

10 May 2019

Carey Lee  
13 Minkara Road  
Bayview NSW 2104

c/o kim.chu@bsbd.com.au

**Review of flood affectation at 13 Minkara Road, Bayview**

Dear Carey

**Introduction**

Stellen Consulting was engaged to assess the proposed new build and alterations and additions at 13 Minkara Road in reference to potential risks and impacts connected with flooding. Architectural plans, survey and council provided flood information (attached) were used to determine flooding extents, impacts and to assess associated risks.

**Description of the Site**

The property is a rectangular shaped allotment with an area of approximately 2ha. The site is mostly grassed and located in a rural area sloping to the north towards the Pittwater waterway. The site currently has a dwelling, an office, a small stable, a small shed and a pool.

**Description of the Development**

The proposed development includes:

- A new shed at the northern part of the site
- A new awning on the southern side of the existing dwelling
- A new car port and roof on the existing office

**Flood Review**

We have obtained and reviewed the flood information report provided by Northern Beaches Council (attached).

The site is affected along its western edge by an overland flow channel. Stormwater during large rain events flows in a northerly direction through this channel and ultimately out into the Pittwater to the north.

Although the general flood planning level for the site is below the proposed new building floor level, the overland flow is confined to a well-defined channel and none of the existing or proposed buildings, including the new shed and new awning, is within the flow extent.

The new shed and awning are therefore not subject to flood controls.



Figure 1 shows the proposed and existing buildings are clear of the flow running the defined channel (survey in background).

### Carport attached to office

The computer model has recognised a small area between the existing office and a rear retaining wall as an area prone to trapping water. However in reality, water in this area is free to drain either side of the office and the pooling predicted by the algorithm is unlikely to occur.

Nevertheless, this concessional development is subject to the following controls for a medium risk area:

#	Prescriptive controls	Compliance with controls			Relevant Controls
		NA	Yes	No	
A	Flood effects caused by development		✓		A2, A3
B	Drainage infrastructure and creek works	✓			-
C	Building components and structural		✓		C1, C2, C3
D	Storage of goods		✓		D1, D2
E	Flood emergency response		✓		E1
F	Floor levels		✓		F1, F2, F3, F4, F6, F11
G	Car parking		✓		G1, G2, G3, G4, G5, G6, G7
H	Fencing	✓			-
I	Pools	✓			-

### Control A - Flood effects caused by development

A2. Refer to Form A/A1 (Appendix C)

A3. No net additional filling is proposed in the 1% AEP flood affected areas.

Control B - Not applicable

Control C - Building components and structural soundness

- C1. The carport columns must be designed and constructed to ensure structural integrity taking into account the forces of minor flows up to 300mm deep. A structural certification shall be provided confirming the above.
- C2. As above.
- C3. All new electrical equipment, power points, wiring, fuel lines, sewerage systems or any other service pipes and connections must be waterproofed and/or located above 300mm above existing ground level.

Control D - Storage of goods

- D1. Hazardous or potentially polluting materials shall not be stored in the carport.
- D2. Goods, materials or other products which may be highly susceptible to water damage shall not be stored in the carport.

Control E - Flood emergency response

- E1. The recommended emergency response is to evacuate. Anyone in this area should move into the dwelling to the west, clear the local pooling.

Control F - Floor levels

- F1. Not applicable
- F2. Carport will not impede flows
- F3. Not applicable – No floor levels have been elevated to avoid floodwaters
- F4. Not applicable
- F6. Not applicable
- F4. Not applicable
- F11. Not applicable

Control G – Car parking

- G1. Carport is not in a floodway
- G2. No change in levels from existing is proposed
- G3. Not applicable
- G4. Not applicable
- G5. Not applicable
- G6. The proposed dwellings footings, slab and structure, shall be designed / checked by a structural engineer and constructed of flood compatible materials in accordance with Reducing Vulnerability of Buildings to Flood Damage: Guidance on Building in Flood Prone Areas, Hawkesbury-Nepean Floodplain Management Steering Committee (2006).
- G7. Not applicable

Control H - Not applicable

Control I - Not applicable

On this basis, the proposed new shed and new awning on the dwelling are safe from the overland flows and not subject to flood controls.

The proposed carport on the office is fully compliant and the proposed works will not cause any additional adverse effects on upstream or downstream properties.

Please contact me with any questions.

Kind regards,



Ian Warren

**Principal Engineer**

Chartered Civil Engineer NER 3705882

Stellen Consulting

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**Drawing List**

Architectural Plans A101 through to 113 by Blue Sky  
Building Design, all dated 25/03/2019.

Survey by Clarke Dowdle & associates

Ref: 20055

dated 21/04/2016

## Attachment A

**NORTHERN BEACHES COUNCIL**  
**STANDARD HYDRAULIC CERTIFICATION FORM**  
FORM A/A1 – To be submitted with Development Application

Development Application for

Address of site: 13 Minkara Road, Bayview

Declaration made by hydraulic engineer or professional consultant specialising in flooding/flood risk management as part of undertaking the Flood Management Report:

I, Ian Warren on behalf of Stellen Consulting  
(Insert Name) (Trading or Business/ Company Name)

on this the 10 May 2019 (Date) certify that I am engineer or a

professional consultant specialising in flooding and I am authorised by the above organisation/ company to issue this document and to certify that the organisation/ company has a current professional indemnity policy of at least \$2 million.

**Flood Management Report Details:**

Report Title:

P170666 - 13 Minkara Road- Flood Supporting Letter

Report Date: 10 May 2019

Author: Ian Warren

Author's Company/Organisation: Stellen Consulting


I: Ian Warren  
(Insert Name)

Please tick all that are applicable (more than one box can be ticked)

☒ have obtained and included flood information from Council (must be less than 12 months old)  
(This is mandatory)

☒ have followed Council's Guidelines for Preparing a Flood Management Report

☐ have requested a variation to one or more of the flood related development controls. Details are provided in the *Flood Management Report*.

Signature 

Name Ian Warren

## FLOOD INFORMATION REQUEST - COMMON

**Property:** 13 Minkara Road, Bayview

**Lot DP:** 8//238742

**Issue Date:** 18/04/2019

**Flood Study Reference:** McCarrs Creek, Mona Vale and Bayview Flood Study Review 2017, Royal Haskoning DHV

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### **Flood Information for lot:**

**Flood Life Hazard Category** – See Map A

**1% AEP** – See Flood Map B

**1% AEP Maximum Water Level<sup>3</sup>:** 128.21 mAHD

**1% AEP Maximum Peak Depth from natural ground level<sup>3</sup>:** 1.11 m

**1% AEP Maximum Velocity:** 3.02 m/s

**1% AEP Provisional Flood Hazard:** High See Flood Map E

**1% AEP Hydraulic Categorisation:** Floodway See Flood Map F

**Flood Planning Area** – See Flood Map C

**Flood Planning Level (FPL)<sup>1,2, 3 &4</sup>:** 128.71 m AHD

**Probable Maximum Flood (PMF)** – See Flood Map D

**PMF Maximum Water Level<sup>2</sup>:** 129.36 m AHD

**PMF Maximum Depth from natural ground level:** 1.38 m

**PMF Maximum Velocity:** 4.65 m/s

**Flood Risk Precinct** – See Map G

<sup>1</sup>The flood information does not take into account any local overland flow issues nor private stormwater drainage systems.

<sup>2</sup>Overland flow/mainstream water levels may vary across a sloping site, resulting in variable minimum floor/flood planning levels across the site.

<sup>3</sup>Intensification of development in the former Pittwater LGA requires the consideration of climate change impacts which may result in higher minimum floor levels than those indicated on this flood advice.

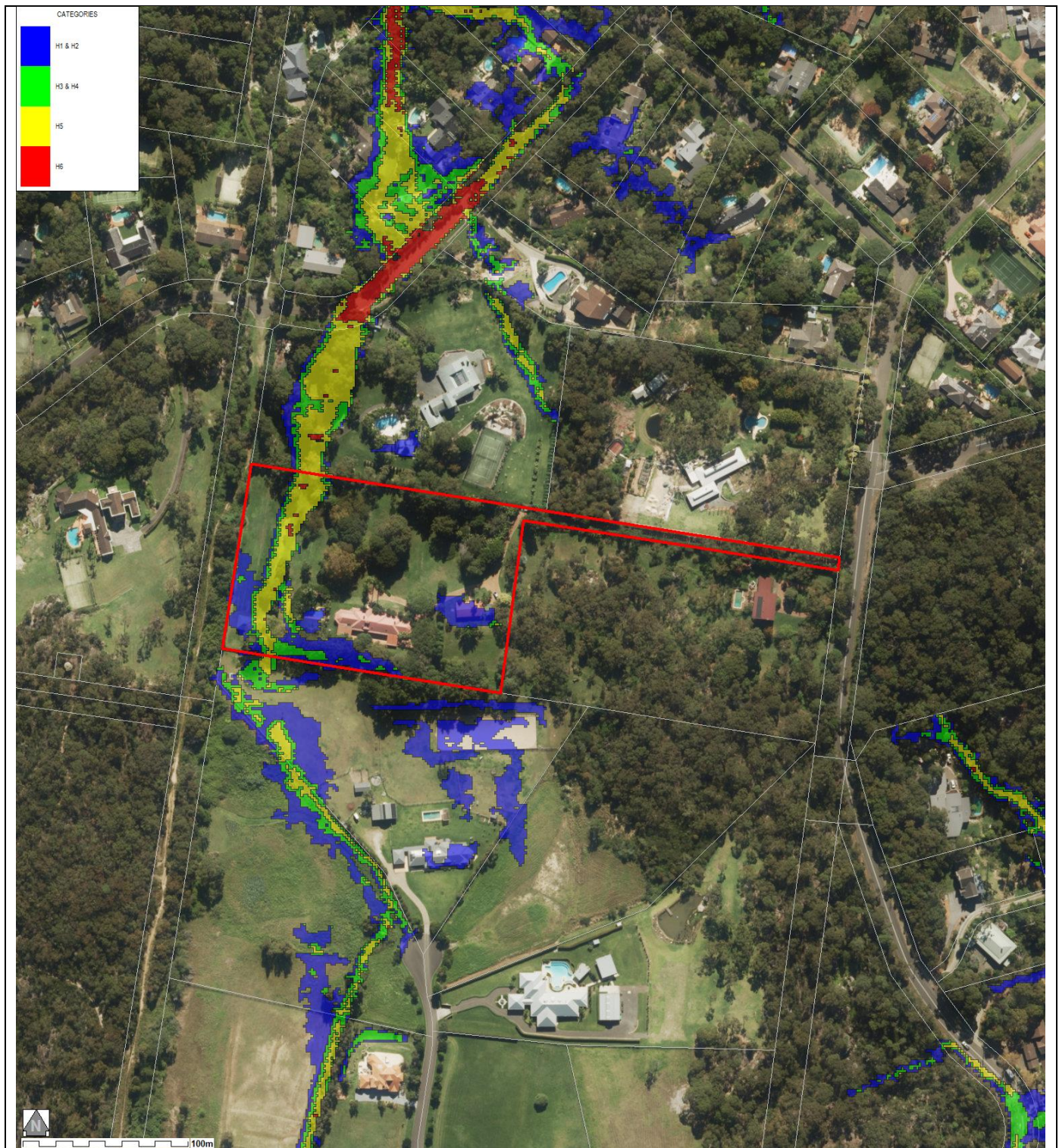
<sup>4</sup>Vulnerable/critical developments require higher minimum floor levels using the higher of the PMF or Flood Planning Level

**General Notes:**

- All levels are based on Australian Height Datum (AHD) unless otherwise noted.
- This is currently the best available information on flooding; it may be subject to change in the future.
- Council recommends that you obtain a detailed survey of the above property and surrounds to AHD by a registered surveyor to determine any features that may influence the predicted extent or frequency of flooding. It is recommended you compare the flood level to the ground and floor levels to determine the level of risk the property may experience should flooding occur.
- Development approval is dependent on a range of issues, including compliance with all relevant provisions of Northern Beaches Council's Local Environmental Plans and Development Control Plans.
- Please note that the information contained within this letter is general advice only as a detail survey of the property as well as other information is not available. Council recommends that you engage a suitably experienced consultant to provide site specific flooding advice prior to making any decisions relating to the purchase or development of this property.
- The Flood Studies on which Council's flood information is based are available on Council's website.



# FLOOD MAP A: FLOOD LIFE HAZARD CATEGORY

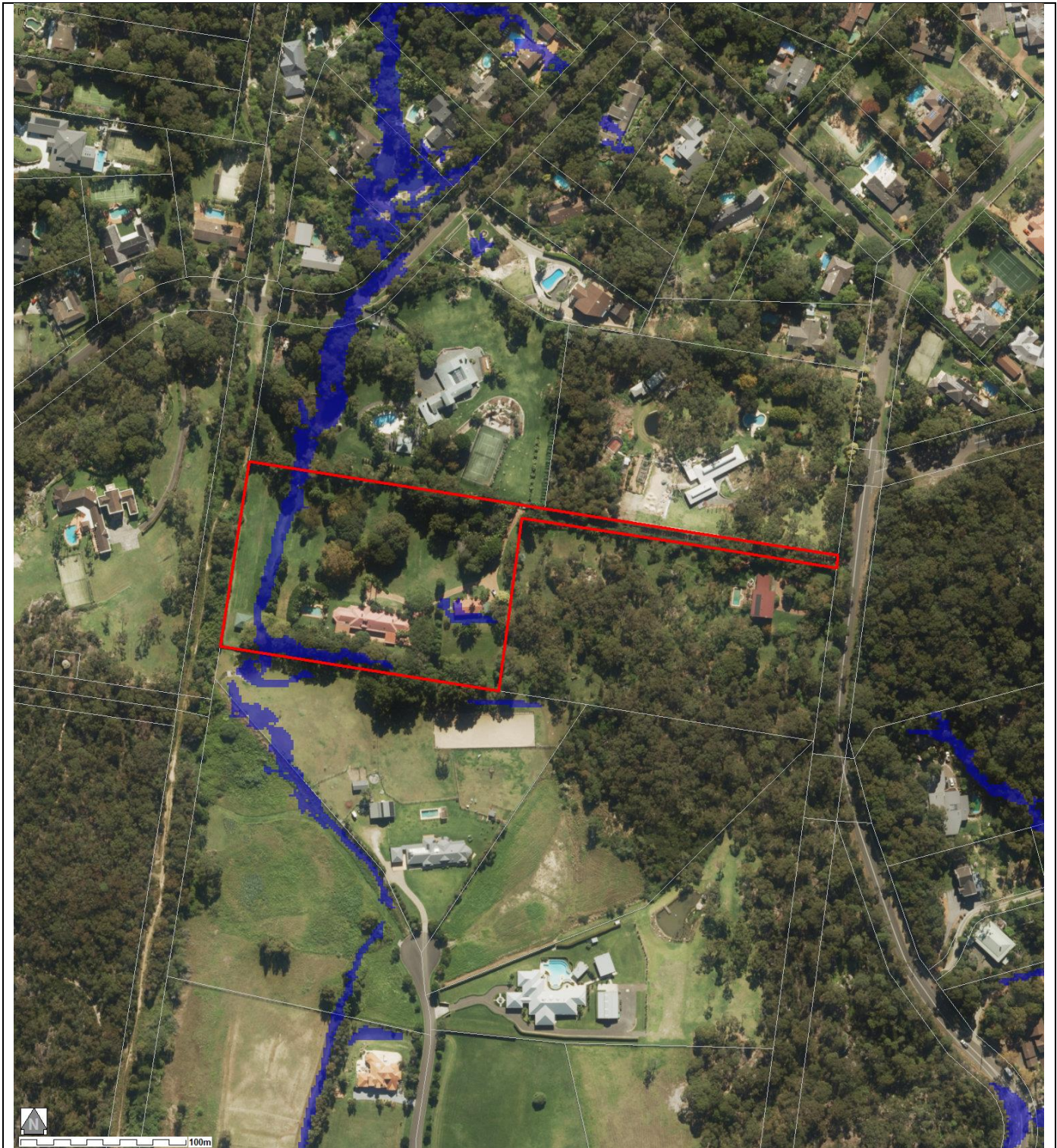


## Notes:

- Refer to 'Flood Emergency Response Planning for Development in Pittwater Policy' for additional information on the Flood Life Hazard Categories and Pittwater 21 DCP Control B3.25.
- Cadastre Lines (Source: NSW Government Land and Property Information), flood levels/extents (Source: McCarrs Creek, Mona Vale and Bayview Flood Study Review) and aerial photography (Source Near Map 2014) are indicative only.



## FLOOD MAP B: FLOODING - 1% AEP EXTENT

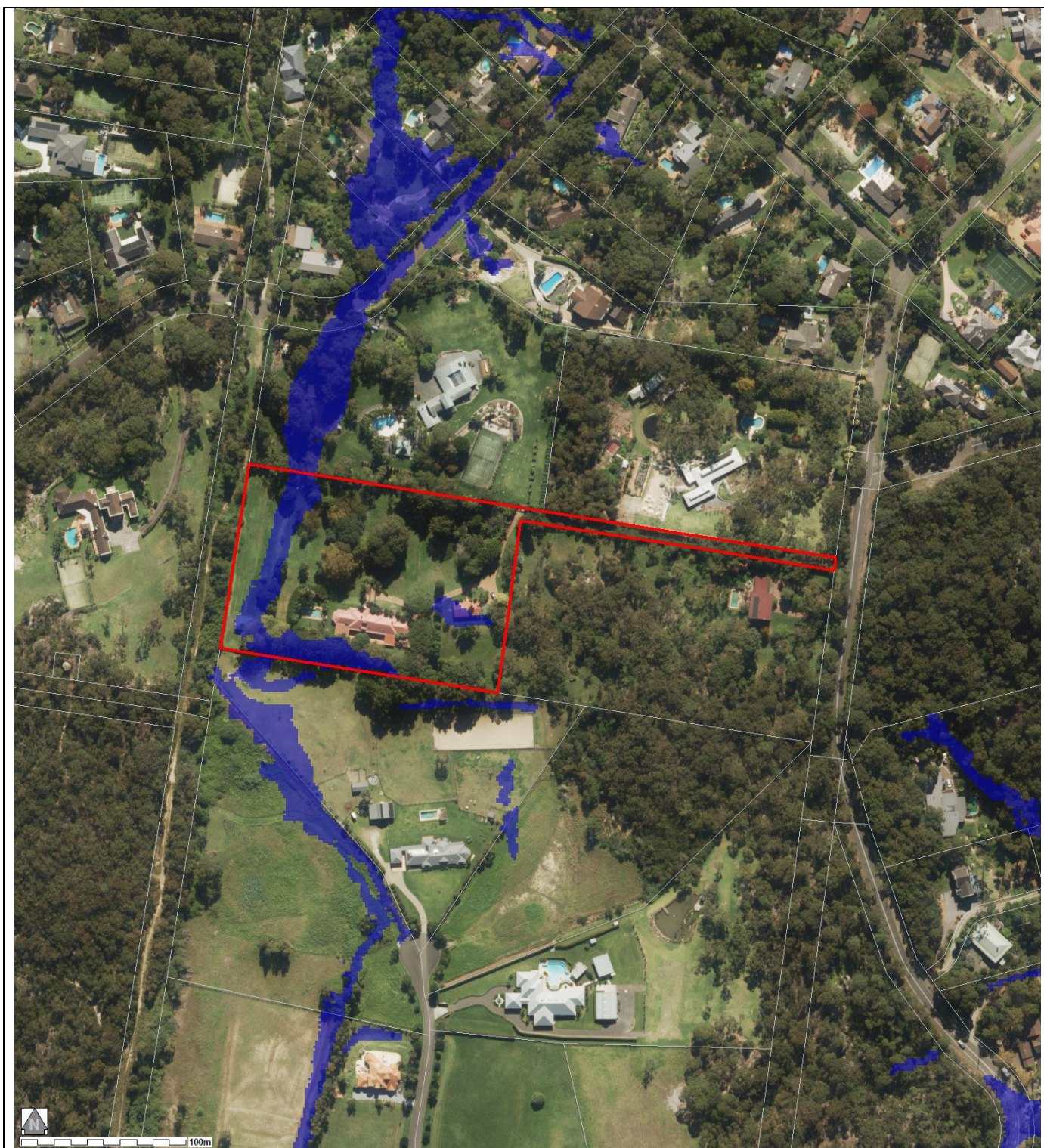


### Notes:

- Extent represents the 1% annual Exceedance Probability (AEP) flood event.
- Flood events exceeding the 1% AEP can occur on this site.
- Extent does not include climate change.
- Cadastre Lines (Source: NSW Government Land and Property Information), flood levels/extents (Source: McCarrs Creek, Mona Vale and Bayview Flood Study Review) and aerial photography (Source Near Map 2014) are indicative only.



# FLOOD MAP C: FLOOD PLANNING AREA EXTENT

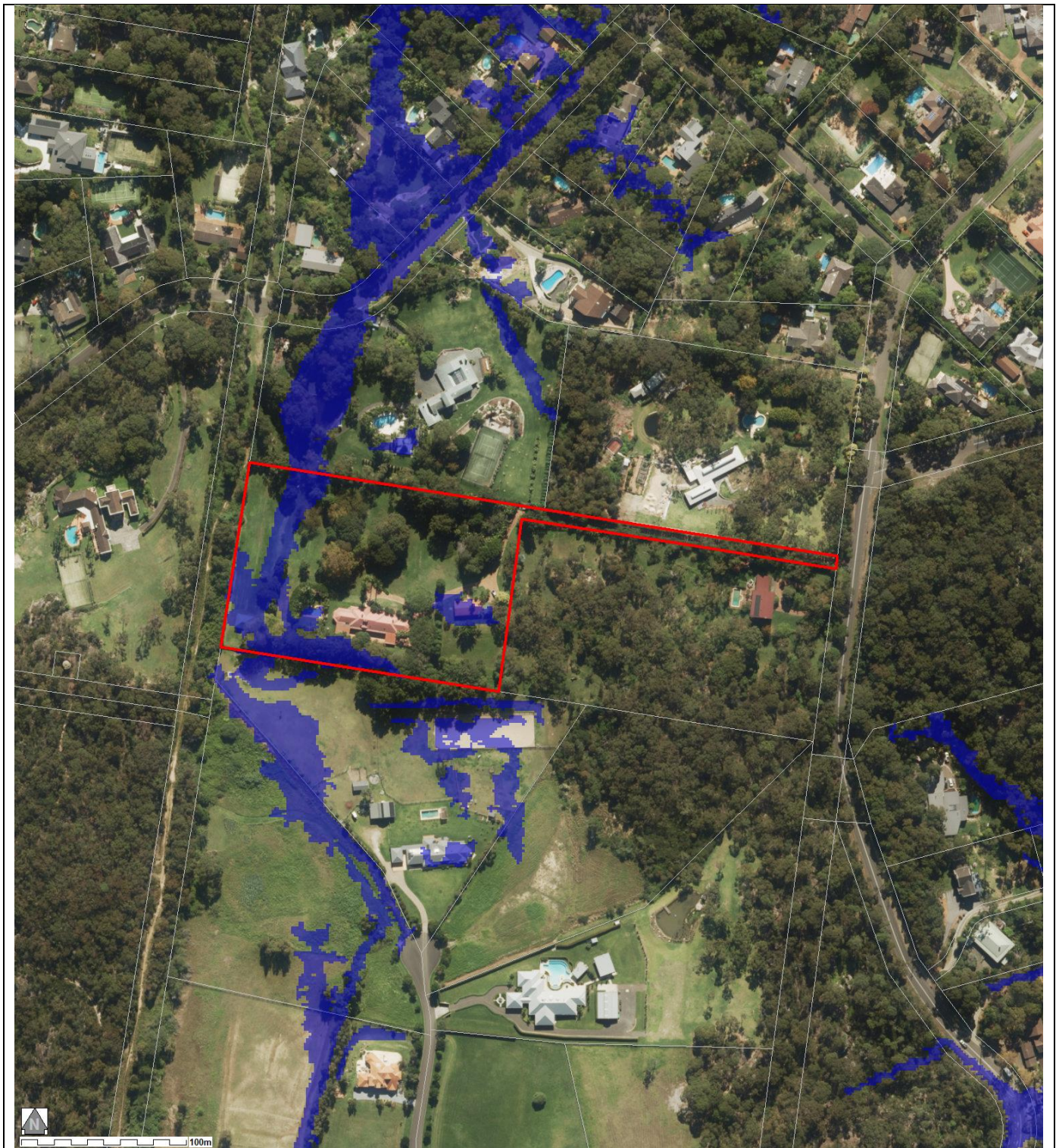


## Notes:

- Extent represents the 1% annual Exceedance Probability (AEP) flood event + freeboard.
- Extent does not include climate change.
- Cadastre Lines (Source: NSW Government Land and Property Information), flood levels/extents (Source: McCarrs Creek, Mona Vale and Bayview Flood Study Review) and aerial photography (Source Near Map 2014) are indicative only.



# FLOOD MAP D: PROBABLE MAXIMUM FLOOD EXTENT

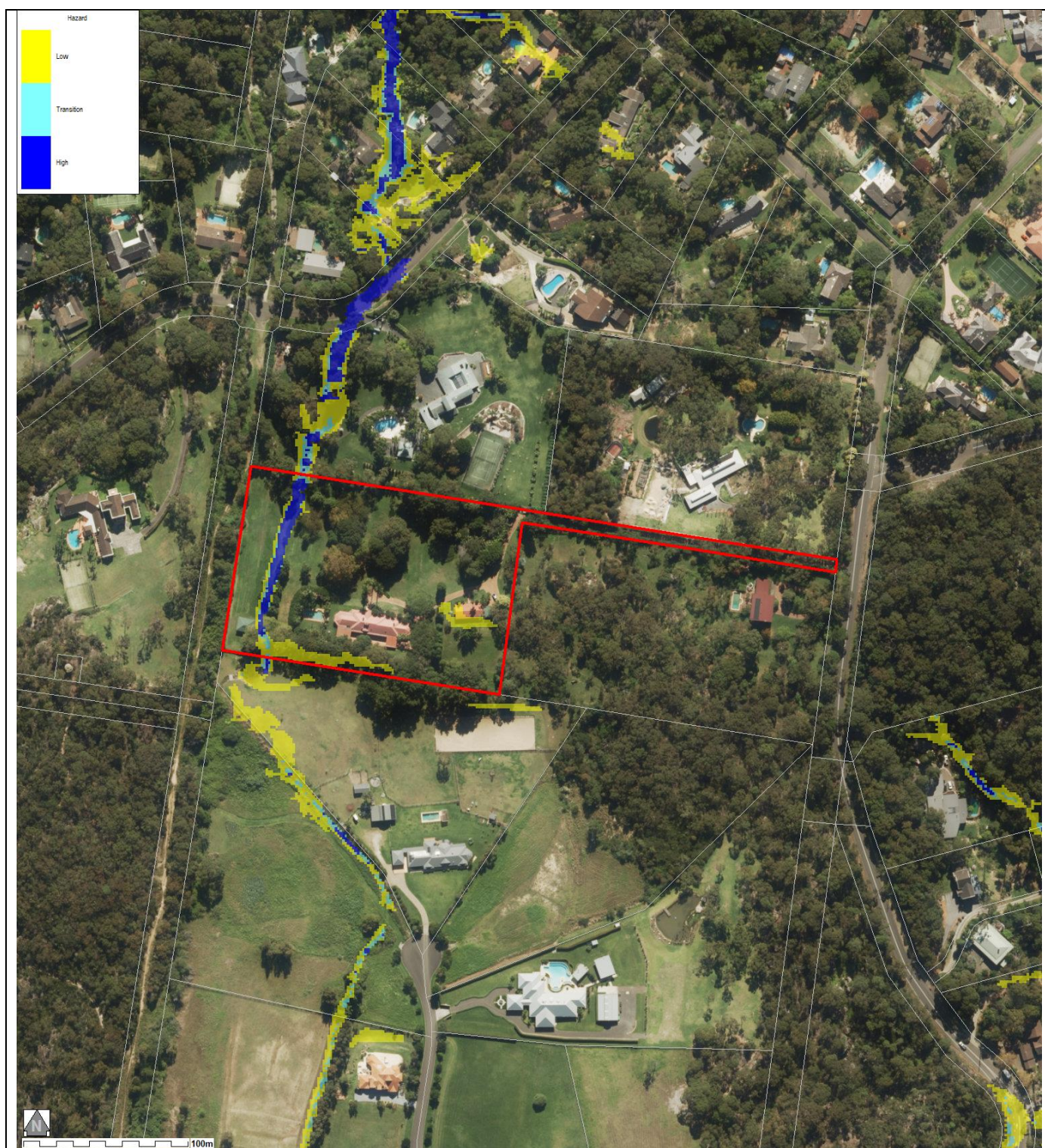


## Notes:

- Extent represents the Probable Maximum Flood (PMF) flood event.
- Extent does not include climate change.
- Cadastre Lines (Source: NSW Government Land and Property Information), flood levels/extents (Source: McCarrs Creek, Mona Vale and Bayview Flood Study Review) and aerial photography (Source Near Map 2014) are indicative only.



# FLOOD MAP E – 1% AEP FLOOD HAZARD EXTENT MAP

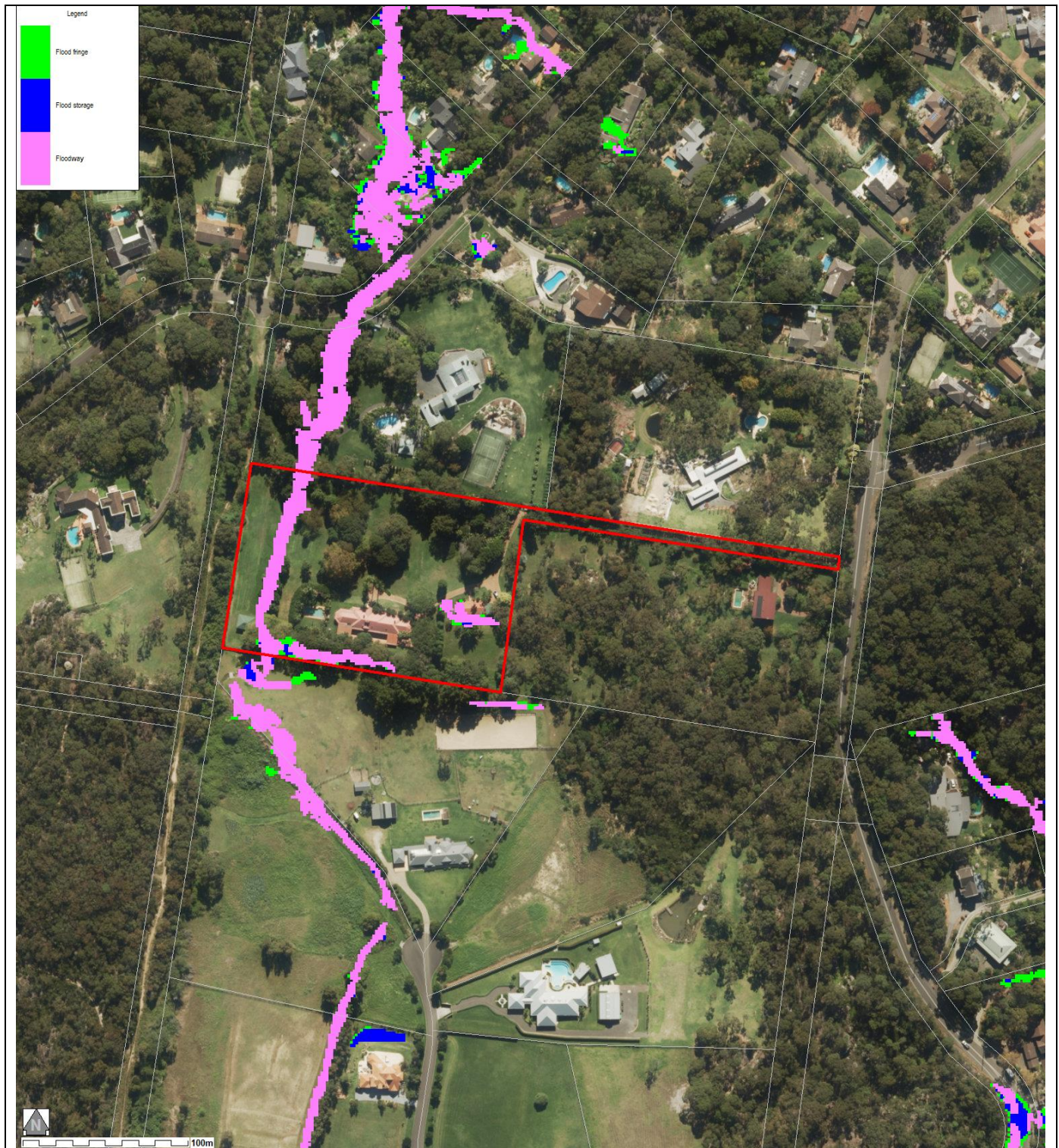


## Notes:

- Extent represents the 1% annual Exceedance Probability (AEP) flood event.
- Extent does not include climate change.
- Cadastre Lines (Source: NSW Government Land and Property Information), flood levels/extents (Source: McCarrs Creek, Mona Vale and Bayview Flood Study Review) and aerial photography (Source: NearMap 2014) are indicative only.



# FLOOD MAP F – 1% AEP FLOOD HYDRAULIC CATEGORY EXTENT MAP

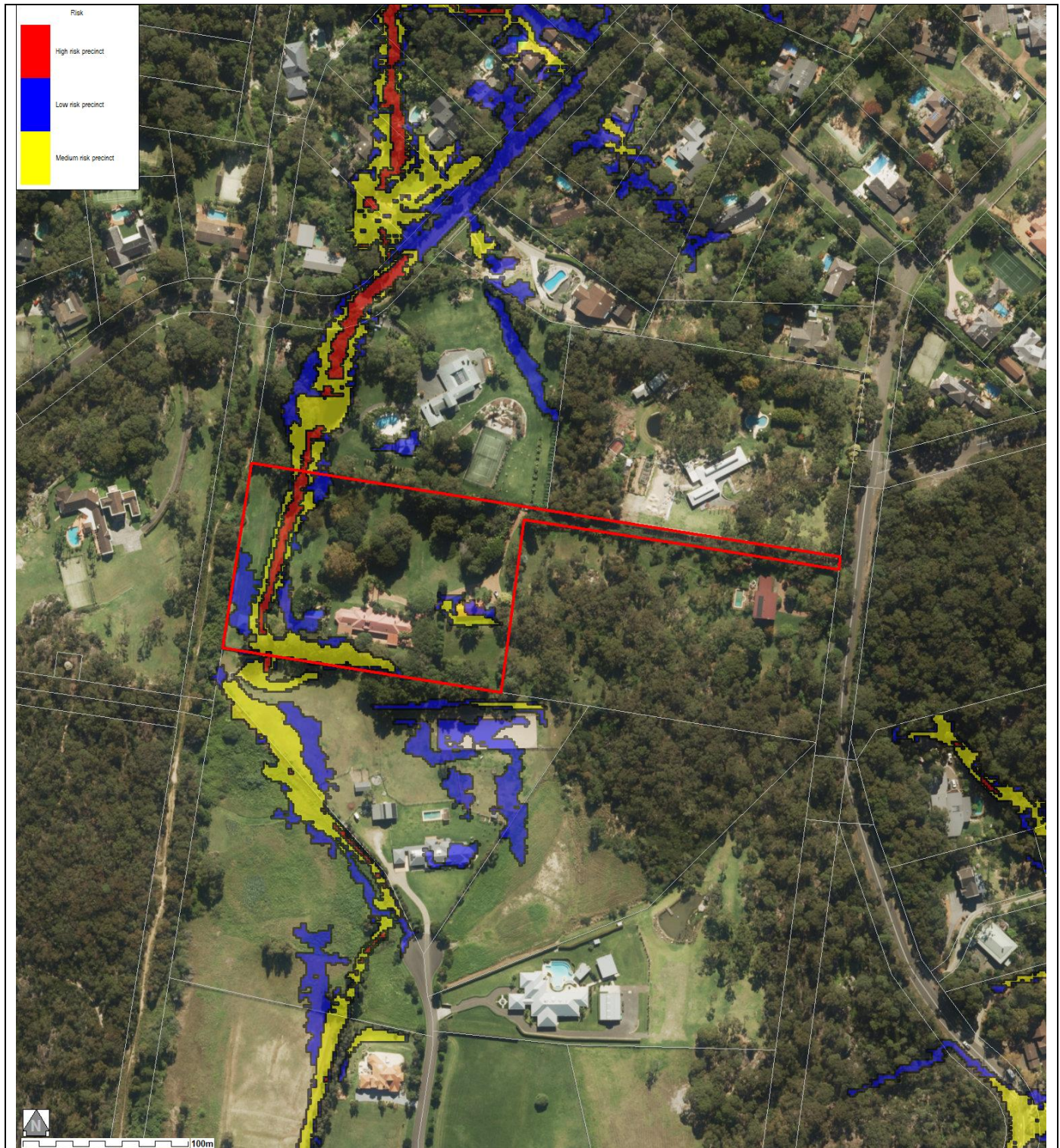


## Notes:

- Extent represents the 1% annual Exceedance Probability (AEP) flood event.
- Extent does not include climate change.
- Cadastre Lines (Source: NSW Government Land and Property Information), flood levels/extents (Source: McCarrs Creek, Mona Vale and Bayview Flood Study Review) and aerial photography (Source: NearMap 2014) are indicative only.



# FLOOD MAP G – FLOOD RISK PRECINCT MAP



## Notes:

- **Low Flood Risk precinct** means all flood prone land not identified within the High or Medium flood risk precincts.
- **Medium Flood Risk precinct** means all flood prone land that is (a) within the 1% AEP Flood Planning Area; and (b) is not within the high flood risk precinct.
- **High Flood Risk precinct** means all flood prone land (a) within the 1% AEP Flood Planning Area; and (b) is either subject to a high hydraulic hazard, within the floodway or subject to significant evacuation difficulties (H5 and or H6 Life Hazard Classification).