

---

# 2021-22 Year in Review

---



## Acknowledgment of Country

NSW Public Works acknowledges the lands on which we live and work as Aboriginal land and pays respect to past, present and future Traditional Custodians and Elders of this nation and to the continuation of cultural, spiritual and educational practices of Aboriginal and Torres Strait Islander peoples.



| On Country Artwork by: Mumbulla Creative, 2022

| Front cover: John Hunter Hospital rooftop solar project, Newcastle

# Contents

|   |    |
|---|----|
| From the Executive Director   | 4  |
| About NSW Public Works  | 5  |
| Business highlights from 2021-2022                                    | 9  |
| Impressive results  | 10 |
| Building capability for the future                                    | 12 |
| Satisfied clients   | 14 |
| Award winning work  | 16 |
| Hearing and recognising women leaders in construction and engineering | 17 |

|  |    |
|--|----|
| Helping to tackle some of NSW’s most complex challenges  | 18 |
| Emergency response and recovery  | 19 |
| Partnering to provide safe, secure and sustainable water supply and wastewater                             | 24 |
| Sustainability: Helping regional NSW transition to net zero  | 30 |
| Supporting and accelerating the delivery of key government programs and delivering broader social outcomes | 33 |
| Enhancing communities and service delivery with landmark projects  | 40 |
| Sustaining cultural heritage assets of communities, places and sites                                       | 45 |
| Supporting smarter digital design and asset management across regional NSW                                 | 48 |



Quick removal of flood waste helped communities get back on their feet

20



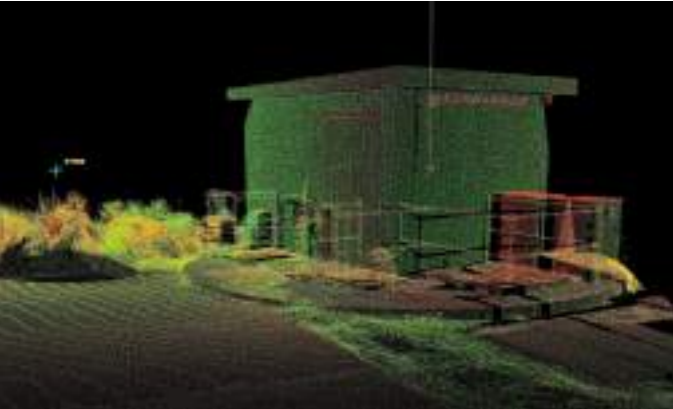
Remote technology allows Gundagai Sewerage Treatment Plant to operate in flood event

27



Leveraging Whole-of-Government contracts to provide agile responses & social procurement

34



‘Game changer’: Advanced survey technology enables digital models

49



# From the Executive Director

Welcome to our 2021-22 Year in Review — an interactive look into who we are, what we stand for and all that we have achieved this past year.

There has never been a more challenging and exciting time to be working for this organisation, or in our industry more broadly. Record breaking investment, consecutive natural disasters, skills and supply chain issues and the continuing, ever increasing imperative that we embrace a digital engineering environment and a transition to clean energy and sustainable infrastructure. This intense climate has kept us at the boundary of our comfort zone. While at times it hasn't been easy, it is pushing us to listen

and learn, and be inventive and flexible as we deliver excellent value for our clients and communities. I am confident that these times will be remembered as periods of personal and organisational growth, achievement and fulfilment.

I can see and feel a groundswell of energy and new momentum surging through NSW Public Works. It's fuelled by the regeneration of our staff's diverse capabilities and ideas and our ever-present passion, enthusiasm,

and confidence to rise to any occasion. I look around and see hundreds of up and comers who are developing into stars of our industry, and countless experienced staff busy transferring knowledge, helping to guide them on their journey. I see fantastic collaboration and partnerships occurring across our department and government, and incredible new tools and technologies being deployed that will magnify the value we deliver for our regional communities.

I will leave the long list of our successes for the following pages, and for now just say — thank you all for being you, doing what you do, letting us work with you, and cheers to an incredible 2022.

**Drew Varnum**  
Executive Director, NSW Public Works



| Flooding in Lismore

# About NSW Public Works

- Our purpose, mission, vision and values
- On-demand technical capability poised to tackle some of NSW's biggest challenges
- Our department: Regional NSW

| Michelle Viola, NSW Public Works Senior Program Manager, on-site at Raymond Terrace

## Our purpose, mission, vision and values

### Our purpose:

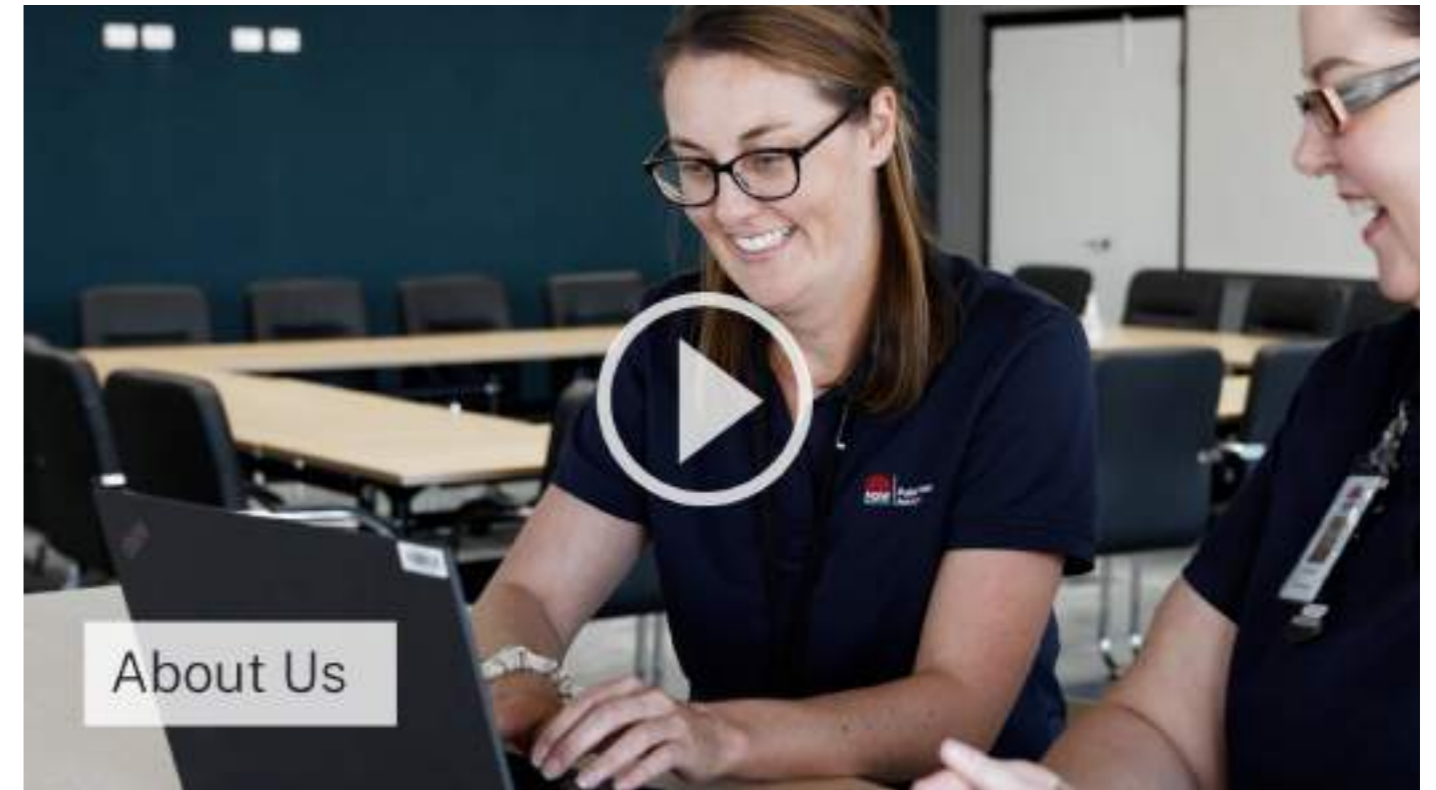
To build a better way of life for the regional communities in which we live and work.

### Our mission:

We are the advisory and delivery experts behind NSW's most challenging regional development projects. Working as an extension of our clients' team, we bring deep design, engineering, procurement and project management know-how to complex community problems and projects, wherever in NSW our help is needed.

### Our vision:

NSW's central agency, impartial regional infrastructure advisory group and whole-of-government construction procurement system custodian.



### Our values:

#### leave a legacy

- Deliver real human outcomes
- Never turn a blind eye
- Make better things happen

#### think differently

- Get upstream of the problem
- If there's a better way, find it
- Be a passionate innovator

#### partner & collaborate

- Think independently, collaborate openly
- Look beyond your own expertise
- Be the connection to brave progress

#### be invested

- Remember why you're doing it
- Bring energy to everything
- Get it done, intelligently



## On-demand technical capability poised to tackle some of NSW's biggest challenges



# 1,500 core project portfolio

[Explore more projects that highlight our capability >](#)

All relevant  
engineering  
disciplines

Extensive experience  
across all relevant  
asset classes

Robust Quality, Safety  
and Environment  
systems

19-office  
regional  
reach

Policy and  
contract  
expertise



**Emergency  
response,  
recovery and  
rebuild**



Helping plan  
and deliver  
**safe, secure  
and sustainable  
water supply  
and wastewater**



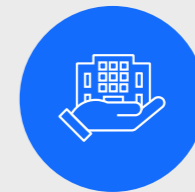
Supporting  
**Regional  
NSW's  
transition to  
net zero**



Accelerating the  
delivery of  
**key government  
programs and  
social outcomes**



Enhancing  
communities and  
service delivery with  
**landmark  
projects**



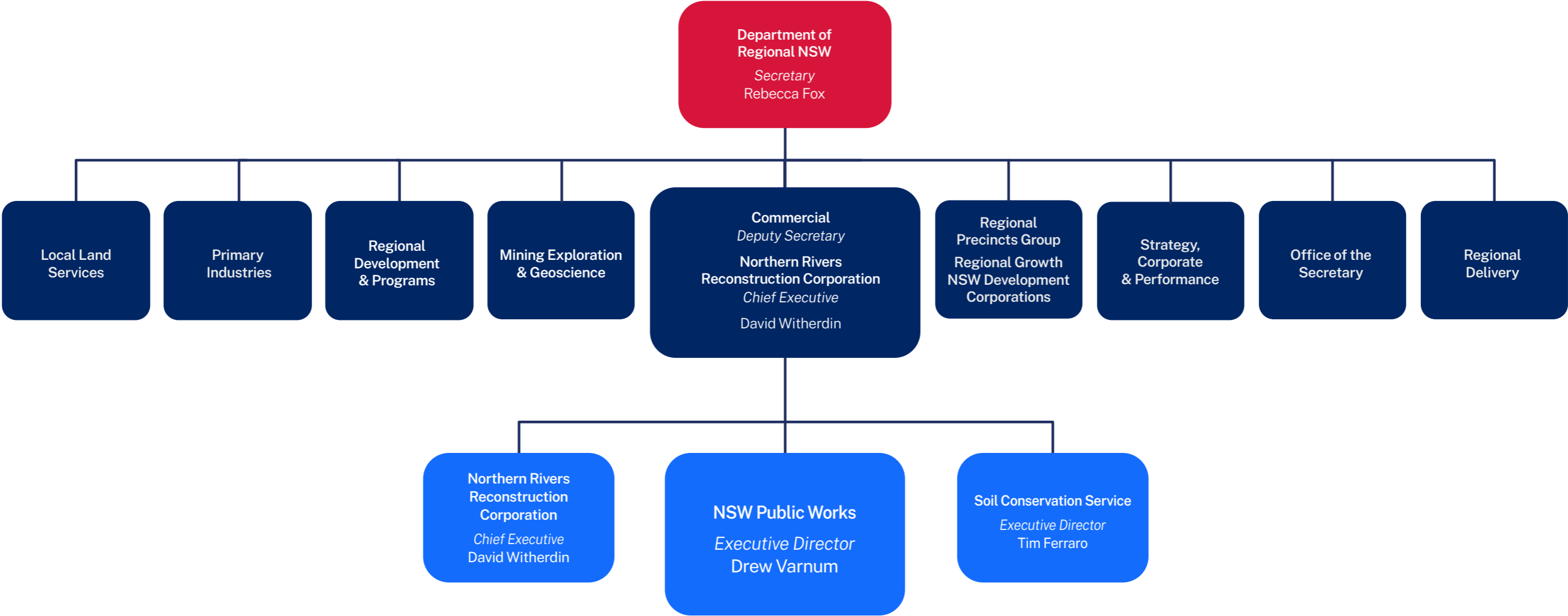
**Sustaining  
cultural  
heritage assets  
of communities,  
places and sites**



Supporting  
**smarter  
digital design  
and asset  
management**

# Our department: Regional NSW

NSW Public Works has been part of the Department of Regional NSW since it was established in April 2020 as the dedicated agency to support economic growth and social cohesion in the regions.



| Lismore, NSW



| Newcastle, NSW



| Bathurst, NSW



| Wollongong, NSW

# Business highlights from 2021-2022

- Impressive results
- Building capability for the future
- Satisfied clients
- Award winning work
- Hearing and recognising women leaders in construction and engineering

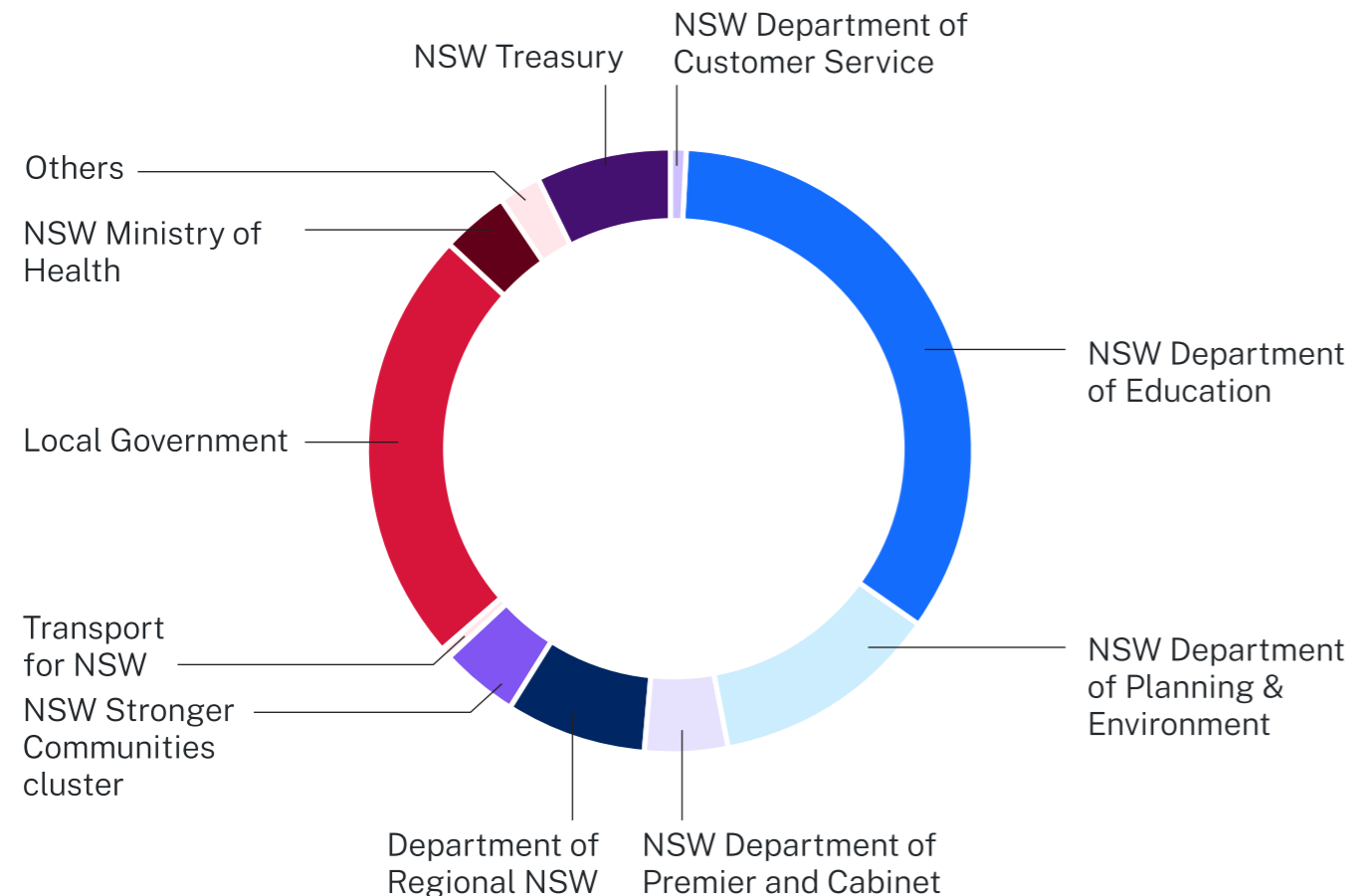
| Temporary housing for flood-affected residents, Wollongbar

## Impressive results

**1,500**  
critical projects delivered  
for more than 300 client partners

Contributed to the delivery of  
**~\$5 billion**  
worth of infrastructure

| Work breakdown by agency



Helped to significantly improve  
the deliverability and success rate  
(scope, time, cost, quality) of

**\$270**  
**million**  
of regional  
infrastructure grants

**87%**  
customer  
satisfaction  
achieved



“NSW Public Works  
provided quality work  
that I can trust”  
- NSW government agency

## Impressive results (continued)

# Emergency response and recovery

| Temporary housing for flood-affected residents, Wollongbar



Accelerated  
procurement  
and delivery  
of waste cleanup  
and temporary  
housing for  
flood affected  
residents

**220,000  
tonnes**  
of flood waste removed

▼  
**\$30 million**  
in disposal fees saved

**121**  
contractors engaged  
in flood clean-up

▼  
**800**  
people employed

Accelerated the delivery of  
**\$300 million**  
of temporary housing  
accommodation across 11 sites

---

**2,500<sup>+</sup>**  
flood damage assessments  
performed on properties

## Building capability for the future

### Broadening our advisory capabilities

**Every day, NSW Public Works helps you shape the ambitious projects that bring progress to people across NSW.**

We already occupy a unique position, being both of government and for government. Now it's time to make a bigger impact by investing in and growing our advisory services to focus on the biggest infrastructure challenges facing regional NSW. Bringing our expertise in capital projects, asset management, heritage, environment and water management closer to the people and communities who will most benefit from them.

This means forging a new path, where the design, procurement and asset management thinking is as valued as the technical advice and confidence we provide as an accredited delivery agency.

As the challenges we face in NSW evolve – in areas of regional activation, water and climate resilience – we understand that to achieve a different outcome, it's necessary to ask different questions. How can we structure ourselves to better unlock opportunity and accelerate your programs? And how can we make a bigger impact across the infrastructure cycle, both upstream and downstream of 'the build'?

Across almost all infrastructure sectors and asset classes we'll use the experience and foresight we have, while unleashing a new level of creative thinking and world's best practice insight to bring clarity and results forward.

*By taking ownership of our clients' broader challenges and being proactive across the project lifecycle, we'll enhance our value as your trusted partner, working together to future-proof NSW communities.*



NSW Public Works staff on-site during the construction of the award-winning Bay Pavilions, Batemans Bay

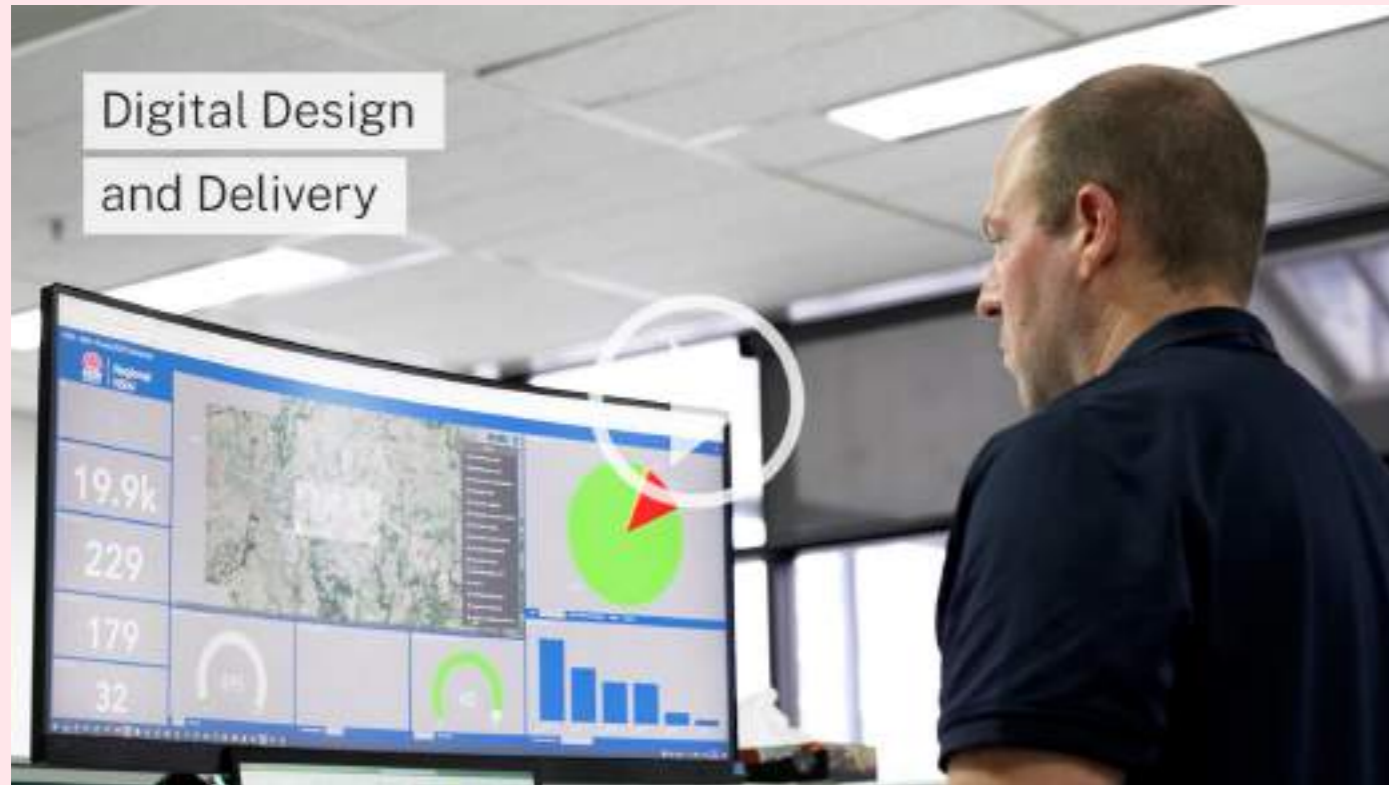
These are the changes we're making today. Because we're already thinking about tomorrow.

“ Our vision is to be involved in projects from as early as possible, from when one of our client partners has a great idea, right through the lifecycle until we start talking about asset refurbishment or renewal. On that journey, we can offer infrastructure advice, environmental assessment and prepare the business cases. It's an incredible service offering.

Allan Gear, Group Director Advisory & Partnerships, NSW Public Works

## Building capability for the future (continued)

Investing in digital design and asset management



### Highlights:



Implementation of a Digital Engineering framework and common data environment



“Real-time” design with advanced 3D modelling capabilities



Enhanced surveying and spatial technologies



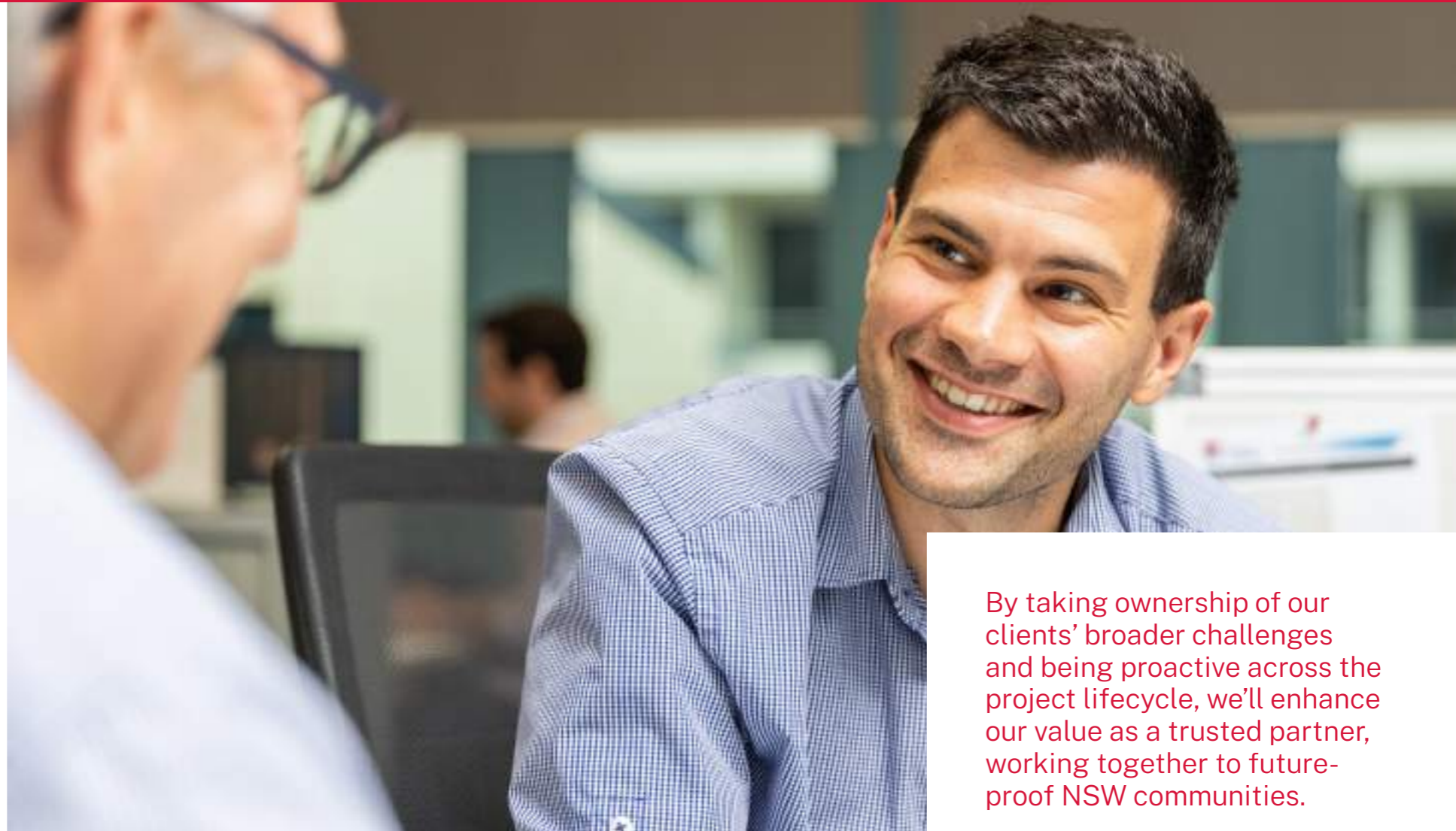
Terrestrial laser scanning (TLS) point cloud image of Tuross Heads SPS

## Satisfied clients

Consistently high level of customer satisfaction of 87%

“ NSW Public Works has been fabulous to work alongside with great communication skills allowing all stakeholders to understand expectations and outcomes contributing to good project outcomes. They have assisted with design solutions to help with problem **solving unforeseen challenges** and articulate budget management well.

-Local health district



By taking ownership of our clients' broader challenges and being proactive across the project lifecycle, we'll enhance our value as a trusted partner, working together to future-proof NSW communities.

“ NSW Public Works has an **extensive portfolio of expertise** and experience. I continue to rely on that.

-Regional council

“ The **procurement process** on this project was the major factor. Using NSW Public Works we receive value for money and meet all the probity requirements.

-Regional council

“ NSW Public Works added value through environmental outcomes, **purpose design solutions**, community and stakeholder relations.

-NSW government agency

“ We get terrific support from the NSW Public Works team. They are constantly adding value especially in regard to **solving complex problems**.

-NSW government agency



## Satisfied clients (continued)

“ NSW Public Works helped by navigating the complexities of getting the **funding deed** between council, the state and federal government and its supporting documentation.

-Regional council

“ NSW Public Works gave us comfort in **navigating heritage issues** at the site.

-NSW government agency

“ NSW Public Works guided us on cultural sensitivity to the Aboriginal community we were working with, **community relations**, project management and really listening to what we wanted/needed.

-NSW government agency

“ NSW Public Works provided contract and project management experience for a major construction work that our department did not have available. They had excellent communication and advice for us as the project principal and **good relationship management** with contractors and principal.

-NSW government agency



Bringing our expertise in capital projects, asset management, heritage, environment and water management closer to the people and communities who will most benefit from them.

## Award winning work

NSW Hotel Quarantine Program won a **2021 NSW Premier's Award**, recognising NSW Public Works for running of the security services

Bathurst Courthouse Facade and Rooftop Conservations Works were highly commended in the Conservation –Built Heritage category of the **2022 National Trust Heritage Awards**

Bruce Pettman received the **2022 National Trust Heritage Lifetime Achievement Award**

Women's Leadership Network and Aboriginal Advisory Committee were runners up in the diversity category of the **2022 Department of Regional NSW Annual Staff Awards**

Jason Elderhurst, Senior Manager Building Services, received a Public Service Medal in the **Queen's Birthday 2021 Honours List**

| Right: Jason Elderhurst, pictured with his medal



| Bruce Pettman, pictured with his award

Every day, NSW Public Works helps to shape the ambitious projects that bring progress to people across NSW.



| Sarah Wylie, NSW Public Works Regional Director Hunter New England

## Hearing and recognising women leaders in construction and engineering

Women make up for 34 percent of NSW Public Works staff, holding key roles in senior leadership through to construction and engineering project delivery and support.

17 female staff participated in **mentoring program pilot**

**600+ people** attended four **webinars featuring women leaders**

Women's Leadership Network received **runner up award** in 2022 Department of Regional NSW Annual Staff Awards

### Women in Leadership Network

In 2021, NSW Public Works set up an all-woman mentoring program and Women in Leadership webinar series, together referred to as the Women's Leadership Network.

[Read more >](#)

“The mentoring program established networks beyond region boundaries, allowing women to support each other and share experiences.”

- Riverina-Western Region participant

“I got to know women from other regions, and we were able to speak openly about successes and challenges within the business, the regions and our personal lives in a collaborative and supportive setting.”

-Michelle Viola, mentoring project participant

# Helping to tackle some of NSW's most complex challenges

# 3



Emergency response and recovery



Supporting and accelerating the delivery of key government programs and delivering broader social outcomes



Sustaining cultural heritage assets of communities, places and sites



Partnering to provide safe, secure and sustainable water supply and wastewater



Enhancing communities and service delivery with landmark projects



Supporting smarter digital design and asset management across regional NSW



Sustainability: Helping regional NSW transition to net zero

| Environmental Cleaning Panel cleaners following a positive Covid-19 event at a school. Photo by Olinga.



## Emergency response and recovery

NSW Public Works' ability to rapidly deploy resources from our statewide network, coupled with our local relationships and our technical and procurement expertise, has proven invaluable to the immediate response and longer-term relief efforts of the COVID-19 pandemic, bushfire and flood disasters.

**From establishing recovery centres during disasters, managing waste clean-up and getting critical infrastructure back online, to designing and managing asset resilience and betterment work, NSW Public Works has worked tirelessly on the front-line and behind the scenes to help NSW recover and keep moving.**



| NSW Public Works staff supporting the Lismore flood response



# Quick removal of flood waste helped communities get back on their feet

📍 Flood affected areas | 💰 \$85 million | 👤 Resilience NSW

## 121 businesses engaged

88 (local) within the affected area, 33 regional, 5 Aboriginal, 113 small to medium enterprise

## 220,000+ tonnes

of flood waste removed from affected communities

## 800

people employed

## Approx 10%

of businesses employing Indigenous workers

## \$30 million savings

in waste disposal fees through bespoke clean-up strategy

**The February and March 2022 flood events devastated communities in the Northern Rivers and Hawkesbury regions, leaving a trail of waste in its wake. The flood waste included destroyed building, household contents, asbestos contaminated waste, and green waste.**

NSW Public Works, under its NSW Engineering Emergency Management function, was initially involved in the response efforts by assessing the impact of the flooding on regional infrastructure, damaged homes and properties, flood

waste management, and assisting in the establishment of recovery centres. During the response phase and for several months afterwards, NSW Public Works coordinated the major flood waste clean-up campaign, including establishing temporary waste transfer stations and kerbside waste collection in several of the worst impacted local government areas.

Over 220,000 tonnes of flood waste were removed from flood affected communities with help from contractors and NSW Public Works' colleagues at Soil Conservation Service, with most of this removed from communities within 45 days. "It has been



Supporting the 2022 flood clean-up has been a great opportunity to support our local people by using local labourers, machines and trucks to get their homes and land back to better than before.

Peter Eather, Managing Director, Eather Group

an outstanding effort from everyone involved, including our staff, local councils, contractors, the Environmental Protection Agency and Resilience NSW," said NSW Public Works State Deputy Emergency Engineer Phil Beddoe.

The rapid waste removal was achieved through an innovative method of using temporary transfer stations. Once waste was removed from the kerb side, the waste was stockpiled at nearby temporary transfer stations then processed, sorted and efficiently removed by larger vehicles to commercial facilities. "Through this approach we recycled steel, got much better payloads

on the road, reduced truck movements by around 16 million kilometres and saved around \$30 million in transportation and waste costs."

More than 120 contractors, employing more than 800 people, were involved in the flood clean-up. Of the 120 businesses, 88 were local businesses directly impacted by the floods. "This was achieved by our regional presence and local networks, engagement and collaboration with local councils and their panels, and our own contractor panels. Involving local contractors is great for getting communities back on their feet after these flood events," said Mr. Beddoe.



# Temporary housing gives flood victims a place to call home

📍 Northern Rivers, NSW North Coast | 💰 \$350 million | 👤 NSW Government

**Design and construction management** of civil works for temporary housing sites across five flood impacted local government area

**Procurement management** of temporary housing for \$350 million government program



| Temporary housing, Wollongbar

“It’s really warm, it’s cosy and I feel really safe, and they’ve got a football field here and there’s training and you can hear families and laughter.”

Daniela Gonzalez,  
Wollongbar occupant

The February and March 2022 flood events displaced thousands of residents in the Northern Rivers, creating an urgent need for a huge volume of temporary housing. The NSW Government quickly set up the \$350 million Temporary Housing Program and NSW Public Works started immediately on procurement activities.

NSW Public Works’ role has been to procure site preparation works for temporary housing villages, including electricity, water, sewer, communications, roads and access. “We have engaged a series of managing contractors, with a focus on using local contractors and giving opportunities for local businesses to be part of the recovery,” said NSW Public Works Director of Construction Procurement and Social Benefit Andrew Cruckshank.

Another mammoth responsibility was procuring temporary housing for the sites. This was no easy task given the existing shortage of temporary housing created by the COVID pandemic. “The biggest challenge for NSW Public Works was securing housing

in the quantity and timeframes needed to meet the needs of the community.”

Following a market sounding and consultation with other agencies, NSW Public Works procured a suite of options to suit each community’s needs. Across the Northern Rivers there is a mix of newly fabricated modular housing (manufactured offsite), caravans, emergency “pods” supplied by the Minderoo Foundation, and refurbished Department of Education school demountable buildings.

**“Delivery of the program has been an enormous undertaking — the scale of which is unprecedented for NSW. NSW Public Works ability to tap into a significant volume of experienced practitioners, as well as use our local knowledge and presence has meant we are well placed to support this critical community recovery,”** said Mr Andrew Cruckshank.



# Free assessments support flood-affected property owners in recovery process

Flood affected areas | \$142 million | NSW Government, Federal Government

**5,500+ applications** received since program started in April 2022

**2,500+ assessments** of flood damaged properties completed

In April 2022, after the flood events in the Northern Rivers and Hawkesbury region, the NSW and Federal Governments provided \$142 million in joint funding to establish the Flood Property Assessment Program (FPAP).

NSW Public Works was engaged to manage the program and quickly got to work. “We awarded the contract to the contractor within a week of putting out the tender documents and have been progressing with registrations and assessments since April,” said NSW Public Works FPAP Director Emily Pitt.

The opt-in program provides residential and commercial property owners with a free, detailed assessment report, including a

comprehensive scope of repair works that the owner might want to undertake and an estimate of repair costs. “This supports owners to make an informed decision on what the next steps will be in their recovery process.”

Of the more than 5,500 registrations received, more than 2,500 property assessments have been completed. “We are finding that most of the houses can be repaired and either returned to a habitable or pre-flood state,” said Ms Pitt. “So far, only seven of the houses are in a condition making demolition a likely outcome, but that is a decision for the owners.”

In delivering the program, NSW Public Works is harnessing its experience with disaster clean-up, such as the 2019-20 bushfires. “We are leveraging lessons learned in terms of

stakeholder management, working with the contractor to deliver a timely program, and delivering the best outcomes for property owners. The program staff bring expertise from involvement in lots of disaster responses, which is very different from day-to-day work,” she said.

“Thank you for the demolition and removal of our flood destroyed building. This whole process has been very difficult for our family; however, I just want to say that we certainly do appreciate the final result.

Jones family, Casino Street, South Lismore



| Before demolition



| After demolition



“

The work that the NSW Public Works regional teams put in with our applicants and in support of the Resilience NSW team has been inspiring. Their local knowledge and ability to engage with the applicant and builders has resulted in positive outcomes.

Teresa Duncan, Manager Operational Coordination, Resilience NSW

| A home constructed as part of the Bushfire Rebuild Program, Woodlands

# Providing safe and habitable homes in wake of bushfires

📍 Bushfire affected areas | 💰 \$34 million | 👤 Resilience NSW

**85 applications assessed** leading to 74 funded approved rebuilds

**Ongoing support** for applicants and builders throughout the rebuild process

**8 houses rebuilt and 25 houses under construction** (up to 30 June 2022)

In the summer of 2019-20, bushfires ripped through large sections of the NSW, devastating many homes and affecting thousands of people. To support recovery efforts, Resilience NSW asked NSW Public Works to assist with the delivery of the Bushfire Rebuild Program, which provides grants for essential structural repairs to homes or full rebuilds of property deemed uninhabitable.

NSW Public Works was responsible for project managing the rebuilds — spanning quality assurance, obtaining quotes and overseeing tender processes, as well as design, construction and handover of the rebuilds. “Our team brought expert knowledge, years of experience, innovative thinking and problem solving to get the job done,” said NSW Public Works Project Manager Adam Monaghan.

Before the 2019-20 bushfires, a total of eight rebuilds from fires in 2017 and 2019 had been completed. “Being faced with potentially up to 100 full rebuilds across the state was a mammoth task,” said Resilience NSW Manager Operational Coordination Teresa Duncan. “We realised that new processes were needed.”

NSW Public Works developed a new pre-quote site assessment to identify the scope for each property that looks at access roads, off-grid/on grid, septic, bushfire attack level and asset protection zones. The assessment built on work by NSW Public Works in the 2017 Lismore floods. “It helped to identify all the required information to bring multiple rebuilds to fruition,” said Ms Duncan.

Up to 30 June 2022, eight houses had been rebuilt, 25 houses were under construction, and another 15 house plans had been approved by council. By June 2023, it is expected that 74 houses will be constructed, providing applicants with safe, habitable homes.



## Partnering to provide safe, secure and sustainable water supply and wastewater

NSW Public Works partnered with more than 30 councils and local water utilities to provide regional communities with safe, secure and sustainable water supply and wastewater services. The provision of **integrated water cycle management planning** processes ensures long-term sustainability of water and wastewater services to communities.

**Our full infrastructure life cycle and water resources management services, from planning and concept design to strategic procurement and project management, helped provide essential water infrastructure and sustainable water services for regional NSW communities.**



| Gundagai Sewerage Treatment Plant



# Co-designed water cycle management strategy helps Riverina Water to meet future needs

📍 Riverina region | 👤 Riverina Water

Collaborative relationship results in **prestigious Sam Samra Award**

Working together to **future-proof management** of NSW's water supply

**New ideas and technologies** help the regions plan for future resilience

**Riverina Water manages a water infrastructure network providing drinking water to more than 76,000 people across 15,000 square kilometres. 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 effective management of the network's current and future water needs.**

NSW Public Works has been a trusted technical partner of Riverina Water for more

than 10 years. "With a strong knowledge and understanding of Riverina Water's supply networks, NSW Public Works was an obvious choice to prepare the long-term strategic plan for Riverina Water," said NSW Public Works Director Water Resources Management, Glenn Fernandes. "Our team of expert water utility planning engineers undertook demand and network modelling, developed solutions, managed regulatory requirements, and stakeholder and community engagement to prepare the 30-year total asset management plan."

The IWCM plan, finalised in February 2021, enables Riverina Water to cater for growth in water demand and continue to provide a



safe, secure and reliable water supply for the Riverina region. Under the plan, drought resilience has been improved with rural schemes interconnected for multiple levels of redundancy. Planning for future resilience also included increased storage and pumping capacity, as well as securing 1300 ML of additional high security water licence.

**The IWCM strategy addressed future issues and opportunities facing growth in regional NSW, including management of contamination of groundwater, implementation of \$22 million in solar power generation and upgrading of the telemetry system to a digital radio network over a 15,500 square kilometre operating area.**

This high-profile project, along with other works completed by Riverina Water, earned them recognition at the 2021-22 Local Government NSW water conference in Narrabri, which received the prestigious Sam Samra Award, recognising the most improved local water utility within NSW.



# Shoalhaven bulk water storage facility to support water recycling scheme

📍 Callala, NSW south coast | 👤 Shoalhaven Water

## Design meets

flood requirements, minimises environmental impacts and enhances frog habitat

## 900ML bulk storage design

supports water recycling scheme

Shoalhaven Water, a division of Shoalhaven City Council, engaged NSW Public Works to investigate and design a new 900ML bulk storage facility adjacent to the existing Callala Wastewater Treatment Plant to form part of the Shoalhaven Reclaimed Water Management Scheme (REMS) Stage 2 Scheme. REMS is a water recycling scheme designed to beneficially reuse treated wastewater on local dairy farms, sporting fields and golf courses, rather than disposing it to the environment.

“The scheme is one of the largest and most complex water recycling schemes undertaken by a regional water utility and is an innovative example of how the reuse of reclaimed water can deliver real benefits to the community,” said Shoalhaven City Council Mayor Amanda Findley. “These benefits include supporting sustainable industry,

delivering drought proofing measures and helping to lessen the environmental impacts that arise in a growing region.”

NSW Public Works previously developed the concept design and undertook the detailed design and construction management of the Stage 1 Bulk Storage Scheme, which included a 600ML storage dam, associated pump station and distribution reservoir. The Stage 2 project aims to meet the additional effluent management requirements of the Shoalhaven community well into the future.

The 900ML bulk storage has been designed to enable the dam to safely pass the required flood design commensurate with its LOW consequence category assessment and to minimise adverse environmental impact. For economy, the pumps from the existing pump station have been modified for use in the new pump station with associated upgrade inlet and outlet works. The design also includes enhancement of the green and golden bell frog habitat which is prevalent around the proposed site.



# Innovative remote technology allows Gundagai Sewerage Treatment Plant to operate during a flood event

📍 Gundagai, NSW | 
 💰 \$18.9 million | 
 👤 Cootamundra-Gundagai Regional Council

Designed to meet **projected population increases** over the next 30 years

New remote management **system upgrades**

**STP upgraded to modern standards**, allowing irrigation of golf course and release to the river

Positioned above the **1:100-year flood level**

**The remote management system included in the new Gundagai Sewerage Treatment Plant (STP) quickly proved its worth as just days after commissioning, the council remotely monitored the STP operation following complete isolation during a flood event.**

The upgrade and expansion to Cootamundra-Gundagai Regional Council's Gundagai STP, were delivered under the NSW Government's \$1 billion Safe and Secure Water Program,

which ensures regional communities have the right infrastructure for the future.

The new treatment plant is now securely positioned above the 1:100-year flood level and designed to accommodate much needed population growth over the next 30 years. The new biological treatment is based on the Intermittently Decanted Extended Aeration (IDEA) treatment process, in which micro-organisms contained within the sewage treatment process aid to break down organic matters. The NSW Environmental Protection Agency and Department of Planning and



| Gundagai Sewerage Treatment Plant

Environment Water's requirements for effluent reuse and environmental discharge into sensitive waters are managed through the STP design, allowing treated effluent to be used for irrigation on the local Gundagai golf course and council playing fields.

"Our expertise in concept and detailed design of wastewater treatment plants meant council knew they were getting a quality product," said NSW Public Works Principal Engineer Wastewater Brett Douglas. "Council were looking to include new technology with sustainable solutions, which is where

the NSW Public Works team added value. **That, paired with our role in stakeholder engagement, tender procurement, contract administration, and testing and commissioning, ensured a smooth process for council in developing this project from concept to delivery.**

Gundagai STP augmentation was successfully commissioned in July 2022, improving modern public health and environmental standards for the Gundagai community.



# Restoring fish passage and enhancing water management in Toorale National Park and State Conservation Area

📍 50km+ west of Bourke in far western NSW | 💰 \$11 million | 👤 Department of Planning and Environment (DPE)

NSW Public Works helped to get the project back on track, resulting in the project being **delivered on time and budget**

**Fish passage restored** to Warrego River and connected floodplains for 55km+ between Boera Dam and Darling River junction, along with **greater flexibility and capacity for water management**.

**The picturesque Toorale National Park and State Conservation Area is home to vast floodplains extending off the Warrego River and to the junction with the Darling River. The area holds spiritual and cultural significance to the Kurnu-Baakandj people and has a rich pastoral history.**

In 2019, NSW Public Works partnered with DPE to help deliver the Toorale Water Infrastructure Project. Ongoing since 2016, the project had been working to reduce the impact of four historical dams built along the Warrego River for agriculture purposes that altered natural river flow patterns and significantly impacted the movement of fish.

“NSW Public Works was recommended for this work by a key NSW state government



| Homestead Dam

agency, highlighting our extensive experience and leadership in developing and designing fish passage infrastructure for more than 20 years,” said NSW Public Works Principal Engineer Rivers Heath Robinson.

NSW Public Works’ initial role was to provide review and advisory services to address fish passage design challenges experienced by DPE at multiple sites that had caused program delays. Success in this role led to NSW Public Works providing an expanded scope of activities, including detailed hydraulic design, 2D river system modelling, selected fish passage design, and construction procurement and project management.

**The project delivered a package of four bespoke solutions to address fish passage and restore river connectivity.** “The project removed Peebles Dam, built a rock ramp fishway as part of Homestead Dam

## Collaborating with Soil Conversation Services on Peebles Dam removal

The construction removal of Peebles Dam was undertaken by Soil Conservation Services (SCS) in an arrangement with NSW Public Works and local contractors. In early 2022, SCS transitioned to become a part of the Department of Regional NSW and is now under the same umbrella as NSW Public Works, creating synergies and efficiencies. For Toorale, engaging SCS benefited the project by quickly mobilising equipment and fast tracking work on the ground.

remediation, developed a nature-like by-pass fishway for Booka Dam and established a vertical slot fishway (designed by others) as part of overshot gate outlet works (designed by others) for Boera Dam,” said Mr Robinson.

Wet commissioning and monitoring of the Homestead Dam fishway by DPI-Fisheries has shown the fishway is performing effectively with consistent hydraulic conditions and observed passage of fish.

**Homestead Dam presented unique design challenges in meeting the specific requirements expressed by both the Aboriginal traditional owners and NSW Fisheries legislation and guidelines.** The result at this site has exceeded all parties’ expectations and would not have been possible without the expert input of NSW Public Works,” said Sonya Ardill, Senior Environmental Water Planner, DPE.



# Staff spotlight: Dam experts share knowledge and experiences with younger engineers

**In December 2021, NSW Public Works completed a comprehensive inspection of Chifley Dam in Bathurst, which is required every five years under NSW Dam Safety Regulations. Project managers from the Bathurst office joined the inspection to learn more about dam engineering from Principal Engineer–Dams George Samios and Dams Design Engineer Aza Un-Nabi.**

“It was very interesting to learn firsthand [about how the dam is managed] from those who did it [the 1995 dam upgrade], and learn the full history of the dam,” said Project Manager Adrian Hickey. “The visit backed up what I’ve done at university.”

Mr Un-Nabi said he appreciates young engineers getting involved. “It increases their interest in engineering projects, and what it is about. They can’t appreciate it until they see a big structure like this.”

On another occasion, NSW Public Works Project Manager Emerie Anonical took three work colleagues on a site visit to Winburndale Dam, where NSW Public Works is managing a \$15 million upgrade for Bathurst Regional Council.

Business Support Officer Hayley Jeffery valued the opportunity to see project managers on site and ask them about their work and interact with the contractors. “There was a lot of knowledge being shared, which was very cool,” she said.



| Project Manager Emerie Anonical (left) with Azuz Un-Abi (right) at Chifley Dam



## Sustainability: Helping regional NSW transition to net zero

“We have a ton of passion and experience in the sustainability and energy transition space across NSW Public Works, and we are involved in some of the most exciting projects in regional NSW. **We are looking forward to continue to work with agencies, councils, NSW Treasury and DPE to accelerate progress across our state,**” said Executive Director Drew Varnum.

“

As our clients’ ambitions and targets continue to grow exponentially, we are doubling down in building the capability and expertise of our teams to support them on their journey.

Drew Varnum, Executive Director, NSW Public Works



| John Hunter Hospital rooftop solar project, Newcastle



# John Hunter Hospital leads the way in rooftop solar

John Hunter Hospital, Newcastle | \$3.2 million | Hunter New England Local Health District

**Largest**  
hospital rooftop solar system in the southern hemisphere

**5,300+**  
solar panels  
**2.4 megawatt**  
generating capacity

**Key pillar**  
of Hunter New England Local Health District's Sustainability Strategy – aiming for zero carbon emissions by 2030



John Hunter Hospital rooftop solar project, Newcastle



**Newcastle's John Hunter Hospital is now home to the largest single hospital rooftop photovoltaic solar system in the southern hemisphere. The project is a major pillar in Hunter New England Local Health District's (HNE LHD) Sustainability Strategy, which sets an ambitious target to be carbon and waste neutral by 2030.**

The display consists of more than 5,300 panels covering almost 12,000 square metres and is a \$3.2 million NSW Government investment aimed at dramatically reducing the carbon footprint of the hospital.

NSW Public Works partnered with the health district to deliver this ground-breaking project, providing technical leadership and project and contract management services. Construction safety was a critical success factor, with all work occurring on

a busy public hospital during the COVID-19 pandemic. NSW Public Works worked closely with the project team and contractor to identify and manage project risks, which included managing multiple crane lifts within a busy medical helicopter flight path. The work was done over 18 months, becoming operational in October 2021.

"NSW Public Works has a long and mature relationship with HNE LHD that has developed over many years," said NSW Public Works Health Team Leader Rosemary Kelly. "That relationship is not only based on trust and longevity but is built on shared values as well. We were excited to partner with them to deliver this flagship project at John Hunter Hospital."

Contributions to the HNE LHD's Sustainability Strategy continue, with NSW Public Works also delivering a \$3 million solar project across three regional hospital sites.



# Clever sustainable power strategies cool classrooms across NSW

📍 School across regional NSW | 💰 \$20.5 million | 👤 Schools Infrastructure NSW

**716 schools**  
involved in the  
solar installation  
project

**10.3  
megawatts**  
of solar in delivery

**60 schools**  
involved in the  
solar-battery  
storage project

**3.3 megawatt  
hrs**  
of battery storage in  
delivery

The NSW Cooler Classrooms Program continues to provide sustainable reverse-cycle air conditioning and ventilation to improve learning environments for staff and students in NSW schools. A key focus of the program is the use of renewable energy sources, with 10.3 megawatts of photovoltaic solar systems being installed at 716 schools through this NSW Public Works and Schools Infrastructure NSW (SINSW) collaboration.

The sustainability of the program was enhanced in 2021-22 with the introduction of the Smart Energy Schools Pilot Project. Targeted schools are now being set up with solar and battery storage systems, further reducing energy consumption and

contributing to the state government's plan to be carbon neutral by 2030. Sixty schools have benefitted from these energy efficient coupled systems to-date.

"These systems can provide for the schools' energy needs when there is no solar power, and also generate power to the grid in response to market values, therefore providing an income to the school and reducing their need to draw energy from carbon emitting sources," said NSW Public Works Project Manager Randolph Wild.

To enhance energy efficiency of the air-conditioning systems, SINSW chose three schools to host monitoring and control units that allow the systems to respond efficiently to changing air temperatures and avoid expensive spikes in energy use. **Innovative and collaborative thinking has also resulted in a uniform battery system design that**

allows the system to be easily adapted or relocated from one school to the next.

NSW Public Works collaborated with SINSW from the program's inception, managing stakeholder engagement, procuring technical consultants and contractors, and providing project management and contract administration services. **Our considerable electrical system expertise, school by school data, and state-wide network of project managers, have been key to the ongoing success of the program.**

"We are also working with SINSW to provide electric vehicle charging stations to a selection of schools in the program," said Mr Wild. "This will utilise the energy created by the newly installed solar and battery systems, reduce air pollution, provide cheaper transport options and help tackle the problem of transport emissions, which are second only to those of the energy sector."

## Case study: Wambalangang Environmental Educational College

Installation of a 17 kw ground mounted solar that works as a canopy for a 41 kwhr battery storage unit within a specially designated fenced off compound in a school located in a remote part of rural NSW. This allows the school to become part of the Cooler Classrooms Program and provides a ground level educational resource.

## Case study: GyMEA Technical High School

Installation of as much solar as the roof would allow, 87 kw, thus servicing the school's large energy needs and, with the 46.7 kwhrs battery unit, positioning the school as a significant power plant.

## Case study: Farrer Memorial Agricultural High School

Installation of 99.7 kw of solar and 71.6 kwhrs of battery storage in the spectacular grounds of this grand agricultural school in the Tamworth area.



| Battery storage installations, Farrer Memorial Agricultural High School



| Solar installation, GyMEA Technical High School



## Supporting and accelerating the delivery of key government programs and delivering broader social outcomes

NSW Public Works provided innovative and flexible procurement, assurance and delivery services on more than \$1 billion of NSW Government programs, helping to stimulate the economy and accelerate the recovery of regional communities. **From the Cooler Classrooms Program, Regional Stimulus Package, Bushfire Local Economic Recovery Package, and the Teacher Housing Program,**

**NSW Public Works' ability to help steepen the trajectory and reduce the delivery risk of time-critical programs helped the state deliver its infrastructure and construction commitments for regional communities.**



| Teacher Housing Program, Coleambally



# Leveraging whole of government contracts to provide rapid and flexible responses and social procurement outcomes

Cleaning for  
**4,400  
government  
buildings**

Maintenance for  
**3,500 sites**  
Security for  
**3,000+ places**

Delivered social  
procurement  
benefits of  
**\$150+ million**

**Aboriginal  
participation  
exceeded  
4% target**  
in maintenance &  
cleaning contracts

**NSW Public Works manage whole of government facilities management contracts to deliver cleaning, maintenance and security services across NSW. In 2021-22, the three contracts were together valued at around \$600 million, involving over 15,000 workers across over 49 providers that have been rigorously assessed, making them among the largest contracts in the southern hemisphere.**

The contracts provide cleaning to 4,400 government buildings, maintenance services to around 3,500 sites, and security to more than 3,000 places. These contracts have delivered \$152.6 million in Aboriginal and disability participation since July 2018. To June 2022, maintenance achieved 9.4 percent and cleaning 7.7 percent Aboriginal participation by contract value, exceeding 4 percent targets.

## **Case study: Security services for NSW Hotel Quarantine Program**

- 2,910 authorised guards delivered 5.18 million hours of security



| Hotel Quarantine Security Guards departing Meriton Mascot. Photo by ISEC.

- One of the largest security programs in Australian history
- Won a 2021 NSW Premier's Award
- Building Services Manager Jason Elderhurst awarded public service medal for his contributions

On 30 April 2022, the Meriton Suites in Sydney farewelled their final guests in the NSW Government's Hotel Quarantine Program. The program, which had run for two years, was developed and managed by several government agencies and other organisations, including NSW Health, NSW Police and NSW Treasury, as one interagency team.

NSW Public Works was responsible for setting up and running the security services at the 34 quarantine hotels, tapping into its panel of pre-approved suppliers. In total, more than 4,808 audits were conducted at the hotels, and over 2,910 authorised guards provided 5.18 million hours of security work.

The two-year security program became the largest continuous operation in Australia history and won a NSW Premier's Award in November 2021. Building Services Manager Jason Elderhurst received a public service medal in the Queen's Birthday 2021 Honours List for leading the security arrangements.



### Case study: Keeping schools safe and clean

- Led the COVID School Enhanced Cleaning program since March 2020
- 2,300 NSW schools cleaned every day
- 564 environmental response cleans of schools, involving 44,960 hours of cleaning

Since March 2020, NSW Public Works has led the COVID School Enhanced Cleaning program funded by NSW Treasury. The program, which was varied to the cleaning contract within a few weeks under emergency provisions, coordinates four suppliers over eight regions to provide enhanced cleaning to over 2,300 NSW schools every day.

In addition, NSW Public Works procured and managed an environmental response cleaning service, on behalf of the NSW

Department of Education, running from March 2020 until the program ended in December 2021. The program coordinated 40 suppliers to deep clean over 564 NSW schools following a COVID event. Of these, 493 cleans were completed between August and November 2021, as the Omicron variant spread across NSW, compared with only 71 cleans before July 2021. In total, over 7,365 cleaners and supervisors were deployed to school sites to provide over 44,960 hours of cleaning.

### Case study: Cleaning up flooded caravan parks

- Engaged three suppliers to clean six caravan parks immediately after floods

Following the February and March 2022 flooding event in the Northern Rivers, NSW Public Works used its cleaning panel to source three providers to help with clean-up efforts in the Tweed region. Each provider was made responsible for cleaning two caravan parks in Chinderah, totalling six parks altogether.

“The cleaning was arranged within a week of the call from Resilience NSW, helping people get back into their homes quickly and freeing up local accommodation to be used by other out-of-town volunteers supporting the recovery efforts,” said NSW Public Works Director Facilities Management Helen Carroll.

“The affected residents report being impressed by the government response and feel well looked after. Some people said the clean-up support has really raised spirits and shown caravan park residents they have not been forgotten and they are valued community members,” said NSW Public Works Director Facilities Management Helen Carroll.

[Read more >](#)

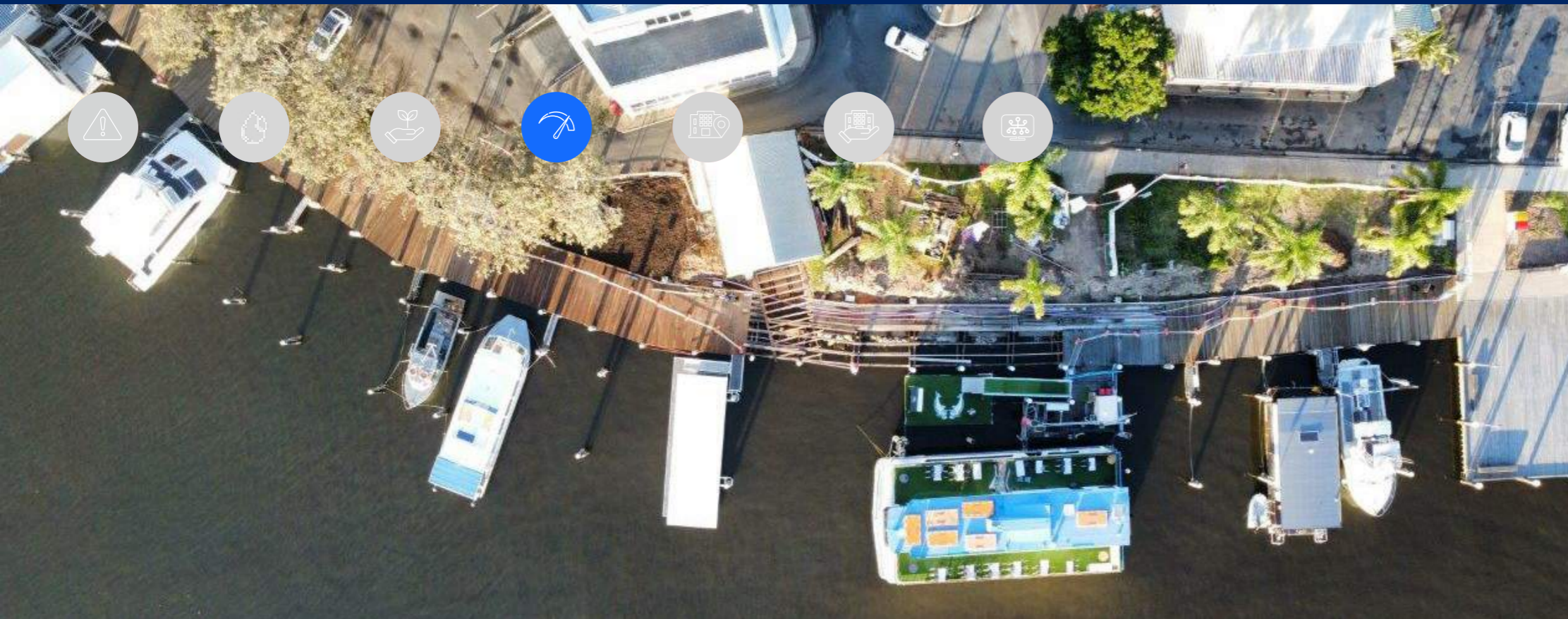


**2,300**  
schools cleaned  
every day

**564**  
environmental  
response cleans

**44,960**  
hours of  
cleaning

| A school cleaning team



“ NSW Public Works’ critical advice on the deliverability of projects within set timeframes has assisted in all funding recommendations for this successful program, supporting businesses to establish or expand in regional NSW.

Dimity McClelland-Smith, Acting Manager of Jobs and Skills Programs, Regional Development and Programs, Department of Regional NSW

| Town Wharf maintainance and improvement, completed as part of the Bicentennial Walkway Grant, Port Macquarie

# Assessing critical grant program applications to reduce project risks and improve deliverability through ongoing assurance

## \$267.5 million in grants assessed in 2021-22

- \$100 million – Stronger Country Community Fund Round 4
- \$75 million – Resources for Regions 7
- \$52.5 million – Community Local Infrastructure Recovery Fund
- \$40 million – Regional Job Creation Fund Round 2

An innovative collaboration model **recognised nationally for its success**

**The Grant Program Assurance Team supports the delivery of the NSW Government’s grant programs, reviewing and advising on grant applications valued at \$267.5 million in 2021-22. Assessors with extensive construction and infrastructure experience review the scope, time, cost and risk items of each funding application to ensure they have been adequately addressed.**

“Often there is insufficient information to adequately describe the project, missing items in the budget to cater for current market rates, professional fees and contingencies, and insufficient or non-existent allowances for statutory approvals or timeframes for ordering materials,” said NSW Public Works Senior Program Manager Geoff Baker.

NSW Public Works leverages its extensive experience in planning, procuring, and delivering capital works to provide practical

advice and assurance services to grants teams, who do not have a background in construction and procurement. This helps them to manage risks such as project failure due to inadequate planning.

“Comments made by NSW Public Works staff during the assessment process can be used to seek extra information to clarify the applicant’s submission and provide greater detail to the grants team to consider if a project is viable for funding,” said Mr Baker. Applicants can learn from the process, enabling them to prepare better quality submissions for future funding rounds.

Since the inception of the initial funds, such as the Stronger Country Community Fund, the Department of Premier and Cabinet realised there was a capability gap with some regional councils and invested in the development of a project management toolkit to provide base template documentation to build organisational capability.



# Project management toolkit supports councils with resources and skills

**A free project management toolkit** was launched in July 2021

**13 councils across regional NSW** have referred to the toolkit since its launch

Developed by  
**NSW Public Works,  
Department of Regional  
NSW and Institute of Public  
Engineering Australasia**

**Local councils are taking advantage of a free project management toolkit that provides tools to enhance skills to manage projects from start to end and supports the delivery of infrastructure across the state.**

“This is a great resource for non-professional project managers to help manage risk and improve knowledge of the steps to develop infrastructure,” said NSW Public Works South Coast Director John Anderson. “The toolkit is a one-stop shop that includes a guide to project management for local government and generic templates for each stage of the project lifecycle.”

The toolkit was identified in a 2019 study, involving more than 30 regional councils, as one of four options to help tackle councils’ challenges. “Regional councils lack access

to specialist skills, trades, materials and contractors, driving councils to compete for contractors and pay a premium for trades,” said Mr Anderson. “Use of such a toolkit on appropriately sized projects will assist smaller regional councils to deliver infrastructure assets without significant cost or complexity.”

The templates can be easily customised for a range of projects such as playgrounds, vital road works, drainage, and water and community facilities. “The toolkit supports a consistent approach to managing small and medium projects across councils and supports the use of best practices,” said IPWEA Chief Executive Officer Francine Binns. “Since it was launched in July 2021, more than 13 councils across regional NSW have referred to the toolkit for guidance and direction,” she said.



| Crews working on a new 220 lot subdivision in Forbes, NSW. Photo by Forbes Shire Council.

**“** We used the IPWEA toolkit as part of our research into existing frameworks and a basis for some of our core tools developed specific to our environment. We would recommend using the easy-to-interpret and use IPWEA tools as a foundation for more complex and environmentally specific needs.

Carly Jayet, Manager People and Strategy,  
Forbes Shire Council





# Partnering with local businesses for local solutions

**NSW Public Works is committed to working with local businesses, wherever possible, so that projects generate local jobs, build capability and put money into the local economy.**

“We want to enable local people, businesses and communities to benefit from and contribute to making regional NSW a great place to live, work and play,” said NSW Public Works Director of Construction Procurement and Social Benefit Andrew Cruckshank.

## Case study: Electrical business succeeds with solar installs in western NSW

- Darren Jackson Electrical installed 75 heating and cooling units in teacher and police housing in Western NSW in 2021-22
- The contractor’s local networks were key to the project’s success

Since 2020, NSW Public Works has worked with the Teacher Housing Authority and NSW Police Force Housing to oversee the installation of heating and cooling units on teaching and police housing in western NSW. Darren Jackson Electrical, originally based in Bourke and now in Tamworth, was a prequalified business engaged to work on the project.

“We had already been installing solar panels on social and residential housing in western NSW for several years, so we had the right skills, experience and connections for the job,” said owner Darren Jackson of the business, which is certified as an Indigenous business by Supply Nation. **“There are eight fulltime employees in the business, and we engage up to 30 subcontractors in peak times. All those workers, including myself, live in western NSW.”**

Once the business completed the first job –installing 89 solar panels on teacher and police housing in Bourke –it won additional tenders to install solar panels to more properties. Since January 2020, the business has completed 14 work packages, installing more than 500 solar panels on teacher and police housing across western NSW, including Bourke, Coonamble, Ivanhoe, Menindee, Narrabri, Moree, Walgett and Wilcannia.

“There are not as many government construction projects in rural areas,” said Mr Jackson. “We really valued the opportunity to work on NSW Government projects and do multiple jobs as it allowed us to maintain our high local employment.”

“Knowing the local communities where work was targeted helped open doors and

managed local expectations to enable the program to be met,” said Land and Housing Corporation Director of Housing Services Greg Phipson.

## Case study: Building local trade skills in Walgett

- 11 tradespeople attended three Tradie and Contractor Information Sessions in Walgett
- The sessions supported and enhanced work opportunities for local businesses and students studying construction

In small regional towns, like the 2,000-person town of Walgett in northern NSW, there are often fewer job opportunities than in bigger cities. “Youth cannot always see the pathway from getting an education or job skills to finding a meaningful job once they finish school,” said NSW Public Works Riverina-Western NSW Strategic Projects Manager Jon Grahame.

In February and March 2022, NSW Public Works partnered with Walgett Community College High School to run three Tradie and Contractor Information Sessions. “Topics included an overview of the construction course offered to school students, encompassing work placement requirements, and the tender process for NSW Government

**“** Walgett Community College is now better placed to provide young people with the basic trade skills they need to be attractive to a local employer.

Red Earth Advisory CEO Kate Baxter

| Tradie information session participants

work,” said Mr Grahame of the sessions that attracted 11 tradespeople.

Red Earth Advisory CEO Kate Baxter facilitated the partnership between NSW Public Works and Walgett Community College. “We hope that local tradespeople will be able to secure more NSW Government work and be better placed to offer ongoing employment to young people from the Walgett community,” she said.



| Local business installing heating and cooling units on teacher and police housing



| Harvey Carnall reviewing plans

## Staff spotlight: Development opportunity for young Tamworth local

**Tamworth local Harvey Carnall is in the third year of his Bachelor of Construction Management, which he studies by distance through the University of Newcastle. Since February 2022, Mr Carnall has also worked fulltime as a project assistant in the NSW Public Works' Tamworth office.**

“This role assists my studies immensely by being exposed to practical and technical

knowledge in the office and NSW Public Works' willingness to share data,” said the 22-year-old, who previously worked as a labourer. “It has been an interesting change leaving the tools after three years and now being involved in the safety side of construction.”

Mr Carnall has worked with colleagues on doing project administration, site inspections and safety audits. “I have enjoyed being exposed to diverse projects, including the fishway at Toorale National

Park, construction of new bridges at Cottan-Bimbang National Park, installation of heating and cooling units in regional NSW schools, and multiple fire station developments.”

Creating the entry-level position was the idea of Tamworth Regional Projects Coordinator Chris Hague. “I wanted to give a job opportunity to a young, regional person in their own hometown,” said Mr Hague.

“By supporting the student with training as they complete their degree, they have an invaluable opportunity to learn in the field and put their theoretical knowledge into action.

Chris Hague, Tamworth Regional Projects Coordinator



## Enhancing communities and service delivery with landmark projects

NSW Public Works helped enhance countless key public spaces and major community facilities in 2021-22. The Powerhouse Museum, Tamworth Base Hospital, Western Parkland City, Jenolan Caves, and Wilberforce Fire Safety Control Centre are a few that demonstrate the business' values—thinking differently, partner and collaborate, leave a legacy and be invested.



| Prefabricated housing, Tamworth



# Tamworth Base Hospital sets standard for prefabricated modular accommodation

📍 Hunter New England Local Health District | 💰 \$3.5 million | 👤 Tamworth Base Hospital

Prefabricated modular self-contained housing used for **accommodation on hospital sites**

**10 energy efficient units** delivered for two key user groups

**A pilot project has proven the use of prefabricated housing to deliver sustainable outcomes for visiting medical staff and families of patients at Tamworth Base Hospital.**

Two four-bedroom and two single self-contained units were installed for patient support, to accommodate visiting families of patients at the hospital. These units, managed by Rotary, provide practical and comfortable accommodation for family, relatives and friends of seriously ill or injured persons to be close to their loved ones while receiving treatment.

All units were designed with energy efficiency and comfort in mind and include the use of solar panels and rainwater tanks. They were fabricated off-site then installed within the old hospital helipad site which has been redundant since relocating to a rooftop helipad arrangement. NSW Public Works partnered with Hunter New England Local Health District on the design, procurement and contract administration of the prefabricated modular residential accommodation.

The prefabricated housing market is highly mature with quality product efficiently manufactured in controlled environments.



“ This pilot program has successfully proved the benefits of prefabricated modular self-contained short stay accommodation on hospital sites, with plans already underway to replicate in other regional NSW locations.

Rosemary Kelly, NSW Public Works Health Team Leader

The buildings are of high design quality, private, comfortable and incorporate sustainability measures. The use of prefabricated housing allows concurrent off site and on-site activity to optimise delivery timeframes and product quality. Regional contractors are engaged, with local trades and suppliers a key requirement of the procurement model.

The next stage in modular short stay accommodation is already underway, with NSW Public Works working to deliver the Rural Hospital Staff Accommodation Program — a \$20 million, two-year program delivering 44 accommodation units on 12 different sites across the Hunter New England and Far West Local Health Districts. With seven sites already completed and program completion due in June 2023, the model is proving its worth across regional NSW.



| Prefabricated housing, Tamworth



# Expansion of Powerhouse Museums Discovery Centre to create a world-class cultural destination

📍 Castle Hill, Sydney | 💰 \$24 million | 👤 Create NSW

**Design completed in collaborative manner** with project stakeholders

Building contract **awarded in June 2021 and works started in August 2021**

**Building structure** nearing completion, despite considerable challenges including COVID and wet weather

**The Powerhouse Museums Discovery Centre is being expanded as part of the bigger Powerhouse renewal. The expansion will include a new 8,000 sqm building, create 30 percent larger storage and provide a new level of access to the Powerhouse collection for the community.**

NSW Public Works has a leading role in the project, supporting the design phase and as the project manager for the procurement and delivery of construction works. “Two NSW Public Works staff have been engaged on the

project since May 2020, bringing extensive experience of working on large and complex projects and delivering construction projects for the government,” said NSW Public Works Director of Capital Projects Peter Hogan.

In 2021-22, NSW Public Works worked collaboratively with Create NSW, Powerhouse, the design team and the building contractor to finalise the design. In addition, NSW Public Works has continued to manage project and contract administration for the client and coordinate outstanding approvals from statutory authorities such as Fire and Rescue NSW.



In June 2021, NSW Public Works awarded the \$24 million building contract to Taylor Construction Group, who started works in August 2021. “Significant progress has occurred on site in 2021-22,” said NSW Public Works Senior Project Manager Tim Bain. “Most of the structure has been completed and services fit out works have commenced. This has been despite unprecedented rain, supply chain challenges and COVID disruptions.” Construction works are expected to be completed in March 2023.



| Powerhouse Museums Discovery Centre in construction



# Helping to deliver a thriving Western Parkland City in Sydney

📍 Badgerys Creek, Sydney | 💰 \$65 million | 👤 Western Parkland City Authority (WPCA)

NSW Public Works provided **advice on design development** and has progressed the project from design stage to commencement on site

Development of procurement strategy led to a switch from two construction works packages to one head contractor, **improving risk management**

**Plans are rapidly taking shape for the new Western Parkland City, also known as Bradfield City, which will be home to Sydney's second airport. The first infrastructure being built is a series of roads and the Advanced Manufacturing Research Facility First Building.**

In December 2021, NSW Public Works was engaged to provide advice on the building design being undertaken by external consultants. "Our team gave feedback and guidance to enhance the design, drawing on NSW Public Works' deep knowledge and expertise in designing, procuring and delivering major infrastructure projects," said NSW Public Works Director of Capital Works Peter Hogan.

NSW Public Works prepared the procurement strategy, working alongside the WPCA team. The client originally pursued two works packages — one for roads and infrastructure and another for the building. "After analysing the risks of having two contractors on site, it became clear to WPCA and NSW Public Works that novating the consultants and having one contractor managing both packages offered better value for money and better risk management across the total project," said Mr Hogan.

As delivery partner, NSW Public Works also managed the procurement of the building contractor and will oversee construction delivery. The construction tender was issued in May 2022 and the construction contract was awarded to Taylor Construction Group in September 2022.






| 3D renders of the Advanced Manufacturing Research Facility First Building



| Image caption

| NSW Public Works staff on-site, Jenolan Caves

# Collaborating with Soil Conservation Service to refurbish facilities at Jenolan Caves

 Jenolan Caves, Blue Mountains |  \$2.1 million |  Jenolan Caves Reserve Trust (JCRT)

NSW Public Works and Soil Conservation Service (SCS) **partnership strengthened** after joining the commercial business unit of Department of Regional NSW

The partnership leverages complementary **technical expertise** and experience to enhance project outcomes at Jenolan Caves

Jenolan Caves are an iconic tourism destination for NSW, where visitors can experience the natural beauty of undamaged caves, rich with crystal formations and pure underground rivers. Since 2019, NSW Public Works has been project managing the delivery of eight refurbishment and construction projects (valued at \$30 million) at Jenolan Caves, in the foothills of the World Heritage Blue Mountains.

In July 2022, JCRT engaged SCS as the principal contractor to lead the design and construction of a 100m boardwalk which forms part of the River Walk trail around the Blue Lake. “Following a thorough tender process, SCS was directly engaged to deliver the \$2.1 million project,” said NSW Public Works Project Manager Grant Barker. “Soil Conservation Service brings extensive experience working with NSW Public Works

and on Jenolan Caves projects, including trail repairs following the 2019-20 bushfires and de-sedimentation works in August 2020 and March 2021.”

In early 2022, NSW Public Works and SCS were brought together in the commercial business unit of the Department of Regional NSW, strengthening the existing partnership. “This arrangement enables us to more easily share and leverage each other’s expertise,” said NSW Public Works Program Manager Wayne Bell, based at Bathurst. “For instance, NSW Public Works is using its engineering expertise to assist SCS with the boardwalk design development, and SCS is harnessing its environmental know-how to minimise impacts on the resident platypus colony, ensuring the best project outcomes.”

The contract for the boardwalk was awarded in July 2022, with works to start in February 2023, running until June 2023.



## Sustaining cultural heritage assets of communities, places and sites

Through the Minister's Stonework Program (MSP), NSW Public Works assists agencies to sustainably repair and enhance the state's stone heritage assets. The NSW Government owns over 800 heritage sandstone buildings and structures. As well as being culturally significant, they are operational government assets including schools, hospitals and court houses, which also contribute to the civic life, pride and identity of many communities.



| Iconic Bathurst Courthouse preserved for future generations



# Preserving hundreds of historic buildings through the Minister's Stonework Program

Administered and managed by NSW Public Works, the MSP (\$29 million in 2021-22) offers government funding, expert advice and delivery of works. “We take a proactive, state-wide strategic approach to activate these key community assets for public benefit. Many also contribute to the cultural (tourism) settings of communities, public places and sites,” said NSW Public Works Senior Heritage Architect Kate Napier.

## Case study: Conservation works restore the beauty and stability of a former national (public) school

- Location: Australian Museum, Sydney
- Project value: \$2.5 million

The Former National School located at the Australian Museum, was designed by Henry Robertson and constructed in 1850 as a single storey building. Following several ‘make-safes’ to remove loose stones from high areas and with a Colorbond roof at the end of its life, the Minister's Stonework Program, in partnership funding with the

Australian Museum, carried out external conservation works. The 12 months of works, completed in March 2022, followed two and half years of historical research, condition assessment and completing the heritage impact statement.

“The aim of the works was to provide durable conservation solutions, which included replacement and patching of deteriorated stone, removal of paint from stone sills, replacement of the Colorbond roof with galvanised steel sheeting and reinstatement of the original colour scheme,” said Project Leader Martine Craswell of NSW Public Works' Heritage, Environment and Planning team.

The conservation approach was to replace ‘like for like’ with a focus on retaining as much of the original fabric as possible. “Good team communication was essential to help overcome working constraints and ensure quality outcomes during COVID lockdowns,” said Ms Craswell.



| Preservation work on the gable

“The [Former National School] building is no longer a public safety risk and once again enhances the streetscape and contributes to civic pride.

Mark Speakman, Attorney General

## Case study: Iconic Bathurst Courthouse preserved for future generations

- Location: Bathurst
- Project value: \$6.43 million

The Bathurst Courthouse, established in 1880, was designed by Colonial Architect James Barnet. With Doric columns, an imposing portico, colonnade and copper-sheeted dome, the courthouse's exceptional heritage significance is recognised on the NSW State Heritage Register.

Identification and proactive planning of work started in 2014. Construction commenced in January 2021 and took 18 months. “Major restoration works included high level and complex stone replacement below the iconic dome, roof sheeting replacement, reconstruction of missing lead gargoyles, and stabilisation of 27 chimneys, all coordinated around court sitting dates,” said Project Leader and NSW Public Works Senior Heritage Architect Graeme Erskine.

The project was part of a new partnership between the Department of Communities and Justice and the Minister's Stonework Program, which is managed by NSW Public

Works in collaboration with Heritage Stoneworks in the Department of Planning, Industry and Environment.

The Bathurst Courthouse facade and roofing conservation works were highly commended in the Conservation-Built Heritage category of the 2022 National Trust Heritage Awards.

“This is an important heritage conservation project which will preserve this beautiful building for future generations,” said Attorney General Mark Speakman.



| Bathurst Courthouse preservation



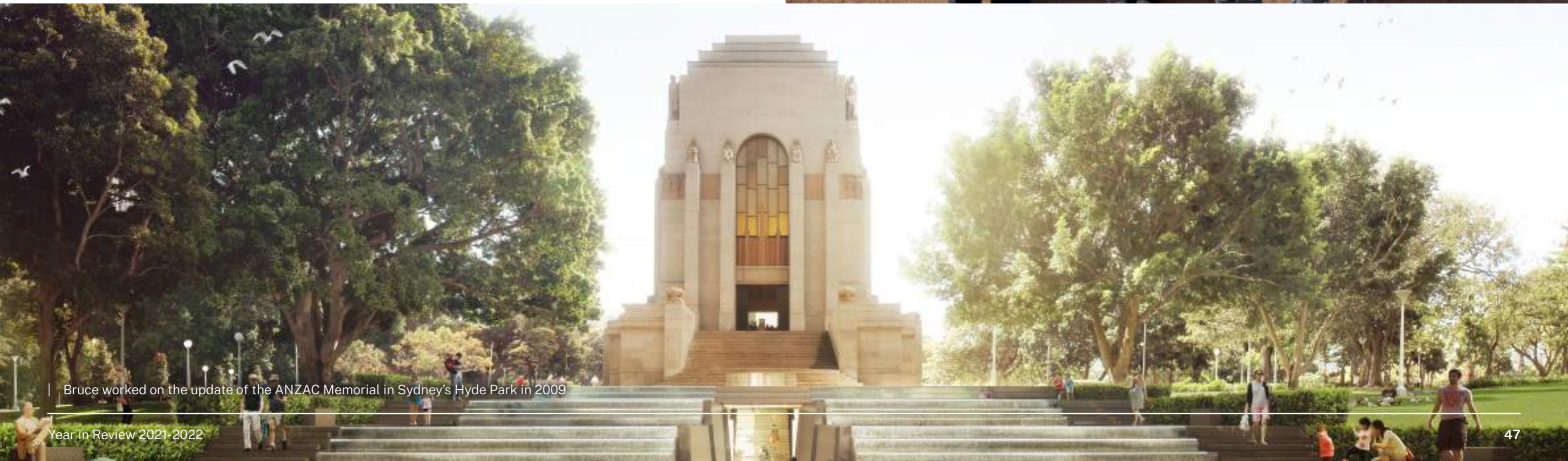
## Staff spotlight: Passionate architect wins recognition for his decades of heritage work

For more than 45 years, architect Bruce Pettman has worked tirelessly to protect and enhance heritage places. From conserving major buildings in South Australia and New South Wales to restoring historic buildings in South Asia and Southeast Asia, his career has been vast and varied. In May 2022, Bruce received a Lifetime Achievement Award for his significant contributions to the heritage industry.

[Read more >](#)



| Bruce (back left) with the NSW Public Works Heritage Team, 2021



| Bruce worked on the update of the ANZAC Memorial in Sydney's Hyde Park in 2009



## Supporting smarter digital design and asset management across regional NSW

NSW Public Works launched its digital engineering framework in April 2022, marking a critical first step towards its vision to implement global best practice for managing digital information and collaborating on designs.

Over the next three years, NSW Public Works will embed the framework, with a focus on creating, capturing and integrating all project data using digital skills and through advanced technologies. In support of this, NSW Public Works has invested significantly

in high-end hardware and new specialised teams and is building several bespoke applications across the business. “Through thinking differently and maintaining a strong focus on upskilling staff and working smarter with technology, we will help regional NSW face the challenges of the next decade — to build and operate more with less,” said NSW Public Works Director of Operations Sam Thomas



| Mike Taherian, NSW Public Works Senior Manager Digital Engineering



# ‘Game changer’: Advanced survey technology enables digital models

The NSW Public Works Survey and Spatial team is using the latest equipment and technology — such as laser scanners and advanced drones — to quickly capture millions of data points from large areas over existing infrastructure and the built environment.

“This detailed data is used to create a 3D representation in an online viewing program, providing the foundation for design engineers and architects to develop a design,” said NSW Public Works Principal Surveyor Jarad Cannings. “Project members can measure or mark up any element in the 3D viewer and undertake a virtual site visit while at their computer; it’s a game changer.”

This advanced survey approach was used in the upgrade of the Tuross Heads Sewer Pumping Station (SPS) on the south coast of NSW. “The NSW Public Works survey team created 3D visualisations of the proposed switch room building,” said NSW Public Works Senior Project Manager Ross Bailey, who led the project. “The representations were incredibly detailed and accurate, allowing the project team to assess the

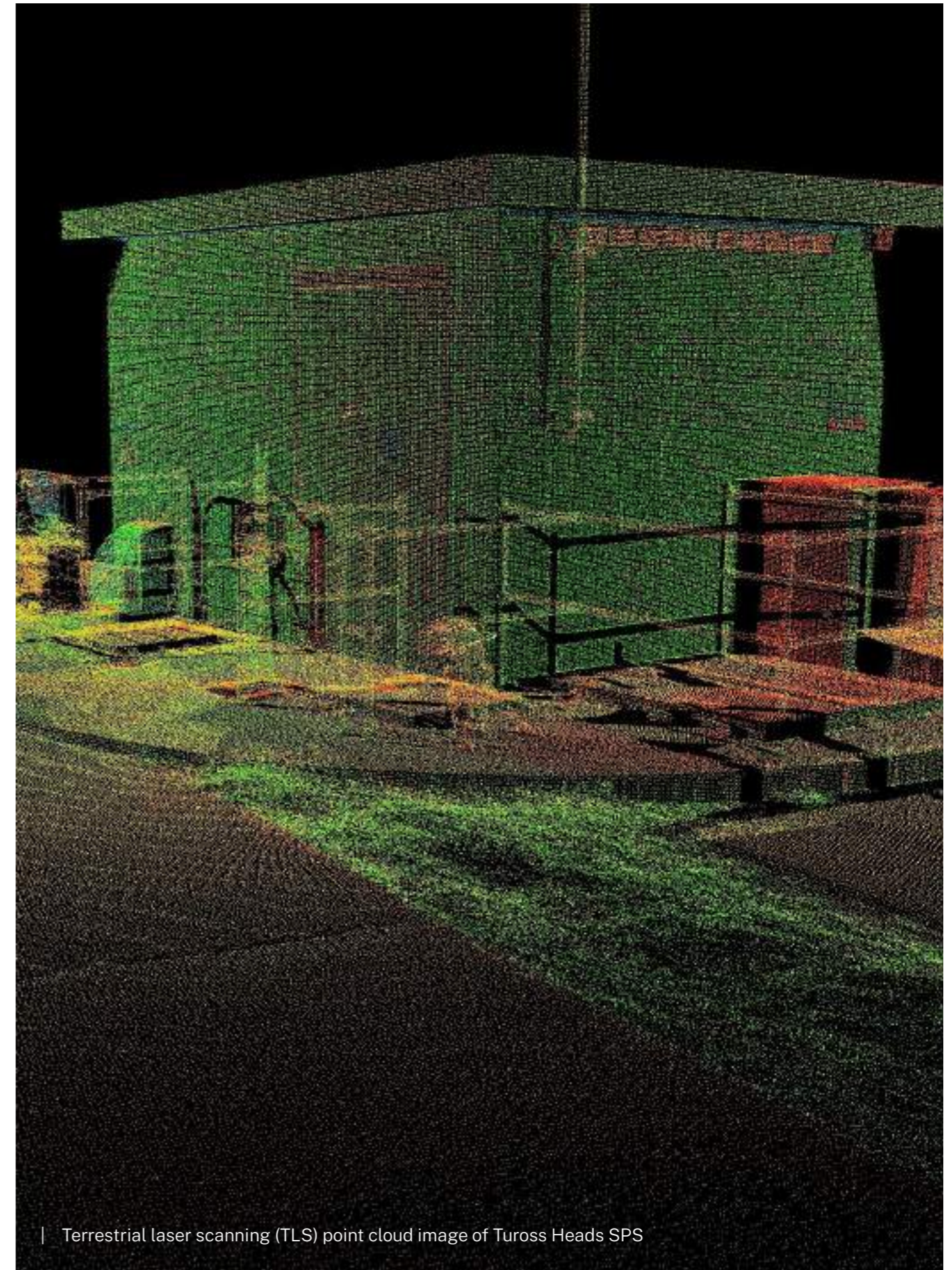
impact of the works on neighbouring properties and the public area. This spatial data will also be used to facilitate the detailed design of the SPS upgrade.”



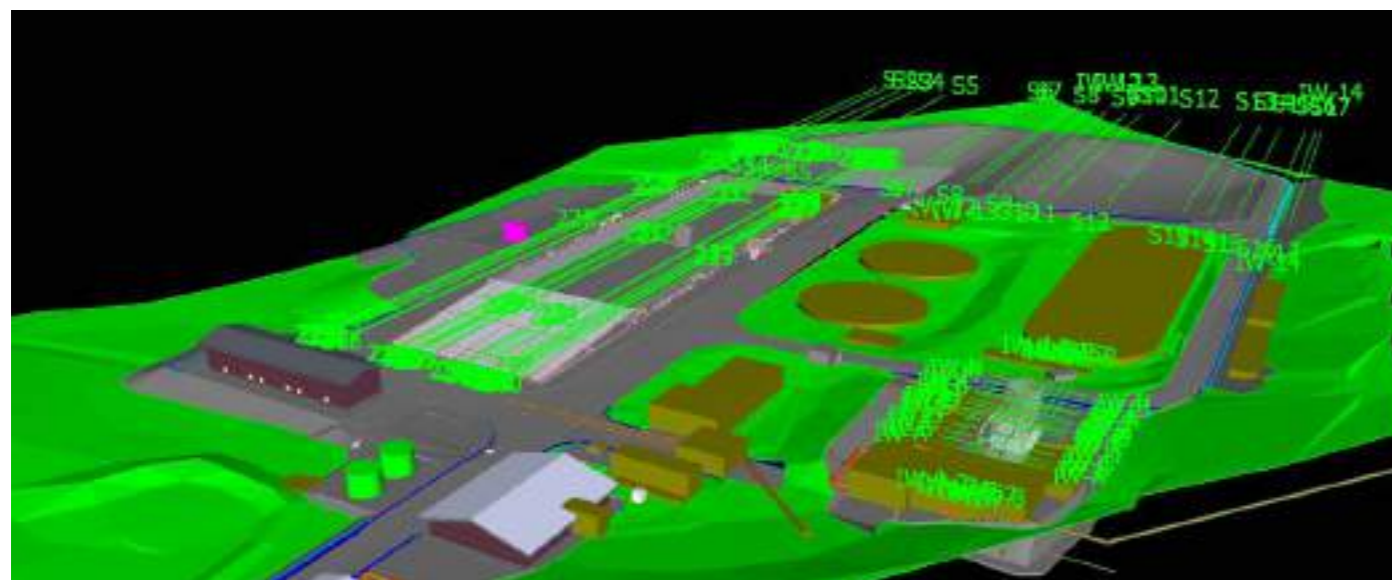
| Terrestrial laser scanning (TLS) jetstream image of Tuross Heads SPS



| Drone Orthophoto image of Tuross Heads SPS



| Terrestrial laser scanning (TLS) point cloud image of Tuross Heads SPS



| 3D model of Tomakin Sewerage Treatment Plant

## Developing a Digital Engineering Standard for regional infrastructure

NSW Public Works is finalising its Digital Engineering Standard, which it hopes to soon make available to its council partners and embed in its contracts. Currently, a fit-for-purpose prescriptive standard, and accompanying naming conventions, design guides and asset classifications, do not form part of Government's GC21 contract, or most NSW Public Works' and councils'

tender documentation in the regions. This inhibits uptake and progress in the digital engineering space.

"NSW Public Works is hoping to leverage the investment it is making in this area by integrating the practices into key design processes and contractual mechanisms," said Mr Thomas. "There is a real multiplier effect opportunity to help drive capability uplift and consistency across regional NSW." "This will achieve efficiencies during the build and set up operators and asset managers for success in the long run."

## Cloud server supports better collaboration

NSW Public Works has rolled out cloud-based design collaboration tools, enabling project stakeholders to work more efficiently. "The cloud server manages a project's digital information, including survey, geographic information, 3D models, drawings, bill of materials, estimations and site documents," said NSW Public Works Senior Manager Digital Engineering Mike Taherian.

Project members can collaborate in real time and harness the power of cloud processing to generate and simulate multiple design options using advanced methods, pick up real-time clashes and estimate the cost. "This increases the efficiency of engineering teams, improves the quality and reliability of design solutions for design teams, and

optimises maintenance activities and information sharing for asset managers," said Mr Taherian.

The digital team is also working to digitise and integrate survey, geographic information systems, building information modelling, and water and wastewater projects. "Rolling out digital engineering workflows enables us to better meet the needs of our clients."

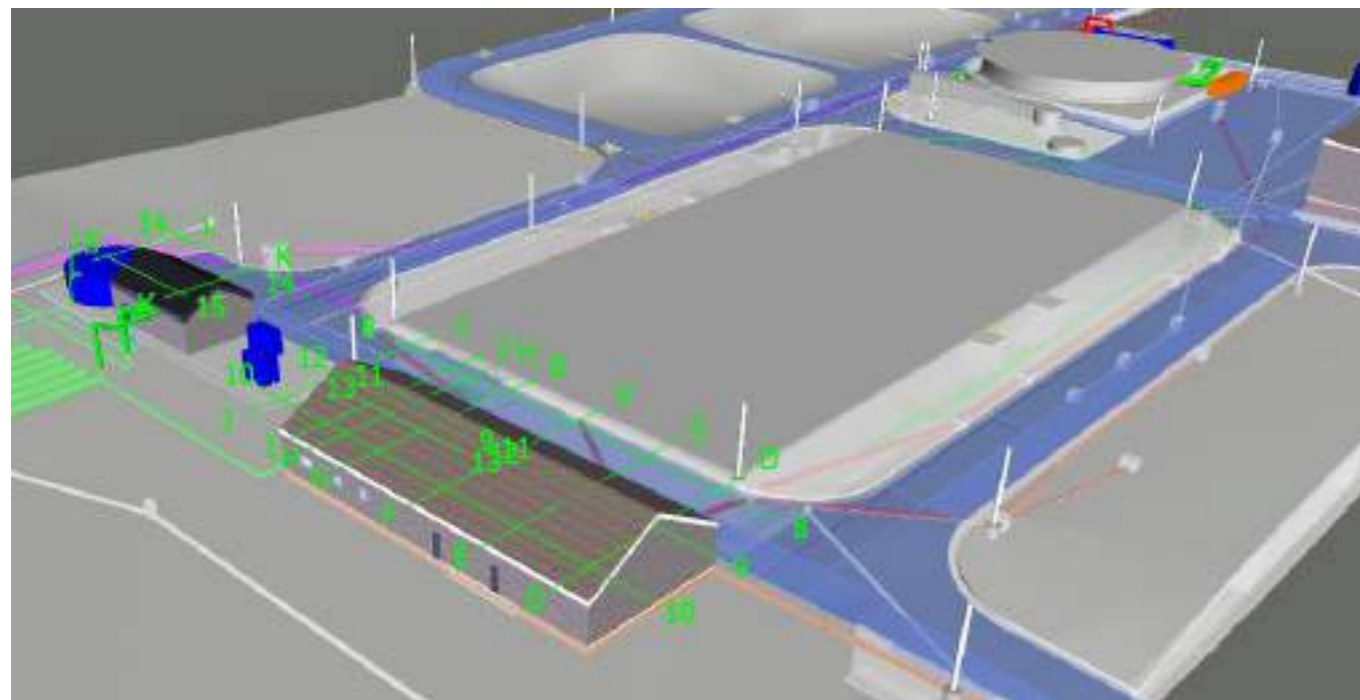




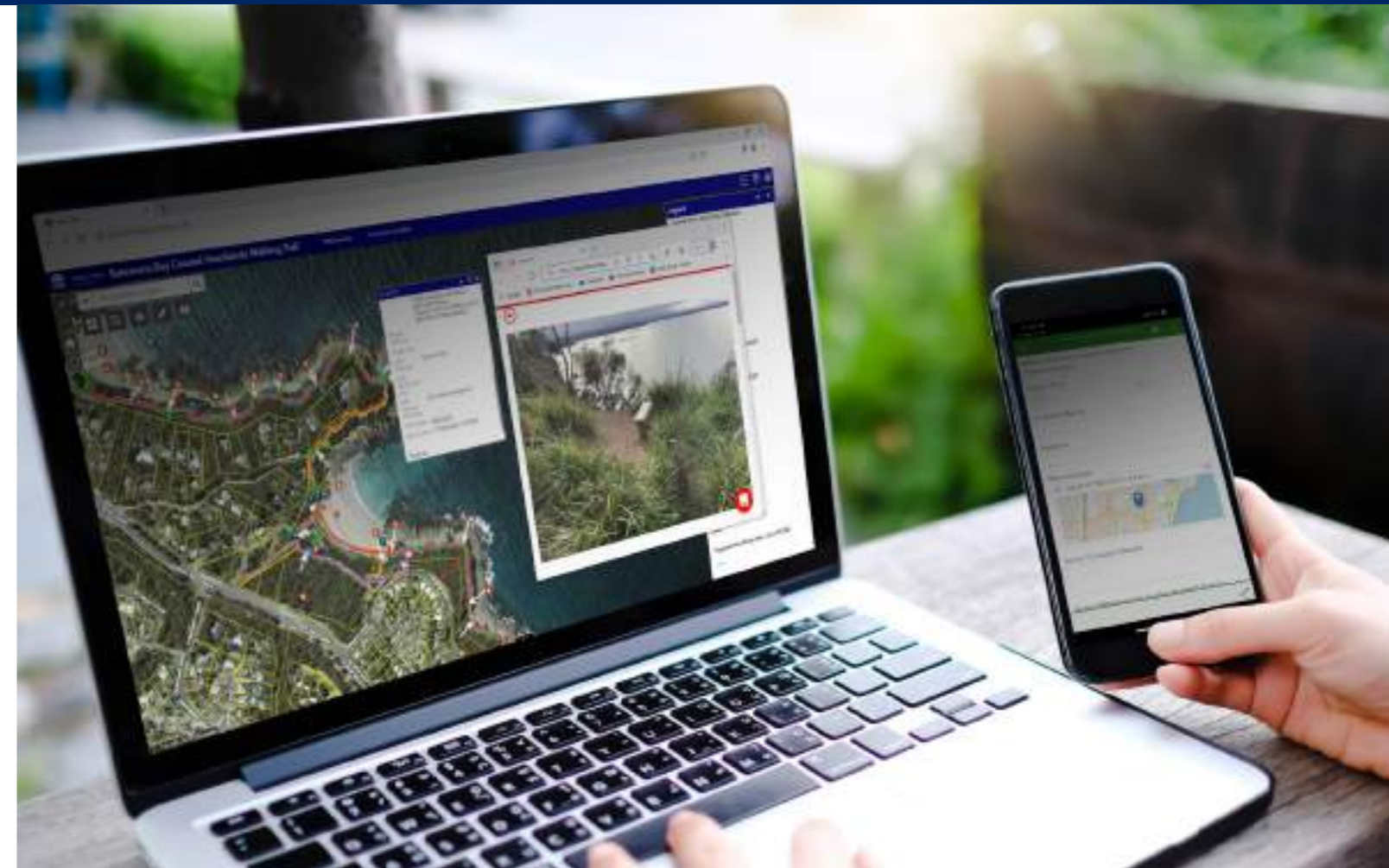
## 3D models identify real-time design clashes, reduces costs

Since April 2020, Public Works and Clarence Valley Council have worked together to design a new Sewage Treatment Plant (STP) in Grafton, situated on the north coast of NSW. As part of a digital engineering pilot, the project's 2D existing design drawings were converted into an intelligent 3D model.

"The cloud platform allowed us to identify any 3D model design clashes, such as pipelines and conduits or structures and resolve them before they occurred in the real world," said Public Works Principal Wastewater Engineer Brett Douglas, who is the design manager for the Grafton STP. "This cuts down the risk of expensive variations during construction of the STP."



| 3D model of North Grafton Sewage Treatment Plant



## Interactive walking trail built on advanced spatial technology

Since August 2021, NSW Public Works has been working with the Eurobodalla Shire Council to oversee the project planning and implementation of the Batemans Bay Coastal Headlands Walking Trail and observation point upgrade.

Using the latest spatial technology, NSW Public Works created an interactive map showing the trail's planned route in detail and providing additional information about some of its features.

"The app includes fulcrum data, so when a staff member walks the trail, they can take photos of where improvements need to be made or potential vista shots. That information is pulled into public-facing version of the app that's available on the council website," said NSW Public Works CAD and Spatial Manager Shaun Epe.

# Planning and building a NSW that works, together.

Learn more about how we can help

Phone: 1300 00 88 88

Website: [publicworks.nsw.gov.au](https://publicworks.nsw.gov.au)

Social media:

