Landcom

240 – 244 Beecroft Road, Epping

ESD Report

Issue | 20 June 2018

Job number 260781-00

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Job title		240 – 244 Beecroft Road, Epping			**Job number** 260781-00
Document title		ESD Report			**File reference**
Document ref					
Revision	**Date**	**Filename**			
Draft 1	12 Mar 2018	**Description**	First draft		
			Prepared by	Checked by	Approved by
		Name	Linda Slechta	Natasha Connolly	Haico Schepers
		Signature			
Draft 2	14 June 2018	**Filename**	ESD Report_NC Update 070618.docx		
		Description	Updated to reflect design changes		
			Prepared by	Checked by	Approved by
		Name	Linda Slechta	Natasha Connolly	Natasha Connolly
		Signature			
Issue	20 Jun 2018	**Filename**	Epping ESD Report_Final Issue		
		Description	Updated in response to Landcom comments received for Final issue		
			Prepared by	Checked by	Approved by
		Name	Linda Slechta	Natasha Connolly	Natasha Connolly
		Signature			
		Filename			
		Description			
			Prepared by	Checked by	Approved by
		Name			
		Signature			

Issue Document Verification with Document ✓

Contents

1 Introduction

This report has been prepared to support 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) for a site located at 240 – 244 Beecroft Road, Epping.

The DA involves the concept proposal comprising:

- Building envelope with a maximum height up to 48m
- Residential yield of around 442 dwellings (including a minimum of 5% affordable housing units)
- Maximum residential gross floor area (GFA) of around 39,000 m2
- Car parking for approximately 356 spaces within the basement
- Loading, vehicular and pedestrian access arrangements.

This report outline key sustainability initiatives required to address the ecological sustainable design (ESD) elements of the Secretary Environmental Assessment Requirements (SEARs) which requires the Environmental Impact Statement (EIS) to *identify how ESD principles (as defined in clause 7(4) Schedule 2 of the EP&A Regulation (2000) will be incorporated in the design, construction and outgoing stages and operation of the development; and outline resource, energy and water efficiency initiatives, including the use of sustainable technologies and/or renewable energy.*

2 Project Background

Landcom and the Sydney Metro Delivery Office (SMDO) are working in collaboration to develop sustainable, walkable, mixed use precincts around the Sydney Metro Northwest which will deliver new metro stations between Cudgegong and Epping. The site is owned by Transport for NSW (TfNSW) and includes an area immediately adjacent to the Epping Service Facility.

This report will accompany the Stage 1 development application for the site which involves the sub division of the site into two lots for the Epping Service Facility (ESF) and the proposed residential building development (including sub-stratum over the rail corridor).

The concept proposal for the site encompasses approximately 442 residential dwellings across three x 15-storey towers connected by a 5-storey podium at a site located at 240 – 244 Beecroft Road, Epping.

Communal open spaces are located between the towers on the podium levels and a pedestrian through site link will connect Ray Road to Beecroft Road at the south of the site. There is a car park and waste collection entry point from Ray Road and another timed vehicular access car park entry point from Beecroft Road.

Landcom's Sustainable Places Strategy sets the vision for the outcomes that will be delivered on this project. Through the application of the Sustainable Places Strategy, Landcom aims to elevate excellence through the industry.

Landcom's vision for a sustainable future

At Landcom, our aim is to create innovative and productive places that demonstrate global standards of liveability, resilience, inclusion, affordability and environmental quality. Through our projects, we aim to create a legacy of sustainable places for future generations.

3 Planning Approvals

The *State Environmental Planning Policy (State and Regional Development)* 2011 (SEPP SRD) identifies development which is declared to be State Significant. Under Schedule 1, Clause 19(2) of SEPP SRD, development within a railway corridor or associated with railway infrastructure that has a capital investment value over a specific amount, is declared to be State Significant Development (SSD) for the purposes of the EP&A Act.

The development area is located within the newly amalgamated City of Parramatta Local Council area. The City of Parramatta Council are continuing to review planning controls for Epping town centre in collaboration with State Agencies. Until these are in place, the Hornsby Shire Council LEP controls are applicable in the interim.

Hornsby Shire Council Development Control Plan (HDCP) provides guidance on how developments may occur, providing land use controls for future developments. *Under Part 3 – Residential* of the HDCP, key development principles provided on the Epping precinct area within Ray and Beecroft Roads indicates:

- Redevelopment should be predominantly fifteen storey residential
- Promote pedestrian access from Ray Road or Beecroft Road
- Communal open spaces to retain significant trees on site
- Watercourse along the north-western boundary should be revegetated and landscaping setback provided to the watercourse
- Achieve a co-ordinated network of open spaces upon adjoining properties and provide at least two hours sunlight daily for living areas in 70% of dwellings
- Achieve suitable scale and bulk
- Design quality of facades to respond to visibility from all quarters.

Under the Hornsby Local Environmental Plan 2013 (HLEP), the site is zoned R4 High Density Residential which permits the building of residential apartment buildings with consent.

4 Response to SEARs

The ESD elements of the SEARs requires the Environmental Impact Statement (EIS) to identify how ESD principles (as defined in clause 7(4) Schedule 2 of the EP&A Regulation 2000) will be incorporated in the design, construction and outgoing stages and operation of the development; and outline resource, energy and water efficiency initiatives, including the use of sustainable technologies and/or renewable energy.

The ESD principles as defined in the EP&A Regulation along with project specific sustainability responses which will be incorporated into the design are provided in Table 1. The proposal plans to implement sustainability through the application of principles of ecologically sustainable development, which will be used to guide the overarching objectives for development, ensuring sustainable outcomes in subsequent stages or at detailed design. These strategies are further discussed in Section 5 below.

Table 1 Response to ESD principles

ESD Principles	Project Sustainability Response
The precautionary principle – where if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.	Efficient resource use, in terms of responsibly sourced materials, minimising potable water use and maximising energy efficiencies.
Inter-generational equity - where the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations.	Reduced potable water usage demand across the development, provision of communal open spaces, pedestrian links for public transport options, facilitating job creation during construction.
Conservation of biological diversity and ecological integrity – where conservation of biological diversity and ecological integrity should be a fundamental consideration	The site has been previously developed and does not contain any significant biodiversity values. Nonetheless, conservation of biological diversity and ecological integrity will be maintained to equal or greater condition than the existing level.
Improved valuation, pricing and incentive mechanisms – where environmental factors should be included in the valuation of assets and services	The proposal will incorporate and consider a whole of life approach and maximise opportunities through innovative approaches to sustainable technologies and renewable energy. The design has been developed with due consideration to the short and long term effects of economic and social impacts to the Epping precinct and future developments within the area.

Specific sustainability initiatives addressing these principles are provided in detail in Section 5 below.

5 Sustainability Opportunities

The proposal plans to implement sustainability through the application of the principles of ecologically sustainable development and have been used to guide the overarching sustainability framework.

A workshop attended by Landcom and Sydney Metro representatives was held to discuss and agree on the key sustainability priorities the concept proposal will consider as part of the design, construction and operation phases. Based on outcomes of this workshop, a sustainability opportunities framework has been developed, guided by Landcom's Sustainable Places Strategy, Sydney Metro's sustainability goals and relevant planning and development requirements.

The following Table 2 shows relevant aspects of sustainable design features and the associated base case or standard code compliance. Potential opportunities for improvement in sustainability performance are also provided where the design aspect may be improved.

Table 2 Sustainability base case and standard code compliance

Aspect	**Base Case – Code Compliant**	**Opportunities for Improvement in Sustainability Performance**
Energy Supply	Grid Connection	Solar PV Battery storage
BASIX score	Energy 25% Water 40%	Energy 40% Water 50%
Recycled water	-	Rainwater / greywater capture and recycling. Connected for irrigation, toilet and cooling towers
Water efficiency	Standard	Within 1 star of best available WELS rating
Lighting	Standard	LED
Electric vehicles	-	EV Charge point
HVAC	Standard efficiency (COP 3.5)	Efficient (COP greater than 4)
Thermal design (NatHERS)	5 star	Minimum 6 star

The sustainability opportunities framework presented in Table 3 provides a high level overview of potential initiatives and is defined by the four pillars of sustainability adopted in Landcom's Sustainable Places Strategy:

- Climate resilient places – covering low carbon, resource efficient and environmentally sensitive places.
- Healthy and inclusive places – liveability outcomes on social affordability and inclusion.
- Productive places – productive places, jobs for the future.
- Accountable and collaborative – accountability and performance along the value chain.

Project specific targets have been proposed based on Landcom's corporate Sustainable Places Strategy and corporate goals. As a minimum, the proposal should consider relevant sustainability initiatives and opportunities in order to achieve these targets.

As the proposal is in early concept stage, it is recognised that the feasibility of some initiatives as outlined below may require further analysis prior to being implemented in design.

Table 3 ESD Framework

Theme	Aim	Key Initiatives	Targets
Climate resilient place *To deliver low carbon, resource efficient and environmentally sensitive places.*			
Water	An integrated approach to water supply, quality, and stormwater infrastructure that delivers highly water efficient precinct that minimises adverse impacts on the surrounding environment.	• An integrated approach to water supply, quality, and stormwater infrastructure that delivers highly water efficient precinct that minimises adverse impacts on the surrounding environment. • Consider connection to reticulated water supply/recycled water network system if available for non-potable requirements • Provision of a rainwater tank which captures rainwater to supply laundry and toilets for all of the apartments, cooling towers and all landscaping needs of the development. Initial calculations indicate approximately 90% of the total roof area is available for rainwater capture • Fixtures and fittings selected with WELS rating as high as suitable to ensure water	BASIX Water: minimum of 50% for all dwellings Minimise water usage and reduce mains potable water use by at least 50% at precinct scale against a 2016 reference case[1] WSUD targets of: nitrogen 45, phosphorus 65, suspended solids 85, gross pollutants 90

[1] 2016 reference case is defined as the normalised relevant metro average for the master plan. Other modelling methodologies will be accepted by development peers, when completed in accordance with current Green Star Communities Technical guidelines

Theme	Aim	Key Initiatives	Targets
		consumption is minimised (minimum of 1 star below best available). • Embedding water sensitive urban design (WSUD) or other water sensitive strategies to reduce stormwater pollutant loads to minimise discharge from the site during both construction and during operations	
Microclimate	To create an environment that encourages outdoor congregation and activity by allowing solar access while reducing heat gain and glare, natural cross ventilation and building separation.	• Investigate opportunities for landscape enhancements along pedestrian and cycling links where possible to increase shading and improve local microclimate • Design to minimise urban heat island effect through shading and solar reflectivity	At least two hours sunlight daily for living areas in 70% of dwellings At least 20% of building or landscape elements that reduce the impact of urban heat island effect[2]
Energy and greenhouse gas emissions	To minimise all energy consumed and/or generated through the operations of the buildings and public space and associated greenhouse gas emissions.	Conservation of energy and low emissions will be underpinned by the application of a general energy hierarchy: • Avoid: a design which avoids the need to consume electricity through passive design measures such as daylighting, natural ventilation and thermal mass	BASIX Energy: 40% Develop baseline energy consumption and determine renewable energy generation capacity – renewable energy must be a minimum of 5% of the project Encompass energy efficiencies and consider sustainable technologies to minimise energy use

[2] Aims, definitions and calculations are aligned with the GBCA Green Star Communities 'Urban Heat Island' credit

Theme	Aim	Key Initiatives	Targets
		• Reduce: selecting equipment and design systems that require less input energy for the same output • Fuel switch: supply of residual energy from low carbon and renewable sources • Offset: to offset the greenhouse gas emissions cause by energy use by purchasing GreenPower or equivalent. • Consider smart and real time monitoring of power usage during construction and operations to optimise energy efficiency • Aim for maximum energy efficiency throughout the life of the proposal, including embodied energy of construction materials, operations and disposal • Exploration of alternate materials including green concrete, recycled glass and other recycled/low embodied carbon material options. • Where technically and financially feasible, incorporate PV onto roof to full extent possible for supply of power to common areas. Initial calculations indicate a 99kW system is achievable given the available roof space and requirements, which can potentially achieve the energy targets.	Reduction in greenhouse gas emissions at a precinct scale by at least 40% (transport and stationary) against a 2016 reference case[1]

Theme	Aim	Key Initiatives	Targets
Waste	To minimise waste and material consumption through all aspects of construction and operations	• The principles would follow the NSW waste hierarchy around avoidance, recovery and disposal to drive innovation in waste reduction and further enable the use of responsible resources. • Detailed procurement plan considered during construction to reduce potential for excess waste • Ensure waste targets and initiatives are embedded in contract documentation particularly for retail tenancies • Construction waste strategy aiming for avoidance, reduction and reuse under the waste hierarchy • Materials strategy which seeks to maximise materials reuse, minimise embodied carbon and consider full life cycle and supply chain of materials used • All three bin collection system for tenants provided in buildings (organic, dry recyclables and residual) and inclusion of drop off points for hazardous wastes (such as e-waste, batteries etc)	Divert at least 95% of construction waste (excluding contaminated or hazardous material) from landfill

Theme	Aim	Key Initiatives	Targets
Climate resilience	Planning for a design which is resilient and sympathetic to the impacts of climate change	• Encompassing a low carbon, resource efficient and environmentally sensitive proposal which is resilient to the impacts of climate change.	Consider effects of a changing climate on the proposal through a high level risk assessment and deliver adaptation measures to eliminate any high or extreme risks
Materials	To minimise the lifecycle environmental and health impacts of the built form, through selection of materials that can be recycled, repurposed or beneficially reused at the end of life.	• Incorporation of environmental criteria in choosing building materials, fittings and furnishings, such as minimising materials with VOC, formaldehyde and other hazardous substances • Sourcing of materials from local manufacturers where possible • Efficient use of materials through design and minimising construction waste • Selection of materials with minimal embodied energy where fit for purpose • Sourcing major materials from an ISCA approved environmental label • Explore alternate substitutions where feasible in non-structural concrete • Use of recycled steel in reinforcing	100% of timber used for construction to be sourced from Forestry Stewardship Council (FSC) certified or equivalent

Theme	Aim	Key Initiatives	Targets
		• Undertake an LCA assessment to advance business approach to sustainable materials and demonstrate a reduction in embodied energy on the project	
Healthy and inclusive places			
Community Amenity	To plan and design a space that increases the intrinsic value of the space for residents, workers and visitors.	• The provision and delivery of a healthy, connected, inclusive and sustainable community. • A clear system of pedestrian and cycleway circulation is provided to connect the proposal with Epping town centre and the Epping station. • A through site link connects Beecroft Road and Ray Road for ease of access. • Consider guidance from the 'walkscore' tools to assign a performance score for walkability and access to public transport • Integration of community facilities through focus on community needs and employment/education needs through incorporation of resident satisfaction surveys or similar	Undertake gap analysis and develop baseline to identify the communities needs Identification of measures for positive community contribution which are addressed in design to deliver on the community needs assessment Deliver a minimum of 5% of affordable housing within the proposal

Theme	Aim	Key Initiatives	Targets
Accessibility	To deliver an environment which provides a safe and inclusive experience for all members of the community regardless of restrictions	• Designing through engagement with communities and stakeholders to optimise the accessibility outcomes	20% of dwellings will be 'Design' and 'As-built' Liveable Housing Australia Silver Certified
Safety and wellbeing	To provide a safe and comfortable space for the community to enjoy.	• Incorporating CPTED principles into design and planning, including passive surveillance into courtyard areas and open spaces and access controlled areas	Reduction in likelihood of crime through implementation of appropriate CPTED guidelines in design, construction and operation
Transport	To provide safe and accessible network for pedestrians, cyclists and private vehicles and future proofed infrastructure designed to cater for modal shifts and changes in technology.	• Provision of at least one bicycle parking spot per apartment. • Provision of electric vehicle parking stations and car share parking space.	Demonstrate that 10% of parking spaces are configured to allow future EV charging and at least one parking space has an EV charge station marked and installed
Ecology	To minimise impacts on the local environment whilst maximising the ecological value of the precinct	• Minimising any potential negative effects on ecological value of the local area through provision of streetscape greening including landscape planting of native species • Identify opportunities to enhance and increase biodiversity value in order to meet targets	Net improvement in ecology

Theme	Aim	Key Initiatives	Targets
		• Preference endemic species where appropriate given consideration to location, solar access and maintenance requirements • Sediment and erosion controls during construction ensure there is no indirect impacts on adjacent vegetation and the watercourse located to the west of the proposal	
Pollution Control	To minimise air, noise, water and pollution resulting from the proposals construction and operations	• Minimise and monitor construction impacts such as noise, water and air pollution • Provision of a bioretention system near site boundary to treat on-site stormwater runoff • Surface coatings and materials used on proposal to be selected for their compliance with Australia or more stringent health standards, for example the Australian Paint Approval Scheme (APAS) Volatile Organic Compounds Limit • Specify that materials with ozone depleting substances in their manufacture not to be used	Achieve zero pollution incidents that cause or threaten material harm to the environment as a result of non-compliance

Theme	Aim	Key Initiatives	Targets
		• Minimising light pollution / spill during both construction and operations • EMP for Contractor/Developer • HVAC refrigerants in use have an ozone depletion potential (ODP) of zero	
Productive places			
Training and employment	To provide opportunities for skills, development, education and employment that support the proposal and local community.	• The principles will consider employment inclusiveness and diversity as overall sustainability. • Delivery and recording of training as part of the construction process through the apprentices and workplace training.	Provision of local employment through a local employment policy and supporting local businesses.
Accountable and collaborative			
Operations and monitoring	To verify the effectiveness of sustainable design features of the project and to communicate the results and affect behaviour for future change.	• educate the tenants and community members of the ESD features incorporated as well as ongoing targets • track resource consumption through initiative such as sub-metering, and make this data available to all stakeholders	Appropriate analysis and interpretation of submeter data has been undertaken, and this data is readily available to tenants and residents

Theme	Aim	Key Initiatives	Targets
		• communicate this data in a way that enables decision making and encourages sustainable behaviour • ensure the embedded network manager provides for operational high level analysis and feedback	
Procurement and supply chain	To consider the environmental and social impacts through the procurement of materials required for the proposal.	• Sustainable procurement for construction, operation and maintenance which favours the use of sustainable materials to be considered throughout the lifecycle of the proposal. • Develop a sustainable procurement strategy and management plan for construction, operation and maintenance phases	Development and implementation of sustainable procurement policy which demonstrates social, economic and environmental aspects are considered through procurement
Independent Certification	To deliver an inclusive community-oriented development which is benchmarked against similar industry examples	• Consideration of relevant sustainability rating tools and identification of which will apply for the site – e.g. Green Star, One Planet Living	Independent certified sustainability rating for the site – the rating achieved represents minimum of best practice

6 Conclusion

This report delivers a response to the ESD elements of the SEARS and provides context in terms of how the ESD principles can be incorporated in the detailed design, construction and operation of the proposed development at 240-244 Beecroft Road, Epping. An overview of potential sustainability opportunities and initiatives will allow sustainability features to be embedded into the design and operation to achieve sustainable outcomes that respond to both the local planning content and global trends.