Sustainable Construction Playbook

Constructing our future together

CPB CONTRACTORS

This playbook highlights how we are applying innovative thinking and delivery methodology to create a better way.

We’re constructing a sustainable future, and we need your help.

Jason Spears,
Managing Director,
CPB Contractors

CPB Contractors is Australia’s leading contractor, trusted to deliver the most complex projects, servicing the full lifecycle of infrastructure and resources assets in Australasia.

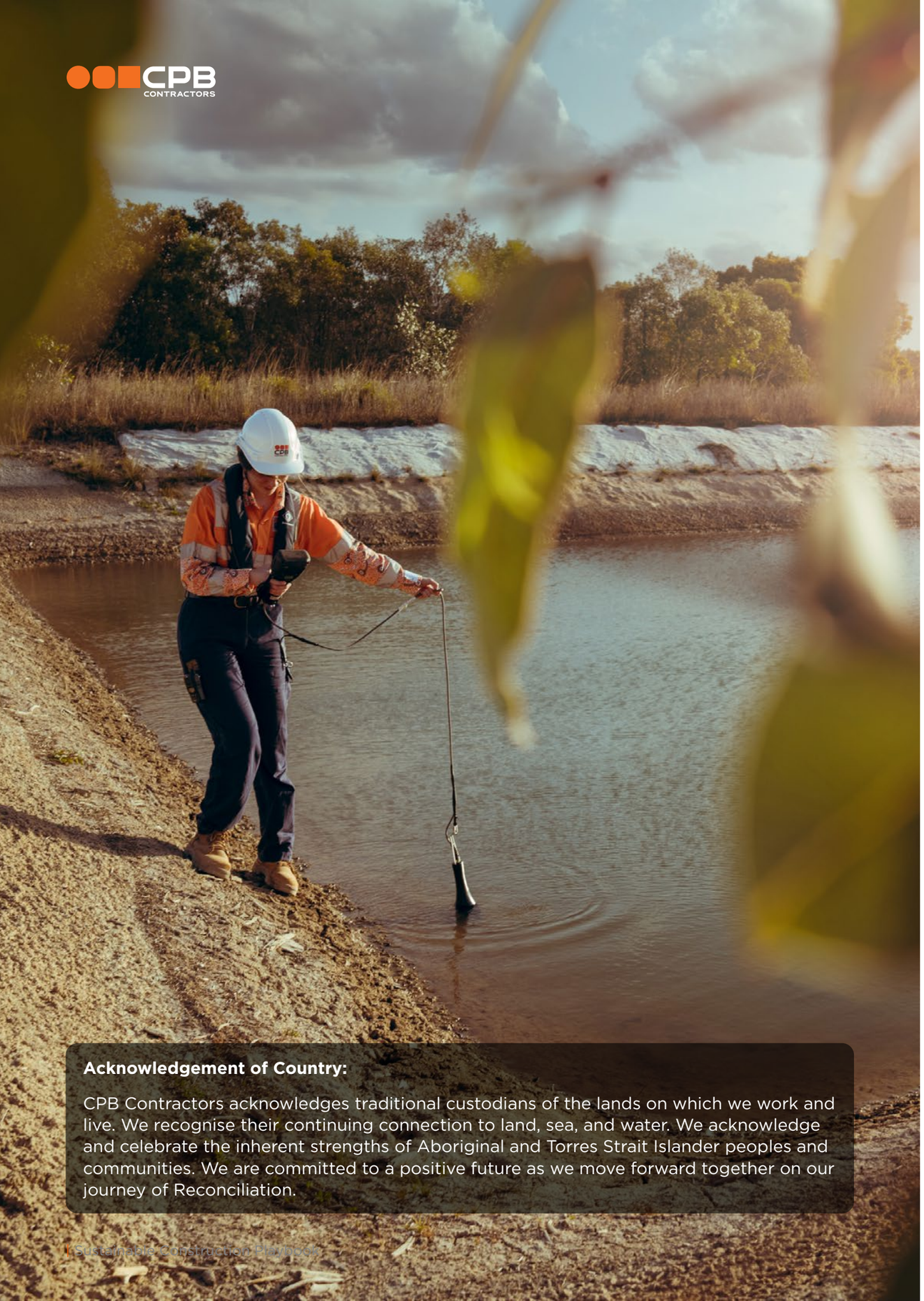
This places us in a unique position to create positive outcomes in sustainability - a responsibility we take very seriously.

Sustainability is more than meeting Environmental, Social and Governance deliverables - it’s about continually envisaging ways to do better.

We believe that what’s good for our team, the people who work with us and our environment is also good for our community, our industry and our future.

Our team is driven to seek optimal outcomes in everything we do, and we’re constantly innovating to drive greater sustainability across our projects and industry-wide.

Thank you for being part of this important journey.



Acknowledgement of Country:

CPB Contractors acknowledges traditional custodians of the lands on which we work and live. We recognise their continuing connection to land, sea, and water. We acknowledge and celebrate the inherent strengths of Aboriginal and Torres Strait Islander peoples and communities. We are committed to a positive future as we move forward together on our journey of Reconciliation.

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Our commitment

Advancing sustainable outcomes in construction

We're committed to advancing sustainable outcomes. We seek to integrate environmental, social, economic, and governance factors into all our operations, ensuring the long-term success of our projects and the communities and environments they exist within.

We actively monitor a wide range of Environmental, Social and Governance (ESG) matters, used to assess an organisation's business practices and performance on a range of sustainability and ethical issues.*

This playbook focuses on a core aspect of ESG – our commitment to delivering environmental outcomes through sustainable design and construction, and particularly our focus on achieving net zero emissions from our operations.

This is where our people, as well as our project partners, subcontractors and suppliers working with us, play a pivotal role in helping CPB Contractors to construct for change.

As a proud member of a range of industry associations, we facilitate the growth and development of our interdisciplinary teams, we align with industry standards and play a role in advocating for sustainable practices.

The Infrastructure Sustainability Council (ISC), Materials & Embodied Carbon Leaders' Alliance (MECLA) and Australia's renewable association, the Clean Energy Council (CEC), as well as the Australian Land and Groundwater Association (ALGA) are just some of our memberships.

Our sustainable construction targets

We hold ourselves accountable to key environmental sustainability targets, which include:

Achieving a minimum

20% reduction in

Scope 1 & 2 emissions from a 2019 base by 2025 (Scope 1 emissions primarily from fuels we consume & Scope 2 emissions from the electricity we consume).

Achieve

Net 0

Scope 1 & 2 emissions by 2038

Scope 3 emissions (indirect emissions associated with our activities, including material manufacturing, waste disposal, transport and travel) by 2045

Divert a minimum

90%

of uncontaminated project waste from landfill annually

Use a minimum

10%

of project water from recycled/reused sources annually

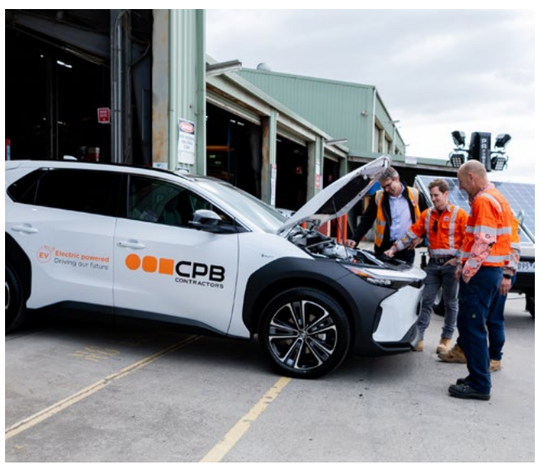
* You can read about how we're meeting our ESG commitments in CIMIC Group's Sustainabilty Report.

What we stand for and how you can help

We are on an ambitious decarbonisation journey and committed to our own net zero targets and those of our clients, as part of the global effort to mitigate impacts of climate change.

Here's what CPB Contractors stands for:

- ☑ Leveraging opportunities from tender through procurement to delivery, to push for low carbon and low environmental impact solutions for our clients and drive market transformation by working with our clients, partners, suppliers and subcontractors.
- ☑ Avoiding waste generation and unnecessary energy and material consumption.
- ☑ Adopting construction methods and equipment with lower GHG emissions and higher energy efficiency.
- ☑ Adopting materials with lower GHG emissions and higher recycled content.



How our project team drives change

What we are doing to reduce energy-related GHG Emissions (Scope 1 & 2)

- ☑ Adopt renewable electricity contract options to eliminate grid electricity Scope 2 emissions.
- ☑ Establish upfront grid electricity connection for construction sites and avoid reliance on generators.
- ☑ Use hybrid, battery and electric technology to reduce diesel consumption.
- ☑ Optimise equipment energy efficiency giving consideration to size, output and speed required (such as avoiding oversized generators).
- ☑ Replace diesel with biodiesel at 5% (B5) or 20% (B20) blends in line with equipment specifications or use Renewable Diesel, which can be used as a complete substitute for diesel.
- ☑ Implement technologies that reduce asset operational energy consumption.

How we minimise material-related GHG emissions (Scope 3)

- ☑ Use materials with recycled content considering durability and operational maintenance impacts.
- ☑ Use materials with low embodied carbon considering durability and operational maintenance impacts.
- ☑ Reuse / recycle construction and demolition waste.

The vital role of our supply chain

As valued suppliers and subcontractors, you play a vital role in helping CPB Contractors deliver sustainable projects.

The pace of decarbonisation associated with construction is rapidly increasing, and we want to hear your proposals to deliver even more sustainable solutions for our projects.

For example, in 2023 we worked with subcontractors and suppliers to achieve a total of 35.5% Supplementary Cementitious Materials (SCMs) in concrete mixes across 11 projects, reducing our use of high carbon Portland cement.

Your contribution

- ☑ We want to hear about your offerings of fuel efficient / electric / hybrid equipment and low carbon fuels and ask you to provide energy consumption and GHG emissions rates of equipment e.g. fuel burn and CO2e* at a medium duty cycle.
- ☑ We want to hear about your offerings of low embodied carbon and high recycled content materials and ask you to provide the embodied carbon and recycled content of materials e.g. CO2e* / m^3 of concrete mixes or percentage by weight of recycled content in steel, aggregate products, etc.

Sustainability reporting

- ☑ Our project teams, supply chain and delivery partners are required to report sustainability metrics.
- ☑ Environmental Product Declarations (EPD), Life Cycle Assessment or other documentation is used to validate sustainability credentials.
- ☑ Our digital reporting technology streamlines supply chain sustainability reporting and demonstrates our supply chains' contribution to sustainable outcomes.

* CO2e or Carbon Dioxide Equivalent is a unit of measurement that is used to standardise the climate effects of various greenhouse gases.

EcoPro Site Facility (left) and Hybrid Energy Supply power solution (right) designed and built by CPB Contractors

Decarbonisation in action

Renewable electricity

In 2023, 8 GWh of our total electricity was sourced from certified renewable energy sources, in place of traditional energy sources including across several corporate offices, precast and plant yards.

For example, in collaboration with site shed and solar panel suppliers, CPB has installed over 190 kWp of solar arrays across the site sheds at Station Boxes and Tunnelling (SBT), providing renewable energy to the site.

Pioneering energy solutions for remote or ‘hard to power’ sites

Working with fellow CIMIC Group member EIC Activities, we designed and built a new Solar Hybrid Energy Supply power solution to replace diesel-powered generators on project sites across Australia. Designed with a modular formation for easy and efficient transportation and onsite set-up, the Solar Hybrid Energy Supply power solution features 66kWp solar panels, a 60kW battery inverter and 123kWh of battery storage, and can provide zero-emission power to any project site. Deployed to one of the satellite sites at a major Western-Sydney infrastructure project, the Solar Hybrid Energy Supply power solution will also be rolled out across other CPB Contractors projects as a cost-effective, clean energy power solution, representing a step forward in reducing carbon emissions for our projects, clients and industry.

* A small accompanying generator is included for use during setup, and only if required in low light environments to charge batteries.

Dubbo, NSW - based rail maintenance centre

Mindyarra Maintenance Centre

Sustainable rail maintenance facility

- CPB Contractors has designed and delivered one of the most sustainable rail maintenance facilities in Australia to support the new NSW regional rail fleet.
- The facility can achieve close to net zero electricity during operations, with a total of 3243 solar panels. It uses a bi-mode diesel-electric hybrid system, which allows the trains to run on overhead power when operating on the electrified section of the network.
- Using sustainable construct methods, the project reduced 26% of materials-induced embodied carbon emissions thanks to numerous initiatives, including the use of carbon-neutral concrete.
- A total of 64.5% of reinforcing steel was produced using Polymer Injection Technology, a ground-breaking Australian development that uses recycled polymers.
- The facility achieved a more than 25% reduction in Portland cement and 15% reduction in natural sand in concrete.* It also featured energy efficient building designs, including across its air-conditioning system, LED lighting, double glazing and high insulation, reducing building operational demands by 35% compared to BCA code compliant design.
- The facility promoted the circular economy by reusing 100% of spoil at local facilities in Dubbo, and by diverting close to 90% of construction and demolition waste from landfill.
- For our work, CPB Contractors received a ‘Leading’ achievement for the Design Rating by the Infrastructure Sustainability Council.

* Reduction percentage based on concrete strength requirement.

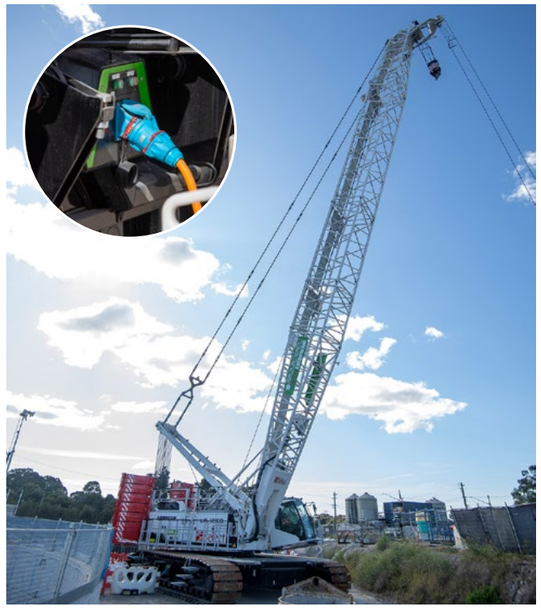
Electrification of assets from cranes to cars and lighting

We prioritise electrifying assets.

In 2023 CPB Contactors purchased 32 solar lights plants and 67 solar light poles. We have replaced diesel-based site vehicles in our fleet with 38 RAV 4 Hybrid vehicles, and in 2024 we added two new Toyota Mirai hydrogen-powered vehicles, as well as two Toyota BZ4X EVs and a further 36 V-Active (48-volt mild hybrid) vehicles. We will soon also introduce two hybrid Komatsu excavators to our fleet.

Our Sydney Metro – Western Sydney Airport, Station Boxes and Tunnelling project is the first infrastructure project in Australia to use a 250-tonne electric crawler crane.

Unlike its diesel counterparts, the electric crane eliminates emissions and operates silently, significantly improving the project’s environmental footprint. The electric crane operates for 8–10 hours per charge, reducing carbon emissions by 50,000 kilograms and saving 18,750 litres of diesel fuel annually.



Adoption of low emission fuels

As one of the early adopters of biodiesel in 2014, a renewable alternative to diesel, we now use biodiesel on major infrastructure projects such as West Gate Tunnel and Sydney Metro.

CPB Contractors completed an Australia-first pilot of Toyota’s prototype HiAce, powered by a hydrogen-fuelled internal combustion engine.

Supporting the renewable energy transition

CPB Contractors is a member of Australia’s Clean Energy Council (CEC).

As a leading contractor, delivering large-scale and complex infrastructure including renewable generation and transmission projects, we are working closely with the CEC to address the challenges faced by industry as we continue to build the infrastructure required for Australia’s future.

CPB Contractors has completed construction of five wind farms, amounting to 793 MW of wind generation, with many in our project pipeline.

Supporting the transition to a circular economy

We're focused on building a circular economy, which supports a net zero future by eliminating waste to landfill, circulating products and materials and avoiding biodiversity impacts associated with traditional landfill practices.

In 2023

95% of waste in our construction projects was recycled or reused

87, 830t of concrete was recycled

Leading ground water management

In 2024, CPB Contractors achieved a 99% reduction in potable, or drinkable water use on Contract 2 of the Gympie Bypass project as part of Queensland's Bruce Highway Upgrade, by securing the on-site availability of water as part of the project's integrated water quality management system.

This eliminated the need for more than 82,000 offsite water truck movements, minimising local road congestion, dust generation, and the project's overall carbon footprint[1]

Our Platinum membership and strategic partnership with the Australian Land and Groundwater Association (ALGA) enables us to remain at the cutting edge of waste and water treatment technologies.

[1] Water sustainability on the Bruce Highway Gympie Bypass Upgrade Project (cpbcon.com.au)

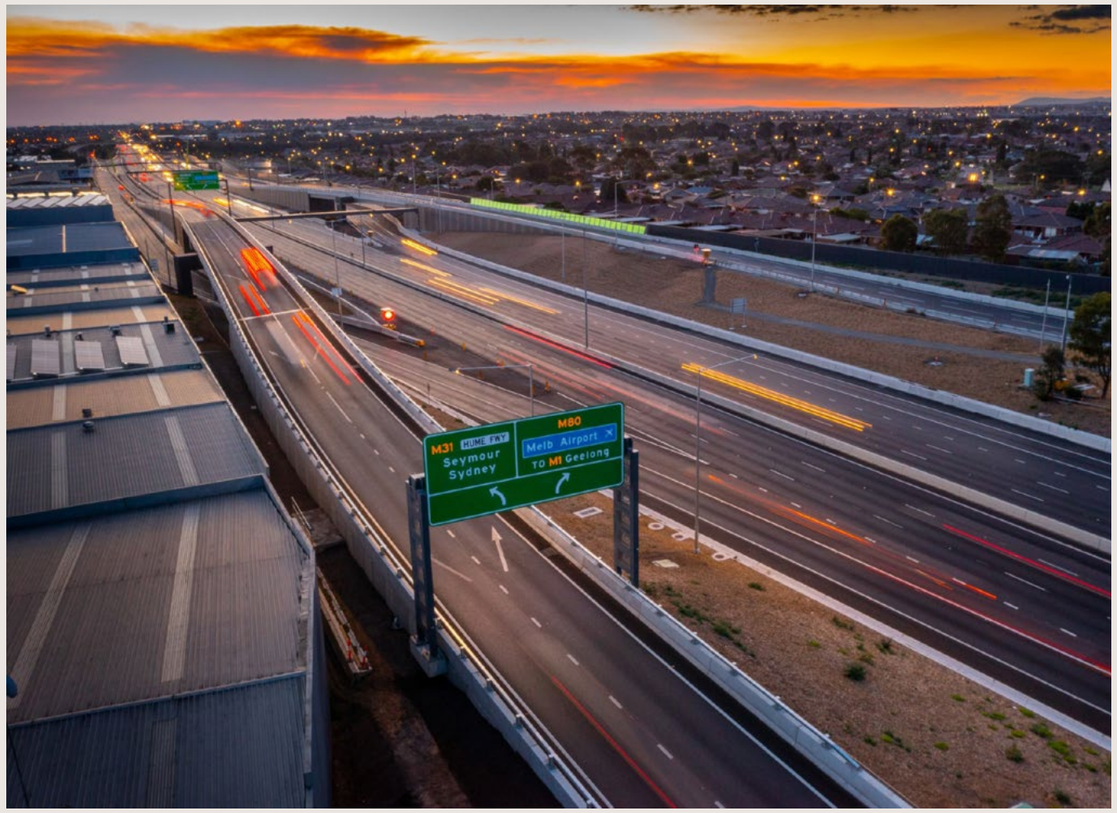
Melbourne, VIC

M80 Ring Road Upgrade

CPB Contractors and Major Road Projects Victoria won the 2023 Australian Construction Achievement Award (ACAA) for our work on the M80 Ring Road Upgrade project transforming one of Melbourne's busiest freeways.

The upgrade led the way in sustainability, becoming Victoria's first major road project to include recycled content in every layer of the road pavement including content derived from 35.5 million plastic bags, more than 22 million glass bottles, 800,000 toner cartridges and 820 passenger car tyres.

The project has also utilised an Australian-made synthetic fibre reinforcing product comprised of 100% recycled plastic, which replaces traditional steel mesh.



A company of environmental breakthroughs

CPB Contractors has been at the forefront of innovative sustainable construction solutions.

2012

CPB Contractors used warm mix asphalt in Western Australia which is manufactured at a lower temperature, bringing benefits and involves less fuel, and carbon emissions, as well as benefits to safety and technical performance.[2]

2013

2014

We used biodiesel with a 20% waste bio-product (tallow) blend, replacing 20% of diesel to power generators, as part of an off-grid energy solution.[3]

Our Remote Area Power Solution, combined battery energy storage, solar energy and a generator, reducing diesel with renewable energy to power site sheds.[4]

2015

2016

Delivered an innovative low carbon noise wall solution, by replacing precast concrete panels with Autoclaved Aerated Concrete panels (Hebel panels), meeting noise attenuation requirements and reducing embodied carbon.[5]

2017

2018

We used 'Rubbelisation', an innovative concrete pavement fracturing technology, which allows concrete pavement crushing and relaying of a carriageway profile. This eliminates offsite transportation of materials for re-processing, avoiding fuel-associated emissions and incorporating 85,000m³ of original carriageway, while delivering faster and quieter construction. CPB Contractors was recognised as winner of the Roads and Maritime Innovation Network.[6]

First use of French asphalt, Enrobés à Module Elevé Class 2 (EME2), on a commercial scale. This innovative product reduces the base layer's thickness, thereby reducing the need for virgin materials, haulage distance and carbon emissions.[7]

We combined grading and compactor technology in civil earthworks, using two forms of 3D technology to improve the safety, construction efficiency and environmental footprint of soil compaction in civil construction.[8]

Dry-Flo testing conducted in place of wet testing for fire deluge systems in tunnel construction. The use of low flow air instead of high-pressure water improved the tunnel program, as exclusion zones were reduced and the system could be tested progressively, and saved over 11,000kL of potable water.[9]

We were the first contractor to win the Infrastructure Sustainability Council 'Organisational Leadership in Infrastructure Sustainability Award' for outstanding contribution resulting in positive sustainability impacts at an organisational, system and/or sector-wide level.

2019

2020

Parramatta's Australia's longest grass track replaced traditional concrete or ballasted track for a light rail project. The grass track absorbs heat, reducing air temperature, minimising noise and glare, filtering and helping retain stormwater, reducing flooding and encouraging biodiversity.[10]

2021

2022

We completed an Australian-first pilot of Toyota's prototype HiAce powered by a hydrogen-fuelled internal combustion engine and now have two hydrogen powered vehicles in our fleet.

2023

2024

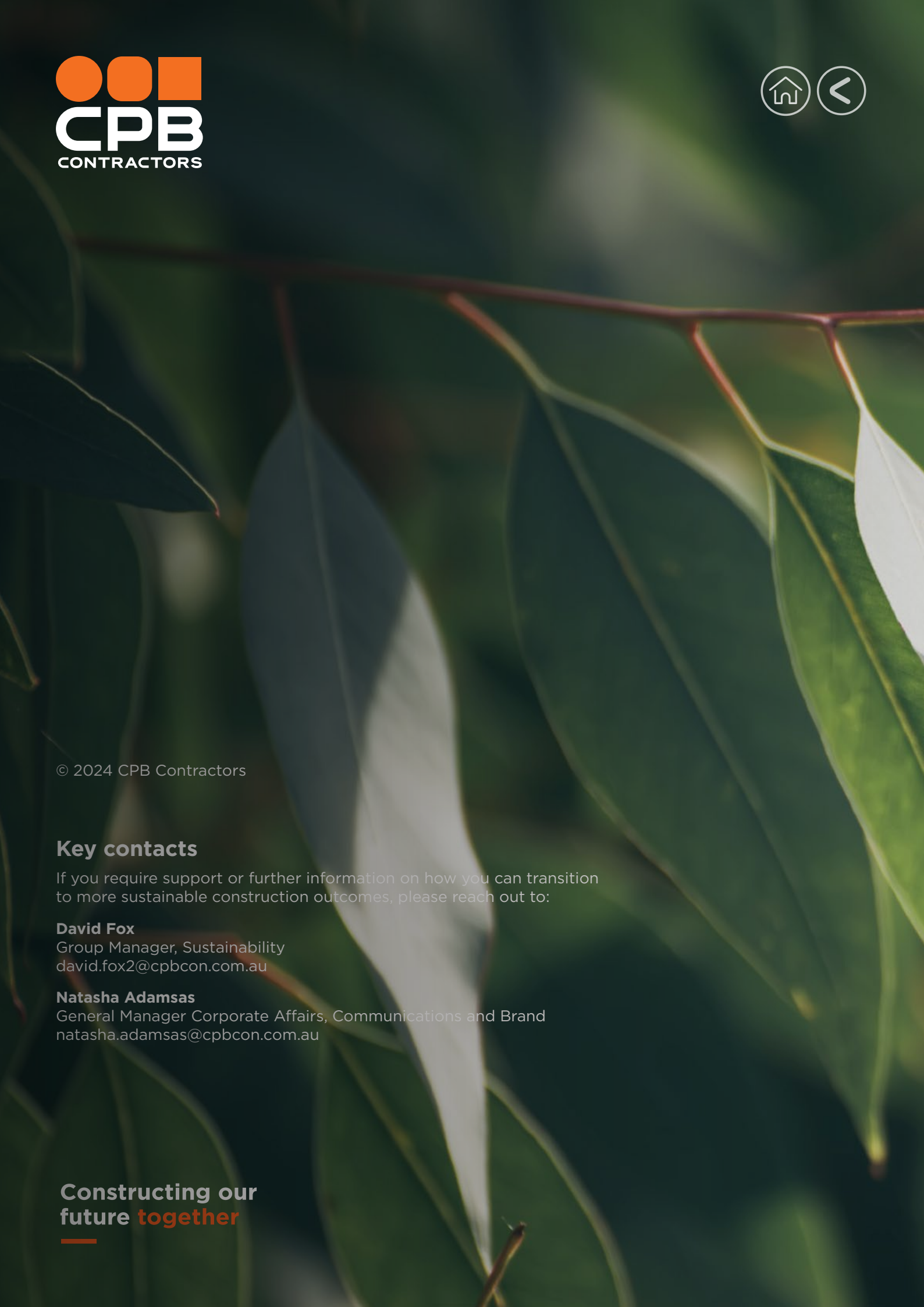
Demonstrating CPB Contractors' performance in reducing embodied carbon emissions, across 11 current or recently completed projects, we achieved a 35.5% reduction in Portland cement usage across precast and in situ concrete. This was achieved through substituting with waste materials such as fly ash and slag, to achieve a significant reduction of carbon emissions.

We were the first to use the battery powered emission-free, low-noise LR 1250.1 unplugged 250 tonne Crawler Crane on an infrastructure project.[12]

First in market site shed, powered by renewables and designed for project sites where utility connections aren't feasible. The eco-friendly prototype doesn't require back up fossil fuel energy sources and is 100% self-sufficient in producing and storing sustainable energy and in capturing and storing filtered potable water.

[2] Project: Great Eastern Highway Upgrade, WA
[3] Project: Webb Dock West & City Link Tulla Widening, VIC
[4] Project: Webb Dock West
[5] Project: M4 Widening project in NSW
[6] Project: Tuggerah to Doyalson in NSW
[7] Project: Logan Enhancement Project, QLD
[8] Project: Western Sydney Airport – Early Earth Works, NSW
[9] Project: Westconnex New M5, NSW
[10] Project: Parramatta Light Rail, NSW
[12] Project: Sydney Metro – Western Sydney Airport (Station Boxes and Tunnelling Works) project delivered by CPB Contractors and Ghella (CPBG).

Thank you for helping us construct a sustainable future.



Key contacts

If you require support or further information on how you can transition to more sustainable construction outcomes, please reach out to:

David Fox
Group Manager, Sustainability
david.fox2@cpbcon.com.au

Natasha Adamsas
General Manager Corporate Affairs, Communications and Brand
natasha.adamsas@cpbcon.com.au

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