NSW HEALTH INFRASTRUCTURE –

CESSNOCK HOSPITAL REDEVELOPEMNT PROJECT

ESD Statement

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CESSNOCK HOSPITAL REDEVELOPEMNT

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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 the redevelopment of the Cessnock Hospital health service at 24 View Street, Cessnock .

This report has been prepared to assess the potential environmental impacts that could arise from proposed works on the Cessnock Hospital Redevelopment project, and to describe the sustainable design initiatives and outcomes to mitigate these impacts.

This report accompanies a Review of Environmental Factors (REF) that seeks approval for the construction and operation of a new two-storey clinical services building including:

- Demolition of select existing structures.
- Construction of a new hospital building on the site's northern portion.
- Realignment of internal roads and a new primary vehicular and pedestrian entrance to the hospital campus from Jurd Street.
- Refurbishment of the existing at-grade car park.
- Installation and realignment of selected services.
- Installation of ancillary development including, but not limited to, lighting and signage.
- Landscaping.
- New kerb, gutter and road resurfacing on Jurd street.

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 24 View Street, Cessnock, in the Cessnock Local Government Area. It is occupied by Cessnock Hospital health service, a district-level hospital in the Hunter New England Local Health District. The site comprises the following lots:

- Lot 2 DP1173784
- Lot 7 DP13203
- Lot 8 DP13203
- Lot 1 DP103663
- Lot 10 DP5442
- Lot B DP103664
- Lot 2 Section 20 DP5442
- Lot 1 DP254743

- Lot 11 DP882585

An aerial image of the site is shown at Figure 1.

Figure 1: Site Aerial Image. Source: Nearmap

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

The Cessnock Hospital is a district level hospital within the Hunter New England Local Health District. It provides low acuity medical and sub-acute services to the local community and is networked with Maitland Hospital for higher acuity services, and John Hunter Hospital for Tertiary level services.

The clinical services provided by the project will be generally consistent with what is currently being provided at the Hospital, except changes in services where network efficiencies are identified.

The project scope includes the following clinical services:

- Emergency Department (ED)
- Medical Imaging
- Perioperative Suite
- Sterilizing Services Unit (SSU)
- 2 x 28 Bed Inpatient Units (IPUs)
- Pharmacy
- Mortuary
- Front of House (FOH) services

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 Cessnock Hospital Redevelopment Project.

2.1 ESD COMPLIANCE REQUIREMENTS

The Cessnock Hospital Redevelopment 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 project has sought to comply with the intent of DGN 58. The HI Evaluation Tool has been reviewed and relevant credits and requirements have been identified in Table 2. These requirements are addressed by the sustainable design measures outlined in this ESD Statement.

Table 2: HI 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 engaging views complete with greenspace and vegetation to boost connection with nature.
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.
19B.1	Life Cycle Impacts – Concrete	The project minimises the embodied emissions of concrete through Portland cement replacement.

Credit No.	Name	Intent / Requirements
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 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 3.

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. This analysis has included consideration of the buildings, carparking and landscaped areas at the Cessnock Hospital site. The following risks applicable to the Cessnock Hospital Redevelopment 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 and toilet flushing can reduce the stress on water supply in the region and provide 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

High Efficiency HVAC System

Specification of highly efficient 4-pipe heat pump system and intelligently controlled HVAC systems to reduce energy consumption and with increased capacity for climate change resilience. Use refrigerants with low Global Warming Potential and Ozone Depletion Potential to minimise environmental hazard

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

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:

- Reuse of salvaged materials from onsite demolition for landscaping and ancillary building facades.
- 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 Cessnock Hospital Redevelopment 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 Cessnock Hospital Redevelopment 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	