

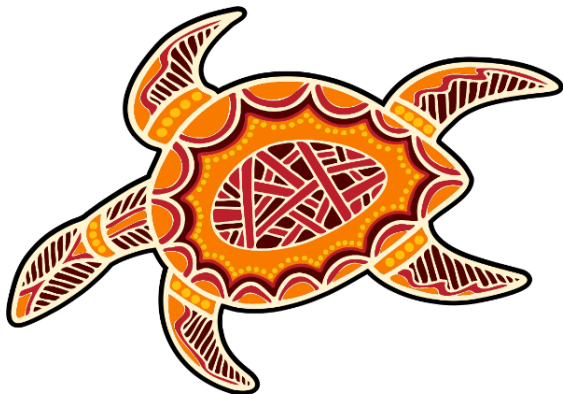
Report to assist public exhibition

Stage 2 public exhibition: Draft Billabong Creek Floodplain Management Plan

September 2025



Acknowledgement of Country



The Department of Climate Change, Energy, the Environment and Water acknowledges the traditional custodians of the land and pays respect to Elders past, present and future.

We recognise Australian Aboriginal and Torres Strait Islander peoples' unique cultural and spiritual relationships to place and their rich contribution to society.

Wiradjuri artist and designer Nathan Peckham from Yurana Creative created Guwunggan*.

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Report to assist Stage 2 public exhibition: Draft Billabong Creek Floodplain Management Plan

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1 Summary

The Water Group in the NSW Department of Climate Change, Energy, the Environment and Water (the department) is developing a whole-of-valley floodplain management plan (FMP) under the *Water Management Act 2000* (the WM Act) for the Billabong Creek floodplain. This will replace the historical FMP that was originally developed under the *Water Act 1912*.

In October 2024, we held Stage 1 public consultation to seek feedback on key elements that would inform the development of the draft Floodplain Management Plan for the Billabong Creek Floodplain (the draft FMP). You can read a summary of the feedback we received and the refinements we made in response in the [What we heard report](#) published on our website.

We are now seeking feedback on the [draft FMP](#) through Stage 2 public exhibition, including a formal submission process from **29 September to 16 November 2025**. In particular, we are seeking feedback on the proposed:

1. **management zones:**
 - a. management zone A (predominantly floodways)
 - b. management zone B (inundation extent)
 - c. management zone C (flood fringe)
 - d. management zone CU (urban areas)
 - e. management zone SP (special protection)
2. **types of flood works** permitted within management zones A and SP
3. **rules and assessment criteria** for management zones A and SP, including those that apply to **existing unapproved flood works**
4. **rules and assessment criteria** for management zone B, including those that apply to existing unapproved flood works
5. **rules and assessment criteria** for management zone C and CU
6. **mandatory conditions** relating to water quality
7. **amendment provisions** to allow for the consideration of climate change.

The proposed management zones are shown in Figure 3 in this report. They can also be viewed on the [interactive spatial map](#).

When providing feedback, we recommend taking a screenshot of the relevant area/s displayed on the interactive spatial map and using a drawing function to illustrate or refer to the area shown in your written feedback. Please include information about the location on the map, such as an address. The screenshot of the map can then be saved as an image file and attached to your submission. We recommend booking an individual appointment if you require assistance with navigating the interactive spatial map.

2 Introduction

This report has been prepared to assist stakeholders in providing informed feedback during Stage 2 public exhibition of the [draft FMP](#).

The draft FMP sets the rules for flood work approvals and criteria that will be used to assess applications. Flood works are structures that alter the flow of water to/from a river or alter the movement of floodwater during a flood. Examples of flood works are levees, earthworks used to protect houses or infrastructure, and roads.

In NSW, all flood works require a flood work approval. Some activities considered low-risk or covered by other legislation may be exempt from an approval. Please refer to the [flood work exemptions fact sheet](#) on the [WaterNSW website](#) for more information.

To find out more about the flood work approval processes undertaken by WaterNSW, visit the [flood work approvals page](#) on their website.

More information on FMPs, including the replacement of the historical FMPs in the southern Murray–Darling Basin, is available on [our website](#).

Floodplain management plans cannot provide a comprehensive response to flooding

The roles and responsibilities of local government and NSW Government agencies in floodplain management and flood risk management are outlined in the [NSW Flood Prone Land Policy and Flood risk management Manual](#) (2023).

Improvements to flood risk mitigation were considered through the 2022 NSW Flood Inquiry. Read the [inquiry report](#) and the [NSW Government response](#).

As part of developing FMPs, the department provides all modelling information to the relevant Australian, state, and interstate emergency management agencies so that it may assist in their future flood predictions. The draft FMP sets rules for flood works on the Billabong Creek Floodplain – it does not deal with flood mitigation or flood response.

2.1 Existing floodplain management arrangements

The Billabong Creek Floodplain Management Plan (2006) developed under the *Water Act 1912*, and the associated declared floodplain, detail the existing floodplain management arrangements for the Billabong Creek.

We have considered the existing floodplain management arrangements in this statutory document when developing the draft FMP. Further, the boundary of the existing declared floodplain has been incorporated into the proposed boundary of the Billabong Creek Floodplain.

The [existing Billabong Creek FMP](#) is published on our website.

A comprehensive comparison of the existing localised FMP against the proposed rules in the draft FMP is provided in [Appendix 1](#) of this report.

2.2 Overview of the draft FMP

The draft FMP will be made as a Minister's plan under section 50 of the WM Act. It will last for 10 years from the anticipated commencement on 1 July 2026 and can be amended at any time if errors are identified or it is in the public's best interest.

During the 10-year term, the draft FMP will be audited by the Natural Resources Commission within the first 5 years and reviewed by the department within the last 5 years. At the end of the 10-year term, it will be replaced with another FMP that will last for 10 years.

As part of commencement, the department will:

- repeal the Billabong Creek Floodplain Management Plan (2006), and
- amend the Water Management (General) Regulation 2025 to establish the Billabong Creek Floodplain.

Under the WM Act, the draft FMP must include provisions that relate to certain matters. Each of these matters is described along with the relevant provision in the draft FMP within section 5 of this report. At the beginning of each part, the draft FMP indicates which section of the WM Act it relates to.

2.3 Background

2.3.1 Billabong Creek Floodplain

The proposed Billabong Creek Floodplain (the floodplain), shown in Figure 1, extends downstream from Walbundrie in the east, to the junction of Billabong Creek and the proposed NSW Murray Valley Floodplain at Moulamein. It includes the area currently within the existing localised FMP and associated declared floodplain. The floodplain includes the southern end of the Yanco Creek and Colombo Creek systems. The floodplain is 6,934 square kilometres¹ in area and 39.9%² of this area is already captured in the existing localised FMP.

The proposed floodplain boundary will connect with the Murrumbidgee Valley Floodplain boundary and the proposed NSW Murray Valley Floodplain, improving the assessment of cumulative impacts from individual flood works across the southern Murray–Darling Basin.

The majority of the Billabong Creek floodplain is used for agricultural purposes. Major water users include local councils and utilities, forestry, tourism, and agricultural producers. The floodplain also supports a range of water-dependent ecosystems, including instream aquatic habitats, riparian forests, and floodplain watercourses, woodlands and wetlands.

In response to feedback received during Stage 1 public consultation, the department did not make any refinements to the floodplain boundary. Some proposed refinements were investigated but

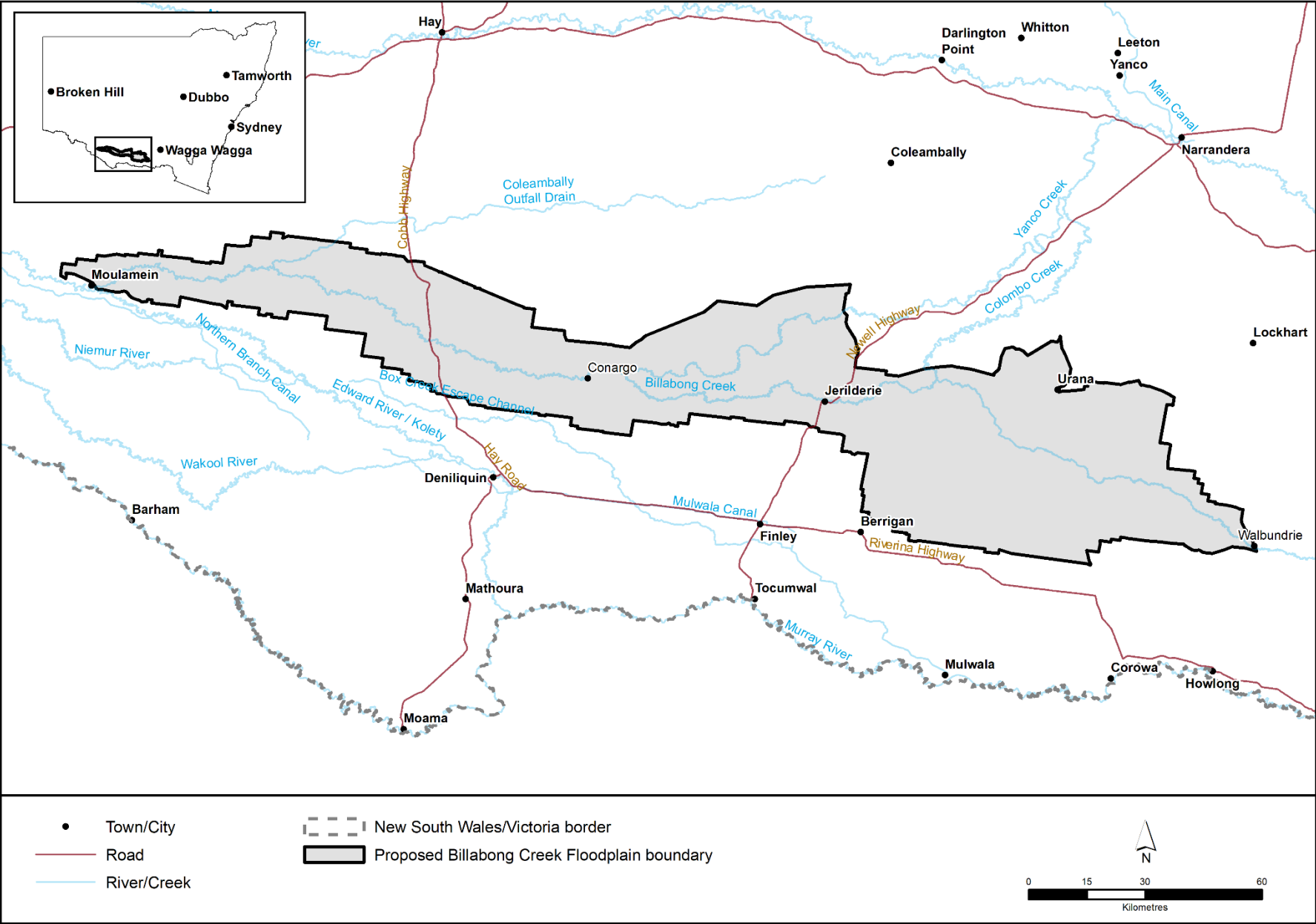
¹ The floodplain boundary was reported as being 10,446 square kilometres in Stage 1 public consultation due to an incorrect spatial projection. While the size of the floodplain boundary has been corrected, the floodplain boundary has not changed following Stage 1 public consultation.

² The area of the proposed floodplain captured in the existing FMP was reported as being 27% in Stage 1 public consultation due to an incorrect spatial projection. While the size of the area has been corrected, the floodplain boundary has not changed following Stage 1 public consultation.

determined to be outside the extent of the floodplain or within an adjacent floodplain. You can read the feedback we received in the [What we heard report](#).

Further feedback on the proposed floodplain boundary is invited during Stage 2 public exhibition.

Figure 1: Proposed Billabong Creek Floodplain



2.3.2 Socio-economic profile

There are approximately 2,500 people within the Billabong Creek floodplain, with urban centres providing the population hubs³. The floodplain includes the urban areas of Conargo, Jerilderie, Urana, Oaklands, Daysdale, Rand and Wanganella. Moulamein is located outside of the proposed floodplain boundary, however it is within the proposed adjacent NSW Murray Valley Floodplain. The township of Berrigan sits outside of the proposed floodplain boundary.

There are 7 local government areas covered within the proposed Billabong Creek floodplain, including the Greater Hume, Federation, Murrumbidgee, Berrigan Shire, Edward River, Murray River, and Lockhart Shire Councils.

The proposed floodplain covers the traditional lands of the Wiradjuri people and flows through Yorta Yorta, Barapa Barapa, Wamba Wamba, and Bangerang traditional Country.

Agriculture is a significant economic activity in the region's economy. The dominant agricultural uses on the floodplain are annual crop production (winter cereals and summer irrigated crops, for example rice, canola, wheat and barley) and grazing (sheep and cattle)⁴. Cropping, including irrigated crop production, is more prominent in the upper reaches of the floodplain and in areas closer to the creek line downstream of Jerilderie and along Yanco Creek. Further west and in areas higher in the floodplain that form part of the flood fringe, the landscape is used more for grazing. Accordingly, agriculture, forestry and fishing, as a group, is the top employment industry sector in the four local government areas (Berrigan Shire, Edward River, Federation and Murrumbidgee) that cover the majority of the proposed Billabong Creek floodplain⁵.

Based on engagement activities undertaken for Stage 1 public consultation, private landholders in the floodplain range from small family-owned farms to large corporate agribusinesses with major irrigation infrastructure.

To enhance agricultural productivity, works have been built on the floodplain to improve land used for irrigated cropping, perennial horticulture, dryland cropping and grazing. Typically, flood works such as levees, earthworks, banks and channels are built to protect crops, land, stock and properties from flooding, provide on farm access, and to deliver and store irrigation, stock, and domestic water. Delivery of water is also supported by flood works owned and managed by irrigation corporations and private irrigation districts. It is the construction and use of these flood works, both existing and proposed, that are affected by the draft FMP.

More information about the region's economy and an assessment of the impact of the draft FMP is available in [Appendix 2](#).

³ Australian Bureau of Statistics Data by region 2011-2023, by ASGS Statistical Level 2 (ASGS Edition 3 (2021 – 2026)) <https://dbr.abs.gov.au/index.html>

⁴ [NSW Landuse 2017 version 1.5 published December 2023](#)

⁵ Australian Bureau of Statistics Data by region 2011-2023, by ASGS Statistical Level 2 (ASGS Edition 3 (2021 – 2026)) <https://dbr.abs.gov.au/index.html>

3 Management zones

The information and maps presented in this report have been prepared using the best available information for the Billabong Creek Floodplain. The information and maps are subject to change following Stage 2 public exhibition.

The proposed management zones represent the hydraulic, ecological, Aboriginal cultural, or heritage (or combination of) attributes of the land. No attribute was given precedence over another. Instead, a classification tool, shown in Figure 2, was applied to each area of the floodplain to determine the appropriate management zone.

Based on the management zone assigned, the relevant rules and assessment criteria will apply. These are detailed in section 4 and are reflective of the nature of the area and associated impact that a flood work may have on the movement of flood water and risk to life and property.

The proposed percentage of the floodplain covered by:

- management zone A is 5.1%
- management zone B is 26.9%
- management zone C is 66.3%
- management zone CU is 0.2%
- management zone SP (special protection) is 1.6%.

The proposed management zones are shown in Figure 3. For a higher resolution version of the proposed management zones, please refer to the [interactive spatial map](#).

When providing feedback, we recommend taking a screenshot of the relevant area/s displayed on the [interactive spatial map](#) and using a drawing function to illustrate or refer to the area shown in your written feedback. Please include information about the location on the map, such as an address. The screenshot of the map can then be saved as an image file and attached to your submission.

If you require assistance navigating the map and preparing your submission, we recommend booking an individual appointment. More information about registering for an online appointment and the submission process is available in section 6.

Prompts for feedback

Do you support the proposed management zones?

Does the proposed management zone assignment reflect the attributes of the land?

Are the proposed management zones correct at a property scale?

Figure 2: Management zone classification decision tree

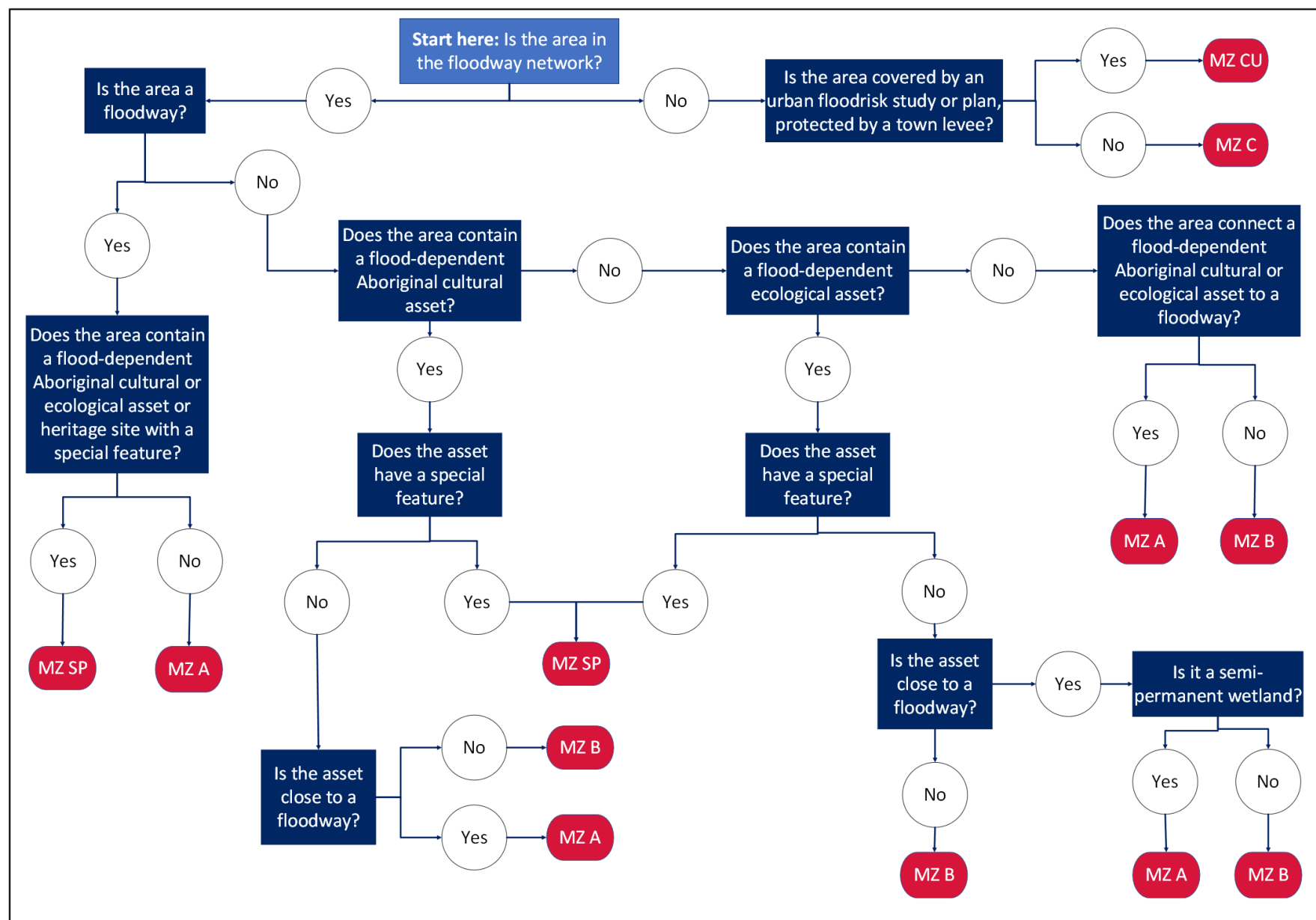
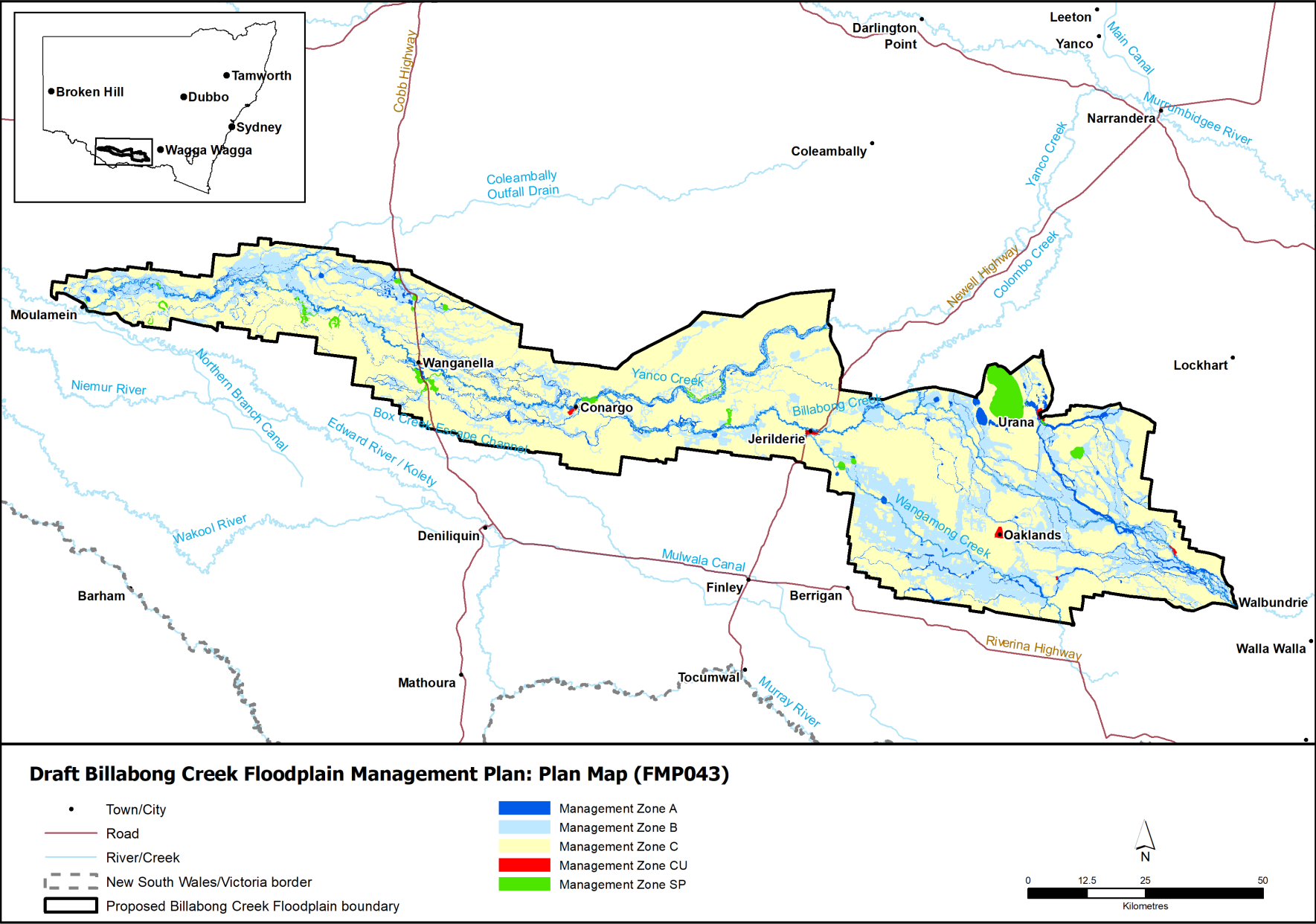


Figure 3: Proposed management zones



3.1 Floodway network (management zone A and B)

The floodway network was presented as part of Stage 1 public consultation. It has been defined by:

- mapping the outputs of the hydraulic modelling
- considering the floodway networks in the existing localised FMP and historical floodplain development guidelines, and aligning with them where appropriate
- reviewing additional flood photography and satellite imagery.

There was significant community interest in Stage 1 public consultation, particularly in the selected large design flood and the extent of the floodway network. Multiple refinements were made in response to the feedback received. These refinements can be seen in Appendix 3 of the [What we heard report](#).

The floodway network comprises of **floodways** (approximately 5.3%⁶ of the floodplain) and the **inundation extent** (ponding areas) (approximately 28.2%⁷ of the floodplain).

Importantly, in response to the feedback received a revised approach has been taken to the consideration of unapproved flood works located within the inundation extent which are determined to have minor impacts on natural flood behaviour, flooding in neighbouring properties, and ecological and cultural assets. These flood works have been mapped to sit outside the floodway network, which has ultimately resulted in a reduction in the area mapped as inundation extent from 31.5% to 28.2% of the floodplain.

For more information on the development of the floodway network, please refer to Appendix 1 of the [Report to assist Stage 1 public consultation](#). An updated floodway network map is provided in the draft FMP and the [interactive spatial map](#).

3.1.1 Floodways (management zone A)

Floodways are areas of fast-flowing floodwater during times of flood. These areas are identified by a modelled depth-velocity product of at least 0.1 m²/s for the large design flood (October to December 2022) and parts of the small design flood extent (October to November 2010 and March 2011 floods) that ensure continuity of floodways.

Floodways are high-risk areas that, even if only partially blocked, would cause significant changes in the movement of floodwater across the floodplain.

Floodways are a critical area of the floodplain, as they allow water to leave or return to a river or creek during times of flood or deliver floodwater to ecological assets, Aboriginal cultural values and heritage sites that depend on it. Floodways also pose the greatest risk to life and property during flood events.

All floodways have been assigned management zone A.

⁶ The area of the proposed floodway network has decreased following Stage 1 public consultation. However, the floodways were incorrectly reported as being 4% of the floodplain in the Report to assist Stage 1 public consultation, when they were actually 5.3%. This was due to an incorrect spatial projection calibration.

⁷ The area of the proposed inundation extent has decreased following Stage 1 public consultation. The proposed inundation extent was incorrectly reported as being 22% of the floodplain during Stage 1 public consultation when it was 31.5%. This is due to an incorrect spatial projection calibration.

3.1.2 Inundation extent (management zone B)

The inundation extent is the area where floodwater breaks out (flood discharge) and forms ponds. It is identified by the modelled flood extent of the large design floods and small design floods, plus any flooded areas identified through Sentinel and Landsat imagery during the October to December 2022 flood event.

These areas are critical for storing floodwater during times of flood. Without these areas, the depth and speed of the floodwater in the floodway would dramatically increase. It is important that flood works constructed in these areas are coordinated so that they do not block inundation, particularly during large floods.

The entire inundation extent has been assigned management zone B.

3.2 Identified Aboriginal cultural assets

Aboriginal cultural assets and values on the floodplain can be:

- flood-dependent, such as waterholes, fish traps or scarred trees that require inundation
- flood-impacted, such as Aboriginal burial grounds or shell middens that can be damaged by scour and erosion caused by flooding or directly during the construction of a flood work.

As part of assessing and determining an application for a flood work approval, a search of the Aboriginal Heritage Information Management System (AHIMS) must be conducted. AHIMS is a secure electronic database that holds over 100,000 records and information about Aboriginal Places, objects, and other significant sites across NSW. Due to cultural sensitivities, Aboriginal cultural assets in the floodplain will not be shown on a map in the draft FMP.

To ensure that Aboriginal cultural assets and values are protected from impacts associated with flood works, the department has been explaining and promoting the use of AHIMS as part of consultation with Aboriginal communities.

As part of assigning management zones, the department has identified all flood-dependent Aboriginal cultural assets within the floodplain that are recorded on AHIMS. It is these assets which require consideration in assigning management zones to ensure that the flow of floodwater is maintained.

3.2.1 Areas within or near a floodway (management zone A)

Where a flood-dependent Aboriginal cultural asset is located within or near a floodway, it has been assigned management zone A. Where the flood-dependent Aboriginal cultural asset is located near a floodway, the area is connected to the floodway with a management zone A connector. More information on connectors is provided in section 3.5.

Some examples of flood-dependent Aboriginal cultural assets assigned as management zone A include scarred river red gum trees and waterholes.

There may also be some flood-impacted Aboriginal cultural assets located within a floodway. These areas have also been assigned management zone A as they already form part of the floodway network, as explained in section 3.1.1. Rules are proposed that allow for Aboriginal cultural protection works to be constructed to protect these areas from the impacts of flooding. Please refer to the rules for management zone A in section 4.1.1 and Table 1 for more information.

For more information on how management zones are assigned, please refer to Figure 2.

3.2.2 Areas not near a floodway (management zone B, C and CU)

Where an Aboriginal cultural asset is located within the inundation extent but not near a floodway, it has been assigned management zone B, regardless of whether it is flood-dependent or flood-impacted.

Where an Aboriginal cultural asset is located outside of the floodway network, it is assumed to not be flood-dependent or flood-impacted. These areas are assigned management zone C if it is located within the flood fringe (see section 3.6.1) or management zone CU if it is located within an urban area (see section 3.6.2).

For more information on how management zones are assigned, please refer to Figure 2.

3.2.3 Areas requiring special protection (management zone SP)

For some flood-dependent Aboriginal cultural assets, there is a need to apply a special protection management zone. These areas are identified through:

- a high level of flood-dependency, such as waterholes, swamps, billabongs or fish traps that are strongly dependent on the passage of floodwater, and
- a high level of cultural significance to the Aboriginal community, including spiritual, archaeological or resource use-values.

These areas are also recorded on AHIMS.

Management zone SP has the greatest restriction on the types of flood works permitted.

An example of this would be a ceremonial site located within a wetland that is listed on AHIMS.

No Aboriginal cultural asset sites requiring a special protection management zone have been identified in the floodplain. However, feedback on this assessment is welcome during Stage 2 public exhibition.

For more information on how management zones are assigned, please refer to Figure 2.

3.3 Identified heritage sites

Heritage sites may be sensitive to changes in flood behaviour or disturbance from flood work construction. The heritage sites identified within the floodplain are listed on the NSW State Heritage Register.

Black Swamp is an identified heritage site within the Billabong Creek floodplain that is dependent on or connected with flooding, and listed in the Conargo Local Environment Plan 2013. Some of the other identified heritage sites may be flood-impacted as they could be damaged by flooding or directly impacted during the construction of a flood work.

Any heritage sites located:

- within a floodway have been assigned management zone A
- within the inundation extent have been assigned management zone B
- outside the floodway network have been assigned management zone C or CU.

The Black Swamp, as a **flood-dependent heritage site** within a floodway, has been assigned management zone SP. Management zone SP has the greatest restriction on the types of flood works

permitted. Please refer to the rules and assessment criteria for management zone SP in section in section 4.1.1 and Table 1 for more information.

Where a **flood-impacted heritage site** is located within a floodway, rules are proposed that allow for heritage site protection works to be constructed to protect these areas from the impacts of flooding. Please refer to the rules and assessment criteria for management zone A in section 4.1.1 and Table 1 for more information.

As part of assessing and determining an application for a flood work approval, a search of the State Heritage Inventory must be conducted. This online search tool holds information about most statutory protected heritage items in NSW, including the State Heritage Register.

For more information on how the management zones are assigned, please refer to Figure 2.

3.4 Identified ecological assets

The following types of ecological assets, shown in Figure 4, have been identified within the floodplain and are proposed to be included in the draft FMP:

- semi-permanent wetlands (non-woody): require flooding every 1–2 years
- floodplain wetlands (flood-dependent shrubland wetlands): require flooding every 1–7 years
- flood-dependent forest/woodland (wetlands): requires flooding every 1–4 years
- flood-dependent woodland: requires flooding every 3–10 years.

The ecological assets are identified using the best available vegetation mapping and survey information, including the NSW State Vegetation Type Map⁸ and wetland mapping.

The ecological assets are categorised according to the flooding requirements of their vegetation communities, which correlates to the degree of connectivity required to a floodway. Semi-permanent wetlands have the highest dependency on flooding, while flood-dependent woodland has the lowest dependency on flooding.

In addition, there are flood-dependent ecological assets which contain a special feature, such as an identified waterbird breeding site or nationally recognised wetland, which warrants an additional layer of protection.

When assigning management zones, the following approach is taken:

- semi-permanent wetlands will be assigned management zone A
- any flood-dependent ecological assets with a special feature will be assigned management zone SP
- identified flood-dependent ecological assets within the floodway network will be assigned:
 - management zone A if within a floodway
 - management zone B with a connector if near a floodway, or
 - management zone B without a connector if not near a floodway

⁸ Department of Planning and Environment (2022) NSW State Vegetation Type Map. Current Release C1.1.M1.1 (December 2022)

- identified ecological assets (other floodplain ecosystems) outside the floodway network will be assigned management zone C or CU.

The ecological assets are shown in Figure 4. The assigned management zones can be viewed in the [interactive spatial map](#) by clicking on the relevant area. More information on connectors is provided in section 3.5 of this report.

In response to feedback received during Stage 1 public consultation, multiple refinements were made to the identified flood-dependent ecological assets to reflect areas where crops are grown, private gardens, or previously cleared native vegetation that is no longer visible on satellite imagery. These refinements can be seen in Appendix 3 of the [What we heard report](#).

3.4.1 Areas within or near a floodway (management zone A or B)

All semi-permanent wetlands located within or near a floodway will be assigned management zone A. For those located near a floodway, a connector will be used to ensure the flow of floodwater from the floodway to the asset is maintained.

All other flood-dependent ecological assets will only be assigned management zone A if they are located within a floodway. If they are located near a floodway, they will be assigned management zone B and have a connector which runs to and through the asset to ensure the flow of floodwater from the floodway to the asset is maintained.

For more information on how management zones are assigned, please refer to Figure 2.

3.4.2 Areas not near a floodway (management zone B, C or CU)

Flood-dependent ecological assets located within the inundation extent but not near a floodway will be assigned management zone B without the use of a connector.

Where an ecological asset is located outside of the floodway network, it is assumed not to be entirely flood dependent. These areas, referred to as other floodplain ecosystems, are assigned management zone C if it is located within the flood fringe (see section 3.6.1) or management zone CU if it is located within an urban area (see section 3.6.2).

For more information on how management zones are assigned, please refer to Figure 2.

3.4.3 Areas requiring special protection (management zone SP)

For some flood-dependent ecological assets, there is a need to apply a special protection management zone. These areas are identified through:

- a demonstrated history of supporting waterbird, native fish or frog populations, such as a lagoon, or
- a capacity to provide refuge for aquatic life during drought, such as a billabong, or
- are recognised in local, state or Commonwealth legislation or policy, or
- a combination of any of the above.

Where the asset is located within the inundation extent, a connector will be used to ensure the flow of floodwater from the floodway to the asset is maintained.

Management zone SP has the greatest restriction on the types of flood works permitted.

There are 26 areas identified in the floodplain which are being assigned management zone SP. These include:

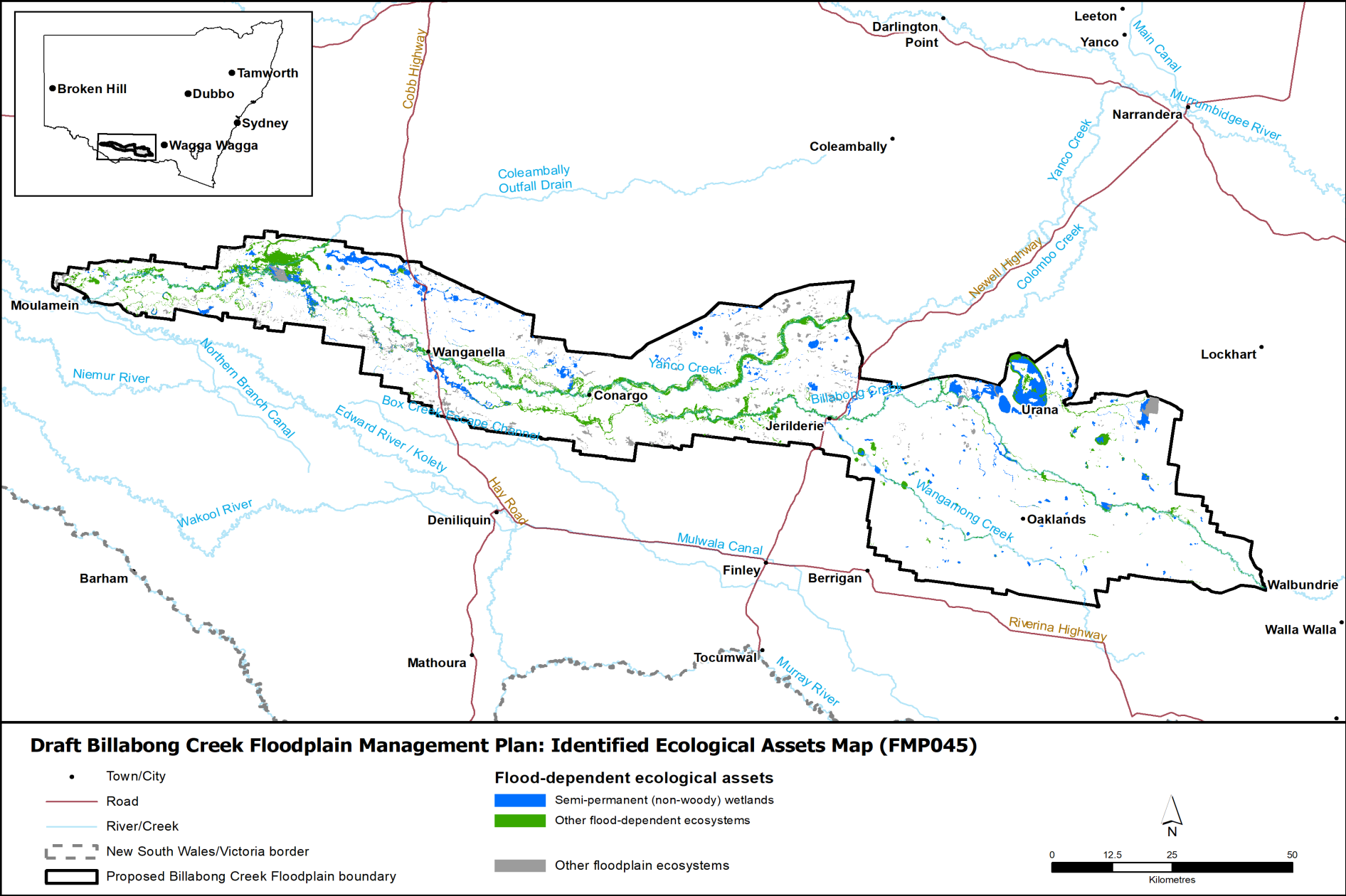
- habitat for migratory waterbird species
- habitat for native fish and freshwater turtle
- waterbird breeding sites
- aquatic drought refuge (lagoons)
- nationally important wetland (Directory of Important Wetlands in Australia)
- areas that have received Commonwealth environmental water
- sites identified as wetlands within the Conargo Local Environmental Plan 2013, Jerilderie Local Environmental Plan 2012 and the Urana Local Environment Plan 2011.

For more information on how management zones are assigned, please refer to Figure 2.

The draft *Water Sharing Plan for the Murrumbidgee Unregulated River Water Sources 2025* has **not** used the proposed areas assigned to management zone SP in the draft FMP to identify WSP Prescribed Wetlands for that water sharing plan. Once the draft FMP has been finalised, the department will consider if changes to the water sharing plan's prescribed wetlands map should be proposed and consult accordingly.

For more information on wetlands identified in water sharing plans, please visit the [department's website](#).

Figure 4: Identified ecological assets within the floodplain



3.5 Connectors (management zone A)

Connectors are pathways that connect flood-dependent ecological assets and flood-dependent Aboriginal cultural assets to the floodway. They are assigned management zone A to ensure the flow of floodwater from the floodway to the asset is maintained and will not be blocked by flood works.

The location and size of connectors are determined through the use of satellite imagery, Light Detection and Ranging (LiDAR) and modelling results to confirm existing flood flow paths.

All connectors are assigned management zone A.

3.6 Flood fringe (management zone C and CU)

Areas of the floodplain that are not within the floodway network can be categorised as **flood fringe areas** or **flood protected areas**.

3.6.1 Flood fringe (management zone C)

The flood fringe is an area which may be flooded but is not considered critical in the flow of water during times of flood. Flood-protected areas do not receive floodwater. This may be due to the area being higher ground or the presence of existing flood works preventing the passage of floodwater.

Areas of flood fringe are assigned management zone C.

More than half of the proposed floodplain (66%) has been allocated to management zone C.

3.6.2 Urban area (management zone CU)

Flood risk in urban areas is generally managed by local councils through flood risk management plans and studies developed in accordance with the Flood Risk Management Manual⁹. Urban areas may also be protected from flooding by a town levee.

Urban areas where a flood risk management plan or strategy applies, or are protected by a town levee, are assigned management zone CU.

⁹ The Flood Prone Land Policy and Flood Risk Management Manual (2023) guide local government in managing flood risk in their communities.

4 Proposed rules and assessment criteria

The draft FMP aims to manage the construction or modification of flood works on the floodplain by:

- establishing management zones that reflect the presence and movement of floodwater during times of flood, and
- applying rules and assessment criteria specific to each management zone that protect the passage of floodwater while minimising the risk to life and property from the effects of flood.

Part 7 of the draft FMP sets the rules and assessment criteria which aim to restrict the types of flood works constructed in management zones A and SP, while ensuring comprehensive rules and assessment criteria are applied to all flood works throughout the floodplain.

Prompts for feedback

Do you support the types of existing and new flood works proposed to be permitted within management zone A and management zone SP?

Should drains be included as an additional type of flood work proposed to be permitted with management zone A?

Do you support the proposed rules and assessment criteria for existing flood works in management zone A and management zone SP?

Do you support the proposed rules and assessment criteria in management zones B, C and CU?

Do you support the proposed rules and assessment criteria for existing flood works in management zone B?

4.1 Types of flood works

All flood works require a flood work approval unless an exemption applies. This section describes the proposed types of flood works that can be submitted for a flood work approval.

For more information on exempt flood works, please refer to the [flood work exemptions fact sheet](#) on the [WaterNSW website](#).

For more information on the flood work approval processes undertaken by WaterNSW, please see the [WaterNSW flood work approvals webpage](#).

4.1.1 Management zones A and SP

The construction of a flood work in a floodway (management zone A) can significantly increase the risk to life and property during times of flood; both on the property where the flood work is constructed and on neighbouring properties.

Areas which contain flood-dependent ecological assets that have a special feature (management zone SP), such as important wetlands, are vulnerable to the impacts of a flood work. Further, they are heavily reliant on floodwater to survive.

Due to the reasons explained above, flood works proposed to be constructed in management zones A and SP will be restricted to specific types that are essential for the protection of life and property,

or improvement of the floodplain. Each type of flood work permitted will be subject to size or height restrictions to ensure the impact on the passage of floodwater is minimised. Please refer to Table 1 for more information.

There are additional types of flood works permitted for those that were constructed prior to the draft FMP commencing. Please refer to section 4.1.1.2 for more information.

All flood works in management zones A and SP will be assessed using the **standard assessment criteria**, while enhancement flood works will be assessed using the **hydraulic assessment criteria**. Please refer to Table 3 and Table 4 for more information.

4.1.1.1 Refinements in response to Stage 1 public consultation

During Stage 1 public consultation, feedback was sought on localised variances to rules for flood works located within floodways. The feedback we received and refinements we made in response can be read in the [What we heard report](#).

Types of flood works permitted in floodways

In relation to the types of flood works proposed to be permitted within a floodway, stakeholders supported the inclusion of critical works such as access roads, supply channels and infrastructure protection works within floodways, with suggestions that these works should include specifications to allow for the passage of floodwater and that impacts on neighbouring properties should be avoided. There was strong support for existing flood works to be permitted and retained within floodways and on the broader floodplain.

Under the WM Act, the draft FMP must consider the risks to life and property from the effects of flooding. The construction of some types of flood works can significantly increase the risk to life and property, both on the landholding where the flood work is located and on neighbouring properties. The types of flood works proposed to be permitted within floodways balance the need to protect life, infrastructure, and stock with the potential impact they may have on the flow and distribution of floodwater.

No changes were made to the types of flood works proposed to be permitted in response to the feedback received. However, during Stage 1 public consultation, some stakeholders commented that drains (works that are for the purpose of allowing water to return to a creek following a flood event) are a unique type of flood work in the Billabong Creek floodplain. The department is seeking feedback during Stage 2 public exhibition of the draft FMP as to whether the use of drains (new or existing) is typical across the Billabong Creek floodplain and whether they should be permitted in floodways.

Some types of existing flood works are proposed to be permitted within a floodway to allow for existing unapproved flood works to gain a flood work approval. Please refer to section 4.1.1.2 for more information.

Maximum height of access roads

In relation to the proposed maximum height of a standard or primary access road (10 cm – 50 cm) located within a floodway, stakeholders suggested a range of maximum heights between ground level and 100 cm, with 50 cm being the most common.

As required under the WM Act, the draft FMP must consider the risks to life and property from the effects of flooding. The maximum height of an access road balances the need to ensure access during times of flood with the potential impact it may have on the flow and distribution of

floodwater. Importantly, the maximum height only applies to the section of the access road that is located within a floodway (management zone A).

After reviewing feedback and comparing various access road height models with existing road heights to determine impact, the department proposes:

- a maximum height of 50 cm for primary access roads, and
- a maximum height of 30 cm for standard access roads.

A larger maximum height is proposed for primary access roads to allow for evacuation during times of flood. Further, no maximum height is proposed for existing access roads located within a floodway. This is to allow existing unapproved flood works to gain a flood work approval. Please refer to section 4.1.1.2 for more information.

4.1.1.2 Existing flood works in management zones A and SP

For flood works that were constructed in a floodway (management zone A) or within an area that contains a flood-dependent ecological asset that has a special feature (management zone SP) prior to the draft FMP commencing, there are some variations in the proposed types of works permitted and associated rules. These variations are designed to ensure that a flood work approval can be obtained. The existing flood work must not be the subject of an undetermined or previously refused application for a flood work approval.

If an existing flood work, of the type listed below, cannot comply with the specifications listed in Table 1, a flood work approval may be granted, if it complies with the **standard assessment criteria** specified in Table 3:

- access roads (standard and primary)
- stock refuge
- infrastructure protection work
- supply channel (above and below ground).

The rules for existing works are intended to provide a pathway for the approval of some relatively minor flood works. They are not intended for the retrospective approval of major irrigation infrastructure.

4.1.2 Management zones B, C and CU

Any type of flood work will be permitted in management zones B, C, and CU. All flood works in these management zones will be assessed using the **standard assessment criteria**.

Larger flood works in management zone B and flood works that may cause a significant impact in management zones C and CU will also be assessed using the **hydraulic assessment criteria**.

Please refer to section 4.2, Table 3 and Table 4 for more information.

4.1.2.1 Existing flood works in management zone B

Across the Murrumbidgee, NSW Murray, Billabong Creek and Lachlan valleys, landholders and peak water user groups have consistently raised concerns about having to get flood work approvals for existing flood works in areas that are outside of the existing FMPs, historically made under the *Water Act 1912*. Of particular concern is irrigation infrastructure and access roads or farm tracks that have been in place for decades.

In many cases, there is a lack of awareness of what constitutes a flood work and the legal requirement for a flood work approval, including areas without an in-force FMP. However, the objections mostly relate to the cost and inconvenience of obtaining a flood work approval.

During Stage 1 public consultation, stakeholders objected to the mapped inundation extent, and were concerned about what this means in relation to obtaining a flood work approval for existing flood works. In response to this feedback, a unique, temporary rule set has been included for existing flood works in management zone B (inundation extent) in the draft FMP.

Unapproved flood works located in management zone B that were constructed prior to **7 July 2000** will be required to meet the **standard assessment criteria only**. The relevance of 7 July 2000 is the commencement of the Water Amendment (Flood Control Works) Act 1999, which made provision for the approval of works that may affect or prevent flooding.

This rule will only apply for the **first three years** following commencement of the FMP to encourage landholders to obtain a flood work approval. It will provide a pathway for the approval of existing flood works constructed prior to **7 July 2000** by simplifying the assessment process and potentially avoiding the cost of preparing a flood study.

However, if an existing, unapproved flood work in management zone B:

- has the potential to impact high value infrastructure such as roads, railways or dwellings, or
- has existing flood works nearby that have a limited height condition, or
- may create a new or restore an old flood flow path,

the flood work **must be advertised** and meet the **hydraulic assessment criteria**, including cumulative impact assessment. This may require a flood study (hydraulic modelling). This assessment will ensure that impacts on neighbouring properties and the environment are avoided or minimised.

Proposed new flood works or modification of existing approved flood works will continue to be assessed against the standard assessment criteria and hydraulic assessment criteria as outlined in section 4.2, Table 3 and Table 4.

4.1.2.2 Existing flood works in management zones C and CU

For flood works that were constructed in management zones C or CU prior to the draft FMP commencing, the same rules and assessment criteria apply to both new and existing flood works.

Applications for flood works in management zones C and CU will not require advertisement.

Table 1: Proposed flood works to be permitted in management zones A and SP and applicable specifications

Flood work type	Purpose	Permitted in management zone A	Permitted in management zone SP	Restrictions or specifications to minimise impacts on other landholdings and the floodplain environment
Standard access road (road within private property)	To ensure landholders have basic provisions to access property.	✓	✗	Maximum height of 30 cm above the natural surface of the ground. Causeways at least every 200 m, at the lowest point of the floodway, are no higher than the natural surface of the ground and comprise at least 10% of the total length of the road within Management Zone A. Borrow associated with construction/maintenance is located on the downstream side of the access road and is no deeper than 15 cm below the natural surface of the ground.
Primary access road (private road leading directly to a permanently occupied fixed dwelling)	To further ensure landholders have basic provisions to access property or evacuate during a major flood event by permitting higher level roads that directly service homes.	✓	✗	Maximum height of 50 cm above the natural surface of the ground. Causeways at least every 200 m, at the lowest point of the floodway, are no higher than the natural surface of the ground and comprise at least 10% of the total length of the road within management zone A. Borrow associated with construction/maintenance is located on the downstream side of the access road and is no deeper than 15 cm below the natural surface of the ground.
Supply channel (below ground)	To ensure landholders can access water rights from water sources.	✓	✗	Height must be below the natural surface of the ground. Allow for the passage of floodwater and prevent diversion of water. Spoil associated with construction/maintenance must be located in a heaped line parallel to flow direction with a maximum height of 10 cm above the natural surface of the ground and not block more than 5% of the width of management zone A (at the location of the channel and perpendicular to flow direction).

Flood work type	Purpose	Permitted in management zone A	Permitted in management zone SP	Restrictions or specifications to minimise impacts on other landholdings and the floodplain environment
Stock refuge	To account for animal welfare and to minimise a landholder's potential to lose stock to floodwaters.	✓	✗	Maximum area of 10 hectares and no other stock refuge in that area. Total maximum area of all stock refuges is no more than 5% of total property area. Does not block more than 5% of the width of management zone A (at the location of the refuge and perpendicular to flow direction).
Infrastructure protection work	For protecting high value infrastructure such as homes and sheds. To minimise the risk to life and property from flooding.	✓	✗	Maximum area enclosed by the work is: 10% of the total area of the property if the maximum area of Management Zone A on the property is no more than 20 hectares, or 2 hectares or 1% of the total area of the property (whichever is largest) if the maximum area of management zone A on the property is more than 20 hectares. Does not block more than 5% of the width of management zone A (at the location of the work and perpendicular to flow direction).

Flood work type	Purpose	Permitted in management zone A	Permitted in management zone SP	Restrictions or specifications to minimise impacts on other landholdings and the floodplain environment
Ecological enhancement work	To improve flood connectivity to a recognised flood-dependent ecological asset, such as a wetland or lagoon.	✓	✓	The primary purpose must be to improve flood connectivity to a flood-dependent ecological asset that is specified in a local, state or Commonwealth environmental plan, policy or legislation. The improvement in flood connectivity must contribute to the protection or conservation of one or more flood-dependent ecological assets. Must be part of an active government program such as the Reconnecting River Country Program, a cultural watering plan or a natural resource management project with Local Land Services. Comply with the assessment criteria specified for management zone B.
Aboriginal cultural value enhancement flood work	To improve flood connectivity to a recognised flood-dependent Aboriginal cultural asset or value, such as a waterhole or lagoon that holds significance to Aboriginal people.	✓	✓	The primary purpose must be to improve flood connectivity to a flood-dependent Aboriginal cultural value that is listed on the Aboriginal Heritage Information Management System (AHIMS) or other heritage register. The improvement in flood connectivity must contribute to the protection or conservation of one or more flood-dependent Aboriginal cultural values. Must be part of an active government program such as the <u>Reconnecting River Country Program</u>, a cultural watering plan, or a natural resource management project with Local Land Services. Comply with the assessment criteria specified for management zone B.

Flood work type	Purpose	Permitted in management zone A	Permitted in management zone SP	Restrictions or specifications to minimise impacts on other landholdings and the floodplain environment
Heritage site enhancement flood work	To improve flood connectivity to a recognised flood-dependent heritage site such as a historic flood marker on a flood-dependent tree.	✓	✓	The primary purpose must be to improve flood connectivity to a flood-dependent heritage site that is listed on a heritage register. The improvement in flood connectivity must contribute to the protection or conservation of one or more flood-dependent heritage sites. Must be part of an active government program such as the <u>Reconnecting River Country Program</u>, a cultural watering plan, or a natural resource management project with Local Land Services. Comply with the assessment criteria specified for management zone B.
Aboriginal cultural value protection work	For protecting flood-impacted cultural sites such as burial grounds and shell midden sites that may be damaged by scour and erosion.	✓	✓	Demonstrate protection for a flood-impacted Aboriginal cultural asset listed on AHIMS or NSW State Heritage Register. Does not block more than 5% of the width of management zone A (at the location of the work and perpendicular to flow direction). Maximum area enclosed by the work is: 10% of the total area of the property if the maximum area of management zone A on the property is 20 hectares, or 2 hectares or 1% of the total area of the property (whichever is largest) if the maximum area of management zone A on the property is greater than 20 hectares.

Flood work type	Purpose	Permitted in management zone A	Permitted in management zone SP	Restrictions or specifications to minimise impacts on other landholdings and the floodplain environment
Heritage site protection work	For protecting heritage listed sites such as cemeteries, buildings or other places that may be damaged by inundation or scour and erosion.	✓	✓	Demonstrate protection for a flood-impacted heritage site listed on AHIMS or NSW State Heritage Register. Does not block more than 5% of the width of management zone A (at the location of the work and perpendicular to flow direction). Maximum area enclosed by the work is: • 10% of the total area of the property if the maximum area of management zone A on the property is 20 hectares, or • 2 hectares or 1% of the total area of the property (whichever is largest) if the maximum area of management zone A on the property is greater than 20 hectares.

4.2 Assessment criteria

Part 7 of the draft FMP specifies the assessment criteria, which are common throughout each management zone. However, there are some criteria which may not be applied in certain management zones or only applied to certain types of flood works. There are two sets of assessment criteria:

1. **standard assessment criteria** which apply to all flood works, and
2. **hydraulic assessment criteria** which apply to the following types of flood works:
 - a. flood enhancement works (ecological, Aboriginal cultural or heritage site enhancement works) in management zones A and SP
 - b. proposed flood works or existing flood works constructed **after** 7 July 2000 in management zone B, where advertisement requirements apply, which are generally large-scale flood works
 - c. existing flood works constructed prior to 7 July 2000 in management zone B, and new and existing flood works in management zones C and CU if they:
 - i. have the potential to impact high value infrastructure such as roads, railways or dwellings, or
 - ii. have existing flood works nearby that have a limited height condition, or
 - iii. may create a new or restore an old flood flow path.

The purpose of the assessment criteria is to manage flooding impacts on neighbouring properties (including high value infrastructure), areas of Aboriginal cultural significance, heritage sites and the environment. This is consistent with the water and floodplain management principles as set out in sections 5(2) and 5(6) of the WM Act.

The use of hydraulic modelling is generally required to demonstrate that the hydraulic assessment criteria has been met. The cost for hydraulic modelling will vary depending on the scale and nature of the flood work. The average cost is approximately \$10,000.

All types of flood works are permitted within management zones B, C and CU subject to complying with the rules and assessment criteria. The proposed advertisement rules and assessment criteria are specified in Table 2. The standard rules and assessment criteria are specified in Table 3. The hydraulic assessment rules and criteria are specified in Table 4. The hydraulic assessment rules and criteria generally require hydraulic modelling to demonstrate that the criteria have been met.

Table 2: Proposed advertisement rules and assessment criteria for flood work applications in each management zone

Note: a cross means that the advertising rules or assessment criteria do not apply in the management zone.

Theme	Rule/Assessment criteria	Management zone A	Management zone B	Management zone C	Management zone CU	Management zone SP
Advertisement of flood work application	Advertising is required when the flood work is: • greater than 40 cm above the natural surface of the ground, or • a stock refuge with a maximum area larger than 10 hectares and no other stock refuge in that area, or • a stock refuge on a property and the total maximum area of all stock refuges is larger than 5% of total property area, or • an infrastructure protection work with an area that is larger than 1% of the total area of the property.	✗	✓	✗	✗	✗

Table 3: Proposed rules and standard assessment criteria for flood work applications in each management zone

Theme	Rule/Assessment criteria	Management zone A	Management zone B	Management zone C	Management zone CU	Management zone SP
Impacts to ecological assets, Aboriginal cultural assets or heritage sites	Maintain adequate flood connectivity under a range of flood scenarios, including the relevant large and small design flood, to flood-dependent ecological assets, flood-dependent Aboriginal cultural assets, flood-dependent heritage sites and facilitate fish passage¹⁰. Maintain adequate flow connectivity to floodplain ecosystems (in areas outside of the floodway network). Not disturb the ground surface or cause erosion to an Aboriginal cultural asset or heritage site during construction or modification of the work.	✓	✓	✓	✓	✓
Drainage impacts	Maintain adequate drainage in areas on the property, including neighbouring properties, that may be affected by the flood work.	✓	✓	✓	✓	✓
Cumulative impacts	Consider the cumulative impact of the flood work and other existing works located on the property to adjacent properties, any other properties affected by the flood work and the floodplain environment.	✓ Not required for enhancement works	✗	✗	✗	✓ Not required for enhancement works

¹⁰ Fish passage refers to connectivity that allows native fish species to move between upstream and downstream habitats as well as adjacent riparian and floodplain areas. Areas of key fish habitat include rivers, creeks and flood flow paths and are available on the [Fisheries NSW website](#).

Table 4: Proposed rules and hydraulic assessment criteria for flood work applications in each management zone

Theme	Rule/Assessment criteria	Management zone A	Management zone B	Management zone C	Management zone CU	Management zone SP
Redistribution of flood flow	Maximum 5% redistribution of peak flood flow on neighbouring properties that may be affected by the flood work (compared to peak flood flow under existing development conditions for a range of flood scenarios, including the relevant large design flood).	 Enhancement works only	 For works that require advertisement	 In limited circumstances	 In limited circumstances	 Enhancement works only
Change in flood levels	Maximum 20 cm increase in flood levels on neighbouring properties that may be affected by the flood work (compared to flood levels under pre-development and existing development conditions for a range of flood scenarios, including the relevant large design flood). Not increase flood levels that would result in impacts to high value infrastructure (compared to flood levels under pre-development and existing development conditions for a range of flood scenarios, including the relevant large design flood).	 Enhancement works only	 For works that require advertisement	 In limited circumstances	 In limited circumstances	 Enhancement works only

Theme	Rule/Assessment criteria	Management zone A	Management zone B	Management zone C	Management zone CU	Management zone SP
Change in flood flow velocity	Maximum 50% increase in flood flow velocity on the property and neighbouring properties that may be affected by the flood work (compared to flood flow velocity under pre-development and existing development conditions for a range of flood scenarios including the large design flood) unless: • increases greater than 50% are isolated on the property and average impact across the property is less than 50%, and • increases are not greater than 50% at the property boundary. Not increase flood flow velocity that would result in more than minimal soil erosion on the property and neighbouring properties that may be affected by the flood work taking into account the ground cover on those properties.	 Enhancement works only	 For works that require advertisement	 In limited circumstances	 In limited circumstances	 Enhancement works only
Redistribution of flood flow (cumulative impact)	Maximum 5% redistribution of peak flood flow at any of the peak discharge locations shown on the peak flow distribution map (compared to redistribution under existing development conditions). Maximum 5% redistribution of peak flood flow at any location and under any other flood scenario considered relevant by the Minister.	 Enhancement works only	 For works that require advertisement	 In limited circumstances	 In limited circumstances	 Enhancement works only

5 Other components of the draft FMP

There are several other components of the draft FMP which, in some instances, do not directly relate to the rules for flood work approvals and criteria that will be used to assess applications.

Under the WM Act, the draft FMP must include provisions that relate to the:

- preservation and enhancement of water quality
- monitoring and reporting requirements
- conditions that a flood work approval will have applied
- circumstances when the draft FMP may be amended
- identification of existing and natural flooding regimes (frequency, duration, nature and extent)
- identification of ecological benefits of flooding
- identification of existing flood works (management, benefit, ecological impacts and cumulative impacts)
- risk to life and property from the effects of flooding.

Each of the requirements and how it is met in the draft FMP is described below.

Prompts for feedback

Do you support the proposed mandatory condition that aims to protect water quality?

Do you support the proposed mandatory condition relating to decommissioning requirements?

Do you support the proposed amendment provisions that relate to the future consideration of climate change?

5.1 Water quality

Part 2 of the draft FMP sets the objectives, strategies and performance indicators of the draft FMP. The performance indicators are used to measure the success of the strategies in achieving the objectives of the draft FMP, as shown in Table 5.

The draft FMP sets the following objective in relation to the preservation and enhancement of water quality: **contribute to the protection of water quality within the floodplain to support flood-dependent ecosystems and social, cultural and economic values.**

The first strategy designed to achieve this objective is the establishment of rules and assessment criteria for flood work approvals that ensure flood flow velocity is minimised in the floodplain. This prevents erosion and consequential impacts on water quality.

The second strategy designed to achieve this objective is the proposed mandatory condition that requires all flood works to minimise erosion during construction and use.

5.2 Monitoring and reporting

Part 2 of the draft FMP sets the objectives, strategies and performance indicators of the draft FMP. The performance indicators are used to measure the success of the strategies in achieving the objectives of the draft FMP, as shown in the example in Table 5.

Table 5: Example of linkage between objectives, strategies and performance indicators

Objective	Strategy	Performance indicator
Contribute to the minimisation of the risk to life and property from the effects of flooding in the floodplain	Delineate a floodway network that accurately represents the passage of floodwater in the floodplain	Extent to which the floodway network map accurately represents the passage of floodwater in the floodplain

Within the first 5 years of the 10-year term of the draft FMP, the Natural Resources Commission will undertake an audit to determine whether the provisions are being given effect to. This includes the objectives, strategies and performance indicators.

To demonstrate whether the objectives of the draft FMP are being achieved, the department will undertake monitoring, evaluation and reporting, which will assess key performance indicators. The monitoring and evaluation will use multiple lines of evidence. It will involve assessment of all new flood works and will include:

- Hydraulic assessment with updated hydraulic models to examine any predicted changes to flooding behaviour and if there are any potential impacts to other property, ecological and cultural assets.
- Hydrological and spatial assessment of flood events that occurred in the 10-year term of the draft FMP to determine if there are any major obstructions or changes to inundation extent, and compare/validate hydraulic modelling where applicable.
- Use of modelling and flood data to assess floodway network connectivity, the passage of floodwater in the floodplain, and connectivity to ecological and cultural assets.
- Identification of any changes to the management zones or rules that could further facilitate the draft FMP in meeting its key objectives.

5.3 Mandatory conditions

As required under the WM Act, part 8 of the draft FMP specifies the conditions that will be applied to flood work approvals. These are known as mandatory conditions.

The first mandatory condition in the draft FMP requires notice to be given to WaterNSW of an intention to decommission a flood work and again when the flood work has been decommissioned. The decommissioning process is to ensure that the area where the flood work is located is returned to the height of the natural surface of the ground.

When a flood work is decommissioned, the flood work approval will either require amendment to remove the flood work or be surrendered.

The second mandatory condition in the draft FMP requires erosion to be prevented during the construction and use of a flood work. This aims to protect water quality and is described in section 5.1.

If deemed appropriate, the Minister may apply a discretionary condition to a flood work approval at any time. This may involve conditions related to the protection of the environment. If a decision is made to apply a discretionary condition, the approval holder will be provided with a written notice and will be given a reasonable opportunity to make a submission on the proposed discretionary condition.

5.4 Amendment provisions

Once commenced, the draft FMP may be amended at any time if it is in the public's best interest. The department also keeps a record of any requests for amendment via an amendment register. Amendment of the draft FMP requires approval from the Minister for Water and concurrence from the Minister for the Environment.

Administrative amendments, that do not change the intent of existing rules or correct a typographical error, will generally not involve public consultation. Conversely, any amendment that may impact on existing flood work approval holders or other landholders within the floodplain will involve a public consultation period, including a formal submission process.

As required under the WM Act, part 9 of the draft FMP specifies the circumstances when an amendment may occur during the 10-year term. These include:

- amending any of the maps
- refining the management zones
- amending the design flood events used to map the floodway network
- refining the rules and assessment criteria.

In response to this requirement, the department is proposing to commit to amending the draft FMP within the first 3 years (before 1 July 2029) to include rules and assessment criteria that consider the effects of climate change.

The department is currently working to collect and analyse information on predicted changes to flooding as a result of climate change, which will underpin any future changes to the draft FMP. Further public consultation will be undertaken before introducing any rules relating to climate change in the draft FMP.

5.5 Existing and natural flooding regimes

Part 3 of the draft FMP identifies the existing and natural flooding regimes within the floodplain. This identification does not relate to any rule or assessment criteria but is required under the WM Act.

The natural flooding regime is characterised by flood events prior to any development on the floodplain, while the existing flooding regime is characterised by changes in flooding following development on the floodplain.

As required under the WM Act, the natural and existing flooding regimes are identified in terms of nature, frequency, duration and extent.

5.6 Benefits of flooding

Part 4 of the draft FMP identifies the benefits of flooding, both to the identified flood-dependent Aboriginal cultural assets and values and flood-dependent ecological assets within the floodplain. This identification does not relate to any rule or assessment criteria but is required under the WM Act.

To assist in enhancing the benefits of flooding to Aboriginal cultural assets, ecological assets and heritage sites that are flood-dependent, the draft FMP includes rules and assessment criteria that permit the construction of enhancement flood works.

5.7 Existing flood works

Part 5 of the draft FMP identifies the types and extent of existing approved flood works within the floodplain. It also outlines the benefits in terms of the protection the flood works provide to life and property, and the cultural, socio-economic, and ecological impacts of the flood works, including the cumulative impacts.

This identification does not relate to any rule or assessment criteria but is required under the WM Act.

There are approximately 45 flood work approvals covering 104 flood works within the floodplain for the following types of flood works:

- access roads
 - infrastructure protection works
 - levees
 - stock refuges
 - storages
 - supply channels (above and below ground).
-

5.8 Risks from flooding

Part 6 of the draft FMP identifies the risks to life and property from the effects of flooding in the floodplain and clarifies how the draft FMP addresses these risks. This identification does not relate to any rule or assessment criteria but is required under the WM Act. The floodway network map contributes to this identification (see section 5.9).

The primary risks to life and property include:

- loss of life
- physical injury and illness
- damage to or loss of property, goods, possessions, livestock and crops
- financial costs
- emotional stress including mental illness
- restricted access to/from property.

The draft FMP considers the risk to life and property from the effects of flooding by identifying the floodway network, including high risk areas (floodways), restricting the types of flood works permitted within high-risk areas and raising awareness of flood risk.

5.9 Maps

The draft FMP contains a series of maps that assist in interpreting and applying the rules and assessment criteria.

The **plan map** shows the floodplain boundary and extent of the management zones throughout the floodplain. This map assists landholders in determining what part of their property is wholly or partially within the floodplain, what management zones have been applied throughout their property and, consequently, which rules and assessment criteria apply.

The **floodway network map** identifies areas of the floodplain where the risk to life and property from the effects of flooding are the greatest. The identification of these areas satisfies the requirement under the WM Act for the draft FMP to include provisions that deal with the risk to life and property from the effects of flooding.

The **ecological assets map** shows all flood-dependent ecological assets and other floodplain ecosystems throughout the floodplain. Reference to this map is needed when applying the standard assessment criteria that requires a flood work to maintain adequate flood connectivity to flood-dependent ecological assets.

The **large design flood map** and **small design flood map** show the extent of each design flood in different parts of the floodplain. Reference to these maps is needed when applying the rules and assessment criteria to applications for flood work approvals.

The **peak flood flow distribution map** shows the location of the peak discharge calculation points and the direction of flood flows throughout the floodplain. A peak discharge calculation location is a cross-section of the floodplain where the flow during the large design flood event is calculated for the purpose of assessing the change in flow behaviour due to proposed flood works.

Reference to this map is needed when applying the following rules and the hydraulic assessment criteria:

- rules that refer to being perpendicular to the flood flow direction, and
- the hydraulic assessment criteria that prevent the redistribution of peak flood flow by more than 5% at any of the locations shown on the map.

6 Submission process

We are seeking feedback on the draft FMP through a public exhibition process from **29 September until 16 November 2025**.

To have your say, complete the online submission form or download the submission form on the [department's website](#) and:

- email the form to floodplain.planning@dpie.nsw.gov.au, or
- post the form to:

Attention: Floodplain Planning
Billabong Creek FMP
Water Group - NSW DCCEEW
Locked Bag 5022
Parramatta NSW 2124

A pre-recorded presentation is available on the [department's website](#). It provides an overview of the planning process and the feedback we are seeking.

During the Stage 2 public exhibition period, we are inviting landholders and other stakeholders to book individual appointments with departmental staff to ask questions about the proposed rules and how to make a submission. Appointments will be held online from 13–30 October 2025. Visit the [department's website](#) to find out more and register for an online appointment.

To assist with providing feedback on the management zones shown in Figure 3, we recommend taking a screenshot of the relevant area/s displayed on the [interactive spatial map](#) and using a drawing function to illustrate or refer to the area shown in your written feedback. The screenshot of the map can then be saved as an image file and attached to your submission.

If you require assistance to navigate the map and prepare your submission, we recommend booking an individual appointment.

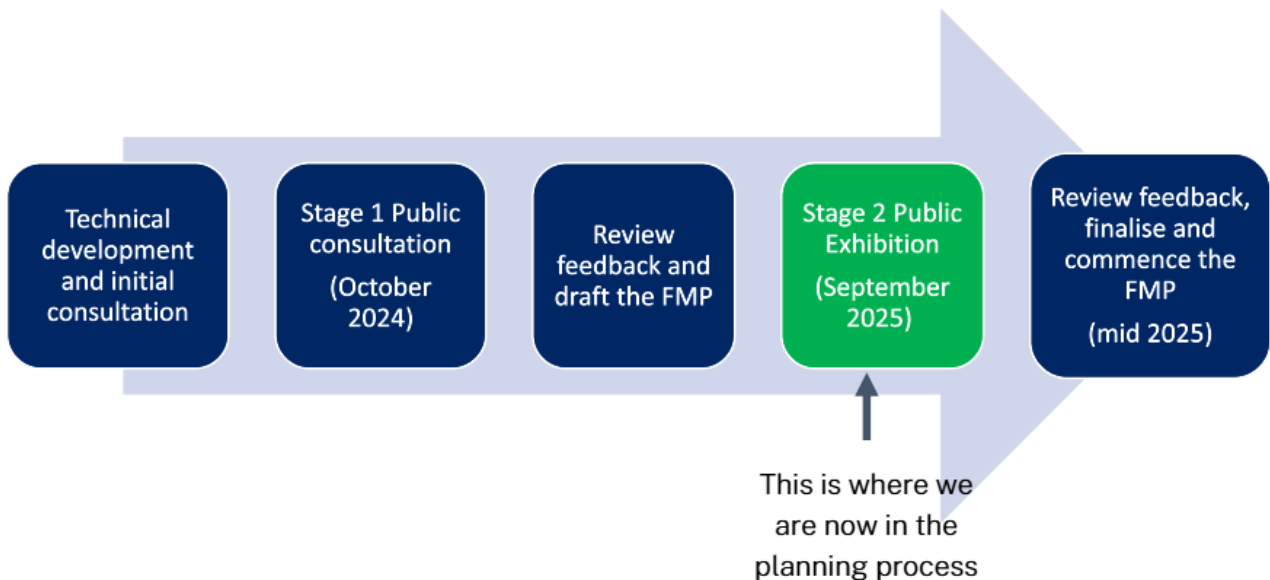
Appointments are also available to discuss the draft Murray Valley Floodplain Management Plan, which is on display concurrently from 29 September to 16 November 2025. To view the draft FMP and find out more, visit the [department's website](#).

7 Next steps

All feedback is important and will be reviewed and considered when preparing the draft FMP for commencement (Figure 5). Submissions received during consultation will be made available on request, and a What we heard report will be published summarising the feedback received.

The final FMP is anticipated to commence on 1 July 2026 following approval from the Minister for Water and concurrence from the Minister for the Environment.

Figure 5: Status of the draft Billabong Creek Floodplain Management Plan



8 Appendices

8.1 Appendix 1 Comparison with existing planning arrangements

8.1.1 Overview

The draft FMP consolidates and updates the existing floodplain management arrangements to:

- meet the requirements of the WM Act
- establish consistent rules for flood works across the floodplain
- improve the coordinated regulation of flood works across the southern Murray–Darling Basin.

This is a change from the current planning arrangements in the existing localised FMP. Under existing planning arrangements, any type of flood work within floodways may be applied for, subject to comprehensive assessment processes and advertising requirements for most types of flood works.

The difference in approaches between the existing localised FMP and the draft FMP relates to the requirement under the WM Act for the draft FMP to consider the risk to life and property from the effects of flooding. The construction of a flood work in a floodway can significantly increase the risk to life and property, both on the landholding where the flood work is constructed and on neighbouring properties.

8.1.2 Existing planning arrangements

The Billabong Creek Floodplain Management Plan 2006 (existing localised FMP) was adopted under the *Water Act 1912* in July 2006. On 21 September 2015, it was adopted under the WM Act and is due to expire on 30 June 2026. The existing localised FMP is published on the [department's website](#).

The existing localised FMP extends from Walbundrie in the east to Jerilderie in the west and includes parts of other creek systems including Coreen Creek, Wangamong Creek, Nowranie (or South Creek), Wallandoon Creek, Washpool Creek, Sandhill Creek and Urangeline Creek. The plan replaced the *Guidelines for Billabong Creek Floodplain Development (Walbundrie to Urana)* prepared in 1980.

The key components of the existing localised FMP are detailed in Table 7 and the development assessment criteria are detailed in Table 8.

Table 6: Summary of existing the localised Billabong Creek FMP

Component	Details
Area	2,836 square kilometres
Design flood	1983 (25-year ARI) for the upper floodplain 1974 (40-year ARI) for the lower floodplain

Component	Details
Floodway network	Comprised of defined floodways across the floodplain, including two critical flow distribution areas: • immediately downstream of Mahonga • immediately upstream of Rand. Note: the floodway network in the existing localised FMP is different to the proposed floodway network for the new draft Billabong Creek FMP. Table 6 in section 8.1.3 provides a comparison between the two.
Monitoring and reporting	Key locations for flood monitoring provided in the plan, to be led by the then Department of Natural Resources. Environmental monitoring of flood-dependent ecosystems, coordinated by the then Department of Natural Resources. Guidelines for monitoring activities set out in the plan.
Existing flood works	Environmental connectivity and hydraulic issues identified associated with existing flood works. Recommended corrective measures, including proposed modifications to existing flood works and identified areas for monitoring and more detailed review or investigation.
Complying works	• All flood works outside of the floodway network, or • Flood works that meet the development assessment criteria specified below, or • Existing flood works that are modified in accordance with the specifications in the plan.
Non-complying works	• Flood works within the floodway network, or • Existing flood works that are not modified in accordance with the specifications in the plan.
Advertisement	All non-complying flood works.

Table 7: Summary of development assessment criteria in existing localised Billabong Creek FMP

Component	Details
Historical	Existing flood control works that are consistent with the 1980 Guidelines for Billabong Creek Floodplain Development (Walbundrie to Urana) will normally be acceptable unless additional information illustrates that they are having a significant hydraulic or environmental impact. Any ongoing concerns or objections from neighbouring landholders must be taken into consideration during the assessment process.

Component	Details
Socio-economic	Flood works should not: • disrupt daily life to surrounding landholders (e.g. access) • impose negative health impacts or stress on surrounding landholders • cause detrimental flooding impacts on high value infrastructure (on any individual landholder or community infrastructure, including increases in flood levels and drainage times).
Environment	No blocking, restricting or impeding flood flow paths to wetlands and flood-dependent ecosystems within the floodway network. No blocking or restricting free passage and migration of fish within the floodplain environment. No blocking or restricting flood flow to identified groundwater recharge areas.
Aboriginal cultural heritage	Unless an agreement has been reached with the National Parks and Wildlife Service and the local Aboriginal lands council, works should not destroy or damage any Aboriginal cultural values and should not block or restrict flood floods to scarred or carved trees that rely on flooding.
Flood behaviour	Flood control works should not: • result in a natural departure from the natural flooding pattern of the floodplain • reduce the hydraulic capacity and continuity of the floodways • significantly impact on pondage duration on the developed floodplain or cause peak travel time to unduly accelerate to downstream users.
Flood levels	Maximum increase in peak flood levels on a neighbour's boundary of 20 cm above pre-development levels. In some circumstances, smaller maximum levels are necessary to limit flooding impacts, such as in critical flow distribution areas.
Redistribution	Maximum flow redistribution of 10% of pre-development distribution. In some circumstances, smaller percentage changes are necessary to limit flooding impacts, such as in critical flow distribution areas.
Velocity in floodways	No significant increases in flood flow velocities within floodways. Flow velocities should not significantly increase erosion and siltation under various land uses (bare soil, crop, natural tussocky grass). Maximum increase of 50% from pre-development flow velocities.

8.1.3 Comparison between existing localised FMP and the draft FMP

The key difference between the existing localised FMP and the draft FMP is the increase in area proposed to be covered by the draft FMP. While the draft FMP introduces some strengthening of rules within the floodway, it also introduces some relaxations in the assessment required for minor works outside the floodway. Table 9 identifies the similarities and differences.

Table 8: Comparison of the existing localised FMP and the draft FMP

Component	Draft FMP	Billabong Creek FMP (2006)	Comparison
Area	6,934 square kilometres	2,836 square kilometres from Walbundrie to Jerilderie including: Coreen Creek, Wangamong Creek, Nowranie (or South Creek), Wallandoon Creek, Washpool Creek, Sandhill Creek, and Urangeline Creek.	A significant increase in area. This allows for a consistent rule set to be applied throughout the floodplain and connection to adjacent floodplains recognised. The area of the historical floodplain north east of Lake Urana has been included in the draft FMP.
Design flood	2022 (large design flood – whole floodplain) 2010 (large design flood – upstream of Jerilderie) 2010 (small design flood – downstream of Jerilderie) 2011 (small design flood – upstream of Jerilderie)	1974 – lower floodplain 1983 – upper floodplain	It is appropriate that the draft FMP relies on more recent flooding events as they are more commonly remembered by the local community and there is more data and information available for these flood events.

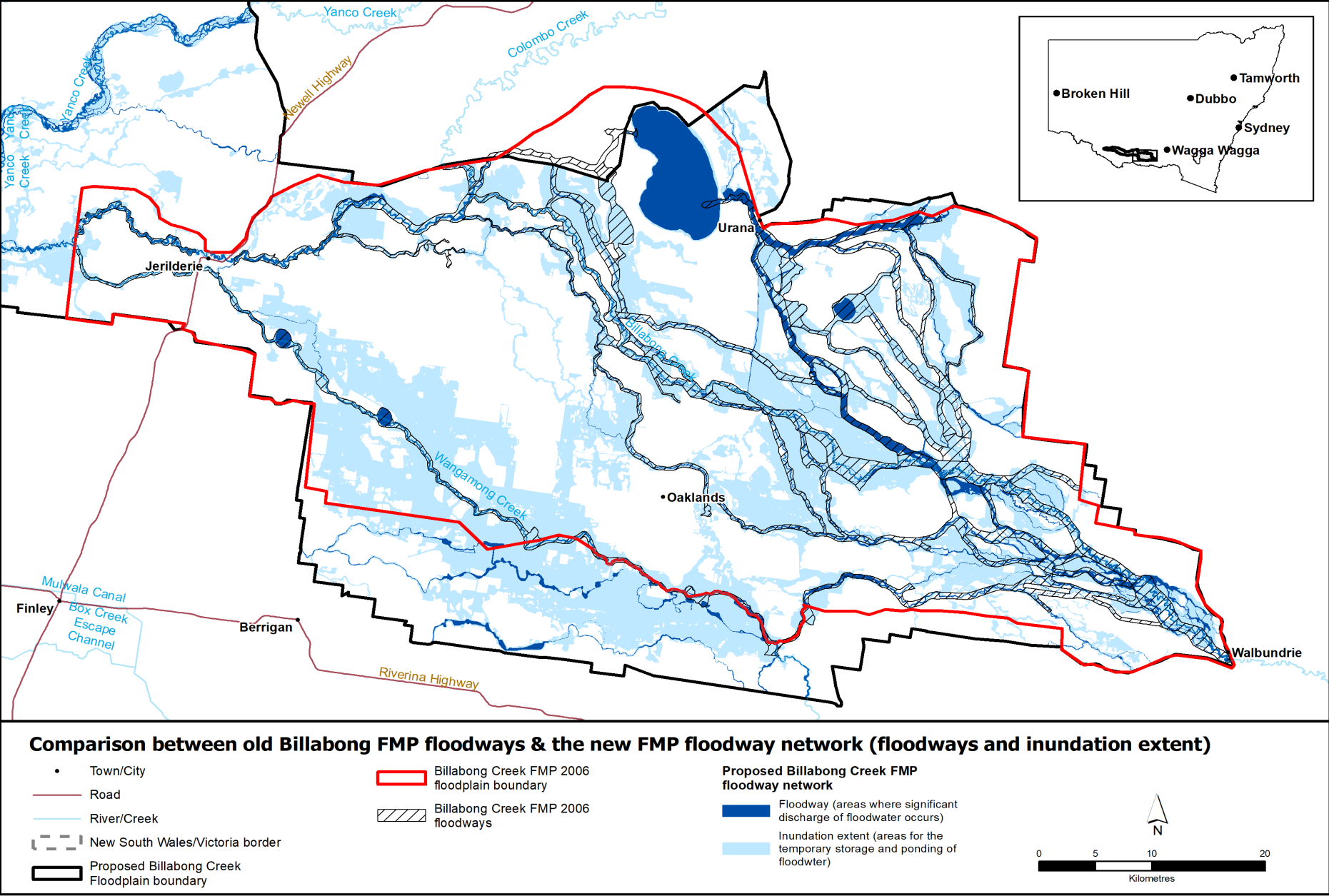
Component	Draft FMP	Billabong Creek FMP (2006)	Comparison
Floodway network	Floodways and inundation extent Management Zones A, B and SP	Defined floodways aligned, as far as possible, with natural flow paths. Critical flow distribution areas: - immediately downstream of Mahonga - immediately upstream of Rand.	The proposed floodways in the draft FMP are generally narrower. This is because the delineation of the floodways in the draft FMP is based on areas with typically higher depth-velocity products (the deepest, fastest flowing floodwater) and includes areas that are important for the temporary storage of floodwaters (the inundation extent). The difference is shown in Figure 6. Critical flow distribution areas are not identified in the draft FMP. However, they are included as part of the Management Zone A floodways, where only some types of flood works will be permitted.
Outside floodway network	Flood fringe and flood-protected Management Zones C and CU	Not applicable	Management Zones C and CU have been included in the draft FMP to ensure that flood work applications are assessed and determined consistently across the floodplain. The existing localised FMP does not include these zones.
Monitoring and reporting	Performance indicators specified that allow for measurement of the success of the strategies in achieving the objectives of the draft FMP.	Key locations for flood monitoring provided in the existing FMP, with monitoring programs to be led by the then Department of Natural Resources. Environmental monitoring of flood-dependent ecosystems coordinated by the then Department of Natural Resources. Guidelines for monitoring activities set out in existing FMP.	An <u>audit of the existing FMP</u> in 2020 identified that many of the implementation recommendations were not implemented. The draft FMP allows for flexibility in how the performance indicators are applied while ensuring that they are clearly linked to the associated strategies and objectives.

Component	Draft FMP	Billabong Creek FMP (2006)	Comparison
Existing flood works	If existing works within management zone A or SP cannot comply with the specifications, they may be approved, subject to complying with the standard assessment criteria: • access roads • supply channel (below ground) • stock refuge • infrastructure protection works. In addition, existing above ground supply channels may be approved, subject to complying with the standard assessment criteria. If existing works in management zone B that were constructed prior to 7 July 2000 and are unlikely to cause significant impacts nearby, they may be approved, subject to complying with the standard assessment criteria. To access this rule, applications must be lodged within the first 3 years of the FMP commencing. Existing works in management zone C and CU are treated in the same manner as proposed works. Overview of existing approved flood works provided in the draft FMP, as required under the WM Act.	Existing flood works that are causing connectivity and hydraulic issues are identified in the existing FMP and proposed modifications or remedial measures are specified to allow for approval of works and resolve identified issues. All existing works, not identified in the proposed modifications, are treated the same as proposed works.	The existing FMP provides modification requirements to allow for the approval of existing flood works which are causing connectivity and hydraulic issues. Conversely, the draft FMP does not identify unapproved flood works. Instead, it provides for the approval of some existing flood works in management zone A, B and SP while ensuring all flood works (existing or proposed) are treated consistently in management zones C and CU.

Component	Draft FMP	Billabong Creek FMP (2006)	Comparison
Advertisement	Required for flood works in Management Zone B that are: • greater than 40 cm above the natural surface of the ground, or • a stock refuge with a maximum area larger than 10 hectares and no other stock refuge in that area, or • a stock refuge on a property and the total maximum area of all stock refuges is larger than 5% of total property area, or • an infrastructure protection work with an area that is larger than 1% of the total area of the property.	Required for: • flood works outside of the floodway network that do not meet the complying works criteria, or • existing flood works that are not modified in accordance with the specifications in the plan.	The requirement for advertisement is less extensive under the draft FMP compared to the existing FMP.
Rules for management zone A	Limited types of works permitted: • access roads • stock refuges • supply channel (below ground) • infrastructure protection works • enhancement flood works • flood protection works. Standard assessment criteria applied to all except enhancement flood works which also requires hydraulic assessment criteria.	No restriction on the types of works permitted in floodways. Hydraulic, environmental and social assessment criteria applied to all flood works and cumulative impacts need to be addressed. Existing flood works that are causing connectivity and hydraulic issues are identified in the existing FMP and proposed modifications or remedial measures are specified to allow for approval of works and resolve identified issues. Proposed works in critical flow distribution areas may require detailed hydraulic modelling and will be assessed against strict hydraulic assessment criteria.	The draft FMP restricts the types of works permitted in management zone A floodways but only applies standard assessment criteria. Conversely, the existing FMP permits any type of flood work but applies hydraulic assessment, environmental and social criteria to all applications, and where relevant, requires modifications to existing flood works. Hence, many types of flood works would not be permitted as they could not meet the criteria specified, particularly in critical flow distribution areas.

Component	Draft FMP	Billabong Creek FMP (2006)	Comparison
Rules for management zone B	Any type of flood work permitted subject to standard and hydraulic assessment criteria. If existing works in management zone B that were constructed prior to 7 July 2000 and are unlikely to cause significant impacts nearby, they may be approved, subject to complying with the standard assessment criteria. To access this rule, applications must be lodged within the first 3 years of the FMP commencing.	Areas outside of the floodways are generally considered to be complying works. Applications outside of floodways are assessed as complying works and the assessment will need consider potentially flooding impacts. For example, adverse impacts could result if larger works are proposed near the floodway network.	The approach taken in the draft FMP and existing FMP is similar. Under the draft FMP, larger works are required to be advertised and assessed under the hydraulic criteria while smaller works are to be assessed under the standard criteria.
Rules for management zone C and CU	Any type of flood work permitted subject to complying with standard assessment criteria. Hydraulic assessment criteria applied when flood work may impact on high value infrastructure.	Not applicable. Areas outside of the floodways are generally considered to be complying works.	The existing FMP does not identify the flood fringe or urban areas. The approach taken in the draft FMP and existing FMP is similar. However, the draft FMP specifies situations where more assessment may be required, such as the potential to impact on high value infrastructure.
Rules for management zone SP	Limited types of works permitted: • enhancement flood works • flood protection works. Standard assessment criteria applied to both types of flood works and hydraulic assessment criteria also applied to enhancement flood works.	Not applicable.	The draft FMP identifies areas of the floodplain that are especially vulnerable to the potential impacts associated with a flood work and recognises this through the restriction on the types of flood works permitted.
Risk to life and property	This is considered through the development of the floodway network, limits on the types of flood works permitted within a floodway and the application of hydraulic assessment criteria to avoid or minimise flooding impacts on neighbouring landholders.	Assessment criteria applied when assessing existing or proposed flood works considers flood risk, socio-economic and environmental factors.	The WM Act requires the draft FMP to consider the risk to life and property from the effects of flooding. Conversely the <i>Water Act 1912</i> did not have the same requirement for the existing FMP.

Figure 6: Floodway comparison between draft FMP and existing localised FMP



8.2 Appendix 2 Socio-economic assessment

8.2.1 Background

A socio-economic impact assessment is a useful tool to help understand the potential range of impacts of a proposed change and the likely response if the change occurs. This understanding can help design impact mitigation strategies to minimise negative and maximise positive impacts of any change. This is a qualitative assessment only.

8.2.2 Scope of the assessment

8.2.2.1 Nature of the proposed change

Agricultural production is a significant contributor to the economy of the Billabong Creek Floodplain. To enhance agricultural productivity, works have been built on the floodplain to improve land used for irrigated cropping, irrigated perennial horticulture, dryland cropping and grazing. Typically, flood works such as levees, earthworks, banks and channels are built to protect crops, land, stock and properties from flooding, provide on farm access, and to deliver and store irrigation, stock, and domestic water. It is the construction and use of these flood works, both existing and proposed, that are affected by the draft FMP.

The draft FMP will apply to the assessment and determination of flood work approvals within the floodplain, including applications to amend existing flood work approvals. It will not apply to existing flood works located outside the floodplain. Urban areas in the floodplain will be minimally affected as flood risk management in these urban areas is the responsibility of local council.

The following assumptions are also considered:

- A flood work approval is required under section 91D of the WM Act regardless of whether there is an FMP in place. Some activities considered low-risk or covered by other legislation are exempt from the rules in FMPs.
- Even if there is no FMP in place, the determining authority for flood work approvals (WaterNSW or the department) will need to consider the water management principles set out in section 5 of the WM Act, as well as address the minimal harm requirements under section 97 (2) of the WM Act.
- New FMPs are developed using the best available information and build on existing floodplain management planning arrangements.
- FMPs may be amended during their 10-year term if it is in the public interest.
- FMPs will be upgraded as better data and modelling becomes available.

8.2.2.2 Groups who are potentially impacted

There are 4 main groups who are potentially impacted by the draft FMP, with overlap between groups. The landholder groups identified in order of least potential impact to greatest potential impact are those:

1. within the proposed floodplain
2. outside of the area of the existing localised FMP
3. within the inundation extent (management zone B) on their property

4. who have a floodway (management zone A) on their property
5. who have an area of ecological or cultural significance (management zone SP) on their property.

Floodplain land used for cropping and grazing are the primary commercial activities that may be affected by the draft FMP. Based on engagement activities undertaken for Stage 1 public consultation, private landholders in the floodplain range from small family-owned farms to large corporate agribusinesses with major irrigation infrastructure. However, the draft FMP may be a useful tool for property and business planning as it relates to potential flooding impacts.

The major land uses in the Billabong Creek Floodplain¹¹ include:

- grazing (native and modified pastures)
- cropping (including irrigated cropping)
- conservation (including forestry and travelling stock routes).

There are also localised areas of horticulture (irrigated vegetables, vineyards and olives), intensive animal production and mining, along with conservation areas (including travelling stock routes and forestry).

Accordingly, agriculture, forestry and fishing (as a group) is the top employment industry in the four main local government areas that cover the majority of the proposed Billabong Creek Floodplain¹².

8.2.2.3 Key impacts of interest

The following key impacts of the draft FMP have been identified.

- a. the economic cost of gaining approval for existing and future flood works (direct impact), including:
 - i. application fees
 - ii. advertising fees, where required
 - iii. preparation of technical information, including hydraulic modelling and ecological studies
- b. the ability or potential inability to gain approval for existing flood works, depending on where the work is located and the management zone assignment (direct impact)
- c. the ability or inability to gain approval for future flood works, depending on the management zone assignment on an individual property (direct impact)
- d. changes to the risk to life and property from the effects of flooding, where the draft FMP aims to steer inappropriate development away from high-risk floodways and to minimise changes to flood behaviour in other areas that may cause impacts on neighbouring landholdings (positive impact)
- e. the economic cost to maintain a flood work approval (extension fees)
- f. the economic cost of constructing flood works (for example, the cost of earth moving equipment and technical expertise)
- g. the economic cost of maintaining flood works, particularly prior to and after flood events.

¹¹ NSW Landuse 2017 version 1.5 published December 2023

¹² Sourced from Australian Bureau of Statistics Data by region 2011-2023, by ASGS Statistical Level 2 (ASGS Edition 3 (2021 – 2026)) <https://dbr.abs.gov.au/index.html>

8.2.2.4 Information available and usefulness

The following information has been identified to support the assessment.

Table 9: Table of useful information supporting assessment

Available information	Value (if known)	Usefulness
Area of the floodplain	6,936 km ²	Identifying the scale of impacts.
% of the floodplain covered by an existing localised FMP	39.9%	Identifying areas where there is more change as opposed to the area that is already subject to an in-force FMP.
% of floodplain covered by floodways (management zones A and SP)	6.7%	Identifying areas where the risk to life and property is the greatest and where flood works will be most restricted by the draft FMP.
% of floodplain subject to flooding but outside of a floodway (management zone B)	26.9%	Identifying areas where landholders may need flood works to protect cropped areas or infrastructure and where the proposed hydraulic assessment criteria will apply.
% of floodplain in the flood fringe or flood protected areas (management zone C)	66.3%	Identifying areas where the rules in the draft FMP are proposed to be the least restrictive in the floodplain, but where flood works may be used to protect cropped areas or infrastructure. In these areas the hydraulic assessment criteria will only apply if there is the potential for significant flooding impacts on high value infrastructure.
Cost of gaining a flood work approval (external influence)	Currently \$3,350 (inclusive of advertising, if required) or \$624.95 ¹³ for an administrative amendment without engineering review, plus around \$10,000 for hydraulic modelling	Understanding how expensive and difficult it may be for an individual landholder to plan for and seek a flood work approval for a particular type of work. Large corporations may be able to absorb costs as part of business as compared to small family farms.
Cost of constructing a flood work (external influence)	Unknown and variable depending on the scale of the work	Understanding how expensive and difficult it may be for an individual landholder to construct a flood work in accordance with their approval (drawn from the specifications in the FMP).

¹³ [WaterNSW 2024-25 Application Fees](#)

Cost of maintaining a flood work (external influence)	Unknown and variable depending on the scale of the work	Understanding how expensive and difficult it may be for an individual landholder to maintain flood works in accordance with their approval. For example, an embankment may be required to be maintained at a specified height.
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8.2.2.5 Types of activities which may be affected: who, when and where

The type of activity affected by the draft FMP is limited to the construction and use of flood works within the declared floodplain. This activity could be undertaken by any landholder at any time. Anecdotal feedback from community members during the department's June 2023 information gathering (listening tour) suggests that this activity may increase prior to and during major flood events as landholders respond to the threat of flooding on their properties and communities.

8.2.2.6 Extent or scale of the activities potentially affected

The construction and use of flood works throughout the floodplain will be affected to some extent. However, the largest impact will be on landholders with properties within the floodways (management zone A) and special protection areas (management zone SP) where the types of flood works are proposed to be restricted.

Feedback from Stage 1 public consultation suggests that landholders are generally aware of floodways on their properties and the limitations they pose for agricultural production and property management. However, there was strong feedback from the community that the requirement for a flood work within the inundation extent (management zone B) and flood fringe (management zone C) will also have a significant impact on farming operations. Particularly, for existing flood works in areas that have not previously been part of the historical FMP (around 60.1% of the proposed floodplain).

8.2.2.7 Other factors impacting on these activities

Other factors that will impact the construction and use of flood works in the floodplain may include:

- The requirement under section 91D of the WM Act to have a flood work approval and community awareness (or lack of awareness) of this requirement and related exemptions in the regulation.
- Community awareness of historical planning arrangements for flood work development and the evolution of floodplain management reform. For example, knowledge of the historical guidelines for floodplain development released in the 1980s and the existing localised FMP that was adopted in 2006.
- How recent communities have experienced major flooding. Many landholders and communities are still recovering from the 2022 floods. This may include plans to build, or re-build flood works to protect homes and infrastructure or to improve on-farm access.

8.2.2.8 Geographic location

Potential impacts of the draft FMP are limited to the area within the proposed floodplain boundary. Some landholders may have only part of their property located inside the proposed floodplain.

The draft FMP builds on existing floodplain management planning arrangements. Landholders within the existing localised FMP area will be less impacted than those landholders in areas without an FMP. In particular, landholders downstream of Jerilderie will be affected by the proposed expansion of the floodplain boundary.

There will be individual farm level impacts that are more significant depending on where the property is situated in the landscape.

The draft FMP will likely have a greater impact on landholders whose properties are within the mapped floodways and areas of special protection (management zones A and SP). Landholders whose properties are within management zones B (inundation extent) and C (flood fringe) will also be impacted, where a flood work approval is also required, subject to meeting the relevant advertising requirements and assessment criteria.

Urban areas in the floodplain (mapped as management zone CU) will be the least affected as flood risk management in these urban areas is the responsibility of local government.

8.2.2.9 Proportion of the group or proportion of activities likely to be affected

The proposed floodplain boundary is 6,936 square kilometres in area and approximately 6.7% of this area is proposed to be mapped as management zone A (floodways) and management zone SP (special protection). The ability to construct and use flood works will be most restricted in these zones.

However, the level of impact will also depend on what the affected land can be used for. Floodways will generally align with rivers and creeks, making them unsuitable for cropping or horticulture. Similarly, it is unlikely that a flood work will currently be approved in a floodway with a comprehensive hydraulic assessment being required for all flood work applications in areas outside of an FMP.

Most of the floodplain is allocated to management Zones B (26.9%) and C (66.3%) where the type of flood works are not restricted but a flood work approval will still be required, subject to meeting the relevant advertising requirements and assessment criteria

8.2.3 Assessment of potential impact

An assessment of the potential impact of the draft FMP against the key impacts identified under section 8.2.2.3 needs to be undertaken with consideration of external influence, as detailed in section 8.2.2.7. The impact of the draft FMP can be described as high, moderate or low, but may be reduced when considered against the pre-existing impact of the external influence. For example, the draft FMP may have an identified high impact on a specified activity, but there is also a high external influence on this impact. In this example, the resultant impact of the draft FMP, once the external influence is considered, is low. This is demonstrated in Figure 7.

Figure 7: Impact assessment matrix

External influence				
Impact of the draft FMP (intensity of the impact)		Low	Moderate	High
	Low	Low	Low	Low
	Moderate	Moderate	Low	Low
	High	High	Moderate	Low

The assessment of the key impacts of the draft FMP and adjustments in response to external influences is detailed in Table 10. Measures to mitigate potential negative impacts of the draft FMP are provided in section 8.2.3.2.

Table 10: Assessment of key potential negative impacts of the draft FMP

Factor	Types of new flood works are restricted in management zones A and SP	Types of existing flood works are restricted in management zones A and SP	Applicable assessment criteria in management zones B and C	Cost to obtain a flood work approval	Construction and maintenance
Impact	Lost ability to seek approval for new flood works other than access roads, infrastructure protection works, stock refuges, supply channels, enhancement flood works, cultural protection works.	Lost ability to seek approval for existing flood works other than access roads, infrastructure protection works, stock refuges and supply channels (above and below ground).	Large scale flood works near high value infrastructure and floodways are likely to need to demonstrate that they meet both the standard and the hydraulic assessment criteria to ensure that flooding impacts on neighbouring properties and the environment are minimised or avoided. Existing unapproved flood works may need to be modified to reduce flooding impacts or applications may be refused ¹⁴ . Proposals for new flood works may need to be adjusted to minimise or avoid flooding impacts or applications may be refused.	Cost of applying for a flood work approval. Preparation of technical studies including hydraulic modelling is required when the hydraulic assessment criteria apply.	Cost of constructing a flood work approval in accordance with an approval, then maintaining the work at the height and/or scale of the approval.
Stakeholder group impacted	Individual landholders	Individual landholders	Individual landholders	Individual landholders	Individual landholders
Scale: extent and intensity of the impact	Landholder scale: negative, high impact	Landholder scale: negative, medium impact	Landholder scale: negative, medium to high impact	Landholder scale: negative, medium impact	Landholder scale: negative, medium impact
Likelihood and duration of the impact	Landholder scale: medium, permanent impact	Landholder scale: medium, permanent impact	Landholder scale: medium, permanent impact	Landholder scale: medium, temporary (upfront cost) impact	Landholder scale: medium, temporary (upfront cost) impact

¹⁴ In response to landholder feedback in Stage 1 public consultation, a temporary rule has been included in the draft FMP to provide a pathway for the approval of existing flood works in management zone B that were constructed prior to 7 July 2000. Unapproved flood works located in management zone B that were constructed prior to 7 July 2000 will be required to meet the standard assessment criteria only, provided that they are not likely to have significant impacts on nearby high value infrastructure or the environment. This is similar to the rules and assessment criteria for management zone C. More information about this temporary rule in management zone B is provided in section 4.1.2.1 Existing flood works in management zone B.

Factor	Types of new flood works are restricted in management zones A and SP	Types of existing flood works are restricted in management zones A and SP	Applicable assessment criteria in management zones B and C	Cost to obtain a flood work approval	Construction and maintenance
External influences	A flood work approval is required regardless of whether an FMP is in place. Flood works in or near floodways are unlikely to be approved anyway. Land capability¹⁵ may be influenced by proximity to rivers, creeks and other natural areas. For example, it may flood too often for regular cultivation, and it may not economically feasible to build flood works. Cultivation may be better placed higher up in the landscape within management zones B or C. Adjusted intensity of the impact: moderate	A flood work approval is required regardless of whether an FMP is in place. Flood works in or near floodways are unlikely to be approved anyway unless the impact on neighbouring properties is minimised. It is not in the public's interest to retrospectively approve existing flood works that may be having a significant impact on neighbouring properties or the environment. Adjusted intensity of the impact: low	A flood work approval is required regardless of whether an FMP is in place. Depends on where in the landscape the works are (or are proposed to be) and the size of the flood works. Works that are further away from high value infrastructure in less developed areas and areas further out on the floodplain are less likely to cause significant impacts and may possibly avoid having to be assessed against the hydraulic assessment criteria. It is not in the public's interest to retrospectively approve existing flood works that may be having a significant impact on neighbouring properties or the environment. Community feedback suggests some existing works are causing localised flooding issues. It is not in the public's interest to approve new flood works that may pose a risk of flooding impacts on neighbouring properties or the environment. Adjusted intensity of the impact: moderate	Cost of application fees is set by WaterNSW. Cost of hydraulic modelling and other technical studies is determined by the market (consultants). Once an application is approved, the ongoing cost is limited to renewal fees (also set by WaterNSW). Adjusted intensity of the impact: low	Cost of construction is determined by the market (either contract earth moving businesses or cost to complete the work if equipment is owned by the landholder). Cost of land surveys to ensure compliance with the approval is determined by the market (consultants). Once a flood work is constructed, maintenance may be limited to prior to or after a flood. Adjusted intensity of the impact: low

¹⁵ The [NSW Land and soil capability assessment scheme](#) (2017 version 1.5 published December 2023) defines classes based on the biophysical features of the land. These biophysical features determine the on-site and off-site limitations and hazards of the land and include soil type, slope, landform position, acidity, salinity, drainage, rockiness and climate.

8.2.3.1 Benefits of the draft FMP

There are significant benefits from implementing the draft FMP that are expected to outweigh any localised negative impacts. These benefits include:

- Minimising flood impacts on neighbours: the draft FMP is designed to steer inappropriate development away from high-risk floodways and to minimise changes to flood behaviour in other areas that may cause impacts on neighbouring properties.
- Improved clarity for landholders: applying a standardised rule set and assessment criteria for flood work applications will make it clearer for landholders and other stakeholders about where flood works can and can't be built.
- Improved flood risk awareness: the proposed floodway network also identifies areas of the floodplain that pose the greatest risk to life and property during times of flood – the main floodways and the extent of historical large flood events. The publication of these maps and an interactive spatial tool will contribute to increased flood risk awareness in the valley and may be used for future property and business planning. For example, an individual landholder may use the mapping to decide which areas are suited to broadacre cropping or grazing depending on the proximity to a floodway; or to identify areas where flood works may be beneficial. This additional knowledge, combined with the proposed rules for flood works may, in turn, assist in reducing some of the production risk associated with agriculture on the floodplain. That is, there may be more certainty that floodwater will not be transferred onto their property as a result of inappropriate flood works being built nearby.
- Supporting coordinated flood preparedness and flood response: the draft FMP maps and data will also be shared with other government agencies that are responsible for flood mitigation and flood response, including the NSW State Emergency Service, Local Land Services and local councils. This may contribute to improved flood preparedness and coordinated flood response.
- Cultural benefits: the draft FMP is designed to protect the passage of floodwater through the floodplain to ensure that flood works do not inadvertently block flow paths to flood-dependent Aboriginal cultural assets and values. The draft FMP supports their protection and restoration, which in turn provides social and economic benefits to the community. Healthy waterways and floodplains are critical to the culture and wellbeing of Aboriginal people. Water provides food, kinship, connection, recreation, stories, songlines and healing.
- Environmental benefits: similarly, the draft FMP is designed to maintain flood-connectivity to ecological assets on the floodplain, including nationally significant wetlands. Protection of ecological assets provides social and economic benefits to the community.

8.2.3.2 Mitigation and management

In developing the draft FMP, the following measures are applicable to minimise possible impacts on landholders within the proposed floodplain:

- more lenient rules for existing flood works in floodways and areas of special protection (management zones A and SP)
- advertising of flood work applications will not be required within management zones A (floodways), SP (areas of special protection), C (flood fringe) or CU (urban areas), and then only for larger scale works within management zone B (inundation extent/flood storage)
- approximately 93% of the floodplain is proposed to be allocated to management zones B and C where all types of flood works are permitted. This means that, subject to meeting the hydraulic

assessment criteria to manage impacts on neighbouring properties, all flood work applications in these areas will be assessed on a case-by-case basis rather than being restricted to a particular type of work.

- in response to stakeholder feedback during Stage 1 public consultation, a temporary rule has been included in management zone B to provide a pathway for the approval of existing flood works. Unapproved flood works located in management zone B that were constructed prior to 7 July 2000 will be required to meet the standard assessment criteria only.
 - This temporary rule will provide a pathway for the approval of existing flood works constructed prior to 7 July 2000 by simplifying the assessment process and potentially avoiding the cost of having to prepare a flood study.
 - More information about this temporary rule is provided in section 4.1.2.1 Existing flood works in management zone B.
- state-wide exemptions under the regulation apply for some flood works outside of floodways, including works considered to be low risk, such as low level farm tracks and ring embankments around homes
- sharing spatial data online through the NSW Government's SEED portal to allow for property planning prior to making an application for a flood work approval (possibly avoiding lost time and money on applications that are unlikely to be approved)
- guidance on costs for hydraulic modelling so that landholders may avoid overcharging by private consultancies
- inclusion of amendment provisions to allow the draft FMP to be updated within its 10-year term if it is in the public's interest to do so.