

# Water Infrastructure



# Water infrastructure

We assist NSW local water utilities to plan and deliver appropriate, affordable, cost-effective and sustainable water supply, wastewater, dams and river infrastructure that meet community needs and protect public health and the environment.

We are at the forefront of water management in NSW and have a strong technical base of designers, planners and project managers to deliver water infrastructure projects to the communities of Regional NSW.

NSW Public Works has specialist teams with expertise in the lifecycle management of civil infrastructure, including water and wastewater, roads and bridges, dams, rivers and stormwater projects.

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## Helping at every stage of the water cycle

### Strategic planning for water infrastructure



- 30-year total asset management plan
- 30-year financial plan
- Development servicing plan
- Drought and emergency response contingency planning
- Water and sewer hydraulic modelling
- Options assessment

### Investigation and design



- Water quality investigations
- Spatial asset data capture and analysis
- Environmental assessments
- Geotechnical investigation
- Concept design
- Detailed design, tender specifications and 3D modelling
- Peer reviews by subject matter experts

### Construction



- Strategic procurement advice
- Project management
- Pre-tender cost estimates and contractor procurement
- Contract management
- Construction surveillance and audits
- Environmental and safety monitoring



## Operation and maintenance



- Operational advice and troubleshooting
- Real-time monitoring
- Remote monitoring and operational advice
- Regulatory compliance
- Emergency response

## Asset management



- Dam safety management systems
- Precision surveys and dam monitoring
- Operation and maintenance manuals
- Condition assessments, fair value, and asset management plans
- 3D modelling of existing assets
- Digital twin for different asset types
- Digital transformation for asset management



# Wingecarribee Shire

## IWCM Strategy

Wingecarribee Shire is an important catchment area for water supply to Sydney and Wollongong and is primarily known for its agriculture and tourism industries.

Due to increased regulatory requirements and growing local community needs, NSW Public Works was engaged to develop an Integrated Water Cycle Management (IWCM) Strategy to enable the Council to effectively manage its current and future water and sewerage infrastructure needs.

Based on our options assessments, we developed a comprehensive evidence-based IWCM strategy that included a 30-year capital works program with a total value of \$100 million that will meet community needs for the foreseeable future.



## Chaffey Dam

### Safety Upgrade

NSW Public Works managed the contract and carried out construction surveillance, site inspection and audits for the Chaffey Dam Safety Upgrade for Water NSW which was planned to eliminate the risk of excessive stress on the dam structure.

The outcome was an auxiliary spillway to pass a flood with an AEP of 1:450,000 which eliminates the risk of high inflows overtopping the storage and subjecting the dam structure to excessive stress.

Works for the fuse plugs constructed within the floor of the spillway channel included foundation preparation, dental concrete, reinforced concrete sill and earth fill zoned embankment.



# Hay Sewage Treatment Plant

Hay Sewage Treatment Plant (STP) is located approximately 2.5 km north-west of the Hay town centre. The newly augmented plant can cater for up to 3,500 equivalent persons (EP). The plant features an activated sludge process that produces a higher effluent quality. The final effluent is discharged into the existing evaporation ponds for final disposal.

NSW Public Works designed and managed the construction of the plant, collaborating with Council and contractors throughout to ensure the successful delivery of the project.

Hay STP will meet Council's requirements for the next 30 years and achieve a goal of a better environment into the future.



# Cobar Water Treatment Plant

Cobar's original Water Treatment Plant (WTP) was more than 70 years old and was in dire need of replacement to provide safe, secure and reliable access to potable water for the people living in Cobar and nearby towns.

Cobar Shire Council engaged NSW Public Works to assist with the procurement of a new WTP.

NSW Public Works assisted Council with a range of technical advisory solutions on every aspect of the project covering options development, concept design, technical specification, tendering, tender review as well as overall project management and commissioning of the new plant.





# Upper Shephards Lane Detention Basin

Coffs Harbour City Council's Flood Mitigation Strategy identified the requirement for several detention basins to be built to reduce downstream flooding in Coffs Harbour CBD. There were five new detention basins proposed.

Council engaged NSW Public Works to undertake investigation and design for the basins and to prepare contract documentation.

NSW Public Works also provided technical advice and liaison services during the construction phase of Upper Shephards Lane Detention Basin.



# Junee Sewage Treatment Plant Augmentation

With the existing plant nearing its capacity, Junee Shire Council engaged NSW Public Works to investigate the best way to augment the plant. Council required the plant to cater for growth projections and to satisfy EPA requirements for discharge into sensitive waters and the production of Stabilised Grade-B Biosolids.

A new biological treatment process was proposed based on NSW Public Works' robust, reliable and low cost Intermittently Decanted Extended Aeration (IDEA) treatment process, in which the micro-organisms contained within the sewage treatment process' bioreactor aid to break down organic matter. Management of the treated effluent from the new IDEA plant would then continue via the existing effluent reuse system.



# Winburndale Dam Flood Security Upgrade

Winburndale Dam is located approximately 20km east of Bathurst NSW and is used primarily for watering recreational facilities and industrial purposes.

The dam was constructed in the 1930s with a water storage capacity of 1700 megalitres, and became the primary water supply for the city until the 1950s when Chifley Dam was built. The original old wood stave pipeline between the dam and the city remains in place.

To ensure longevity of the infrastructure, the dam is currently undergoing a major flood security upgrade which includes the installation of post-tensioned ground anchors, reinforced concrete parapet walls, construction of valve house buildings and concrete toe slab erosion protection.



# Lake Wallace Dam Nimmitabel Water Supply

Cooma Monaro Shire Council engaged NSW Public Works to manage all aspects of the construction of a new water supply dam process including tendering, contract administration, site surveillance, inspections by specialist technical personnel and environmental monitoring.

During construction, we worked with the contractor to implement environmental controls, which included three temporary coffer dams, a clearwater bypass line, and an off-stream treatment facility in order to address water quality requirements.

The dam was named Lake Wallace Dam in honour of the landowner who made the land available for the dam, storage area and conservation area.





# Safety Advisory Basin Services

In addition to option, concept, detailed design and construction management of urban flood detention basins, NSW Public Works offers a suite of safety advisory services that are carried out in compliance with the Dams Safety Act 2015 and the Dams Safety Regulation 2019, regulated by Dams Safety NSW (DSNSW).

Through our design, construction and safety investigation experience for water supply dams and regional flood levee systems, NSW Public Works offers consultancy services for detention basins which include Dambreak and Potential Loss of Life Studies, Operation and Maintenance Plans and Emergency Plans, previously known as Dams Safety Emergency Plans.

All documents are prepared in accordance with DSNSW's guidelines, recommendations and expectations.



## Wagga Wagga Town Levee Upgrade

Wagga Wagga City Council engaged NSW Public Works to provide a detailed design for the upgrade of the City's main north flood levee system to cater for the 1% AEP design flood event with an appropriate freeboard.

NSW Public Works provided construction works inspection services to ensure that design specifications and general design expectations were met.

In collaboration with the Office of Environment and Heritage, NSW Public Works carried out the investigation, modelling and design of spillway structures to delay flood overtopping of the levee embankment for events more severe than the 1% AEP design flood event.





# Kyogle Weir and Fishway

The Kyogle Weir and Fishway project won two different environmental awards, the NSW Local Government's Excellence in the Environment Award and the Habitat and Wildlife Guardianship Award as part of the Keep NSW Beautiful Blue Star Sustainability Awards.

The modification of the existing weir allowed for a fish-friendly passage by opening up approximately 1,500km of inland streams for fish habitat and has created a passage for more than 26 native fish species to move upstream by converting the existing water supply weir into a fishway ramp.

This allows native fish to cross the weir to spawn, feed and seek refuge in the upper reaches of the Richmond River.



# Fountaindale Dam Safety Review

Fountaindale Dam is located on the confluence of Tangalla Gully and Fountaindale Creek, approximately 10km west of the township of Kiama.

The dam was constructed in 1909 by the then Department of Public Works. It is a concrete gravity arch structure with free overfall spillway integral in the crest.

Kiama Municipal Council engaged NSW Public Works to carry out a safety review of Fountaindale Dam which includes the study of Potential Loss of Life (PLL), an updated Dam Safety Emergency Plan (DSEP), a stability analysis of the structure and preparation of an Operation & Maintenance (O&M) Manual.



# Why Choose NSW Public Works?



## Accredited for planning and delivery of capital works

NSW Public Works is accredited under the NSW Government Agency Accreditation Scheme for Construction to manage the planning and delivery phases of construction and capital works procurement. NSW State and Local Government entities can directly engage the services of NSW Public Works under the provision of NSW Government Procurement Board Direction PBD 2020-04 and Section 55 of the Local Government Act 1993, providing efficiencies and cost savings.



## Strong focus on quality, environmental and safety management

NSW Public Works operates under triple certification for quality, occupational health and safety (WHS) and environmental (QSE) management systems. These systems and processes provide the foundation for delivering quality projects and a continuous improvement culture, that embraces QSE leadership at all levels and integrates QSE into all activities. NSW Public Works' Project Management Framework is the backbone of our quality system and is used to manage our projects and ensure we deliver to agreed requirements.



## State-wide resources

Regional clients benefit from our state-wide network of offices enabling them to source expert project management personnel familiar with the conditions and construction industry issues in their area. This proximity reduces servicing costs, facilitates improved stakeholder communications and enables us to respond quickly to your needs, providing a single point of contact for all services.



## Government relationships and knowledge

Successful delivery of complex infrastructure projects relies on effective interaction with stakeholders and regulatory government agencies. Public Works' unique position within NSW Government enables us to bridge the gap between our clients and Government stakeholders to ensure necessary consultations and approvals are undertaken efficiently and effectively.



## Managed risks

We place considerable emphasis on advising clients of their risks on projects, including the options and costs to manage these risks. Wherever possible, risks are identified early and inform our planning and procurement strategy development processes. Risks are continuously monitored and updated as projects progress and discussed and managed with clients and contractors.



# Working across NSW

## HUNTER NEW ENGLAND

**Newcastle**  
117 Bull Street  
Newcastle West NSW 2302

**Tamworth**  
155-157 Marius Street  
Tamworth NSW 2340

**Inverell**  
7023 Gwydir Highway  
Inverell NSW 2360

**Armidale**  
85 Faulkner St  
Armidale NSW 2350

## NORTH COAST REGION

**Lismore**  
120 Dally Street  
Lismore NSW 2480

**Coffs Harbour**  
359 Harbour Drive  
Coffs Harbour NSW 2450

**Port Macquarie**  
Level 2, 41-47 Horton Street  
Port Macquarie NSW 2444

## SYDNEY METRO

**Parramatta**  
4 Parramatta Square  
12 Darcy Street  
Parramatta NSW 2150

**The Rocks**  
66 Harington Street  
Sydney NSW 2000

## SOUTH COAST REGION

**Wollongong**  
Level 3, Block E  
84 Crown Street  
Wollongong NSW 2500

**Goulburn**  
Suite 5, 167 Auburn Street  
Goulburn NSW 2580

**Moruya**  
66 Campbell Street  
Moruya NSW 2537

**Queanbeyan**  
Ground Floor East  
11 Farrer Place  
Queanbeyan NSW 2620

## RIVERINA/WESTERN REGION

**Bathurst**  
Level 1, 346 Panorama Avenue  
Bathurst NSW 2795

**Dubbo**  
34 White Street  
Dubbo NSW 2830

**Broken Hill**  
Level 1, 32 Sulphide Street  
Broken Hill NSW 2880

**Griffith**  
104 - 110 Banna Avenue  
Griffith NSW 2680

**Wagga Wagga**  
2-6 Coleman Street  
Wagga Wagga NSW 2650

**Dareton**  
1998 Silver City Highway  
Dareton NSW 2717



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