



Floodplain Management Plan for Gunnedah and Carroll

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PREPARATION, REVIEW AND AUTHORISATION

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This report was prepared in accordance with the scope of services set out in the contract between SMEC Australia Pty Ltd (SMEC) and the Client. To the best of SMEC's knowledge the proposal presented herein reflects the Client's intentions when the report was printed. In preparing this report, SMEC relied upon data, surveys, analyses, designs, plans and other information provided by the Client and other individuals and organisations referenced herein. Except as otherwise stated in this report, SMEC has not undertaken further verification regarding the accuracy or completeness of these information sources.

TABLE OF CONTENTS

1	FLOOD PLAIN MANAGEMENT PLAN.....	1
1.1	OBJECTIVES.....	1
1.2	THE PLAN AREA.....	1
1.3	THE FLOOD SITUATION.....	1
1.4	PURPOSE OF THE PLAN.....	1
1.5	FLOODPLAIN MANAGEMENT MEASURES.....	2
1.6	FLOODPLAIN MODIFICATION MEASURES.....	2
1.7	PROPERTY MODIFICATION MEASURES.....	3
	1.7.1 Planning Tools.....	3
	1.7.2 Voluntary Purchase.....	4
	1.7.3 House Raising.....	4
1.8	RESPONSE MODIFICATION MEASURES.....	5
APPENDIX A	RECOMMENDED AMENDMENTS TO GUNNEDAH LEP 1998	
APPENDIX B	DEVELOPMENT CONTROL PLAN	
APPENDIX C	PROPERTIES PROPOSED FOR VOLUNTARY PURCHASE OR HOUSE RAISING	

1 FLOOD PLAIN MANAGEMENT PLAN

1.1 OBJECTIVES

The primary objectives for the Gunnedah and Carroll urban area Floodplain Management Plan are:

- to reduce the social and economic impact of flooding on individual owners and occupiers of flood prone property; and
- to reduce private and public losses resulting from floods.

Within these overall objectives, Council's specific objectives are:

- to mitigate the impacts of flooding on essential service infrastructure;
- to minimise adverse economic impacts on the commercial centre of Gunnedah;
- to maintain the urban/rural lifestyle of Gunnedah;
- to maintain the rural residential lifestyle in Carroll;
- to utilise ecologically sustainable methods for flood mitigation where possible; and
- to retain the social and environmental benefits to the residents resulting from the proximity of both towns to the Namoi River.

1.2 THE PLAN AREA

This plan applies to the town of Gunnedah and village of Carroll.

The rural areas between the town and the village on the floodplain of either the Namoi River or the Mooki River, or both, are not covered by this Plan. It should be noted that the rural areas between Carroll, Breeza and Boggabri are currently being investigated in a separate study being managed by the Department of Land and Water Conservation.

1.3 THE FLOOD SITUATION

Flooding is a frequent occurrence in Gunnedah and Carroll. Periodically waters from the Namoi, Peel and Mooki Rivers sub-catchments flow into the northern section of Gunnedah and into Carroll from the west. Regular flooding in Carroll and Gunnedah carries significant economic and social costs.

1.4 PURPOSE OF THE PLAN

The purpose of this plan is to provide Gunnedah Shire Council with management measures for addressing the hazard and risks associated with flooding in the study area. A fundamental principle of this management plan is to ensure that these measures are not considered individually or in isolation. Measures should be considered collectively so that their interactions, their suitability and effectiveness will ensure that a holistic approach to floodplain management is achieved.

1.5 FLOODPLAIN MANAGEMENT MEASURES

There are three types of flood hazards that affect the flood prone areas of Gunnedah and Carroll:

- the **existing hazard** faced by existing development on flood prone land;
- the **future hazard**, which any new development will face; and
- the **continuing hazard** that faces all property on flood prone land, even if flood mitigation action has been implemented.

There are generally three recognised broad categories of floodplain management measures that may reduce losses associated with flooding:

- by modifying the behaviour of the flood itself (Flood Modification);
- by modifying (e.g. house raising) or purchasing existing properties and/or by imposing controls on property and infrastructure development (Property Modification); and
- by modifying the response of the population at risk to better cope with a flood event (Response Modification).

The types of measures that fall within each category are shown on the table below.

Table 1.1 Floodplain Management Measures

Flood Modification Measures	Property Modification Measures	Response Modification Measures
flood control dams	zoning	community awareness
retarding basins	voluntary purchase	community preparedness
levees	house raising	flood prediction and
bypass floodways	building and development	warning
channel improvements	controls	flood plans
velocity deflectors	flood proofing buildings	evacuation arrangements
	flood access	recovery plans

An assessment of each type of measure was undertaken for both Carroll and Gunnedah. The findings of this assessment are detailed below.

1.6 FLOODPLAIN MODIFICATION MEASURES

Floodplain modification measures that have been considered include two levee alignments in Gunnedah, a ring levee around Carroll and Voluntary Purchase and House Raising Programs in both centres. In addition, a levee was proposed for the STP and Gunnedah Saleyards, both

situated west of Gunnedah township. Particularly, consideration should be given to raising the existing levee around the STP, to protect it against a flood higher than the 1% AEP level. This levee has been assessed separately in the *Review of Proposed Saleyards Levee*, submitted to Council by SMEC in May 1999.

The options were presented to the communities of Gunnedah and Carroll for comment. Following the consultation period, the Floodplain Management Committee and Gunnedah Council considered these options and resolved to support voluntary purchase and House Raising as property modification options but not to pursue the flood modification options, apart from the Saleyard levee. Details of the adopted options are provided below.

1.7 PROPERTY MODIFICATION MEASURES

1.7.1 Planning Tools

The two planning tools used to address land use control within the floodplain will be the Gunnedah Local Environmental Plan 1998 and a Development Control Plan for Flood Prone Land.

Gunnedah Local Environmental Plan 1998 has been reviewed and recommendations for suggested inclusions into the LEP are provided in *Appendix A*. These recommendations can be summarised as:

- (a) introduction of objectives relating to flooding into the LEP;
- (b) minor amendments to a number of definitions relating to flooding;
- (c) the inclusion of two new zones for the floodway in Gunnedah and for the commercial precinct in the western end of Conadilly Street;
- (d) replacement of the "no building line" with the floodway zone;
- (e) insertion of a clause to recognise the flood prone land DCP; and
- (f) insertion of a clause to provide Council with discretion when assessing development applications on flood prone land.

The principal planning tool for flood plain management is the Gunnedah Flood Prone Land Development Control Plan. A suggested outline for the DCP is provided in *Appendix B*. In summary the DCP addresses the following issues:

- Flood Planning Levels – for residential property, 500mm above the 1% AEP flood contour (refer to drawing 31923-014).
- Building materials and layout to be flood compatible, with a particular emphasis on affected commercial properties.
- Flood effect on others – development applications will require an assessment of the impact of works on surrounding properties with regard to flooding.
- Evacuation and Access – plans will be required for important community facilities.
- Flood Awareness – use of section 149 Certificates for notification of flood affectation (up to the extreme event (3 * 1% AEP)) and established Planning Level for the property.
- Flood Plan – required for commercial properties where floor levels are below 1% AEP flood level, with a particular emphasis on the storage of hazardous materials.

1.7.2 Voluntary Purchase

In certain high hazard areas of the floodplain, it may be impractical or uneconomic to mitigate flood hazard to existing properties at risk, or flood modification measures may significantly increase hazard to a property unable to be protected. In such circumstances it may be appropriate to cease occupation of such properties in order to free both residents and potential rescuers from the danger and cost of future floods.

This is achieved by the purchase of the properties and their removal or demolition as part of a Floodplain Management Plan. Under such circumstances, the NSW Flood Prone Land Policy provides that property should be purchased at an equitable price and only where voluntarily offered. Such areas should ultimately be rezoned to a flood compatible use.

i Gunnedah Voluntary Purchase

The most flood prone area in Gunnedah would benefit from a voluntary purchase program. Twelve (12) properties on the northern side of Maitland Street between Elgin and Marquis Streets and the two properties on the north-west side of the intersection between Tempest and Bloomfield Streets have been identified for voluntary purchase. These properties are in the highest hazard category and are also those exposed to the most regular flooding. There are also eleven (11) properties in the “rural-residential” area generally north-east of Maitland and Henry Streets that are in the high hazard zone and may be considered for voluntary purchase.

There are a number of other properties also in the high hazard floodway in Little Conadilly Street. In this location the high hazard category derives primarily from water depth rather than velocity and house raising is a more appropriate response.

It is estimated that the cost to purchase the fourteen identified properties in the town area would be \$980,000, assuming an average value of \$70,000. The eleven “rural-residential” properties may cost more due to their larger land area, however, the same average price is used to estimate the cost should voluntary purchase be pursued in this area. It is estimated that the “rural-residential” properties would cost \$770,000 to purchase. A list of all properties recommended for voluntary purchase is provided in *Appendix C*.

ii Carroll Voluntary Purchase

Carroll is largely classified as a high hazard floodway, however, the purchase of the entire village would not be viable, socially and/or economically. Other flood modification or property modification measures are considered more suitable and are discussed below.

1.7.3 House Raising

Not all houses are suitable for raising. Houses of single or double brick construction or slab-on-ground construction (concrete floor) are generally either impossible or very expensive to raise, however, the decision on this latter issue is very site specific. Houses with a concrete floor in Gunnedah and Carroll are listed in *Appendix C*. The principal issues to be addressed with such houses are the quality of the foundations and the state of the brickwork. Houses best suited to raising are timber-framed and clad with non-masonry materials.

When raising houses, consideration should be made of the implications of a slightly higher than design flood. The new construction may be isolated for long periods during floods, necessitating an increased load on emergency services should they be required. The isolated house would also have to be capable of “self support during flooding”, for example having adequate food supplies.

i Gunnedah House Raising

In Gunnedah, there are 115 houses in the identified area that are less than 1.5 m above ground level and thus at the greatest exposure to flood damage. Of these houses, six (6) are brick or stone walled and would be very difficult to raise. Assuming an average cost of \$40,000 for house raising, the comprehensive implementation of this measure for those 109 properties most at risk would be \$4.36M. An additional \$0.36M should be allowed for raising those that are brick or stone walled. There are also 37 properties in the proposed house raising area that are already raised more than 2.0m above the ground and further raising may either be not viable or they would be unsuitable for raising from their existing support structures. Details of the properties recommended for house raising in the order of priority are provided in *Appendix C*.

ii Carroll House Raising

In Carroll, there are 79 houses that could be subject to house raising. Of these, 69 houses are less than 2.0m above ground level and thus at the greatest exposure to flood damage and only three (3) are brick walled and difficult to raise. Assuming an average cost of \$40,000 for house raising, the comprehensive implementation of this measure in Carroll would cost up to \$2.76M for houses less than 2.0m above ground level. An additional \$0.18M should be allowed for raising those that are brick walled. Details of these properties recommended for house raising are provided in *Appendix C*.

1.8 RESPONSE MODIFICATION MEASURES

Response modification measures encompass various means of modifying the response of the population to the flood threat. Such measures include flood warning, plans for the defence and evacuation of an area, for the relief of evacuees and for the recovery of the area once the flood subsides. Planning for these measures is incorporated in the local Flood Plan for the area, which is prepared under the auspices of the SES and is complementary to the Council floodplain management plan.

The following measures are recommended to implement essential flood modification measures for Gunnedah and Carroll:

- (a) Plans are in place to protect vital infrastructure in the event of a flood greater than the design flood occurring. Essential infrastructure includes the sewerage treatment plant, emergency service operational centres, telecommunication centres and water supplies.
- (b) To improve the flood prediction service, install a further two real-time rain gauges in the Mooki catchment area, at Breeza and in the vicinity of Battery Hill. An additional rain gauge at Somerton would assist local area run-off prediction in the lower Peel

River system and connect the existing gauge at "Ruvigne" to a landline. A telemetered gauge should also be installed at Carroll.

- (c) The SES "Flood Intelligence" for Carroll and Gunnedah be reviewed and updated based on the flood hazard mapping produced in the Floodplain Management Study.
- (d) The Flood Plan for Carroll and Gunnedah be updated to include pro-forma messages based on the checklist provided in *Flood Warning: An Australian Guide*.
- (e) The local and Regional SES, together with Gunnedah Shire Council, seek a specific undertaking from the broadcast media that in the event of a flood situation at Carroll and Gunnedah, quick and effective action can be taken to organise the broadcast of warnings into the local area.
- (f) The Gunnedah Flood Plan be amended to include:
 - defined "flood warden" arrangements, with nominated deputies and specifically identified targets for warning messages;
 - identified target zones within Gunnedah for specific messages in relation to flooding and its likelihood and an automated telephone system be developed to allow the targeted population to be notified of the warning in the shortest time.
- (g) A detailed community awareness plan be developed and implemented in conjunction with Gunnedah Shire Council.
- (h) A dedicated information line, with taped messages dealing with the flood situation, be established and activated during flood events.
- (i) Regular review and rehearsal of all elements of the Flood Plan.
- (j) Steps are taken to upgrade the facilities at the Somerton Community Hall to accommodate the likely evacuee requirements for Carroll. Alternatively, the provision of temporary facilities in Tamworth should be planned for.
- (k) Council ensures that protocols are established between DLWC, the SES (local and regional) and the Bureau of Meteorology regarding releases from Keepit Dam, ensuring that there is clear and unambiguous advice of release rates, times and duration.

Many of the measures detailed above require planning rather than physical implementation. However, for those measures that would require financial undertakings, for example the installation of rainfall and stream gauges, financial assistance towards these may be available from the DLWC and/or the Bureau of Meteorology. Financial assistance may also be available under the Commonwealth Regional Flood Mitigation Program. The DLWC will be able to provide detailed guidance on the financial assistance that may be available.

APPENDIX A

AMENDMENTS TO GUNNEDAH LEP 1998

TABLE OF CONTENTS

1 RECOMMENDED AMENDMENTS TO GUNNEDAH LEP 1998.. 1

1.1	OBJECTIVES	1
1.2	DEFINITIONS.....	1
1.3	NEW ZONES.....	1
	1.3.1 Zone No 3 (c) Business (Agriculture).....	1
	1.3.2 Zone No 7 (e) Environment Protection – Floodway	2
1.4	SPECIAL PROVISIONS RELATING TO DEVELOPMENT	2

1 RECOMMENDED AMENDMENTS TO GUNNEDAH LEP 1998

It is recommended that the following amendments be made to the Gunnedah Local Environmental Plan 1998 by inserting the following points at the clauses specified.

1.1 OBJECTIVES

Under Part 1, Clause 3(7) of Gunnedah LEP 1998, it is recommended that the following objectives are included:

- (a) to reduce the incidence of damage and level of hazard to areas subject to flooding by managing development in the floodplain;
- (b) to encourage the planning and use of floodplains as a valuable and sustainable resource capable of multiple, but compatible land uses of benefit to the community; and
- (c) to preserve and enhance the soil, vegetation and water resources of the floodplains.

1.2 DEFINITIONS

It is recommended that the following definitions be inserted into Part 1, Clause 6(1) of Gunnedah LEP 1998.

Flood Hazard means the potential risk to life and limb and potential damage to property resulting from flooding. The degree of hazard varies with circumstances across the full range of floods.

Flood Prone Land is land susceptible to inundation by the extreme flood event (3 * 1% AEP).

Floodway areas are those areas of the floodplain where a significant discharge of water occurs during floods (refer to drawing 31923-007 and 31923-008).

1.3 NEW ZONES

Under Part 2, Clause 9 of Gunnedah LEP 1998, it is recommended that the following zones be included.

1.3.1 Zone No 3 (c) Business (Agriculture)

i Objectives

- (a) to provide a zone for low intensity agricultural service uses that are compatible with the high hazard nature of the flood fringe;
- (b) to provide for development which reinforces the rural character of the town periphery; and

- (c) to encourage the relocation and down sizing of incompatible land uses in this area.

ii Development allowed only with development consent

Any development consistent with the objectives of the zone.

iii Development that is prohibited

Any other development.

1.3.2 Zone No 7 (e) Environment Protection – Floodway

iv Objectives

- (a) to ensure that the natural function of the floodplain is preserved and where necessary, enhanced;
- (b) to allow only development that does not obstruct the natural flow of floodwaters or result in an increase in flooding on other land; and
- (c) to ensure that any development in the floodway is compatible with its primary function as a floodway.

v Development allowed only with development consent

Any development consistent with the objectives of the zone.

vi Development that is prohibited

Any other development.

1.4 SPECIAL PROVISIONS RELATING TO DEVELOPMENT

It is recommended that the following clauses are inserted under Part 3 of the Gunnedah LEP 1998.

Clause 26 (2) (e) any development of flood prone land must comply with the requirements of the Gunnedah and Carroll Flood Prone Land DCP.

Clause 42 Council Discretion

- (a) Where Council is satisfied that a particular land use is suitable on land within the 1%AEP, and the use is prohibited or restricted in the standards for development in this plan Council may permit the use subject to appropriate conditions.
- (b) Discretion under this section will not be exercised unless:
 - i it is formally requested by the owner of the premises; and
 - ii the request is formally supported by documentation prepared by a suitably qualified engineer which indicates, to Council's satisfaction, that

compliance with the requirements in this Clause are not necessary in the particular circumstances of the case.

- (d) In all cases it will be necessary for adequate information to be provided to Council by a suitably qualified engineer which demonstrates that the proposed development will be unlikely to:
- i. significantly alter flood planning levels; or
 - ii significantly alter peak flood flow velocities on adjacent properties during the 1% AEP flood event; and that
 - iii. the proposed building can withstand the conditions which would be experienced during the 1% AEP flood event without suffering significant damage; and
 - iv. the owner/applicant is to provide details of a flood emergency plan to the satisfaction of Council.

APPENDIX B

GUNNEDAH SHIRE COUNCIL

FLOODPRONE LAND DEVELOPMENT CONTROL PLAN

***GUNNEDAH AND CARROLL
FLOODPRONE LAND DEVELOPMENT CONTROL PLAN***

Prepared for:

Gunnedah Shire Council

Prepared by:



**SMEC Australia Pty Ltd
ACN 065 475 149**

**Project No 31923
December 1999**

GUNNEDAH SHIRE COUNCIL FLOODPRONE LAND DEVELOPMENT CONTROL PLAN

1	GENERAL 1	
1.1	CITATION.....	1
1.2	WHERE DOES THE PLAN APPLY?	1
1.3	WHAT IS THE PURPOSE OF THIS DCP?.....	1
1.4	WHEN WILL THIS DCP BE APPLIED?	2
1.5	WHAT ARE THE OBJECTIVES OF THIS DCP?	2
1.6	GLOSSARY.....	2
2	WHAT INFORMATION IS REQUIRED WITH AN APPLICATION TO ADDRESS THIS PLAN?.....	5
2.1	GENERAL	5
2.2	NOTIFICATION OF APPLICATIONS.....	5
3	WHAT IS THE CRITERIA FOR DEVELOPMENT ON FLOOD PRONE LAND?.....	6
3.1	GENERAL CONTROLS FOR NEW DEVELOPMENTS	6
3.1.1	Floodway – Gunnedah	6
3.1.2	Flood Fringe – Gunnedah	6
3.1.3	Flood way / Flood Fringe – Carroll	8
3.2	GENERAL PLANNING CONTROLS APPLIED TO ALL DEVELOPMENTS.....	10
3.2.1	Fencing	10
3.2.2	Items of Environmental Heritage	10
3.2.3	House Raising.....	11
SCHEDULE 1	FLOOD COMPATIBLE MATERIALS	1

1 GENERAL

1.1 CITATION

This plan is cited as the "Gunnedah and Carroll Flood Prone Land Development Control Plan (DCP)". This DCP was adopted by Council at its meeting of.....in accordance with section 72 of the *Environmental Planning and Assessment Act, 1979* (as amended).

1.2 WHERE DOES THE PLAN APPLY?

The DCP applies to land within the 1% AEP (flood planning level) in the town of Gunnedah and the village of Carroll, as shown on drawings 31923-007 and 31923-008.

1.3 WHAT IS THE PURPOSE OF THIS DCP?

Gunnedah and Carroll have experienced in excess of 25 major floods between the period of 1892 to 1998. Each of these floods has had significant impact on the social and economic well being of flood prone communities.

The *Gunnedah and Carroll Floodplain Management Study and Plan* (FMP) (1999) has identified the level of risk to development and the resident population and identified management measures to address these risks. The floodplain management measures identified within the FMP fall under three broad categories:

- flood modification – changing the actual behaviour of flooding by structural means;
- property modification – modifying or purchasing existing properties and/or imposing controls on property and infrastructure development; and
- response modification – changing the response of the population at risk, to increase awareness and preparedness in the event of flooding.

This DCP provides detailed development controls, which facilitate the implementation of the recommendations of the FMP for Gunnedah Shire. These controls will ensure that inappropriate development is not permitted within high hazard areas and that potential damage to development at risk is limited to acceptable levels.

The *Draft Floodplain Management Manual*, released for public comment by the NSW Government in March 1999, states that development control should address the effects of the full range of floods, up to and including an extreme flood event. One of the key objectives of the floodplain management plan is to determine the area to which planning and development controls should apply. In determining this level social, economic and environmental factors are taken into consideration. The means used to express the probability of a flood of a specific magnitude, or flood level, in this plan shall be stated as a percentage Annual Exceedance Probability (% AEP), signifying the level of risk in any particular year.

The flood planning level applied to the study area is the 1% AEP flood.

1.4 WHEN WILL THIS DCP BE APPLIED?

Council will take this DCP into consideration when determining development applications received in accordance with the *Environmental Planning and Assessment Act 1979*, (as amended) and when reviewing general policy issues, including proposals to rezone land.

This DCP should be read in conjunction with the relevant provisions of the *Draft Floodplain Management Manual*, released for public comment by the NSW Government in March 1999, the *Floodplain Development Manual* published by the NSW Government in 1986, the Environmental Planning and Assessment Act, 1979 (as amended), Gunnedah Local Environmental Plan 1998, the Gunnedah and Carroll Nepean Floodplain Management Plan, and other relevant Development Control Plans adopted by Council.

1.5 WHAT ARE THE OBJECTIVES OF THIS DCP?

This DCP aims to:

- (a) provide detailed development controls for determination of development on flood prone land in Gunnedah Shire Local Government Area;
- (b) ensure that essential services and land uses are planned in recognition of all potential floods;
- (c) reduce the risk to human life and damage to property caused by flooding;
- (d) promote awareness of the potential flood hazard and consequent risk associated with the use and development of land within the floodplain among proponents of development and the general community;
- (e) minimise adverse economic impacts on the commercial centre of Gunnedah; and
- (f) maximise the social and environmental benefits of the floodplain.

1.6 GLOSSARY

For the purpose of this Plan the following definitions have been adopted:

1% Annual Exceedance Probability (AEP) flood. This terminology replaces the previously used 1 in 100 year flood. It indicates a flood that has, on average, a 1% probability of being equalled or exceeded in any given year.

Australian Height Datum (AHD) is a common surface level datum approximately corresponding to mean sea level.

Critical utilities and public facilities include hospitals, sewage treatment facilities, important telecommunication infrastructure and SES offices.

Design floor level means the floor level specified in this Plan which applies to the relevant land use type and the location and existing ground level of the site.

Draft Floodplain Management Manual refers to the document released for public comment by the New South Wales Government in March 1999.

Effective warning time is the time available after receiving advice of an impending flood and before the floodwaters disable damage reduction activities. The effective warning time is typically used to move farm equipment, raise furniture and evacuate people.

*Extreme flood event (3 * 1% AEP)* is the largest flood event considered feasible for use in flood management and setting planning levels for this flood plain management plan. It is possible that a larger event, the probable maximum flood (PMF) could conceivably occur. However, in this instance estimation of the PMF was not feasible due to the size and complexity of the catchment upstream.

Flood awareness is an appreciation of the likely effects of flooding and a knowledge of the relevant flood warning, response and evacuation procedures. In communities with a high degree of flood awareness, the response to flood warnings is prompt and efficient. In communities with a low degree of flood awareness, flood warnings are liable to be ignored or misunderstood, and residents are often confused about what they should do, when to evacuate, what to take and where it should be taken.

Flood compatible building components means a combination of measures incorporated in the design and/or construction and alteration of individual buildings or structures subject to flooding, and the use of flood compatible materials for the reduction or elimination of flood damage as indicated in the *Draft Floodplain Management Manual*.

Flood compatible materials include those materials used in building which are resistant to damage when inundated. A list of flood compatible materials is attached in Schedule 1.

Flood evacuation strategy means the proposed strategy for the evacuation of areas during periods of flood as specified within any policy of Council, the Floodplain Management Plan, by advice received from the State Emergency Services or as determined in the assessment of individual proposals.

Flood hazard means potential risk to life and limb and potential damage to property resulting from flooding. The degree of hazard varies with circumstances across the full range of floods.

Flood planning levels are flood levels selected for planning purposes, as determined in floodplain management studies and incorporated in floodplain management plans.

Floodplain is an area of land which is subject to inundation by floods up to the probable maximum flood event, i.e. flood prone land.

Flood fringe areas are the remaining areas of flood prone land after floodway and flood storage areas have been defined (see floodway areas and flood storage areas).

Floodplain management plan means the plan prepared for the development and management of flood prone land in Gunnedah Shire.

Flood prone land is land susceptible to inundation by the extreme flood event (3 * 1% AEP).

Flood plan is the official name in NSW for a sub-plan of a disaster plan that deals specifically with flooding. A flood plan is prepared wherever a flood threat exists. It contains more detail than a disaster plan and encompasses specific arrangements to

prepare for, respond to and recover from the impacts of flooding, including those related to public awareness, warnings and evacuation (also called flood emergency or flood preparedness and response plan).

Flood storage areas are those parts of the floodplain that are important for the temporary storage of floodwaters during the passage of a flood.

Floodway areas are those areas of the floodplain where a significant discharge of water occurs during floods. They are often aligned with naturally defined channels. Floodways are areas which, even if only partially blocked, would cause a significant redistribution of flood flow, or a significant increase in flood levels. Floodways are often, but not necessarily, areas of deeper flow or areas where higher velocities occur.

Freeboard is a factor of safety typically used in relation to the setting of floor levels, levee crest levels, etc. It is usually expressed as a height above a flood planning level and/or the adopted flood mitigation standard. Freeboard provides a factor of safety to compensate for wave action, localised hydraulic behaviour, settlement and other effects such as “greenhouse” and climate change.

Habitable room is a living or working area, such as a lounge room, dining room, rumpus room, kitchen, bedroom or workroom, or in an industrial or commercial situation, an area used for offices or to store valuable possessions susceptible to flood damage.

Outbuilding means a building constructed ancillary to a principal residential building and includes sheds, garages, carports and similar buildings.

Outer floodplain refers to that part of the floodplain between the 1% AEP flood and extreme flood event (3 * 1% AEP) extents.

Reliable access during a flood means the ability for people to safely evacuate an area subject to imminent flooding within effective warning time and without a need to travel through areas where water depths increase.

Survey plan is a plan prepared by a registered surveyor, providing information required for the assessment of an application in accordance with the provisions of this Plan.

2 WHAT INFORMATION IS REQUIRED WITH AN APPLICATION TO ADDRESS THIS PLAN?

2.1 GENERAL

Development applications must include information, which addresses all relevant controls outlined within the relevant environmental planning instruments and this DCP, and the following matters as applicable.

2.2.1 With the exception of minor development, all development applications for land which is within the 1% AEP area shall be accompanied by a survey plan showing:

- (a) the position of the existing building(s) and/or proposed building(s);
- (b) the existing ground levels to Australian height datum around the perimeter of the building; and
- (c) the existing or proposed floor levels to Australian height datum.

2.2.2 Applications for earthworks, filling of land and subdivision shall be accompanied by a survey plan (with a contour interval of 0.25m) showing relative levels to Australian height datum.

2.2.3 Where substantial alteration to landform, or substantial amounts of building are proposed, Council at its discretion may require the production of a hydrologist's report to examine the impact of a proposed development on the flow of floodwater.

2.2 NOTIFICATION OF APPLICATIONS

2.2.1 In addition to Council's normal advertising and notification processes for applications for approval, Council shall notify all persons of applications received, which in the opinion of Council, may affect the flow of floodwaters or drainage upon their properties.

2.2.2 Council shall make such applications available for inspection for a period of a minimum of 14 days, during which period any person may make a submission for the consideration of Council when determining the application.

3 WHAT IS THE CRITERIA FOR DEVELOPMENT ON FLOOD PRONE LAND?

3.1 GENERAL CONTROLS FOR NEW DEVELOPMENTS

3.1.1 Floodway – Gunnedah

If floodplain management is to be successful, landowners within the floodway need to be aware of the flood risk and the potential for increase in hazard if the floodway is not appropriately managed. Inappropriate development can result in obstruction to the flow of floodwaters, which leads to an increase in flooding elsewhere. This increases the susceptibility for damage and risk to lives. Existing developments may require minor alterations or improvements to the land, however, further intensification of land uses should not be encouraged. The following factors apply to applications for development in the floodway:

- (a) no new buildings shall be permitted;
- (b) filling shall not be permitted in a floodway other than in conjunction with riverbank rehabilitation and stabilisation provided that the levels do not protrude above natural surface levels;
- (c) fences shall not be permitted except where it can be demonstrated to Council that they are essential, in which case they must be of post and rail, strand wire or shear connectors construction; and
- (d) no further intensification of the use of floodways shall be allowed unless it relates to the conversion of floodways to natural waterway corridors.

3.1.2 Flood Fringe – Gunnedah

Applications will need to satisfy the following relevant requirements when considering development within the flood fringe.

i Floor Levels

Reference should be made to Map 31923-014 for flood contour levels for properties located in Gunnedah.

a Residential

Habitable floor levels to be equal or greater than the 1% AEP flood plus 0.5m (freeboard).

b Dwellings on Rural Land

Habitable floor levels to be equal or greater than the 1% AEP flood plus 0.5m (freeboard).

c Commercial / Industrial

There is no minimum floor level for commercial properties. Property owners should consider issues of access and streetscape, in conjunction with flood risk, when determining floor levels of commercial developments.

d Critical Utilities and Public Facilities

Critical utilities and public facilities should have floor levels equal or greater than the extreme flood event (3 * 1% AEP) plus 0.5 m freeboard, or be protected from the extreme flood event by other measures (such as a levee).

ii Building Components and Materials

a Residential

Any development below the 1% AEP plus 500mm freeboard must be constructed of flood compatible materials as per Schedule 1.

b Dwellings on Rural Land

Any structure constructed below the 1% AEP plus 0.5 metre freeboard must be constructed of flood compatible materials, as per Schedule 1.

c Commercial / Industrial

Any portion of the building constructed below the 1% AEP plus 0.5 metre freeboard must be constructed of flood compatible materials, as per Schedule 1.

d Critical Utilities and Public Facilities

Any portion of the structure constructed below the extreme flood event (3 * 1% AEP) plus 0.5 metre freeboard must be constructed of flood compatible materials, as listed in Schedule 1.

iii Structural Soundness

a Residential

Applicant to demonstrate that any structure subject to flood up to and including the 1% AEP flood level should withstand the force of floodwater, debris and buoyancy.

b Commercial / Industrial

Engineers report required to prove any structure subject to a flood up to and including the 1% AEP flood level can withstand the force of floodwater, debris and buoyancy.

c Critical Utilities and Public Facilities

An applicant is required to demonstrate that any structure subject to a flood up to and including the extreme flood event (3 * 1% AEP) can withstand the force of flood water, debris and buoyancy.

iv Management of Buildings

a Commercial / Industrial

Where floor levels will be located below the 1% AEP flood event, a Site Specific Flood Response Plan must accompany the application to show that adequate storage areas are available for hazardous materials and valuable goods, above the 1% AEP plus 500mm freeboard. Where possible, such floor plans must facilitate the flow of water, using flood compatible materials.

v Flood Effect on Others

Consideration shall be given to the impact of the development on flooding elsewhere. In some circumstances, Council may require a hydrologist's report.

vi Evacuation/Access

Development in the 1% AEP area will only be permitted where effective warning time and reliable access are available for the evacuation of flood prone land.

3.1.3 Flood way / Flood Fringe – Carroll

Applications will need to satisfy the following relevant requirements when considering development within the flood fringe.

i Floor Levels

Reference should be made to Map 31923-017 for flood contour levels for properties located in Carroll.

a Residential

Habitable floor levels to be equal or greater than the 1% AEP flood plus 0.5m (freeboard).

b Dwellings on Rural Land

Habitable floor levels to be equal or greater than the 1% AEP flood plus 0.5m (freeboard).

c Commercial / Industrial

There is no minimum floor level for commercial properties. Property owners should consider issues of access and streetscape, in conjunction with flood risk, when determining floor levels of commercial developments.

d Critical Utilities and Public Facilities

Critical utilities and public facilities should have floor levels equal or greater than the extreme flood event (3 * 1% AEP) plus 0.5 m freeboard, or be protected from the extreme flood event by other measures (such as a levee).

ii Building Components and Materials

a Residential

Any development below the 1% AEP plus 500mm freeboard must be constructed of flood compatible materials as per Schedule 1.

b Dwellings on Rural Land

Any structure constructed below the 1% AEP plus 0.5 metre freeboard must be constructed of flood compatible materials as per Schedule 1.

c Commercial / Industrial

Any portion of the building constructed below the 1% AEP plus 0.5 metre freeboard must be constructed of flood compatible materials, as per Schedule 1.

d Critical Utilities and Public Facilities

Any portion of the structure constructed below the extreme flood event (3 * 1% AEP) plus 0.5 metre freeboard must be constructed of flood compatible materials, as per Schedule 1.

iii Structural Soundness

a Residential

An engineer's certificate is required to demonstrate that any structure subject to flood up to and including the 1% AEP flood level should withstand the force of floodwater, debris and buoyancy.

b Commercial / Industrial

An engineer's certificate is required to prove any structure subject to a flood up to and including the 1% AEP flood level can withstand the force of floodwater, debris and buoyancy.

c Critical Utilities and Public Facilities

Applicant is required to demonstrate that any structure subject to a flood up to and including the extreme flood event (3 * 1% AEP) can withstand the force of flood water, debris and buoyancy.

iv Management of Buildings

a Commercial/Industrial

Where floor levels will be located below the 1% AEP flood event, a Site Specific Flood Response Plan must accompany the application to show that adequate storage areas are available for hazardous materials and valuable goods above the 1% AEP plus 500mm freeboard. Where possible, such floor plans must facilitate the flow of water, using flood compatible materials.

v Flood Effect on Others

The applicant must demonstrate that the proposed development will not detrimentally increase the potential for flood affection on development or properties surrounding or downstream of the proposed development.

vi Evacuation/Access

Any development will only be permitted where effective warning time and reliable access are available for the evacuation of flood prone land.

3.2 GENERAL PLANNING CONTROLS APPLIED TO ALL DEVELOPMENTS

3.2.1 Fencing

- (a) Council will require a DA for all new fences above 0.6m high, in the area affected by floods up to the 1% AEP flood.
- (b) An applicant will need to demonstrate that the fence would create no impediment to the flow of floodwaters. Brick or other masonry type fences will generally not be permitted. Appropriate fences may include:
 - i. An open collapsible hinged fence structure or pool type fence; or
 - ii. A fence type and siting criteria as prescribed by Council.
- (c) Other forms of fencing will be considered by Council on a merit basis.

3.2.2 Items of Environmental Heritage

- (a) Council may consent to the extension of, or the change to another use of, a building which is an item of environmental heritage provided it is demonstrated that adequate flood protection measures are provided and the extension or change of use will contribute to the preservation of the building's significance.

3.2.3 House Raising

- (a) Where house raising is undertaken in flood prone areas, consideration must be given to:
- i. potential impacts of a higher than design flood;
 - ii. isolation if flood waters restrict access to the house; and
 - iii. capacity of the dwelling for self-sufficiency.
- (b) Consideration must also be given to the visual impact of house raising on:
- i. the streetscape;
 - ii. views, privacy, overshadowing, etc of surrounding dwellings;
 - iii. any impact on the aesthetics or amenity of surrounding commercial areas; and
 - iv. any impact on items of environmental heritage.
- (c) Proposals for house raising must provide documentation, including a report from a suitably qualified engineer, to demonstrate that the raised structure will not be at risk of failure from the forces of floodwaters.
- (d) Details such as landscaping and architectural enhancements, which ensure that the resultant structure will not have significant adverse impacts upon the amenity and character of an area, must also be provided.

SCHEDULE 1 FLOOD COMPATIBLE MATERIALS

Building Component	Flood Compatible Material	Building Component	Flood Compatible Material
Flooring And Sub-Floor Structure	<ul style="list-style-type: none"> • pier and beam construction, or • suspended reinforced concrete slab 	Doors	<ul style="list-style-type: none"> • solid panel with water proof adhesives • flush door with marine ply filled with closed cell foam • painted material construction • aluminium or galvanised steel frame
Floor Covering	<ul style="list-style-type: none"> • clay tiles • concrete, precast or in situ • concrete tiles • epoxy, formed-in-place • mastic flooring, formed-in-place • rubber sheets or tiles with chemical set adhesives • silicone floors formed-in-place • vinyl sheets or tiles with chemical-set adhesive • ceramic tiles, fixed with mortar or chemical set adhesive • asphalt tiles, fixed with water resistant adhesive • removable rubber-backed carpet 	Wall And Ceiling Linings	<ul style="list-style-type: none"> • asbestos-cement board • brick, face or glazed • clay tile glazed in waterproof mortar • concrete • concrete block • steel with waterproof applications • stone, natural solid or veneer, waterproof grout • glass blocks • glass • plastic sheeting or wall with waterproof adhesive
Wall Structure	<ul style="list-style-type: none"> • solid brickwork, blockwork, reinforced, concrete or mass concrete 	Insulation	<ul style="list-style-type: none"> • foam or closed cell types
Windows	<ul style="list-style-type: none"> • aluminium frame with stainless steel or brass rollers 	Nails, Bolts, Hinges And Fittings	<ul style="list-style-type: none"> • galvanised • removable pin hinges

Electrical and Mechanical Equipment

For dwellings constructed on land to which this Policy applies, the electrical and mechanical materials, equipment and installation should conform to the following requirements.

Main power supply -

Subject to the approval of the relevant power authority, incoming electricity mains, service equipment and meters shall be located 1m above the flood planning level. Means shall be available to easily disconnect the building from the main power supply.

Wiring -

All wiring, power outlets, switches, etc, should, to the maximum extent possible, be located 1m above the flood planning level. All electrical wiring installed below the flood planning level should be suitable for continuous submergence in water and should contain no fibrous components. Only submersible-type splices should be used below the flood planning level. All conduits located below the relevant flood level should be so installed that they will be self-draining if subjected to flooding.

Equipment -

All equipment installed below or partially below the flood planning level should be capable of disconnection by a single plug and socket assembly.

Reconnection -

Should any electrical device and/or part of the wiring be flooded it should be thoroughly cleaned or replaced and checked by an approved electrical contractor before reconnection.

Heating and Air Conditioning Systems

Heating and air conditioning systems should, to the maximum extent possible, be installed in areas and spaces above the flood planning level. When this is not feasible every precaution should be taken to minimise the damage caused by submersion according to the following guidelines.

Fuel -

Heating systems using gas or oil as a fuel should have a manually operated valve located in the fuel supply line to enable fuel cut-off.

Installation -

The heating equipment and fuel storage tanks should be mounted on and securely anchored to a foundation pad of sufficient mass to overcome buoyancy and prevent movement that could damage the fuel supply line. All storage tanks should be vented to an elevation of 600 millimetres above the flood planning level.

Ducting -

All ductwork located below the flood planning level should be provided with openings for drainage and cleaning. Self-draining may be achieved by constructing the ductwork on a suitable grade. Where ductwork must pass through a watertight wall or floor below the relevant flood level, the ductwork should be protected by a closure assembly operated from above the flood planning level.

Services

All sewer connections to buildings on flood prone land are to be fitted with reflux valves to prevent backflow of sewage in a flood event.

APPENDIX C

PROPERTIES RECOMMENDED FOR VOLUNTARY PURCHASE OR HOUSE RAISING

Appendix C1 – Gunnedah houses subject to voluntary purchase – (Updated October 2014)

Gunnedah Houses Subject to Voluntary Purchase						
ID	House No	Street	Height to floor	100 yr Flood Level*	Purchased	Notes
99	100	Maitland St	0.1	2.6		
85	80	Maitland St	0.2	2.4	Yes	Purchased September 2003 (demolished 2008)
416	169	Marquis St	0.25	2.4		
89	84	Maitland St	0.48	2.1		
87	1/82	Maitland St	0.8	2.1	Yes	Purchased September 2003 (demolished 2008)
86	2/82	Maitland St	0.77	1.9	Yes	Purchased September 2003 (demolished 2008)
96	94	Maitland St	0.58	1.8		
82	78b	Maitland St	0.91	1.7		
88	3/82	Maitland St	0.9	1.7	Yes	Purchased September 2003 (demolished 2008)
97	96	Maitland St	2.24	0.2		
170	60	Tempest St	2.3	0		
98	98	Maitland St	2.43	0		
81	78a	Maitland St	2.71	0		
221	52	Bloomfield St	2.57	0		
84	73	Maitland St	0.52	1.8		Moved from VHR List

* This is the height of the 100 year flood above the floor level

Appendix C2 – Gunnedah concrete floor properties – (Updated October 2014)

Gunnedah - Concrete floor properties									
ID	House No	Street	Height to floor	Floor - concrete	Walls - brick	Walls - fibro	Walls - other	100 yr Flood Level*	Notes
418	163	Marquis St	0	Y		Y	and timber	2.0	
108	131	Maitland St	0.2	Y				1.7	
182	17	Little Conadilly St	0.2	Y			sheet metal	1.6	
226	56	Bloomfield St	0	Y			tank + shed	1.4	
93	93	Maitland St	0.9	Y			stone	1.2	
330	56	Conadilly St	0.36	Y			clad	1.2	
92	91	Maitland St	1	Y	Y			1.2	
248	106	Bloomfield St	0.1	Y				1.2	
164	42	Tempest St	0.11	Y		Y		1.2	
228	62	Bloomfield St	0.15	Y			sheet metal	1.0	
116	48	Henry St	0.52	Y			stone	0.6	
117	46	Henry St	0.7	Y		Y		0.0	
	40	Rosemary St	0.15	Y			Timber	1.5	Moved from VHR list April 2003
	86	Bloomfield St	0.1	Y		Y		1.3	Moved from VHR list April 2003

* This is the height of the 100 year flood above the floor level

Appendix C3 – Gunnedah properties for house raising – (Updated October 2014)

Gunnedah - Properties for House Raising									
ID	House No	Street	Height to floor	Floor - timber	Walls - fibro	Walls - other	100 yr Flood Level*	Raised	Notes
179	12	Little Conadilly St	0				2.3		
109	135	Maitland St	0.1	Y		timber	2.1		
190	34	Little Conadilly St	0.1	Y		timber	2.1		
84	73	Maitland St	0.52	Y	Y	timber	1.8		Moved to the Voluntary Purchase List
189	30	Little Conadilly St	0.39	Y		clad	1.8		
192	38	Little Conadilly St	0.4	Y	Y		1.7	Yes	Corrected description - 38 Little Conadilly. Raised June 2012
389	84	Elgin St	0.5			timber	1.7		
181	18	Little Conadilly St	0.4	Y		timber	1.7		
414	106	Chandos St	0				1.7	N/A	Removed from list - Rural Shed not a dwelling
391	80	Elgin St	0.3	Y		clad	1.7		
411	103	Chandos St	0.1		Y		1.6		
107	129	Maitland St	0.6	Y	Y		1.5	N/A	Removed from list - No dwelling at site
305	40	Rosemary St	0.15	Y		timber	1.5		Moved to the concrete floor list
174	16	Warrabungle St	0.5	Y	Y		1.5	Yes	Raised August 2012
188	29	Little Conadilly St	0.47	Y	Y		1.5	Yes	Raised December 2004
171	20	Warrabungle St	0.89	Y	Y		1.4		
173	18	Warrabungle St	0.7	Y	Y		1.4	Yes	Raised August 2003
237	86	Bloomfield St	0.1	Y	Y		1.3		
184	19	Little Conadilly St	0.53	Y	Y		1.3	Yes	Raised January 2004
166	46	Tempest St	0.07	Y	Y		1.3		
306	44	Rosemary St	0.55	Y		clad	1.3		
172	22	Warrabungle St	1.1	Y		timber	1.3		
387	83	Elgin St	0.62	Y		timber	1.3		
419	152	Marquis St	0.77	Y	Y	timber	1.3		
162	36	Tempest St	0.05			timber	1.3		
420	1/146	Marquis St	0.5	Y	Y	timber	1.3		
199	52	Little Conadilly St	0.35	Y		timber	1.2		
100	99	Maitland St	0.65	Y	Y	timber	1.2	Yes	Raised March 2006
245	104	Bloomfield St	0.13	Y		timber	1.2		
392	75	Elgin St	0.35	Y		clad	1.2		
421	2/146	Marquis St	0.5	Y	Y	timber	1.2		
165	44	Tempest St	0.15	Y	Y		1.2		
388	79	Elgin St	0.6			timber	1.2		Large area of concrete floor
317	36	Conadilly St	0.32	Y		clad	1.1		Large area of concrete floor
422	144	Marquis St	0.45	Y	Y	timber	1.1		
394	76	Elgin St	0.75	Y		timber	1.1		
371	61	Abbott St	0.45	Y		timber	1.1		
235	84	Bloomfield St	0.4	Y		timber	1.1		
198	51	Little Conadilly St	0.55	Y		timber	1.1		
227	62	Bloomfield St	0.15	Y		timber	1		Proper description is 62 Bloomfield Street
435	1/157	Marquis St	0.7	Y	Y		1		
316	34	Conadilly St	0.4	Y		timber	1		
250	110	Bloomfield St	0.2	Y		timber	1		
393	73	Elgin St	0.46	Y		timber	1		
436	2/157	Marquis St	0.7	Y	V		0,9		

395	74	Elgin St	0.7	Y		timber	0.9		
390	77	Elgin St	0.7	Y		timber	0.9		
256	120	Bloomfield St	0.05	Y	Y		0.9		
335	62	Conadilly St	0.56	Y		timber	0.9		
315	32	Conadilly St	0.2	Y		timber	0.8		
249	108	Bloomfield St	0.4	Y		timber	0.8		
304	38	Rosemary St	0.74	Y		timber	0.8		
160	28	Tempest St	0.25	Y		timber	0.8		
229	66	Bloomfield St	0.38	Y	Y		0.8	Yes	Raised August 2006
91	89	Maitland St	1.43	Y	Y		0.8		
396	71	Elgin St	0.51	Y		clad	0.8		
369	60	Abbott St	0.7	Y		timber	0.7		
193	42	Little Conadilly St	1.26	Y		timber	0.7		
115	50	Henry St	1.48	Y	Y		0.7		
195	43	Little Conadilly St	0.96			clad	0.7		
328	52	Conadilly St	0.76			clad	0.7		
397	70	Elgin St	0.6			timber	0.7 •		
326	46	Conadilly St	0.65			timber	0.7		
196	46	Little Conadilly St	1.23			clad	0.6		
268	60	Osric St	0.95			timber	0.6		
255	118	Bloomfield St	0.4			timber	0.6		
409	102	Chandos St	0.78			claddin g	0.6		
348	132	Little Bloomfield St	0.2			timber	0.6		
225	54	Bloomfield St	1.06			clad	0.6		
410	104	Chandos St	0.93			timber	0.6		
398	69	Elgin St	0.65			timber	0.6		
257	122	Bloomfield St	0.27				0.6		
201	55	Little Conadilly St	0.77			clad	0.5		
370	58a	Abbott St	0.55				0.5		
354	142	Little Bloomfield St	0.2			timber	0.5		
200	53	Little Conadilly St	1.05			timber	0.5		
372	59	Abbott St	0.6			timber	0.5		
329	54	Conadilly St	1.08			timber	0.5		
161	34	Tempest St	0.7			timber	0.5		
259	128	Bloomfield St	0.16			timber	0.4		
359	152	Little Bloomfield St	0.1			timber	0.4		
423	142	Marquis St	1.05				0.4		
244	102a	Bloomfield St	1.2			timber	0.4		
239	94	Bloomfield St	0.9			clod	0.4		
254	116	Bloomfield St	0.7				0.4		
258	126	Bloomfield St	0.33			timber	0.4	Yes	Raised December 2005
241	98	Bloomfield St	0.9			timber	0.4		
243	102	Bloomfield St	1			timber	0.4	Yes	Raised Privately
350	136	Little Bloomfield St	0.25			timber	0.3		
267	58	Osric St	0.46			timber	0.3		
327	50	Conadilly St	1.15			clad	0.3		
252	114	Bloomfield St	0.9			clad	0.3		
358	150	Little Bloomfield St	0.15			timber	0.3		
373	58	Abbott St	0.4			timber	0.3		
374	56	Abbott St	0.3			timber	0.2		

379	50	Abbott St	0.15			timber	0.2		
360	154	Little Bloomfield St	0.1			timber	0.2		
238	92	Bloomfield St	1.13			timber	0.2		
377	52	Abbott St	0.25			timber	0.2		
349	134	Little Bloomfield St	0.47			timber	0.1		
356	146	Little Bloomfield St	0.1				0.1		
233	82	Bloomfield St	1.42			clad	0.1		
376	54	Abbott St	0.39			timber	0		
353	140	Little Bloomfield St	0.6		Y		0		
357	148	Little Bloomfield St	0.2			timber	0		
355	144	Little Bloomfield St	0.45			clad	0		
266	56	Osric St	0.35				0		
260	130	Bloomfield St	0.58			clad	0		
203	132	Bloomfield St	0.58			clad	0		
251	112	Bloomfield St	1.21			clad	0		
242	100	Bloomfield St	1.42			timber	0		
242	100	Bloomfield St	1.42			timber	0		
204	134	Bloomfield St	0.62			timber	0		
	151	Marquis St							Added to list February 2003

* This is the height of the 100 year flood above the floor level

Appendix C4 – Carroll concrete floor properties – (Updated October 2014)

Carroll - Concrete floor properties							
ID	House No	Street	Height to floor	Floor - concrete	Walls - brick	Walls - fibro	100 Yr Flood Level*
68	3a/33	Bernard St	0.8	Y		Y	1.1
17	12/25	Breeze St	0.79	Y		Y	0.9
32	6/16	Gunnedah St	0.05	Y	Y		2.2
56	4/33	Phillip St	0.6	Y		Y	0.9
58	7/33	Phillip St	0.1	Y	Y		.07

* This is the height of the 100 year flood above the floor level

Appendix C5 – Carrol properties for house raising – (Updated October 2014)

Carroll - Properties for House Raising									
ID	House No	Street	Height to floor	Floor - timber	Walls - fibro	Walls - other	100 yr Flood Level*	Raised	Notes
34	10/15	Gunnedah St	0.5	Y	Y		2.1	Yes	Records Incorrect - is 0.23m above 55' flood level
28	6/5	Forbes St	0.6	Y	Y		2.0		
12	5/20	Breeza St	0,75	Y		timber	2.0		
49	9/18	Gunnedah St	0.15	Y	Y		1.8		
44	11/20	Gunnedah St	1	Y	Y		1.7		
64	1/23	Phillip St	0.2	Y		timber	1.7		
47	7/19	Gunnedah St	0.5	Y		clad	1.6		
13	5/16	Breeza St	0.5	Y		timber	1.6		
38	10/14	Gunnedah St	0.37	Y		timber	1.5		
41	11/14	Breeza Lane	0.46	Y		clad	1.5		
39	9/14	Gunnedah St	0,35	Y	Y		1.5		
21	5/18	Breeza St	0.15	Y		timber	1.5		
26	2/19	Breeza St	0.6	Y	Y		1.5		
31	7/16	Gunnedah St	0.3	Y		tin and timber	1.4		
69	3b/33	Bernard St	0.2	Y		tin	1.4		
67	1/27	Bernard St	0,37	Y		timber	1.3		
11	15/23	Breeza St	0.85	Y	Y		1.3		
20	11/24	Breeza St	0.2	Y		timber	1.3		
33	2/12	Gunnedah St	0.9	Y		timber	1.3		
35	9/13	Elia St	0.51	Y		timber	1.2		
40	6/14	Breeza Lane	0.84	Y	Y	timber	1.2		
3	8/28	Breeza St	0.15	Y		limber	1.2		
79	10/8	Forbes St	0.65	Y		brick clad	1.2		
10	11/22	Breeza St	1.24	Y	Y		1.2		
36	14/13	Ella St	0.43	Y	Y	and timber	1.2		
48	6/19	Gunnedah St	0,9	Y	Y		1.2		
43	8/20	Gunnedah St	1,2	Y	Y		1.1		
16	11/25	Breeza St	0.92	Y	Y		1.1		
78	8/4	Ella St	0.34	Y		timber	1.1		
15	3/16	Breeza St	0.24	Y		timber	1.0		
80	10/25	David St	0.84	Y	Y		1.0		
71	3/28	Lane A	0.59	Y		timber	1.0		
73	8/23	Lane A	0.16	Y	Y		0.9		
54	6/27	Phillip St	1.14	Y	Y		0.9		
66	Lot 110	Phillip St	0.75	Y	Y		0.9		
61	5/34	Phillip St	0.2	Y		timber	0.9		