# Flood Impact Risk Assessment

## 1-5 Nelson Road, Lindfield

**Issue A**

## Prepared For Castle Hill No.3 Pty Ltd

Date: Friday, 30 May 25

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## REVISION TABLE

| Revision | Date | Issue Description | Issued by | Approved by | Signed |
|---|---|---|---|---|---|
| P01 | 21.05.2025 | Preliminary Issue | SELH | SELH |  |
| A | 30.05.2025 | Final Issue | SELH | SELH |  |

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# 1 Executive Summary

## 1.1 Addressing Relevant SEARs

The relevant SEARs items are addressed as shown in the table below.

**Table 1-1 Summary of responses to SEARs**

| Item | Description | Section Reference |
|---|---|---|
| **19. Flood Risk** | Identify the flood planning area and level as set out in the relevant EPI and other supporting documents to determine;<br>- The flood extent and velocity up to the Probable Maximum Flood and risk on-site having regard to adopted flood studies and, floodplain risk management studies and plans<br>- The site access and egress routes<br>- the potential effects of climate change,<br>- any relevant provisions of the NSW Flood Risk Management Manual, and any other relevant guidelines | PMF maps are not available<br>Section 4.4<br>N/A<br>Section 4.4 |
| | Where the development is occurring on flood prone land a flood impact and risk assessment (FIRA) must be prepared having regard to the Flood Impact and Risk Assessment – Flood Risk Management Guide LU01. When determining the scope and category of the FIRA the requirements outlined in the FIRA guide must be considered | To be detailed later |
| | Detail any flood risk management measures that are to be incorporated as part of the development having regard to relevant guidelines (including any design solutions, flood modification measures, property modification measures, operational procedures or Flood Emergency Response Plan). | To be detailed later |

## 1.2 Limitation

This report is intended solely for Castle Hill No.3 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 observations and to the information including the referenced documents made available at the time when this report was written.

## 1.3 Description

Castle Hill No. 3 Pty Ltd are proposing to develop the site into a residential flat building. The ground floor plan is illustrated in Figure 1-1 below. The details of the project are included in the table below.

**Table 1-2 Project Details**

| Item | Details |
|---|---|
| Project Name | Nelson Rd Lindfield |
| Landowner(s) | Castle Hill No. 3 Pty Ltd |
| Applicant / Principal | Castle Hill No. 3 Pty Ltd |
| Client Representative | Nicholas Rieck – Development Manager |
| Site Address | 1-5 Nelson Rd, Lindfield |
| Lot & DP | 6/DP9789<br>7/DP9789<br>8/DP9789 |
| Site Area | 4967 sqm |
| SSD Number | TBC |
| Proposal Description | Demolition of existing structures<br>Tree removal and site clearing<br>Construction of a new residential flat building comprising of residential apartments (inclusive of affordable housing apartments) and basement car parking<br>External landscaping works |
| QTY Apartments | Approximately 167 apartments |

| Item | Details |
|---|---|
| Affordable Housing | 17% of total proposed GFA to be dedicated as affordable housing utilising the TOD provisions of SEPP (Housing) 2021 Chapter 5 and Infill affordable housing provisions of SEPP (Housing) 2021 Chapter 2. |
| Parking | **Approximately 280** |


**Figure 1-1 Ground Floor Plan**

This document is a Flood Impact and Risk Assessment (FIRA) report to address the flooding impact associated with the proposed development located at 1-5 Nelson Street, Lindfield to address Planning Secretary's Environmental Assessment Requirements (SEARs).

This report is a concept FIRA that does not include modelling at this stage and relies on the flood information received from council.

# 2 Project Description

## 2.1 Natural & Built Environment

The site is bounded by Nelson Road to the West and adjoining residential properties in al other directions. The site is rectangular in shape exhibiting a total area of 4,967m2. In its current state, the site is made of three (3) residential properties. Vehicular access is currently provided to the individual dwellings on each side separately from Nelson Road.

The proposal seeks consent for a residential flat building via the provisions of Chapter 5 ('Transport oriented development') of the State Environmental Planning Policy (Housing) 2021 (the Housing SEPP).

The existing site context is shown in Figure 2-1 and Figure 2-2 below.

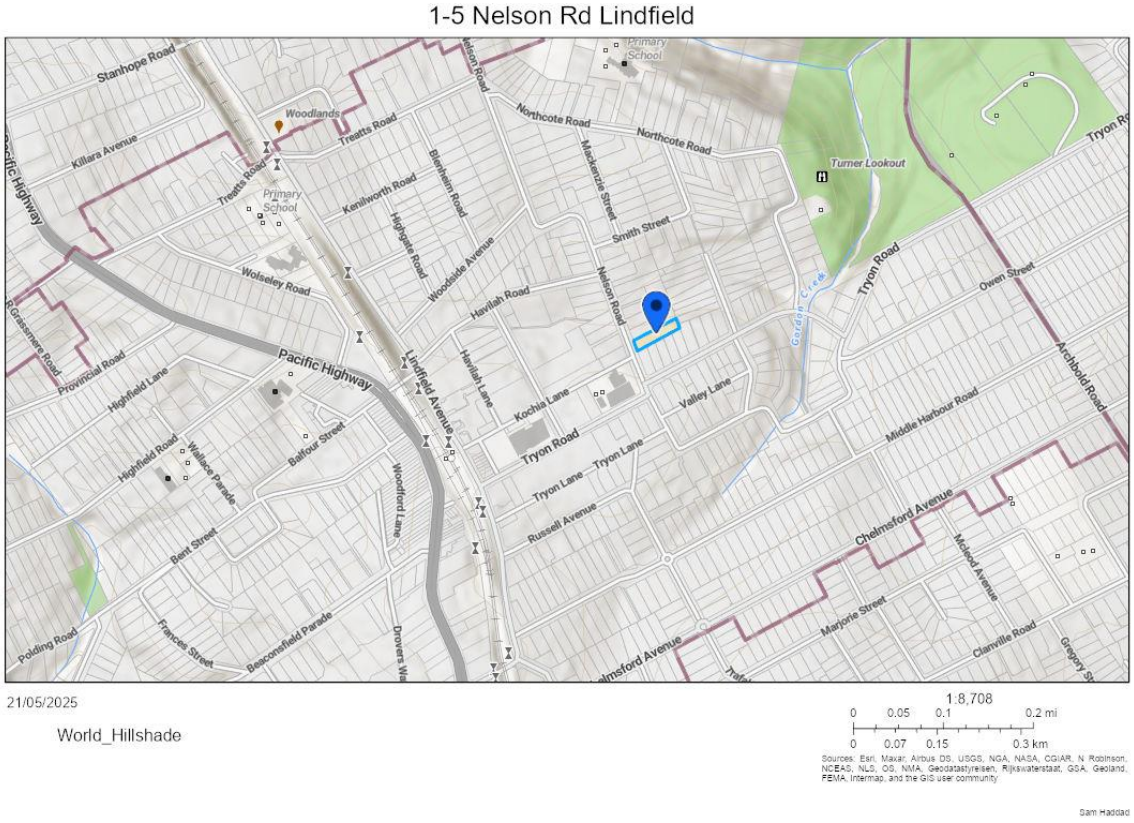


**Figure 2-1 Cadastral Map**


**Figure 2-2 Aerial Photography**

## 2.2 Proposed Development

The SSDA proposes the demolition of the existing structures, the removal of trees and site clearing, the construction of a residential flat building comprising of residential apartments (inclusive of affordable housing apartments) and basement car parking and external landscaping works.

Reference is made to the architectural plans for details.

## 2.3 Reference Documents

The following documents have been referenced in this report:-

- Site survey prepared by Norton Survey Partners dated 24/02/2025;
- Architectural plans prepared by DKO Architects;

- Engineers Australia, Australian Rainfall & Runoff (AR&R 1999);
- Ku-Ring-Gai Councils DCP Part 24;
- Ku-ring-gai Council's LEP;
- Flood Search Enquire received from KMC Council; and
- NSW Government State Environmental Planning Policy.

## 2.4 Council Requirements

The site is classified as commercial/industrial in Part A of Council's draft DCP and falls within the Upper Parramatta River Floodplain. The controls of schedule 6 of the DCP apply to the site.

Ku-Ring-Gai Council has adopted the 1% AEP event as the standard flood. The standard flood will be considered to determine the flood levels and as basis to assess the development application.

Schedule 6 controls are summarised as follows:

- Habitable floor levels to be equal to or greater than the 1% AEP flood plus 500mm freeboard; and
- With respect to evacuation and flood risk management, the access to and from the site is available and the reliance on SES is not required.

An extract of Council's general requirements is included in Appendix A.

# 3 Glossary

*Annual Exceedance Probability (AEP)*

The chance of a flood of a given or a larger size occurring in any one year, usually expressed as a percentage.

*Australian Height Datum (AHD)*

A common national surface level datum approximately corresponding to mean sea level.

*Average Recurrence Interval (ARI)*

The long term average number of years between the occurrence of a flood as big as or larger than the selected event.

*Catchment*

The land area draining through the main stream, as well as tributary streams, to a particular site. It always relates to an area above a specific location.

*Flood*

Relatively high stream flow which overtops the natural or artificial banks in any part of a stream, river, estuary, lake or dam, and/or local overland flooding associated with major drainage before entering a watercourse.

*Flood Liable Land or Flood Prone Land*

Land susceptible to flooding by the PMF.

*Flood Planning Levels (FPLs)*

Are the combinations of flood levels and freeboards selected for floodplain risk management purposes.

*Freeboard*

Is a factor of safety typically used in relation to the setting of floor levels.

*Habitable Room*

In industrial or commercial situation: an area used for offices or to store valuable possessions susceptible to damage in the event of a flood.

*Peak Discharge*

The maximum discharge occurring during a flood event.

*Probable Maximum Flood*

PMF is the largest flood that could conceivably occur at a location, usually estimated from probable maximum precipitation.

*Probable Maximum Precipitation*

PMP is the greatest depth of precipitation for a given duration meteorologically possible over a given size storm area at a particular location at a particular time of the year.

*Runoff*

The amount of rainfall which actually ends up as stream flow.


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# 4 Assessment Methodology

## 4.1 Overland Flow Study

The site is affected by localised overland flow from the local upstream catchment.

The purpose of the FIRA is to establish the 1% AEP flood level across the site and to propose the corresponding floor levels for the buildings.

No modelling was undertaken at this conceptual stage of the proposal. The FIRA relies on available flood information to address the requirements of Council.

## 4.2 Flood Planning Levels

The flood planning levels (FPLs) have been determined using the flood maps received from council. The floor level map is overlayed on top of the proposal and the floor levels are proposed to achieve 500mm freeboard on top of the 1% AEP flood levels as per the figure below. Note that the contours in this map refer to the 1% AEP flood levels + 500mm already added on top.

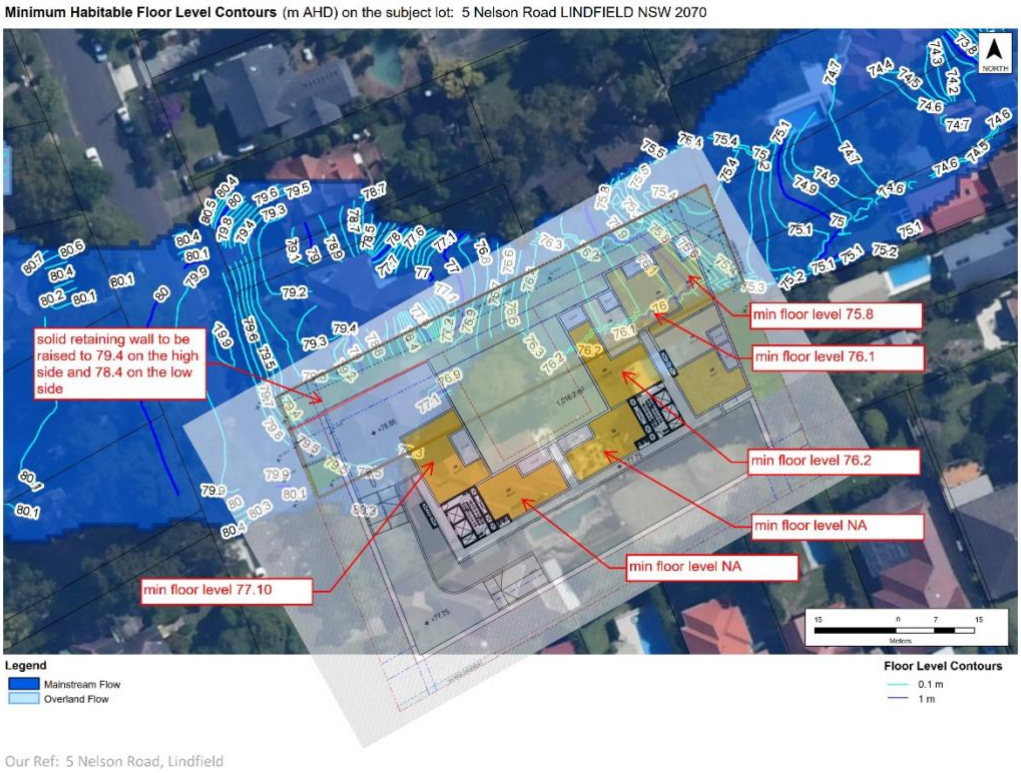


**Figure 4-1 Proposed Floor Levels**

## 4.3 Flood Impact

The flood impact has not been assessed using modelling tools such as TUFLOW at this conceptual stage. The following assessment is based on the encroachment of the proposal on the flooding extents.

- The buildings are outside of the high hazard category extent;
- The buildings encroach on the medium hazard category and as such a detailed flood impact study is required to determine the impact of the proposal on the flooding behaviour and the mitigation measures that are needed to ensure that the proposal has NIL adverse impact elsewhere in the floodplain. This will be provided in the detailed SSDA stage.

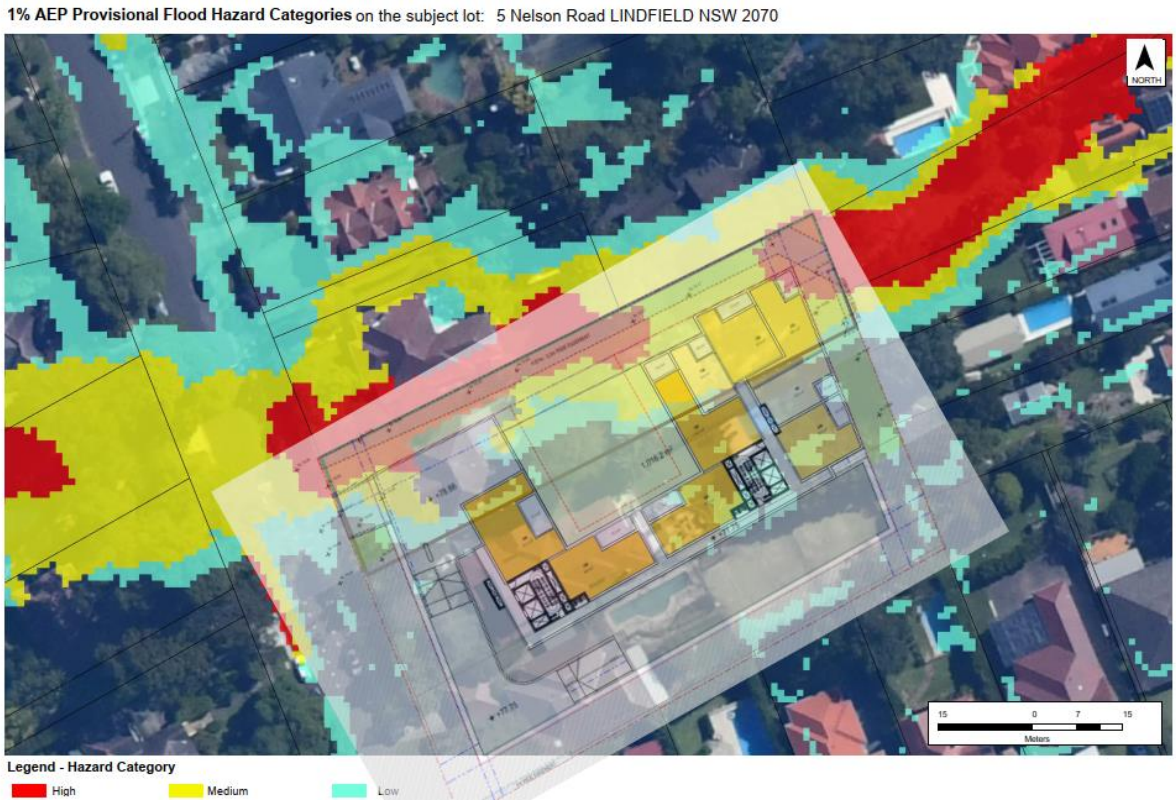


**Figure 4-2 Flood Hazard Category Map with Proposal Overlay**

## 4.4 Flood Risk Management & Evacuation

The site is affected by local overland flows from the upstream catchment. Only a small portion of the site is impacted by flooding and the rest of the site is outside of the flooding extents in a 1% AEP event. Access to and from the site is available in a 1% AEP event from the proposed vehicular crossing location and for pedestrians on Nelson Road which is not impacted by flood water.

There will not be reliance on SES services in a flood emergency and as such the increased risk associated with the intensification of the site can be mitigated with management procedures and flood emergency response plans.

# 5 Design Statement

I Sam Haddad from S&G Consultants P/L confirm that this report for Amending SSDA addresses the requirement of SEAR No. 19.0 Flood Risk and relevant State and local legislation, policies and guidelines including DCP of the Ku-Ring Gai Council. I further confirm that none of the information contained in the Amending SSDA is false or misleading.

Yours faithfully,

**For & on behalf of S&G Consultants Pty Ltd**

**Sam Haddad**

Director (Civil)

MIEAust CPEng NER

# A1 Appendix 1

## Flood Enquire Letter


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Ku-ring-gai Council
Ph: 02 9424 0000
Fax: 02 9424 0001

Contact: Sophia Findlay
Phone: 02 9424 0853
Email: sfindlay@kmc.nsw.gov.au
Our Ref: 5 Nelson Road, Lindfield
Your Ref: 5 Nelson Road, Lindfield
Date: 7/5/2025

Dear Sir/Madam,

**Flood Search Enquiry**

**KMC Property ID:** 122381

**Address:** 5 Nelson Road LINDFIELD NSW 2070

The information supplied on this certificate represents the most current flooding information available for the subject property held by Ku-ring-gai Council at the time the certificate was created.

The designated flood level and minimum required floor level varies across the property. Refer below.

| | |
|---|---|
| The 1% Annual Exceedance Probability (AEP) flood level ranges from: | 74.82 - 79.17m AHD |
| The minimum habitable floor level is: | 75.29 - 79.67m AHD |

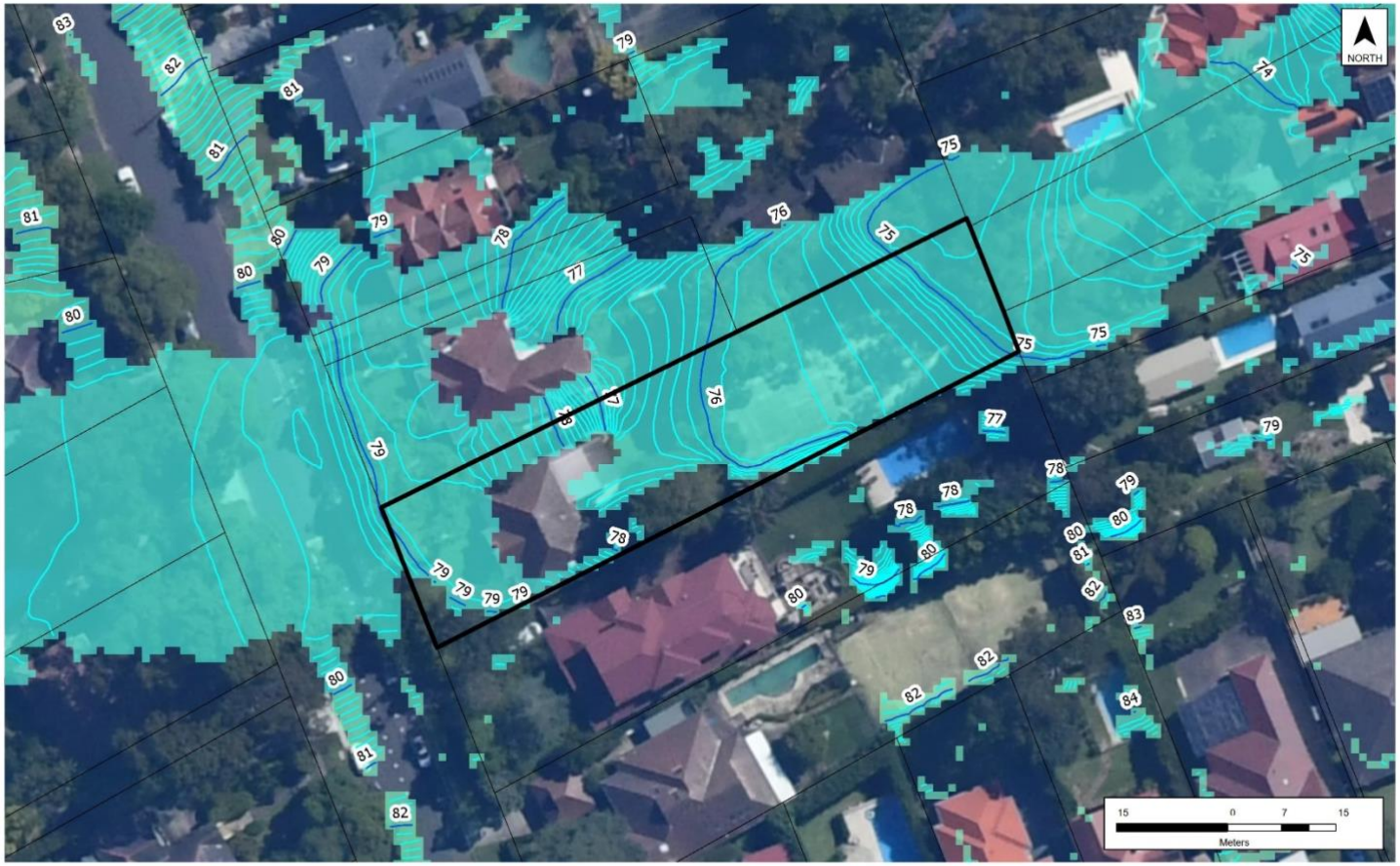
Where the maximum 1% AEP flood level is greater than the habitable floor level, the 1% AEP flood depths on parts of this property are shallow and the habitable floor level may not apply.

If you have any enquiries regarding this certificate or for further details on flooding on this property, please contact us.

Yours faithfully,

Sophia Findlay

**1% AEP Flood Level Contours** (m AHD) on the subject lot: 5 Nelson Road LINDFIELD NSW 2070




Our Ref: 5 Nelson Road, Lindfield Catchment: GORDON CREEK 05/07/2025

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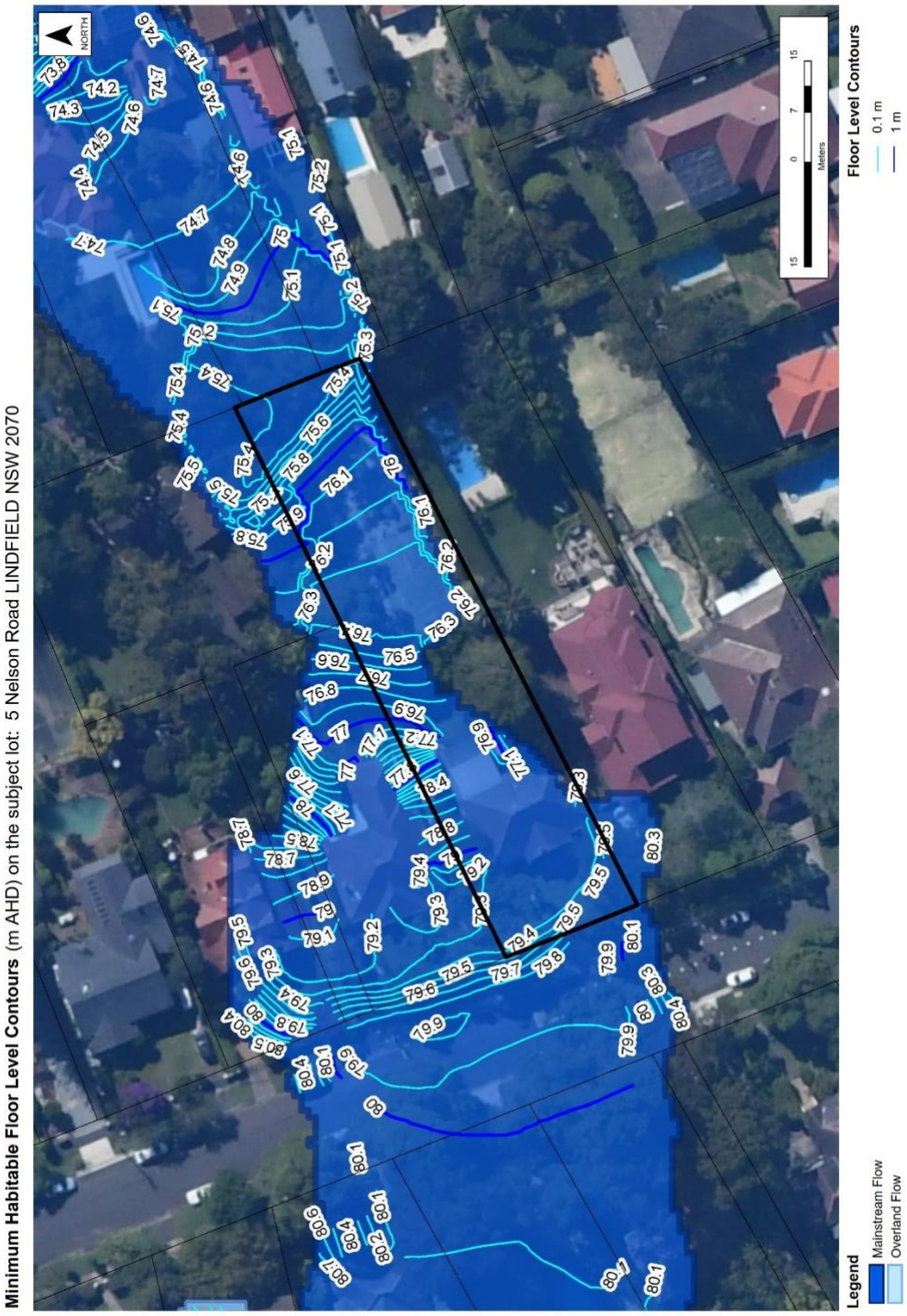
Minimum Habitable Floor Level Contours (m AHD) on the subject lot: 5 Nelson Road LINDFIELD NSW 2070
NORTH
Floor Level Contours
0.1 m
1 m
Meters
Legend
Mainstream Flow
Overland Flow
Our Ref: 5 Nelson Road, Lindfield

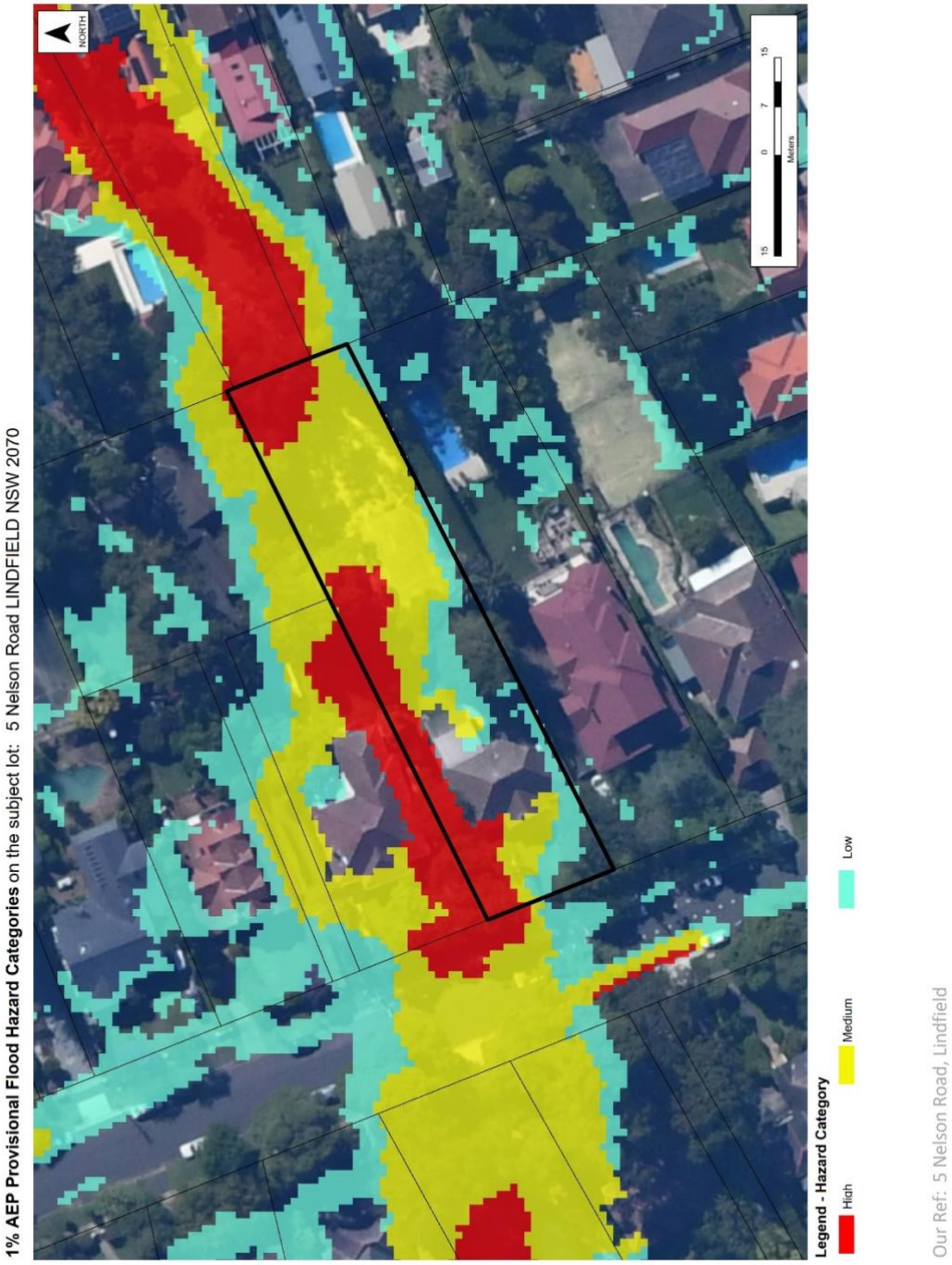


**Figure A 1.1 Flood Enquire Letter**

# A2 Appendix 2

## Survey Plan

**Figure A 2.1 Survey Plan**


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