Sydney International Convention, Exhibition and Entertainment Precinct (SICEEP)

Darling Square: North-East Plot

Sustainability Report
For Stage 2 State Significant Development Application (SSDA 7)
October 2014

Lend Lease

Document History

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1.0 INTRODUCTION

This report supports a State Significant Development (SSD) Development Application (DA) submitted to the Minister for Planning pursuant to Part 4 of the Environmental Planning and Assessment Act 1979 (EP&A Act).

The Application (referred to as SSDA 7) follows the approval of a staged SSD DA (SSDA 2) in December 2013. SSDA 2 sets out a Concept Proposal for a new mixed use residential neighbourhood at Haymarket referred to as "Darling Square", previously known as "The Haymarket". Darling Square forms part of the Sydney International Convention, Exhibition and Entertainment precinct (SICEEP) Project, which will deliver Australia's global city with new world class convention, exhibition and entertainment facilities and support the NSW Government's goal to "make NSW number one again".

More specifically this subsequent DA seeks approval for mixed use development within the North East development plot of Darling Square and associated public domain works. The DA has been prepared and structured to be consistent with the Concept Proposal DA.

1.1 Overview of Proposed Development

The proposal relates to a detailed ('Stage 2') DA for a mixed use residential development in the North East Plot of Darling Square together with associated public domain works. The Darling Square Site is to be developed for a mix of residential and non-residential uses, including but not limited to residential buildings, commercial, retail, community and open space. The North East Plot is one of six development plots identified within the approved Concept Proposal.

Under the Concept Proposal, the North East Plot is planned to accommodate a mixed use podium and three residential buildings (NE1, NE2, and NE3) above and within the podium structure. More specifically, this SSD DA seeks approval for the following components of the development:

- Demolition of existing site improvements, including the existing Sydney Entertainment Centre (SEC);
- Associated tree removal and planting;
- Construction and use of a predominantly 6 storey mixed use podium, including:
    - retail floor space and residential lobbies on Ground Level;
    - above ground parking;
    - residential apartments; and
    - communal facilities.
- Construction and use of three residential buildings above podium;
- Public domain improvements surrounding the site, including interim works;
- Provision of vehicle access to the development from Harbour Street;
- Landscaping works to the podium roof level; and
- Extension and augmentation of physical infrastructure / utilities as required.

1.2 Background

The NSW Government considers that a precinct-wide renewal and expansion of the existing convention, exhibition and entertainment centre facilities at Darling Harbour is required, and is committed to Sydney reclaiming its position on centre stage for hosting world-class events with the creation of SICEEP.

Following an extensive and rigorous Expressions of Interest and Request for Proposals process, a consortium comprising AEG Ogden, Lend Lease, Capella Capital and Spotless was announced by the NSW Government in December 2012 as the preferred proponent to transform Darling Harbour and create SICEEP.
Key features of the Preferred Master Plan include:

- Delivering world-class convention, exhibition and entertainment facilities, including:
  - Up to 40,000m^2 exhibition space;
  - Over 8,000m^2 of meeting rooms space, across 40 rooms;
  - Overall convention space capacity for more than 12,000 people;
  - A ballroom capable of accommodating 2,000 people; and
  - A premium, red-carpet entertainment facility with a capacity of 8,000 persons.
- Providing a hotel complex at the northern end of the precinct.
- A vibrant and authentic new neighbourhood at the southern end of the precinct, now called 'Darling Square', including apartments, student accommodation, shops, cafes and restaurants.
- Renewed and upgraded public domain that has been increased by a hectare, including an outdoor event space for up to 27,000 people at an expanded Tumbalong Park; and
- Improved pedestrian connections linking to the proposed Ultimo Pedestrian Network drawing people between Central, Chinatown and Cockle Bay Wharf as well as east-west between Ultimo/Pyrmont and the City.

On 21 March 2013 a critical step in realising the NSW Government's vision for the SICEEP Project was made, with the lodgement of the first two SSD DAs with the (now) Department of Planning and Environment. The key components of these proposals are outlined below.

1.3 Public Private Partnership SSD DA (SSD 12_5752)

The Public-Private Partnership (PPP) SSD DA (SSDA 1) includes the core facilities of the SICEEP Project, comprising the new, integrated and world-class convention, exhibition and entertainment facilities along with ancillary commercial premises and public domain upgrades. SSDA1 was approved on 22 August 2013.

1.4 The Concept Proposal (SSD 13_5878)

The Concept Proposal SSD DA (SSDA 2) establishes the vision and planning and development framework which will be the basis for the consent authority to assess detailed development proposals within the Darling Square Site. SSDA2 was approved on 5 December 2013. The Stage 1 Concept Proposal approved the following key components and development parameters:

- Indicative staging of demolition and development of future development plots;
- Land uses across the site including residential and non-residential uses;
- Street and laneway layouts and pedestrian routes;
- Open spaces and through-site links;
- Six separate development plots, development plot sizes and separation, building envelopes, building separation, building depths, building alignments, and benchmarks for natural ventilation and solar access provisions;
- A maximum total gross floor area of 197,236m^2 (excluding ancillary above ground parking), comprised of:
  - A maximum of 49,545m^2 non-residential GFA; and
  - A maximum of 147,691m^2 residential GFA
- Above ground car parking including public car parking;
- Residential car parking rates;
- Design Guidelines to guide future development and the public domain; and
- A remediation strategy.

In addition to the approval of SSDA1 and SSDA2, the following approvals have been granted for various stages of Darling Square site:

- Darling Drive (part) development plot (SSDA3) for the construction and use of a residential building (student accommodation) and the provision of associated public domain works approved on 7 May 2014;
- North-West development plot (SSDA4) for the construction and use of a mixed use commercial development and public car park building and associated public domain works approved on 7 May 2014; and
- South-West development plot (SSDA5) – construction and use of a mixed use residential development and associated public domain works approved on 21 May 2014.

Approval was also granted on 15 June 2014 for SSDA6 which includes the construction and use of the International Convention Centre (ICC) Hotel and provision of public domain works.

This report has been prepared to support a detailed Stage 2 SSD DA for mixed use development and associated public domain works within Darling Square (SSDA 7), consistent with the approved Concept Proposal (SSDA 2).

1.5 Site Description

The SICEEP Site is located within Darling Harbour. Darling Harbour is a 60 hectare waterfront precinct on the south-western edge of the Sydney Central Business District that provides a mix of functions including recreational, tourist, entertainment and business.

With an area of approximately 20 hectares, the SICEEP Site is generally bound by the light rail Line to the west, Harbourside shopping centre and Cockle Bay to the north, Darling Quarter, the Chinese Garden and Harbour Street to the east, and Hay Street to the south (refer to Figure 1). The Darling Square Site is:

- located in the south of the SICEEP Site, within the northern portion of the suburb of Haymarket;
- bounded by the Powerhouse Museum to the west, the Pier Street overpass and Little Pier Street to the north, Harbour Street to the east, and Hay Street to the south; and
- irregular in shape and occupies an area of approximately 43,807m^2.

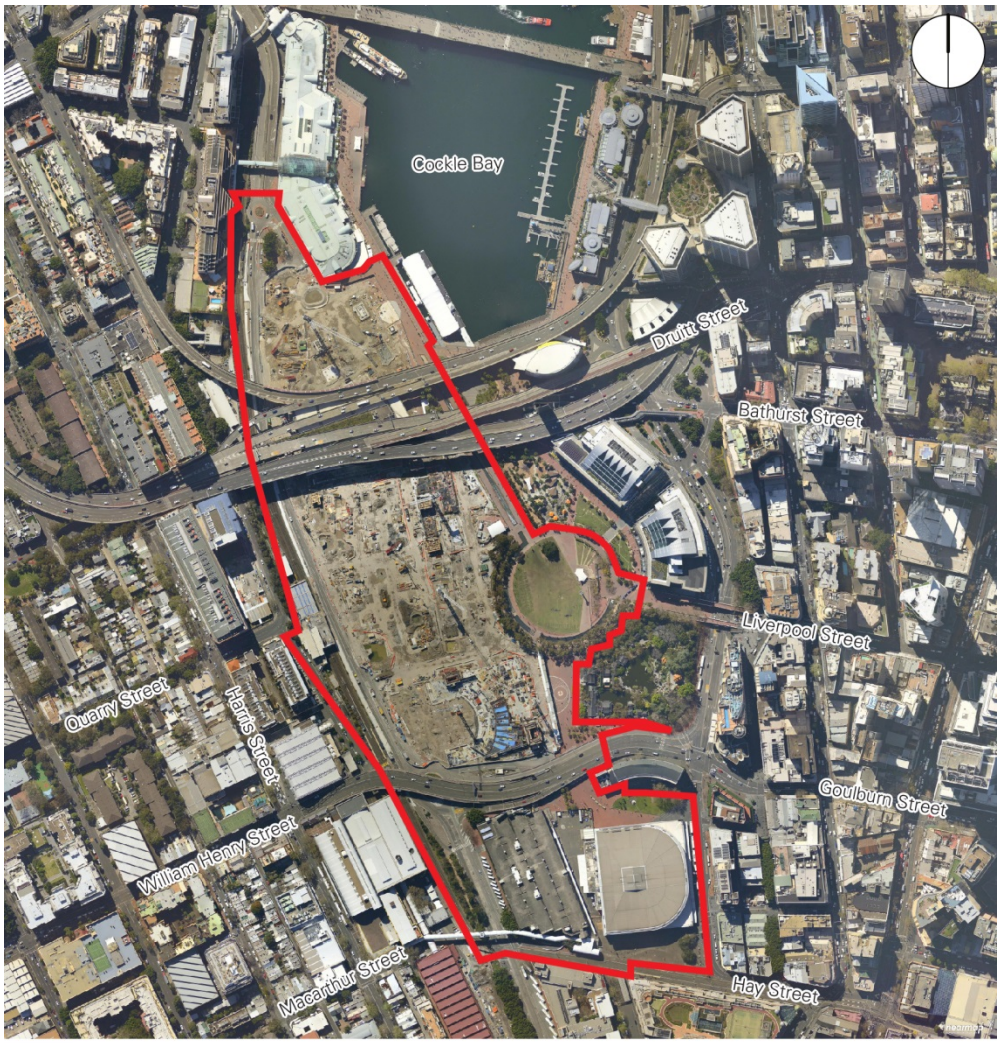

Figure 1 – Aerial Photograph of the SICEEP Site

The Concept Proposal DA provides for six (6) separate development plots across the Darling Square Site (refer to Figure 2):

1) North Plot;
2) North East Plot;
3) South East Plot;
4) South West Plot;
5) North West Plot; and
6) Western Plot (Darling Drive).

The Application Site area relates to the North East Plot and surrounds as detailed within the architectural and landscape plans submitted in support of the DA.

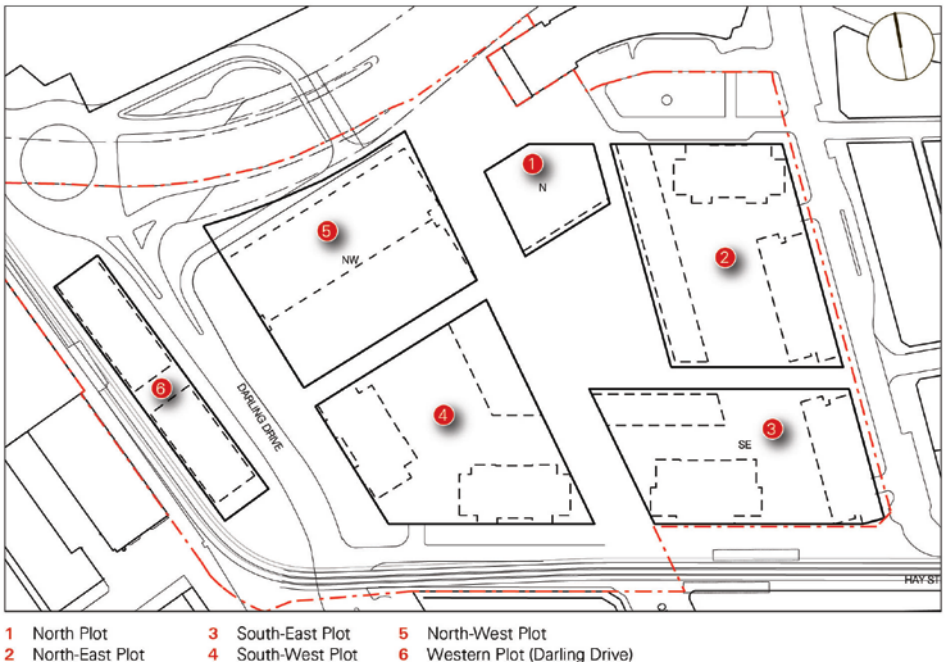

Figure 2 – Concept Proposal Development Plots

1.6 Planning Approvals Strategy

The SICEEP Project has resulted in the lodgement of numerous SSD DAs for the various components of the redevelopment project. Future applications will continue to be lodged in accordance with the Concept Proposal SSD DA for the remaining development plots of Darling Square Site.

2.0 Referenced Documentation

2.1 Architectural

Detailed thermal analysis was undertaken based on project application drawings provided by Tzannes architects dated October 2014.

Drawing Description	Drawing Number	Revision Number
Site Plan	AD00100	F
Floor Plan Ground	AD020100	G
Floor Plan NE2 MEZZ	AD020200	F
Floor Plan Level 01	AD030100	F
Floor Plan Level 02-04	AD030200	F
Floor Plan Level 05	AD030300	F
Floor Plan Level 06 – Podium	AD030400	F
Floor Plan Level 07	AD030500	F
Floor Plan Level 08-18	AD030600	F
Floor Plan Level 19	AD030700	F
Floor Plan Level 20-37	AD030800	F
Floor Plan Level 38-40	AD030900	F
Floor Plan Level 41-Roof	AD031000	F
NE1 Floor Plan level 01	AD031100	H
NE1 Floor Plan Level 02-05	AD031200	H
NE1 Floor Plan Level 06- Podium	AD031300	H
NE1 Floor Plan Level 07 – 17	AD031400	H
NE1 Floor Plan Level 18 – Penthouse	AD031500	H
NE1 Floor Plan Level 19 – Plant / Roof	AD031600	F
NE2 Floor Plan Level 01-05	AD031700	F
NE2 Floor Plan Level 06 – Penthouse Lower Level	AD031800	F
NE2 Floor Plan Level 07 – Penthouse Upper Level	AD031900	F
NE2 Floor Plan Level 08 – Plant	AD032000	F
NE3 Floor Plan Level 01	AD032100	F
NE3 Floor Plan Level 02 – 05	AD032200	F
NE3 Floor Plan Level 06 – Podium	AD032300	F
NE3 Floor Plan Level 07 – 37	AD032400	F
NE3 Floor Plan Level 38 – 40 – Penthouse Option	AD032500	F

Drawing Description	Drawing Number	Revision Number
NE3 Floor Plan Level 41- Plant	AD032600	F
Elevation South NE3	AD041100	G
West Elevation	AD042000	G
Elevation West NE1	AD042100	G
North Elevation	AD043000	G
East Elevation	AD044000	G
Elevation East NE2	AD044100	G
Section AA	AD050100	G
Section BB	AD050200	G
South Elevation	AD041000	G

2.2 Building Services

Information generally provided through services reports as well as general correspondence.

2.3 Limitations

This report is based on documentation supplied to Lend Lease Design as of October 2014. This documentation is subject to change as the design progresses and specific outcomes may be substituted or omitted whilst still targeting the sustainability aspirations for the Darling Square precinct.

3.0 Whole of Precinct ESD Principles

Lend Lease has undertaken an integrated approach to sustainability across the total SICEEP site. In addition to the building based initiatives, a number of whole of precinct initiatives are being investigated which, if provided, will benefit the community including:

3.1 Enhanced connections and public transport links

The master plan design for the precinct lays out a connected and enhanced navigation through the site; enticing the local community as well as visitors through improved walkability and innovative way finding, making public transport the easy and obvious choice for people providing affordable, green and safe travel options;

3.2 Car Share Network

Car Share networks reduce the cost of car ownership and minimise embodied carbon. Electric vehicles reduce carbon emissions and local air pollution. Lend Lease is partnering with GoGet to establish Australia's first Electric Car Share Network for use by the community within the precinct and beyond;

3.3 Passive Signage

Simple material that indicates the sustainability attributes of key items. This could include:

- Labelling of key materials that indicate what it is, where it is from, how much embodied carbon it contains and how it may be recycled – "This bench is made from plantation spotted gum from North Queensland and has absorbed 100kgs of carbon dioxide from the atmosphere";
- Design attributes that support sustainable outcomes – "this landscaped area treats stormwater runoff to reduce pollution into the harbour";
- Directional information such as links to public transport;
- Heritage and Indigenous references to the precinct's past;

3.4 Dynamic Informatics Systems and Technology

- Online and mobile phone applications that provide more detailed information about the sustainability credentials of the precinct that can be automatically activated by proximity or scanning QR codes with a smartphone;
- Digital pods in the public domain that offer Wi-Fi hotspots;
- Interactive signage and lighting, in combination with augmented visuals on smart devices, to highlight physical building elements;

4.0 North East Plot Specific ESD Principles

The North East Plot aims to deliver a sustainable residential project, with reduced operational energy consumption, reduced potable water use, minimisation of waste to landfill and appropriate materials selection while at the same time maintaining a high level of indoor environmental quality through appropriate mechanical design, façade configuration and materials selection.

The residential development will be committing to Green Star Design and As-Built ratings under the Green Star Multi-Unit Residential v1 tool. Initiatives targeted within this Green Star tool will ensure significant sustainability principles will be incorporated into the design, appropriate management practices are applied through the construction period and facilities and resources are provided to ensure the delivery and operation of the building achieves the sustainability objectives. Initiatives currently proposed enable the minimum NSW sustainability performance requirements set by BASIX to be met.

Given initiatives currently proposed annual greenhouse gas emissions from the proposed development are expected to be reduced by 25% when compared to the Green Building Council's benchmark. As required by BASIX, the development will be designed and delivered with the potential to achieve a 40% reduction in potable water consumption when compared to an average NSW existing benchmark. This section describes how these targets are proposed to be achieved. Strategies with regards to Management, Materials, Transport and Ecology etc are described in detail in section 4.0.

4.1 Energy and Greenhouse Gas Emissions

The following summarises the technologies essential to ensure that the project's greenhouse emissions reductions are achieved.

- Fluorescent or LED light fittings: Will be used throughout common areas and within dwellings.
- Ventilation and lighting controls: Controls will be provided to ensure that lighting and ventilation is provided only when required. Controls will be provided in common areas and in addition a 'kill switch' will be provided near the entry doors of apartments to enable occupants to switch of all non-essential power uses prior to leaving their homes unoccupied.
- Common area Ventilation: Common areas will not be conditioned and will be provided with ventilation air (filtered outside air) only. The provision of ventilation air only is not a significant energy impact and is essential to ensure air quality within common areas and pressurisation throughout the buildings.
- Energy Efficient Appliances: Where appliances are provided, they will be selected with energy ratings as high as practically reasonable.
- Energy and water metering: Energy and water metering will be provided to monitor common energy and water uses to enable building performance to be monitored against targets and issues resulting in excessive consumption identified and rectified.
- Heating and Cooling: Heating and cooling will be provided by a variable refrigerant flow system enabling numerous indoor fan coil units to be serviced by central condenser units. A single fan coil unit will service living and bedrooms with day/night zone control between living and bedrooms.

4.2 Water Conservation and Management

To ensure the project achieves its 40% water reduction a target a number of initiatives are currently proposed. These include the selection of fittings, fixtures and appliances with flow rates as low as practically possible to reduce potable water demand.

Given the height of the proposed towers, the collection of rainwater is limited given the small ratio of roof area to the number of apartments. Regardless it is proposed to collect rainwater from roofs to reduce the potable water consumption associated with the irrigation of the landscaped podium area. The landscaped podium area will incorporate low-water use species wherever possible.

In addition fire services test water will not be directed to the sewer or to stormwater. While some test water will be recirculated via a break tank, other test water which has to be drawn from the mains will be diverted to the rainwater tank. The size of the rainwater tank will therefore be increased to minimise the possibility of overflow when the fire services are tested.

Given the existing site condition and the proposed landscaping associated with the proposed development, stormwater flows are not expected to be increased post development.

4.3 Third Party Certification and Regulatory Compliance

The residential development is committing to 4 Star, targeting 5 Star, Green Star Design and As-Built ratings under the Green Star Multi-Unit Residential v1 tool. This will be independent certification of the project's sustainability commitments. Commitment to a Green Star rating confirms the projects commitment to deliver a development in accordance with current best practice standards. The initiatives relevant to Green Star are discussed in section 5.0 of this report and address numerous sustainability issues such as management, materials and waste, transport, ecology etc.

In addition to Green Star, the project will also achieve BASIX compliance which ensures that the project will be capable of providing significant reductions to both energy and water consumption. BASIX is further discussed in Section 5.0 of this report.

5.0 Green Star Multi-Unit Residential Tool

The Green Star rating scheme, a voluntary national sustainable design rating tool set up and managed by the Green Building Council of Australia (GBCA) is being used to guide the design process. The Green Star scheme is a comprehensive rating system that evaluates the environmental design and construction of buildings and communities - 4, 5 and 6 Star ratings can be awarded by the GBCA.

The Green Star Multi-Unit Residential Tool was first released as a Pilot scheme in mid 2008 and version 1 has since been released.

The North East Plot is committing to 4 Star, targeting 5 Star, Green Star Design and As-Built ratings under the Green Star Mulit-Unit Residential v1 tool. Green Star is a holistic assessment scheme, which assesses the sustainability features of a development within 8 different categories.

- Management
- Indoor Environmental Quality
- Energy
- Transport
- Water
- Materials
- Land Use and Ecology
- Emissions

Credits are awarded based on meeting criteria in each of the categories and the credits are summed and weighted according to their environmental importance and totalled to give a star rating. There are 105 Credits available. A score of 45-59 Credits is equal to 4 Stars (Best Practice), a score of 60-74 Credits is equal to 5 Stars (Australian Excellence) and a score of 75 or more credits is equal to 6 Stars (World Leadership).

The following sections outline in some detail an indicative pathway which illustrates how the sustainability initiatives within Darling Square and NE Plot can be recognised under the Green Star tool.

5.1 Management

Lend Lease has a proven track record in the management of sustainability in its projects. Many credits relate to the way in which the project is delivered and Lend Lease Building have in place the necessary controls and procedures to achieve the outcomes targeted.

MAN-1. Green Star Accredited Professional. The majority of Lend Lease's sustainable design personnel are Green Star Accredited Professionals and the ESD consultant on Darling Square has been accredited since 2005 and served in many Green Star working groups, assessments and peer reviews.

MAN-2. Commissioning Clauses. The design consultants will provide documentation that outlines the design intent and contractors will be required to ensure they commission systems in accordance with the appropriate CIBSE and ASHRAE standards.

MAN-3. Building Tuning. The contractors will be required, during the first 12 months post completion, to tune the base building (strata) systems that are sometimes left operating inefficiently. This may include systems such as common area lighting, hot water systems and car park ventilation.

MAN-5. Building User Guide. The design team will be responsible for producing a user guide that gives the residents important information about how the building works and how to use the facilities most efficiently. During construction the guide will be updated in collaboration with the construction team.

MAN-6. Environmental Management. The construction team will operate the site using a Site Environmental Management Plan which is accredited/recognised against industry best practice, such as the NSW Environmental Management System Guidelines 2007 and ISO 14001.

MAN-7. Waste Management. The construction team will aim to recycle at least 80% of construction and demolition waste using a waste contractor that can sort and direct waste for recycling. It is anticipated that this 80% target will be easily exceeded.

MAN-16. Metering. Sub-metering will be provided for all water, electricity and gas end-uses. In addition each dwelling will be individually metres for electricity, water, hot water and chilled water. An in-home display will be provided which will display consumption and financial cost information to occupants.

5.2 Indoor Environmental Quality (IEQ)

The overall planning and design of the apartments has been developed to maximise IEQ outcomes. This is a process of balancing good environmental outcomes with the contradicting issues of energy and materials efficiency. Increased daylight, air movement and the use of environmentally friendly materials has been encouraged wherever possible.

IEQ-5. Thermal comfort. While unlikely to achieve this high level of thermal performance, proposed dwellings are designed to have good thermal performance which meets BASIX requirements.

IEQ-8. Volatile Organic Compounds. Lend Lease engaged with its supply chain some time ago to deliver finishes products that were low VOC without significant cost impost. This includes paints, adhesives & sealants, floor coverings and wall & ceiling coverings.

IEQ-9. Formaldehyde Minimisation. The biggest challenge for residential developments will be sourcing kitchen and bathroom cabinetry that doesn't utilise formaldehyde based binding agents. These products are available and Lend Lease will continue to drive suppliers to deliver these products cost effectively.

IEQ-13. Electric Lighting Levels. The lighting design within the apartments will deliver at least 300 lux levels at working surfaces such as the kitchen sink, cooktop and bathroom vanity.

IEQ-21. Dwelling Ventilation. Every apartment will have dedicated and separate kitchen exhaust systems which improve air quality within the apartment.

IEQ-22. Natural Ventilation. While specific criteria for Green Star will not be achieved, units are designed to enable natural ventilation to all units. Operable areas achievable with proposed windows will be assessed during design development to maximise the natural ventilation opportunity.

5.3 Energy

The design of the NE Plot prioritises energy efficient and cost effective solutions. The need for air conditioning will be minimised through good passive design and demonstrated through the use of the NatHERS Energy Star Ratings calculated for each apartment type. However, air conditioning will be provided in the form of energy efficient air cooled split units utilizing environmentally friendly refrigerants.

ENE-1. Conditional Requirement/Greenhouse Gas Emissions. Green Star and The Building Code of Australia all set minimum standards for NatHERS – the energy rating method for apartments. The apartments will be designed to exceed regulatory requirements and to meet the thermal performance requirements of Green Star. As well as minimising heating and cooling loads the apartments will utilise an energy efficient variable refrigerant flow air conditioning system, have energy efficient lighting fittings and hot water will be delivered from a centralised gas fired storage system. Common area energy consumption will be reduced through efficient lighting and appropriate controls of lighting and any ventilation requirements.

ENE-7. Unoccupied Areas. Each apartment will have a hotel-style entry/exit switch that can isolate the power used by lighting and air conditioning. All public areas and car parks include motion sensing controls to minimise energy consumption associated with lighting and ventilation/air conditioning as well as time schedule and day lighting control where appropriate.

ENE-12. Peak Electricity Demand Reduction This is achieved through the provision of an energy efficient air conditioning system.

5.4 Transport

Darling Square will benefit from an ideal location at Sydney's Darling Harbour. All commercial and residential buildings within the precinct will include a portion of retail tenancies giving residents access to a variety of services. Public transport facilities including trains, buses and ferries will also be readily accessible.

TRA-3. Cyclist Facilities. Bicycle storage will be provided for residents via storage cages as required. Visitors to the building will also be able to access bike parking.

TRA-4. Commuting Mass Transport. The SICEEP precinct has good access to public transport including Central station trains, buses within the CBD and ferries.

TRA-5. Trip Reduction - Mixed Use. Given the significant retail components of Darling Square precinct, occupants will have access to a wide range of amenities including restaurants, bars, convenience stores, retail shops, groceries, ATMs etc

5.5 Water

The NE Plot will be targeting a high level of reduction in potable water through the selection of fixtures and fittings and the use of non-potable water for irrigation.

WAT-1. Occupant Amenity Water. This credit relates to the efficiency of the water fittings provided and the availability of any non-potable water sources. The development will be provided with highly water efficient fittings including dual flush toilets and low-flow taps and showerheads.

WAT-3. Landscape Irrigation. The communal landscaped areas will be designed to minimise water consumption. Rainwater captured from rooftops will be used to provide irrigation.

WAT-4. Heat Rejection Water. An air cooled variable refrigerant flow system will be utilised to provide cooling to apartments. The development will therefore not utilise water based heat rejection.

WAT-5. Fire System Water. Fire services test water will not be directed to the sewer or to stormwater. While some test water will be recirculated via a break tank, other test water which has to be drawn from the mains will be diverted to the rainwater tank.

WAT-8. Swimming Pool. Potable water consumption associated with the proposed swimming pool will be reduced by 70% through appropriate filtration.

5.6 Materials

In addition to providing waste recycling facilities, materials will be specified and selected to ensure minimal environmental impact. Alternative materials will be investigated for all constructions and these alternatives employed wherever practical.

MAT-1. Recycling Waste Storage. Waste handling within NE Plot follows best practice principles regarding facilities to be provided to tenants for recycling of waste. Each common lobby on each floor will have waste chutes to enable both the disposal of general waste and recycling to be easily accessible. A

diverter system will enable general waste and recycling to be disposed of through the same chute. Oversized items, including expanded polystyrene packaging, will be stored within a dedicated central waste area to enable reuse by other occupants or for diversion to re-use centres or for recycling as appropriate.

MAT-4. Concrete. The reduction of Portland cement is proposed which will reduce the embodied carbon associated with the development.

MAT-5. Steel. Steel will be sourced from 'responsible steel makers' in accordance with GBCA requirements. In addition reinforcement steel will be procured from a supplier who produces steel using energy reducing processes during its manufacture.

MAT-6. PVC. Revised credit criteria have been developed by the GBCA to recognise environmental improvements in PVC manufacture. NE Plot will utilise PVC that complies with the Green Building Council Best Practice guidelines, or alternatively use alternatives to PVC.

MAT-7. Sustainable Timber. All timber to be used on the project will be either certified under the FSC or PEFC schemes or reused timber.

MAT-11. Floor Coverings. It is proposed to select flooring which has a reduced environmental impact. Where possible this reduced environmental impact will be ensured through the use of products certified by independent third parties.

MAT-12. Joinery. It is proposed to select joinery which has a reduced environmental impact. Where possible this reduced environmental impact will be ensured through the use of products certified by independent third parties.

MAT-14. Internal Walls. It is proposed to select joinery which has a reduced environmental impact. Where possible this reduced environmental impact will be ensured through the use of products certified by independent third parties.

5.7 Land Use and Ecology

The Darling Square site benefits from its position as a brownfield district with potential for land re-use rather than developing new land. For this reasons the site meets the conditional requirement that it has not been of prime agricultural value, contained old growth forest and has not been a wetland.

ECO-2. Re-use of Land. The site is currently developed. Redeveloping the site for apartments is a clear re-use of land.

ECO-4. Change of Ecological Value. The predevelopment condition of the site was hard standing. Significant planting is proposed for the communal podium area which will improve the ecological value of the site. The potential to achieve Green Star credits will however be dependent on final selection of species.

ECO-5. Outdoor Communal Facilities. The communal podium area will incorporate numerous communal facilities including a sun shaded area, pool, outdoor gym, seating, outdoor dining and BBQ facilities.

5.8 Emissions

Emissions from the NE Plot will be minimised as far as possible. By using environmentally friendly refrigerants and insulation and eliminating light spill and cooling tower emissions any negative impact of the building can be significantly reduced.

EMI-1. Refrigerant ODP. The air-conditioning units will utilise refrigerants with zero ozone depleting potential. These HFC based gases are controlled substances which, if accidentally leaked, will not damage the ozone layer. The refrigerants associated with the project are located within the district cooling plant.

EMI-4. Insulant ODP. The fabric and services insulation specified at Darling Square will be of a type that does not use any material with Ozone Depleting Potential in its manufacture or composition.

EMI-7. Light Pollution. The design of the external lighting system will ensure that light does not spill upwards to the sky or beyond the boundary. This can be a nuisance to adjacent properties, particularly residential neighbours.

EMI-8. Legionella. Given that air cooled plant is proposed, the risk of legionella is eliminated.

6.0 Regulatory Compliance – BASIX

The Building Sustainability Index (BASIX) sets energy reduction, thermal comfort and water reduction targets for new residential developments based on the average energy and water consumption of dwellings in NSW. Achievement of the BASIX targets is the minimum regulatory sustainability requirement for residential dwellings in NSW. The reduction targets range from 20 to 40%, depending on the type and location of the development. For buildings with 6 or more stories such as the NE Plot, a 20% reduction in energy, and a 40% reduction in water use is required to pass.

For Thermal Comfort, BASIX requires a "pass" score based on heating and cooling "caps" set by BASIX; however the thermal performance of a development will affect its energy score. For example, a development that has excellent thermal performance reduces its reliance upon air conditioning, and is therefore awarded in BASIX with a positive contribution to its energy score.

The following table summarises the BASIX targets required to be achieved for the North East Plot development and also the BASIX scores achieved. As seen below, given the sustainability initiatives to be included within the project, the BASIX targets for both energy and water are achieved.

Category	Requirement	Score Achieved
Water	40% reduction	41% reduction
Thermal Comfort	Pass	Pass
Energy	20% reduction	24% reduction

The BASIX summary report which includes the design initiatives resulting in the above scores has been attached as an appendix.

7.0 Conclusion

The North East Plot residential development will achieve the sustainability aspirations set for the Darling Square precinct. This project aims to deliver a sustainable residential building, with low operational energy consumption, reduced potable water use, minimisation of waste to landfill and appropriate materials selection while at the same time maintaining a good level of indoor environmental quality through appropriate mechanical design, façade configuration and materials selection.

The NE Plot residential development is committing to 4 Star, targeting 5 Star, Green Star Design and As-Built ratings under the Green Star Multi-Unit Residential v1 tool. Initiatives targeted within this Green Star tool will ensure significant sustainability principles will be incorporated into the design, appropriate management practices are applied through the construction period and facilities and resources are provided to ensure the delivery and operation of the building of the building has the potential to achieve the sustainability objectives. Initiatives currently proposed will also enable the minimum NSW sustainability performance requirements set by BASIX to be met.

A) Appendix – BASIX Summary Report