

OUT20/10321

Belinda Scott  
Planning & Assessment  
NSW Department of Planning, Industry and Environment

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Dear Ms Scott

**Inland Rail - North Star to NSW-Queensland Border (SSI-9371)  
Environmental Impact Statement**

I refer to your email of 25 August 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.

Prior to Project Determination

- Give consideration to return flows, particularly where flow paths or velocities may have altered, and the potential geomorphic impacts where these flows return to waterways. The geomorphic investigations detailed in the EIS may form a framework for this analysis.
- Include detailed culvert design, with design discharge velocities under predicted flood levels, to enable full assessment of all impacts to downstream waterways. DPIE Water propose weekly water quality monitoring during construction.
- Confirm actual site soil properties against the soil mapping used to set thresholds for scour protection.
- Clarification should be provided of the ability to obtain the necessary water volumes via relevant agreements and to demonstrate sufficient water entitlements can be acquired in accordance with the *Water Management Act 2000*.

Detailed explanation of the above recommendations can be found in **Attachment A**.

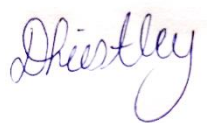
Post Project Determination

- The proponent must obtain relevant approvals and licences under the *Water Management Act 2000* before commencing any works which intercept or extract groundwater or surface water.
- The proponent should prepare a Construction and Operational Environmental Management Plan (incorporating an Erosion and Sediment Control Plan) prior to commencement of activities.
- The detailed design and construction activities should comply with the impact assessment criteria of the draft Border Rivers Floodplain Management Plan.
- Works within waterfront land should be in accordance with the Guidelines for Controlled Activities on Waterfront Land (NRAR 2018).

Any further referrals to DPIE Water and NRAR can be sent by email to:

[landuse.enquiries@dpie.nsw.gov.au](mailto:landuse.enquiries@dpie.nsw.gov.au).

Yours sincerely

A handwritten signature in purple ink, appearing to read 'D Priestley', with a light pink rectangular highlight behind it.

Donna Priestley  
Acting Manager, Assessments  
**Water – Strategic Relations**  
8 October 2020

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**Give consideration to return flows, particularly where flow paths or velocities may have altered, and the potential geomorphic impacts where these flows return to waterways. The geomorphic investigations detailed in the EIS may form a framework for this analysis.**

Culvert locations have been given, and extensive flood modelling of the floodplain has been undertaken, showing some small changes (less than 2%) to flood velocities, heights and duration expected as a result of the project. This modelling does not identify return flow paths to rivers and waterways, and as a result, geomorphic impacts to waterways arising from the altered flows at re-entry points cannot be assessed. It is noted that neither the 30m or 15m grid model would likely be suited to this analysis.

Significant detail has been provided on geomorphic attributes of adjacent waterways, which has been used in Biodiversity and Aquatic Ecology sections of the EIS. This information could also form a framework for identifying watercourses that may require increased protection measures at drainage path entry points. The NSW River Styles database may also provide useful information for this purpose

(<https://trade.maps.arcgis.com/apps/webappviewer/index.html?id=425c7364e9dc4a71a90c4ba353b8949f>)

**Include detailed culvert design, with design discharge velocities under predicted flood levels, to enable full assessment of all impacts to downstream waterways. DPIE Water propose weekly water quality monitoring during construction.**

The proposal seeks to use existing culverts and flow paths where feasible, and new sections incorporate culverts designed to minimise disruptions to flow paths and flow velocities at drainage structure outlets, and thereby minimise erosion and scour.

Geotechnical investigation has been deferred until the Detailed Design stage of the proposal, for those culverts where maximum modelled flow velocity exceeds given thresholds from the *Australian Guide to Road Design Part 5B: Drainage* (AGRD). The thresholds for triggering geotechnical analysis are derived in the AGRD using the local site soil properties as per soil maps for the region. Noting the potential for variations between soil mapping and actual soil profiles (section 15.5.3.1) the soil map properties should be verified on site at each culvert prior to detailed design, to ensure all culverts have appropriate geotechnical analysis thresholds proposed. Engineering designs have not been provided, pending geotechnical investigation.

DPIE Water believes geotechnical analysis and detailed scour protection designs should be provided pre-approval. If approval is granted, detailed culvert design maximum flow velocities and scour protections should be developed in consultation with DPIE Water.

The proponent has identified appropriate monitoring sites, and a suitable range of contaminants for ongoing monitoring, both during construction and operations. In addition to rain event-based monitoring, monitoring is proposed on a monthly basis during construction.

Monthly scheduled monitoring during construction is inadequate, and weekly monitoring in perennial streams would be more likely to detect an incident and enable an appropriate and timely response.

**Confirm actual site soil properties against the soil mapping used to set thresholds for scour protection.**

The thresholds for triggering geotechnical analysis are derived in the AGRD using the local site soil properties as per soil maps for the region. Noting the potential for variations between soil mapping and actual soil profiles (section 15.5.3.1) the soil map properties should be verified on site at each culvert prior to detailed design, to ensure all culverts have appropriate geotechnical analysis thresholds proposed.

**Clarification should be provided of the ability to obtain the necessary water volumes via relevant agreements and to demonstrate sufficient water entitlements can be acquired in accordance with the *Water Management Act 2000*.**

The water demands for the construction phase have been defined with 242ML of non-potable and 18ML of potable water. Insufficient information has been provided to confirm a secure and viable source of water supply is available to meet these demands. This represents a risk to the project. No confirmation has been provided of an agreement with relevant towns or landholders to provide the necessary volumes or to use their infrastructure, or whether there is sufficient entitlement available where entitlement needs to be acquired. Where the water is to be sourced from a currently unauthorised source and/or where additional water take infrastructure is required, an impact assessment of this water take will be required. The impact assessment and access to additional water entitlement will be required to meet the rules of the relevant Water Sharing Plan and the Access Licence Dealings Principles Order (2004). Security of supply also needs to be addressed due to the potential for drought conditions.

Minor groundwater interception is predicted during piling activities for bridge construction. Where there is the potential for water take associated with this activity to exceed 3ML, sufficient entitlement must be obtained in the relevant water source prior to any extraction or interception of the groundwater.

At the potential borrow pit sites, groundwater interception and associated water take in addition to surface water related impacts is yet to be assessed. This is proposed to be considered further at the detailed design stage. These activities may require additional approvals and the need to acquire water entitlement under the *Water Management Act 2000*.

**End Attachment A**