

Attachment A15

**Ecologically Sustainable Development
Report - 133-145 Castlereagh Street,
Sydney**

Stockland

Stockland Piccadilly Complex

**Sustainable Design Strategy Report
for Planning Proposal**

ESD/REP01

Issue 3 | 10 August 2020

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

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Executive summary

Stockland propose that the Piccadilly Complex will be a sustainability flagship for the company, highlighting their commitment to sustainable development as a core fundamental in their business strategy. In order to achieve this, the minimum benchmarks for the development have been set to achieve best practice in the Australian market. Target performance metrics for the development are summarised below:

- NABERS Energy 5.5 star
- Net Zero Carbon
- NABERS Water 4 star
- 6 Star Green Star rating

The above targets support Stockland's ambitious commercial property portfolio targets which are presented in the infographic below.



Operational carbon efficiency at the Piccadilly Complex will be addressed through the high NABERS Energy target and design innovation. To achieve this, a strong emphasis will be placed on first minimising the energy demand of the facility, and then supplementing what is left to serve with high efficiency building fabric and services. As part of their commitment to carbon reduction, Stockland will look to achieve a net zero carbon site through a combination of onsite and offsite renewable energy and offsets.

Water efficiency will be addressed through the design with efficient fixtures and fittings and site appropriate water capture and reuse, e.g. rainwater, fire system test water and condensate. Further, connection to future third party recycled water

mains may be enabled. The operational water efficiency will be measured against the NABERS Water rating system to ensure accountability.

Workplace quality and community creation will be framed by the Green Building Council of Australia's Green Star tool. A world leading target rating of 6 stars is proposed. In line with Stockland's Sustainability framework, focus will be placed on resilience, connection to environment, people and health, placemaking, procurement, resources and materials.

The proposed Piccadilly Complex development will seek to achieve best practice for sustainability. It will provide the City of Sydney with a new landmark for sustainable, mixed use development in the central business district.

1 Introduction

This Sustainable Design Strategy report has been prepared by Arup on behalf of Stockland. It accompanies a planning proposal seeking to initiate the preparation of a Local Environmental Plan amendment for the land known as ‘Stockland Piccadilly Complex’ located at 133-145 Castlereagh Street, Sydney (the site) legally described as Lot 10 in DP828419, and shown in Figure 1.

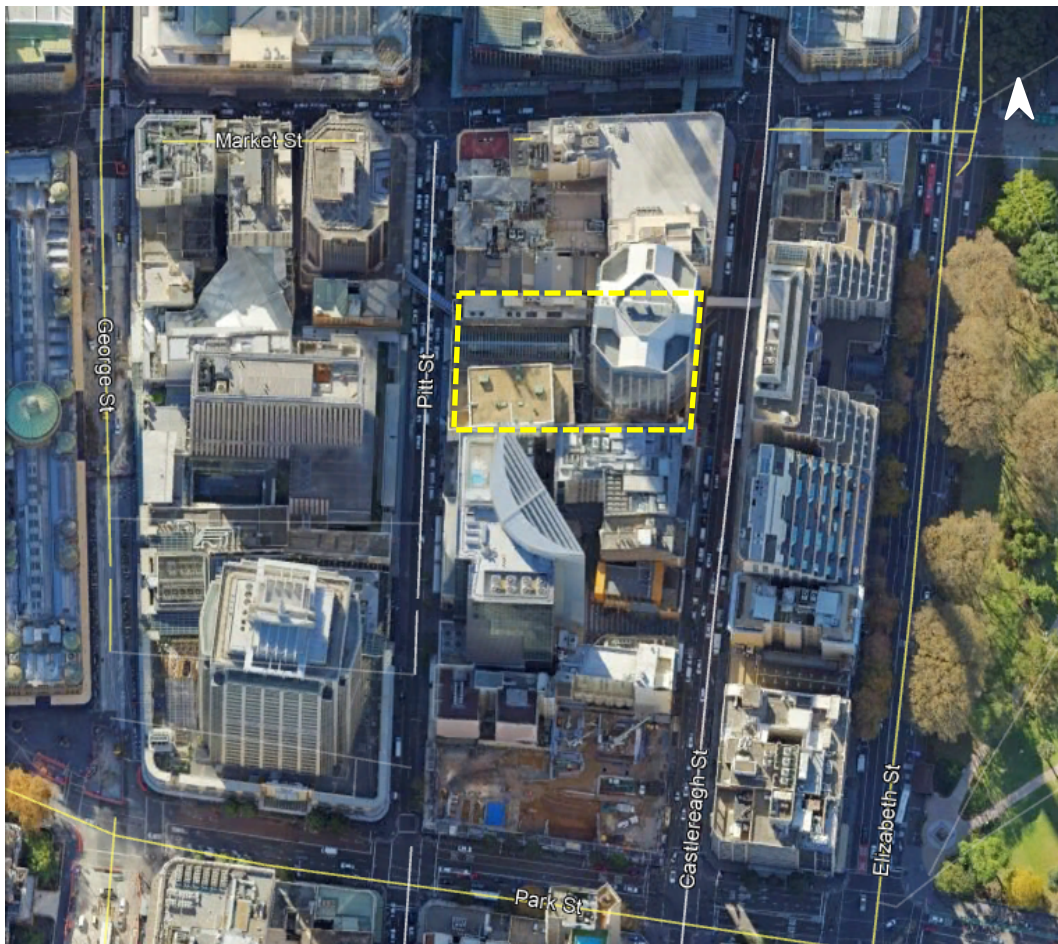


Figure 1: 133-145 Castlereagh Street, Sydney – Stockland Piccadilly Complex

The planning proposal seeks to amend the floor space ratio development standard applicable to the site, under the *Sydney Local Environmental Plan 2012* (the LEP), in accordance with Section 3.33 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

In accordance with Clause 7.20 of the LEP, this planning proposal also seeks amendments to the *Sydney Development Control Plan 2012* (the DCP) to establish site specific provisions to guide the future development, including establishing a building envelope for the site as well as other key assessment criteria.

The intended outcome of the proposed amendments to the LEP and DCP is to facilitate the redevelopment of the site for a mixed-use commercial development together with basement car parking and associated facilities. Such a proposal aligns with the draft Central Sydney Planning Strategy to facilitate additional

commercial floor space capacity in Central Sydney while also delivering improved public domain outcomes. Such outcomes will include a northerly aligned direct through-site link between Pitt and Castlereagh Street and enhanced pedestrian amenity and activation at the ground plane.

1.1 Subject site

The site currently comprises three buildings known as the ‘Piccadilly Complex’ completed in 1991 which has been the subject of progressive improvements to upgrade selected elements within the building. The buildings currently occupying the site are detailed in Table 1.

Table 1: Description of existing buildings and improvements

Building	Description
Piccadilly Court	Comprises a 14-storey office building completed in 1975 and first refurbished in 1991 with frontage to Pitt Street.
Piccadilly Shopping Centre	Comprises a 2-storey retail building and the Wesley Mission facilities including the Wesley Church, Lyceum, Wesley Theatre and supporting office space predominately located at basement level. The Wesley Centre facilities comprise the following patron capacity: <ul style="list-style-type: none"> • Theatre – 950 • Lyceum – 277 • Chapel – 534 A footbridge over Pitt Street connects the building to 55 Market Street to the west.
Piccadilly Tower	Comprises a 31-storey commercial building comprising office floor space and end of trip facilities and four basement levels of car parking accessed from Castlereagh Street. The building includes two lobby spaces, the main Castlereagh Street entrance and a smaller northern entrance to the through site link. A footbridge over Castlereagh Street connects the building to the Sheraton On the Park located to the east of the site.

1.2 Concept Reference Design

To demonstrate that the proposed building envelope is capable of accommodating a viable scheme, a Concept Reference Design accompanies the planning proposal within the Urban Design Study. The Concept Reference Design is indicative only and the final detailed design will be the subject of a competitive design process and detailed development application (DA) which will ultimately result in further refinement. The ground floor plan is shown in Figure 2.

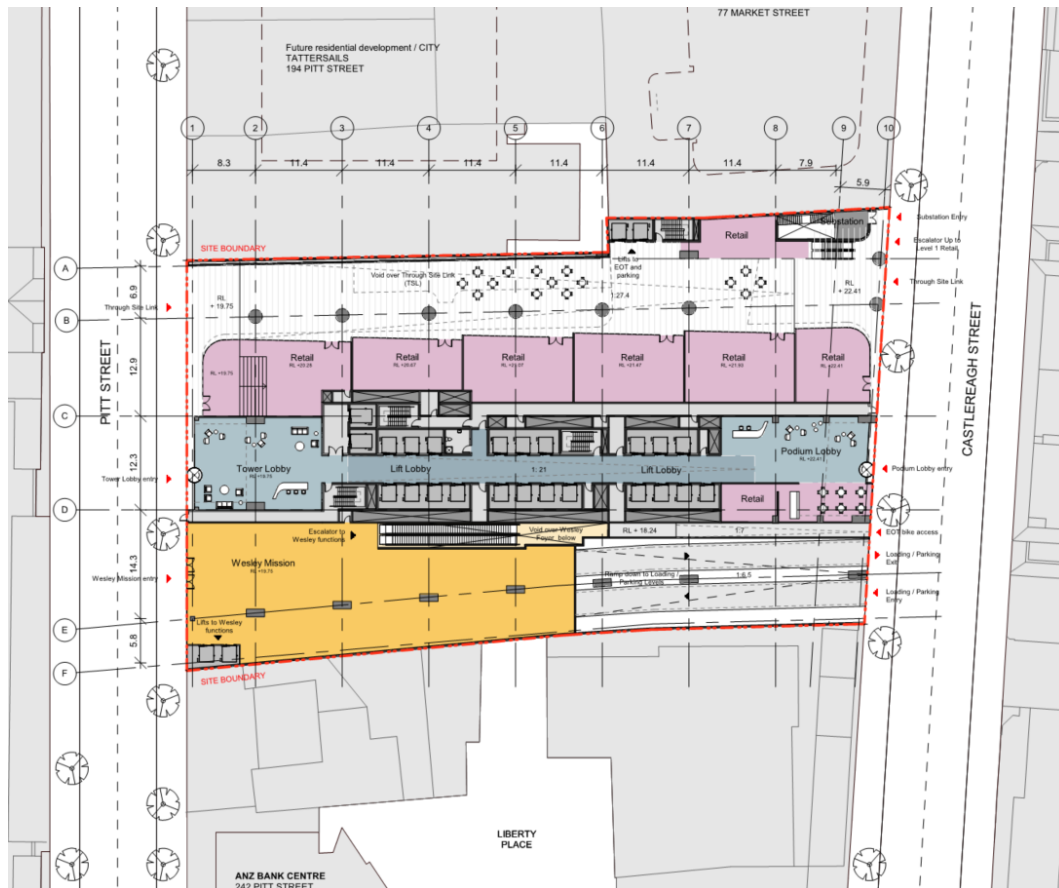


Figure 2: Stockland Piccadilly Complex – Concept Reference Design - Ground plan (3XN, 55001_200805)

The Concept Reference Design includes the following elements:

- Basement car parking and mechanical plant (B05-B03);
- Wesley Mission facilities including the Church, Theatre and Lyceum, and supporting offices (B2-B1);
- End of trip, back of house area and plant (B1);
- A northerly aligned east-west pedestrian through-site link connecting Pitt St and Castlereagh St (L00);
- Podium levels (L00-L09) comprising lobby (L00), retail (L00-L01), commercial (L02-L09) and plant (L09); and
- Tower levels (L10-L34) comprising commercial and plant (L19, L35-L36).

1.3 Purpose of report

The purpose of this Sustainable Design Strategy report is to provide a review of relevant aspects of the proposed planning amendments and Concept Reference Design, to evaluate their likely suitability, and requirements for future assessment and detailed design. As the planning submission does not seek consent for the specific development, a detailed quantitative assessment of the Concept Reference Design is not considered to be warranted at this stage.

2 Sustainable design strategy

Guided by Stockland's Sustainability Strategy, the project will endeavour to find 'A Better Way' to deliver sustainable built environments. The company has a long history of sustainable development, having prepared their first sustainability strategy in 2006. Their approach to sustainability is holistic; covering the full life cycle and all stakeholders.



Figure 3: A Better Way (Stockland Sustainability Strategy)

Stockland has been recognised as a Global Sector Leader in Retail/Office in 2019 by GRESB, the leading authority on Environmental, Social and Governance (ESG) benchmarks. To maintain and enhance this rating, the company is invested in driving sustainability outcomes through its whole business.

As part of their integrated reporting process under the Global Reporting Initiative (GRI), Stockland regularly publish the performance of their business. This includes their operations across sustainability drivers including but not limited to; carbon and energy, climate resilience, waste and materials, biodiversity, supply chain and human rights. Full reports are available for download at the following link:

- <https://www.stockland.com.au/sustainability/downloads>

3 Planning controls

In proposing the Stockland Piccadilly Complex development, the design team have used the City of Sydney's guidance as minimum standards. The relevant documents referenced as part of the concept development include:

1. City of Sydney DCP 2012
2. Planning Proposal: Central Sydney 2020 (February 2020)
3. Sustainable Sydney 2030 Strategy

The above guidance and Stockland's own sustainability strategy have been used to lead the development of the of this Sustainable Design Strategy Report. It addresses both the initial design decisions associated with the development, and longer term decisions related to the operation of the facility. A summary of the proposed framework is detailed in the following section.

4 Sustainable design and operation

4.1 Green Star

Holistic sustainable design rating system

- 6 star Green Star rating
- Alignment with the UNSDGs

The proposed development will target a 6-star Green Star rating under the v1.3 Design & As Built tool as a minimum, representing World Leadership as defined by the Green Building Council of Australia (GBCA).

The recent update of the tool to v1.3 was made to address the new National Construction Code requirements implemented as part of the 2019 update. These include enhancements to Section J of the code which mandates minimum energy efficiency for the building fabric and services. As a result, the minimum energy efficiency required to attain credits under the energy efficiency requirements have caught up with the market and now do not reward business as usual technologies such as LED lighting.

The proposed development will look to switch to the new Green Star for New Buildings tool due for release in 2020. This is the most significant update to the Green Star tool in close to a decade and is a direct response from the GBCEA to the changing global climate and fosters alignment with the United Nations Sustainable Development Goals (UNSDGs). Both these items are high priority drivers for Stockland.

A selection of design features from focus areas which are to be developed through design development are noted following.

Indoor Environment Quality

The proposed development will look to enhance the IEQ for workers and visitors through:

- Appropriate increases in ventilation rates to enhance air quality
- Glare control for visual comfort through a combination of external and internal fixed or operable shading
- Microclimate design to create usable outdoor spaces at high level in the tower, at ground plane and in the through site link
- Acoustic comfort through appropriate selection of materials and finishes
- Balanced façade performance to enhance daylight, maintain thermal comfort and energy efficiency

Resilience

Building a large office tower is a significant investment in embodied carbon through the construction cycle and resilience of the facility is paramount; this investment should stand the test of time. To this end, Stockland will look to implement resilience as a gateway for all design development.

- Climate change adaptation and resilience assessment
- Design of building services to consider operation in future climate
- Allowances for increased filtration for air handling in the event of reduced outdoor air quality
- Community resilience – how can the development contribute to the local area in times of need
- Grid optimisation – how can the development alleviate infrastructure stresses through peak load reduction and onsite generation

Material/Waste Efficiency

Significant embodied energy and carbon savings are available through early engagement of the design team in material and waste efficiency. The Green Star tool provides benchmarks for the achievement of this and some of the key areas which the design team will address through design development are noted below.

- Life cycle assessment will be used to guide design decisions around material choices
- Offset of emissions that are not addressed by NABERS Energy like refrigerants and emissions associated with waste and water reticulation.
- Greater than 90% of construction and demolition waste to be diverted from landfill
- Development of a detailed waste management plan to ensure effective waste separation, recycling and circular economy principles
- Requirements for environmental management in construction



Figure 4: Green Star for New Buildings - Credit Categories

4.2 NABERS Energy

Design for operational energy efficiency based on carbon emissions

With the ultimate aim of being net zero, the project will have a strong focus on energy efficiency to minimise the requirements for offsets or remote sourced renewable energy. In order to achieve this, a minimum benchmark for the design to attain a 5.5 star base building NABERS Energy rating has been set. The design team will look to achieve this through careful consideration of the building fabric and services design. Features to be integrated through design development include:

- High performance building envelope to reduce solar and conduction loads
- Efficient HVAC systems including early stage design targets for:
 - Minimum system COPs
 - Maximum pressure drops for fans and pumps below NCC2019 allowances
 - Optimised lighting design to exceed the LED-based NCC2019 lighting power density requirements
- Investigation into appropriate energy recovery systems
- Maximisation of passive design opportunities to reduce loads and enhance comfort

Full Electric

Potential for the base building to be fully electric is being investigated as part of early concept design. To enable operational net zero carbon, the target is to ultimately remove all Scope 1 fuel combustion (gas, diesel, etc.) from site, and take advantage of the advances made at utility level in grid decarbonisation. In the short term this may result in increased electricity intensity as the current grid is high in carbon content – the design team will look to balance this outcome and either implement or enable future full electric operations.

4.3 NABERS Water

Design for operational water efficiency

Water is now, and more so in the future a scarce resource in Australia. In order to achieve an ambitious 4 star NABERS Water rating for base building, the design team will look to first minimise the building's water demand. Where available the remainder will be supplemented with captured or recycled water. Some of the proposed design features under investigation for the site include:

- Water efficient fixtures and fittings throughout
- Rainwater and condensate capture and reuse
- Fire system test water capture and reuse
- Enable future connection to recycled water mains
- Investigation of hybrid heat rejection technologies to balance water and energy efficiency

4.4 Net Zero

Operational carbon emissions reduction

As part of their larger strategic goals, Stockland will look to assess how the design of the proposed development can trend towards net zero carbon. The assessment will be based on operational carbon, however targets will also be developed for embodied carbon. Targets for reduced upfront carbon will be aligned with the proposed Green Star for New Buildings tool and the Climate Active certification guidance. This will address the full life cycle of the building as opposed to net zero energy which typically only assesses the operational impacts.

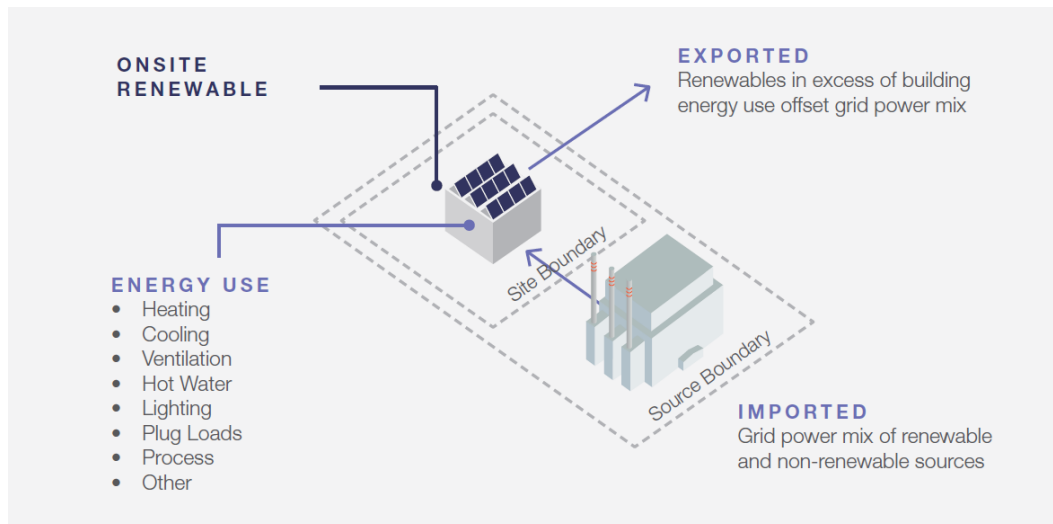


Figure 5: Net zero boundary assessment (Arup)

The assessment will address source carbon, to capture the full impact of the building's operations. Both on-site and off-site carbon offsets will be investigated to identify the most efficient (carbon/energy/cost) method of redress.

Consideration of future electrification of the proposed development will enable the building to take advantage of the utility grid as it becomes cleaner. Planning for this in concept will result in reduced embodied carbon impact compared to retrofitting technology in the future.

5 Summary

The proposed Stockland Piccadilly Complex development will seek to achieve best practice design for the Australian market. The targets outlined in this report support a development which will contribute to a healthy local community while addressing global climate challenges. Stockland's commitment to sustainable development is evident in their current business strategy and recognition as a global leader on sustainability. This development will be an exemplar in the Stockland asset portfolio and key contributor in their journey towards net zero and a circular economy.