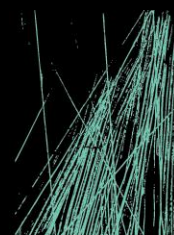




FLOOD ASSESSMENT & FLOOD EMERGENCY MANAGEMENT PLAN

UPGRADE TO NORTHMEAD PUBLIC SCHOOL

CIVIL SERVICES



JHA

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EXECUTIVE SUMMARY

This Flood Assessment & Flood Emergency Management Plan (FEMP) has been prepared to accompany a Review of Environmental Factors (REF) prepared for the Department of Education (DoE) relating to upgrades to Northmead Public School (the activity) under Part 5 of the Environmental Planning and Assessment Act 1979 (EP&A Act) and State Environmental Planning Policy (Transport and Infrastructure) 2021 (SEPP TI).

This document has been prepared in accordance with the Guidelines for Division 5.1 assessments (the Guidelines) by the Department of Planning, Housing and Infrastructure.

This report examines and takes into account the relevant environmental factors in the Guidelines and Environmental Planning and Assessment Regulations 2021 under Section 170, Section 171 and Section 171A of the EP&A Regulation.

JHA Consulting Engineers have provided this flood assessment for the proposed building within the Northmead Public School located at 52A Moxhams Road, Northmead NSW 2152. The flood investigation relies on Flood Information Certificate supplied by the City of Parramatta Council as well as Council's publicly available flood data and maps. This flood assessment provides an overview of the existing flood conditions of the site and its vicinity in the 5% and 1% Annual Exceedance Probability (AEP) and Probable Maximum Flood (PMF) events.

The flood assessment concluded that the school site is deemed partially affected by low hazard overland flows during flood events greater than the 20% AEP. However, the proposed building is flood-free during all flood events including the PMF. Nonetheless, JHA recommends the following mitigation measures to be implemented:

- Construction of a 0.5m high barrier wall at the western boundary to prevent flows from discharging onto the neighbouring properties.
- Minor earthworks adjacent to the western boundary to redirect overland flows towards the council's designated overland flow path (Lot X/DP31032).

The proposed mitigation measures will benefit the private properties to the west of the site, as they are currently impacted by the PMF overland flows.

A flood compliance assessment has been carried out which confirmed that the proposed development is compliant with the relevant flood planning controls as outlined in the City of Parramatta Council Development Control Plan (DCP, 2023), Chapter 5.1.1 Flooding.

Additionally, a Flood Emergency Management Plan (FEMP) has been provided to detail procedures that would be in place for a flood emergency event.

1 THE SITE

The school site is located at 52A Moxhams Road, Northmead NSW 2152 and falls within the City of Parramatta Local Government Area (LGA). The site's total area is approximately 2.91 ha and comprised of 4 lots legally described as:

- Lot 1 DP 366405;
- Lot 1 DP 176742;
- Lot 1 DP 20061; and
- Lot 1 DP 209810.

Northmead Public School is located on the southern side of Moxhams Road and on the western side of Kleins Road. Figure 1 shows an aerial photograph of the site.



Figure 1: Aerial Photography of the Site (Source: Nearmap)

The local topography around the site is shown in Figure 2 which indicates that the site primarily falls from the northeast to the west with average grade of 3.5%. At the western boundary, adjacent to the low point of the site, there appears to be a block of Council land at 23B Allambie Avenue (Lot X/DP31032) which acts as a local overland flow path for the school.

There is an existing kerb inlet pit fronting the lot, which from visual inspections during the site investigation, appears to be the main point of stormwater connection serving the school to the City of Parramatta Council (CPC) stormwater system. Existing stormwater layout around this pit is indicatively shown in Figure 3.

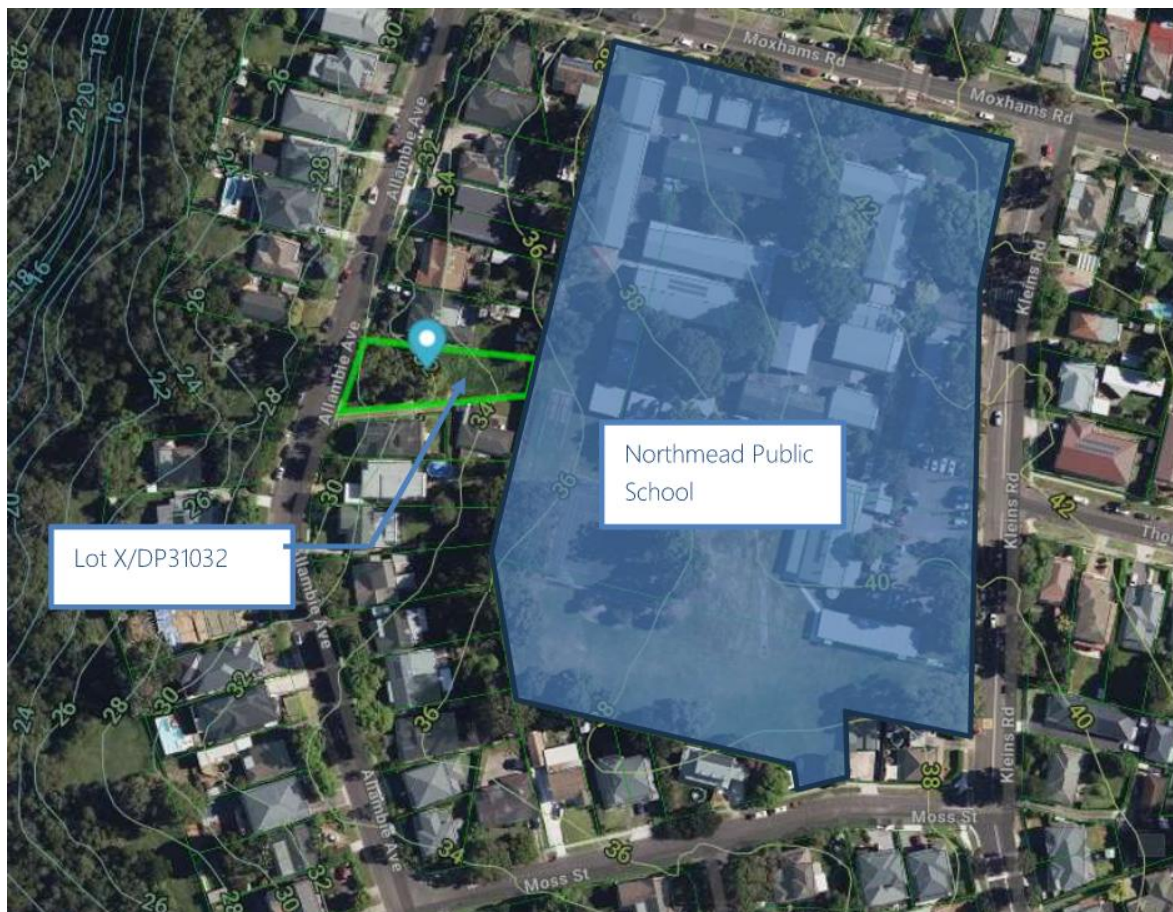


Figure 2: Site Locality (Source: Mecone Mosaic)

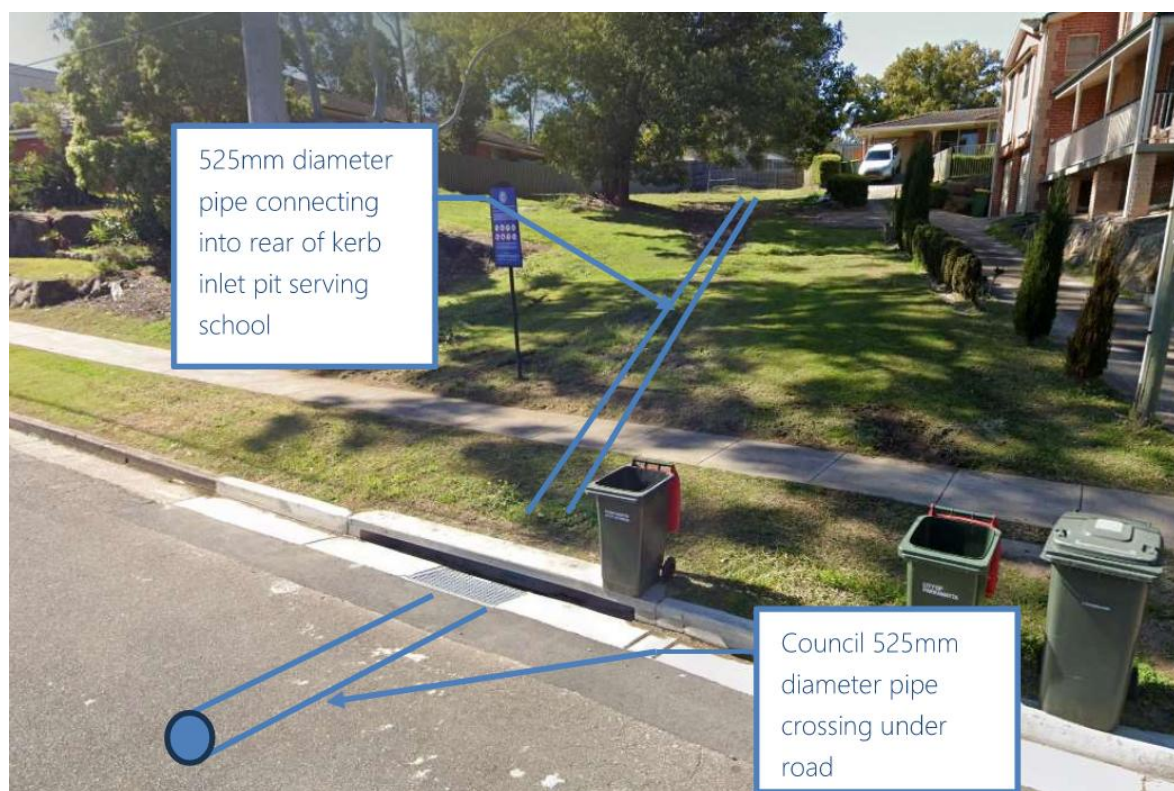


Figure 3: 23B Allambie Avenue frontage (with school in background) – Google Streetview

2 PROPOSED DEVELOPMENT

The proposed activity for upgrades to Northmead Public School includes:

- One (1) new single storey classroom building comprising of four (4) general learning spaces (GLS), two (2) special program spaces, a singular learning commons space and a singular multi-purpose space;
- Minor internal alterations to an existing Admin Building (known as Building A); and
- Removal of existing portable classroom buildings containing six (6) classrooms.

Refer to Appendix A for the proposed site plans.

3 AVAILABLE FLOOD INFORMATION

Upon JHA's request, the City of Parramatta Council provided site-specific flood Information, refer to Appendix B. The supplied flood information includes the 5% AEP, 1% AEP and PMF flood levels, flood maps and flood planning information for the site.

JHA also reviewed the Parramatta River Study Report (Stantec, 2024) and associated flood maps to better understand the local flood behaviour.

4 FLOOD CONDITIONS OF THE SITE

Available Flood maps indicate that the school is partially affected by overland flows in the southeastern section during flood events as frequent as the 20% AEP. Flood maps suggest that overland flows from Thomas Street and Kleins Road east of the site, converge at a low point at the intersection of Thomas Street and Kleins Road. During flood events up to and including the 1% AEP, these flows overtop the Kleins Road reserve at the southeastern site boundary and flow through the site. Overland flows within the site are typically shallow (less than 150mm deep) and low hazard (H1), moving primarily southward and discharging onto Moss Street. The flood extents, levels and depths, in the 1% AEP event are depicted in Figure 4. The 1% AEP Flood hazard categories are shown in Figure 5.

However, during the PMF event, overland flows partially run across the site towards the western boundary, then flow through a few properties west of the site, and eventually discharge onto Allambie Avenue. Overland flows within the site are predominantly shallow (up to 150mm deep) and low hazard (H1). Figure 6 depicts the flood extents, levels and depths, for the PMF event. Flood hazard categories for the PMF are shown in Figure 7.

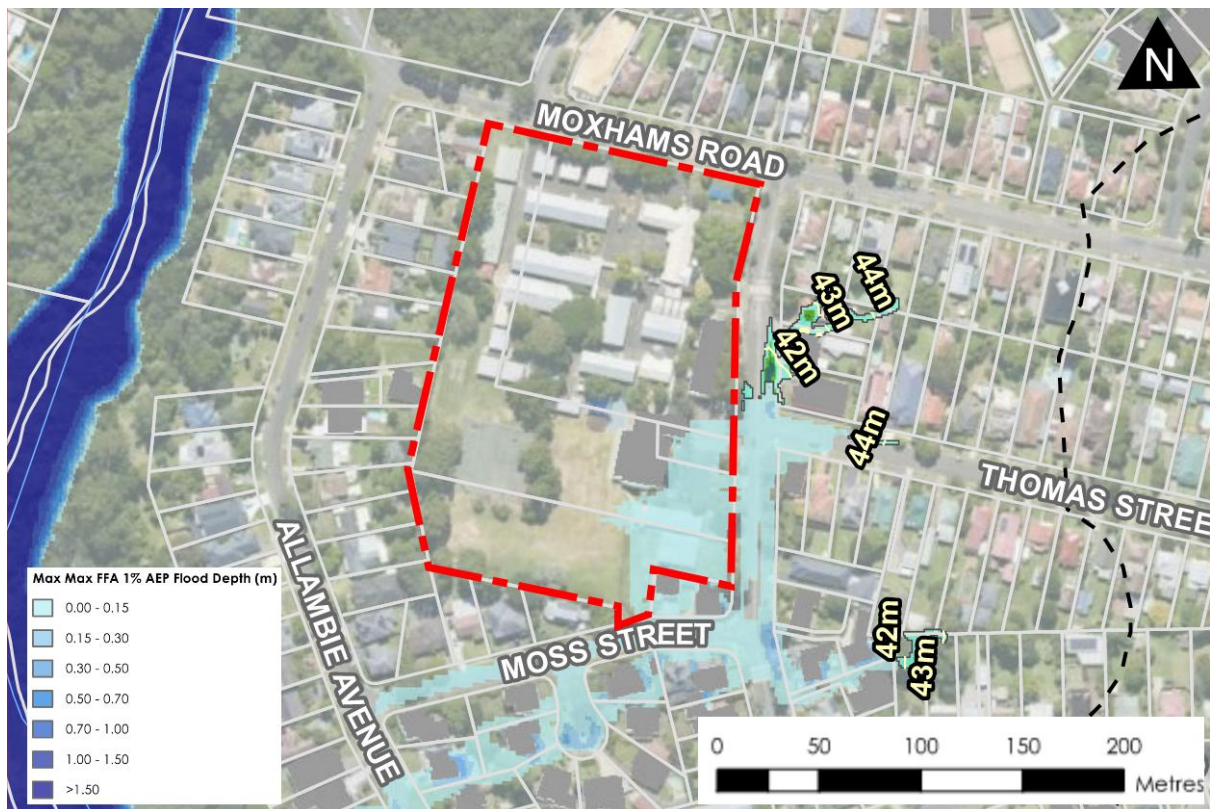


Figure 4: Flood Extents, Levels & Depths – 1% AEP Event – Existing Conditions

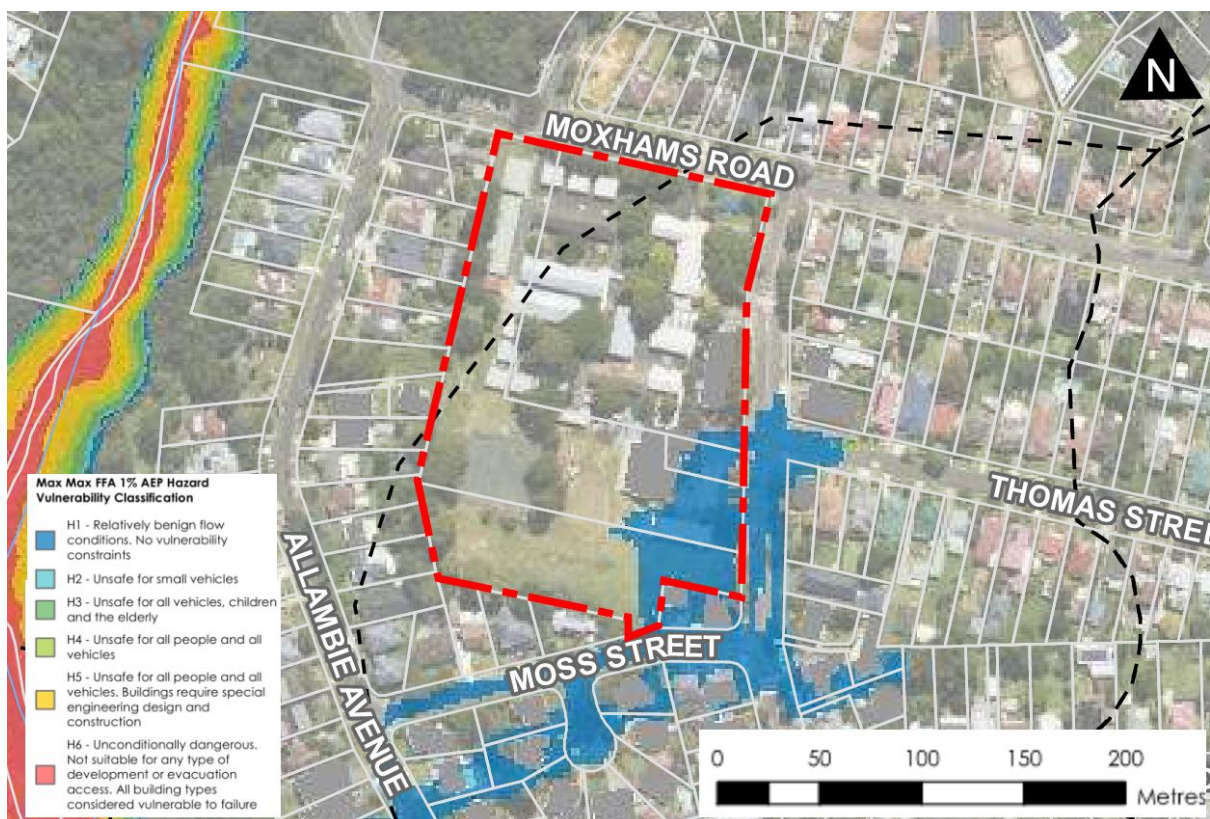


Figure 5: Flood Hazard Categories – 1% AEP Event – Existing Conditions

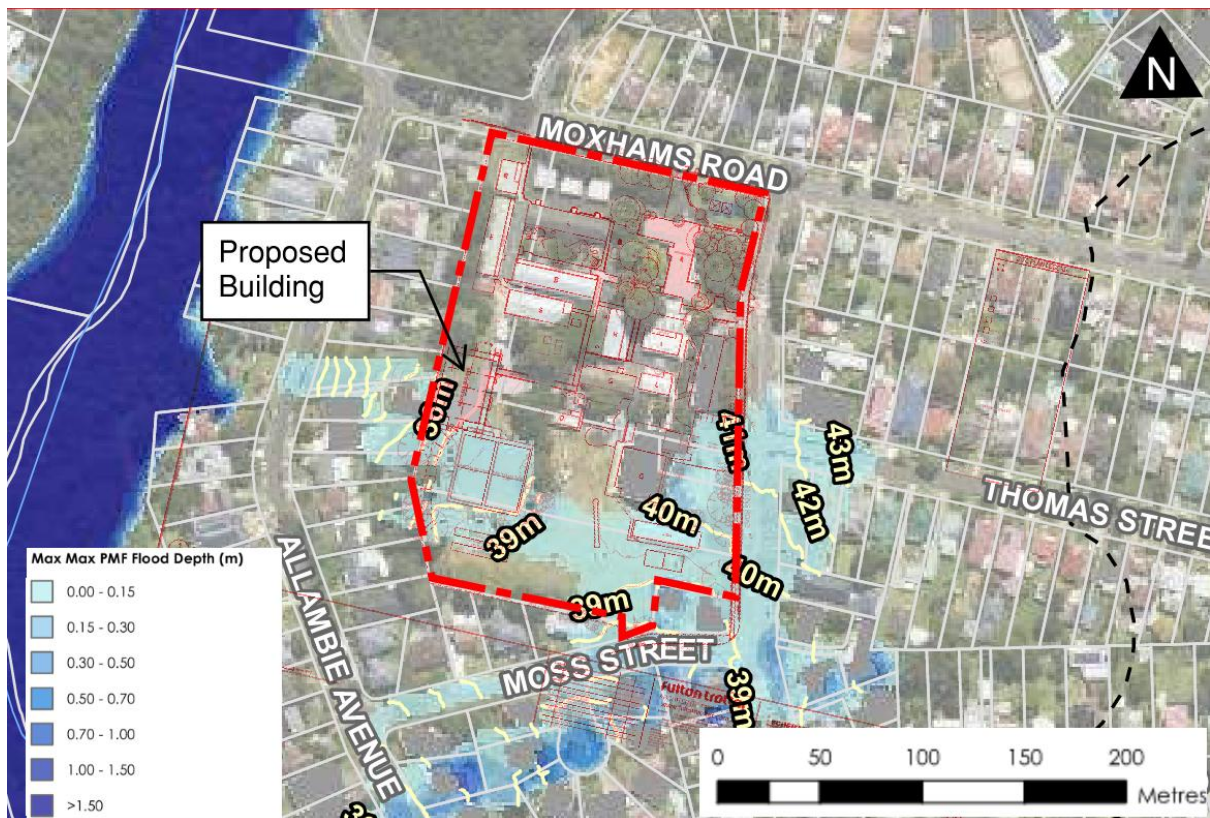


Figure 6: Flood Extents, Levels & Depths – PMF Event – Existing Conditions (Proposed Site Plan Overlay)

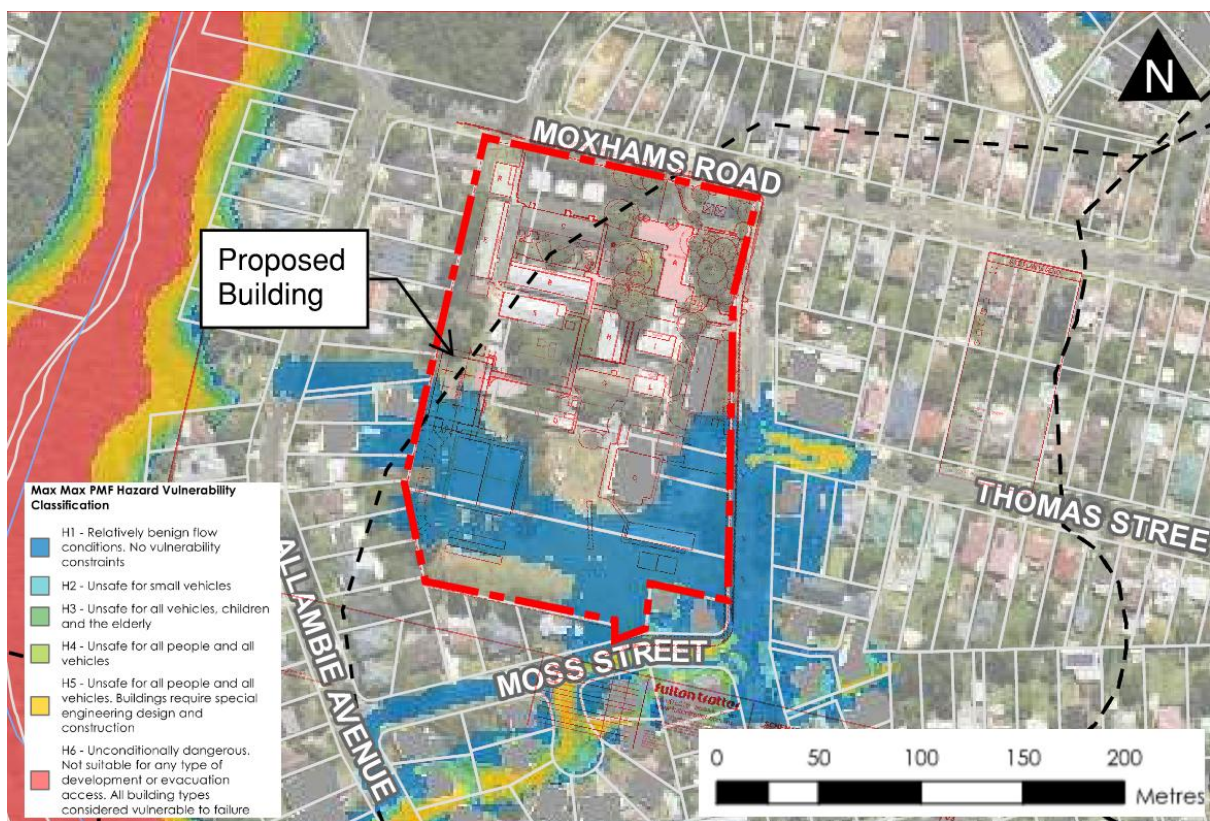


Figure 7: Flood Hazard Categories – PMF Event – Existing Conditions (Proposed Site Plan Overlay)

4.1 FLOOD HAZARD PRECINCT & HYDRAULIC CATEGORY

The site is considered within the Flood Planning Area. However, the flood affected section of the site falls within low to medium flood hazard precincts as shown in Figure 8. In addition, flood hazard precinct is low in the vicinity of the proposed building. Based on the Parramatta River flood study (Stantec, 2024), the site is not considered within the 'flood way' or 'flood storage', refer to Figure 9.

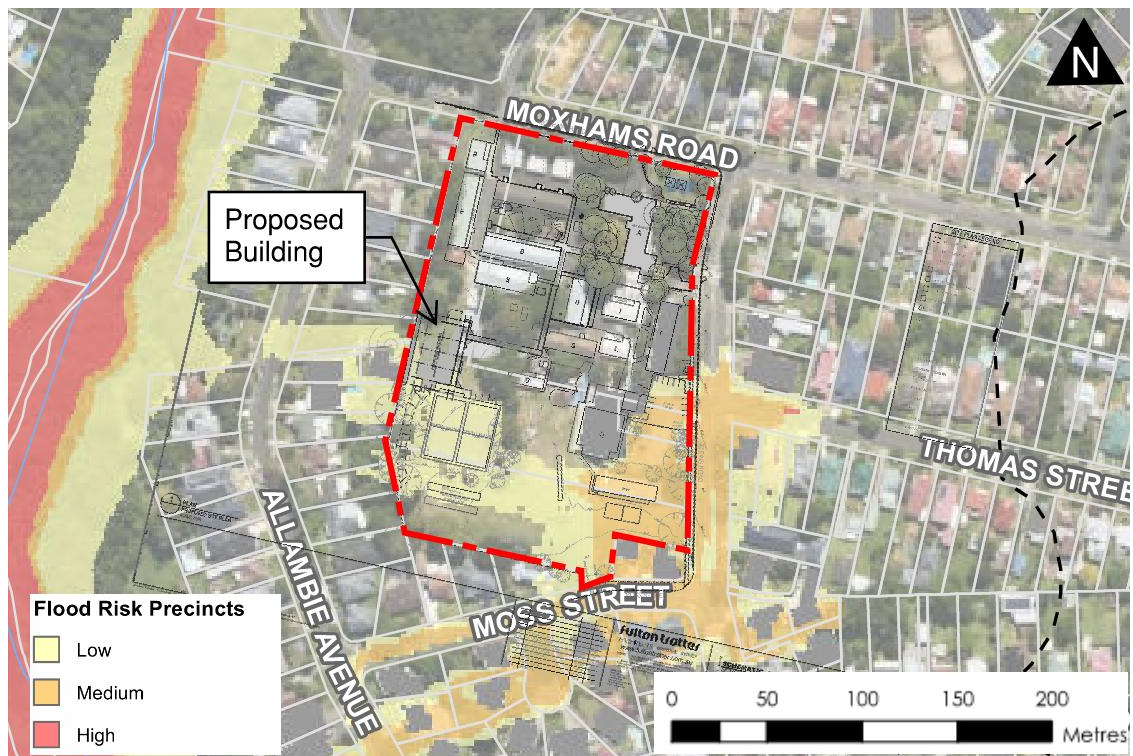


Figure 8: Flood Hazard Precincts Map - Existing Conditions (Proposed Site Plan Overlay)

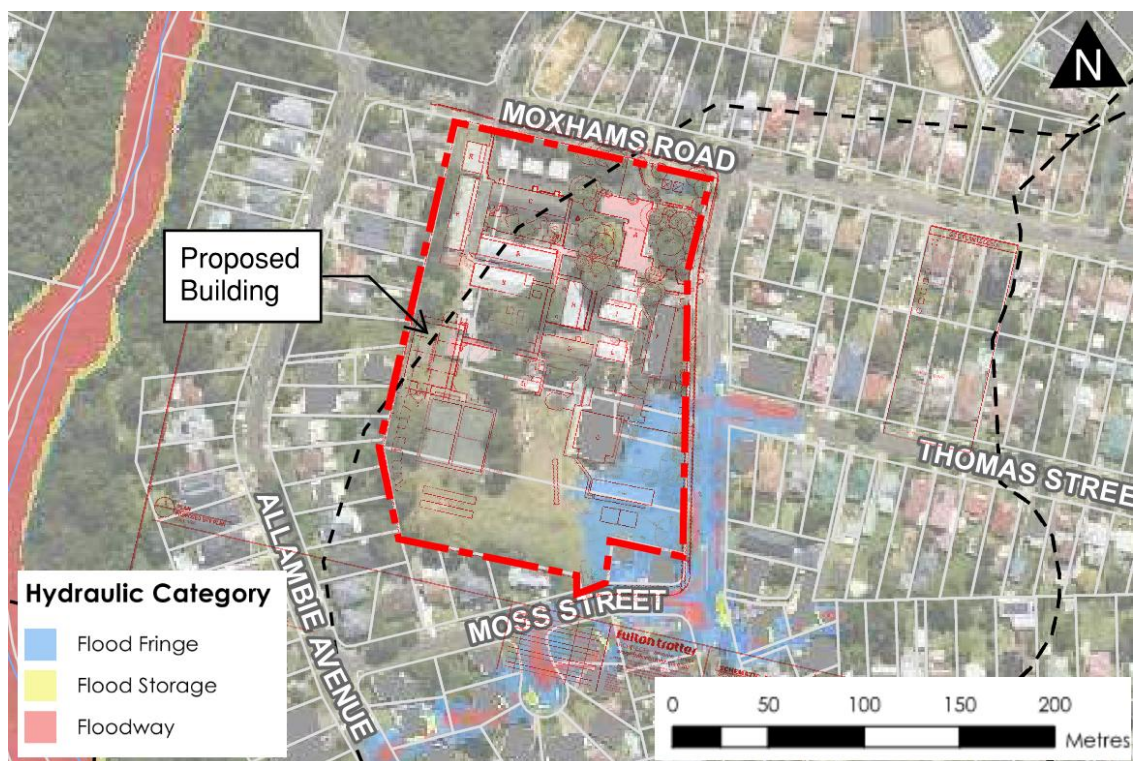


Figure 9: Hydraulic Category Map - Existing Conditions (Proposed Site Plan Overlay)

5 FLOOD MITIGATION MEASURES

The proposed works are not affected by the overland flows in the 5% and 1% AEP event; however, the proposed building slightly encroaches in the internal PMF flow path, refer Figure 6. Architectural drawings prepared by Fulton Trotter (Appendix A) indicate that the building's floor level is set to 37.55mAHD, which is 0.55m above the adjacent PMF level of 37.00mAHD.

What's more, in the existing conditions, overland flows discharging from the western boundary partially flow through private properties to the west of the site. This is illustrated in Figure 10.



Figure 10: School Boundary with 23A Allambie Avenue (Looking North)

To improve the existing flood conditions on the western properties, and ensure no future offsite flood impacts, flood mitigation measures outlined in Table 1 (also shown in Figure 11) are to be implemented.

These measures will benefit the downstream residents, as the properties are currently impacted by the PMF. The proposed mitigation measures will effectively redirect the overland flows to the council's designated flow path (Lot X/DP31032) to safely discharge onto Allambie Avenue.

Table 1: Flood Mitigation Measures

Mitigation Number	When is Mitigation Measure to be complied with	Mitigation Measure	Reason for Mitigation Measure
1	Prior to commencement of operation	Construction of a 0.5m high barrier wall at the western boundary to prevent flows from discharging to the neighbouring properties. Refer Civil Drawings prepared by MEINHARDT for details.	To protect the downstream properties (west of the site) from overland flows and improve their current flood conditions.
2	Prior to commencement of operation	Minor earthworks (regrading) the land adjacent to the western boundary to redirect overland flows towards the council's designated overland flow path (Lot X/DP31032).	To protect the downstream properties from overland flows and improve their current flood conditions.
3	Prior to commencement of operation	The structural engineer is to certify that the proposed building can withstand the forces of floodwater, debris and buoyancy up to the PMF level of 37.00mAH.D.	To protect the building structure and provide a safe shelter for users.
4	Prior to commencement of operation	All electrical fixtures below the PMF level of 37.00mAH.D are to be floodproofed.	For Safety of the site users.

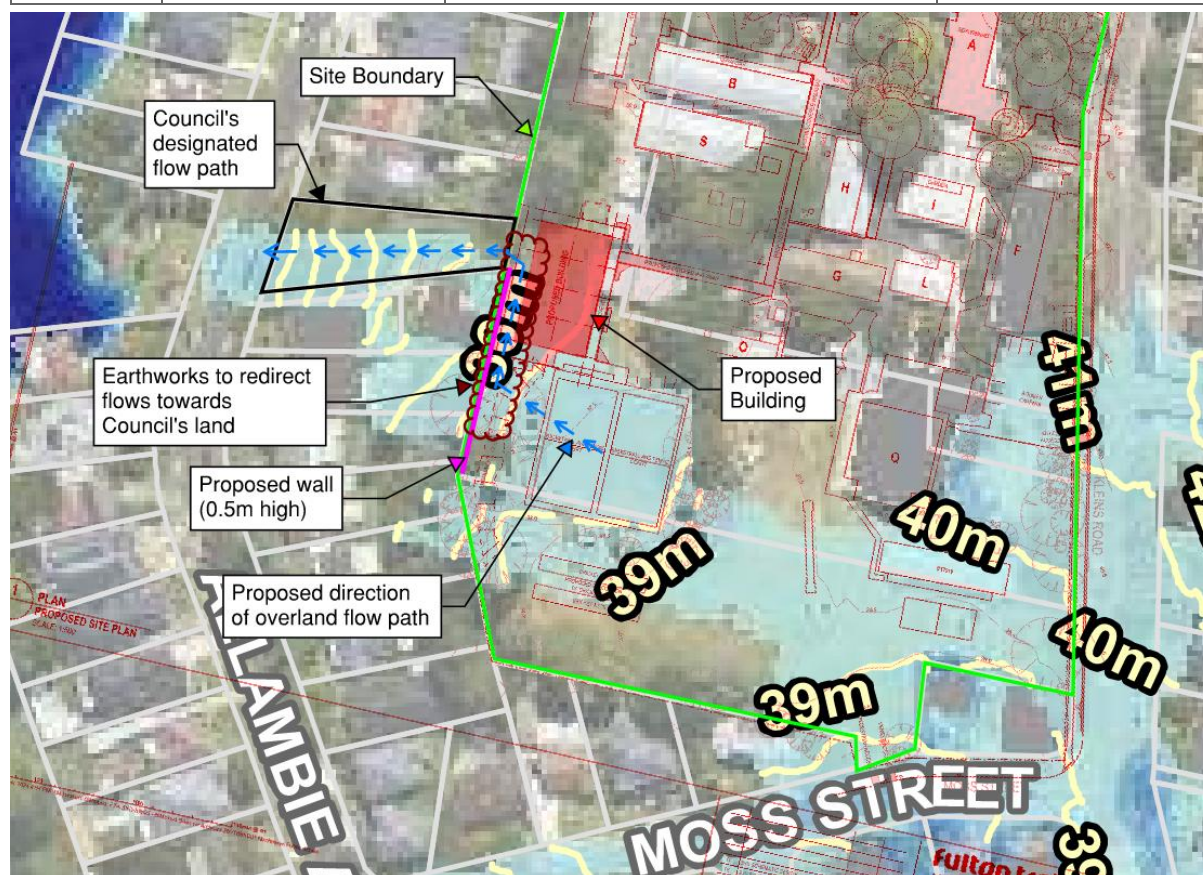


Figure 11: Proposed Flood Mitigation Works Adjacent to the Western Site Boundary (Refer Civil Drawings by MEINHARDT for details)

6 COMPLIANCE WITH FLOOD PLANNING CONTROLS

Chapter 5.1.1 of the Parramatta Development Control Plan (DCP, 2023) outlines the flood planning controls. Applicable controls are defined based on the 'Floodplain Matrix Planning and Development Controls' and 'Matrix Development Controls' provided in Table 5.1.1.2 and Table 5.1.1.3 of the DCP.

The site is classified as an educational establishment and, therefore, falls under 'sensitive uses and facilities' according to the Council's land use categorisation. The school site is partially flood-affected and therefore, identified as being within the flood planning area.

According to the Parramatta Council DCP (2023), control C.16, development is not permitted on land subject to flooding in a PMF event. Consequently, the 'Floodplain Development Matrix' (DCP, 2023) does not define the applicable controls for the proposed upgrades. Given this, the development was assessed based off the applicable controls for 'Critical Uses & Facilities' highlighted in Figure 12, as a close fit.

A detailed, itemised compliance assessment for the proposed building is provided in Table 2 to ensure the development meets all applicable flood planning controls.

Flood Risk Precincts (FRPs)	Planning Consideration	Floor Level	Building Components	Structural Soundness	Flood Affection	Car Parking & Driveway Access	Evacuation	Management & Design
High Flood Risk	Sensitive Uses & Facilities	X	X	X	X	X	X	X
	Critical Uses & Facilities	X	X	X	X	X	X	X
	Residential*	X	X	X	X	X	X	X
	Commercial & Industrial	X	X	X	X	X	X	X
	Open Space & Non-Urban	1	1	1	1	2, 4, 6, 7	1, 4	2, 3, 4
	Subdivision	X	X	X	X	X	X	X
	Filling	X	X	X	X	X	X	X
	Concessional Development	4	1	1	1	1, 5	3, 4, 6	2, 3, 4
Medium Flood Risk	Sensitive Uses & Facilities	X	X	X	X	X	X	X
	Critical Uses & Facilities	X	X	X	X	X	X	X
	Residential*	2	1	1	1	1, 3, 5, 6, 7	3, 4, 6	2, 3, 4
	Commercial & Industrial	2	1	1	1	1, 3, 5, 6, 7	3, 4, 6	2, 3, 4
	Open Space & Non-Urban	1	1	1	2	2, 4, 6, 7	1, 4	2, 3, 4
	Subdivision				1		3, 4, 5	1
	Filling	X	X	X	X	X	X	X
	Concessional Development	4	1	1	1	1, 5	2, 5	2, 3, 4
Low Flood Risk	Sensitive Uses & Facilities	X	X	X	X	X	X	X
	Critical Uses & Facilities	3	2	2	2	1, 3, 5, 6	2, 4, 6	2, 3, 4
	Residential*	2			2	1, 3, 5, 6	3, 4	
	Commercial & Industrial	2			2	1, 3, 5, 6	4	
	Open Space & Non-Urban					2, 4, 6, 7		
	Subdivision				2		5	1
	Filling				1			
	Concessional Development							
*For redevelopment of existing dwellings refer also to 'Concessional Development' provisions.								
Legend		Not relevant	X	Unsuitable Land Use				

Figure 12: Floodplain Matrix Planning and Development Controls (DCP, 2023) - Applicable Controls Highlighted

Table 2: Compliance Assessment with Relevant Flood Planning Controls

FLOOD CONTROL	COMPLIANCE ASSESSMENT
Floor Level	
3. All habitable floor levels to be equal to or greater than the Probable Maximum Flood levels.	- The school is partially flood-affected however, the proposed works situated outside the flood extents during all flood events including the 1%AEP (refer Section 4). - The proposed building is partly situated within the PMF overland flow map. However, PMF flows around the building are shallow (less than 0.15m deep) and low hazard (H1). - The ground floor of the proposed building is set to 37.55mAHD, which is 0.55m above the adjacent PMF level of 37.00mAHD. - A barrier wall and an overland flow path are proposed along the western site boundary to prevent flows from discharging onto the neighbouring properties and redirect overland flows safely to discharge onto the council's designated overland flow path (Lot X/DP31032). Refer Section 5 of the report for details.
Building Components	
2. All structures to have flood compatible building components and construction below the PMF.	- The proposed building structure and associated building components are to be flood compatible below the PMF level of 37.00mAHD. - All electrical fixtures below the PMF level of 37.00mAHD are to be floodproofed.
Structural Soundness	
2. A structural engineer's report is required to certify that the structure can withstand the forces of floodwater, debris and buoyancy up to and including the PMF level.	The structural engineer is to certify that the proposed building can withstand the forces of floodwater, debris and buoyancy up to the PMF level of 37.00mAHD.
Flood Affection	
2. The impact of the development on flooding elsewhere is to be considered having regard to: (i) loss of flood storage; (ii) changes in flood levels, flows and velocities caused by alterations to flood flows; and (iii) the cumulative impact of multiple potential developments in the vicinity.	- The developing section of the site is flood-free during all flood events including the 1% AEP. - The school site is not considered within the floodway or flood storage area, refer Figure 9. - A barrier wall and an overland flow path are proposed along the western site boundary to prevent flows from discharging onto the neighbouring properties and redirect overland flows safely to discharge onto the council's designated overland flow path (Lot X/DP31032). - These measures will benefit the downstream residents, as those properties are currently impacted by the PMF. - Given the above, the proposed works are expected to have no impacts on the adjacent properties.

FLOOD CONTROL	COMPLIANCE ASSESSMENT
Car Parking & Driveway Access	
1. The minimum surface level of unenclosed parking spaces or carports shall be as high as practical, but no lower than 0.1 metres below the 1% AEP (100 year ARI) flood level. In the case of garages and other enclosed parking areas for less than 3 motor vehicles, the minimum surface level shall be as high as practical, but no lower than the 1% AEP (100 year ARI) flood level, plus 0.15 metres freeboard.	The proposed works do not include additions to the existing onsite car parking.
3. Garages, and other enclosed car parking areas, capable of accommodating more than 3 motor vehicles, must be protected from inundation by floods equal to or greater than the 1% AEP (100 year ARI) flood. Ramp levels to be no lower than 0.5m above the 100 year ARI flood level. Where below ground car parking is proposed additional measures must achieve protection up to the PMF.	The proposed works do not include construction of garages or other enclosed car parking areas.
5. Unless otherwise approved by Council and provided this does not obstruct or displace floodwaters, the level of the driveway providing access between the road and parking spaces shall be no lower than 0.2 metres below the 1% AEP (100 year ARI) flood level.	The proposed works do not include construction of a driveway.
6. Enclosed car parking, and car parking areas accommodating more than 3 motor vehicles, with a floor below the 1% AEP (100 year ARI) flood level, shall have adequate warning systems, signage, exits and evacuation routes. Refer to Flood Warning and emergency Response Planning section for requirements.	- The proposed works do not include construction of a car parking area. - The existing open carpark east of the site, is subject to flooding in flood events as frequent as 20% AEP. However, the overland flows are shallow (less than 150mm deep) and low hazard (H1) during all flood events including the PMF. Kleins Road remains typically safe during all flood events, therefore, evacuation route is available at all times.
Evacuation	
2. Reliable access for pedestrians and vehicles required to a publicly accessible location during the PMF peak flood.	- Flood maps confirm that: - Majority of the school site remains flood-free during all flood events including the PMF. - Flows across the flood affected section of the site are safe (H1) during all flood events including the PMF. - Flows within Kleins Road and Moxhams Road are safe (H1) during all flood events including the PMF. - Therefore, reliable access for pedestrians and vehicles to a publicly accessible location is available at all times.
4. Applicant is to demonstrate the development is consistent with any relevant Flood Emergency Management Plan, flood risk management plan or similar plan.	The school location is deemed to fall under 'Areas Able to be Evacuated' with respect to 'Flood Emergency Response Classification' and therefore, no Flood Emergency Management Plan has been provided for this area.
6. Adequate flood warning is to be available to allow safe and orderly evacuation without increased reliance upon SES or other authorised emergency services personnel.	- Majority of the school remains flood-free during all flood events including the PMF. - Reliable access and safe evacuation routes are available for the school at all times.

FLOOD CONTROL	COMPLIANCE ASSESSMENT
	The school falls under 'Areas Able to be Evacuated' with respect to 'Flood Emergency Response Classification' and therefore, reliance upon SES or other authorised emergency services during a flood event is unlikely.
Management & Design	
2. Flood Emergency Management Plan required where the site is affected by the 1% AEP (100 year ARI) flood level. Plan is to detail procedures that would be in place for an emergency (such as warning systems, signage and evacuation emergency drills) and should consider the following aspects: (i) preparing for a flood, (ii) responding when a flood is likely, (iii) responding during a flood, and (iv) recovery after a flood. Must be consistent with Flood Warning and Emergency Response Planning requirements outlined in DCP.	A Flood Emergency Management Plan has been prepared for the site. Refer to Section 7.
3. Applicant is to demonstrate that sufficient area is available to store goods above the 1% AEP (100 year ARI) flood level plus 0.5 metre freeboard.	- Majority of the school remains flood-free during all flood events including the PMF. - Majority of buildings have floor levels above the PMF level. - Therefore, sufficient area is available for storage.
4. No storage of materials below the Flood Planning Level (1% AEP flood plus 0.5 metre freeboard) which may cause pollution or be potentially hazardous during any flood.	Not applicable.

7 FLOOD EMERGENCY MANAGEMENT PLAN (FEMP)

This Flood Emergency Management Plan (FEMP) has been prepared for the school to outline detailed procedures to be followed in the event of a flood emergency. The FEMP makes recommendations to ensure that in the event of significant flood, risk to personal safety is appropriately managed.

The Flood Emergency Response Plan (FERP) provides a step-by step response protocol to be followed by the school management, staff and students in a significant flood event. The FERP is to be made available to all key personal and will be readily available in the school office. This FEMP will be made publicly available on the SINSW website.

7.1 PREPARATION FOR FLOOD RESPONSE

7.1.1 EDUCATION

Inductions should be held to educate staff on their role during a flood event. School staff with responsibilities within the FEMP should review and be familiar with their roles. The school manager is responsible to ensure that all staff complete the site induction.

It is recommended that students be educated on the potential flood risk and actions that will be undertaken during a flood event. Lessons should also be held that address flood risks and highlight dangerous behaviour during a flood event. Materials available on the NSW SES website have been tailored for students of various ages.

7.1.2 SIGNAGE

Flood flows within Moss Street can be hazardous (H3) in the PMF. It is recommended that a proper signage installed to warn people against using the site access from Moss Street and to avoid Moss Street during significant flood events.

7.1.3 DRILLS

Flood drills are to be held every 6 months to ensure all staff and students are aware of and familiar with their flood response actions, the sound of the alerts and warning systems.

7.1.4 FLOOD EMERGENCY KIT

A Flood Emergency Kit must be available at all times and regularly checked to ensure that supplies within the kit are sufficient and in working condition. This check should occur during each drill, and the kit should include:

- Radio and torch with spare batteries
- First aid kit
- megaphone
- Emergency contact numbers
- A copy of Flood Emergency Response Plan (FERP)

This Emergency Kit should be stored in a waterproof container and is the responsibility of the nominated School Safety Manager/First Aid Officer.

7.2 FLOOD WARNINGS AND NOTIFICATIONS

7.2.1 BUREAU OF METEOROLOGY

Severe weather and thunderstorm warnings are issued by the Bureau of Meteorology (BOM) www.bom.gov.au. These warnings are continually updated with a description of the likely conditions (including predicted extreme rainfall depth). Warnings are issued with varying lead-times, depending on the weather situation, and range from just an hour or two to 24 hours or sometimes more.

BOM issues flood alerts, advice, and watches for New South Wales through coordination with the SES, water agencies and the Local Councils.

7.2.2 STATE EMERGENCY SERVICE (SES)

SES will use the new Australian Warning System includes the following three tiers of warnings: **Advice**, **Watch and Act** and **Emergency Warning**. For each level, there are a series of clear action statements to guide positive action by the community as outlined below and shown in Figure 13.

Warnings during storms and flood events will continue to be distributed through text message alerts, the NSW SES website, NSW SES social media channels, ABC radio stations and media outlets.

Advice - an incident has started. Stay up to date in case the situation changes.

- Stay informed.
- Monitor conditions.
- Reduced threat: return with caution.

Watch and Act - conditions are changing and you need to start taking action now to protect you and your family.

- Do not enter floodwater.
- Prepare to evacuate.
- Prepare to isolate.
- Avoid the area.

Emergency Warning - the highest level of warning. You may be in danger and need to take action immediately.

- Evacuate now / Evacuate before [time]
- Shelter now
- Move to higher ground.

Each warning has three components:

Location + Hazard: The location and the type of hazard impacting the community (e.g. Lismore flooding).

Action statement: For each warning level there are a range of action statements to guide protective action by the community. These statements evolve as the warning levels increase in severity. Statements range from 'stay informed' at the Advice level, to 'prepare to evacuate' at the Watch and Act level, to 'evacuate now' in the Emergency Warning level. As the situation changes and the threat is reduced, the level of warning will decrease accordingly.

The warning level: The severity of the natural hazard event based on the consequence to the community.



Figure 13: Australian Warning System - Three Warning Levels

7.3 FLOOD EMERGENCY RESPONSES AND PROTOCOLS

In the majority of cases large-scale flood events which cause site inundation will be anticipated by BOM, media, Council, police and / or SES. The school management will be subscribed to warning systems and will be informed by those services. If a large flood is anticipated, school management would be forewarned and will close the school and inform all staff and students to stay home. This will significantly reduce the likelihood of incidents at the site in a flood event.

In addition, majority of buildings are located above the PMF and therefore, most of buildings are suitable to shelter in should any staff or students need to remain onsite during unexpected storm events. The staff responsibilities are identified in Table 3. The Flood Emergency Response Plan (FERP) is provided in Table 4.

It should be noted that NSW SES orders take precedence during a flood emergency. As such, any evacuation orders issued by the SES must be followed as a priority.

Table 3: Staff Responsibilities

Role	Responsibilities
Department of Education	▪ Liaise with Transport for NSW for buses resources allocation and arrangement for the school during/post flood event ▪ Pass information to school bus drivers/companies on expected or actual impacts of flooding ▪ Liaise with NSW SES to determine instances for the early release of students whose travel arrangements may be disrupted by flooding ▪ Liaise with NSW SES to determine instances for temporary closure of school ▪ Assist with evacuation coordination if required
School Management	▪ Inform staff of flood risk ▪ Coordinate flood drills ▪ Liaise with NSW SES
Wardens	▪ Coordinate evacuation of their designated area
First Aid Officer	▪ Coordinate assistance for less able students and staff during flood response ▪ Prepare a Flood Emergency Kit that includes a portable radio, torch, spare batteries, first aid materials, emergency contact numbers, candles, waterproof matches, waterproof bags and required medications.
Staff	▪ Assist Wardens in evacuation/redirection of students ▪ Report missing students to Wardens

Table 4: Flood Emergency Response Plan (FERP)

Flood Warning / Notifications	Flood Response
Weather forecast predicts significant rainfall event in the area BoM issues a FLOOD WATCH NSW SES issue an 'ADVISE' warning 	School management is to: - Call NSW SES or local police for an update and advice. - Notify all staff and students of the potential for flooding. This may include an alert and warning message over the PA system confirming a significant flood event. - Confirm availability of staff to assist with emergency actions if required. - Ensure staff are familiar with the flood emergency strategy – to shelter-in-place within the school. - Ensure the emergency kits are ready to use. - Listen to the local radio station for updates on forecasted rainfall intensity, flood heights and timings. Conduct visual assessment of conditions onsite and in surrounding area, as these are the main triggers during flash flooding.
Flash flooding is reported in the media / via visual observation or BoM issues a FLOOD WATCH or NSW SES issue an amber "WATCH AND ACT" or red "ACT NOW" warning 	If the flood event is not anticipated to impact the site, the School Management is to continue hourly check-ins and postpone high risk activities (e.g. outdoor activities). If flood event is anticipated to impact the site, the School Management must undertake the following actions: <u>During School Hours:</u> - Contact NSW SES on 132500 to confirm response strategy. For life-threatening emergencies phone 000 immediately. - A warning message should be broadcast over the PA system confirming a significant flood event, notifying all students and staff to begin shelter-in-place procedures. - Direct all students and staff to move into the buildings and remain indoor. Within classrooms, teachers should conduct a headcount to ensure all students are accounted for. - Notify parents (e.g., by SMS). - Shelter-in-place until notified that it is safe to leave the site. - The School Management is to follow any action statements provided via the AWS or NSW SES. Should the NSW SES issue an evacuation order covering the site, this will take precedence over the shelter-in-place strategy, and staff and students must follow the SES orders. <u>Outside of School Hours:</u> - Close down the school. If the flood is expected to continue into school hours, notify students and staff of the temporary closure of the school.
Visual observation shows flood is receding or the alert has been downgraded by the relevant authorities and any flood event that occurred has passed.	Once it has been confirmed that the water level has reduced to a suitable level, and if determined safe, the School Management may announce that staff and students no longer need to shelter-in-place, and classes can resume as normal.
NOTE: Avoid driving or walking through floodwaters. These are the main causes of death during flooding. Although flows within the school ground may not be hazardous, safe travel arrangements for students to go home may be disrupted by flooding and/or road closures.	

8 EVALUATION OF ENVIRONMENTAL IMPACTS

The proposed mitigation works (refer to Section 5) will benefit the downstream residents by addressing the current overland flow nuisance. These measures will also provide flood protection to the downstream properties in the PMF. Therefore, the proposed works are expected to have minimal environmental impacts.



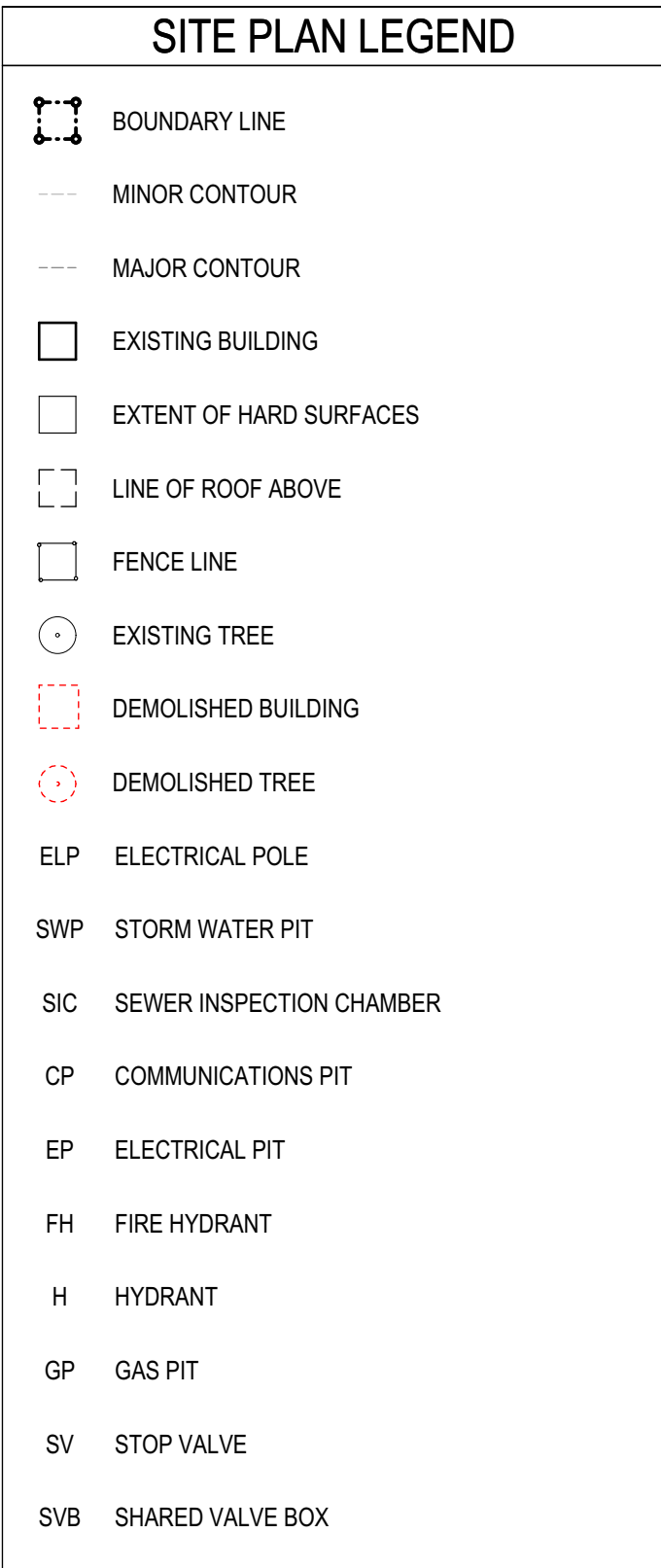
Alistair Attar

JHA Civil / Flood Associate

MIEAust CPEng NER RPEQ (EA ID: 3706260)

APPENDICES

APPENDIX A - Proposed Site Plans



50

Fulton Trotter
ARCHITECTS BRISBANE SYDNEY
www.fultontrtoter.com.au

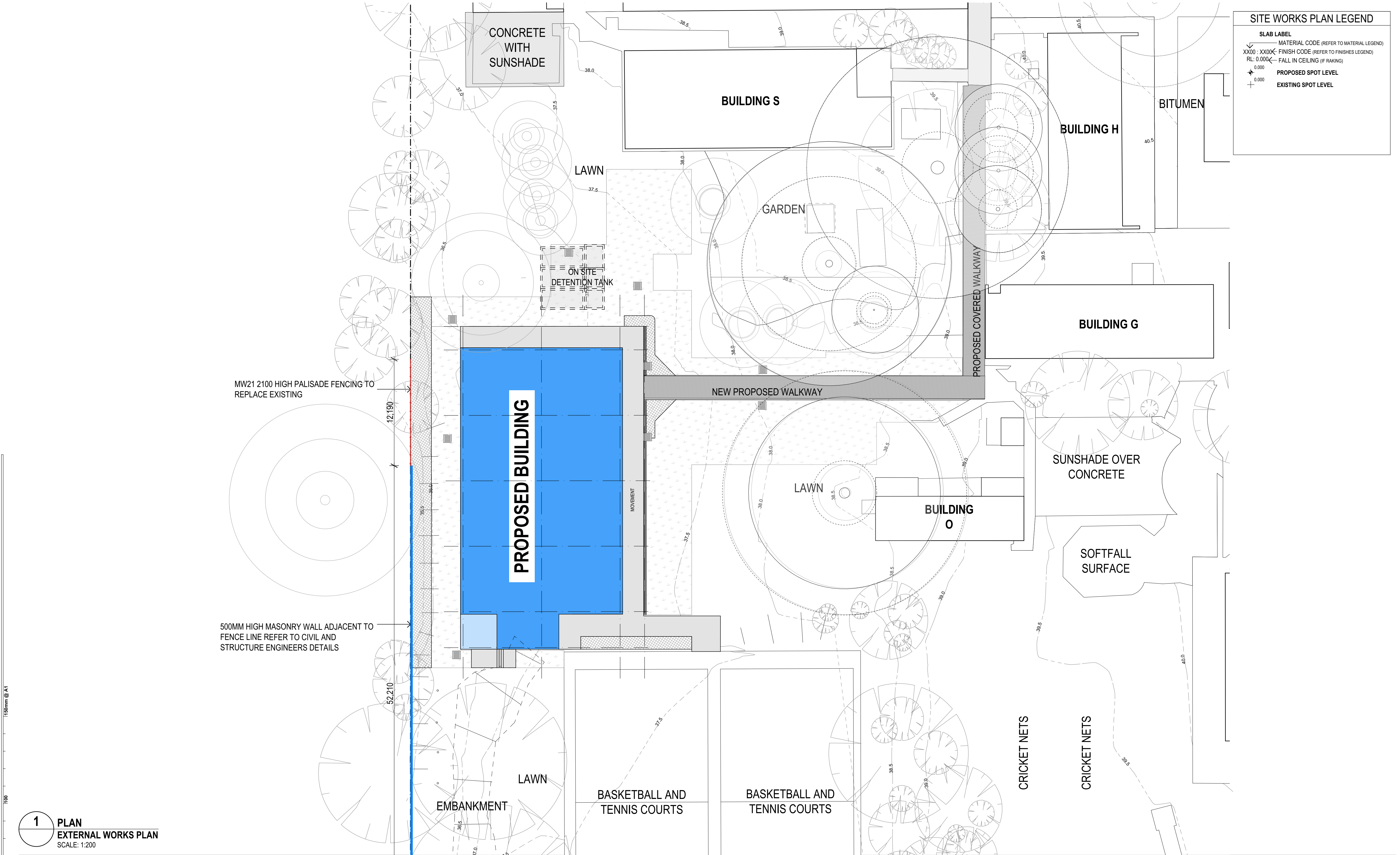
SYDNEY Suite 904, Level 9, 29-36 Foveaux Street, Surry Hills, NSW 2010
t. (02) 8383 5151 e. info@fultontrtoter.com.au

Fulton Trotter Architects A&B 67 264 550 A&B 57 67 264 550
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in whole or in part, shall not be used for any other building purposes.

DIRECTORS

Greg Isaac rita	NSW 6655	OD 2920
Justine Elzeby rita	NSW 3113	OD 3313
John Ward rita	NSW 8371	OD 3147
Katherine O'Connell rita	NSW 7454	OD 4529
Paul Seakwa rita	NSW 7180	OD 3848
Robert Lundgren rita		OD 3187

PROPOSED SITE PLAN Figured dimensions take precedence over scale dimensions. Contractors must verify all dimensions on site before commencing any work or making shop drawings.			
PROJECT NUMBER	DIRECTOR		
7068ND01	JW	CHKD	
DRAWING NUMBER	REVISION		
NPS-FTA-00-00-DR-A-1101			06



SITE WORKS PLAN LEGEND

SLAB LABEL

XX00 : XX00

RL: 0.000

0.000

0.000

MATERIAL CODE (REFER TO MATERIAL LEGEND)

FINISH CODE (REFER TO FINISHES LEGEND)

FALL IN CEILING (IF RAKING)

PROPOSED SPOT LEVEL

EXISTING SPOT LEVEL

1

PLAN

EXTERNAL WORKS PLAN

SCALE: 1:200

REV.	DESCRIPTION	DATE	INIT.
05	100% SCHEMATIC DESIGN	23/01/2025	NK
04	100% SCHEMATIC DESIGN	21/01/2025	NK
03	100% SCHEMATIC DESIGN	19/12/2024	AK
02	95% SCHEMATIC DESIGN	10/12/2024	AK
01	80% SCHEMATIC DESIGN	26/11/2024	AK
P3	100% CONCEPT DESIGN	31/10/2024	NK
P2	80% CONCEPT DESIGN	18/10/2024	AK
P1	FOR INFORMATION	27/09/2024	AK

fulton trotter

ARCHITECTS BRISBANE SYDNEY

www.fultontrotter.com.au

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Ryan Lovetday nra

NSW 6855
NSW 8371
NSW 7434
NSW 7180

QLD 2920
QLD 3313
QLD 3847
QLD 4528
QLD 1108
QLD 4500

DRAWING

CLIENT

PROJECT

PHASE

SCHEMATIC DESIGN

SCHOOL INFRASTRUCTURE

NSW

NORTHMEAD PUBLIC SCHOOL

MOXHAMS ROAD,
NORTHMEAD, NSW

EXTERNAL WORKS PLAN

PROJECT NUMBER

7068ND01

DIRECTOR

JW

CHECKED

NK

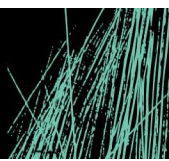
DRAWING NUMBER

NPS-FTA-00-00-DR-A-1401

REVISION

05

APPENDIX B - Flood Information Certificate (City of Parramatta Council)





Our Reference: FL/340/2024
Contact: Peter Sirianni
Telephone: 02 9806 5309
Fax: 02 9806 5906

JHA Consulting Engineers
2 Market St
Sydney Hill NSW 2000

22 November 2024

FLOOD ENQUIRY APPLICATION

Property Details

Address	52 & 52A Moxhams Road, NORTHMEAD NSW 2152
<i>This form applies for up to three adjoining sites relating to the same development. A separate Flood Enquiry form and fee will be required for more than 3 or separate lots.</i>	

Delivery Preference

matthew.beament@jhaengineers.com.au

Reason for Enquiry

--

Property Type

**** GST not applicable from 1 July 2013****

Flooding Application – Commercial	\$628.95
-----------------------------------	----------

Disclaimer: Flood levels and flood extent lines are based on current information held by Council. Council does not accept responsibility for the accuracy of this information. Any pipe sizes and location of pits and pipe lines should be confirmed by site investigation.

The flood levels shown on the back of this form are only an approximate guide and have been derived using the current computer simulated model.

The information provided in this document is presented in good faith to assist the public in understanding Council's drainage requirements that apply within the Parramatta Local Government Area. It is the responsibility of each individual using this information to undertake their own checks and confirm this information prior to its use.

City of Parramatta Council, its agents and employees are not liable (whether by reason of negligence, lack of care or otherwise) to any person for any damage or loss whatsoever which has occurred or may occur in relation to that person taking or not taking (as the case may be) action in respect of any representation, statement, or advice referred to above.

Refer to back of this form for level information issued



Flood Enquiry Information Issued - 22 November 2024

Flooding

Is this property affected by flooding? 52 & 52A Moxhams Road, NORTHMEAD		☒ Yes ☐ No	
Flood Levels	Closest Cross Sections: (Please refer to Flood Study):		
5% AEP	m AHD	Comments: See Note on Flood/Hazard Maps	
1% AEP	Varies – RL 41m AHD at 52A Kleins Road frontage to RL 38m AHD at 52A Kleins Road southern property boundary.		
PMF	Varies – RL 41.2m AHD at 52A Kleins Road frontage to RL 38.8m AHD at 52A Kleins Road southern property boundary to RL 36.6m AHD at 52A Kleins Road western property boundary.		
☒ Refer to flood maps provided for detailed flood levels.			
Flood information is obtained from the following flood study report: Parramatta River Flood Study, 2024 (Stantec)			

Note: Flood inundation can be verified by detail survey to AHD undertaken by a Registered Surveyor.

Local Flooding

Is the property located within a Hatched Grey Area? <i>Properties located within a Hatched Grey Area are subjected to flooding from the local catchment.</i>	☐ Yes ☒ No
Is the property located within a Grey Area? <i>Properties located within a Grey Area are subjected to additional site drainage controls to manage flooding in the local catchment.</i>	☐ Yes ☒ No
Is the property likely to be affected by overland stormwater run-off from the local catchment?	☒ Detailed Investigation Required
Note: You are required to contact Council's Development Service Engineer for any details and requirements relating to development that is affected by local flooding.	

Additional Recommended Actions

☒	The Applicant should arrange a pre-lodgement meeting to discuss any proposal to develop this site with council's Town Planner and Development Services Engineer. Pre-lodgement meetings can be booked via this link Pre-lodgement meetings City of Parramatta
☐	The Applicant needs to contact Council's Town Planner and organise a pre-lodgement meeting to discuss any proposal to redevelop this property.
☒	The Applicant needs to refer to Council's Local Floodplain Risk Management policy for details relating to developing a land affected by flooding.

Definitions: (As per NSW Floodplain Development Manual dated April 2005)

- AHD** – a common national surface level datum approximately corresponding to mean sea level.
- ARI** – the long term average number of years between the occurrences of a flood as big as or larger than, the selected event.
- PMF** – is the largest flood that could conceivably occur at a particular location, usually estimated from probable maximum precipitation.
- AEP** – Annual Exceedance Probability is the chance of a flood of a given or larger size occurring in any one year, usually expressed as a percentage.



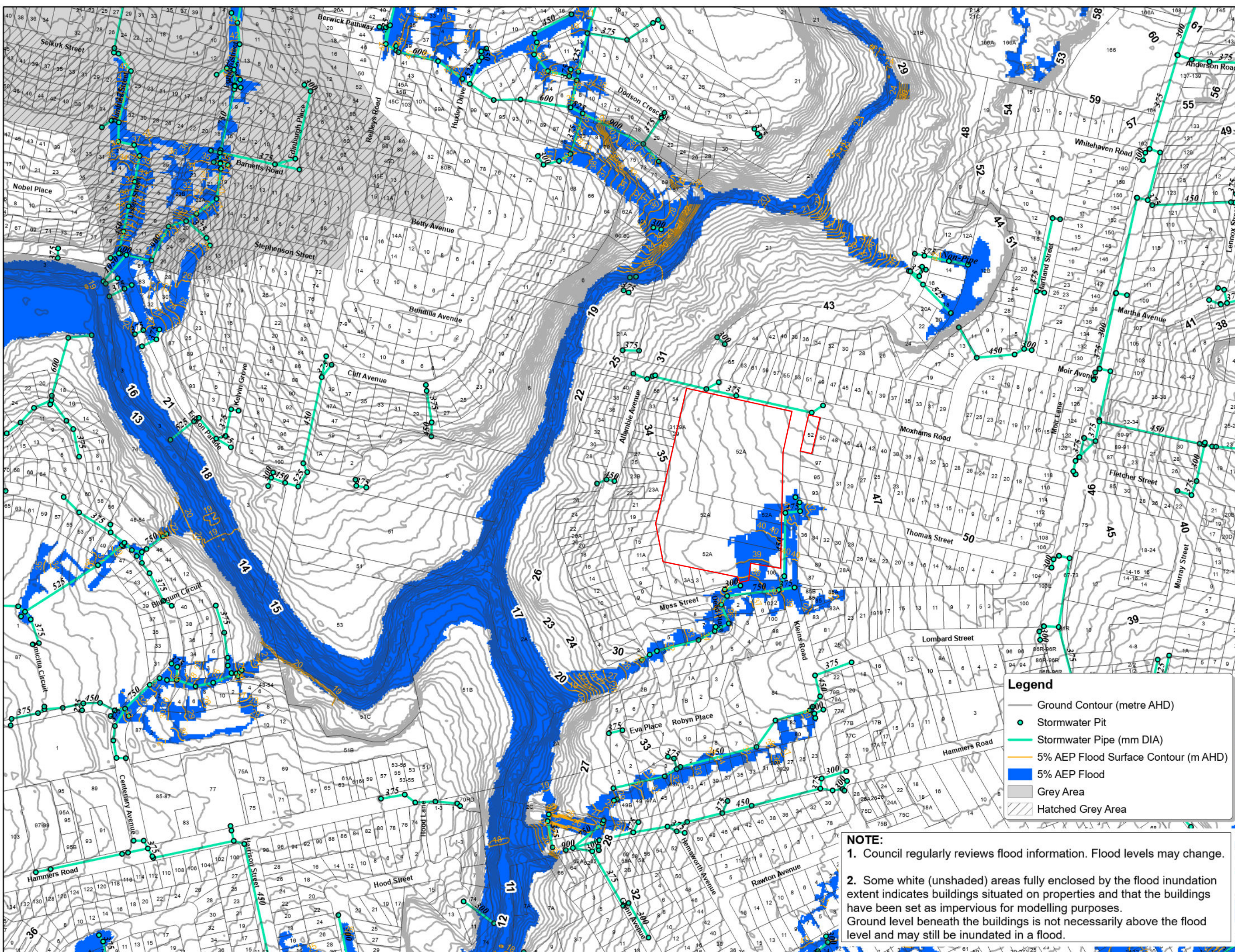
1:4,000

City of Parramatta Council Flood Map - 5% AEP

DISCLAIMER: Flood levels and flood extent lines are based on current information held by Council. Council does not accept responsibility for the accuracy of this information. Any pipe sizes and location of pits and pipe lines should be confirmed by site investigation. The flood levels provided are only an approximate guide and have been derived using the current computer simulated model. The information provided on this document is presented in good faith. It is the responsibility of each individual using this information to undertake their own checks and confirm this information prior to its use. City of Parramatta Council, its agents and employees are not liable (whether by reason of negligence, lack of care or otherwise) to any person for any damage or loss whatsoever which has occurred or may occur in relation to that person taking or not taking (as the case may be) action in respect of any representation, statement, or advice referred to above.



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22/11/2024



Legend

- Ground Contour (metre AHD)
- Stormwater Pit
- Stormwater Pipe (mm DIA)
- 5% AEP Flood Surface Contour (m AHD)
- 5% AEP Flood
- Grey Area
- Hatched Grey Area

NOTE:

- Council regularly reviews flood information. Flood levels may change.
- Some white (unshaded) areas fully enclosed by the flood inundation extent indicates buildings situated on properties and that the buildings have been set as impervious for modelling purposes. Ground level beneath the buildings is not necessarily above the flood level and may still be inundated in a flood.



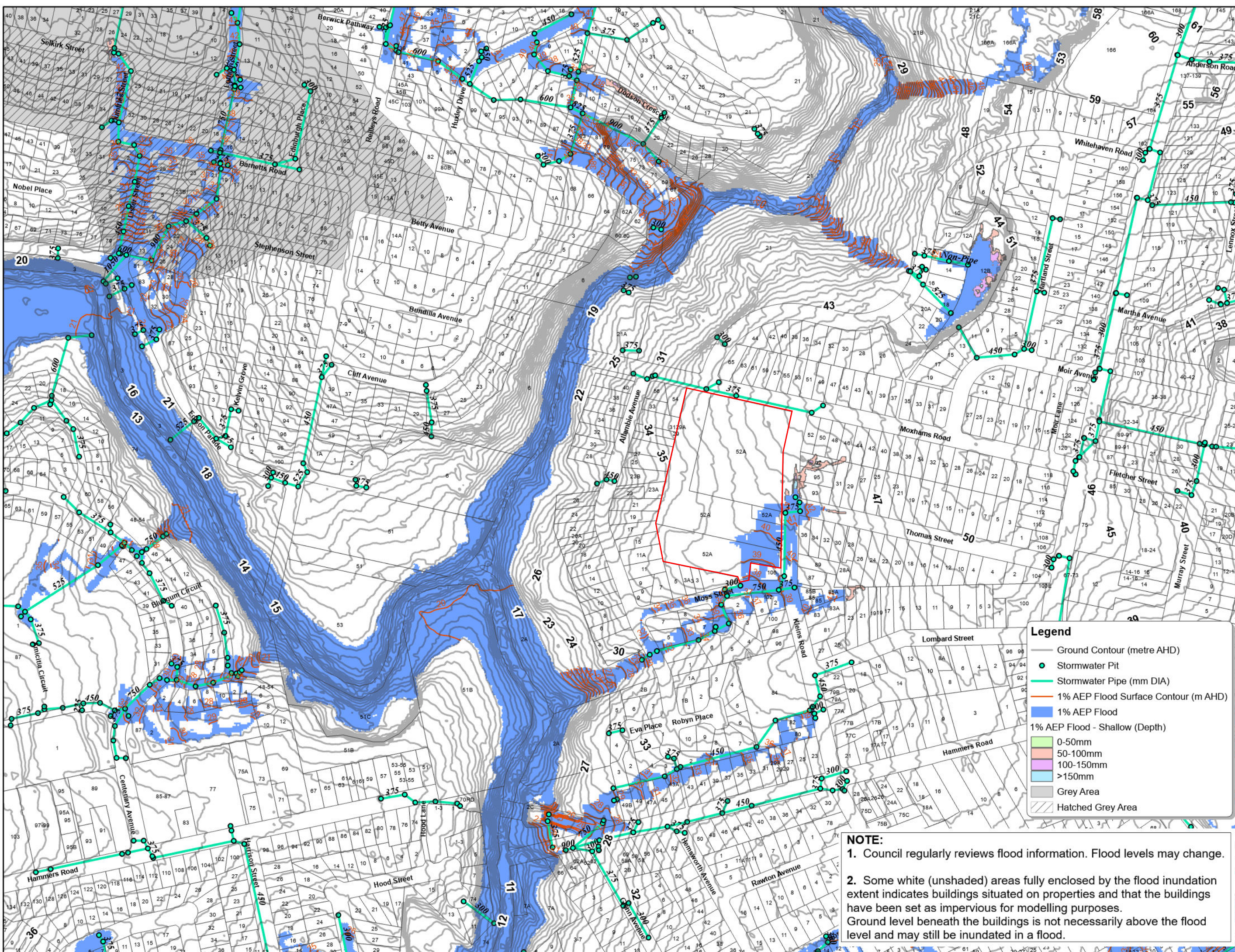
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City of Parramatta Council Flood Map - 1% AEP

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22/11/2024



Legend

- Ground Contour (metre AHD)
- Stormwater Pit
- Stormwater Pipe (mm DIA)
- 1% AEP Flood Surface Contour (m AHD)
- 1% AEP Flood
- 1% AEP Flood - Shallow (Depth)
 - 0-50mm
 - 50-100mm
 - 100-150mm
 - >150mm
- Grey Area
- Hatched Grey Area

NOTE:

- Council regularly reviews flood information. Flood levels may change.
- Some white (unshaded) areas fully enclosed by the flood inundation extent indicates buildings situated on properties and that the buildings have been set as impervious for modelling purposes. Ground level beneath the buildings is not necessarily above the flood level and may still be inundated in a flood.



1:4,000

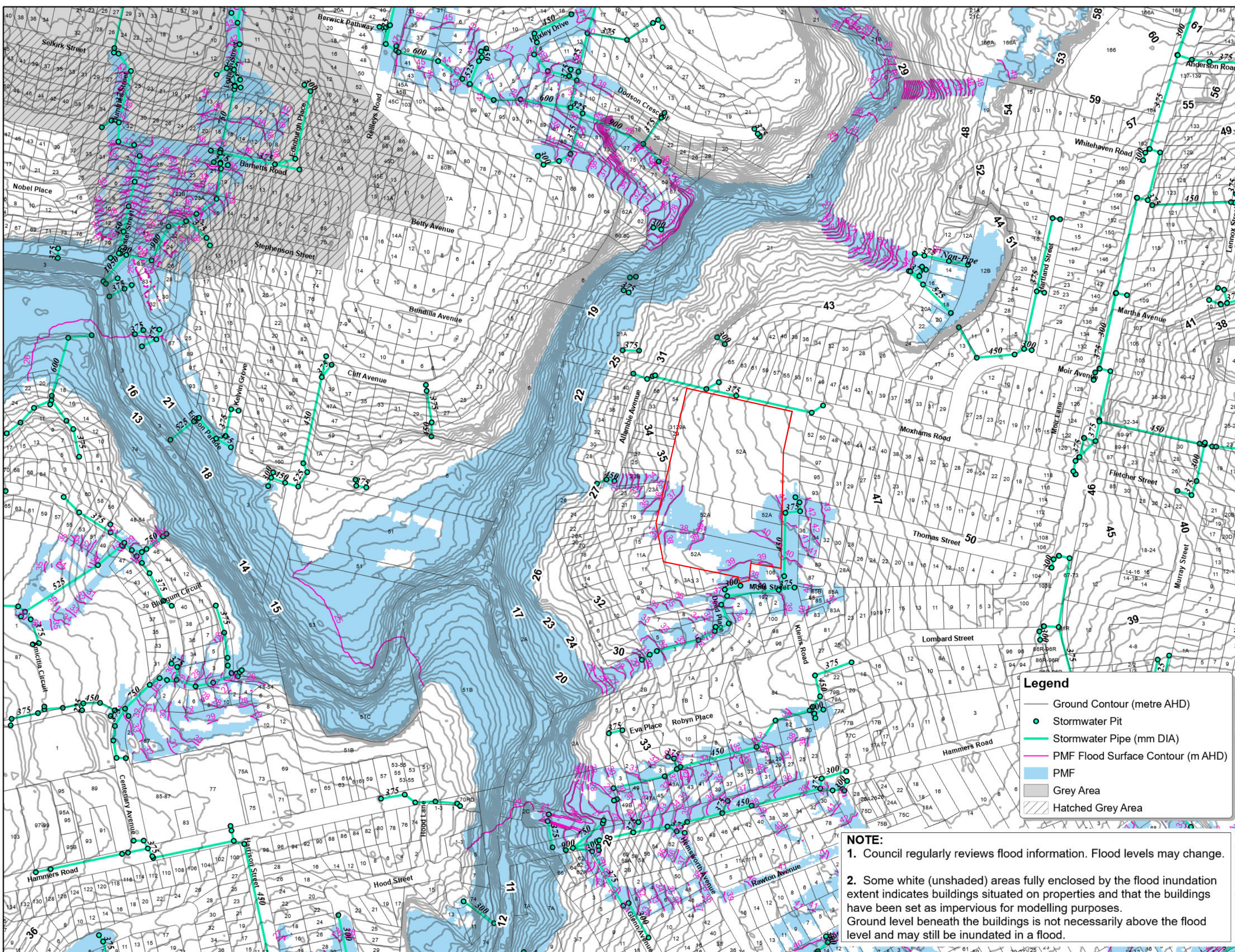
City of Parramatta Council Flood Map - PMF

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5 of 7



Legend

- Ground Contour (metre AHD)
- Stormwater Pit
- Stormwater Pipe (mm DIA)
- PMF Flood Surface Contour (m AHD)
- PMF
- Grey Area
- Hatched Grey Area

NOTE:

- Council regularly reviews flood information. Flood levels may change.
- Some white (unshaded) areas fully enclosed by the flood inundation extent indicates buildings situated on properties and that the buildings have been set as impervious for modelling purposes. Ground level beneath the buildings is not necessarily above the flood level and may still be inundated in a flood.



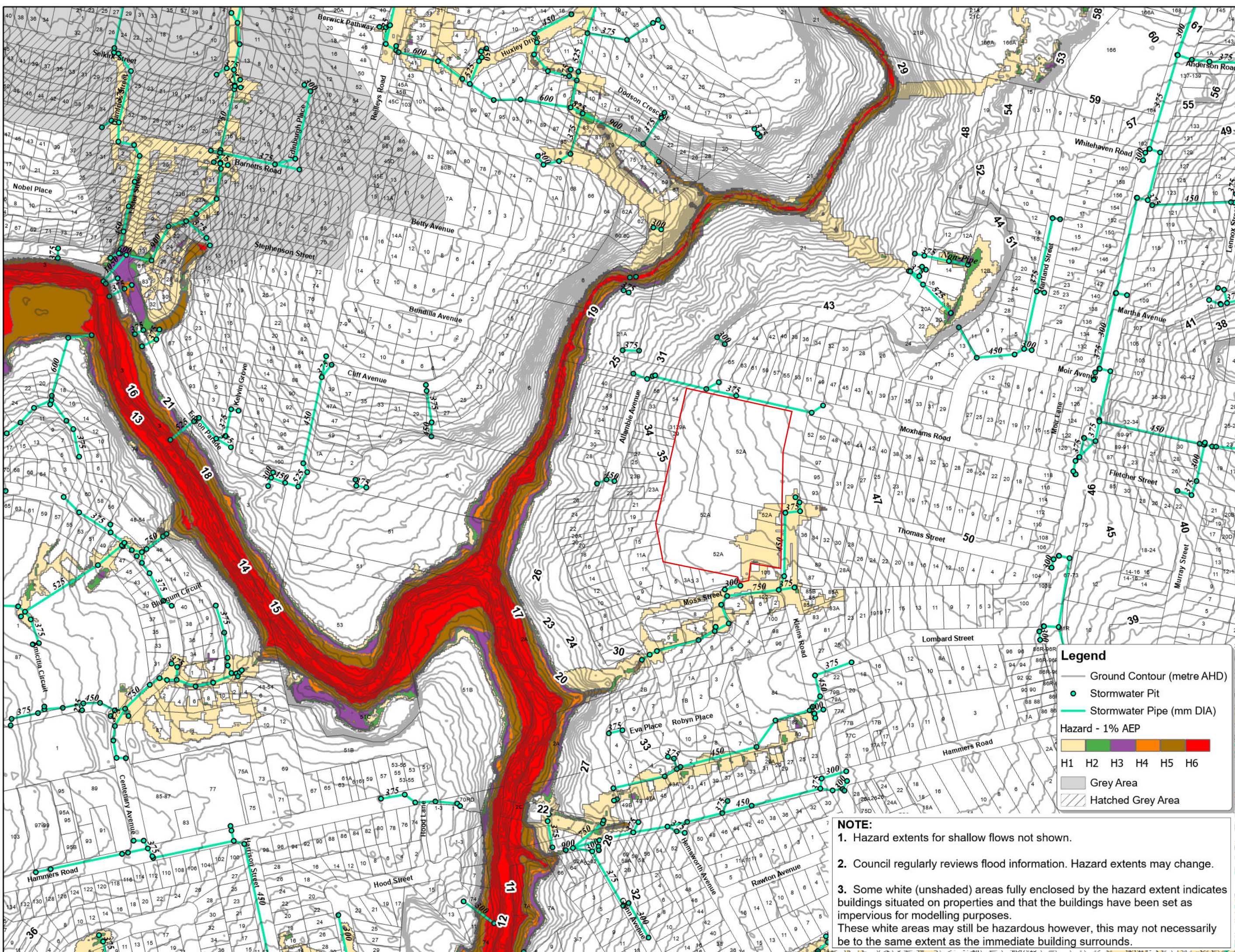
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City of Parramatta Council Flood Hazard Map - 1% AEP

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22/11/2024



Legend

- Ground Contour (metre AHD)
- Stormwater Pit
- Stormwater Pipe (mm DIA)

Hazard - 1% AEP

H1	H2	H3	H4	H5	H6
Yellow	Light Green	Green	Dark Green	Blue	Red

Grey Area
Hatched Grey Area

NOTE:

- Hazard extents for shallow flows not shown.
- Council regularly reviews flood information. Hazard extents may change.
- Some white (unshaded) areas fully enclosed by the hazard extent indicates buildings situated on properties and that the buildings have been set as impervious for modelling purposes. These white areas may still be hazardous however, this may not necessarily be to the same extent as the immediate building surrounds.



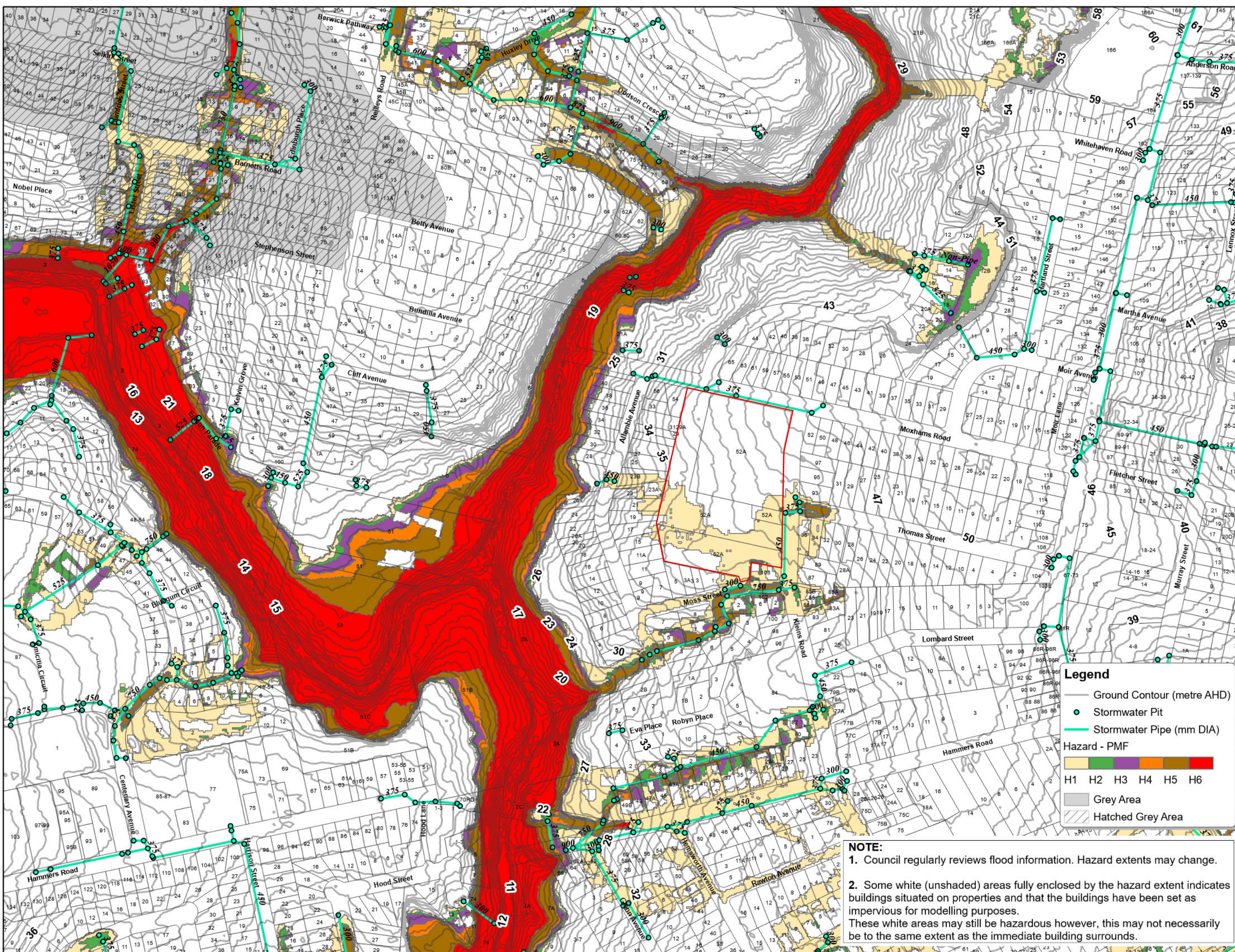
1:4,000

City of Parramatta Council Flood Hazard Map - PMF

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22/11/2024



Legend

- Ground Contour (metre AHD)
- Stormwater Pit
- Stormwater Pipe (mm DIA)

Hazard - PMF

H1	H2	H3	H4	H5	H6
[Lightest color]	[Light color]	[Medium-light color]	[Medium color]	[Medium-dark color]	[Darkest color]

Grey Area
Hatched Grey Area

NOTE:

1. Council regularly reviews flood information. Hazard extents may change.
2. Some white (unshaded) areas fully enclosed by the hazard extent indicates buildings situated on properties and that the buildings have been set as impervious for modelling purposes. These white areas may still be hazardous however, this may not necessarily be to the same extent as the immediate building surrounds.