

3.8 Flood Affected Lands

3.8.1 Purpose and objectives of this chapter

The purpose of this Chapter is to specify development controls for development occurring within land that is identified as flood prone or as potentially flood prone.

Note: Clause 5.21 of Goulburn Mulwaree Local Environmental Plan 2009 identifies considerations for the assessment of development on land identified within the flood planning area.

The objectives of this chapter are to:

- Provide specific flood planning controls for the identified area within the *Goulburn Floodplain Risk Management Study (GFRMS) 2021* and Plan.
- Provide additional flood related development controls to support those already included within the *Goulburn Mulwaree Local Environmental Plan 2009*.
- Introduce and implement the Flood Policy and apply its Flood Planning Constraint Categories (FPCC) and specific development controls for certain development on land identified within the Goulburn Floodplain Risk Management Study.
- Impose development controls for sensitive and hazardous development that occurs within the Probable Maximum Flood (PMF).
- Have an overall aim to minimise impacts from flooding for development occurring within flood prone land both within and outside of an adopted flood study or floodplain risk management study and plan.

This chapter prevails to the extent of any inconsistency with any other chapter in the *Goulburn Mulwaree Development Control Plan 2009*.

3.8.2 Application of this chapter

3.8.2.1 Development Outside of Adopted Flood Study Areas

Properties not yet identified in Council studies may still be flood affected. An assessment will be required to be submitted with any development application (see controls section below) for potentially flood prone land.

3.8.2.2 Controls for Development Outside of Adopted Flood Study Areas

Developments that are identified as potentially flood affected are required to submit a Flood Assessment Report or a Flood Impact and Risk Assessment with a development application (DA)

The following factors identify sites which are potentially flood affected:

- Within 40m of a water course;
- Within 10m of a major drainage system;
- Within an overland flow path
- Within a drainage easement;
- Has a history of flooding.

The following is to be provided on a site which is potentially flood affected:

Flood Impact and Risk Assessment Report

A Flood Impact Risk Assessment Report must be prepared by a suitably qualified and experienced engineer recognised under the National Engineers Register (NER) in this field. The full name of the person who prepared the report, relevant qualifications and registration number are to be provided on the front page of the report. The assessment report provides information on existing flood risk for a catchment and is to be commensurate with the latest version of the NSW Floodplain Development Manual and must include the following information:

- (a) A description of the creek or drainage system that is relevant to the flood characteristics of the site, whether located on, adjacent to or remote from the development site;

(b) Flood levels must be defined for the PMF, 1%, 5%, 10% and 20% AEP events for the climate change pre-development scenario (all assumptions, calculations and modelling output tables must be provided). From this information the FPL and FPA is to be determined (note for areas outside an adopted Council Flood Study a freeboard of 0.5m is to be applied to the 1% AEP to determine the FPL);

(c) Flood velocities and vectors for the 1% AEP event for the climate change pre-development scenario (all assumptions, calculations and modelling output tables must be provided);

(d) Provisional Hazard categories based on depth and velocity as well as obvious other hazards such as evacuation difficulties as per the requirements of the 2005 NSW Floodplain Development Manual;

(e) Provisional Hydraulic categories based on depth and velocity as per the requirements of the latest version of the NSW Floodplain Development Manual; and

(f) Flood Planning Constraint Categories based on the definitions provided in the latest adopted version of the Goulburn Floodplain Risk Management Study and Plan or an adopted Floodplain Risk Management Study and plan more relevant to the site. Once determined the relevant FPCC controls in the Flood Policy matrix can be applied (albeit with a 0.5m freeboard for areas outside an adopted Council Flood Study Refer to Appendix J).

(g) Plans showing the results of (c) to (f) as well as the location of the proposed development.

Please note for point:

a) The modelling shall include climate change considerations as per Council's adopted Floodplain Risk Management Study predicted changes in rainfall.

b) The modelling shall include a 50% and 100% blockage analysis of all existing drainage structures that may affect the development site.

c) Localised flow effects shall be investigated and reported on where relevant.

d) The roughness coefficients used shall allow for fully vegetated stream conditions in order to account for potential revegetation of degraded areas without impact on flood levels.

e) In areas where local sub-catchment flooding, such as flows from drains, overland flow paths or similar, interact with overall catchment flooding from waterways and lakes a joint probability analysis of flood behaviour shall be undertaken.

3.8.2.3 Development on Land Identified as Flood Prone in the Goulburn Floodplain Risk Management Study and Plan

The Goulburn Floodplain Risk Management Study (the Study) and Plan 2021, investigates flood behaviour and impacts from the Wollondilly and Mulwaree Rivers and provides management measures to remedy flood risk to infrastructure and private development.

A Flood Policy was also prepared as part of the above Study, which forms the basis for the controls on land identified in this study, the Policy is contained within Appendix J. It sets out development controls for development within flood prone land, up to and including the Probable Maximum Flood (PMF). The Policy implements Flood Planning Constraint Categories (FPCC) which group similar types and scales of flood related constraints to support land use planning. The Policy implements four FPCCs from most constrained to least constrained. The FPCCs are as per Table 1 below.

Category	Summary
FPCC1	FPCC1 identifies the most significantly constrained areas, with high hazard or significant flood flows present. Intensification of use in FPCC1 is generally very limited except where uses are compatible with flood function and hazard.
FPCC2	FPCC2 areas are the next least suitable for intensification of land use or development because of the effects of flooding on the land, and the consequences to any development and its users. In this document, FPCC2 is split into FPCC2 (Subcategory a,b,c,e) or FPCC2 (Subcategory d)
FPCC3	FPCC3 areas are suitable for most types of development. This is the area of the floodplain where more traditional flood-related development constraints, based on minimum floor and minimum fill levels, will apply.
FPCC4	FPCC4 is the area inundated by the PMF (extent of flood prone land), but outside FPCC1-3. Few flood-related development constraints would be applicable in this area for most development types. Constraints may apply to key community facilities and developments where there are significant consequences to the community if failed evacuations occur.

Table 1. Identification of the four Flood Planning Constraint Categories (FPCC).

The Flood Planning Area (FPA) forms the extent of FPCC3 above.

The Probable Maximum Flood (PMF) is bounded by the extent of FPCC3 and up to the extent of FPCC4.

Land outside FPCC4 is not identified as subject to flooding from the two rivers and therefore not subject to the application of the Flood Policy and flood planning controls in this section (see general controls in 3.8.2.2).

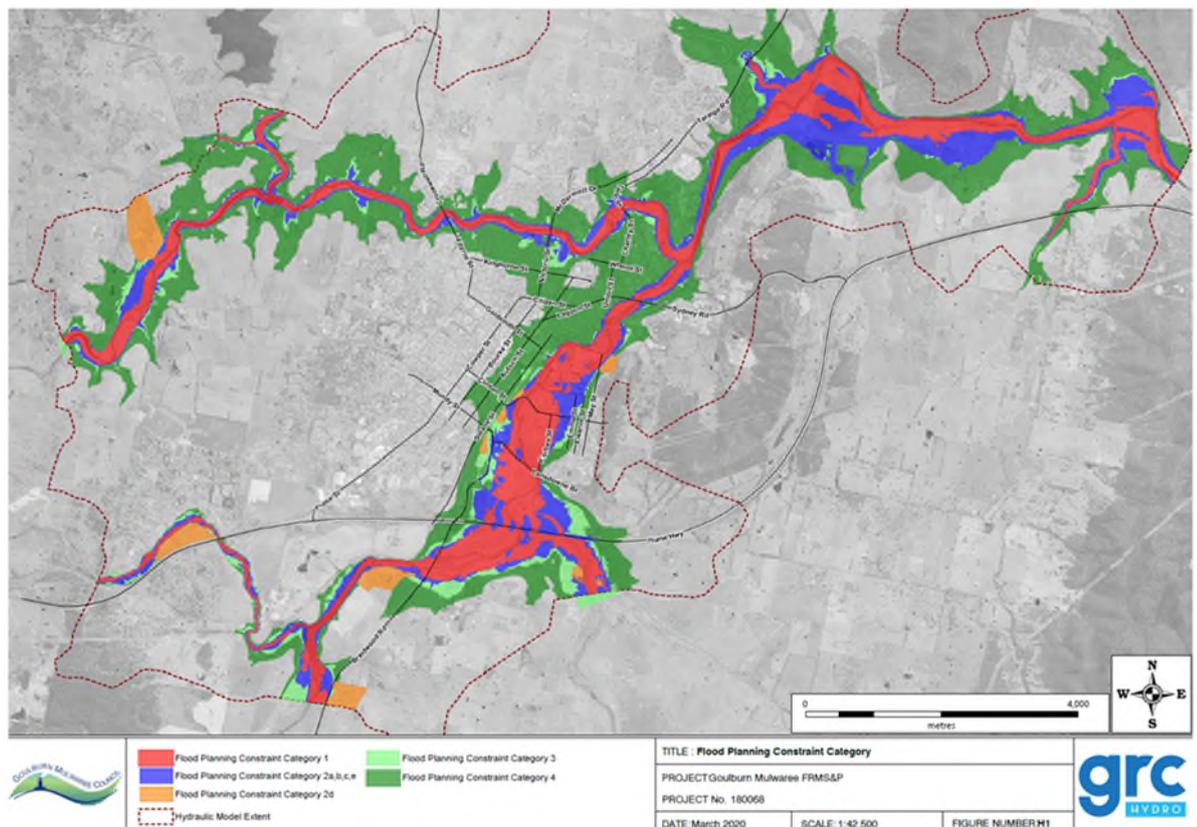


Figure 1. Flood Planning Constraint Categories (FPCC).

The extent of Flood Planning Constraint Categories (FPCC) in the Goulburn Flood Risk Management Study are shown in Figure 1.

The 1 in 100 or 1% Annual Exceedence Probability (AEP) plus a suitable freeboard has been used to derive the Flood Planning Area (FPA). For the Goulburn Floodplain Risk Management Study the freeboard recommended is 0.8m. For the remainder of the LGA 0.5m is to be applied pending further studies being undertaken.

Development is required to apply and meet the requirements of the Flood Policy as set out in Appendix J.

3.8.2.4 Controls for development at or below the Flood Planning Area (FPA) and the Probable Maximum Flood (PMF) in the Goulburn Floodplain Risk Management Study and Plan

Refer to controls in the Flood Planning Policy (Appendix J).

3.8.2.5 Controls for development between the Flood Planning Area (FPA) and the probable Maximum Flood (PMF) in the Goulburn Floodplain Risk Management Study and Plan

Refer to controls in the Flood Planning Policy (Appendix J).

3.8.3 Definitions

This chapter is to be read in conjunction with the Draft Goulburn Floodplain Risk Management Study and Plan. Further definitions or background information may be found in that Study and Plan which is available on Council's web site.

Flood Planning Area (FPA): the area of land that is below the Flood Planning Level and therefore subject to flood related development controls. This is shown in Figure 2 below in relation to the Goulburn Floodplain Risk Management Study and Plan:

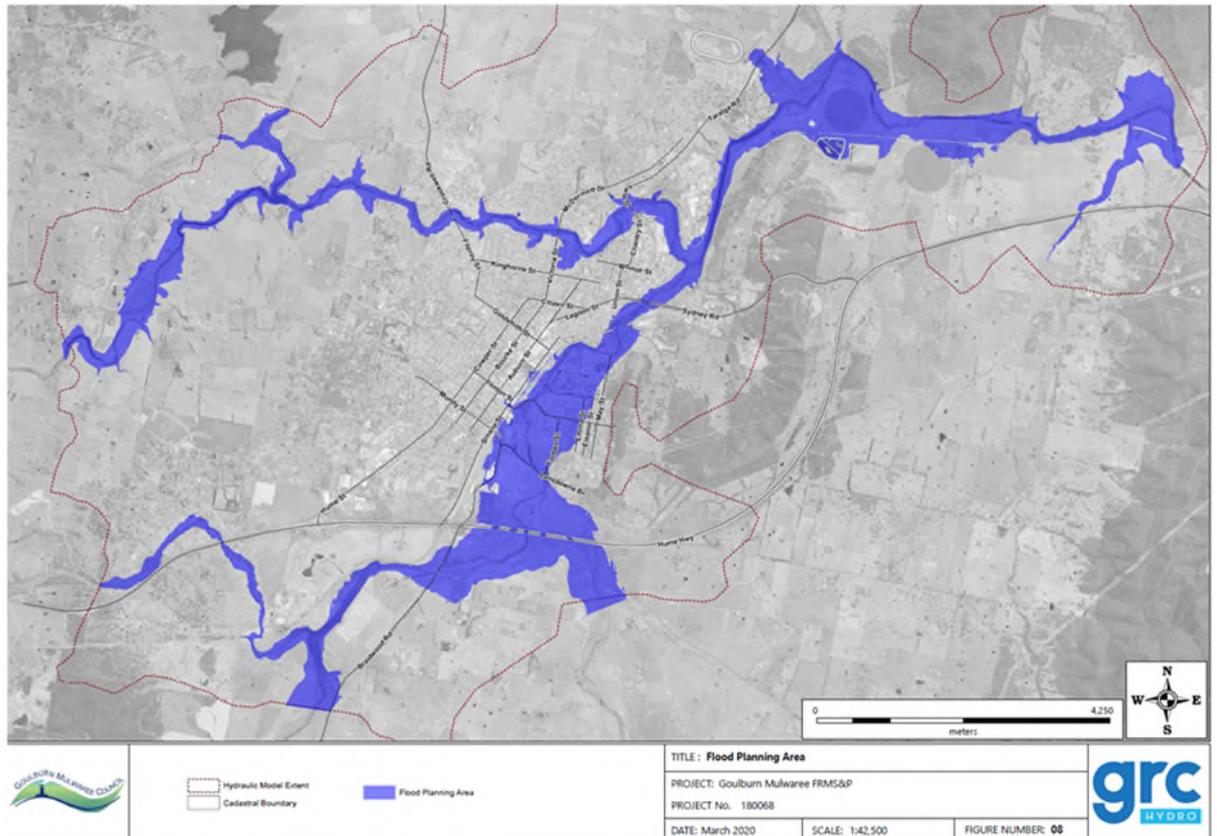


Figure 2. Flood Planning Area (FPA).

Flood Planning Level (FPL): the floor level of development that incorporates a freeboard that is applied to the 1% AEP event.

Flood Planning Constraint Categories (FPCC): separated areas within the flood plain, categorised from most constrained to least constrained, that define specific development controls for particular development types.

Freeboard: a factor of safety expressed as the height above the FPL which is 0.8m in the Goulburn Floodplain Risk Management Study and Plan and an assumed 0.5m elsewhere.

Flood Policy: The Flood Policy Prepared by GRC Hydro in Appendix J.

Local Government Area (LGA): Goulburn Mulwaree local government area.

Sensitive and hazardous development: development that is defined in the Standard Instrument as Sensitive and hazardous development or in the Flood Policy (Appendix J).