EIS RESPONSE

NEW MAITLAND HOSPITAL
14th August 2018
Revision C

GANSW – Request for further information on how the building envelope was developed, including options analysis and why the final proposal was chosen.

FP RESPONSE – The proposed envelope incorporates a two level podium with a four level tower above in an 'H-shape' configuration linked by a central lift core. This configuration has been adopted to maximise the effectiveness of the building to cater for the various needs of all its users being public, patients and staff in addition to establishing critical clinical links between the various hospital departments.

The floorplate is based on an 8.4m structural grid. This ensures efficiency of clinical planning, a degree of standardisation across the NSW health portfolio and is in accordance with Health Infrastructure guidelines.

Podium:
The podium represents an efficient footprint to accommodate critical services such as the emergency department, medical imaging and entry functions on ground as well as interventional suites, birthing and intensive care on Level 1.

A number of alternate options were investigated during the design process exploring larger footprints to facilitate alternate models of care and a variety of horizontal and vertical circulation strategies.

A description of options explored is provided in Appendix A.

The proposed podium was selected as the preferred envelope for a number of reasons:

+ The condensed footprint allowed greater flexibility in positioning the building on the site and minimising the impact on the surrounding landscape, in particular the Iron Bark forest
+ The condensed footprint minimised travel distances from one side of the building to the other, improving connectivity between open spaces and reducing travel distances for staff, patients and the general public
+ The footprint facilitated a simple and intuitive wayfinding configuration consisting of a 'T-shaped' internal street layout that connected the key public entry points with a single, centrally located lift core providing access to the upper levels of the hospital

Tower:
The tower incorporates four in-patient wings in an 'H-shape' configuration. Each wing is based on a 7 long x 2 wide grid module designed to accommodate 28 in-patient beds in accordance with the models of care developed in accordance with Maitland Hospital staff and the Local Health District.

A number of alternate options were investigated including a 3 wide grid module in a 'racetrack' configuration as well as a lower height, six in-patient wing configuration. The orientation of the tower wings was also considered to ensure the best aspect for sunlight and views.

A description of options explored is provided in Appendix B.

The proposed tower was selected as the preferred envelope for a number of reasons:

- The 7 long x 2 wide grid module for the in-patient wings represented the most efficient planning arrangement resulting in an area saving that allowed for the hospital to accommodate additional services over and above other in-patient configurations
- The 2 wide grid module for the in-patient wings is based on a single corridor layout that allows for increased natural light to the public and staff areas of the unit that are typically located centrally on the floorplate – Refer Appendix C
- The 2 wide grid module for the in-patient wings allows for improved visibility of patients and enhanced models of care to be adopted by nurses
- The 'H-shape' tower configuration of in-patient wings allowed for a centrally located lift core and shared support services that maximised the efficiency of the floorplate, allowed for clear and legible way-finding and a separation of clinical flows from public areas
- The 'H-shape' tower configuration best suited the preferred podium option resulting in a condensed building footprint that minimised the impact on the surrounding landscape and allowed flexibility in the placement of the building
- The 'H-shape' tower configuration allowed for an efficient stacking of clinical services that ensured good connectivity between departments and minimised horizontal travel distances for staff and the general public

Hospital Wing:
The Hospital Wing is a two-storey building to the south of the main hospital building that has been designed for separated clinical operations. The envelope has been designed to provide necessary clinical functions within a compact footprint that aligns with the footprint of the main hospital. The two storey height aligns with the height of the podium, providing clinical connectivity to critical services within the podium such as ED, Medical Imaging and Interventional Suites on both Ground Level and Level 1.

The proposed height of the Hospital Wing allows the building envelope to sit below the height of the surrounding bushland, concealing the building from the surrounding areas and minimising the visual bulk of the overall development.

GANSW – Request for further information on the master planning strategy and how future development is supported by the proposal

FP RESPONSE – A key aspect of the planning of the Hospital has been the incorporation of flexibility within the design to facilitate development of the hospital and adjacent sites into the future. This ensures the design has the ability to meet future demands relating to advances in medical treatment and changes to the Hospital's catchment demographics requiring modifications to its various models of care and in turn requirements for changes in the physical planning of the operation Hospital.

This flexibility in design has been incorporated in two primary ways:

- The planning of 'soft space' departments alongside other units that have traditionally experienced expansion

+ Consideration and planning for future 'hard expansion' with the allowance of key juxtapositions of space and structure to allow expansion beyond the current building fabric including development of additional space above the Hospital Wing to the south in addition to development over the adjacent car park to the east

The proposed street network around the hospital has been designed to allow extension to the north and the natural expansion of the precinct into the future.

GANSW – Request for further information on how the primary objectives of the NMH as set out in the Architectural Design Statement are achieved by the proposal

FP RESPONSE – The primary objectives set out in the Architectural Design Statement provide a background to the project and outline the key benefits the project will deliver for staff, patients, visitors and the community. These objectives will be realised in a number of ways including:

+ the provision of a new Hospital facility built to leading health and building standards and designed to meet community needs now and into the future
+ master planning that has minimised the building footprint allowing for efficient horizontal circulation, good connectivity of departments and optimum placement of the building on the site to minimise the impact on the surrounding bushland and maximise opportunities for new landscaping
+ master planning that has established a road network that allows for a separation of critical vehicle movements, clear wayfinding and visibility of key departments including ED, flexibility of access around the site and the potential for future expansion to the north
+ design of tower envelope that incorporates slender hospital wings that maximise natural light and outlook from all areas of the floorplate including in-patient units and staff areas as well as from public areas and primary way-finding points such as the central lift core
+ clinical planning based on leading health guidelines and models of care developed in conjunction with Maitland Hospital Staff and the LHD

Note that some objectives rely on detailed design and planning that is yet to be realised. Further detail will be provided in the Stage 2 Planning Submission.

GANSW – Request for further information on how the needs of the local indigenous community have been well met and how local indigenous identity and culture is integrated in the design

FP RESPONSE – Indigenous culture is to be considered in the artwork strategy, interior and landscape designs with consultation expected to be undertaken with indigenous representatives from the HNELHD staff and consumers. Further information will be provided in the Stage 2 Planning Submission.

GANSW – Request for further information on the approach to ESD, particularly measures to reduce water and energy usage

FP RESPONSE – Further to the approach to ESD outlined in the Architectural Design Statement, the detailed design will be developed with consideration to the following ESD criteria:

+ Indoor environment quality
+ Building management system
+ Use of plantation timbers
+ Emission minimisation
+ Optimum use of natural light
+ Selection of appropriate mechanical services options
+ Use of passive energy principles within the buildings/ facilities
+ Selection of high performance light fittings and light control systems
+ Incorporation of world's best smart building technologies
+ Water conservation
+ Use of energy efficient plant and equipment
+ Reduction of water consumption
+ Use of energy efficient lighting
+ Transport
+ Energy efficiency and greenhouse gases
+ Waste Management

In addition, the building will incorporate an industry standard facade system utilising high performance glass and specialist shading systems to reduce heat load. The integrated building control and management systems will utilise heat exchange technology and allow for the monitoring, managing and ultimately the reduction of energy usage by the buildings engineering systems. This will include smart lighting technology.

All hydraulic fixtures within the new Hospital will be specified to meet industry standards in minimising water usage. The facility will also have a rainwater capture system and storage facility as part of the site design allowing sustainable use of water resources to manage the irrigation of landscaping.

Overarching service and design principles will be further developed as part of the functional briefing with the hospital throughout design development. This will include operational and whole-of-life considerations.

The new facility will be designed to comply with the most recent ecologically sustainable design initiatives and relevant Australian Standards, including greenhouse, energy and water conservation and renewable energy issues.

A detailed approach to ESD will also be provided in the Stage 2 planning submission.

GANSW – Request for further information on the adequacy of the offset distances between east and west wings of the hospital building

FP RESPONSE – The offset distances between the east and west wings was primarily driven by clinical factors to ensure a safe, intuitive and efficient tower floorplate. A three grid (approx 25m) building separation between in-patient wings is typical throughout the health portfolio in NSW.

Other key factors in the design of the tower envelope were as follows:

+ The developed model of care for the new Hospital is based on the sharing of services and facilities between departments in the wings of the building which are centred on the core and adjacent spaces of each floor, a key factor in maximising this sharing culture is to ensure that access to these facilities is not excessive
+ For wayfinding purposes, the distance from the public lift core to the wings was analysed to ensure that the journey through the Hospital, and especially in the ward areas, is supported and intuitive
+ The ability of staff to access other staff from different wings after hours when staffing numbers are reduced allows for improved safety and security of the facility
+ Ensuring that delivery of goods and services is efficient and distances are kept manageable
+ Reducing the visual impact of the tower from the surrounding environment by keeping the tower component compact

GANSW – Request for further information on the adequacy of the traffic strategy to manage delivery and public vehicular traffic.

FP RESPONSE – Traffic engineer to respond.

GANSW – Recommendation that the proponent prepares a detailed landscape plan which demonstrates how; a) the natural setting will be incorporated, b) landscaping will be integrated with car parking areas to break down their impact, and c) patients, staff and visitors will be able to enjoy easy and direct connections between the hospital building and landscaped areas.

FP RESPONSE – The Landscape Zonal Plan (DA-08) identifies an extensive area of natural and regenerated bushland as well as new landscaped zones surrounding the hospital building that will reduce the visual impact of the building and car parking areas and provide important amenity for patients, staff and visitors. A detailed landscape strategy will be provided in the Stage 2 planning submission providing further detail on the items listed above by GANSW.

We note the current design incorporates the following:

+ extensive new landscaped zones around the hospital, in particular to the west and south providing zones for recreation, relaxation and contemplation away from the busy areas of the hospital

- surrounding natural and regenerated bushland that will inform the detailed landscape design and provide outlook and amenity beyond the new landscaped zones
- good connectivity to new landscape zones from the primary circulation paths within the hospital, including primary access points to the west through the short stay car park and to the northern entry forecourt that will include a combination of hard and soft landscaping
- a number of discrete secondary access points for staff to access landscaped areas away from the general public
- the short stay car park to the west is surrounded by new landscaping including a landscaped buffer between the road and the car park and has the potential for further landscaping within the car park itself to provide shading and to further reduce the impact of the hard scape
- the multi-storey car park to the east does not contain any rooftop landscaping
- in addition to the zones identified on the landscape plan the hospital will also include a number of internal courtyards and areas of rooftop landscaping to provide further amenity to building occupants, reinforce way-finding and allow natural light to areas contained within the large podium level floor plates

DPE – *Detail how the location and scale of the building envelope was developed, including options analysis and why the final proposal was selected (including detailing key vehicle and pedestrian connections and circulation requirements).*

FP RESPONSE – The location and scale of the building envelope was driven by a number of key constraints summarised on Site Analysis – Building Siting drawing DA-06. These constraints identified a single, viable location for the building. The primary site constraints were as follows.

Access:
The predominant access to the hospital is vehicular, most notably cars, buses and service vehicles. The primary vehicle access point is proposed from the new roundabout at the intersection of Metford Road and Fieldsend Street.

This location was determined through extensive traffic engineering analysis and peer review as the optimum location for the primary vehicle entry. This access point occurs at a relatively high level providing good visibility of the entrance and of the hospital configuration on approach, allowing intuitive way-finding.

A secondary access point is necessary for dedicated ambulance access and for emergency scenarios. It has been located in accordance with traffic engineering advice which recommends a minimum 120m distance from the primary entry whilst also avoiding the lowest point of the road which may pose a flooding risk.

The hospital has been positioned as close to Metford Road as possible, allowing for appropriate vehicle movements into the site. This provides good visibility for approaching vehicles and minimises vehicle and pedestrian travel distances to the hospital.

Topography:
The existing topography contains a relatively flat area that is highly suitable for the placement of the hospital. A number of steep ridges run through the site and these have been avoided due to complexities of construction and access. Low parts of the site, primarily to the east and west have been avoided as much as possible as these are subject to overland flow paths and localised flooding which pose a risk for health facilities. Avoiding these areas also preserves local habitats around these existing wetlands.

Flora and Fauna:
The proposed Hospital planning has respected the importance and character of the Iron Bark bushland on the south-western sector of the site by locating the hospital as far to the north as possible. This maintains the majority of this bushland both as a natural feature and also a buffer between the new Hospital development and the existing residential development to the south of the site. Required thinning of the forest and its undergrowth is needed as an asset protection zone (APZ) within 70m of the southern, eastern and western facades in order to reduce bush fire risk to the hospital.

Land uses:
The hospital has been located as far to the north as possible to minimise any impact on the residential area to the south. The Iron Bark bushland noted above, combined with a distance of over 100m from the hospital to the nearest residential property boundaries precludes any overlooking of the hospital onto neighbouring residences and conceals the bulk of the hospital.

In-patient wards have been orientated towards the east and west of the site maximising the views for occupants and further reducing over-viewing of the existing residential areas to the south.

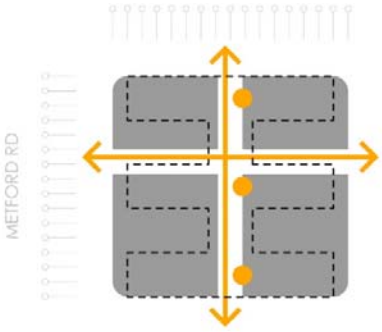
Helicopter Zone:
A helipad has been located close to the northern boundary of the west car park, level with Ground Floor (RL 19.3). This location has the greatest separation from the residential development while still maintaining connection to clinical services. A detailed study was compiled to inform the best location taking flight path restrictions, noise implications and site topography into consideration.

Part Lot 401:
Note that Part Lot 401 has been incorporated within the site area to align with the State Significance Infrastructure (SSI) declared boundaries however, there are no plans for HAC to acquire the land thus the development is to remain within Lot 7314 boundaries.

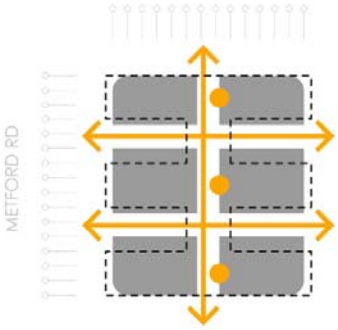
DPE – *The EIS should clearly identify alternative options and justification for the positioning of the building envelopes within the context of the site constraints to demonstrate that biodiversity impacts have been avoided and minimised.*

FP RESPONSE – Refer to response above.

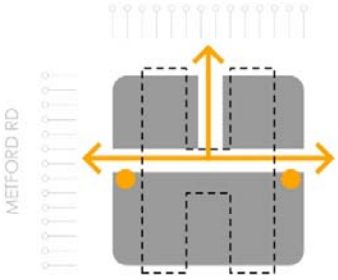
APPENDIX A



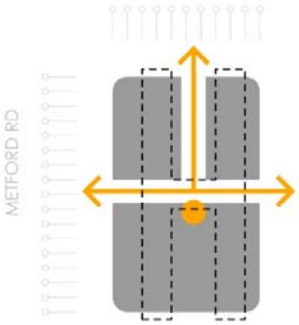
PODIUM - OPTION A
- 17,000m² floorplate
- 16 grid x 15 grid rectangular format
- two major circulation streets
- clear wayfinding but large horiztonal circulation distances
- supports multiple tower options and lift core locations
- large footprint increases impact of podium compared to smaller options
- allows for a large amount of ground level accommodation



PODIUM - OPTION B
- 14,500m² floorplate
- 13 grid x 15 grid rectangular format
- three major circulation streets
- supports multiple tower options and lift core locations
- clinical functions and connectivity compromised
- multiple public entrances, no intuitive hierarchy to circulation
- large footprint increases impact of podium compared to smaller options
- allows for a large amount of ground level accommodation

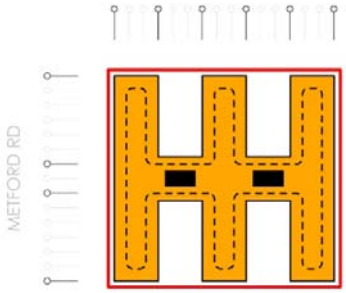


PODIUM - OPTION C
- 11,500m² floorplate
- 13 grid x 13 grid square format
- two major circulation streets
- supports a 'H-shape' tower configuration
- two lift cores located towards the external perimeter of the podium
- reduced footprint minimises the impact of the podium
- requires a taller tower to compensate reduced podium footprint

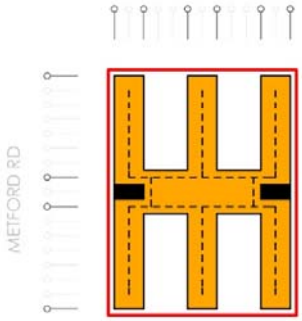


PODIUM - OPTION D (PREFERRED)
- 11,500m²
- 10 grid x 16 grid rectangular format
- two major circulation streets
- supports a 'H-shape' tower configuration
- single centrally located lift core
- reduced footprint minimises the impact of the podium
- requires a taller tower to compensate reduced podium footprint

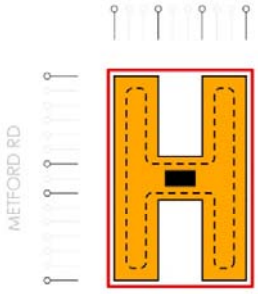
APPENDIX B



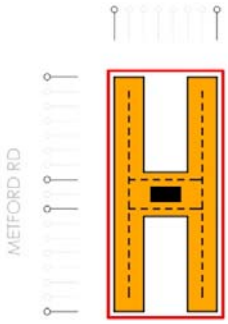
TOWER - OPTION A
- 'double-H' configuration with 6 wings per level (3 storey tower)
- 3 grid x 6 grid in-patient wings based on racetrack corridor layout
- 3 grid offset between towers as per NSW HI benchmarks and to support clinical travel
- two lift cores located centrally
- suitable to large podium footprints only
- orientation is flexible and can easily be reconfigured at 90 degrees



TOWER - OPTION B
- 'double-H' configuration with 6 wings per level (3 storey tower)
- 2 grid x 7 grid in-patient wings based on single corridor layout
- 3 grid offset between towers as per NSW HI benchmarks and to support clinical travel
- two lift cores located on the perimeter
- suitable to large podium footprints only
- orientation is flexible and can easily be reconfigured at 90 degrees



TOWER - OPTION C
- 'H-shape' configuration with 4 wings per level (4 storey tower)
- 3 grid x 6 grid in-patient wings based on racetrack corridor layout
- 3 grid offset between towers as per NSW HI benchmarks and to support clinical travel
- single centrally located lift core
- relatively compact overall footprint reducing visual bulk
- adaptable to a variety of podium footprints
- long facade addresses Metford Rd presenting the main bulk to the street
- orientation maximses view opportunities



TOWER - OPTION D (PREFERRED)
- 'H-shape' configuration with 4 wings per level (4 storey tower)
- 2 grid x 7 grid in-patient wings based on single corridor layout
- 3 grid offset between towers as per NSW HI benchmarks and to support clinical travel
- single centrally located lift core
- most compact overall footprint reducing visual bulk
- adaptable to a variety of podium footprints
- long facade addresses Metford Rd presenting the main bulk to the street
- orientation maximses view opportunities

APPENDIX C

Image showing a 2-wide grid module for the in-patient wings based on a single corridor layout that allows for increased natural light to the public and staff areas of the unit