WOOD & GRIEVE ENGINEERS

ENQUIRIES: NICHOLAS JOHNSON
PROJECT NO: 29586-SYD-SU

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NSW Health Infrastructure
C/- TSA Management

**ECOLOGICAL SUSTAINABLE DEVELOPMENT STATEMENT – MUDGEE HOSPITAL REDEVELOPMENT**

This Ecologically Sustainable Development (ESD) statement has been prepared for the Mudgee Hospital redevelopment, located at Church & Meares Streets, Mudgee NSW. The statement is intended to provide an overview of the proposed project's ESD commitments in response to Secretary's Environmental Assessment Requirements (SEARs) and support the project's development application via the Environmental Impact Statement (EIS).

Specifically, this statement responds to Key Issue No.6 – Ecological Sustainable Development and seeks to:

- Detail how ESD principals (as defined within Clause 7(4) of Schedule 2 of the Environmental Planning & Assessment Regulation 2000) will be incorporated in the design and ongoing operation phase of the development;
- Demonstrate that the development has been assessed against suitably accredited rating scheme to meet industry best practice; and
- Include a description of the measures that would be implemented to minimise consumption of resources, water (including water sensitive urban design) and energy.

Information contained within this statement has been prepared in accordance with:

- NSW Health Infrastructure Engineering Service Guidelines, August 2016;
- Green Star – a holistic environmental certification scheme created by the Green Building Council of Australia (GBCA); and
- Recognised best practice principles of ESD including relevant legislation, standards & industry benchmarks.

The following information provides a detailed response to the above Key Issues as identified within the Secretary's Environmental Assessment Requirements, Application Number SSD 9211.



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**Clause 7(4) – Schedule 2 – Environmental Planning & Assessment Regulation (2000)**

*The above nominated Clause identifies the Principles of ecological sustainable development as follows:*

*(a) the precautionary principle, namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In the application of the precautionary principle, public and private decisions should be guided by:*

*(i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and*

*(ii) an assessment of the risk-weighted consequences of various options,*

*(b) inter-generational equity, namely, that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations,*

*(c) conservation of biological diversity and ecological integrity, namely, that conservation of biological diversity and ecological integrity should be a fundamental consideration,*

*(d) improved valuation, pricing and incentive mechanisms, namely, that environmental factors should be included in the valuation of assets and services, such as:*

*(i) polluter pays, that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement,*

*(ii) the users of goods and services should pay prices based on the full life cycle of costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste,*

*(iii) environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms, that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems."*

**Mudgee Hospital redevelopment response;**

NSW Health Infrastructure (NSWHI) has taken a fundamentally responsible approach to ensuring the principles of ESD are incorporated into all of its new and refurbishment projects regardless of project value or size.

Precautionary Principle

There are no threats of serious or irreversible environmental damage as a result of locating Mudgee Hospital Redevelopment on the desired site. The proposed building is to be located on a previously developed site. As the proposed development is not a greenfield project, the risk of creating environmental damage associated with building on a greenfield site is considered low. No threatened or endangered species are located on the land due to the previous development of the site.

The proposed development is proposed to carry out predominantly the same use as the current building(s) on the site. Therefore, no serious or irreversible environmental damage is expected due to the operation of the building.

Inter-generational equity

The proposed Mudgee Hospital redevelopment conserves inter-generational equity through minimising the consumption of resources whilst providing a workspace which will ensure the health and well-being of occupants into the future. The project will ensure a lower demand for resources than a standard practice development by introducing a number of best practice energy and water conservation measures. These initiatives will conserve more resources for future generations, instead of their immediate consumption by the current generation.

As the site is already developed, the existing environment condition is unlikely to be significantly altered. The proposed development includes new landscaping which will maintain pockets of planted environment similar to those currently present on the site. The limited diversity of the environment currently on the site will be maintained by this project.

All waste streams will be dealt with in ecologically safe methods; waste water and storm water will be plumbed to the sewers or storm water drains as required by law. In addition, waste water will be lower for this development compared with a standard practice development as low-flow fixtures and fittings will be used to reduce water consumption throughout the building. Existing services infrastructure upgrades will be documented & included within the project where relevant and connect to the existing major services infrastructure currently serving the site.

Conservation of biological diversity and ecological integrity

There is limited biological diversity on the current site due to the property being previously developed. The proposed development will have limited, if any impact on the current level of biological diversity and ecological integrity as there is little ecological valued landscaping on the current site that will be replaced by built development in this project.

The project's sustainability targets will aim to ensure improved conservation of resources than a comparative standard practice development. This means that the proposed development is likely to have a smaller gross biological and ecological footprint than other similar projects.

Energy conservation measures will reduce the project's demand for electricity and gas, which slows or reduces the need for new energy infrastructure in the broader energy markets. This indirectly reduces the land required for new infrastructure, and the pollution caused by electricity generation.

Improved valuation, pricing and incentive mechanisms

This project will integrate a number of initiatives which aim to internalise pollution and other undesirable environmental outcomes. Contractors will be requested to provide and abide by an Environmental Management Plan and Environmental Management System which are in accordance with NSW Environmental Management Systems Guidelines or a similar standard. This places a value on environmentally responsible building practices and places a form of "polluter pays" onto the contractors to ensure they are held responsible for the environmental management of the building site as they complete their work.

The associated costs to recycle the construction and demolition waste have been considered by the project design team. The project is targeting 90% recycling of construction waste consistent with Green Star industry best practice standards. The intent in the pursuit of this outcome affords consideration of the full life cycle costs of the materials which currently exist on the project site and the waste from the new materials as a result of the construction. The inherent costs of recycling construction materials aims to incentivise the purchase of less materials, thereby reducing over-ordering and material wastage for the project.

Further pricing mechanisms such as *inherent cost savings* within the project design have been identified & utilized as a benchmark. For example, sewage, landfill waste, and $CO_2$ emissions are partially borne by project team and accounted for in the project's sustainability initiatives.

The project design has shown consideration for:

- improved water consumption efficiency, thereby reducing the production of sewage;
- reduced energy consumption, which means solutions to reducing $CO_2$ emissions will be identified and investigated during the design phase; and
- recycled waste streams in the construction and operation of the project, which will reduce overall the volume of material waste is directed to landfill & the associated costs.

**Green Star – holistic environmental assessment tool (recognised as Australian Industry Best Practice in Environmental Design & Construction).**

In response to the SEARs Key Issue in demonstrating the project is assessed against a suitably accredited rating scheme equivalent to industry best practice, the Mudgee Hospital Redevelopment project will be assessed against the industry recognised Green Star scheme.

Green Star, developed by the Green Building Council of Australia (GBCA), is widely recognised by the Australian development industry as representative of 'environmental best practice' in property design & construction. A holistic environmental rating tool, Green Star aims to improve environmental performance of buildings, communities and tenancies across nine assessment categories. These include:

- Building Management
- Indoor Environmental Quality
- Energy
- Transport
- Potable Water
- Materials
- Land use & ecology
- Emissions; and
- Innovation

4 Star Green Star equivalent, as nominated within the NSWHI Engineering Services Guidelines is considered consistent with Australian Best Practice in design & construction for a healthcare facility. The design integration of Green Star intent will ensure the project meets industry best practice standard via the inclusion of ESD initiatives such as:

- Comprehensive building commissioning & building systems tuning;
- Dedicated commitments to environmental building performance targets;
- Metering & monitoring systems for improved operational energy & water efficiency;
- Formalised environmental management practices during construction (EMS/ISO14001);
- Improved operational waste management practices;
- Improved indoor air quality;
- Improved acoustic, lighting & visual comfort;
- Reduced indoor pollutants such as volatile organic compounds & formaldehyde emissions;
- Improved thermal comfort for occupants;
- Reduced greenhouse gas emissions via energy efficiency initiatives – LED lighting, automated; controls, variable speed fans, economy cycle on air-conditioning, high efficiency MEPS rated equipment, optimised HVAC zoning, energy metering & BMS controls;
- Potable water savings – via high WELS rated FFE, sub-surface drip irrigation, fire system test water re-use;
- Responsible building materials – best practice PVC products, steel sourced from sustainable supply chains;
- Recycling & diversion from landfill targets for construction & demolition waste;
- Maintained ecological value of the project site;
- Redevelopment of previously developed urban project site will have minimised impact on the local ecology & ecosystem;
- Effective stormwater management to ensure post-development water quality & control does not exceed pre-development levels;
- Control of light pollution beyond the site boundary;
- Effective design & operation strategies to protect against legionella risk;
- Reduce environmental impacts from HVAC refrigerants; and
- ESD Innovations.

**Description of measures implemented to minimise consumption of resources, water (including water sensitive urban design) and energy.**

In addition to the information nominated within the above sections, the project will ensure suitable measures which achieve positive environmental outcomes are incorporated into the project design. This will be achieved via a combined approach to both the NSWHI Engineering Service Guidelines and the design intent of Green Star.

Specifically, the implementation of design initiatives to minimise the consumption of resources will be addressed by complying with NSWHI Principle 2.5.10 – materials (refer comments above) & the design standards nominated within Green Star – materials - credits 19 – 22.

The consumption of water will be minimised by complying with NSWHI Principle 2.5.9 – water & the design standards nominated within Green Star – water - credits 18. For further information on the impacts of water sensitive urban design, refer Civil engineer's stormwater management report.

The consumption of energy will be minimised by complying with NSWHI Principle 2.5.8 – Sustainability & Energy (refer comments above) & the design standards nominated within Green Star – Management, Indoor Env. Quality & Energy - categories. Examples have been provided above.

We trust the information detailed above provides sufficient response to the SEARs Key Issue – No.6 Ecological Sustainable Development (ESD) and confirms the project's commitment to ESD & ensuring the overall environmental impact of the project is minimised.

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**for Wood & Grieve Engineers Ltd.**