67-75 LORDS ROAD LEICHHARDT

PLANNING PROPOSAL

FLOOD RISK MANAGEMENT REPORT

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1. INTRODUCTION

The Lords Road Planning Proposal (PP-2022-2970) received Gateway Determination on 2 September 2024 with conditions to be satisfied prior to the exhibition of the documents. This report deals with Condition 1 g) – Further address Ministerial Direction 4.1 Flooding and justify the inconsistencies with this Direction with reference to Clause 1, Clause 3 (a), (c), (d), (e) and Clause 4.

2. THE SITE

The site is located in Lords Road, Leichhardt which is within the Inner West LGA.

The **site** consists of two lots. Lot 1 DP 550608 (75 Lords Rd) is a lot 12m wide running along the western boundary against the light rail line embankment. No buildings are proposed in this lot and it is intended to be a RE 2 zone. It is presently used as a car park.

Lot 1 DP 940543 (67-73 Lords Rd) is to the east of Lot 1 DP 550608 (75 Lords Rd) and will contain all the proposed building footprint development. At present, all the existing buildings are on this lot.

The western boundary of 75 Lords Rd is adjacent to the former freight line embankment which separates the **site** from the Hawthorne Canal which is located on the western side of this embankment.

Lords Road (along the southern boundary) and the local catchment drains to the pedestrian access tunnel under the former freight rail embankment and to a point adjacent to the south western corner of the subject site. There is a stormwater pipe drainage system in Lords Road which is piped under the embankment to the Canal. Overland flows in excess of the Lords Road pipe capacity would overtop the kerb and drain to the canal via a pedestrian tunnel provided through the embankment. This 3m wide by 3m high tunnel is located adjacent to the south western corner of the **site**.

67-73 Lords Rd has significantly higher existing ground levels varying from RL 5m AHD to RL 8.5m AHD. A large area on the eastern section of the lot is above RL 6.8m AHD which is the PMF flood level on the site and as such, this area is flood free. The 100yr ARI (1% AEP) flood level is RL 4.1m AHD and the Flood Planning Level (FPL) with 500mm freeboard is RL 4.6m AHD.

There is an earth embankment along the northern boundary of the **site** (both lots) which has an average crest level at RL 5.2m AHD at the western end. These ground levels are above the 100yr ARI flood level on the site and cause ponding of flood waters on the site for events up to the 1 in 500yr ARI (0.2% AEP). All flood waters up to the PMF flood pond on parts of 67-73 Lords Rd. Ponding water has no significant velocity and is characterised as flood storage and flood fringe.

For floods rarer than the 1 in 500yr ARI (0.2% AEP) event, flood waters would overtop the northern boundary mound on 75 Lords Rd and after this point would change from a flood storage to a flood flow conveyance with flow to the north over Lambeth Park.

The site is subject to flash flooding and flood modelling indicated that ponding of floodwaters on the site lasted less than 2 hours for all floods up to the PMF flood.

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3. THE PROPOSAL

The planning proposal would facilitate the rezoning of the land at 67-73 Lords Road to R3 to provide for the future redevelopment of the site for a mix of residential buildings accommodating approximately 210 dwellings to be located above a basement building platform. A Reference Scheme has been prepared to demonstrate that the site could be developed to provide for approximately 210 dwellings as well as non-residential uses.

The reference scheme provides for a basement building platform which has a minimum finished level at the Flood Planning Level (RL 4.6m AHD). This level is 0.5m above the 100yr ARI (1% AEP) flood level on the site. This finished floor level is consistent with the IWC minimum level requirements for residential developments. It is up to 0.5m above the IWC minimum level for retail and commercial uses. The development proposes 210 dwellings with 199 dwelling above the PMF and 11 apartments below the PMF level at or above the recommended minimum Flood Planning Level (RL 4.6m AHD). There are 4 non residential areas at the Flood Planning Level in the Reference Scheme.

The 75 Lords Road lot along the western boundary is proposed to be rezoned to RE1 Public Recreation to be used as public open space, consistent with the PRCUTS.

The Urban Design Scheme and the Reference Scheme ameliorate the potential flood risks in the future development of the site through a number of measures including:

a) A flood alarm system will be installed (visual and audible) to provide warning for ground floor residents, shoppers and retail staff to relocate to flood refuges in the buildings located above the PMF flood level in the event of a flood;
b) Flood refuges will be provided in the buildings providing for shelter in place for less than 2 hours with access to water, food, radio, power, sewerage, emergency phone numbers, and amenities for the 5% located below the PMF flood level;
c) The urban design and reference scheme have been designed so that 95% of the apartments are located above the PMF, so there is only a limited number of people (approximately 11 apartments and 4 non-residential areas) that would be required to move to the flood refuges in the buildings;
d) The entrance/exit to the basement carpark is located above the PMF level to Lords Rd allowing evacuation, if necessary, in a medical or fire emergency;
e) The compensatory flood storage will be located in an enclosed concrete tank with no overflows occurring from the tank into the basement (all overflows will occur from the stormwater drainage inlet pits located in open space around the development);
f) Site runoff will be piped from selected drainage inlet pits on the site and piped into the basement and the compensatory storage tank via pipes along the basement walls and pipes attached to the underside of the ground floor slab; and
g) The basement will be protected from PMF flood waters entering the basement by locating the driveway entry above the PMF level at Lords Rd and by having pedestrian access to the basement from the first level of the development which has floor levels above the PMF level.

The proposal provides for future development that maintains the natural flood functions on the site by providing for adequate building setbacks from boundaries and separation between the buildings

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which allows for improved overland flood flows on the site. The development will also remove areas which presently trap flood waters and cause unnecessary trapped flooding areas. Given that there are no significant changes to flood levels in the pre and post conditions, the development therefore does not change the flood hazards, risk profile or functions either on or outside the site.

4. FLOOD MODELLING

To address the Panel's recommendation of August 2023 based on the Council's request for modelling pre and post 100yr ARI and PMF flood levels, a new flood model has been constructed from scratch using the TUFLOW model. TUFLOW, is a state of the art, industry standard flood modelling program recognised as giving consistent results and capable of modelling the most up to date rainfall data and the requirements of the Flood Risk Management Manual 2023.

Water Technology (water, coastal and environmental consultants) are flood experts and work for government to solve local water and flooding issues. They have been employed to prepare a TUFLOW flood model to address the Council's requirement for pre and post flood behaviour on the site.

This new site specific model has been built and run in accordance with the Flood Risk Management Manual 2023 to ensure that it is consistent with the State government's latest flooding policies and guidelines. It has been applied to assess the Council's requirements for pre and post-flood behaviour on the site. Significantly, this model portrays a more realistic flood behaviour based on the site's characteristics compared to the SOBEC model prepared by the Council. This relates to the site topography, flood control structures, and the drainage layout.

This model is industry standard, proven to give good results and criteria are all in accordance with the Flood Manual 2023 and the most up to date ARR rainfall data. In particular, the model incudes:

a. pipe drainage on site which has been surveyed along with the latest industry standard LIDAR ground surface levels;
b. it incorporates the latest rainfall data; and
c. Importantly, the post development layout incorporates wide overland flow paths around the buildings, so that there would be no ponding and artificially increased flood levels would not occur as with existing conditions with continuous building structures across the site.

5. FLOOD MODELLING RESULTS

Water Technology have modelled the pre and post flood conditions. A full description of the flood modelling results for all the floods required by the LU01 guideline (Table 6) are included in the WT report.

These results indicate that the proposed development would have minor adverse impacts on flooding outside the site but the provision of compensatory flood storage would largely ameliorate these offsite impacts. These storages are prevalent in housing, apartment and office developments which remove flood storage from the site. The flood storages are required in most Councils in Sydney for housing developments in existing urban areas and these storages are termed onsite detention (OSD). The OSD tanks store water to compensate for increased flood flows due to these

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developments leading to no increase in flood flows or flood levels. In higher density developments such as apartment buildings or industrial developments, compensatory flood storages are common in basements or under hardstands. They reinstate any lost flood storage and alleviate any adverse impacts on flood levels.

The flood level afflux plots at Figures 1 and 2 show the post development flood level afflux for the 100yr ARI (1% AEP) floods with and without compensatory storage. Figures 3 and 4 show the pre and post development flood level afflux for the PMF flood. It is demonstrated in Figures 2 and 4 that there is no significant flood level afflux in the 100yr ARI (1% AEP) or PMF floods in the post development case outside the subject site. In fact, there are improvements to the PMF flood levels outside the site under the post development case.

These results confirm that the flooding on the 67-73 Lords Rd site is flood storage and flood fringe. It also confirms that there would be no change in the flood risks and hazards resulting from the redevelopment of the site.

6. COMPENSATORY FLOOD STORAGE TANK

It is common practice for development that potentially results in a loss of floodplain storage to provide compensatory storage to negate any potential flood risk impacts to neighbouring areas. There are many examples of sites that have been redeveloped where compensatory storage tanks have been provided within basements as a means of appropriately mitigating flood risk. Some examples are the Parramatta CBD where buildings allow flood waters into basements so that flood levels are not increased due to loss of flood storage over the footprint of the new building. Northern Beaches Council requires compensatory storage to minimise adverse impacts on existing flood levels as can be seen at Attachment A and a compensatory flood storage in an apartment building at Attachment B. The Inner West areas would also be susceptible to the need for compensatory storage given the redevelopment in existing urban areas with large areas of flood storage ponding.

The detailed flood modelling that has been undertaken for this site has demonstrated that any potential flood risk can be mitigated through the provision of a compensatory storage tank, which is proposed to be provided within the basement of future buildings on the site. The volume of the compensatory storage required in the development was identified by the modelling to be 1200m3. A tank with this capacity is proposed to be located in the basement in the north western corner as shown on the development plans for the reference scheme (refer Figure 5).

The compensatory storage will be located in an enclosed concrete tank with no overflows occurring from the tank into the basement (all overflows will occur from the stormwater drainage lines in the open space on the 67-73 Lords Rd site). The stormwater drainage system around the 67-73 Lords Rd development will consist of inlet pits and pipes. In the detailed design, inlet pits will be selected over the site (minimum level at RL 4.6m AHD) to drain to the compensatory storage in the basement. These flows to the tank will be in pipes attached to the underside of the floors and walls of the basement**.** Access to the tank space will be via a bolted down steel cover and ladder steps to regularly clean any debris from the tank.

The outlet to the tank will have a debris grill around the outlet pipe with discharge via a pipe through the basement wall to the existing drainage pipe which runs under the light rail embankment to the canal. The storage tank will have a base level of around RL 1.5m AHD (this is the basement level). It

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will drain to the drainage inlet pit in 75 Lords Rd which has an existing invert level at RL 0.9m AHD. The storage in the tank will replicate the storage which occurred in the existing case before the new building footprint removed some flood storage. The detailed design of the storage tank will form part of a future development application.

There will be no overflows from the tank in the basement. The risk of drainage pipes breaking is low and they will be installed on walls or on the soffit of the floor slab above which minimises the risk of cars breaking these pipes.

Bollards would be installed around the tank to prevent damage by cars in the basement carpark.

There is more discussion of the manner in which any potential risks related to the storage tank in Section 8 of this report.

7. MINISTERIAL DIRECTION 4.1 FLOODING

Section *4.1 Flooding* of the Ministerial Directions under Section 9.1 EP&A Act were updated on 20 February 2023.

The objectives of Ministerial Direction 4.1 Flooding are to:

(a) ensure that development of flood prone land is consistent with the NSW Government's Flood Prone Land Policy and the principles of the Floodplain Development Manual 2005, and

(b) ensure that the provisions of an LEP that apply to flood prone land are commensurate with flood behaviour and includes consideration of the potential flood impacts both on and off the subject land.

7.1 Direction 4.1 Clause 1

Clause 1 of the Direction requires that

(1) A planning proposal must include provisions that give effect to and are consistent with:

(c) the NSW Flood Prone Land Policy,

(d) the principles of the Floodplain Development Manual 2005,

(e) the Considering flooding in land use planning guideline 2021, and

(f) any adopted flood study and/or floodplain risk management plan prepared in accordance with the principles of the Floodplain Development Manual 2005 and adopted by the relevant council.

The WT flood risk assessment has been undertaken in accordance with all of the NSW government flood guidelines contained within the following documents:

- Flood Risk Management Manual 2023,
- Draft Shelter in Place guidelines,
- Flood Inquiry Findings,
- Considering flooding in Landuse Planning (2021) and
- Inner West LEP 2022.

It is noted that *Floodplain Development Manual 2005* has been superceded by the *Flood Risk Management Manual 2023*, which also includes the NSW flood prone land policy.

This section describes in more detail how the development complies or justifies any minor inconsistencies with the NSW government flood risk guidelines.

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NSW Government Flood Policy

The *NSW Government's Flood Prone Land Policy 2005* and *Flood Risk Management Manual June 2023* support the wise and rational development of flood prone land. The policy acknowledges that flood prone land is a valuable resource that should not be sterilized by unnecessarily precluding its development and that development should be treated on its merits rather than through the application of rigid and prescriptive criteria.

The aim of the Policy and the Manual is to appropriately manage the risk to personal safety and damages from floods. The planning proposal incorporates a number of elements that will appropriately and effectively manage flood risk on the site. The way in which the proposed development performs with respect to these aims and objectives is discussed more specifically below.

Flood Risk Management Manual June 2023

The primary objective of this policy is to reduce the impacts of flooding and flood liability on communities and individual owners and occupiers and to reduce private and public losses from floods.

The Manual deals with the responsibilities of state and local governments as well as developers as set out in ten principles of flood risk management. The principles are listed below and text is provided in the relevant principles as to how the planning proposal performs against these principles.

Principle 1 – Establish sustainable governance arrangements.

The State has Floodplain Risk Management (FRM) and Emergency Management (EM) systems in place which will be improved by the implementation of the requirements in the Manual. The proposal complies with the IWC minimum floor levels for all uses on site in flood areas. This report assesses the performance of the proposed development against the state risk management guidelines.

Principle 2 – Think and plan strategically.

The FRM information and controls in place in the LGA have been improved by our site-specific flood modelling so that we well understand the flood behaviour and risks on the site.

Principle 3 – Be consultative.

The Inner West Council has consulted widely with the community in the FRM processes and also in the local area as a result of this and many other Planning Proposals and DAs for the Leichhardt area. Ongoing consultation with Inner West Council and other relevant stakeholders will be undertaken as appropriate.

Principle 4 – Make flood information available.

The Inner West Council has provided FRM information for the local and wider areas affected by flooding in the Leichhardt area and the developer has provided to Council, FRM specific to the site to demonstrate that the proposed development conforms with the Manual.

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Principle 5 – Understand flood behaviour and constraints.

Flood modelling has been undertaken specifically for the subject site by Water Technology so that there is a detailed understanding of the flood behaviour and constraints for the full range of floods from the 5% AEP (20yr ARI) to the PMF flood. The ground floor building platform in 67-73 Lords Rd will be at a minimum of RL 4.6m AHD which is the flood planning level (FPL) for the site. All the proposed habitable floors in 67-73 Lords Rd will be at or above the FPL as required by IWC.

There will be no buildings on 75 Lords Rd. It will be retained and landscaped for public use. There will likely be limited direct pedestrian access from buildings in 67-73 Lords Rd to the 75 Lords Rd lot. Access to 75 Lords Rd lot will be via Lords Rd in the developed case.

Principle 6 – Understand flood risk and how it may change.

Extensive flood modelling was undertaken by WT for the pre and post development conditions to show that proposed future development would not have a significant adverse impact on the flood behaviour on adjacent sites. There will also be sufficient infrastructure and flood evacuation management to minimize risk to life and flood damages. This is a significant improvement compared to the existing conditions which has inundation and flood damages for floods more regular than the 1% AEP (100yr ARI) flood and has no flood response measures to manage risk to life. The proposal therefore provides the opportunity to decrease the risk to the population in the surrounding area by providing for development that is more compatible with the flood risk.

Principle 7 – Consider variability and uncertainty.

Uncertainties in flood behaviour have been minimized by the use of very experienced flood practitioners Water Technology who developed a fit for purpose flood model which was calibrated and validated considering historical flood information. The results from this site specific flood model would be more accurate than the results from Council's SOBEK regional flood model. The assessments of flood characters such as depth, velocity, and hazard at the site would be more accurate than the Council's flood certificate. This is demonstrated by the extent of high flood hazard shown of the flood certificate extending into the 67-73 Lords Rd however, the site specific flood model shows that this high flood hazard is limited to the 75 Lords Rd lot.

A freeboard of 0.5m above the 100yr ARI flood level has been adopted to provide a Flood Planning Level (FPL) for the minimum habitable floor levels in the development as per the Flood Development Manual 2023 and the IWC flood policies. This FPL is the 100yr ARI flood plus 0.5m freeboard and this is Council's minimum level for habitable floors. The FPL for the proposed development is RL 4.6m AHD. The proposed development has a minimum habitable floor level at RL 4.6m AHD. The majority of residential floor levels (95%) will be above the PMF level and therefore will be flood free. These minimum floor levels exceed those that are required by the state and local governments.

This freeboard of 0.5m adopted for the FPL and lowest habitable floor level will readily accommodate flood level increases due to the worst case climate change (RCP 8.5) and any uncertainties in flood behaviour (refer to the WT report).

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Principle 8 – Maintain natural flood functions.

The proposal provides for future development that maintains the natural flood functions on the site by providing for adequate building setbacks from boundaries and separation between the buildings which allows for improved overland flood flows on the site. The development will also remove areas which presently trap flood waters and cause unnecessary trapped flooding areas. Given that there are no significant changes to flood levels in the pre and post conditions, the development therefore does not change the flood hazards or functions on the site or outside the site.

The natural flood function on both the 75 and 67-73 Lords Rd lots is controlled by the earth mound in Lambert Park running along its boundary with the subject **site**. The natural runoff flow direction in the subject site (67-73 Lords Rd) is firstly to the west through the site and then to the north along 75 Lords Rd lot. The flows from the upstream catchment are along 75 Lords Rd lot. This flow is stopped by the Lambert Park mound and flood waters pond on the site (both 75 and 67-73 Lords Rd) until they begin to overtop the mound at about RL 5.2m AHD. This overtopping will occur for floods rarer than the 0.2% AEP (1 in 500yr ARI) flood. This natural flood function will be maintained in the 75 Lords Rd lot with the proposed development on 67-73 Lords Rd. The flood function on 67-73 Lords Rd with the proposed development will remain to be 'flood storage' and 'flood fringe'.

The flood function in 75 Lords Rd will remain as for existing conditions, with 'flood storage' and 'flood fringe' up to floods rarer than the 0.2% AEP flood (1 in 500yr ARI). For floods rarer than the 0.2% flood (1 in 500yr ARI), there would be flood conveyance on the 75 Lords Rd lot.

Before the flood level reaches RL 5.2m AHD, the residents/workers on the ground floor will have moved upstairs to the flood refuge areas in the buildings which are above the PMF flood level of RL 6.8m AHD in accordance with the evacuation plans that will be in place.

The flood flows which overtop the mound in Lambert Park during floods rarer than the 0.2% AEP flood (1 in 500yr ARI flood) are concentrated in the 75 Lords Rd lot because it forms the lowest part of the site and has a flat surface over its 12m width. So, this natural flood function will remain on 75 Lords Rd lot.

On the 67-73 lot, the flood function will remain to be 'flood storage' and 'flood fringe'.

Principle 9 – Manage flood risk effectively.

The planning proposal includes a number of measures to ensure that the identified flood risks are appropriately and effectively managed. The proposal has adopted the recommended minimum habitable floor level at the FPL and the majority of the apartments (95%) will be above the PMF level and flood free. The driveway entry to the basement carpark is above the PMF flood level and as such, is protected from all floods. Both pedestrian and vehicular access to and from the site is available to Lords Rd above the PMF level. The building platform below the FPL will be constructed of flood compatible materials which will minimize the flood damages. These measures will allow very effective management of the flood risks.

A *Flood Emergency Flood Plan* (FERP) and a *Flood Safe Plan* will be prepared for the future DA submission. The FERP will be implemented by the retail and strata managers as flood wardens in a similar fashion to Fire Risk Management. This Plan will minimize the risks to people's lives in all floods.

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The FERP has two main flood evacuation strategies which consists of shelter in place and evacuation on foot and in vehicles in a medical or fire emergencies. The primary evacuation will be shelter in place but if for some reason evacuation is needed, then a pedestrian and vehicular evacuation will be implemented. This is consistent with most of the Leichhardt area, which is subject to shelter in place requirements because the flood response times are fast (less than 2 hours for the rise and fall of flood levels) with limited time to engage an evacuation to a regional flood refuge along roads already severely flooded.

The NSW Government Draft Shelter in Place guidelines recommend shelter in place emergency responses in floods for areas subject to flash flooding for which there is insufficient time to evacuate a site to a regional flood refuge and the duration of flooding blocking road access is less than 6 hours. The Water Technology flood report determined that the duration of flooding on the site up to the PMF will be less than 2 hours.

These strategies are consistent with those that have been adopted / accepted by Councils in the approval of many developments eg Parramatta CBD, Northern Beaches and Fairfield (refer to Attachment C). The FERP requires regular review of the FERP and training of flood wardens and staff in all aspects of flood risk management. This will be managed by the retail and strata managers.

A flood refuge area is provided in the development above the PMF flood level (flood free) with an area of 467m2 and with access to water, food, power, sewerage, TV, medical kits, torches, batteries, emergency phone numbers, amenities and copy of the FERP. The development will contain an emergency backup generator to ensure power to the development in a power blackout. This would readily cater for the limited retail and residential areas which would have to evacuate in a PMF flood for no more than 2 hours. Northern Beaches Council provides recommended inclusions for flood refuges (refer Attachment C). Importantly, the proposed development overcomes the SES concern for the ability to evacuate the site in medical and fire emergencies.

There would be automatic alarms, both visual and audio, which would be activated when flood levels reached RL 3.8m AHD on site. Flood wardens would activate the evacuation of workers, shoppers and residents on the FPL floor levels at RL 4.6m AHD up to the flood refuge. The majority of the apartments (95%) would not need to be evacuated because they would have flood free accommodation.

The **site** has ground and building levels above the PMF flood level in the south eastern corner of the **site**. This would provide flood free access to Lords Rd in all floods. Evacuation would also be available on foot to all people in the development through the buildings and under cover if evacuation on foot was required. Vehicles could also access Lords Rd via the driveway which provides access to Lords Rd above the PMF flood level.

The FERP would be developed to cater for the flood evacuation in a medical or fire emergency. It would provide effective management of the flood risk to people's lives for all floods. This would include shelter in place for the majority of residents, and relocation of a small number of residents and retail persons to the flood refuge onsite. If a medical condition or fire arose requiring evacuation, this would also be available by car or on foot.

Evacuation plans would ensure that residents/workers would have evacuated to flood free refuges when the flood levels reach RL 3.8m AHD. This is long before the flood levels reach RL 5.2m AHD which is the 1 in 500yr ARI flood level. Detailed Evacuation Plans will be prepared and submitted with future development applications for buildings on the site.

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The proposed development will be constructed of flood compatible materials below the FPL. This will minimise the risk to flood damages on the site.

Principle 10 – Continually improve management of flood risk.

The FERP will be regularly upgraded as required by the retail and strata managers as result of lessons learnt in floods or changes to flood regulations. The FERP requires regular training and can be upgraded if this training identifies better ways of doing the flood evacuations or when new technologies are available to assist with evacuation. Flood warning systems may improve over time which provide more relevant information to make flood evacuations more efficient and these improvements could be incorporated in the FERP as required.

Considering flooding in land use planning Guideline

The proposal has been considered in accordance with the Guideline, with assessment of flood behaviour and consideration of the appropriate flood management options, constraints that result from potential flooding and the appropriate methods for the implementation of Flood Risk Management plans for the future development on the site.

The following have all been considered:

- safety of people including evacuation planning
- management of flood risk, to reduce flood damage to public and private property and infrastructure
- management of the impacts of future development on the site, including cumulative impacts
- management of any potential impacts of development on emergency services
- the proposed development is consistent with the Guideline as it minimizes the potential flood risk to personal safety and property damages.

Inner West Council flood risk management plans

The Leichhardt Floodplain Risk Management Study recognises that the majority of the catchment is subjected to flash flooding with ponding durations less than 2hrs and recommends Shelter in Place as the emergency response. It supports a minimum habitable floor levels at the FPL and measures to reduce the risk to life and damages.

7.2 Direction 4.1 Clause 3

Direction 4.1(3)(a) - Development in Floodway Areas

For floods rarer than a 1 in 500yr ARI (0.2% AEP) flood, there would be flood conveyance along the 75 Lords Rd corridor and the development proposed in this area is to landscape a proposed public

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thoroughfare. The proposed development on 75 Lords Rd site is not considered inconsistent with flood policies and does not induce significant risk compared to existing conditions.

Elsewhere on the site for which there will be development of buildings (67-73 Lords Rd), the flood function is flood storage and flood fringe. This is consistent with flood policies and flood risk. Any risk can be minimised through the future design of boundary fencing between the residential buildings and the open space on the 75 Lords Rd lot.

Prior to there being flood conveyance on 75 Lords Rd, there would have been flood storage on the site for storms up to the 1 in 500yr ARI flood which would not have allowed pedestrian access to this land. This would deter people from entering this area even before it became a flood conveyance area.

The building development on 67-73 Lords Rd is not in a flood conveyance area for all floods and as such, is consistent with the flood policy requirement.

The proposed buildings along the western boundary of 67-73 Lords Rd will be located adjacent to a flood conveyance area on 75 Lords Rd in very rare floods beyond 1 in 500yr flood. The location of the buildings adjacent to what maybe a floodway on 75 Lords Rd may be considered an inconsistency with the requirement for no development in a floodway. This inconsistency is considered to be of minor significance because:

a) The building is located adjacent and not in a floodway and as such, the impacts on the stability of the building will be much diminished;
b) The building is exposed only in very rare flood events;
c) The flow velocity will be low and hence the design of the building can readily resist the flood forces and be stable;
d) There will be no pedestrian entrances to the apartments along the western face of the western buildings in 67-73 Lords Rd – this protects the risk of residents to this hazard in 75 Lords Rod for rare floods (all pedestrian access will be on the eastern side of the western buildings);
e) There will be no direct pedestrian access to 75 Lords Rd from the development;
f) The flooding on the majority of the site will be flood storage and flood fringe.

For these reasons, the potential inconsistency with this flood policy is considered to be of minor significance.

Direction 4.1(3)(c) - Residential Accommodation in High Hazard Areas

The flood function for both 75 and 67-73 Lords Rd is flood storage up to the 1 in 500yr ARI flood event which means there is very little velocity (less than 0.2m/s). As such, the flood hazard is driven by flood depth.

For the area of the 67-73 Lords Rd lot between the proposed buildings, the flood hazard is H1 for all floods up to the 1 in 500yr flood. For the PMF, the flood hazard is higher but the 5% of residents/tenancies below the PMF level, would have already evacuated to flood refuges in the buildings above the PMF level and as such, would not be subjected to flood hazard risk. There will be no need for people to exit the buildings to evacuate from the FPL to the flood refuge above the PMF

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level. The evacuation will be solely internal to the buildings and the refuges within the buildings will allow people to shelter in place.

For 75 Lords Rd, the flood depth is higher (existing land level on 75 Lords Rd is lower than for the 67-73 Lords Rd) and as such, the flood hazard is higher. Any risk can be minimised through the future design of boundary fencing between the residential buildings and the open space on the 75 Lords Rd lot. The 5% of residents/tenancies would have evacuated to flood refuges above the PMF flood level before the high levels of flood hazard occur. Evacuation plans would ensure that residents/workers would have evacuated to flood free refuges when the flood levels reach RL 3.8m AHD. This is long before the flood levels reach RL 5.2m AHD which is the 1 in 500yr ARI flood level.

Apartment buildings can be designed and constructed using typical methodologies to prevent instability of the building under flooding loads. This is due to the low flood velocities that would be experienced on the site. An experienced structural engineer can verify this is as required. There are a number of buildings being constructed in Parramatta CBD in which there are high flood hazards and shelter in place conditions. There are also a number of examples of development in the Leichhardt area that have adopted a similar approach.

For any emergencies with fire or medical conditions, people can evacuate the site via the basement driveway to Lords Rd (which is above the PMF level) or via the eastern land on 67-73 Lords Rd which is above the PMF level.

In summary, the reasons why the proposal within the high flood hazard area is considered to be of minor significance are:

a) People located on the ground floor will have already evacuated (at alarm at flood levels of RL 3.8m AHD) to the flood refuges at flood free levels when the high flood hazard occurs between the buildings (when flood levels exceed RL 5.2m AHD);
b) The evacuation is internal to the buildings without any requirement to traverse flooded areas;
c) The high flood hazard occurs on the site only in very rare flood events (floods rarer than 1 in 500yrs);
d) The high flood hazards are identified on the site due to flood depths not high flow velocities and as such, buildings can be designed to be stable in all flood events;
e) Pedestrian access to 75 Lords Rd from the development can be limited to avoid access to a high flood hazard area;
f) Medical or fire emergency evacuation from the site during the PMF is available via the driveway to Lords Rd without traversing a high flood hazard area.

Direction 4.1(3)(d) – Increased development /dwelling density

The proposal seeks to rezone the land at 75 Lords Road to RE1 Pubic Recreation and as a result there is no proposed increase in development/dwelling density on that land. As such, this component of the proposal is consistent with this policy requirement.

The proposed rezoning of 67-73 Lords Road would provide for future development on the site that would be an increase in the development/dwelling density over current conditions. This increase is considered to be of minor significance given the limited flood risk to the overall development that has

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been demonstrated by the results of the flood modelling and that the limited risk can be readily ameliorated through the design of the future buildings on the site.

Up to 95% of the development is located above the flood risk with floor levels above the PMF level. Only 5% of the development is directly influenced by flooding but the floor levels are consistent with those recommended by the IWC and NSW government policy, being at or above the flood planning level.

The development is subject to flash flooding for less than 2 hours in the PMF which means shelter in place is allowable under the draft Shelter in Place NSW government policy which allows up to 6 hours of sheltering in place. Flood refuges will be provided in the buildings with access to water, food, sewerage, radio, medical kits, emergency phone numbers, torches, batteries and amenities for the 5% located below the PMF flood level.

In a medical or fire emergency, people can evacuate the site at levels above the PMF onto Lords Road via the basement driveway or pedestrian access to land at the eastern side of the site which will be above the PMF level. This overcomes the SES concerns regarding the potential need for an emergency medical or fire evacuation which is possible in this development. There is no need for any increases in government infrastructure to enable these measures during floods. The buildings can be designed to be stable in a PMF flood because the flood velocities on the site, especially on 67-73 Lords Rd, have been modelled as being low.

The current site development has no controls to reduce flood risk to people or property damages. The proposed development has minimal risk to flood damages and risk to life. The minimum habitable floor levels, which cover only 5% of the proposed development, are in accord with Council and state government policies. These people can be evacuated to flood refuges in the buildings which are on flood free levels. Up to 95% of people are in flood free apartments. In any fire or medical emergency during a flood, people can be evacuated to flood free areas by vehicle or on foot in Lords Road via the driveway. While there are more people on site, the proposed development provides acceptable flood risk for all people on site compared to the existing development with no measures to reduce flood risk.

Therefore while the proposal will increase density on the site, the ability to manage flood risks in this development leads to a conclusion that any inconsistency with this flood policy is considered to be of minor significance for the following reasons:

a) The existing development on the site is flood effected in regular/small floods causing risk to people and property damages on a regular basis. There are no means by which these risks can be mitigated by the existing buildings on the site;
b) While the proposed development increases the number of people on the site, it allows for the flood risks to be managed appropriately according to the Council and State government flood policies in a manner that decreases the risk to the population through development that is more compatible with the flood risk;
c) 95% of the development is flood free and can shelter in place for less than 2 hours for every flood;
d) The shelter in place is supported by the provision of flood refuges in the building in flood free areas;
e) Flood evacuation is available internally within the building without traversing flood areas outside the building;

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f) Emergency medical or fire evacuation is also available via the driveway to levels above the PMF to Lords Rd.

There are a number of examples of this approach being adopted in NSW. Parramatta Council adopted the same approach to the development of flood compatible buildings (see Attachment D).

Direction 4.1(3)(e) –development for the purpose of centre-based childcare facilities, hostels, boarding houses, group homes, hospitals, residential care facilities, respite day care centres and seniors housing in areas where the occupants of the development cannot effectively evacuate

In accordance with the Parramatta Road Corridor Urban Transformation Strategy, the Planning Proposal proposes a R3 Medium Density Residential zoning on the 67-73 Lords Rd lot and at this stage the proposal is for the future development to include residential dwellings and space to provide for a mix of compatible non-residential uses such as offices, creative industries and small businesses. However, it is acknowledged that the R3 zone permits some sensitive land uses such as childcare, seniors housing, respite day care centres, boarding houses, hostels and group homes with development consent.

Consent will be required for any sensitive landuses should they be proposed in the future. The concern is that the occupants of these landuses would not effectively evacuate in a flood. As such, these landuses could not be located on the ground floor of the buildings proposed on the western side of the site which are subject to inundation during a PMF flood. Any sensitive uses proposed, such as childcare centres or seniors housing could be located on flood free floors which would not require flood evacuation. In this case, no flood evacuation would be required and would only be affected over the 2 hours shelter in place during the worst flood – PMF. A detailed Evacuation Plan will be prepared and will be in place to ensure safety for all people and property.

7.3 Direction 4.1 Clause 4 – Special Flood Considerations

Special flood considerations (SFC) are particular flood risk considerations that a consent authority must be satisfied with before granting consent to certain types of development that have been identified by councils and the state government as having a higher risk to life and warranting the consideration of the impacts of rarer flood events on land located outside the FPA. These types of development require special flood considerations relating to the management of risk to life and the risk of hazardous industry/hazardous storage establishments to the community and the environment in the event of a flood.

These special flood considerations include that the development:

1. will not affect the safe occupation of and efficient evacuation of people in the event of a flood, and
2. incorporates appropriate measures to manage risk to life from flood, and
3. will not adversely affect the environment in the event of a flood.

It is noted that the IWC has adopted Clause 5.22 in the Inner West LEP 2022 which provides Special Flood Considerations.

Ministerial Direction 4.1(4) provides that:

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(4) A planning proposal must not contain provisions that apply to areas between the flood planning area and probable maximum flood to which Special Flood Considerations apply which:

- *(g) permit development in floodway areas,*
- *(h) permit development that will result in significant flood impacts to other properties,*
- *(i) permit a significant increase in the dwelling density of that land,*
- *(j) permit the development of centre-based childcare facilities, hostels, boarding houses, group homes, hospitals, residential care facilities, respite day care centres and seniors housing in areas where the occupants of the development cannot effectively evacuate,*
- *(k) are likely to affect the safe occupation of and efficient evacuation of the lot, or*
- *(l) are likely to result in a significantly increased requirement for government spending on emergency management services, and flood mitigation and emergency response measures, which can include but not limited to road infrastructure, flood mitigation infrastructure and utilities.*

This provision relates to land between the Flood Planning Level and the PMF flood to which Special Flood Considerations apply. The responses to these requirements and the special flood considerations are presented below.

4(a) permit development in floodway areas

see comments at 4.1(3)(a) on Page 11.

4(b) permit development that will result in significant flood impacts to other properties

The Watertech report conclusively established that the proposed development with compensatory storage did not cause any significant adverse flood impacts on other properties.

4(c) permit a significant increase in the dwelling density of that land

see comments at 4.1(3)(d) on page 13.

4(d) permit the development of centre-based childcare facilities, hostels, boarding houses, group homes, hospitals, residential care facilities, respite day care centres and seniors housing in areas where the occupants of the development cannot effectively evacuate

see comments 4.1(3)(e) on page 13.

4(e) are likely to affect the safe occupation of and efficient evacuation of the lot

see comments 4.1(3)(e) on page 15.

4(f) are likely to result in a significantly increased requirement for government spending on emergency management services, and flood mitigation and emergency response measures, which can include but not limited to road infrastructure, flood mitigation infrastructure and utilities

The response to flooding will be to evacuate people on the ground floor of the buildings on the western side of the site (5% of the development) up to flood refuges in the buildings which will provide comfortable and safe occupation for the maximum of 2 hours shelter in place. The development will have flood alarms, both visual and audible, to commence the evacuation upstairs. Water, food, power, radio, sewerage, torches, emergency phone numbers, TV, medical kit, copy of the FERP and amenities will be available in the flood refuge. In a medical or fire emergency during a flood, evacuation is

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available via the driveway to Lords Rd at levels above the PMF flood. There will be no need for any significant requirement for government spending on the emergency measures.

The proposal is therefore consistent with this flood policy.

8. ASSESSMENT OF THE RISK OF THE PROPOSED COMPENSATORY STORAGE WITHIN THE BASEMENT OF THE BUILDING TO PERSONS AND PROPERTY

The compensatory storage is proposed to be a watertight concrete box located within the basement in the north western corner of the site. The size and capacity of the tank has been determined by the results of the detailed flood modelling that has been undertaken for the site. These storage tanks are not unique. Many Councils require compensatory storage to offset loss of flood storage on the development site such that there will be no significant adverse impacts to adjacent properties. The proposed buildings on site reduce the flood storage in their footprint and as such, require the compensatory storage.

Runoff from the roofs and open areas would be piped to the tank from selected stormwater inlet pits in the open space around the buildings. The stormwater runoff collected in the inlet pits would be piped to the tank in pipes fixed to the basement walls or fixed to the underside of the ground floors. The tank would be designed to have a bolted down steel hatch to allow access for removal of any debris and to ensure the tank is watertight. The pipe outlet to the tank would connect to the existing drainage pipe outside the basement which travels under the railway embankment. Any overflows would backup to the selected inlet pits in the open space areas. These overflows would travel overland to other pits or to the 75 Lords Rd corridor. Due to the intended design of the storage tank there could be no overflows in the basement from the tank or stormwater pipes and there is therefore appropriate management of this risk to persons or property from overflow flooding of the basement. Bollards would be installed around the tank to prevent any potential damage by cars in the basement carpark.

Given that the proposed compensatory storage tank within the basement is a completely sealed system in which there are two outlets – one outlet via the existing pipe under the rail embankment and backup of water to discharge from the drainage inlet pits around the open space – it is considered that there can be little to no risk to persons or property resulting from the proposal.

There are many examples of compensatory storage being provided within redevelopment of sites to manage flood risk. Both Parramatta Council and Northern Beaches Council provide advice on assessment of flood impacts including use of compensatory flood storages to mitigate against adverse flood impacts on adjacent sites (refer to Attachment C)

9. CONCLUSIONS

Pre and post development flood modelling was carried out by Water Technology in accordance with the Council's requirements and with consideration of flood risk management as detailed in the Flood Risk Management Manual 2023 and the Flood impact and risk assessment – Flood risk management guideline LU01 June 2023.

As outlined in this report and also in our previous reports relating to this site, the proposal is largely consistent with the requirements in the Ministerial Direction 4.1 – Flooding however some minor inconsistencies have been identified as follows:

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a) Location of buildings adjacent to the rare flood conveyance on 75 Lords Rd;
b) Residential accommodation in a high flood hazard area;
c) Development /dwelling density increase;
d) Potential for Sensitive land uses;
e) Special Flood Considerations.

These inconsistencies have been assessed in Sections 6, 7 and 8 and it has been determined that these inconsistencies are of minor significance.

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FIGURES

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Projection: GDA2020 / MGA Zone 56
Produced By: Water Technology Pty Ltd
Imagery Source: NSW Six Maps

0 10 20 30 40 50 m

67-75 Lords Road Leichhardt NSW
Preliminary 1% AEP Flood Impacts - Developed site
with no compensatory flood storage

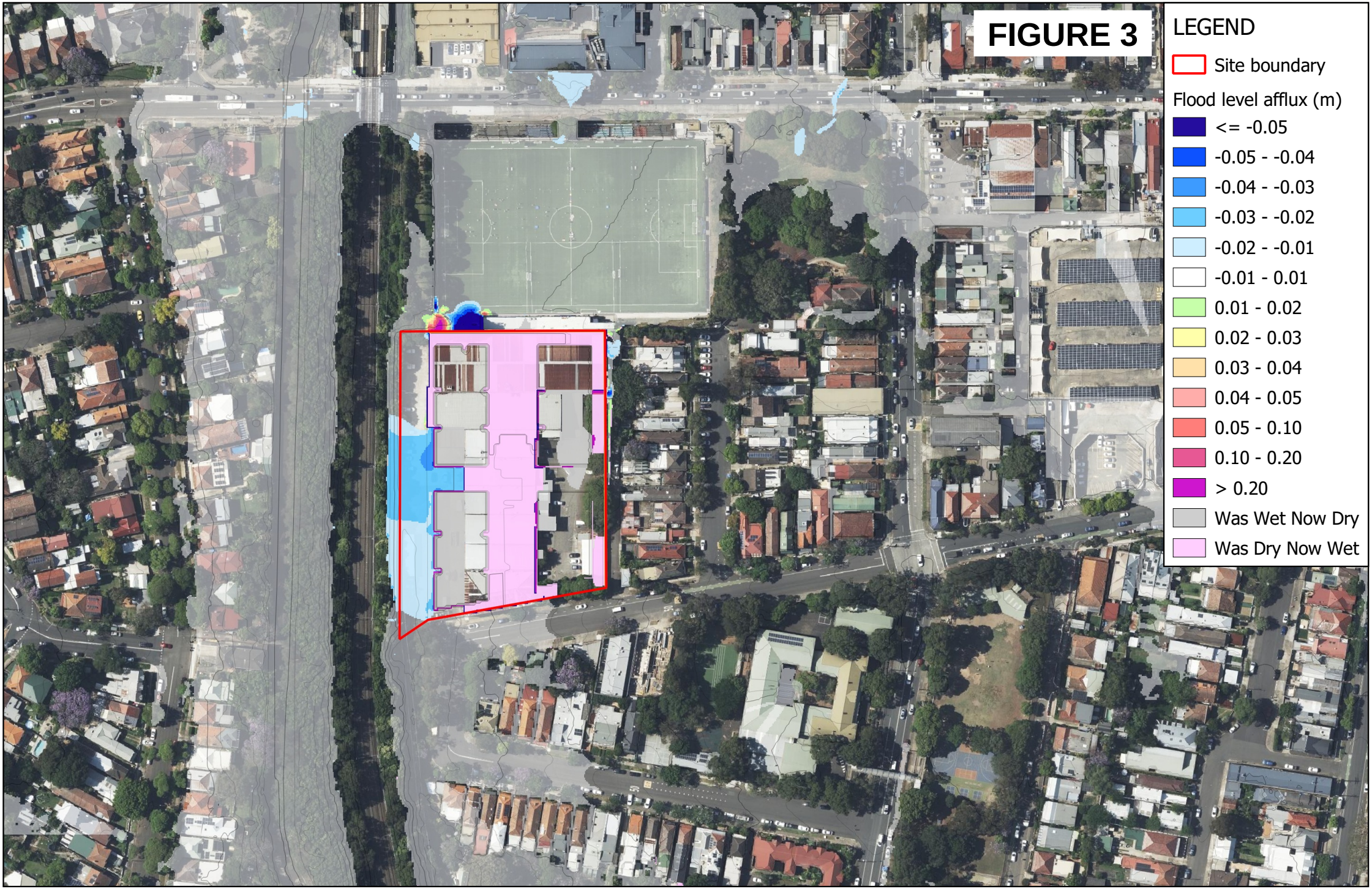
WATER TECHNOLOGY
WATER, COASTAL & ENVIRONMENTAL CONSULTANTS

Projection: GDA2020 / MGA Zone 56
Produced By: Water Technology Pty Ltd
Imagery Source: NSW Six Maps

0 10 20 30 40 50 m

67-75 Lords Road Leichhardt NSW
Preliminary 1% AEP Flood Impacts - Developed site
with compensatory flood storage

WATER TECHNOLOGY
WATER, COASTAL & ENVIRONMENTAL CONSULTANTS

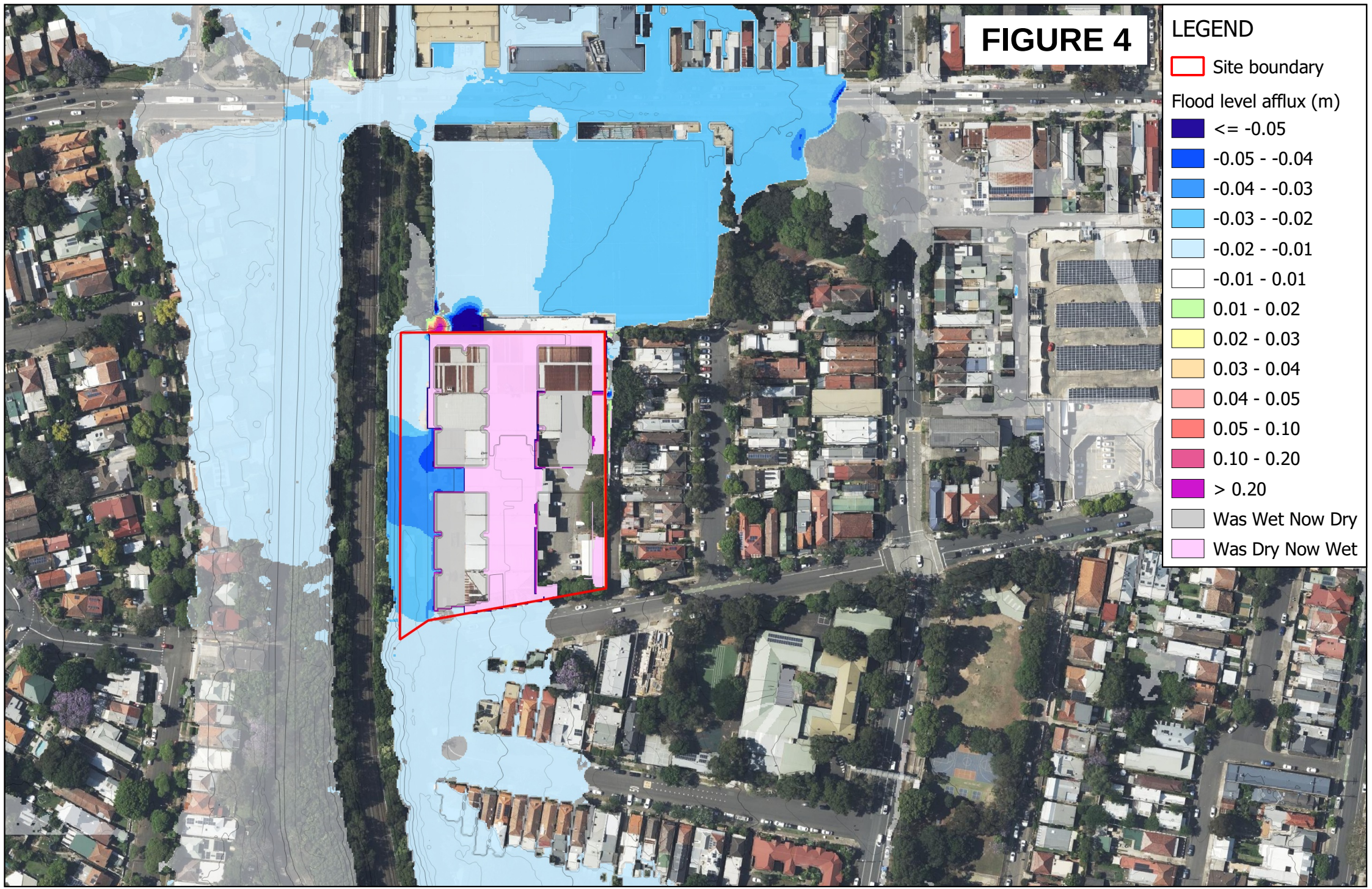


Projection: GDA2020 / MGA Zone 56
Produced By: Water Technology Pty Ltd
Imagery Source: NSW Six Maps

0 10 20 30 40 50 m

67-75 Lords Road Leichhardt NSW
Preliminary PMF Flood Impacts - Developed site with no compensatory flood storage

WATER TECHNOLOGY
WATER, COASTAL & ENVIRONMENTAL CONSULTANTS



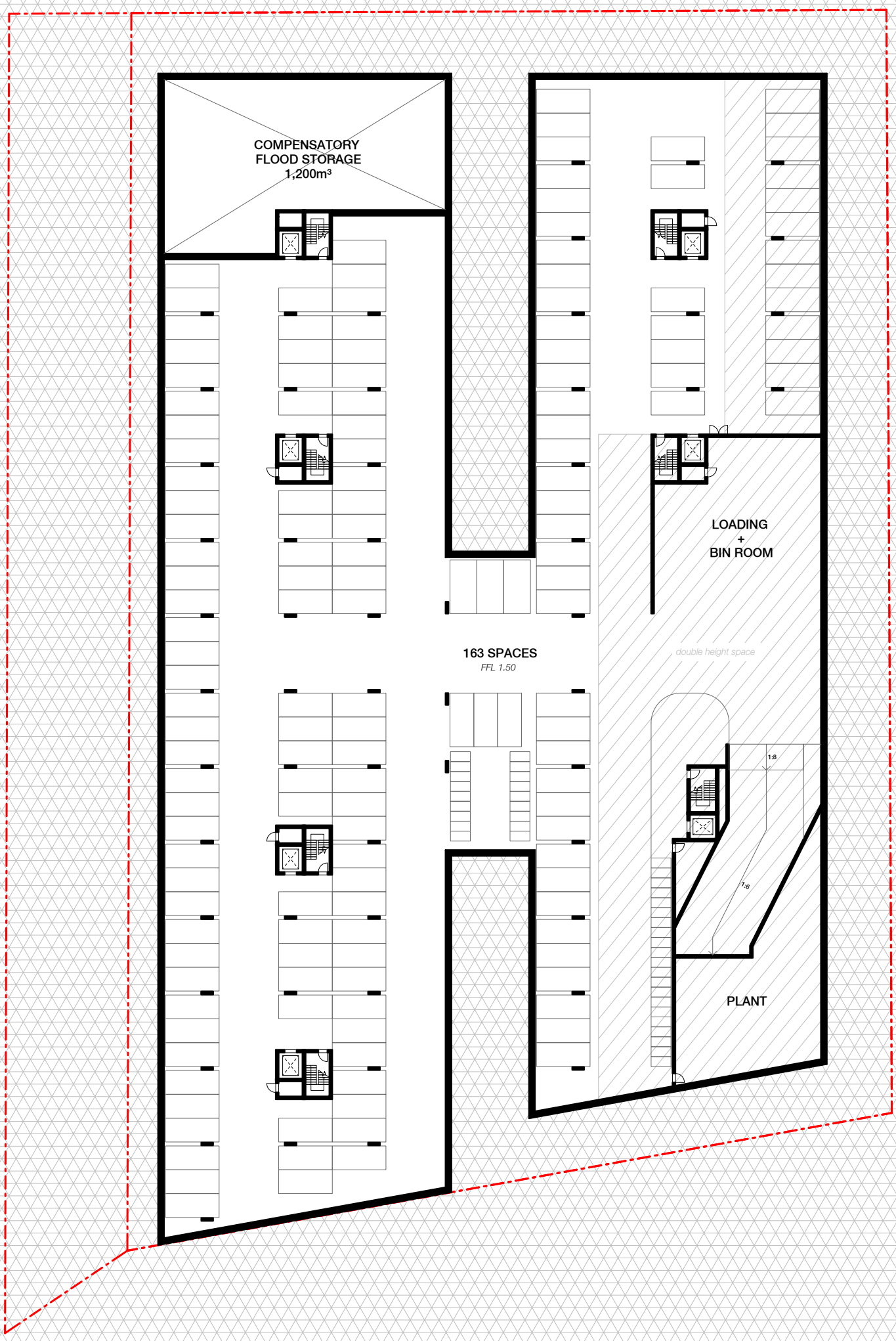
Projection: GDA2020 / MGA Zone 56
Produced By: Water Technology Pty Ltd
Imagery Source: NSW Six Maps

0 10 20 30 40 50 m

67-75 Lords Road Leichhardt NSW
Preliminary PMF Flood Impacts - Developed site with compensatory flood storage

WATER TECHNOLOGY
WATER, COASTAL & ENVIRONMENTAL CONSULTANTS

FIGURE 5



Basement Plan

Scale
1:500 @ A3

0 5 10 15 20 25

Drawing number
[00]

Revision number
[00]

Project number
6624

Project name
Lords Road

Project address
67-75 Lords Road, Leichardt

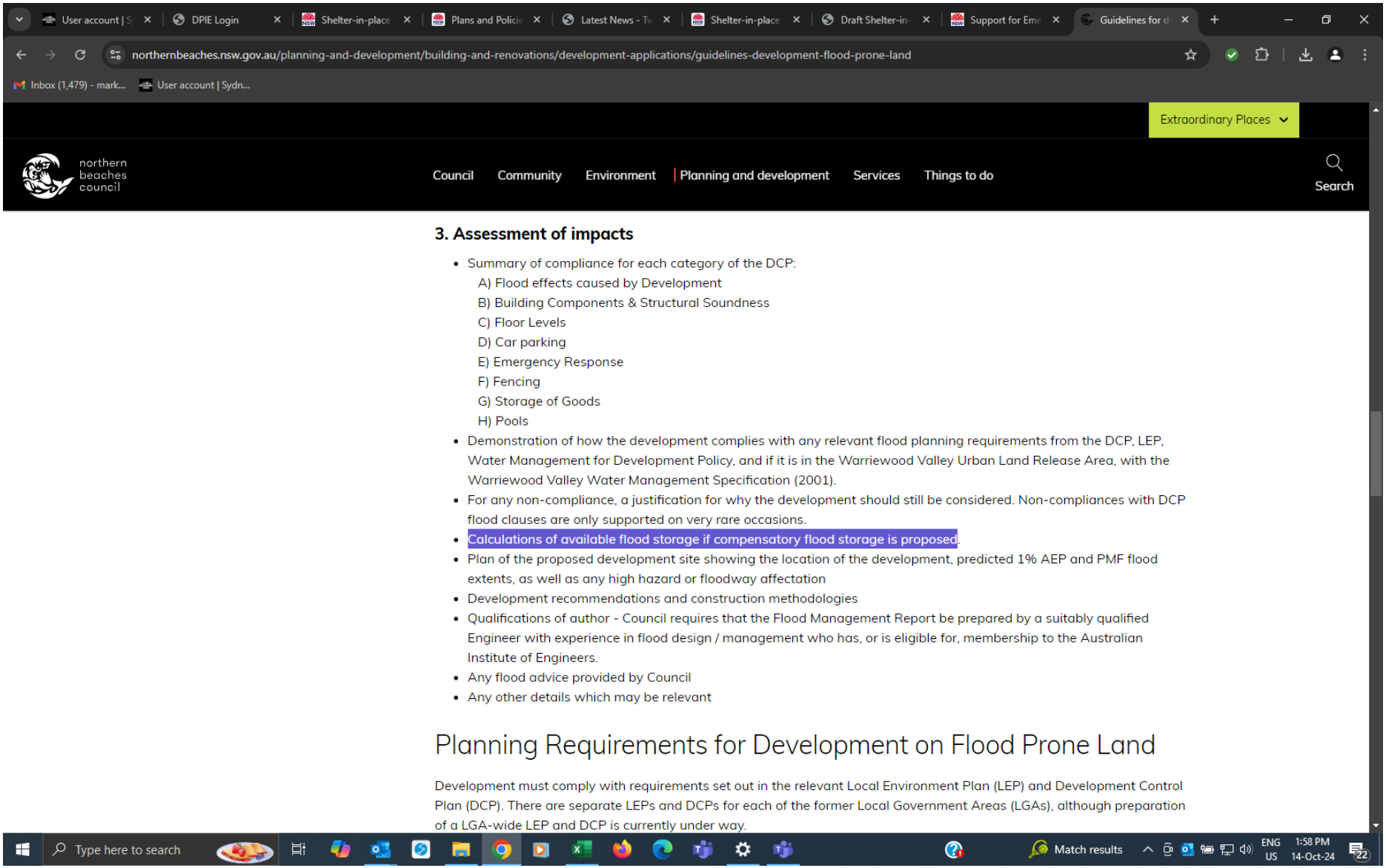
Client
Platino

SJB Architects
Level 2, 490 Crown Street, Surry Hills NSW 2010
T. 61 2 9380 9911 sjb.com.au
SJB Architecture (NSW) Pty Ltd
ABN 20 310 373 425 ACN 081 094 724
Adam Haddow 7188 John Pradel 7004

ATTACHMENTS

m 0409 912 631 e mark.tooker@tookerandassociates.com.au a 30 Walworth Avenue, Newport abn 39 619 046 070

ATTACHMENT A



ATTACHMENT B

NO.07
BRICK BUILDING

NO.05
BRICK BUILDING

A DA08

NO.03
BLOCK BUILDING W/
CAR PARKING ABOVE

NO.01

BOUNDARY 15.24 15.85

86 28 30"

RAMP 1:5 RAMP 1:8 RAMP 1:8 RAMP 1:5 RAMP 1:8

RESIDENTIAL EXIT DRIVEWAY RAMP

SECURE GARAGE DOOR

FLOOD STORAGE TANK

LOUVRE LOUVRE

1 2 3 4 5 6 7 8 9 10 11 12 13

14 15 16 17 18 19

5399

BASEMENT GENERAL AND DISABLED CAR-PARKING

RL 1.30

38.10

356 28'30"

DA08 B

NO.10
THREE STOREY COMMERCIAL & RESIDENTIAL DEVELOPMENT

BOUNDARY

4317 5400 6000

27 29 31 33 35 28 30 32 34 36

5400

MOTOR BIKE SPACE MOTOR BIKE SPACE

26 25 24 23 22 21

BOLLARDS

LIFT

RAINWATER TANK TO BASIX REQ

BIKE RACKS

RESIDENTIAL BIN-STORE

MAIL

ACCESS HATCH

5 4 3 2 1

BOLLARDS

LIFT

FLOOD AND FIRE STAIRS

COMMERCIAL WASTE TO BE COLLECTED EVERY 2nd DAY

FIRE EXIT

FOOTPATH

BOLLARDS

WHEELCHAIR ACCESS AREA

20

FLOOD STORAGE TANK

ACCESS HATCH

189 07' 00"

39.15

BOUNDARY

MINATRO LANE

DEVELOPABLE ENVELOPE OF SITE

RAMP 1:8 RESIDENTIAL ENTRY DRIVEWAY RAMP

RAMP 1:8

SECURE GARAGE DOOR

RAMP 1:8 COMMERCIAL DRIVEWAY RAMP

FIRE STAIRS RISE TO PODIUM LEVEL

19 11 10 9 8 7 6 5 4 3 2 1

1000

FIRE EXIT

FLOOD STORAGE TANK

LOUVRE LOUVRE

FLOOD STORAGE TANK

LOUVRE LOUVRE

RL 2.35

RAMP 1:8

EX. RL 2.10

CAR LIFT WAITING AREA

BOLLARDS

EX. RL 1.92

12.19

86 28' 30"

BOUNDARY

11.265

FOOTPATH

FOOTPATH

NEW CROSSOVER

EX. RL 1.87
TOP OF KERB

2.08
TREE 0.7D
18H 18S

2.15
TREE 0.5D
15H 15S

2.13
TREE 0.5D
10H 10S

2.07
TREE 0.5D
10H 10S

2.12
TREE 0.45D
10H 12S

A DA08

1 BASEMENT FLOOR PLAN

Scale: 1:100

RICKARD ROAD

NOTE

Do not scale off this plan to derive measurements.All dimensions in millimetres unless otherwise stated. Verify all dimensions on site. Promptly notify the architect of any discrepancies or omissions in this or any related document before proceeding with the works. All work to be in accordance with the provision of the Australian Standards, Building Code of Australia, and comply with any statutory authority having jurisdiction over any of the proposed work.

N

LEGEND:

- BOUNDARY
- HIDDEN OVER
- HIDDEN UNDER
- DEMOLISHED
- EXISTING WALL
- PROPOSED WALL
- RL 00.000 EXISTING LEVEL
- FFL 00.000 PROPOSED LEVEL

BHP	BUILDING HEIGHT PLANE
FB	FACE BRICK
MR	METAL ROOF
RT	ROOF TILE
DP	DOWNPIPE
NGL	NATURAL GROUND LEVEL

ISSUE	DATE	DESCRIPTION
D		
C	03/04/2017	FOR COURT- S34
B	28/03/2017	FOR CONSULTANTS
A	03/06/2016	DEVELOPMENT APPLICATION

SHEET: A1

SCALE: AS INDICATED

DRAWN: CC/EK/DR/AC

PROJECT No: 801

OWNER/APPLICANT: ANTHONY GLEESON

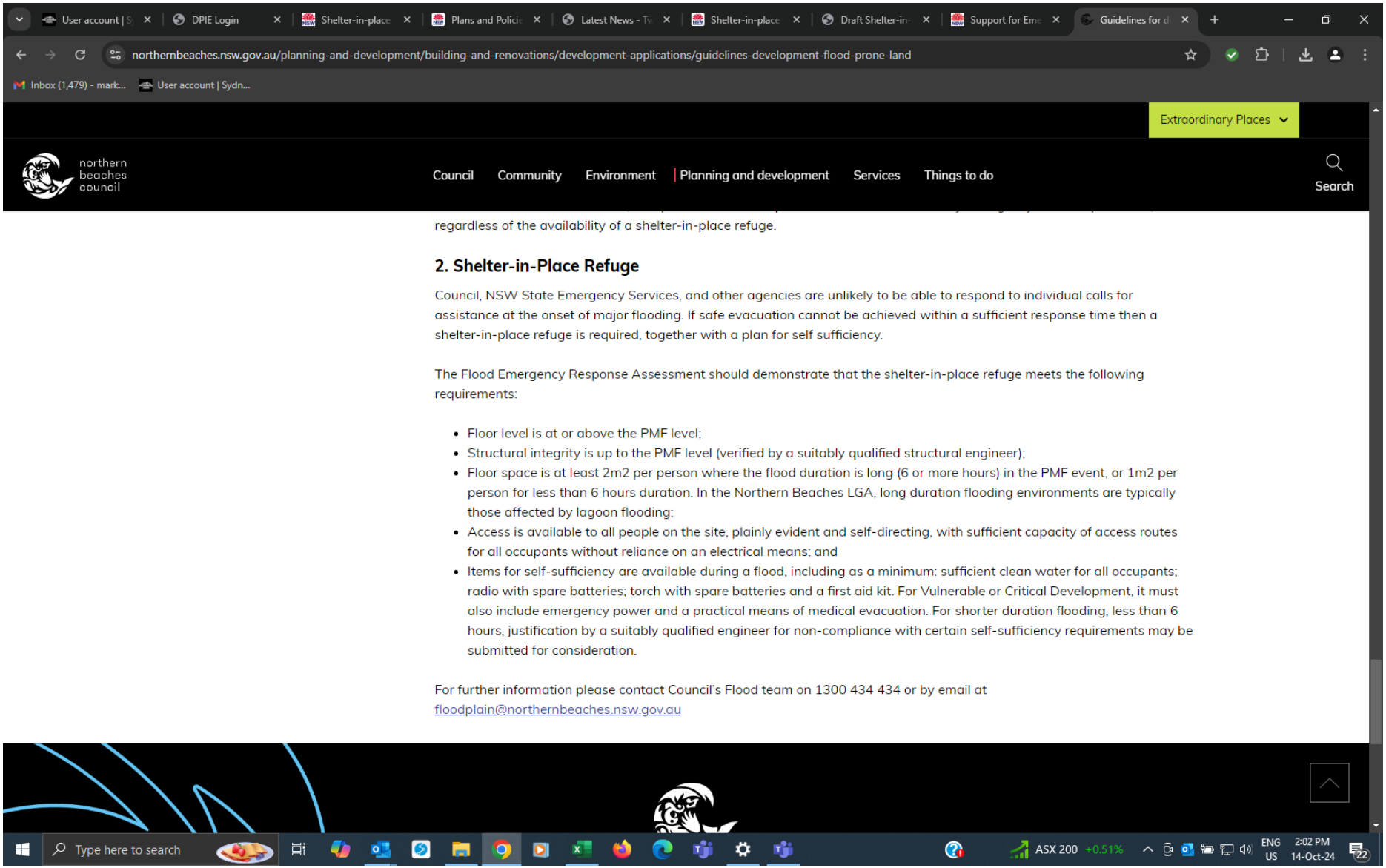
PROJECT ADDRESS: 2- RICKARD ROAD, NORTH NARRABEEN

TITLE: BASEMENT FLOOR PLAN

PROJECT STATUS: FOR COURT- S34

DRAWING DA02 ISSUE C

HAVILAND ARCHITECTS
267 High Street North Willoughby 2068 T: 9417 1876 F: 94176113 E: reception@havarc.com W: www.havarc.com
Registration No. 3005 Nominated Architect : Owen Haviland


User account | S
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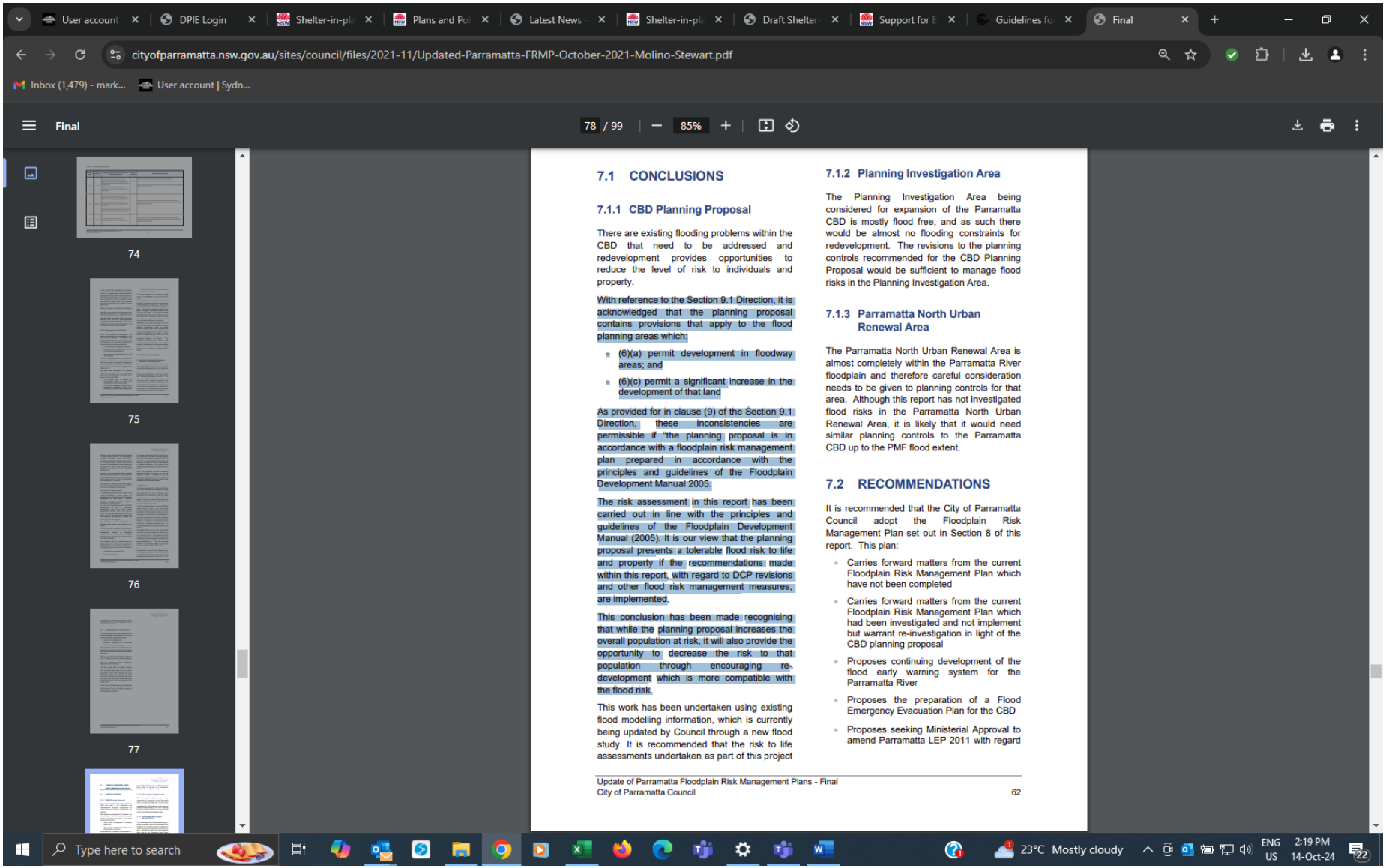
Shelter-in-place
Plans and Policie
Latest News - Tw
Shelter-in-place
Draft Shelter-in-
Support for Eme
Guidelines for d
northernbeaches.nsw.gov.au/planning-and-development/building-and-renovations/development-applications/guidelines-development-flood-prone-land
Inbox (1,479) - mark...
User account | Sydn...
Extraordinary Places
northern beaches council
Council
Community
Environment
Planning and development
Services
Things to do
Search
regardless of the availability of a shelter-in-place refuge.
2. Shelter-in-Place Refuge
Council, NSW State Emergency Services, and other agencies are unlikely to be able to respond to individual calls for assistance at the onset of major flooding. If safe evacuation cannot be achieved within a sufficient response time then a shelter-in-place refuge is required, together with a plan for self sufficiency.
The Flood Emergency Response Assessment should demonstrate that the shelter-in-place refuge meets the following requirements:
Floor level is at or above the PMF level;
Structural integrity is up to the PMF level (verified by a suitably qualified structural engineer);
Floor space is at least 2m2 per person where the flood duration is long (6 or more hours) in the PMF event, or 1m2 per person for less than 6 hours duration. In the Northern Beaches LGA, long duration flooding environments are typically those affected by lagoon flooding;
Access is available to all people on the site, plainly evident and self-directing, with sufficient capacity of access routes for all occupants without reliance on an electrical means; and
Items for self-sufficiency are available during a flood, including as a minimum: sufficient clean water for all occupants; radio with spare batteries; torch with spare batteries and a first aid kit. For Vulnerable or Critical Development, it must also include emergency power and a practical means of medical evacuation. For shorter duration flooding, less than 6 hours, justification by a suitably qualified engineer for non-compliance with certain self-sufficiency requirements may be submitted for consideration.
For further information please contact Council's Flood team on 1300 434 434 or by email at floodplain@northernbeaches.nsw.gov.au
Type here to search
ASX 200 +0.51%
ENG US
2:02 PM 14-Oct-24

ATTACHMENT D



7.1 CONCLUSIONS

7.1.1 CBD Planning Proposal

There are existing flooding problems within the CBD that need to be addressed and redevelopment provides opportunities to reduce the level of risk to individuals and property.

With reference to the Section 9.1 Direction, it is acknowledged that the planning proposal contains provisions that apply to the flood planning areas which:

- (6)(a) permit development in floodway areas; and
- (6)(c) permit a significant increase in the development of that land

As provided for in clause (9) of the Section 9.1 Direction, these inconsistencies are permissible if "the planning proposal is in accordance with a floodplain risk management plan prepared in accordance with the principles and guidelines of the Floodplain Development Manual 2005.

The risk assessment in this report has been carried out in line with the principles and guidelines of the Floodplain Development Manual (2005). It is our view that the planning proposal presents a tolerable flood risk to life and property if the recommendations made within this report, with regard to DCP revisions and other flood risk management measures, are implemented.

This conclusion has been made recognising that while the planning proposal increases the overall population at risk, it will also provide the opportunity to decrease the risk to that population through encouraging re-development which is more compatible with the flood risk.

This work has been undertaken using existing flood modelling information, which is currently being updated by Council through a new flood study. It is recommended that the risk to life assessments undertaken as part of this project

7.1.2 Planning Investigation Area

The Planning Investigation Area being considered for expansion of the Parramatta CBD is mostly flood free, and as such there would be almost no flooding constraints for redevelopment. The revisions to the planning controls recommended for the CBD Planning Proposal would be sufficient to manage flood risks in the Planning Investigation Area.

7.1.3 Parramatta North Urban Renewal Area

The Parramatta North Urban Renewal Area is almost completely within the Parramatta River floodplain and therefore careful consideration needs to be given to planning controls for that area. Although this report has not investigated flood risks in the Parramatta North Urban Renewal Area, it is likely that it would need similar planning controls to the Parramatta CBD up to the PMF flood extent.

7.2 RECOMMENDATIONS

It is recommended that the City of Parramatta Council adopt the Floodplain Risk Management Plan set out in Section 8 of this report. This plan:

- Carries forward matters from the current Floodplain Risk Management Plan which have not been completed
- Carries forward matters from the current Floodplain Risk Management Plan which had been investigated and not implement but warrant re-investigation in light of the CBD planning proposal
- Proposes continuing development of the flood early warning system for the Parramatta River
- Proposes the preparation of a Flood Emergency Evacuation Plan for the CBD
- Proposes seeking Ministerial Approval to amend Parramatta LEP 2011 with regard