

LTR-Tweed-Hospital-Report-DPIE-Response
21 April 2020

Lendlease
Level 3, Kings Gate, 2 King Street, Bowen Hills
QLD 4006 Australia

Dear Lendlease,

RE: Tweed Valley Hospital Hydrology Assessment Update

This updated version of the Tweed Valley Hospital Hydrology Assessment (Rev 4) has been prepared in response to the Department of Planning, Industry and Environment (DPIE) queries provided on the 27 March 2020 and subsequent meeting on the 31st March 2020 (DPIE, Alluvium, RBG, Lend Lease and SMEC). The following table summarises the DPIE/ALLUVIUM's queries and SMEC's responses.

Table 1: DPIE / ALLUVIUM COMMENTS AND SMEC RESPONSE

DPIE/ALLUVIUM COMMENT	SMEC RESPONSE
<p>DPIE RFI- 02/04/2020 -</p> <ol style="list-style-type: none"> are there particular periods / seasons in each of the year where increased wetting due to increased runoff volumes would occur and be detrimental to sensitive vegetation communities? how would the distribution of average annual runoff volume to the wetland change post-development considering longer periods (i.e. monthly and seasonal periods such as 30, 60 or 90 days)? are there areas in the wetland where increased runoff volumes would increase the inundation extents, depths and periods significantly? are the vegetation communities in the identified areas (above) susceptible to impacts from increased period of wetting and related reduced periods of drying? 	<p>SMEC determined that the peak wet season/periods for the development were in the months from November to March. The increase in monthly flow for the full seasonal period were assessed. It is noted that the maximum, average and minimum flow were 10.9 ML, 3.4ML and 0 ML respectively (based on a 15 year data period).</p> <p>An assessment was carried out to quantify the impact of flow volumes entering the wetland in longer periods. Based on the modelled monthly inflow data, there is minimum 4 month drying period (<2ML/month) for the existing and developed scenario (for 10 of the 18 years modelled). It is noted that in 2012 there was minimal rain. Based on our assessment, it is noted that the runoff volume from the development, in the existing and developed scenarios, is highly variable.</p> <p>Due to limited topographic survey available for the wetland, inundation extents and depths cannot be accurately determined. As agreed, SMEC instead carried out a high-level assessment to quantify the impact of runoff to the wetland.</p> <p>The total external catchment area of approximately 850ha is contributing to the wetland. Whereas, the hospital catchment area is approximately 12.85ha. This means that the hospital footprint contributes to approximately 2% of the total external catchment (assuming that 75% of external catchment contributes to the wetland). Based on the available data, it is determined that the increase in runoff from the development is negligible to the entire catchment inflows. In addition, the</p>

DPIE/ALLUVIUM COMMENT	SMEC RESPONSE
	<p>available data indicates that the wetting and drying sequence is unlikely to impact the hydrologic cycle of the wetland.</p> <p>Based on our ecological assessment (Section 5), there does not appear to be an obvious likelihood of a negative impact on sensitive vegetation communities as a consequence of changed inflows associated with the development.</p> <p>Refer the Section 2.2 and Section 5 of Tweed Valley Hospital Hydrology Assessment Report (version 04, April 2020) for further information.</p>
<p>Alluvium - Review of Stormwater Management Plan</p> <p>RBG/SMEC to exclude the 1ha area from the pre-development comparison as detailed in section 5.8 of their report as per comments on page 8. SMEC to ensure that the MUSIC model is consistent with the latest version of RBG's music model (i.e. Rainwater tank) and provide model as per section 5.8 (page 9)</p>	<p>The latest RBG MUSIC model (April 2020) was reviewed and used to carry out the requested model refinement on flow regime assessment. The Section 2.2 of Tweed Valley Hospital Hydrology Assessment Report (version 04, April 2020) was updated with latest MUSIC model results.</p>
<p>Alluvium - Review of Stormwater Management Plan</p> <p>SMEC ecologist to review the behaviour of the wetland inundation and soils to the changed conditions (main point of meeting on the 02.04.2020) as mentioned in section 5.9 on Page 12. Various general comments on page 13 - 17 of the attached.</p>	<p>The updated monthly flow modelling has been reviewed and interrogated to confirm what changes might be expected both hydrologically and in terms of any changes this might have on vegetation. (Section 5.1.1 of the report)</p> <p>Average additional monthly inflows associated with the developed scenario average approx. 3.4mL/month. The implications on the vegetation and soils of the wetland are discussed in detail in the context of variable climatic conditions, size of the catchment feeding into the wetland and changes to wetland drying time and inundation frequency.</p>

If you have any queries or wish to discuss the submission further, please do not hesitate to contact myself on (02) 9925 5408 or Matt.Box@smec.com.

Yours sincerely,



Matthew Box

Manager – Water Resources Sydney