NSW GOVERNMENT | Office of Environment & Heritage

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SSI 8285

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NSW Department of Planning and Environment
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SYDNEY NSW 2001

Dear Mr Sellwood

Notice of Exhibition - Parramatta Light Rail Stage 1 (SSI 8285)

I refer to your email dated 22 August 2017 to the Office of Environment and Heritage (OEH), requesting comments on the Parramatta Light Rail Stage 1 proposal. OEH understands that the proposal involves construction of a new light rail network extending approximately 12 kilometres in length with 16 stops and associated infrastructure.

OEH has reviewed the documentation provided and provides comments on biodiversity and floodplain risk management at Attachment 1.

Please note that OEH has decided not to provide comments on Aboriginal cultural heritage matters at this time. This does not represent OEH support for the proposal and this matter may still need to be considered by the consent authority.

If you have any queries regarding this matter, please contact Dana Alderson on 8837 6304 or dana.alderson@environment.nsw.gov.au.

Yours sincerely

S. Harrison 16/10/17

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ATTACHMENT 1 – Office of Environment and Heritage comments on Parramatta Light Rail Stage 1 (SSI 8285)

1. Biodiversity

OEH has reviewed the Biodiversity Assessment Report (BAR) prepared by WSP Parsons Brinckerhoff dated 17 August 2017 and provides the following comments.

Potential impacts on the Grey-headed Flying-fox

The Grey-headed Flying-fox (GHFF) camp at Parramatta Park is classified as a 'nationally important flying-fox camp'. It is significant in the Sydney area as it occurs on public land which is not immediately surrounded by residents or other sensitive neighbours, and so is not subject to some of the pressures of other camps in the area for management actions to be undertaken. OEH considers it is essential that all efforts are made to protect and enhance the camp, and any potential impacts that may lead to dispersal or to the camp shifting location, must be minimised.

The BAR states that GHFF are tolerant of some level of ongoing noise and light impacts, which OEH agrees with. However, it is the impacts from construction noise associated with this proposal that OEH considers are of most concern. The BAR mentions construction noise impacts in Section 8.6.1.2, but the BAR concludes that these will not be an issue as the noise will be adequately buffered by vegetation and buildings. OEH notes that the Noise and Vibration Impact Assessment prepared by SLR Consulting does not include objective measurement of potential noise that could reach the camp.

The BAR also states that "Although noise from the Bridge Street bridge area of the construction boundary may reach the camp more directly, the highest noise levels are considered unlikely to reach levels for extended periods that other GHFF camps are accustomed to at the nearby Clyde camp or those at Singleton and Balgowlah." OEH does not consider this a fair comparison, as the GHFF camps at Clyde, Singleton and Balgowlah are not accustomed to the very loud, sometimes sudden types of noise related to construction, they are accustomed to the lower, more predictable operational noises. In fact, there is anecdotal evidence that the Clyde camp, as well as other camp sites (e.g. Kurnell) did temporarily disperse because of noise from adjacent construction projects. Therefore, OEH considers that given the high risk that the construction noise impacts could disperse or move the camp to a less suitable location, that the BAR should include a more thorough noise assessment, which quantifies potential impacts and demonstrates, through comparisons with other similar situations and projects, that the GHFF will not be impacted by this noise.

Section 8.6.1.6 of the BAR states that a biodiversity management plan will be prepared for the project to manage the natural environment during the construction phase of the project, which will include strategies to minimise impacts on the GHFF camp at Parramatta Park. OEH supports this but considers that the biodiversity management plan should also include contingency measures that will be undertaken if the mitigation measures have been unsuccessful in mitigating impacts, i.e. if the camp disperses or shifts location as a result of the works. It is noted that the Parramatta Park camp has shifted recently, which is likely due to construction noise associated with the Parramatta North Urban Transformation site and Western Sydney Stadium.

Supplementary measures

The BAR states that no ecosystem credits are available to offset impacts on the Mangrove Forest and so the Biodiversity Offset Strategy proposes the use of supplementary measures in lieu of offsets. It is noted that in accordance with the *Biodiversity Offsets Policy for Major Projects* (OEH, 2014), proponents must enter into a voluntary planning agreement with the Department of Planning and Environment to implement a supplementary measure.

Offsetting

The Biodiversity Offset Strategy proposes to offset ME58 with ME041 from Biobank Agreement 148. The variation rules allow for this where the ecosystem credit being used as an offset is in the same vegetation formation as the ecosystem credit being impacted. ME58 is equivalent to PCT 1841 which

is in the Wet Sclerophyll Forest (shrubby sub-formation), and ME041 is equivalent to PCT1281 which is in the Wet Sclerophyll Forest (grassy sub-formation). Therefore, offsetting ME58 with ME041 does not meet the variation rules, as they are not from the same vegetation formation. OEH notes the table www.environment.nsw.gov.au/resources/bionet/biometric-vegetation-types-archive-17082017.XLSX may be useful in matching PCTs to BVTs.

2. Floodplain risk management

OEH has reviewed the Flooding Technical Paper prepared by ARUP dated August 2017 and notes that parts of the catchment through which the Parramatta Light Rail (PLR) alignment traverses are subject to mainstream riverine flooding and overland flow flooding. The preliminary flooding and drainage assessment prepared by ARUP concludes with a recommendation for a detailed assessment prior to construction to satisfy the SEARs requirements.

From a flood risk management perspective, when assessing a proposed major infrastructure project, the full range of flooding up to the probable maximum flood (PMF) should be considered. Consideration should also be given to:

- the potential impact of flooding on the construction of the proposed infrastructure
- the potential impact of flooding on the operation of the proposed infrastructure and on its users
- the impact of the proposed infrastructure on flood behaviour and on existing development near the project
- identify mitigation measures to reduce identified adverse impacts, and
- an emergency management response including a safe evacuation planning during flood events larger than the project's flood immunity.

ARUP's assessment has initially identified the above key issues as described below:

Flood characteristics along the rail alignment

Chapter 5 outlines details of TUFLOW models established for this assessment including the models' extent, parameters and assumptions. Section 7.1.1 to Section 7.1.4 indicates that several locations (around 11 locations) along the PLR are affected by 0.2EY (5 year ARI) and larger flood events. Section 7.3.1 indicates that in the PMF event a significant portion of the proposed PLR project alignment is under several metres of water, particularly through the Parramatta CBD, Rosehill and Camellia precincts.

Climate change impact

The assessment investigates the impacts of climate change on the project, assessing two scenarios (lower and upper limits). Firstly, the impact of climate change on the 0.2EY was assessed to estimate how it may impact the operability of the PLR. Secondly, the impact of climate change on the 1% AEP was assessed to compare the impact of the PLR project with climate change consideration against the impact of the PLR project under present-day conditions. The assessments indicate that there is expected to be a significant impact on the project's precincts because of climate change.

OEH comment: Section 6.1.1 of the Report states that "Given the PLR project is located a significant distance upstream from the coast it is not realistic to apply the full increase of the sea level rise at the downstream boundaries of each of the PLR project TUFLOW models." This statement is incorrect, as there is no reason to conclude that Mean Sea Level is attenuated by distance from the coast.

Performance criteria and design status

Chapter 8 discusses the PLR performance criteria and design status. Table 15 provides the project's key design criteria which indicates that, flows in excess of the 0.2EY event (i.e. 20% AEP) will potentially affect the operation of the light rail, i.e. the light rail would become non-operatable by events in excess of 20% AEP.

OEH comment: Section G6.3 of the Floodplain Development Manual (2005) highlights that, 'New infrastructure should be available and accessible, as necessary, during significant flood events or be able to be re-established readily after an event. This may require flood related design standards to reduce flood vulnerability in the expected conditions.' Section G9.3 of the Manual also emphasizes the necessity of protecting essential infrastructure to reduce damages, minimise social disruption to the community and facilitate rapid recommissioning following flooding.

As noted above, the level of flood immunity proposed for the PLR is such that it cannot operate during any flood event larger than 0.2 EY (i.e. 20% AEP event). OEH notes that the level of flood immunity for PLR is lower than the Sydney Light Rail flood immunity.

Given this, OEH questions whether this level of immunity is acceptable for a major transport infrastructure service. OEH recommends that the proponent clarify how and on what basis the adopted design event for flood protection for operation of the PLR was set as 20% AEP (i.e. 5 year ARI event). In this regard OEH recommends that the proponent review the level of flood immunity proposed, considering damages, the cost of repair and social disruption given the likely frequency of flooding resulting in damages.

Drainage upgrade

Section 8.5.3 states that the flood immunity for the operation of the PLR is based on upgrading the stormwater drainage system. However, the proposed concept drainage plans to achieve the targeted flood immunity are based on key assumptions that involve a high degree of uncertainty. OEH notes that this uncertainty may risk their implementation.

OEH comment: OEH supports the "incorporation of stormwater survey commissioned by PLR that has not yet been received to confirm the existing network" identified in Section 10.3.2 Flood Model Development of the Flood Technical Paper. Further, this additional survey data should be provided to City of Parramatta Council (CoP) as well as for Work as Executed new/upgraded drainage infrastructure.

North Parramatta Bridge and Vineyard Creek Bridge

According to Section 8.5.4, the proposed replacement of the North Parramatta Bridge soffit level is nearly 450mm lower than the existing bridge soffit level. As this is a major hydraulic structure in the Upper Parramatta Catchment, the lower level of the bridge would alter flood levels for all floods above the 1% AEP. Similarly, the Vineyard Creek Bridge soffit level is proposed to be 70mm lower. It is noted that, referring to North Parramatta Bridge and Vineyard Creek Bridge, Table 29 requires that a "PMF model (1D/2D) to be created and impact to be assessed in future design stage (to review soffit level)".

OEH comment: The impacts of lowering bridge levels should be addressed in consultation with CoP Council.

Emergency Response Plan

It is noted that Chapter 9, Section 9.1 relates to the impacts of flooding during the construction phase, and identifies several locations impacted by floods larger than 1% AEP up to the PMF. It is also noted that Chapter 10 indicates that the current flood study being undertaken by the CoP Council will undertake a review of Flood Emergency Response classification, which would inform the PLR.

OEH comment: OEH highlights that it is prudent to prepare an emergency management response plan (ERP), in consultation with the State Emergency Service and CoP Council, to address emergency management aspects including access and evacuation for locations within the PMF extent to ensure safe construction and operation of the PLR. This ERP should include an assessment of the flood evacuation needs and impacts from the PLR on the capacity or operational aspects of existing local evacuation routes.

Flood Management Strategy

The Flooding Technical Paper indicates that a Flood Management Strategy (FMS) will be prepared for flood affected land prior to construction and a concept strategy for operational response during flooding up to depth of 80mm has been developed by the PLR Operations Technical Advisor (Section 10.3.3.3).

OEH comment: OEH recommends that the PLR impacts and associated mitigation measures (Chapter 10 - Table 29) be incorporated in the FMS and that the proposed completion time of the FMS should be agreed by the Secretary.

Utilisation of City of Parramatta Council Flood Study

OEH recommends that the PLR TUFLOW modelling be updated when the results become available following the completion of the ongoing CoP Flood Study, in collaboration with CoP and OEH. This is because the CoP study may take into account the cumulative impact of developments across the catchment that include OSD, the use of Australian Rainfall and Runoff 2016 hydrological inputs, and any other modifications to hydraulic controls in the catchment since the publication of the original Upper Parramatta River Flood Study (which is largely the basis of the current review).

(END OF SUBMISSION)