

CMA Reference No: F-2017-0054
Document No: 1
File No.: STP/02-0003
Date: 13 February 2017

[REDACTED]
Senior Planning Officer
Golden Plains Shire
PO Box 111
Bannockburn Vic 3331

planning@gplains.vic.gov.au

Dear Mr O'Brien,

CMA Reference Number: F-2017-0054
Section: S 55
Location Street: 58 Jubilee Street, Inverleigh, Victoria 3321
Cadastral: CA 59, 5392, Parish of Dorog

I refer to your referral dated 16 January 2017, received at the Corangamite Catchment Management Authority on 16 January 2017 in accordance with the provisions of *Section 55 of the Planning and Environment Act 1987*.

Corangamite CMA has assessed this application in accordance with its functions as the Floodplain Management Authority for the Corangamite Waterway Management District pursuant to Sections 201 to 212 of the Water Act 1989.

The Floodplain Management functions of the Authority relevant to this matter are described in Section 202 of the Water Act 1989, Clauses (1)(a), (d) and (f):

- a) To find out how far floodwaters are likely to extend and how high they are likely to rise
- b) to control developments that have occurred or that may be proposed for land adjoining waterways
- c) to provide advice about flooding and controls on development to local councils, the Secretary to the Department and the community.

Below is the Authority's understanding of the application:

The applicant(s), [REDACTED]

Proposed Development Type: Other Residential

Proposed Development Description: Single dwelling and farm business

on the abovementioned proposed development location

The Authority's assessment indicates that the property is covered by the following Zones and Overlays in the Golden Plains Planning Scheme;

Zone(s): Farming Zone (FZ)



16 FEB 2017

Overlay(s): Floodway Overlay (FO)
 Land Subject to Inundation Overlay (LSIO)

Summary and Conditions

The Authority understands that this planning permit application relates to the proposed use of the property for a residential dwelling and an outdoor recreation facility. Flood information available to the Authority indicates that a significant portion of the property falls within the 1% AEP floodplain of the Barwon River. Although there is available land on the property that is outside the 1% AEP flood extent, and whilst the Authority could support use of the site for certain agricultural purposes providing it does not rely on the filling or raising of ground levels within the floodplain, the Authority has significant concerns for the proposal in its current format.

The Authority's main concerns for development on the property relate to unsafe access along Jubilee Street and south along River Road. Access north along Jubilee Street is likely to reach up to at least 1 metre during a 1% AEP flood event. Depths greater than 0.3 metres are considered unsafe for vehicle traffic, depths greater than 0.5 metres are considered unsafe for pedestrian traffic. Access south toward River Road could also experience significant flooding with depths greater than 0.5 metres. Figure 1 below shows 1% AEP flood depth information for this property.

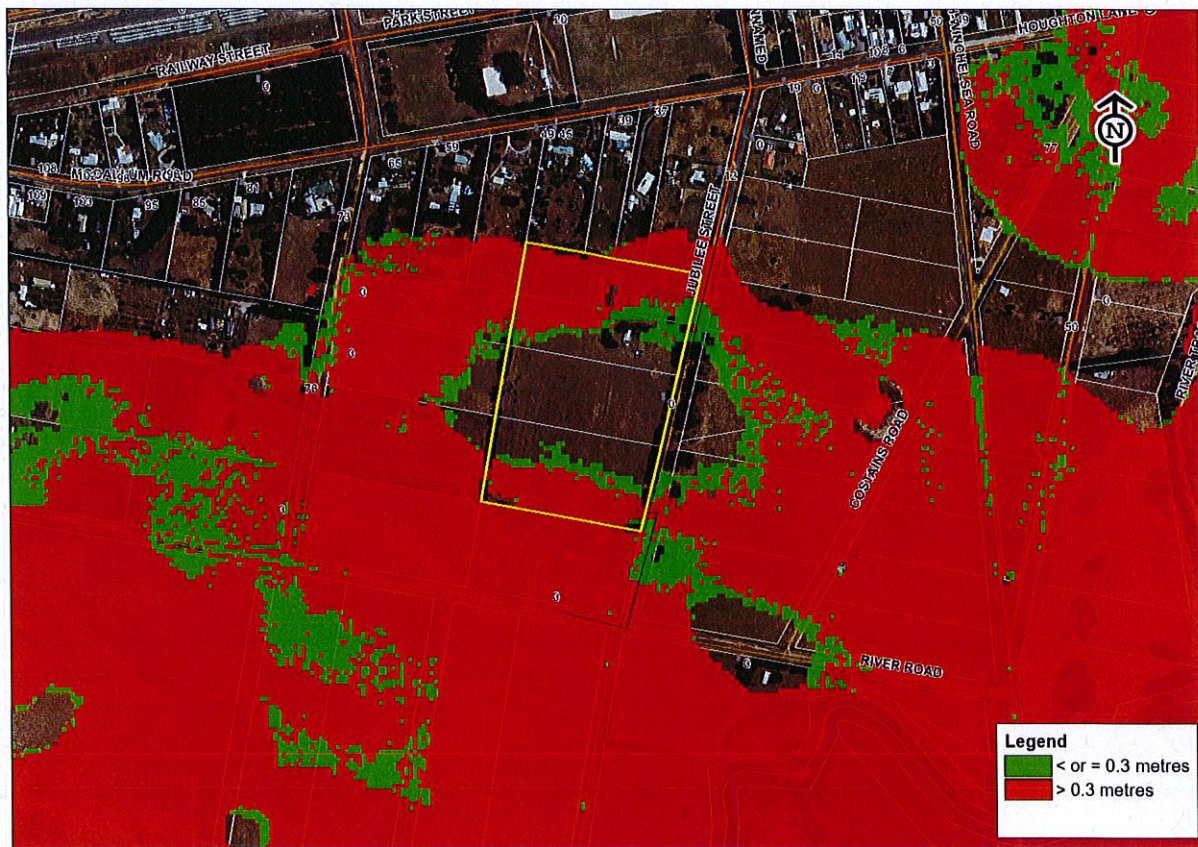


Figure 1. (Subject property (yellow outline) showing 1% AEP flood depth information.

The Authority also understands that the proposal includes use of the property for an outdoor reaction facility and would host groups of visitors at one time on the property. Details of the numbers of people in these groups have not been provided but the Authority is concerned that the increased number of people that would be using the property at one time could result in an increase in the amount of people potentially exposed to the flood hazard.

The background and details of the Authority's assessment of this application are detailed in Attachment A and form part of the Authority's response.

In light of this assessment and pursuant to *Section 56 of the Planning and Environment Act 1987*, the Authority **is unable to support** the granting of a permit, **on the following grounds:**

1. The proposed development does not meet the objective of the **State Planning Policy Framework Clause 13.02-1 - Floodplain Management** - to assist the protection of:

- Life, property and community infrastructure from flood hazard;

And is not consistent with the strategy to: *avoid intensifying the impacts of flooding through inappropriately located uses and developments.*

2. The proposed development is not consistent with the purpose **Floodway Overlay, Clause 44.03**, which includes:

- To identify waterways, major floodpaths, drainage depressions and high hazard areas which have the greatest risk and frequency of being affected by flooding.
- To ensure that any development maintains the free passage and temporary storage of floodwater, minimises flood damage and is compatible with flood hazard, local drainage conditions and the minimisation of soil erosion, sedimentation and silting.

3. The proposed development is not consistent with the purpose **Land Subject to Inundation Overlay, Clause 44.04**, which includes:

- To ensure that development maintains the free passage and temporary storage of floodwaters, minimises flood damage, is compatible with the flood hazard and local drainage conditions and will not cause any significant rise in flood level or flow velocity.

4. The proposed development is not consistent with the objectives and policies of **Local Planning Policy Framework (Golden Plains Shire), Clause 21.11 - Floodplain Management:**

- | | |
|------------|--|
| Objectives | <ul style="list-style-type: none"> • To minimise flood risk and promote sustainable use and development of the floodplain. • To ensure land use and development on the floodplain is compatible with flood risk. • To ensure that where permitted, development in the floodplain: <ul style="list-style-type: none"> ○ Maintains the free passage and temporary storage of floodwaters; ○ Minimises flood damage; ○ Will not cause any significant rise in flood level or flow velocity; and ○ Will not cause any impact on adjacent property. • To discourage the intensification of land use and development in the floodplains of watercourses. • To recognise the natural flood carrying capacity of rivers, streams and wetlands and the flood storage function of floodplains. |
|------------|--|

- | | |
|----------|--|
| Policies | <ul style="list-style-type: none"> • Discourage any new buildings and works, including land filling, in Floodway Overlay areas along water courses in the Shire. • Discourage new dwellings in the Land Subject to Inundation Overlay. • Discourage any new subdivision on land affected by the Floodway Overlay or the Land Subject to Inundation Overlay. |
|----------|--|

The proposed development is not consistent with the decision guidelines in the **Victorian Planning Provision Practice Note Applying for a Planning Permit Under the Flood Provisions – A guide for Councils, referral authorities and applicants**, in that:

- It is likely to result in danger to the life, health and safety of the occupants due to flooding of the site

- It relies on low-level access to and from the site
- It is likely to increase the burden on emergency services and the risk to emergency personnel
- It is likely to increase the number of buildings located in a floodway area.

In accordance with Section 66 of the *Planning and Environment Act 1987*, please provide an electronic copy of the outcome of this proposal to the Authority for our records.

Should you have any queries, please do not hesitate to contact [REDACTED] or floodinfo@ccma.vic.gov.au. To assist the CMA in handling any enquiries please quote **F-2017-0054** in your correspondence with us.

Yours sincerely,

[REDACTED]

[REDACTED]

Floodplain Statutory Manager

[REDACTED]

Attachment A

Decision guidelines

The following describes how Corangamite CMA assesses proposed developments in flood-prone areas. This assessment is based on the current best available information to the Authority and has been made considering the State Planning Policy Framework which contains strategic issues of State importance which must be considered when decisions are made.

Clause 65 of the planning scheme general provisions extends the consideration of flood issues to all planning permit applications regardless of whether the site is affected by a flood zone or overlay. Clause 65 requires that for the approval of an application or plan, the council must consider, among other things, the degree of flood risk associated with the location of the land and the use, development or management of the land so as to minimise flood risk.

In addition to clause 65, the flood zone and overlays contain their own decision guidelines that the council must consider when assessing an application. The Floodway Overlay (FO – clause 44.03), Land Subject to Inundation Overlay (LSIO – clause 44.04), and Special Building Overlay (SBO – clause 44.05) contain more detailed decision guidelines.

Guidance on making an application for a planning permit where flooding is a consideration and an explanation of how such an application will be assessed (in effect an explanation of how the decision guidelines are applied) is provided in the Victorian Planning Provision (VPP) Practice Note “Applying for a Planning Permit under the Flood Provisions”. A second practice note (“Applying the Flood Provisions in Planning Schemes” provides guidance about applying the flood provisions in planning schemes.

A copy of the Practice Notes can be downloaded from the former Department of Transport, Planning and Local Infrastructure website (www.dtpli.vic.gov.au) by following the links to Planning > Planning publications > Practice and Advisory Notes > Planning Practice Notes (or by clicking the links below).

- [Planning Practice Note 11: Applying for a Planning Permit under the Flood Provisions, August 2015](#)
- [Planning Practice Note 12: Applying the Flood Provisions in Planning Schemes, June 2015](#)
- [Planning Practice Note 53: Managing coastal hazards and the coastal impacts of climate change, August 2015](#)

In assessing the suitability of any new development, Corangamite CMA considers the following:

- o The safety of future occupants.
- o Avoiding any adverse flood related impacts on other properties.
- o The protection of waterways and other environmental assets.
- o Minimising potential property damage.
- o Ensuring there is no increased burden on community and emergency services.

Developments are assessed against five core requirements:

Buildings or works:

1. Buildings or works must not affect floodwater flow capacity.
2. Buildings or works must not reduce floodwater storage capacity.
3. Buildings meet minimum floor level height (above flood level) relevant to development location (freeboard).
4. Buildings or works must not occur where the depth and flow of floodwaters would create a hazard
5. Buildings or works must not occur in circumstances where the depth and flow of floodwater affecting access to the property is hazardous.

Property and Flood Information

Land Level information

Survey data available to the Authority indicates that the property ranges in elevation from **57.9 metres AHD⁴** to **59.9 metres AHD**.

Please note that a licensed surveyor should be engaged to establish a suitable datum at the site to verify levels applicable to the development.

Property Flood Information and impact during 1% flood (under current climatic conditions)

Flood levels for the 1% Annual Exceedance Probability (AEP³) flood event (under current climatic conditions) have been modelled for this area. The estimated 1% flood level for the location described above ranges from **59.3 to 59.4 metres AHD** which was obtained from the Inverleigh Flood Study, 2008.

Please note: A flood study update is also underway which intends to review and remodel the flood mapping data through the township of Inverleigh using the January 2011 observed flood levels to check the calibration of the hydraulic model. This review will hopefully be completed in early 2018 and may result in changes to the flood mapping through this areas. The changes may result in an increase, decrease or not change to the flood mapping.

The Authority holds no information in relation to the arrangement and capacity of stormwater drainage infrastructure in the area and no information on the potential for flooding from local runoff or surcharge of drainage systems. To determine whether the property is affected by flooding from the local drainage system, please consult your local Council.

1% AEP Flood Event

The 1% AEP flood event means that a flood of that magnitude (or greater) has a 1% chance of occurring in any given year. It is also known as the 100 year Average Recurrence Interval (ARI⁵) flood; however a flood of this size or greater may occur more frequently than this, and can happen more than once in any year. The Victorian Government has determined that the 1% AEP flood is the appropriate standard to regulate and protect new developments through the planning and building systems. The impacts of floods rarer than the 1% AEP flood (i.e. less than 1% AEP) are not regulated through the planning and building systems.

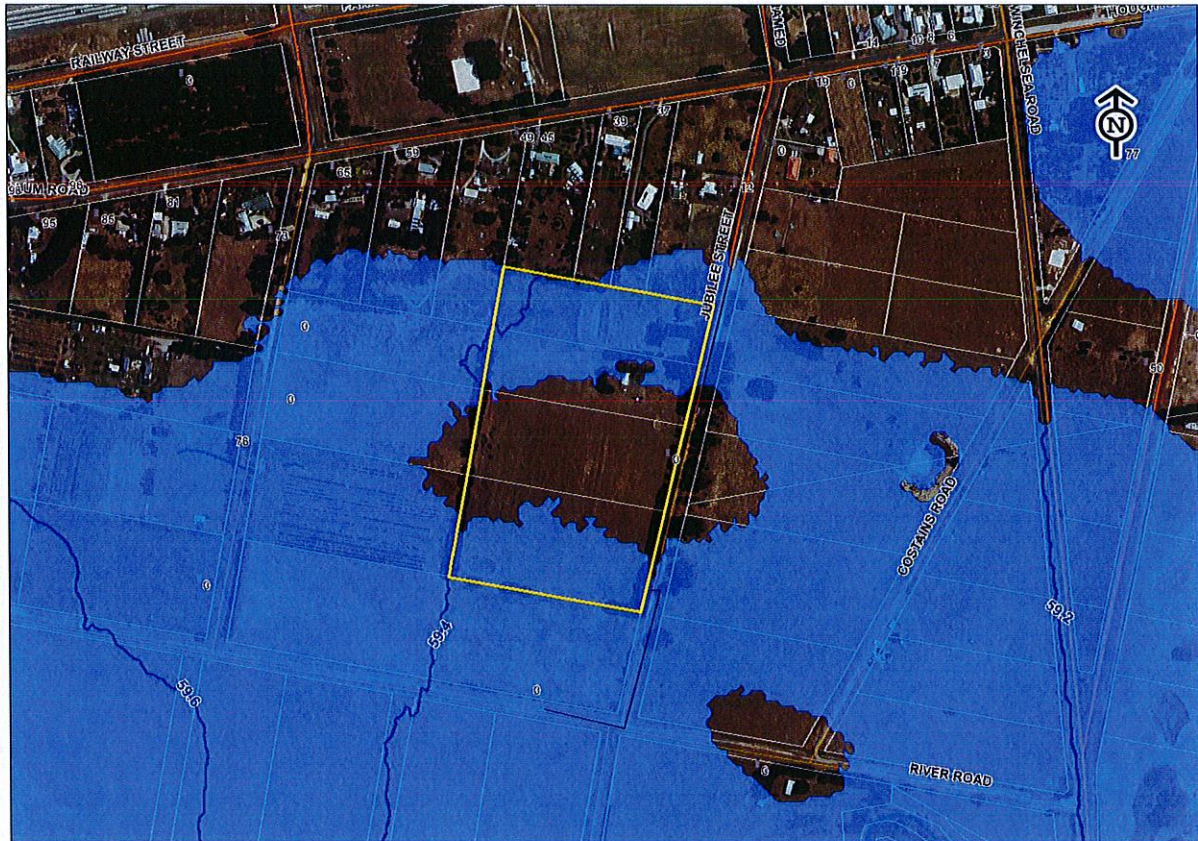


Figure 2. Subject property (yellow outline) showing 1% AEP flood extent (blue shaded area) and flood contours/levels in metres AHD (blue lines and numbers).

These safety criteria have been used for assessing land use and development on this site, however during flood events the state emergency service do not recommend entering flood waters of any depth or velocity. For further information please see <http://www.ses.vic.gov.au/>

Flood Hazard

According to Attorney-General's Departments Australian Emergency Management handbook Series (EMA Handbook 7), in recent years, a high proportion of flood related deaths in Australia have occurred on flooded roads. Fatalities also result from people being swept away while crossing rivers, stormwater channels, overland flow paths or other flooded areas. In assessing access routes between a site and safe ground it has been shown that people trying to evacuate from flooded land will do so by vehicle in most circumstances, and therefore development decisions should assume this to be the default method. For those who do decide to seek a pedestrian route, walking through flood water is also not considered to be an acceptable means of evacuation. For some, walking is likely to be physically difficult or even impossible and can be the cause of significant mental or physical exhaustion.

Analysis of flood hazard is used to determine if it is safe for people and vehicles leaving a property during a flood event. Inappropriate development is likely to increase the burden on emergency services and personnel if an emergency evacuation is required due to illness, injury, inadequate preparation or loss of essential services. It should be noted that the relative evacuation time does not decrease the flood hazard.

Developments should not occur where the depth and flow of floodwater on a property and affecting the access to the property is hazardous.

Minimum floor levels provide protection for a property and its contents, but separate provisions are needed to protect people moving about or attempting to enter or leave a property so that they are not at risk from deep or fast-flowing water.

Safety is assessed against Australian Rainfall and Runoff Revision Project 10 Safety Criteria.

Safety is defined in terms of the depth and velocity of water over the area in question during a 1% AEP flood event as follows:

1. Depth must be no greater than or equal to 0.3 metres; **and**
2. Velocity must be no greater than or equal to 3.0 m/s; **and**
3. The product of depth multiplied by velocity must be no greater than or equal to 0.3 m² per second.

Hazard Assessment for this property

In the event of a 1% AEP flood under current climatic conditions it is likely that 50% of the property would be subject to inundation from the XX Creek/River (Figure 1).

Flood depth over the property	Ranges between 0 and 1.5 metres
Flood depth affecting access to the property	Up to 3.93 metres along Jubilee Street

Figure 3 below shows a cross section of the 1% AEP flood depths along Jubilee Street. This information indicates that flood depths would exceed the safe criteria for vehicle safety (less than or equal to 0.3 metres).

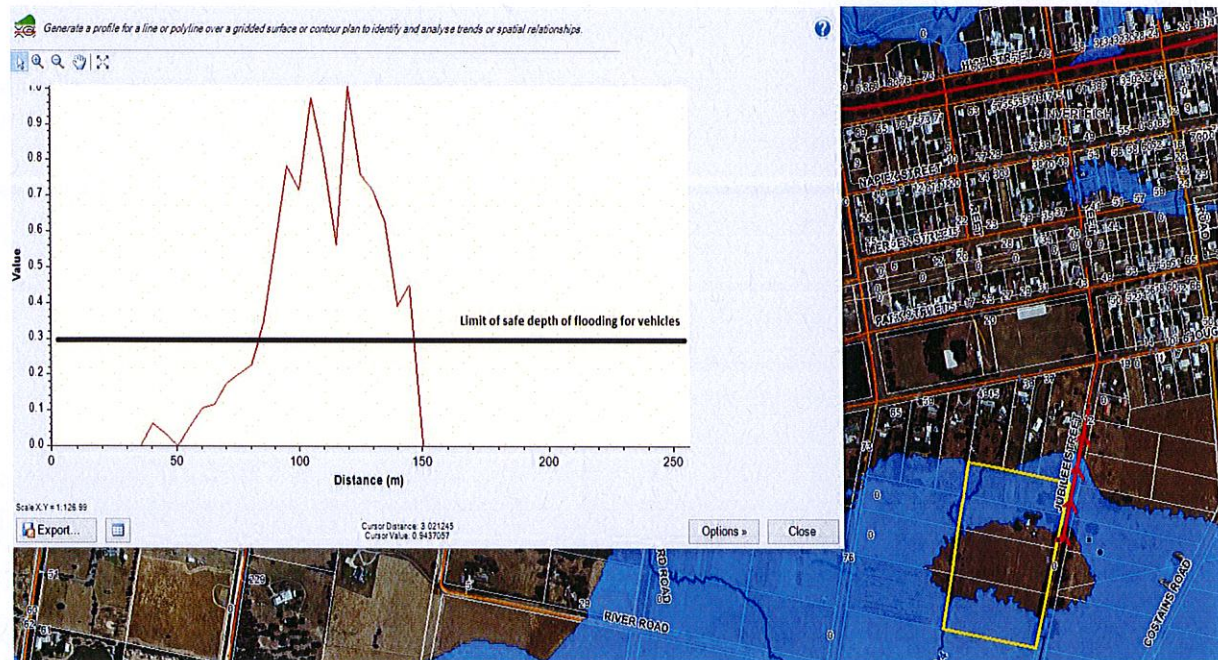


Figure 3. Cross section of 1% AEP flood depths along Jubilee Street.

Floor Levels and Freeboard

Freeboard is the height above a defined flood level and is typically used to provide a factor of safety in the setting of floor levels. The minimum freeboard requirements compensate for effects such as wave action and water movement resulting from variations in topography. Freeboard also provides additional protection from flooding which is marginally above the defined flood level. The Corangamite CMA has adopted the 1% AEP flood level with a minimum 300 mm freeboard requirement.

A greater freeboard may be required on occasions, for instance where buildings contain valuable equipment or potentially hazardous substances.

Freeboard requirements for areas impacted by Climate Change and sea level rise will be established in line with normal floodplain management best practice and consistent with direction on appropriate flood levels in such areas.

Stormwater Flooding

The Victorian Floodplain Management Strategy (2016) recognises that LGA's are accountable for applying the planning requirements of Clause 56 of the Victorian Planning Provisions' Practice Note 39 to ensure that new developments do not have significant third party impacts as a result of increased runoff from impervious surfaces. Please contact your Council for further information. To determine if a property is subject to flooding from the local drainage system (stormwater) or overland flow **you will need to contact the relevant Council for flood information.**

Waterway buffers

Clause 14.02-1 of the Victorian Planning Provisions requires natural drainage corridors with vegetated buffer zones to be retained along each side of a waterway at least 30m wide. The waterway is defined by the bed and banks (where the top of the bank is delineated as the break of slope from the river bank to the surrounding land). This buffer is required for the following purposes:

- To allow for continuous safe vehicle and pedestrian access along the entire length of the waterway;
- To provide space for recreational and social uses; and
- To allow for future maintenance access along the river bank (e.g. weed control and storm-water system maintenance).
- This buffer helps to ensure a resilient waterway system that can effectively absorb and/or recover from damaging processes without losing its core functionality.
- It also preserves areas of the riparian zone that protect or enhance native vegetation, river health and biodiversity where present.

Where a property is covered by both the 30 metre buffer and the 1% AEP flood extent the greater of the two extents will be used to plan for development. In this case, the subject property is located over 30 metres from the nearest waterway (the Barwon River).

Historical flooding

This property has been flooded many times in the past and in the last 65 years the access path to Inverleigh township would have been cut off at least 6 times during the November 1995, June 1978, October 1976, May 1952, June 1952 and August 1951 flood events.

Figure 3 below shows the flood extent after the peak in November 1995.

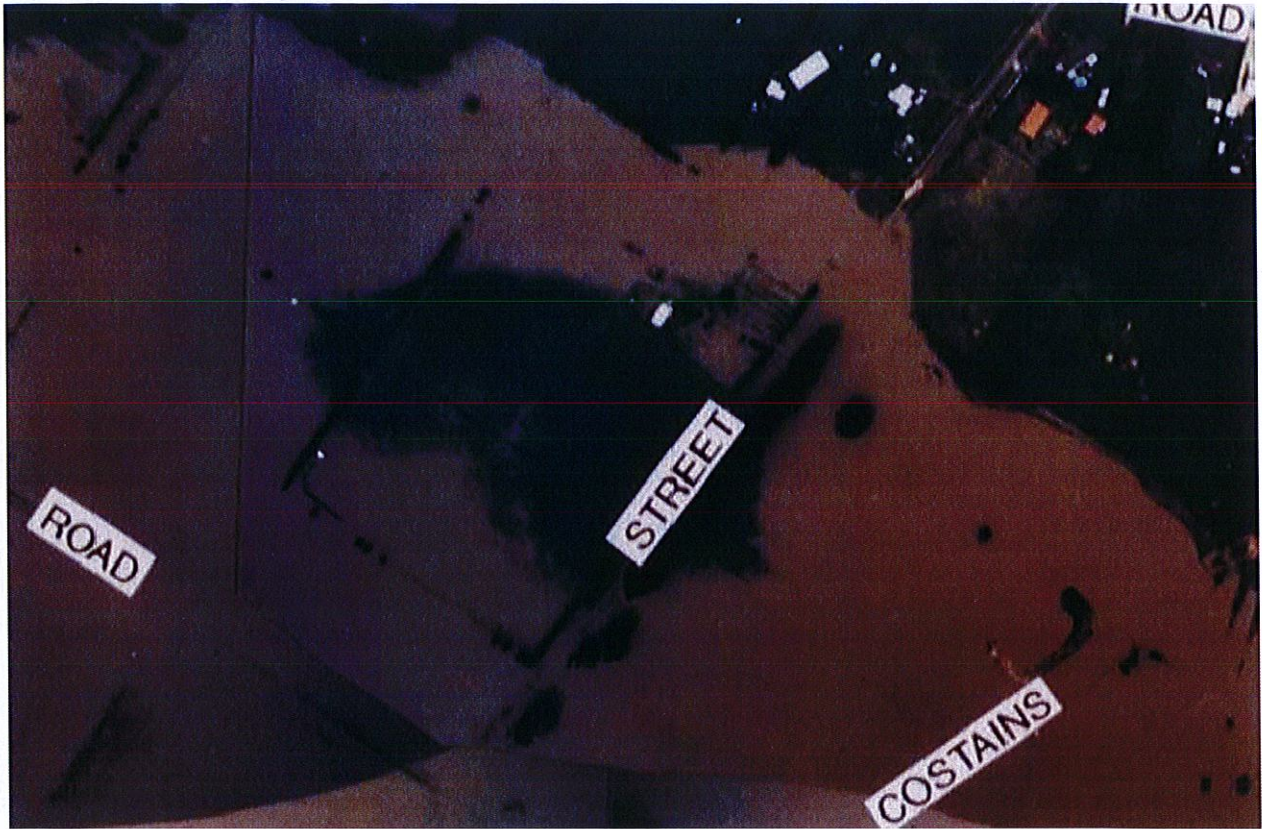


Figure 3. Aerial photo showing the flood extent for the November 1995 flood on the Barwon River.

Disclaimers

The information contained in this correspondence is subject to the following disclaimers:

This report is based on the land parcel(s) selected. The Authority accepts no responsibility for or makes no warranty with regard to the accuracy or naming of this location according to its official land title description.

No warranty is made as to the accuracy or liability of any studies, estimates, calculations, opinions, conclusions, recommendations (which may change without notice) or other information contained in this letter and, to the maximum extent permitted by law, the Authority disclaims all liability and responsibility for any direct or indirect loss or damage which may be suffered by any recipient or other person through relying on anything contained in or omitted from this letter.

This report has been prepared for the sole use by the party to whom it is addressed and no responsibility is accepted by the Authority with regard to any third party use of the whole or of any part of its contents. Neither the whole nor any part of this report or any reference thereto may be included in any document, circular or statement without the Authority's written approval of the form and context in which it would appear.

The flood information provided represents the best estimates based on currently available information. This information is subject to change as new information becomes available and as further studies are carried out.

Definitions and Acronyms

Annual Exceedance Probability (AEP)

The likelihood of the occurrence of a flood of a given or larger size occurring in any one year, usually expressed as a percentage. For example, if a peak flood flow of 500 m³/s has an AEP of 5%, it means that there is a 5% (one-in-20) chance of a flow of 500 m³/s or larger occurring in any one year (see also average recurrence interval, flood risk, likelihood of occurrence, probability).

Please note that the 1% probability flood is not the probable maximum flood (PMF). There is always a possibility that a flood larger in height and extent than the 1% probability flood may occur in the future.

Australian Height Datum (AHD)

The adopted national height datum that generally relates to height above mean sea level. Elevation is in metres.

Average Recurrence Interval (ARI)

A statistical estimate of the average number of years between floods of a given size or larger than a selected event. For example, floods with a flow as great as or greater than the 20-year ARI (5% AEP) flood event will occur, on average, once every 20 years. ARI is another way of expressing the likelihood of occurrence of a flood event (see also Annual Exceedance Probability).

Catchment

The area of land draining to a particular site. It is related to a specific location and includes the catchment of the main waterway as well as any tributary streams.

Coastal flooding (inundation)

Flooding of low-lying areas by ocean waters, caused by higher than normal sea level, due to tidal or storm-driven coastal events, including storm surges in lower coastal waterways.

Design flood event (DFE)

In order to identify the areas that the planning and building systems should protect new development from the risk of flood, it is necessary to decide which level of flood risk should be used. This risk is known as the design flood event.

Flash flooding

Flooding that is sudden and unexpected, often caused by sudden local or nearby heavy rainfall. It is generally not possible to issue detailed flood warnings for flash flooding. However, generalised warnings may be possible. It is often defined as flooding that peaks within six hours of the causative rain.

Flood

A natural phenomenon that occurs when water covers land that is normally dry. It may result from coastal or catchment flooding, or a combination of both (see also catchment flooding and coastal flooding).

Flood hazard

Potential loss of life, injury and economic loss caused by future flood events. The degree of hazard varies with the severity of flooding and is affected by flood behaviour (extent, depth, velocity, isolation, rate of rise of floodwaters, duration), topography and emergency management.

Flood level

Height of flood water in metres Australian Height Datum (AHD). Can be considered synonymous with flood height and flood water surface elevation.

Flood-prone land

Land susceptible to flooding by the largest probable flood event. Flood-prone land is synonymous with the floodplain. Floodplain management plans should encompass all flood-prone land rather than being restricted to areas affected by defined flood events.

Flood risk

The potential risk of flooding to people, their social setting, and their built and natural environment. The degree of risk varies with circumstances across the full range of floods. Flood risk is divided into three types – existing, future and residual. Existing flood risk refers to the risk a community is exposed to as a result of its location on the floodplain. Future flood risk refers to the risk that new development within a community is exposed to as a result of developing on the floodplain. Residual flood risk refers to the risk a community is exposed to after treatment measures have been implemented. For example: a town protected by a levee, the residual flood risk is the consequences of the levee being overtopped by floods larger than the design flood; for an area where flood risk is managed by land-use planning controls, the residual flood risk is the risk associated with the consequences of floods larger than the DFE on the community.

Freeboard

The height above the DFE or design flood used, in consideration of local and design factors, to provide reasonable certainty that the risk exposure selected in deciding on a particular DFE or design flood is actually provided. It is a factor of safety typically used in relation to the setting of floor levels, levee crest heights and so on. Freeboard compensates for a range of factors, including wave action, localised hydraulic behaviour and levee settlement, all of which increase water levels or reduce the level of protection provided by levees. Freeboard should not be relied upon to provide protection for flood events larger than the relevant design flood event. Freeboard is included in the flood planning controls applied to developments by LGAs.

LiDAR (Light Detection And Ranging)

An optical remote sensing technology which measures the height of the ground surface using pulses from a [laser](#). LiDAR can be used to create a topographical map of the land and highly detailed and accurate models of the land surface.

Local Government Authority (LGA)

Synonymous with Council or Shire

Local overland flooding

Inundation by local runoff on its way to a waterway, rather than overbank flow from a stream, river, estuary, lake or dam. Can be considered synonymous with stormwater flooding.

Planning Scheme zones and overlays

Planning Schemes set out the planning rules – the state and local policies, zones, overlays and provisions about specific land uses that inform planning decisions. Land use zones specify what type of development is allowed in an area (e.g. urban (residential, commercial, industrial), rural, environmental protection). Overlays specify extra conditions for developments that are allowed in a zone. For example, flooding overlays specify that developments must not affect flood flow and storage capacity of a site, must adhere to freeboard requirements, and not compromise site safety and access.

Riverine flooding

Inundation of normally dry land when water overflows the natural or artificial banks of a stream, river, estuary, lake or dam. Riverine flooding generally excludes watercourses constructed with pipes or artificial channels considered as stormwater channels.

Runoff

The amount of rainfall that drains into the surface drainage network to become stream flow; also known as rainfall excess.

Storm surge

The increases in coastal water levels above the predicted tide level resulting from a range of location dependent factors such as wind and waves, together with any other factors that increase tidal water level.

Stormwater flooding

The inundation by local runoff caused by heavier than usual rainfall. It can be caused by local runoff exceeding the capacity of an urban stormwater drainage systems, flow overland on the way to waterways or by the backwater effects of mainstream flooding causing urban stormwater drainage systems to overflow (see also local overland flooding).