Marrambidya Wetland Plan of Management

2024-2034

City of
Wagga Wagga

Acknowledgement of Country

Wagga Wagga City Council gulbali-yanhi ngurambang-gu Wiradyuri-gu walumaldhaany-galang. nganha bala mayiny Wiradyuri. yindyamali-yanhi mudyiganggalang-bu balumbambal-bu balugirbam-bu yindyamali-yanhi bagaraygan nguarambang-gawali-i yandu muran.

wigi wagga wagga-dha ngiyanhi gulbali-bu yindyamali-bu guwiinyguliyalagu buyaa-bu giilaang-galam-bu. ngiyanhi gulbali-bu yindyamali-bu guwiinyguliyalagu dhaagun-giyalam-bu bila-galang-giyalam-bu. gulbali-yanhi Wiradjui-mayiny ngurambangguwal-bu bala yarruwala-bu waluwin-bu walabangan-bu dhirrangal-bu.

Wagga Wagga City Council acknowledges the traditional custodians of the land, the Wiradyuri people, and pays respect to Elders past, present and future and extends our respect to all First Nations Peoples in Wagga Wagga.

We recognise and respect their cultural heritage, beliefs and continuing connection with the land and rivers. We also recognise the resilience, strength and pride of the Wiradyuri and First Nations communities.

Document Control – Wagga Wagga City Council		
Review date	XXXXXX	
Responsible Officer	Manager Environment & Regulatory Services	
Date	**Action**	**Council resolution**
XXX	Public Exhibition	XXXXX
XXXX	Adoption	XXXX

Introduction

Purpose of the Plan of Management

Council has an obligation to ensure compliance with the *Local Government Act 1993* and the *Crown Land Management Act 2016* to provide clarity in the future development, use and management of the community land and ensure consistent management that supports a unified approach to meeting the varied needs of the community.

The purpose of the document is to provide a Plan of Management (PoM) that sets clear direction regarding environmental management actions as well as the community's needs in regard to the current infrastructure and assets and potential future improvements at the wetland.

Council is the Crown land manager of the Crown reserve described in this PoM in accordance with the legislation and conditions imposed by the Minister administering the *Crown Land Management Act 2016*. The use of the land described in this PoM must consider:

- Native title rights and interests and be consistent with the provisions of the Commonwealth *Native Title Act 1993*
- The inchoate interests of Aboriginal people when an undetermined Aboriginal Land Claim exists
- Consider and not be in conflict with any interests and rights granted under the *Crown Land Management Act 2016* and any interest held on title.

The intention when designing and developing the wetland was to create a community asset incorporating the following elements and ideals:

- A wildlife habitat, focusing on attracting both terrestrial and aquatic species and improving aquatic biodiversity including fish refugia
- A low maintenance, self-sustaining nature-based recreation area
- A link to the indigenous heritage of the area
- A nature based educational resource.

Vision: Provide a sustainable wildlife habitat and sanctuary for threatened species that provides an enhanced recreational and educational experience for the community of Wagga Wagga and its visitors.

NSW Public Spaces Charter

The NSW Department of Planning and Environment has developed the NSW Public Spaces Charter to support everyone in NSW to have access to high quality public space that allows them to enjoy and participate in public life. The charter identifies 10 principles for quality public spaces, to support all those who advocate on behalf of, provide advice on, make decisions about, or plan, design, manage and activate public spaces in NSW.

The Marramabidya Wetland Plan of Management 2024-2034 has incorporated the 10 principles into the design to provide an inclusive public space that has a fit for purpose design, provides a platform for culture and creative expression, is climate resilient and reflects our diverse stories and histories.

Open and welcoming

Everyone can access public space and feel welcome, respected and included

Community focused

Public space brings people together and builds strong, connected and resilient communities

Culture and creativity

Public space provides a platform for culture and creative expression that makes places more colourful, animated and thought-provoking

Local character and identity

Public space reflects who we are and our diverse stories and histories

Green and resilient

Public space connects us to nature, enhances biodiversity and builds climate resilience into communities

Healthy and active

Public space allows everyone to participate in activities that strengthen our health and wellbeing

Local business and economies

Public space supports a dynamic economic life and vibrant urban and town centres

Safe and secure

Everyone feels safe to access and use public space at all times of the day

Design for place

Public space is flexible and responds to its environment to meet the needs of its community

Well-managed

Well-managed and maintained public space functions and invites people to use and care for it

Development of the Plan

The Marrambidya Wetland is a popular attraction for visitors to the city, school groups, local environmental groups, community members who walk and cycle in the area and importantly is a meeting place for local First Nations Peoples.

In undertaking the community consultation phase of developing this PoM the key goal was to understand the community's needs, wants and ideas on how the Marrambidya Wetland can be improved and to what extent. The consultation included:

- Drop-in consultation sessions on site at the Marrambidya Wetland
- Community wide Online Survey
- Consultation with NSW Crown Lands
- Consultation with Mawang Gaway
- Consultation with Reconciliation Action Plan Working Group
- Consultation with Community interest groups
- Consultation with Council internal stakeholders

This feedback was used to develop the future management actions and improvement strategies identified further in this PoM.

Council would like to thank all stakeholder's and community members, who contributed to the development of the Marrambidya Wetland PoM 2024-2034 Many actions contained within the PoM have originated from submissions, participation and discussions from stakeholders and members from the community.

The PoM identifies activities that may be implemented to enhance the habitat features at the wetland, as well as improve the community's enjoyment when visiting the site. The PoM is limited to actions within the wetland area and is constrained by funding, State and Federal legislative requirements, as well as Council's policies and processes.

The PoM was placed on public exhibition in accordance with the requirements of section 38 of the *Local Government Act 1993*.

Relevant legislation, policies and procedures

Crown Land Management Act 2016

Under section 3.21 of the Crown Land Management Act Council land managers are required to manage Crown Land as though it were public land within the meaning of the Local Government Act 1993. A Council manager is authorised to manage the dedicated or reserved Crown land as if it were community land or operational land. Councils are required to prepare and adopt a Plan of Management for each reserve classified as community land under the Local Government Act to ensure it manages to comply with this requirement.

Local Government Act 1993

The Local Government Act 1993 directs that a Plan of Management must be adopted for all community land to govern its use and management. The Act requires that community land be categorised as either:

- Natural Area – Bushland/Wetland/Escarpment/Watercourse or Foreshore
- Park
- Sportsground
- Area of Cultural Significance
- General Community Use

Native Title Act 1993

Councils, as Crown Land Managers, are responsible for ensuring that procedural rights are recognised under native title when dealing with Crown Reserves. The Crown Land Management Act specifically references the Native Title Act, setting out how the Act operates when making decisions about the use and management of Crown Land. Councils are required to engage a trained Native Title Manager to perform this function.

The Native Title Manager is required to validate proposed activities on Crown Reserves against the "Future Act" provisions of the Native Title Act. Plans of Management for Crown Reserves are also subject to review by Council's Native Title Manager in the context of impact on native title interests.

Aboriginal Land Rights Act 1983

The Aboriginal Land Rights Act recognises that land in New South Wales was traditionally owned and occupied by Aboriginal People, and is of spiritual, social, cultural and economic importance to them. Aboriginal Land Claims may only be lodged by Aboriginal Land Councils constituted under the Aboriginal Land Rights Act. Lodgement of an Aboriginal Land Claim by a Land Council creates an initial interest in the land. The full extent of this interest is not known until the claim is investigated and a determination is made by the relevant Minister. Once an Aboriginal Land Claim has been lodged Council has a custodial role in managing the land and must ensure that activities do not impact on the physical condition of the land, or prevent the land being transferred to the claimant Land Council in the event the land claim is successful.

Biodiversity Conservation Act 2016

The purpose of the Biodiversity Conservation Act 2016 is to maintain a healthy, productive and resilient environment for the greatest well-being of the community, now and into the future, consistent with the principles of ecologically sustainable development. Wagga Wagga City Council has legislative responsibility under the Biodiversity Conservation Act to implement management strategies that will:

- Regulate human interactions with wildlife by applying a risk-based approach
- Support conservation and threat abatement actions to slow the rate of biodiversity loss and conserve threatened species and ecological communities in nature
- Establish a framework to avoid, minimise and offset the impacts of proposed development and land use change on biodiversity.

Additional legislation

- *Rural Fires Act 1997*
- *Environmental Planning and Assessment Act 1979*
- *Protection of the Environment Operations Act 1997*
- *Public Works Act (1912)*
- *Environment Protection and Biodiversity Conservation Act 1999*
- *Biosecurity Act 2015*
- *Local Land Services Act 2016*
- *Pesticides Acts 1999*
- *Companion Animals Act 1998*
- *Water Management Act 2000*
- *Contaminated Land Management Act 1997.*

Wagga Wagga City Council strategic priorities

Wagga Wagga City Council, in consultation with the community, have developed the following strategies and plans to identify the priorities and aspirations of the community and the delivery of a vision for the future. They have a direct influence on the objectives, uses and management approach covered by this PoM.

Strategy/Plan	Objectives
Wagga View – Community Strategic Plan 2040	The **Wagga View - Community Strategic Plan 2040** vision states: "In 2040 Wagga Wagga will be a thriving, innovative, connected and inclusive community on the Murrumbidgee. Rich in opportunity, choice, learning and environment, Wagga Wagga is a place where paths cross and people meet."
Local Strategic Planning Proposal **Planning for the future: Wagga Wagga 2040**	The Wagga Wagga Local Strategic Planning Statement - Wagga Wagga 2040 sets the long-term strategic framework for planning and development in the City of Wagga Wagga local government area over the next 20-years. It addresses issues of strategic significance to the Council, guiding development or introduction of new planning policies, strategies or actions related to land use and development.
Biodiversity Strategy: Maldhangilanha 2020-2030	**The Biodiversity Strategy: Maldhangilanha** is a key stone document that aims to increase awareness and address a wide range of key threating processes impacting biodiversity.
Active Travel Plan – Cycling September 2016	**The Active Travel Plan - Cycling 2016** is part of an overall vision and strategic transport framework for Wagga Wagga. Fostering healthy and active transport options can markedly improve community health and wellbeing.
Wagga Wagga Local Environment Plan 2010	**The Wagga Wagga Local Environmental Plan 2010 (LEP)** is the principal legal document for controlling development and guiding planning decisions made by Council to facilitate new development. The LEP applies a RE1 Public Recreation to the subject land with objectives to provide land for public open space or recreational purposes and protect and enhance the natural environment for both environmental and recreational purposes. The LEP ensures areas of high ecological, scientific, cultural or aesthetic values are maintained or improved.
Reconciliation Action Plan 2022 - 2024	The **Reconciliation Action Plan** provides a clear direction to ensure Council is developing a liveable city that is thriving, connected, innovative and inclusive. An identified opportunity of the plan is to recognise the importance of and promote Aboriginal cultural practices in spaces around the Wagga Wagga Local Government Area through our strategic plans and management plan development.
All Abilities Inclusion Action Plan 2022-2026	The purpose for a **Disability Inclusion Action Plan** was to ensure that there was a demonstration of commitment from local governments to people with a disability on improving access to services, facilities and jobs. More notably however, it is designed to change perceptions about people with a disability. It is also part of the legislative requirement to review and update these plans every four years.

Land to which the Plan applies

The Marrambidya Wetland PoM has been prepared by Council and provides direction as to the use and management of Council owned land and the Council managed Crown reserve.

The PoM applies to all land within the area identified in red in Figure 1 below. The wetland site is bounded by the Murrumbidgee River to the north and west, which includes a declared significant Aboriginal Place- Wiradjuri Reserve & Gobba Beach (green area). The wetland is also adjacent to the Narrung Sewerage Treatment Plant (blue area) to the south and privately owned land to the east.

Please note only the area outlined in red is included in the PoM.

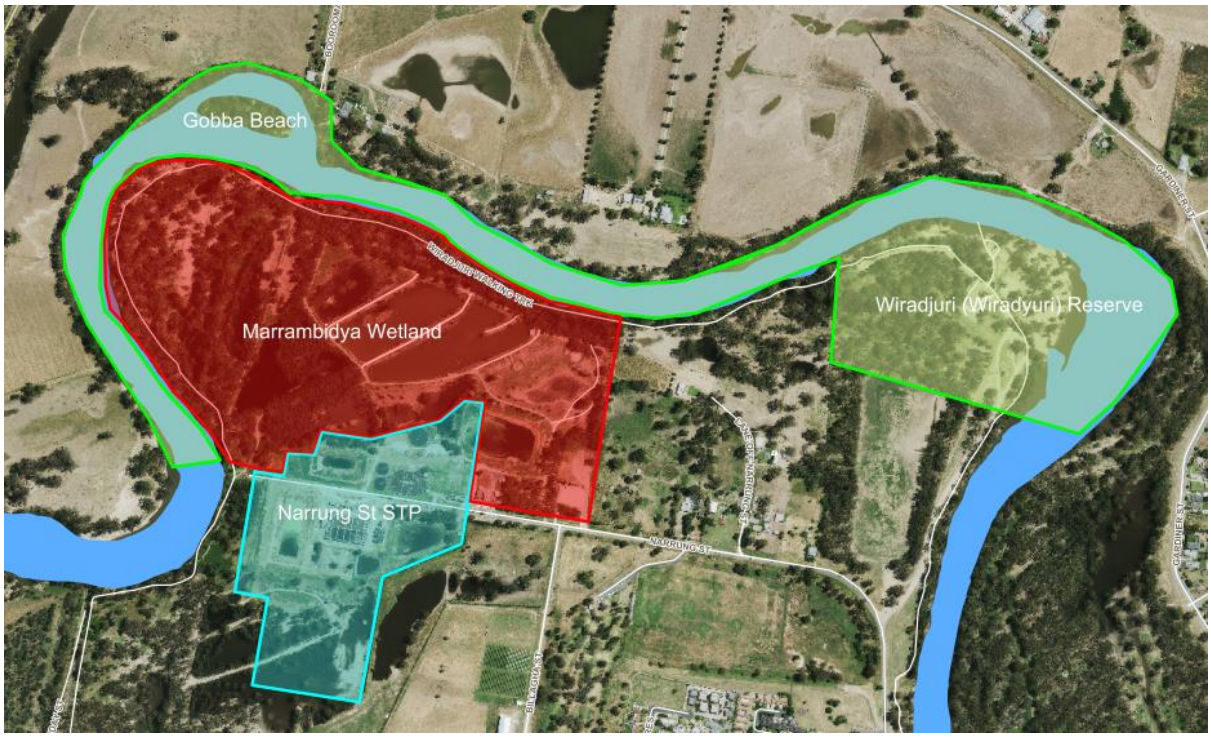

Figure 1: Land to which the Plan of Management applies (red area) and surrounds.

As outlined in Figure 2 below the Marrambidya Wetland includes Lot 7002 DP 1115536 that is owned by the State of New South Wales (Crown) and is managed by Council as the appointed Crown Land Manager. The Crown parcel is classified under the *Local Government Act 1993 (LG Act)* as 'Operational land' for the Narrung St STP portion (orange) and 'Community land' for the Wetland portion (purple). The current Reserve Purpose under the *Crowns Land Management Act 2016 (CLM Act)* is 'Sewerage' for the Narrung STP portion and, Public Recreation and Community Purpose for the wetland portion. The Council owned land (yellow) is classified as Operational land.

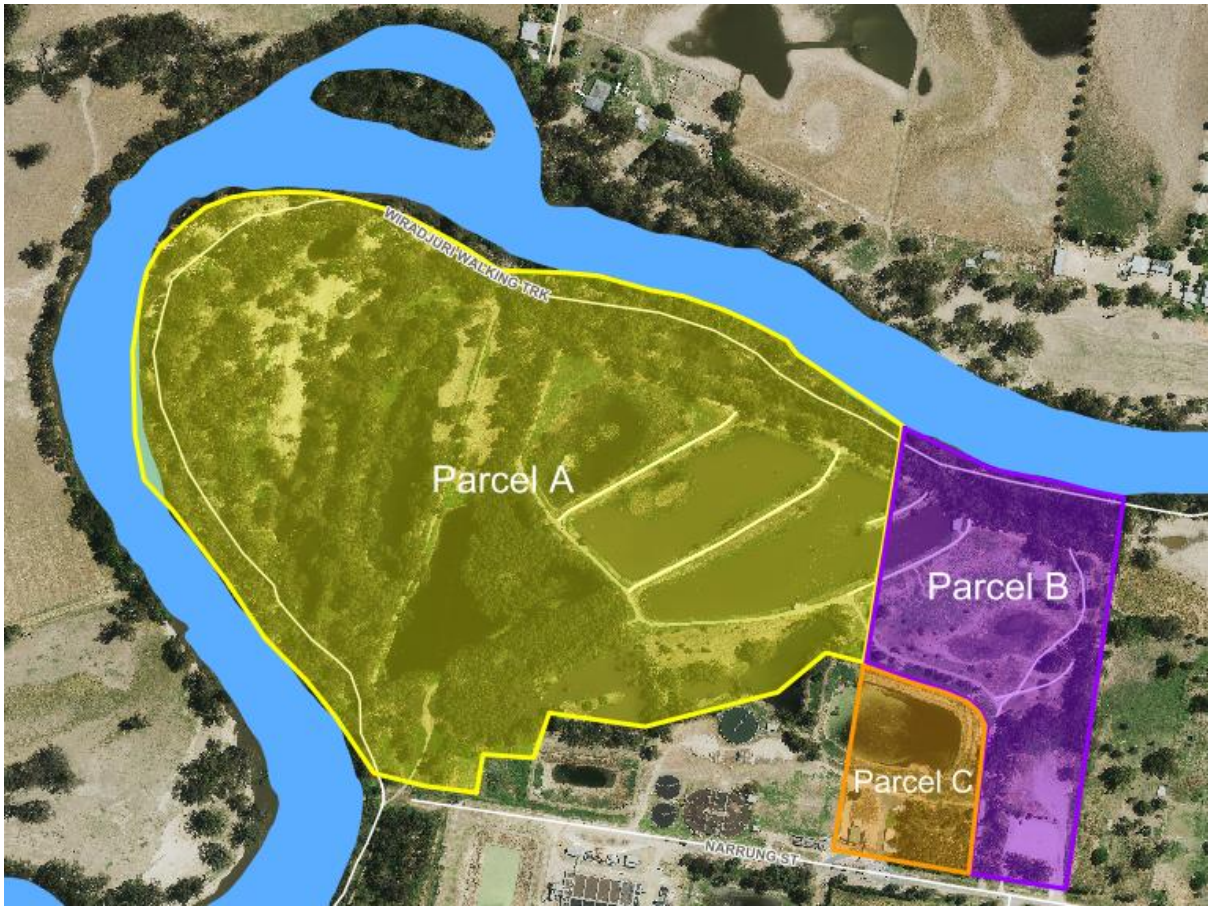

Figure 2: Crown land classified as Community land (purple) and Operational land (orange) and Council Operational land (yellow).

Wetland History

Wiradyuri history

Prior to the development of the Marrambidya Wetland in 2016, the area from the Wiradjuri (Wiradyuri) Reserve to Gobba Beach and the corridor of the Murrumbidgee River was and continues to be, a significant place for the Wiradyuri people. The Wiradjuri (Wiradyuri) Reserve is a former gathering, corroboree, fishing, camping, swimming and river crossing for local Wiradyuri groups. The area is rich in resources including plants, land, water and freshwater animals. It is also the location of a traditional Wiradyuri river crossing where, according to traditional stories, the carer of the 'Nurrang gungali' or crossing place resides.

Gobbagumbalin and Pomingalarna

Many years ago, two local groups of Wiradjuri people occupied either side of the Murrumbidgee River in the vicinity of Wagga Wagga, the river forming the boundary between two territories. The groups were generally friendly towards each other. Each had its own tribal laws which they adhered to with undeviating strictness, breaches being punished with great severity.

A day came when one of the young men, Gobbagumbalin, the son of one of the elders, saw Pomingalarna a gadgi migay (beautiful young girl) of the neighbouring group, and, falling in love with her, desired to make her his wife. However, the girl had been promised to a warrior of her own group. The two met secretly and for a while these meetings passed unobserved but in time they were discovered. A council of the old men warned the youth that he must see no more of the girl and any continuance of their meetings would be looked upon as a grave breach of tribal law and punishable.

Such passion existed between the young couple that they decided to elope, although they knew such an action would make them outsiders forever. They decided that Gobbagumbalin should swim across the river at a spot where the girl would await him, then the two would recross the stream together and hasten to the depths of the ranges. One dark night the young warrior swam across the river and found the young woman waiting for him. Hand in hand, they entered the water and swam silently toward the farther shore. However, as they reached the centre of the muddy stream, a storm of spears directed from both sides of the river fell hissing in the water about them. Both man and girl, mortally wounded sank beneath the waters, tightly clasping each other's arms. Such was the tragic death of the lovers, and today the frogs still mourn their fate.

Those on one side of the Murrumbidgee cry "Gobbagumbalin", while those on the opposite side take up the cry of "Pomingalarna". If tempted to doubt the truth of this story, the Wiradjuri people said you only had to listen to the mourning chant of the frogs. It may be heard on any hot night in summer.

Source

A condensation of a traditional story of the Wiradjuri people near Wagga Wagga as recorded by Keith McKeown in "The Land of Byamee" Angus & Robertson, 1938 and approved for reproduction by the Wiradjuri Council of Elders, June 1997.

A shanty town, or fringe camp, was established on the Wiradjuri (Wiradyuri) Reserve in the 1930s. The settlement, locally known as Tintown, consisted of numerous huts occupied by both Aboriginal and non-Aboriginal families, dependant on government rations during the Great Depression. Though the town authorities tried to clear the Tintown camp in the 1940s, people continued to live in the settlement until the 1950s.

Jack Argus, who was born in 1922 and grew up at Tintown, said: "There were hundreds of huts on both sides of the river, Aboriginal and white families... “It used to be known as Tent Town here, then it was Tintown and then later people called it the Bend. You didn’t like to be known as coming from Tintown, so you called it the Flats, because people didn’t know where that was." (Kabaila 1998).

European History

Located south of Tintown, the Narrung Street Sewerage Treatment Plant (STP) was commissioned in 1914 as a simple septic tank to service Wagga Wagga. In 1953 extensive works were required to upgrade the facility to keep up with the demand of the growing city. In the late 1960s the tertiary ponds were remodelled to polish the final discharge before entering the Murrumbidgee River.

Major improvements in aeration times of wastewater after an upgrade to the plant in 2010 resulting in the tertiary ponds no longer being required. As a result of this redundancy, there was a need to decommission the ponds to meet Environmental Protection Authority (EPA) Licence requirements. A number of solutions were discussed with the preferred option being the development of a wetland in this location.

Shaping the Marrambidya Wetland

In 2011, Council secured funding from the NSW Environmental Trust to develop a master plan for the construction of a wetland. The design was adopted by the Council at the July 2015 Council meeting. Funding contributions came from the NSW Environmental Trust, Riverina Local Lands Services, and Origin Energy. In addition, a number of key stakeholders aided in the success of the Marrambidya Wetland including the federal Government's Green Army, Local Aboriginal Lands Council, Wiradyuri community and Wagga Wagga Urban Landcare.

The conceptual approach to the design of the wetland was to construct a riverine wetland environment that would attract native species to the site by providing a variety of niche wetland habitats and bird refuge areas. This was achieved through a mixture of open water areas and areas with emergent aquatic vegetation providing a mixture of habitats within the wetland ponds. The deeper water bodies provide a cooling effect to ensure the water is always relatively cool, enhancing the potential for habitat during the summer months.

Revegetation works established beds of dense floating macrophytes (aquatic plants) that provide protection for juvenile fish against predatory birds, areas of deep-water also allow juvenile fish to move into deeper water to avoid diving birds. Floating and earthen islands were constructed to provide refuge points for nesting birds away from predators such as feral cats and foxes.

An intention for the wetland project was to not only recreate a habitat resource that has been vastly removed or modified from the lower Murrumbidgee River ecosystem but also to create an opportunity for community members and visitors to utilise as a resource for leisurely recreation as well as to learn about the environment and the traditional cultural practises of the Wiradyuri people. This was achieved by the installation of interpretive signs, representations of Wiradyuri Culture and built facilities such as toilets, shelters and viewing platforms.

The Marrambidya Wetland officially opened in June 2016.

Site layout

The Marrambidya Wetland is located at 100 Narrung St, Wagga Wagga and consists of four ponds surrounded by walking tracks, six story telling devices, two bird hides, a cultural demostration area includes gunyahs and bora rings, the healing place, an elevated viewing platform and an Outdoor Learning Education Centre with seating.

Figure 3: Marrambidya Wetland Site Layout and proposed assets below details the location of each element and also proposed additional assests including a boardwalk over the turtle pond, an Education Center and a Active Travel Path (ATP) pedestrian bridge that will enable acess from the North to South. Please note these proposed additions are subject to funding.

Figure 3: Marrambidya Wetland Site Layout and proposed assets

Wetland experience

The wetland has something for everyone. Whether you want to learn more about Wiradyuri culture, enjoy time in nature or attend a community event or educational tour.

Culture

'Marrambidya' was selected as the name of the wetland to acknowledge the traditional name of the Murrumbidgee River. The site is bounded by a declared significant Aboriginal Place, Wiradjuri (Wiradyuri) Reserve & Gobba Beach which includes the Murrumbidgee River to the North and West but that is not included in this PoM. A number of cultural elements have been incorporated into the wetland to showcase the Wiradyuri culture.

The Healing Place was developed in consultation with the local Wiradyuri community to create a place of serenity where community members can sit, relax and reflect amongst nature or visit the Aboriginal sites nearby. The Healing Place features native plants, a seating area made from River Red Gum and a fallen scar tree that was discovered during construction now displays the Marrambidya Wetland Healing Place plaque.

Hand carved Goanna and shield totem poles created by local Wiradyuri Elders and donated to the site by the artists and TAFE NSW Riverina Institute has also been installed at the entrance to the Healing place. The 'Gugaa' (Wiradyuri for Goanna) is the overarching totem for the Wiradyuri Nation. It is the symbol that connects all people, past and present of Wiradyuri.

The Marrambidya Wetland is located between two declared Aboriginal Places of Significance; Wiradjuri (Wiradyuri) Reserve & Gobba Beach. Wiradjuri (Wiradyuri) Reserve & Gobba Beach is a place associated with the traditional Wiradyuri story concerning a couple, Gobbagumbalin and Pomingalarna, who broke traditional law. According to the story, the sad chant of local frogs is a reminder of the death of the couple.

At the entry of the Marrambidya Wetland you are greeted with six artworks by renowned Wiradyuri artist Aunty Kath Withers, creating a unique welcome to the wetland. Each artwork represents a different aspect of the wetland from the Spirt of the Wetland to Spirts of the night sky.

To complement the Wiradyuri artwork, six storytelling devices have been installed throughout the wetland that play stories associated with the wetland, its creation, wetland ecology and Wiradyuri history. Wiradyuri Aunty Kath Withers, Uncle James Ingram and proud Wiradyuri man Mark Saddler have provided their voices and shared stories including a welcome to country as well as Mark Saddler playing the didgeridoo.

The cultural demonstration area includes a campsite with three traditional gunyahs (huts) and two Bora rings (dance rings). The Bora rings are used in various present-day ceremonies including the Goanna Song and Dance ceremony and corroborees. The Marrambidya Wetland hosted a corroboree in October 2019, where Wiradyuri people welcomed more than 2,000 people, featuring painted performers, dancing songs, fire and clapsticks.

Education and events

The Marrambidya Wetland provides an ideal location for both primary and secondary school groups to leave the classroom and learn about the local environment and traditional Wiradyuri culture. The Outdoor Learning Area provides an undercover area for students to learn about the Marrambidya Wetland in a safe and protected environment. Council Officers also facilitate educational excursions where students undertake various activities including water bug investigations to determine water quality, nest box fauna surveys, identifying birds from the bird hides, surveying the site from the elevated viewing platform and reflecting in the Healing Place.

The Marrambidya Wetland has a number of educational resources that provide visitors with unique opportunity to learn about the wetland and surrounding areas. A number of interpretive signs provide information about the history of the area, Wiradyuri cultural practices, and the ecology of local wildlife.

To compliment the interpretive signage, six story telling devices have been installed enabling visitors to listen to various Wiradyuri Elders, cultural knowledge holders or environmentalists on a selected topics of key wetland features, ecological processes, cultural practices and traditions.

The Marrambidya Wetland can be booked for an event via Council's website. Numerous events have been held at the wetland including education open days, breakfast birding, park runs, Goanna Song and Dance, Apology Day ceremonies and corroborees.

Nature-based tourism

The Marrambidya Wetland is an emerging attraction for visitors to the city and has the potential to grow to a regionally or state significant attraction. The site currently provides visitors and community members a space to engage in nature, Wiradyuri culture, and recreational experiences such as birdwatching, cycling and trail walking.

Each year the city welcomes 1.38 million visitors with key markets including visiting friends and relatives, holiday makers, business and events travellers, and campers and caravanners. For all visitor segments, there is a growing desire to experience nature in all its forms, and to engage and learn about authentic cultural and First Nation experiences. More broadly, the wetland directly aligns with the NSW 'Reconnect in nature' strengths identified in the NSW Visitor Economy Strategy 2030.

The site has key advantages in its proximity and connectivity to the city centre via trail routes and links to key assets including the Wiradjuri (Wiradyuri) Trail, Wiradjuri (Wiradyuri) Reserve, and access to the Murrumbidgee River. The development of quality infrastructure such as a boardwalk experience, improved trails, immersive art, quality amenities, and signage for wayfinding and education all aid in creating a valuable visitor experience while meeting the expectations of today's travellers. In addition, there are opportunities to support local operators to conduct nature-based tours, Wiradyuri and First Nations led tours and programs.

Passive recreation

Walking tracks, seats, bird hides, shelters, an elevated viewing platform and an Outdoor Learning Area have been provided to enhance the visitor's experience as they observe native fauna foraging and nesting in the tall grasses and reeds. The looping walking track starts and finishes at the carpark, with opportunities for the visitors to connect with the Wiradjuri (Wiradyuri) Trail to extend their riverside experiences further if desired.

The Marrambidya Wetland plays an important part in the ecosystem as it forms part of a corridor connection via the other waterways and wetland. Figure 4 below identifies various wetlands throughout the Riverina along with rivers and lakes that provides habitat for wetland species including the internationally recognised significant RAMSAR wetlands at Fivebough and Tuckerbil in Leeton.

Bird watching is a popular activity enjoyed by all ages. Wetlands like the Marrambidya Wetland are frequently used to observe and photograph different wildlife species, as it is easily accessible and provides camouflage from bird species. It is common to travel to different locations to observe different species of birds.

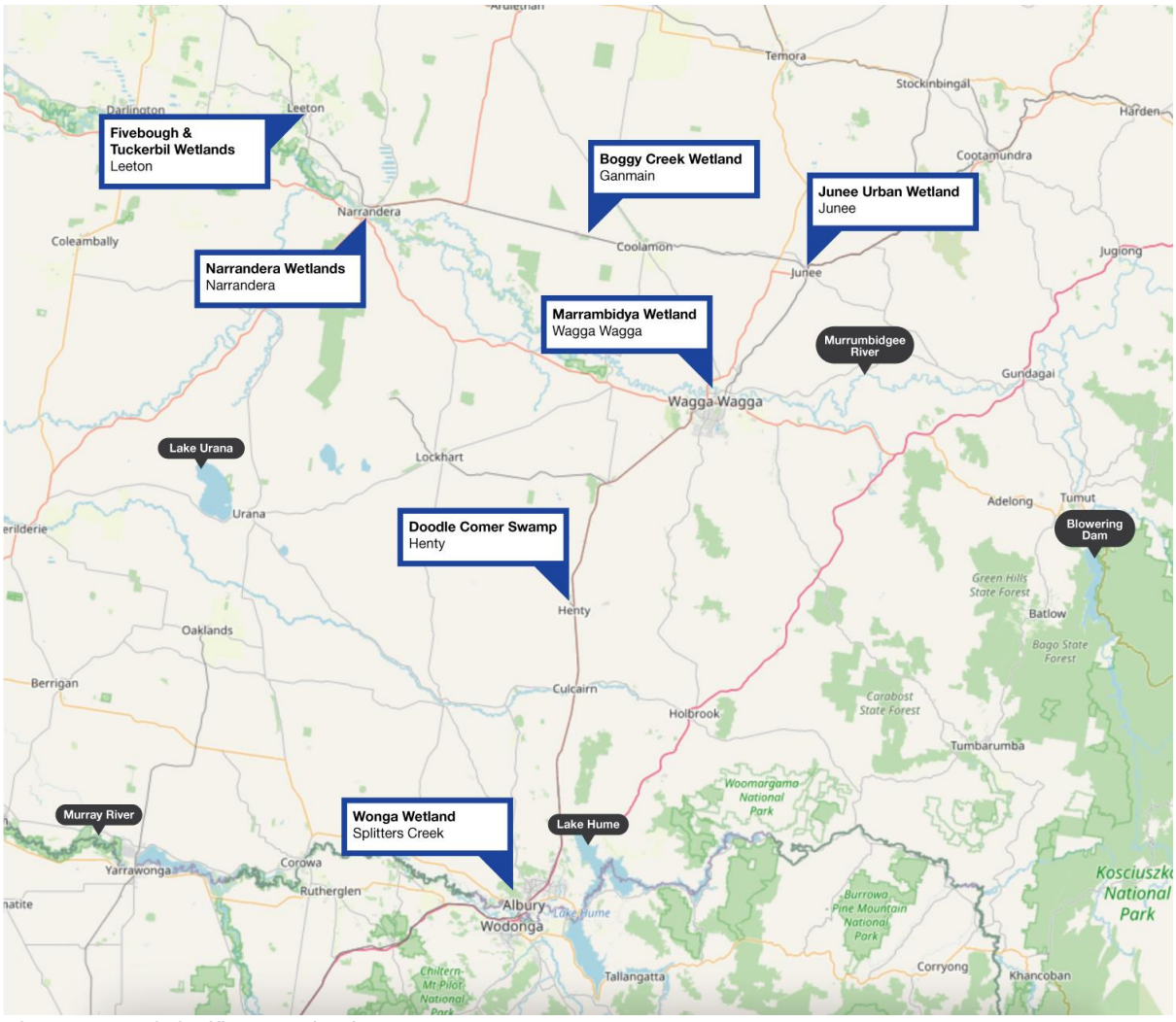

Figure 4: Local significant wetlands

Ecological values

Aquatic habitat

Since European settlement we have changed the landscape and river systems significantly, losing large amounts of natural vegetation and important wetland environments that provide habitat for native animals. Constructed wetlands like the Marrambidya Wetland aim to create both aquatic and terrestrial habitats. The Marrambidya Wetland is part of a significant habitat for water birds, fish, crustaceans, and amphibians as it provides foraging habitat and most importantly breeding habitat for these wetland species. Due to damming and construction of levee banks, wetland habitat is becoming less common causing habitat loss and a decrease in wetland species populations.

The four ponds of the wetland have been designed to interconnect and create different niche habitat to encourage a wide variety of wildlife to the area. The four ponds include:

- Frog Pond - (0.1 – 1m deep), when the water level is at its highest most of the grasses and vegetation in the pond is inundated creating an emergent vegetation environment that provides habitat for frogs, water bugs and insect larvae.

- Duck Pond - (1m – 2.5m deep), contains an earthen island that provides a bird nesting area that is safe from predators such as cats, dogs, and foxes. Large flood debris and tree stumps have been placed in this pond to create habitat features both above and below the water. As the water level recedes shallow mud flats are exposed creating forage areas for wading water birds such as Spoonbills and Egrets.

- Fish Pond - (up to 3.5m deep), the depth of the water is an important feature that helps keep the water temperature cool in the summer months. The wetland has been stocked with freshwater shrimp, Murray River Rainbow Fish and native gudgeon; these fish are small only growing to a maximum of 70mm long. This pond contains submerged and emergent flood debris, tree stumps and floating reed beds creating habitat for the fish as well as protection from diving birds. Fishing is not allowed in the wetland area.

- Turtle Pond – (ephemeral) this pond contains water only in the wettest periods of the year. There is a quantity of large timber debris and small river redgums that have naturally regenerated.

Terrestrial habitat

River Red Gums are dominant throughout the Marrambidya Wetland with a mix of juvenile and mature trees, with a majority of the hollow bearing trees located along the river's edge. The River Red Gums provide foraging and shelter habitat for a variety of bird species as well as nocturnal arboreal mammals including Brushtail and Ringtail Possums, Squirrel Gliders and several species of Microbats. The River Red Gum forest continues along the banks of the Murrumbidgee River providing corridor connections to other parts of the LGA including Wilks Park, Wiradjuri (Wiradyuri) Reserve and Flowerdale Lagoon, providing habitat for threatened species.

Although hollow bearing trees are present within the Marrambidya Wetland, hollows can take over 100 years to form. To decrease the pressure on hollow dependent species, a number of artificial nest boxes have been installed. These nest boxes provide additional sheltering habitat for species that are moving through the landscape or that may choose to breed or nest. Artificial nest boxes have been chosen to specifically suit the Brown Tree Creeper, Squirrel Glider and Wood Duck.

Located southeast of the ponds is a large open space of native grasses and forbs including Spiny-head Mat Rush and Spreading Flax Lily with a mix of exotic species. This area provides foraging and sheltering habitat for small ground dwelling mammals, waterbirds such as the Dusky Moorhen, and reptiles such as the Red Belly Black Snake, Common Garden Skink, Blue Tongue Lizard and Shingleback Lizard.

Wetland flora and fauna

The Marrambidya Wetland provides a diverse habitat that attracts various types of native wildlife. A large number of bird species are found inhabiting the wetland from water species, woodland species and migratory species. Some birds can be seen all year or sporadically depending on the season. The Marrambidya Wetland is also being used as breeding habitat with fledglings and ducklings seen throughout the ponds and grassland areas. Visitors can utilise the two bird hides to watch the birds in their natural setting with minimal disturbance.

The presence of hollow bearing trees provides habitat for a number of arboreal mammals and some species of birds. Recorded species include Brush-tailed and Ringtail Possums, Squirrel Gliders, Cockatoos, and species of Microbats. The River Red Gum Forest also provides habitat for ground dwelling mammals including the Eastern Grey Kangaroo, Echidna and Swamp Wallaby.

The four purposely designed ponds create aquatic habitat for a variety of invertebrates, fish and amphibians that can be found throughout the wetland. Aquatic vegetation is present throughout each of the three ponds including Knob Sedge (*Carex inversa*), Rush (*Juncus subsecundus*) and Common Reed (*Phragmites australis*). The invertebrates provide foraging habitat for various fish and water birds that inhabit the wetland.

Approximately 20,000 fingerlings were released into the ponds to establish a healthy fish population in 2016. Species included Murray River Rainbow Fish, Native Gudgeon, Freshwater Shrimp and Yabbies. Given the permanent water source and fringing vegetation, a number of amphibians occur including Eastern Froglet, Eastern Sign-bearing Froglet, Long-thumbed Frog and Spotted Grass Frog.

In June 2021, Council conducted electrofishing in the wetland, targeting European Carp to improve native fish populations. European carp are a large, introduced freshwater fish that have destructive bottom-feeding habits, which stir up sediments reducing water quality and damaging native fish habitat. Approximately 750kg of carp were removed from the Wollundry Lagoon and the Marrambidya Wetland in two days.

A full list of recorded species is detailed in Appendix 1: Flora and Fauna species list.

Water supply and quality

The primary water source for the wetland is treated effluent water generated from the Narrung Street Sewerage Treatment Plant. The water flows into the wetland via a reuse pipe that discharges below the water surface into the deeper ‘Fish Pond’.

The quality and quantity of water that discharges into the wetland is regulated by an Environmental Protection Licence (EPL 393). The EPL allows a maximum 2600kL per day of treated effluent to discharge into the wetland or the river. By controlling and restricting the flow of effluent into the wetland, Council can imitate the natural water cycle of the Murrumbidgee River, with high water or flood levels during the winter months and low levels during the drier summer months.

Altering the water level creates ephemeral areas within the ponds exposing additional environmental resources such as shallows, mudflats, and dry pond beds at the appropriate time of year. To ensure a healthy environment for the native fish in the ponds, solar powered aerators maintain suitable dissolved oxygen levels and help combat algal blooms.

Wetland pond sampling is conducted annually and tested for metals, nutrients, blue green algae and bacteria. Samples are collected in the field and sent to a NATA accredited laboratories for analysis. Field sampling for dissolved oxygen, pH, salinity, redox and temperature is also conducted 3 times a year in-situ using a multimeter.

Flooding

Marrambidya Wetland was constructed to recreate niche habitats and environmental resources in an ecosystem that has been greatly modified or removed by development in the regulated lower Murrumbidgee River system. It was a design requirement that the wetland not increase the floodplain roughness or negatively contribute to flood events. To achieve this requirement the existing sewerage treatment ponds were reshaped and reduced in height improving the flow capacity of the flood runner between the ponds and the sewerage treatment facility.

Infrastructure at the wetland such as tracks, seating, shelters, and signage, also needed to be resilient to flooding and inundation, as well as not impact negatively on flood levels. To achieve this the built assets were kept to a minimum with larger structures able to be removed if necessary. All assets are built with natural or recycled materials where practical. Material that was already on site was used to create the tracks around the ponds and other features. For example timber seating made from flood debris found on site assisted in reducing the amount of material imported on to the floodplain.

Species spotlight

Squirrel Glider

niyambaa ■ yandhang ■ bangu

The Squirrel Glider (*Petaurus norfolcensis*) is a nocturnal marsupial that has a membrane between the front and back limbs that enables them to glide through to air from tree to tree. Blue-grey to brown-grey in colour, the Squirrel Glider has dark facial markings between the eyes to the midback.

Diet varies seasonally and consists of acacia gum, eucalypt sap, nectar, honeydew and manna, with invertebrates and pollen providing protein. The Squirrel Glider is currently classified as 'Vulnerable' under NSW legislation and as an 'Endangered Population' in the Wagga Wagga LGA.

The species is currently facing a number of threats including habitat loss and degradation, fragmentation of habitat, loss of hollow bearing trees, loss of understorey food resource, mortality due to entanglement on barb wire and predation by exotic predators i.e. cats, foxes and wild dogs.

Squirrel Gliders have been found sporadically throughout the Marrambidya Wetland.

Eastern Long-necked Turtle

wangarang ■ gudhamang

As the name suggests, the Eastern Long-necked Turtle *(Chelodina longicollis)* has a long neck, approximately 13cm with a shell totalling 26cm. The shell is red-brown or black on the upper side and creamy yellow on the lower side, with dark markings.

The turtles are found in freshwater habitats including wetlands, dams, and even sewerage treatment plants. They spend most of their time in the water but they can move overland in search of new waterholes and nesting areas, walking up to 1km a day. They feed on invertebrates, tadpoles and small fish, which they tear apart with their front claws.

Female turtles generally lay their eggs by digging holes in soft sand along stream banks and can lay up to 10 eggs. Turtle eggs are predated on by cats, foxes, water rats and lizards and hatchlings are often eaten by fish and birds.

Eastern Long-necked Turtles have scent glands above each leg that secrete a pungent liquid when handled or disturbed, which is used as a defensive mechanism. The most common threat to the turtle is habitat loss and other human causes such as being run over by vehicles or trapped in stormwater drains.

Superb Parrot

dhungany ■

The Superb Parrot *(Polytelis swainsonii)* is a distinctive large bright grass green parrot with long narrow tail. Males have yellow foreheads and throats and a red crescent that separates the throat from the green chest. Females have a dull light blue wash in places of the male's green and yellow marking.

Foraging occurs up to 10km from nesting sites, primarily in Grassy Box Woodland. The parrots feed in trees and understorey shrubs and on the ground, consuming mainly grass seeds, herbaceous plants, fruits, berries, nectar, buds, flowers, insects and grains.

Breeding occurs between September and January, with nesting typically in October to late December, laying between four and six eggs in a tree hollow.

Royal Spoonbill

murrugaya ■

The Royal Spoonbill *(Platalea regia)* is a large white water bird with a black spoon-like bill, facial skin, legs and feet. They range from 74cm to 81cm, with distinctive white plumes on the back of their necks and chest during breeding season.

Spoonbills are usually found in shallow freshwater, saltwater, intertidal mud flats and wet grasslands. They will also use artificial wetlands, lagoons, salt fields, dams and reservoirs. Feeding on mainly freshwater fish, crustaceans and invertebrates, the spoon-like bill is used in a slow sweeping side to side motion.

Royal Spoonbill form monogamous pairs for the duration of the breeding season (October to March) and nest in colonies alongside other waterbirds. A solid bowl-shaped nest is built of sticks and twigs lined with leaves and water plants and is usually placed at the crown of a tree over water or among high reeds and rushes. Both the male and female will incubate the eggs and feed the young.

Spoonbills are not tolerant of disturbance, especially when breeding. Destruction of habitat by land-clearing, drainage, increased salinity or flooding and weed invasion are all threats to this species.

Spotted Grass Frog

gulaangga ■ dandany

The Spotted Grass Frog *(Limnodynates tasmaniensis)* is grey-brown or olive-green back with darker olive-green o brown patches. There is often a pale cream or red longitudinal stripe along the middle of the back. There is also a cream stripe from the under-eye to the top of the arm.

Spotted Grass Frogs are mostly ground dwelling and active at night, eating insects, spiders and even small snakes. During the day they prefer to remain hidden beneath logs, rocks or debris near the edge of temporary or permanent ponds, swamps and creeks.

Mainly breeding from August to March, females lay up to 1,500 eggs that are just 1mm each. They float in a foam on top of the water, often in ponds, flooded paddocks and roadside ditches. Tadpoles then hatch from the eggs, where they remain at the bottom of the water, taking generally three to four months to develop into frogs.

Habitat loss and fragmentation is the main threat for the species.

Freshwater Shrimp

giidyaa ■

The Freshwater Shrimp *(Paratya australiensis)* is the most widespread shrimp in eastern Australia, with the small translucent species often mistaken for a young yabby. Found in Central Queensland, New South Wales, Victoria, Tasmania and South Australia, they occupy freshwater creeks, streams and wetlands.

Freshwater Shrimp have filter feeding and scavenging habits, feeding on various types of algae and detritus. Breeding occurs from the end of spring to early summer when water temperatures are higher. Planktonic larvae appear late in October and are sometimes present through to February.

The Freshwater Shrimp plays a key role in aquatic ecosystems as they provide an important food source for fish and platypus.

Murray River Rainbow Fish

guya ■

The Murray River Rainbow Fish *(Melanotaenia fluviatilis)* is a small, laterally compressed fish with large eyes positioned on the top of their head. The two dorsal fins are separated by a small gap, with an anal fin underneath the fish. They are generally a silvery colour with greenish iridescence and white on the lower head and belly.

This species prefers slow moving rivers, wetlands and billabongs, where schools of 30 or more individuals are seen swimming just below the water surface. Breeding occurs generally in spring and summer when the water temperature exceeds 20 degrees, and the males perform an elaborate courtship display.

Females lay between 5-20 eggs per batch, in 3-4 batches per day for several days. Eggs sink and lodge amongst aquatic plants, where they attach via adhesive threads until hatching.

Red-bellied Black Snake

galinghuliny ■ gibirrngaan

The Red-bellied Black Snake *(pseudechis porphyriacus)* is a medium sized snake with the head barely distinct from the neck. Head and body colour are uniform black, with the snout often pale brown. The lower lateral scales are bright crimson, fading to duller red, orange or pink in the middle of the belly.

These snakes are usually associated with moist habitats, primarily streams, swamps, wetlands and other disturbed areas like drainage channels and farm dams. They shelter in thick grass clumps, logs, mammal burrows and under rocks.

The Red-bellied Black Snake feeds on a variety of vertebrates including fish, tadpoles, frogs, lizards, small mammals and snakes- including their own species. They can hunt on land and in water and are known to climb several metres. When hunting they predominantly hide their body, only exposing their heads.

Management of Land

Categorisation of land

The PoM has been prepared in accordance with Section 3.23 of the *Crown Land Management Act 2016* and Section 36 of the *Local Government Act 1993* which requires certain land to be classified and categorised in line with that legislation. This detail is outlined in Table 1.

Table 1: Crown and Council land classification and category details as depicted in Figure 2.

Wetland Land	Portion A (Orange)	Portion B (Purple)	Portion C (Yellow)
Owner	Crown	Crown	Council
Lot DP	Lot 7002 DP 1115536 (part)	Lot 7002 DP 1115536 (part)	Lot 280 DP 757249 (part)
LID	45502	45502	33695, 20904, 33701, 33733, 33702
Area (ha)	2.0 (of 8.5 total)	6.5 (of 8.5 total)	25.7 (of 28.3 total)
LEP zone	Special Infrastructure (SP2) and Public Recreation (RE1)	Special Infrastructure (SP2) and Public Recreation (RE1)	Special Infrastructure (SP2) and Public Recreation (RE1)
Reserve no.	61426	61426	N/A
Reserve purpose	Sewerage	Public Recreation & Community Purpose	N/A
Gazettal date	4/10/1929	4/10/1929	N/A
Classification	Operational	Community	Operational
Category	General use community	Natural Area - Bushland	General use community
Native Title Determination	No claim	No claim	N/A

**The LID includes the paper road parcels (walkway) that is located within the wetland site*

Current use

Narrung STP portion

The Narrung St STP is classified as Operational land under the *Local Government Act 1993* with a gazetted Reserve Purpose of 'Sewerage' under the *Crown Land Management Act 2016*.

The Council owned and operated Narrung STP plays a significant role in the treatment of sewage collected from the Wagga Wagga area, licensed under the Environmental Protection Authority. The treated water is discharged into the wetland, via a reuse pipe that discharges below the water surface into the deeper Fish Pond.

The Narrung St STP is the largest plant in the Wagga Wagga government area, collecting sewage from Wagga Wagga, South Wagga, Bourkelands, Ashmont, Turvey Park, Mt Austin, Tolland, Glenfield Park, Cartwrights Hill, Estella and the northern industrial area. Sewage from the industrial area initially undergoes pre-treatment at the Bomen Industrial Sewerage Treatment Facility (BISTF).

The treatment load consists of a mixture of domestic and industrial, with each having a separate process stream. The domestic treatment unit includes screening, grit removal, primary sedimentation, trickling filtration, humus tanks and tertiary ponding. The industrial treatment process begins with a sequencing batch reactor at BISTF, followed by screening, extended aeration, secondary clarification and tertiary ponding. Sludge at the plant is treated by biological digestion and is stored in two sludge lagoons. The sludge is periodically removed to a licensed landfill or reused where appropriate. The final effluent is discharged to either the Murrumbidgee River or into the network of effluent reuse projects administered by the Council.

Wetland portion

Community land is valued for its important role in the social, intellectual, spiritual and physical enrichment of residents, workers and visitors to the Wagga Wagga area. The intrinsic value of community land is also recognised as is the important role this land plays in biodiversity conservation and ecosystem function.

The Marrambidya Wetland has been categorised as a Natural Area – Bushland. The core objectives for wetlands, as outlined in Section 36J of the *Local Government Act 1993*, are to:

- ensure ongoing ecological viability of the land by protecting the ecological biodiversity and habitat values of the land, the flora and fauna of the land and other ecological values
- protect the aesthetic, heritage, recreational, educational and scientific values of the land
- manage the land in a manner that protects and enhances the values and quality of the land and facilities public enjoyment of the land, and to implement measures to minimise or mitigate disturbance caused by human intrusion
- restore degraded bushland
- protect existing landforms such as natural drainage lines, water courses and foreshores
- retain bushland in parcels of a size and configuration that will enable the existing plant and animal communities to survive in the long term
- protect bushland as a natural stabiliser of the soil surface

The Marrambidya Wetland has become an important ecosystem providing a variety of habitats for aquatic and terrestrial environments. The site also creates an opportunity for community members and visitors to utilise as a resource for natured-based recreation, and to learn about the environment and the traditional cultural practises of the Wiradyuri people.

Development and use

Table 2: Prescribed Objectives from the *Local Government Act 1993*

Objectives	Means of Achievement	Manner of Assessment
To conserve biodiversity and maintain ecosystem function in respect of the land, or the features or habitat in respect of which the land is categorized as a natural area To maintain the land, or that feature or habitat in its natural state and setting	• Manage reserve to ensure that areas of significant habitats are preserved • Protect significant habitats through appropriate protective zoning in the Local Environment Plan • Identify eradication programs for invasive species • Undertake fire risk mitigation works • Seek sufficient budget allocation to facilitate appropriate maintenance within the Reserve	• Undertake regular monitoring of natural assets and native species • Invasive species are identified and controlled • Sufficient maintenance budget allocated
To provide for the restoration and regeneration of the land	• Identify grants, partnerships and other external funding sources to facilitate protection and enhancement of Reserve values • Council to support community groups to seek funding for restoration and rehabilitation projects in appropriate bushland areas	• Funding sources/partnerships identified and sourced/created • Community group projects are operating under Council Staff supervision
To provide for community use of and access to the land in such a manner as will minimise and mitigate any disturbance caused by human intrusion	• Provide information for visitors to help raise awareness and promote responsible use that minimises the impact of human activity • Rationalise the number of tracks/trails and rehabilitate areas as identified • Ensure any development and activities within bushland conform to environmental best practice	• Community are aware of the Reserve's ecological values • Regular inspections undertaken with tracks/trails assessed, upgraded or rehabilitated as required • Reduced occurrences of damaging behaviours

Permissible and future uses

The general types of uses which may occur on community land and the forms of development generally associated with those uses, are set out in detail in Table 3. The uses and facilities on these may change over time, reflecting the needs of Council and the community.

Table 3: Permissible and future uses for land

Crown Land: Wetland portion - Public Recreation and Community Purpose
Purpose/Use
Facilitate accessibility for all members of the community
Provide an engaging educational space for people to learn about the history and importance of the Marrambidya Wetland
Preservation of biological diversity and habitat
Regenerative works requiring ecological restoration activities associated with protection of flora and fauna
Preservation of the Council's natural heritage including the identified endangered ecological communities
Environmental and scientific study
Providing a location for relaxation and passive informal recreation
Development to facilitate uses (Current and Future)
Visitor facilities: toilets, picnic tables, sheltered seating areas, lighting, and low impact carparks
Bookable space for events, free of charge and non-exclusively
Temporary mobile food stalls/vans operation
Construction and maintenance activities for walking tracks, active travel paths, boardwalks, pedestrian bridges, observation platforms, jetties
Interpretive signage, information kiosks, locational, directional and regulatory signage
Erection of building or structure used for educational purposes
Work sheds or storage shed required in connection with the maintenance of the land
Maintenance works to preserve the natural environment i.e. mowing, trimming and thinning of vegetation, water discharge, weed and pest control
Temporary erection or use of any building or structure necessary to enable a filming project to be carried out
Water quality and water saving initiatives and energy-saving initiatives
Maintenance of cultural demonstration area including cultural burning activities
Planting native vegetation and bush tucker species

Crown Land: Narrung STP portion - Sewerage
Purpose/Use
Operation of a sewerage treatment plant
Development to facilitate uses (Current and Future)
Construction of assets to assist the operation of the Narrung Sewerage Treatment Plant Maintenance of sewerage ponds and sewerage operations Maintenance works to preserve the natural environment i.e. mowing, trimming and thinning of vegetation, water discharge, weed and pest control, and cultural burns Work sheds or storage sheds required in connection with the maintenance of the land Water quality and water saving initiatives and energy-saving initiatives

Authorised Leasee, Licences or Other Estates

It is not anticipated that Council would grant any leases, licences or other estates on Crown Land. The Marrambidya Wetland is a bookable space, able to be utilised by any interested member of community on a non-exclusive and free of charge basis.

The Narrung Street STP currently does not have any leases, licences or other estates; however, provision is made for Council to enter into a contract or other arrangement with an independent third party/s for the operation of the sewerage treatment facility if required.

Management Challenges

Expectation of what is natural

The Marrambidya Wetland was created to replicate a natural riverine wetland ecosystem, with minimal infrastructure to enhance visitor's experience. To replicate a natural water cycle, the pond's water levels are controlled to flood during winter and dry/ lower in summer. Native vegetation was selected to provide habitat for local wetland and woodland species with the intention of managing it in a natural manner with minimal intervention.

The wetland can be seen by some as unkempt when they see grasses appear long and unmanaged, presence of spider webs and insects are visible and fallen tree branches remain on the ground. However, these elements serve an important ecological process to ensure the wetland provides a healthy habitat for its local species.

Off leash dogs

The Marrambidya Wetland is a popular recreational and natural space that community members often use for fitness and to enjoy the natural environment. The wetland consists of walking tracks that loop the wetland and that also link up to the Wiradyuri Walking track to the south and west. These walking tracks are used for walking, running, cycling and dog walking. The wetland is a leashed public space that can be enjoyed by all, however some dog owners have continued to keep their dogs off leash.

Off leash dogs are a safety concern to the local wildlife, as they can injure/kill wildlife or cause unnecessary stress, have the potential to scare ducks and waterbirds off their nests abandoning their eggs, and damage natural habitat by digging holes. Unleashed dog owners are less likely to pick up dog faeces, when walking their dog. Unleashed dogs can also cause harm to or frighten other wetland users including adults, children and other dogs. Off leash dogs are also in danger of being bitten by snakes that inhabit the area. Snakes will generally try to get away from threats but if chased by a dog they will bite.

The enforcement of dogs on leash can be difficult to police. Signs to educate wetland users have been implemented.

Parking for large events

The Marrambidya Wetland carpark is located at the front of the site and is approximately 1700m2. The carpark is gravel with an entrance and an exit driveway, with vegetation around the perimeter. The current carpark has the capacity to hold approximately 40 vehicles.

During large events the carpark does not cater for the amounts of vehicles. The overflow of vehicles currently park on the Wiradjuri (Wiradyuri) Reserve grass area, located approximately 800m to the east of the wetland. Community members then walk along the Wiradjuri (Wiradyuri) Trail and enter the Marrambidya Wetland.

Investigations of seeking an overflow carpark for larger events is an action within the Marrambidya Wetland PoM.

Weed and pest species

Weeds within the Wagga Wagga LGA are widespread and pose a serious threat to the natural environment, agricultural productivity, and the health of the community. Weed infestations threaten viability and species diversity of native vegetation as weeds compete for resources and alter environmental conditions.

The Marrambidya Wetland is a high traffic area and is highly susceptible to a variety of seed dispersal. Weeds are difficult to control and have the potential to spread quickly by seed dispersal through animals, humans, wind, and water.

To help stop the spread of weeds, Council's vegetation management team developed weed hygiene stations that consist of a series of brushes that are used to remove any seeds that may be on shoes, bikes and even dogs. The seeds are then brushed into the base of the station and collected for identification. This enables staff to learn more about weed movements. A weed hygiene station has been installed at the entrance of the wetland.

Vertebrate pest species have a significant impact on the environment. The main pest species that occur at the wetland include European Carp, Foxes and Cats. European Carp cause a number of issues including reduced water quality by uprooting vegetation and stir up sediment, impacts riverbanks leading to erosion, and outcompetes native species for resources including food habitat and breeding sites.

In 2021 Council engaged a contractor to conduct electrofishing within the Marrambidya Wetland. The process utilised an electrical current to temporarily immobilise fish within a 5m range, enabling the contractor to remove the European Carp. Carp removed were humanely disposed and taken to the Charlie Carp facility to be processed for fertilizer.

Foxes and cats are a major predator of native animals in the wetlands, particularly Kangaroos and Wallabies, Possums and Gliders, ground nesting Birds and freshwater Turtles. Wetlands are particularly prone to fox and cat predation due to high fauna biodiversity and access to breeding and nesting areas. Foxes and cats are highly skilled predators and actively hunt their prey.

Council engaged a licensed contractor to perform fox trapping within the wetland. Traps were baited with meat to lure foxes into the trap. Traps were set early evenings and checked early morning. Foxes that were trapped, were disposed of humanely.

Unauthorised activities

The Marrambidya Wetland is a public space that can be accessed day and night, however, is prone to unauthorised activities including the use of motorbikes and illegal driving practices within the carpark.

The use of motorbikes along the heavily used walking tracks not only pose a serious threat to the significant native species but also to other wetland users including adults and children that could result in injury or fatality.

Illegal driving practices within the carpark have damaged the surface, causing potholes and an uneven surface. The inclusion of permanent infrastructure to deter this behaviour is currently being investigated.

Implementation

The following maintenance actions and improvement actions in the following table have been developed from the consultation with community and stakeholders. The actions have been divided into four main categories including:

- Maintenance
- Infrastructure upgrades
- Enhanced usage and
- Environmental management.

These actions will be used as a basis for future budget consideration and provide the specific direction for operational work plans and guide internal management decisions. Where funding is available, they will be undertaken according to the identified timeframes. The actions identified within the table vary depending on the category of activity (ie maintenance based or project based) and range from:

- Short - (1-3 years)
- Medium - (4-6 years)
- Long - (7-10 years)
- Monthly - (every month)
- Quarterly - (every three months)
- Biannual – (twice a year)
- Biennial – (once every two years)
- Ongoing (will occur periodically as required)

Funding

The Marrambidya Wetland occupies a large area and requires a number of maintenance actions to keep the site safe and functional. Each action has been classified as funded or unfunded with an indicative cost and funding source.

Council will endeavour to source funding for all actions marked ‘unfunded’ however this may result in some actions being carried out later than indicated in the table, or not at all if suitable funding cannot be sourced.

Potential funding sources include:

- Existing/In-kind – Council staff time and/or existing Council budget allocations
- GPR - Council endorsed budget allocations in future years from General Purpose Revenue
- Grants – Any applicable federal and state government grants or relevant third party funding agreements.

Description of action	Indicative timeframe	Funded/unfunded Cost estimate	Potential/actual funding source
Maintenance of Site			
Control vegetation and weeds	**Quarterly**	**Funded** **$4K p.a**	**Existing/In-kind**
Maintain and enhance natural areas	**Biannual**	**Funded** **$2K p.a**	**Existing/In-kind**
Mow and maintain cultural display areas	**Quarterly**	**Funded** **$4K p.a**	**Existing**
Maintain and repair carpark surface	**7 yearly**	**Funded** **$17K**	**Existing**
Maintain and repair walking track and levee banks	**Biennial**	**Funded** **$5K**	**Existing**
Maintain and repair aerators	**Biennial**	**Funded** **< $1K**	**Existing**
Maintain floating reed beds	**Annual**	**Funded** **<$1K**	**In-kind**
Conduct infrastructure audits	**Biannual**	**Funded** **<$1K p.a**	**Existing/In-kind**
Maintain and repair wetland infrastructure assets	**5 yearly**	**Funded** **$5K**	**GPR**
Clean and maintain bird hides, signs, seating	**Monthly**	**Funded** **$3K p.a**	**In-kind**
Clean and maintain toilets and water bubbler facilities	**Twice Weekly**	**Funded** **$4K p.a**	**Existing/In-kind**
Infrastructure Upgrades			
Install additional wetland safety, enforcement, and directional signage	**Short**	**Unfunded** **$10K**	**Existing/In-kind and Grants**
Improve carpark safety	**Short**	**Unfunded** **<$50K**	**Grants or GPR**
Investigate parking capacity in the wider precinct for larger events	**Medium**	**Unfunded** **$5K**	**Existing/In-kind and GPR**
Increase size of existing car park	**Medium**	**Unfunded** **$50K+**	**Grants**

Improve access for people with a disability and prams	**Medium**	**Unfunded** **$50K+**	**Grants**
Improve seating locations and designs	**Medium**	**Unfunded** **<$15K**	**Grants**
Conduct feasibility of constructing Education Centre / Discovery Node at the wetland	**Long**	**Unfunded** **$40K Study** **$2M Construction**	**Grants**
Construct boardwalk over turtle pond	**Long**	**Unfunded** **$200K**	**Grants**
Create additional walking tracks	**Long**	**Unfunded** **$200K**	**Grants**

Enhanced Usage

Include Cultural Knowledge holders in major Council events at Marrambidya Wetland	**Ongoing**	**Funded** **<$1K**	**Existing/In-kind**
Update existing interpretive signage	**Short**	**Unfunded** **$10K**	**Grants**
Install additional Wiradyuri Artworks	**Ongoing**	**Unfunded** **$150K**	**Grants**
Increase promotion of the wetland	**Ongoing**	**Funded** **$2K**	**Existing/In-kind**
Encourage harvesting of appropriate plants for cultural use	**Ongoing**	**Funded** **<$1K**	**Existing/In-kind**
Encourage use of the site for Wiradyuri cultural tours	**Ongoing**	**Funded** **<$1K**	**Existing/In-kind and Grants**
Encourage use of the site for ecological research	**Ongoing**	**Funded** **<$1K**	**Existing/In-kind and Grants**
Facilitate environmental tours for schools, community groups and the public	**Ongoing**	**Funded** **$10K**	**Existing/In-kind**
Determine the interest in a ‘friends of the wetland’ committee	**Short**	**Funded** **<$1k**	**Existing/In-kind**

Environmental Management

Engage licensed contractor to undertake feral animal control	**Ongoing**	**Unfunded** **$5K**	**Grants**
Engage licensed contractor to reduce carp	**Medium**	**Unfunded** **$8K**	**Grants**

Identify suitable areas and undertake additional plantings	**Short**	**Funded** **$2K**	**Existing/In-kind**
Restock ponds with native fish	**Medium**	**Unfunded** **$4K**	**Grants**
Conduct ecological surveys	**Ongoing**	**Funded** **$5K**	**Existing/In-kind**
Replacement of nest boxes	**Short**	**Funded** **$10K**	**Existing/In-kind and Grants**
Incorporate cultural practices to manage weeds and vegetation	**Short**	**Funded** **$5K**	**Existing/In-kind and Grants**
Undertake selective vegetation thinning	**Medium**	**Unfunded** **$20K**	**Grants**
Investigate opportunities to employ Wiradyuri person(s) to maintain the wetland and other natural areas	**Ongoing**	**Unfunded** **$100K+ yearly**	**Grants and GPR**

Monitoring and reporting

Regular analysis of actions within the PoM will be conducted to make sure actions remain relevant and responsive to the community needs through the 10-year duration of the PoM.

The PoM has clear linkages with key corporate documents including the Community Strategic Plan, Wagga Wagga Local Strategic Planning Statement and Biodiversity Strategy Maldhangilanha in the Integrated Planning and Reporting Framework. The identified actions will be reported on for the relevant financial year as part of the Council's reporting process under the Community Strategic Plan and published in the Annual Report each November.

The PoM will undergo a major review leading up to 2033-2034, however circumstances may occur where minor administrative changes to this document may be required. Where an update does not significantly alter this document, such a change may be made without rewriting or complete review. This may include change to the name of a Council department, Commonwealth or State Government department or a minor update to legislation which does not have a significant impact.

Appendices

Appendix 1 – Flora and Fauna species list

Common Name	Scientific Name
Terrestrial plants	
Purple Coral Pea	*Hardenbergia violacea*
River Red Gum	*Eucalyptus camaldulensis*
River She-oak	*Casuarina cunninghamiana*
Spear Grass	*Austrostipa scabra*
Spiney-headed Mat Rush	*Lomandra longifolia*
Spreading Flax-lily	*Dianella revoluta*
Weeping Willow	*Salix babyloncia*
Aquatic Plants	
Common Reed	*Phragmites australis*
Cumbungi	*Typha domingensis*
Knob Sedge	*Carex inversa*
Rush	*Juncus subsecundus*

Common Name	Scientific Name	Common Name	Scientific Name
Birds			
Australasian Darter	*Anhinga novaehollandiae*	Pacific Black Duck	*Anas superciliosa*
Australian Magpie	*Cracticus tibicen*	Pied Cormorant	*Phalacrocorax varius*
Australian Pelican	*Pelecanus conspicillatus*	Pied Currawong	*Strepera graculina*
Australian Raven	*Corvus coronoides*	Purple Swamphen	*Porphyrio porphyrio*
Australian Reed-Warbler	*Acrocephalus australis*	Red Wattlebird	*Anthochaera carunculata*
Australian Shelduck	*Tadorna tadornoides*	Red-kneed Dotterel	*Erythrogonys cinctus*
Australian Wood Duck	*Chenonetta jubata*	Restless Flycatcher	*Myiagra inquieta*
Black-shouldered Kite	*Elanus axillaris*	Royal Spoonbill	*Platalea regia*
Brown Treecreeper	*Climacteris picumnus*	Striated Pardalote	*Pardalotus striatus*
Dusky Moorhen	*Gallinula tenebrosa*	Sulphur-crested Cockatoo	*Cacatua galerita*
Eastern Great Egret	*Ardea modesta*	Superb Fairy-wren	*Malurus cyaneus*
Eurasian Coot	*Fulica atra*	*Superb Parrot	*Polytelis swainsonii*
Nankeen Night-Heron	*Nycticorax caledonicus*	Tawny Frog	*Neobatrachus fulvus*
Galah	*Eolophus roseicapillus*	Welcome Swallow	*Hirundo neoxena*
Great Egret	*Ardea alba*	Whistling Kite	*Haliastur sphenurus*
Green Rosella	*Platycercus caledonicus*	White-faced Heron	*Egretta novaehollandiae*

Grey Fantail	*Rhipidura albiscapa*	White-necked Heron	*Ardea pacifica*
Grey Shrike-thrush	*Colluricincla harmonica*	White-plumed Honeyeater	*Lichenostomus penicillatus*
Grey Teal	*Anas gracilis*	White-winged Chough	*Corcorax melanorhamphos*
Laughing Kookaburra	*Dacelo novaeguineae*	Willie Wagtail	*Rhipidura leucophrys*
Magpie-lark	*Grallina cyanoleuca*		
Mammals			
Common Brushtail Possum	*Trichosurus vulpecula*	*Southern Myotis	*Myotis aelleni*
Common Ringtail Possum	*Pseudocheirus peregrinus*	*Squirrel Glider	*Petaurus norfolcensis*
Eastern Grey Kangaroo	*Macropus giganteus*	Swamp Wallaby	*Wallabia bicolor*
Short-beaked Echidna	*Tachyglossus aculeatus*		
Reptiles			
Common Blue-tongued Skink	*Tiliqua scincoides*	Red-bellied Black Snake	*Pseudechis porphyriacus*
Eastern Long-necked Turtle	*Chelodina longicollis*	Shingleback	*Tiliqua rugosa*
Garden Skink	*Lampropholis guichenoti*		
Amphibians			
Beeping Froglet	*Crinia parinsignifera*	Long-thumbed Frog	*Limnodynastes fletcheri*
Eastern Froglet	*Crinia signifera*	Spotted Grass Frog	*Limnodynastes tasmaniensis*
Eastern Sign-bearing Froglet	*Crinia parinsignifera*		
Fish			
European Carp	*Cyprinus carpio*	Purple spotted Gudgeon	*Mogurnda adspersa*
Murray River rainbow Fish	*Melanotaenia fluviatilis*		
Crustaceans			
Common Yabby	*Cherax destructor*	Fresh water shrimp	*Paratya australiensis*

**Denotes a threatened species under Commonwealth and State legislation*