SJOG Richmond Hospital

Electrical Services

External Lighting Strategy

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Revision

Revision	Date	Comment	Prepared By	Approved By
001	31/01/2020	Preliminary Issue	AW	SMB
002	01/10/2020	SSDA Issue	AW	SMB

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1. Introduction

Wood & Grieve Engineers has been engaged by St John of God Health Care Inc to prepare an external lighting strategy report for the proposed St John of God Richmond Campus redevelopment.

The St John of God Richmond Campus is located at 177 Grose Vale Road, North Richmond in New South Wales. The site is located outside the township of North Richmond on a 10-hectare site.

A significant feature of the site is Belmont House. Built in 1892 this substantial building is of historical significance and has a commanding position on the site overlooking lawns and mature specimen trees.

The current facility on the site has developed on site since 1953 when the Hospitaller Order of the Brother of St John of God (SJOG) purchased the site.

Over the years the hospital has been extended and developed to meet the expanding role of a mental health facility.

The hospital currently is a mix of building of various ages and several them do not meet with current guidelines for health facilities, or the expectations of the private patients.

1.1 Proposed development

The hospital is now commencing a redevelopment at Richmond that will see mental health undergo a total service transformation.

Currently an 88-bed hospital of varying room types including shared rooms and shared facilities, the new development will deliver the following:

- 112 sole occupancy bedrooms with ensuites;
- Generous lounge and break out areas within the Residence Pavilions;
- Large dining area with various seating arrangements for a restaurant feel;
- Alfresco dining areas;
- Café;
- Pharmacy;
- Group rooms and associated clinical support areas, and
- ECT & TMS Suite.

The above will form the bulk of the new building which will be linked together with a multi-use space that will have informal seating areas and provide a communal area from the residences to dining pavilion.

Refurbishment of the existing administration building will include the new home of the Chapel, as well as reception and waiting area upgrades. Xavier House will be completely refurbished to house the relocated and expanded CTC, Medical Centre and Education Hub.

Along with the demolition of the sub-standard building stock and proposed new build, site wide infrastructure will be upgraded, extended parking and traffic management implemented with landscaping to the new buildings undertaken.

A future residence of 28 beds is also allowed for to allow the hospital to expand to a total of 140 beds in the future.

A wellness centre has been identified as a key component for the health and well-being of clients staying at the facility.

1.2 SEARs Requirements

This report addresses the requirements outlined in the Planning Secretary's Environmental Assessments Requirements (SEARs) for the SSDA application for St John of God Richmond Hospital

This report addresses the specific requirement with regards to Environmental Amenity as follows:

- Include a lighting strategy and measures to reduce spill into the surrounding sensitive receivers.

2. External Lighting Strategy

2.1 General

LED light fittings will be provided to external areas associated with the redevelopment including access roads, pedestrian pathways, external car parks and building external surrounds.

Note: The final lighting design is subject to detailed design processes post approval of the SSDA.

External light fittings will be controlled via photoelectric cells (PE cells) to automatically switch on and off at pre-determined lighting levels.

External lighting will be designed to comply with the following standards:

- AS/NZS 3000 – Electrical installations "Wiring Rules"
- AS/NZS 4282 – Control of the obtrusive effects of outdoor lighting
- AS/NZS 1158.3.1 – Pedestrian area (Category P) lighting – Performance and design requirements

In order to address the SEARs requirement outlined in Section 1.1 of this report, the external lighting design will give due consideration to the following:

- Lighting based on Crime Prevention Through Environmental Design (CPTED) principles
- Minimisation of external lighting spillage to adjacent sensitive receivers
- Energy efficient lighting
- Aesthetically suitable lighting arrangement
- Lighting control systems
- Maintenance and ongoing running costs

2.2 Access Roads

Where upgrades to existing lighting along existing access roads are required, access roads will be designed to comply with both AS/NZS 1158.3.1 – Pedestrian area lighting (category P), and AS/NZ 4282 – Control of the obtrusive effects of outdoor lighting.

Where upgrades are required, Category P2 lighting to existing access roads will be provided.

Lighting category P2 is determined based on the following selection criteria:

- Pedestrian/cycle activity – High
- Risk of crime – Medium
- Need to enhance prestige - High

The light technical parameters associated with Category P2 lighting are as follows:

- Average horizontal Illuminance – 3.5 lux
- Point horizontal illuminance – 0.7 lux
- Horizontal illuminance uniformity – 10
- Point vertical Illuminance – Not applicable to local roads

Where required, it is proposed to utilise pole mounted LED light fittings with Type 2M/3M optics.

Light fittings will have zero-degree horizontal cut off to minimise any upward light spill.

Where necessary, light fittings will be provided with shields to prevent light spill into adjoining properties and sensitive receivers as identified in Section 3.

Surface-mounted LED light fittings will be fixed to the building where appropriate to the architectural intent.

2.3 Pedestrian Pathways

Pedestrian pathways will be designed to comply with both AS/NZS 1158.3.1 – Pedestrian area lighting (category P), and AS/NZ 4282 – Control of the obtrusive effects of outdoor lighting.

Category P2 lighting to new pedestrian pathways and access roads will be provided.

Lighting category P2 is determined based on the following selection criteria:

- Pedestrian/cycle activity – High
- Risk of crime – Medium
- Need to enhance prestige - High

The light technical parameters associated with Category P2 lighting are as follows:

- Average horizontal Illuminance – 3.5 lux
- Point horizontal illuminance – 0.7 lux
- Horizontal illuminance uniformity – 10
- Point vertical Illuminance – 0.7 lux

It is proposed to utilise pole mounted LED light fittings with Type 2M/3M/Type 4M/Type 5M (Symmetrical) optics.

Light fittings will have zero-degree horizontal cut off to minimise any upward light spill.

Where necessary, light fittings will be provided with shields to prevent light spill into adjoining properties and sensitive receivers as identified in Section 3.

Surface-mounted LED light fittings will be fixed to the building where appropriate to the architectural intent.

2.4 External Building Surrounds

Lighting to external building surrounds will be provided to integrate with the architectural design and the overall aesthetics of the building. Vandal and weather resistant LED light fittings will be provided in external areas as appropriate.

Lighting to external building surround will be provided to achieve lighting category P2 for pedestrian pathways and access roads where required.

Lighting to external building surrounds will also be provided for security purposes. Lighting levels associated with lighting category P2 will be sufficient to enable operation of surveillance cameras (typically 0.3 - 0.6 lux).

Lighting category P2 is determined based on the following selection criteria:

- Pedestrian/cycle activity – High
- Risk of crime – Medium
- Need to enhance prestige - High

The light technical parameters associated with Category P2 lighting are as follows:

- Average horizontal Illuminance – 3.5 lux
- Point horizontal illuminance – 0.7 lux
- Horizontal illuminance uniformity – 10
- Point vertical Illuminance – 0.7 lux

3. Light Spill Minimisation

All new external lighting will comply with AS 4282 – Control of the obtrusive effects of outdoor lighting. External lighting will be designed with due consideration of lighting spillage to adjacent properties and sensitive receivers.

Locations sensitive to light spill have been identified as follows:

- the Catalina Stud which adjoins to the north and east
- the Darley Farm which adjoin to the west
- the Hawkesbury River to the south
- the Kingsford-Smith Village to the north

The following approaches will be incorporated into the external lighting design to minimise obtrusive lighting:

- Luminaire mounting heights selected to minimise spillage and cater for better lighting control
- Where possible, light fittings adequately setback from the property boundary to reduce light spill
- Light fittings with narrow beam or sharp cut of angles
- Light fittings with low vertical aiming angles

Design with
community in mind

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