

Sustainability





Solar panel installation, Belmont Hospital

Sustainability

NSW Public Works (NSWPW) is perfectly positioned to assist our clients with their sustainable infrastructure goals.

We have a state-wide network of experts who can undertake the planning, design, procurement, and project management of sustainability projects, as well as specialists in waste, water, energy and heritage. These projects require innovative thinking, highly developed stakeholder management and effective communication skills.

We have procurement specialists in regional locations, enabling us to use local knowledge when preparing tender and engagement documents to design and construct.

Stuart Landrigan

Director, Infrastructure Advisory & Program Assurance

0428 211 200

stuart.landrigan@pwa.nsw.gov.au

Services aligned to global themes

There are many macro-elements that influence the pace of innovation and our local perspective and regulatory environment. NSWPW understands these and the dynamic interconnections between environmental, social and economic outcomes enabling greater resilience.

| | | | |
|--|-----------------------------|--|-----------------------------|
| | Global energy transition | | Sustainable procurement |
| | Climate change | | Circular economy |
| | Labour and skills shortages | | Digital transformation |
| | Energy security and supply | | Integrated water management |
| | Natural capital | | |

Expert staff in every corner of NSW

With more than 500 dedicated staff across our network of 20 regional offices, we are able to quickly and efficiently take on new projects or programs, tailoring the approach to achieve optimal outcomes for the client.

Relevant staff include:

- Sustainability and Climate Resilience Manager
- Electrical Engineers
- Mechanical Engineers
- Water Engineers
- Major Development and Precinct Project Managers
- Heritage Architects
- Environmental Planners

Our sustainability expertise

NSW Public Works has the capability and experience to provide clients with **tailored solutions** for the delivery of their **sustainability projects**.

- Business case development.
- Return on investment and payback analysis.
- Effluent reuse and safe discharge of wastewater.
- Wastewater treatment and separation, recycling water and re-purposing biosolids, for example, hospitals reusing water from dialysis.
- Riverbank stability works and rehabilitation to reduce flood risk.
- Renewable power solutions.
- Solar and battery programs.
- Lighting replacement programs.
- Energy audits.
- Pilot programs for trialling new technologies.
- Electric vehicle infrastructure programs.
- Electrical system design optimisation.
- Negotiations with energy authorities.
- Strategic asset management plans.
- Water efficiency and rainwater capture.
- Stormwater management, treatment and discharge quality.
- Flood management program.
- Resilient infrastructure design and material selection.
- Environmental planning assessments and impact statements, including identification of potential environmental impacts and possible mitigations.
- Statements of Environmental Effects (SEEs).
- Review of Environmental Factors (REF).
- Advice on planning approvals that require specialist assessments.
- Sustainable design/development (ESD, biodiversity, and Aboriginal cultural heritage assessments/ plans).



Projects in profile

NSW Public Works is proud of the sustainable outcomes that we continue to provide to our clients.

Hunter New England Local Health District Sustainability Program

Client: Hunter New England Local Health District (HNE LHD)

Location: 35 locations in HNE

Services provided: Technical advice, project and contract management

HNE LHD’s Sustainability Strategy sets a target to be carbon and waste neutral by 2030. NSWPW has been providing technical leadership and project and contract management services, installing solar PV on 35 sites to date. Newcastle’s John Hunter Hospital is now home to the largest hospital rooftop photovoltaic solar system in the southern hemisphere, with more than 5,300 panels covering almost 12,000 square metres. Construction safety was a critical success factor, with work occurring on an operating public hospital during the COVID-19 pandemic and managing multiple crane lifts within a busy medical helicopter flight path.



Gundagai Sewage Treatment Plant

Client: Cootamundra-Gundagai Regional Council

Location: Gundagai

Services provided: Design, project and contract management

NSWPW were engaged to deliver a new 3000EP Intermittently Decanted Extended Aeration Sewage Treatment Plant, pump stations and rising mains, constructed above the 1:100-year flood level.

The treatment plant provides biological treatment based on the Intermittently Decanted Extended Aeration (IDEA) treatment process, to which micro-organisms contained within the sewage treatment process aid to break down organic matters. Ultraviolet treatment and chlorination provide final disinfection for effluent reuse, adding sustainability benefits through drought proofing the adjacent Bidgee Golf Course.

The project was completed on time and budget, whilst also meeting operational compliance and design objectives. The state-of-the-art sewerage augmentation will safeguard the Gundagai community over the next thirty years and beyond.



Water security and efficiency project

Client: Western NSW Local Health District

Location: 39 regional locations in Western NSW

Services provided: Advisory, procurement, contract management

The Western NSW Local Health District approached NSWPW to manage a project of assessing the water security of the 39 hospitals in the region. NSWPW worked with the various sites and the sustainability leads across the organisation to determine the parameters to be focussed on including but not limited to payback period and internal rate of return. The resultant report included the data and summarised opportunities for all facilities collectively and identified potential larger and/or scalable projects. Opportunities were identified for short, medium and longer term implementation, which allowed the client to have some immediate wins, and plan for larger refurbishments or new designs. The clients were also planning to use the report for funding applications for larger projects.



Water river project Walgett Weir

Client: Walgett Shire Council

Location: Barwon River, Walgett

Services provided: Design, project and contract management

NSWPW played a crucial role in the water river project at Walgett Weir which aimed to address the insufficient water storage during droughts and improve fish passage.

NSWPW were responsible for the initial investigation, design, construction procurement, technical advice and overall project management. We also engaged in extensive consultation with community and government stakeholders.

Despite challenges like flooding, NSWPW successfully raised the weir by 1m, increased the weir pool storage from 3 to 7 months, and constructed a 115m long fishway with 30 bays. The fishway provides significant environmental benefits by facilitating fish passage in the Barwon and Namoi rivers whilst also securing Walgett’s water supply.



Junee Sewerage Treatment Plant augmentation

Client: Junee Shire Council

Location: Junee

Services provided: Project management, options study, environmental assessment, geotechnical investigation and survey, concept design, detailed design, tender procurement, contract administration, site supervision, testing and commissioning

NSWPW were engaged to investigate options to augment the old plant, which was nearing capacity.

An innovative biological treatment process was proposed based on NSWPW’s sustainable and low cost Intermittently Decanted Extended Aeration (IDEA) treatment process, where micro-organisms contained within the sewage treatment process’ bioreactor aid to break down organic matter.

The design also incorporated a solar panel array to offset power loading of the modern treatment process. The augmented STP will meet Council’s treatment capacity requirements for the next 30 years, helping to secure their water management plan objectives for effluent reuse and better environmental outcomes.



Teacher’s Housing Program

Client: Teacher Housing Authority NSW

Location: 108 properties in 28 towns

Services provided: Procurement, project management, contract management

Attracting and retaining teachers in regional and remote areas is a challenge. NSWPW partnered with the Teacher Housing Authority of NSW to improve the living conditions for teachers in regional and remote areas of NSW by delivering quality housing.

The internal and external refurbishment of the identified properties included new roofs and drainage, kitchens, painting and carpeting, whilst also replacing 347 evaporative cooling systems with more energy and water efficient systems, as well as installation of solar panels on these properties. As part of the program ten new homes were also constructed.



Rural Hospital Staff Accommodation Program

Client: Hunter New England and Far West Local Health Districts

Location: Hunter New England and Riverina Western Regions

Services provided: Program management and contract management

NSWPW are collaborating with Hunter New England Local Health District and Western NSW Local Health District to deliver the Rural Hospital Staff Accommodation Program.

59 housing units have been delivered across 17 rural hospital sites. These were a mix of prefabricated and more traditionally built units.

The self-contained units are designed to be comfortable, private, and secure, and are expected to attract and retain visiting medical professionals. All units were designed with energy efficiency and comfort in mind and include the use of solar panels and rainwater tanks.



TAFE lighting upgrade business case

Client: TAFE NSW

Location: 130 sites across NSW

Services provided: Advisory, technical advice, cost analysis

TAFE NSW are investigating energy efficient options for the replacement of the lighting at their campuses across the state. In order to secure funding for the program, they required data evaluation and cost analysis of their sites, to inform their option analysis and present a business case. TAFE initially considered site audits for each site, but through investigation of the data they already had available, NSWPW determined that a desk top analysis would suffice, thereby resulting in cost savings.

NSWPW analysed their site data to provide cost and payback period analysis to be used in the business case.



Smart Energy Schools Program

Client: Schools Infrastructure NSW
Location: 80 schools across NSW
Services provided: Technical advice, project management and contract management

Solar arrays and battery storage systems have been installed on 61 NSW schools (over two tranches) through the Smart Energy Schools Pilot Project, supplying up to 50 percent of the schools’ energy needs. NSWPW leads the work as part of the Cooler Classrooms Program funded by School Infrastructure NSW.

In the next phase, the project will install the systems at 18 more schools and test two energy management devices to find the best technology to turn a selection of schools into virtual power plants (VPP). The VPP will allow the schools to use solar for their energy needs, to charge the battery and to export and import energy to the grid. This enables schools to buy low and sell high, creating advantages for NSW schools and beyond.



Cooler Classrooms Program

Client: Schools Infrastructure NSW
Location: 900 schools across NSW
Services provided: Technical leadership, procurement, heritage advisory, electrical expertise, environmental planning, project management and contract management

This program provides sustainable reverse-cycle air conditioning and ventilation to schools across NSW, with the aim to improve learning and work environments for students and staff. The systems improve air quality and promote sustainability and energy awareness by using renewable energy sources and smart energy management systems.

NSWPW developed a bespoke delivery model using our state-wide network and ability to harness in-house experts in areas such as environmental planning, heritage advisory, electrical supply, procurement and contract administration. Our specialist input saved the program over \$25m through identifying electrical system design optimisations.



IN FOCUS:

Smart management of electrical designs saves \$26 million

As part of managing the roll-out of the \$500 million Cooler Classrooms Program, NSWPW was responsible for managing all required electrical design works, which NSWPW delivered for \$26 million under budget.

Through the program, a typical school classroom received new air conditioning to provide thermal comfort, an air extraction system to improve ventilation, and a carbon dioxide sensor to monitor air quality. In addition, ceiling fans were added where necessary, and existing unflued gas heaters were removed.

To deliver these works, more than 200 of the 800 schools required upgrades to the high voltage electrical network. The high voltage upgrade costs were estimated at \$90 million, accounting for 20 percent of the program budget.

“For each of these 200 schools, we reviewed and closely scrutinised the power requirements,” said Brad Fisher, Electrical Services Team Leader.

“We achieved tens of millions of dollars in savings by optimising high voltage designs, collaborating with supply authorities to negotiate reduced scopes, challenging design assumptions, and minimising variations.”

For example, at Baradine Public School in central NSW, the supply authority initially required 14 km of high voltage lines to be augmented as part of a network upgrade.

“After negotiating with the supply authority, this requirement was revised and greatly reduced,” said Andrew Cruckshank, Director of Construction Procurement and Social Benefit, NSWPW. “This saved millions of dollars and significantly reduced the delivery time.”



In the case of Coffs Harbour High School, the supply authority initially requested the installation of a new pad-mount substation onsite, costing around \$1 million.

“NSW PW challenged this need for a network upgrade and proposed an alternative solution,” said Mr Cruckshank. “After extensive negotiations, the supply authority agreed that only minor modifications to the network were needed. The resulting simple works cost less than \$50,000 and were delivered in weeks instead of months.”

In many other instances, like with Canobolas Rural Technology High School and Forbes Public School, NSWPW proposed alternative solutions to the supply authority’s initial requirements for a significantly reduced cost.

The team’s success on the program has led to new work, such as management of the electrical network augmentation works for the North Coast Temporary Housing Accommodation Program, providing electrical advice for the Belmont COVID 19 Mass Vaccination Hub, and Wagga Wagga and Parkes Special Activation Precincts.

Expansion of waste cell at Kempsey Waste Management Centre

Client: Kempsey Shire Council
Location: Kempsey
Services provided: Technical support, project and contract management

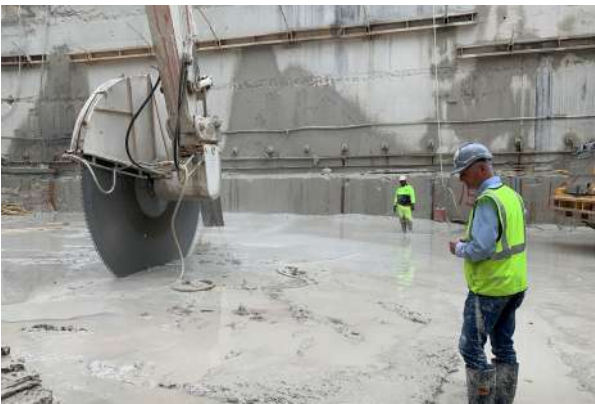
The Kempsey Waste Management Centre, serving the waste and recycling needs of Kempsey Shire Council and the local community, faced capacity challenges in its active landfill cell. To address environmental responsibilities, the facility expanded with the construction of a new waste cell, supported by NSWPW with technical advice and project and contract management. Overcoming incremental weather and supply chain challenges, NSWPW assured construction compliance with environmental guidelines and EPA endorsement. The project enhances Kempsey Shire Council's long-term waste strategy, supports community growth and sustainability initiatives.



Preserving Sydney's heritage: The Minister's Stonework Program

Client: The Government Architect / Minister's Stonework Program
Location: Sydney
Services provided: Heritage asset advisory, stone sourcing and quarrying, restoration, sustainability

The Minister's Stonework Program is administered and managed by NSWPW on behalf of the Government Architect. The Program assists agencies in managing their stone heritage assets, with over 800 sandstone-built assets across NSW. The program has been innovative in sourcing stone, with Yellow Block Sandstone harvested from development sites across Sydney CBD. A condition of development consent requiring the sourcing of Yellow Block Sandstone from excavations for the restoration of Sydney heritage buildings was implemented by the City of Sydney and the program's requirement, as it is equivalent in quality to the original stone used to construct the assets.



Western Sydney Start-Up Hub

Client: Property and Development NSW
Location: Parramatta
Services provided: Procurement, project and construction management

NSWPW successfully managed the procurement and delivery of Western Sydney start-up hub, a 5-star Green Star refurbishment of 1800s buildings. Engaged by Property and Development NSW, NSWPW seamlessly blended heritage conservation with modern functionality, incorporating slate re-roofing, sandstone restorations, and structural repairs. The 13-month project was officially completed in July 2022 with the hub formally opening in October 2022. The project was recognised with the '2022 Master Builders NSW Excellence in Construction award' for the restoration/adaptive re-use of an historic building. The Hub provides 1,500 square metres of affordable co-working space to start-ups, scale-ups and small businesses as well as programs and events to support their growth in a like-minded community.



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 2021-04 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. NSW 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 REGION

Newcastle
117 Bull Street
Newcastle West NSW 2302

Tamworth
155-157 Marius Street
Tamworth NSW 2340

Inverell
240 Byron St
Inverell NSW 2360

Armidale
85 Faulkner St
Armidale NSW 2350

NORTH COAST REGION

Lismore
120 Dalley 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 REGION

Parramatta
4 Parramatta Square
12 Darcy Street
Parramatta NSW 2150

The Rocks
66 Harrington 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
257 Crawford Street
Queanbeyan 2620

Nowra
5 O'Keefe Avenue
Nowra NSW 2541

RIVERINA WESTERN REGION

Bathurst
Level 1, 346 Panorama Avenue
Bathurst NSW 2795

Dubbo
34 White Street
Broken Hill

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

Griffith
104 - 110 Banna Avenue
Griffith NSW 2680

Wagga Wagga
4 Coleman Street
Wagga Wagga NSW 2650

Dareton
1998 Silver City Highway
Dareton NSW 2717



T 1300 00 88 88

E publicworks@pwa.nsw.gov.au