FLOOD COMPLIANCE CERTIFICATE

FOR

PROPOSED DEVELOPMENT

AT

16 BALL STREET COLYTON

FOR

MR NITIN GAUR

BY

LANDDEV ENGINEERING CONSULTING DATE: 16/03/2018

PHONE: 0413 169 400 E-MAIL: <u>landdevengineering@hotmail.com</u> Project Reference: 88/2017

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Table of Contents

| 1. | INTRODUCTION | 2 |
|--------------|---|-------------|
| 2. | SITE | 2 |
| 3. | BACKGROUND | 2 |
| 4. 4 4 | DISCUSSION 1. Review the flood level enquiry issued by Penrith City Council and 2. Review the existing flooding characteristics at the site | 3 3 4 |
| 5. 5 5 | Review flood impact and addressing Council's relevant DCP provision | 5 5 6 |
| 6. | CONCLUSION | 7 |
| Ann | exure B | 8 |

1. INTRODUCTION

This report has been prepared at the request of Mr Nitin Gaur and Penrith City Council. The purpose of this report is to demonstrate compliance with Section 3.5 -Flood Planning of Penrith Development Control Plan 2014 for the proposed double storey development at 16 Ball Street, Colyton. The investigation involved the following tasks below.

- Undertook site inspection
- Review the flood level enquiry issued by Penrith City Council and review the existing flooding characteristics at the site
- Review flood impact and describes proposed flood risk management measures and address Council's relevant DCP provision.

2. <u>SITE</u>

The proposed development is located at Lot 203, DP 26031 and is known as No 16 Ball Street Colyton. The site area of the lot is 765.1 sqm. At present the site is consist of a single swelling and the surrounded area is mostly developed.



Proposed development (ref: SIX map)

3. BACKGROUND

The proposed development is consists of dual occupancy and strata subdivision at 16 Ball Street, Colyton. A plan of survey supplied Vince Morgan Surveyors Pty Ltd provided existing levels of the site. The architectural plans were provided by J Mammone Architecture.

The site is affected by flooding and it is located within Little Creek Catchment.

Council concerned that the proposed development could impact the overland flow path due to proposed development. This report assesses and reviews the impact on the existing overland flow path at the rear of the proposed development and Ball Street.

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4. DISCUSSION

4.1. Review the flood level enquiry issued by Penrith City Council and

Flood information provided by Penrith City Council by dated 14 August 2017. The 1% AEP Local overland flood levels affecting the property is estimated to be at RL44.8m AHD at rear, and at RL44.4m AHD at the front of the site. Refer to the snapshot below:



The Flood information provided by Penrith City Council by dated 14 August 2017 is appended in "Annexure B" with this certificate.

Therefore, the development will need to comply with Section 3.5 -Flood Planning of Penrith Development Control Plan 2014

4.2. Review the existing flooding characteristics at the site

Little Creek Catchment Overland Flow Flood Study was completed by WMA Water Pty and was adopted by Council on 22 May 2017.

4

The flood study was completed by using TUFLOW Hydraulic Modelling software. The adopted grid cell size was 1.5m x 1.5m which is above average, usually we use 2m x 2m.

The model grid was established by sampling from a triangulation of filtered ground points from the 2011 LiDAR dataset.

The hydrologic modelling to convert rainfall estimates to overland flow runoff was developed using DRAINS.

The hydraulic modelling to estimate overland flow distributions, flood levels and velocities was developed using TUFLOW.

Buildings and other significant features likely to act as flow obstructions were incorporated into the model network based on building footprints and were modelled as impermeable obstructions to flow. Thus, there is no assumed flood storage capacity within the building.

Fences in the catchment were not modelled which is a standard practice.

Therefore, the flood study provides very reliable and accurate information about the flooding behavior within the vicinity of the site and hence undertaking another 2D flood study for the site was deem not necessary as the input data will be the same.

5. Review flood impact and addressing Council's relevant DCP provision

5.1. Addressing Council's relevant DCP provision

This compliance assessment is prepared in accordance with Section 3.5 -Flood Planning of Penrith Development Control Plan 2014.

The location of the development on the site is within a Medium Flood Risk Precinct as the development area is within the 100 year ARI flood level (with low velocity).

It was noted that C3 WATER MANAGEMENT of Penrith Development Control Plan 2014 doesn't have Prescriptive Controls matrix/table for the Flood; however, all new developments will need to comply with section (3) Residential - New Developments - Single Dwellings" under section 3.5 Flood Planning of Penrith Development Control Plan 2014.

Section 3.5 - Residential - New Developments - Single Dwellings

(C). Floor levels of habitable rooms shall be at least 0.5m above the 1% AEP (100 year ARI) flood; i.e. the flood planning level.

Respond:

Proposed Minimum floor level is at R L 45.38 (100 YR ARI (44.88) + 500mm) metres AHD

(D) The lowest floor level of habitable rooms shall be not more than 3.0m above ground level

Respond:

Satisfied

(E) Any portion of buildings subject to inundation shall be built from flood compatible materials.

<u>Respond:</u>

The proposed development will have flood compatible materials and this can be achieved during construction. Therefore, a condition prior to the issue of the CC is recommended to be imposed.

(F) Flood safe access and emergency egress shall be provided to all new developments and for dwelling replacements where practicable

Respond:

Doesn't comply with control but the proposed dwelling will be used as a refuge area.

(G) All services associated with the development shall be adequately flood proofed **<u>Respond</u>**:

The proposed development will have flood compatible materials and this can be achieved during construction. Therefore, a condition during construction is recommended to be imposed.

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(H) A certificate, prepared by a registered surveyor to verify the lowest floor level of a habitable room of a residential building to the required Australian Height Datum (AHD) level, shall be submitted to the Council upon completion of the building to that level. The building shall not be further constructed until approval is given by Council to proceed with construction works

Respond

This can be achieved during construction. Therefore, a condition prior to the issue of the CC or during construction is recommended to be imposed.

5.2. Reviewing flood impact and describes proposed flood risk management

The proposed development will not adverse impact the flooding characteristics of the vicinity due to the following reasons:

- 1. The proposed dwelling is located behind the existing dwelling and about a minimum 2m away from all boundaries. The proposed dwelling will have a suspended floor which allows the continued passage of flood waters under the building. Refer to the section plan provided by J Mammone Architecture
- 2. The removal of the existing garage, metal sheds and outdoor brick dining/BBQ areas will improve the flood conveyance around the site.
- 3. There is no loss of flood storage within the site. Refer to the calculation below:

Existing scenario – buildings to be removedThe demolishing area within the flooding water are summaries below:Shed 1= 8.89 sqmShed 2= 5.77 sqmGarage= 29.00 sqmDining/BBQ= 4.68 + 1.88 = 6.56 sqm

Total = 50.22 sqm area of flooding water will be available.

Proposed scenario - buildings to be constructed

The proposed building including the deck is 85 sqm. But the building will be suspended so only the piers under the building will be accounted.

The standards piers are 400mm in diameter and will be placed about 1.8m centre to centre. Therefore, an area of 86 sqm will require 48 piers with 400mm diameter.

Allowing for 90 piers * 0.4m = 36 sqm

Total = 36 sqm area of flooding water will be lost.

4. The development complies with the objectives of sections 3.5 of Penrith Development Control Plan 2014

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6. <u>CONCLUSION</u>

This report is to be provided to Council's review and approval and should be read in conjunction with the architectural plans submitted for the Development Application for the proposed development.

Council's flood study provides very reliable and accurate information about the flooding behavior within the vicinity of the site and hence undertaking another 2D flood study for the site was deem not necessary as the input data will be the same.

The Council flood advice for 1% AEP for the development site is at RL44.88m AHD. Therefore, the minimum floor level is at R L 45.31 (100 YR ARI (44.88) + 500mm) metres AHD

Therefore, the proposed development complies with section (3) Residential - New Developments - Single Dwellings" under section 3.5 Flood Planning of Penrith Development Control Plan 2014

Designed and prepared by

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Annexure B Flood information provided by Penrith City Council by dated 14 August 2017