

Alice Springs implementation actions 2026-2036



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Acknowledgement of Country

The Department of Lands, Planning and Environment respectfully acknowledges the Northern Territory's Aboriginal people and their rich culture and pays respect to the Elders past and present.

We acknowledge the Arrernte people as the Traditional Owners and custodians of the lands and waters of the Alice Springs water control district.

We recognise the intrinsic connection of Traditional Owners to Country and value their ongoing contribution to managing the lands and waters. We support the need for genuine and lasting partnerships with Traditional Owners to better understand cultural connections, and we will work to establish lasting partnerships to manage water together, now and into the future.



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1. Risk and adaptive management

Overview

This document outlines the implementation actions that will be undertaken to support the Alice Springs Water Allocation Plan 2026-2036. They are based on risk management and adaptive management principles, intended to ensure water resources are managed in a sustainable and resilient manner over the long term. There is inherent uncertainty when managing natural systems, including water resources. Risk management and adaptive management are methods used in tandem by the department, based on nationally, and internationally accepted approaches. Uncertainty in natural systems stems from those inherent in climate and weather dynamics as well as more systematic uncertainties from the scientific methods used to measure, estimate and predict relevant influences on available water resources. Risks to the water resources are identified and then managed through established risk management. Both management approaches involve evidence-based assessment, applying ongoing monitoring and systematic adjustment of management actions to maintain the health and productivity of natural ecosystems and the human settlements which they support.

Risk management¹ is an internationally accepted methodology for managing complexity. In a water management context, risk management typically involves identifying and assessing potential risks to the water resource, such as water availability, or changes in hydrological patterns due to climate change. Actions are then developed and implemented to reduce the likelihood or impact of these risks.

Adaptive management² is a complementary approach to risk management. It aims to provide a framework for sound management and decision-making in the face of uncertainty. Adaptive management has been recognised as an application of the precautionary principle. While scientific understanding of complex environmental systems is incomplete, uncertainty should not prevent environmental management activities from occurring. Adaptive management involves the ongoing monitoring and assessment of the effectiveness of actions, and the development of new actions as needed based on new information and changing conditions.

The objectives of water sharing in the plan are used to guide the development, implementation, monitoring and adjustment of actions to ensure these remain effective over time and meet community expectations.

1.1 Risk assessment

The risk assessment process ensures that water resources are managed in a sustainable and resilient manner. It helps to identify potential risks to the water resource, which enables the development of actions to mitigate them, ensuring that water resources are available for future generations. The risk assessment process involves the identification of hazards, risk analysis and the identification of appropriate actions to mitigate and control the risks.

The primary risks to groundwater resources are changes in groundwater recharge and water availability, reduced discharges to surface water sites (rivers and springs), deterioration of water quality, and greater climate variability. Groundwater levels are influenced by the amount of rainfall and recharge, the amount of water that is used and where the water is extracted. Water quality is influenced by the inherent characteristics of the resource, how the land is used and where water is extracted from. Water users also bear the risk of any reductions to water availability resulting from seasonal or long-term changes in climate.

The risks identified through the water planning processes and development of the water allocation plan reflect the current knowledge and understanding of the water resource, which will improve over time and enable more focused management actions to be developed.

The risk assessment methodology shown in [Schedule F](#) provides a description of the qualitative measures of likelihood, consequence and risk rating categories that were used to determine the risk.

¹ <https://www.iso.org/standard/62085.html>

² <https://ntepa.nt.gov.au/publications-and-advice/environmental-management>

1.2 Risk management

A detailed assessment of the key risks identified is shown in [Schedule G](#). It outlines the actions that are currently being implemented to address the residual risk, as well as further actions that will be implemented over the term of the plan to reach the target risk level.

This process involves defining the key events and hazards that could impact the water resource:

1. Reduction in groundwater levels below acceptable levels.
2. Deterioration of water quality greater than acceptable levels.
3. Social and economic benefits of the water use are not realised.

These are then ranked according to their expected consequence and likelihood of occurrence, and the combined assessment of those factors then determines the priorities for management. Management actions are then defined that would mitigate those risks and are documented as implementation actions in this report.

The objectives of water sharing, as detailed in section 3.2 of the plan, guide the assessment of each risk in terms of causes, impacts and consideration of possible consequences. The risk assessment methodology is applied to each objective to define the current residual risk level with the existing controls in place to manage the resource. To further reduce risks, additional controls aligned to the implementation actions are identified, which are intended to achieve the target risk level once each action is completed.

1.3 Adaptive management

Combining risk management with adaptive management enables a proactive approach to managing risks, while also being alert to and responsive to changing conditions.

Adaptive management provides for an iterative process that monitors the resource's response to water use and management actions and uses this information to improve future actions to meet the plan's objectives for water sharing. This focuses activities on risk mitigation while enabling resource management to be adapted to respond to changing conditions. This means that as actions are implemented, they must be monitored over time to understand their effectiveness. Based on the results of monitoring, actions may be refined, new actions may be added, and some may be discontinued if found not to be effective.

The water monitoring program is integral to adaptive management of water resources, and an overview of this program is provided in section 2.

2. Water monitoring program

Overview

Consistent with section 34 of the *Water Act 1992*, a continuous program for the assessment of water resources of the Territory is carried out, including the investigation, collection, collation and analysis of data concerning the occurrence, volume, flow, characteristics, quality, flood potential and use of water resources.

This section describes the water resource monitoring program undertaken by the department to inform management of the water resources in the plan area. The monitoring is informed by the risk assessment process and underpins adaptive management to maintain the health and productivity of natural ecosystems and human communities. This monitoring is complemented by monitoring undertaken by licence holders.

2.1 Groundwater and surface water monitoring

The department maintains a monitoring program for the plan area. This monitoring network includes both discrete and time-series data from a network of surface water sites and groundwater monitoring bores. The monitoring network has been consolidated, removing some sites that were surplus to requirements, whilst maintaining adequate coverage across the plan area. The monitoring program is reviewed annually and includes:

- flow gauging monitoring at 8 surface water sites
- water level monitoring at 30 groundwater sites
- water quality monitoring at 6 groundwater sites.

Data collected by the monitoring program is available on the department's Water Data Portal³.

The Alice Springs water monitoring network is shown in [Schedule E](#) and reflects spatial variability of the resource across the vast area.

The objectives of the monitoring program are to:

- ensure spatial coverage consistent with significant water extraction areas
- ensure temporal coverage through biannual site visits and the use of loggers
- monitor each of the geological formations making up the water resource
- monitor groundwater level trends and recharge, which will be used for model calibration
- better understand connectivity between groundwater and surface water flows.

Refer to section 4 of the background report for more information.

2.2 Monitoring by licence holders

The department's monitoring program is supported and complemented by monitoring that is conducted by licence holders and reported to the department as a condition of water licences.

Licence conditions require that all water licence holders report their meter readings on a monthly or quarterly basis. Meter readings are verified by the department during water licence inspections. The data confirms how much water is being taken and informs the effective management of the resource.

Larger water licences may also include additional monitoring and reporting requirements, such as the installation of monitoring bores, monitoring programs and the requirement for annual reports. This data is maintained by the department and complements the monitoring program conducted by the department.

³ <https://water.nt.gov.au/Data>

3. Implementation actions

Overview

This section outlines the actions being implemented as part of the adaptive management cycle, with continuous monitoring, evaluation and adjustment to ensure they remain effective over time.

These implementation actions address the key risks to the water resource and are described in terms of their contribution to the objectives of water sharing in the plan. The actions and key performance indicators are defined for both consumptive and non-consumptive water uses. As water is used in the plan area, more specific triggers may be defined to measure and evaluate the actions.

The implementation actions and key performance indicators (KPIs) are shown in Tables 1 to 6, with a dictionary in [Schedule A](#). Abbreviations and acronyms are defined in [Schedule B](#).

3.1 Actions related to water requirements of key environmental values

Table 1. Actions and measures that contribute to balancing the retention and preservation of key environmental values dependent on water with the overall benefits provided by the water resource

Outcomes of water sharing	Actions	KPI	Responsibility	Timeframe
1a There is an improved understanding of the groundwater and surface water resource characteristics and environmental values.	3.1.1 Further investigate the recharge mechanisms to the alluvial basins in the plan area to determine recharge rates, groundwater contamination risk and groundwater dependent ecosystem recharge dependence.	Water resource report published on Territory Stories	DLPE WRD	2030-2031
1b The condition of groundwater dependent ecosystems is known and monitored as far as practicable and accounted for in water management.	3.1.2 Consider the implementation of regulatory tools to protect groundwater dependent ecosystems in the alluvial basins.	Integrate viable regulatory tools for GDE protection into the plan.	DLPE WRD and F&F	2035-2036
1c Key environmental values are appropriately accounted for in water management.	3.1.3 Consider the implementation of regulatory tools to protect water resources.	Integrate viable regulatory tools for water resource protection into the plan.	DLPE WRD	2035-2036

3.2 Actions related to key Aboriginal and other cultural values associated with water

Table 2. Actions and measures that contribute to ensuring water licence decisions account for Aboriginal and other cultural values dependent on water

Outcomes of water sharing	Actions	KPI	Responsibility	Timeframe
2a There is an improved understanding of Aboriginal cultural values and other cultural values associated with the water resource.	3.2.1 Identify and document key Aboriginal cultural sites and species within the water management zones.	Key Aboriginal cultural sites and species are identified	DLPE WRD, CLC, AAPA	2028-2029
2b Key Aboriginal cultural sites that rely on water are identified, documented, monitored and can be considered in water management.	3.2.2 Identify and document the water requirements of key Aboriginal cultural sites and species within the water management zones.	Key Aboriginal cultural sites have defined water requirements	DLPE WRD, CLC	2029-2030
2c Other cultural values that rely on water are identified and monitored and can be considered in water management.	3.2.3 Key cultural water sites are included in monitoring program.	Key Aboriginal cultural sites are appropriately monitored	DLPE WRD, CLC	2030-2031

3.3 Actions related to water for rural stock and domestic purposes

Table 3. Actions and measures that contribute to predicting and protecting water for rural stock and domestic purposes

Outcomes of water sharing	Actions	KPI	Responsibility	Timeframe
3a The amount of water needed to support stock and domestic use is met.	3.3.1 Ongoing monitoring by the department (section 2).	Results of monitoring available publicly	DLPE WRD	Ongoing
3b The quality of water sourced for stock and domestic purposes is maintained.	3.3.2 A comprehensive review and update of the groundwater quality monitoring program.	Updates to water quality monitoring program to be published in State of the Resource Report	DLPE WRD, PWC	2030-2031
3c Community members and relevant stakeholders understand water management.	3.3.3 Consider implementation of regulatory tools and communication materials to protect drainage corridor environments in Todd River and Roe Creek systems.	Integrate viable regulatory tools for water resource protection into the plan.	DLPE WRD	2035-2036

3.4 Actions related to water security for public water supplies

Table 4. Actions and measures that contribute to providing long-term security of a sufficient quantity and quality of water for public water supplies

Outcomes of water sharing	Actions	KPI	Responsibility	Timeframe
4a The amount of water needed to support public water supply is met.	3.4.1 Undertake isotope sampling to determine the age of groundwater and contribution of mountain-front recharge from the MacDonnell Ranges.	Completed science project with information published.	DLPE WRD, PWC	2032-2033
4b The quality of water sourced for public water supplies is maintained.	3.4.2 Undertake the Mparntwe/Alice Springs Aquifer Protection Study in the protection of the Roe Creek borefield from potential contaminants.	Potential protection zone for recharge areas considered	DLPE WRD, PWC	2026-2029
4c Community members and relevant stakeholders understand water management.	3.4.3 Communicate aquifer dynamics including impacts of water extraction on groundwater levels and water quality; communicate regulatory processes that ensure potential impacts of proposed extractions do not impact existing extractions.	Publish communication materials	DLPE WRD	2034-2035

3.5 Actions related to water for local Aboriginal economic development

Table 5. Actions and measures that contribute to setting aside water to support local Aboriginal economic development

Outcomes of water sharing	Actions	KPI	Responsibility	Timeframe
5a Local Aboriginal people have access to water through the Aboriginal water reserve to support economic development.	3.5.1 Declaration of water allocation plan 2026-2036.	Implementation of the plan 2026-2036	DLPE WRD	Ongoing
5b Arrangements to access the Aboriginal water reserve are documented and communicated.	3.5.2 Assist eligible Aboriginal people to access water, including through the Aboriginal water reserve.	Produce education materials	DLPE WRD	Ongoing
5c Aboriginal people are receiving economic benefits from the Aboriginal water reserve.	3.5.3 Refine and communicate water licensing processes, including for the Aboriginal water reserve.	A licence application to access the Aboriginal water reserve	DLPE WRD	Ongoing

3.6 Actions related to water for sustainable development in the region

Table 6. Actions and measures that contribute to providing access to water to support sustainable development for the benefit of the region

Outcomes of water sharing	Actions	KPI	Responsibility	Timeframe
6a Water is available to support economic development in the region.	3.6.1 Communicate the key changes in the plan 2026-2036.	Release communication materials	DLPE WRD	Ongoing
6b Industry is confident to invest in the district.	3.5.1 Declaration of water allocation plan 2026-2036.	Implementation of the plan 2026-2036	DLPE WRD	Ongoing
6c Water is used for productive purposes and in a water-efficient manner.	3.4.3 Communicate aquifer dynamics including impacts of water extraction on groundwater levels and water quality; communicate regulatory processes that ensure potential impacts of proposed extractions do not impact existing extractions.	Publish communication materials	DLPE WRD	2034-2035

4. Reporting

Overview

This section outlines how the management of water resources in the plan area will be reported. Regular public reporting by the department will ensure a level of community understanding of the management of the resource.

The department maintains a public record of all water extraction licences on its Water Licensing Portal⁴.

The department maintains a public record of water monitoring results on its Water Data Portal⁵.

The water allocation plan and the resources it governs will be reviewed within 5 years, the mid-term review. A summary of findings will be published on the departmental web site. The report will be published on Territory Stories⁶ maintained by the Library & Archives NT.

The department will produce an annual resource status report for the plan area summarising:

- an overview of the water resources
- key monitoring results
- regulatory performance
- progress on implementation actions.

⁴ <https://DLPE.nt.gov.au/water/permits-and-licences/water-licensing-portal>

⁵ <https://water.nt.gov.au/Data>

⁶ <https://territorystories.nt.gov.au/>

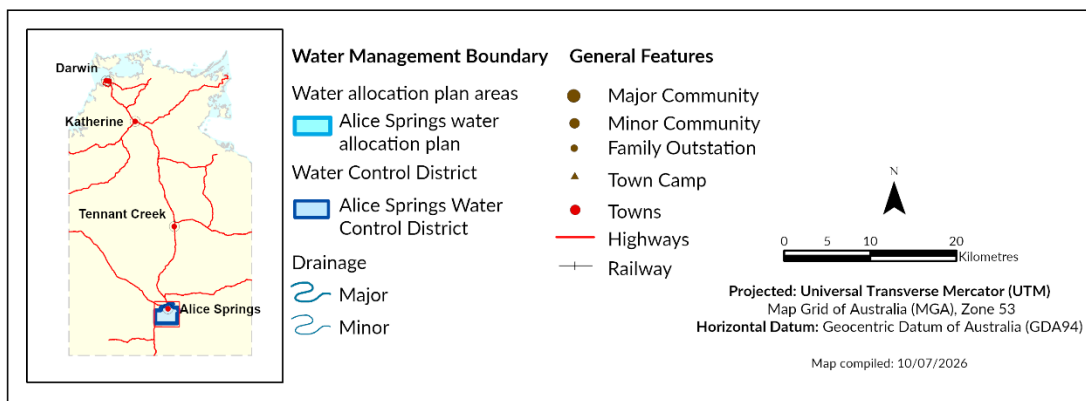
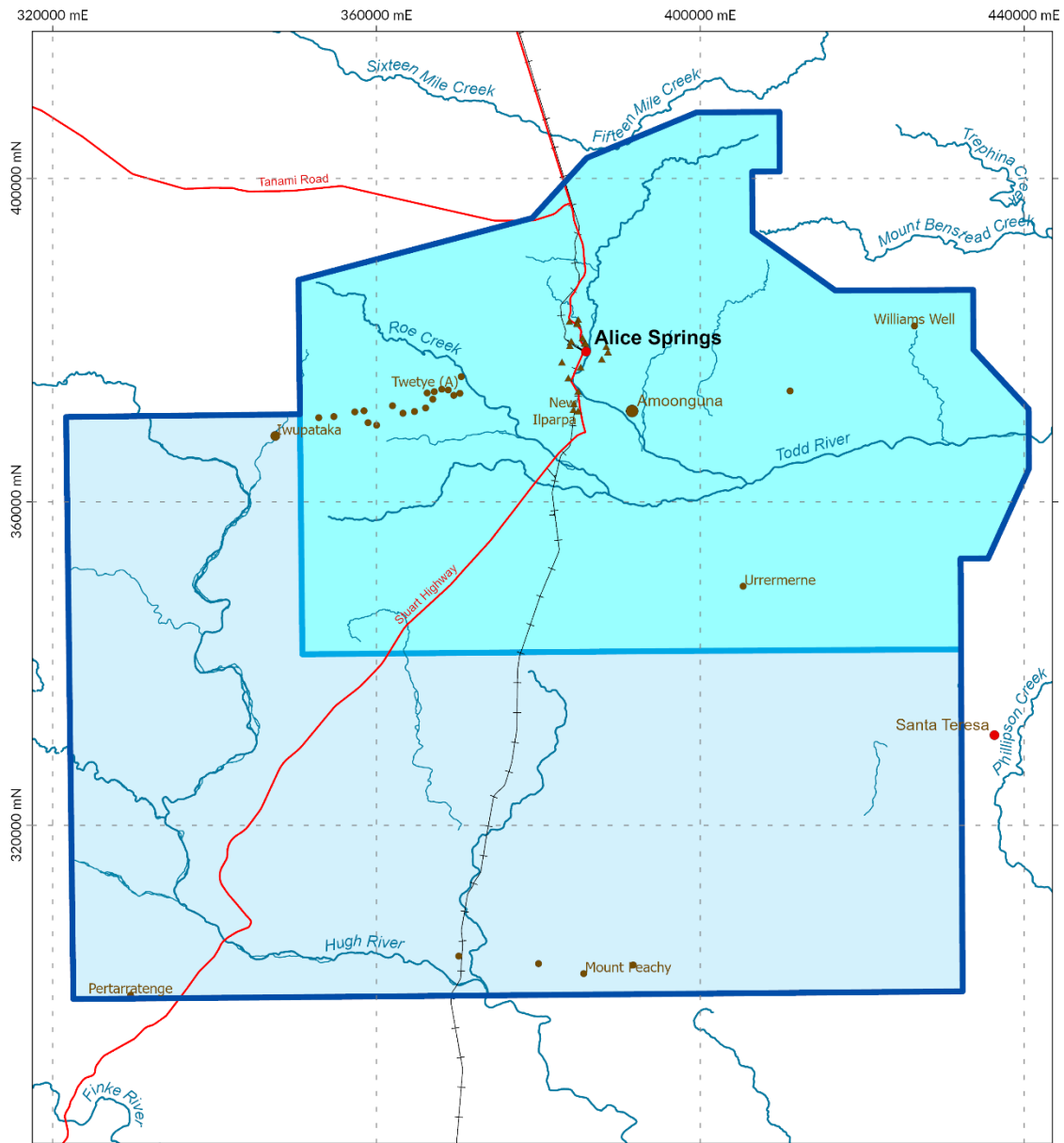
Schedule A. Dictionary

Term	Definition or reference
Aboriginal water reserve	Aboriginal water reserve is a portion of water set aside in a water plan for the economic benefit of eligible Aboriginal people (refer <i>Water Act 1992</i> , section 4(1))
Act	the <i>Water Act 1992</i>
adaptive management	a systematic process for incrementally improving management practices by learning from the outcomes of past and current practices
beneficial uses	the beneficial uses for the Alice Springs water control district declared by <i>Gazette</i> no. S63, 23 July 2026. A copy of the declaration is included in Schedule E of the plan
Controller	the Controller of Water Resources appointed under the <i>Water Act 1992</i> , section 18
department	the department with the responsibility for administering the <i>Water Act 1992</i> , according to the Northern Territory of Australia Administrative Arrangements Order
eligible Aboriginal people	see <i>Water Act 1992</i> , section 4(1)
estimated sustainable yield	the amount of water that can be allocated from the water resource to support declared beneficial uses that is sustainable, section 6.2 of the background report refers
groundwater	see <i>Water Act 1992</i> , section 4(1)
groundwater dependent ecosystem	an ecosystem that requires access to groundwater to meet all or some of their water requirements
plan area	the area to which this water allocation plan applies as shown in Schedule C and Schedule D of this document
risk management	processes and structures that are directed towards realising potential opportunities whilst managing adverse effects
surface water	see <i>Water Act 1992</i> , section 43
water licence/water extraction licence	see <i>Water Act 1992</i> , section 4(1)
water management zone	those areas of land within the plan area separated for management purposes
waterway	see <i>Water Act 1992</i> , section 4(1)

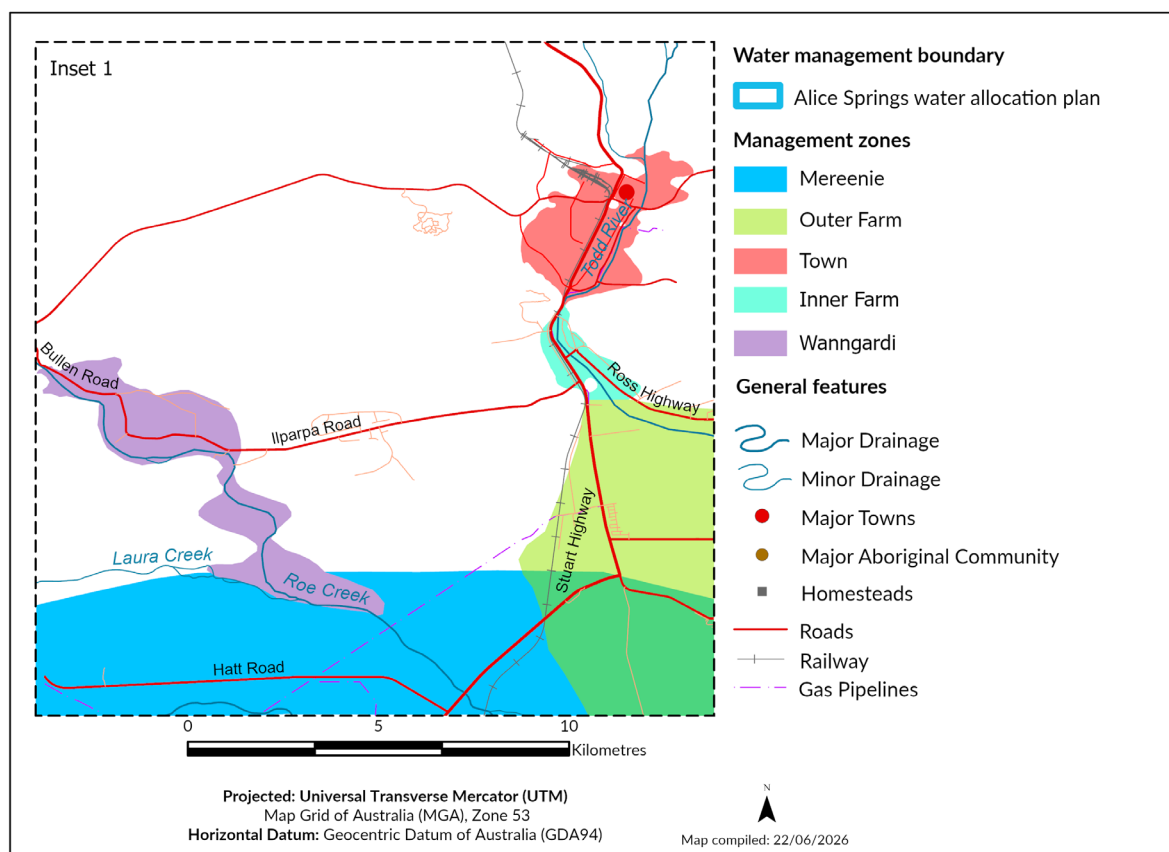
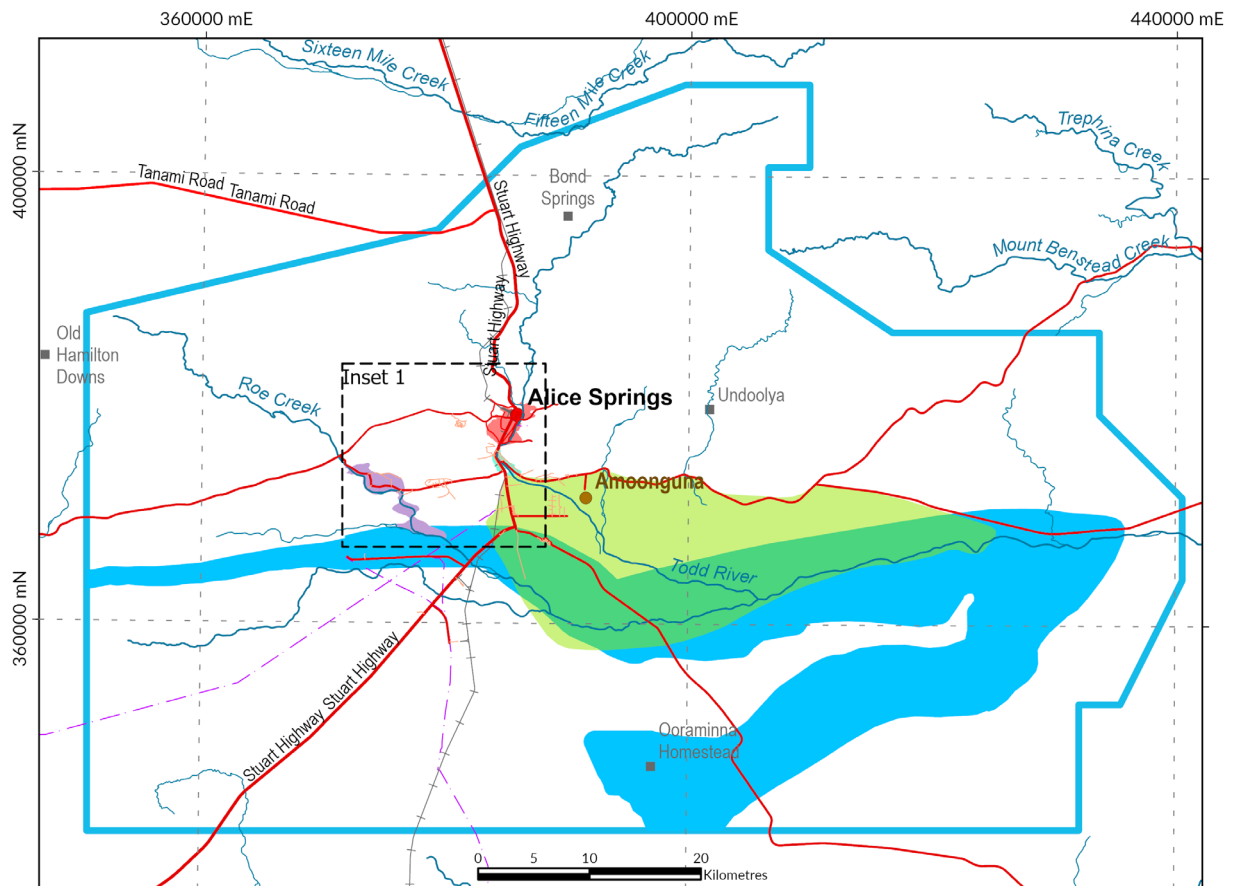
Schedule B. Abbreviations and acronyms

Term	Full form
AAPA	Aboriginal Areas Protection Authority
Act	<i>Water Act 1992</i>
AWR	Aboriginal water reserve
CLC	Central Land Council
district	Alice Springs water control district
DLPE	Department Lands, Planning and Environment
F&F	Flora and Fauna Division, DLPE
GDE	groundwater dependent ecosystem
GP	general parameters
KPI	key performance indicator
NT	Northern Territory
PFAS	per- and polyfluoroalkyl substances
PWC	Power and Water Corporation
WQ	water quality
WRD	Water Resources Division, DLPE

Schedule C. Alice Springs water control district and Alice Springs plan area



Schedule D. Alice Springs plan area and management zones



Schedule E. Alice Springs water monitoring network

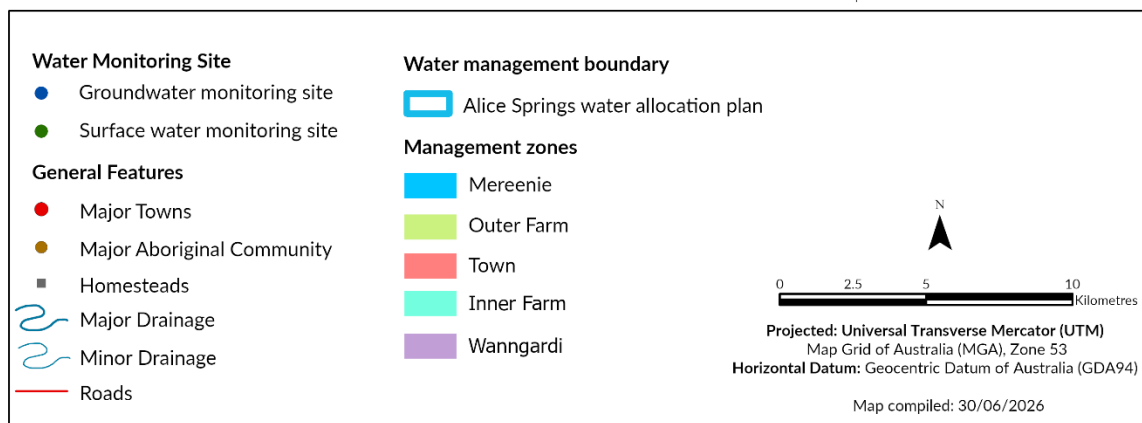
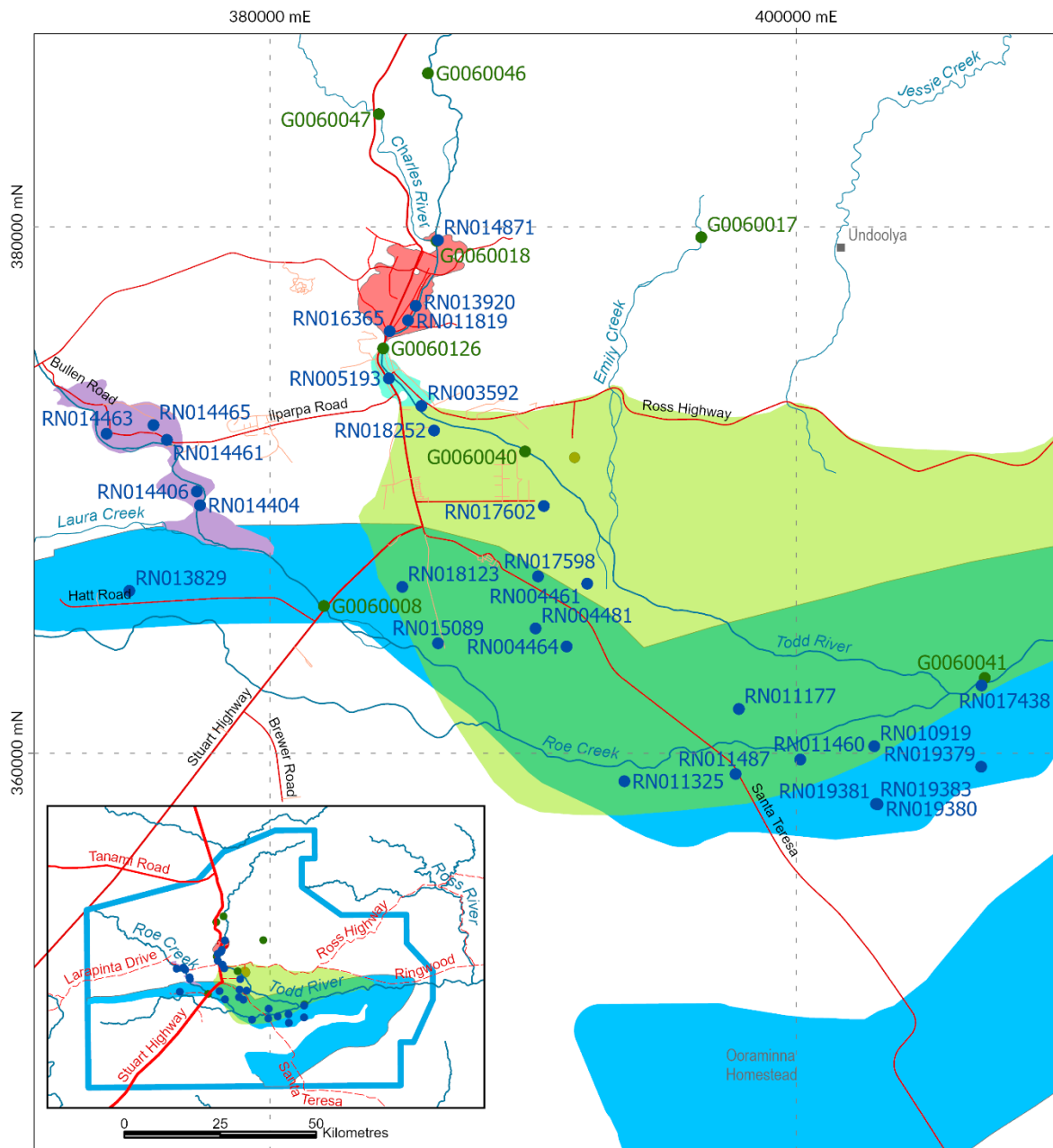


Table 7. Alice Springs groundwater level monitoring network

Location	Bore	Monitoring purpose	Data collection	WQ – Field, GP, nutrients, metals	WQ - hydrocarbons
Town	RN011819	Recharge, levels, WQ, GDE	Time-series/Field visit	annually	5 yearly
Town	RN013920	Levels, GDE	Field visit	-	-
Town	RN014871	Recharge, levels, telemetry, GDE	Time-series/Field visit	-	-
Town	RN016365	Levels, WQ, GDE	Field visit	annually	5 yearly
Inner Farm	RN003592	Recharge, levels, GDE	Time-series/Field visit	-	-
Inner Farm	RN005193	Recharge, levels, GDE	Time-series/Field visit	-	-
Outer Farm	RN004461	Recharge, levels	Time-series/Field visit	-	-
Outer Farm	RN017598	Recharge, levels	Time-series/Field visit	-	-
Outer Farm	RN017602	Levels	Field visit	-	-
Outer Farm	RN018252	Recharge, levels, WQ	Time-series/Field visit	annually	5 yearly
Wanngardi	RN014461	Recharge, levels	Time-series/Field visit	-	-
Wanngardi	RN014463	Levels	Field visit	-	-
Wanngardi	RN014465	Levels	Field visit	-	-
Wanngardi	RN014404	Levels	Time-series	-	-
Wanngardi	RN014406	Levels	Field visit	-	-
Roe Creek	RN015089*	Levels, WQ	Field visit	annually	5 yearly
Roe Creek	RN004464	Levels	Field visit	-	-
Roe Creek	RN004481	Levels	Field visit	-	-
Roe Creek	RN013829	Recharge, levels, extraction	Time-series/Field visit	-	-
Roe Creek	RN018123	Levels, extraction	Field visit	-	-
Rocky Hill	RN010919	Levels	Field visit	-	-
Rocky Hill	RN011177	Levels	Field visit	-	-
Rocky Hill	RN011325	Levels	Field visit	-	-
Rocky Hill	RN011460	Levels, WQ	Field visit	annually	5 yearly
Rocky Hill	RN011487	Levels	Field visit	-	-
Rocky Hill	RN017438	Recharge, levels	Time-series/Field visit	-	-
Rocky Hill	RN019379	Levels, WQ	Field visit	annually	5 yearly
Rocky Hill	RN019380	Levels	Field visit	-	-
Rocky Hill	RN019381*	Levels	Field visit	-	-
Rocky Hill	RN019383	Levels	Field visit	-	-

*RN015089 is not a current monitoring bore but is recommended for monitoring water levels and water quality given its key location south of the Alice Springs airport between the current Roe Creek borefield and proposed future Rocky Hill borefield. Similarly, RN019381 is not a current monitoring bore but is located next to RN019380 and RN019383 and has 2 nested piezometers screened in the Mereenie Sandstone unit B. Both piezometers should be monitored.

Table 8. Alice Springs surface water monitoring network

Waterway (location)	Gauging station	Management zone	Flow gauging
Roe Creek (Stuart Hwy crossing)	G0060008	Outer Farm	Time-series
Emily Creek (U/S Undoolya Rd)	G0060017	Outer Farm	Time-series
Todd River (U/S Schwarz Cres)	G0060018	Town Basin	Time-series
Todd River (Amoonguna)	G0060040	Outer Farm	Time-series
Todd River (Rocky Hill)	G0060041	Outer Farm	Time-series
Todd River (Wigley Gorge)	G0060046	Outer Farm	Time-series
Charles River (Big Dipper)	G0060047	Outer Farm	Time-series
Todd River (Heavitree Gap)	G0060126	Inner Farm	Time-series

Surface water quality monitoring should be conducted opportunistically, ideally not more than once per year, when flow is present. A one-off sampling event for per- and polyfluoroalkyl substances (PFAS) is recommended to assess potential contamination from industrial activities in Alice Springs and from the Power and Water Corporation's sewerage treatment ponds near Roe Creek.

Schedule F. Risk assessment methodology

The approach to risk assessment is consistent with National Water Initiative policy guidelines for water planning and management⁷. The risk assessment module provides guidance to implement a risk-based approach as part of a water management that is consistent with AS/NZS 4360:2004 Risk Management⁸.

An assessment of the level of risk posed by the described risk can be a useful way to prioritise the way in which the water will be managed. The relative level of a certain risk can be determined by considering the likelihood of a threat occurring and the consequence associated with that threat on a scale of 1 to 5, and using a matrix below to determine the risk level:

Risk level

RISK LEVEL		CONSEQUENCE				
		Insignificant	Minor	Moderate	Major	Catastrophic
LIKELIHOOD	Rare	very low	very low	low	moderate	moderate
	Unlikely	very low	low	low	moderate	high
	Possible	low	low	moderate	high	high
	Likely	low	moderate	moderate	high	very high
	Almost certain	moderate	moderate	high	very high	very high

Likelihood

LIKELIHOOD			
Category	Qualitative descriptor	Frequency	Probability of occurring in life of plan*
1	Rare	Event occurs 1 in every 100 years	< 1%
2	Unlikely	Event occurs 1 in every 20 to 50 years	1 – 20%
3	Possible	Event occurs 1 in every 5 to 10 years	21 – 80%
4	Likely	Event occurs annually	81 – 95%
5	Almost certain	Event occurs many times per year	> 95%

* within some time period, such as the duration that the water plan will be applicable

⁷ <https://www.dcceew.gov.au/water/policy/policy/nwi/guidelines-water>

⁸ <https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fwww.dcceew.gov.au%2Fsites%2Fdefault%2Ffiles%2Fsitecollectiondocuments%2Fwater%2Frisk-module.doc&wdOrigin=BROWSELINK>

Consequence

CONSEQUENCE			
Category	Qualitative descriptor	Ecological / water quality impacts	Socio-economic impacts
1	Insignificant	No noticeable impact to ecosystem.	Short period of low-level water restrictions causing minor inconvenience to households, no material impact on irrigation allocations, minimal financial impact on industry and little to no loss of amenity.
2	Minor	Some impact on marginal ecosystems (For example, edges of riparian zones or small mixed dependency ecosystems).	Extended period of low-level water restrictions causing some inconvenience to households, reduction in irrigation allocations with minimal material impact, potential financial impact for some industries and minor loss of amenity. First signs of impact on public morale.
3	Moderate	Water availability is so low, such that only the highest value environmental sites receive or retain water, putting vulnerable species at risk.	Medium level of water restrictions directly impacting on households, reduction in irrigation allocations resulting in some loss of productivity, some industries severely impacted or forced to close tourism, prioritisation of watering for amenities, increased impact on morale.
4	Major	Water availability is at critically low levels and groundwater systems become depleted beyond recharge rate. Extensive damage to ecosystems occurs with potential irreparable damage in some areas.	High level water restrictions directly limiting household water use, limited irrigation allocations resulting in low levels of productivity, some industries forced to close which may impact on national economy, severe loss of amenity and morale, some people leave.
5	Catastrophic	Irreparable damage to ecosystem; severe adverse impacts to environment.	Water supply to major town becomes insufficient to ever again sustain community or nationally significant activity; no irrigation allocations, collapse of industry, total loss of amenity, dislocation of people, and significant impact to the national economy.

Risk response

The risk level will indicate the type of response that may be required to mitigate or avoid the risk.

Risk level	Action	Timing
Very low – low	Continue routine approach to management – no specific actions required	Ongoing
Moderate – high	Manage by specific monitoring or response procedures	Within plan period
Very high	Develop management or investigation plan, cease activities for which high risks may arise	Immediate

Schedule G. Risk assessment

Event scenario risk			Existing controls	Current residual risk			Further controls	Future target risk		
The risk	Why can it happen	Impact on plan objectives	Management in place	Likelihood	Consequence	Risk level	Implementation Actions	Likelihood	Consequence	Risk level
Reduction in groundwater levels decline below acceptable levels.	Climate (variability, change, events).	Regional loss of key environmental values in shallow alluvial aquifers e.g. river red gums in Town Basin.	Public consultation period on draft plan and stakeholder engagement to provide input on plan. Water plan in place: estimated sustainable yield for significant resources	Unlikely Good understanding of water resources and high confidence in likelihood of GDE occurrence.	Moderate Drought is common in the basin and GDEs are adapted and resilient.	Low	Continue routine approach to management. Existing controls: - water plan in place - monitoring program - water licences regulated - public reporting.			
	Human activities (overuse of water or alteration of the waterway). Incomplete knowledge about the resource. Lack of Aboriginal participation and knowledge input into water resource management.	Regional loss of key Aboriginal cultural values in shallow alluvial aquifers.	- public water supplies prioritised in allocations and projected demand - estimated stock and domestic water use - review at 5 years. Monitoring program: - maintain and regularly review - water resources assessment completed in 2025 and considered climate change - GDE mapping completed in 2025 - maintained groundwater model of deep aquifer.	Possible Aboriginal sites and values are not identified in the plan.	Moderate Alice Springs township has already developed along the river. There is some impacts on large GDE trees in some area, although this is not directly linked to water levels. GDEs in the fractured basement rocks within the MacDonnell Ranges may be impacted.	Moderate	3.2.1 Identify and document key Aboriginal cultural sites and species within the water management zones. 3.2.2 Identify and document the water requirements of key Aboriginal cultural sites and species within the water management zones. 3.2.3 Key cultural water sites are included in monitoring program. 3.1.2 Consider the implementation of regulatory tools to protect groundwater dependent ecosystems in the alluvial basins. 3.1.3 Consider the implementation of	Unlikely	Moderate	Low

Event scenario risk			Existing controls	Current residual risk			Further controls	Future target risk		
The risk	Why can it happen	Impact on plan objectives	Management in place	Likelihood	Consequence	Risk level	Implementation Actions	Likelihood	Consequence	Risk level
			Water licences regulated:				regulatory tools to protect water resources.			
		Insecurity of water supply for Alice Springs township from deep aquifers and rural stock and domestic users that extract from shallow alluvial aquifers.	- Controller considers key factors when deciding - public consultation on decisions - compliance program implemented & reported annually. Public reporting: - water levels and flows - water licences - annual status of the resource reports for resources managed in plans.	Unlikely Public water supply is prioritised from the deep aquifer: - limited competition from other users - predicable rate of drawdown and conservative storage estimations. Stock and domestic use is minor. Low density of stations and outstations.	Minor Groundwater resources are deep with marginal impact on ecosystems from extraction.	Low	Continue routine approach to management. Existing controls: - water plan in place - monitoring program - water licences regulated - public reporting.			
		Water for economic development is restricted, including Aboriginal economic development.		Unlikely Plan provides protection for licence holders and water is available for development. Aquifer has significant volumes of good	Minor Extraction is regularly reported and monitored to ensure impacts remain acceptable. Department monitoring continues to	Low	Continue routine approach to management. Existing controls: - water plan in place - monitoring program - water licences regulated - public reporting.			

Event scenario risk			Existing controls		Current residual risk		Further controls		Future target risk	
The risk	Why can it happen	Impact on plan objectives	Management in place	Likelihood	Consequence	Risk level	Implementation Actions	Likelihood	Consequence	Risk level
				quality water available.	enable early action if triggered.					
Deterioration of water quality greater than acceptable levels.	Climate (variability, change, events). Human activities (overuse of water or alteration of the waterway). Incomplete knowledge about the resource. Other contaminants derived from land use contamination leach into groundwater and surface water: • diffuse pollution e.g. agrochemicals from land application • point source pollution events leading to runoff to surface water or infiltration to groundwater e.g. PFAS from fire stations/ airport	Regional loss of key environmental values and beneficial uses due to water quality.	Water quality objectives established under s73(1) of the Water Act for the water control district. Maintain and regularly review a surface water and water quality monitoring program in the plan area.	Possible High rainfall events can increase groundwater levels which may affect built environment and cause salinisation from shallow evaporation and cause rising salty water levels if present into rooting zone of GDEs.	Minor Water quality deterioration is likely to be localised in shallow alluvial aquifers.	Low	Continue routine approach to management. Existing controls: • water plan in place • monitoring program • water licences regulated • public reporting.			
		Regional loss of key Aboriginal cultural values, practices and responsibilities.		Possible Foundational understanding of water quality of cultural sites not established.	Minor Water quality deterioration is likely to be localised in shallow alluvial aquifers.	Low	Continue routine approach to management. Existing controls: • water plan in place • monitoring program • water licences regulated • public reporting.			
		Insufficient quality for rural stock and domestic use in shallow alluvial aquifers.	Department groundwater and surface water monitoring program in place.	Possible Water quality is suitable for irrigation, some bores have high salinity and metals, and	Moderate Water availability varies and support GDEs in the area.	Moderate	3.3.2 A comprehensive review and update of the groundwater quality monitoring program. 3.3.3 Consider implementation of regulatory tools and	Unlikely	Moderate	Low

Event scenario risk			Existing controls		Current residual risk		Further controls		Future target risk	
The risk	Why can it happen	Impact on plan objectives	Management in place	Likelihood	Consequence	Risk level	Implementation Actions	Likelihood	Consequence	Risk level
	direct ingress of surface contaminants to groundwater via poorly constructed or beyond end-of-life bores.			foundational water quality not established.			communication materials to protect drainage corridor environments at Todd River and Roe Creek systems.			
		Insufficient quality for public water supplies drawn from deep aquifers.	Power and Water Corporation have a water quality monitoring program and that is shared and reported.	Unlikely While the aquifers are deep, contamination from development in the town is a risk where knowledge of the aquifer processes is limited.	Major Reduced water quality would require Power and Water to treat drinking water with desalination, increasing water use through losses and creating a waste stream for disposal.	Moderate	3.1.1 Further investigate the recharge mechanisms to the alluvial basins in the plan area to determine recharge rates, groundwater contamination risk and groundwater dependent ecosystem recharge dependence. 3.4.1 Undertake isotope sampling to determine the age of groundwater and contribution of mountain-front recharge from the MacDonnell Ranges. 3.4.2 Undertake the Mparntwe/Alice Springs Aquifer Protection Study in the protection of the Roe Creek borefield from potential contaminants. 3.1.3 Consider the implementation of regulatory tools to protect water resources.	Unlikely	Moderate	Low

Event scenario risk			Existing controls	Current residual risk			Further controls	Future target risk		
The risk	Why can it happen	Impact on plan objectives	Management in place	Likelihood	Consequence	Risk level	Implementation Actions	Likelihood	Consequence	Risk level
Social and economic benefits of water use not realised.	Business uncertainty impacts on investment. Water allocations limits business viability. Workforce availability and capability. Barriers inhibit new entrants to the region. Land suitability limits economic opportunity. Broad market forces determine agricultural and other industry viability.	Water isn't used to provide economic benefits, including for Aboriginal people through Aboriginal water reserve (AWR)	Water plan in place: - estimated sustainable yield with accepted rate of drawdown of deep aquifers - public water supplies prioritised in allocations and projected demand - estimated stock and domestic water use of alluvial aquifers. Monitoring program: - maintain and regularly review program. Public reporting: - water levels and flows - water licences - annual status of the resource reports for resources managed in plans.	Likely First time that the Aboriginal water reserve is established, and water is not yet used. Water available for economic development is limited as from the deep aquifer that increases costs.	Minor Restriction of water for development from the deep aquifer as a finite resource.	Moderate	3.5.1 Declaration of water allocation plan 2026-2036. 3.5.2 Assist eligible Aboriginal people to access water, including through the Aboriginal water reserve. 3.5.3 Refine and communicate water licensing processes, including for the Aboriginal water reserve. 3.4.3 Communicate aquifer dynamics including impacts of water extraction on groundwater levels and water quality; communicate regulatory processes that ensure potential impacts of proposed extractions do not impact existing extractions.	Unlikely	Minor	Low