Ryde Hospital Redevelopment (Concept and Stage 1)

Denistone NSW 2122

SSDA Report - Sustainability

To Support the Ryde Hospital Redevelopment Project

11th April 22

Report prepared for Health Infrastructure NSW

by Climatewise Design ABN: 98 775 368 802

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Report Summary

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Author:	Digby Hall		
Checked By:	-		
Revision	**Description**		**Issue Date**
01	Issued to support SDDA		20/11/21
02	Draft for review		31/1/22
03	To support SSDA application		11/3/22
04	To support SSDA application (updated)		13/4/22
Project Status:	Part 2 Feasibility		

Project	
Project Name:	Ryde Hospital Redevelopment (RHR)
Building Owner	Health Infrastructure NSW / Northern Sydney Local Health District
Head Contractor:	TBC
Client	Health Infrastructure NSW
Sustainability Certifications Required	
• HI NSW DGN 058: NCC 2019 Section J +10%, and equivalent to 5 Star under HI ESD Framework	

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1. Introduction

The Ryde Hospital site is located at 1 Denistone Road, Denistone and comprises Lots 10-11 DP 1183279 and Lots A-B DP 323458. It has an area of approximately 7.69Ha and currently accommodates the existing Ryde Hospital Campus.

This report accompanies a State Significant Development Application that seeks approval for the establishment of a maximum building envelope and gross floor area for the future new hospital buildings, and physical Stage 1 Early Works to prepare the site for the future development

For a detailed project description refer to the Environmental Impact Statement prepared by Ethos Urban.

This report describes the project's compliance with the project specific SEARs for the Ryde Hospital Redevelopment (RHR), (Application No. SSD-36778089 dated 14 March 2022), Section 8 Ecologically Sustainable Development requirements.

The project is committed to achieving the following targets:

- A minimum 10% improvement in energy efficiency compared to a baseline of National Construction Code (NCC) Section J (NCC 2019);
- A minimum of 60 points under the HI ESD Framework (Appendix C to Design Guide Note 058);

The project is also developing initiatives that will support the aspirational target of Carbon Neutral by 2035 for the Northern Sydney Local Health District, meaning Net Zero for all operations under the *Climate Active Standard for Organisations*.

In addition to the minimum project targets outlined above, the RHR project is developing strategies to support ongoing ecological footprint reductions during the longer-term operation of the site. This includes developing infrastructure strategies that support a future one planet footprint, and ultimately a regenerative outcome which has a net positive impact on all living systems.

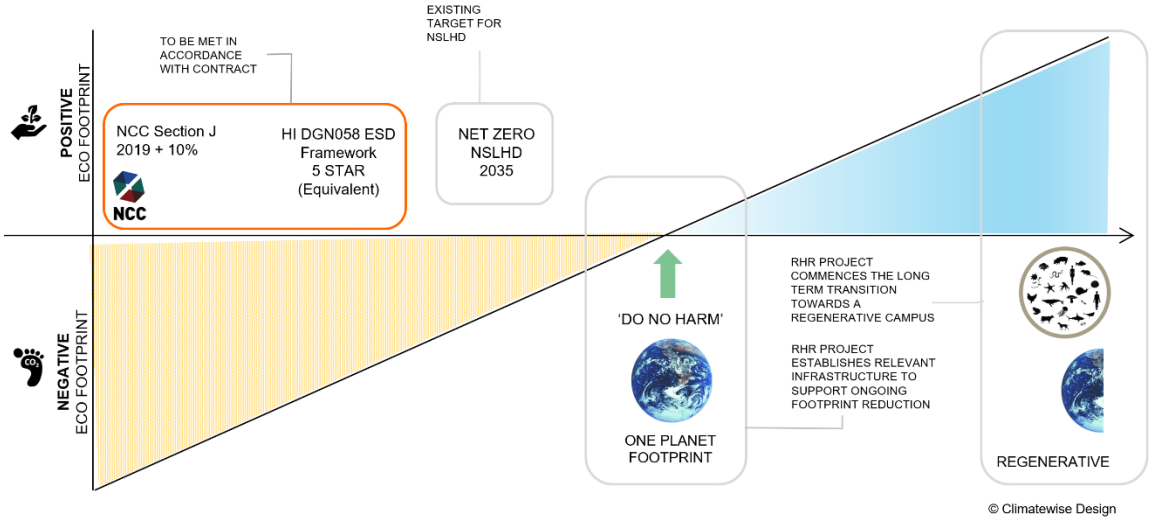


Figure 1 RHR Sustainability Targets and Aspirations

Note: Throughout this report we refer to *Clause 193 of the EP&A Regulations 2021*, formerly Clause 7(4) of Schedule 2 of the EP&A Regulation 2000. Whilst the project-specific SEARS issued for RHR refer to the former Clause, we note that the Clause requirements are identical between versions.

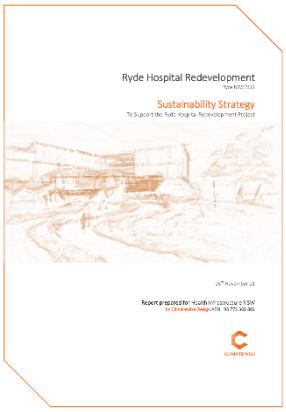
The project is meeting or exceeding all parts of Section 8, as follows;

Table 1 SEARs Section 8 Compliance Summary

Item	SEARs Section 8 Requirement	RHR Response	Reference
1.0	Identify how ESD principles (as defined in Clause 193 of the EP&A Regulations 2021 are incorporated in the design and ongoing operation of the development	The ***RHR Sustainability Strategy*** outlines a range of initiatives that are being developed by the project to meet and where feasible exceed the requirements laid out in Clause 193, including supporting the Northern Sydney Local Health District's (NSLHD) carbon neutral 2035 target.	Section 2 – **RHR Sustainability Strategy**
2.0	Demonstrate how the development will meet or exceed the relevant industry recognised building sustainability and environmental performance standards.	Through the RHR Sustainability Strategy the project is benchmarking against 60 points in the HI NSW ESD Framework outlined in DGN 058, Appendix C which is a customised version of *Green Star Design & As-Built v1.3*	Section 3 – HI **ESD Framework compliance**
3.0	Demonstrate how the development minimises greenhouse gas emissions (reflecting Government's goal of net zero emissions by 2050) and consumption of energy, water (including water sensitive urban design) and material resources.	The ***RHR Carbon Neutral 2035 Strategy*** will apply to the whole of the Northern Sydney Local Health District. The RHR capital works will deliver relevant components towards this target, including efficient building design and active systems, dedicated facilities for waste avoidance and management, and electrification of major plant.	Section 4 – **RHR Carbon Neutral 2035 Strategy**

2. RHR Sustainability Strategy

The RHR Project has a number of sustainability targets that range from being a minimum standard through to being aspirational. These targets have either been included in the original project brief or are currently being investigated through stakeholder engagement with Health Infrastructure NSW (HINSW), Ryde Hospital (RH) and NSLHD.



The headline project target is to achieve a 'one planet footprint' within its lifecycle. Whilst an end date has not been nominated for this outcome, the target is intended to inform early master plan decisions that will best enable the Ryde Hospital to continue to reduce its ecological footprint, eventually reaching a point where it functions within its fair share of the earth's resources. It is noted that whilst this target is at present aspirational and lacks peer examples to learn from, it has begun to inform early planning decisions during the masterplan process.

Table 2 Holistic Sustainability Targets and Objectives

Sustainable System	**Themes**	**Benefits for RHR (& NSLHD)** (feasibility phase)
The following themes underpin all activities and are included in all sustainability themes. These themes are delivered through the Sustainability Themes and as such do not have their own specific design targets.		
Design to Country	Sense of Place Respecting landscape	• Inclusive stakeholder engagement • Improved indigenous community health and wellbeing
Green Infrastructure	Nature-based solutions Stormwater management Flood control Heat resilience Biodiversity Biophilic design	• Integration of infrastructure, nature, biodiversity and biophilic design • Improved place making, sense of place and open space • Stakeholder engagement and public perception
Climate Resilience	Heat risk and resilience Flood risk and resilience Building fabric and services Utilities resilience Disaster preparedness	• Reduced climate reliability • Improved asset lifespan and whole of life value • Stakeholder engagement and public perception
The sustainability themes are presented as systems rather than shopping lists of items. Each system involves multiple elements and design activities and can generally only be delivered through coordinated design integration between multiple design disciplines.		
Zero Carbon	Renewable energy Electrification Upfront carbon Sustainable Transport Nature-based solutions	• Energy resilience & insurance against grid-supply failure • Cost management of energy supply • Reduced carbon offset costs & risks • Broader reductions of air pollution and global warming • Reduced embodied carbon & ecological footprint
Circular Nutrition	Organic waste avoidance On-site Food growing Preventive care	• Improved community health and wellbeing • Reduced carbon footprint (supply chain and waste) • Reduced ecological footprint • Food security • Preventative care • Stakeholder engagement and public perception
Circular Resources	Zero waste Resource efficiency	• Reduced waste management costs • Reduced carbon footprint and carbon offset costs • Stakeholder engagement and public perception • Reduced procurement costs
Sustainable Water	Water ecosystem health & sustainability	• Water resilience & insurance against water restrictions or grid-supply failure • Abundant living landscape and green infrastructure • Reduced costs of water, sewer, and trade waste • Stakeholder engagement and public perception

	Active water systems Water in landscape, green infrastructure	
Healthy Biodiversity 	Regenerating nature Green infrastructure Urban heat resilience	• Improved health, healing and wellbeing through Nature • Improved staff amenity and wellbeing • Stakeholder engagement and public perception • Integrated landscape & protection of endangered species • Flood risk management • Reduced heat load & air conditioning costs
Health & Wellness 	Biophilic Design & connection with Nature Healthy materials Green infrastructure Urban heat resilience	• Reduced heat stress throughout RH campus • Campus amenity & place making • Stakeholder engagement and public perception • Improved comfort for occupants
Community Resilience 	Social value Community resilience Climate leadership	• Stakeholder engagement • Preventive care • Staff engagement, attraction and retention

The table above also aligns with the NSLHD Planetary Health Framework 2021-2023.

The following schedule outlines how the RHR Sustainability Strategy meets the ESD requirements described in Clause 193 of the EP&A Regulations 2021 (formerly Clause 7(4) of Schedule 2 of the EP&A Regulation 2000):

Table 3 Clause 193 Compliance Table

Clause 193 Requirement	Response	Delivered via
(a)(i) avoid… serious or irreversible damage to the environment	The Sustainability Strategy includes the goal of a one planet footprint during the hospital's lifecycle, using the DGN-058 DSD Framework as the initial scaffold. The project aims to deliver relevant base building components that when combined with ongoing NSLHD operations will lead to a neutral impact on the environment whilst generating health and social wellbeing. NSLHD targets include Carbon Neutrality by 2035 addressing all operational carbon emissions.	RHR Sustainability Strategy and NSLHD Carbon Neutral 2035 Strategy
(a)(ii) assessment of the risk-weighted consequences of various options	The project is addressing environmental and social consequences on several fronts, including developing a Climate Risk Assessment & Adaptation Plan, offsetting residual carbon emissions via nature-based and regenerative carbon offsets in NSW (the recommendation made to NSLHD), and making allowance for the long-term electrification and grid resilience of the campus.	RHR Sustainability Strategy RHR Climate Risk Assessment & Adaptation Plan
(b) inter-generational equity	A whole-of-life cost benefit approach is being applied to the project, including consideration of the social benefits of key sustainability initiatives plus the contribution to preventive care within the catchment community. A key component of the strategy is to develop a viable option for full electrification of the works, thus enabling the LHD to procure 100% renewable energy in the future.	NSLHD Carbon Neutral 2035 Strategy
(c) conservation of biological diversity and ecological integrity	Green Infrastructure is to be embedded in site planning and infrastructure works, including nature-based solutions to stormwater management and an enhanced landscape canopy to support urban heat resilience. Bioswales have been allowed for in stormwater infrastructure design.	RHR Sustainability Strategy and NSLHD Carbon Neutral 2035 Strategy
(d)(i) polluter pays and (d)(ii) full life cycle of costs	The NSLHD is developing strategies to achieve a zero hazardous waste to landfill outcome (2040), zero organic waste (2030) and net zero carbon emissions in operation (2035). To support this the RHR project is including waste management facilities that will cater for	RHR Sustainability Strategy and NSLHD Carbon Neutral 2035 Strategy

	the multiple streams of recyclables, FF&E waste and re-use, and food waste. Further, as part of the project-wide sustainable water strategy all stormwater leaving the site will meet the minimum requirements described in Green Star Design & As-Built for peak stormwater discharge and minimum cleanliness.	
(d)(iii) environmental goals, having been established, should be pursued in the most cost-effective way	The RHR project is establishing goals, objectives and targets that will require a multi-stakeholder response. The Carbon Neutral Transition Plan included within the Carbon Neutral 2035 Strategy requires emissions-reducing actions from all stakeholder groups and leaves specific action plans to be developed by each stakeholder. This is to be further developed by the NSLHD.	RHR Sustainability Strategy and NSLHD Carbon Neutral 2035 Strategy

3. HI DGN-058 ESD Framework

3.1. NCC Section J

In accordance with DGN-058 the project will meet the requirements of NCC Section J plus an additional 10% improvement.

3.2. Green Star Design & As-Built v1.3

Health Infrastructure's DGN 058 requires that projects within the Sydney region meet a minimum of 5 Stars in accordance with the DGN 058 ESD Framework which is an internal and self-assessed version of the Green Star Design & As-Built v1.3 rating tool, with various modifications to tailor this framework to provide best fit-for-purpose outcomes for a healthcare facility.

This meets the requirements of the NSW Government Resource Efficiency Policy (GREP) (2019).

The RHR Sustainability Strategy is the primary vehicle by which the outcomes contained in DGN-058 are to be met, and the project will achieve a minimum of 60 points under this framework.

4. NSLHD Carbon Neutral 2035 Strategy

The NSLHD Carbon Neutral 2035 Strategy is currently under development and will address greenhouse gas emissions across all of the Northern Sydney Local Health District's operational emissions in accordance with the *Climate Active Standard for Organisations.* The target includes all Scope 1 & Scope 2 emissions and relevant emissions from Scope 3.

The Strategy will lay out a pathway to enable the RHR project to identify relevant contributions to this broader target. Responses to date include built form and passive design, which will be further supported during subsequent design stages through detailed building design; active building services and systems including potential electrification of central mechanical services; and facilities management plans.

This Strategy meets and exceeds the NSW Government (DPIE) Net Zero Plan Stage 1: 2020-2030 by achieving full carbon neutrality by 2035 rather than 2050, inclusive of meeting the Net Zero Emissions from Organic Waste by 2030 and will therefore also meet the NSW Government DPIE NSW Climate Change Policy Framework (2016).

The project is currently reviewing its approach to the recently released NSW Government DPIE Waste and Sustainable Materials Strategy 2041.

Key design considerations that support the Carbon Neutral target include;

- Review of energy contracts to procure de-carbonised energy supplies towards 2030 [by NSW Health]
- Development of a campus-wide renewable energy ecosystem including photovoltaics and allowance for future battery storage
- On-site waste management and recycling facilities, including on-site treatment of organic waste [by LHD]
- Passive design performance of new buildings to maximise energy efficiency through good design

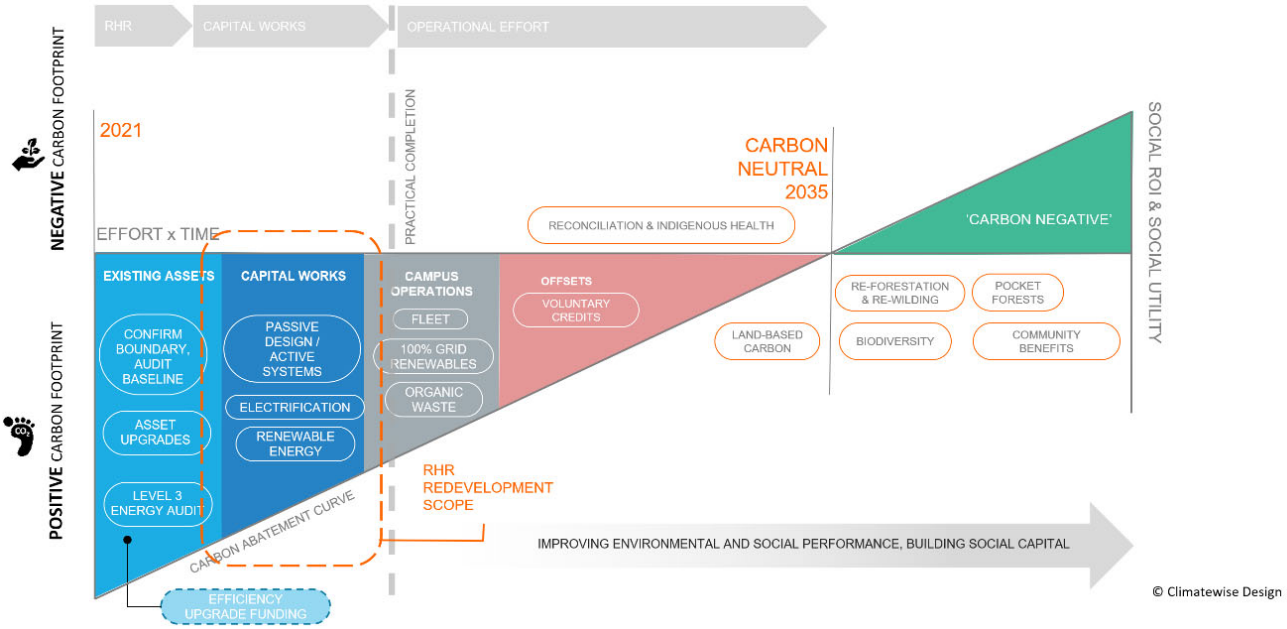


Figure 3 Combined actions to achieve Carbon Neutrality by 2035

5. Conclusion

Based on activities to date the RHR project is meeting the requirements of the project-specific SEARS through the strategies outlined below;

Table 4 Summary of Key Sustainability Activities

Key Activity	Description	Outcomes & Status
	**RHR Sustainability Strategy**. Includes detailed review of policy context, systems-based design initiatives and opportunities, case studies, draft objectives, and targets. Links sustainability with human health.	Outlines systems-scale targets. Places human health at the centre of targets and metrics. Draft project targets addressing energy, carbon, waste, and water.
	5 Star **Green Star Equivalence** checklists against Green Star Design & As Built v1.3	Equivalence is being achieved via the RHR Sustainability Strategy plus the NSLHD Carbon Neutral 2035 Strategy (currently under development)
	**NSLHD Carbon Neutral 2035 Strategy** is currently under detailed development, providing various pathways to de-carbonisation with specific focus on the costs of carbon offsetting, social-uplift offsets and Reconciliation, and Transition Pathway to engage staff.	A holistic and systems-wide approach to reducing emissions. Offsets via nature-based, regenerative, and preventive care investments.