

Job: 200101



2A Gregory Place Pty Ltd
c/o Raymond Raad
2A Gregory Place
HARRIS PARK NSW 2150

20/9/2021

Re: Proposed Development at 2A Gregory Place, Harris Park

GRC Hydro have been engaged as part of proposed development at 2A Gregory Place, Harris Park. GRC Hydro provide flood engineering assessment and advice in regard to development of flood prone land. The site has mainstream flood liability due to its proximity to Clay Cliff Creek but is also impacted by the larger Parramatta River system for extreme events (specifically in the Probable Maximum Flood).

GRC Hydro have carried out assessment of design flood behaviour at the site. The assessment included establishment of hydrologic (WBNM) and hydraulic models (TUFLOW) in accordance with Australian Rainfall and Runoff 2019 (ARR2019) and industry best practice. Design rainfall was applied in the hydrologic model, along with rainfall losses and temporal patterns as per ARR2019. Hydrographs from the hydrologic model were then applied to the hydraulic model.

The modelling established flows in Clay Cliff Creek (a man made trapezoidal channel) adjacent to the property are 20 m³/s in the 5% AEP event and 28 m³/s in the 1% AEP event. There is minimal flooding at the site in the 5% AEP, with flow outside of the channel limited to the upstream (western) end where depths of around 0.1-0.2 m occur. In the 1% AEP, out-of-bank flow occurs, with some areas outside the existing building extent impacted by depths ranging from zero to up to a metre in specific locations. The modelling determined a maximum 1% AEP design flood level for the site of 5.40 mAHD (based on the upstream end).

The 1% AEP level of 5.40 mAHD sets the Flood Planning Level at the site as 5.90 mAHD (1% AEP + 0.5 m) for residential and commercial spaces. This is the minimum floor level for new development at the site. Car parking at the site shall be at or above 5.40 mAHD (1% AEP). Basement car parking is not permitted unless protected up to the Probable Maximum Flood (PMF), the level of which is 9.3 mAHD.

The effect of the development on flooding in surrounding areas is required to be assessed. Development of the site shall ensure there is no increase in flooding on adjacent properties in the design event (1% AEP). This can be carried out at the Environmental Impact Statement stage including description of any mitigation measures, as required.

The most suitable evacuation strategy for the site is shelter-in-place. The site's immediate catchment is relatively small and there is likely to be little to no advanced warning of flooding. Flooding is also likely to be of short duration and any evacuation from the site may put occupants at greater risk while navigating potentially flood-affected roads. A shelter-in-place strategy where occupants can access upper floors of the building above the PMF is appropriate given the nature of flooding in the area. This is also consistent with City of Parramatta DCP which refers to provision of evacuation refuges either onsite or offsite.

Yours Sincerely

A handwritten signature in blue ink, appearing to read 'SG', enclosed within a light gray rectangular box.

Steve Gray
Director, GRC Hydro