SC Capital Partners

4 - 6 Bligh Street Sydney

ESD Report

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Executive Summary

The proposed development at 4 – 6 Bligh Street Sydney consists of a new hotel tower, commercial office and retail podium, and basement in place of the existing building. This Ecologically Sustainable Development (ESD) report has been prepared to assist in the submission of a Planning Proposal to City of Sydney Council. It provides an overview of ESD as defined by the Australian Government, based on the principle of intergenerational equity.

The report provides the eventual developer with the instruments to review and rate their proposal for the development. Prescriptive ESD design features are avoided in favour of an integrated ESD process which will allow the project design team to achieve their intended aesthetic and to permit optimal performance. Frameworks for the following items are addressed in the report:

- Energy minimisation and efficiency
- Water use minimisation through efficiency and reuse
- Transport planning
- Operational and construction materials reduction and tracking
- Societal sustainability

Successful implementation of the frameworks presented in this report will result in a feasible development, which has reduced impact on the environment and provides improved societal outcomes for the local area.

1 Introduction

This Ecologically Sustainable Development (ESD) report has been prepared on behalf of SC Capital Partners in support of a Planning Proposal (PP) to be submitted to the City of Sydney Council.

The Planning Proposal seeks to increase the maximum Floor Space Ratio (FSR) applicable to the site at 4-6 Bligh Street Sydney in the Sydney Local Environmental Plan (SLEP) 2012, from a base FSR of 8:1 plus bonuses, to a maximum FSR of 22:1 including bonuses. This would be facilitated through a site-specific SLEP clause which would allow for additional floorspace if it is for the purpose of 'commercial premises' and 'hotel or motel accommodation'.

The accompanying indicative architectural scheme provides for a new mixed use hotel and commercial building with height of 55-storeys or 205 metres / RL 225.880, and FSR of 20.3:1. An additional floorspace efficiency factor is to be allowed for during the design competition which will bring the maximum FSR to 22:1.

The indicative architectural scheme comprises:

- 10 storey podium, including hotel entrance lobby, commercial lift lobby, food and beverage facilities, plant, commercial offices, meeting/conference rooms, gym space, and landscaped podium with formal hotel lobby
- 37 storeys of hotel (each level including 11 rooms, with a total of 407 rooms)
- 4 levels at rooftop including hotel club lounge, function space, restaurant and bar, and publicly accessible landscaped terrace
- 4 basement levels including 17 car parking spaces, 2 loading spaces, plants, end of trip facilities and waste management facilities

SC Capital Partners understands the importance of ESD and is keen for it to play an important role in shaping the development of 4-6 Bligh Street. At this stage of the project cycle, the focus is on setting frameworks in place that will ensure that the core principles of ESD are implemented in the future development.

The key task is providing the eventual developer with the instruments to review and rate their proposal for this new commercial and hotel building. Prescriptive ESD design features are avoided in favour of an integrated ESD process which will allow the project architects to achieve their intended aesthetic and to permit optimal performance.

2 Ecologically Sustainable Development

2.1 Definition

The Australian Government formalised the term *ecologically sustainable development* in their ESD National Strategy of 1992 as:

> *Development that improves the quality of life both now and in the future, in a way that maintains the ecological processes on which life depends.*

As part of the strategy, they recognised that there could be no single definition for ESD and so the focus should be on intergenerational equity of environment, economy, and society. In developing the ESD Strategy for the 4-6 Bligh Street, each element is tested against both the definition and the intent.

2.2 Principles of ESD

SC Capital Partners is keen for the development to be progressed according to the Principles of ESD, as stated by The Hon. Justice Brian J Preston (2006). These principles include application and understanding of:

1. Sustainable use
2. Integration
3. Precautionary principle
4. Inter-generational and intra-generational equity
5. Conservation of biological diversity and ecological integrity
6. Internalisation of external environmental costs

Each of these principles has a scope of coverage which extends well beyond that of a typical development such as 4-6 Bligh Street. However, it is envisioned that these principles should be an overarching guide for the development of the project.

3 Context

In developing the ESD Strategy, the design team has reviewed planning controls to identify how the development can be closely integrated. Key documents that have been referenced in the development of the proposed ESD Strategy include:

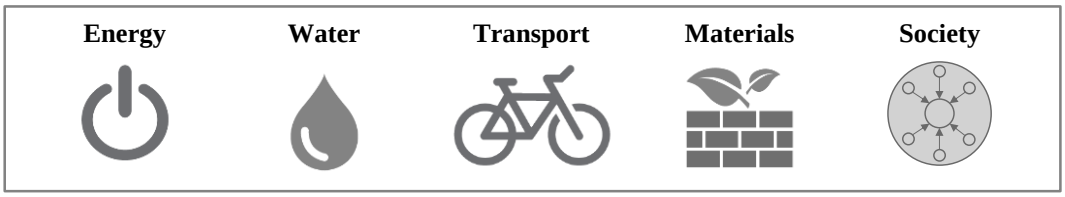
- City of Sydney: Development Control Plan 2012
- New South Wales Government: Local Environmental Plan 2012
- City of Sydney: Sustainable Sydney 2030: Community Strategic Plan (2014)

Elements from each of these documents have been integrated to ensure that the development approach is synergistic. In addition, sustainable development rating

tools such as Green Star and NABERS have been reviewed to identify appropriate metrics and frameworks for integrating sustainability into the development.

4 ESD Focus Areas

At a high-level, a number of key ESD focus areas have been identified for the development of the 4-6 Bligh Street project. Each of these focus areas is addressed separately in the following sections which highlight the current ESD initiatives, aspirations, and simple frameworks that can be used to drive the ESD Strategy.



4.1 Energy

A standard and well established approach to energy savings will be used to first lower the energy requirements of the building as much as possible, and then to design the remaining systems as efficiently as possible. This approach is depicted in Figure 1.

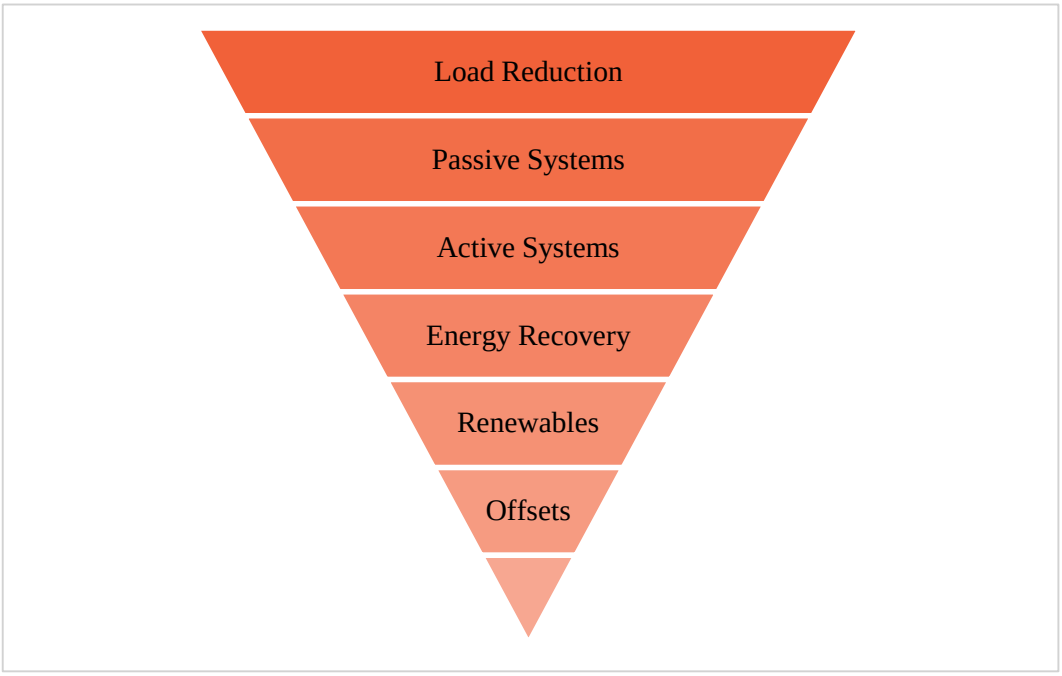


Figure 1: Energy Approach

A highly glazed façade is likely to be ideal from an architectural perspective in this building, so the first step will be to design a façade system that is capable of blocking or allowing solar loads as needed and insulating the interior spaces to a sufficient level. Passive shading structures that have been optimised for the building and climate, combined with high performing glass, are strategies that will

be investigated. Interior lighting systems will also be designed to be as efficient as possible, so as to not unnecessarily increase cooling loads.

Heating and cooling systems are then only required to meet a minimum load and can be tailored to provide the high level of controllability often desired in a hotel facility, and can operate in the most energy efficient way possible. Dedicated outdoor air systems coupled with room-by-room fan coil units or radiant units served by a chiller and boiler plant are one solution that will be investigated to achieve these goals.

Hotels also have significant domestic hot water requirements which must be considered. The design team will explore utilising heat recovery and/or a combined domestic hot water/heating hot water system to reduce or eliminate this energy use as much as is feasible.

As the system design is developed, appropriate targets in line with best practice for Sydney will be proposed against energy efficiency ratings such as NABERS Energy. Additional operational efficiency for the hotel will be encouraged through the application of the EarthCheck rating system.

4.2 Water

The approach for water will be similar to energy; first aim to reduce the demand of the building and then, increase the efficiency of the water delivery systems as much as possible. This is depicted in Figure 2 as the water approach. The primary water uses in this type of building are the guestroom fixtures, plant irrigation, and cooling tower make-up water. The latter two are ideal candidates to use reclaimed water and rainwater. At the guestroom levels, low-flow fixtures that still provide sufficient pressure are very successful in reducing demands. For vegetation, native species from dryer climates require less water than others, and compared to misting system, more efficient drip systems will be reviewed. Finally, cooling tower water usage is best reduced by lowering the cooling demand of the HVAC system, as discussed in Section 4.1. Following that, high quality cooling towers provide efficient cooling using the minimum amount of water.

Similar to the energy approach, targets will be set to encourage water efficiency. For the hotel component, it is proposed that the EarthCheck rating system will be applied to monitor performance.

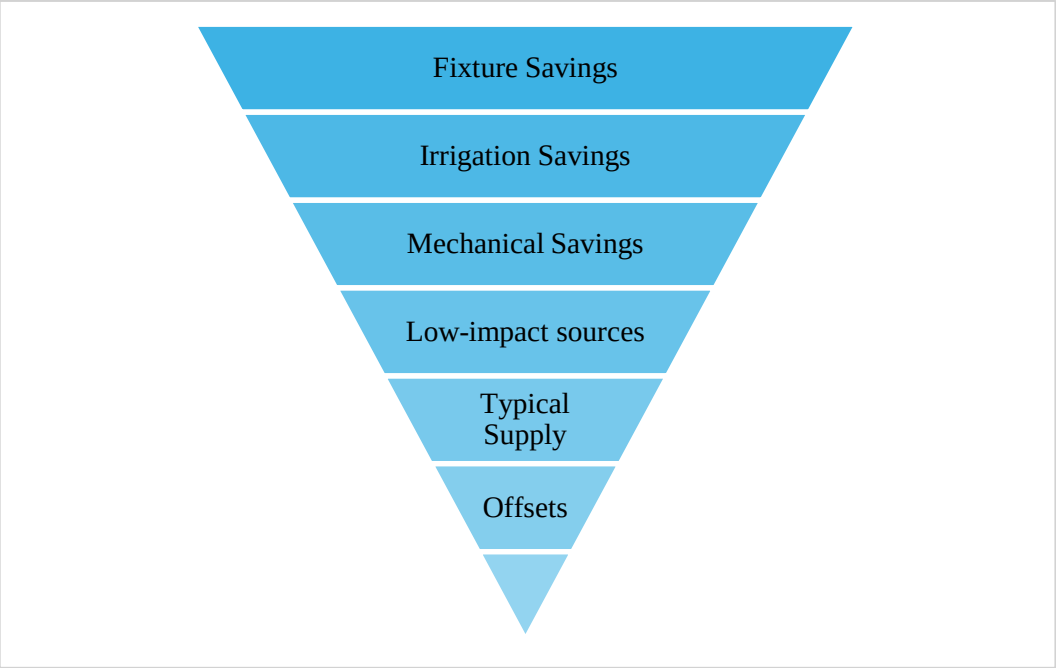


Figure 2: Water Approach

4.3 Transport

The project site is very lucky to be located with great access to public transportation, thus reducing the necessity for tenants and guests to require private vehicles. Three train stations, the primary ferry terminal, and numerous bus stops are all within a 500m walking radius of the site. Main bicycle paths into and out of the city are within a short ride of the site.

The design team will look to take advantage of this location by proving appropriate bike parking and clear signage to the transportation stops. For tenants that require personal vehicles, parking will be available on lower floors of the building.

4.4 Materials

Embodied energy and carbon is an often overlooked but highly important factor when constructing a building, especially of this scale. This is a new construction building, and so the reuse of existing materials is unlikely. As such, care should be taken to use low impact materials with the shortest possible delivery distance that still meet design requirements.

Operational material requirements will be addressed for the hotel component through the application of the EarthCheck system.

4.5 Societal

This project is located in a very central and highly travelled area of Sydney's Central Business District. It is therefore of high importance that the local neighbourhoods, and not just the hotel guests, are improved by it. The design will

aim to increase the beauty of the city with its elegant design, minimize its impact following all of the above sections, and to provide a functional space within the commercial spaces.

5 Conclusion

This report presents an integrated ESD process which will allow the project design team to achieve their intended aesthetic and to permit optimal performance. Frameworks for the following items are addressed in the report:

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- Water use minimisation through efficiency and reuse
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