



Natural Resources Commission

Final report  
**Audit of the implementation of the  
Namoi valley floodplain management  
plans**

January 2023



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## Acknowledgement of Country

The Natural Resources Commission acknowledges and pays respect to traditional owners and Aboriginal peoples. The Commission recognises and acknowledges that traditional owners have a deep cultural, social, environmental, spiritual and economic connection to their lands and waters. We value and respect their knowledge in natural resource management and the contributions of many generations, including Elders, to this understanding and connection.

In relation to the floodplain management plan areas subject to this audit, the Commission pays its respects to the Gamilaroi (also known as Kamilaroi, Gamilaraay and Gomeroi) Traditional Owners past, present and future, as well as other Aboriginal peoples for whom these floodplains and waterways are significant.

## List of acronyms

Act	Water Management Act 2000 No 92 (NSW)
AHD	Australian Height Datum
ASAE	Australian Standard on Assurance Engagements
Commission	the Natural Resources Commission
CIRaM	Compliance Investigation Reporting and Management system
DPE-EHG	Department of Planning and Environment – Environment and Heritage Group
DPE-Water	Department of Planning and Environment - Water
F	Finding
MER	Monitoring, Evaluation and Reporting
NRAR	Natural Resources Access Regulator
Plans	<i>Floodplain Management Plan for the Upper Namoi Valley Floodplain 2019 and Floodplain Management Plan for the Lower Namoi Valley Floodplain 2020</i>
R	Recommendation
Regulation	Water Management (General) Regulation 2018 (NSW)
WLS	Water Licensing System

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Cover image: Annabelle Guest, Department of Planning and Environment – Environment and Heritage Group. Lower Namoi floodplain (west of Wee Waa).

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# 1 Executive Summary

The Natural Resources Commission (the Commission) has audited the two floodplain management plans for the Namoi valley (referred to collectively in this report as ‘the plans’ or ‘the Upper and Lower Namoi Plans’) to ascertain whether the provisions of the plans are being given effect to, as required under Section 44 of the *Water Management Act 2000* (the Act).<sup>1</sup>

The audited plans are the:

- *Floodplain Management Plan for the Upper Namoi Valley Floodplain 2019* (the Upper Namoi Plan)
- *Floodplain Management Plan for the Lower Namoi Valley Floodplain 2020* (the Lower Namoi Plan).

## 1.1 Audit conclusion

The Commission considers that on balance the provisions of the plans have not been given full effect.

This audit conclusion is based on the procedures performed and the evidence obtained. The Commission considers that the information presented fairly reflects the implementation of the plans.

## 1.2 Audit finding and recommendations

The Commission found that the audited organisations generally have systems, processes and procedures in place to support implementation of the plans.

Key aspects of the plans were being implemented as outlined below:

- systems and processes were typically in place to support the assessment and processing of flood work approvals
- flood work applications were generally assessed and processed in accordance with the audited legislative requirements
- planning has commenced to enable performance monitoring provisions to be implemented over the life of the plans
- a register is in place to capture potential floodplain management plan amendments.

**Table 1** outlines the audit findings and recommendations against the four audit criteria. Key issues that were identified include:

- assessments of flood work applications against the criteria of the plans do not clearly document the management zones that are considered (see Finding **F2.3.1**)
- systems do not allow multiple management zones to be recorded against a single flood work, and statements of approval list only one management zone for each flood work even where works span multiple zones (see Finding **F2.3.2 – F2.3.3**)

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<sup>1</sup> Note that in this report, ‘the Act’ is used to refer to the *Water Management Act 2000* and ‘the Regulations’ refers to the *Water Management (General) Regulations 2018*.

- cumulative impact assessments for flood works in certain zones do not appear to have occurred and assessment templates do not explicitly demonstrate implementation of this plan requirement (see Finding **F2.4**)
- flood work approvals do not consistently include all mandatory conditions required under Part 9 of the plans and approval holders have not been notified of all mandatory conditions (see Finding **F3.1**).

The Commission has made recommendations (R) only for material findings (F) relating to gaps in the implementation of requirements that result in the plans not being given full effect. The Commission focused on the fundamental elements of plan implementation and did not explore the quality of implementation in detail in this audit.

Recommendations have been made with consideration of implementation over the audit period, which is defined as being from plan commencement (7 June 2019 for the Upper Namoi Plan and 11 September 2020 for the Lower Namoi Plan) to the date of receipt of audited agency comments on the draft report (December 2022).

The Commission undertook detailed limited assurance sample testing and examined roles and responsibilities, systems, processes, and procedures as relevant for the audit criteria. Implementation was found to comply with legislative requirements except where the report identifies gaps. In the interests of brevity, neither the discussion nor the tables of findings list all positive findings - only identified gaps to enable response actions to be taken by the audited agencies.

The Commission has not prioritised or assigned specific timeframes to recommendations. However, given they relate to gaps in implementation of legislative requirements, the Commission considers that all recommendations should be implemented as soon as practicable within a maximum timeframe of 12 months.

While this report discusses specific consequences for each criterion, the overarching consequence of not giving full effect to provisions of the plans is that the objectives of the plans are unlikely to be achieved in full. In addition, if plan provisions are not implemented, the water management principles set out in Section 5 of the Act may not be given full effect.

**Table 1: Audit findings and recommendations**

Findings	Recommendations	Applicable plan	
		Upper Namoi	Lower Namoi
<b>Criterion 1 Finding: The relevant responsible parties have planned for the implementation of plan provisions relating to vision, objectives, strategies and performance indicators</b>			
<b>F1.1</b> Planning has commenced to use the Performance indicators under Part 2 of the Upper and Lower Namoi Plans to measure the success of the strategies to reach the plans' objectives. An environmental monitoring, reporting and evaluation plan has been developed and, although implementation of the monitoring program did not commence within the audit period, a range of evaluation activities have been planned for future years.	<b>R1.1</b> DPE-Water to continue to progress work to implement the monitoring and evaluation of performance indicators to measure the success of the strategies to reach the objectives of the Plans, as required under Part 2 of the Plans.	X	X
<b>Criterion 2 Finding: The relevant responsible parties have partially implemented plan provisions relating to rules for flood work approvals</b>			
<b>F2.1</b> The Commission identified some converted flood work approvals in the Water Register for which there was no floodplain management plan listed, which may not allow appropriate management of these approvals. The Commission has also seen evidence of at least 12 current flood work approvals in the Water Licensing System with no floodplain management plan listed.	<b>R2.1.1</b> WaterNSW to identify and assign any flood work approvals for its customers in the Upper Namoi and Lower Namoi Plan areas which are not currently assigned to their floodplain management plan in the approvals system and the Water Register. <b>R2.1.2</b> DPE-Water to work with WaterNSW to put a process in place to resolve floodplain management plan gaps for flood work approvals in the approvals system and the Water Register for its customers in the Upper Namoi and Lower Namoi Plan areas.	X	X
<b>F2.2</b> One out of four approvals granted during the audit period under the Upper Namoi Plan did not meet the requirements of the plan, which is not in accordance with Section 95(3) of the Act.	<b>R2.2</b> WaterNSW to update assessment templates and/or work procedures to ensure that approvals are not granted for flood works that do not meet plan requirements.	X	
Assessment of approvals against management zones under Part 8 of the plans has not been given full effect for the following reasons:		X	X

Findings	Recommendations	Applicable plan	
		Upper Namoi	Lower Namoi
<ul style="list-style-type: none"> <li>▪ <b>F2.3.1</b> Although flood work assessment checklists and hydraulic reviews record an assessment of compliance with the plans, the assessments do not clearly document the management zones that are considered.</li> <li>▪ <b>F2.3.2</b> Current and future approval management systems do not allow multiple management zones to be recorded against a single flood work.</li> <li>▪ <b>F2.3.3</b> Statements of approval list only one management zone for each flood work even where works span multiple zones.</li> </ul> <p>This is not consistent with Part 8 of the plans and risks errors in assessment, amendments or application of mandatory conditions if management zones are not correctly applied and recorded.</p>	<p><b>R2.3.1</b> WaterNSW to update flood work assessment templates to clearly document all applicable management zones and demonstrate assessment of the requirements of each applicable management zone in accordance with Part 8 of the plans.</p> <p><b>R2.3.2</b> WaterNSW to develop the WAVE system to allow flood works spanning multiple management zones to be accurately recorded against those zones.</p> <p><b>R2.3.3</b> WaterNSW to determine an approach for assessing officers to identify and record management zones for flood works that span multiple management zones when transferring the data contained in the Water Licensing System into the replacement WAVE system.</p>		
<p><b>F2.4</b> Cumulative impact assessments for flood works in zones AD and D in the Upper Namoi and zones AD, AID and D in the Lower Namoi under Part 8 of the plans do not appear to have occurred and flood work assessment templates do not explicitly demonstrate implementation of this requirement. Aspects of the required timing and responsibility for these cumulative impact assessments is unclear.</p>	<p><b>R2.4</b> WaterNSW to work with DPE-Water to determine and document responsibilities, timing and triggers to enable cumulative impact assessments as described in Clauses 40(6) and 52(6) of the Upper Namoi Plan and Clauses 40(2), 42(3) and 50(2) of the Lower Namoi Plan.</p>	<b>X</b>	<b>X</b>
<p><b>F2.5</b> The hydraulic models for the Upper and Lower Namoi Plans have not been updated to reflect new flood works constructed since the plans commenced. These data are required to undertake cumulative impact assessments for new flood work applications in management zones AD and D, as required under Part 8 of the Upper Namoi Plan, and management zones AD, AID and D, as required under Part 8 of the Lower Namoi Plan.</p>	<p><b>R2.5</b> DPE-Water to update the hydraulic models for the plans and implement an appropriate frequency or trigger-based schedule to update the models in the future.</p>	<b>X</b>	<b>X</b>



Findings	Recommendations	Applicable plan	
		Upper Namoi	Lower Namoi
<b>Criterion 3 Finding: The relevant responsible parties have partially implemented plan provisions relating to mandatory conditions</b>			
<b>F3.1</b> Flood work approvals do not consistently include all mandatory conditions required under Part 9 of the plans and approval holders have not been notified of all mandatory conditions.	<b>R3.1</b> DPE-Water to draft the mandatory conditions necessary to give effect to requirements of the plans, and code them into the relevant approvals system(s) to be applied to flood work approvals.  <b>R3.2</b> DPE-Water to issue an instruction to WaterNSW to re-issue the statements of approval to existing approval holders inclusive of mandatory conditions, as required.	<b>X</b>	<b>X</b>
<b>F2.3.2</b> and <b>F2.3.3</b> apply, to allow application of conditions to management zones	<b>R2.3.2</b> and <b>R2.3.3</b> apply	<b>X</b>	<b>X</b>
<b>Criterion 4 Finding: The relevant responsible parties have implemented plan provisions relating to amendments (where these are not optional) and there is evidence that identified amendments (which may include optional amendments) have been given due consideration</b>			
No findings identified, meets requirements	No findings identified, meets requirements		

## 2 The Commission's role and audit approach

### 2.1 Audits of water management plans

The Natural Resources Commission (the Commission) is an independent body with broad investigating and reporting functions that aim to establish a sound evidence base to inform natural resource management in the social, economic and environmental interests of NSW.

The Commission has a role under Section 44 of the *Water Management Act 2000* (the Act) to audit water management plans within the first five years of each plan to ascertain whether their provisions are being given effect to. This role began on 1 December 2018 under changes to the Act.

Water management plans include:

- **water sharing plans** – statutory documents that establish the rules for sharing water between the environment and other water users
- **floodplain management plans** – statutory documents designed to contribute to the environmental health of floodplains, protect the cultural heritage of floodplains, effect orderly passage of floodwaters and minimise the risk to life and property from flooding.<sup>2</sup>

More detail on the purpose of the plans is provided in **Chapter 3**.

### 2.2 Audit objective

The objective of this audit was to determine, in accordance with Section 44 of the Act, whether the provisions of the following two floodplain management plans are being given effect to:

- *Floodplain Management Plan for the Upper Namoi Valley Floodplain 2019* (the Upper Namoi Plan)
- *Floodplain Management Plan for the Lower Namoi Valley Floodplain 2020* (the Lower Namoi Plan).

### 2.3 Audit standards

This audit was executed as a limited assurance engagement in accordance with the following standards:

- *Standards on Assurance Engagements (ISAE) 3000 Assurance Engagements other than Audits or Reviews of Historical Financial Information*
- *ISAE 3100 for specific Compliance Assurance Engagements*
- *Auditing Standard ASQC 1 Quality Control for Firms that Perform Audits and Reviews of Financial Reports and Other Financial Information, and Other Assurance Engagements.*

In accordance with these standards, the Commission has planned and performed procedures to obtain independent assurance about whether the relevant responsible parties have implemented the plans, in all material respects, as evaluated against the audit criteria.

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<sup>2</sup> DPIE (2020) [Floodplain management changes](#) – Fact sheet.

## 2.4 Audit criteria

Audit criteria were developed based on common parts of floodplain management plans that the Commission considered warranted examination to ascertain whether provisions are being given effect to. The audit criteria were:

- **Criterion 1:** The relevant responsible parties have implemented plan provisions relating to vision, objectives, strategies, and performance indicators
- **Criterion 2:** The relevant responsible parties have implemented plan provisions relating to granting or amending flood work approvals
- **Criterion 3:** The relevant responsible parties have implemented plan provisions relating to mandatory conditions including enforcement
- **Criterion 4:** The relevant responsible parties have implemented plan provisions relating to amendments (where these are not optional) and there is evidence that identified amendments (which may include optional amendments) have been given due consideration.

## 2.5 Audit procedures

Audit procedures included:

- document review, including overarching frameworks, procedures, guidelines, manuals, policies and reports
- sampling of data, such as flood work approvals and their approval conditions
- interviews with auditee organisations that contribute to giving effect to plan provisions: Department of Planning and Environment-Water (DPE-Water), Department of Planning and Environment-Environment and Heritage Group (DPE-EHG), the Natural Resources Access Regulator (NRAR) and WaterNSW.

The audit procedures were carried out on a test basis to provide sufficient, appropriate evidence to provide a limited assurance conclusion.

## 2.6 Limitations

This audit was a limited assurance engagement. The procedures performed in a limited assurance engagement vary in nature and timing and are of lesser extent than for a reasonable assurance engagement. As such, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained through a reasonable assurance engagement.

Further, the audit cannot be relied on to comprehensively identify all weaknesses, improvements or areas of non-compliance. Inherent limitations mean that there is an unavoidable risk that some material matters may not be detected, despite the audit being planned and executed in accordance with the standards outlined in **Section 2.3**.

## 2.7 Exclusions

The audit has not provided an assessment against all provisions or parts in the plans. It has not examined or provided an opinion regarding:

- compliance or non-compliance of individual approval holders
- whether the plans are being implemented efficiently

- whether the plans are achieving stated visions, objectives, or performance indicators
- whether the plan provisions are effective, appropriate or in line with the Act
- approvals that sit under the *Environmental Planning and Assessment Act 1979* that are not related to the objects, principles, core and additional plan provisions
- compliance with any legislation unrelated to the Act
- appropriateness of decisions regarding NRAR's compliance priorities.

## 3 Audit context

### 3.1 Purpose of floodplain management plans under the Act

Floodplain management plans, like all water management plans, are subject to the objects, water management principles, requirements, and general provisions in the Act.<sup>3</sup>

Floodplain management plans aim to coordinate the development of flood works on a whole-of-valley basis, protect movement of water through floodplains, and minimise risk to life and property. They also establish management zones, rules, and assessment criteria for granting and amending approvals for flood works.<sup>4</sup>

Section 5(6) of the Act presents the following principles related to floodplain management:

- (a) *floodplain management must avoid or minimise land degradation, including soil erosion, compaction, geomorphic instability, contamination, acidity, waterlogging, decline of native vegetation or, where appropriate, salinity and, where possible, land must be rehabilitated, and*
- (b) *the impacts of flood works on other water users should be avoided or minimised, and*
- (c) *the existing and future risk to human life and property arising from occupation of floodplains must be minimised.*

Section 29 of the Act presents core provisions for floodplain management plans. Specifically, the provisions must deal with:

- (a) *identification of the existing and natural flooding regimes in the area, in terms of the frequency, duration, nature and extent of flooding*
- (b) *the identification of the ecological benefits of flooding in the area, with particular regard to wetlands and other floodplain ecosystems and groundwater recharge*
- (c) *the identification of existing flood works in the area and the way they are managed, their benefits in terms of the protection they give to life and property, and their ecological impacts, including cumulative impacts*
- (d) *the risk to life and property from the effects of flooding.*

Additional provisions that may be addressed by a floodplain management plan are outlined in Section 30 of the Act. These include matters such as restoration and rehabilitation of land and improvement of water quality during and after a flooding event. A technical manual outlines the methodology to be used for the development of new floodplain management plans under the Act. The background documents to the plans indicated that this approach was applied in the development of the plans.<sup>5,6</sup>

<sup>3</sup> Objects, water management principles, requirements and general provisions for all water management plans are stated in Section 3, Section 5, Section 16 and Section 17 of the Act, respectively.

<sup>4</sup> Objects, water management principles, requirements and general provisions for all water management plans are stated in Section 3, Section 5, Section 16 and Section 17 of the Act, respectively.

<sup>5</sup> DPI-Water (2019) [Background document to the Floodplain Management Plan for the Upper Namoi Valley Floodplain 2019](#); Department of Industry (2014) [Rural floodplain management plans: Technical manual for plans developed under the Water Management Act 2000](#).

<sup>6</sup> DPI-Water (2020) [Background document to the Floodplain Management Plan for the Lower Namoi Valley Floodplain 2020](#); Department of Industry (2014) [Rural floodplain management plans: Technical manual for plans developed under the Water Management Act 2000](#).

## 3.2 Development of the Upper and Lower Namoi Plans

Historically, the management of rural floodplains was based on localised floodplain management plans under Part 8 of the *Water Act 1912*. As part of the transition of water management from the requirements of the *Water Act 1912* to those of the Act, floodplain management plans were prepared for five valleys in northern NSW, including the Namoi (Upper and Lower) valleys.<sup>7</sup>

The NSW Government is continuing to develop floodplain management plans as part of the ongoing transition of the remaining historical plans in the southern Basin to floodplain management plans under the Act. Revisions and updates may also be made to floodplain management plans already developed under the Act in the northern Basin.<sup>8</sup>

The Upper Namoi Plan was primarily developed by the former NSW Department of Industry – Lands and Water with technical support provided by the former Office of Environment and Heritage (OEH), in consultation with the Upper Namoi Technical Advisory Group and Aboriginal Technical Working Group.<sup>9</sup> Previous floodplain management arrangements that had applied to the Upper Namoi valley floodplain were reviewed and incorporated where relevant into the design of the management zones, rules and assessment criteria within the Upper Namoi Plan.<sup>10</sup> This new plan commenced on 7 June 2019.

The Lower Namoi Plan was primarily developed by the former NSW Department of Planning, Industry and Environment – Water with technical support provided by the department's former Energy, Environment and Science group, in consultation with the Lower Namoi Technical Advisory Group and Aboriginal Technical Working Group.<sup>11</sup> Previous floodplain management arrangements that had applied to the Lower Namoi valley floodplain were reviewed and incorporated where relevant into the design of the management zones, rules and assessment criteria within the Lower Namoi Plan.<sup>12</sup> This new plan commenced on 11 September 2020.

## 3.3 Upper and Lower Namoi Plan areas

The Upper and Lower Namoi valley floodplains are part of the Namoi Valley, which covers 4.2 million hectares from the head of the MacDonal River westward to Walgett.<sup>13,14</sup>

The Upper Namoi Valley Floodplain covers 588,600 hectares from Narrabri to the upper reaches of the Liverpool Plains.<sup>15</sup> The northern boundary is aligned to the Lower Namoi Valley Floodplain, which covers 570,700 hectares from Narrabri in the east to Walgett in the west at the confluence of the Namoi and Barwon Rivers.<sup>16</sup>

<sup>7</sup> DPE-Water (n.d.) [Floodplain management plan program](#).

<sup>8</sup> DPE-Water (n.d.) [Floodplain management plan program](#).

<sup>9</sup> DPI-Water (2019) [Background document to the Floodplain Management Plan for the Upper Namoi Valley Floodplain 2019](#).

<sup>10</sup> DPI-Water (2019) [Background document to the Floodplain Management Plan for the Upper Namoi Valley Floodplain 2019](#).

<sup>11</sup> DPI-Water (2020) [Background document to the Floodplain Management Plan for the Lower Namoi Valley Floodplain 2020](#).

<sup>12</sup> DPI-Water (2020) [Background document to the Floodplain Management Plan for the Lower Namoi Valley Floodplain 2020](#).

<sup>13</sup> DPI-Water (2019) [Background document to the Floodplain Management Plan for the Upper Namoi Valley Floodplain 2019](#).

<sup>14</sup> DPI-Water (2020) [Background document to the Floodplain Management Plan for the Lower Namoi Valley Floodplain 2020](#); Department of Industry (2014) [Rural floodplain management plans: Technical manual for plans developed under the Water Management Act 2000](#).

<sup>15</sup> DPI-Water (2019) [Background document to the Floodplain Management Plan for the Upper Namoi Valley Floodplain 2019](#).

<sup>16</sup> DPI-Water (2020) [Background document to the Floodplain Management Plan for the Lower Namoi Valley Floodplain 2020](#); Department of Industry (2014) [Rural floodplain management plans: Technical manual for plans developed under the Water Management Act 2000](#).

An overview of the plan areas including characteristics, management zones, ecological features and maps is presented in **Appendix A**.

### 3.4 Roles and responsibilities for floodplain management

There has been a complex history of changes in government agencies in water management and regulation, and their roles and governance.

An investigation by the NSW Ombudsman into water compliance and enforcement reported that the high level of restructuring and moving of water administration functions and regulation between different government agencies has resulted in significant impacts on staff, loss of expertise and corporate knowledge, and disruptions to systems, strategy and continuity of service delivery.<sup>17</sup>

Some roles and responsibilities changed during development and following the gazettal of floodplain management plans. The plans refer to agencies that no longer exist or operate under different names.

In June 2021, DPE-Water, NRAR and WaterNSW signed a roles and responsibilities agreement, which clarified roles and responsibilities including those relating to floodplain management plans and flood work approvals.<sup>18</sup>

For this audit, DPE-Water is assumed to be responsible for floodplain management plan implementation, except where other agencies are documented as being responsible. An overview of agency roles and responsibilities for the audit criteria, as well as the systems and procedures they use to support the implementation of floodplain management plans, is presented in **Appendix B**.

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<sup>17</sup> NSW Ombudsman (2017) [Investigation into water compliance and enforcement 2007-17](#).

<sup>18</sup> [Roles & Responsibilities Agreement: DPIE Water, NRAR and WaterNSW](#), Executed 20 June 2021.

## 4 Criterion 1 – Vision, objectives, strategies and performance indicators

### 4.1 Criterion overview

The plans state that Part 2 is made in accordance with Section 35(1) of the Act. This Section requires floodplain management plans to include a vision statement, objectives consistent with the vision statement, strategies for reaching objectives, and performance indicators to measure the success of those strategies.

Clauses 11 and 12 within Part 2 of the Lower Namoi Plan and Upper Namoi Plan, respectively, focus on performance indicators. These clauses set out the indicators that are to be used to measure the success of the strategies to reach each plan's objectives.

For the Upper Namoi Plan, performance indicators relate to:

- the extent to which flood works are impacting, changing or modifying the flood connectivity of ecological and cultural assets, groundwater recharge, and the hydraulic behaviour of floodwaters (Clauses 12(a)-(d))
- the extent to which the hydraulic behaviour of monitored floods is consistent with the floodway network (Clause 12(e)).

For the Lower Namoi Plan, performance indicators relate to:

- the extent to which the floodway network map and management zone boundaries accurately represent the passage of floodwaters (Clause 11(1)(a))
- the extent to which flood works have altered the hydraulic behaviour of floodwater, the condition of heritage sites, and the flood connectivity to flood-dependent ecological and cultural assets and values (Clause 11(1)(b))
- the extent to which the plan has accurately identified flood-dependent ecological and cultural assets and values, including Aboriginal cultural values and heritage sites (Clauses 11(1)(c)-(d)).

The Lower Namoi Plan also states that that in evaluating the effectiveness of the strategies in meeting its objectives, the extent to which the strategies and provisions in the Lower Namoi Plan have been effectively implemented and complied with (Clause 11(2)(a)) and the extent to which external influences on the floodplain have affected progress toward achieving the objectives (Clause 11(2)(b)) will also be relevant.

The performance indicator clauses require assessment of the impact that flood works have on ecological and cultural assets, groundwater recharge and the hydraulic behaviour of flood waters. DPE-Water is the lead agency responsible for giving effect to performance provisions.

### 4.2 Planning has commenced to enable performance monitoring provisions to be implemented

The audit period covered a relatively short portion of the 10-year period for which the plans have effect – approximately two years for the Upper Namoi Plan and three years for the Lower Namoi Plan. During this period, DPE-Water has developed an environmental monitoring, evaluation and reporting plan for floodplains in the NSW Northern Murray-Darling Basin, including the Namoi (Upper and Lower) Valley. This plan identifies key evaluation questions, performance indicators, existing monitoring programs and evaluation approaches relevant to floodplain management plans. It focusses on environmental monitoring for floodplain



management plans, including floodplain ecosystems and ecological assets and values, but has limited reference to monitoring the cultural assets and values specified in Part 2 of the Plans. The impact of flood works on groundwater recharge is also included as a performance indicator in the Upper Namoi Plan, however the monitoring, evaluation and reporting plan indicates that further information is required to address knowledge gaps and develop monitoring methods related to groundwater recharge.

The monitoring, evaluation and reporting plan indicates that evaluations will be undertaken in the fourth year of the floodplain management plans to align with the five-year reviews required under Section 43 of the Act, and again prior to expiry of each floodplain management plan. While it states that implementation of a monitoring, evaluation and reporting program is dependent on a defined, long-term budget being available, DPE-Water indicated in interview that some additional resourcing has been secured and recruitment is occurring to support environmental monitoring. DPE-Water also indicated that additional resourcing will be required to support monitoring related to cultural outcomes.

In addition to the environmental monitoring, evaluation and reporting plan, other DPE-Water programs and initiatives may have some applicability to performance monitoring for the plans. For example, the published *Floodplain Harvesting Action Plan – Progress Report for Quarter 2 2022* indicates that DPE-Water is expanding the use of remote sensing to monitor water movement across floodplains, and is developing a monitoring, evaluation and reporting framework to better understand hydrological and ecological effects of floodplain harvesting.<sup>19</sup>

Some components of the Healthy Floodplain Project, which commenced in 2013 to reform the management of water on the floodplains of inland NSW,<sup>20</sup> may also provide relevant monitoring data. For example, there may be data under the Improving Floodplain Connections Project, which is accelerating the process of bringing unapproved or non-compliant flood works in more than 100 priority areas in the northern Basin into compliance by mid-2024.<sup>21</sup>

DPE-Water also indicated that a range of other monitoring data will be collected, largely due at five and ten years from commencement of the plans, including:

- inundation history from satellite imagery which will be used to assess the flood extent, duration and frequency
- analysis of the Long-term Water Plan's Environmental Water Requirement achievement
- qualitative assessment of floodplain structure impacts on flood pathways within key areas
- vegetation condition and population structure surveys to identify ecological condition of floodplain vegetation communities.

The Commission notes that assurance processes that assess if provisions in the floodplain management plans have been effectively implemented and complied with may be relevant to evaluating the effectiveness of the strategies in meeting plan objectives, as described under Clause 11(2)(a) of the Lower Namoi Plan. These include:

- this audit under Section 44 of the Act
- reviews undertaken in the fifth year of the floodplain management plans under Section 43 of the Act.

In conclusion, progress has been made towards implementing performance monitoring provisions, such as the development of an environmental monitoring, evaluation and reporting plan and identification of relevant sources of data for floodplain monitoring. While performance indicators were not monitored or evaluated to measure achievement of the objectives of the

<sup>19</sup> DPE (2022) [Floodplain Harvesting Action Plan - Progress Report for Quarter 2 2022 \(April to June 2022\)](#).

<sup>20</sup> DPE (n.d.) [Floodplain management plan program](#).

<sup>21</sup> DPE (n.d.) [Improving floodplain connections](#).

plans during the audit period, and there appear to be some gaps in planning for monitoring of cultural objectives, the steps taken by DPE-Water to date appear reasonable given the plans have recently commenced. The Commission notes additional work will need to occur in the future to give full effect to Part 2 of the plans.

### 4.3 Potential impacts

Performance indicators are key to measuring the success of strategies in meeting floodplain management plan objectives. Not monitoring and evaluating against performance indicators may impact the:

- ability to benchmark or identify good practices that could be adopted in other floodplain areas
- ability to transparently report on the achievement of floodplain management plan outcomes
- availability of information to make evidence-based decisions, apply adaptive management, or continually improve implementation of floodplain management plans
- ability to measure the consequence of the partial or non-implementation of floodplain management plan provisions.

### 4.4 Recommendations

The Commission makes one recommendation to support the continuation of monitoring, evaluation and reporting work commenced by DPE-Water and ensure Part 2 provisions are given full effect over the life of the Plans.

<b>R1.1</b>	DPE-Water to continue to progress work to implement the monitoring and evaluation of performance indicators to measure the success of the strategies to reach the objectives of the Plans, as required under Part 2 of the Plans.
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## 5 Criterion 2 – Rules for flood work approvals

### 5.1 Criterion overview

Plan provisions for assessment of flood work approvals are dependent on the management zone in which the works are located. Rules for granting or amending flood work approvals are provided in Part 8 of the plans. WaterNSW is the lead agency responsible for giving effect to rules for flood work approvals.

The Commission notes that transitional provisions apply to flood work applications for the Lower Namoi Plan that were lodged before 31 December 2019.<sup>22</sup> This allows flood works in zones AD, AID and D to be assessed under the less restrictive assessment criteria for zone B. The Upper Namoi Plan did not have any similar transitional provisions.

Provisions in the Act establish the process for granting flood work approvals including:

- Section 92 – applications for approvals
- Section 93 – objections to applications
- Section 95 – determinations of applications
- Section 96 – matters for consideration in relation to granting approvals
- Section 97 – grounds of refusal of certain applications
- Section 98 – notification of approval holders
- Section 100 – imposing mandatory and discretionary conditions on approvals
- Section 102 – notification of any conditions imposed, amended, revoked or suspended
- Section 20 of Schedule 10 – notification of the terms of any replacement access licence or approval.

The relevant clauses of the Regulation include:

- Clause 25(1)(a) – requires the application to be in an approved form
- Clause 25(1)(b) – requires an application to include or to be accompanied by an assessment of the likely impact of the water use, water or activity concerned (if required by the Minister)
- Clause 26(7) – requires the application for approval to be published
- Clause 29 – specifies the circumstances in which an existing approval may be amended
- Clause 30 – specifies the circumstances in which the Minister may refuse to accept the surrender of an approval.

Mandatory conditions are also an essential component of approvals, although this assessment and relevant findings and recommendations are presented in **Chapter 6**.

The Commission notes that for plan rules for flood work approvals to be given effect, landholders must first apply for an approval. It is a known issue that there are unapproved flood works existing in numerous floodplains of NSW. A goal of the jointly-run Improving Floodplain Connections program is to accelerate the process of bringing unapproved flood works into compliance by mid-2024.<sup>23</sup> This includes both flood works that do not have an approval under the Act and works that did not need an approval when they were constructed but are now

<sup>22</sup> DPIE (2020) [Transitional provisions in floodplain management plans](#) – Fact sheet.

<sup>23</sup> DPE (n.d.) [Improving floodplain connections](#).

required to be approved under a floodplain management plan.<sup>24</sup> Priority unapproved flood works have been identified in the Upper and Lower Namoi Valley Plan areas.<sup>25</sup> This is beyond the scope of this audit, but this Floodplain Connections program intends to bring these currently unapproved works under the management of the plans, through a remediation and approval process.

## 5.2 Rules for flood work approvals were partially implemented

To assess if provisions of the plans were given effect in relation to approvals applied for and granted in the audit period, the Commission reviewed:

- WaterNSW's four most recent flood work approvals processed under the Upper Namoi Plan.
- WaterNSW's four most recent approvals for the Lower Namoi Plan; two granted just before the audit period and two granted since the Lower Namoi Plan commenced.<sup>26</sup>
- Three controlled works approvals granted by NRAR for each of the Upper Namoi Plan and Lower Namoi Plan, under Part 8 of the *Water Act 1912*, covering different approval types, which were converted to flood work approvals. NRAR did not assess any new applications during the audit period.

The review of these approvals found that flood work applications were generally assessed and processed in accordance with the requirements set out above in **Section 5.1**. Systems and processes were also typically in place to support the assessment and processing of flood work approvals. However, the Commission identified several gaps with some opportunities for improving the processing of flood work approvals, which are set out below.

### 5.2.1 There may be approvals that have no floodplain management plan recorded in the Water Register and Water Licensing System

The Commission found that a flood work approval relating to structures in the Upper Namoi Valley was recorded in the Water Register, but the floodplain management plan field in the Water Register had been left blank. This indicates that at least one approval may not have been properly attributed to the Upper Namoi Plan. The Commission also found at least four current flood work approvals relating to structures in the Lower Namoi Valley that did not have a floodplain management plan assigned to them in the Water Register. This impacts the transparency of flood work approvals and may impact objections to flood works if other nearby approvals are not publicly known.

The Commission notes that the Water Licensing System (WLS) may include more information than the publicly available Water Register. For example, the Commission has seen evidence that indicates that at least four approvals have no floodplain management plan recorded on the Water Register but are attributed to the Lower Namoi Plan in the WLS.

The Commission has also observed evidence that at least twelve current flood work approvals in the WLS do not have an identified floodplain management plan, that may be within the Upper and Lower Namoi Plan areas. If approvals are not assigned to plans in the WLS then their ability to be managed in accordance with the rules of that plan would be reduced.

<sup>24</sup> DPE (2022) [Improving Floodplain Connections: bringing priority unapproved flood works into compliance](#).

<sup>25</sup> DPE (2022) [Improving Floodplain Connections Program - Priority Unapproved Flood Works in the NSW Northern Basin](#).

<sup>26</sup> One of the approvals granted during the audit period was subject to the transitional arrangements for the Lower Namoi.

<p><b>R2.1.1</b></p>	<p>WaterNSW to identify and assign any flood work approvals for its customers in the Upper and Lower Namoi Plan areas which are not currently assigned to their floodplain management plan in the approvals system and the Water Register.</p>
<p><b>R2.1.2</b></p>	<p>DPE-Water to work with WaterNSW to put a process in place to resolve floodplain management plan gaps for flood work approvals in the approvals system and the Water Register for its customers in the Upper Namoi and Lower Namoi Plan areas.</p>

### 5.2.2 An approved flood work did not meet all the requirements under the Upper Namoi Plan

One approval granted during the audit period, from the sample tested, was concluded by the Technical Flood Impact Assessment as not meeting the assessment criteria of the Upper Namoi Plan. Although the application was submitted prior to the commencement of the Upper Namoi Plan, there were no transitional provisions for assessment of flood work applications in this plan and therefore the application was required to be assessed against the Upper Namoi Plan. The WaterNSW Assessment Summary checklist for this approval identifies that no exemptions or transitional provisions apply and that the works do not comply with the requirements of the Upper Namoi Plan. However, the checklist also identifies that there are adequate arrangements in force to ensure that no more than minimal harm will be done to any water source or its dependent ecosystems as a consequence of the construction or use of the works, which appears to reference Section 97(4) of the Act.

WaterNSW recommended the application to be granted based on the technical review and internal discussion, which identified a variety of mitigating circumstances and concluded that the works would have a minor impact. However, this does not appear to be in accordance with Section 95(3) of the Act, which states that “*An approval may not be granted in contravention of the provisions of any relevant management plan.*”

If plan provisions are not met but approvals are granted, then there is the potential that the objectives of the plan will not be met. WaterNSW should update assessment templates and/or work procedures to ensure that approvals are granted in line with plan requirements.

<p><b>R2.2</b></p>	<p>WaterNSW to update assessment templates and/or work procedures to ensure that approvals are not granted for flood works that do not meet plan requirements.</p>
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### 5.2.3 Assessment and approval documentation has not clearly considered all relevant management zones for flood works

Flood work approvals require compliance with various thresholds depending on the management zone applicable to the works. The approvals granted during the audit period demonstrate that multiple management zones can be present on a property, with different works located in different management zones, or individual works spanning multiple zones. The Commission saw evidence that in general, applicable management zones were assessed by WaterNSW and that the documentation for each application granted during the audit period included a map of all flood works mapped onto the management zones of the relevant plan.

However, the Commission observed that the level of detail of documentation of management zones varies, as there is no explicit assessment or recording of all applicable management zones on WaterNSW’s Technical Hydraulic review or Assessment Summary checklist. The Commission notes it is possible that all applicable management zones were assessed as part of

hydraulic modelling, but this was not clearly recorded in assessment documentation. Some assessment documentation mentioned relevant management zones, but this was not consistently recorded. Assessment using only zone B for one approval in the Lower Namoi subject to transitional provisions was also not clearly documented.

In addition, all statements of approval for the Upper and Lower Namoi Plans list only one management zone per flood work even where individual flood works span multiple management zones. The listed management zone for the statement of approval was typically for the zone which the majority of the flood work was in. This does not appear consistent with Clause 37(2) of the Upper Namoi Plan or the subclauses throughout Part 8 of the Lower Namoi Plan which require that the rules of a management zone apply to the portion of the work located in that zone.

WaterNSW staff identified that the WLS is not able to capture more than one management zone per work. Therefore, the options for management may include:

- assigning the management zone which covers the majority of the work, which risks less stringent rules being applied to some portions of the work, or
- splitting one work into multiple works each assigned to the management zone they are situated in, which allows for the accurate assigning of rules to each portion of the work but gives the impression that there are more works under the approval, as sections of works are described as individual works.

The Commission found that there is no documented guidance to direct staff as to how to process approvals in WLS for works which sit across multiple management zones.

WaterNSW is transitioning many of its management systems to WAVE, which is a large, organisation-wide transition. The Commission understands that this software is not currently able to identify multiple management zones per work, but its functionality is still under development.

Not being able to accurately identify management zones associated with works may have implications for impact assessment, application of mandatory conditions, or for assessing amendments. WaterNSW should update flood work assessment templates so that the applicable management zones and their requirements that have been assessed are clearly documented for each flood work approval.

The absence of guidance for assessing officers in how to process works that cover multiple management zones may lead to inconsistencies and approval documentation that does not reflect the management zones assessed in accordance with Part 8 of the plans. As part of the transition to WAVE, WaterNSW should ensure that there is a consistent approach for assessing officers to identify and record management zones for flood works that span multiple management zones so that these are accurately recorded in WAVE.

<b>R2.3.1</b>	WaterNSW to update flood work assessment templates to clearly document all applicable management zones and demonstrate assessment of the requirements of each applicable management zone in accordance with Part 8 of the plans.
<b>R2.3.2</b>	WaterNSW to develop the WAVE system to allow flood works spanning multiple management zones to be accurately recorded against those zones.
<b>R2.3.3</b>	WaterNSW to determine an approach for assessing officers to identify and record management zones for flood works that span multiple management zones when transferring the data contained in the Water Licensing System into the replacement WAVE system.

#### **5.2.4 Cumulative impact assessments for specific management zones were not undertaken as required**

The cumulative impacts of water management licences, approvals and other activities on water sources and their dependent ecosystems, are required to be considered and minimised, under Sections 5(2)(d), 23(b), 26(c), 29(c) and 32(a) of the Act, and Part 5 of the *Environmental Protection Authority Act 1997*. These are given effect in the Upper Namoi Plan and Lower Namoi Plan in subclauses under Part 8 that specify that cumulative impact assessments must take place as part of granting or amending flood work approvals in higher risk management zones.

Clauses 40(6) and 52(6) of the Upper Namoi Plan require that assessments must be undertaken for management zones AD and D respectively, of the cumulative impact the proposed flood works may have on adjacent landholdings and any other landholdings that may be affected by the flood works, as well as the floodplain environment. This is also the case for the Lower Namoi Plan under Clauses 40(2), 42(3) and 50(2) for management zones AD, AID and D, respectively.

The Commission observed documentation of cumulative assessments of the environmental impact of proposed flood works against Part 5 of the *Environmental Planning and Assessment Act 1979* for applications processed since the plans commenced, which is out of the scope of this audit.

Cumulative impact assessments required by Part 8 of the plans do not appear to have been undertaken at the time of approving the flood work applications processed during the audit period. This is the case for two approvals for the Upper Namoi Plan but not any approvals for the Lower Namoi Plan from the audit sample (due to transitional provisions). There is no specific check to confirm that these types of cumulative assessment have been undertaken in WaterNSW's Assessment Summary checklist.

WaterNSW staff indicated that there is a gap in the requirements for cumulative assessments under the plans. The cumulative assessments under Clauses 40(6) and 52(6) of the Upper Namoi Plan and Clauses 40(2), 42(3) and 50(2) of the Lower Namoi Plan have not been completed by WaterNSW during flood work application assessment. However, the clauses of the plans require that flood works in these zones must not be approved unless cumulative impact assessments have been completed.

WaterNSW staff indicated that DPE-Water is responsible for the hydraulic model that informs these assessments and DPE-Water also confirmed that this is the case. DPE-Water indicated that WaterNSW has responsibility for flood works assessments (and cumulative impact assessments) as the determining authority, however DPE-Water has performed a cumulative impact assessment for one floodplain management plan alongside model updates. DPE-Water is currently undertaking a project to review the flood work technical assessment methods. DPE-Water indicated that this may be an appropriate avenue to resolve any uncertainty around the roles and responsibilities, timing and triggers for cumulative impact assessments.

Without cumulative impact assessments, the approval process for flood works in higher risk zones cannot take into consideration the impact of the work in addition to the existing works in the floodplain. This could potentially lead to plan objectives not being met. Cumulative impact assessments should be clearly documented to ensure they are consistently undertaken and recorded.

<b>R2.4</b>	WaterNSW to work with DPE-Water to determine and document responsibilities, timing and triggers to enable cumulative impact assessments as described in Clauses 40(6) and 52(6) of the Upper Namoi Plan and Clauses 40(2), 42(3) and 50(2) of the Lower Namoi Plan.
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### **Hydraulic models have not been updated to facilitate cumulative impact assessments**

The ability to assess the cumulative impacts of flood work structures on the floodplain is heavily reliant on having an up-to-date hydraulic model.

DPE-Water are the primary owners of the hydraulic models and data and have the responsibility for updating these data. It is the responsibility of WaterNSW to provide DPE-Water with updates to the approval data used in maintaining these models.

As of October 2020, formal arrangements were put in place between WaterNSW and DPE-Water to facilitate two-way data sharing to enable a transfer of necessary information to perform model updates and to inform approval assessments.

Due to the need for the hydraulic models to be kept current, there are two triggers to update models maintained by DPE-Water; an event-based trigger and a time-based trigger. The Commission notes that the original documented intention of DPE-Water was to perform annual updates to the model at a minimum, and more frequently if triggered by a pre-defined event.

However, the hydraulic models for the Upper Namoi Valley and the Lower Namoi Valley have not been updated since the plans' respective commencements. The Commission understands that no work has commenced to update the hydraulic model for the Upper Namoi Valley, and that work on other valleys have been prioritised on the advice of DPE-EHG. A consultant has been engaged to complete the hydraulic model update for the Lower Namoi Valley, which is expected to be completed in 2022.

DPE-Water previously indicated that the process of compiling the information necessary to update the hydraulic models requires a more efficient data sharing mechanism to be in place to easily access data on the spatial layers from WaterNSW. To address this, DPE-Water has recently implemented a project to develop a spatial data sharing platform.

A lack of up-to-date data in the hydraulic models means that cumulative impact assessments cannot be as easily or accurately undertaken.

<b>R2.5</b>	DPE-Water to update the hydraulic model for the plans and implement an appropriate frequency or trigger-based schedule to update the models in the future.
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## 6 Criterion 3 – Mandatory conditions

### 6.1 Criterion overview

Part 9 of the Upper and Lower Namoi Plans set out provisions describing the mandatory conditions that flood work approvals (approvals) must include. Mandatory conditions for approvals relate to:

- rules for granting or amending flood work approvals in Part 8 (Clause 53(2)(a) of the Upper Namoi Plan)
- conditions required to implement plan provisions in Part 9 and other plan provisions (Clause 51(2) of the Lower Namoi Plan)
- notification of breaches of conditions (Clause 53(2)(b) of the Upper Namoi Plan and Clause 51(3) of the Lower Namoi Plan)
- notification of completion of construction or modification of a flood work (Clause 53(2)(c) of the Upper Namoi Plan), and
- decommissioning of a flood work (Clause 53(2)(d) of the Upper Namoi Plan and Clause 50 of the Lower Namoi Plan).

To be given effect, mandatory conditions rely on:

- relevant plan provisions being recorded as mandatory conditions on flood work approvals
- flood work approval holders being notified of mandatory conditions so that they are aware of their obligations.

Conditions that are imposed when an approval is granted take effect on the day the approval takes effect under Section 100A of the Act. Whereas conditions imposed after an approval has already been granted take effect on the date of written notice to the approval holder, or a later date specified in the notice, under Section 102 of the Act.

### 6.2 Rules for mandatory conditions have been partially implemented

To assess if mandatory condition provisions were given effect to, the Commission sampled the following flood work approvals:

- four flood work approvals recently applied for and granted by WaterNSW for each plan<sup>27</sup>
- three controlled works approvals for each plan that were assessed under the *Water Act 1912* and were converted to flood work approvals by NRAR around 2019-2020
- an additional 40 approvals for each plan selected from the NSW Water Register, which were issued prior to both the commencement of the plans and the establishment of NRAR.

#### 6.2.1 Mandatory conditions have been inconsistently applied

Based on the results of the sample testing, mandatory conditions were applied inconsistently by WaterNSW to flood work approvals processed around or after the time of commencement of the plans. For approvals processed by other NSW Government agencies, including NRAR,

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<sup>27</sup> WaterNSW had only granted seven approvals since the commencement of the Upper Namoi Plan and three approvals since the commencement of the Lower Namoi Plan. For the sample for the Lower Namoi Plan, two of the flood works were approved after the Plan commenced and two were approved just prior to the commencement of the Plan.

mandatory conditions were not applied to controlled works approvals converted to flood work approvals or approvals issued prior to the commencement of the plans. For these approvals, mandatory conditions do not appear to have been subsequently imposed following commencement of the plans. The detailed results of the sample testing are described below.

Testing of the approvals recently granted by WaterNSW identified that mandatory conditions were not applied to the approvals for the Lower Namoi Plan, whereas for the Upper Namoi Plan, most, but not all, of the required mandatory conditions were applied. The mandatory conditions applied to these approvals addressed requirements related to notification of breaches of conditions and decommissioning of a flood work (Clauses 53(2)(b) and 53(2)(d)). Mandatory conditions related to notification of completion of construction or modification of a flood work were applied in all but one case (Clause 53(2)(c)). The approvals did not include mandatory conditions to address the requirement under Clause 53(2)(a) to give effect to the rules for granting or amending flood work approvals in Part 8 of the Upper Namoi Plan. This represents a partial compliance with the mandatory condition provisions of Part 9 of the Upper Namoi Plan and non-compliance with Part 9 of the Lower Namoi Plan.

Testing of the controlled works approvals converted to flood work approvals by NRAR from 2019-2020 identified that mandatory conditions were not applied to the approvals at the time of notification of the approval holder. A review of the NSW Water Register at the time of the audit indicated that mandatory conditions had not subsequently been applied to these approvals to give effect to new rules that apply to approval holders under the plans.

Testing the approvals listed in the NSW Water Register that were issued prior to both the audit period and the establishment of NRAR identified that mandatory conditions have not been imposed on these approvals to give effect to either of the plans.

This means that no flood work approvals that were granted prior to the plans commencing had mandatory conditions applied to give effect to the plans, which should occur under Section 102 of the Act.

### **6.2.2 Approval holders have been inconsistently notified of mandatory conditions**

Flood work approval holders have been inconsistently notified of approval conditions, and where notification has occurred, mandatory conditions have been inconsistently applied (see **Section 6.2.1**). The detailed results of the sample testing are described below.

Testing of the sample of flood work approvals recently granted by WaterNSW identified that approval holders were notified of their approval conditions, including mandatory conditions in the cases where these had been applied to approvals.

Testing of the controlled work approvals converted to flood work approvals by NRAR around 2019-2020 identified that approval holders were notified of their approval conditions, although these only included some discretionary conditions and did not include mandatory conditions. The statement of approvals issued to approval holders did not state the name of the relevant floodplain management plan.

For the sample of approvals listed in the NSW Water Register and issued prior to both the audit period and the establishment of NRAR, no evidence was provided to indicate that approval holders were notified of their approval conditions following commencement of the plans. DPE-Water indicated that this would need to occur for the mandatory conditions of the plans to be given effect. While this did not occur, the Commission sighted evidence that indicated a bulk notification was arranged by the former NSW Department of Primary Industries – Water for controlled work approval holders following the Water Management (Application of Act to Flood Work Approvals) Proclamation in 2015. This involved sending letters to the former controlled

work approval holders advising them of the conversion of their approval to a flood work approval and providing a copy of their new flood work approval, demonstrating a process has been previously used bulk notification of approval holders.

### **6.2.3 Systems do not currently support the consistent application of mandatory conditions**

DPE-Water and WaterNSW indicated that mandatory conditions have not yet been coded into the WLS and that any mandatory conditions found on the recently granted flood work approvals had been manually applied by assessing officers from WaterNSW at the time of processing the applications. Gaps in the application of mandatory conditions applied to flood work approvals were also identified by the Commission in the previous audits of the *Gwydir Valley Floodplain Management Plan 2016* and *Barwon-Darling Valley Floodplain Management Plan 2017*.<sup>28</sup>

The Commission understands that coding of these mandatory conditions into the WLS has not occurred due to historic limitations with WLS and because WaterNSW is in the process of replacing the WLS with a new system (WAVE) that will be used for the administration of conditions for flood work approvals, as well as a broad range of other functions. Although the new system was to be implemented in March 2022, additional work has been required to build its functionality including to administer mandatory conditions and establish the management zones for the plans.

### **6.2.4 Some missing mandatory conditions have been mitigated by discretionary conditions, which rely on mapping of flood works**

While gaps in mandatory conditions have been identified, the materiality of some missing mandatory conditions has been partially offset by the broad application of a discretionary condition that refers to the approved flood work maps, which record the location and specifications of the flood works to guide construction of the works in accordance with these approved conditions. A discretionary condition referring to an approved flood work map was included on all of the sampled flood work approvals recently applied for and granted by WaterNSW and NRAR for each plan, and 95 percent of the sampled approvals from the NSW Water Register for each plan.

The extent of reliance that can be placed on this discretionary condition is dependent on the quality of the approved flood work maps, which are understood to be variable depending on when the approval was granted. NRAR has also indicated that the existence of a condition referring to an approved flood work map requires these maps to be of suitable quality and standard to support its compliance and enforcement activities.

In reviewing the flood work approval maps associated with the recently applied for and granted flood work approvals, the Commission has found that approved maps are generally in the form of ArcGIS maps and/or cadastral data showing the location and types of the flood works. They also include details such as levee heights and minimum floodway opening dimensions. WaterNSW staff indicated in interview that most of the recent flood work applications are accompanied by a surveyor's plan with heights recorded in Australian Height Datum.<sup>29</sup> However, it is understood that some older flood work approval maps may be more basic, consisting of hand-drawn information on hard copy topographic maps located in a regional government office.

DPE-Water indicated that it is progressing a project investigating the technical assessment methods that feed into WaterNSW flood work approvals, which may address issues associated with the quality of flood work approval maps. While this project is in the early stages, it has

<sup>28</sup> Natural Resources Commission (n.d.) [Water management plan audits \(Completed\)](#).

<sup>29</sup> The height of a point above mean sea level.

identified minimum standards for the maps as an area for improvement. The Commission has also been advised that, as part of the process of renewing flood work approvals, WaterNSW are updating the flood work maps by mapping flood works using satellite technology.

In addition to approvals including a discretionary condition referring to an approved flood work map, some approvals also included other discretionary conditions that address some of the other gaps in mandatory conditions. For example, the four flood work approvals recently applied for and granted by WaterNSW for the Lower Namoi Plan included discretionary conditions related to notification within 60 days of decommissioning a flood work and the provision of a report containing the details of the decommissioned work. This aligns with some of the mandatory conditions described in Clause 50 of the Lower Namoi Plan related to flood work decommissioning.

### 6.2.5 A compliance regime supports the implementation of mandatory conditions

NRAR is responsible for compliance and enforcement of flood works, and the plan areas have been subject to NRAR's compliance regime. NRAR is also involved in the Improving Floodplain Connections program, which is jointly funded by the Commonwealth Government and the NSW Government to accelerate the process of bringing unapproved or non-compliant flood works in around 100 priority areas in the northern Basin into compliance by mid-2024.<sup>30</sup> The Commission supports this work and efforts to quantify the extent of structures not constructed in accordance with rules of the Plans, identify their potential risks to life, property, cultural and environmental assets and to undertake investigation and enforcement proportional to the level of identified risk. The Commission also supports any work to address problematic existing structures on the floodplain that may have been previously approved.

## 6.3 Potential impacts

Applying mandatory conditions is important to ensure that a consistent set of conditions are applied to all flood work approvals to give effect to all the mandatory conditions provisions in the plans.

The inconsistent application of mandatory conditions may lead to structures on the floodplain not being managed in accordance with the plans and, for example, result in adverse changes to flood flow patterns, which may increase risks to life, property and environmental assets from floods. Compliance and enforcement activities may also be constrained without comprehensive and accurate mandatory conditions on flood work approvals.

## 6.4 Recommendations

The Commission makes two new recommendations to give effect to mandatory conditions:

<b>R 3.1</b>	DPE-Water to draft the mandatory conditions necessary to give effect to requirements of the plans, and code them into the relevant approvals system(s) to be applied to flood work approvals.
<b>R 3.2</b>	DPE-Water to issue an instruction to WaterNSW to re-issue the statements of approval to existing approval holders inclusive of mandatory conditions, as required.

<sup>30</sup> DPE (n.d.) [Improving floodplain connections](#).

	<b>R2.3.2 and R2.3.3 apply</b>
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## 7 Criterion 4 – Amendments

### 7.1 Criterion overview

Section 45(1) of the Act allows for floodplain management plans to be amended under specific conditions. Part 10 the plans include amendment provisions. While the plans do not contain mandatory amendment provisions, they contain provisions that allow them to be amended for specified reasons (non-mandatory amendments). As such, the Commission has focused on non-mandatory amendment provisions and assessed if they have been given due consideration.

### 7.2 Non-mandatory amendment provisions were likely given due consideration

The Commission found that no amendments set out in Part 10 of the plans were made or were proposed to be made by the end of the audit period.

The Upper Namoi Plan came into effect on 7 June 2019, at which time the *Narrabri-Blackville Floodplain Management Plan 2003*, *Caroona-Breeza Floodplain Management Plan 2006*, *Carroll to Boggabri Floodplain Management Plan 2006*, *Lower Coxs Creek Floodplain Management Plan 2013*, *Upper Coxs Creek Floodplain Management Plan 2005*, *Upper Yarraman Creek Floodplain Management Plan 2006* and *Warrah Creek Floodplain Management Plan 2012* were repealed under Section 45 of the Act.

DPE-Water indicated that potential amendments identified for the Upper Namoi Plan to date have included the following:

- two local/property scale refinements to the Management Zones Map (possible errors)
- updates to the plan template in line with other plans, such as Part 1 Objectives, Strategies, Performance Indicators.

No other requests for changes to the floodplain management zones were received for the Upper Namoi Plan. These potential amendments have been included in DPE-Water's floodplain management planning amendment register.

The Lower Namoi Plan came into effect on 11 September 2020, at which time the *Narrabri – Wee Waa Floodplain Management Plan* adopted under Section 166A of the *Water Act 1912* was repealed.

Potential amendments identified in relation to the Lower Namoi Plan are:

- three local/property scale refinements to the Management Zones Map
- review of flow inputs to the model for data currency
- review the hydraulic assessment criteria in relation to use of 'stormwater easements'
- updates to the plan template in line with other plans.

These potential amendments have been captured in DPE-Water's floodplain management planning amendment register. These included amendments raised by government agencies and external stakeholders.

The floodplain management planning amendment register does include a risk assessment and priority, which has been completed for potential amendments identified for other plans. However, none of the potential amendments for the plans in the floodplain management

planning amendment register had been risk-assessed or assigned a priority in terms of implementation at the time of the Commission's audit.

### **7.3 Recommendations**

The Commission has previously recommended that DPE-Water take steps to finalise the process for implementing the identified amendments to floodplain management plans in a timely manner. The Commission notes that there is a register in place to capture potential floodplain management plan amendments which is able to identify the risks and priority of amendments and to document and track the progress of implementing amendments. DPE-Water has developed an amendment procedure for floodplain management plans that complements the amendment register. DPE-Water is currently testing the prioritisation process and amendment procedure for one floodplain management plan which would then be adopted for the Upper and Lower Namoi Plans, if supported.

As there are no material amendments highlighted for the plans and no amendments that must be made during the life of the plans, the Commission has not made any further recommendations in this report.

## Appendix A: Overview of the plan areas

**Table A2: Upper and Lower Namoi Plan areas**

Characteristics	Upper Namoi Plan area	Lower Namoi Plan area
Location and extent	The Upper Namoi Valley Floodplain covers 588,600 hectares from Narrabri spreading south to the upper reaches of the Liverpool Plains. It meets the Lower Namoi Valley Floodplain in the north near Narrabri. <sup>31</sup>	The Lower Namoi Valley Floodplain covers 570,700 hectares from Narrabri in the east to Walgett in the west. The northern boundary to the Lower Namoi Valley Floodplain adjoins the Gwydir Valley Floodplain. <sup>32</sup>
Major towns	Boggabri, Gunnedah and Quirindi <sup>33</sup>	Narrabri, Walgett and Wee Waa <sup>34</sup>
Major tributaries	Major tributaries to the Namoi River are the MacDonal River, Manilla River, Peel River and Mooki Rivers and Coxs Creek <sup>35, 36</sup>	
Cultural significance	The Gamilaroi Nation (also known as Kamilaroi, Gamilaraay and Gomerioi) is the traditional owner of the whole Namoi Valley. The Namoi Valley Floodplain contains many cultural sites and values that are important to the local Aboriginal community, including many that are flood dependent such as scarred trees, wetlands and waterholes. <sup>37,38</sup>	
Ecological features	Lake Goran is the largest wetland on the Upper Namoi Valley Floodplain. <sup>39</sup> There are aquatic habitats such as oxbow lagoons and many endangered ecological communities as well as protected species such as silver perch and broilga. <sup>40</sup>	Bungle Gully is the largest wetland in the floodplain which is important waterbird breeding habitat despite being man-made. <sup>41</sup> The Lower Namoi Valley Floodplain supports many ecological features including lagoons, wetlands and flood dependent trees. <sup>42</sup>

<sup>31</sup> DPI-Water (2019) [Background document to the Floodplain Management Plan for the Upper Namoi Valley Floodplain 2019](#), p 1.

<sup>32</sup> DPI-Water (2020) [Background document to the Floodplain Management Plan for the Lower Namoi Valley Floodplain 2020](#), p 1.

<sup>33</sup> DPI-Water (2019) [Background document to the Floodplain Management Plan for the Upper Namoi Valley Floodplain 2019](#), p 2.

<sup>34</sup> DPI-Water (2020) [Background document to the Floodplain Management Plan for the Lower Namoi Valley Floodplain 2020](#), p 42-43.

<sup>35</sup> DPI-Water (2019) [Background document to the Floodplain Management Plan for the Upper Namoi Valley Floodplain 2019](#), p 2.

<sup>36</sup> DPI-Water (2020) [Background document to the Floodplain Management Plan for the Lower Namoi Valley Floodplain 2020](#), p 2.

<sup>37</sup> DPI-Water (2019) [Background document to the Floodplain Management Plan for the Upper Namoi Valley Floodplain 2019](#), p 2.

<sup>38</sup> DPI-Water (2020) [Background document to the Floodplain Management Plan for the Lower Namoi Valley Floodplain 2020](#), p 38.

<sup>39</sup> DPI-Water (2019) [Background document to the Floodplain Management Plan for the Upper Namoi Valley Floodplain 2019](#), p 2.

<sup>40</sup> DPI-Water (2019) [Background document to the Floodplain Management Plan for the Upper Namoi Valley Floodplain 2019](#), p 54.

<sup>41</sup> DPI-Water (2020) [Background document to the Floodplain Management Plan for the Lower Namoi Valley Floodplain 2020](#), p 3.

<sup>42</sup> DPI-Water (2020) [Background document to the Floodplain Management Plan for the Lower Namoi Valley Floodplain 2020](#), p 2.



Characteristics	Upper Namoi Plan area	Lower Namoi Plan area
Heritage features	Historic heritage features (other than Aboriginal heritage sites and values) were found not to be flood dependent. <sup>43</sup>	Historic heritage features (other than Aboriginal heritage sites and values) were found not to be flood dependent. <sup>44</sup>
Land use	The Namoi Valley represents around 1 percent of the NSW gross regional product per year, worth just over \$3 million. <sup>45</sup> Primary industries provide around 40 percent of the region's gross regional output. Land is used for grazing, dryland cropping and irrigated cropping (predominantly cotton and wheat). There is also significant recreational fishing and associated tourism. <sup>46, 47</sup>	
Flood works	Around 57,700 hectares or 10 percent of the Upper Namoi Valley Floodplain was covered by flood works in 2018, including levees, earthworks, banks and channels. <sup>48</sup>	Around 107,400 hectares of 20 percent of the Lower Namoi Valley Floodplain was covered by flood works in 2020, including levees, earthworks, banks and channels. <sup>49</sup>
Flooding behaviour	Construction of Keepit Dam in 1960 alongside other river regulation and subsequent development have substantially modified the historic flooding behaviour of the region. <sup>50,51</sup>  Major flooding is typically the result of summer rainfall between January and March, with considerable variation in the extent and duration of floods. <sup>52,53</sup>	
Management zones	There are seven management zones: AD – major discharge areas, defined floodways  AID – major discharge areas, ill-defined floodways  BL – flood storage and secondary flood discharge, Lower Liverpool Plains	There are six management zones: AD – major discharge areas, defined floodways AID – major discharge areas, ill-defined floodways B – flood storage and secondary flood discharge C – flood fringe and flood-protected developed areas

<sup>43</sup> DPI-Water (2019) [Background document to the Floodplain Management Plan for the Upper Namoi Valley Floodplain 2019](#), p 58.

<sup>44</sup> DPI-Water (2020) [Background document to the Floodplain Management Plan for the Lower Namoi Valley Floodplain 2020](#), p 40.

<sup>45</sup> DPI-Water (2019) [Background document to the Floodplain Management Plan for the Upper Namoi Valley Floodplain 2019](#), p 4.

<sup>46</sup> DPI-Water (2019) [Background document to the Floodplain Management Plan for the Upper Namoi Valley Floodplain 2019](#), p 4.

<sup>47</sup> DPI-Water (2020) [Background document to the Floodplain Management Plan for the Lower Namoi Valley Floodplain 2020](#), p 5.

<sup>48</sup> DPI-Water (2019) [Background document to the Floodplain Management Plan for the Upper Namoi Valley Floodplain 2019](#), p 4.

<sup>49</sup> DPI-Water (2020) [Background document to the Floodplain Management Plan for the Lower Namoi Valley Floodplain 2020](#), p 5.

<sup>50</sup> DPI-Water (2019) [Background document to the Floodplain Management Plan for the Upper Namoi Valley Floodplain 2019](#), p 4.

<sup>51</sup> DPI-Water (2020) [Background document to the Floodplain Management Plan for the Lower Namoi Valley Floodplain 2020](#), p 5.

<sup>52</sup> DPI-Water (2019) [Background document to the Floodplain Management Plan for the Upper Namoi Valley Floodplain 2019](#), p 5.

<sup>53</sup> DPI-Water (2020) [Background document to the Floodplain Management Plan for the Lower Namoi Valley Floodplain 2020](#), p 5-6.

Characteristics	Upper Namoi Plan area	Lower Namoi Plan area
	BU – flood storage and secondary flood discharge, Upper Liverpool Plains C – flood fringe and flood-protected developed areas CU – urban areas managed by local council D – special environmental and cultural protection zone <sup>54</sup>	CU – urban areas managed by local council D – special protection zone <sup>55</sup>

<sup>54</sup> DPI-Water (2019) [Background document to the Floodplain Management Plan for the Upper Namoi Valley Floodplain 2019](#), p 49.

<sup>55</sup> DPI-Water (2020) [Background document to the Floodplain Management Plan for the Lower Namoi Valley Floodplain 2020](#), p 47.

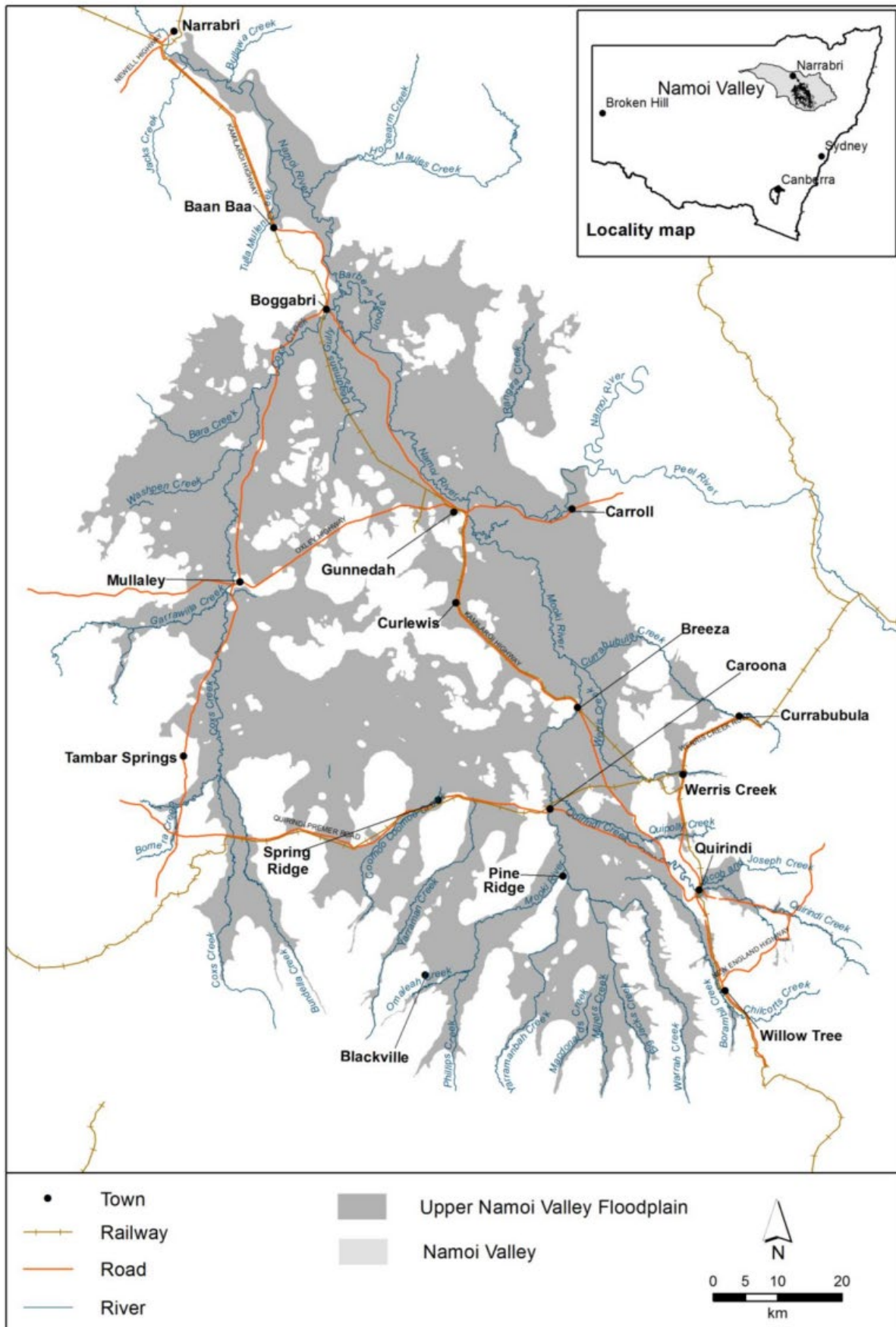


Figure A1: Upper Namoi Plan area<sup>56</sup>

<sup>56</sup> DPI-Water (2019) [Background document to the Floodplain Management Plan for the Upper Namoi Valley Floodplain 2019](#), Figure 3, p 3.

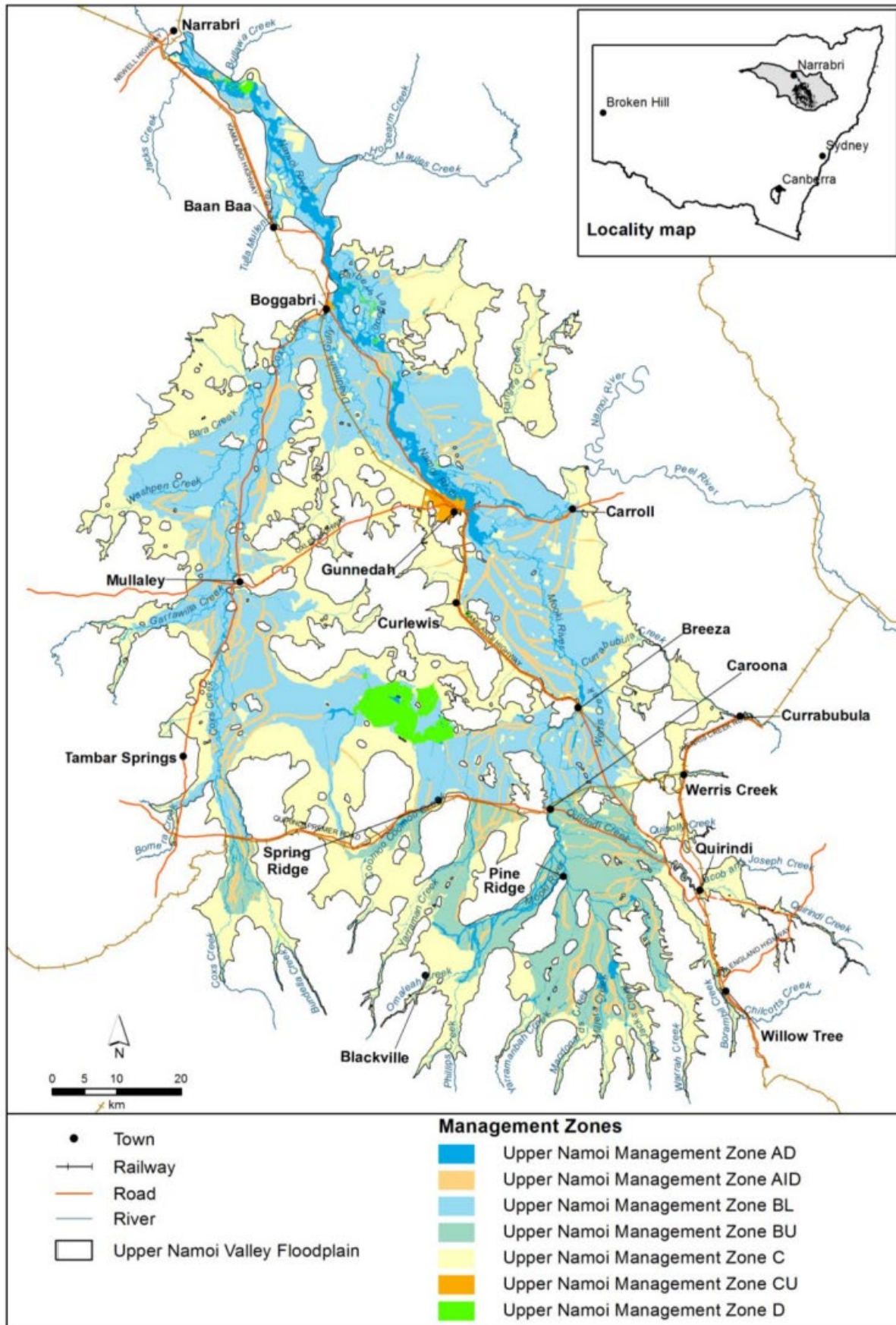


Figure A2: Upper Namoi Plan management zones<sup>57</sup>

<sup>57</sup> DPI-Water (2019) [Background document to the Floodplain Management Plan for the Upper Namoi Valley Floodplain 2019](#), Figure 21, p 50

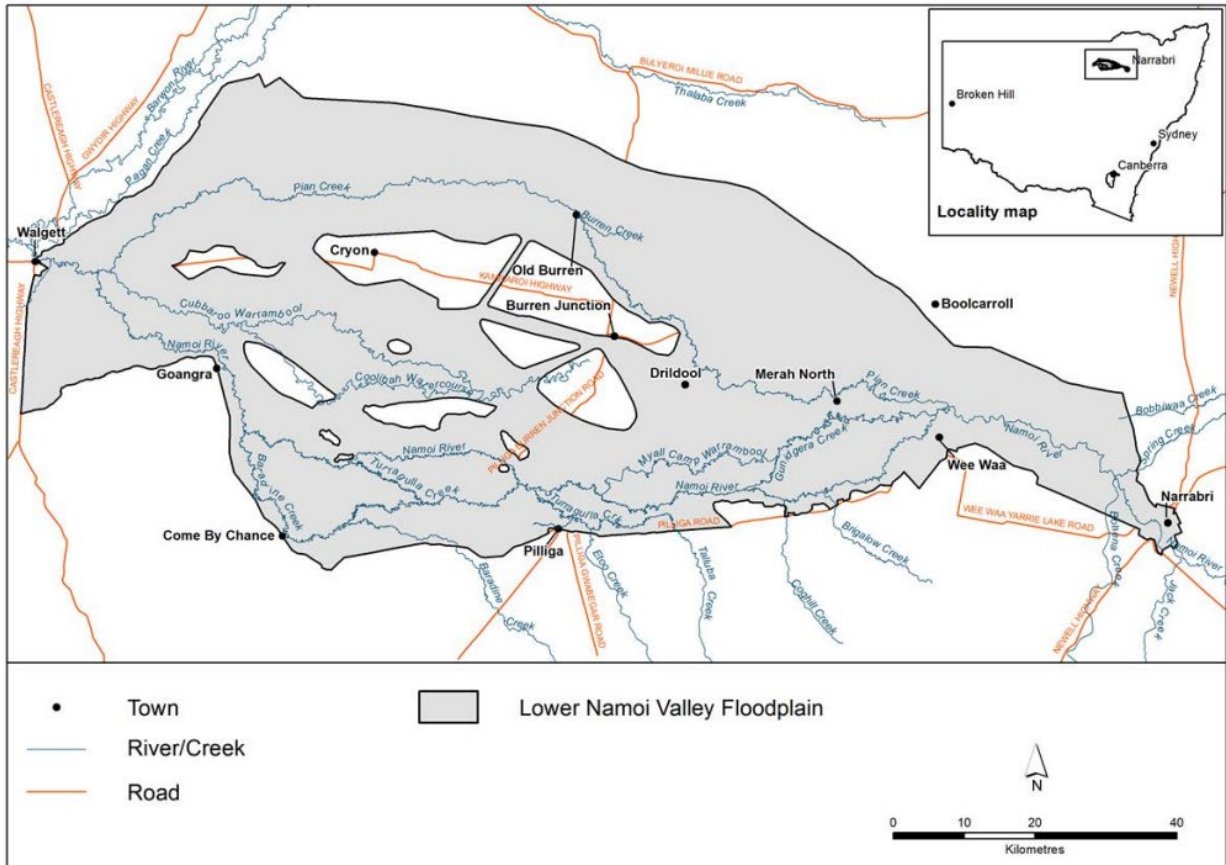


Figure A3: Lower Namoi Plan area<sup>58</sup>

<sup>58</sup> DPI-Water (2020) [Background document to the Floodplain Management Plan for the Lower Namoi Valley Floodplain 2020](#), Figure 3, p 4.

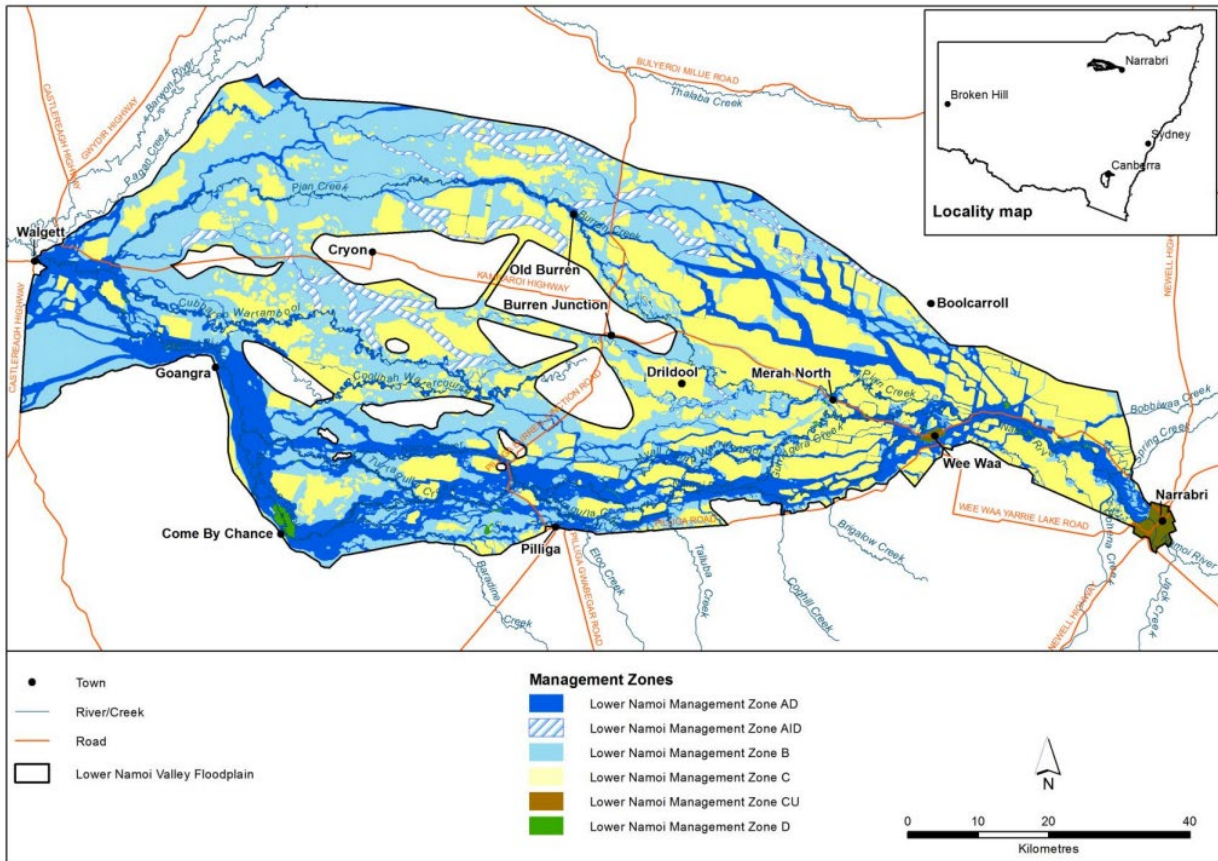


Figure A4: Lower Namoi Plan management zones<sup>59</sup>

<sup>59</sup> DPI-Water (2020) [Background document to the Floodplain Management Plan for the Lower Namoi Valley Floodplain 2020](#), Figure 18, p 48.

## Appendix B: Roles, responsibilities, systems and procedures

### Roles and responsibilities for floodplain management plans

#### *Criterion 1: Vision, objectives, strategies and performance indicators*

**DPE-Water** has key roles in relation to the development and assessment of water management plans, monitoring and modelling including:

- primary responsibility for the development, review, audit and implementation of water policies and management plans in NSW<sup>60</sup>
- monitoring, evaluation and reporting performance of management plans<sup>61</sup>
- designing the program of monitoring to answer the operational questions posed by the Government direction or the longer term agreed strategic direction
- reporting on the outcomes either through model runs, scientific interpretation or evaluation programs to inform plans, policy and strategy in an effort to manage the water resources for the state.<sup>62</sup>

**DPE-EHG** is responsible for:

- advising the Minister for Environment in relation to its concurrence role in making or amending a floodplain management plan.
- providing input to the 5-year review of a floodplain management plan under Section 43(3) of the Act, which is required to be undertaken in consultation with the Minister for the Environment.

#### *Criterion 2: Rules for flood work approvals*

WaterNSW is responsible for flood work approvals under the Act.<sup>63</sup> DPE-Water is responsible for some supporting functions. Prior to and during part of the audit period, NRAR also had a role in assessing and granting flood work approvals.

A summary of agency roles in flood work approvals during the audit period is as follows:

- **WaterNSW** is responsible for assessing and granting flood work approvals to landholders, industries and developments that are not large water users or major developments such as State significant developments or State significant infrastructure.<sup>64</sup> WaterNSW is also responsible for provision of flood work approval data to DPE-Water.
- **DPE-Water** is responsible for modelling that supports WaterNSW to undertake water impact assessment for licencing and approvals.<sup>65</sup>
- **NRAR** has been responsible (from 2018 to mid-2022) for controlled activity approvals, works on waterfront land and licences and approvals for large water users such as NSW

<sup>60</sup> [Roles & Responsibilities Agreement: DPIE Water, NRAR and WaterNSW](#), Schedule 1, p 3. Executed 30 June 2021.

<sup>61</sup> [Roles & Responsibilities Agreement: DPIE Water, NRAR and WaterNSW](#), Schedule 1, p 6. Executed 30 June 2021.

<sup>62</sup> [Roles & Responsibilities Agreement: DPIE Water, NRAR and WaterNSW](#), Schedule 1, p 35. Executed 30 June 2021.

<sup>63</sup> DPIE (2020) [Floodplain management changes](#) – Fact sheet.

<sup>64</sup> Independent Pricing and Regulatory Tribunal (IPART) (2022) [Water NSW operating licence 2022-2024](#), p 47.

<sup>65</sup> [Roles & Responsibilities Agreement: DPIE Water, NRAR and WaterNSW](#), Schedule 1, p 42. Executed 30 June 2021.

Government agencies, local councils and major developments (State significant developments and State significant infrastructure).<sup>66</sup> This responsibility has now transferred to DPE-Water.<sup>67</sup> NRAR assessed controlled works applications made under the *Water Act 1912* submitted prior to the commencement of the plans, which were automatically converted to flood work approvals upon being granted. NRAR also has an ongoing role to monitor and audit compliance with approvals, specifically detecting instances of non-compliance.<sup>68</sup>

### *Criterion 3: Mandatory conditions*

A summary of organisational roles for mandatory conditions of flood work approvals is as follows:

- **DPE-Water** is responsible for creating mandatory conditions to give effect to management plan rules and for entering and coding the mandatory conditions into the Water Licensing System (since September 2019). This includes identifying the individual management zones and matching them to applicable floodplain management plan provisions so that they can be applied by water regulation officers in WaterNSW. Prior to this, the function was at various times carried out by NRAR and DPE-Water predecessor organisations such as DPI-Water, Department of Industry–Lands and Water, and the Department of Industry–Water. DPE-Water also identifies changes in mandatory conditions required by plan commencement, remake or amendment and prepares formal notification materials for mass notifications for WaterNSW to use.<sup>69</sup>
- **WaterNSW** is responsible for imposing mandatory conditions on approval holders in accordance with Sections 100 and 102(3) of the Act for its customers.<sup>70</sup> WaterNSW is also responsible for notifying the applicant, and any objectors, of the determination of an application.<sup>71</sup> WaterNSW undertakes mass notification of conditions imposed on approvals as required by a change in policy or regulation such as upon the commencement of a new floodplain management plan under the Act, conversions of pre-existing rights under Schedule 10(2) or changes to or remakes of floodplain management plans under the Act.<sup>72</sup>
- **NRAR** is responsible for enforcement of the conditions imposed on flood work approvals that give effect to floodplain management plan provisions and may provide advice to DPE-Water and WaterNSW of changes needed to make mandatory conditions more enforceable.<sup>73</sup> NRAR took over compliance and enforcement responsibilities in April 2018. Prior to 2018, DPI-Water and WaterNSW were responsible.

### *Criterion 4: Amendments*

DPE-Water is responsible for implementing amendment provisions and updating management plans as required under Section 42 of the Act. The Minister for the Environment must concur with proposed amendments as required under Section 45(3) of the Act.

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<sup>66</sup> NRAR (2022) [What we do](#).

<sup>67</sup> DPE (2022) [Water News](#), May 2022, Issue #35.

<sup>68</sup> NRAR (2022) [What we do](#).

<sup>69</sup> [Roles & Responsibilities Agreement: DPIE Water, NRAR and WaterNSW](#), Schedule 1, p 21-22. Executed 30 June 2021.

<sup>70</sup> Independent Pricing and Regulatory Tribunal (IPART) (2022) [Water NSW operating licence 2022-2024](#), p 46.

<sup>71</sup> Independent Pricing and Regulatory Tribunal (IPART) (2022) [Water NSW operating licence 2022-2024](#), p 45.

<sup>72</sup> [Roles & Responsibilities Agreement: DPIE Water, NRAR and WaterNSW](#), Schedule 1, p 22. Executed 30 June 2021.

<sup>73</sup> [Roles & Responsibilities Agreement: DPIE Water, NRAR and WaterNSW](#), Schedule 1, p 21. Executed 30 June 2021.



**DPE-Water** is responsible for:

- making amendments to provisions in floodplain management plans
- leading all water legislation, policy and planning activities in NSW, including setting rules for assessment of applications and approvals<sup>74</sup>
- development, review, audit and implementation of water policies and management plans in NSW.<sup>75</sup>

**DPE-EHG** is responsible for:

- advising the Minister for Environment in relation to its concurrence role in making or amending a floodplain management plan.

## Systems and procedures to support the implementation of floodplain management plans

This section outlines the main systems, processes and procedures used by the relevant agencies to support floodplain management plan implementation.

The main systems used to manage flood work approvals and mandatory conditions are the:

- **Water Licensing System (WLS)** – this is an automated workflow and storage system that is owned and maintained by WaterNSW. The Approvals Transaction Module captures all applications, including flood work approvals, and supports assessment officers to undertake assessment of applications in line with the requirements. The WLS is used by DPE-Water to code mandatory conditions and make them available to water regulation officers in WaterNSW (and previously NRAR). Water regulation officers then apply these to approvals, along with any discretionary conditions applicable on a case-by-case basis. The WLS generates the statement of approval, notice of decision and the cover letter that is sent to approval holders by WaterNSW. These documents should include the relevant mandatory and discretionary conditions.

Note, in the future, these processes will be transferred to the WAVE system which is currently under development. Part 8 approvals under the *Water Act 1912* were processed using the Licencing Administration System which is the predecessor to the WLS.

- **NSW Water Register** – this is a register of approvals (and access licences) which is required under Section 113 of the Act, which must be available for public inspection and record every application and every approval (including flood work approvals) granted, extended, amended, transferred, surrendered, suspended or cancelled under the Act. The register can be found at the WaterNSW website.<sup>76</sup>
- **Hydraulic models** – DPE-Water maintains computer-based hydraulic models for each valley that simulate flooding. The hydraulic models show flow paths determined by data including Digital Elevation Models, aerial photography of flooding, satellite imagery, and watercourse layers.<sup>77</sup> The outputs of the model include discharge, velocity and depth information and inundation extent. Models are calibrated against various data gathered from flooding events.<sup>78</sup>

<sup>74</sup> [Roles & Responsibilities Agreement: DPIE Water, NRAR and WaterNSW](#), Schedule 1, p 3. Executed 30 June 2021.

<sup>75</sup> [Roles & Responsibilities Agreement: DPIE Water, NRAR and WaterNSW](#), Schedule 1, p 3. Executed 30 June 2021.

<sup>76</sup> WaterNSW (n.d) [NSW Water Register](#).

<sup>77</sup> DPIE (2020) [Rural floodplain management plans: technical manual for plans developed under the Water Management Act 2000](#), Version 2.1, p 13-15.

<sup>78</sup> DPIE (2020) [Rural floodplain management plans: technical manual for plans developed under the Water Management Act 2000](#), Version 2.1, p 13-15.

- **Compliance Investigation Reporting and Management System (CIRaM)** – used by NRAR to record and manage compliance and enforcement activities.

The main procedural or process documents used to monitor performance indicators, manage flood work approvals, mandatory conditions and amendments, are the:

- **Environmental monitoring, evaluation and reporting plan** – this plan covers the floodplains in the northern Murray-Darling Basin, including the Upper and Lower Namoi Valleys. It identifies key evaluation questions, performance indicators, existing monitoring programs and evaluation approaches relevant to floodplain management plans, with an environmental focus.
- **The Licensing Procedure Manual** – this document sets out requirements for operationalising the Act and Regulation requirements for the flood works approval process, including the following relevant sections:
  - **Chapter 6.3, Section 1.5.2** – relates to issuing approvals and states that mandatory conditions will display on screen (in WLS) and be automatically added to the statement of approval based on the location and the rules within the relevant plan. Floodplain management plans are not mentioned in this document. It is directed at management of water sharing plans. The Commission has been advised that this approach should also apply to floodplain management plans.
  - **Chapter 8, Conditions** – this provides information in relation to translating water management plan provisions into mandatory conditions in WLS for use by water regulation officers.

Note, this manual is undergoing development.

- **Assessment and Approvals Manual – Flood Works Chapter** – a draft document developed by WaterNSW to be integrated into the Assessment and Approvals Manual when approved. This document provides guidance to assessing officers for the flood work approval process, exemptions, definitions and key considerations.
- **Assessment summary checklist** – this is a checklist for use by WaterNSW assessing officers to ensure they have undertaken the required processes such as administrative and environmental checks, advertising requirements, objections and impact assessment of the activity. The checklist contains a statement of compliance against the relevant floodplain management plan, the conclusion of the Technical Hydraulic review and a recommendation for the flood works to be granted or refused.
- **Technical Hydraulic review checklist** – this WaterNSW document captures the technical review of the hydraulic model of the proposed flood works against the relevant hydraulic criteria of the floodplain management plan.
- **The Compliance Investigations Manual** – used by NRAR to respond to allegations of non-compliance. It is the primary reference for NRAR investigations staff and sets out the approved processes, procedures, authorities, instruction and guidance to be applied when investigating alleged breaches of water regulations.
- **Floodplain management planning amendment register** – this document is a register to capture potential amendments for floodplain management plans which is maintained by DPE-Water. This includes a risk assessment, priority and tracking of potential amendments.
- **FMP Amendments procedure** – this internal document has been developed by DPE-Water to outline the process for tracking and implementing floodplain management plan amendments.