



Westfield Penrith Living Centre

15/10/2021

Environmentally Sustainable Design Strategy

Prepared for:

Scentre Group Pty Ltd

DA Issue

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Contents

1	Introduction	4
2	Overview of Proposed Development	4
3	Site Description	6
4	Assessment Requirements	7
	4.1 Penrith Development Control Plan 2014	7
	4.2 Western City District Plan.....	9
	4.3 Cooling the City Strategy (2015)	10
5	Ecological Sustainable Design Strategies	12



1 Introduction

This report has been prepared by LCI consultants for the proposed Westfield Penrith Living Centre, comprising The Hub and Borec House. This Report provides an overview of the Ecological Sustainable Design (ESD) initiatives considered for the project and to address the ESD requirements of relevant planning instruments including the Penrith Development Control Plan 2014 and . This report includes a section that can be submitted with the Planning Proposal or Voluntary Planning Agreement that outlines the broad sustainability strategy for the development.

2 Overview of Proposed Development

The Planning Proposal prepared by Urbis provides the following overview of the development;

Westfield Penrith occupies a large portion of the City's economic centre and represents a significant opportunity to deliver city-shaping development that strengthen Penrith's important role as a metropolitan centre. The vision of the Planning Proposal is to deliver two new landmark commercial/hotel/retail buildings on the site to create a connected precinct that brings together a diverse mix of land uses whilst increasing opportunities for employment, tourism, and an activated night-time economy.

The location of the proposed tower elements that will be facilitated by the Planning Proposal are as follows:

'Borec House' – the proposed envelope for a commercial development with ground floor retail located on the corner of Station and Henry streets at the opposite corner facing the future City Park, Borec House will become a thriving commercial tower that extends the Justice and Health precincts that line Henry Street. The proposed green terraced building will step up from the street to become an extension of the City Park and create a welcoming corner extending along Station Street and Henry Street.

Figure 1 - Perspective - Borec House - View North-west



Source: Scott Carver



'The Hub' – the proposed envelope for a mixed use tower. The podium will contain a renewed retail and premium dining destination that addresses a new public forecourt. Above, 10,000sqm of A-grade commercial office will attract commercial offices looking to expand, decentralise and take advantage of the increase in visitor travel in the region as a result of the new WSA. To complete this true mixed-use tower, a 150-key hotel with sky lobby and dining will offer commanding views across the Nepean River, Blue Mountains and the Great Dividing Range.

Figure 2 - Perspective - The Hub - View North-east



Source: Scott Carver



3 Site Description

The site is located at 569-585 High Street, Penrith and is legally described as Lot 1 in Deposited Plan (DP) 1137699. The site is co-owned by Scentre Group and GPT Group, with Scentre Group operating and managing the asset on behalf of the co-owners under the Westfield brand.



Figure 3 Aerial view of Westfield Penrith Source: Urbis



4 Assessment Requirements

4.1 Penrith Development Control Plan 2014

The primary vehicle for sustainability requirements is the Penrith DCP 2014 (last reviewed in August 2020) and Section B1.1.1 of the DCP launches straight into Council's Commitment to Sustainability, outlined across 10 principles (Section B1.2).

Penrith's Principles for a Sustainable City	Project Relevance
Principle 1: Provide a long term vision for cities, based on sustainability; intergenerational, social, economic and political equity; and their individuality.	Follow Penrith LEP and DCP and 'lift the bar' to drive the built form of the City closer towards Penrith Council's vision.
Principle 2: Achieve long term economic and social security.	Ensure that commercial development is responsibly designed and built, including; Use of the principles of universal design, so that the public domain is accessible to people in all stages of life and with all levels of mobility; Designing buildings with the health and wellbeing of their future occupants in mind; Designing community spaces, both indoor and outdoor, that provide opportunities for meeting and gathering and community interaction; Delivering a range of uses and employment opportunities to create a mixed income and mixed demographic community Creating a range of recreational and leisure opportunities; and Adopting the principles of 'Crime Prevention through Environmental Design' (CPTED), to assist in making the public domain a safer place.
Principle 3: Recognise the intrinsic value of biodiversity and natural ecosystems, and protect and restore them.	Design to be based on a comprehensive site analysis, to ensure that development on the site reflects the site's unique conditions; use of plant species native to the area in all forms of landscaping reduce the negative impact of development on air quality through encouraging alternate means of transport (e.g. cycling and walking). Minimising the risk of accidental pollution of surface and ground water sources through appropriate setbacks of potentially polluting activities from watercourses; Water quality to be monitored throughout the construction process and occasionally during occupation; and
Principle 4: Enable communities to minimise their ecological footprint.	reduction in the amount of waste going to landfill through the inclusion of provisions relating to responsible waste management, recycling and resource reuse, and materials selection; increased water re-use through harvesting of rainfall to reduce the demand for potable water; the use of water efficient and energy efficient appliances; and energy efficiency to minimise the use of electricity and gas as energy inputs. designed to maximise natural ventilation and temperature regulation;



	drought resistant planting and landscaping; design to minimise vulnerability to extreme weather events and bushfires.
Principle 5: Build on the characteristics of ecosystems in the development and nurturing of healthy and sustainable cities.	consider all aspects of the natural environment in design, including topography and the water cycle; provision of adaptable and inclusive infrastructure which meets the needs of development and is designed to accommodate likely future needs; innovative responses to the provision of infrastructure, such as car parks, drainage systems, etc. which adapt to changing circumstances and mimic natural ecosystems; and Incorporating the principles of Universal Design, adapting our built environments so they are suitable for all.
Principle 6: Recognise and build on the distinctive characteristics of cities, including their human and cultural values, history and natural systems.	Consider European heritage provisions, which protect Penrith's built heritage of the last 200 years and the people who contributed to the framework and fabric of the city; Consider Aboriginal heritage provisions which recognise the original custodians of the land, their role in protecting it and their ongoing role in providing diversity in society and a link with the past; and Consider social planning provisions that seek to recognise and reinforce the cultural and social character of the area.
Principle 7: Empower people and foster participation.	Advertise the development to give neighbours and others that might be affected the opportunity to comment; Tell all likely affected parties about the development
Principle 8: Expand and enable cooperative networks to work towards a common, sustainable future.	Consider the provision of community spaces (both internal and external) to encourage meeting and gathering and help develop a sense of community, which will in turn encourage people to have a say in how the community develops; consider social needs and potential social impacts to minimise and mitigate impacts within both the existing and future communities; Encourage a diverse community, which in turn helps foster a feeling of inclusiveness; Providing opportunities for people to participate in decision making; and recognise the human need to connect with nature, with the community and with the city, and take this concept into consideration in development design.
Principle 9: Promote sustainable production and consumption, through appropriate use of environmentally sound technologies and effective demand management.	Waste Management Plans to be prepared that consider all aspects of waste generation, recycling and disposal during design, demolition, construction and operation. Source construction and fit out materials from sustainable sources; Consider the life cycle costs of products installed and used in construction and operation of buildings; and Adopt innovative technologies and designs, where they will have a positive sustainability outcome without an adverse impact on the amenity of the surrounding area. Consider technology at the design stage, so that necessary infrastructure can be installed, regardless of whether or not it can be used to its full effect at the time of construction.



Principle 10: Enable continual improvement, based on accountability, transparency and good governance.

Document provisions which can be measured to allow benchmarking of the overall level of sustainability using independent tools like Green Star and NABERS.

Section C1.2 is most applicable to the project since it sets clear design requirements based on the principles above.

a) To ensure that development is undertaken in a sustainable manner, demonstrating this through the application of the Building Sustainability Index (BASIX), Green Star and/or Australian Buildings Greenhouse Ratings certification system, where appropriate;

b) To ensure that development is designed on a 'whole of building' approach by:

i) responding to the site's context, the desired scale and character of an area, and minimising impacts on key views, scenic values and where applicable, rural character;

ii) responding to climatic and contemporary environmental conditions by:

- encouraging passive solar building design;*
- allowing reasonable daylight access to all developments and the public domain;*
- reducing the necessity for, or improve the control of, mechanical heating and cooling;*
- reducing the energy consumed by installed appliances and equipment;*
- improving the indoor environmental quality of occupants;*
- minimising greenhouse gas emissions;*

iii) minimising likely bulk and scale impacts of a building;

iv) considering the natural topography and landform and minimise excavation and likely visual impacts of the development;

v) ensuring that the development (including the public domain):

- has incorporated the Crime Prevention Through Environmental Design (CPTED) principles of surveillance, access control, territorial management and space management into its design; and*
- is accessible and useable for all members of the community.*

Section C1.2.1 states that Non-residential developments, including mixed-use developments, with a construction cost of \$1 million or more are to demonstrate a commitment to achieving no less than **4 stars under Green Star** or 4.5 stars under the National Australian Built Environment Rating System (NABERS).

It is understood that Penrith City Council have a Sustainability Policy (2015-2021) that sets similar targets for developing their own building projects. This Policy is due to undergo a review that could lead to an increase in Green Star rating level which could in turn be updated in the DCP. However, Green Star itself is changing too. In December 2021 a new version of Green Star will be formalised that increases credit benchmarks and reduces the overall pool of credits that can be targeted, meaning ratings will be harder to achieve. This means that achieving a 4 Star level of Green Star will continue to represent best practice and a 5 Star level will again be a stretch for projects, representing Australian Excellence.

4.2 Western City District Plan

The Western City District covers the Blue Mountains, Camden, Campbelltown, Fairfield, Hawkesbury, Liverpool, Penrith and Wollondilly local government areas.



This Western City District Plan is a 20-year plan to manage growth in the context of economic, social and environmental matters to achieve the 40-year vision for Greater Sydney. It is a guide for implementing the Greater Sydney Region Plan, A Metropolis of Three Cities, at a district level and is a bridge between regional and local planning.

Improving sustainability will involve: incorporating natural landscape features into the urban environment; protecting and managing natural systems; cooling the urban environment; innovative and efficient use and re-use of energy, water and waste resources; and building the resilience of communities to natural and urban hazards, shocks and stresses.

For the District, an integrated approach to improving sustainability can be achieved by the following Planning Priorities:

- W12. Protecting and improving the health and enjoyment of the District's waterways
- W13. Creating a Parkland City urban structure and identity, with South Creek as a defining spatial element
- W14. Protecting and enhancing bushland and biodiversity
- W15. Increasing urban tree canopy cover and delivering Green Grid connections
- W16. Protecting and enhancing scenic and cultural landscapes
- W17. Better managing rural areas
- W18. Delivering high quality open space
- W19. Reducing carbon emissions and managing energy, water and waste efficiently
- W20. Adapting to the impacts of urban and natural hazards and climate change.

The Western City District Plan can be used to inform the DCP and LEP of local councils within that region. There is strong overlap with the Penrith DCP and of all the sustainability priorities above, W18, W19 and W20 are most relevant to the project. Under these three priorities, the following objectives are nominated.

- Objective 31 Public open space is accessible, protected and enhanced.
- Objective 33 A low-carbon city contributes to net-zero emissions by 2050 and mitigates climate change.
- Objective 34 Energy and water flows are captured, used and re-used.
- Objective 35 More waste is re-used and recycled to support the development of a circular economy.
- Objective 36 People and places adapt to climate change and future shocks and stresses.
- Objective 37 Exposure to natural and urban hazards is reduced.
- Objective 38 Heatwaves and extreme heat are managed.

These objectives are similar to those covered in the Penrith DCP.

4.3 Cooling the City Strategy (2015)

Back in 2015, Penrith City Council commissioned a study into Urban Heat Island (UHI) impact

There are a range of strategies available to assist with managing urban heat that can broadly be broken down into green and non-green options, or perhaps living and non-living strategies. It is important to be aware of the full range of these options available to assist with urban heat management, as a mix of solutions will be required to achieve maximum impact and to cater for the range of situations that will be encountered. The broad categories that actions can be grouped under are listed below and explained in more detail [in the report].



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|--|--|
| <p>• <i>Green Infrastructure;</i></p> | <p>public parks, recreation areas, remnant vegetation, residential gardens, street trees, community gardens, and innovative and emerging new urban greening technologies such as green roofs and walls]</p> |
| <p>• <i>Water Sensitive Urban Design (WSUD);</i></p> | <p>includes technologies such as water efficient fittings and appliances, rainwater tanks to reduce potable water consumption and costs, bio retention systems (rain gardens), swales, wetlands, proprietary devices and other approved site-specific measures to reduce pollution from stormwater entering local waterways</p> |
| <p>• <i>Increased Albedo / Reflectivity;</i></p> | <p>Reflective and light coloured surfaces on roadways, walkways and roofs. Cool roofs are those with a high albedo, or a high solar reflectance, helping to reflect sunlight and heat away from a building and reducing roof temperatures.</p> |
| <p>• <i>Policy & Planning</i></p> | <p>planning controls for new developments specifying requirements such as reflective surfaces, porous pavements, WSUD, open/green spaces, procurement of cool products – eg reflective roofing, porous pavement, sustainable building products</p> <p>target setting – eg % of canopy cover, open space, heat reduction, reflective roof surfaces</p> <p>tree and landscape rules and standards</p> <p>stormwater project design</p> <p>comprehensive plans and design guidelines, and green building standards.</p> |
| <p>• <i>Community Engagement.</i></p> | <p>incentives - from governments, utilities and other organisations can include loans, tax breaks, product rebates, grants and giveaways. Ownership. Information. Demonstration projects</p> |



5 Ecological Sustainable Design Strategies

The Westfield Penrith Living Centre will be designed to achieve the ESD outcomes outlined in the Penrith DCP 2014 which, in turn, will ensure that the broad outcomes of the Western City District Plan are delivered.

Scentre Group and GPT are committed to sustainability and have broad net zero emissions targets and minimum sustainability ratings in place across their whole operations. These commitments underpin the design approach for the Westfield Penrith Living Centre project and are well aligned with the broad principles of Green Star and NABERS, namely;

<i>Responsible</i>	The project will be delivered using a Head Contractor that has environmental management practices, minimum recycling rates, inclusive workforce initiatives and responsible procurement. The buildings will be commissioned and tuned and set operational energy, water and waste targets to track using metering and monitoring systems.
<i>Healthy</i>	Building systems will incorporate additional fresh air and monitor CO2 levels. High quality artificial light and acoustic comfort will be provided. Daylight will be maximised with glare controlled through blinds and/or shading. Low toxicity materials and finishes will be used to provide good air quality. Natural finishes and living plants will be incorporated where practical to convey a soothing aesthetic
<i>Resilient</i>	Impacts of climate change will be considered in the design so risks can be mitigated and adaptations incorporated. Heat resilience will be improved through site design elements the minimise urban heat island (UHI) effects. Grid resilience will be maximised through design and equipment that limit peak demand when the electrical grid is highly-loaded.
<i>Positive</i>	The project will be net zero carbon by 2030 by eliminating gas use and using 100% renewable energy. The building fabric and systems will be 10% better than the NCC Section J minimum requirements and will be designed to be energy efficient and achieve high NABERS ratings in operation. Upfront carbon emissions will be reduced by at least 20% through the use of lower carbon concrete and reinforcing steel product. LifeCycle Analysis will be used during design to quantify embodied carbon and report reductions. Water use will be minimised through water efficient fittings and rainwater capture.
<i>Create Place</i>	Sustainable transport use will be promoted through connections to public transport, nearby amenity and active transport facilities like bike racks and showers. Electric vehicle charging infrastructure will be provided. The design process will invite participation through a design competition and community engagement. Local Cultural, Heritage and Artistic aspects will be considered.
<i>People</i>	The design of the development will be inclusive; both during construction in the way that the workforce is engaged and products procured and in operation by utilising universal design principles and crime prevention through environmental design.
<i>Nature</i>	The immediate environment will be protected and enhanced by incorporating climate appropriate landscaping and water sensitive urban design features that filter and control stormwater runoff.



By following these principles The Hub mixed use development and Borec House Commercial office will target the following sustainability rating schemes, in accordance with minimum DCP requirements and industry practice.

Element	NABERS*	Green Star
<i>The Hub</i>	4.5 Star Energy	4 Star Green Star Buildings v1
<i>Borec House</i>	5.5 Star Energy 4 Star Water	4 Star Green Star Buildings v1 <i>*(Aspiration to achieve 5 Star Buildings v1, subject to tool finalisation and tenant demand)</i>

* NABERS Ratings will relate primarily to an Office Base Building Rating for Class 5 spaces, subject to minimum floor area allocation (>2000sqm). Application to any Retail and/or Hotel spaces in The Hub can be confirmed during the Design Development phase when more is understood about any shared equipment and strata zoning.

**Whilst the PCA Office Matrix currently requires that an A-grade commercial office achieves a 5 Star Green Star rating, significant changes in the Green Star Buildings v1 Tool will make this a challenge. At this stage, it is reasonable to assume that a 4 Star rating is readily achievable and therefore meets Penrith DCP clause 1.2.1 but through the design development phase it is possible that the rating may be increased to 5 Star through engagement with the Green Building Council Australia and Property Council of Australia and feedback from prospective Tenants.