

## Department of Planning and Environment

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Your ref: SSI 8609189

Nathan Heath  
Department of Planning and Environment  
4 Parramatta Square, 12 Darcy Street  
Parramatta NSW 2150

6 May 2022

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**Subject:** Upper South Creek Advanced Water Recycling Centre (SSI-8609189) Response to Submissions Report

Dear Mr Heath

I refer to your email received on 8 April 2022 via the planning portal requesting comments from the Environment and Heritage Group (EHG) in regard to the *Upper South Creek Advanced Water Recycling Centre Submissions Report* dated March 2022 (RtS report).

As the Department is aware, EHG previously provided comments on the Environmental Impact Statement (EIS) on 1 and 8 December 2021, and 11 February 2022 as well as the *Upper South Creek Advanced Water Recycling Centre Amendment Report* (Amendment Report) on 6 April 2022.

EHG has reviewed the RtS report and provides comments in Attachment A in regard to biodiversity, *Environment Protection and Biodiversity Conservation Act, 1999* (EPBC Act) matters of national environmental significance and flood risk management.

As discussed, EHG comments in regard to waterway health and the Sydney Region Growth Centres Biodiversity Certification will be provided separately by 12 May 2022. This will include comments on the *Upper South Creek Advanced Water Recycling Centre Submissions Report – project amendments* dated April 2022.

The Department is advised that a separate submission may be made by the Heritage Branch.

If you have any queries, please contact Marnie Stewart via [marnie.stewart@environment.nsw.gov.au](mailto:marnie.stewart@environment.nsw.gov.au) or 02 9995 6868.

Yours sincerely,



Susan Harrison  
Senior Team Leader Planning  
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### Attachment A – EHG comments on Upper South Creek Advanced Water Recycling Centre RtS Report

#### Biodiversity

EHG previously raised the issue that the BAM Calculator (BAM-C) had not been finalised and that a credit report had not been provided for the Wollemi IBRA subregion. In response, the RtS report argues that where the subject land is located within more than one IBRA subregion, only one of the cases in the BAM Calculator (BAM-C) needs to be finalised, and that this is consistent with the BAM Operational Manual. However, this is incorrect. Where the subject land is located within more than one IBRA subregion, there are two options of entering the data in the BAM-C. One option, that is described in the BAM 2020 Stage 1 Operational manual, is that the assessment of the entire extent of the project is undertaken within one BOAMS ‘child’ case. For this option, subsection 2.2.1 BAM 2020 Stage 1 Operational Manual advises “the IBRA subregion selected should be the one where the largest proportion of impact/area of BSA will occur, with justifications provided in the BAR”. In the IBRA subregion field within the BAM-C, the assessor can only select one option and hence selects the dominant impacted IBRA subregion.

The second option (which the assessor has chosen for this proposal) is that the proposal is assessed using multiple BOAMS ‘child’ cases (e.g., separate ‘child’ cases by subregion). The advice in subsection 2.2.1 of the Operational Manual is not relevant where this second option has been chosen. Where the assessor has chosen this option, each of these cases must be finalised and relevant data and reports submitted with the BDAR. Finalising child cases is necessary to ensure the associated credit obligation/s flow through appropriately into the BOAMS case. Credit obligations displayed within an ‘in-progress’ BAM-C case will not flow through into BOAMS until finalised. A credit summary report for both the Cumberland and Wollemi IBRA subregions is therefore also required in the BAR.

EHG also previously raised concerns about the proposed level of impact on terrestrial biodiversity as a result of the project. In response, the RtS report notes that impacts have been reduced through several pipeline re-alignments, as outlined in the project’s Amendment Report. While it appears that attempts have been made to avoid vegetation and habitat, EHG considers the reduction in impacts is minor - 12.64 ha compared to 13.77 ha with no reduction in the level of impact to the vegetation zone of highest conservation significance, intact Cumberland Plain Woodland CEEC. The DPE Planning Group will need to assess whether the benefits of the proposal outweigh the likely losses of critically endangered and endangered ecological communities and habitats for a number of threatened species.

#### EPBC Act - Listed threatened species and communities

EHG’s previous comments in regard to EPBC Act matters remain relevant.

#### EPBC Act - World Heritage properties and National Heritage places

##### *Identification of the Outstanding Universal Values (OUV) of the property*

In response to a request for expanded assessment of OUV values to include indigenous relationships, water systems and natural beauty, the RtS report states that Table 4.2 in Appendix Q of the EIS includes additional significance assessment. However, Table 4.2 lists the values/attributes without undertaking an assessment of the proposal’s likely impacts on these values.

##### *Threats to the Outstanding Universal Values of the property generally, and consideration of the State of Conservation report 2004 Greater Blue Mountains Area (Australia)*

The RtS report (Section 5.4.25) assesses that the ‘wholeness and intactness’ of the World heritage property would not be altered. However, given the project scope that has been assessed includes the release of water into the river systems, the assessment of the ‘wholeness and intactness’ of the

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World heritage property appears incorrect. This is because any impacts to the Greater Blue Mountains Area (GBMA) should be assessed to be an impact to the 'wholeness and intactness' of the World Heritage property, and as Appendix Q of the EIS notes that there would be impacts on terrestrial and aquatic ecosystems in the GBMA.

Section 5.4.42 of the RtS report notes that 'changes in wetted perimeter are minor (less than one metre), with the exception of a short section about 500 m downstream of the confluence of Warragamba and Nepean rivers, where the increase is predicted to be up to seven metres. This may occur where a slight increase in surface water elevation could inundate a bench or engage a wider cross-section which is reflected in larger changes in wetted perimeter.' It is considered that these changes would impact the 'wholeness and intactness' of the World Heritage property.

Further to this, consideration of the State of Conservation report 2004 Greater Blue Mountains Area (Australia) (SoC 2004) was recommended in EHG's previous submission, however the RtS report states that the document was considered and was not referenced because it did not add new information for use in the assessment. Reference to the SoC 2004 was included in EHG's previous submission to highlight that development outside a World Heritage property can have an impact on World Heritage values, which does not appear to have been acknowledged in the RtS report.

The RtS report also notes (Section 5.4.26) that given negligible impacts have been assessed, the project is not considered to be an undesirable action. However even negligible impacts can be adverse and so it is recommended that this assessment needs revisiting.

### ***Use of modelling in determining flow and nutrient load impacts***

The RtS report (Section 5.4.21) reiterates the prediction "that AWRC releases will have an overall positive impact on the...GBMA". However, flows near the upstream boundary of the GBMA are predicted to increase by an average of about 25%, with daily loads of total phosphorus entering the GBMA predicted to increase by an average of about 7% and total nitrogen predicted to increase by an average of about 20%. Given these predictions in particular, concerns remain over the interpretation of these impacts as a positive impact on the GBMA.

### ***Impacts to natural beauty***

In the RtS report, the applicant assesses that the 'project would not visually alter the GBMA [and] there would be no impact on natural beauty.' However, natural beauty is subjective and not just appreciated from lookouts, and parts of the Nepean River within the GBMA will be visibly altered by raised water levels and impacts on riparian vegetation. For instance, Table 5-10 assesses that 'the additional flow will likely raise water levels...increase in wetted perimeter...more frequent inundation of the vegetated bar at the mouth of Glenbrook Creek'. Intermittent recession of water levels could also result in algae/scum and dead vegetation along the wetted perimeter, and so the assessment that there would be no impacts to natural beauty of the GBMA needs reconsideration.

### **Flood risk management**

EHG's previous comments provided on the EIS have not been addressed by the RtS report and therefore are still relevant and need to be addressed. EHG provides the following specific comments on the RtS report to justify and support this conclusion.

#### ***Specific comments on the RtS report***

##### **1. Hydraulic Model Validation Section 2.1 and 2.2**

Section 2.1 of the RtS report discusses the comparison to 1988 and 1986 historic flood markers, it states 'Hydrographs provided by INSW were applied to the AWRC EIS hydraulic model and the results were compared to Penrith City Council's 2015 Updated South Creek Flood Study (WorleyParsons, 2015) and INSW data sets below'.

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Also, Section 2.2 of the RtS report states 'The INSW 1% AEP hydrographs were applied to the AWRC EIS hydraulic model and the results were compared to available Penrith City Council's 2015 Updated South Creek Flood Study (WorleyParsons, 2015) results in Figure 2 below'.

EHG raises the following issues.

The sentences above indicates that one of either methodology has been undertaken:

- INSW hydrographs are used to verify the TUFLOW hydraulic model that was based on 'The XP-RAFTS model' which utilised ARR1987 hydrology and benchmarked against Penrith Flood Study 2015 as outlined in Section 4.3 of the Flood Impact Assessment. EHG highlights that this model has not been used in the Aurecon ARUP 2021 hydraulic model. Please refer to EHG's previous comments for further detail.

or

- INSW hydrographs (which is based on AR&R 1987 hydrology) are used to verify the Aurecon ARUP 2021 hydraulic model instead of the hydrographs of Aurecon ARUP 2021 hydrologic model (that is based on 2016 hydrology) and was used in the assessment of the Upper South Creek Advanced Water Recycling Centre.

It is important to note that either option is unacceptable. Flood consultants understand that, changing the inflow inputs (inflow hydrographs) into a hydraulic model will result in different model results. The consultants need to verify the same hydrologic and hydraulic models that have been used in the assessment of the Upper South Creek Advanced Water Recycling Centre i.e., Aurecon ARUP 2021 hydrologic and hydraulic models. Therefore, to validate Aurecon ARUP 2021 hydraulic model, the consultants need to apply the hydrographs that are produced by Aurecon ARUP 2021 hydrologic model not importing different inflow hydrographs from the INSW model.

EHG has previously raised concerns about the very low flow result of Aurecon ARUP 2021 hydrologic model, please refer to EHG's previous comments for further detail.

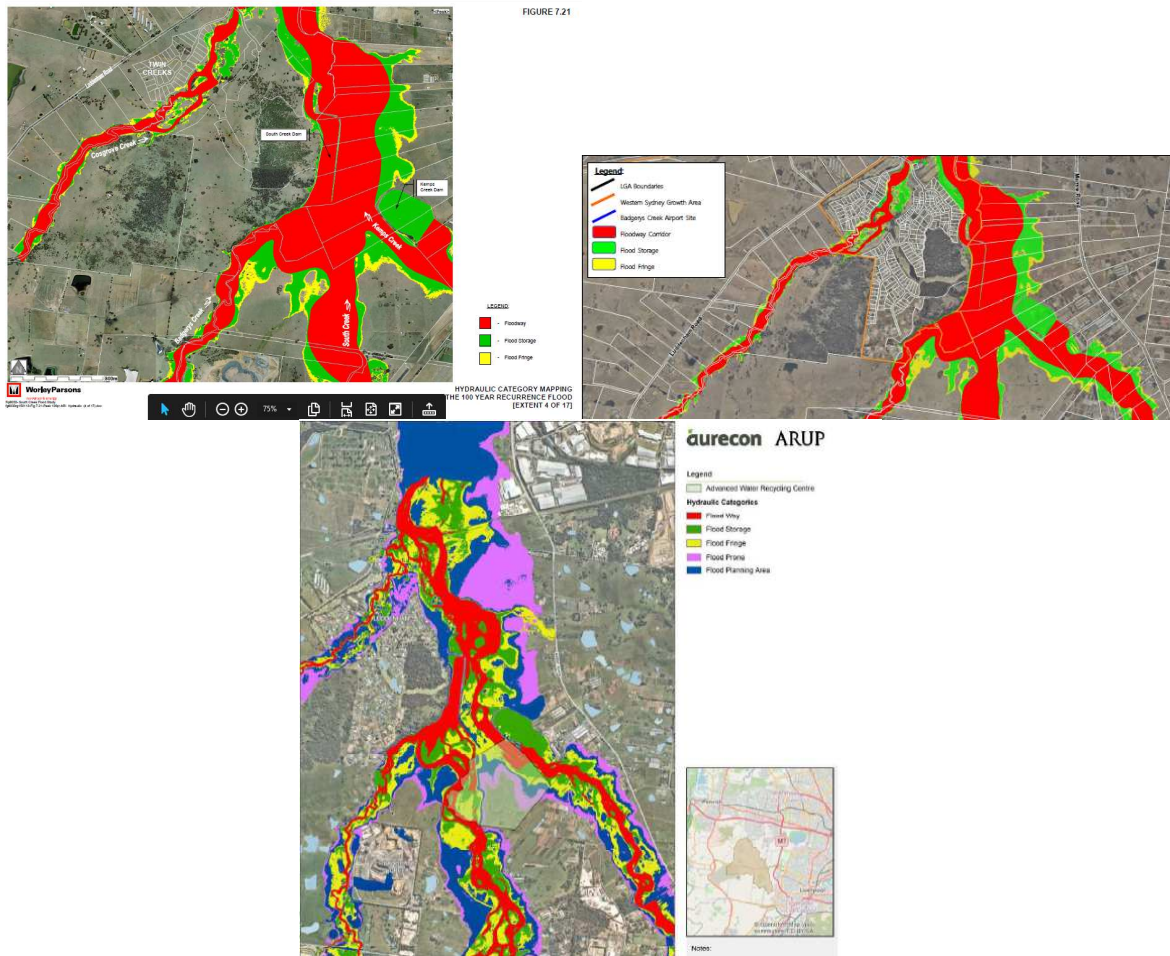
### 2. Hydraulic Model Validation Section 2.3

Section 2.2 of the RtS report states 'The INSW 1% AEP hydrographs were applied to the AWRC EIS hydraulic model and the results were compared to 1% AEP flood extent mapping provided by INSW (Flood extent mapping titled South Ck Sector - 1% AEP Flood Extent [Peak of Peaks]\_Rev G (Oct 2020), as shown in the 2020 Advisian study) which has used recent topographic data of the floodplain.'

EHG raises the following issues:

- It appears that the validation undertaken in Section 2.3 utilised 'The XP-RAFTS model' which utilised ARR1987 hydrology and benchmarked against Penrith Flood Study 2015 as outlined in Section 4.3 of the Flood Impact Assessment. EHG highlights again that, this model has not been used in the Aurecon ARUP 2021 hydraulic model. Please refer to EHG's previous comments for further detail.

EHG has previously addressed the inconsistency between the Aurecon ARUP flood assessment 2021 results and Penrith's WorleyParsons (2015) results. In addition, the figures below highlight the inconsistency between Aurecon ARUP flood assessment 2021 results and INSW 2020 results.



The figures above show significant inconsistency in flood behaviour results by Aurecon ARUP flood assessment 2021 (bottom figure) comparing to Council’s 2015 results (upper left figure) and INSW flood assessment (upper right figure).

End of Submission