Supplementary Submission No 137b

INQUIRY INTO GOVERNMENT'S MANAGEMENT OF THE POWERHOUSE MUSEUM AND OTHER MUSEUMS AND CULTURAL PROJECTS IN NEW SOUTH WALES

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Select Committee on the Government's management of the Powerhouse Museum and other museum and cultural projects in new NSW

Supplementary submission to 137a from Kylie Winkworth, museum and heritage expert; and Molino Stewart, *Parramatta Powerhouse EIS Flood Risk Review*, July 2020

This submission addresses Terms of Reference

> 1. (a) the proposed move of the Museum of Applied Arts and Sciences, the Powerhouse Museum, from Ultimo to Parramatta, including:
> (ii) the governance of the project, including the effectiveness and adequacy of planning,
> (iii) the risks in the move, including damage to collections,
> (iv) **the consequences of flood at the site at Parramatta in light of the flood event in February 2020**

Museum experts in the Powerhouse Museum Alliance (PMA) have long standing concerns about the unexplained selection of the Phillip St site on the banks of the Parramatta River as the site for the Powerhouse Parramatta development. These concerns have grown since the winning competition design was announced, the 9 February 2020 flood, and with the release of the EIS plans and reports. In our view, the location of a museum on this site, and the plans and designs detailed in the EIS present serious risks to visitors and the museum's collection.

To better understand the flood risk issues of both a riverine and overland flood, I commissioned Molino Stewart to provide an expert flood risk review of the EIS reports and architectural plans for the Parramatta Powerhouse development. This follows their Stage 1 report for the PMA previously submitted to the Inquiry, see submission 137a.

Molino Stewart are the leading consultants in flood plain risk management and planning, with particular expertise advising on flood planning and flood risk issues in the Parramatta River catchment and the Parramatta CBD. The company has prepared a number of major flood policies and plans for Parramatta Council, most recently the *Update of Parramatta Floodplain Risk Management Plans*, 2019. Molino Stewart's *Parramatta Powerhouse EIS Flood Risk Review* is attached to this submission.

Key points in the Molino Stewart *Parramatta Powerhouse EIS Flood Risk Review* include:

- The Arup flood model in the EIS which is used to set the floor level in the building is calibrated to outdated rainfall and run off methodologies from 1987. 2.2, p.2; and 5.1, p.27
- It does not include the most up to date advice on overland flood levels, or cross sections showing Phillip St and Dirrabarri Lane. 2.2, p.2; 5.1, p.27
- The ground floor level in the building is set at the level of 1% AEP plus 0.5m freeboard, a standard approach used for new residential and commercial buildings to set the development above the reach of flood events as frequent as 1 in 100 per year. It does not provide additional protection for the museum. 3.2.1, p.13; and 5.2.1, 28
- This does not take into consideration the effects of climate change. 3.2.1, p.13
- Assumptions about the level of blockage of stormwater pipes in an overland flood event are not explained in the Arup EIS flood report, but appear to be inconsistent with Parramatta Council's assumption of a 100% blockage of storm water drains in an overland flood event.

This has consequences for setting minimum floor levels and overland flow paths which are also evacuation routes. 2.2, p.6; 3.2.1, p.13; 3.2.2, p.13; and 5.2.1, p.27

- The impacts of floods greater than a 1% AEP event do not appear to have been considered in setting the ground floor level of the development, or in the EIS. 3.2.1, p.13; 4.2.1; 4.2.2 p.25-26, and 5.2.1, p.28.
- Such floods do occur. In 2010 and 2011 several locations in Victoria and Queensland experienced 0.5% AEP flood. The Lockyer Valley flood was an estimated 0.05% AEP, or 1:2,000. 3.2.1, p.13.
- A Probable Maximum Flood (PMF) of 11.5 AHD would be 4m deep in the building. 3.2.1, p.13
- There is a real risk that flood waters will enter the building. A flood with a 1 in 500 chance of occurrence per year has a 1 in 6 chance of occurring in the next 80 years. 4.2.1, p.25
- The EIS only considers flood risks to people up to the 1% AEP. 4.2.2, p.25. It does not consider what will happen to visitors if water enters the building. There are no ramps on the ground floors to evacuate people to higher levels.
- The development directs overland flows along designated pedestrian connections which may become a torrent blocking possible escape routes. Mobility impaired visitors will be especially at risk. 3.2.2, p.14; and 5.2.2, p.28
- The design of the undercroft may represent a serious flood risk to life. Visitors may seek shelter in this space and be trapped by the river rising rapidly and evacuation routes turned into a torrent of overflows. 3.2.3, p.14; and 5.2.3, p.28
- The development in not consistent with provisions in Parramatta Council's DCP in minimising the risk to life, exposing the collection to damage, and exposing collection and infrastructure assets to damage. 3.2.4, p.17
- No provision has been made in the plans for the evacuation of mobility impaired people. 3.2.2, p.14; 3.2.4, p.17; p.20; 5.2.2, p.28
- No provision has been made in the EIS plans for emergency electricity and water supply, or for the building to withstand the flood forces of a PMF. This may compromise the safe evacuation of visitors. 3.2.5, p.18; p.21; 4.2.1; p.25; p.28-29
- The development poses an increased risk to life due to potential overland flows cascading down all the pedestrian evacuation routes. P.21-22; and 5.2.2 and 5.2.4, p.28
- The EIS plans have not recognised the flood risks to the museum's collection. p. 17; 4.2.1&2, p.24-25; 5.3, p.29

Other points by Kylie Winkworth:

1. The Molino Stewart *Parramatta Powerhouse EIS Flood Risk Review* highlights grave flaws and serious risks to people and the museum's collection.
2. It would be reckless and negligent for the NSW Government to push on with the Parramatta museum project when the flood risks in this development are now well established.
3. These risks cannot be mitigated by amendments to the current building design, nor can public safety on the site be assured through a Flood Emergency Management Plan (FEMP) since the pedestrian evacuation routes are all overland flow paths and likely to be a cascade of stormwater in an overland flood event.
4. The location of a museum on the Phillip St site is an entirely discretionary decision. A new museum for Parramatta does not have to be built on this site.
5. There are other and better museum sites in Parramatta that do not carry the same flood risk, notably in the Fleet St precinct.

6. The regular flooding and flood risk on this site has major cost implications for the project in both the building construction and ongoing operations and site management.
7. It is poor public policy to invest at least $1b in this project when the infrastructure, and the PHM's collections, will be exposed to a high probability of damage.
8. The Arup Flood Risk and Storm Water Management Report in the EIS does not address the high intensity uses planned for the Powerhouse Precinct: the 24x7 operation for 2 million visitors a year; a night-time entertainment precinct with young people and alcohol; school children in residence; up to 10,000 people at any one time across the buildings and terraces; and multiple commercial hire events which add layers of risk and complexity.
9. The flood risks in the Parramatta Powerhouse development on the Phillip St site are not the same as those affecting a residential or commercial development, which is what has shaped the provisions of the Parramatta DCP, and set the ground floor levels for the museum.
10. The number of people at the museum at any one time will be much higher than in a residential or commercial building.
11. If the development attracts the claimed 2 million visitors a year, that is an average of 5,494 people a day, 24x7. This is a substantially larger number than would be exposed to flood risks in a commercial or residential building. Residential or commercial tenants in a flood exposed development can be briefed and drilled on flood risks and evacuation procedures.
12. This is not the case for a museum with a high turnover of visitors who will be unfamiliar with the building layout and evacuation routes and procedures. It is difficult to see how MAAS could resource the staff to manage a flood emergency for 5,000 people when the business case has stated there will be no increase in staff or recurrent funding.
13. If the project proceeds, the NSW Government must provide additional funding to MAAS for staff to manage visitor safety and evacuation in flood emergencies. In my view the responsibility and training requirements would preclude using contractors, given the risks we have seen with contracted security at quarantine facilities.
14. MAAS continues to insist that the collection will safe when displayed in the ground floor P1 space at the 1% AEP 0.5m freeboard, or above the 1.100 year flood. Molino Stewart demonstrates that this is not correct, since it does not account for the probability of floods greater than the 1% AEP event. 3.2.1, p.13; p.24, and 5.2.1, p.27-28
15. The Parramatta Powerhouse is designed for a life of 100 years, but the level that is set for the ground floor does not take into account the impacts of climate change.
16. It is reckless to plan a museum displaying the treasures of NSW using only the bare minimum floor levels required for an ordinary commercial or residential building, and without considering the impact of climate change and its consequences for extreme weather events over the 100 year life of the museum building.
17. Pedestrian evacuation routes in the precinct are all overland flow routes which will be dangerous torrent in the event of an overland flood.
18. The EIS building plans do not provide continuously rising evacuation routes from the undercroft or riverbank. People in the undercroft may be trapped by rapidly rising flood waters. The stairs up to the Civic Link are likely to be a torrent of storm water in the event of an overland flood and inaccessible to the mobility impaired.
19. Evacuation inside the eastern building from the P1 space is jeopardised by the narrow stairs and just two lifts. These are sited next to Civic Link which in a major overland flood event may be torrent of water which could enter the lift vestibule, the stairs, and the ground floor of the porous building. A Probable Maximum Flood would be 4m deep in this building.