

**ECOLOGICAL SUSTAINABLE
DESIGN (ESD) REPORT**
for
**Lingard Private Hospital
Hopkins St & DSU Development**

Project No:
MN12587

Client:
Healthe Care Surgical Pty Ltd

Architect:
HSPC

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1. EXECUTIVE SUMMARY

This report has been produced by Marline Newcastle on behalf of the proponent Health Care Pty Ltd in support of the proposed redevelopment of the site at Lingard Private Hospital Hopkins St Expansion – 19&27 Hopkins St Merewether, NSW, Lingard Private Hospital – Main Site – 23 Merewether St, NSW, Lingard Day Surgery and Consult Suites – 6-8 Lingard St, Merewether, NSW

The site is located within Mereweather NSW and will consist of a two-storey expansion to the existing Lingard Private Hospital along with a third-storey extension to the existing day surgery facility. The site is surrounded by commercial, retail, and residential uses including The Prince Hotel, Modus Brewing, and existing residences to all sides. The sites have frontages to Hopkins Street and Tye Road to the north, Lingard Street to the south-west, and Merewether Street between the two.

The aim of this report is to address general sustainability requirements listed in the NSW *State Environmental Planning Policy (Sustainable Buildings) 2022* (SEPP), section 3.2 (1). The development aims to provide a high-quality built environment with all aspects of environmental sustainability to be considered. The project is reviewed the path exceeding the minimum requirements of achieving a **5 Star Green Star rating** (or equivalent) and identified in detail which points would most likely be achieved. **The project will target 60 Greenstar points in lieu of the minimum 45 points** required to achieve an Australian Best Practice 4 Star Rating.

This assessment is preliminary only and will be subject to change as the detailed design is developed. The client is not seeking to achieve a formal Green Star assessment with the GBCA as part of this development however will use the Greenstar process a guide to Sustainable design. All spaces and classes of building may incorporate different initiatives within the Green Star framework, whilst still aligning with the overall developments policy objectives.

1.1 PROJECT SCOPE

This report has been prepared in response to the Secretary's Environmental Assessment Requirements (SEAR) for State Significant Development Application (SSDA) 13895306 which is submitted to the Minister for Planning and Public Spaces, pursuant to Part 4, Division 4.7 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The SSDA seeks consent for the demolition, excavation, design, construction and operation of the Lingard Private Hospital Hopkins St Expansion – 19&27 Hopkins St Merewether, NSW, redevelopment and an additional level to a portion of Lingard Hospital and an additional level on Kingsland day surgery unit.

The proposed works for the SSDA include:

This SSDA seeks approval for the development of a two-storey hospital extension on the Hopkins St site and the addition of a third-storey extension to the existing Day Surgery Centre. Specifically, the developments propose:

- Additional Bedrooms and Operating Theatres
- Underground carparking
- Oxygen enclosure
- Medical gas storage
- Genea clinic
- Consult rooms
- Bathroom facilities

1.2 SITE DESCRIPTION

This design brief relates to the below proposed buildings:

1. Lingard Private Hospital Hopkins St Expansion – 19&27 Hopkins St Merewether, NSW
2. Lingard Private Hospital – Main Site – 23 Merewether St, NSW
3. Lingard Day Surgery and Consult Suits – 6-8 Lingard St, Merewether, NSW

The site is located within Mereweather NSW and will consist of a two-storey expansion to the existing Lingard Private Hospital along with a third-storey extension to the existing day surgery facility. The site is surrounded by commercial, retail, and residential uses including The Prince Hotel, Modus Brewing, and existing residences to all sides. The sites have frontages to Hopkins Street and Tye Road to the north, Lingard Street to the south-west, and Merewether Street between the two.



2. INTRODUCTION

The aim of this report is to address general sustainability requirements listed in the NSW *State Environmental Planning Policy (Sustainable Buildings) 2022* (SEPP), section 3.2 (1).

The Green Star Design and As-Built system has been employed to address the requirements of the SEPP using a recognised building sustainability rating system. The table below shows where each SEPP requirement is addressed in this report.

SEPP requirement (see SEPP section 3.2 (1))	Report section
(a) the minimisation of waste from associated demolition and construction, including by the choice and reuse of building materials.	4.2.4 Site Management and Construction Waste 4.2.5 Operational Waste Management
(b) a reduction in peak demand for electricity, including through the use of energy efficient technology	4.4 Energy
(c) a reduction in the reliance on artificial lighting and mechanical heating and cooling through passive design	4.4 Energy
(d) the generation and storage of renewable energy	4.4 Energy
(e) the metering and monitoring of energy consumption	4.2.2 Commissioning and Handover
(f) the minimisation of the consumption of potable water	4.6 Water

Green Star

This report aims to demonstrate how the proposed development achieves the Green Star points in

- Management
- Indoor Environment Quality
- Energy, Transport , Water
- Materials
- Land Use and Ecology
- Emissions& Innovation

This report also provides confirmation of how the proposed development achieves the performance measures. These performance measures are:

Green Star: 5 Star rating under a current version of Green Star –This report describes the full range of initiatives that are proposed, organised and with reference to the Green Star framework.

3. REFERENCED DOCUMENTATION

3.1 ARCHITECTURAL

Design drawings, including plans and elevations, provided by HSPC Architects.

Concepts drawings for the mechanical, electrical, fire detection and protection and hydraulic services based on internal correspondence with services engineers at Marline Newcastle.

3.2 OTHER CONSULTANTS

Other consultants, including structural, civil, traffic transport and internal design.

3.3 LIMITATIONS

This report is based on documentation supplied to Marline Newcastle in August 2023. This documentation is subject to change during the design development stage and specific initiatives may be substituted or omitted whilst still achieving the targeted outcome of a 5 Star Green Star rating under Design and As-Built or equivalent.

4. SUSTAINABILITY INITIATIVES

4.1 GREEN STAR

The Lingard Private Hospital on Hopkins St is targeting an in principle 5 Star GREEN STAR rating. The building will be rated against the Design and As-Built tool administered by the Green Building Council of Australia (GBCA). This is consistent with the performance measure referenced within the Newcastle Local Environmental Plan.

Green Star is a holistic assessment scheme which assesses the sustainability features of a development within 9 different categories, including innovation.

Category	Total Available Points
Management	14
Indoor Environment Quality	17
Energy	22
Transport	10
Water	12
Materials	14
Land Use and Ecology	6
Emissions	5
Innovation	10
Total	110

There are 110 Credits available including 10 for innovation. A score of 45- 59 Credits is equal to **4 Stars (Best Practice)**, a score of 60-74 Credits is equal to 5 Stars (Australian Excellence) and a score of 75 or more credits is equal to 6 Stars (World Leadership).

4.2 MANAGEMENT

Many Green Star credits relate to the way in which the project is delivered and the client will be required to have in place the necessary controls and procedures to achieve the outcomes targeted.

4.2.1 Sustainability Champion

Marline has been engaged as ESD consultant to provide design advice and facilitate the Green Star assessment for the proposed buildings.

4.2.2 Commissioning and Handover

The design consultants will provide documentation to the construction team that outlines the design intent and contractors will be required to ensure they commission systems in accordance with the appropriate CIBSE or ASHRAE standards.

The contractors will be required, during the first 12 months post completion, to tune the base building systems that are sometimes left operating inefficiently. This will include systems such as the air conditioning system, common area lighting & hot water systems.

A services and maintainability review is to be undertaken at the design stage, with the design team and head contractor. The design team will produce a user guide that gives the school important information about how the building works and how to use the facilities most efficiently. In addition, a building operations and maintenance manual will be provided for building facilities management. During construction these guides will be updated in collaboration with the construction team.

A metering and monitoring strategy (including a metering diagram) will be developed by the design consultants, consistent with typical practice and a commissioning specification for meters will be nominated by the design consultants.

The following Green Star credits are applicable to the building commissioning and handover and are proposed for implementation:

- 2.1 Services and Maintainability Review
- 2.2 Building Commissioning
- 2.3 Building Systems Tuning
- 4.0 Building Information
- 4.0.1 Building Operations and Maintenance Information
- 4.0.2 Building User Information
- 6.0 Metering
- 6.1 Monitoring Systems

4.2.3 Adaption and Resilience

The project team will develop have developed a Climate Adaption Plan in accordance with a recognised standard and solutions will be included in the building design and construction to address the risk assessment component of the plan.

4.2.4 Site Management and Construction Waste

The construction team will operate the site using a Site Environmental Management Plan (SEMP) which is accredited/recognised against industry best practice, such as the NSW Environmental Management System Guidelines and ISO 14001.

The contractors appointed for the demolition and construction works will commit to targeting at least 80% of construction and demolition waste to be diverted from landfill and aim for 90% in accordance with the Green Star requirements. Sufficient space and access for the segregation, storage and removal of general waste and recyclables will be provided as part of the construction and demolition process.

4.2.5 Operational Waste Management

An Operational Waste Management Plan (OWMP) will be developed by the project's waste consultant, outlining the targets for waste generated during operation and ensuring suitable consideration has been given to spatial requirements and access. The following Green Star credits applicable to site management and construction waste are proposed for implementation:

- 7.0 Environmental Management Plan
- 7.1 Formalised Environmental Management System
- 7.2 High Quality Staff Support
- 8.0B Operational Waste Performance Pathway : Facilities:
- 22B Construction and Demolition Waste: Percentage Benchmark

4.3 INDOOR ENVIRONMENTAL QUALITY (IEQ)

The overall planning and design of the development has been developed to maximise IEQ outcomes. This is a process of balancing good environmental outcomes with the contradicting issues of energy and materials efficiency. Increased daylight, air movement and the use of environmentally friendly materials has been encouraged wherever possible.

4.3.1 Acoustic Comfort

The proposed development is considering acoustic design sympathetic to both patients and staff. This includes sufficient noise protection from air conditioning plant and noise transfer between areas. The specific requirements are being reviewed for incorporation into the project. The project will be designed in consultation with the acoustic consultants, and with consideration of noise from the lobby area, adjacent road control common space and bus stops. The following Green Star credits are applicable to acoustic comfort and are being considered:

- 10.1 Internal Noise Levels
- 10.2 Reverberation

4.3.2 Indoor Air Quality

Opportunities to provide good indoor air quality to the building in accordance with Green Star criteria and beyond that required by the NCC are being reviewed.

Air distribution via a number of individual fan coil systems is proposed for the commercial areas which will ensure air is effectively distributed in the occupied spaces through careful design of supply and return air points and appropriate selection of diffusers.

To prevent mould, build up within the air distribution system, all debris generating components such as cooling coils, heating coils, humidifiers and filters will allow for access for maintenance where feasible.

The following Green Star credits are applicable to indoor air quality and are being considered:

- 9.1 Ventilation System Attributes – Commercial building
- 9.3 Exhaust or Elimination of Pollutants

4.3.3 Lighting and Visual Comfort

Functional interior lighting will be provided throughout the building. The proposed lighting system will be designed to achieve the recommended illumination levels as stipulated in AS/NZS 1680. The designed power density of the lighting system will comply as a minimum with Section J6 of the NCC.

The following Green Star credits applicable to lighting quality and visual comfort are being considered:

- 11.0 Minimum Lighting Comfort
- 11.1 General Illuminance and Glare Reduction
- 12.2 Views

4.3.4 Indoor Pollutants

The project aims to optimise occupant health via the reduction of internal air pollutant levels, with the engineered wood products. Products will have low volatile organic compounds and formaldehyde levels; The architect and contractor are to review the finishes of these products as the design progresses.

The following Green Star credits are applicable to indoor pollutants and are being considered:

- 13.1 Paints, Adhesives, Sealants and Carpets:

4.3.5 Thermal Comfort

The spaces will be designed to optimise thermal comfort conditions through appropriately controlled VRF air conditioning systems.

A high performance building envelope featuring vertical timber shadings on the each facades is proposed which will provide a good shading effect on the glass. Internal shading will be provided where required to aid where additional solar protection is required.

The following Green Star credits applicable to thermal comfort and are being considered:

- 14.1 Thermal Comfort

4.4 ENERGY

The design of the Lingard Private Hospital on Hopkins St prioritises passive design and energy efficient solutions.

Green Star set minimum standards for energy consumption beyond the minimum requirements defined by the National Construction Code's Section J.

As there are up to 20 Green Star points available, it is anticipated that the proposed development will achieve several of these points to achieve the targeted 5 star Green Star rating overall for the building.

These self-imposed targets represent a significant improvement over the National Construction Code (NCC) and are driving the delivery of a highly energy efficient development.

To achieve these targets, a key feature of the proposed development is the high-performance roof top PV solar system on existing buildings on site.

As well as minimising heating and cooling demands, the proposed development will have energy efficient lighting, cooling, hot water systems and controls.

The buildings will be provided with high efficiency VRF systems to ensure that the energy consumption from the HVAC system is minimised.

A comprehensive metering strategy will be provided to allow building management to view and manage their real-time consumption of electricity and water. Base building energy & water consumption will be sub-metered by end-use and consumption monitored to ensure the buildings are operating as efficiently as designed.

The following Green Star credits are applicable to energy consumption and are being considered:

- 15E Greenhouse Gas Emissions: Performance Pathway

4.5 TRANSPORT

The Lingard Private hospital benefits from an ideal location close to Newcastle CBD.

There are three bus stops adjacent to the school, (approximately 150-200m away) which provides a direct connection to the Newcastle CBD and all suburbs. It is also located approximately 400m to The Junction shopping centre that is a local transportation hub.

The building will target the Performance Pathway of the Green Star Sustainable Transport credit, to reduce the impacts from transport as compared to a reference building. This is recommended for projects located in regional areas.

A Green Travel Plan will be prepared by a Traffic Consultant describing the Green Travel Initiatives and recommendations to be implemented post occupation.

4.5.1 Car Parking + Bike Parking (TBC)

Given the location of the development and anticipated use, the final development is proposing to include a plan for future car parking spaces which are being approved as part of the overall precinct master plan.

A significant provision of bike parking provided for the building.

Please refer to the transport plan for further information. The following Green Star credit is applicable to transport and is being considered:

- 17B.1 Access by Public Transport
- 17B.2 Reduced Car Parking Provision
- 17B.3 Low Emission Vehicle Infrastructure
- 17B.4 Active Transport Facilities
- 17B.5 Walkable Neighbourhoods

4.6 WATER

There will be targeting exemplar water efficiency in all buildings through a range of measures.

The buildings will also comply with the Green Star Performance Pathway, seeking a significant reduction in potable water consumption compared to a standard practice reference building through the following measures:

- Water efficient fixtures and fittings including showers, taps, toilets and urinals using the Water Efficiency Labelling Standard (WELS) ratings in accordance with the Green Star requirements.
- A rainwater harvesting system collecting water from the roof top.
- All non-potable water demands (toilets, urinals, irrigation) will have reused water (rainwater,) available to them.

The following Green Star credit is applicable to water consumption and is being considered:

- 18A.1 Potable Water: Performance Pathway
- 18B.1 Sanitary Fixture Efficiency
- 18B.2 Rainwater Reuse
- 18B.4 Landscape Irrigation

4.7 LAND USE AND ECOLOGY

The site benefits from its position as a brownfield area (the existing site comprises several single storey buildings), and redeveloping the site is therefore reusing land rather than developing on greenfield land. Hence the site meets the Green Star conditional requirements that it has not been of prime agricultural value, contained old growth forest and has not been a wetland.

4.7.1 Ecological Value

Biodiversity assessment can be completed to confirm that there is no threatened species or habitat impact by this development.

The extent of the improvement in ecological value of the site is being investigated compared to the existing site condition an improvement being considered on the basis of the Green Star Ecological Value calculator. The following Green Star credits are applicable to ecological value and are being considered:

- 23.1 Ecological Value

4.7.2 Sustainable Sites

A site contamination assessment is to be undertaken and best practice remediation measures will be considered if contamination is found.

The following Green Star credits are applicable to sustainable sites and are being considered:

- 24.1 Reuse of Land
- 24.2 Contamination and Hazardous Materials

4.8 EMISSIONS

Emissions from the development will be minimised as far as practical with consideration of the Green Star criteria and best practice standards.

4.8.1 Stormwater

Reduced peak event discharge post-development has been targeted, and the stormwater discharged from the site is to meet best practice performance objectives as specified in the Stormwater and Water Efficiency for Development.

A preliminary analysis will be undertaken using the Stormwater Modelling software (MUSIC) in accordance with local council guidelines.

Marline expects the results to show that the stormwater design aligns with the objectives of the council. As the design develops and more information becomes available, the stormwater design will be adjusted to ensure the compliance with the Planning Scheme is maintained.

The rainwater that is collected from the building roofs is proposed to be used for toilet flushing and irrigation. The rainwater would be appropriately treated and distributed to where it is needed.

The maintenance of the recycled water system would be carried out as part of the general maintenance contract for a development of this size with a clear and thorough maintenance strategy developed.

In addition, the water efficient fittings specified, and the greywater system will likely also contribute to a reduction in sewer flows. The magnitude of this reduction is currently being investigated.

The following Green Star credits are applicable to stormwater and are being considered:

- 26.1 Reduced Peak Discharge
- 26.2 Reduced Pollution Targets

4.8.2 Light Pollution

The design of the external lighting system will consider light spill upwards into the sky or obtrusively beyond the property boundary. It is noted that this could be a nuisance to adjacent properties, particularly residential neighbours. Marline has undertaken a report which indicates compliance with those measures will be achievable.

The following Green Star credits are applicable to light pollution and are being considered:

- 27.0 Light Pollution to Neighbouring Bodies
- 27.1 Light Pollution to Night Sky

4.9 INNOVATION

The proposed development is seeking to achieve recognition from the GBCA for innovative design practices and exceeding Green Star benchmarks for credits.

Up to 3 points are targeted for the Innovation category for Green Star.

5. SUMMARY

The sustainable design philosophy will follow closely with the Greenstar process. Whilst the client does not intend to formally rate the building the design will incorporate aspects of the Greenstar program that would be equivalent to achieving the targeted 5 star Green Star Design and As-Built rating .

Please refer to the attached example Green Star scorecard & requirements for the assessment of the points considered achievable based on the current documentation.

6. APPENDIX A – GREENSTAR SCORECARD

