

DUBBO HEALTH SERVICE REDEVELOPMENT STAGES 3 & 4

Myall Street
DUBBO, NSW, 2830

Architectural SSD Report

Architectural Design & Environmental Amenity Statement

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Principal: HEALTH INFRASTRUCTURE



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Prepared by:



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Architectural Deliverables Summary

Architectural Drawings

- A 00000 – Cover sheet
- A 00001 – Zonal master plan
- A 00002 – Legends & Systems
- A 00010 – Staging Plans
- A 09003A – Staging Plan – Ground floor – Stage 4A
- A 09003B – Staging Plan – Ground floor – Stage 4B
- A 09003C – Staging Plan – Ground floor – Stage 4C
- A 09003CR – Staging Plan – Ground floor – Stage 4C Refurbishment
- A 09103A – Staging Plan – Level 1 – Stage 4A
- A 09103B – Staging Plan – Level 1 – Stage 4B
- A 09103C – Staging Plan – Level 1 – Stage 4C
- A 09103CR – Staging Plan – Level 1 – Stage 4C Refurbishment
- A 09203A – Staging Plan – Level 2 – Stage 4A
- A 09203B – Staging Plan – Level 2 – Stage 4B
- A 09203C – Staging Plan – Level 2 – Stage 4C
- A 09203CR – Staging Plan – Level 2 – Stage 4C Refurbishment
- A 09303A – Staging Plan – Level 3 – Stage 4A
- A 09303B – Staging Plan – Level 3 – Stage 4B
- A 09303C – Staging Plan – Level 3 – Stage 4C
- A 09303CR – Staging Plan – Level 3 – Stage 4C Refurbishment
- A 10000 – Location and Site Plan – Existing & Stage 3 2F
- A 10002 – Site Staging Plans
- A 10003 – Site Access
- A 10004 – Location and Site Plan – Stage 4 GF & 1F
- A 10005 – Location and Site Plan – Stage 4 2F & 3F
- A 10101 – Carparking (South)
- A 11003 – General Arrangement Plan - Stage 4 – Ground Floor
- A 11103 – General Arrangement Plan - Stage 4 – Level 1
- A 11203 – General Arrangement Plan - Stage 4 – Level 2
- A 11303 – General Arrangement Plan - Stage 4 – Level 3
- A 15401 – Elevations Stage 4 – Elevations 01
- A 15402 – Elevations Stage 4 – Elevations 02
- A 16401 – Sections 01
- A 16402 – Sections 02
- A 79401 – Shadow Diagrams

Schedule of External Materials & Finishes

- A SC002 – Architectural External Finishes Schedule

Photomontages for View Analysis

- Visualisation – External 01
- Visualisation – External 02

Architectural Design statement

1. Built Form and Urban Design

1.1. Building Form

The form of the building has been derived out of a direct response to both building use and existing site constraints.

Close discussion with the user groups has guided the functional planning of the hospital environment, which in turn has informed the overall building envelope and floor plate division. Furthermore, the elevation treatment responds to a regular planning and structural grid of 8.4m as outlined by HI's preferred planning strategy. In conjunction with user requirements, the building relates directly to their needs.

1.1.1.Height, Mass and Scale

The floor heights of the new building are established through a direct response to the existing adjacent building levels, with an emphasis on minimizing ramps and gradients on connections to Stage 1&2 works. This in turn has informed the overall building height.

The new hospital presents itself at a much larger scale of building than the majority of the site. As the main building of the site, it will visually establish itself as the focal point of the hospital grounds. By increasing the vertical scale of the site, the new building will make way for future vertical expansion as the needs of the community increase.

1.1.2.Topography

The Dubbo Hospital site typically falls to the south and western edges of the site. Care has been taken in the design to provide connections at multiple levels on the ground floor in order to tie into the existing campus. Retaining walls are proposed to the ambulance bay driveway, new carpark areas and the southern side of the new building. Stormwater retention and drainage has been located to the south of the site, which takes advantage of the natural fall of the site.

1.1.3.Streetscape

There are proposed upgrades and modifications to the roundabout at the south-eastern corner of the site. This will remedy flow and access issues currently associated with the roundabout, whilst providing more efficient and controlled access to the site. New landscaping to the periphery of the site will help mediate the new mass the building introduces to the campus.

1.2. Design Quality

1.2.1.Overall Site Layout

A majority of new landscape/road works occurs to the south eastern corner of the site, where visitors typically enter the site and the main hospital. Pedestrian traffic typically enters the site from the south east, for which new pedestrian footpaths and crossings have been provided up to the main building.

New on-site car parking and road upgrades are proposed to handle the additional vehicle traffic introduced to the site. Soft landscaping is proposed around the road network, with species selected so as to respond to the visibility requirements of the main hospital and emergency department entry.

1.2.2.Interface with surroundings

Due to its location in the centre of the site, the building has no direct interface to the site's external surroundings. The building connects to all internal building surroundings by utilizing a ramped hospital street as well as new link-way connections at the ground and second floors.

1.2.3.Open Spaces & Landscaping

Soft landscaping and new car parking areas are proposed to the eastern side of the new building. Species will be selected in consideration of views into and across the site, especially in relation to visibility of Emergency department and the main entry point into the hospital. The building naturally reframes a series of existing courtyard spaces originally defined by the boundary of the S Ward building. The intent is retain these spaces and connect to them visually with glazed façade sections on the ground floor of the adjacent building corridors and rooms.

1.2.4.Internal Street & Site Pathways

The main public parking and access roadways are being upgraded in order to maximize vehicle and pedestrian flows into and around the campus. A new ambulance bay and access road is being proposed to the southern side of the new building to separate hospital and visitor traffic where possible and allow for a direct access point to Emergency department. The maintenance roads to the west and northern sides of the site are to remain as they currently function.

1.2.5.Rooftop

The roof of the building is largely comprised of dedicated plant spaces for the new building. As the building is constructed in stages, the plant is also staged so as to support interim functions of the various departments which are commissioned prior to the end of building construction. Where possible, the plant has been setback from the building edge to minimize its visibility from the ground. A blade wall is proposed to the eastern side of the building to conceal the roof plant from the main public side of the building. There is a skylight located above the corridor leading into the ICU department on the roof, which will allow indirect sunlight to permeate into the ICU bays.

1.2.6.Setbacks

Dubbo Hospital is located on the northern fringe of the Dubbo town centre, approximately 1.5km north-east of Dubbo CBD. It is bounded by Myall Street and Cobbora Road to the south, River Street and the Charles Sturt University Campus to the north, Leonard Street to the east and the Coonamble rail line to the west.

Due to its central location to the site, the building itself does not encroach upon any existing property boundaries. Care has been taken to provide fire protection where the building places itself adjacent or close to existing buildings however.

The upgrades to Myall street roundabout and the road network into the site present an opportunity for the property boundary to be re-aligned in this area.

1.2.7.Building Articulation

The new building's form is primarily driven by the available area where the existing S ward used to sit. On the first and second floors, a main corridor is flanked to either side by a quadrant style planning arrangement.

Façade

The building envelope is constructed of lightweight paneling which is modularized by the 8.4m grid. Panels are substituted for glazing where suitable, with a variety of heights proposed to respond to the variety of internal conditions, as well as break up the linear nature of a panelized façade. A second skin is proposed over the panelized façade in the form of timber batten screens, which helps provide shading as well as soften the panelized façade in respect of its surroundings.

Materials

The materials selected for the new building have been identified to create a building that speaks of a new, modern vision for the campus, whilst remaining sensitive to the site environment through its use of timber screening elements.

Colours

The main building façade is proposed as a light colour, complimented by stained timber screening. The panelized façade enables the timber screening to stand out as the feature of the building envelope. The use of light façade tones also allows feature zones to be established for such purposes as emergency wayfinding, proposed in red.

1.2.8. Crime Prevention Through Environmental Design Principles

The Crime Prevention Through Environmental Design Principles (CPTED) guidelines under Section 79C of the EP&A Act 1979 are based on key principles for designing buildings and places that are safe and secure and which deter criminal behavior. The four key CPTED principles are:

- Surveillance
- Access Control
- Territorial Reinforcement
- Space Management

The design of the new building has followed the principles of CPTED as a fundamental precept of the site master planning and have been adopted in the design to provide a safe and secure environment for staff, patients, contractors and visitors using the new building, and are described below.

Surveillance

Surveillance by those who overlook or pass through spaces. Surveillance requires that the landscape is designed to put eyes onto the space. The key principles to achieve this in the design include:

- Facilitate and promote passive surveillance into the space from adjacent buildings, roads and spaces
 - Promote passive surveillance from other users within the space by designing and encouraging a mixture of uses and users at different times of the day and night
 - Provide unimpeded site lines between key spaces or destinations and avoiding blind spots where possible
 - Provide lighting to ensure safe use and appropriate surveillance of the space at night

Access Control

Access Control makes it clear where people can go or not go. Access control is achieved through physical and symbolic barriers which attract, channel or restrict pedestrian and vehicle movement. It is used to impede criminals from reaching potential victims and targets. The design incorporates natural barriers such as roadways and landscaping and physical barriers into the design, for example:

- Reduced and controlled number of public entries and exits into and out of the main building
- Security desk providing 24-hour security presence at the Emergency Department
- After-hours electronic access control and intercom stations at main entry points
- Access control on entries to departments for after-hour use by authorized personnel

Territoriality

Territoriality requires that the landscape is unambiguous in defining boundaries between public and private areas, as well as to inform users of the appropriate use of each space. Key principles that have been adopted within the new building's design include:

- Creation of zones that provide ownership between spaces through the use of formal devices such as fences, screens or signage as well as the use of environmental/ landscape elements such as areas of planting, changes of materials or a change of levels
- Clearly delineating territory without the significant loss or compromise of overall surveillance
- Avoiding ambiguity by not creating too many choices in circulation and connections between different spaces.

Space Management

Space management ensures space is well used and maintained – linked to territorial reinforcement, the design incorporates space management and signage to create awareness of both public areas and back-of-house areas. Each building is designed to have an engaged perimeter with no hidden areas on the ground plane or concealed service docks or similar for intruders to hide. The space management strategy also includes:

- Walkways and corridors through the site with clear sight lines and good security lighting.
- An appropriate mix of retail and café outlets near the main entrance and front of house.

Other principles include vulnerability, ownership, and legibility as described below.

Vulnerability

Vulnerability, both real and perceived, will have a detrimental effect on how safe individuals feel within a space. Vulnerability ties back into the surveillance and legibility principles. Individual users will feel less vulnerable as the level of activation and surveillance is increased. The key principles in reducing vulnerability in the landscape design includes:

- Spaces are designed to provide a number of routes to, and from, places to allow escape (where possible)
- The landscape is designed to minimize possible hiding locations or blind spots behind walls vegetation or structures
- Lighting ensures safe use and appropriate surveillance of the space.

The design for the new building minimizes the vulnerability of users primarily through the implementation of the principles of surveillance, legibility and ownership.

Ownership

Ownership of the landscape means that spaces are designed to instil a sense of ownership by the individual, group and community. The key principles include:

- Spaces that allow and promote social interaction as well as a variety of uses within the design of the place
- Designing the space to promote and encourage community pride of the place.
- Promoting individual members of the community to care about the place, how it is used and by whom
- Instilling ownership of the space by enhancing security – when users feel ownership of a place they are more likely to maintain security through both surveillance and use.

Legibility

- Legibility of the landscape requires that the space be designed to allow users to read and understand the space. The key principles in achieving this include:
- Ensure users know where they are and how to get to where they are going by providing clear visibility
- Locate key destinations to be clearly visible and logically set out.
- Use environmental cues, material and features within the landscape to promote legibility and way finding.

1.3. Services Integration

1.3.1.Waste Management & Loading

Due to being situated in place of an existing building, the new building is able to rely on existing loading and waste management facilities on the campus. A new storm water tank to the south will receive drainage and provide retention upgrades to the existing infrastructure. Various disposal rooms are located across the new building to support the waste management on the campus.

1.3.2.Mechanical Plant

The new mechanical plant is located on the roof of the building and includes supply and exhaust, chiller plant and cooling tower zones. The building is serviced by four major building risers, with each typically dedicating itself to a quadrant of the building.

2. Environmental Amenity

2.1. Solar Access

The building has been sited and designed to maximize the amount of natural daylight that envelops the building. Passive design measures will be used to promote an environment that provides well-being for the patients and a place for staff that ensures a comfortable working environment and reduces stress. The passive design measures will include:

- Maximise direct solar access to north-facing areas
- Reduce Glare
- Enhance visual outlook
- Create a comfortable working environment
- Connectivity to the outside

The façade is conceived as a high performance panelized façade system that allows flexibility for internal configuration and is thermally, acoustically and structurally efficient to allow for a comfortable environment for occupants. Shading of the windows intends to prevent solar penetration in summer but allow passive heating in winter.

The solar shading solution of timber batten screens has become an integral part of the façade of the new building. Battens are orientated horizontally on the northern face and vertically to the west and southern faces to maximize passive solar shading. The batten screens are set off the building to allow maintenance access between the screens and panelized façade, and introduces depth to the building fabric.

The provision of courtyard and skylight at Level 2 will introduce further solar access to wide plate floor areas.

2.2. Overshadowing

Shadow diagrams have been prepared which reflects the overshadowing impact of the new building at 9am, 12 pm and 3pm during the winter solstice (21st of June) and the summer solstice (21st December).

The overshadowing diagrams highlight the period of greatest impact throughout the year being the winter solstice, 21st June at 9am, as is typical with most buildings in this location. There will be overshadowing impact on the existing Hospital Administration Building and minor overshadowing over at the southern boundary of the site during the morning winter period. There will be no overshadowing impact on the neighbouring properties and the shadow impact on Myall Street is considered to be insignificant.

Accordingly, there will be no adverse overshadowing impacts on the environmental amenity of adjacent land uses stemming from the development.

2.3. Visual Impacts

The new building is located centrally to the Dubbo Hospital Campus. There will be insignificant impact on visual privacy on neighbouring residences to the east, given their distance from the building.

A computer generated 3D image of the site has been prepared which demonstrates the potential visual impact of the new building on the surrounding environment.

2.4. Acoustic Impacts

The primary source of operational noise generated by the new building will be the mechanical services equipment on the roof, as well as the vehicular movements on site. A Noise and Vibration Assessment has been carried out and an Acoustic Report has been prepared. Care

will be taken in the design to manage and minimize noise to and from the new building by use of both building mass and acoustic insulation.

2.5. Lighting Impacts

No lighting design has been prepared for the new building. However it is proposed that a Lighting Strategy be prepared in the next stage of design development. This will be based on the following design principles;

- Lighting should integrate with the buildings architectural style
- Buildings will have a strong night time presence and entries will be well defined from their primary vehicular and pedestrian access paths
- Consider the use of white halide lamp
- Visible point sources of building illumination will be minimised
- Lighting will inform a safe, secure environment to external spaces

2.6. Wind Impacts

Given the regular shape and the height of the building, it is unlikely that the new building will generate any significant wind impacts.