Annexure "B"
Flood Study Report

FLOODING REPORT
FOR PROPOSED
MOTEL COMPLEX
LOT 12 HARRINGTON ST
CAMDEN

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1. INTRODUCTION.

This report has been prepared at the request of Dickinson Development owners of the site and undertaken by David Turner, a practicing Consulting Civil & Structural Engineer. This report has been prepared to investigate the risk associated with the proposed development and methods of managing these risks. Camden Council Flood Study and the Floodplain Management Manual (Jan 2001) have been referenced in the preparation of this report .

The development proposed consists of a basement carpark with two levels of motel style units over and in addition an attached conference centre. There is an existing approval for a development on the site with work substantially commenced on the foundations. This report has been prepared to revisit the flooding issues and to ensure the variations from the original proposal will not adversely impact on the flooding issues. All issues associated with the flooding will be addressed for completeness.

2. EXISTING DEVELOPMENT PROPOSAL & SITE CONDITIONS

The existing site is basically vacant except for the commenced construction of an approved motel complex with associated conference facilities. The original proposal had provision for 26 car spaces on the basement level, 21 units on the first floor and 26 units

on the first floor. The width of the motel complex was 16.8 metres. The basement floor level was 69.5 M AHD and the first floor had a level of 72.2. The conference centre widened the development at the front of the site with a width of 46.35 metres and an additional 8 metres of drive through hood. The floor level of the front conference centre was 71.0 AHD. The overall site width was approximately 68 metres. The heights of the development was such that the roof was well above the 1% AEP.

3. REVISED DEVELOPMENT

The revised development is similar to the original proposal. There has been a minor variation in the floor levels, the number of units has been decreased with the size of each unit increased. The layout and size of the front conference centre has changed and the width of the site has increased due to the acquisition of extra land on the lot. The table below details the changes. Table 1 shows the flood levels with associate velocities.

Description	Approved Development	Revised Development
Basement Width	16.8 metres	16.8 metres
Basement FFL	69.5 AHD	69.5 AHD
First Floor Motel FFL	72.2 AHD	72.35 AHD
Second Floor Motel FFL	75.0 AHD	75.2 AHD
Conference Area Width	46.35 m	49.94 m
Extra Width Entry	8 m	6 m
Conference Area FFL	71.0 AHD	71.15 AHD
Site Width	68 m	76 m
1% AEP Flood Level	71.6	71.6
1% AEP Velocity	1.1 m/sec	1.1 m/sec
5% AEP Flood Level	71.6	71.6

TABLE 1

4. FLOOR LEVELS

Due to the inundation of flood waters the building should be constructed such that the chance of flooding to the commercial area is minimised. The 1% AEP (100 Yr Flood) has been chosen as the design flood. As such the level of stock in the conference areas and any water sensitive services such as power and water should be located at least 600 above this level.

The floor level of the first floor is 71.15. As the level of the 1% AEP is 71.6 the level of storage should be 72.2 which is 1050 above the floor level. Electricity outlets should also be located at this level.

5. BUILDING MATERIALS

The rear area will be constructed using concrete floors and brickwork at least to the first floor level of 72.35 which is above the flood level plus 600 mm. The front conference level which is below the 1% AEP will be constructed using a concrete floor and brick veneer walls with FRC sheeting lining. Floor coverings to the conference, kitchen and restaurant area will consist of ceramic, linoleum and similar tiles.

6. STRUCTURAL STABILITY

The structure has not been designed at this stage but due to the layout I am confident the structure can easily be designed to withstand the flood forces. The forces are not likely to be high as the velocity of the water is approximately 1.1 metres per second. This is a maximum as it is based on the overbank flow. Flows in the area will be affected by the buildings up stream. These buildings will shield the proposed structure and dissipate some of the energy of the water flow

7. EFFECT ON FLOOD LEVEL

Given that the width of the building is 50 metres and the height of the flood above the existing ground is 900mm the area of the flood water impacted by this structure is approximately 45 square metres. As the width of the flood flow at this location is approximately 1200 metres with an existing impacted area of approximately 20% of the width due to the existing houses the residual width is approximately 960 metres. With the development of 45 square metres distributed over the width of 960 metres the increase in the depth of the flow of the river is less than 50 mm. This does not take into consideration the impact from the houses upstream and the fact that the initial flood study is likely to have taken the development of this site into consideration in establishing the flood level. Given the above it is unlikely the flood level will be altered as a result of the development.

8. FLOOD HAZARD

The flow of water during the design flood has a velocity of 1.1 m/sec for the normal overbank flow. In the area of the buildings the velocity will vary. The buildings upstream of the site have a fetch length adequate to stabilise the water flow to the velocity of the normal over bank flow. The velocity is expected to be approximately 1.1 metres per second the maximum depth of flow needs to be less than 800 mm. As a result the area to the rear of the building will be at a level of 70.8. This requires the raising of the carpark to a minor extent in relation to the submitted drainage concept plan. This will have no impact on the ability to drain the development.

From the rear carpark people will have an easy access to Harrington Street and to safety from the flood waters.

9. EVACUATION PLAN

The evacuation plan includes the evacuation of the residents, vehicles and the equipment in the building. There is a notification time of in excess of 4 hours for any flooding to the area. This will allow the easy evacuation of the vehicles and the residents.

The time will also allow for the raising of any materials in the conference area to the flood free storage detailed above. In a worst case situation for the 1% AEP there is still a low hazard flood area to the rear of the property as detailed in the flood hazard section.

10. CONCLUSIONS

The design has been undertaken to take the flood risk into consideration. The pedestrian exit from the site is to the rear and onto Harrington Street utilising low hazard flood area. The structure can be designed for the flood forces and the materials to be used in the construction are to be flood compatible. Flood free storage and the location of the electrical equipment can be attained.

Should anything in this report be unclear please contact the undersigned for clarification.

YOURS FAITHFULLY,

David L Turner.

(B.E. MIEA NPER – CIVIL & STRUCTURAL)