



Prime Consulting Engineers Pty. Ltd.

FLOOD IMPACT ASSESSMENT REPORT

FOR ALTERATIONS & ADDITIONS

AT

8 CHATHAM CLOSE

BELROSE NSW 2085

Prepared by: Prime Consulting Engineers Pty Ltd.

Ref: 22-232

Date: 27/05/2022

Amendment: -

Prepared by: BG

Checked by: KZ

Dear Peter & Jennifer Flynn,

Re: **Flood Report - Proposed Alterations and Additions at
8 Chatham Close, Belrose, NSW, 2085**

Introduction

Prime Consulting Engineers has been engaged by Peter & Jennifer Flynn to prepare a Flood Impact Assessment report for Proposed Alterations and Additions at 8 Chatham Close, Belrose, NSW, 2085 in respect to flood during an ARI 1:100 rainfall events (1% AEP).

We can confirm that we have reviewed the existing survey levels in order to compare the RLs with 1% ARI flood levels to prepare this report.

At present there is two-story house at the property. The proposal, on ground floor, is to extend the existing garage towards the front of property creating new garage and convert the existing garage into bedrooms. On first floor, extend the existing porch and convert it into terrace and new roof top garden over the new garage. See Appendix A for the existing and proposed floor plans.



Site Image @ Six Maps

Fig: 8 Chatham Close, Belrose, NSW, 2085

Report

The purpose of this Flood Impact Assessment report for alterations and additions 8 Chatham Close, Belrose, NSW, 2085 is to provide a flood level (AHD) RL that can be relied upon for the alterations and additions and is required as part of documentation for submission for development application.

This report has been prepared based on the flood information provided by Northern Beaches Council on 7th March 2022 which is attached on Appendix B.

The existing survey plan and floor plan for the proposed site is given in Appendix A.

1. Flood Effects: **The existing property is not affected by 1% AEP Flood.**

Conclusion

As per the report provided by the Northern Beaches Council, the existing property and the proposed new alteration & addition is **not affected** by 1% AEP Flood.

Your Sincerely

Kevin Zia

BEng, MEng, MIEAust, CPEng, NER



APPENDIX A

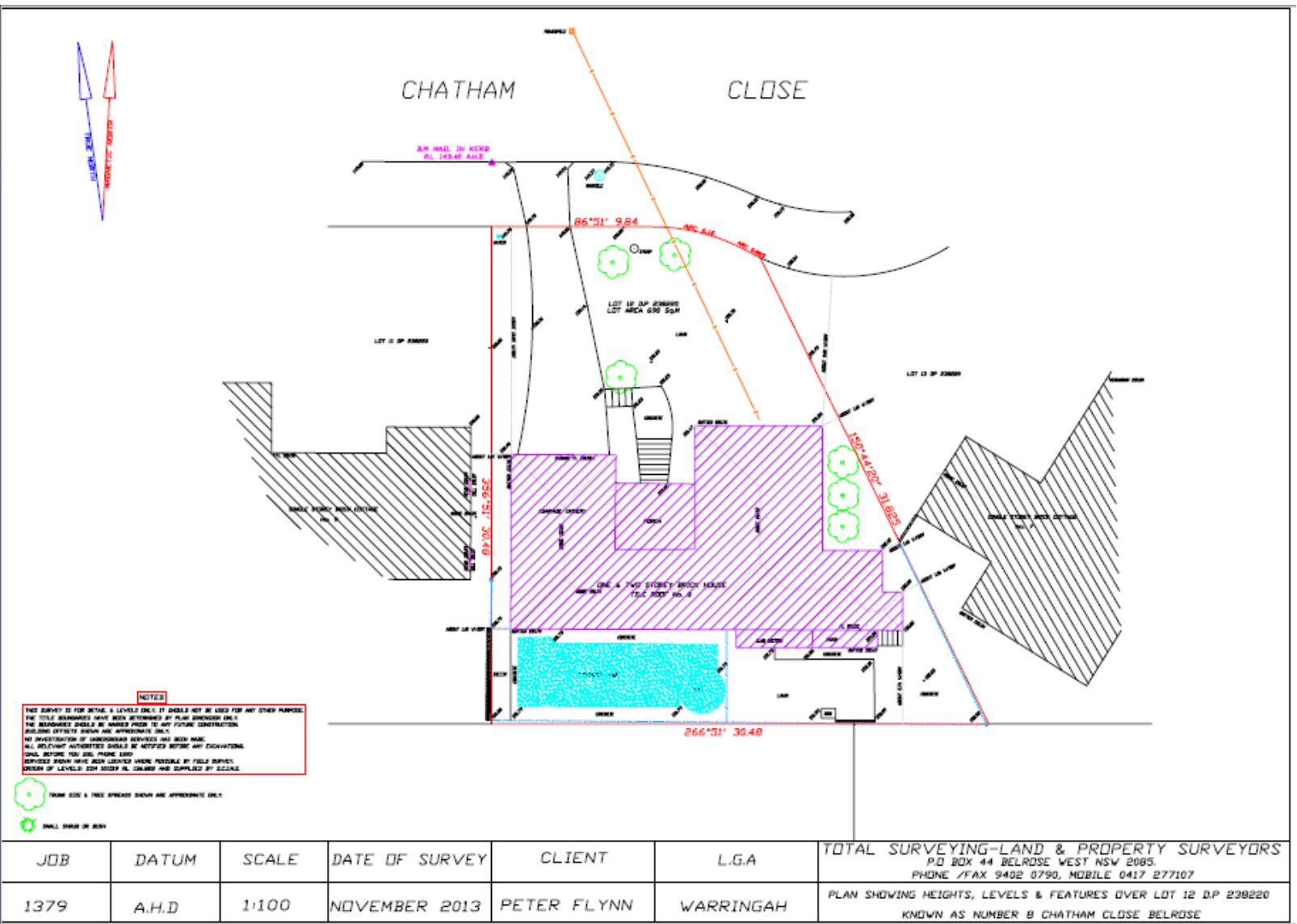


Fig: Survey Plan

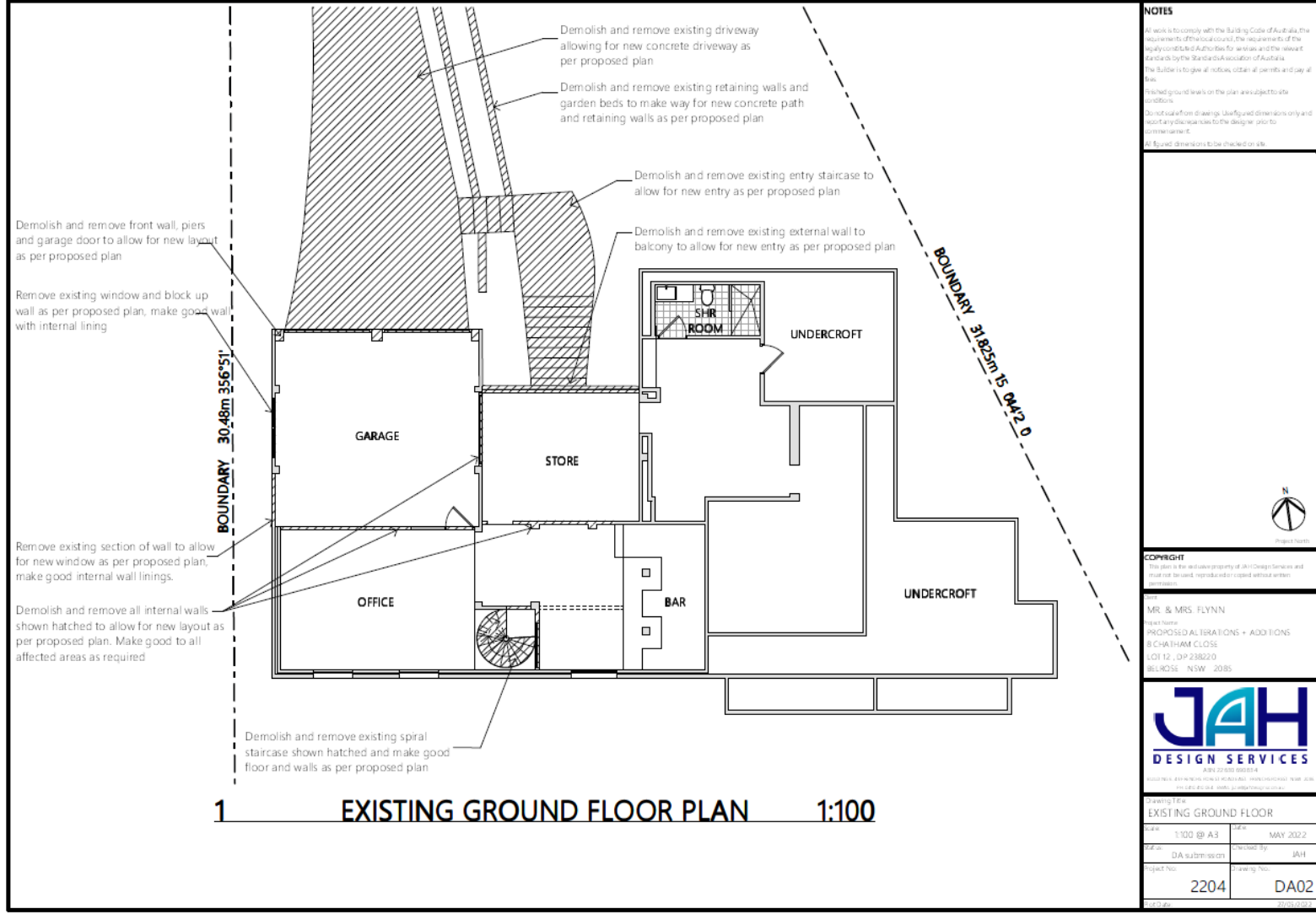


Fig: Existing Ground Floor Plan

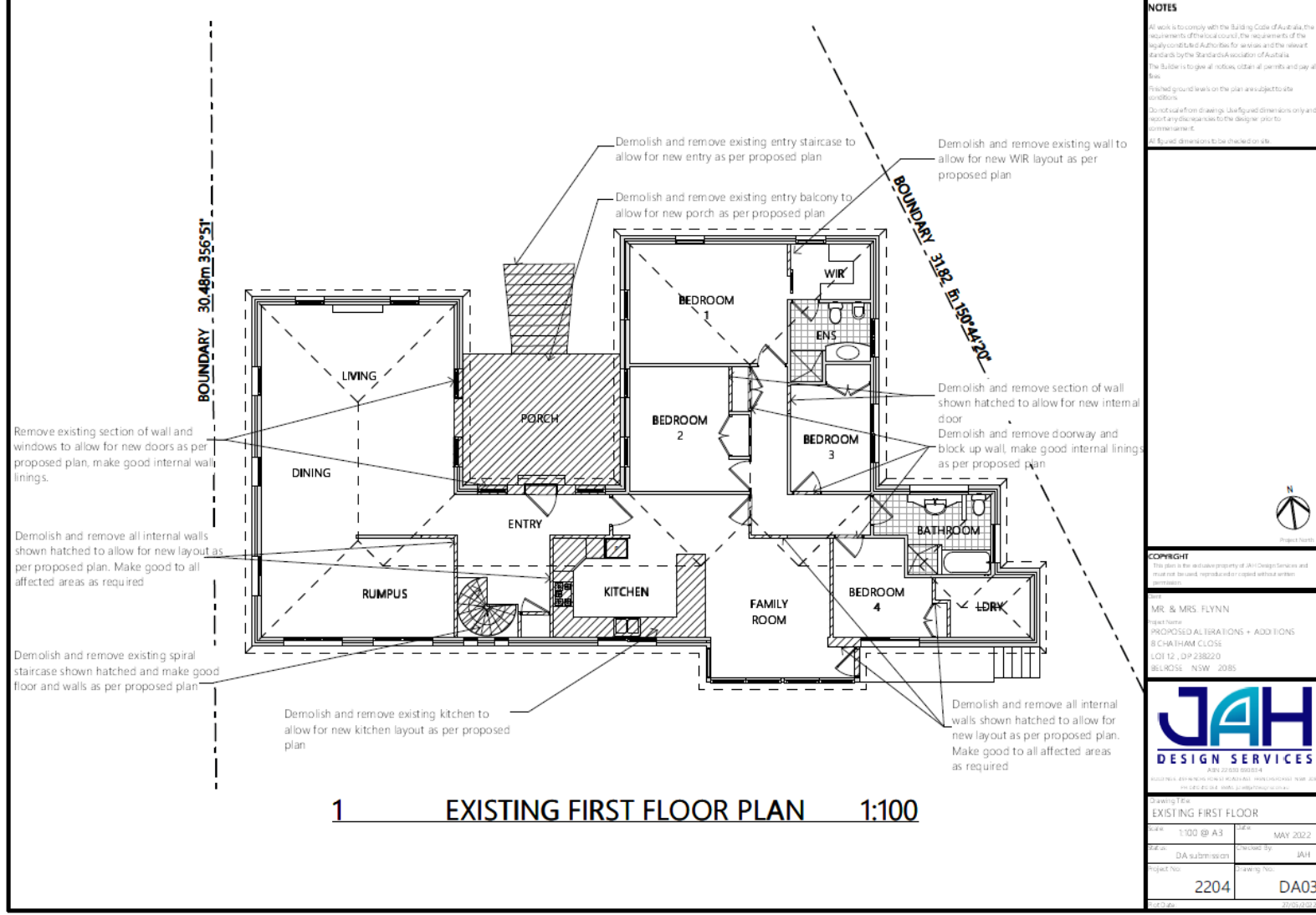
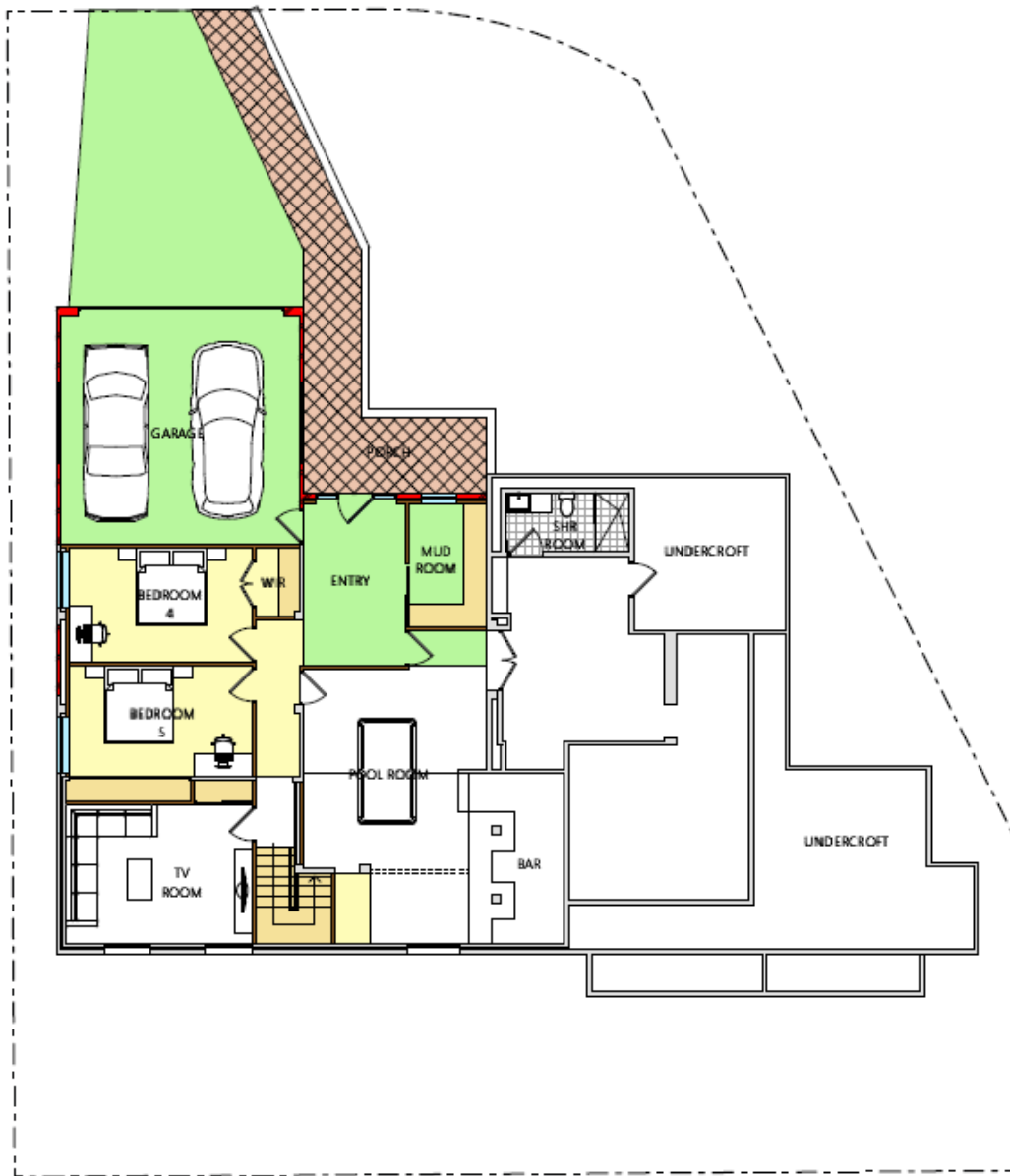


Fig: Existing First Floor Plan



PROPOSED LOWER FLOOR- 13/05/22

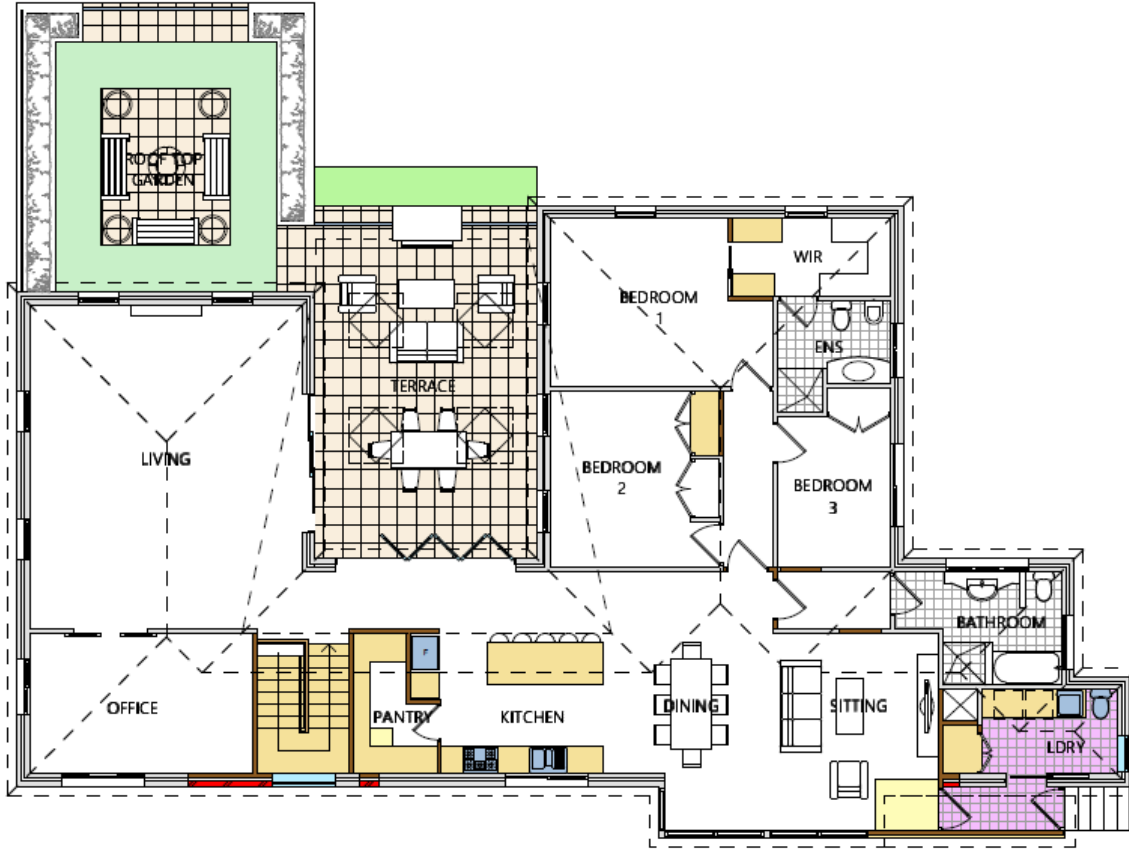
FOR: MR & MRS FLYNN - 8 CHATHAM CLOSE BELROSE



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Fig: Proposed Ground Floor Plan



PROPOSED FIRST FLOOR 13/05/22

FOR: MR & MRS FLYNN - 8 CHATHAM CLOSE BELROSE



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Fig: Proposed First Floor



APPENDIX B



FLOOD INFORMATION REPORT – COMPREHENSIVE

Property: 8 Chatham Close BELROSE NSW 2085

Lot DP: Lot 12 DP 238220

Issue Date: 07/03/2022

Flood Study Reference: Frenchs Creek Flood Study 2010, DHI

Flood Information for lot 1:

Flood Risk Precinct

Medium Flood Risk Precinct – See Map A

Flood Planning Area

The Flood Planning Level (FPL) can be taken as 0.15m above natural ground level, within the Medium Flood Risk Precinct shown in Map A.

1% AEP Flood

Not affected – See Flood Map B

Probable Maximum Flood (PMF)

PMF Water Level is 0.2m above natural ground level – See Flood Map C

Flood Life Hazard Category

Not affected

Indicative Ground Surface Spot Heights – See Map D

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

² Overland flow/mainstream water levels may vary across a sloping site, resulting in variable minimum floor/flood planning levels across the site. The maximum Flood Planning Level may be in a different location to the maximum 1% AEP flood level.

³ Intensification of development in the former Pittwater LGA requires the consideration of climate change impacts which may result in higher minimum floor levels.

⁴ Vulnerable/critical developments require higher minimum floor levels using the higher of the PMF or FPL.

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.

Property Notes:

- The Frenchs Creek Flood Study is one of Council's oldest current flood studies, and the flood information available from it is not as comprehensive as for the newer studies.
- Council is currently undertaking the Middle Harbour Flood Study, the results from which will supersede the flood information in this certificate some time during 2022. If a DA is to be submitted in 2022 or later, Council should be consulted to check whether the flood information in this report has been updated.
- Until these results have been superseded, this property is tagged as being within the Medium Flood Risk Precinct, but not as being affected by the 1% AEP flood event. However it is possible that there is some very shallow sheet flow in the 1% AEP flood event. Note that Council's mapping and tagging filters out depths in the 1% AEP flood event and PMF if they are less than 0.15m.
- Until these results have been superseded, a Development Application to Council for this property would NOT need to be accompanied by a formal Flood Management Report.

FLOOD MAP A: 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 or H6 Life Hazard Classification).
- The **Flood Planning Area** extent is equivalent to the Medium Flood Risk Precinct extent, and includes the High Flood Risk Precinct within it. The mapped extent represents the 1% annual Exceedance Probability (AEP) flood event + freeboard.
- None of these mapped extents include climate change.

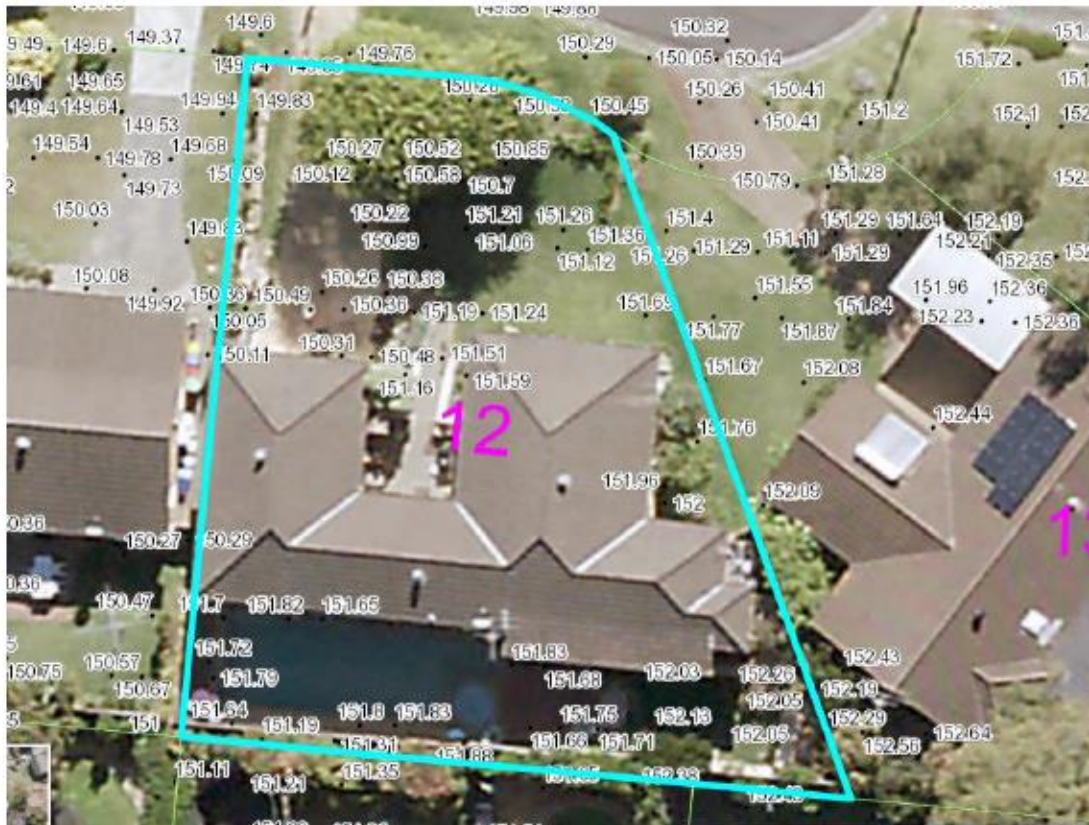
FLOOD MAP B: FLOODING - 1% AEP EXTENT**Notes:**

- 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: Frenchs Creek Flood Study 2010, DHI) and aerial photography (Source Near Map 2014) are indicative only.

FLOOD MAP C: PMF EXTENT MAP**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: Frenchs Creek Flood Study 2010, DHI) and aerial photography (Source: NearMap 2014) are indicative only

MAP D: INDICATIVE GROUND SURFACE SPOT HEIGHTS



Notes:

- The surface spot heights shown on this map were derived from Airborne Laser Survey and are indicative only.
- Accuracy is generally within $\pm 0.2\text{m}$ vertically and $\pm 0.15\text{m}$ horizontally, and Northern Beaches Council does not warrant that the data does not contain errors.
- If accuracy is required, then survey should be undertaken by a registered surveyor.

Preparation of a Flood Management Report

Introduction

These guidelines are intended to provide advice to applicants on how to determine what rules apply on flood prone land, and how to prepare a Flood Management Report. The purpose of a Flood Management Report is to demonstrate how a proposed development will comply with flood related planning requirements.

Planning Requirements for Flood Prone Land

Development must comply with the requirements for developing flood prone land set out in the relevant Local Environment Plan (LEP) and Development Control Plan (DCP). There are separate LEPs and DCPs for each of the former Local Government Areas (LGAs), although preparation of a LGA-wide LEP and DCP is currently under way.

The clauses specific to flooding in the LEPs and DCPs are as follows:

LEP Clauses	DCP Clauses
Manly LEP (2013) – 6.3 Flood Planning	Manly DCP (2013) – 5.4.3 Flood Prone Land
Warringah LEP (2011) – 6.3 Flood Planning Warringah LEP (2000) – 47 Flood Affected Land *	Warringah DCP (2011) – E11 Flood Prone Land
Pittwater LEP (2014) – 7.3 Flood Planning Pittwater LEP (2014) – 7.4 Flood Risk Management	Pittwater 21 DCP (2014) – B3.11 Flood Prone Land Pittwater 21 DCP (2014) – B3.12 Climate Change

* The Warringah LEP (2000) is relevant only for the "deferred lands" which affects only a very small number of properties, mostly in the Oxford Falls area.

Development on flood prone land must also comply with Council's Water Management for Development Policy, and if it is in the Warriewood Release Area, with the Warriewood Valley Water Management Specification. Guidelines for Flood Emergency Response Planning are available for addressing emergency response requirements in the DCP. These documents can be found on Council's website on the [Flooding page](#).

Note that if the property is affected by estuarine flooding or other coastal issues, these need to be addressed separately under the relevant DCP clauses.

When is a Flood Management Report required?

A Flood Management Report must be submitted with any Development Application on flood prone land (with exceptions noted below), for Council to consider the potential flood impacts and applicable controls. For Residential or Commercial development, it is required for development on land identified within the Medium or High Flood Risk Precinct. For Vulnerable or Critical development, it is required if it is within any Flood Risk Precinct.

There are some circumstances where a formal Flood Management Report undertaken by a professional engineer may not be required. However the relevant parts of the DCP and LEP would still need to be addressed, so as to demonstrate compliance. Examples where this may apply include:

- If all proposed works are located outside the relevant Flood Risk Precinct extent
- First floor addition only, where the floor level is above the Probable Maximum Flood level
- Internal works only, where habitable floor areas below the FPL are not being increased

Note that development on flood prone land will still be assessed for compliance with the relevant DCP and LEP, and may still be subject to flood related development controls.

What is the purpose of a Flood Management Report?

The purpose of a Flood Management Report is to demonstrate how a proposed development will comply with flood planning requirements, particularly the development controls outlined in the relevant LEP and DCP clauses. The report must detail the design, measures and controls needed to achieve compliance, following the steps outlined below.

A Flood Management Report should reflect the size, type and location of the development, proportionate to the scope of the works proposed, and considering its relationship to surrounding development. The report should also assess the flood risk to life and property.

Preparation of a Flood Management Report

The technical requirements for a Flood Management Report include (where relevant):

1. Description of development
 - Outline of the proposed development, with plans if necessary for clarity
 - Use of the building, hours of operation, proposed traffic usage or movement
 - Type of use, eg vulnerable, critical, residential, business, industrial, subdivision, etc
2. Flood analysis
 - 1% AEP flood level
 - Flood Planning Level (FPL)
 - Probable Maximum Flood (PMF) level
 - Flood Risk Precinct, ie High, Medium or Low
 - Flood Life Hazard Category
 - Mapping of relevant extents
 - Flood characteristics for the site, eg depth, velocity, hazard and hydraulic category, and the relevance to the proposed development

If the property is affected by an Estuarine Planning Level (EPL) which is higher than the FPL, then the EPL should be used as the FPL. If the FPL is higher than the PMF level, then the FPL should still be used as the FPL, as it includes freeboard which the PMF does not.

3. Assessment of impacts
 - Summary of compliance for each category of the DCP, as per the table below.

	Compliance		
	N/A	Yes	No
A) Flood effects caused by Development			
B) Building Components & Structural Soundness			
C) Floor Levels			
D) Car parking			
E) Emergency Response			
F) Fencing			
G) Storage of Goods			
H) Pools			

- Demonstration of how the development complies with any relevant flood planning requirements from the DCP, LEP, Water Management for Development Policy, and if it is in the Warriewood Valley Urban Land Release Area, with the Warriewood Valley Water Management Specification (2001)
- For any non-compliance, a justification for why the development should still be considered.
- Calculations of available flood storage if compensatory flood storage is proposed
- Plan of the proposed development site showing the predicted 1% AEP and PMF flood extents, as well as any high hazard or floodway affection
- Development recommendations and construction methodologies
- Qualifications of author - Council requires that the Flood Management Report be prepared by a suitably qualified Engineer with experience in flood design / management who has, or is eligible for, membership to the Institution of Engineers Australia
- Any flood advice provided by Council
- Any other details which may be relevant

Further information and guidelines for development are available on Council's website at:

<https://www.northernbeaches.nsw.gov.au/planning-and-development/building-and-renovations/development-applications/guidelines-development-flood-prone-land>

Council's Flood Team may be contacted on 1300 434 434 or at floodplain@northernbeaches.nsw.gov.au .