

Sovereign Wynyard Centre Pty Limited

1 Carrington Street

**ESD Report for Development
Application**

Final | 14 March 2014

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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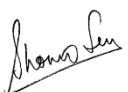


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1 Introduction

This report provides a summary of the proposed ESD strategies for the 1 Carrington Street development and has been produced on behalf of Sovereign Wynyard Centre Pty Limited or its nominee referred to herein as Brookfield.

The report identifies the key ESD commitments in terms of design, construction and operation and confirms progresses in relationship to concept plan consent conditions.

2 DA consent conditions

The concept stage consent conditions are summarised below:

- 1. Demonstrate that any future development will incorporate ESD principles as outlined in the Sustainability report prepared by Cundall, submitted with the EA in the design, construction and ongoing operation phases of the development, including water sensitive urban design measures, energy efficiency, recycling and water disposal.*
- 2. The detailed design of the commercial office of the development is to achieve a minimum 5 Green Star rating.*
- 3. The potential for delivery of a central plant for the office component of the development is to be considered at the detailed design stage.*
- 4. The detailed design of the development is to review the sustainability targets for commercial office buildings and residential centres with the aim of maximising sustainability and future flexibility whilst reducing energy use and carbon/ CO2 emissions.*
- 5. The detailed design of the non-commercial office components of the development is to implement the guiding principles of Green Star to the greatest extent reasonably practical.*

Section 4 of the report provides a response to each concept plan consent condition.

3 Minimum NCC section J compliance

The minimum thermal performance of the façade will be assessed using NCC section J. The strategy for the project in terms of the thermal compliance of the building envelope is summarised below:

- 1 Carrington Street new commercial tower and lobby- JV3 certification.
- 285 George Street- Although the external component of the façade is considered to have heritage value the intent is to improve the thermal performance of the façade where possible by using JV3 or deemed to satisfy certification. Further discussions will be carried out with the Heritage consultant to ensure that an appropriate strategy is developed that satisfies NCC and heritage requirements.
- New Retail- JV3 certification.
- #Shell House- Deemed to satisfy compliance for new windows and heritage dispensation consent for the thermal performance of the existing walls.

#Shell house is an existing building with a façade listed on the State Heritage Inventory. The existing construction is a mixture of brick and terracotta and there are heritage constraints that mean that new insulation cannot be applied to the inside and outside of the existing walls. The NCC section J strategy for Shell House is summarised below:

1. The existing windows will be replaced with high performance glass to achieve the deemed to satisfy requirements of section J.
2. Dispensation is required for the NCC section J compliance of the heritage facades. Due to the heritage nature of both the internal and external surface of the façade no insulation to the external walls can be installed.
3. New insulation will be added to the underside of the existing roof slab to achieve deemed to satisfy compliance with section J.

4 ESD Commitments

The following ESD targets have been adopted for the project:

1. Achieving a minimum 5 star Green Star Office Design V3 Design and As Built rating.
2. Achieve a minimum 5 star base building NABERS energy rating for continued operational energy efficiency.

The certified ratings will apply to the main office commercial tower and Shell House office space only. Simular performance targets have been applied for the retail component of work to achieve high level of energy, water and waste performance as well as providing high levels of fresh air and comfort to the occupants and visitors.

It is recognised in the industry that the future focus for innovation in sustainable buildings should be towards whole building resource usage and not just base building performance. The development team has therefore considering a number of stretch ESD targets that will be developed further with future tenants. The focus for the stretch targets is in four main areas.

1. **Whole building energy performance:** Currently the rating tools have separated base building and tenancy energy consumption in terms of performance but this has not provided the most energy efficient result. Opportunities in terms of smart metering and tenancy chilled water are being considered to improve the whole building energy performance.

It is recognised in the industry that whole building performance is an area of future focus for the Green Building Council of Australia and NABERS and our development team will work with the authorities to shift and lead the industry thinking in this area.

2. **Building performance informatics:** A number of options are being considering in building informatics systems that provide the tenants with right level of digital information, at the right time, so they can make informed decisions about reducing resource usage.
3. **Waste management:** The waste recycling rates in Sydney are still well below targets established by the City of Sydney in their 2030 vision. The development team are considering a waste management strategy that reduces operational waste to landfill considerably and will identify smart strategies for tenant waste/ fit out recycling and ongoing electronic waste management.
4. **Future adaptability:** It is acknowledged that there have been considerable changes in sustainable buildings since the EA report in 2009 and it is anticipated that there will be further major shifts and new trends in green buildings over the design, construction phase and then life of this development.

The design has adopted a centralised energy plant that will supply all buildings reducing energy consumption and maintenance costs considerably as well as providing more feasible options for fuel supplies such as future biofuels.

The table below summarises the concept plan consent conditions and the strategies that are being developed for the project:

Concept Plan consent conditions	Strategies being developed
Demonstrate that any future development will incorporate ESD principles as outlined in the Sustainability report prepared by Cundall, submitted with the EA in the design, construction and ongoing operation phases of the development, including water sensitive urban design measures, energy efficiency, recycling and water disposal.	The ESD report submitted with the EA in 2009 focuses on three main areas: 1. <i>Achieving a minimum 5 Green Stars.</i> 2. <i>Achieving a high level of energy efficiency.</i> 3. <i>Designing a future adaptable building to reduce future emissions in line with City of Sydney 2030 targets.</i> Green Star and energy efficiency: The target is to achieve a 5 Green Star design and as built rating and 5 NABERS for the new commercial tower and Shell House. The guiding principles of Green Star will also be followed for the remainder of the development including the retail component of work. - The energy efficiency of the building has been optimised through efficient facades and building services including: - Highly efficient façade with automated internal blinds and very high performance glass that still maintains good daylight levels. - Perimeter chilled beams and low temperature VAV throughout all centre zones. - Mixed mode opportunities to lobby spaces will be considered in balance with acoustic and air quality considerations. - High efficiency central plant that supplies all chilled water, heating water and condenser water to commercial and retail tenants. Future adaptability: Providing a central thermal energy plant for the site provides a number of opportunities for future adaptability. Options are being consider are: - The use of a hybrid standby power and gas cogeneration system to provide low carbon electrical supply with hot water for retail. - Centralised plant options for future bio fuel

Concept Plan consent conditions	Strategies being developed
	connection. - Central plant control strategies to reduce peak load as well as annual energy consumption.
The detailed design of the commercial office of the development is to achieve a minimum 5 Green Star rating.	The target is to achieve a 5 Green Star design and as built rating and 5 NABERS for the new commercial tower and shell house. The guiding principles of green star will also be followed for the remainder of the development including the retail component of work. See appendix A for Green Star matrix.
The potential for delivery of a central plant for the office component of the development is to be considered at the detailed design stage.	A central thermal plant is being developed that supplies all chilled water, heating water and condenser water, if required, to commercial and retail tenants. This will provide a considerable energy and peak load reduction for the entire site.
The detailed design of the development is to review the sustainability targets for commercial office buildings and residential centres with the aim of maximising sustainability and future flexibility whilst reducing energy use and carbon/ CO2 emissions.	As noted above the central energy plant for the site provides considerable annual and peak energy reductions as well as providing opportunities for tenancy chiller water and future fuel source switching.
The detailed design of the non-commercial office components of the development is to implement the guiding principles of Green Star to the greatest extent reasonably practical.	The guiding principles of Green Star will also be followed for the remainder of the development including the retail component of work. Examples of this for the retail development are: - The retail component of work will be connected to the central energy plant giving the tenants a choice of chilled water or condenser water. - Water efficient appliances will be used throughout. - Tenant's guidelines for energy, water and waste usage in food outlets will be provided as well as sustainable fit out guidelines. - The development team will work with some smart waste management contractors to ensure the recycled rate for waste is maximised.

5 Conclusion

Overall the sustainability strategies for the development are in excess of the Sustainability requirements in concept plan consent conditions. The development of the current sustainability requirements are split into two main commitment areas:

1- Certified ESD commitments.

The following certified ratings will be achieved:

- Achieving a minimum 5 star Green Star Office Design V3 Design and As Built rating.
- Achieve a minimum 5 star base building NABERS energy rating for continued operational energy efficiency.
- Similar performance targets have been applied for the retail component of work to achieve high level of energy, water and waste.

The certified ratings will apply to the main office commercial tower and Shell House office space only.

2- Innovation being developed further

A number of innovations are being developed further with potential tenants that can demonstrate benefits with a focus on the following key areas:

1. Whole building energy performance.
2. Building performance informatics:
3. Waste management.
4. Future adaptability.

These options will be assessed in terms of life cycle benefit to the development.