NSW HEALTH INFRASTRUCTURE –

MAITLAND MENTAL HEALTH REHABILITATION PROJECT

ESD Statement

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PROJECT: NSW HEALTH INFRASTRUCTURE –

MAITLAND MENTAL HEALTH REHABILITATION PROJECT

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P1	Memo	03.05.2024	JS	-
P2	REF Issue	03.09.2024	JS	JM
P3	Updated REF Issue	04.10.2024	JS	JM

CONTENTS

1. INTRODUCTION

This ESD Statement has been prepared by Lucid Consulting on behalf of Health Infrastructure (HI) to assess the potential environmental impacts that could arise from infrastructure works at 51 Metford Rd, Metford NSW 2323 (the site). The project is seeking approval for a Development Without Consent (REF) application under Part 5 of the EP&A Act.

This report has been prepared to assess the potential environmental impacts that could arise from proposed works on the Maitland Mental Health Rehabilitation project, and to describe the sustainable design initiatives and outcomes to mitigate these impacts. This report accompanies a Review of Environmental Factors (REF) for the construction and operation of a new mental health services building within the Maitland Hospital campus, including:

- Site establishment;
- Site preparation including earthworks;
- Construction of internal roads and addition of at-grade car parks;
- Construction of 2 storey mental health facility;
- 20 Medium Secure Forensic beds; 24 Low Secure Forensic beds; 20 High Support General beds (including high risk civil consumers) (64 beds total);
- Inground building services works and utility adjustments, including service diversions;
- Building foundation works;
- Tree removal;
- Associated landscaping;.
- Bioretention basin.

Refer to the Review of Environmental Factors prepared by Ethos Urban for a full description of works.

1.1 SITE DESCRIPTION

The site is located at the Maitland Hospital Campus on Metford Road, Maitland, approximately 6.4km from the CBD of Maitland. The project site is located within the development parcel, legally described as Lot 73 DP 1256781, as identified in **Figure 1** below. The site is located to the east of the recently constructed Maitland Hospital.

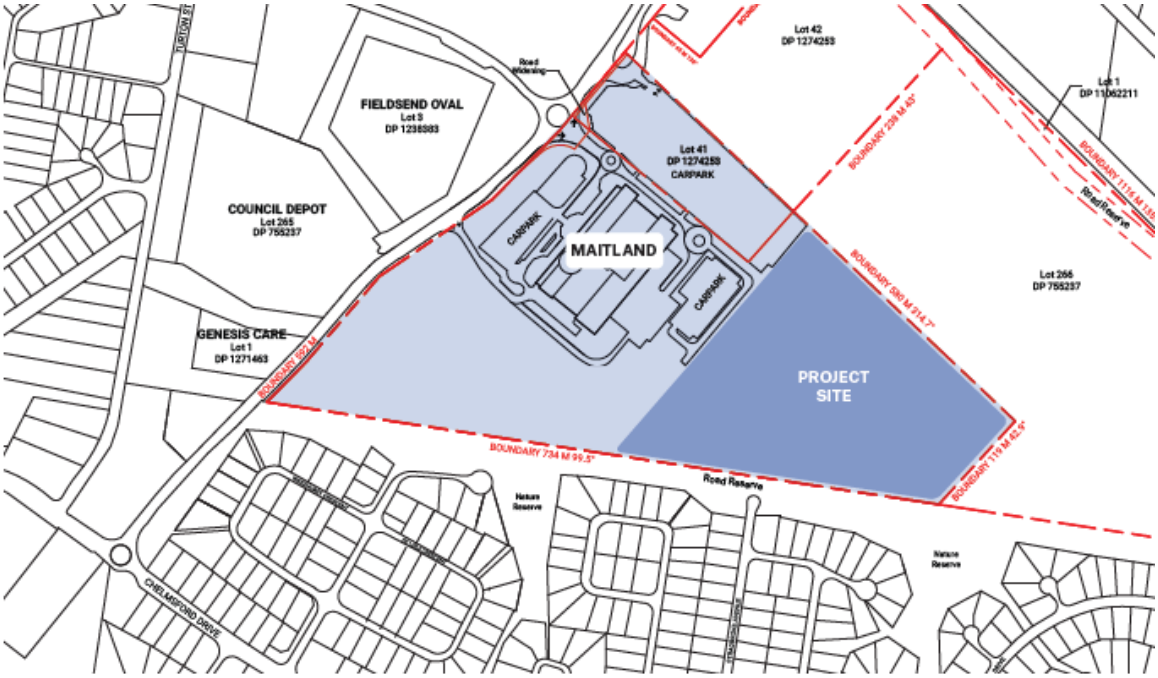

Figure 1 Project locational diagram. Source: Bates Smart

1.2 STATEMENT OF SIGNIFICANCE

Based on the identification of potential issues, and an assessment of the nature and extent of the impacts of the proposed development, it is determined that:

- The extent and nature of potential impacts are low, and will not have significant adverse effects on the locality, community, and the environment;
- Potential impacts can be appropriately mitigated or managed to ensure that there is minimal effect on the locality, community.

2. OVERVIEW

NSW Health Infrastructure (HI) are embarking on the Maitland Mental Health Rehabilitation project to provide improved mental health facilities to the Hunter New England Local Health District (LHD). The project involves the relocation of mental health services from various facilities within the LHD district network to the new Maitland Hospital Campus. The vision for the project is to create capacity for safe high quality and integrated mental healthcare across NSW, co-designed with consumers, carers, and staff.

A sustainability strategy for the project is being developed to achieve stakeholder ambitions and requirements. The project is aiming to achieve a 5-star rating, in accordance with the HI ESD Tool.

The following ESD Statement has been prepared to describe the sustainable design initiatives and outcomes associated with the Maitland Mental Health Hospital Project.

2.1 ESD COMPLIANCE REQUIREMENTS

- The Maitland Mental Health Hospital Project works are required to undertake the following:
- Consider compliance with Design Guidance Note (DGN) 058 and associated NSW Health Infrastructure Sustainability Framework. This includes section 2.5.6 of the NSW Health Engineering Services Guide.
- Consider the provisions of the State Environmental Planning Policy (Sustainable Buildings) 2022.
- Incorporate climate resilient design measures in response to climatic risks.
- Incorporate sustainable design measures into the project scope.

3. REF DELIVERABLE REQUIREMENT

Table 1: REF Deliverable Requirement.

Item	REF Requirement	Relevant Section of Report
1.0	*Design Guidance Note (DGN) 058*	Section 4.1, 4.4
2.0	*Section 2.5.6 of the NSW Health Engineering Services Guide*	Section 4.1, 4.4
3.0	*State Environmental Planning Policy (Sustainable Buildings) 2022*	Section 4.2, 4.4
4.0	*AS 5334-2013 Climate change adaptation for settlements and infrastructure — A risk based approach*	Section 4.3, 4.4
5.0	*Section 193 of the EP&A Regulation 2021 as per SEARs*	Section 4.1, 4.3, 4.4

4. ESD MEASURES

4.1 NSW HEALTH INFRASTRUCTURE DESIGN GUIDANCE NOTE 58 – ENVIRONMENTALLY SUSTAINABLE DEVELOPMENT

The NSW Health Infrastructure Design Guidance Note (DGN) 58 – Environmentally Sustainable Development provides instruction on how Environmentally Sustainable Development (ESD) is to be addressed on HI projects. DGN 58 is supported by the HI ESD Evaluation Tool which forms the basis of the design guidance and ESD requirements. The Evaluation Tool is based on the Green Star Design & As-built rating tool, developed by the Green Building Council of Australia (GBCA).

The project design complies with the requirements of DGN 58. The HI ESD Evaluation Tool has been reviewed and relevant credits and requirements have been identified in Table 1. These requirements are addressed by the sustainable design measures outlined in this ESD Statement.

Table 2: HI ESD Evaluation Tool Summary.

Credit No.	Name	Intent / Requirements
2.0	Commissioning and Tuning	To implement commissioning, handover and tuning initiatives that ensure all building services operate to their full potential.
3.1	Adaptation and Resilience – Implementation of a Climate Adaptation Plan	The project considers the risks of climate change and implements design initiatives to mitigate major risks.
8.0	Operational Waste	Provision for the multiple waste streams of the site, including general waste, organic waste and various recycling waste streams. Allows materials to be recycled appropriately reducing waste to landfill.
9.0	Indoor Air Quality	Increase the provision of outside air beyond minimum requirements to expel internally generated pollutants and improve air quality. Scientific research suggests that an airflow rate significantly exceeding that recommended by standards is needed to minimise sick building syndrome symptoms and to improve human performance and productivity.
12.0	Visual Comfort	Designing the building to allow access to external greenspace complete with seating and vegetation via the internal courtyards.
15E.0	Greenhouse Gas Emissions – Reference Pathway	Model building design operational greenhouse gas emissions to achieve the minimum 10% improvement to the reference building and help identify further efficiency initiatives.
17B.3	Sustainable Transport – Low Emissions Vehicle Infrastructure	The project provides facilities to support the uptake of sustainable transport options such as electric vehicles.
18.0	Potable Water	The inclusion of rainwater harvesting, storage and reuse for irrigation can reduce the stress on water supply in the region.

Credit No.	Name	Intent / Requirements
19B.1	Life Cycle Impacts – Concrete	The project minimises the embodied emissions of concrete through Portland cement replacement.
20.1	Responsible Building Materials – Structural and Reinforcing Steel	The project minimises the embodied energy and carbon associated with steel. Steel products are sourced from a Responsible Steel Maker.
20.3	Responsible Building Materials – Permanent Formwork, Pipes, Flooring, Blinds and Cables	All PVC products are certified against a best practice PVC scheme.
25.0	Heat Island Effect – Heat Island Effect Reduction	The project mitigates the urban heat island effect through sensitive landscape design.
26.1	Stormwater – Stormwater Peak Discharge	Stormwater discharge form the site is reduced compared to reference flow rates.
27.1	Light Pollution – Light Pollution to Night Sky	The project minimises impacts to night sky light pollution by reducing upward light emissions from external light fittings.

In addition to DGN 58, Section 2.56 (Sustainability, resilience, lifecycle and waste management) of the NSW Health Engineering Services Guide (ESG) has been reviewed for applicability and taken into consideration for design initiatives.

4.2 STATE ENVIRONMENTAL PLANNING POLICY (SUSTAINABLE BUILDINGS) 2022

The State Environmental Planning Policy (Sustainable Buildings) 2022 (SEPP) aims to simplify and coordinate the planning and design processes for sustainable buildings in NSW. The SEPP includes performance requirements for energy, water, net zero performance, and embodied emissions.

The SEPP is applicable to all buildings including hospitals. As such, SEPP requirements include to report on emissions including embodied emissions, to be all-electric and net zero ready by 2035, and the documentation and disclosure of energy and water performance to drive better buildings.

The project achieves compliance with SEPP through adopting design sustainability considerations including water and energy efficiency and waste minimisation, and fulfilment of the HI DGN 058 Minimum Sustainability Requirements outlined in Table 2.

Table 3: SEPP Minimum Sustainability Requirements.

Requirement	Addressed
Net Zero Plan	Y
100% Electric in Operation	Y
Measured Reduction in Upfront Carbon Emissions	Y
Energy & Water Metering and Monitoring	Y

The project sustainability design considerations are specified in detail in Section 4.4.

4.3 CLIMATE RESILIENCE

Detailed climate analysis and adaptation planning in accordance with AS5334-2013 has been undertaken for the site as part of proposed future projects on the Maitland Health Campus. This analysis has included consideration of the buildings, carparking and landscaped areas at the Maitland Health Campus. The following risks applicable to the Maitland Mental Health Rehabilitation Project have been identified in Table 4.

Table 4: Climate risk summary.

Climate Change Hazard	Project/ Building element	ID	Risk Statement (Impact and Consequence)	Risk Rating	
				2040	2075
Increased average temperature.	Landscape irrigation	1	Increased external temperature leads to increased evaporation leading to higher irrigation demand and stress on landscape environment.	Med	High
Increased number of extreme cold days and heatwaves.	People and Wellbeing	2	Greater temperature extremes lead to increased heating and cooling loads, and heat island effect in the broader campus which impacts peoples wellbeing.	Med	High
Changes to rainfall and drought patterns.	Environment and landscape	3	Increased extremes of heavy rainfall and drought conditions leading to seasonal large stormwater run-off or reduced water availability and damage to landscape.	Low	Med

The initiatives described in Table 5 have been incorporated into the design to address climate risks:

Table 5: Climate change adaptation initiative summary

Adaptation Initiative	Risk(s) Addressed	Description
Increased rainwater tank sizing.	1, 3	Future rainfall patterns are subject to uncertainty and are likely to differ from historical averages. Contingency in tank sizing should be incorporated to account for future periods of drought or increased rainfall.
Mechanical design conditions.	2	The effects of climate change are likely to affect heating and cooling design and operating conditions. This should be allowed for in building design conditions to enable future resilience.
Water-sensitive urban design	1, 3	Increased drought and heat effects are likely to increase stress on the landscapes. Water sensitive urban design measures include passive irrigation and soil water retention to capture rainfall maintain soil hydration. This provides Improved site ecology, access to greenery, and assistance to flood management.

4.4 SUSTAINABLE DESIGN MEASURES

The following sustainable design initiatives have been incorporated into proposed arrangements to deliver sustainable development outcomes.

All-Electric Heating

Decarbonisation of heating supply is a key element to achieving future net-zero building emissions. Providing heating service requirements by solely electrical systems such as heat pumps achieves this and improves energy efficiency.

HI Evaluation Tool Credit Reference:	15E.0 – Greenhouse Gas Emissions - Reference Building Pathway
Design Inclusion:	Building Services

Maximise Solar PV

New South Wales has an extensive solar resource which can be utilised to generate electricity onsite through solar PV panels and offset grid consumption. The project is to maximise the solar PV electricity generation by positioning panels across available optimised roof space.

HI Evaluation Tool Credit Reference:	15E.0 – Greenhouse Gas Emissions - Reference Building Pathway
Design Inclusion:	Electrical

Rain Water Harvesting and Reuse

Increased drought and heat effects are likely to increase stress on water supplies and landscapes. Rainwater harvesting, storage and reuse for irrigation can reduce potable water consumption and the stress on water supply in the region, while providing resilience.

HI Evaluation Tool Credit Reference:	18B. – Potable Water - Rainwater Reuse & Landscape Irrigation
Design Inclusion:	Hydraulics

ELECTRIC VEHICLE CHARGING INFRASTRUCTURE

The installation of EV chargers and reticulation of spare electrical cabling conduits will be provided throughout the carpark to serve future electric vehicles requiring chargers. The provision of spare conduits allows for flexibility in the future installation of electric vehicle charges to suit the site requirements. Planning for future provision will significantly reduce future capital costs associated with the installation of electric vehicle charges and will support the eventual business case for their installation.

HI Evaluation Tool Credit Reference:	17B.3 – Sustainable Transport – Low Emissions Vehicle Infrastructure
Design Inclusion:	Electrical infrastructure design

Minimised Light Pollution to Night Sky

Light pollution to the night sky can obstruct views and disrupt the behaviour of local fauna. Sensitive lighting design can minimise light emissions to the night sky to provide external visibility without negative impacts to the local environment. The electrical services design includes product selections that have an Upward Light Output Ratio (ULOR) of less than 5%.

HI Evaluation Tool Credit Reference:	27.1 – Light Pollution – Light Pollution to Night Sky
Design Inclusion:	Electrical infrastructure design

Operational Waste Reduction

Provision for the multiple waste streams of the site, including general waste, organic waste and various recycling waste streams allows materials to be recycled appropriately reducing waste to landfill.

HI Evaluation Tool Credit Reference:	8.0 – Operational Waste
Design Inclusion:	Architect & Waste Specialist

Access to Internal Courtyards

Exposure to plants and other natural elements has been linked with decreased levels of diastolic blood pressure, depression, and anxiety, increased attentional capacity, better recovery from job stress and increased psychological well-being. Nature interaction has also been shown to support recovery from illness and increase pain tolerance.

Designing the building to allow access to external greenspace complete with seating and vegetation improves occupancy comfort, access to daylight and provides a secure area for occupants.

HI Evaluation Tool Credit Reference:	12.0 – Visual Comfort
Design Inclusion:	Architect & Landscape design

High Performance Building Fabric / Airtightness / Independent Commissioning

High performance building fabric with high thermal resistance reduces heat/cooling losses from conditioned spaces to outside through walls, glazing and ceiling. This results in smaller thermal plant and increases the energy efficiency of building.

HI Evaluation Tool Credit Reference:	15E.0 – Greenhouse Gas Emissions - Reference Building Pathway
Design Inclusion:	Architect

Water-Sensitive Urban Design

Increased drought and heat effects are likely to increase stress on the landscapes. Water sensitive urban design measures include passive irrigation and soil water retention to capture rainfall maintain soil hydration. This provides Improved site ecology, access to greenery, and assistance to flood management.

HI Evaluation Tool Credit Reference:	3.0 – Adaptation and Resilience – Implementation of a Climate Adaptation Plan
Design Inclusion:	Landscape design

Heat Island Effect Reduction

Exposed hardstand areas such as dark buildings and carparks are likely to create a heat island effect. This can be detrimental to the health of people accessing the site. Any urban heat island effect is likely to be exacerbated by increasing temperatures and the increased frequency of heatwaves. Vegetation, shading and high solar reflective index surfaces will be provided throughout the site by suitable materials selection and canopy trees where practical.

HI Evaluation Tool Credit Reference:	3.0 – Adaptation and Resilience – Implementation of a Climate Adaptation Plan 25.0 – Heat Island Effect – Heat Island Effect Reduction
Design Inclusion:	Landscape design

Use Of Recycled and Low-Carbon Materials

The operational impacts of hospitals are substantial, but their construction also impacts sustainability considerably. Impacts in construction provide a significant opportunity to improve environmental performance through the selection of low-impact products. This initiative is comprised of the following:

- Replacement of Portland cement content for low-emissions concrete.
- Use of steel from a certified responsible steel maker.
- Use of bast-practice PVC products.
- Waste minimisation and recycling of construction materials.

HI Evaluation Tool Credit Reference:	19B.1 – Life Cycle Impacts – Concrete 20.1 – Responsible Building Materials – Structural and Reinforcing Steel 20.3 – Responsible Building Materials – Permanent Formwork, Pipes, Flooring, Blinds and Cables
Design Inclusion:	Civil engineering design, electrical infrastructure design, hydraulic infrastructure design.

5. CONCLUSIONS

The Maitland Mental Health Hospital Project design is compliant with the ESD requirements of the following standards

- Design Guidance Note (DGN) 058 (Rev D)
- Section 2.5.6 of the NSW Health Engineering Services Guide
- State Environmental Planning Policy (Sustainable Buildings) 2022
- AS 5334-2013 Climate change adaptation for settlements and infrastructure — A risk based approach
- Section 193 of the EP&A Regulation 2021 as per SEARs

We trust this ESD Statement provides a suitable summary of proposed sustainable design initiatives and outcomes for the Maitland Mental Health Hospital Project. Should any queries arise, please do not hesitate to contact the undersigned.

Yours faithfully,
LUCID CONSULTING AUSTRALIA

JOHN SMYTH
Energy and Sustainability Engineer

APPENDIX A – MITIGATION MEASURES

Project Stage ***Design (D) Construction (C) Operation (O)***	**Mitigation Measures**	**Relevant Section of Report**
	None required.	

APPENDIX B – HI ESD TOOL

Project Name:	Maitland Mental Health Rehabilitation Project
HI Delivery Part:	Lucid Consulting Australia

Update by Name:	John Smyth
Date Last Updated:	10/10/2024

Project Target	5 Stars
Points Requirement	60
Current Score	64.5
Buffer	4.5

Total Points	105
Total - Minimum requirements	28
Total - Recommended	32

HI Environmentally Sustainable Development (ESD) Evaluation Tool

Category/Credit	Aim of the Credit / Selection	Code	Credit Criteria	Points available	Points Targeted	Type	Input	Stakeholders	Overlaps HI ESG, AusHFG, NCC, SSDA, Design Guide	Notes: (including Healtcare relevant initiatives which are primarily for IPU type spaces)	
Management				**12**							
ESD Consultant (Accredited Professional)	To recognise the appointment and active involvement of an Accredited Professional in order to ensure that the ESD tool is applied effectively and as intended.	1.0	Accredited Professional	1	*1*	Minimum requirement	ESD	HI / LHD, ESD, Head Contractor			
Commissioning and Tuning	To encourage and recognise commissioning, handover and tuning initiatives that ensure all building services operate to their full potential.	2	Environmental Performance Targets	-		Minimum requirement	HI	HI / LHD, Mechanical, Electrical, Lighting, V. Transport, ESD, Fire, Hydraulics, Acoustics, Civil, Landscape			
		2.1	Services and Maintainability Review	1	*1*	Recommended	ICA	HI / LHD, Façade, Mechanical, Electrical, Lighting, V. Transport, Fire, Hydraulics, Civil, Head Contractor, ICA			
		2.2	Building Commissioning	1	*1*	Recommended	ICA	Mechanical, Electrical, V. Transport, Fire, Hydraulics, ICA			
		2.3	Building Systems Tuning	1	*1*	Recommended	ICA	Mechanical, Electrical, V. Transport, Fire, Hydraulics, Head Contractor, ICA			
		2.4	Independent Commissioning Agent	1	*1*	Optional	ICA	HI / LHD, Project Manager, ICA		May require additional consultant. HI may support and undertake a similar role to ICA. Contact HI Sustainability team	
Building Information	To recognise the development and provision of building information that facilitates understanding of a building's systems, operation and maintenance requirements, and environmental targets to enable the optimised performance and sustainable outcomes.	4.1	Building Information	1	*1*	Recommended	ARCH	Façade, Mechanical, Electrical, V. Transport, Fire, Hydraulics, Landscape, Structrural, Head Contractor			
Commitment to Performance	To recognise practices that encourage building owners, building occupants and facilities management teams to set targets and monitor environmental performance in a collaborative way.	5.1	Environmental Building Performance	1	*1*	Recommended	HI	HI / LHD			
		5.2	End of Life Waste Performance	1	*1*	Recommended	WASTE	HI / LHD			
Metering and Monitoring	To recognise the implementation of effective energy and water metering and monitoring systems.	6	Metering	-		Minimum requirement	MECH	Mechanical, Electrical, Hydraulics, Landscape			
		6.1	Monitoring Systems	1	*1*	Minimum requirement	MECH	Mechanical, Electrical			
Construction Environmental Management	To reward projects that use best practice formal environmental management procedures during construction and support staff sustainability awareness and education.	7	Environmental Management Plan	-		Minimum requirement	CONTR	Head Contractor			
		7.1	Formalised Environmental Management System	1	*1*	Recommended	CONTR	Head Contractor			
		7.2	High Quality Staff Support	1	*1*	Optional	CONTR	Head Contractor		Construction related credit for contractor to consider.	
Operational Waste	Performance Pathway To encourage project to apply waste hierarchy through the design	8A	Performance Pathway - Specialist Plan	1	*1*	Optional	WASTE	HI / LHD, ARCH, Waste Consultant			
		8A(i)	Operational Waste Management Plan	-		Minimum requirement	WASTE	HI / LHD, ARCH, Waste Consultant			
		8B	Prescriptive Pathway - Facilities	-		Optional	WASTE				
Total					**12**						

Indoor Environment				**17**							
Indoor Air Quality	To recognise projects that provide high air quality to occupants and safeguard occupant health through the reduction in internal air pollutant levels.	9.1	Ventilation System Attributes	1	*1*	Recommended	MECH	Mechanical		Healtcare relevant initiative	
		9.2	Provision of Outdoor Air	2		Optional	MECH	Mechanical	ESG requirements request 2.0 ACH to IPU spaces.	Healtcare relevant initiative	
		9.3	Exhaust or Elimination of Pollutants	1	*1*	Recommended	MECH	ARCH, Mechanical		Healtcare relevant initiative	
		9.4	Paints, Adhesives, Sealants and Carpets	1	*1*	Recommended	ARCH	ARCH, Façade, Mechanical, Electrical, V. Transport, Fire, Hydraulics, Acoustics, Head Contractor		Healtcare relevant initiative	
		9.5	Engineered Wood Products	1	*1*	Optional	STRUC	ARCH, Structrural, Head Contractor		Healtcare relevant initiative	
Acoustic Comfort	To reward projects that provide appropriate and comfortable acoustic conditions for occupants.	10.1	Internal Noise Levels	1	*1*	Recommended	ACOUS	ARCH, Façade, Mechanical, Acoustics		Healtcare relevant initiative	
		10.2	Reverberation	1		Optional	ACOUS	ARCH, Acoustics, Structrural		Healtcare relevant initiative	Requires acoustic consultant & testing post construction
		10.3	Acoustic Separation	1		Optional	ACOUS	ARCH, Mechanical, Acoustics, Structrural		Healtcare relevant initiative	
Lighting Comfort	To encourage and recognise well-lit spaces that provide a high degree of comfort to users.	11	Minimum Lighting Comfort	-		Minimum requirement	LIGHT	Electrical, Lighting	Artificial lighting initiatives can also utilise typical spaces.	Healtcare relevant initiative	
		11.1	General Illuminance and Glare Reduction	1	*1*	Recommended	LIGHT	Electrical, Lighting		Healtcare relevant initiative	
		11.2	Surface Illuminance	1	*1*	Optional	ARCH	ARCH, Electrical, Lighting		Healtcare relevant initiative	
		11.3	Localised Lighting Control	1	*1*	Optional	LIGHT	Electrical, Lighting		Healtcare relevant initiative	
Visual Comfort	To recognise the delivery of well-lit spaces that provide high levels of visual comfort to building occupants.	12	Glare Reduction	-		Minimum requirement	ESD	ARCH, Façade		Healtcare relevant initiative	
		12.1	Daylight	2	*2*	Optional	ESD	ARCH, Façade, ESD	Modelling of typical spaces for the daylighting initiative is acceptable, provided a sensible coverage of spaces is accounted for. Issues such as elevation, shading/overshadowing, orientation, window to wall	Healtcare relevant initiative	
		12.2	Views	1	*1*	Optional	ARCH	ARCH	Views can also be assessed using typical spaces.	Healtcare relevant initiative	
Thermal Comfort	To encourage and recognise projects that achieve high levels of thermal comfort.	14.1	Thermal Comfort	1	*1*	Optional	MECH	Mechanical	NCC 2022 JV3 requires a PMV assessment to be undertaken	Healtcare relevant initiative	
		14.2	Advanced Thermal Comfort	1	*1*	Optional	MECH	Mechanical		Healtcare relevant initiative	
Total Line				**17**	**13**						

Energy & Carbon				**17**							
Greenhouse Gas Emissions	To encourage and recognise projects to reduce their carbon footprint through design and construction and to ensure projects are net zero ready.	15E.0	Conditional Requirement: Reference Building Pathway	-		Minimum requirement	MECH	Façade, Mechanical, Electrical, Hydraulics			
		15E.1	Comparison to a Reference Building Pathway.	20	*6*	Minimum requirement	MECH	Façade, Mechanical, Electrical, Hydraulics			Review JV3 model
		15E.1	Conditional Requirement: Net zero plan	-		Minimum requirement					
		15E.1(i)	100% electric in operation	1	*1*	Minimum requirement	ELEC	Mechanical, Electrical	Aligns with Sustainable Buildings SEPP - A Net Zero Statement describes how a project will avoid dependence on fossil fuels and be capable of		
		15E.1(ii)	10% energy performance beyond NCC requirement, or GREP	1	*1*	Minimum requirement	ELEC	Mechanical, Electrical			
		15E.1(iii)	Measurement of Embodied Carbon	1	*1*	Minimum requirement	STRUC	ARCH, Structrural, Head Contractor, Façade	Aligns with Sustainable Buildings SEPP - use the Embodied Emissions Materials Form in line with the Embodied Emissions Technical Note		
		15E.1(iv)	Target reduction in upfront carbon emissions	1	*1*	Minimum requirement	ELEC	Mechanical, Electrical			
Peak Electricity Demand Reduction	To encourage projects to consider Peak electricity reduction through energy efficiency or on-site energy generation	16A(i)	Solar or Renewable energy assessment	-		Minimum requirement	ELEC	Mechanical, Electrical			
		16A(ii)	Solar or Renewable energy generation	1		Recommended	ELEC	Mechanical, Electrical			
		16B	Performance Pathway - Reference Building	2	*1*	Optional	ELEC	Mechanical, Electrical		Healtcare relevant initiative	
Total Line				**27**	**11**						

Climate risk and resilience				**2**							
Adaptation and Resilience	To encourage and recognise projects that are resilient to the impacts of a changing climate and natural disasters.	3.1	Climate risk assessment	1	*1*	Minimum requirement	ESD	ARCH, Façade, Mechanical, Electrical, Fire, Hydraulics, Civil, Landscape, Structrural, CAP Consultant,LHD			
		3.2	Implementation of a Climate Adaptation Plan	1	*1*	Recommended	ENV	ARCH, Façade, Mechanical, Electrical, Fire, Hydraulics, Civil, Landscape, Structrural, CAP Consultant	SEARS condition: Credit can be used to demonstrate CSIRO project climate Impacts		
Total Line				**2**	**2**						

Transport			**Points available**	**10**							
Sustainable Transport	To encourage projects to consider sustainable transport options through design	17A.1	Performance Pathway	10		Optional	TRANS	HI / LHD, Project Manager, ARCH, Electrical, ESD, Travel Planner		Hospitals are usually well connected to public transport nodes. Large percentage of patients require access to hopsitals via vehicles. Expansion of exisitng hospital also require additional carparking.	
		17B.1	Access by Public Transport	3	*User Input*	Optional		ESD			
		17B.2	Reduced Car Parking Provision	1	*User Input*	Optional		ARCH, Travel Planner			
		17B.3	Low Emission Vehicle Infrastructure	1	*1*	Minimum requirement		ARCH, Electrical	Consistent with DGN 46 and NSW Government Fleet Strategy requirements		
		17B.4	Active Transport Facilities	1	*1*	Optional		Project Manager, ARCH			
		17B.5	Walkable Neighbourhoods	1	*User Input*	Optional		ESD			
Total Line					**2**						

Water				**12**							
Potable Water	Prescriptive Pathway	18A.1	Potable Water - Performance Pathway	0	*User Input*	Optional	HYDR	ESD, Fire, Hydraulics, Civil, Landscape		Hospitals require extensive use of potable water and typically lower use for recycled water. AusHFG requirements limit use of rainwater systems, limiting the use to primarily landscaping.	
		18B.1	Sanitary Fixture Efficiency	1	*1*	Recommended	HYDR	Hydraulics	AusHFG Requirements limit use of RW systems (maintenance / Payback / health risks)	Healtcare relevant initiative	
		18B.2	Rainwater Reuse	1	*1*	Optional	HYDR	Hydraulics, Landscape	AusHFG Requirements limit use of RW systems		
		18B.3	Heat Rejection	2	*2*	Optional	MECH			Healtcare relevant initiative	
		18B.4	Landscape Irrigation	1	*1*	Recommended	LAND	Hydraulics, Landscape			
		18B.5	Fire System Test Water	1	*User Input*	Recommended	FIRE	Fire			
Total Line				**6**	**5**						

Materials & Waste				**14**							
Life Cycle Impacts	Prescriptive Pathway - Life Cycle Impacts	19A.1	Comparative Life Cycle Assessment	6		Optional		ARCH, Façade, Mechanical, Electrical, Lighting, V. Transport, Hydraulics, Civil, Structrural, LCA Consultant, Head Contractor		Life Cycle Assessor (additional consultant) required	
		19A.2	Additional Life Cycle Impact Reporting	4		Optional		LCA Consultant		Life Cycle Assessor (additional consultant) required	
		19B.1	Concrete	3	*1.5*	Optional	ARCH	Civil, Structrural		Healtcare relevant initiative	
		19B.2	Steel	1	*1*	Optional	ARCH	Civil, Structrural			
		19B.3	Building Reuse	4		Optional		ARCH, Civil, Structrural		Healtcare relevant initiative	
		19B.4	Structural Timber	4		Optional	STRUC				
Responsible Building Materials	To reward projects that include materials that are responsibly sourced or have a sustainable supply chain.	20.1	Structural and Reinforcing Steel	1	*1*	Recommended	STRUC				
		20.2	Timber Products	1	*1*	Recommended	ARCH				
		20.3	Permanent Formwork, Pipes, Flooring, Blinds and Cables	1	*1*	Recommended	HYDR MECH ELEC ARCH STRUC				
Sustainable Products	To encourage sustainability and transparency in product specification.	21.1	Product Transparency and Sustainability	3	*1*	Optional					
Construction and Demolition Waste	Fixed Benchmark	22A	Fixed Benchmark	1	*1*	Optional					
		22B	Percentage Benchmark	-		Recommended	CONTR				
Total Line				**14**	**7.5**						

Land Use & Ecology				**6**							
Ecological Value	To reward projects that improve the ecological value of their site.	23	Endangered, Threatened or Vulnerable Species	-	-	Minimum requirement	ECO	Project Manager, ESD		Hospitals usually built on brown field sites	
		23.1	Ecological Value	3				ARCH, Landscape		Hospital sites are usually mainly buildings with minimal landscape area.	Would need min. 3.5x more native landscaping area than hard surface area - not achievable
Sustainable Sites	To reward projects that choose to develop sites that have limited ecological value, re-use previously developed land and remediate contaminate land.	24	Conditional Requirement	-	-	Minimum requirement	LAND	Project Manager, ESD		Healtcare relevant initiative	
		24.1	Reuse of Land	1				HI / LHD		Most hospital and healthcare projects are located within exisitng hospital sites. For most projects, this credit would be considered achieved	
		24.2	Contamination and Hazardous Materials	1			CONTR	Project Manager, Head Contractor		Healtcare relevant initiative	No land contamination to redress
Heat Island Effect	To encourage and recognise projects that reduce the contribution of the project site to the heat island effect.	25.0	Heat Island Effect Reduction	1	*1*	Recommended	ARCH	ARCH, Landscape			
Total Line				**6**	**1**						
Discharge to Environment				**5**							
Stormwater	To reward projects that minimise peak stormwater flows and reduce pollutants entering public sewer infrastructure.	26.1	Stormwater Peak Discharge	1	*1*	Recommended	CIVIL	Hydraulics, Civil, Landscape			
		26.2	Stormwater Pollution Targets	1	*1*		CIVIL	Civil, Landscape			
Light Pollution	To reward projects that minimise light pollution.	27.0	Light Pollution to Neighbouring Bodies	-	-	Minimum requirement		Electrical, Lighting		Neighbouring buildings are usually the hospital buildings. Consider impacts to surrounding residential if any.	
		27.1	Light Pollution to Night Sky	1	*1*	Recommended		Electrical, Lighting			
Microbial Control	To recognise projects that implement systems to minimise the impacts associated with harmful microbes in building systems.	28.0	Legionella Impacts from Cooling Systems	1	*1*	Recommended	MECH			Healtcare relevant initiative	
Refrigerant Impacts	To encourage operational practices that minimise the environmental impacts of refrigeration equipment.	29.0	Refrigerants Impacts	1			MECH				
Total Line				**5**	**4**						
Innovation				**10**							
Innovative Technology or Process	The project meets the aims of an existing credit using a technology or process that is considered innovative in Australia or the world.	30A	Innovative Technology or Process	10	*1*						Thermal comfort or onsite RER
Market Transformation	The project has undertaken a sustainability initiative that substantially contributes to the broader market transformation towards sustainable development in Australia or in the world.	30B	Market Transformation		*1*						soft landings
Improving on Benchmarks	The project has achieved full points in a credit and demonstrates a substantial improvement on the benchmark required to achieve full points.	30C	Stormwater pollution		*1*						Stormwater pollution B
	Supplementary or tenancy fitout systems review	30C	Commissioning and Tuning		*1*		ICA				Airtightness
	Daylight See credit	30C	IEQ		*1*		ESD				low VOC paint / Greenguard
Innovation Challenge	Where the project addresses an sustainability issue not included within any of the above Credits.	30D	Innovation Challenge		*1*						Occupant Engagement
Global Sustainability	Project teams may adopt a credit from a globally recognised sustainability ratings tool not included within any of the above Credits.	30E	Global Sustainability		*1*						Indigenous Design
Total Line				**10**	**7**						
Project Score					**64.5**						