



Stormwater Strategy Report

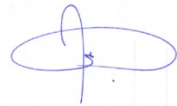
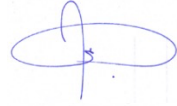
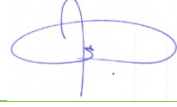
890 Woodville Road, Villawood
Issue A

Prepared For ABA Square Pty Ltd

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REVISION TABLE

Revision	Date	Issue Description	Issued by	Approved by	Signed
P1	22.06.2022	Preliminary Issue	PE	SELH	
P2	10.11.2022	Updated Architecturals	PE	SELH	
A	15.11.2022	Final Issue	PE	SELH	

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Table of Contents

1	Executive Summary	5
2	Introduction	7
2.1	Brief	7
2.2	Objectives	7
2.3	Limitations.....	7
2.4	Reference Documents	7
3	Natural & Built Environment.....	8
3.1	Existing Site	8
3.2	Proposed Development	8
4	On-Site Stormwater Management	10
4.1	General	10
4.2	Authorities	10
4.3	Internal Drainage	10
4.3.1	Roof Drainage.....	10
4.3.2	Surface Drainage	10
4.4	On-Site Detention	11
4.5	Water Quality	11
4.5.1	Objectives	11
4.5.2	Approach.....	11
5	Soil & Water Management.....	12
5.1	Construction Stage	12
6	Maintenance Strategy	14
7	Flood Prone Land	15
7.1	General	15
7.2	Objectives	15
A1	Appendix 1.....	16
A2	Appendix 2.....	17
List of Figures		
Figure 1.1	Ground Floor Plan.....	5
Figure 3.1	Locality Plan.....	8



Figure A 1.1	Ground floor plan OSD spatial	16
Figure A 2.1	Fairfield City Council Planning Certificate	17

List of Tables

Table 4.1	Stormwater Quality Improvement Targets	11
Table 6.1	Maintenance Strategy Requirements.....	14
Table 7.1	Local Overland Flow Details	15

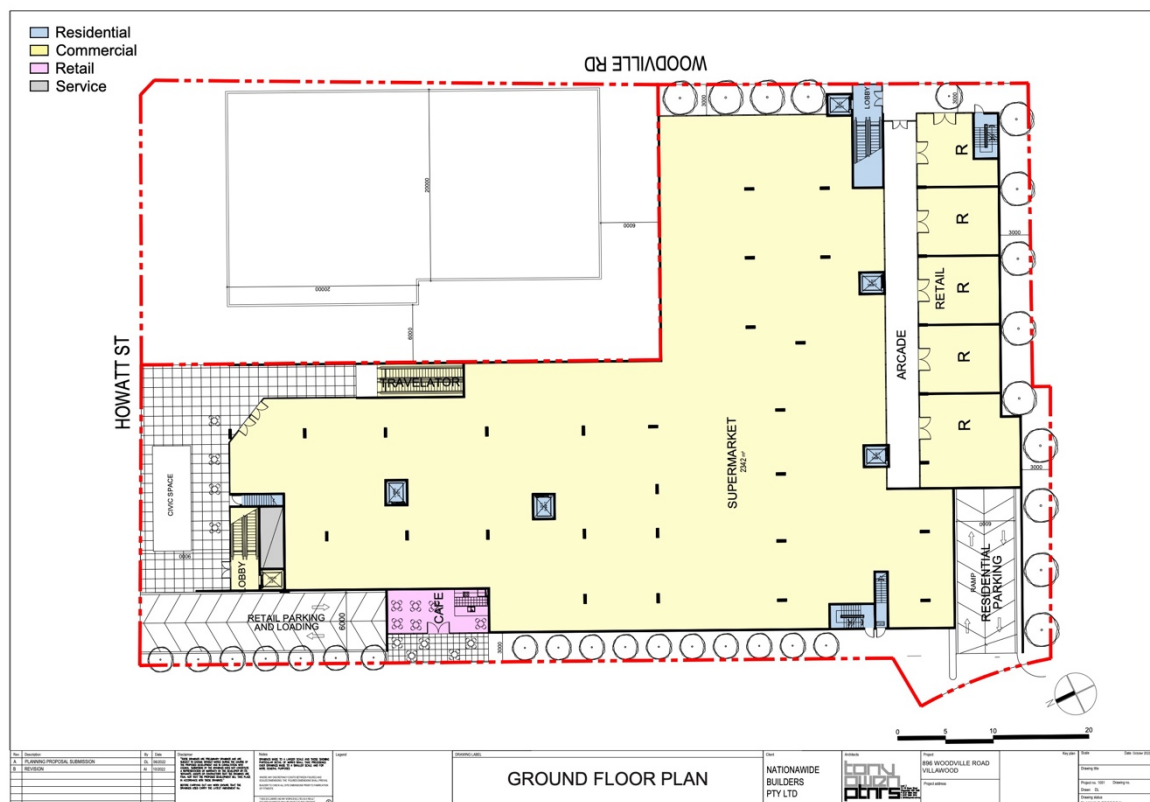
1 Executive Summary

This document is a stormwater strategy report for the proposed development located at 890 Woodville Road, Villawood.

The development is proposed mixed use site along the northern west side of Woodville Road.

ABA Square Pty Ltd is proposing a mixed-use development. The area is generally characterized by 1-2 storey detached houses and 3 storey walk ups such as those east of the site, with some commercial premises on Woodville Road. As stated above the Town Centre indicates high density mixed use development to the north of the site including 4-12 storey RFBs above mixed use retail podiums. Large Areas to the east of the site contain light industrial uses and warehousing. Concept plans prepared by Tony Owen Partners.

The proposed development ground floor is illustrated in Figure 1.1 below.





In summary, the following is proposed: -

- An OSD system is provided to reduce the site discharge;
- Water quality devices are provided to meet the pollutants reduction targets;
- Rainwater tanks including the first flush devices;
- This report also details the results of the flood study undertaken in support of the development and identifies that the flood levels proposed by Council in their 2005 flood study are maintained and the flooding behaviour including velocities and flows are generally unchanged.

2 Introduction

2.1 Brief

S&G Consultants Pty Ltd (SGC) have been engaged by ABA Square Pty Ltd (the Client) to prepare a stormwater strategy in the proposed mixed-use development at 890 Woodville Road, Villawood.

Tony Owen Partners have prepared the architectural documents showing the proposed site layout.

2.2 Objectives

The purpose of this report is to outline the stormwater strategy for the proposed development and respond to the requirements of the guidelines by the relevant authorities.

The report addresses the following matters:-

- On-site stormwater management including:
- Authorities requirements;
- Internal drainage and discharge;
- On-site detention;
- Water quality;
- Flood management;

2.3 Limitations

This report is intended solely for ABA Square Pty Ltd as the Client of SGC and no liability will be accepted for use of the information contained in this report by other parties than this client.

This report is limited to visual site observations and to the information including the referenced documents made available at the time when this report was written.

2.4 Reference Documents

The following documents are referenced in this report:

1. Workcover Authority of NSW Occupational Health & Safety Act 1983 and Confined Spaces Regulation;
2. Occupational Health & Safety Act 2000;
3. Occupational Health & Safety Regulation 2001; and
4. Workers Compensation Act 1987.

3 Natural & Built Environment

3.1 Existing Site

The site is made of Lot 100 in DP 1070965, Lot 3 in DP 208677, Lot 1 in DP 217764 and Lot 13 in DP 220348 located on the northern west side of Woodville Road in the suburb of Villawood approximately 30kms west of Sydney CBD. The site is surrounded by adjoining properties to the South and to the West and the Howatt Street to the North.

The site has a rectangular shape and is characterised by a nearly flat gradient. A natural fall in the site towards Howatt Street as there is a kerb inlet pit at the end of the street with Woodville Road.

Figure 3.1 shows the location of the site.



Figure 3.1 Locality Plan

3.2 Proposed Development

The proposed development involves the demolition of the existing buildings in the prementioned lots and the re-development of the site into a mixed-use precinct as follows:-



- Typical basement car parking;
- Ground floor (Supermarket)
- Levels (1-7) of residential floor levels;

Reference should be made to the architectural drawings by Tony Owen Partners.

4 On-Site Stormwater Management

4.1 General

The management of the stormwater on site covers several aspects of the design. It is divided into the following sections:

- Internal drainage design including provision of on-site detention and discharge into Council's infrastructure;
- Roof water collection; and
- Water quality control.

These components have been designed to address the requirements of Fairfield City Council.

4.2 Authorities

The Council requirements for the Woodville Road precinct are included in section 4 of DCP 2017. And Section 6 details these requirements as follows:-

- The peak/volume impact of stormwater on infrastructure is to be reduced by detaining/retarding it on site;
- Stormwater quality shall be maintained through the use of treatment measures;

Sections 2.4.2 (DCP 2017) outline Council's requirements in relation to Soil Management, Stormwater Management. These requirements are summarised below:-

4.3 Internal Drainage

4.3.1 Roof Drainage

The roof drainage system is a conventional rainwater outlets and downpipe system designed to cater for 20-year ARI storm event. The system is a series of outlets and downpipes to be coordinated with the architectural layout in future detailed design stages.

The roof drainage from the towers drains into stormwater system.

4.3.2 Surface Drainage

The internal drainage system will be designed in accordance with Council's guidelines.

The internal drainage system will be designed to cater for 100-year ARI storm event where overland flow path can be provided for storms in excess of the design storm.

The proposed impervious areas cover approximately the whole site except the open area next to the Howatt Street driveway.

4.4 On-Site Detention

On-Site Stormwater Detention is a Council requirement to reduce the runoff from the site and its impact on public infrastructure and main waterways. The site zone is Urban zone as per Council DCP 2017 section 4.4.1 (Maximum PSD of 140 l/sec/ha for the 9-hour 100 year ARI for the total site AND, Maximum PSD of pre-developed site discharge for the 5, 15, 30, 60, 90, 120 and 540-minute duration storms for the 5- and 100-year ARIs for the total site).

4.5 Water Quality

4.5.1 Objectives

The quality of the discharge from the site is controlled by Council's requirements in Section 6.2. Performance criteria of stormwater management policy (DCP 2017). These requirements are extracted from the DCP.

The development falls under the "Commercial and industrial development" type. The following pollutants and reduction targets are required.

Table 4.1 Stormwater Quality Improvement Targets

Pollutant	Description	Reduction in Load
Gross Pollutants	defined as material that would be retained by a five-millimetre mesh screen	90%
Total suspended solids (TSS)	Coarse sand and soil particles (<0.05mm diameter)	80%
Total phosphorus (TP)	Anthropogenic hydrocarbons that can be emulsified	55%
Total nitrogen (TN)		40%

4.5.2 Approach

A treatment train approach is proposed to achieve the water quality targets. The approach is as follows:-

- Roof water runoff to be collected in rainwater tanks to be reused to irrigate the landscaping areas. Overflow from the rainwater tanks is directed to the gross pollutants devices; and
- Surface water runoff passes through the gross pollutants devices to collect litter and fine particles prior to discharging into the receiving system. The device will be fitted with an oil baffle to capture hydrocarbons.

5 Soil & Water Management

5.1 Construction Stage

A Soil and Water Management Plan (SWMP) has been prepared for the Masterplan DA submission. The implementation of the SWMP shall be in accordance with the guidelines of the NSW Department of Housing publication “Managing Urban Stormwater: Soils & Construction” (The Blue Book) and Sections 6.3 & 6.4 of Part A of the DCP.

The SWMP outlines the erosion and sediment control processes for the duration of the project. Emphasis should be placed firstly on minimising erosion then on preventing movement of sediment.

The clearing of the site leaves the land surface susceptible to increased erosion. The eroded particles can be transported off site and into natural waterways causing siltation, loss of hydraulic capacity and environmental stress. The SWMP aims to minimise the extent of erosion of the site, restrict movement of soil particles and mitigate the impacts of the works on the natural environment.

The SWMP provides for the:-

- Protection of disturbed ground through devices such as temporary vegetation, diversion banks and sediment fences;
- Early installation and progressive implementation of erosion controls;
- Early construction of permanent drainage structures, culverts, sediment basins traps and catch drains;
- Progressive revegetation of disturbed areas;
- Use of geotextile to stabilise disturbed surfaces during construction of culverts;
- Control of runoff from embankments through shaping of fill and construction of temporary windrows and batter drains;
- Implementation of erosion control measures at associated sites, including access tracks, roads, office/compound site and extraction sites;
- Progressive and continual implementation of temporary sediment controls;
- Diversion of runoff from disturbed areas to sediment control structures;
- Management of turbid water in basins after rain through flocculation or extraction and use for construction or dust suppression;
- Construction of temporary sediment traps at strategic locations;
- Routine maintenance of sediment control devices to ensure that they remain fully functional at all times;
- Removal of sediment from basins and other structures and placement in secure locations where further movement will not occur;



- Minimisation of transportation of mud and soil by vehicles onto Erskine Drive, through the use of shakers and wash-bays;
- Provision for regular inspections of the control measures by a trained personnel to review and update control measures. Inspections should be conducted weekly and immediately after every significant storm event;
- Dust control through progressive revegetation and application of water;
- A procedure to ensure that water is not released from basins until achieving the appropriate quality standard; and
- Meeting EPA requirements & the guidelines of the Department of Housing publication "Managing Urban Stormwater: Soils & Construction" (Blue Book).

6 Maintenance Strategy

The maintenance strategy relating to the internal drainage system involves inspecting and maintaining the following structures:-

- Rainwater tanks including the first flush devices;
- On-Site Detention systems including the orifice plates and the mesh screens;
- The gross pollutant trap; and
- The permeable pavement.

The corporate body managing the development or their contractors have the obligation to inspect and maintain these structures.

The following table indicates the minimum requirements for the inspection of the above structures and the maintenance procedures to be adopted.

Table 6.1 Maintenance Strategy Requirements

Item	Inspection Frequency	Inspection Check Items	Maintenance Procedures
Rainwater Tanks	6m	Clogging and blockage of first flush device. Clogging and blockage of mesh screens. Sediment depth in tank.	First flush device to be cleaned out. Leaves and debris to be removed from screens. Sediment to be removed from tank floor.
OSD Tanks	6m	Clogging and blockage of mesh screen. Sediment depth in trap.	Leaves and debris to be removed from screen. Trap flood to be cleaned out
Stormfilter tank	As per manufactural	Clogging and blockage of Stormfilter cartridges / non return flap valve.	Leaves and debris to be removed from cartridges / non return flap valve. Sediment to be removed from tank floor.

Inspection Frequency Key:-

6m six monthly

Notes:-

- (1) Permeable pavements should be inspected every month from the first six (6) months.

7 Flood Prone Land

7.1 General

This section of the report addresses the Council report relative to flooding. The site is not affected by flooding as per council flood information (Certificate no. 2171/2021 dated 16/06/2022) (Appendix 2).

7.2 Objectives

Based on the information currently available to Council, this land is not affected by overland flooding. However, this is subject to future flood studies and reviews.

Table 7.1 Local Overland Flow Details

Size of Flood	Flood level (m AHD)
PMF minimum	Not Applicable
PMF maximum	Not Applicable
1 in 100 year minimum	Not Applicable
1 in 100 year maximum	Not Applicable
1 in 20 year minimum	Not Applicable
1 in 20 year maximum	Not Applicable

A1 Appendix 1

Architectural Plan

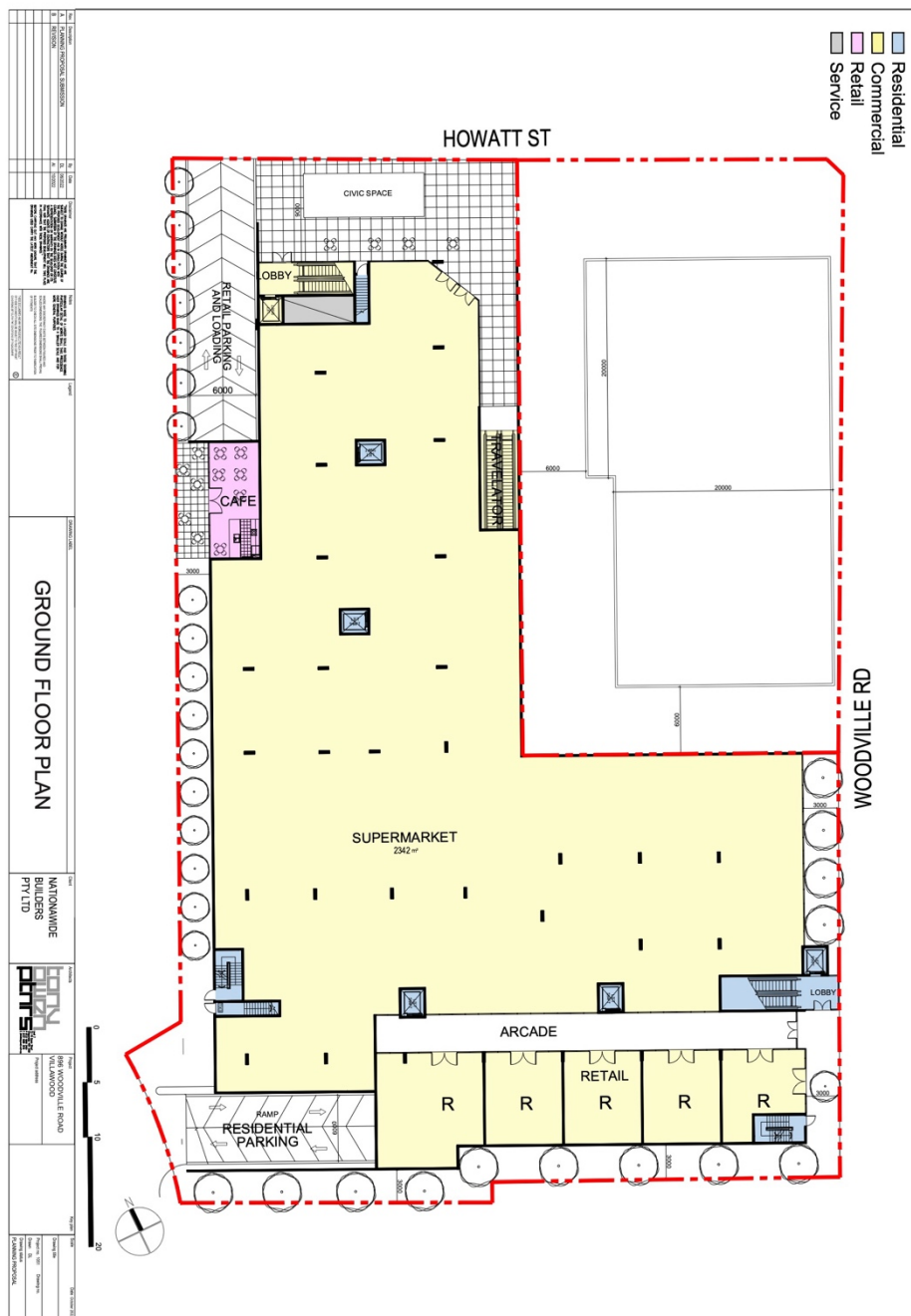


Figure A 1.1 Ground Floor Plan OSD Spatial

A2 Appendix 2

Council's Flood Information



16/06/2022

S&G Consultants Pty Ltd
Suite 503, 156 Pacific Highway
St Leonards 2154

Dear Sir/ Madam,

Following is your planning certificate as requested. Should you have any further queries please contact Council on (02) 9725 0821.

PLANNING CERTIFICATE

(under section 10.7 of the Environmental Planning and Assessment Act 1979 as amended)

Applicant:	S&G Consultants Pty Ltd
Certificate No.:	2171/2022
Applicant's Reference:	20220085
Issue Date:	16/06/2022
Receipt No.:	4076480

PROPERTY ADDRESS:	896 Woodville Road VILLAWOOD NSW 2163
LEGAL DESCRIPTION:	Lot: 3 DP: 208677



Marcus Rowan
MANAGER STRATEGIC LAND USE PLANNING

PLEASE NOTE: This is page 1 of 24. Should this certificate or any subsequent copy not contain this many pages, please confirm with Council prior to acting on the basis of information contained in this certificate under Section 10.7(2) & (5) and inclusive of Flood Information Sheet.

Figure A 2.1 Fairfield City Council Planning Certificate

No, the land is not so affected

7A. Flood related development controls information

1. If the land or part of the land is within the flood planning area and subject to flood related development controls.

Based on the information currently available to Council, the land is not within the flood planning area. However, this is subject to future flood studies and reviews.

Mainstream Flooding

Based on the information currently available to Council, this land is not affected by mainstream flooding. However, this is subject to future flood studies and reviews.

Overland Flooding

Based on the information currently available to Council, this land is not affected by overland flooding. However, this is subject to future flood studies and reviews.

2. If the land or part of the land is between the flood planning area and the probable maximum flood and subject to flood related development controls.

Based on the information currently available to Council, the land is not between the flood planning area and the probable maximum flood. However, this is subject to future flood studies and reviews.

Note: The flood information is the current information to date. However, Council reviews flood studies on an on-going basis and new information may become available in future. Please contact Council's Catchment Planning Division on 9725 0222 for any updated information.

Note:

3. In this clause –
flood planning area has the same meaning as the Floodplain Development Manual.
Floodplain Development Manual means the *Floodplain Development Manual* (ISBN 0 7347 5476 0) published by the NSW Government in April 2005.
probable maximum flood has the same meaning as in the Floodplain Development Manual.

8. Land reserved for acquisition

Whether or not any environmental planning instrument or proposed environmental planning instrument referred to in clause 1 makes provision in relation to the acquisition of the land by a public authority, as referred to in section 3.15 of the Act.

Clause 5.1 of Fairfield LEP 2013 makes provision in relation to acquisition of the land by a public authority, as referred to under section 27 of the Act.

9. Contributions plans

The name of each contributions plan applying to the land.



Flood Information Sheet

Applicant:	S&G Consultants Pty Ltd
Certificate No.:	2171/2021
Applicant's Reference:	20220085
Issue Date:	16/06/2022
Receipt No.:	4076480

PROPERTY ADDRESS:	896 Woodville Road VILLAWOOD NSW 2163
LEGAL DESCRIPTION:	Lot: 3 DP: 208677

Council has adopted a policy on flooding which may restrict the development of land. The Fairfield City-Wide Development Control Plan 2013 (which includes provisions for flood management) applies to all of the Fairfield Local Government area.

Important Notes:

Not Applicable values indicate that the subject land is not known to be subject to flooding.

Not Available values indicate that Council does not have the required flood information for the subject land.

A Glossary is also attached at the end of this Flood Information Sheet.

MAINSTREAM FLOODING

Description

Based on the information currently available to Council, this land is not affected by mainstream flooding. However, this is subject to future flood studies and reviews.

Mainstream Flood Details

Size of Flood	Flood Level (m AHD)
PMF minimum	Not Applicable
PMF maximum	Not Applicable
1 in 100 year minimum	Not Applicable
1 in 100 year maximum	Not Applicable
1 in 20 year minimum	Not Applicable
1 in 20 year maximum	Not Applicable

LOCAL OVERLAND FLOODING

Description

Based on the information currently available to Council, this land is not affected by overland flooding. However, this is subject to future flood studies and reviews.

Local Overland Flood Details

Size of Flood	Flood Level (m AHD)
PMF minimum	Not Applicable
PMF maximum	Not Applicable
1 in 100 year minimum	Not Applicable
1 in 100 year maximum	Not Applicable
1 in 20 year minimum	Not Applicable
1 in 20 year maximum	Not Applicable

GLOSSARY	
m AHD	metres Australian Height Datum (AHD).
Australian Height Datum (AHD)	A common national plane of level approximately equivalent to the height above sea level. All flood levels, floor levels and ground levels are normally provided in metres AHD.
Average Recurrence Interval (ARI)	The long term average number of years between the occurrence of a flood as big as the selected event. For example, floods with a discharge as great as the 20 year ARI event will occur on average once every 20 years. ARI is another way of expressing the likelihood of occurrence of a flood event.
Flood	A relatively high stream flow that overtops the natural or artificial banks in any part of a stream, river, estuary, lake or dam. It also includes local overland flooding associated with major drainage before entering a watercourse, or coastal inundation resulting from raised sea levels, or waves overtopping the coastline.
Flood risk precinct	<p>An area of land with similar flood risks and where similar development controls may be applied by a Council to manage the flood risk. The flood risk is determined based on the existing development in the precinct or assuming the precinct is developed with normal residential uses. Usually the floodplain is categorised into three flood risk precincts 'low', 'medium' and 'high', although other classifications can sometimes be used.</p> <p>High Flood Risk: This has been defined as the area of land below the 100-year flood event that is either subject to a high hydraulic hazard or where there are significant evacuation difficulties.</p> <p>Medium Flood Risk: This has been defined as land below the 100-year flood level that is not within a High Flood Risk Precinct. This is land that is not subject to a high hydraulic hazard or where there are no significant evacuation difficulties.</p> <p>Low Flood Risk: This has been defined as all land within the floodplain (i.e. within the extent of the probable maximum flood) but not identified within either a High Flood Risk or a Medium Flood Risk Precinct. The Low Flood Risk Precinct is that area above the 100-year flood event.</p>
Local overland flooding	The inundation of normally dry land by local runoff rather than overbank discharge from a stream, river, estuary, lake or dam.
Mainstream flooding	The inundation of normally dry land occurring when water overflows the natural or artificial banks of a stream, river, estuary, lake or dam.
Probable Maximum Flood (PMF)	The largest flood that could conceivably occur at a particular location.
Flood Planning Area	The area of land below the FPL and thus subject to flood related development controls.
Flood Planning Level	Are the combinations of flood levels (derived from significant historical flood events or floods of specific AEPs) and freeboards selected for floodplain risk management purposes, as determined in management studies and incorporated in management plans.
Flood Control Lot	A lot to which flood related development controls apply in respect of development for the purposes of industrial buildings, commercial premises, dwelling houses, dual occupancies, multi dwelling housing or residential flat buildings (other than development for the purposes of group homes or seniors housing)

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