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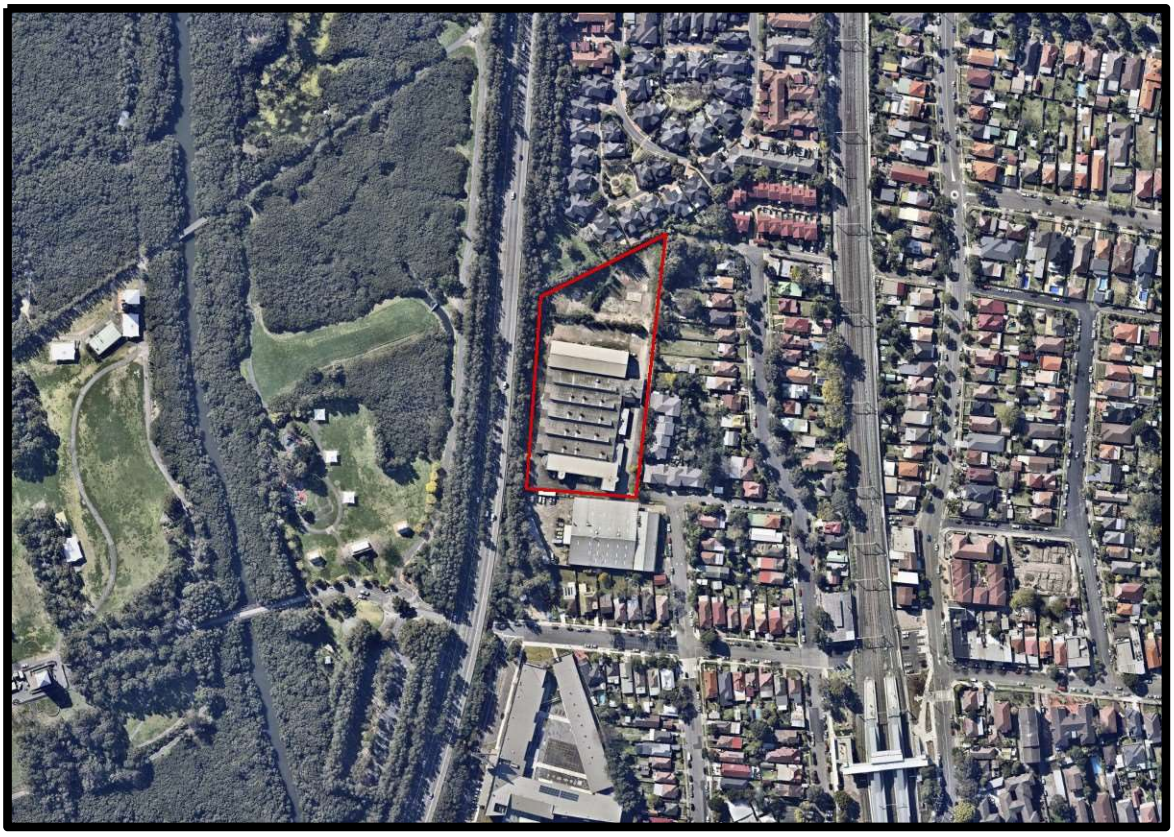

Lot 1 DP 219742, Concord West

Flood Impact Assessment

Response to Councils Contentions
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1. INTRODUCTION

This report provides formal responses to council's formal contentions with respect to flooding dated 5 May 2017.

These responses are for the purposes of the presentation to the JRPP hearing set for 8 June 2017.

2. RESPONSES

2.1 Council Contention 1

Flooding - Consistency with Ministerial Direction – 4.3 Flood Prone Land

This Direction applies to all councils that contain flood prone land when an LEP proposes to "create, remove or alter a zone or provision that affects flood prone land." This Planning Proposal seeks to rezone the subject land from IN1 General Industrial to R3 Medium Density Residential. In this regard, 117 Ministerial Direction - 4.3 Flood Prone Land applies to the Planning Proposal.

Specifically, the Planning Proposal is inconsistent with the following:

(6) A planning proposal must not contain provisions that apply to the flood planning areas which:

a. permit development in floodway areas,

- The Planning Proposal does not comply with this Direction.
- A "floodway area" is defined in the FDM 2005 as "those areas of the floodplain where a significant discharge of water occurs during floods. They are often aligned with naturally defined channels. Floodways' are areas that even if only partially blocked, would cause a significant redistribution of flood flow, or a significant increase in flood levels."
- There is no defined channel. Modelling has shown that blockage of flow across the site or reduction of storage on the site would cause an increase in flood levels up stream. The proposed floodway and void were designed to mitigate this effect.
- Based on the above, the subject site is considered to be located in a floodway area as blockage of the site would cause diversion of flows and impact on upstream levels.

2.2 IGS Response to Contention 1

A floodway is characterised by high velocities and high hydraulic hazards and is associated with natural channels, watercourses or low-lying areas conveying overland flows. There is no floodway within the site or anywhere in the vicinity of the site.

The site is not affected by high velocities or high hydraulic hazards. The site is actually a "flood storage area" as opposed to a "floodway" and the above direction does not apply to this site.

2.3 Council Contention 2

c. permit a significant increase in the development of that land,

- The Planning Proposal does not comply with this Direction.
- The Planning Proposal seeks a significant increase in the development of the land in that:
- The Planning Proposal seeks to rezone land from a IN1 General Industrial land use to an R3 Medium Density land use. A Socio- Economic Study was prepared by Hill PDA for the Master Plan which outlined two (2) as the number of employees working on the subject site. The Planning Proposal seeks to accommodate approximately 290 dwellings, and an estimated population of 696 (based on an estimated occupancy rate of 2.4).
- The Planning Proposal seeks to increase significantly the permissible Floor Space Ratio and Height of Building.
- The above reflects a significant increase in the development of the subject land.

2.4 IGS Response to Contention 2

The increase in risk associated with the intensification of the site through the provision of a residential development is managed in the design of the building that is raised above the 100-yr design flood event.

Floods associated with higher flood events (up to PMF) are managed by flood responses and shelter in place strategies. A draft Emergency Management Plan (EMF) has previously been provided to council for review, comment and consideration.

2.5 Council Contention 3

d. are likely to result in a substantially increased requirement for government spending on flood mitigation measures, infrastructure or services, or

- The Planning Proposal does not comply with this Direction.
- The proposal is likely to result in a substantial increase in requirement for government spending on infrastructure and drainage services. In particular, maintenance of drainage by way of removing sediment due to frequent inundation of their site and for drainage upgrades. Removal of sediment could run to several hundreds of cubic meters and there is no clear agreement on responsibility that is accepted by all the parties. (Council, RMS and SOPA)

2.6 IGS Response to Contention 3

The proposed flood void is unlikely to be silted with sediments and requiring a high level of maintenance. The void forms part of the building and as such its maintenance will form part of the strata obligations.

This situation is no different to how you would deal with an Onsite Detention Tank (OSD) arrangement from an ongoing maintenance perspective.

2.7 Council Contention 4

The draft Concord West Flood Study (draft CWFS) included a Concept Flood Mitigation Option for Site 1 (subject site) that featured a floodway along the Eastern boundary and a central floodway through the site from East to West, linking to flood storage along the Western and partially along the north western boundary. The draft CWFS noted a number of reservations regarding this concept. It was considered to be an indication of the extreme measures that would be required to prevent off site impacts if the site were to be developed for residential use, rather than a valid or practical solution.

2.8 IGS Response to Contention 4

A review of the CWFS indicates that an option to developed the site (referred to as Site 1) is included and modelled (Page 35).

The concept demonstrates that with the provision of a flood channel through the site (similar to what is proposed in this planning proposal) would work and will not create adverse impacts upstream and downstream of the site.

2.9 Council Contention 5

The draft Concord West Flood Study (draft CWFS) included a Concept Flood Mitigation Option for Site 1 (subject site) that featured a floodway along the Eastern boundary and a central floodway through the site from East to West, linking to flood storage along the Western and partially along the north western boundary. The draft CWFS noted a number of reservations regarding this concept. It was considered to be an indication of the extreme measures that would be required to prevent off site impacts if the site were to be developed for residential use, rather than a valid or practical solution.

Council has responded to the NSW Government Floodplain Development Manual 2005 and has been careful to consider the distinction between a re-zoning application (Planning Proposal) and a Development Application. The re-zoning is a higher level of the planning function. It notes the land is subject to flooding and asks “is this land suitable for the proposed use?” Once the zoning is established, the Development Application process notes “this land is subject to flooding” and asks “how do we manage the risk?” The answer to that is guided by the LEP and DCP. In this instance the Council is of the view the land is not suitable for residential land use.

2.10 IGS Response to Contention 5

The land is a flood storage area which is mainly caused by the undersized culverts under Homebush Bay Drive and the dam effect caused by the elevated road itself. The land is not different than any other land that is classified as flood storage and is considered suitable for re-development in FDM 2005.

2.11 Council Contention 6

The IGS Assessment and the Peer Review prepared by the applicant offered a number of examples of developments (not Rezoning's) including some that utilised under floor voids for floodway or flood storage. The examples cited are claimed to have "similar flooding conditions (to) the proposed development". A site inspection of 4 of the examples at Parramatta disclosed that one was nearing completion and the other 3 were vacant sites at time of inspection. The completed project did not include a void. None of the examples had the frequent inundation and tidal issues that are evident at the subject site. Neither are they subject to a damming effect similar to that created by Homebush Bay Drive at the subject site or the very flat downstream gradients and long obstructed downstream flow path of the subject site. Most importantly they are not subject to the speed of rise experienced by the subject site.

2.12 IGS Response to Contention 6

The proposed development is raised above the 100-yr design flood event required by the FDM (2005). There are no issues associated with the rate of rise for the 100-yr event as the podium level is higher and the basement is also protected. The rate of rise of floodwaters is required for storms in excess of the 100-yr design storm and as long as there is sufficient time for people to evacuate to higher floor levels in the development, this should not be an issue.

2.13 Council Contention 7

Time and speed of rise is of particular concern for Site 1 because of the damming effect created by the Homebush Bay Drive Embankment.

The 'Time to Peak' for a Probable Maximum Flood (PMF) (15 mins) is 10 minutes with a maximum depth of 1.35m. The 'Time to Peak' for 1% AEP (25mins) is 16 minutes with a maximum depth of 0.56m. (Jacobs Report)

2.14 IGS Response to Contention 7

As mentioned above, the proposed development is above the 1% AEP flood level + freeboard so the rate of rise is irrelevant as it does not impact the development.

The rate of rise for the PMF event affects only the basement and the ground floor level only. It is not anticipated that there will be a lot of people in these levels and the PMF is quite a rare event.

Furthermore, flood warning systems are proposed for the PMF event and flood wardens shall be trained in evacuating people on the ground level to designated "shelter in place" areas in the very rare PMF event scenario.

2.15 Council Contention 8

Rezoning the site from IN1 General Industrial to R3 Medium Density Residential changes the flood related risk profile of the site and places a significantly higher number of people at risk.

There is access to the site from Station Street which is approximately 10m wide and Concord Ave which is approximately 9.2m wide. Both accesses are subject to shallow inundation during the 1%AEP event as shown on Map C- 15 of the DCWFS and 1m to 2m deep inundation during the PMF event as shown on Map C-17 of the flood study.

Council is not satisfied that those risks are at an acceptable level and that the subject Planning Proposal manages the risks appropriately.

2.16 IGS Response to Contention 8

The IGS report addresses this item through a management strategy that relies on “shelter in place” which is acceptable in flash flooding situations where there isn’t enough time to evacuate off site.

A draft Emergency Management Plan (EMF) has previously been provided to council for review, comment and consideration.

2.17 Council Contention 9

Sea Level Rise and Climate Change impact upon low lying areas within the precinct that would be subject to tidal flooding with potential sea level rise. They have the potential to increase the frequency of inundation of the proposed flood storage area during minor rainfall events. Combined with sedimentation, Sea Level Rise and Climate Change would heighten impact with respect to frequency and extent of inundation over time.

2.18 IGS Response to Contention 9

This has been addressed by IGS. The climate change scenario in conjunction with the partial blockage and sedimentation in the mangroves downstream of the site have been modelled and the results indicate that the development will still be above the 100-yr design flood event. The increase in flood levels is only 100-150mm and is considered minor.

2.19 Council Contention 10

Amenity of future residents will be negatively impacted by the proposed storage and floodway void being very low. The frequently wet floodway and storage areas are not a desirable planning outcome. The frequency of inundation is predicted to be several times per year for the current scenario and for the 2100 scenario the void invert would be almost constantly wet. This brings increased possibility of problems with marine growth, odour, increased difficulty and cost of cleaning and a requirement for an increased frequency of cleaning.

2.20 IGS Response to Contention 10

The flood void will not be inundated several times per year but only in major storm events. Reference is made to the flood maps in IGS report.

The flood void design is quite innovative and discrete in nature. It does not have any adverse impact on amenity what so ever.

The flood void is no different to an Onsite Detention (OSD) tank. Maintenance will be recommended a few times a year to ensure there are no blockages and that the void is clean. This can be part of the strata / body corporate maintenance requirements. The maintenance of the flood void can be written into the Annual Fire Safety Statement (AFSS) to be checked and signed off every year and sent to council to demonstrate that the flood way is regularly maintained.

2.21 Council Contention 11

The void will require regular cleaning to maintain its effectiveness, reduce odours from decaying organic material and reduce harbour for vermin. This regular cleaning will be an expensive imposition on the Community Association or Body Corporate leading to complaints, temptation to block the inlet and a reluctance to clean.

2.22 IGS Response to Contention 11

The maintenance will form part of the strata obligations similar to other regular processes such as fire hydrant testing, etc… The cost will be shared among the tenants. The number of units proposed is such that the additional cost would be minor per unit per month.

Refer to comments above in section 2.20.

2.23 Council Contention 12

Infrastructure - The proposal is likely to result in a substantial increase in requirement for government spending on infrastructure and drainage services. In particular, maintenance of drainage by way of removing sediment and demands by residents whose expectations do not include frequent inundation of their site for drainage upgrades. Removal of sediment could run to several hundreds of cubic meters and there is no clear agreement on responsibility that is accepted by all the parties. (Council, RMS and SOPA)

2.24 IGS Response to Contention 12

The proposed flood void is unlikely to be silted with sediments and requiring a high level of maintenance. The void forms part of the building and as such its maintenance will form part of the strata obligations. There should not be any government spending on infrastructure or the like.