

Our ref: L.A10908.002.00.Addendum01.docx

21 March 2023

Goodman Property Services (Aust) Pty Ltd
The Hayesbury
1-11 Hayes Road
Rosebery NSW 2018

Attention: Guy Smith

Dear Guy,

**RE: FLOOD ASSESSMENT FOR OAKDALE EAST INDUSTRIAL ESTATE MASTERPLAN AND
STAGE 2 WORKS - ADDENDUM NO. 1**

Background

In June 2022, BMT Commercial Australia Pty Ltd ("BMT") completed a flood assessment to address the Planning Secretary's Environmental Assessment Requirements (SEARs) related to flooding for State Significant Development Application SSD-37486043 for the Concept Plan and Stage 2 works for the Oakdale East Industrial Estate. This assessment was documented within the 'Flood Assessment for Oakdale East Industrial Estate Masterplan and Stage 2 Works' (BMT, 2022) (reference: L.A10908.001.01.FIA_Oakdale_Estate_SSDA.pdf) (hereafter referred to as the "Oakdale East Flood Assessment").

WaterNSW has reviewed the proponent's submission, which included the Oakdale East Flood Assessment, as well as Goodman's original Response to Submissions (RTS) dated November 2022, and has raised concerns regarding the adequacy of the proposed development to satisfy the requirement for post-development flows to be equal to or less than pre-development flows for each modelled storm event up to and including the 1% AEP event, particularly in the vicinity the WaterNSW pipeline adjacent to the proposed development site. This is outlined in WaterNSW's 'Response to Submission' letter dated 23 August 2022 (reference: D2023/1762).

This letter forms Addendum No. 1 to the Oakdale East Flood Assessment. It specifically responds to issues raised by WaterNSW in relation to pre- and post-development flows and provides additional information requested by WaterNSW regarding this matter.

Pre- and Post-Development Flows

"Baseline Scenario" (pre-development) and "Developed Scenario" (post-development) TUFLOW models were developed for the Oakdale East Flood Assessment and used to simulate the 1% AEP flood, 5% AEP flood and Probable Maximum Flood (PMF) for an ensemble of design storm durations ranging from 2 hours to 18 hours.

In order to provide WaterNSW with requested pre- and post-development flow comparisons for the 1% AEP and 5% AEP events, flow hydrographs were extracted from the results of the TUFLOW model simulations at the cross-section shown in Figure 1.1, which spans 880 m along the WaterNSW pipeline corridor. Figure 1.1 also displays the 1% AEP flood extent and flood level extraction points (Loc-A to Loc-G) referenced in the Oakdale East Flood Assessment.



Figure 1.1 Flow Extraction Cross-Section along WaterNSW Pipeline Corridor

A comparison of pre- and post-development flow hydrographs for the 1% AEP and 5% AEP events are shown in Figure 1.2 and Figure 1.3, respectively.

Discussion

Figure 1.2 and Figure 1.3 illustrate that, for all modelled storm durations, the timing of the flow hydrographs remains largely unchanged as a result of the proposed development works. However, an average relative increase in peak post-development flow of approximately 3% and 2% compared to the pre-development scenario flow is observed for the 1% AEP and 5% AEP events, respectively.

This increase is primarily due to the additional surface runoff generated by the proposed development and translates into a minor increase in velocity and water levels across the WaterNSW pipeline corridor, as presented in the mapping included in Oakdale East Flood Assessment. Specifically, the increase in velocity is typically less than 0.1 m/s for both the 1% AEP and 5% AEP floods, whilst increases in flood levels are predicted to be approximately 30 mm at the pipeline (i.e. Loc-G in Figure 1.1) for the 1% AEP flood and negligible at this location for the 5% AEP flood.

Furthermore, the locations of predicted maximum flood level and velocity impacts do not necessarily coincide. Thus, only minimal impact on peak velocity-depth product ($V \times D$, also known as “unit discharge”) is predicted, refer Figures A10 and A19 of the Oakdale East Flood Assessment, where $V \times D$ indicates potential impact on flood risk to people and property (e.g. structures and infrastructure) associated with the coincidence of both impact on flood level and velocity. These figures show that the impact on $V \times D$ is confined to the creek channel during the 5% AEP flood and increases greater than

0.05 m²/s, as well as some reductions in $V \times D$ in this area, are contained within the Reedy Creek channel during the 1% AEP flood.

It is important to acknowledge that design inputs informing the Developed Scenario TUFLOW model for the Oakdale East Flood Assessment were limited to masterplan level designs at the time the modelling was completed in 2022. Therefore, all elements of the stormwater management plan for the Site may not be fully captured within the model and as a result, the presented results may exhibit some degree of conservativeness.

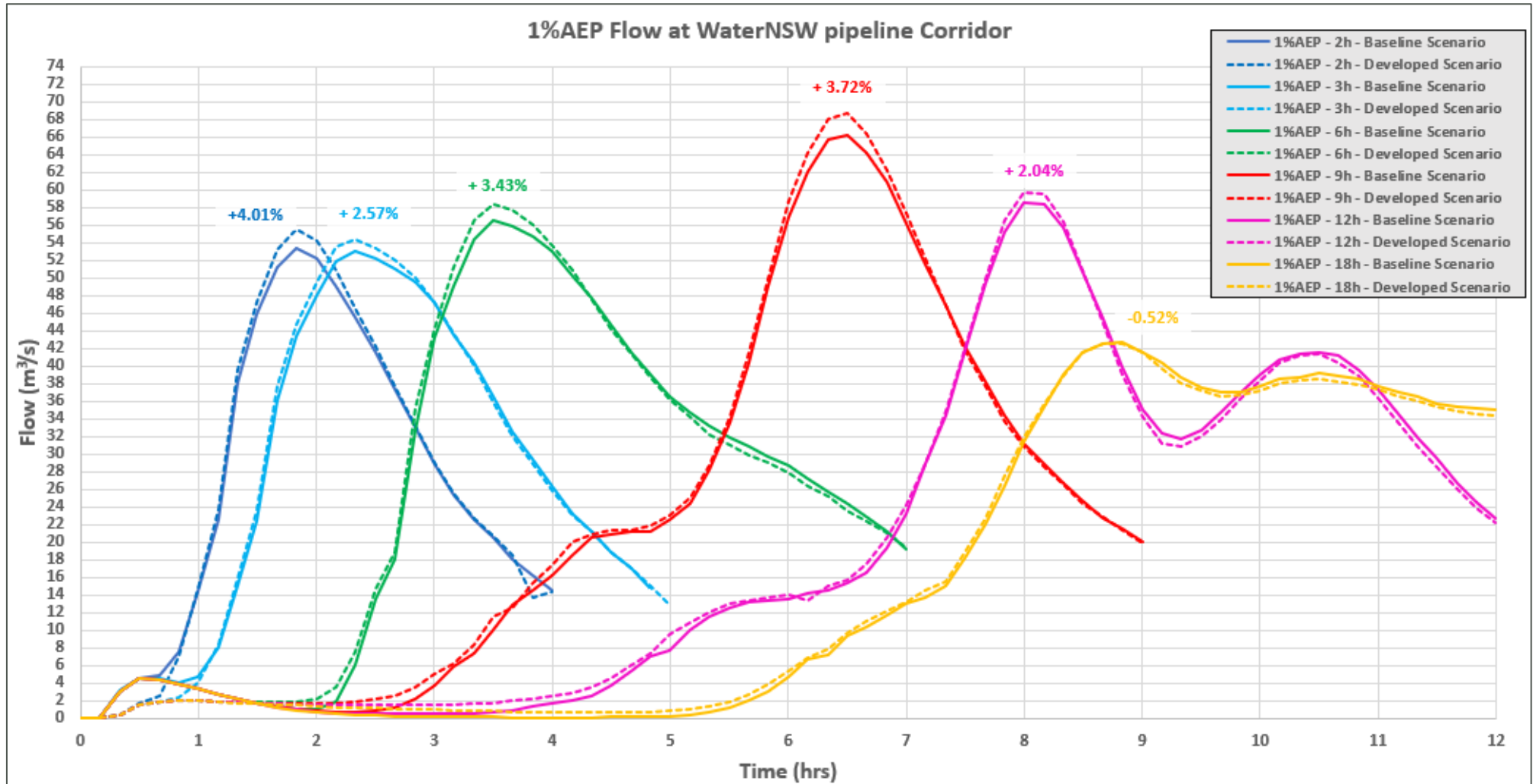


Figure 1.2 1% AEP Flow Hydrographs at the WaterNSW Pipeline Corridor

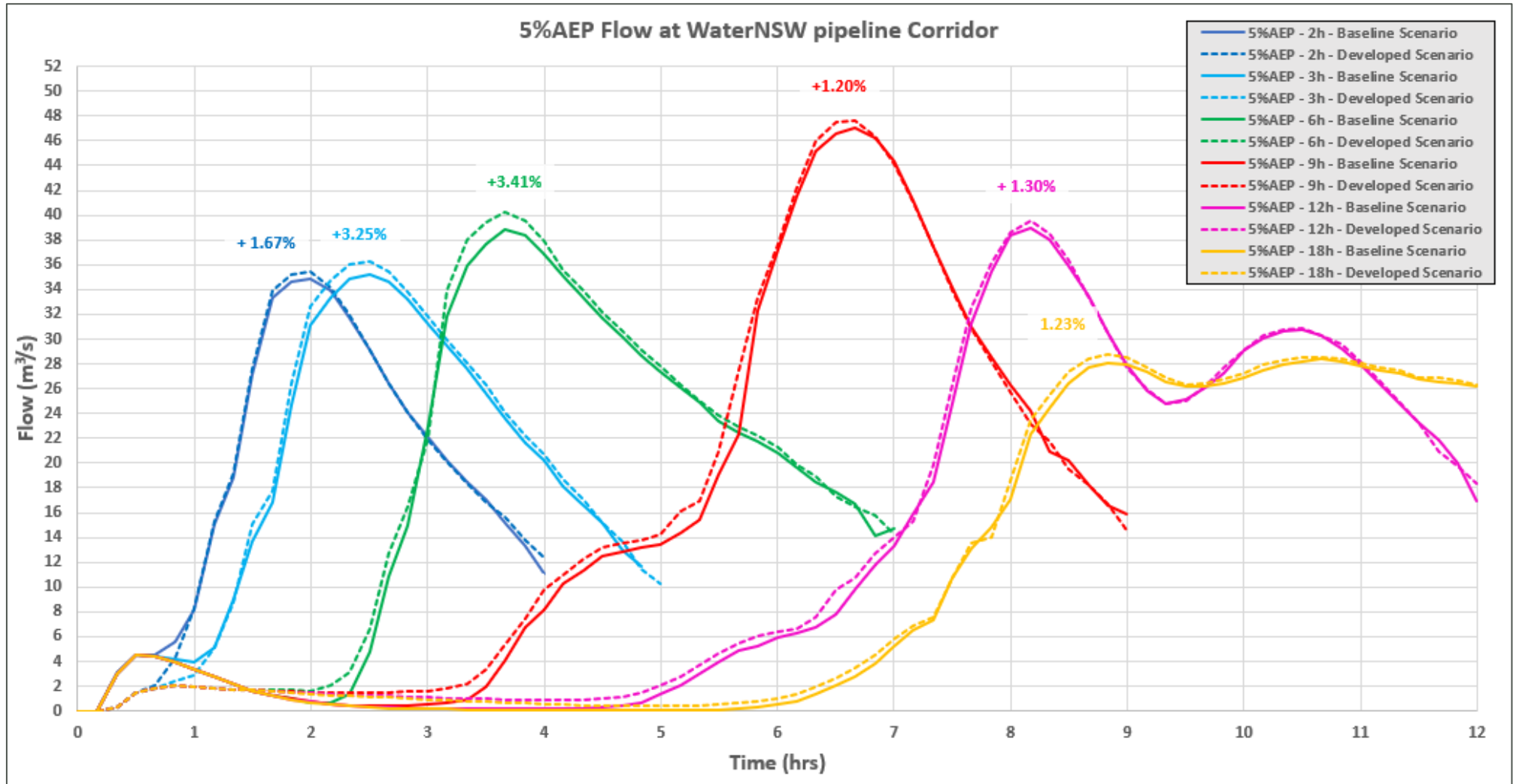


Figure 1.3 5% AEP Flow Hydrographs at the WaterNSW Pipeline Corridor

Conclusions

This addendum to the Oakdale East Flood Assessment provides additional information requested by WaterNSW on pre- and post-development flows for the 1% AEP and 5% AEP events in the vicinity of the Reedy Creek crossing of the pipeline, and addresses WaterNSW's concerns about a potential increase in flow and associated impacts on its infrastructure in the area due to the proposed development.

Our findings indicate that, whilst there is predicted to be a minor impact on peak 1% AEP and 5% AEP flows, it is unlikely to significantly impact on flow behaviour and flood conditions in the Reedy Creek floodplain in the vicinity of the Water NSW pipeline (as reported in the Oakdale East Flood Assessment), nor the flood risk to the WaterNSW pipeline and associated infrastructure downstream of the development.

We trust that this addendum to the Oakdale East Flood Assessment suitably responds to WaterNSW's request for additional information outlined in WaterNSW's letter dated 23 August 2022 and addresses associated concerns with respect to pre- and post-development flows. Please feel free to contact the undersigned (ph.: 0435 730 687 or email: nicola.depaolis@bmtglobal.com) if you require any further clarification.

Yours Sincerely,
BMT

A handwritten signature in black ink, appearing to read 'Nicola De Paolis', written in a cursive style.

Nicola De Paolis
Senior Engineer