



# **FLOOD RISK MANAGEMENT REPORT**

Northern Beaches Council (Manly)

Proposed Alterations and Additions

at

34 Beatty Street, Balgowlah Heights

Job No. 180599

Revision A

Prepared for: Luke & Carol Randell

Prepared by: Cameron Haack



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# **FLOOD RISK MANAGEMENT REPORT**

DATE 23<sup>rd</sup> January 2019  
SITE 34 Beatty Street, Balgowlah Heights  
ENGINEER Cameron Haack  
CLIENT Luke & Carol Randell  
JOB No 180599 – Revision A

## **INTRODUCTION:**

NB Consulting Engineers assessed the plans prepared by 'Chrofi' for the proposed alterations and additions at the above site address in reference to potential flooding issues. The proposed development generally meets the requirements of Northern Beaches Council (Manly DCP) subject to the recommendations outlined in this flood risk management report.

The premises has been assessed in accordance with the requirements of Manly Councils *Specification for Stormwater Drainage 2003* and *Interim Policy – Flood Prone Land 2013*, Council's Flood Advice information provided, the Draft Manly to Seaforth Flood Study and the NSW Government Floodplain Management Manual (2005).

The site is located on Beatty street in Balgowlah Heights. This report is in reference to a proposed alterations and additions to an existing single residential dwelling. The development site is located within the vicinity of the Flood Planning Level (FPL) of the flood as predicted in the *Draft Manly to Seaforth Flood Study*.

It should be noted that the *Draft Manly to Seaforth Flood Study* predicts the 1% AEP flood does not extent within the property boundary, however the FPL partially enters the site.

Below is a summary of flood information in reference to Northern Beaches Council (Manly) Flood Assessment report requirements and the *NSW Government Floodplain Management Manual* with reference to the 1% AEP storm event.

### **FLOOD RISK REPORT:**

- Flood Risk Precinct Medium
- Flood Planning Level (FPL) 3.70m AHD (as per council's Prelodgement advice meeting minutes [15/11/2018])
- Freeboard 0.3m (as per council's Prelodgement advice meeting minutes [15/11/2018])
- PMF Flood Depth 0.3m depth
- Existing Ground Floor Level 3.53m AHD
- Proposed First Floor Level 6.59m and 7.115m AHD
- Hydraulic Category Flood Storage
- Flood storage No anticipated net reduction,  
The site is beyond the extent of the 1% AEP Flood event therefore flood storage will not be effected
- Habitable area requirements

The 1% AEP flood does not extend past the site boundary; therefore, we recommend that no freeboard requirement apply to the existing/proposed ground floor level RL3.53m AHD.

- Recommendations for structural design  
The proposed structures are recommended to be designed and inspected by a structural engineer to ensure the structure is adequate to withstand the forces of floodwaters up to the PMF with low velocity. Any other new structures located below the PMF are to be designed to cater for the flood loads.



- Hazardous Material Storage

Hazardous chemicals are not to be stored in areas under the Flood Planning Level of 3.70m AHD and should be acknowledged by the owner and occupant.

### **RECOMMENDATIONS / CONCLUSION:**

- The proposed development is not envisaged to have an adverse effect on surrounding properties. The flood levels provided from council flood information have been adopted for this assessment. The proposed development generally meets the requirements of *Northern Beaches Council (Manly) DCP* provided the recommendations within this report are implemented. A development application is recommended.

- Authors qualifications / experience

Rick Wray  
Director NB Consulting Engineers  
BE(Civil) MIEAust CPEng NER RPEQ  
Over 30 years professional  
experience

We trust that this certificate meets with your requirements. Please contact the author if further clarification is required.

### **NORTHERN BEACHES CONSULTING ENGINEERS P/L**

#### **Director**



**Rick Wray**

BE(Civil) MIEAust CPEng NER RPEQ

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Design\Flood Report.docx

#### **Author**



**Cameron Haack**

BE(Civil) MIEAust



## **APPENDIX A – FLOOD INFORMATION** **(MANLY COUNCIL)**

To: Tai Ropiha <[tai@chrofi.com](mailto:tai@chrofi.com)>  
Cc: Patrick Stuart <[patrick.stuart@northernbeaches.nsw.gov.au](mailto:patrick.stuart@northernbeaches.nsw.gov.au)>, CAROL RANDELL  
<[carolannrandell@gmail.com](mailto:carolannrandell@gmail.com)>, Darryl Chandler <[darryl@chrofi.com](mailto:darryl@chrofi.com)>  
Subject: RE: Flood information from Patrick Stuart Manly council - new flood studies and flood levels  
might impact us

Hi Tai,

Please find below the flood information.

1% AEP (100 year) flood level: NA  
Freeboard: 0.5  
Flood Planning Level (FPL): 3.9 m AHD (see below for further detail)  
Flood Risk Precinct: Medium  
Probable Maximum Flood (PMF) level: 8.6 m AHD

The flood extents shown in the Flood Risk Precinct Map are indicative only.

Due to the sloping flood profile across the site, I am providing also the below diagram and 1% AEP flood levels for the points marked.

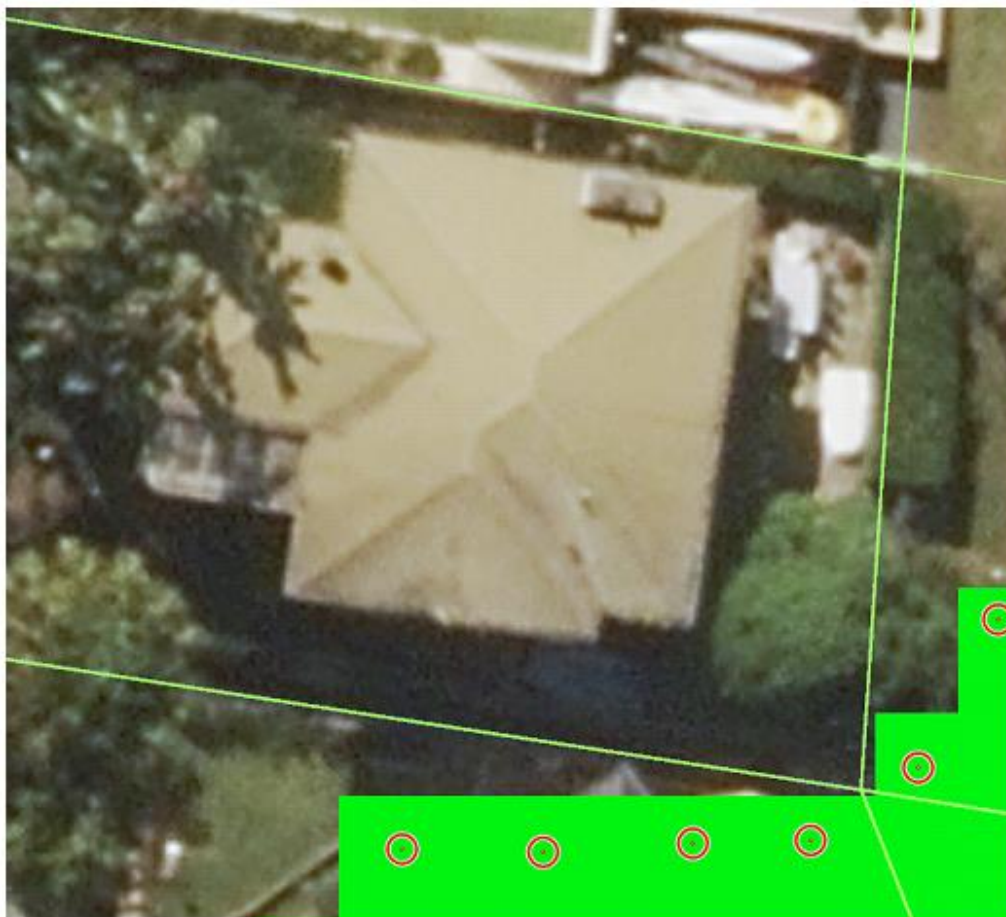


Figure 1A – Northern Beaches Council ‘Flood Information 1/2’



From left to right, the 1% AEP flood levels are as follows:

3.4  
3.2  
2.9  
2.8  
2.7  
2.7

The Flood Planning Level is the 1% AEP flood level plus 500 mm freeboard.

The above information is based off the Draft Manly to Seaforth Flood Study (2018). This is currently the best available information on flooding in the area, but could be subject to change in the future.

For development in the flood zone, you would typically need to prepare a flood management report in accordance with the attached guidelines and demonstrate compliance with [Manly DCP](#) (Section 5.4.3) and the [Flood Prone Land Design Standard](#). Accordingly, the floor level would need to be above the Flood Planning Level for residential development. This will require detailed comparison of the above flood levels with the floor levels in the building to confirm that they comply. It appears it may be necessary to raise the lowest floor level.

Regards,

**Fiona Coe**  
Engineering Project Manager

Stormwater Floodplain Engineering  
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northern  
beaches  
council

Figure 1B – Northern Beaches Council ‘Flood Information 2/2’



**Figure 1C – Northern Beaches Council ‘Flood Risk Precincts’**



**Figure 1D – Northern Beaches Council ‘PMF Flood Extent’**



<b>Coasts and Catchments</b>	<p>The Statement of Environmental Effects needs to address:</p> <ul style="list-style-type: none"> <li>• Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005 (SREP) <ul style="list-style-type: none"> <li>➢ Zoned W2 (Environment Protection)</li> <li>➢ Wetlands Protection Area</li> </ul> </li> <li>• Sydney Harbour Foreshores and Waterways Area: Development Control Plan 2005 (DCP). Assess against performance criteria for relevant ecological communities: <ul style="list-style-type: none"> <li>➢ Urban Development (with scattered trees): Terrestrial – Low Conservation Status.</li> <li>➢ Sandy Beaches: Aquatic – Medium Conservation Status.</li> </ul> </li> </ul> <p>To this end the Council has attached an SREP and DCP Assessment Checklist [<i>Assessment Criteria under SREP DCP Checklist.doc</i>] to be completed and submitted as part of the Statement of Environmental Effects. The SREP assessment requires addressing criteria for both</p> <ol style="list-style-type: none"> <li>Division 1 Development Control (Zone No W2 Environment Protection)</li> <li>Division 2: Matters for Consideration. Note: Wetlands Protection is relevant but Acid Sulfate Soils are not predicted to occur at the property.</li> </ol> <p>In addition, the DA should include an Erosion/Sediment Control Plan given the sensitive aquatic habitat present at Forty Baskets Beach which includes:</p> <ul style="list-style-type: none"> <li>• endangered seagrass population (<i>Posidonia australis</i>), which in turn is habitat for both; <ul style="list-style-type: none"> <li>➢ White's Seahorse (<i>Hippocampus whitei</i>). Protected and under consideration by DPI Fisheries for endangered listing,</li> <li>➢ Little Penguin (<i>Eudyptula minor</i>).</li> </ul> </li> </ul>
<b>Flood officer</b>	<p>"A Flood Management Report is required to certify compliance with the Section 5.4.3 Flood Prone Land of the Manly DCP. Guidelines for this are attached.</p> <p>Analysis will be required to show that any cut and fill earthworks or loss of flood storage below the relevant 1% AEP (100 year) flood level, is replaced by compensatory works so there is no net loss of flood storage. Other than that, all flood controls look like they have already been met or are achievable.</p> <p>The flood levels provided in writing by our team on 28/6/18 and 6/7/18 are current. Due to the low/medium flood risk on the property and our understanding of the development, Council will be willing to accept a reduced freeboard from 500mm to 300mm. This means a maximum Flood Planning Level for the site of 3.7m AHD is acceptable."</p>

Figure 1E – Northern Beaches Council *'Prelodgement Advice Meeting Minutes (page 5 of 7)*



## **APPENDIX B – PROPOSED DRAWINGS AND SITE SURVEY**



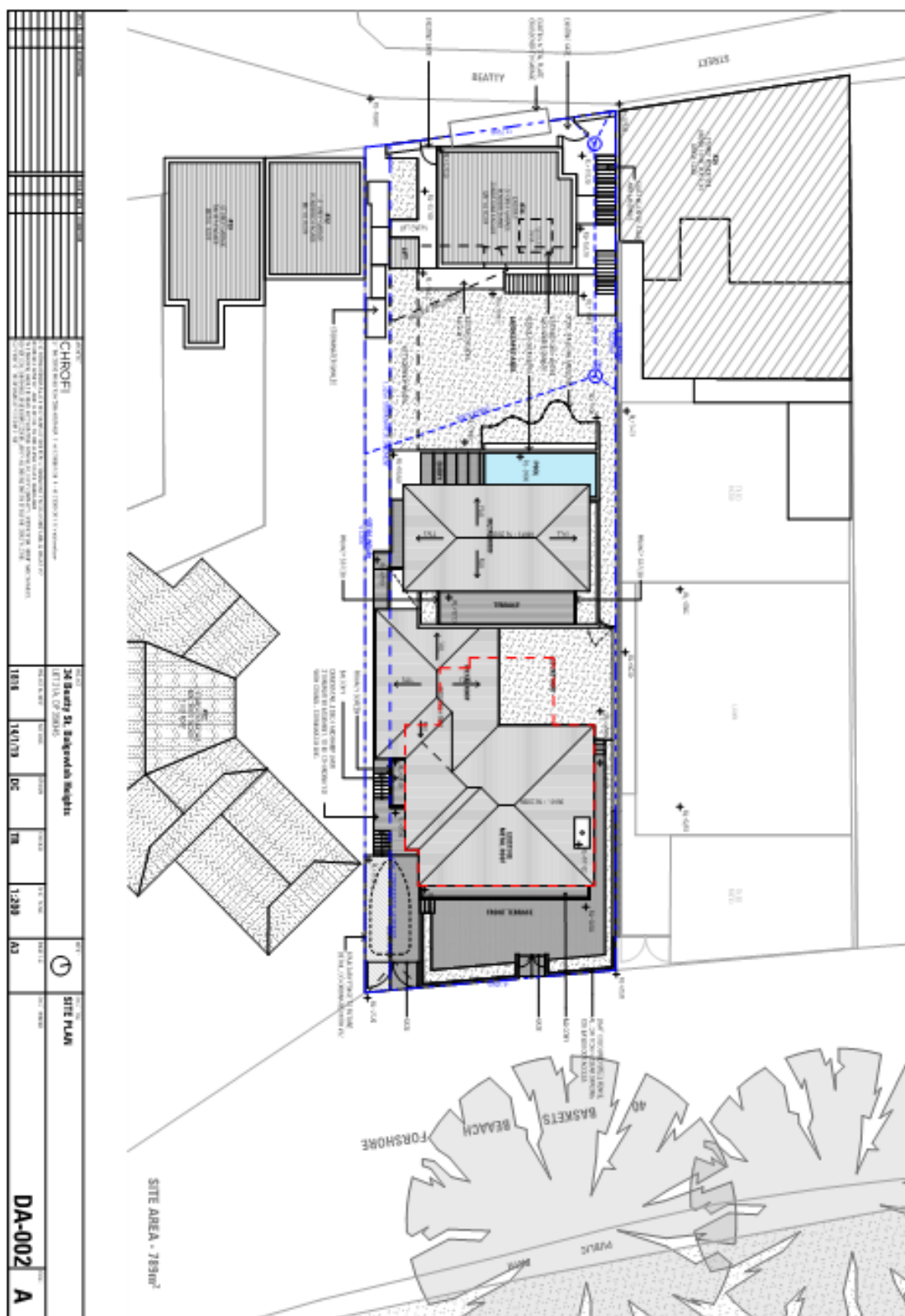


Figure 2 – Site Plan by ‘Chrofi’.

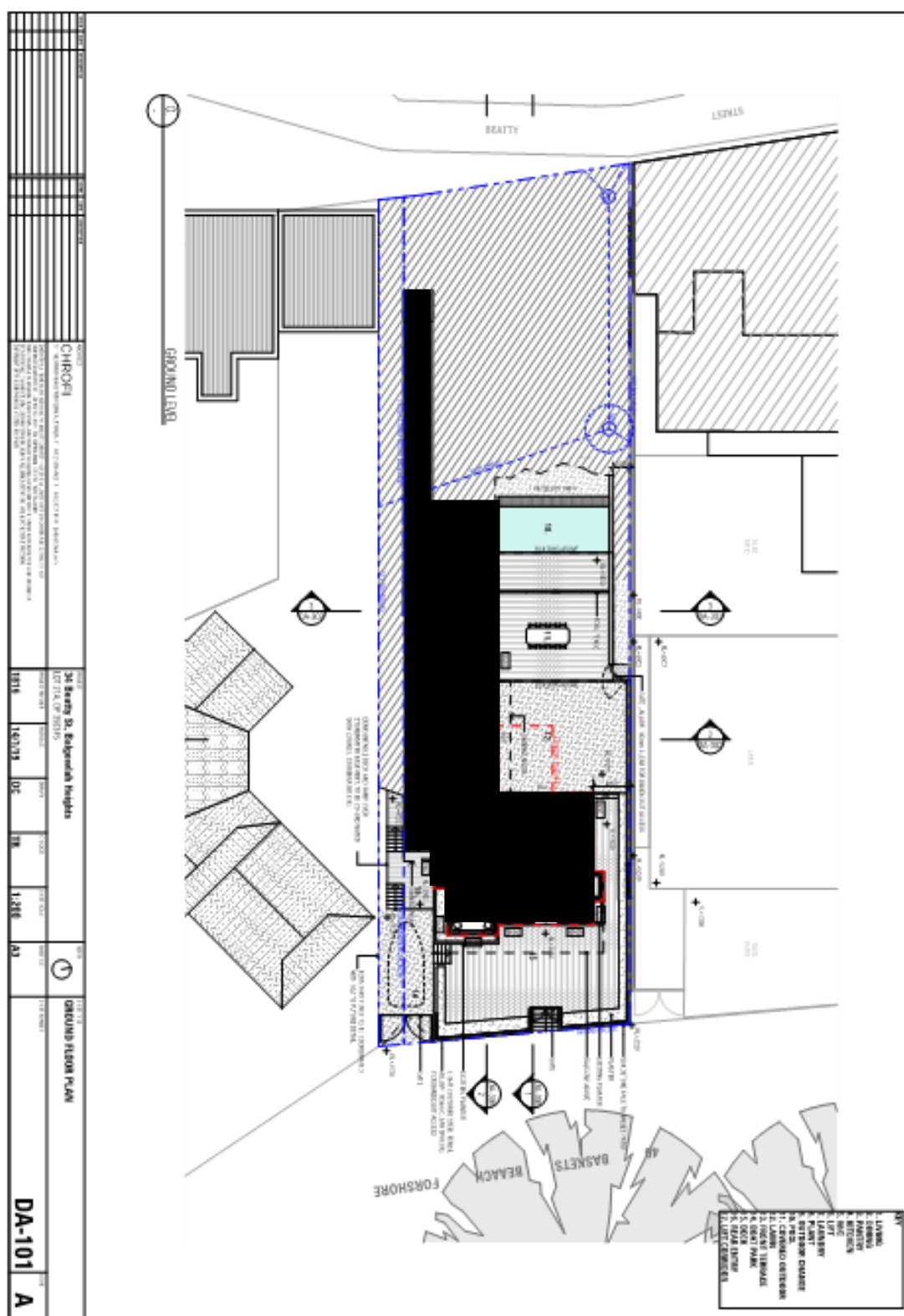


Figure 3 – Ground Floor Plan by ‘Chrofi’.

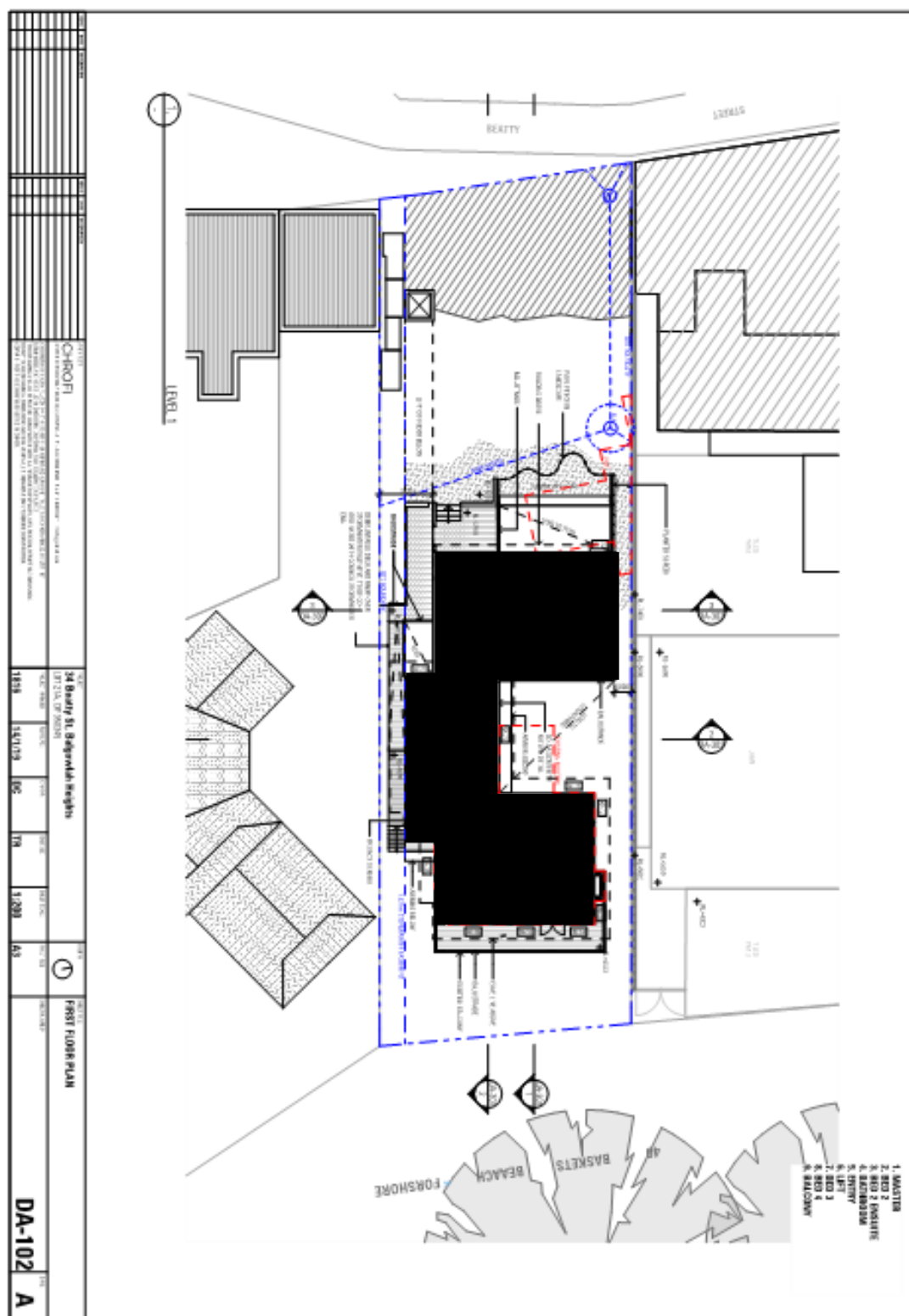


Figure 4 – First Floor Plan by ‘Chrofi’.



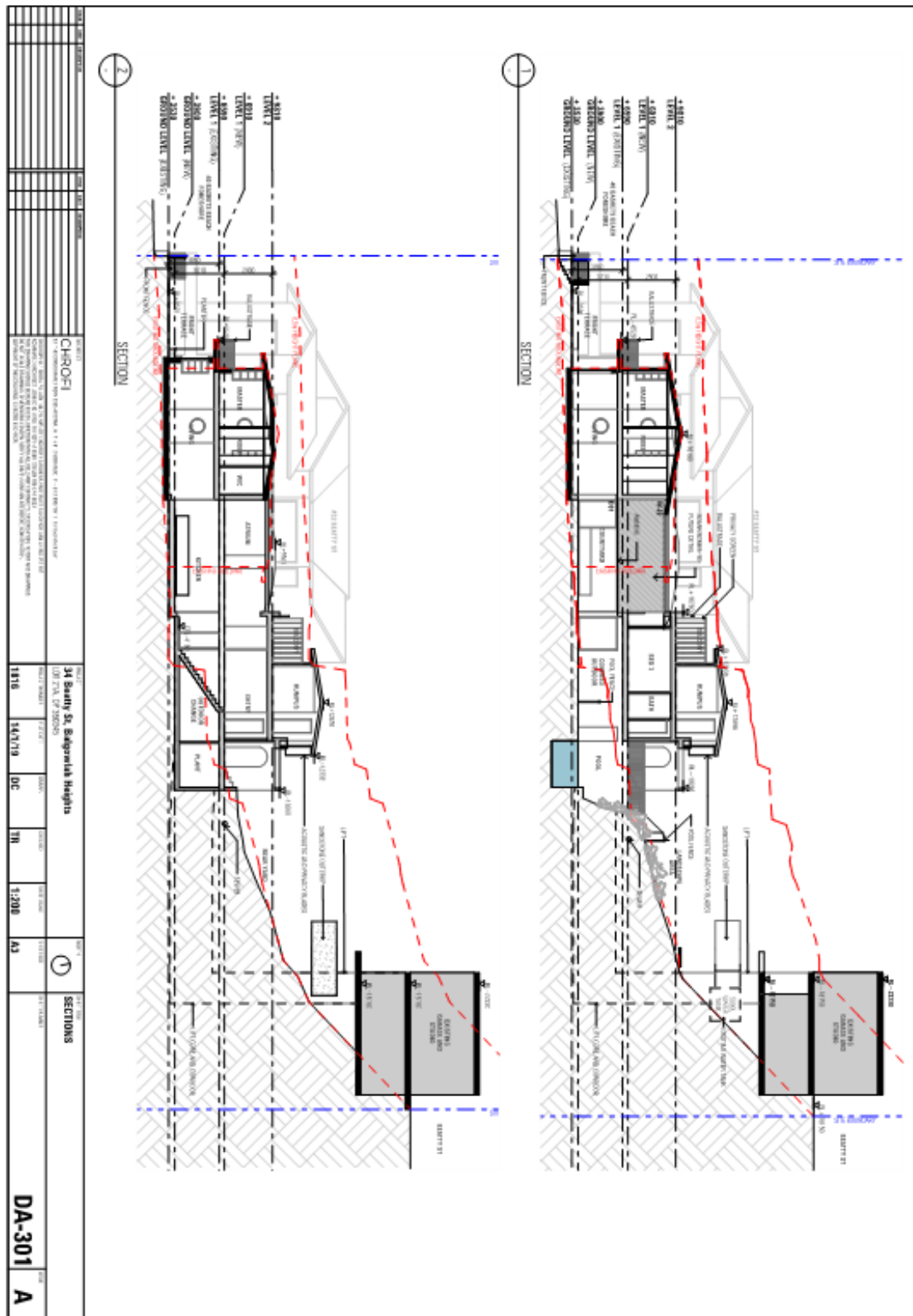


Figure 5 – Sections by 'Chrofi'.

