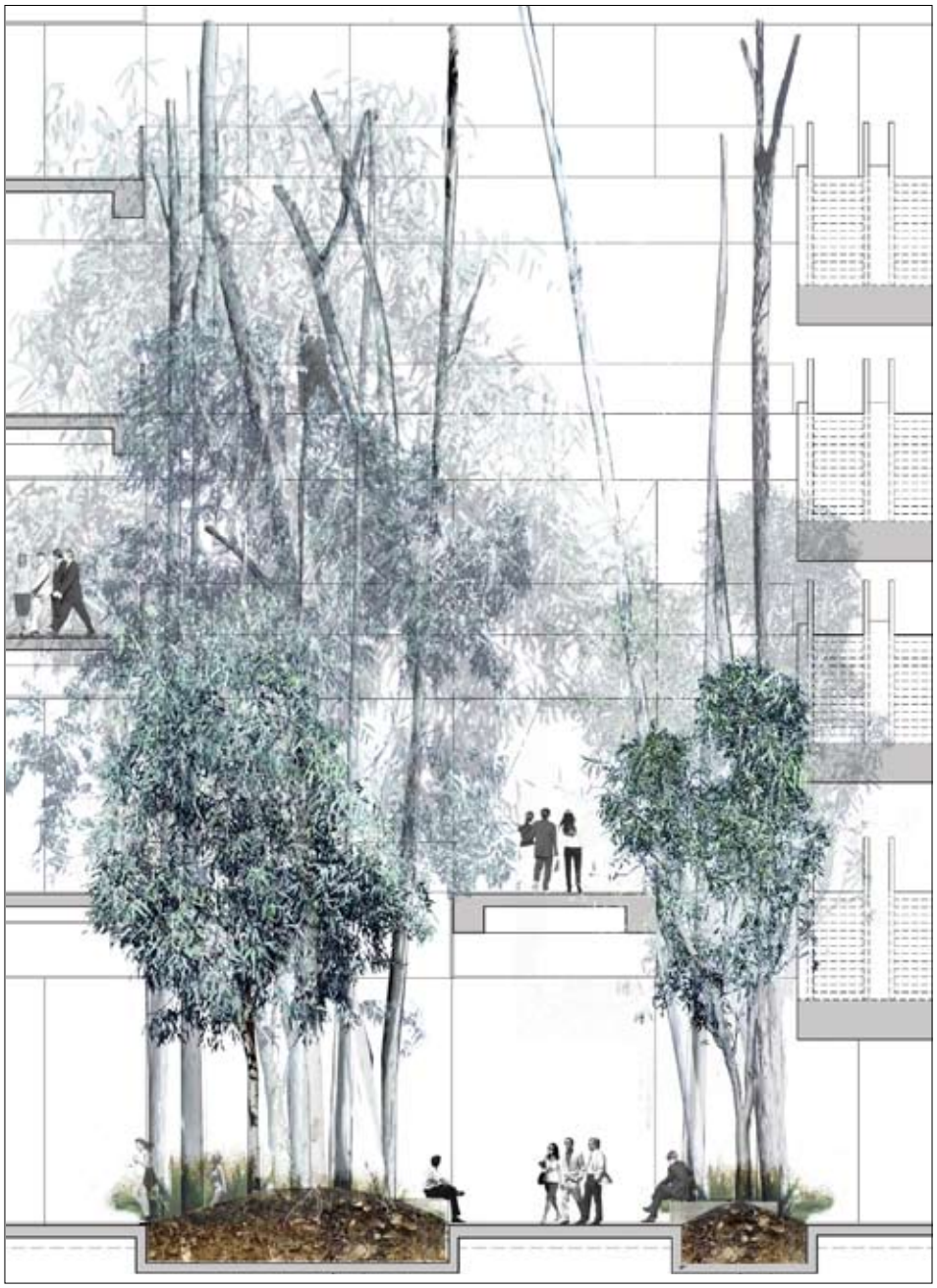

Figure 17 – Section of the podium showing the internal atrium space
Source: Atelier jean Nouvel

Roof gardens

There are several roof gardens proposed on top of the two towers. On top of the eastern tower, the roof garden will comprise Hummock Grassland. This space will not be publicly accessible. The Hummock grassland will comprise the following species:

- Triodia pungens
- Triodia basewodii
- Austrostipa stipodies
- Xanthorrhoea quadrangulata

The space on the top of the western tower will have a heathland theme. The species chosen for the rooftop of the western tower include:

- Darwinia diminuta
- Grevillea oleoides
- Persoonia lanceolata
- Dillwynia floribunda

Streetscape

Details of the proposed public domain works are provided within the Landscape document prepared by Jeppe Aagaard Anderson + Turf Design Studio (**Appendix C**). With regard to the Broadway frontage, the following is proposed:

- retention of 5 of the 6 existing street trees, one is required to be removed for vehicular visibility when entering the site from Balfour Street;
- retention of 4 smart poles; and
- installation of City of Sydney Austral Black paving.

On the Balfour Street footpath, granite flags will be installed which will comprise 3 rows of dark grey hammered granite and 3 rows of very dark grey flamed granite. 5 new street trees will planted and 4 new street lights installed.

Kent Street and the northern side of Tooth Avenue will be finished in dark hammered grey granite paving. 3 new street lights will be installed on the western side of Kent Street and 4 new lights will be installed on the northern side of Tooth Avenue.

The two through site links proposed on the ground level of the building will be open during business hours only. These will be finished in dark hammered granite.

4.11 Heliostat

A heliostat is an instrument in which a mirror is automatically moved so that it reflects sunlight in a constant direction.

There are two elements to the proposed heliostat on Block 2, one which is fixed to the cantilever on the eastern tower and the other which is fixed to the roof of the western tower.

The element on the eastern tower comprises fixed mirrors which reflect light down into the plaza area. The mirrors are fixed to on the grid below the cantilever and measure 1.65m x 1.65m. The mirrors are orientated to favour the provision of sunlight during the winter period between the hours of 12pm and 2pm.

On the western tower, the heliostat comprises two sections. One part comprises 12 operable two axis mirrors (1.75m x 1.75m) which follow the location of the sun at all times of the year reflecting the sunlight to the light reflector on the East Tower which reflects again the light on the horizontal platforms on the park. The second part comprises operable cantilevered louvers on the south west corner on the West Tower reflecting the sun on to the topmost terrace / green plate which is inaccessible by the mirrors at the higher level on the eastern tower.

Figure 18 shows how the heliostat will reflect light into the plaza and onto the green plates. Drawings showing how the heliostat reflects light down into the plaza area are provided at **Appendix B**. The heliostats will provide at least ten 2m by 2m patches of light on the ground.

Due to the angle of the mirrors and the higher elevation of the mirrors there will not be any adverse glare impacts on the residents of the proposed building, nor will there be any adverse glare of any other occupants of the site.

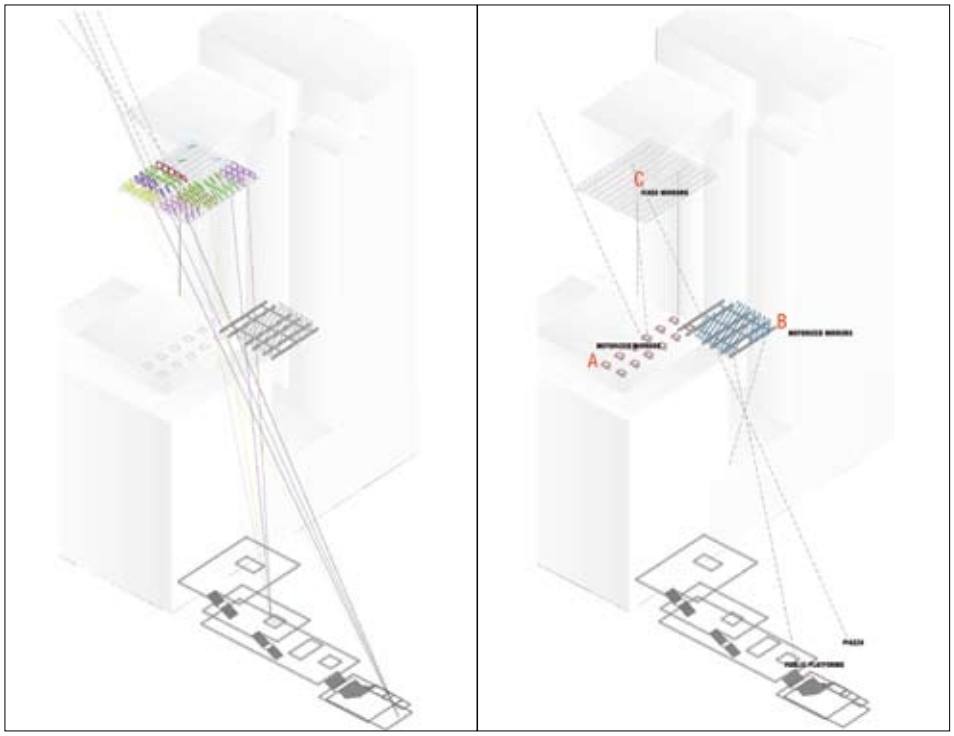

Figure 18 – Image showing how the heliostat functions
Source: Atelier jean Nouvel

4.12 Pedestrian Circulation

Public pedestrian access to the building is available in the following ways:

- via the plaza area to the supermarket on the lower ground floor;
- through the entrances to two through site links on Broadway and Tooth Avenue;
- at the entrance point on Balfour Street; and
- via the landscaped platforms at level 2.

Once inside the building, pedestrian circulation through the publicly accessible areas of the building will be via the central escalators to the east of the central arcade of the lifts provided on the western edge of the central arcade.

The lift core will also provide access down to the basement level car parking. **Figure 19** shows pedestrian access in and around Block 2.

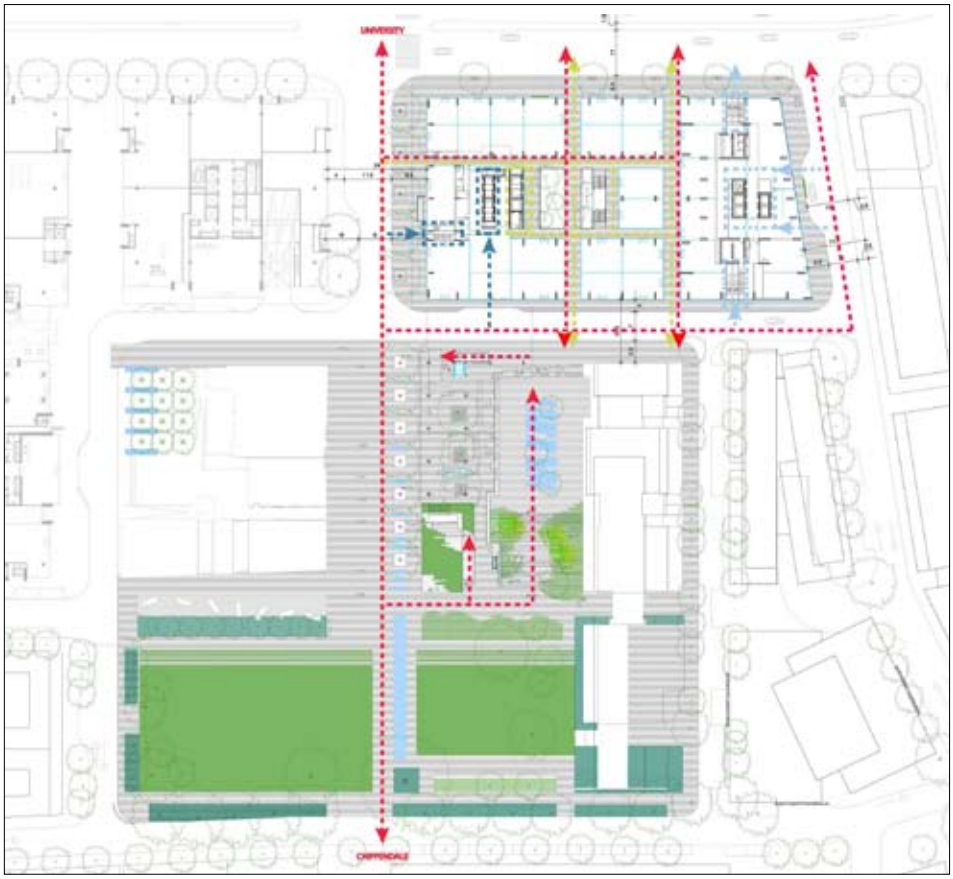

Figure 19 – Pedestrian access in and around Block 2
Source: AJN

4.13 Vehicular Access and Parking

Vehicular access to the basement car will be via the driveway on Kent Road. Parking and servicing will occur in the basement under the building as outlined in MP09_044. The number of parking spaces provided for the proposed occupants of the building are outlined in **Table 5**.

Table 5 – Number of parking spaces provided

Use	Number of Spaces Provided
Residential	447
Retail	58
Service	43
Total	**548**

4.14 Safety and Security

Residential Apartments

Two residential lobbies are provided for the apartments in the eastern tower. These are accessed from Kent Street and will have a common concierge service. The concierge will be staffed 24 hours a day, 7 days a week who will control entry into the ground floor lobbies as well as monitoring CCTV cameras in common areas.

A third lobby for the units in the western tower is provided on Tooth Avenue.

Access to the upper levels of the tower will be via lifts which are fitted with controlled destination systems. Residents will only have access to their apartment and parking / storage levels as well as any common areas. CCTV cameras will be installed in all common areas of the apartments.

Visitors will contact the occupants via the intercom provided at the ground floor.

Retail Areas

Access to the retail areas will be available to the employees / public between the hours of 5am and midnight, 365 days a year. A CCTV security system will be installed throughout the public areas in the podium which will record back to the security office.

Security staff will patrol all internal and external public areas during the day and all external areas when the podium is closed. The security staff will have two way radio contact with concierge staff at all times so that they are available when incidents or security breaches occur.

The Broadway and Tooth Avenue arcades and will be accessible 24 hours a day, however security grilles may be used in these areas to prevent access to the upper levels of the podium after hours.

4.15 Signage

Signage zones have been nominated on the architectural plans at **Appendix A**. In summary the following is proposed:

- High level building identification signage
- Retail podium level signage
- Ground level shopfront signage

Future applications will be lodged for the installation of signage.

4.16 Lighting

A plan showing the proposed lighting of the public domain is provided within the public domain report at **Appendix C**. In summary the following is proposed:

- Retention of existing lighting along Broadway;
- Installation of 4 x 150W pole mounted ceramic metal halide asymmetric lights along the eastern side of Balfour Street;
- Installation of 7 x 70W pole mounted ceramic metal halide asymmetric lights along the western side of Kent Road and the northern side of Tooth Avenue; and
- Installation of 4 x 2 x 35W spotlights and 1 x flood beam spotlights on the eastern side of the former Balfour Street alignment south of Tooth Avenue.

In addition to the lighting of the public domain, the lighting of the proposed building, including the heliostat, has been designed by Yann Kersale. An indicative image of the heliostat at night is shown in **Figure 20**. The details of the proposed lighting will be submitted in a subsequent application and will demonstrate compliance with the City of Sydney's Lighting Strategy.

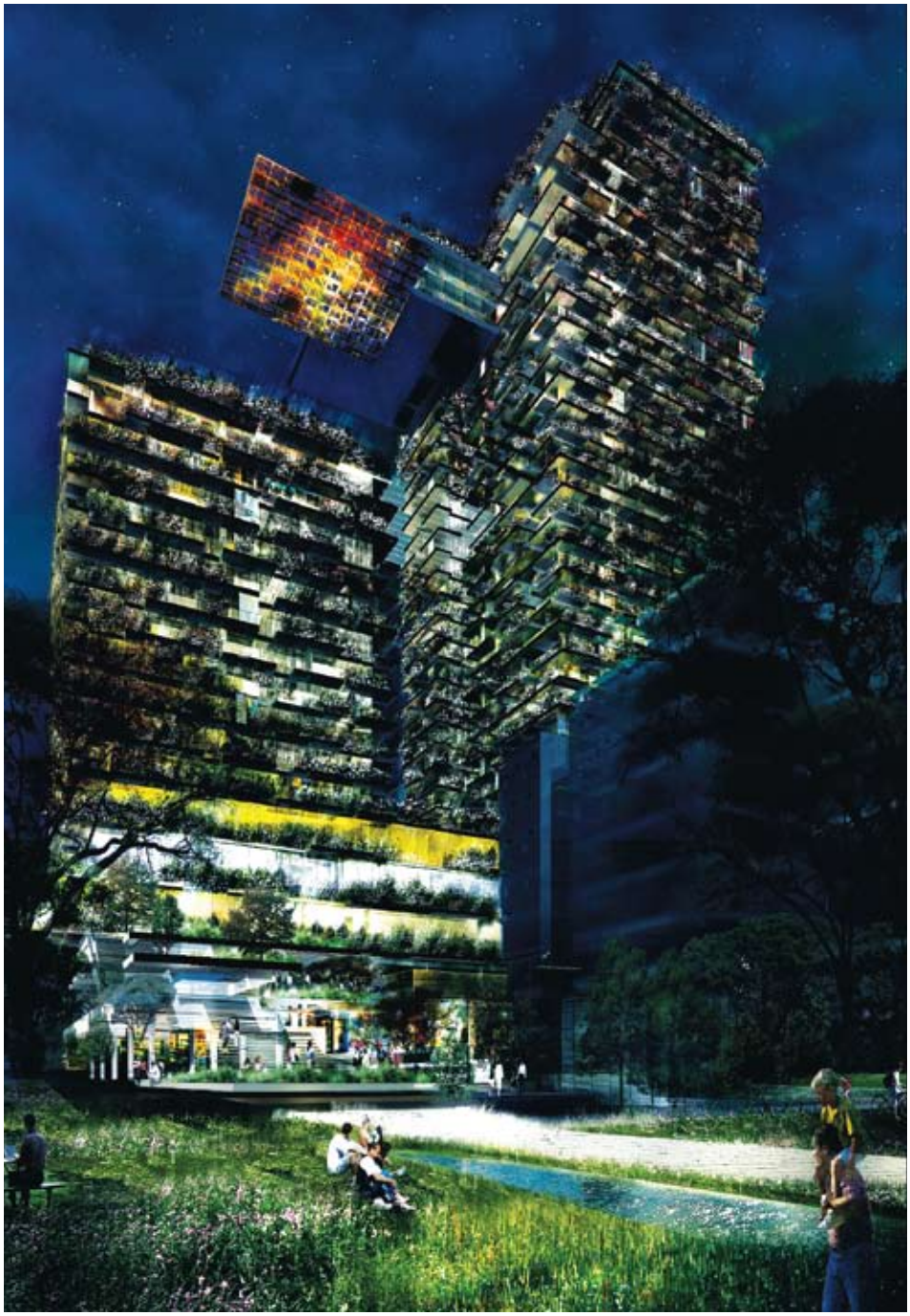

Figure 20 – Yann Kersale's proposed lighting of the heliostat
Source: Yann Kersale

4.17 Waste Management

4.17.1 Waste Storage

ARUP have undertaken waste generation estimates for the occupants of Block 2 using the applicable waste generation rates in the City of Sydney Waste Policy (See **Appendix K** for calculations and assumptions). The waste storage areas provided are outlined in **Table 6**. The locations of the storage rooms are shown Basement Level 1 Plan at **Appendix K**.

Table 6 – Waste storage areas

Waste Storage Room	Floor Area (m^2)	Room Name	Volume of Waste to be Stored (L)	Storage Equipment
2.1	55	Residential Recycling Storage & Bin Wash	4,880	5 x 1000L Bins
2.2	40	Residential General Waste Storage	9,760	10 x 1000L Bins
2.3	35	Residential General Waste Storage	5,166	6 x 1000L Bins
2.4	23	Residential Recycling Storage	2,582	3 x 1000L Bins
2.5*	75	Retail general Waste Storage	30,248	Waste Compactor Unit ($19m^3$)
2.6	45	Retail recycling Storage	10,370	11 x 1000L Bins

* A specialised waste compactor ($19m^3$) can accommodate all retail general waste using a 2:1 compaction ratio. Waste storage for the supermarket will be provided separately within the floor area designated for the supermarket.

4.17.2 Waste Management

Retail

Retail waste will be collected by a private contractor every day, although waste storage has been provided to enable collection every 2 days. Each retail tenant will be responsible for removing waste and recycling from their tenancies to the retail general waste storage area.

Residential Apartments

One waste chute has been provided in each of the two towers for residents. Occupants will be responsible for placing their general waste down these chutes and their recyclables in the storage cupboards which will be provided on every level.

Recyclables will be collected and transported by building management to the relevant recycling storage areas.

Residential waste and recycling will be removed by a private contractor every day.

4.18 Building Services

Services and infrastructure on the site will be augmented to serve the needs of the occupants of the proposed development. A report on the design criteria for the relevant building services has been prepared by ARUP and is included at **Appendix L**.

Mechanical Services

Mechanical services will be installed to meet the requirements of the BCA, relevant Australian Standards and other relevant guidelines. Services to be installed include:

- air-conditioning for residential units, commercial and retail areas;
- mechanical ventilation of plant rooms and car park; and
- mechanical exhausts for kitchens and carpark.

All mechanical equipment and / or plant areas will be provided with acoustic attenuation and vibration isolation to ensure that noise levels do not exceed the acoustic amenity criterion set for the project.

Electrical Services

Electricity to the western tower and west wing of the podium levels will be derived from a substation on Basement Level 1 which will comprise 3 x 1500kVA transformers. The eastern tower and eastern wing of the podium will gain electricity from a substation on the Upper Ground level which will comprise 3 x 1500kVA transformers.

It is envisaged that one main switchboard will be required for each tower plus two main switchboards for the retail. The main switch boards and tenant distribution boards will be provided with power recording to enable ABGR metering functionality.

Metering will be provided to all residential apartments, retail tenancies, house services and safety services. Green Star monitoring check meters with visual display devices will be installed in each apartment.

Communications

Multi core or fibre optic lead-in cables from Telstra or Optus networks will be provided dependent on agreement with the respective carriers.

A master antenna TV system will be provided. It will derive free to air signal from a high quality antenna installation on the roof. A head end amplifier will provide a digital signal to MATV cables in the communications riser to provide two TV points in each living room. The system will also extend to cover the retail areas.

100% 2G, 3G, 3.5G and CDMA mobile phone coverage will be provided to residential units, lobby / circulation spaces, retail spaces, courtyards and any areas deemed necessary.

Fire and Hydraulic Services

The following services will be installed:

- sanitary plumbing and drainage
- trade wastes
- grease interceptor system for commercial kitchen waste
- stormwater roof drainage – based on a rainfall intensity of a 1:100 year average recurrence interval for a storm event of 5 minute duration
- rainwater harvesting
- domestic cold water supply – non-potable water will be sourced from the Blackwater Treatment Plant
- domestic hotwater – to be supplied from the site wide LTHW infrastructure
- natural gas supply
- sanitary fixtures, tap ware and outlets – all fixtures will have a 4 star water efficiency rating or higher

Sub-metering will be installed to measure consumption of domestic cold water, domestic hot water and gas.

A fire hydrant system and fire control room will be installed in accordance with the requirements of the BCA, AS2419.1-2005, Sydney Water and the NSW Fire Brigade.

4.19 Stratum Subdivision

The City of Sydney Council has approved the subdivision of the Frasers Broadway site into eight super lots (see **Figure 21** and **Appendix M**). Block 2 is located within lot 3 of the subdivision.

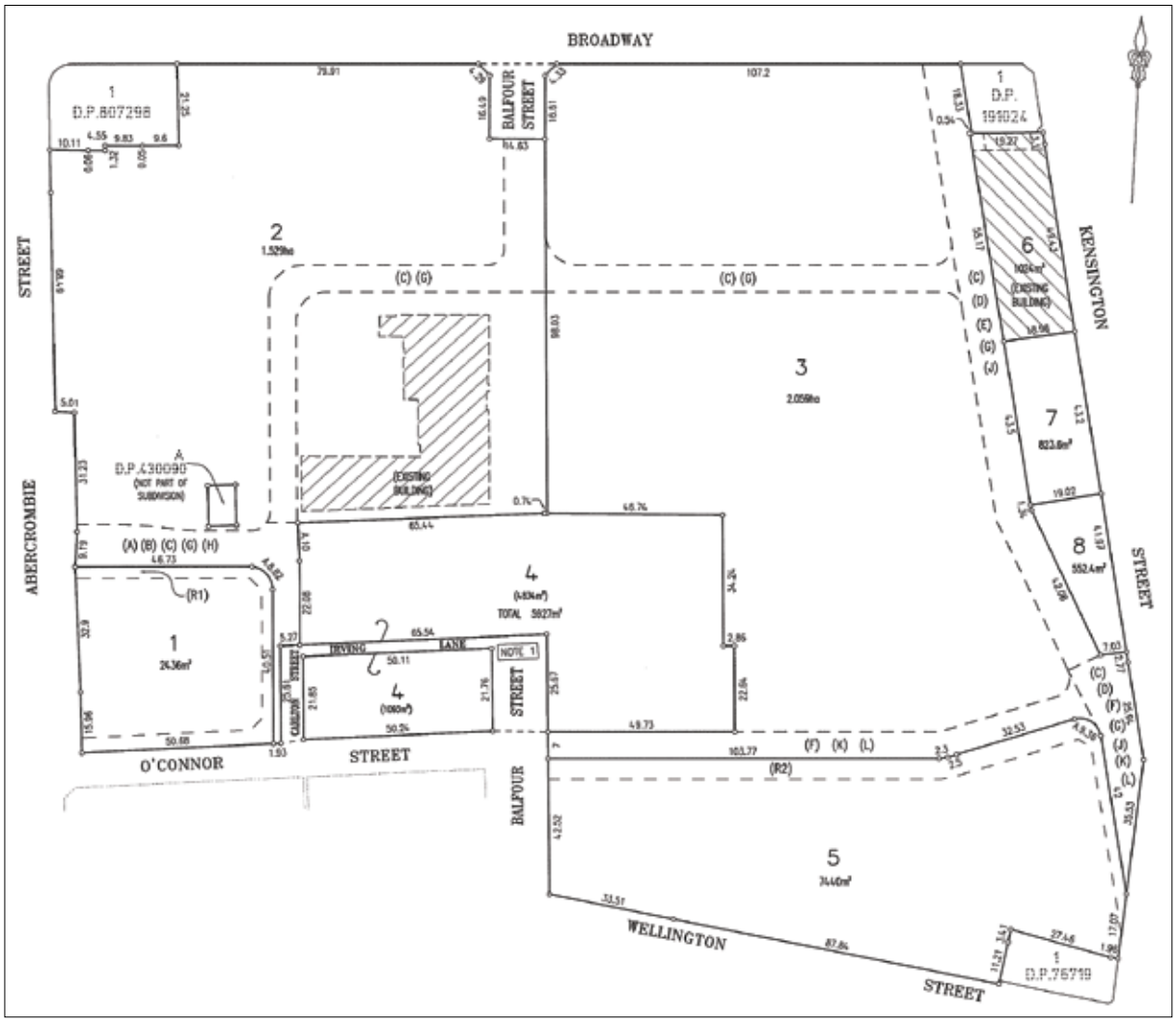

Figure 21 – Superlot subdivision of Frasers Broadway site
Source: Linker Barker Pty Ltd

Consent is now sought for the stratum subdivision of super lot 3 so as to create separate lots for the different uses within the building. The stratum subdivision plans are included at **Appendix M**. In summary creation of the following part lots is proposed:

- Part lot 301 containing the low residential units, lobby area and lift shafts located in the eastern tower of Block 2
- Part lot 302 containing low rise residential units located in the western tower of Block 2
- Part lot 303 containing the retail and restaurant elements of Block 2 and the landscaped platforms and plaza areas
- Part lot 304 containing Kent Road and part of Tooth Avenue
- Part lot 305 containing elements relating to blocks 5 and 9
- Part lot 306 containing the high rise eastern tower residential units, residential lobby area and lift shafts
- Part lot 307 containing part of the form Balfour Street alignment
- Part lot 308 containing the separate commercial gym on Level 3 of Block 2
- Part lot 309 containing high rise residential units located in the western tower of Block 2

- Part lot 310 containing the Black Water Treatment Plant
- Part lot 311 access to Block 2 via Block 5
- Part lot 312 containing the Block 9 storage cages
- Part lot 313 containing the Kensington Street Precinct parking spaces and storage cages
- Part lot 314 containing the retail service parking spaces

4.20 Future Applications

Separate applications will be lodged for the following:

- Fit out and use of retail and commercial spaces;
- Building signage; and
- Fitout and operation of the public gym on Level 4.

As the works involved in the above applications are expected to have a Capital Investment Value of less than $5 million, it is expected that the City of Sydney will be the consent authority.

4.21 Contributions

Contributions for the Frasers Broadway site were dealt with as part of the assessment of the Concept Plan modification application.

An Owners Consent Deed between Frasers Broadway Pty Ltd and the City of Sydney Council has been signed. As has a Voluntary Planning Agreement (VPA) with the Redfern Waterloo Authority (it is noted that the first payment has already been made in accordance with the agreement). A revised VPA is currently being negotiated with the DoP.

5.0 Environmental Assessment

5.1 Director Generals Requirements

The requirements of the Director General of the Department of Planning for a project application proposing the construction of a commercial building were issued In May 2009 subsequent to this the DGRs were reissued in August 2009 following the decision to include stratum subdivision in the scope of works. The revised requirements are included at **Appendix N**.

Table 7 below provides a detailed summary of the individual matters listed in the Director General's Environmental Assessment Requirements and identifies where these have been addressed in this report and supporting consultants reports.

Table 7 – Director General's Requirements

Director-General's Requirements	Report location / Comment
General Requirements	
Executive Summary	Page ii
Description of the proposal	Chapter 4
Consideration of relevant SEPPs and applicable planning instruments	Section 5.3 and Appendix O
Environmental Risk Analysis identifying Environmental Impacts of the project	Chapter 5
Draft Statement of Commitments	Chapter 6
Statement of Validity	Page i
Key Issues	
Concept Plan	Section 5.2
Built Form and Urban Design	Sections 4.1 and 5.6
Environmental and Residential Amenity	Sections 4.6, 5.4, 5.12, 5.16 & 5.17 and Appendices D and G.
Noise Impacts	Section 5.13 and Appendix V
Landscaping and Public Domain Management	Sections 4.10 & 5.9 and Appendices B & C
Transport and Accessibility (Construction and Operational)	Sections 4.13 & 5.10 and Appendix T
Ecologically Sustainable Development (ESD)	Sections 4.8 and 5.11 and Appendices I and U
Drainage and Flooding	Appendix X
Contributions	Section 4.21
Utilities and Infrastructure Provision	Section 4.18 and Appendix L
Heritage	Sections 5.7 & 5.8 and Appendices Q & R
Environmental and Construction Management Plan	Section 5.14 and Appendix W
Contamination	Section 5.15
Consultation	Section 5.21 and Appendix EE
Quantity Surveyor's Certificate of Cost	Submitted under separate cover with Test of Adequacy version of EAR
Site Survey Plan	Appendix F
Site Analysis Plan	Appendix A
Locality / context plan	Appendix A

Director-General's Requirements	Report location / Comment
Architectural Drawings	Appendix A
Stormwater Concept Plan	Appendix X
Erosion and Sediment Control Plan	Appendix X
Geotechnical Report	Appendix HH
View Analysis	N/A as no iconic / regional views are being lost as part of the proposal
Landscape Plan	Appendices B and C
Shadow Diagrams	Appendix A
Stratum Subdivision Plans	Appendix M

5.2 Compliance with Frasers Broadway Concept Plan Approval and Statement of Commitments

Tables of Compliance outlining the schemes compliance with the approved Concept Plan (as modified) and the modified Statement of Commitments is included at **Appendix O**.

Conditions of consent which are specifically relevant to this application are:

"Condition B1(2) Block 2A – Detailed resolution of the cantilevered platforms and public domain shall be determined as part of a future project application to create a cohesive public domain and to ensure amenity, security and public access is satisfactory. No habitable floor space shall be provided on the platforms above the roads."

The proposed landscape platforms are described in **Section 4.10** of this report and in the landscape document prepared by AJN at **Appendix B**. No habitable floor space is provided on the platform located over Tooth Avenue (Platform D). A café space is proposed on Platform B.

"Condition B1(3) Block 2 – Resolution of the solar reflector cantilevered out of Block 2 shall be determined as part of a future Project Application to ensure its design objective of illuminating overshadowed areas of the public domain."

The heliostat is described in Section 4.10 of this report and images demonstrating how the heliostat works are included in the Architectural set at **Appendix B**.

"Condition B1(4) Block 2 – Detailed resolution of planting systems on Block 2 shall be determined as part of a future Project Application as the 'green walls' are a critical component of the design of Block 2. The manner in which the plantings on the building are managed after completion of the project will be critical to the building's appearance."

The proposed vertical gardens are described in Section 4.10 and in the landscape report at **Appendix B**.

"Condition C15 – Further approvals and the carrying out of works / activities

(2) The consent authority must only grant consent to future applications where it is generally consistent with the terms of approval of Concept Plan No. 06_0171 as described in Part A of Schedule 1 and subject to the modifications of approval set out in this schedule."

The proposed development is generally consistent with the terms of the Concept Plan approval in that it complies with the approved use, maximum GFA and maximum height prescribed to Block 2.

The proposal does however involve a variation to the approved building envelope as demonstrated in **Figure 22**. The proposed changes to the envelope are:

- A reduction in the length of the cantilever by 8.05m;
- A reduction in the height of the podium by 3.11m;
- A reduction in the width of the eastern tower at the following heights:
  - 3.45m (at 71.5mAHD);
  - 5.45m (at 111.75mAHD);
  - 8.05m (at 119.7mAHD);
  - 4.05m (at 129.6mAHD); and
  - 1.58m (at 133mAHD).
- An increase in the width (5.8m) and eave height by 1.65m(west) and 5.95m (east) of the western tower.

Overall the mass of the building is reduced and the amount of GFA accommodated on the block is also reduced.

The above changes have occurred as a result of the design development of the building. The cantilever has been reduced so as to minimise the structural elements required while the layout of the eastern tower has become more efficient and as such has been reduced in size.

The changes to the western tower are a direct result of the change from commercial use (as originally proposed in the Concept plan modification application) to residential apartments. In order to provide sufficient depths of apartments, the lift core was shifted to the east and the width of the western tower was increased by 5.8m.

Despite the above changes, the proposed building envelope is generally of the same appearance as that which was approved in the Concept Plan and will continue to be an iconic building exhibiting design excellence. The envelope maintains a separation distance of 24 metres between the east and west towers and will continue to provide a high level of amenity for future occupiers of the building.

The changes do affect the overshadowing impacts of the proposed development as discussed in Section 5.12.

Figure 22 – Outline of approved concept plan (green) and outline of proposed envelope (red)
Source: Atelier Jean Nouvel

5.3 Compliance with Relevant Environmental Planning Instruments

The Tables of Compliance at **Appendix O** provide a detailed assessment of the proposed development against the provisions of the relevant statutory planning instruments. The proposed development complies with the relevant controls, standards and guidelines in particular it is consistent with:

- Land use zoning (as prescribed by the Draft SEPP (Major Development) Frasers Broadway Amendment)
- Maximum building height (as prescribed by the Draft SEPP (Major Development) Frasers Broadway Amendment)
- Land Use Mix (as prescribed by the Frasers Broadway Concept Plan (Mod 2))
- Number of parking spaces (as prescribed by the City of Sydney LEP)
- Minimum BASIX requirements as stipulated by SEPP (BASIX) 2004
- Public domain finishes along Broadway as prescribed by the City of Sydney Public Domain Strategy.

Variations to the following planning controls are discussed in more detail in the report below:

- Residential Flat Design Code – Rule of Thumb for solar access (refer Section 5.4)
- City of Sydney DCP – Unit mix (refer Section 5.4)
- City of Sydney Childcare Centres DCP (refer to Section 5.5)

5.4 SEPP 65 – Residential Flat Design and the Residential Flat Design Code

A Design Statement has been prepared for the building by AJN (refer **Appendix D**) in addition to this JPW has done a peer SEPP 65 review of the proposed building (refer **Appendix G**). The statement outlines the proposals compliance with the design principles of State Environmental Planning Policy 65 – Residential Flat Design (SEPP 65) and the key rules of thumb contained within the Residential Flat Design Code as outlined below.

Solar Access

JPW have a prepared a Daylight Access Report which assesses the amount of sunlight that the units in Blocks 2, 5 and 9 will receive on 21 March and 21 June. The daylight access report is included at **Appendix H**. It uses the Cox / Tzannes method of assessment i.e. effective sunlight (horizontal angle of incidence greater than 22 degrees to the living room window or balcony edge and altitude greater than 5 degrees) which generally occurs to the position of the sun between 7.30am and 4.30pm on June 21. For completeness the original Cox / Tzannes report is also included at **Appendix H**.

JPW's report also provides a comparison between the current PA design and the daylight access assessment undertaken by Heggies Australia for the concept plan modification application. It is noted that during the concept plan modification it was originally envisaged that the western tower of Block 2 would be occupied as serviced apartments and as such an assessment of solar access on those apartments was not undertaken and a comparison cannot be made.

JPW's assessment reveals that on June 21, 69% of all of the apartments (412 apartments) will receive two or more hours of sunlight. In March, this figure drops slightly to 68% as a result of the higher such altitude and the larger shadow of the cantilever. The overall figures for Block 2 are slightly lower than the 70% recommended by the RFDC. It is noted however that solar access to the east tower has slightly increased from the 81.4% measured as part of the Concept Plan modification application to 83%.

The units within the western tower have less solar access due to their close proximity to the commercial building on Blocks 1 and 4. It is noted that the rooftop panels on the top of the commercial building will be constructed such that they do not affect the solar access of those units in the western tower on Block 2.

Natural Cross Ventilation

The proposed building has been designed with a mixed mode ventilation strategy. The proposed slots and operable windows ensure that the proposed units are capable of natural cross ventilation. Residents can there choose to naturally ventilate their units in favourable weather conditions or use mechanical ventilation during extreme weather conditions. Of the 593 units proposed, 383 (65%) will be capable of being naturally cross ventilated.

Aspect / Outlook

All units will have a high quality outlook being either south over the site and the main park, to the east towards the CBD, to the north towards the CBD, Ultimo Pyrmont and the harbour or to the west towards Sydney University and the inner west.

Of the units, 35 (6%) will have a single aspect to the south. This is less than the 10% prescribed by the RFDC. It is noted that the southern aspect will be highly valued by residents due to the views across the park and towards the southern suburbs of Sydney.

Unit Mix

The proposed unit mix is provided in **Table 8**.

Table 8 – Proposed Block 2 Unit Mix

Unit Type	Number of Residential Units	Percentage of Residential Units (%)
Studio	88	15
One bedroom	281	47
Two bedroom	202	34
Three bedroom	22	4
Total	**593**	**100**

The RFDC outlines that the mix of apartments in a residential flat building should be appropriate for a location by:

- Considering population trends in the future as well as present market demands
- Noting the apartment's location in relation to public transport, public facilities, employment areas, schools and universities and retail centres.

In terms considering present and future population trends, Elton Consulting (refer **Appendix P**) note that:

- The Frasers Broadway site is located in the City of Sydney Local Government Area (LGA). The 2006 census data showed that there a higher proportion of lone person households (31.9%) and couples without children (59.7%) in the City of Sydney, compared with the broader Sydney Statistical Division (21.8% and 33.2% respectively).
- In Australia the average household size is shrinking and households in the City of Sydney are likely to be smaller than those in other areas with an average occupancy rate of 1.94 persons per household in the City of Sydney compared with 2.71 persons per household for the broader Sydney Statistical Division.
- In 2002, half (50.1%) of all visitors to Sydney stayed in the City of Sydney LGA. 73% of the City's visitor accommodation is provided in the CBD and Ultimo Pyrmont.

With regard to the location of the proposed residential building, it is noted that:

- Units are in close proximity to Central Station which provides rail access to metropolitan Sydney and regional areas;
- A significant number of bus routes run past the site along Broadway;
- Several educational establishments are within walking distance to the site, including UTS, Sydney University, the University of Notre Dame etc
- The Sydney Metropolitan Strategy nominates the site and surrounding area as part of the Sydney Health and Education Precinct, a major area for education, medical and other research, and technology based jobs.

With the above in mind, Frasers Broadway Pty Ltd believe that units are likely to be occupied or purchased by:

- Students attending nearby education facilities;
- Investors who will provide rental accommodation, meeting the needs of students, key workers and mid-to-long term visitors or taking advantage of the sites close proximity to Chinatown and Haymarket
- First home buyers, as the smaller accommodation will make units on the site more affordable. Government grants also make newly constructed properties more favourable.

Elton Consulting are of the opinion that the proposed unit mix has been determined in light of key demographic indicators, housing affordability requirements and access to essential services and facilities. The site's proximity to education, employment and transport centres as well as the City of Sydney demographic studies indicates that it will be favoured by occupants who will be best serviced by a mix of mainly one and two bedroom residential apartments and as such the proposed mix is appropriate for the site.

Unit Size

The RFDC outlines that a range of unit sizes should be provided which take into account:

- Geographic location and market demands, for example, CBD and coastal areas have different market demands, areas near universities may require more studio apartments.
- The spatial configuration of an apartment, not just its plan, for example, maisonette apartments are often small in square metres but have double-height living spaces.
- Affordability; a range of apartment sizes provides more choice for more people.

The proposed design provides a range of unit sizes ranging from 35m^2 to over 280m^2. As noted above, the proposal includes a number of smaller sized apartments which are appropriate for the site's location. The average unit sizes for each unit type are:

- Studio – 39m^2
- 1 bedroom – 55m^2
- 2 bedroom – 84m^2
- 3 bedroom – 186m^2

The average unit sizes are consistent with the recommended unit sizes within the RFDC. The design of the apartments is generally open plan which allows for more flexible layouts which will be able to accommodate a variety of furniture arrangements and a range of activities,

The units are also provided with its own private open space, further providing a high level of amenity in each apartment.

5.5 Child Care

The City of Sydney Childcare DCP 2005 requires the provision of childcare spaces for new residential and commercial developments:

- 6 childcare spaces per 100 households; and
- 1 childcare place per 1,450m^2 of commercial floor space.

As 593 residential dwellings are proposed, the development on Block 2 generates a requirement for 36 spaces to be provided.

Rather than providing individual childcare centres on each block within the Frasers Broadway site it proposed that the spaces be grouped within the developments on Blocks 1 and 4, Block 11 and if required Block 8. This is consistent with the Childcare Centres DCP which recognises that larger childcare centres are more viable.

An 80 space childcare centre is proposed as part of the project application for the construction of a commercial building on Blocks 1 and 4 (MP08_253). This is approximately 29 spaces more than the development on Block 4 is required to provide and as such goes part of the way of providing some of the spaces generated by the development on Block 2.

In order to ensure that remainder of the outstanding childcare spaces generated by the development on Block 2 (i.e. 7 spaces as 29 additional spaces are included in the development on Blocks 1 and 4) are provided as part of the redevelopment of other blocks on the Frasers Broadway site, a commitment has been made in Section 6 of this report.

5.6 Built Form

Scale

The scale of the eastern tower has been designed so as to have a positive relationship with the existing development on the opposite side of Broadway. The proposed tower will have a height of RL 133.0m which is consistent with the height of the UTS tower. The two buildings will provide an even built form relationship and will provide markers for the southern edge of the Sydney CBD.

The western tower has been scaled such that it has a positive relationship with the proposed building on Blocks 1 and 4. The tower has an overall height of RL79.5m and as such will rise to the same height as the proposed commercial building. Together these buildings will provide a consistent street wall to Balfour Street.

Massing

The massing of the building was defined in the Frasers Broadway Concept Plan. The defining factors for this building were improving solar access to the centre of the Frasers Broadway site and also providing a built form which relates to the surrounding context.

Although slight amendments have been made to the massing of the building (refer Section 5.2) the proposal remains generally consistent with the concept plan envelope in that it comprises a podium and two tower forms.

The podium of the development is 4 storeys high and defines the four street frontages. The proposed canopy, which runs along the length of the Broadway frontage, matches the height of the datum line provided on the Foster + Partners commercial building on Block 1. While the continuous line of balcony planters on level 2 of the podium relates to the height of the heritage gate.

The two tower forms are separated from each other by 24m, thereby providing privacy for the occupants of the residential towers.

Articulation

The building is articulated in several ways. The main element is the proposed green walls which will provide constant but varied interest on the facades of the building during the different seasons.

In addition to this the 'slots' within the side elevations of the two towers break up the façade and provide further linear expression to the building. In addition to this, the proposed cantilever will also add expression and articulation to the building form.

5.7 Heritage

Urbis have prepared an Heritage Impact Statement (HIS) for the proposed development (refer **Appendix Q**). In preparing the HIS Urbis has considered the further design development that has occurred and whether or not the proposed design is consistent with their previous recommendations made in the HIS they prepared for the Concept Plan Amendment application. Urbis have also considered previous studies undertaken by Noel Bell Ridley Smith and Godden Mackay Logan.

Item 52 – Heritage gateway

Drawing PA-A-4001 provides a street section along Broadway. It shows the relationship between the proposed residential building and the retained heritage gate. As can be seen on the plan the new residential building on Block 2 will maintain a space between the gate and the new building. Rather the gate will be read in conjunction with the County Clare Hotel which is also a heritage item located on the site.

Urbis are supportive of the proposed relationship between the proposed building and the existing gate. This is because the Main Entry Gateway is retained in context with the County Clare Hotel and Kent Road. Its function as an entry marker is also preserved. Urbis recommend that further consideration be given to the resolution of the separation between the heritage listed gateway portal and the awning that wraps around Broadway and into Kent Road, and the resolution of any wind issues. A commitment reflecting this has been made at Section 6 of this report.

City Datum Line

The proposed building on Block 2 makes reference to the scale of adjacent the adjacent administration buildings (heritage listed) in the design of the façade. This is achieved by providing a change of detail at the height of the administration buildings.

Historical View Corridors

Although the site is currently vacant, buildings were originally located on block 2 prior to their demolition in 2008. The proposed new building will encroach on some views of the Brewery Buildings from Broadway, however they will not impact on any existing historical view corridors.

Significant views from the edge of the site into the former brewery buildings will be improved and increased from O'Connor Street and the Chippendale Conservation Area. From Broadway the views to the brewery yard will open up as the pedestrian enters through Balfour Street and at the intersection of Kent Road and Tooth Avenue and Irving Street. The chimney of the brewery buildings will be clearly visible from within the site and many of the apartments within the proposed residential building.

The proposed landscaped platforms front onto the Brewery Yard and will provide an enhanced setting for the heritage buildings and clear views to the Balfour Street façade of the heritage buildings.

Archaeology

Godden Mackay Logan (GML) has recently undertaken archaeological investigations on Block 2. During these investigations, GML found *highly fragmented remains of nineteenth century shops fronting the former Parramatta Road (Broadway). Sandstone footings of the c1816 Wellington Inn and various shopfronts were identified along the northern boundary. Three brick privies were also uncovered at the rear of the former allotments. At least two phases of nineteenth century terrace housing were identified during our investigations indicating multiple owners and changing commercial use.*

Urbis note that the recommendations of the nominated site archaeologists should be carried out, including determining whether any further site archaeological monitoring is required during excavation works. It is noted that archaeological investigation is relevant to the Basement PA than this application which does not seek consent for excavation works.

5.8 Heritage Interpretation

In addition to an Impact Assessment, Urbis Pty Ltd were commissioned to prepare a Heritage Interpretation Strategy for the Frasers Broadway site (refer **Appendix R**). The strategy has been prepared in accordance with the NSW Heritage Manual and is intended to inform and guide collaborative interpretation planning with stakeholders and relevant parties so that the cultural and historic significance of the site is readily apparent to those who visit or are involved with the site.

The Principal and Secondary Interpretative Themes identified for the site are listed in **Table 9** below. The specific elements of each the themes are also summarised.

Table 9 – Interpretive themes for the Frasers Broadway Site

Theme	Key Elements
Principal Themes	
The Kent Brewery – the Brewing Giant / Expansion and Redevelopment (1835 – 2004)	- The Carlton United Brewery was the oldest and longest running brewery in Sydney (170 year expansion). - Broader context of the site of industry in the colony, competition in the brewing industry, the introduction of the tied house system and the effects of legislation and the Liquor Act. - The sites association with the prominent Tooth family and the strong social and working history of the site in association with the former CUB workers.
Aboriginal Cultures and Interaction (c,5000BP-c.1788)	- The Cadigal and Wan(n)gal Aboriginal Groups were known to have had a close association with the land that now comprises the CBD and its immediate surrounds, including the Frasers Broadway site. - The area originally formed part of pf a far larger cultural landscape that was highly significant to the traditional Aboriginal owners of Sydney. The site was part of the "Kangaroo Grounds" and was likely to be subject to repeated short term visits by people moving between resources and more desirable camping locations.
Pre Contact Landscape – the natural environment (pre European environment)	- Interpretation should incorporate the pre-contact natural environment in conjunction with the Aboriginal theme. - The Frasers Broadway site forms the central section of the eastern arm of the extensive Blackwattle Creek catchment area. - Archaeological studies in the vicinity of the site demonstrate that the local vegetation comprised of grassy eucalypt woodland at Contact.
The pre brewery landscape (1788 – 1834)	- The early site and uses, looking specifically at the Military Gardens which were established before 1803 and the early Parramatta Road land grants.

Theme	Key Elements
Residential development, industries, slums and resumptions.	- The site is associated with the subsequent suburbanisation of Chippendale. - The site provides evidence of expansion of the perimeter of Sydney's earliest settlement for industrial and suburban development, and the subsequent expansion of large scale industries into surrounding suburban areas, including microcosm of streets, lanes, houses and pubs.
Secondary Themes	
Industrial Sydney	- The site is one of the last remaining large scale industrial sites in Sydney. - Site demonstrates the sequence of constant change within the Brewing Industry and the expansion form a small colonial business to an international brewery. - Provides evidence of locating industrial development close to transport routes being located on the main colonial transport route between Sydney and Parramatta.
Contemporary Architecture	- Frasers Property purchased the site in 2007. Frasers has since employed various high profile and internationally renowned architectural firms have been appointed to help Frasers create a visionary new urban quarter. - This theme does not necessarily require interpretation as the quality of the architectural design will be readily apparent and self interpreting.
Sustainability	- Frasers, together with the Institute for Sustainable Futures have developed key initiatives to ensure that Frasers Broadway reflects the latest thinking and most up-to-date technology in the fast-moving sustainability industry. - It is noted that Frasers intends to interpret the energy efficiency of the site in digital mediate, incorporating a screen on the proposed additions to the Australian Hotel on the Abercrombie Street elevation.

With regard to the provision of interpretive elements on Block 2, Urbis recommend the following:

- Block 2 Platform Areas
  - Theme to be interpreted is the Kent Brewery, the Brewing Giant / Expansion and Redevelopment by way of display of small artefacts and signage e.g. Plate bending press.
- Block 2 Foyers
  - Theme to be interpreted is the Kent Brewery, the Brewing Giant / Expansion and Redevelopment by way of interpretation of Archaeological finds and mapping of former alignment of Broadway. The potential for display of equipment in the low rise lobby also exists.

Other opportunities which Urbis identify as being generic to the whole of the Frasers Broadway site include:

- Creation of a Heritage Walk
- Interpretation of the original street pattern
- Participation in specific open says throughout the year in association with heritage groups
- Creation of way finding signage that integrates key historic sites and elements.
- Incorporation of Heritage Interpretation on the Frasers Broadway website.
- Develop a naming strategy identifying potential names for streets and places across the site.

- Utilisation of large salvaged objects in temporary interpretive displays in conjunction with the Public Art Strategy
- Interpretation of the site and current development on the construction hoardings.
- Open days during archaeological investigations

During the design development of the proposed building, Urbis recommend:

- That the interpretive strategy be developed on a block by block basis in consultation with relevant designers, architects and heritage consultants, and where relevant the public art consultant; and
- Temporary interpretive elements be developed in consultation with the public art consultant and heritage consultant, in stages relevant to major construction phases planned for the site.

A commitment regarding the above is made at Section 6 of this report.

5.9 Landscaping and Public Domain Management

Public Domain

The proposed treatment of the Broadway and Kent Road finishes are consistent with the City of Sydney Public Domain Strategy. The internal streets have also been designed so that they merge with the City of Sydney design palate. The site will provide a place for pedestrians that ensure logical ground level access to all destinations within the site.

Universal access to the relevant Australian Standards has been incorporated, connecting walkways and building entries without compromising the design quality.

New street trees and landscaping will be installed as part of the proposal which will provide shade and a physical buffer from traffic and increase the green corridor through Chippendale. The arrangement and variety of tree species define the space, frame architectural elements, allow for summer shade and winter sun and will display a range of colours throughout the seasons.

Management

A Publicly Accessible Areas Management Plan (PAMP) will be prepared for the publicly accessible areas of the Frasers Broadway site which will detail:

- Ownership;
- Maintenance responsibilities; and
- Hours of access.

This PAMP will also apply to the through site links proposed as part of the development of Block 2.

In order to ensure that the two through site links remain open for public access a right of way easement will be placed on the property title prior to occupation of the building. A commitment has been made to this effect at Section 6 of this report.

Public Art Strategy

Jennifer Turpin Studio and Michealie Crawford have prepared a Public Art Strategy for the Frasers Broadway site **Appendix S**. The strategy covers the following:

- Themes of the artworks
- Permanent and temporary artworks
- Digital art
- Heritage interpretation
- Budgets and implementation strategies

Jennifer Turpin note that the design of the building on block 2 will be the most iconic on the site, offering vegetated walls designed by Atelier Jean Nouvel in conjunction with Patrick Blanc and an external lighting scheme by artist Yann Kersale. The heliostat will project pools of sunlight into the shadow of the plaza during the day and will glow like a beacon in the dark sky at night.

Additional opportunities for public art within the building on Block 2 are available within the ground floor atrium. The atrium space is 7 storeys high and offers "*the potential to create a work that engages the height of the space, the growing trees and the architecture's language of layers, light, veils, reflection and transparency*".

In terms of the plaza area it is proposed that a water element will be installed. It is proposed that an artist will be commissioned to design the water feature to give some expression to some of the precinct's significant water stories.

5.10 Transport and Accessibility

Traffic, access and parking issues were assessed by Halcrow MWT as part MP09_0042. The proposed basement design was considered to:

- comply with the City of Sydney LEP parking provision rates;
- comply with the City of Sydney Access DCP in terms of provision of accessible parking spaces;
- comply with the design requirements of the relevant Australian Standards;
- provide a suitable level of service vehicle spaces for the needs of the occupants of the building; and
- include sustainable design features such as small car spaces and car share spaces.

As the design of the basement has been discussed in length in the application MP09_0042 it has not been repeated here. However for completeness, Halcrow's assessment report has been included at **Appendix T**.

With regard to the overall provision of parking on the site, the following parking provision is currently proposed.

Table 10 – Anticipated overall Parking Provision on the Frasers Broadway site

Block	Parking Spaces Proposed
Blocks 1, 4, 8 and Brewery Yard	533
Blocks 2, 5, 9 and Kensington Precinct	1,230
Block 11	237 or less dependent on detailed design
Total	**2,000**

5.11 Ecologically Sustainable Development

ARUP has been advising on the ESD credentials of the project. Their report is located at **Appendix I** and summarised below.

5.11.1 Green Star

As mentioned previously, Frasers Broadway Pty Ltd are targeting a 5 star Green Star rating for all buildings on the site and a 6 Star rating for the Frasers Broadway Precinct.

For Block two, the relevant Green Star rating tools which have guided design development are:

- Retail Centre Design v1
- Mixed Use PILOT
- Multi Unit Residential PILOT

The initiatives which have been included in the design to achieve the targeted 5 star rating under the tools listed above include:

- Installation of a Trigeneration plant
- Installation of Blackwater treatment plant
- Inclusion of a Green Star accredited professional on the design team
- Ensuring that effective natural ventilation can be achieved for 65% of the dwellings
- Target of a high level of natural light penetration
- Use of high performance glazing and insulated building envelope which reduces reliance and use of the HVAC system and the energy associated with cooling, heating, fans etc when compared to a similar conventional building
- Use of sub-meters for water and energy use
- Provision of a car share scheme and parking spaces for small vehicles
- Installation of energy efficient appliances and fittings
- Rainwater harvesting and reuse
- Use of sustainable and recycled materials where possible during construction phase and provision of recycling storage areas for future occupants of the site
- Increase in permeable areas and vegetation thereby enhancing the ecological value of the site
- Minimisation of site emissions, in particular the reuse of sewerage will minimise outflows

5.11.2 BASIX

In order to determine the proposals compliance with the BASIX rating tool ARUP have conducted extensive 'Accurate' modelling (see **Appendix U**) and BASIX assessments on AJN drawings revision 7 dated 3rd March 2009. Following this work Arup advised of design amendments required to achieve a 7 star Accurate rating in order to meet the requirements of the Green Star Multi-Unit Residential (MUR) Pilot Tool.

ARUP have since had discussions with the Green Building Council of Australia who have advised that the MUR Version 1 Tool will be released soon, but that the rating requirements will be different to those in the pilot tool.

Frasers have therefore requested that the Department allow the BASIX assessment for this proposal to be undertaken once the rating requirements of the MUR Tool are known so that the assessment does not need to be undertaken twice. It is noted that the design response required to meet the MUR pilot Tool exceeds the minimum design response required for compliance with BASIX.

Frasers have given an undertaking that a BASIX certificate demonstrating compliance with the BASIX SEPP will be submitted with the Preferred Project Report for this application (refer to Arup's letter at **Appendix U**).

Notwithstanding the above, it is noted that the following ESD design features are proposed

- Site wide rainwater collection
- Central black water treatment plant
- High rated water appliances
- Use of indigenous plants / low water species
- Tri-generation plant and chillers
- Low temperature chilled water reticulation to individual buildings
- Utilising waste hot water from the combined heat and power plant and reticulating it to individual buildings
- Electricity exported to the grid from central plant and provided to each building by connection to sub-station
- Smart controls and metering for lighting and ventilation
- CO sensing in basement carparks

5.12 Overshadowing

AJN have prepared shadow diagrams which assess the impacts of the proposed building envelope compared to that of the approved building envelope (refer **Appendix A**). The shadow diagrams have been peer reviewed by JPW (**Appendix FF**).

Both diagrams show that the proposed development is generally consistent with the shadows approved as part of the modified concept plan. As a result of the amendments made to the building envelope, the western tower does generate some minor additional shadow over the plaza area during May and June. This impact will not affect the amenity of any residential dwelling and is considered to be minor in the context of the scheme. Overall the changes to the building envelope result in a reduction of overshadowing of the public domain by 1.73% at 12 midday on June 21.

The repositioning of the heliostat will improve the solar access to those units on the northern façade of Block 11 on June 21 compared to that of the modified concept plan Block 2 envelope.

At 9am and 3pm on March 21 and June 21 there is no difference between the shadows of the approved and proposed building as the shadows are absorbed into the shadows of other buildings approved on the site.

5.13 Acoustic impacts

Acoustic Logic has undertaken an Environmental Noise Assessment for the project (**Appendix V**).

Existing Noise Sources

Attended noise measurements were undertaken during the periods of morning and afternoon peak periods, and evening and night-time periods on 13th and 14th November 2008. Unattended monitoring was undertaking during the period of 17th November 2008 to 24th November 2008.

Using the results of the noise surveys, Acoustic Logic was able to set amenity criterion for the project so as to ensure the protection of the acoustic amenity of nearby surrounding residential properties. These are detailed in **Table 10**.

A commitment has been made at Section 6 of this report which will ensure that the choice of plant equipment and any acoustic amelioration treatments required to be installed will be overseen by a suitable qualified acoustic engineer.

Table 11 – Noise Objectives for Residential Receivers near Proposed Development

Location	Daytime Noise Objective dB(A)L_{eq}	Evening Noise Objective dB(A)L_{eq}	Night Time Noise Objective dB(A)L_{eq}	Night Time Sleep Disturbance for Intermittent Activities dB(A) $_{L1\ (1\ Min)}$ (Background + 15 dB(A))
Broadway	55	45	40	66
Wellington Street	55	45	40	60
Regent Street	55	45	40	63

Source: Acoustic Logic

Internal Noise Criteria

Internal environmental noise level criteria have been developed for the project based on the Australian Standard AS2107:2000, and Green Star requirements.

Acoustic Logic's experience with similar projects indicates that compliance with internal noise level criteria detailed in this section of the report is both possible and practical. The external façade of the building will be acoustically treated where necessary to ensure internal noise levels comply with specified noise levels. Acoustic treatment will include the upgrading of glazing and other façade elements based on noise level measurements conducted at the site. Masonry and other high mass elements of the façade will not require additional acoustic treatments.

Traffic Noise

For land use developments with the potential to create additional traffic on local roads the development should comply with the requirements detailed in the EPA ECRTN. However, if the existing noise levels exceed the acceptable noise criteria for additional traffic generation then a 2 dBA increase in noise is allowed.

As the existing high traffic volumes and noise on surrounding roadways, including Broadway and Abercrombie Street, already exceed the nominated the EPA ECRTN criteria noise associated with additional traffic volumes will comply with relevant traffic noise criteria (ie it will not generate an increase in noise of more than 2dBA.

For a significant increase in noise (2 dB(A) increase) from traffic associated with the site volumes would need to increased flows on surrounding streets by more than 40%. As Broadway, Regent Street and Abercrombie Streets already carry high traffic volumes an increase of this amount will not occur.

5.14 Environmental and Construction Management

Frasers Broadway Pty Ltd has prepared a preliminary Construction Environmental Management Plan (**Appendix W**). The preliminary CEMP outlines the key issues and mitigative measures which will be included in the detailed CEMP which will be prepared by the building contractor once appointed. The main elements of the preliminary CMEP are outlined below.

5.14.1 Site Management

The proposed works will be overseen by a Project Manager. The Project Manager will be responsible for ensuring that measures outlined in the CEMP are properly implemented.

Construction work will be carried out at the following times:

- Monday to Friday: 7.30am to 5.30pm
- Saturday: 7.30am to 3.30pm
- Sunday and Public Holidays: No work to be undertaken

5.14.2 Site Establishment

Prior to works commencing the following will be undertaken to establish the site:

- Erection of a site contractor office and associated facilities
- Establishment of vehicular access and loading / unloading areas
- Creation of exclusion zones for the protection of heritage items
- Implementation of a Fencing Security Management Plan

Prior to works commencing all staff will undergo an orientation so that they are aware of the environmental and safety controls applying to the site.

5.14.3 Water Quality Management

A stormwater and sediment control plan has been prepared by Hughes Trueman. It is included at the Stormwater Management Plan at **Appendix X** and includes the following mitigation measures to be implemented on the site:

- Installation of sandbag sediment traps;
- Installation of sediment fences (straw bale of geotextile fabric)
- Keeping unprotected areas moist during windy and dry weather
- Regular inspections of sediment protection methods and inspections after storm events; and
- Programming of construction works so as to minimise the time surfaces are exposed.

5.14.4 Noise and Vibration Management Plan

A detailed noise and vibration management plan will be prepared by the contractor prior to works commencing on the site. The plan will include the following mitigation measures to ensure minimal disturbance to surrounding properties:

- The Contractor shall set up noise and vibration monitors around the site at locations identified by the Acoustic Consultant as sensitive areas and high risk areas;
- Works on site will only be carried during approved hours;
- The Contractor will be responsible for scheduling activities that generate high noise to short term duration wherever possible and practical;
- Establishment of site practices and strategic positioning of processes on site;
- A register of noise complaints will be kept by the project manager; and
- Establishment of direct communication with affected Parties.

Vibration monitoring will be used:

- At the commencement of a new activity near a sensitive structure to establish and confirm safe working distances from the sensitive structure
- When an activity identified as producing significant ground vibration is occurring in close proximity to the safe working distances established, continuously recording of vibration levels by unattended vibration loggers will be undertaken which will provide a visual and audible alarm when vibration limits are approached
- When work is occurring very close to sensitive structures, attended monitoring will be undertaken to ensure that any preventative action is taken immediately to prevent the targets from being exceeded.

5.14.5 Air Quality

An air quality management plan will be prepared by the appointed contractor prior to excavation works commencing. The plan will include the following mitigation measures:

- Dust emissions will be controlled by the use of water spraying when required;
- Concrete decks to be kept clean to reduce dust emissions;
- All motorized equipment used on the site will be selected on the basis of its noise performance and will comply with regulatory standards for noise generation;
- High efficiency mufflers are to be installed for major plant items particularly those that would be used for long periods on the project to reduce construction noise;
- Equipment will be operated in a proper, efficient and correct manner which includes proper maintenance in order to control noise and associated exhaust emissions; and
- Odour emissions from the site which could adversely affect air quality or the amenity of the local area to be monitored.

5.14.6 Waste and Chemical Management

A Demolition and Construction Waste Management Plan will be prepared by the appointed contractor prior to works commencing. The plan will target the reuse or recycling of 80% (by mass) of construction waste. The contractor will be required to submit quarterly reports to the Project Manager outlining that they are achieving this target.

The contractor will also prepare a Chemical Management Plan prior to works commencing. This will outline the measures for:

- Identifying hazardous materials;
- Training of staff in relation to handling of hazardous materials;
- Storage and use of hazardous materials; and
- Disposal of hazardous materials.

Storage and use of hazardous materials will be in accordance with the MSDS and legislative requirements. Disposal of chemical substances will be in accordance with OH&S and legislative requirements.

5.14.7 Protection of Heritage Buildings

In order to ensure the protections of heritage items that have been retained on the site the following mitigative measures will be implemented:

- Installation of barriers / fencing around and over heritage items to create protection and/or exclusion zones as required
- Site induction and tool box talks will be held by the contractor to inform site personnel and visitors of the location and requirements for the protection of the heritage structures.
- Work method statements will be developed by the contractor for works in close proximity to heritage structures.

5.14.8 Traffic Management Plan

Construction traffic will be managed so that it does not affect the surrounding road network. A transport consultant will prepare the plan prior to construction works commencing. The plan will outline provisions on the following:

- Proposed means of vehicular access to and from the site and safety of proposed access points. It is expected that the majority of traffic entry and exit will generally be via Broadway and Balfour Street or Regent and Kent Street;
- impact of generated traffic upon the surrounding arterial road network and intersections;
- details of anticipated truck routes to minimise impacts on neighbours; and
- Opportunities to maintain pedestrian access and safety adjacent to the subject site for the period of activity.

GTA Consultants have prepared a Construction Traffic Management Plan (**Appendix GG**) which outlines the details the following:

- Truck routes to and from the site;
- Estimated truck movements during the construction of Block 2; and
- Mitigative measures to ensure the safety of pedestrians around the site.

It is envisaged that the majority of loading and unloading of materials will occur within the site, however a street loading zone on Broadway may be sought in non peak times. If any loading zones are required to be established on existing roads outside of the site, the contractor will seek approval from the relevant authorities.

5.14.9 Health and Safety Management Plan

In order to ensure the safety of construction workers on site and the safety of people in close proximity to the site, a Health and Safety Management Plan will be prepared by the contractor. This will include, but will not be limited to:

- Names of key personnel responsible for site safety;
- Emergency contact details and procedures;
- Identifying and describing the risks associated with each operation conducted;
- Describing actions to be taken to mitigate risks and hazards;
- Ensuring that on-site personnel are adequately trained to perform their job responsibilities; and
- Outline the personal protective clothing and equipment that personnel are required to wear.

5.15 Contamination

Remediation and transitional works on the Frasers Broadway site were approved by the Minister on 15 August 2008 (MP 07_0163). In order to ensure that the site is made suitable for the proposed residential and retail uses, a commitment has been made which requires the submission of a copy of a Site Audit Statement for the site which outlines that the site has been successfully remediated and is suitable for the proposed use prior to the occupation of the building.

5.16 Wind

In order to ensure that a suitable environment for pedestrians is provided at ground level, CPP were asked to undertake a Wind Impact assessment for the project (see **Appendix Y**). Measurements of winds likely to be experienced by pedestrians were made at 40 different locations for 16 wind directions each. These measurements were combined with wind statistics to produce results of wind speed versus the percentage time that wind speed is exceeded for that location. It is noted that the testing was performed without planned trees or other plantings to provide a worst case assessment; heavy streetscape planting typically reduces the wind speeds by less than 10%.

The location of the different test locations and the results of those studies are shown in **Figures 23** and **24**. The images show that the wind environment around the proposed development is generally satisfactory and that no dangerous locations were recorded.

There are two locations (11 and 16) which are suitable for able bodied pedestrians but not general bodied pedestrians. In the case of location 11 (corner of Broadway and Kent Road) CPP recommend that awning be extended around the corner of the building as shown in **Figure 25**.

With regard to location 16 (south east corner on Tooth Avenue) the spatial extent of the high wind zone in the vicinity is likely to be reasonably short and as such amelioration treatment is not required.

For the upper levels of the building, CPP expect that these areas will be suitable for sitting outside for at least 75% of the time. These areas will only be used when conditions are considered appropriate.

With the above amelioration measures in place, CPP consider that the proposed development will be acceptable in terms of wind impact.

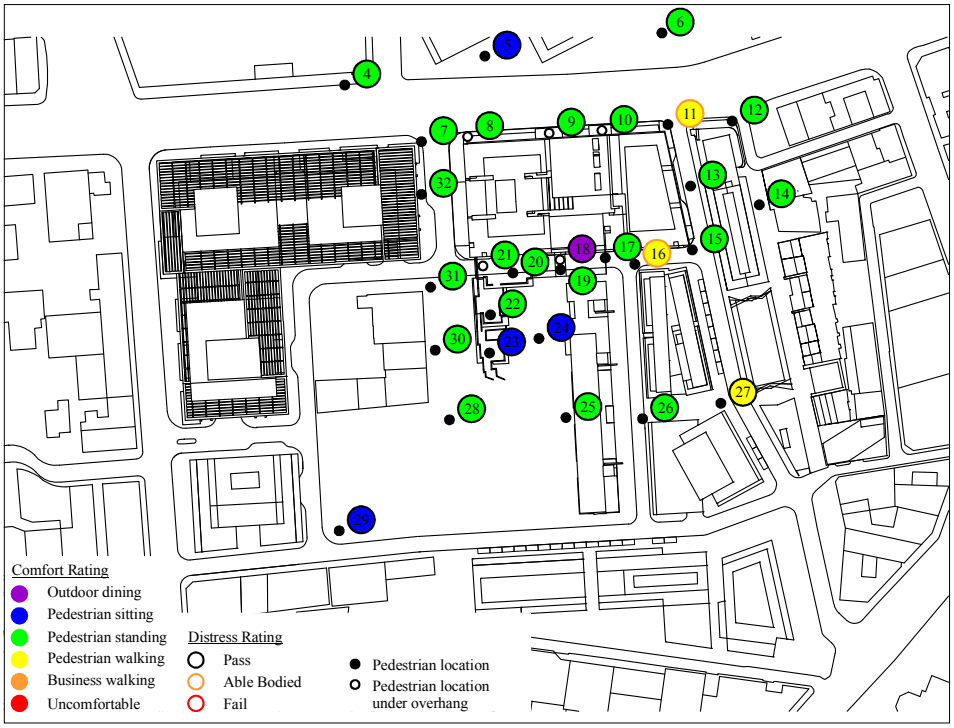

Figure 23 – Ground level wind test locations and results
Source: CPP

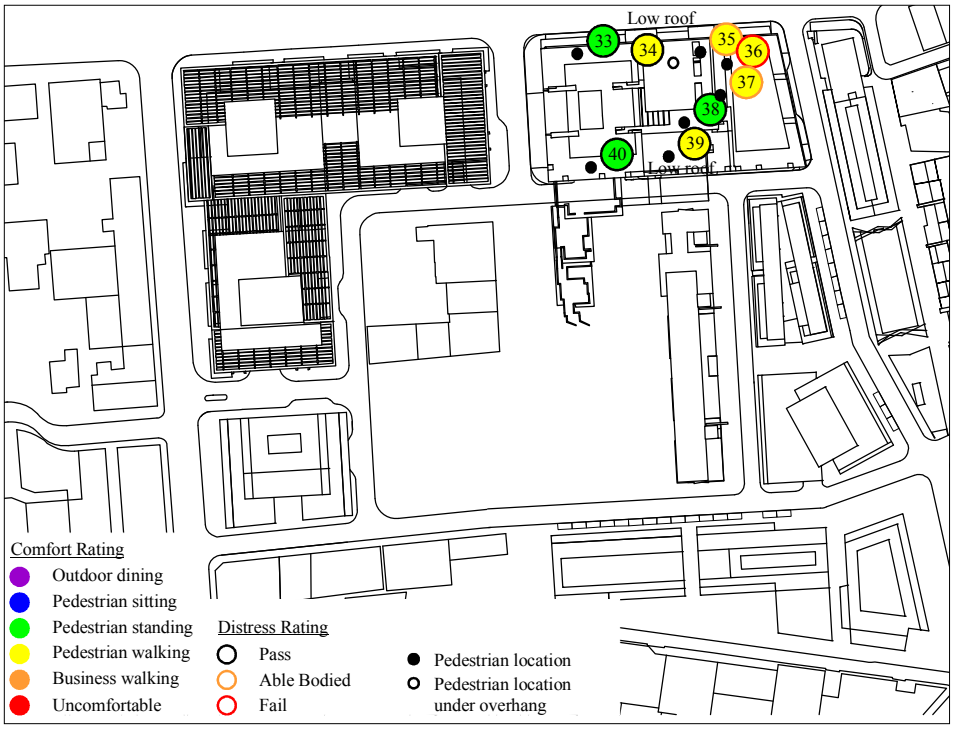

Figure 24 – Upper level wind test locations and results
Source: CPP

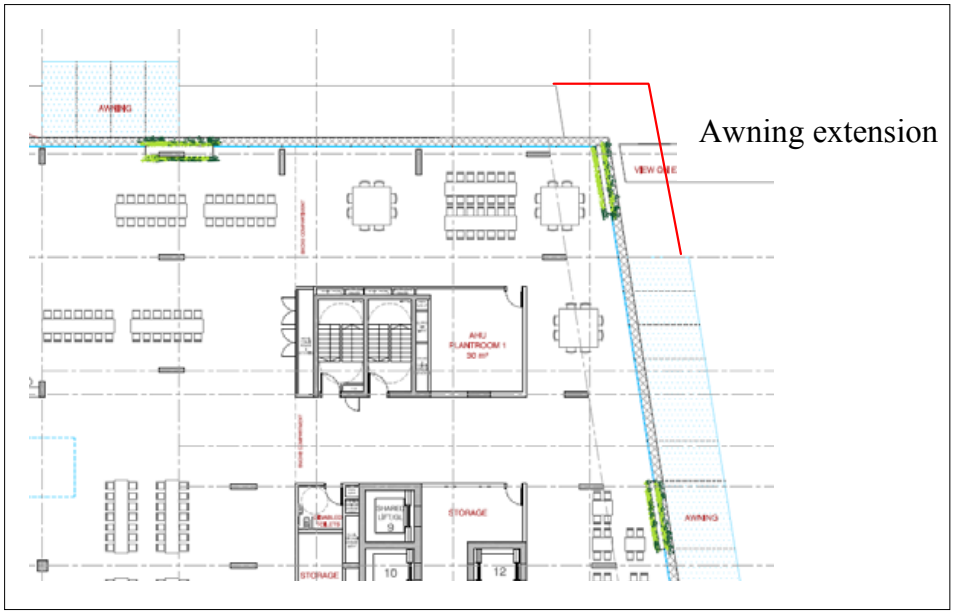

Figure 25 – Recommended wind mitigation measure at the corner of Broadway and Kent Road
Source: CPP

5.17 Reflectivity

CPP were engaged by Frasers Broadway Pty Ltd to assess the proposal in terms of solar reflectivity. Their report is summarised below and included at **Appendix Z**.

The northern façade and the top most portions of the eastern and western facades of the proposed building generate the greatest potential for reflections. This is particularly so in the early morning and late in the afternoon.

In order to avoid glare impacts the architects have incorporated vertical fin elements on the northern facade to block high incident angle reflections. Mesh will be installed between the outmost glazing pane and the stainless steel wire which will be attached to the building to support the vertical gardens. Mesh is provided as the vines themselves cannot be relied upon to provide reflection shading.

In addition to the above CPP recommend that the entire northern façade and parts of the eastern and western facades (shown in **Figures 26** and **27**) are finished with cladding or glazing with a reflectivity coefficient below 10%. All other parts of the building will have a reflectivity coefficient of 20% or less.

With the above recommendations in place, CPP are of the opinion that the proposed Block 2 building will meet the Central Sydney DCP 1996 controls for reflectivity.

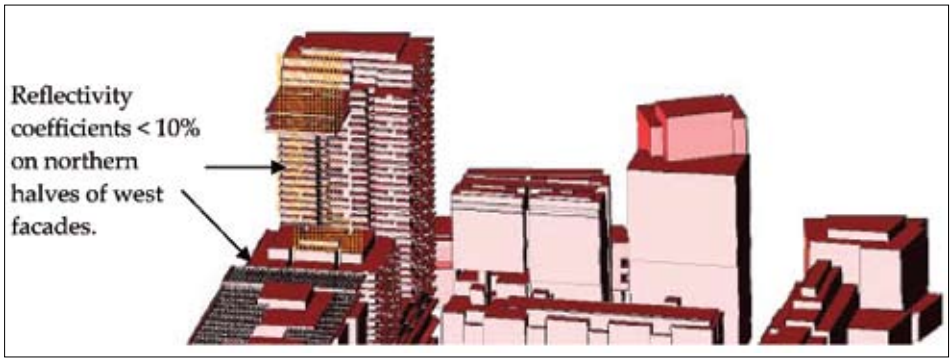

Figure 26 – Area of eastern façade to be finishes with cladding or glazing with a reflectivity coefficient below 10%
Source: CPP

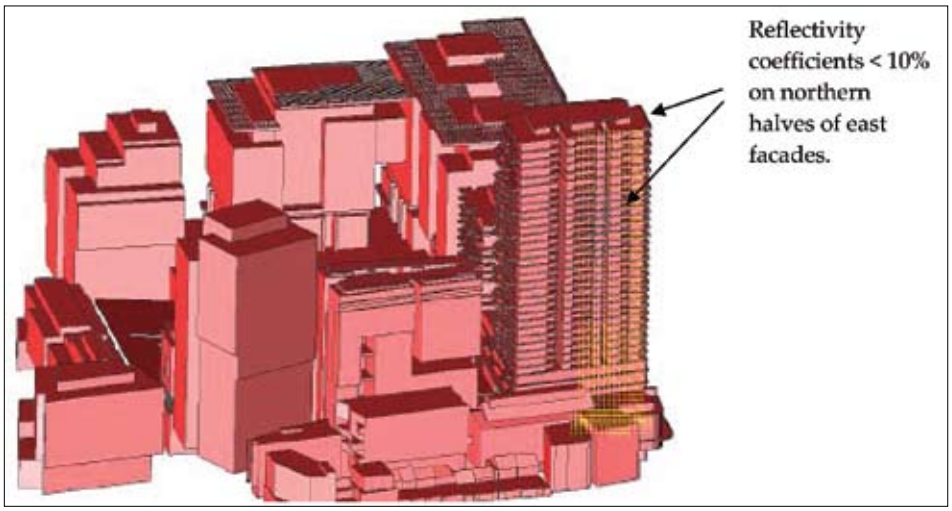

Figure 27 – Area of western façade to be finishes with cladding or glazing with a reflectivity coefficient below 10%
Source: CPP

5.18 BCA and Fire Safety

Building Code of Australia (BCA)

City Plan Services has undertaken a review of the proposal for compliance with the Building Code of Australia (BCA). Their assessment report is located at **Appendix AA** and concludes:

> *"The design as proposed is capable of complying with the Building Code of Australia, and will be subject to construction documentation that will provide appropriate details to demonstrate compliance. This report has identified areas of non-compliance with the deemed-to-satisfy provisions that are intended to be addressed by Alternative Solution. Whilst these performance based solutions are to be design developed, it is our view that the solutions will not impact on the current design."*

Fire Safety

ARUP have reviewed the proposal in terms of fire safety design (**Appendix BB**). ARUP have also noted that alternative solutions will be required to satisfy the Deemed to Satisfy provisions for fire engineering design but that these solutions will not require major changes to the current design and as such should not materially affect the building layout.

5.19 Safety and Security

Elton Consulting were commissioned to prepare a Safety Management Plan for the project and to review the proposals compliance with the principles of Crime Prevention Through Environmental Design (CPTED). Their report is included at **Appendix CC** and is summarised below.

The aims of the strategy are to:

- Create a safe public domain for all users at all times;
- Facilitate a safe and easily accessible pedestrian transport network;
- Create a safe environment during the development process;
- Address safety needs of special user groups;
- Develop a safe community for residents around and on site;
- Promote health and injury prevention; and
- Create a safe, secure and well maintained built environment.

The proposal is considered to achieve the above aims through the following design measures:

- The public domain is clear and legible, promoting pedestrian permeability through the site, entrapment spots are avoided
- Active uses align the streets and main access routes, providing natural surveillance
- A mix of uses are proposed, providing activity at different times of the day
- Footpaths, cycleways and pedestrian areas have been designed to ensure that pedestrians and cyclists have priority over vehicles
- Safe road crossings are proposed over Broadway and within the Frasers Broadway precinct
- Barriers are provided on the edge of the platforms so as to ensure safety of pedestrians
- Way finding signage will be installed
- Central security measures are proposed including static guards and CCTV
- Central management measures are proposed which will ensure the regular maintenance of the public domain and landscape elements
- Residential entrances are separate from the public elements of the project and will have 24 hour concierge and security pass access to individual floors that residents reside on
- Lighting will be installed within the building the surrounding public domain so that black spots are avoided
- Landscaping has been designed so that it is easily maintained and does not grow to a size or height which would affect sightlines and passive surveillance.

In their conclusion, Elton Consulting note that Block 2 is a high quality building design that exceeds safety and crime compliance requirements.

5.20 Accessibility

Accessibility Solutions Australia has reviewed the proposed development for compliance with the DDA, BCA, SEPP 65 and the City of Sydney Access DCP. The report is included at **Appendix DD** and concludes that:

- The proposed development provides suitable access and egress to all public areas of the building, including the basement parking;
- Details of suitable accessible sanitary facilities are capable of being provided;
- 98% of the proposed units will be visitable by a person with disabilities; and
- 15% of the proposed residential apartments are designed to be adaptable and have been allocated an accessible parking space. The units comply with fundamental spatial design criteria of AS4299 and consequently the SEPP 65 Design Code and Council's Access DCP for Adaptable Housing.

Given the degree of access to the retail / commercial areas, common domain residential amenities, visibility and adaptability of residential apartments Accessibility Solutions Australia conclude that the development will satisfy the accessibility provisions of the BCA and Council's Access DCP and SEPP 65 requirements pertaining to accessible pathways, visitable and adaptable housing for people with disabilities.

5.21 Consultation

Since purchasing the site in June 2007, Frasers Broadway Pty Ltd have held a series of community consultation sessions, have regularly updated local residents and interested stakeholders via newsletters, a website and emails and have employed a community consultation liaison officer.

The approved Concept Plan has also been extensively publicised and subject to several rounds of public exhibition.

The most recent community consultation session was held on Wednesday 4th March and was specifically focused on the upcoming project applications. On the agenda for the meeting was the proposed design of the residential building on Blocks 2 and 2a. Elisabeth Kather from AJN presented to community members and stakeholders on the latest design of the building.

Approximately 70 community members and stakeholders attended the session. Elton Consulting have prepared a report (**Appendix EE**) providing an outline of the key issues raised and Frasers Broadway response. The key issues raised in relation to the proposed building on Blocks 2 and 2a:

- Vertical garden – who will be responsible for it?
- Concern that the demographic of the new residents will be car users rather than public transport patrons
- What residential and other user demographic is envisaged by the developer for the site?

General comments made in relation to the Frasers Broadway site as a whole included the following:

- Traffic and access
- Public art
- Landscaping of the Main Park
- Impact of the economic environment on the development
- Ongoing community consultation

5.22 Geotechnical Conditions

Jeffery and Katauskas Pty Ltd (J and K Pty Ltd) have reviewed the capacity of the site to support the proposed development (**Appendix HH**). J and K Pty Ltd note that the site is underlain by Hawkesbury Sandstone at depths between 3m to 5m (approximately). The proposed basement will extend to RL-2.9m, which will typically be 17m to 20m in depth below the surface where the sandstone will be quite fresh and typically of high strength (Class 1 or 2 in the classification system used for assessing the bearing capacity of sandstone in the Sydney Region) and capable of supporting loadings as high as 12MPa below conventional pad footing.

J and K Pty Ltd conclude that the site has a very competent foundation stratum and is quite capable of supporting the proposed construction.

5.23 Site suitability

The site is considered suitable for the proposed development in that it is:

- Of a suitable size to accommodate the proposed building envelope
- Located in close proximity to major public transport facilities
- Appropriately zoned for the proposed uses
- Unconstrained by existing vegetation or protected species

6.0 Statement of Commitments

Table 12 outlines the commitments made in respect of this project.

Table 12 – Draft Statement of Commitments

Key Issue	No.	Commitment	Timing
Design	1.	The proposed development will be constructed in accordance with the plans and documentation submitted with the Project Application.	Ongoing.
ESD	2.	The proposed development will achieve a 5 Star Green Star rating (Multi residential PILOT tool unless superseded by an operational tool).	Prior to occupation of the building.
Public Domain	3.	Proof shall be submitted demonstrating that Public Right of Way easements have been created on the land title	Prior to an occupation certificate being issued.
	4.	A Publicly Accessible Areas Management Plan will be entered into by the building management	Prior to the occupation of the building
Retail premises	5.	Separate Project Applications / Development Applications (dependent on cost of works) will be lodged for each of the ground floor retail tenancies.	N/A.
Childcare	6.	29 Childcare spaces for the proposed development will be provided on Blocks 1 and 4. The addition 7 spaces generated by the Block 2 development will be provided within the development on Blocks 8 or 11.	Ongoing.
Construction Management	7.	A detailed Construction Management Plan will be prepared by the building contractor.	Prior to the issue of a construction certificate.
	8.	Management of noise, vibration, dust, soil and erosion arising from the construction of the building will be undertaken in accordance with the Construction Management Plan (CMP) for the development.	Throughout the duration of construction works.
	9.	A sign will be erected on the boundary fence of the development which will advise of the following: - Contractor details - 24 hour emergency contact details	Throughout the duration of construction works.
	10.	Construction work will be carried out at the following times: - Monday to Friday: 7.30am to 5.30pm - Saturday: 7.30am to 3.30pm - Sunday and Public Holidays: No work to be undertaken	Throughout the duration of construction works.
Traffic Management	11.	A construction traffic management plan will be prepared and submitted to the certifier.	Prior to the issue of a Construction Certificate.
	12.	Works will be carried out in accordance with the construction traffic management plan.	Throughout the duration of construction works.
Parking	13.	Commercial, retail and residential parking spaces will be managed in accordance with a car park management plan will be prepared by the building manager.	Prior to Occupation of the building.
Accessibility	14.	All publicly accessible areas of the building will be designed to equitable access for the mobility impaired.	Prior to issue of a Construction Certificate.
Waste Management	15.	A commercial contractor will be engaged to remove waste and recycling from the building in accordance with the Waste Management Plan for the project.	Prior to occupation of the building.
Residential Amenity	16.	Mitigation measures outlined in the detailed CMP will be implemented so as to minimise impacts on the surrounding community.	Throughout the construction of the building.
	17.	The plant selected for the building will be acoustically treated so as to meet the acoustic goals set in the Noise Assessment prepared by Acoustic Logic.	Prior to occupation of the building.

Key Issue	No.	Commitment	Timing
Heritage	18.	The proposed works will be carried out in accordance with the recommendations of the Heritage Impact Statement prepared by Urbis Pty Ltd.	Throughout the duration of the construction works.
	19.	Construction works will be overseen by a qualified heritage consultant when in close proximity to the heritage gate.	As relevant
	20.	The recommendations of the nominated site archaeologists will be carried out, including determining whether any further site archaeological monitoring is required during excavation works.	Prior to work commencing in the relevant areas.
	21.	Temporary and permanent interpretive elements will be incorporated into the design of the proposed building	During the construction phase and design development phase.
Wind	22.	The wind amelioration treatments recommended by CPP will be incorporated into the design of the proposed building	Prior to the issue of a Construction Certificate.
Reflectivity	23.	The façade of the building will be constructed so as to meet the recommendations made by CPP in relation to reflectivity.	Prior to issue of a Construction Certificate.
Consultation	24.	Frasers will regularly update local residents on construction work and the progress of the development via their community liaison officer, website and newsletter.	Ongoing

7.0 Conclusion

This application seeks consent for the construction of a mixed use residential, retail and commercial building comprising:

- Construction of a new mixed use retail, commercial and residential building (66,698m^2 GFA) with ancillary retail uses on Block 2, accommodating:
  - 46,939m^2 of residential floor space comprising 593 residential apartments;
  - 15,481m^2 retail floor space comprising a food court, speciality retail and a supermarket; and
  - 4,278m^2 of commercial floorspace.
- Construction of terraces (landscaped platforms) which rise from the plaza to the podium level 2 of the new building on Block 2;
- Installation of a heliostat (consisting of mirrors which are orientated to focus sunlight onto the landscaped platforms);
- Construction of the surrounding public domain; and
- Stratum subdivision of Super Lot 3 in Lot 1 of DP1131320

This environmental assessment report has demonstrated that the proposed development is consistent with the Frasers Broadway Concept Plan, as modified, and will not result in any adverse environmental impacts. A list of commitments has been provided at Section 6 of the report which will ensure that the implementation of the project is consistent with the recommendations of the specialist consultant reports.

In addition to the above, it is expected that the proposed building will result in the following benefits:

- Construction of a new iconic building, exhibiting design excellence;
- Provision of 593 new dwellings with a high level of residential amenity;
- Provision of a new supermarket and retail facilities for new and existing residents;
- Provision of new open space and public domain for the use by existing residents of Chippendale and future occupants of the Frasers Broadway site; and
- Creation of 500 new construction jobs and between 440 - 515 new retail jobs.