



# **Adelaide River Off- stream Water Storage (AROWS)**

## **Glossary of Key Terms**

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**→ The Power of Commitment**

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# Glossary of key terms

Glossary of key terms	Description
25 <sup>th</sup> percentile	Is the value in a set of values, ranked from smallest to largest, where 25% of values are equal to or less than and 75% are larger.
Acid sulfate soils (ASS)	Are naturally occurring soils, sediments and peats that contain iron sulfides, predominantly in the form of pyrite materials. These soils are commonly found in estuarine and river settings and low-lying land bordering the coast.
Adelaide River Water Allocation Plan ('the Plan')	<p>Establishes the estimated sustainable yield and sets the consumptive pool for the water resources of the Adelaide River catchment. The Plan allocates that water amongst declared beneficial uses, Aboriginal water reserve and provides for trading of water.</p> <p>The Plan will be developed in accordance with the relevant sections of the 2010 National Water Initiative Policy Guidelines for Water Planning and Management and 2017 guideline modules. The Plan aligns with the Territory Economic Reconstruction Commission recommendations, DEPWS Strategic Plan's primary goals and the Water Resources Division Business Plan 2023-24.</p>
AROWS basin	<p>Includes the inundation area, dam walls (i.e., gaps) and emergency spillway infrastructure for the gaps in the ridgeline, internal infrastructure (e.g., firebreaks and fence), internal construction laydown areas and tracks.</p> <p>The inundation area/footprint refers to the area below a dam or reservoir that would be inundated with water as determined by conducting a breach analysis meeting the requirements specified in the concept design.</p> <p>The inundation area/footprint comprises; Dead storage level, Minimum operational level, Full supply level 32 m Australian Height Datum (AHD), Emergency spill level 34.4 m AHD (design flood of 1:10,000 Annual Exceedance Probability), Crest level 35 m AHD and Dam Freeboard.</p>
AROWS basin catchment	Comprises the area of land that collects water after rainfall and is bounded by the natural ridge formation. The basin catchment includes the AROWS basin, and operational infrastructure associated with catchment management activities (e.g., relocation of septic tanks on rural properties south of the catchment).
Area(s) of impact	<p>The project area of impact refers to the area/s of direct disturbance within the project area. These are the areas where there is proposed Project infrastructure components (i.e., intake, basin, outlet and delivery, supporting, and connecting) and disturbance activities (e.g., vegetation clearing, direct use). This definition is aligned with the NT EPA definition for 'area of impact'.</p> <p>For this referral, a maximum indicative disturbance footprint is assumed for the key project infrastructure components and activities. The disturbance footprint will be refined as the concept design progresses and avoidance strategies are identified.</p>
Area of influence	<p>The project area of influence refers to the area/s of indirect disturbance. This includes the downstream environment that may be indirectly affected by the proposed activities. This definition is aligned with the NT EPA definition for 'area of influence'.</p> <p>For this referral, the likely area of influence is determined based on a hydrologic and hydraulic assessment. By using a larger than anticipated water extraction scenario an assessment of the biggest possible impacts to the downstream environment can be considered at this stage of assessment. During the next phase of assessment (EIS) the area of influence will be further refined to reflect the final proposed extraction rules/scenario. It is predicted the final extraction scenario will be a great deal smaller than the precautionary assessment in the referral.</p>
Avoidance area	<p>Any area or habitat within the project area that is intended not to be cleared or disturbed during the course of the action. The avoidance area differs from the retention area in that the avoidance area may not be intended for conservation and protection under a conservation agreement.</p> <p>This definition is aligned with the <i>Environment Protection and Biodiversity Conservation Act 1999 (Cth)</i> (EPBC Act).</p>
Catchment	The extent of land where water from precipitation drains into a waterway.

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Clearing of native vegetation	<p>The removal or destruction, by any means, of native vegetation on an area of land, other than; the removal or destruction of a declared weed within the meaning of the <i>Weeds Management Act 2001</i> or of a plant removed under the <i>Plant Health Act 2008</i>, the lopping of a tree, incidentally through the grazing of livestock, the harvesting of native vegetation planted for harvest, the clearing of firebreaks or roads for access to the land or other land, in the course of Aboriginal traditional use, including the gathering of food or the production of cultural artefacts, by fire, the removal or destruction of native vegetation occurring on a site previously cleared in accordance with a permit issued under the Planning Act 1999, incidentally through mowing an area previously cleared of native vegetation.</p> <p>Clearing of native vegetation includes the selective removal of a species of plant, a group of species of plants, a storey or group of storeys in whole or in part. The clearing of native vegetation is sometimes also referred to as land clearing.</p> <p>The meaning of clearing of native vegetation is defined under sections 91A and 91B of the <i>Pastoral Land Act 1992</i>.</p>
Cofferdam	A temporary enclosure built within, or in pairs across, a body of water and constructed to allow the enclosed area to be pumped out to create a dry work environment.
Connecting infrastructure	Includes all associated infrastructure (pumps, pipeline, balance tank) to facilitate the transfer of water from the delivery infrastructure pipeline to the Strauss Water Treatment Plant (WTP) via Hughes Balance tank along the Stuart Highway's existing corridors.
Consumptive pool	The amount of water that can be made available for consumptive use in a given water system and where a water plan has rules, in accordance with those rules.
Controlled action	<p>One of the possible decisions the Environment minister can make about a referred action. A 'controlled action' is a proposed action that is considered by the Commonwealth Environment Minister as likely to have a significant impact on one or more matters protected by the EPBC Act.</p> <p>This definition is aligned with the EPBC Act definition for 'controlled action'.</p>
Department of Lands, Planning and Environment (DLPE)	<p>DLPE is responsible for administering the <i>Water Act 1992 (NT)</i>. This includes development and monitoring of the Adelaide River water allocation plan (the 'Plan'). DLE is undertaking an independent process to complete the Plan. The Plan will determine the sustainable yield and the sharing of water from the consumptive pool for the entire Adelaide River catchment, as well as the rules for extraction of surface water within the catchment.</p> <p>DLPE also provides support to the NT Environment Protection Agency, who will assess the Environmental Impact Assessment.</p>
Department of Logistics and Infrastructure (Infrastructure NT) (DLI)	<p>Throughout this paper DLI is assumed to be the proponent, responsible for the overarching delivery of the Darwin Region Water Supply Program, including progressing project development activities for the AROWS.</p> <p>DLI is accountable to the Darwin Region Water Supply Program Working Group and Strategic Water CEO Steering Committee.</p>
Direct impact	An impact caused by an action and would occur at the same time and place as the action.
Dry season	Refers to the period from 1 May to 30 September.
Environment	The term 'environment' is used in its broadest sense and consistent with the themes and factors set out by the NT EPA. Therefore, 'environmental values' or 'requirements', is encompassing of land, biodiversity, air, water, people (cultural and social) factors.
Environmental factor	The NT EPA listed environmental objectives to identify environmental matters that have value to the Northern Territory and that need to be protected; and to state the objective to be achieved for each matter. The NT EPA has prepared these environmental objectives and organised these in structured divisions of the environment, called environmental factors.
Environmental impact	Change to the environment whether adverse or beneficial, wholly or partially resulting from the AROWS project. Environmental impacts can be caused directly or indirectly from a project activity or cumulatively with other non-Project related activities in a set area.

Glossary of key terms	Description
Environmental impact statement (EIS)	Commonly named an Impact Assessment Report (IAR) under the <i>Environmental Protection and Biodiversity Conservation Act (EPBC Act)</i> . The referral document will assess the impact of implementing the AROWS project on protected matters.
Environmental values	Incorporates environmental, social, cultural, and economic values.
Erosion and sediment control measures	Activities based on structural works, vegetation management, tillage operations and/or other management options designed primarily to achieve control of soil erosion and sedimentation.
Indirect impact	An impact caused by an action but would occur later in time or at another location.
Firebreak	A cleared access trail, usually located along property boundaries. In some NT Fire Control Regions, the Regional Committee requires breaks to be a minimum of 4 metres wide, graded or slashed to a maximum height of 50 millimetres with all slashed material removed. They must be continuous around all property boundaries but may deviate around wet or rocky areas and large trees. On lots up to 8 hectares firebreaks may be a maximum 5 metres wide only along property boundaries. On lots greater than 8 hectares firebreaks may be a maximum of 10 metres wide, either along boundaries or internal fence lines. These widths may be varied by a Regional Bushfires Committee, specified in writing, to a maximum of 30 metres.
Floodplain	A strip of relatively level land bordering a stream or river subject to flooding. Floodplains build up over time by deposits of sediment carried in flood waters.
Groundwater dependent ecosystems	Are ecosystems which require access to groundwater on a permanent or intermittent basis to meet all or some of their water requirements so as to maintain their communities of plants or animals, ecological processes and ecosystem services (Richardson et al. 2011).
Minimum flow conditions	Refers to the required minimum passing flow rate at a specified location.
Intake infrastructure	Includes the pumps and associated intake structure for river water extraction, transfer and discharge into the storage basin (AROWS Basin).
Impacts	Are positive and negative consequences of an action (policy, program, project or class of projects).
Land component /unit	An area of land, distinct from the surrounding terrain, having a particular combination of landform, classes of geological material, soil and vegetation. Land components are commonly mapped at scales of 1:25 000 or 1:10 000.
Land system	An area of land, distinct from surrounding terrain, within which particular classes of land features are consistently associated and are expressed as a recurring sequence of particular land components. These land components generally occur in similar proportions and have similar interrelations in each occurrence of a particular land system. Land systems are usually mapped at 1:100 000 or 1:50 000.
NR Maps	A web-based mapping application for the discovery, interrogation and mapping of natural and cultural resource data and information - see <a href="https://nrmaps.nt.gov.au/nrmaps.html">https://nrmaps.nt.gov.au/nrmaps.html</a>
Outlet and delivery infrastructure	includes all associated infrastructure to facilitate the transfer of water from the AROWS basin Outlet tower, outlet conduct, low level outlet, pump and delivery pipeline) to the connecting infrastructure.
Perceived impact	Something that is believed to be a potential impact rather than something that has been established as being an actual impact. Note that perceived impacts affect how people feel about the Project and how they feel and behave generally, thus perception is reality for them. This definition is aligned with the International Association for Impact Assessment (IAIA) International Principles for Social Impact Assessment (2015).
Potential acid sulfate soils (PASS)	Are soils containing iron sulfides or sulfidic materials in an anaerobic environment and therefore have not been exposed to air and oxidised. However, if disturbed and exposed to air and oxidised, PASS become Actual Acid Sulfate Soils (AASS). For the purpose of this referral, the term ASS also includes PASS.

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Power and Water Corporation (Power and Water)	<p>Power and Water is the Darwin Region Water Supply System Operator.</p> <p>Power and Water is the monopoly water service provider in the Darwin region and are responsible for the whole-of-system operations, which will be a critical input into the construction and operational aspects of the AROWS project, including water system modelling. As the utility responsible for providing the Darwin region with water, Power and Water is responsible for meeting defined level of service objectives, operating the water supply system and ensuring that current and future water sources can meet level of service requirements.</p> <p>As system operator, Power and Water continues to play an important ongoing role in the development and optimisation of extraction scenarios for the AROWS project in a Technical Advisory capacity.</p>
Project area	<p>Refers to the total area, that includes both direct and indirect disturbance footprint/s. The project area includes areas of temporary and permanent works. The project area may occur in one contiguous land area or be spread out over multiple, separated areas of land. This definition is aligned with the <i>Environment Protection and Biodiversity Conservation Act 1999 (Cth)</i> (EPBC Act).</p>
Protected matters	<p>This term is used in its broadest sense to encompass all the values that are protected under relevant NT or Commonwealth legislation and therefore subject to assessment and approval. These may include biodiversity, land, air, water, sea, and people factors.</p>
Sensitive receptor	<p>Areas where the occupants are more susceptible to adverse effects of exposure to noise, vibration, or toxic pollutants (e.g., hospitals, schools, daycare facilities etc).</p>
Significant impact	<p>An impact which is important, notable, or of consequence, having regard to its context or intensity. Whether or not an action is likely to have a significant impact depends upon the sensitivity, value, and quality of the environment, which is impacted, and upon the intensity, duration, magnitude and geographic extent of the impacts. All factors should be considered when determining whether an action is likely to have a significant impact on matters of national environmental significance (MNES). This definition is aligned with the EPBC Act definition for 'significant impact'.</p>
Social area of influence	<p>A term that means much the same as 'area of influence' but that emphasises the social impacts of the AROWS project. Because of the mobility of people and the extent of social impacts, the social area of influence is likely to be much larger in geographical extent than that of the project area of influence.</p> <p>This definition is aligned with the International Association for Impact Assessment (IAIA) International Principles for Social Impact Assessment (2015).</p>
Stream order	<p>Describes the relative size and frequency of well-defined watercourses.</p>
Supporting infrastructure	<p>Encompasses all temporary works and permanent utilities/facilities to support the construction and operation of the AROWS scheme (borrow pits, coffer dams, access tracks, laydown areas, site facilities, electric substation, balance tank, SCADA/Telemetry, telecommunication facilities).</p>
Survey area	<p>The site/area surveyed in order to provide adequate information to assess direct and indirect impacts.</p> <p>The size of the survey area will vary for each environmental factor depending on the availability of existing survey information and scale of potential impacts.</p>
Threatened species	<p>Species that are listed under the <i>Territory Parks and Wildlife Conservation Act 1976</i> or the <i>Environment Protection and Biodiversity Conservation Act 1999</i> as "Critically Endangered", "Endangered" or "Vulnerable".</p>
Tidal influence	<p>The extent of water movement in a waterway due to changes in gravitational effects of the moon</p>
Top end	<p>A water resource as described in Classification of Top End and Arid Zone for Northern Territory Water Resources, Technical Report 55/2020</p>
Transitional flow	<p>The change in hydraulic conditions in a waterway between wet season flows and dry season flows and vice versa</p>

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Watercourse or waterway	<p>Are defined as natural drainage depressions, creeks, streams or rivers. The following definitions are from section 4(1) of the <i>Water Act 1992</i> and exclude parts (d), (f) and (g):</p> <p>(a) a river, creek, stream or watercourse, (b) a natural channel in which water flows, whether or not the flow is continuous (c) a channel formed wholly or partly by the alteration or relocation of a waterway described in paragraph (a) or (b) (e) land on which, as a result of works constructed on a waterway described in paragraph (a), (b) or (c), water collects, whether or not the collection is continuous (h) land declared under section 5(1) of the <i>Water Act 1992</i> to be a waterway.</p>
Water allocation plan	<p>Water Allocation Plans (WAPs) are developed in Water Control Districts (WCDs) where the Northern Territory Government has determined following risk assessment that management plans are required. They are generated in consultation with community and technical groups and outline how a particular resource e.g. a river and/or an aquifer, is to be managed. Plans set out the objectives, rules and strategies, and monitoring and performance indicators for managing the water resource to maximise environmental, economic, social and cultural outcomes.</p> <p>WAPs set limits to the availability of water assigned to each beneficial use and define rules for managing licences and water trading.</p>
Water control district	<p>Water Control Districts (WCDs) are declared where there is a high level of competition for water and/or require closer management of the water resources. This includes the requirement for bore construction permits and for water extraction licences to take surface water and groundwater.</p>
Water licence	<p>Means a water extraction licence granted under section 45 of the <i>Water Act 1992</i>.</p>
Wet season	<p>Refers to the period from 1 October to 30 April</p>



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