

6 October 2021

NL191366.B16

Health Infrastructure NSW  
Level 6, 1 Reserve Road  
St Leonards NSW 2065

Att: Health Infrastructure NSW

**Re: John Hunter Hospital Innovation Precinct – SSDA Civil Response to Submissions**

As part of the John Hunter Hospital assessment various regulatory bodies have undertaken a review of the development proposal and provided comment and/or requests for additional information. Comments received from Department of Planning Industry and Environment (Newcastle City Council (NCC) and Transport for NSW) in relation to the proposed civil and stormwater drainage works have been reviewed by Northrop, with responses to the submissions outlined below:

**1. City of Newcastle Comments**

*Detailing of scour protection downstream of the two culverts remains inadequately addressed. The extent and nature of proposed scour protection needs to be shown on the civil drawings to mitigate downstream impacts to waterways. This has the added benefit of resolving potential construction stage issues.*

*Inadequate scour protection at concentrated discharge points will mobilise sediment and cause problems in downstream bushland. It may also result in bed erosion undermining upstream civil assets. This is unlikely to be mitigated by reliance on discharge velocity limits alone because the receiving waterways are steep – particularly the eastern gully.*

*CN officers are willing to further discuss with the applicant the use of 'rock pitched' channel lining; drawing from a portfolio of over 6km of previous similar rock works to rehabilitate steep urban creeklines.*

**Northrop Response**

Northrop acknowledge that detailed design of the proposed scour protection at each culvert outlet must be undertaken at detailed design stage to ensure the stability of the downstream waterways. We have reviewed supplementary information provided by City of Newcastle and confirm that our intention for the design of the downstream scour protection aligns with Council's expectations being 'rock pitched' channel lining similar to that adopted by Council for rehabilitation of similar urban creek lines.

Further to the above, we confirm that we have reached out to Council representatives to discuss the opportunity to consult with Council during the detailed design phase of the project to draw on Councils previous experience with similar projects. We acknowledge the benefits of ongoing consultation, and Council have indicated they would be eager to continue their involvement once detailed culvert design has been advanced.

A		Date
Prepared by	CS	06/10/2021
Admin	BM	06/10/2021

## **Stormwater Reuse**

*A total of 180m<sup>3</sup> of stormwater reuse is required for the site. Northrop Engineers have indicated that a reuse rainwater tank having a capacity of 50m<sup>3</sup> will be provided. The remaining volume has been indicated to be off set to the OSD. The reuse from this tank will be for the cooling tower systems.*

*While CN generally does not have any concerns regarding this reuse proposal, it is noted that the development has a lot more potential for stormwater reuse than what has been proposed. The submitted Landscape Plan for the ASB Building Level 00 and Level 01 seems to be creating a great opportunity for a stormwater reuse.*

*Recent large-scale developments in the CN local government area have been reusing stormwater for similar landscape use, some of which have been very successful. At a minimum, it is recommended that an additional rainwater tank/s is provided for reuse of the landscaped areas.*

## **Northrop Response**

As per Councils advice, we have explored the opportunity to increase the rainwater reuse volume as part of the development proposal. Northrop confirm that the Hydraulic consultant WSP is updating their design documentation to include provisions for landscape irrigation in the vicinity of the new Acute Services Building, as well as increase the minimum storage volume required to service the proposed mechanical plant cooling towers. This modification to the design substantially increases the reuse volume for the development to 125m<sup>3</sup> (up from 50m<sup>3</sup>) in line with Councils recommendation to maximise the onsite reuse volume.

## **2. Transport for NSW Comments**

*Stormwater Management – The submitted concept stormwater management plans and addendum fails to detail the relationship between the proposed stormwater management system and receiving (downstream) NICB system. The development should be conditioned to ensure that discharged stormwater from the development does not exceed the capacity of the stormwater drainage system for the NICB.*

## **Northrop Response:**

Whilst we acknowledge the TfNSW comments in relation to site discharge, we note that it is the responsibility of the NICB design team to ensure that the downstream drainage system is designed to cater for the existing discharge from the John Hunter Hospital site for all storm events up to and including the 1% AEP in line with standard industry practice. Similarly, it is the responsibility of the John Hunter Hospital and Innovation Precinct (JHHIP) design team to ensure that stormwater runoff from the new development does not increase site runoff above existing flow rates, such that the peak discharge to the downstream drainage system is not increased. This approach is again in line with standard industry practice and the City of Newcastle DCP and ensures that each design fulfils its obligations for the associated catchment design.

In this regard, Northrop confirm that the stormwater drainage system for the proposed development includes the provision of onsite detention basins downstream of the new works to reduce post development runoff to pre-development flow rates for the associated upstream catchment. As such, there will no increase in post development peak discharge, and therefore no impact on the downstream NICB design.

The recommended consent condition proposed by TfNSW places an unreasonable burden on the existing John Hunter Hospital site if the NICB designers have not adequately fulfilled their design obligation of catering for existing upstream catchments. The wording of the condition suggests that JHHIP would be required to confirm the existing culvert capacity and retrospectively provide additional detention facilities if the NICB culvert design is deemed inadequate to cater for existing runoff.

We recommend that the drainage condition be re-worded to confirm that the proposed development shall not increase post catchment runoff, which is typical industry practice.

Should you have any further queries please feel free to contact the undersigned.

Yours sincerely,



**Chris Smith**

Principal | Civil Engineer

BEng (Civil) MIEAust CPEng NER RPEQ