Department of Climate Change, Energy, the Environment and Water

Water Sharing Plan for the North Western Unregulated and Fractured Rock Water Sources 2024

Background, consultation and changes

June 2026



NSW GOVERNMENT

Acknowledgement of Country



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

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

Artist and designer Nikita Ridgeway from Aboriginal design agency – Boss Lady Creative Designs, created the People and Community symbol.

Water Sharing Plan for the North Western Unregulated and Fractured Rock Water Sources 2024

Published by NSW Department of Climate Change, Energy, the Environment and Water

dcceew.nsw.gov.au

First published: June 2026

Department or Agency reference number: PUB23/842

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1 Introduction

Water sharing plans (plans) were developed for rivers and groundwater systems across New South Wales (NSW) following the introduction of the Water Management Act 2000 (WM Act). Approximately 99 % of the water extracted in NSW is now covered by water sharing plans and managed under the WM Act. These plans protect the health of our rivers and groundwater while giving water users perpetual access licences, sustainable resource management, equitable water sharing arrangements, and increased opportunities to trade water.

NSW water sharing plans are valid for 10 years from their start date. The NSW Minister for Water may amend water sharing plans throughout their life to ensure they comply with changing legislation or court directions, if the plan allows or if in the public interest. Near the end of a plan's 10-year term, the Natural Resources Commission formally reviews the plan to identify any changes that are necessary to deliver better outcomes for all water users, including the environment.

Water in the North Western plan area has previously been managed through the Water Sharing Plan for the North Western Unregulated and Fractured Rock Water Sources 2011 (the North Western 2011 plan). This plan expired on 30 June 2024 and was replaced by the Water Sharing Plan for the North Western Unregulated and Fractured Rock Water Sources 2024 (the North Western 2024 plan).

This document gives high-level background information on the planning process as well as details of changes to management arrangements arising in the North Western 2024 plan.

The North Western 2024 plan covers 2 water sources, one for surface water and the other for groundwater. The 3 groundwater sources that existed in the North Western 2011 plan have been combined into one groundwater source in the North Western 2024 plan.

You can find links to the North Western 2024 plan, maps and rule summary sheets on the Barwon Darling and West Region page on the department's website.

The resources in Appendix A – References and supporting documents give more details of the plan area, its water resources and resource management.

2 Purpose of water sharing plans

Expansion of water extraction across NSW since the beginning of the 20th century has seen increasing competition between water users (towns, farmers, and industries) for access to water. This has placed pressure on the health and biological diversity of our rivers and aquifers.

In December 2000, the Parliament of NSW passed the WM Act, which has the overall objective to

> 'provide for the sustainable and integrated management of the water sources of the State for the benefit of both present and future generations'

Plans play a major role in achieving this objective by providing a legal basis for sharing water between the environment and consumptive water users.

Water sharing plans are the primary means of carrying out the WM Act. They protect the basic rights of landholders to extract water and seek to balance the sustainable use of water for both economic and environmental outcomes.

3 Legislation, policy and planning framework

3.1 Water Management Act 2000

The WM Act is the key guiding legislation for water management in NSW. The WM Act allows for the sustainable and integrated management of water sources. It considers ecologically sustainable development, the protection and enhancement of the environment, and social and economic benefits.

The WM Act sets a maximum initial lifespan of 10 years for water sharing plans, at which point they need to be reviewed and replaced or extended. When deciding whether to extend or replace a water sharing plan, the responsible minister must consider:

- the most recent audit of the water sharing plan conducted under section 44 of the WM Act
- a report from the Natural Resources Commission that reviews (within the previous 5 years) if the water sharing provisions have significantly helped to achieve, or have failed to achieve, environmental, social and economic outcomes, and if those provisions should change.

Under the WM Act, a water sharing plan may be extended for up to 2 years past the expiry date to allow the department to prepare a replacement plan.

You can view the NSW *Water Management Act 2000* on the NSW Legislation website.

3.2 Water sharing plans

A water sharing plan sets out locally appropriate rules and management arrangements for specific water sources that align with the principles of the WM Act.

Key elements of water sharing plans include:

- providing water for the environment by protecting a proportion of the water available for fundamental ecosystem health
- protecting the water required to meet basic landholder rights
- setting annual limits on water extractions that ensures security for water users and the environment
- giving water users a clear picture of when and how water will be available for extraction
- giving licence holders flexibility in the way they can manage their water accounts

- specifying rules in groundwater plans to minimise effects on other groundwater users, groundwater-dependent ecosystems (GDEs), culturally significant sites, water quality and the stability of the aquifer
- specifying the rules for water trading/dealings
- setting the mandatory conditions that apply to licence holders.

You can review the North Western 2024 plan on the water sharing plan pages of the department's website.

3.3 NSW and Commonwealth water policy

We are continuously evolving and improving water-related policy and decision-making processes that carry out the legislative framework to ensure effective delivery of our water resource management objectives. We develop plans in line with the principles of the WM Act and the National Water Initiative.

You can find more information on the National Water Initiative on the Australian Department of Climate Change, Energy, the Environment and Water website.

The department has also developed a position to provide for better protection for significant wetlands in unregulated water sources. This has been included in the North Western 2024 plan, with a number of wetlands identified for protection.

4 Water sharing plan review and replacement process

Under the WM Act, water sharing plans have a 10-year duration. During this time (as indicated in section 3.1 above), a plan will undergo an independent review at least twice, as follows:

- the implementation of the plan will be audited in the first 5 years of the plan under section 44 of the WM Act
- the performance of the plan will be reviewed in the last 5 years of the plan under section 43A of the WM Act.

The NRC is the independent body that audits and reviews water sharing plans. The section 44 audit aims to identify where improvements are necessary to apply the plan rules. The section 43A review is to determine if the plan is achieving the intended environmental, social and economic outcomes.

The NRC reports the findings of the audits and reviews to the NSW minister responsible for water, who decides whether to extend a plan for another 10 years or to replace it. If the NRC recommends replacing it, the department considers the commission's recommendations when developing the replacement plan.

More information and links to the reviews of the North Western 2011 plan are in section 5.3 of this document.

The minister at the time adopted the NRC's recommendation to replace the North Western 2011 plan in June 2022.

To allow time to review and replace the plan, the duration of the current plan was extended by 2 years.

You can find more information on the water sharing plan review and replacement process in the Replacement Water Sharing Plan Manual (PDF 2.2 MB).

5 The North Western 2024 plan

5.1 Overview

The North Western 2024 plan area covers the far north-western corner of NSW and includes the localities of Tibooburra, Milparinka, Silverton and Packsaddle. The plan area is bounded by the Queensland border to the north and the South Australian border to the west. The southern and eastern boundaries meet the western borders of the Murray–Darling Basin. The area is entirely outside the Murray–Darling Basin.

The surface area covered by the North Western 2024 plan comprises the:

- NSW portion of the Bulloo River catchment
- Lake Bancannia catchment
- NSW portion of the Lake Frome catchment
- NSW portion of Cooper Creek catchment (see Figure 1).

The plan area covers a total of 64,960 km2 (square kilometres), supporting an arid landscape with low lying channels and flood runners. The most distinguishable of these is the Bulloo River Overflow in the north, a sub-catchment of the Bulloo River catchment. There are few well-defined channels in the western and southern parts of the plan area. Surface water flow is intermittent and drains towards central Australia and Lake Eyre (see Figure 1).

The North Western 2024 plan also manages the groundwater resources within the rocks of the Adelaide, Lachlan and Kanmantoo fold belts, the Bancannia Trough (a sedimentary basin), and the associated overlying unconsolidated sediments. Most of the plan area is buried beneath the younger sediments of the Great Artesian Basin (GAB), outcropping only in the south-west of the area (Figure 2 and Figure 3). Although it is a sedimentary basin and geologically distinct, the extent (depth and lateral) of the Bancannia Trough was not adequately known at the time of plan review to differentiate this formation from the surrounding fractured rocks. Mapping or managing the formations separately is not currently feasible so the Bancannia Trough is included in the North Western 2024 plan and considered part of the fractured rock groundwater source.

To manage impacts of extraction at a local scale, the department assesses applications for new bores or water trading using hydrogeological evidence.

Figure 1 Catchments of the North Western 2024 plan area.

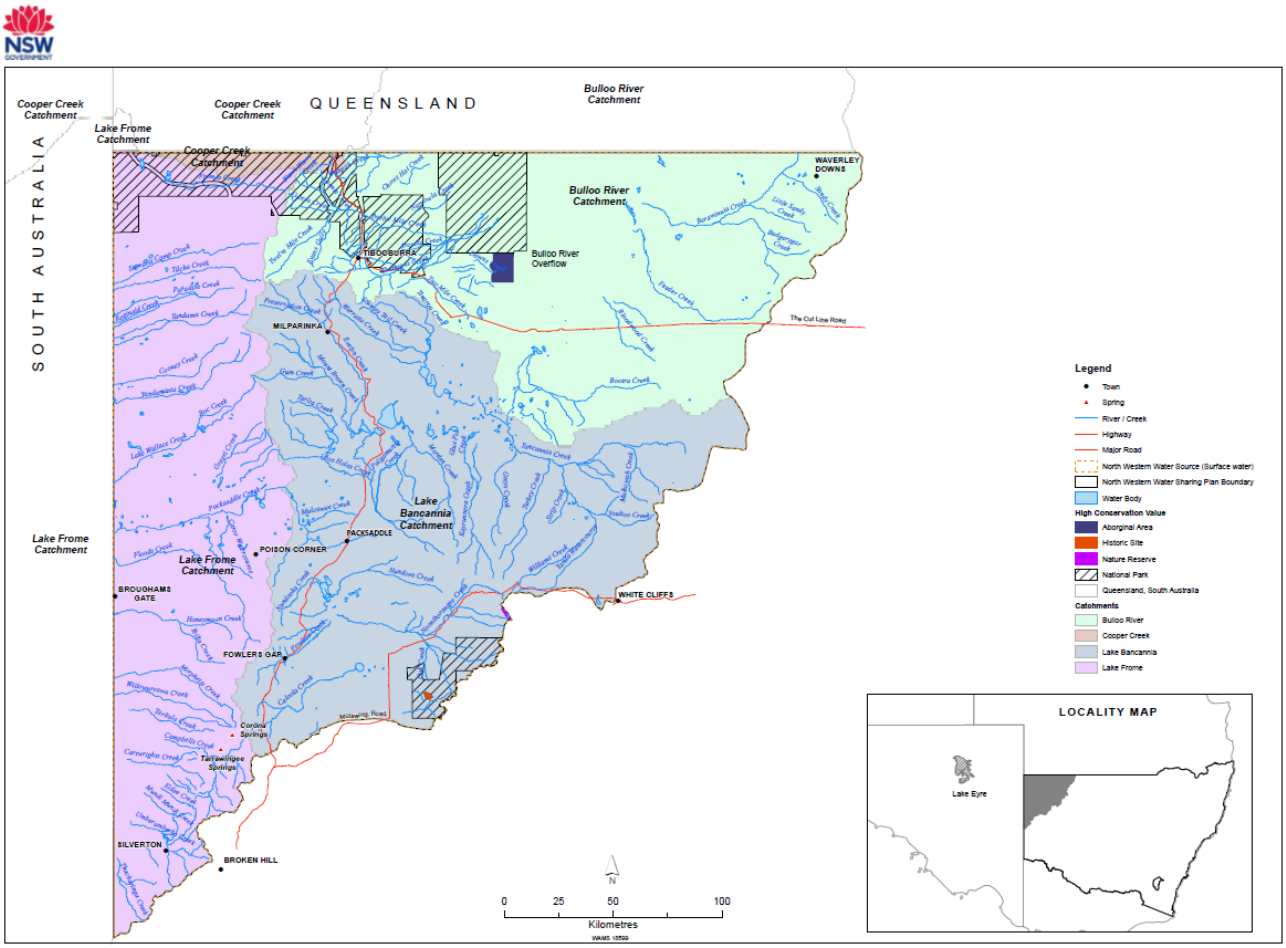
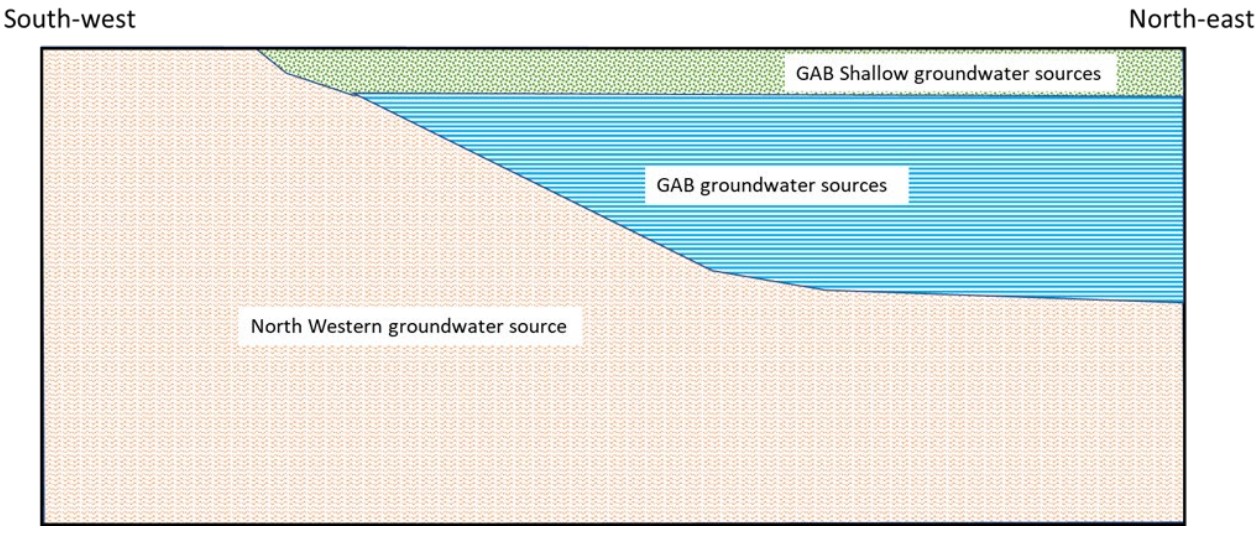


Figure 2 Schematic showing layering of groundwater sources in the North Western 2024 plan area



The geology across the plan area is variable, made up of both fractured and porous rocks. There is little to no interaction between the North Western Fractured Rock Groundwater Source and the overlying sedimentary rocks of the GAB. This is due to the different physical properties of each water source, including less permeability in the North Western Fractured Rock Groundwater Source, as it is a tighter and compressed fracture system, compared to the sedimentary rocks of the GAB.

There are minor interactions between the sediments associated with the surface water systems and the underlying rocks. The low permeability of the underlying rocks means that infiltration and loss from streams is low and has minimum impact on streamflow.

The North Western 2024 plan protects springs and high priority groundwater dependent ecosystems by restricting any new works that extract groundwater being constructed within 2 km. The larger distance of 2km, compared to 200m in most other plans, aims to decrease the likelihood of livestock impacts on these areas through restricting the potential for stock watering points. The distance rules prevent greater stock activity and damage to groundwater dependent ecosystems. The plan allows exemptions to the distance restrictions if the water is piped to a distance more than 2km from the groundwater dependent ecosystem or spring.

Figure 3 Plan area for the Water Sharing Plan for the North Western Unregulated and fractured Rock Water Sources 2024 (North Western Plan 2024)

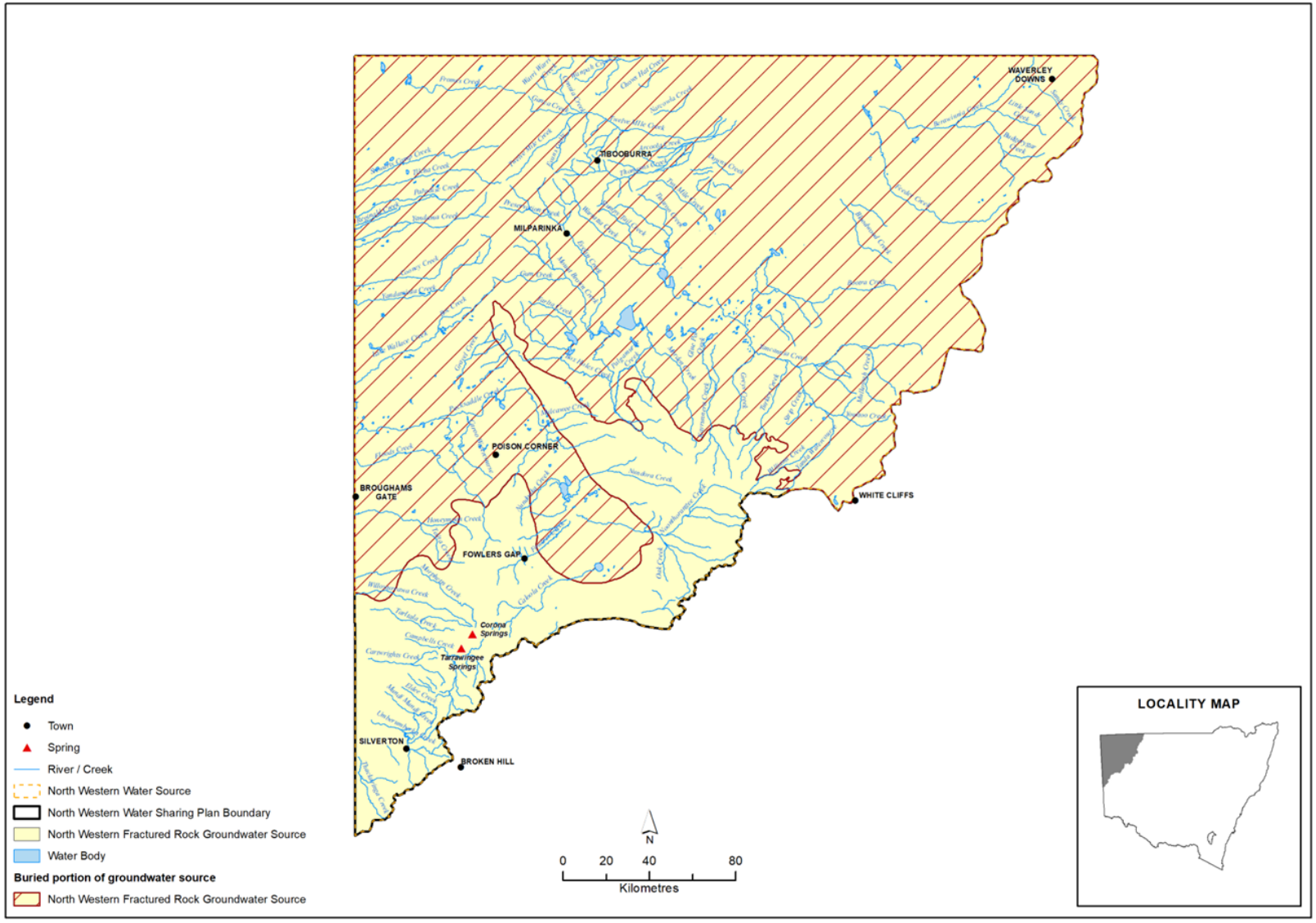


Table 1 and Table 2 give details of the potential levels of extraction for basic landholder rights (BLR) and licensed extraction within the North Western 2024 plan area.

Table 1. Requirements for water in the North Western 2024 plan – Basic landholder rights

Extraction type	Potential extraction (ML/year)
Groundwater domestic and stock	10,120
Surface water domestic and stock	680
Native title	The amount of water that may be taken in the exercise of native title rights in accordance with the Native Title Act 1993 of the Commonwealth.

Table 2. Requirements for water in the North Western 2024 plan – Licensed extraction

Extraction type	Potential extraction (ML/year)
Domestic and stock (surface water)	67
Unregulated river (surface water)	40
Aquifer (groundwater)	83

5.2 Previous plans

Water in the North Western 2024 plan was previously managed through:

- the Water Sharing Plan for the North Western Unregulated and Fractured Rock Water Sources 2011

For more information on this plan, refer to:

- the North Western 2011 Background Document (PDF, 0.5 MB)

The North Western 2011 plan was developed using the macro-planning approach and included extensive stakeholder and interagency consultation. Details of the macro-planning approach can be found in the following documents:

- Macro water sharing plans – approach for unregulated rivers (PDF 647 KB)
- Macro water sharing plans – access and trading rules for pools (PDF 621 KB)
- Macro water sharing plans – the approach for groundwater (PDF 1.67 MB).

As of 1 July 2024 the water sources of the North Western 2011 plan are now managed under the Water Sharing Plan for the North Western Unregulated and Fractured Rock Water Sources 2024 which can be found on the department's website.

When access rules in a plan change, licence holders are required to comply with the existing licence conditions until they are notified of updated licence conditions by receipt of a new Statement of Conditions. For further information see the factsheet – Complying with new or changed access rules.

5.3 Developing the 2024 water sharing plan

The processes that the department have used in developing the replacement plan are an update on the previous macro–planning approach.

The development of replacement plans now follows the processes described in the Replacement Water Sharing Plan Manual (PDF 2.2 MB).

We continue to use some methods described in the macro-planning approach. This background document will describe the most recent and specific methods used to prepare the North Western 2024 plan.

The department is responsible for implementing the WM Act, including developing water sharing plans for NSW water resources. When drafting the replacement water sharing plan, we considered:

- the section 44 audit of the North Western 2011 plan
- recommendations from the Natural Resources Commission's 2022 review of the North Western 2011 plan (PDF 2.16 MB)
- updated data, information and science
- the deliberations across government agencies, including the Water group and Conservation Programs, Heritage and Regulation (CPHR) group within the department, Department of Primary Industries and Regional Development (DPIRD) (Agriculture and Fisheries branches), Water NSW and the Natural Resources Access Regulator
- consultation with local water utilities, local government and water users representatives.

You can find the North Western 2024 plan on the department's website.

Details of the changes from the North Western 2011 plan are in section 6 of this document.

You can find information on the public exhibition of this plan below in Section 5.5 of this document.

5.4 Public exhibition and finalising the 2024 plan

The department exhibited the North Western 2024 plan between 30 June and 10 August 2023. We held one public information session to inform the public and get feedback on the draft water sharing plan. This session was an online webinar on 18 July 2023.

During the public exhibition period, there were 135 hits on the plan's public exhibition website. We received 2 submissions. Issues raised in submissions are summarised in the What we heard document.

In finalising the replacement plan, the department considered all submissions as well as further deliberations and input from government agencies including the Water Group and CPHR group from

the department, DPIRD (Agriculture and Fisheries branches), WaterNSW and the Natural Resources Access Regulator.

5.5 First Nations consultation

We discussed the draft plan and proposed changes with the Barkandji Native Title Group Aboriginal Corporation in Broken Hill and Barkandji Traditional Owners in Menindee. We also contacted the Tibooburra Local Aboriginal Land Council and Barkandji community at Wilcannia who were not available to meet with us.

Consultation will be ongoing throughout the life of the plan.

6 Changes from the North Western 2011 plan to the North Western 2024 plan

6.1 Overview

Key drivers for the changes between the 2011 plan and the North Western 2024 plan were:

- the NRC's review recommendations
- contemporary water resource policy – some changes to the plan align it with current policy to help improve efficiency and consistency in achieving water resource management objectives across the state
- updated data and knowledge improvements
- consultation on the draft plan, feedback and submissions.

Changes to the plan reflect improved understanding and updated data. They aim to modernise and simplify the water sharing plan to make it easier to read while ensuring provisions are practical to implement and legally accurate.

Changes were made to:

- the general layout of the plan
- amalgamate the:
  - Adelaide Fold Belt North Western groundwater source
  - Kanmantoo Fold Belt North Wester groundwater source
  - Lachlan Fold Belt North Western groundwater source
- amend the surface water source boundary to align with the water sharing plan area
- the vision, objectives, strategies, and performance indicators
- update the surface water and groundwater long-term average annual extraction limits
- update basic land holder rights estimate and access licence share components

- update trade provisions
- identify high-priority, groundwater-dependent ecosystems
- protect significant wetlands
- adaptive management and amendment provisions.

Appendix B – Substantive changes made between the draft and final 2024 water sharing plan, includes information about substantive changes made between the draft and final water sharing plans, and if a change was in response to submissions received.

For a summary of all issues raised in submissions, regardless of whether they led to a change, please refer to the Outcomes of public exhibition section of the department's website and the What we heard document.

Rules Summary Sheets for each water source are available on the department's website. These detail the relevant rules that apply to each water source under the North Western 2024 plan.

6.2 Layout changes

There are several structural changes to the layout of the North Western 2024 plan. We have moved or reworded clauses, but their intent is the same. Such changes reflect current template styles and provide a more standard and consistent layout across the state's water sharing plans, as well as making the water sharing plan easier to understand.

6.3 Combining the groundwater sources

Part 1 of the plan describes the area and water to which the plan applies. The 2011 plan area was divided into 3 fold belt areas based on the lateral extension of the adjacent Murray–Darling Basin (MDB) Water Resource Plan.

These were the:

1. Adelaide Fold Belt North Western groundwater source
2. Kanmantoo Fold Belt North Western groundwater source, and
3. Lachlan Fold Belt North Western groundwater source

The decision was made to amalgamate these 3 water sources to create the new North Western Fractured Rock Groundwater Source. Combining these groundwater sources:

- recognises the common rainfall and hydrogeological characteristics of the current groundwater sources
- reduces administration
- enables coordinated management of the Bancannia Trough, a sedimentary basin consisting of sandstone and siltstone, which previously extended across 2 of the 3 water sources
- reduces uncertainty for stakeholders about which groundwater source they are extracting from, and

- allows for trading of aquifer access shares and allocations, if they meet assessment guidelines, within the combined groundwater source.

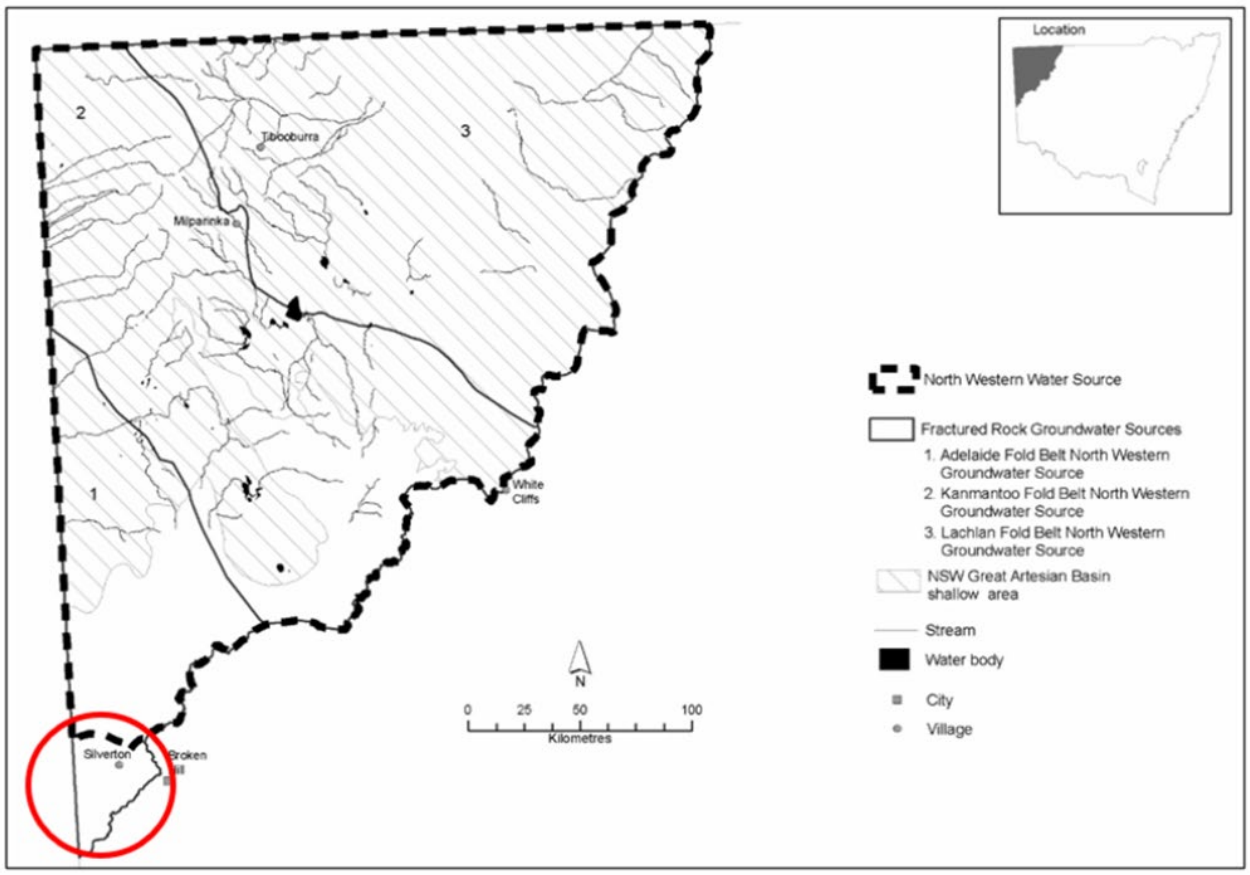
The Bancannia Trough is a non-folded porous rock aquifer. While not part of a fold belt, the groundwater contained within was managed as part of the Adelaide Fold Belt North Western and the Kanmantoo Fold Belt North Western groundwater sources in the North Western 2011 plan. It was determined that the groundwater contained within the Bancannia Trough would continue to be managed as a part of the new groundwater source. This decision considered:

- The lack of information available at the time about how these units operate together, and recharge is distributed.
- The current low demand, there is low risk of approaching either discrete or combined extraction limits.
- More detailed local assessment that is applied during an application for water supply work approval or water licensing, manages risk to the water source, dependent ecosystems and other users and any growth in extraction will be subject to and limited by this more detailed investigation.

6.4 Amending the boundary of the surface water source

The North Western 2024 plan has extended the boundary of the North Western Water Source to align with the plan boundary. The previous water source boundary did not include the southern tip of the water sharing plan area (see Figure 4) because of an error made when the plan was developed. Because of this error, all surface water and licences and approvals that existed within this area were not covered by any water sharing plan.

Figure 4 Comparison of the North Western Water Source (North Western 2024 plan) and the previous water sharing plan boundary (North Western 2011 plan). Area within red circle, around Silverton is now included in the surface water source.



The area is hydrologically within the NSW Lake Frome catchment, which runs along the South Australian border to Queensland. Given this, it was most appropriate to include the area in the North Western 2024 plan, rather than, the neighbouring Water Sharing Plan for the Lower Murray–Darling Unregulated Rivers Water Sources, which is in the Murray–Darling Basin.

There is one surface water licence in this area which will be updated to reflect the change.

6.5 Vision, objectives, strategies, and performance indicators

Part 2 of the North Western 2024 plan describes the vision and objectives. The plan's vision encompasses the overall aim of the plan. The vision of the plan is to provide for the:

- health of the water sources and their dependent ecosystems
- continuing productive extraction of water for economic benefit
- spiritual, social, customary and economic benefits of water for Aboriginal communities
- social and cultural benefits of water for urban and rural communities.

The North Western plan has the following 5 objectives:

- protect, and where possible, enhance and restore the condition of the water sources and their water-dependent ecosystems
- maintain, and where possible, improve access to water to optimise economic benefits for agriculture, water-dependent industries and local economies
- maintain, and where possible, improve the spiritual, social, customary and economic values and uses of water by Aboriginal people
- provide access to water to support water-dependent social and cultural values.
- help prevent structural damage to aquifers resulting from groundwater extraction.

We have included more detailed and SMART (specific measurable, achievable, realistic and timely) objectives in the Monitoring, Evaluation and Reporting (MER) plan for the North Western 2024 plan. This clearly links objectives, strategies and performance indicators and addresses the Natural Resources Commission's recommendation to strengthen MER of the plan outcomes.

We have added a requirement for the minister to prepare a monitoring, evaluation and reporting (MER) plan. The MER plan is to be published by 30 June 2025 and each year the minister is to publicly report on the implementation of the water sharing plan, including progress against the MER plan. Additionally, evaluation reporting is to be undertaken by year nine of the water sharing plan.

The annual reporting will provide transparency on the implementation of the MER activities, while the reporting in year 9 of the plan will provide transparency on how the plan's vision, objectives, strategies and performance indicators are being met.

The full list of the vision, objectives, strategies and performance indicators is detailed in Appendix C of this document.

6.6 Updated long-term average annual extraction limits (LTAAELs)

Surface water

The previous LTAAEL for the North Western Water Source was based on 10% of rainfall runoff. The estimate was calculated using a regional runoff model and historical rainfall records. We chose this method as there was 30 ML of entitlement in the water source when the plan began, and the Interagency Regional Panel wanted to set a LTAAEL higher than zero to provide opportunities for small-scale development such as tourism within the plan area.

The increased size of the surface water source (see section 6.1.3) required an increase in the calculation of the LTAAEL to account for the additional runoff in the revised area. The same method used to determine the LTAAEL in the North Western 2011 plan was used in the North Western 2024 plan.

An updated runoff estimate for the revised area of the surface water source was not readily available and would have required a significant modelling effort. However, the North Western Water Source has a low level of water entitlement (rights to an ongoing share of water), no gauging sites, and low levels of risk. We therefore applied the rainfall runoff estimate used in the North Western

2011 plan to the additional area rather than recalculating the rainfall runoff for the entire water source. This increased the LTAAEL by 52 ML to 2,859 ML.

By increasing the size of the surface water source (see section 6.1.3), we have increased the runoff in the water source. We have therefore increased the LTAAEL to account for this additional area, using the same method to determine the LTAAEL as the previous plan.

An updated runoff estimate for the revised area wasn't readily available and would have required a significant modelling effort. For the North Western Water Source, there is a low level of water entitlement (rights to an ongoing share of water), no gauging sites, and the levels of risk are low. Because of this, we applied the rainfall runoff estimate used in the original plan to the additional area, rather than recalculating the rainfall runoff for the entire water source. This resulted in an increase in the LTAAEL of 52 ML and a revised LTAAEL of 2,859 ML.

Additionally, we added a requirement for the minister to review the numerical LTAAEL, including seeking the advice of the NRC. The review requirements will help ensure that the LTAAEL reflects a sustainable level of take.

We also added a requirement for the minister to consider the "minimum inflow" review and enabled amendments to be made to the plan based on that review. The requirement to consider the "minimum inflow" review will ensure that the findings of the review can be used to inform the rules in this plan.

Groundwater

The LTAAEL for groundwater was revised using the risk assessment method (Appendix 6 of Macro water sharing plans – the approach for groundwater, DPI Water 2016. The revision applied the latest rainfall data from 1900 to 2019 and estimates of recharge and infiltration to the relevant surface areas of groundwater sources. Based on the outcomes of the risk assessment, a portion of recharge is reserved for the environment in addition to the volume stored in the groundwater source, while the remainder is available for extraction.

Recharge for the plan area was determined based on an infiltration rate of 4% of the long-term average annual rainfall over outcropping areas only. The only outcropping parts of the water source are in the south-west of the plan area. Rainfall recharge to high conservation value areas such as national parks was not included.

The 4% rainfall recharge figure is consistent with the value applied to other similar mixed geology fractured rock groundwater sources across the state. As discussed previously, the recharge area is not entirely fractured rock, both alluvial sediments and porous rocks occur, the recharge rate applied potentially underestimates recharge to these areas.

After applying the recharge (infiltration) rate based on the average annual rainfall between 1900 and 2019 a LTAAEL of 60,000 ML was calculated for the new groundwater source in the North Western 2024 plan. This is an increase of 1,689 ML/year from that in the North Western 2011 plan (58,311 ML/year), due to the extended mean annual rainfall data (up to 2019) and rounding of results.

The department also considered the effects of climate change on average annual rainfall. The NSW and ACT Regional Climate Modelling (NARCliM 1.5) predicted a potential change of between -5% to +5% to the average annual rainfall from the 1990- 2009 period to the 2020-2039 period, with variation across the region. Projections over the longer-term predicted increasing rainfall as

monsoonal rains move further south. Given that the potential annual rainfall changes predicted over the 10-year life of the plan were small and variable, we used the average annual rainfall up to 2019.

6.7 Updated Basic Landholder Rights (BLR) estimates and licence share components

We have updated the estimate of extraction of water under BLR, the updated figures are in Part 3 of the plan.

Since the development of the first plans, which began before 2003, numerous methods have been used to estimate water requirements for domestic and stock BLR. These methods were superseded in 2010 by a standard NSW approach to support the development of surface and groundwater macro-sharing plans.

We adopted the same method used in the development of macro-water sharing plans for estimating the water requirements of domestic and stock BLR. This method is in Appendix 5 of the Replacement Water Sharing Plan Manual (PDF 2.2 MB).

The revised estimates may differ from those in the North Western 2011 plan due to changes in land use, population density and the availability of more accurate spatial data.

The updated water access licence share components (water entitlements for each water source) are listed in Part 3 of the North Western 2024 plan.

6.8 Changes to plan map

The plan map (see Figure 2) was updated to reflect the change from 3 groundwater sources to one (the North Western Fractured Rock Groundwater Source), and the inclusion of the extra area in the surface water source, an area which includes the village of Silverton and Umberumberka Reservoir (see section 6.4 above).

6.9 Changed distance rules for groundwater sources

We have made some changes to the wording and rules for groundwater supply works. We have replaced the term “sensitive environmental areas” with “high priority groundwater-dependent ecosystems” (GDEs).

We have identified high priority GDEs in a revised map (see Figure 5) and restricted new water supply works near these GDEs, if the ecosystem has a high probability of groundwater-dependence. We have maintained exceptions to these restrictions.

We have also extended distance restrictions for new water supply works to cover all waterfront land, rather than only waterfront land on third order or higher waterways.

We also increased the upper limit for variation in the internal diameter of groundwater replacement groundwater works of the work being replaced.

A detailed description of all current rules is available in the Rules Summary Sheet for North Western Fractured Rock Groundwater Source on the department’s website.

Before a groundwater water supply work is approved, the application goes through an assessment process to make sure the work would not have impacts to connected surface water, the aquifer, neighbouring bores or GDEs. More information on groundwater assessments is found on the department's website.

6.10 Identification of high-priority, groundwater-dependent ecosystems

Groundwater-dependent ecosystems (GDEs) are ecosystems that need access to groundwater to maintain their plant and animal communities and ecological processes. The previous plan provided protection for scheduled (listed) GDEs by specifying minimum setback distance rules for new groundwater works (bores). The GDE setback distances for bores remains unchanged from the North Western 2011 plan.

In the North Western 2024 plan, we have replaced the previous map and schedule with a revised map showing GDEs (see Figure 5). Mapped GDEs are the result of a departmental program to identify and prioritise GDEs in NSW. The identification method considers both the probability of groundwater dependence and the ecological value of the GDE. It incorporates existing vegetation community mapping and remote sensing to identify vegetation communities. We used monitoring-bore data to identify potential groundwater dependence of the vegetation communities.

The mapping was supported by field-based verification in sample areas that represented different land cover types. We selected sites from almost all major catchments distributed across NSW. This was done to ensure that each area had a representative geographic sample that reflected the diverse environmental conditions and management practices.

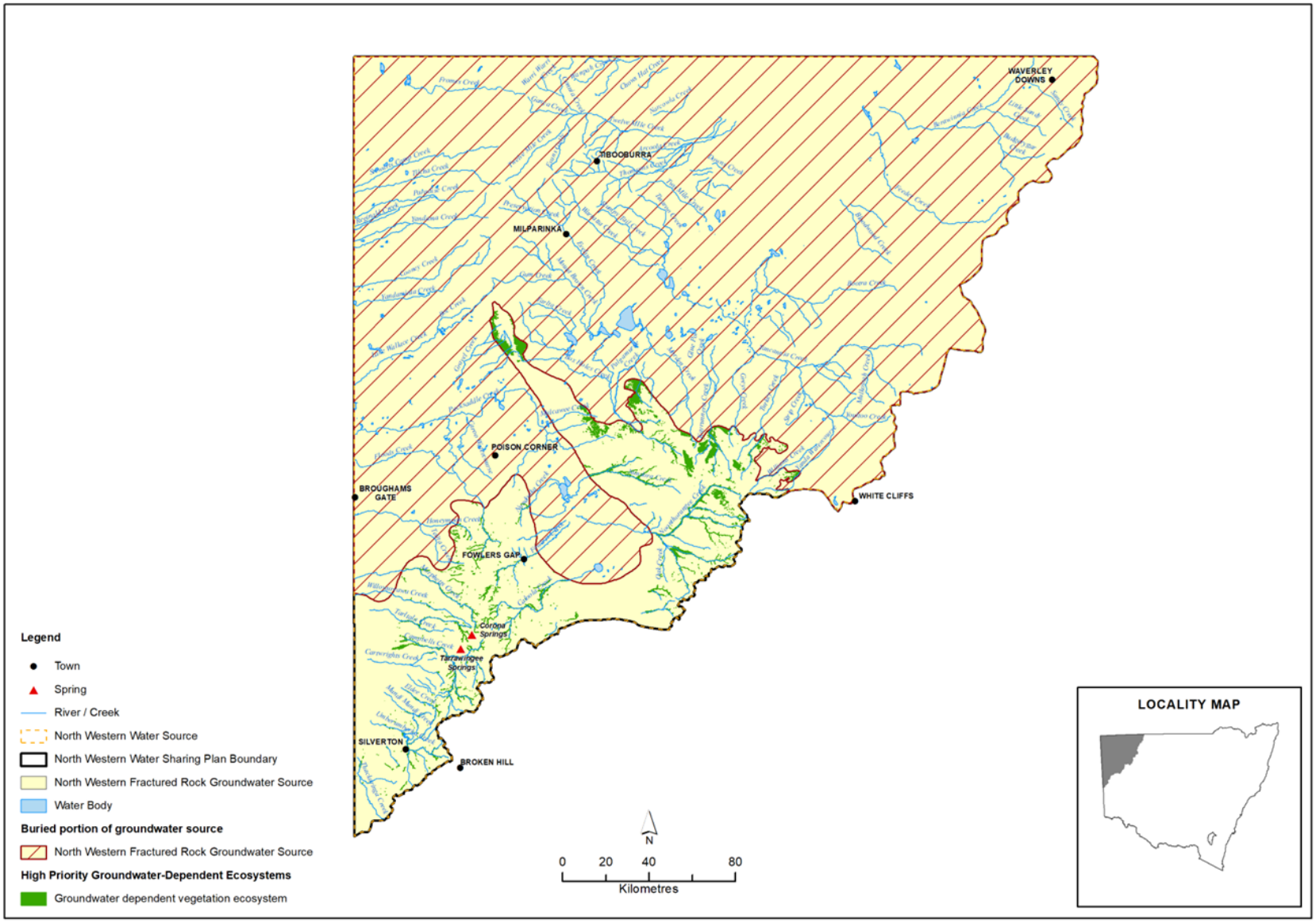
The high-priority GDEs we identify in the GDE map are vegetation ecosystems of very high or high ecological value that are very likely to be dependent on groundwater. As it is not certain (only highly probable) that the vegetation community depends on groundwater, the water sharing plan now includes a provision that ensures distance rules do not apply unless the department has confirmed groundwater dependence.

There are 2 karsts (hollows in rocks) listed in the North Western 2011 plan that were removed from the list of identified GDEs in the North Western 2024 plan. The Mutawintji Karst is within the Mutawintji National Park and is protected under the National Parks and Wildlife Service legislation. The Torrowangee Karst is a paleokarst and while it is important, is not significant for protection under the WM Act because of the impacts of previous quarry activities in this area. Further, the advice we received from groundwater ecologists is that while these areas are limestone deposits, they are not active cave systems.

For more information on methods we employed to identify GDEs, see the paper Methods for the identification of high probability groundwater dependent vegetation ecosystems (PDF 8.6 MB).

A draft of the GDE map is included in the draft plan and is shown in Figure 5. You can view a high-resolution version of the high-priority GDE map on the department's website.

Figure 5 Map of high-priority, groundwater-dependent ecosystems for the North Western 2024 plan



6.11 Protection of significant wetlands

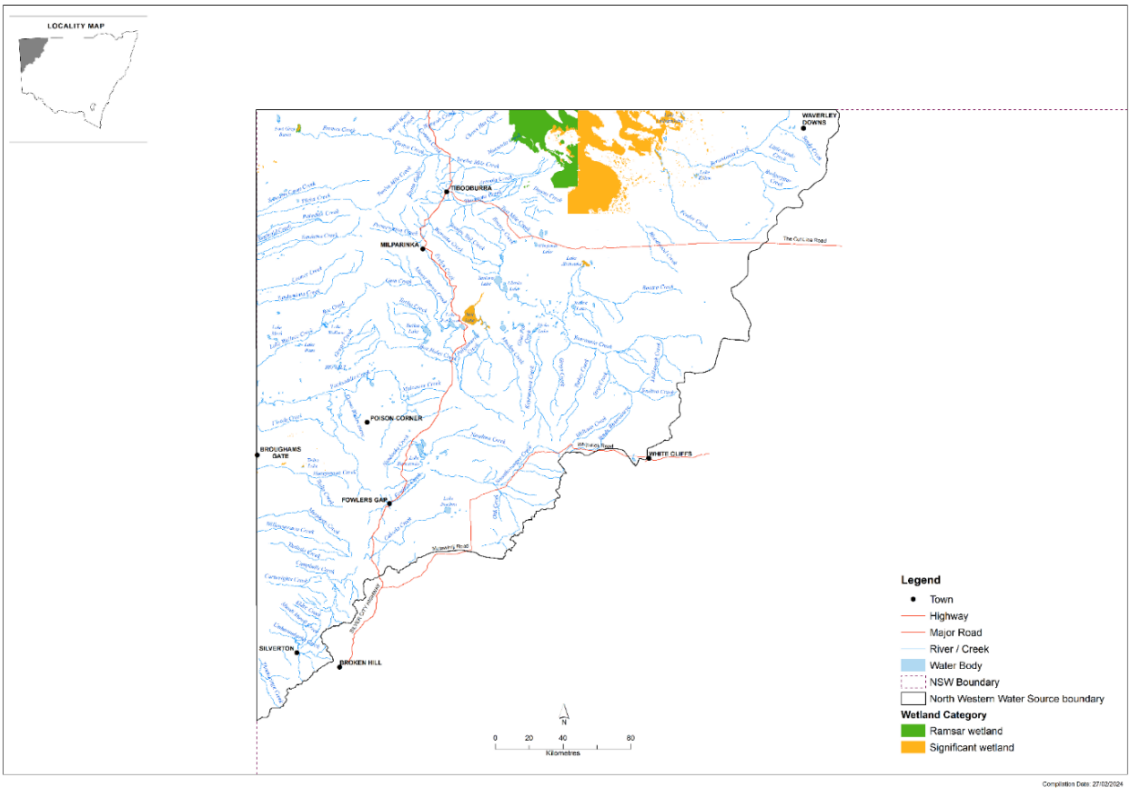
The NRC in its review of inland unregulated water sharing plans recommended improved protection of significant wetlands. Significant wetlands may include internationally (Ramsar), nationally and regionally significant wetlands within the plan area. For some plans, this recommendation has been broadened to include culturally significant wetlands. The department considered options to improve the protection of significant wetlands during the plan replacement process.

The installation of pumps and impounding structures, as well as the volume of entitlement that can be taken from wetlands, poses risks to maintaining the ecological character of significant wetlands. Rules are included to manage the impacts of these activities for those wetlands identified in the plan.

Part 7 of the North Western 2024 plan prohibits new or amended surface water supply works being constructed in significant wetlands unless it can be demonstrated that they will cause no more than minimal harm. For Ramsar-listed wetlands, no new or amended works can be constructed within 3 km upstream of, or within, that wetland. These rules do not apply to replacement water supply work approvals. Significant wetlands in the North Western 2024 plan are identified by a significant wetlands map produced by the department (see Figure 6), which is also available on the department's website.

Part 8 of the North Western 2024 plan includes restrictions to trades into and between these significant wetlands to minimise the impacts of new extraction on these significant areas. Trade within these wetlands between existing licences/works is permitted, subject to assessment. This is consistent with current rules in other unregulated valleys

Figure 6 Map of significant wetlands for the North Western 2024 plan



6.12 Adaptive management and amendment provisions

Adaptive management means changing things in response to new information. During the life of a water sharing plan, this information may come from data collection and monitoring or from some other improvement in understanding. Such information could include socio-economic studies, hydrological modelling, ecological studies and information about Aboriginal cultural sites.

Adaptive management is a requirement of both the WM Act and the National Water Initiative. The WM Act allows for changes to a water sharing plan during its life if it is in the public interest. The plan also allows for amendments during its life as described in part 10 of the plan.

Examples of adaptive environmental water provisions in the North Western 2024 plan include the ability to amend:

- LTAAELs to base them on a proportion of flow if more information becomes available
- management so we can carry out native title determinations
- management so we can protect Aboriginal cultural sites that depend on water
- groundwater provisions for:
  - managed aquifer recharge
  - aquifer interference
  - interception
  - stormwater harvesting, or
  - protection of culturally significant sites that depend on groundwater.

7 Monitoring, evaluation and reporting

Monitoring, evaluation and reporting (MER) are key components to adaptive management. They ensure that water sharing plans are effective in meeting their objectives.

Comprehensive MER programs are resource-intensive and long term. We must prioritise areas where there is a high risk of water extraction affecting environmental assets or where the demand for water is relatively high compared to the volume of water available.

The department is working on a project to prioritise water sources for MER activities, based on risk in areas that have high levels of extraction, ecological value or stakeholder needs.

The MER plan is a framework specifically designed for the water sharing plan and will follow established guidelines. The MER plan will be published by 30 June 2025. Under new provisions in the plan, each year the minister will publicly report on the implementation of the water sharing plan, including progress against the MER plan. The department will also conduct evaluation reporting by year nine of the water sharing plan's term.

8 Areas for further work

8.1 Metering and record keeping

The NSW Government's non-urban water metering framework, initiated in December 2018, aims to ensure the fair and equitable sharing of water among users, enhancing transparency and efficiency in water management across the state. The framework's implementation was staged to allow water users, suppliers, and installers sufficient time to achieve compliance. The NSW Government has recently completed a review of the non-urban metering rules and has updated the Water Management (General) Regulation 2018 to make compliance quicker, easier and more cost effective.

The new metering rules require water users to assess their compliance requirements using their total entitlement and work size. Large water users must comply with the highest metering standards whilst smaller water users now have less prescriptive metering requirements. Water users are encouraged to consult the department's non-urban metering website for detailed information and updates. To verify individual access licence details, please refer to the WaterNSW Water Register.

Water use information obtained through the water metering program may provide a useful indicator of actual water usage. Water sharing plans have to date been largely developed using licensed entitlement because estimates of actual water usage have until now been unreliable. Future plans will be able to incorporate actual water usage when assessing risks and developing rules.

8.2 Long-term average annual extraction limit

In NSW all water sharing plans include long-term average annual extraction limits (LTAAELs). These limits are designed to protect water resources, dependent ecosystems, and communities from the impacts of over-extraction in the longer term.

Assessment of LTAAEL compliance for inland unregulated water sources will use metering data once 3-5 years of metering data is available. Prior to then, the department will use remote sensing to undertake a risk assessment to determine if there is a risk of extraction being exceeded in unregulated water sources. When the non-urban metering requirements are implemented, metering data will cover up to 90% of water take across NSW. The department will develop a method to fill the remaining gaps in metering data for LTAAEL compliance purposes.

Additionally, we added a requirement for the minister to review the numerical LTAAEL, including seeking the advice of the NRC. The review requirements will help ensure that the LTAAEL reflects a sustainable level of take.

We also added a requirement for the minister to consider the “minimum inflow” review and enabled amendments to be made to the plan based on that review.

8.3 Stormwater harvesting

The department is developing a stormwater harvesting policy to determine the best way to manage stormwater extraction to maximise the benefits of re-using stormwater and reducing erosion of water ways while ensuring adequate water is available for the environment and water users.

8.4 Cultural flows and improving the involvement of first nations people in water management

The department will work toward the priorities in the NSW Water Strategy. Priority 2 of the NSW Water Strategy is to Recognise First Nations/Aboriginal People's rights and values and increase access to and ownership of water for cultural and economic purposes.

The NSW Government recognises First Nations/Aboriginal People's rights to water and our aim is to secure a future where water for First Nations/Aboriginal People is embedded within the water planning and management regime in NSW, delivering cultural, spiritual, social, environmental and economic benefit to communities.

Actions under the State Water Strategy include:

- strengthening the role of First Nations/Aboriginal People in water planning and management
- developing a state-wide Aboriginal water strategy
- providing for Aboriginal ownership of and access to water for cultural and economic purposes
- working with First Nations/Aboriginal People to improve shared water knowledge
- working with First Nations/Aboriginal People to maintain and preserve water-related cultural sites and landscapes.

The department is committed to providing greater opportunities for Aboriginal water management and participation in water sharing. A new Aboriginal water directorate has been established within the department and work is progressing on an Aboriginal Water Strategy which will identify the ways in which we can achieve the priorities under the State Water Strategy. The department has established Regional Aboriginal Water Advisory Committees in each of the NSW water regions and piloted some cultural watering plans in various parts of NSW.

8.5 Climate Change

Australia has a highly variable climate, and rainfall is especially variable. This makes it vital that we understand as much as we can about our climate so we can work out how we should manage our water supplies. The frequency and duration of wet and dry events determines how much water we have available.

NSW is already experiencing trends of higher average temperatures and reduced cool season rainfall. There are indications from climate models that drought conditions may become more frequent and severe, and last longer.

Higher demand from a growing population, alongside reductions in supply, will increase water scarcity, putting more pressure on all users, including the environment (Productivity Commission, National Water Reform Issues Paper, May 2020, p.2). We must collectively improve our understanding of these risks to better manage water supply and ensure that our operational, planning and future development decisions take future water reliability and security into account.

The department has developed river models that incorporate stochastic long-term data to help guide regional water strategies. We can use these models to inform water sharing decisions as they

are developed across the state. For example, as we develop the sustainable LTAAELs, we will consider the future effects of climate change.

Priority 4 of the NSW Water Strategy is to increase resilience to changes in water availability (variability and climate change). The 2021/22 action plan looks to improve and apply our understanding of climate variability and change. This includes work to determine a methodology and progressively incorporate climate risk data into water sharing plan and environmental water management decision making.

Additionally, the department will consider the outcomes of a current work program informing maintenance of water supply in inland regulated river systems. This is a key piece of work in relation to climate considerations within plans.

Appendix A – References and supporting documents

- The department's Barwon, Darling and West Region webpage contains the North Western 2024 plan, rule summary sheets, maps and other information including the North Western 2011 plan
- NSW Legislation website contains NSW legislation, including the WM Act
- National Water Initiative
- Water Sharing Plan for the North Western Unregulated and Fractured Rock Water Sources 2011
- The background document for the North Western 2011 plan (PDF 487 KB)
- Details of the macro-planning approach:
  - Macro water sharing plans – approach for unregulated rivers (PDF 829KB)
  - Macro water sharing plans – access and trading rules for pools (PDF 627 KB)
  - Macro water sharing plans – the approach for groundwater (PDF 3.11 MB)
- The Natural Resources Commission's review of the North Western 2011 plan
- 2019 Audit of the Water Sharing Plan for the North Western Unregulated and Fractured Rock Water Sources 2011

Appendix B – Substantive changes made between the draft and final 2024 water sharing plan

Table 3 Summary of changes made between the draft and final 2024 water sharing plan

Provisions in the publicly exhibited draft replacement plan	Final 2024 plan provision	Reason for change
Part 2 **Vision, objectives, strategies and performance indicators**	We added Aboriginal community development to the strategies for reaching objectives. We added a requirement for the minister to prepare a monitoring, evaluation and reporting (MER) plan. The MER plan is to be published by 30 June 2025 and each year the minister is to publicly report on the implementation of the water sharing plan, including progress against the MER plan. Additionally, evaluation reporting is to be undertaken by year nine of the water sharing plan.	The new vision, objectives, strategies and performance indicators deal with similar matters to the previous 2011 plan but are changed to: make a stronger logical connection between objectives, the strategies of the plan and the performance indicators to be monitored, more clearly distinguish between the environmental, economic, social and Aboriginal cultural objectives of the water sharing plan. Objectives, strategies and performance indicators are the same as those included in the most recent water sharing plan templates for other inland and groundwater plans. The changes are to reflect the decision to allow Aboriginal Community Development Licences in the North Western Fractured Rock Groundwater Source. The annual reporting will provide transparency on the implementation of the MER activities, while the reporting in year 9 of the plan will provide

Provisions in the publicly exhibited draft replacement plan	Final 2024 plan provision	Reason for change
		transparency on how the plan's vision, objectives, strategies and performance indicators are being met.
Part 4 Limits to the availability of water	We added a requirement for the minister to review the numerical LTAAEL, including seeking the advice of the NRC. We also added a requirement for the minister to consider the "minimum inflow" review and enabled amendments to be made to the plan based on that review.	The review requirements will help ensure that the LTAAEL reflects a sustainable level of take. The requirement to consider the "minimum inflow" review will ensure that the findings of the review can be used to inform the rules in this plan.
Part 5 Rules for granting and managing access licences	Now permits Specific Purpose aquifer access licences of category Aboriginal Community Development Licences (ACDLs) in the North Western Fractured Rock Groundwater Source.	The NSW Government is committed to providing Aboriginal people with opportunities to become involved in water-related businesses. ACDLs are generally permitted in areas where there is unassigned water, that is, where water available under the long-term average annual extraction limit exceeds water requirements. The North Western Fractured Rock groundwater source has approximately 49,000 ML unassigned water, equivalent to approximately 83% of the extraction limit. The department continues to work on the specifics of policy around ACDLs including these in this water sharing plan is consistent with other plans where unassigned water is available. No limits are set. Standard practice is for limits to be considered when an application is assessed to ensure the volume is the minimum amount required for the specific purpose.

Provisions in the publicly exhibited draft replacement plan	Final 2024 plan provision	Reason for change
Part 7 Division 2 Water supply works that take surface water	We have added extra detail to section 38 to more clearly define what a replacement work is.	To improve clarity for stakeholders regarding the definition of replacement works.
Part 7 Division 3 Water supply works that take groundwater Groundwater-dependent ecosystems (GDEs)	We have included an exemption from distance restrictions from escarpments if the location is likely to cause no more than minimal harm to the escarpment.	The exemption for distance restrictions from escarpments included in the 2011 plan was omitted in the publicly exhibited draft 2024 plan. This exemption allows works within the restricted distance only if, in the minister's opinion, there is minimal harm to the escarpments.
Part 7 Division 3 Water supply works that take groundwater Basic Landholder Rights (BLR)	We now prohibit works within 100m from an escarpment and allow an exemption if the location is likely to cause no more than minimal harm.	This rule was in the 2011 plan but omitted by mistake from the public exhibited draft 2024 plan. Distance restrictions ensure minimal harm to these fragile areas from water supply works.
Part 7 Division 3 Water supply works that take groundwater Replacement works	We have updated the rules around replacement works for situations where a work being replaced is no longer manufactured.	The new work can be 120% of the internal diameter of the replaced water supply work instead of 110%. This aligns the North Western replacement work requirements with other inland water sharing plan areas.
Part 8 Access licence dealing rules	We have prohibited trade of rights between water sources	To clarify that assigning rights between groundwater and surface water source is not permitted.
Part 8 Access licence dealing rules	We have made small changes to referencing in the exemptions for interstate and water supply works dealings.	This corrects the subsection referencing.
Schedule 5 Springs, wetlands and karsts	We removed wetlands from Schedule 5 and instead now define significant wetlands by referring to a Significant Wetlands Map (available on the department's website).	Ramsar and nationally important Directory of Important Wetlands in Australia (DIWA) wetlands need to be nominated for listing which delays their recognition and protection. Additional wetlands can be added if they met

Provisions in the publicly exhibited draft replacement plan	Final 2024 plan provision	Reason for change
		specified criteria for regionally significant wetlands. All wetlands identified in the Significant Wetlands Map will be protected by the rules in the plan. Additional wetlands included for this plan: Bulloo River Overflow. This wetland is on a recently acquired parcel of land which will be gazetted as a National Park (Thurloo Downs). The Bulloo River Overflow neighbours a Ramsar site in the Narriearra Caryapundy Swamp National Park and has similar attributes to the Ramsar listed site.
Schedule 6 **Dictionary**	We have added definitions for: drawdown escarpment karst replacement water supply work	These are not defined in the Water Management Act 2000 or Water Management (General) Regulation 2018.
Across plan	We have made minor changes Sections 16(2), 18, 55, 57 and 64.	To align with the latest water sharing plan template.

For information on all changes between the North Western 2011 plan and North Western 2024 plan see the Summary of Changes document on the department's website.

For further information regarding what we heard during public exhibition and changes to the previous and draft plans, refer to the relevant fact sheets on the department's website.

Vision, objectives, strategies and performance indicators

Vision statement

The vision for the Water Sharing Plan for the North Western Area Unregulated and Fractured Rock Water Sources 2024 is to provide for the:

a. health and enhancement of the water sources and their dependent ecosystems

b. continuing productive extraction of water for economic benefit

c. spiritual, social, customary and economic benefits of water to Aboriginal communities

d. social and cultural benefits to urban and rural communities that result from water.

Objectives

The objectives of this plan are to:

a. protect and, where possible, enhance and restore the condition of the water sources and their water-dependent ecosystems

b. maintain and, where possible, improve access to water to optimise economic benefits for agriculture, water-dependent industries and local economies

c. maintain and, where possible, improve the spiritual, social, customary and economic values and uses of water by Aboriginal people

d. provide access to water to support water-dependent social and cultural values

e. help prevent structural damage to aquifers resulting from groundwater extraction.

Strategies

The strategies for reaching the objectives of this plan include the following:

a. Reserve all water in excess of each long-term average annual extraction limit for the environment.

b. Reserve a portion of natural flows to partially mitigate alterations to natural flow regimes in the water sources.

c. Restrict the take of water from an in-river pool when the volume of water in the pool is less than the volume of water that can be held by the pool when at full capacity.

d. Reserve a portion of natural flows to maintain hydrological connectivity between the water sources and other connected water sources.

e. Manage the construction and use of water supply works to minimise impacts on in-stream ecosystems, high priority groundwater-dependent ecosystems and groundwater quality, groundwater-dependent culturally significant areas, basic landholder rights and town water supply.

f. Provide for trade of water allocations and share components subject to environmental constraints and local impacts, provide for trade of water allocation and share components subject to environmental constraints and local impacts.

g. Provide a stable and predictable framework for sharing water among water users.

h. Provide for flexibility of access to water.

i. Manage access to water consistently with the exercise of native title rights and domestic and stock rights.

j. Provide for water associated with Aboriginal cultural values and uses.

Each strategy may contribute to achieving one or more of the objectives of this Plan

Performance indicators

The performance indicators we will use to measure the success of the strategies in reaching the objectives of this plan are the changes or trends, during its term, in the:

a. ecological condition of the water sources

b. economic benefits

c. Aboriginal cultural benefits

d. social and cultural benefits.

The performance indicators must be monitored and evaluated in the way approved by the minister.