

April 01 2019
s2180277m-l

Multiplex Constructions Pty Ltd
Level 22, 135 King St
SYDNEY NSW 2000

Attention: Mr Tim Macleod

Dear Tim

**Re: New Maitland Hospital
Green Star Equivalency**

The following letter is provided in addition to the ESD Services Sears Report Responses Report included within the State Significant Application for the New Maitland Hospital Development.

The following statement provides commentary regarding the project's alignment with the Green Building Council of Australia (GBCA) Green Star framework.

As documented within the ESD report nominated above, the project has sought to include a number of ESD initiatives designed to align with the Secretary's Environmental Assessment Requirements and demonstrate alignment with Health Infrastructure standard practice for environmental sustainability.

The report does not commit to a Green Star certified outcome; however, based upon the nominated initiatives and applicable Green Star standards, the proposed design has been assessed against the Green Star Healthcare Version 1 tool in order to attain an equivalent ESD outcome.

Nominated initiatives include: -

- Building and environmental management.
- Energy and greenhouse gas emissions reduction.
- Minimisation of material / construction waste to landfill.
- Response to CSIRO climate risks.

In support of this statement, the following additional information has been provided: -

- Complete Green Star credit matrix. Note: Minimum credit score to demonstrate 4-star – standard = 45 credits.

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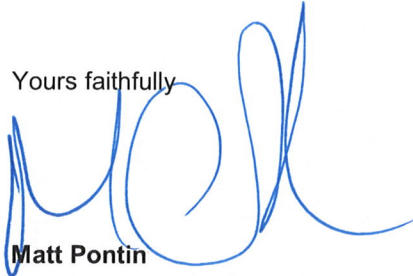
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A large, stylized green shape resembling a leaf or a swoosh, located in the bottom right corner of the page.

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We trust this statement provides sufficient information in support of the State Significant Application.

Yours faithfully

A handwritten signature in blue ink, appearing to read "Matt Pontin". The signature is stylized and cursive.

Matt Pontin



NEW MAITLAND HOSPITAL

NSW

ESD SERVICES

SEARS REPORT RESPONSES

MULTIPLEX CONSTRUCTIONS PTY LTD

Client

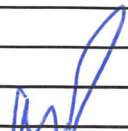

EMF GRIFFITHS

Consulting Engineer

ISSUE D

APRIL 10 2019

PROJECT NO. S2180277

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Issue Number	Date	Issue Description	Typed By	Author	Authorisation	Verification	Signature
A	13/02/2019	DRAFT ISSUE	NR	GL		MP	
B	27/03/2019	UPDATED ISSUE	NR	MP		GL	
C	01/04/2019	UPDATED ISSUE	NR	MP		GL	
D	02/04/2019	UPDATED ISSUE	NR	MP		GL	

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1.0 INTRODUCTION

This report has been prepared for the New Maitland Hospital Development in response to the State Significant Infrastructure Standard Secretary's Environmental Assessment Requirements (SEARs) requirements.

As a major hospital it is regarded as a state significant infrastructure (SSI) project and hence will address the requirements of the NSW Planning and Environment requirements which can be found here: <https://www.planning.nsw.gov.au/-/media/Files/DPE/Other/critical-state-significant-infrastructure-standard-secretarys-environmental-assessment-requirements-SEARs-2015-12.ashx> .

2.0 PROJECT DESCRIPTION

Health Infrastructure has committed to undertaking a Staged Infrastructure Application in accordance with Section 115ZD (1) of the Environmental Planning and Assessment Act 1979 (EP&A Act) for the following works: -

- Stage 1: Site clearance and preparatory works (approved under SSI 9022).
- Stage 2: Design and construction of the hospital Main Works. (this application SSI 9775).

Stage 2 includes the design and construction work generally comprising: -

- A new seven (7) storey Acute Services Building, including: -
 - Emergency services.
 - Medical, surgical, paediatric and maternity services.
 - Critical care services for adults and babies including a special care nursery.
 - Operating theatres, delivery suites and assessment rooms.
 - Palliative care and rehabilitation services.
 - Mental health services.
 - Satellite renal dialysis.
 - New chemotherapy services.
 - Oral health services.
 - A range of ambulatory care and outpatient clinics.
 - Internal road network and car parking for staff, patients and visitors.
 - Signage.
 - Site landscaping and open space improvements.
 - Tree removal.
 - Utility and services connection and amplification works.

3.0 REQUIREMENTS AND RESPONSES

The specific statements within the SSI 9975 Application to be responded to are quoted in italics with the reference from the provided schedule below followed by the relevant response: -

- **17.02 Detail how ESD principles (as defined in clause 7(4) of Schedule 2 of the Regulation) will be incorporated in the design and ongoing operation phases of the development.**

The Environmental Planning and Assessment Regulation 2000 Schedule 2 clause 7(4) states: -

The principles of ecologically sustainable development are 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.*

Response

The principals of sustainability shall be embedded into the design and construction by providing improved energy efficiency and Green Star 4-Star equivalency approach as noted herein.

Given the nature of the development as a major hospital the criteria referenced in items d (ii) and (iii) do not apply.

- **17.03 Include a framework for how the future development will be designed to consider and reflect national best practice sustainable building principles to improve environmental performance and reduce ecological impact. This should be based on a materiality assessment and include waste reduction design measures, future proofing, use of sustainable and low-carbon materials, energy and water efficient design (including water sensitive urban design) and technology and use of renewable energy.**

Response

The framework is defined by the application of the Green Star principals and increased energy efficiency beyond Section J JV3 compliance.

The application of Green Star equivalency provides the basis of considering national best practice sustainable building principals. Refer to the Green Star methodology detailed in Section 4.

Given the nature of the development as a major hospital the clinical and healthcare issues have taken precedence when considering options for water use and materials selections.

Whilst renewables have been considered the application of these has been considered relative to the economic allowances and payback criteria set by Health Infrastructure and as such none are currently proposed.

The projects approach to building performance includes reducing energy use by a minimum of 10% compared to Section J JV3 compliance.

The project shall follow the principals of Green Star and provide an “equivalence” approach to achieve forty-five (45) points and therefore a 4-Star rating although it shall not be formally submitted for Green Star assessment in accordance with The Engineering Services Guidelines.

Rainwater harvesting and reuse has been reviewed but not implemented due to it not being economically favourable. Refer to the report in Appendix A for the review.

- **17.04 Include preliminary consideration of building performance and mitigation of climate change, including consideration of Green Star Performance.**

Response

The project shall follow the principals of Green Star and provide an “equivalence” approach to achieve forty-five points and therefore a 4-Star rating although it shall not be formally submitted for Green Star assessment in accordance with The Engineering Services Guidelines.

Mitigation of climate change has been adopted by the review of The NSW Environment and Heritage climate change projections. These recommend an allowance of 0.7°C DB for the Maitland area by 2020-2039 and this allowance has been added to both the comfort and critical design conditions utilised when designing plant, equipment and cooling systems for the hospital.

- **17.06 Provide a statement regarding how the design of the future development is responsive to the CSIRO projected impacts of climate change, specifically hotter days and more frequent heatwave events.**

Response

The impact of hotter days and heatwave events has been considered the review of The NSW Environment and Heritage climate change projections. These recommend an allowance of 0.7°C DB for the Maitland area by 2020-2039 and this allowance has been added to both the comfort and critical design conditions utilised when designing plant, equipment and cooling systems for the hospital.

It has been considered this time frame is appropriate as plant replacement will start to occur after 20 years as plant would have reached the end of its economic life.

Whilst the temperatures are expected to increase by 2.1°C by 2070 all major plant and cooling systems would have been replaced at least twice by that time. When these replacements are undertaken the recommendations by CSIRO and BOM current at the point of replacement should be accommodated within the systems design and equipment selection.

- **17.11 NSW and ACT Government Regional Climate Modelling (NARClIM) climate change projections.**

Response

The NARClIM projections have been considered in respect to design conditions as noted in response to 17.06 above.

In response to SSI 9022 Approval Conditions – Sch.2, Part B, Item.B9-B12, Requirements for Future Stages: -

- **17.13 The SSI application for the detailed design and construction of the NMH development must demonstrate how the principles of ESD have been incorporated into the design, construction and on-going operation of the hospital.**

Response

The detailed design of the development incorporates the principals of ESD into the design by the application of the following measures: -

1. Providing energy performance 10% improved above the requirements of NCC Volume 1 Amendment 1 2016 Part J - i.e. 10% lower energy use than required for JV3 compliance.
2. Insulation applied to any wall or slab with a junction between a conditioned and external space.
3. Thermally efficient glazing relative to both fabric and solar heat transfer.
4. High efficiency water cooled chillers complete with cooling towers.
5. Use of zero Ozone Depleting Potential (ODP) refrigerants.
6. High efficiency boilers to provide heating and domestic hot water.
7. All Air Handling Units (AHUs) provided with economy cycles to maximise outside air use.
8. Comprehensive Building Control and Management System (BCMS) to optimise energy performance of active systems.
9. Complete Light Emitting Diode (LED) Lighting system to reduce energy use.
10. Provision of private High Voltage (HV) network to site.
11. Detailed and comprehensive testing and commissioning of all services to ensure correct efficient operation.
12. Energy metering and sub-metering installed.
13. Staff Change facilities to encourage staff to walk, run or cycle to the facility.
14. Bicycle storage to encourage staff to cycle to the facility.

The construction of the hospital will incorporate the principals of ESD by the following measures: -

1. Complying with the ESD design criteria.
2. Provision of and compliance with an Environmental Management Plan in accordance with ISO 14001.
3. Provision of and compliance with a Waste Management Plan including recycling 60% of all demolition and construction waste.
4. Extensive use of Low Volatile Organic Compounds (VOCs) for finishes and construction materials.
5. Thermal insulation utilised is zero ODP.
6. Extensive quality reviews and inspections to ensure an efficient façade construction.
7. Use of recycled materials where viable.

The ongoing operation of the hospital will incorporate the principals of ESD by the following measures: -

1. BCMS monitors and reports on energy efficiency to enable continuous improvement.
2. BCMS provides comprehensive fault reporting to ensure efficient operation of systems
3. Planned preventive maintenance for all building services
4. Operation of AHUs to utilise maximum outdoor air and “free cooling” to enhance energy efficiency.

- **17.15 The SSI application(s) for the detail design and construction of the NMH development must include preliminary consideration of building performance and mitigation of climate change, including consideration of Green Star Performance.**

Response

Any future stages are intended to follow the same principals for the current stage as defined herein. At the time of any future development the prevailing recommendations as defined by NARClIM and the Bureau of Metrology (BOM) would be reviewed for the period from completion to twenty (20) to twenty-five (25) years hence (as this is the normal expected economic life of thermal plant) to determine appropriate design conditions to compensate for expected climatic changes in that period of operation.

- **17.15 The SSI application(s) for the detail design and construction of the NMH development must provide a statement regarding how the design of the future development is responsive to the CSIRO projected impacts of climate change, specifically hotter days and more frequent heatwave events**

Response

The impact of hotter days and heatwave events has been considered the review of The NSW Environment and Heritage climate change projections.

When any design commences on future stage the current NARClim and BOMN recommendation would be reviewed as described in the response to item 17.15.

It has been considered this time frame is appropriate as plant replacement will start to occur after twenty (20) years as plant would have reached the end of its economic life.

Whilst the temperatures are expected to increase by 2.1°C by 2070 the intermediate condition would need to be considered as all major plant and cooling systems will be subject to replacement in the intervening years. When these replacements are undertaken the recommendations by CSIRO and BOM current at the point of replacement should be accommodated within the systems design and equipment selection.

4.0 GREEN STAR METHODOLOGY

The following scorecard identifies the targeted initiatives in order to attain the equivalent of a 4-star Green Star outcome to the extent required by HI's Engineering Services Guidelines GL2016-020. The specific initiatives identified are indicative and are subject to review and amendment throughout the design, development and construction process in order to ensure that the eventual outcome is equivalent to 4-stars in accordance with ESG.