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Dear Ms Yuan

**Sydney Metro West (SSI-10038)  
Advice on EIS**

I refer to your email of 30 April 2020 to the Department of Planning, Industry and Environment (DPIE) Water and the Natural Resources Access Regulator (NRAR) about the above matter.

The following recommendations are provided by DPIE Water and NRAR. Please note Crown Lands, the Department of Primary Industries (DPI) – Fisheries and DPI - Agriculture all now provide a separate response directly to you.

Prior to Approval

- The EIS identifies a creek crossing and partial realignment works at Duck Creek and A'Becketts Creek located near the proposed Clyde stabling and maintenance facility. The EIS should provide detail of proposed works on waterfront land and demonstrate design in accordance with the NRAR Guidelines for Controlled Activities located here - <https://www.industry.nsw.gov.au/water/licensing-trade/approvals/controlled-activities/guide>

Post Approval

DPIE Water recommends the following in the detailed design and construction plan:

- A revised hydrogeological model and assessment of the potential impacts upon groundwater system for all Stage 1 developments (proposed metro stations, shafts, dives, plus the twin main metro railway tunnels) combined with the predicted effects from other major projects during the time of the Stage 1 developments:
  - individually and cumulatively (combined)
  - with attention to the section of the proposed project from Sydney Olympic Park Station to Haberfield, beyond the proposed Five Dock Metro Station
- Include a revised estimate of the groundwater take for each and all the developments, including the full length of the twin main railway tunnels and accordingly the groundwater take to be licensed under the *Water Management Act 2000*.
- The revised hydrogeological assessment should include projections for groundwater dewatering (direct and passive take) as well as potential impacts for all further development stages beyond Stage 1, including for the operational stage of the Sydney Metro West for at least 50 years. Or detail and demonstrate why these later stages will not have lasting impacts to the groundwater system, ongoing groundwater incidental take and groundwater level drawdown effects. This is to enable a complete assessment of the full impacts of the proposed project upon the groundwater system, rather than for one major construction stage only.

- Detail actions required both during operation and post-closure to minimise the risk of inflows and a strategy for accounting for any water taken beyond the life of the operation of the project.
- The conceptual hydrogeological model should include a hydrogeological model schematic or figures and cross sections.
- Undertake a detailed study to define the groundwater environment, receiving surface water environment, baseflow rates and water quality. Then outline the subsequent discharge water quality levels required and devise appropriate trigger levels and trigger action response plans for each construction site. The study should include comparative assessment in relation to other nearby major projects.
- Undertake a detailed study of each construction site to map and determine the extent of any geological structures; hydraulic parameters, potential acid sulphate soil, saline soils, saline groundwater (onsite or within the predicted groundwater drawdown extent), or other contaminants.
- Define trigger levels and devise appropriate trigger action response plans for all outlined groundwater impacts upon each noted neighbouring groundwater system component for each construction site.
- Defined management and mitigation measures and criteria to be taken during the construction of the twin main line tunnels, each station, shaft and dive development which will be enacted to further reduce the groundwater take and potential impact due to the ongoing dewatering.
- Report management and mitigation measures to minimise the impact on water quality from saline interception in the shale aquifers overlying fresher groundwater sources in the Sydney Basin Central Groundwater Source.
- Include saline intrusion, from estuarine and saline groundwater in shale into the underlying fresher aquifer (sandstone), modelling resultant plots or diagrams and brief discussion for each construction site.
- Salinity monitoring bores positioned between estuarine areas and the Stage 1 construction sites should be included in all future monitoring programmes.
- Include a detailed groundwater level and quality monitoring programme for each development site.
- Clarify the construction and groundwater ingress prevention methods to be used during excavation and the final construction state each excavation site will be finished at the end of Stage 1. Plus, how this will affect the groundwater ingress and drawdown.
- Clarify if a proposed service shaft between Five Dock metro station and 'The Bays' station (Rozelle), mentioned in the main EIS document, will be constructed. If so this needs to be included in the revised groundwater modelling.

Any further referrals to DPIE – NRAR & Water can be sent by email to:  
[landuse.enquiries@dpi.nsw.gov.au](mailto:landuse.enquiries@dpi.nsw.gov.au).

Yours sincerely



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