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Mirvac Projects Pty Ltd

Level 26
60 Margaret Street
Sydney NSW 2000

Your Ref:

Our Ref: 15-336-ATP Flooding
Letter

Direct phone: 02 9439 1777

Attention Dimitri Roussakis

Dear Dimitri,

ATP Development –Overall Stormwater Flooding Letter

Please find below our response to the comments provided by the Department and Council on the following:

Consideration to be given to the form and mass of Building 1 including relocation of parking to basements.

As noted within the attached ATP Services Memo dated 2nd November 2015, on-site detention for all stormwater runoff generated within the ATP site is provided within the public oval and tennis courts to the north of Henderson Road. A Stormwater Management Report has been undertaken by Woolacotts Engineers in September 2005. This report summarises the top water level within the basin for the 100 year ARI event is RL 15.75.

The existing level of Central Road to the north of Building 1 where the likely vehicle entry points for the building will be located vary from RL16.23 at the intersection with Davy Road to RL 16.31 to the west of Central Avenue. This is only approximately 500mm above the 100 year ARI flood level.

Given the high level of the known 100yr ARI flood level immediately surrounding Building 1, it is our recommendation as professional civil engineers that there should be no excavation for a basement carpark. It is our recommendation the existing ground level should act as the lower ground level carpark. Introducing a below ground basement carpark beneath Building 1 will increase the risk of overland flows and stormwater surcharging back into the basement. This water would then need to be dealt with via a pump out system.

From a flooding perspective the safest course of action is to maintain the ground levels as they are for carparking and raise the retail and commercial floor levels to suit. This will ensure all ground floor levels are set the minimum freeboard level above the 100 year ARI level to meet Council's flooding guidelines.

A Flood Model is necessary to demonstrate adequate capacity within the site and establish FPLs if necessary.

As discussed above a stormwater management report undertaken by Woolacotts in September 2005 has identified the 100 year ARI flood level of the basin (assuming the upstream catchment is made up entirely of impervious surfaces) is RL 15.75. Even applying 500mm additional for freeboard this level is still below the minimum FFL of Building 1 and the Community Building (RL16.30) and hence the City of Sydney's flooding guidelines.

It should also be noted the Woolacotts report assumed the entire upstream catchment was covered in impervious areas. With the proposed development of the ATP site additional soft landscaping (pervious) areas will be created and hence the peak flows will naturally be reduced. Also for each of the new buildings it is proposed to collect all roof water runoff into a harvest tank. The following tank sizes for each building are proposed:

Building 1 – **100m³**

Building 2 – **141m³**

Community Building – **25m³**

This additional storage provided will also reduce the peak discharges into the existing detention basin adjacent Henderson Road. As a result the proposed development is deemed to not be increasing peak discharge flows into the detention basin and hence not increasing the peak 100 year flood levels.

It has also been highlighted within a Stormwater Infrastructure Review report undertaken by ARUP in April 2015 that there is existing flooding within the carpark north of Central Avenue which is the location of proposed Building 2. This report cannot determine accurately if this flooding is a natural "above ground detention basin" designed specifically as an OSD system, of it is a result of inadequate grades of the carpark and under-capacity of the existing stormwater network.

Upon a further review of this carpark and the existing levels and stormwater drainage network within, it is our opinion this ponding is caused by flat grades within the carpark and inadequate stormwater drainage within the area. We believe this carpark was not designed as an above ground detention basin. The existing stormwater network within the carpark will be removed as part of the development and all stormwater/roofwater will drain into a 141m³ underground rainwater harvest tank. An overflow system will be in place for water to drain into the existing network within Central Avenue when the tank is full.

As previously stated it is our opinion the construction of Building 2 and the inclusion of a rainwater harvest tank will actually reduce the peak stormwater flows into the Central Avenue network and hence not increase any flooding levels downstream and within the detention basin from the current case.

As a result we do not believe an additional flood modelling is required to demonstrate adequacy or set FFLs.

Please feel free to discuss if you have any queries.

Yours sincerely



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