**Executive Summary**

This report outlines the proposed civil design in support of the Environmental Impact Statement (EIS) and the State Significant Development Application (SSDA, ref 9036) for The Concord Hospital Redevelopment Stage 1. The proposed development must satisfy the Secretary’s Environmental Assessment Requirements (SEARS), in accordance with Schedule 2 of the Environmental Planning and Assessment Regulation 2000 and Section 78A(8) of the Environmental Planning and Assessment Act.

**Overview of Proposed Works**

The Concord Hospital redevelopment is to be undertaken in two (2) stages including:

- Clinical Services Building (CSB) and multi-storey carpark (Stage 1); and
- Acute Services Building (ASB) and multi-storey carpark (Stage 2).

Detailed approval is sought for the Stage 1 construction of the proposed CSB (44,000sqm GFA) and the construction of a multi-storey car park located to the north of Hospital Road.

Detailed development approval for the proposed Stage 2 works will be completed at a later date and does form not part of this SSDA. The Concept redevelopment has an indicative delivery timeframe of 25 years. The Stage 1 Detailed works are estimated to be completed by end 2021.

**Proposed Civil Works**

The proposed Stage 1 development consists of:

- A new Clinical Services Building (CSB)
- A Multi-Storey Car Park and a temporary on grade car park
- Associated works – existing building alterations, minor road realignments, loading docks and landscaping works.

The Civil enabling works consists of stormwater diversions and other services coordination. Stormwater will be diverted around the proposed new building prior to excavation commencing. Coordination of services installation with hospital operations access is required.

The civil works for stage one consists of:

- Bulk earthworks for the CSB
- Road works around the southern edge of the CSB
- Services coordination with a Combined services trench
- Temporary On Grade Carpark in the centre of the hospital site

Stormwater drainage design has been undertaken according to Canada Bay Council design criteria. Stormwater from the existing main building will be diverted under the CSB basement, with capacity for a 1% AEP (100-year ARI) storm event. Given the proximity to the harbour, OSD is not required, however stormwater quality treatment is required under the DCP.

The proposed CSB is generally flood free as the basement is above the PMF level.

Items to be confirmed prior to final design:

- Roundabout arrangement on Hospital Road

- Lifespan of the Temporary On Grade Carpark and associated possibility of further landscape works.

- Timing for the various parts of the road network

- Early works services coordination to be resolved

- Extent of peripheral roadwork (internal and external) to be confirmed

- Finalised design of MSCP.

- Connections to the existing stormwater system to be confirmed

**Secretary’s Environmental Assessment Requirements (SEARS):**

The schedule below outlines the specific issues of the SEARS relevant to the civil engineering works, and how the proposed civil design satisfies the requirements.

<table>
<thead>
<tr>
<th>11. Sediment, Erosion and Dust Controls</th>
<th>The proposed civil design includes sediment, erosion and dust controls that achieve this requirement.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detail measures and procedures to minimise and manage sediment, dust and fine particles. Relevant Policies and Guidelines:</td>
<td>Refer to sections 3.6 and 3.8 of this report and civil drawings C12 and C102.</td>
</tr>
<tr>
<td>13. Utilities</td>
<td>The proposed civil design includes water sensitive urban design measures that achieve the civil aspect of this requirement.</td>
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<tr>
<td>Prepare an Infrastructure Management Plan in consultation with relevant agencies, detailing information on the existing capacity and any augmentation and easement requirements of the development for the provision of utilities including staging of infrastructure.</td>
<td>Refer to sections 3.7 of this report and civil drawings SKC14-17 and SKC103-110. Refer to Hydraulic and Services Engineers reports relating to the other points of this requirement.</td>
</tr>
<tr>
<td>Prepare an Integrated Water Management Plan detailing any proposed alternative water supplies, proposed end uses of potable and non-potable water, and water sensitive urban design.</td>
<td></td>
</tr>
<tr>
<td>15. Drainage</td>
<td>The proposed civil design includes stormwater, drainage and water quality measures that achieve this requirement.</td>
</tr>
<tr>
<td>Detail drainage associated with the proposal, including stormwater and drainage infrastructure.</td>
<td>Refer to sections 3.4, 3.5, 3.7, and 3.8 of this report and civil drawings SKC14-17 and SKC103-110.</td>
</tr>
<tr>
<td>Detail measures to minimise operational water quality impacts on surface waters and groundwater.</td>
<td></td>
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<tr>
<td>Relevant Policies and Guidelines:</td>
<td></td>
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<tr>
<td>Guidelines for development adjoining land and water managed by DECCW (OEH, 2013)</td>
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<tr>
<td>16. Flooding</td>
<td>The proposed civil design includes an assessment of flood risk and achieves this requirement.</td>
</tr>
<tr>
<td>Assess any flood risk on site (detailing the most recent flood studies for the project area) and consideration of any relevant provisions of the NSW Floodplain Development Manual (2005), including the potential effects of climate change, sea level rise and an increase in rainfall intensity.</td>
<td>Refer to section 3.6 of this report and the TTW flood study ref: Flood Study and Infrastructure Review, Concord Hospital: Phase 1, 8/06/2018</td>
</tr>
</tbody>
</table>
Additional Requirements

- Stormwater Concept Plan;
- Sediment and Erosion Control Plan;

The proposed civil design includes stormwater plans and sediment and erosion control plans that achieve this requirement. Refer to sections 3.4, 3.5, 3.7, and 3.8 of this report and civil drawings SKC14-17 and SKC103-111.
1. Background

This SSDA report seeks consent for the proposed redevelopment of Concord Repatriation General Hospital to improve and replace outmoded facilities to meet the substantial growth in clinical service demand across the hospital’s catchment:

- Concept approval is sought for the redevelopment indicatively comprising 82,000sqm GFA, to be undertaken in two (2) stages including:
  - Clinical Services Building (CSB) and multi storey carpark (Stage 1); and
  - Acute Services Building (ASB) and multistorey carpark (Stage 2).
- Detailed approval is sought for the Stage 1 construction of the proposed CSB (44,000sqm GFA) and the construction of a multi-storey car park located to the north of Hospital Road.

Detailed development approval for the proposed Stage 2 works will be completed at a later date and does form not part of this SSDA. The Concept redevelopment has an indicative delivery timeframe of 25 years. The Stage 1 Detailed works are estimated to be completed by end 2021.

The proposed Concept redevelopment is in accordance with the concept architectural package prepared by Jacobs.

The proposed Stage 1 detailed development (CSB and multistorey carpark) is in accordance with the architectural drawings prepared by Jacobs.

The areas in the below staging plans have been assessed and are included within this report.
2. The Project (Stage 1)

The scope of proposed Stage 1 works includes:

- **Clinical Services Building:**
  
  A CSB providing new and expanded clinical services for Aged Complex Care and Rehabilitation (ACC&R), an integrated Cancer Care Centre and Defence Force Centre of Excellence. These services will be provided in a new building comprising:

  1. Basement level connecting new support services with existing support service lifts in the Multi-Block building on the lower ground floor.
  2. A one (1) storey podium level for the provision of outpatient clinics with dedicated drop off and entry areas.
  3. Two six (6) storey wings and one three (3) storey wing connected by a ‘Support Bar’ (plus rooftop plant) including ground floor day treatment centres and inpatients units. At ground level a link via a three (3) storey atrium to the existing Multi-Block building is created. On levels one and two overhead bridge links, within the atrium, are provided for patient movements between the new and existing Multi-Block building.

- **Car Parking:**
  
  - Construction of a five (5) storey multi-storey car park on the existing public at grade car park adjacent (north) of the existing main public hospital building, to the north of Hospital Road. Note car park capacity is to be confirmed.
  - Construction of an at grade car park adjacent (north east) of the existing main public hospital building, to the south of Hospital Road. Note car park capacity is yet to be confirmed, however this at grade car park will provide for overflow parking whilst the multi-storey car park is under construction, and will provide for construction vehicle parking and management ongoing.

- **Associated Works:**
  
  - Associated works associated are likely to include, however are not limited to:
    1. Minor alterations and additions to the existing public hospital building to facilitate connection to the proposed CSB works;
    2. Construction of a new loading dock, minor internal road realignment and widening to facilitate service access to the proposed CSB;
    3. Excavation, earthworks, site grading and preparation;
    4. Tree removal; and
    5. Landscaping works.

![Figure 3. Indicative photomontage of proposed CSB when viewed to the North West](Source: NSW Health Infrastructure/Jacobs (2017))
3. Civil Engineering Works

3.1 Enabling Works Design

Prior to the excavation for the CSB, stormwater diversions will need to be in place. The diversion works will intercept the existing stormwater lines upstream of the building site, and divert flow around the excavation.

The enabling works drainage will be intercepted by the proposed tunnel between the proposed CSB building and the Future Stage building. The final drainage alignment will need to be built prior to the demolition of the enabling works drainage and installation of the tunnel. Coordination of services installation with hospital operations access is required.

Figure 4 - Enabling Works

The enabling works also involves several other services diversions as indicated on the enabling works drawing package.

3.2 Stage One Design

The civil works for stage one consists of:

- Bulk earthworks for the CSB
- Road works around the southern edge of the CSB
- Services coordination with a Combined services trench
- Temporary On Grade Carpark in the centre of the hospital site

Figure 5 - Overall Drawing
3.3 Roadworks

Some works will be required on the road north-east of the CSB. Part of the existing road will be demolished as part of the new build. In addition, service will be diverted to this road as part of the enabling works.

Detail design development is required for the loading dock.

A schematic design for the road around a future stage has been prepared during this Stage 1 work package to coordinate new services and service diversions.

The temporary on-grade car park design seeks to minimise earthworks, as well as retaining existing vegetation including the avenue of Jacaranda trees.
3.4 Stormwater Drainage Design

Stormwater drainage design has been undertaken accordance with Canada Bay Council design criteria. Stormwater drainage network is generally designed for the 5% AEP (20-year AR) storm event.

The proposed building intercepts the existing drainage for the main hospital building. A drainage line with capacity for the 1% AEP storm event has been designed to carry stormwater from the main building under the basement of the new building and ultimately to the south-eastern discharge point.

The drainage line through the basement will be a discharge point for subsoil and seepage drainage.

Figure 8 Main building stormwater diversion under basement

3.5 Stormwater Discharge

Under the Canada Bay DCP Engineering Specifications, the site has an exemption from providing on-site detention. “Exemptions - OSD will be applied to the developments types as listed in the table under the Section Controls. Exemption from OSD would only apply in the following situations: … The runoff from the development is directly discharged into one of the bays or waterways and does not pass through any public drainage system”

The proposed development will discharge to the existing stormwater outlets to the North and South, and to Hospital Road. This stormwater discharges directly to Parramatta River which is tide affected.

The proposed hospital building will also discharge to the south of the site to an existing discharge point. Investigations into the existing discharge points show that they are in a dilapidated state.

Figure 9 – Temporary On Grade Carpark

The northern portion of the Temporary On Grade Carpark will discharge to the north to the stormwater system in Hospital road.

The southern portion of the Temporary On Grade Carpark will discharge via the service road to the south of the site.
Figure 10 - Proposed Multi Storey Car Park

The proposed Multi Storey Car Park (MSCP) will discharge to the north. The existing discharge point for the area will be used to minimise the impact on the mangrove trees lining the banks of the harbour. Further investigation is required to determine the size and location of the existing stormwater infrastructure.

3.6 Flooding

A flood report has been prepared by TTW (Flood Study and Infrastructure Review, Concord Hospital: Phase 1. 8/06/2018) that indicates that low lying areas of the site, including the helipad and some access roads/parking is inundated in rare tidal events under future climate change scenarios. The CSB is above this level and generally flood free.

3.7 Stormwater Quality

Stormwater discharging from the site at each of the discharge points will include Water Sensitive Urban Drainage (WSUD) measures, with a treatment train consisting of a gross pollutant trap (GPT) plus a proprietary tertiary treatment filter device. The treatment train at each discharge point will be designed to meet the stormwater quality targets outlined in the DCP.

Table 1 – Stormwater quality targets

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Load Reduction Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross Pollutants</td>
<td>70%</td>
</tr>
<tr>
<td>Total Suspended Solids</td>
<td>80%</td>
</tr>
<tr>
<td>Total Phosphorus</td>
<td>45%</td>
</tr>
<tr>
<td>Total Nitrogen</td>
<td>45%</td>
</tr>
</tbody>
</table>

At the discharge points on the south-east side of the site, existing stormwater quality devices will be upgraded where practical to meet modern standards.

3.8 Construction Phase Stormwater Management

During the construction phase of the project, an erosion and sediment control plan will be implemented to prevent sediment laden stormwater from entering the council drainage network. Stormwater controls on site will be detailed in an erosion and sediment control plan, generally in accordance with the “Blue Book” - Managing Urban Stormwater: Soils and Construction (Landcom NSW). The plan will vary based on construction staging and methodology, but will typically include:

- upstream clean water diversion;
- silt fences;
- sedimentation basin;
- dust control; and
- vehicle wash down.

The erosion and sediment control plan includes an inspection and maintenance schedule. The erosion and sediment control plan mitigates against sediment laden stormwater entering the council drainage system and the downstream environment.

3.9 Bulk Earthworks Design

Bulk earthworks plans have been prepared for the CSB. The design is coordinated with the structural shoring design for the basement and incorporates geotechnical information from Coffey (ref SYDGE253211-AF).

3.10 Items to be confirmed prior to final design

- Roundabout arrangement on Hospital Road
- Lifespan of the Temporary On Grade Carpark and associated possibility of further landscape works.
- Timing for the various parts of the road network
- Early works services coordination to be resolved
- Extent of peripheral roadwork (internal and external) to be confirmed
- Finalised design of MSCP.
- Connections to the existing stormwater system to be confirmed.
Appendix A – Flood Study and Infrastructure Review
Appendix B – Proposed Civil Plans