Chapter 11

Flood Risk Management

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11.0 Context and objectives

In 1984, the State Government introduced its current flood prone land policy applicable to New South Wales. The first Floodplain Development Manual (FDM) was published in 1986, providing guidelines for the implementation of the government’s flood prone land policy and the merit approach that underpins its application.

In 2005, the State Government released revised guidelines under the Floodplain Development Manual (FDM April 2005) to support the Flood Prone Land Policy, the primary objective of which is:

“To reduce the impact of flooding and flood liability on individual owners and occupiers of flood prone property, and to reduce private and public losses resulting from floods, utilising ecologically positive methods wherever possible.”

In response to this objective, Fairfield City Council has undertaken a number flood risk studies or developed plans to address flooding risks, with the following controls being an important product of this work.
Chapter 11 – List of Schedules

1. Flood Compatible Materials & Building Components
2. Land Use Categories
3. Diagrams Explaining Main Car Parking Related Controls
4. Flood Planning Matrix - Prescriptive Controls (Three Tributaries/Canley Corridor/Prospect Creek/Cabramatta Creek/Georges River/Other Floodplain)

11.1 Background

To implement the objectives of the Floodplain Development Manual the following broad hierarchy of flood risk management measures apply:

a) risk prevention;
b) risk (reduction) mitigation;
c) risk transfer; or
d) risk acceptable.

Flood risk mitigation is the least preferred option, being costly and most likely to adversely affect the natural environment. Prevention of flood risk is the option most likely to be acceptable and is primarily reliant on land use planning and development control for implementation.

Local Government is the primary authority responsible for both flood risk management and land use planning in New South Wales. The State Government’s flood policy provides for a flexible merit based approach to be followed by local government when dealing with planning, development and building matters on flood prone land. For Council to fully carry out its responsibilities for management of flood prone land, it is necessary to prepare a local “Floodplain Risk Management Plan” (FRMP).

The FDM requires that Councils prepare Floodplain Risk Management Studies (FRMS) as a prelude to the formulation of a FRMP that, among other things, would control development and other activity within the floodplain. The process for preparing a FRMS and FRMP is depicted by Figure 11.1.

The following controls are consistent with the State Government’s “Flood Prone Land Policy” and the FDM. The controls in this chapter, represent an application of the State Policy that reflects local circumstances, as identified for some floodplains, through the preparation of FRMS’s and FRMP’s.

Figure 11.1: Floodplain Risk Management Process (FDM, 2005)
11.2 Objectives in relation to Flood Risk Management

a) To minimise the potential impact of development and other activity upon the aesthetic, recreational and ecological value of the waterway corridors.

b) Increase public awareness of the hazard and extent of land affected by all potential floods, including floods greater than the 100 year average recurrence interval (ARI) flood and to ensure essential services and land uses are planned in recognition of all potential floods.

c) Inform the community of Council’s controls and policy for the use and development of flood prone land.

d) Reduce the risk to human life and damage to property caused by flooding through controlling development on land affected by potential floods.

e) Provide detailed controls for the assessment of applications lodged in accordance with the Environmental Planning and Assessment Act 1979 on land affected by potential floods.

f) Provide different guidelines, for the use and development of land subject to all potential floods in the floodplain, which reflect the probability of the flood occurring and the potential hazard within different areas.

g) Apply a “merit-based approach” to all development decisions which takes account of social, economic and ecological considerations.

h) To control development and other activity within each of the individual floodplains within the LGA having regard to the characteristics and level of information available for each of the floodplains, in particular the availability of FRMS’s and FRMP’s prepared in accordance with the FDM and its predecessor.

i) Deal equitably and consistently with applications for development on land affected by potential floods, in accordance with the principles contained in the FDM, issued by the NSW Government.

11.3 How does the plan relate to other legislation and regulations?

This Plan should be read in conjunction with the relevant provisions of the NSW Government Flood Prone Lands Policy and Floodplain Development Manual (FDM 2005), the Environmental Planning and Assessment Act, 1979, and Regulations thereto, applicable Environmental Planning Instruments (in particular Fairfield Local Environmental Plan (LEP) 2013 and Greater Metropolitan Regional Environmental Plan No. 2 – Georges River Catchment and other relevant controls of this DCP and policies adopted by Council.

11.4 What do the terms in this chapter mean?

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

**Adequate Warning Systems, Signage and Exits** is where the following is provided:

(a) an audible and visual alarm system which alerts occupants to the need to evacuate, sufficiently prior to likely inundation to allow for the safe evacuation of pedestrians and vehicles;

(b) signage to identify the appropriate procedure and route to evacuate; and

(c) exits which are located such that pedestrians evacuating any location during any flood do not have to travel through deeper water to reach a place of refuge above the 100 year flood away from the enclosed car parking.

**Australian Height Datum (AHD)** is a common national plain of level corresponding approximately to mean sea level.

**Average Recurrence Interval (ARI)** means the long-term average number of years between the occurrence of a flood as big as, or larger than, the selected event. For example, floods with a discharge as great as, or greater than, the 20 year ARI flood event will occur on average once every 20 years. ARI is another way of expressing the likelihood of occurrence of a flood event.

**Boundary of Significant Flow** defines that area of the floodplain where a significant discharge of water occurs during floods. Should the area within this boundary be fully or partially blocked, a significant distribution of flood flows or increase in flood levels would occur.

*Note:* Flood maps prepared by Council for individual floodplains may identify this boundary. This line is intended to identify an area of the floodplain within which any obstruction such as a building, fence or filling is likely to have an unacceptable impact on flood levels or flows. Notwithstanding, unacceptable impacts on other properties in the floodplain may also occur due to development outside of the area, and the need to assess this may be required by Council.
Compensatory Works refers to earthworks where material is excavated (or “cut”) from one location in the floodplain and placed (or “filled”) at another location in the floodplain, with no net importation of fill material, such that the volume available for storage of flood waters is not altered for all floods.

Conveyance is a direct measure of the flow carrying capacity of a particular cross-section of a stream or stormwater channel. (For example, if the conveyance of a channel cross-section is reduced by half, then the flow carrying capacity of that channel cross-section will also be halved).

Design floor level or ground level means the minimum floor level that applies to the development. If the development is concessional development, this level is determined based on what land use category would apply if it was not categorised a Concessional Development. The floor level standards specified for the relevant land use category (excluding Concessional Development) in the low flood risk precinct are to be applied.

Ecologically sustainable development (ESD) is using, conserving and enhancing natural resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be maintained or increased.

Effective warning time is the time available after receiving advice of an impending flood and before the floodwaters prevent appropriate flood response actions being undertaken. The effective warning time is typically used to move farm equipment, move stock, raise furniture, evacuate people and transport their possessions.

Enclosed car parking means car parking which is potentially subject to rapid inundation, which consequently increases risk to human life and property (such as basement of bunded car parking areas). The following criteria apply for the purposes of determining what is enclosed car parking:

(a) Flooding of surrounding areas may raise water levels above the perimeter which encloses the car park (normally the entrance), resulting in rapid inundation of the car park to depths greater than 0.8m, and

(b) drainage of accumulated water in the car park has an outflow discharge capacity significantly less than the potential inflow capacity.

Extreme flood means an estimate of the probable maximum flood, which is the largest flood likely to ever occur.

Flood is a relatively high stream flow which overtops the natural or artificial banks in any part of a stream, river, estuary, lake or dam, and/or local overland flooding associated with major drainage as defined by the FDM before entering a watercourse.

Note: Consistent with the FDM, these controls do not apply in the circumstances of local drainage inundation as defined in the FDM and determined by Council. Local drainage problems can generally be minimised by the adoption of urban building controls requiring a minimum difference between finished floor and ground levels.

Flood awareness is an appreciation of the likely effects of flooding and a knowledge of the relevant flood warning and evacuation procedures.

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.

Note: A list of typical flood compatible building components is provided in Schedule 1 of this chapter.

Flood compatible materials include those materials used in building which are resistant to damage when inundated.

Note: A list of typical flood compatible materials is provided in Schedule 1 of this chapter.

Flood evacuation strategy means the proposed strategy for the evacuation of areas within effective warning time during periods of flood as specified within any policy of Council, the FRMP, the relevant SES Flood Plan, by advices received from the State Emergency Services (SES) or as determined in the assessment of individual proposals.

Flood planning level (FPL) means the level of a 1:100 ARI (average recurrent interval) flood event plus 0.5 metre freeboard.

Flood prone land (being synonymous with flood liable and floodplain) is the area of land which is subject to inundation by the probable maximum flood (PMF).

**Floodplain Risk Management Plan (FRMP)** means a plan prepared for one or more floodplains in accordance with the requirements of the FDM or its predecessors.

**Note:** The predecessors to the FDM provided similar processes for the preparation and adoption of FRMPs and Floodplain Management Plans, which all have the status of FRMPs for the purposes of this Plan.

**Floodplain Risk Management Study (FRMS)** means a study prepared for one or more floodplains in accordance with the requirements of the FDM or its predecessors.

**Note:** The predecessors to the FDM provided similar processes for the preparation and adoption of FRMSs and Floodplain Management Studies, which all have the status of FRMSs for the purposes of this Plan.

**Freeboard** provides reasonable certainty that the risk exposure selected in deciding on a particular flood chosen as the basis for a FPL is actually provided. It is a factor of safety typically used in relation to the setting of flood levels, levee crest levels, etc. (as specified at Section K5 of the FDM). Freeboard is included in the flood planning level.

**Habitable floor area** means:

- in a **residential situation**: a living or working area, such as a lounge room, dining room, rumpus room, kitchen, bedroom or workroom;
- in an **industrial or commercial situation**: an area used for offices or to store valuable possessions susceptible to flood damage in the event of a flood.

**Note:** Separate considerations are specified for the car parking area of a development irrespective of the land use with which it is associated.

**Hazard** is a source of potential harm or a situation with a potential to cause loss. In relation to this plan, the hazard is flooding which has the potential to cause harm or loss to the community.

**Hydraulic hazard** is the hazard as determined by the provisional criteria outlined in the FDM in a 100 year flood event.

**Local drainage** means small scale inundation in urban areas outside the definition of major drainage as defined in the FDM. Local drainage problem invariably involve shallow depths (less than 0.3m) with generally little danger to personal safety.

**Local overland flooding** means inundation by local runoff rather than overbank discharge from a stream, river, estuary, lake or dam.

**Flood Risk Merit approach** is an approach, the principles of which are embodied in the FDM which weighs social, economic, ecological and cultural impacts of land use options for different flood prone areas together with flood damage, hazard and behaviour implications, and environmental protection and well being of the State’s rivers and floodplains.

**Outbuilding** means a building that is ancillary to a principal residential building and includes sheds, garages, carports and similar buildings but does not include granny flats.

**Probable maximum flood (PMF)** is the largest flood that could conceivably occur at a particular location, usually estimated from probable maximum precipitation.

**Probable maximum precipitation (PMP)** is the greatest depth of precipitation for a given duration meteorologically possible over a given size storm area at a particular location at a particular time of the year, with no allowance made for long-term climatic trends (World Meteorological Organisation, 1986). It is the primary input to the estimation of the probable maximum flood.

**Probability** is a statistical measure of the expected chance of flooding (see ARI).

**Rebuilt dwelling** refers to the construction of a new dwelling on an allotment where an existing dwelling is demolished.

**Reliable access** during a flood means the ability for people to safely evacuate an area subject to flooding, having regard to the depth and velocity of flood waters and the suitability of the evacuation route, without a need to travel through areas where water depths increase.
**Flood Risk** means the chance of something happening that will have an impact. It is measured in terms of consequences and probability (likelihood). In the context of this plan, it is the likelihood of consequences arising from the interaction of floods, communities and the environment.

**Site Emergency Response Flood Plan** (not being an SES Flood Plan) is a management plan that demonstrates the ability to safely evacuate persons and include a strategy to move goods above the flood level within the available warning time. This Plan must be consistent with any relevant flood evacuation strategy, flood plan or similar plan.

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

### 11.5 Overview - Criteria for determining applications

The criteria for determining applications for proposals potentially affected by flooding are structured in recognition that different controls are applicable to different land uses and levels of potential flood inundation and hazard.

The procedure to determine what controls apply to proposed development involves:

a) firstly, identifying the land use category of the development (from Schedule 2 at the end of Chapter 11);
b) secondly, determine which floodplain and which part of that floodplain the land is located within (refer to Clause 11.7 and relevant flood risk mapping); and
c) then apply the controls outlined under Clause 11.8.

Clauses 11.8 provides controls for development in the floodplain and contains objectives, performance criteria and prescriptive controls, with the following purpose:

a) **The objectives** represent the outcomes that the Council wishes to achieve from each control.
b) **The performance criteria** represent a means of assessing whether the desired outcomes will be achieved.
c) **The prescriptive controls** are preferred ways of achieving the outcome. While adherence to the prescriptive controls may be important, it is paramount that the objectives and the performance criteria are clearly satisfied.

**Clause 11.9 provides performance criteria for fencing** in the floodplain, while Clause 11.10 identifies special considerations which will apply only to some development in specific circumstances. Specific requirements for fencing are also contained within Schedule 4.

### 11.6 Land Use Categories

Eight major land use categories have been adopted. The specific uses, as defined by the applicable Environmental Planning Instruments, which may be included in each category, are listed in **Schedule 2 at the rear of Chapter 11.**

### 11.7 Flood Risk Precincts

Each of the floodplains within the local government area can be divided into precincts based on different levels of potential flood risk. The relevant Flood Risk Precincts (FRP’s) for each of the floodplains are outlined below.

- **High Flood Risk Precinct** - This has been defined as the area of land below the 100 year flood that is either subject to a high hydraulic hazard or where there are significant evacuation difficulties.
  
  **Note:** The high flood risk precinct is where high flood damages, potential risk to life or evacuation problems would be anticipated, or development would significantly and adversely affect flood behaviour. Most development should be restricted in this precinct. In this precinct, there would be a significant risk of flood damages without compliance with flood related building and planning controls

- **Medium Flood Risk Precinct** - This has been defined as land at or below the 100 year flood that is not in a High Flood Risk Precinct. This is land that is not subject to a high hydraulic hazard or where there are no significant evacuation difficulties
  
  **Note:** In this precinct there would still be a significant risk of flood damage, but these damages can be minimised by the application of appropriate development controls
### Low Flood Risk Precinct
This has been defined as land above the 100 year flood up to and including the Flood Planning Level (1:100 ARI flood event plus 0.5m freeboard).

### Very Low Flood Risk Precinct
This has been defined as all other land within the floodplain (i.e. within the extent of the probable maximum flood) but not identified within either the High Flood Risk, Medium Flood Risk or Low Flood Risk precincts.

**Note deleted**

#### 11.8 Overview - Which Controls Apply to Proposed Developments

The development controls apply to all land within a Flood Risk Precinct described above. The type and stringency of controls have been graded relative to the severity and frequency of potential floods, having regard to categories determined by the relevant Floodplain Risk Management Study and Plan or, if no such study or plan exists, council’s interim considerations. The categories applicable to each floodplain are depicted in the planning matrix contained in Schedule 4 at the rear of Chapter 11.

**Note deleted**

#### 11.8.1 Objectives

a) To ensure the proponents of development and the community in general are fully aware of the potential flood hazard and consequent risk associated with the use and development of land within the floodplain.

b) To require developments with high sensitivity to flood risk (e.g. critical public utilities) to be sited and designed such that they are subject to no or minimal risk from flooding and have reliable access.

c) Allow development with a lower sensitivity to the flood hazard to be located within the floodplain, subject to appropriate design and siting controls, provided that the potential consequences that could still arise from flooding remain acceptable having regard to the State Government's Flood Policy and the likely expectations of the community in general.

d) To restrict any intensification of the use of the High Flood Risk Precinct or land within the boundary of significant flow, and wherever appropriate and possible, allow for their conversion to natural waterway corridors.

e) To ensure that design and siting controls required to address the flood hazard do not result in unreasonable impacts upon the amenity or ecology of an area.

f) To minimise the risk to life by ensuring the provision of appropriate access from areas affected by flooding up to extreme events.

g) To minimise the damage to property, including motor vehicles, arising from flooding.

h) To ensure that proposed development does not expose existing development to increased risks associated with flooding.

#### 11.8.2 Performance Criteria

a) The proposed development should not result in any increased risk to human life.

b) The additional economic and social costs which may arise from damage to property from flooding should not be greater than that which can reasonably be managed by the property owner and general community.

c) The proposal should only be permitted where effective warning time and reliable access is available for evacuation from an area potentially affected by floods to an area free of risk from flooding. Evacuation should be consistent with any relevant flood evacuation strategy.

d) Development should not detrimentally increase the potential flood effects on other development or properties either individually or in combination with the cumulative impact of development that is likely to occur in the same floodplain.

e) Motor vehicles are able to be relocated, undamaged, to an area with substantially less risk from flooding, within effective warning time.

f) Procedures would be in place, if necessary, (such as warning systems, signage or evacuation drills) so that people are aware of the need to evacuate and relocate motor vehicles during a flood and are capable of identifying an appropriate evacuation route.
g) Development should not result in significant impacts upon the amenity of an area by way of unacceptable overshadowing of adjoining properties, privacy impacts (e.g. by unsympathetic house-raising) or by being incompatible with the streetscape or character of the locality.

h) Proposed development must be consistent with ESD principles.

i) Development should not prejudice the economic viability of any Voluntary Acquisition Scheme.

11.8.3 Prescriptive Controls

Schedule 4 outlines the controls relevant to each of the floodplains to which this Chapter applies.

11.9 Special Requirements for Fencing

11.9.1 Objectives

a) To ensure that fencing does not result in the undesirable obstruction of the free flow of floodwaters.

b) To ensure that fencing does not become unsafe during floods and potentially becomes moving debris which threatens the integrity of structures or the safety of people.

11.9.2 Performance Criteria

a) Fencing is to be constructed in a manner that does not affect the flow of flood waters so as to detrimentally increase flood affection on surrounding land.

b) Ability to be certified by a suitably qualified engineer, that the proposed fencing is adequately constructed so as to withstand the forces of floodwaters, or collapse in a controlled manner to prevent the undesirable impediment of flood waters.

11.9.3 Prescriptive Controls – TO BE DELETED (now incorporated within Planning Matrix in Schedule 4)

11.10 Special considerations

When assessing proposals for development or other activity within the area to which this Plan applies, Council will take into consideration the following specific matters.

a) The proposal should not have a significant direct or cumulative detrimental impact on:
   a. water quality;
   b. native bushland vegetation;
   c. riparian vegetation;
   d. estuaries, wetlands, lakes or other water bodies;
   e. aquatic and terrestrial ecosystems;
   f. indigenous flora and fauna; or
   g. fluvial geomorphology.

b) Measures employed to mitigate the potential impact of flooding (e.g. house raising) must be undertaken in a manner which minimises the impact upon the amenity and character of the locality.

c) The design of car parking (enclosed or uncovered) and associated driveways should not result in unacceptable environmental or amenity impacts. Unacceptable impacts may include visual intrusion from elevated driveways and parking structures and overshadowing of adjoining residential properties in excess of Council’s relevant standards.

d) The proposal must not constrain the orderly and efficient utilisation of the waterways for multiple purposes.

e) The proposal must not adversely impact upon the recreational, ecological, aesthetic or utilitarian use of the waterway corridors, and where possible, should provide for their enhancement, in accordance with ESD principles.

f) Proposals for house raising must provide appropriate documentation including:
   a. a report from a suitably qualified engineer to demonstrate the raised structure will not be at risk of failure from the forces of floodwaters in a 100 year flood; and
b. the provision of details such as landscaping and architectural enhancements which ensure that the resultant structure will not result in significant adverse impacts upon the amenity and character of an area.

g) Notwithstanding any other provision where a property is identified within a Voluntary Acquisition Scheme Area, Council will only consent to further development being “concessional development” or “recreation or non-urban development”; provided:
   a. the development is for only minor works such as small awnings over existing balconies or in-ground swimming pools; and
   b. the capital investment intended for the property is, in the opinion of Council, not greater than the minimum required to satisfy acceptable standards.

h) Critical Uses and Facilities (see Schedule 2 at the end of Chapter 11) are identified as 'unsuitable' uses in very low, low, medium or high flood risk precincts. (see Schedule 4 at the end of Chapter 11). However, Council will take into account:
   a. broader community needs and considerations relating to this issue,
   b. whether the proposal relates to the replacement of existing facilities (e.g. in a town centre), and
   c. whether the development has been designed in accordance with the prescriptive and performance criteria of Chapter 11.

Note: Council will not permit any type of development that would be inconsistent with the objective of discouraging further development in areas of high flood risk and with Council’s commitment to the Voluntary Acquisition Scheme.

11.11 What information is required with an application to address this chapter?

a) Applications must include information that addresses all relevant controls listed above, and the following matters as applicable.

b) Applications for Concessional Development (see Schedule 2) to an existing dwelling on Flood Prone Land shall be accompanied by documentation from a registered surveyor confirming existing floor levels.

c) Development applications affected by this plan shall be accompanied by a survey plan showing:
   a. The position of the existing building/s or proposed building/s;
   b. The existing ground levels to Australian Height Datum around the perimeter of the building and contours of the site; and
   c. The existing or proposed floor levels to Australian Height Datum.

d) 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.

e) For large scale developments, or developments in critical situations, particularly where an existing catchment based flood study is not available, a flood study using a fully dynamic one or two dimensional computer model may be required.

f) Where the controls for a particular development proposal require an assessment of structural soundness during potential floods, the following impacts must be addressed:
   a. hydrostatic pressure;
   b. hydrodynamic pressure;
   c. impact of debris; and
   d. buoyancy forces.

This information is required for the pre-developed and post-developed scenarios

Foundations need to be included in the structural analysis.

For smaller developments the existing flood study may be used if available and suitable (eg it contains sufficient local detail), or otherwise a flood study prepared in a manner consistent with the “Australian Rainfall and Runoff” publication, any relevant Council Drainage Design Code and the Floodplain Development Manual, will be required. From this study, the following information shall be submitted in plan form:

a. water surface contours (including the 100 year flood and PMF extents)

b. velocity vectors;

c. velocity and depth product contours;

d. delineation of flood risk precincts relevant to individual floodplains; and

e. show both existing and proposed flood profiles for the full range of events for total development including all structures and works (such as revegetation/ enhancements).
## Schedule 1  - Flood Compatible Materials & Building Components

<table>
<thead>
<tr>
<th>Building component</th>
<th>Flood compatible material</th>
</tr>
</thead>
</table>
| **Flooring and Sub-floor Structure**     | A. concrete slab-on-ground monolith construction  
B. suspension reinforced concrete slab.                                                                                                                   |
| **Floor Covering**                       | A. clay tiles  
B. concrete, precast or in situ  
C. concrete tiles  
D. epoxy, formed-in-place  
E. mastic flooring, formed-in-place  
F. rubber sheets or tiles with chemical-set adhesives  
G. silicone floors formed-in-place  
H. vinyl sheets or tiles with chemical-set adhesive  
I. ceramic tiles, fixed with mortar or chemical-set adhesive  
J. asphalt tiles, fixed with water resistant adhesive                                                                                                    |
| **Wall Structure**                       | A. solid brickwork, blockwork, reinforced, concrete or mass concrete                                                                                       |
| **Roofing Structure (for Situations Where the Relevant Flood Level is Above the Ceiling)** | A. reinforced concrete construction  
B. galvanised metal construction                                                                                                                                 |
| **Doors**                                | A. solid panel with water proof adhesives  
B. flush door with marine ply filled with closed cell foam  
C. painted metal construction  
D. aluminium or galvanised steel frame                                                                                                                                 |
| **Wall and Ceiling Linings**             | A. fibre-cement board  
B. brick, face or glazed  
C. clay tile glazed in waterproof mortar  
D. concrete  
E. concrete block  
F. steel with waterproof applications  
G. stone, natural solid or veneer, waterproof grout  
H. glass blocks  
I. glass  
J. plastic sheeting or wall with waterproof adhesive                                                                                                                                 |
| **Insulation Windows**                   | A. foam (closed cell types)  
B. aluminium frame with stainless steel rollers or similar corrosion and water resistant material.                                                                 |
| **Nails, Bolts, Hinges and Fittings**    | A. brass, nylon or stainless steel  
B. removable pin hinges  
C. hot dipped galvanised steel wire, nails or similar.                                                                                                     |
Schedule 1

Flood Compatible Materials & Building Components continued.

Electrical and Mechanical Equipment - For dwellings constructed on land to which this Plan 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 authority the incoming main commercial power service equipment, including all metering equipment, shall be located above the relevant flood level. Means shall be available to easily disconnect the dwelling from the main power supply.

Wiring - All wiring, power outlets, switches, etc., should, to the maximum extent possible, be located above the relevant flood level. All electrical wiring installed below the relevant flood level should be suitable for continuous submersion in water and should contain no fibrous components. Earth core linkage systems (or safety switches) are to be installed. Only submersible-type splices should be used below the relevant flood level. All conduits located below the relevant designated 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 relevant flood 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 of the house above the relevant flood 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 relevant flood level.

Ducting - All ductwork located below the relevant flood 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 relevant flood level.

Ancillary Structures (steps, pergolas, etc.) Suitable water tolerant materials should be used such as masonry sealed hardwood and corrosive resistant metals. Copper Chrome Arsenate (CCA) treated timber is not a suitable material.
**Schedule 2 (Reformatted)**

**Land Use Risk Categories**

<table>
<thead>
<tr>
<th>Land Use Category</th>
<th>Associated Land Uses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical Uses and Facilities</td>
<td>Community facility that may provide an important contribution to the notification or evacuation of the community during flood events but excluding counselling services, community development centres, libraries, museums, galleries, visitor information centres, and the like; Emergency services facility; Hospitals; and a Residential care facility.</td>
</tr>
<tr>
<td>Sensitive Uses and Facilities</td>
<td>Communication facility; Seniors housing but excluding a residential care facility; Child care centre; Correctional centres; Educational establishments; Liquid fuel depot; and Public utility undertakings which are essential to evacuation during periods of flood or if affected would unreasonably affect the ability of the community to return to normal activities after flood events; Electricity generating works; Respite day care centres</td>
</tr>
<tr>
<td>Subdivision</td>
<td>Subdivision of land that involves the creation of new allotments, with potential for further development.</td>
</tr>
<tr>
<td>Residential</td>
<td>Camping ground/caravan park site – long-term sites only(1); Health consulting rooms; Home business; Residential accommodation including Attached dwellings, Backpackers accommodation; Bed and breakfast accommodation; Boarding houses; Dual occupancies, Dwelling houses, Group homes, Family day care home, or home based care home, Farm stay accommodation; Group homes, Hostel, Multi dwelling housing, Residential flat buildings, Serviced apartments, Rural workers dwellings, Secondary dwellings, Semi – detached dwellings, Shop top housing; and Utility installations (other than critical utilities)</td>
</tr>
<tr>
<td>Commercial and Industrial</td>
<td>Abattoir; Amusement centre; Amusement park; Boat building and repair facilities; Bulky goods salesroom or showroom; Business premises; Commercial premises; Community Facility Depots; Freight transport facilities; Heavy industry storage establishments; Heliports; Highway service centre; Hotel; Industries; Industrial retail outlet; Industrial training facility; Junk yard; Medical Centre; Mortuaries; Motel; Motor showroom; Entertainment facilities; Passenger transport facilities; Place of public worship; Plant hire; Recreation facility (indoor, major or outdoor); Registered club; Restaurant; Restricted premises; Roadside stall; Rural industry; Sawmill; Service station; Sex services premises; Shop; Storage premises; Transport depot; Truck depots; Vehicle body repair workshop; Vehicle repair station; Veterinary hospital; and Warehouse or Distribution centres; Waste or resource management facilities; Wholesale supplies</td>
</tr>
<tr>
<td>Tourist Related Development</td>
<td>Camping ground/caravan park site – short term sites (1) only;</td>
</tr>
<tr>
<td>Recreation or Rural Uses</td>
<td>Air transport facilities; Agriculture; Animal boarding or training establishments; Extractive industry; Farm buildings; Forestry; Helicopter landing site; Mine; Open cut mining; Plant nursery; Recreation areas and minor ancillary structures (e.g. toilet blocks or kiosks); Stock and sales yard; and Turf farming</td>
</tr>
</tbody>
</table>
| Concessional Development | (a) **In the case of residential development:**  
  a. An addition or alteration to an existing dwelling of not more than 10% or 30m² (whichever is the lesser) of the habitable floor area which existed at the date of commencement of this Plan;  
  b. The construction of an outbuilding with a maximum floor area of 30m²; or  
  c. Rebuilt dwellings which substantially reduce the extent of flood affectation to the existing building;  
  (b) **In the case of other development:**  
  a. An addition to existing buildings of not more than additional 100m² or10% of the floor area which existed at the date of commencement of this DCP (whichever is the lesser);  
  b. Rebuilding of a development which substantially reduces the extent of flood effects to the existing development;  
  c. A change of use which does not increase flood risk having regard to property damage and personal safety; or  
  d. Subdivision that does not involve the creation of new allotments with potential for further development |

(1) As defined by the Local Government (Caravan Park and Camping Grounds) Transitional Regulation 1993.
Schedule 3

Diagrams Explaining Main Car Parking Related Controls

1. **HIGH ROADWAY AND CAR PARK SPACE**
   - (No part of driveway more than 0.3m below 100 year flood level)
   - Preferred Driveway
   - Acceptable Driveway
   - Driveway
   - Roadway

2. **LOW ROADWAY**
   - (Driveway inundation depth not greater than roadway inundation depth)
   - Acceptable Driveway
   - Unacceptable Driveway
   - Driveway
   - Roadway

3. **LOW CAR PARK SPACE**
   - (Driveway inundation depth not greater than car park inundation depth)
   - Acceptable Driveway
   - Unacceptable Driveway
   - Driveway
   - Roadway

4. **LOW ROADWAY AND CAR PARK SPACE**
   - (Driveway inundation depth not greater than car park or roadway inundation depth)
   - Driveway
   - Roadway
Schedule 4 – Flood Planning Matrix to be inserted as a PDF once finalised