

Capability Statement

NCS AUSTRALIA

nCS 
NATIONAL CONCRETE SOLUTIONS





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COMPANY PROFILE

National Concrete Solutions is a Concrete Remediation specialist, holding over 29 years of experience in their field of expertise. Our passion is concrete. We like to know how it works, how it behaves and how it reacts and deteriorates. Our solid experience in Concrete Technology, has enabled NCS to provide remedial methodologies that protect, fix and strengthen Concrete Assets. Our Vision is to continually focus on the delivery of Assured Services and Best Practices and Technologies that extend and maintain the structural integrity and sustainability of Concrete Infrastructure.

Through our integrated approach with “Our People”, we work together in delivering Service Excellence and Ecological Resilience through customer collaboration that supports the vision of a long-term sustainable future, that addresses Social and Environmental considerations and needs.

NCS have situated their office locations demographically throughout Australia, in Melbourne, Sydney, Brisbane and Albury, NSW. Having our business units and skilled resources across a large demographic spread enables NCS to provide their Assured Service and Best Practices, to not only the CBD radius of the Capital States, but to many remote locations. NCS pride themselves in their continual driven to improve all aspects of their business operations and operational excellence, which is demonstrated through the implementation of a dynamic and robust Best Practice Certification in Quality, Environmental and OH&S Management Systems, further supporting Ecological Resilience.



ENVIRONMENTAL MANAGEMENT

National Concrete Solutions is committed to a responsible and environmentally sound approach to environmental management in all of its business units. NCS is committed to eliminating the impact on the environment through suitable product selection, sustainable repairs and best practice work methods.

HSEQ BEST PRACTICES MANAGEMENT SYSTEM

National Concrete Solutions' Work Health and Safety Objective has safety at the forefront of our business operations. Our organisational safety culture strengthens our capability in striving towards minimising the risk of injury to our Employees, Contractors and the Community by driving and managing a systematic approach to Occupational Health and Safety and providing the resources necessary for its successful management.

We strive for continual improvement in all aspects of the business and are currently accredited to ISO9001 Quality Management System, ISO14001 Environment Management System and ISO45001 OH&S Management System.

NCS maintains a safe and healthy working environment by adhering to regulations including:

- NSW, QLD, ACT, NT, SA and The Commonwealth of Australia (WHS Act & Regulations 2011)
- VIC (OH&S Act 2004 and Regulations 2007)
- WA and TAS Legislation and Regulations relevant to Occupational Health and Safety and Regulations 2007)



CERTIFICATIONS & ACCREDITATIONS

The NCS team of experienced technicians hold a diverse range of certifications. Including:

- Confined Space License
- Working at Heights License
- Scissor Lift / Boom Operator License
- White Cards
- First Aid Certificates

National Concrete Solution's continual drive to improve all aspects of Business Operations and instill the confidence within our Clientele of NCS's Operational Excellence, is demonstrated through the implementation of a dynamic and Best Practice Management System. NCS are proud to hold the below Accreditations:





CAPABILITIES

The capabilities of NCS are driven by a few key factors. The first being closely linked to the skills and knowledge of their people, through to the organisations Mission, Vision, Systems and Processes, that drive and support Safety, Quality and Environmental factors, within all business practices. These capabilities cross over in customising a total solution approach to our Clientele.

National Concrete Solutions range of capabilities assist in providing Sustainable Returns to Service Life through Rehabilitation of Concrete Infrastructure. Utilising specialised products and systems with the ongoing comprehensive support of our Technical Department National Concrete Solutions provides high quality remediation solutions, to their clientele that will assist in extending the service life of Concrete Infrastructure.

Our capabilities include, but are not limited to;

- Concrete Waterproofing
- Structural Strengthening
- Concrete Heavy Duty Performance Coatings
- Concrete Joint Systems and Sealings
- Concrete Crack Repair
- Patch Repair
- Return to Service Planning
- Concrete Asset Management
- Best Practice Management
- Concrete Asset Inspection

CONCRETE WATERPROOFING

NCS has significant experience in providing a wide range of Waterproofing, Remediation and Protection Solutions for new and existing Concrete Structures. Through utilisation of Industry Leading Technologies and capabilities, NCS is able to provide unique and high-performance Waterproofing, Remediation and Protection Solutions across a various range of areas within Concrete Infrastructure including;

- Bridges
- Wastewater / Sewage assets including pump stations
- Water Reservoirs and Infrastructure
- Commercial Buildings
- Basements
- Exposed Decks and Roofs



SHERRIN STAND VICTORIA

Client

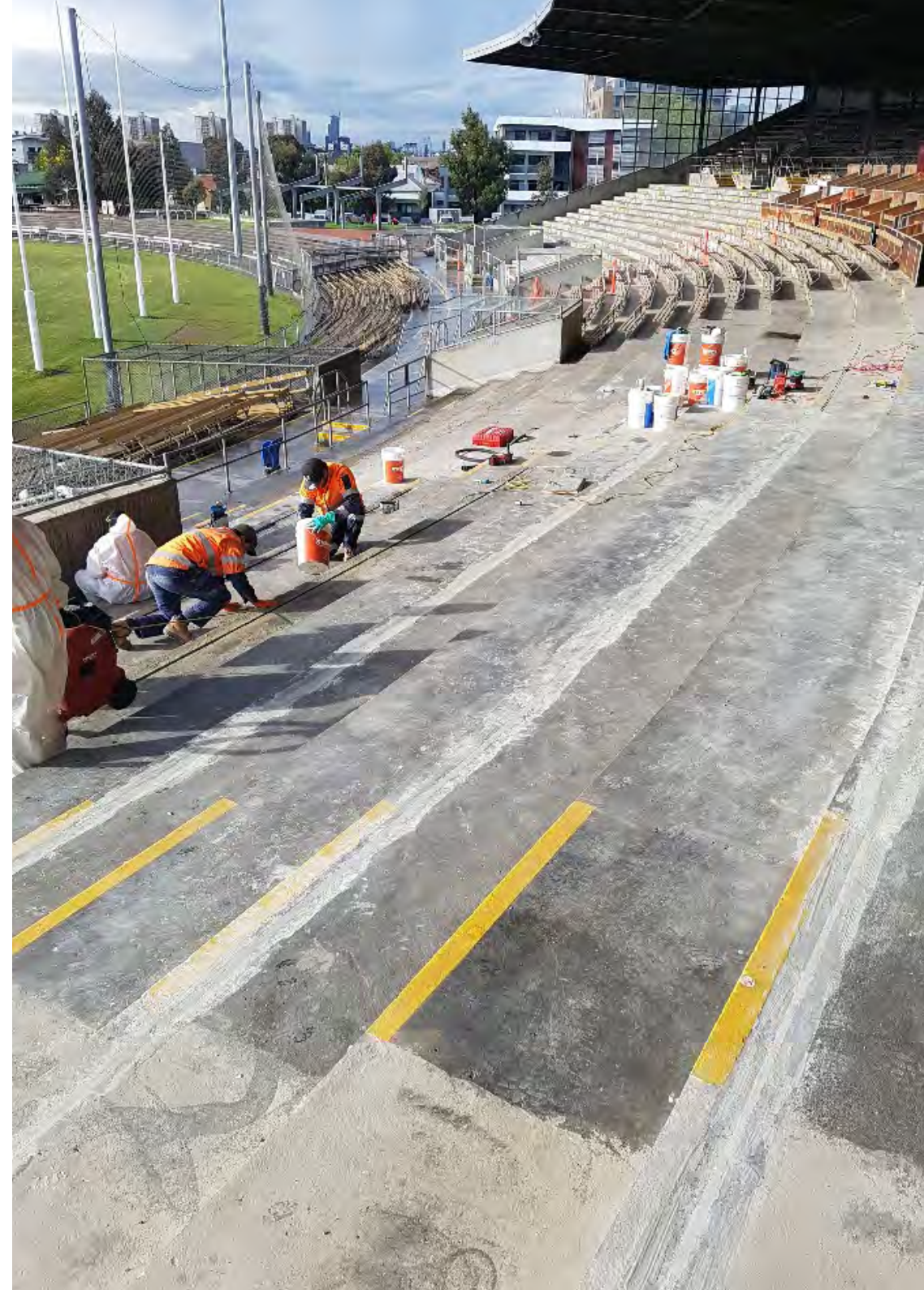
City of Yarra Council

Project Outline

The Sherrin Stand had experienced deterioration and water had entered into spaces beneath the grandstand which cause extensive water damage to the concrete. NCS were required to provide an end solution in the remediation and waterproofing of this heritage AFL stand.

Works Undertaken

By implementing a systematic process in the remediation of cracks, cold joint repairs and overall use of repair mortars, National Concrete Solutions were able to provide a watertight structure for the further redevelopment of the stand and an extended service life.



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CONCRETE CRACK REPAIR

It is important that each situation is individually assessed, and the correct repair technique is specified. NCS are fluent in a range of Crack Repair Methods to meet the needs of wet and dry conditions along with structural requirements.

NCS currently can conduct and aid in risks / review and selection of (but not limited to);

- Crystalline Technology
- Polyurethane Injection Repairs
- Epoxy Injection
- Ultrafine Cementitious Repairs
- Active Leak Treatment
- Epoxy Repairs
- Polyurethane Caulking



SOUTHERN CARRIER CHANNEL VICTORIA

Client

Aquametro

Project Outline

Following a competitive tender process, NCS were selected to rehabilitate, waterproof and stabilise a 1.2 km stretch of a concrete lined channel. The works involved the reinstatement of approximately 19 km of joints between concrete slabs, over 3 km of crack repairs and the stabilisation of a number of slabs that were subject to movement.

Works Undertaken

Due to the extent of cracking in the substrate, it became evident that standard repair methods would not be insufficient. At stage 1 of the works in 2018, NCS proposed an innovative application which would leave a strong and impermeable repair.

The latest round of works saw National Concrete Solutions carry out stage two of the works which comprised of a further 2,000 lineal metres of crack repairs and concrete spalling using a variety of systems including cementitious repair mortars as well as a specialised polyurethane based protective coating.

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NORTHWEST RAPID TRANSIT

NEW SOUTH WALES

Client

Northwest Rapid Transit

Project Outline

NCS embarked on this joint venture to offer remediation services on a newly built train station walls. During construction, freshly applied shotcrete had started to develop cracks and needed immediate attention before deteriorating further.

Works Undertaken

With such a large and a tall structure, NCS needed to assemble a team of 20 applicators and use multiple boom lifts to reach the 14-metre-high walls.

Due to the structure being a new build, it was a great opportunity for NCS to use their expertise in providing waterproofing services and expertise in solutions which resulted not only with remediated the concrete cracks but a solution which reactivates and fills fine cracks in the future with a non-soluble crystalline formation, putting the Asset owners mind at ease.

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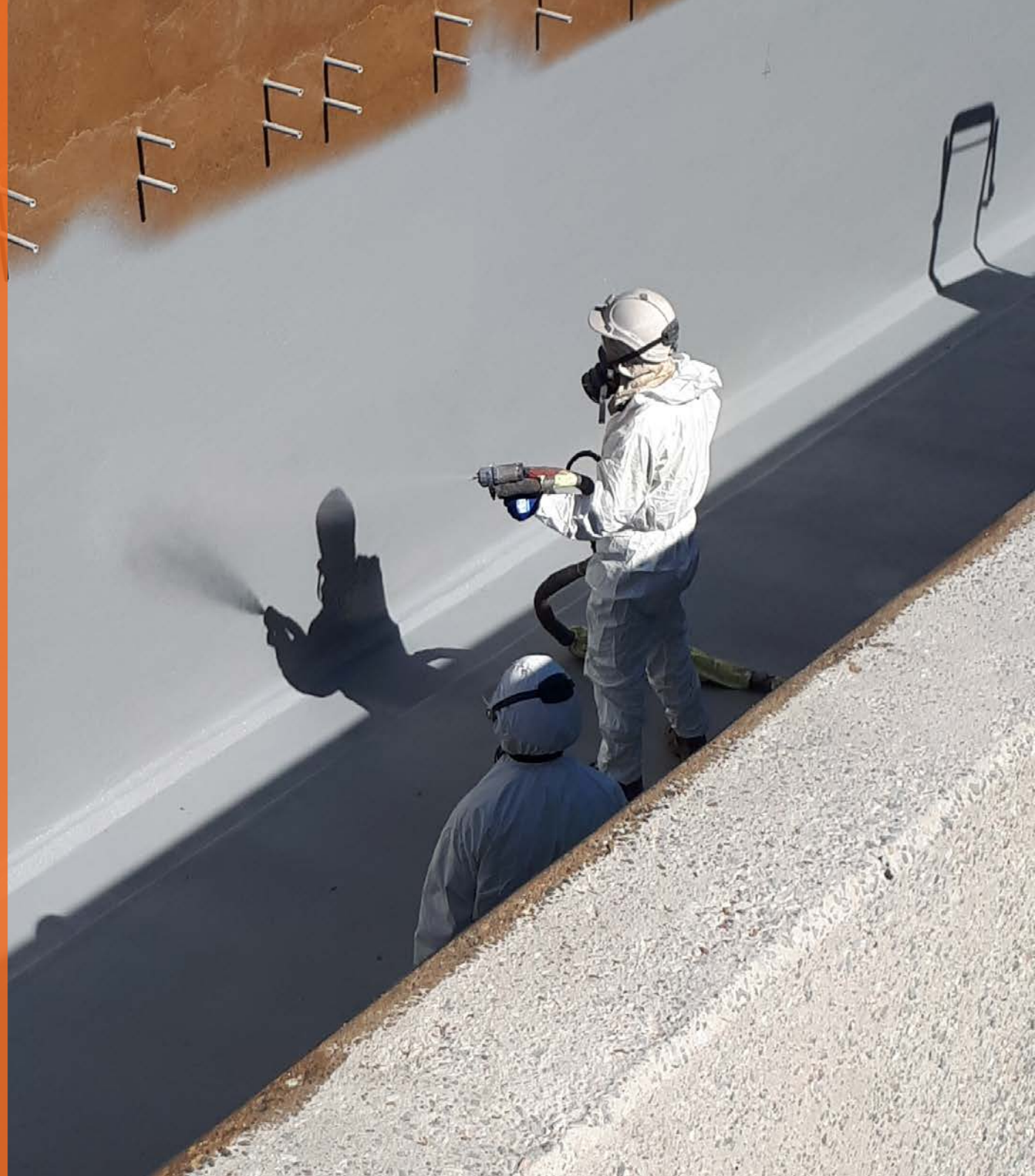
CONCRETE HEAVY DUTY PERFORMANCE COATINGS

Protective coatings are critical to concrete protection and remediation, and they are characterised by the substances makeup and ability to prevent ingress and deterioration of the concrete structure. Concrete deteriorates due to its reactions with elements such as Chlorides, Carbon Dioxide, Sulphates, Acids, Salts, and other chemicals / elements.

Coatings are widely used to provide extra protection and increase the durability of existing low-quality Concrete Structures and New Structures which are not yet subject to deterioration, particularly structures exposed to severe and aggressive environments.

After suitable durability analysis and appropriate evaluation of possible coating remedial and protection systems can be conducted. NCS utilise coatings including (but not limited to);

- Crystalline Technology
- Polymer Modified Cementitious Material
- Polyurethane Resins
- Acrylic Resins (i.e. decorative / anti-carbonation coatings)
- Epoxy Resins
- Bituminous Material
- Chlorinated Rubber
- And others



WWTP SEWAGE TANK REFURBISHMENT VICTORIA

Client

Comdain

Project Outline

The tank had been exhibiting signs of corrosion in the top 500 mm of the internal wall and along the top of the wall, due to prolonged exposure to the various chemicals and gases associated with sewerage. It was determined that the solution required would need to be able to resist HS² and sulphate attacks, whilst improving the durability of the concrete and extending the service life of the structure in this aggressive environment.

Works Undertaken

NCS installed specialist concrete performance coatings to provide protection from the microbial induced corrosion. It was determined by the NCS team that a specialist mortar combined with an antimicrobial technology with crystalline technology had the ability to permanently block pores, capillaries and microcracks; delivering an impermeable integrated repair system that cannot be punctured, damaged or lose adhesion.

Survey results for the top of the Prefermenter Tank showed the amount of product that would be required to bring everything up to the highest point. In some areas it was up to 60 mm. Tolerances around the perimeter were a challenge with the limit of the tank at around 10 mm in a 3 m length. Overall the tolerances across the tank were ± 5 mm to prevent twisting as a roof was to be installed prior to completion.

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CLEVELAND BAY QUEENSLAND

Asset Owner

City of Townsville

Project Outline

National Concrete Solutions were engaged to treat the concrete surfaces of the newly constructed structures that would be exposed to concentrated Effluent to ensure the structures were protected by the highly corrosive nature of the water and gases it releases.

Works Undertaken

The Cleveland Bay Purification Plant treats a large portion of Townsville's wastewater, which needs to meet a suitable standard before being discharged into the environment. The plant received a major upgrade in 2008, changing its treatment process to a membrane bioreactor, a more environmentally-friendly option providing better quality effluent. While this upgrade increased capacity at the time, it did not sufficient increase capacity for wet weather flows. The plant needed further upgrading to treat larger amounts of wastewater and meet current and future demands and industry standards.

The surfaces within the new membrane tank were prepared by means of an abrasive blast to create a surface profile to aid in adhesion of the subsequent protective coating's application. A 100% solid epoxy and selected aggregates were used to create a tough render material to provide the initial surface requirements including strength, durability and adhesion characteristics required. The final application was a Polyurea coating system, that provided chemical and abrasion resistance, along with flexibility. Other secondary assets including bypasses, outlets and extensions were also treated in a similar manner, but final topcoat was an Ultra High Build Epoxy.

The combination of treatments ensures the new structures within the plant will meet and exceed their service life requirements.

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SOUTHBANK RIVERSIDE OPEN SPACE QUEENSLAND

Client

Abergeldie Complex Infrastructure

Project Outline

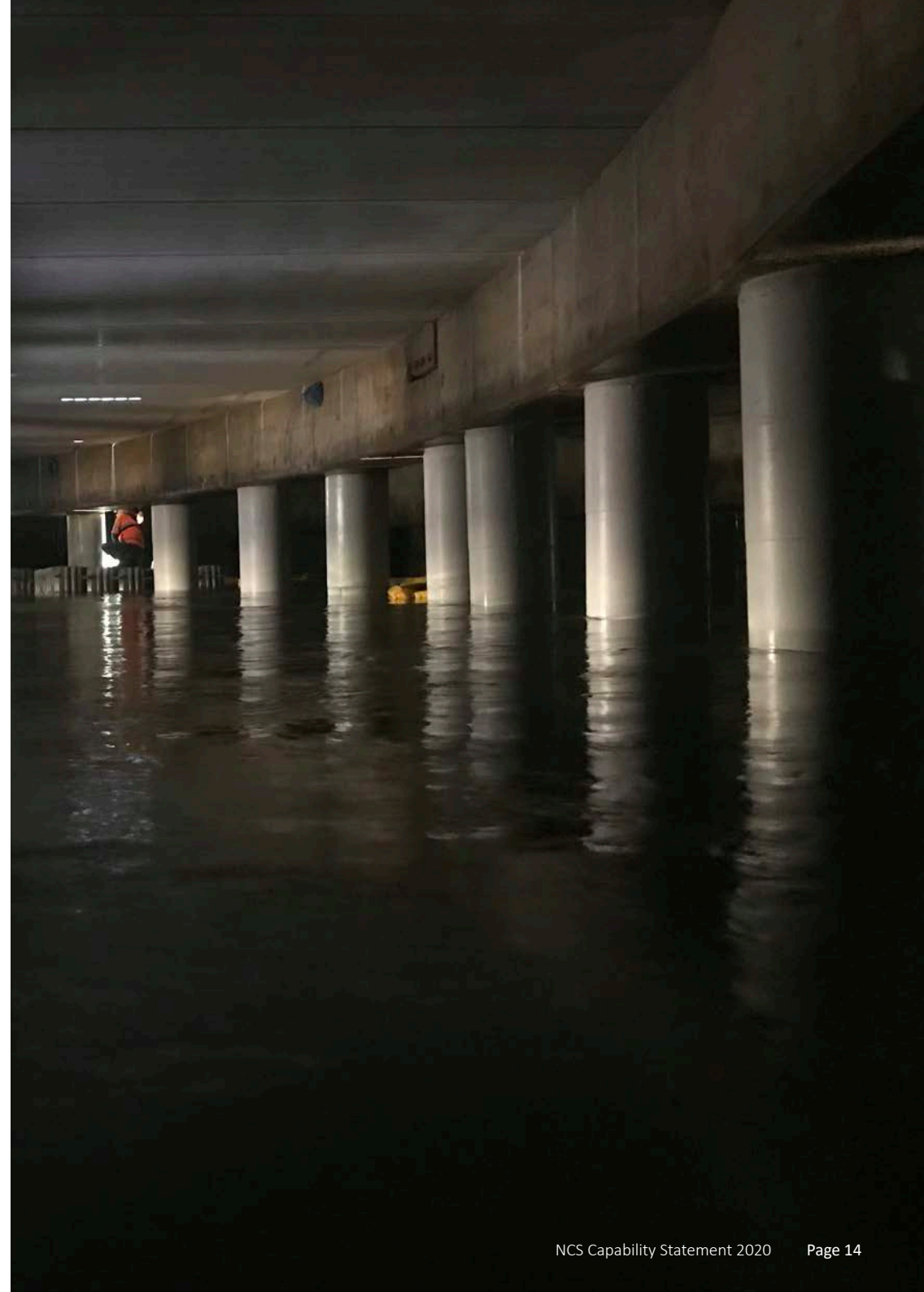
National Concrete Solutions were engaged to extend the service life of 32 existing structural piles and headstock that were to be used in construction of a new concrete decking area that extends out over the boardwalk along Brisbane River.

Works Undertaken

The piles were suffering from chloride ingress, and corrosion had already initiated. NCS worked with Quakewrap to design a solution of encapsulating the piles from the pile caps, down to the seabed. They installed a 720-degree wrap system that encased the piles and filled the annulus with an underwater grout. The top and bottom of the annulus's were poured with epoxy grouts, and the top was sealed with a membrane. This process will lock out any further moisture and oxygen ingress, halting corrosion and extending the life of the asset.

The initial considerations for these piles and headstock included the breakout and repair of steel, and installation of Anodes. The solution that NCS provided gave the customer a 50-year service life for the piles and 20 years estimated extension to the headstock. It also reduced the program by 2 months and created substantial cost savings in removal of the Anode system.

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NORTH PINE WTP QUEENSLAND

Client

Pensar and SEQ Water

Project Outline

NCS were engaged to rehabilitate the concrete surfaces of the flocculation chamber at North Pine Water Treatment Plant, as part of a much-needed upgrade. The concrete had lost approximately 10 mm of fines, exposing the aggregate, and thus leaving the concrete vulnerable to further deterioration.

Works Undertaken

To fully understand the extent of the deterioration, NCS used high pressure water to remove all laitance and material to leave a sound finish. Approximately 1200 sq. m of concrete surface was rehabilitated with product recommendations provided by, and re-instated by, NCS to the original profile, providing not only re-assurance to the Asset Owner that the steel reinforcement within the structure is protected, but also combining a suitable product that reduces ongoing maintenance and ultimately offering cost savings.

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CONCRETE JOINT SYSTEMS AND SEALINGS

Joints identified in concrete building construction are; Construction Joints, Expansion Joints, Contraction Joints and Isolation Joints. NCS's highly experienced team has the ability to both assess and provide suitable solutions to all jointing needs. Each application is individually assessed, and the correct system is specified (potentially with external engineering advice) to ensure compatibility with joint movement, environmental factors and any other specific requirements.

Typical joint systems offer varying movement capabilities, or compatibility with chemical / aggressive environments. NCS through experience, technical review, relationships, can provide recommendations on potential best solutions for your facility's needs.



MUDGEERABA WATER TREATMENT QUEENSLAND

Client

SEQ Water

Project Outline

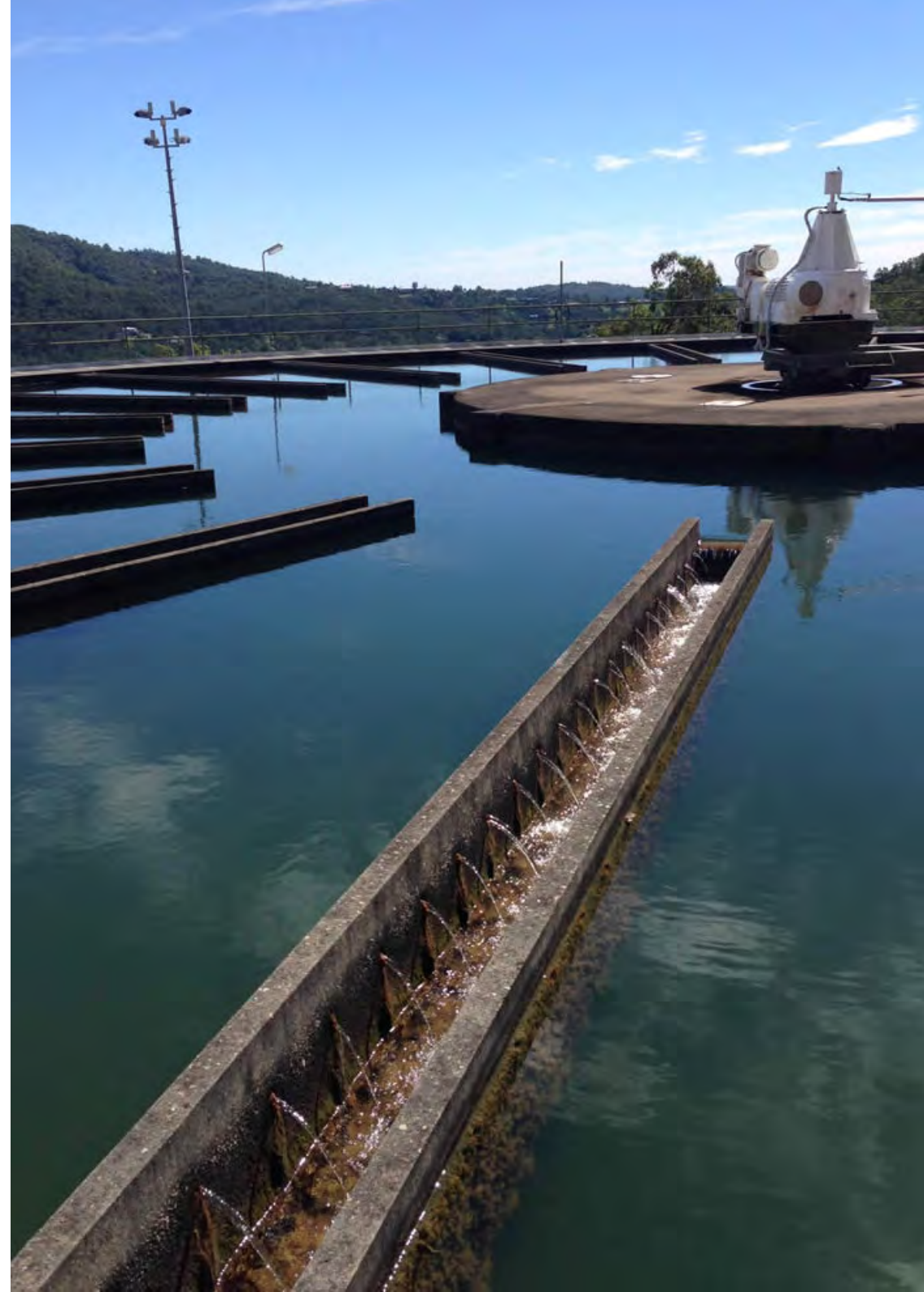
NCS were engaged to rehabilitate Clarifier 2 at Mudgeeraba Water Treatment Plant, on the Gold Coast.

Works Undertaken

The stage 1 works included the relining of over 2000sqm of concrete surfaces that had deteriorated over time due to the aggressive water. After consultation with the Client, the specification for epoxy products were changed to a more sustainable approach using crystalline technology and specialised polymer modified mortars; the products were recommended due to their ability to withstand the varying water quality and potential aggressive environment. All joints were rehabilitated with suitable sealants, thus ensuring a full rehabilitation of the Asset, and greatly reducing future costs for the Asset Owner.

Stage 2 included the rehabilitation of the raw water inlet channel. Timing was critical, and the limited shutdown required a well-executed management plan. All concrete spalls were repaired, followed by the complete re-lining of all concrete surfaces, where the harsh environment had deteriorated them. The entire process was completed in a 55-day shutdown period. Effective Return to Service Planning and Project/Construction Management were governing factors in NCS being considered for this critical update.

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LAKE MANCHESTER QUEENSLAND

Client

Pensar and SEQ Water

Project Outline

NCS were engaged to rehabilitate the construction joints to the dam spillway. During initial consultation, it was identified that the waterstop that had been incorporated into the design when it was upgraded, had swollen and broken away the adjacent concrete.

Works Undertaken

National Concrete Solutions designed a system to remove all concrete to the joints and install a unique solution considering all design elements. The design considered both environmental and mechanical properties, unique to the Asset, and ultimately provided a unique solution that increased the Service Life of the Asset.

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PATCH REPAIR

NCS recognise that all repairs require an assessment of cause and the extent of corrosion, damage or defect prior to action being taken. Factors such as location, repair material properties, serviceability and load capacity are just a few to be considered when assessing Rehabilitation of Concrete Structures.

Often in the case of spalling, there is an underlying cause that requires remediation and consideration prior to repairs which will influence the extent and type of repair to be conducted. NCS ensure that when assessing and providing solutions in addressing repairs, that the underlying cause and damage is identified, and appropriate remediation solutions are considered and implemented.



CORIN DAM

NEW SOUTH WALES

Client

Icon Water Limited

Project Outline

Since construction, the lowest 4 construction joints in the inlet tower of Corin Dam had been leaking causing deterioration to the concrete structure, which ultimately would have threatened the assets structural integrity. After multiple, unsuccessful, previous attempts to remediate the asset, NCS were engaged to provide a solution and installation that would repair the issue within the 60m deep water retaining structure and also will provide an extended service life to the asset.

Works Undertaken

NCS developed suitable safety measures within the limited access environment, being a 6m diameter structure.

Along with implementing specific measures an application technique was also developed using their extensive experience with the specific remediation products which allowed for the challenging conditions, deteriorated concrete and weeping water flows. A crystalline, fast-setting, hydraulic cement compound solution was provided in the first instance by NCS to quickly and efficiently stem the flow of water through the leaking construction joints. Since the asset had been leaking for a large period of time, severe damage had occurred to the surrounding concrete. NCS provided a secondary application of a high build nature to resurface the deteriorating concrete along with a coating to fully waterproof and protect the concrete against the high hydrostatic pressures.

By utilising NCS's Best Practice Management certifications, and associated procedures, NCS were able to create a safe work environment, ensuring safety access was implemented and that no incidents, accidents developed.

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VICTORIA MILL STACK QUEENSLAND

Client

Wilmar Sugar

Project Outline

NCS were awarded the contract to rehabilitate the 66m high concrete boiler stack at the Victoria Mill. Acting as principle contractor, NCS spent 5 months treating the internal and external surfaces of the stack to extend the service life for at least the next 20 years.

Works Undertaken

The initial challenge was to design and erect an external scaffold system which was capable of withstanding a potential Category 3 cyclone, as the work was to be undertaken in the cyclone season. After laser mapping the stack, a 3D model was produced, and a scaffold system designed and erected to allow safe access to the external surfaces of the stack. Internal access was made via a purposely designed swing stage system which allowed NCS Technicians safe access.

Due to the internal conditions found within the stack, the entire internal surface had to be prepared using ultra high-pressure water, and the external surfaces prepared using high pressure water.

The project was completed on time, despite the arrival of cyclone Debbie, and through the use of specialised mortar, the stacks were set for a further 20 years of operation.

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RETURN TO SERVICE PLANNING

The structural integrity of Concrete Infrastructure, whether Civil Infrastructure, Commercial or Industrial can be seriously compromised over time due to numerous conditions leading to deterioration of the concrete, commencement of reinforcement corrosion, and in extreme cases, spalling of outer layers of concrete.

NCS recognise that the structural weakening from concrete deterioration seen in Concrete Infrastructure requires complete removal of the damaged concrete and repair with the technical understanding of corrosion mitigation and providing a Whole of Life approach to the remediation of the structure.

NCS's remediation experts have the tools and experience to provide meaningful Concrete Infrastructure Condition Assessments and Return to Service Plans that promotes long term sustainable benefits to Concrete Infrastructure, resulting in proven cost benefits by assisting in Extending the Service Life of our Client's Assets.



LOGANHOLME WWTP QUEENSLAND

Client

Riverside Specialist Contracting Services

Project Outline

NCS were engaged to undertake a hydro demolition of spalling locations in the Loganholme Wastewater Treatment Plant.

Works Undertaken

These works were undertaken with a robot unit, which efficiently removed the concrete, cutting easily beyond the steel layer and providing a perfect finish for subsequent rebuilding.

This robotic not only provided high efficiencies, but also ensured that operators remained safe throughout the works. The site was immediately cleaned with a vac truck operating in the background.

The project was completed in just a little over a week, exceeding the client's expectations and causing only minimal disruption to their program.

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JULIUS DAM QUEENSLAND

Client

Sunwater

Project Outline

NCS were selected by the Asset owner, to rehabilitate areas of concrete spalling to the dam wall. With such a remote site, NCS had to be fully sufficient for the period of works. A meticulous construction plan had to be formed with emphasis on the delicate environment, along with strong emphasis on safety.

Works Undertaken

All repairs were accessed by the use of a 360m Boom. Various concrete spall areas along the dam were repaired, along with extensive crack injection throughout.

From planning to execution, NCS delivered a successful project that will enhance the durability of this concrete structure for many more years to come. This project also shows the full capabilities of NCS working in such a unique, fragile and remote environment.

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SEAFARERS MISSION FLAG TOWER RESTORATION VICTORIA

Client

Stokes Rousseau

Project Outline

An assessment was required to identify the extent of concrete spalling which had occurred to the circular concrete wall at the top of the Flag Tower. The Flag Tower is part of a heritage listed building and serves a special place in the life and community of those who live and work at sea, and a sense of community to the thousands of seafarers who visit Melbourne annually.

Works Undertaken

It became evident that the concrete had spalled due to corrosion in the central reinforcement of the wall. Due to the cracking, water had been able to penetrate further into the reinforcement and accelerate the corrosion process.

National Concrete Solutions were tasked with extending the Asset's service life by remediating many aspects of the structure. All spalled concrete was removed and replaced, and the steel was cleaned and had a zinc treatment applied. If any of the bars had been of poor quality (size reduced due to corrosion) the bars were removed and a new N16 bar was drilled and epoxied into sound concrete central in the wall.

A freestanding structure on top of a slab created challenges in itself. Care had to be taken in removing and replacing steel in sections. This meant the team had to remove the 1 metre width sections longitudinally and at opposite side of the Flag Tower so as not to effect the stability of the structure.

Our Quality Assurance processes in tracking NCS's work were an added asset to the Client and made the variation process at the completion of the job transparent for both parties.

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STRUCTURAL STRENGTHENING

Structural Strengthening describes the process of upgrading the structural system of an existing structure to improve performance under existing loads or to increase the strength of structural components to carry additional loads.

The need for strengthening may arise from deterioration, change in use, change in building code / standards, structural defects, construction errors, or seismic conditions.

Each structure requiring upgrade and strengthening presents a unique challenge. Whether strengthening Commercial, Civil, Industrial Structures and Bridges, NCS is capable of providing the most suitable Industry Leading Technologies / Solutions.

The structural strengthening capabilities of NCS extend to externally bonded Fibre Reinforced Polymer (FRP) products that significantly increase a structures load bearing capacity. NCS is able to apply a wide range of FRP wraps and laminate strips, to a variety of structures requiring strengthening.



ST PAUL'S TERRACE QUEENSLAND

Client

Quadric

Project Outline

The Prime Contractor was seeking an experienced contractor to strengthen a post tensioned slab after they had cut a void to accommodate a new stair well within the office building.

Works Undertaken

Carbon Fibre Reinforced Polymer was chosen to strengthen the slab and National Concrete Solutions offered the expertise and know how to install over 250 m of Carbon Fibre Reinforced Polymer, plus additional L shaped plates for shear strengthening of the slab. During the strengthening works, Ground Penetrating Radar surveys were used to identify post tensioning strands to accommodate epoxy wedge installation.

During the project, NCS identified that the Carbon Fibre Reinforced Polymer application may interrupt the clients plan of applying a vinyl floor to the slab. NCS worked closely with the client to avoid this and offered a solution that would allow the Carbon Fibre Reinforced Polymer strips to be recessed into the slab, allowing for the final finish on the slab to be completely flat.

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CONCRETE ASSET INSPECTION

NCS can assist you from the outset with any concrete issues, our staff have conducted extensive training, including RMS programs, which provides us with extensive inspection capabilities for concrete structures. And if required, we can facility engineering with our aligned partners.

NCS also use industry leading technologies to help investigate and provide the best possible advice on the condition and extent of deterioration that has occurred with your Asset. And in doing so, we can then evaluate and select repairs which help ensure you are achieving the highest potential service life extension based on the remediation costs.



PRINCE HENRY HOSPITAL

NEW SOUTH WALES

Client

Ganellen

Project Outline

NCS were engaged to submit solutions for concrete rehabilitation that would increase the structural integrity of the building, with the focus on returning the structure to its original Service Life.

Works Undertaken

While heritage restoration is a challenging sector, NCS have demonstrated their expertise and capabilities in assisting in the transformation of the Prince Henry Hospital into upmarket Apartments, whilst retaining significant elements of its heritage.

NCS completed repairing concrete spalling within building columns, soffits and lintels. Additional coverage was also required in structural and reinforcing internal concrete floors.

Many factors were taken into consideration when selecting the restoration systems, including heritage guidelines, limited space, project timeline and age of the building. Part of this consideration involved, core samples being taken and analysed. NCS worked closely with consulting engineers to ensure all measures were taken to understand the condition of the concrete materials and formulate the Design and Construct Methodology.

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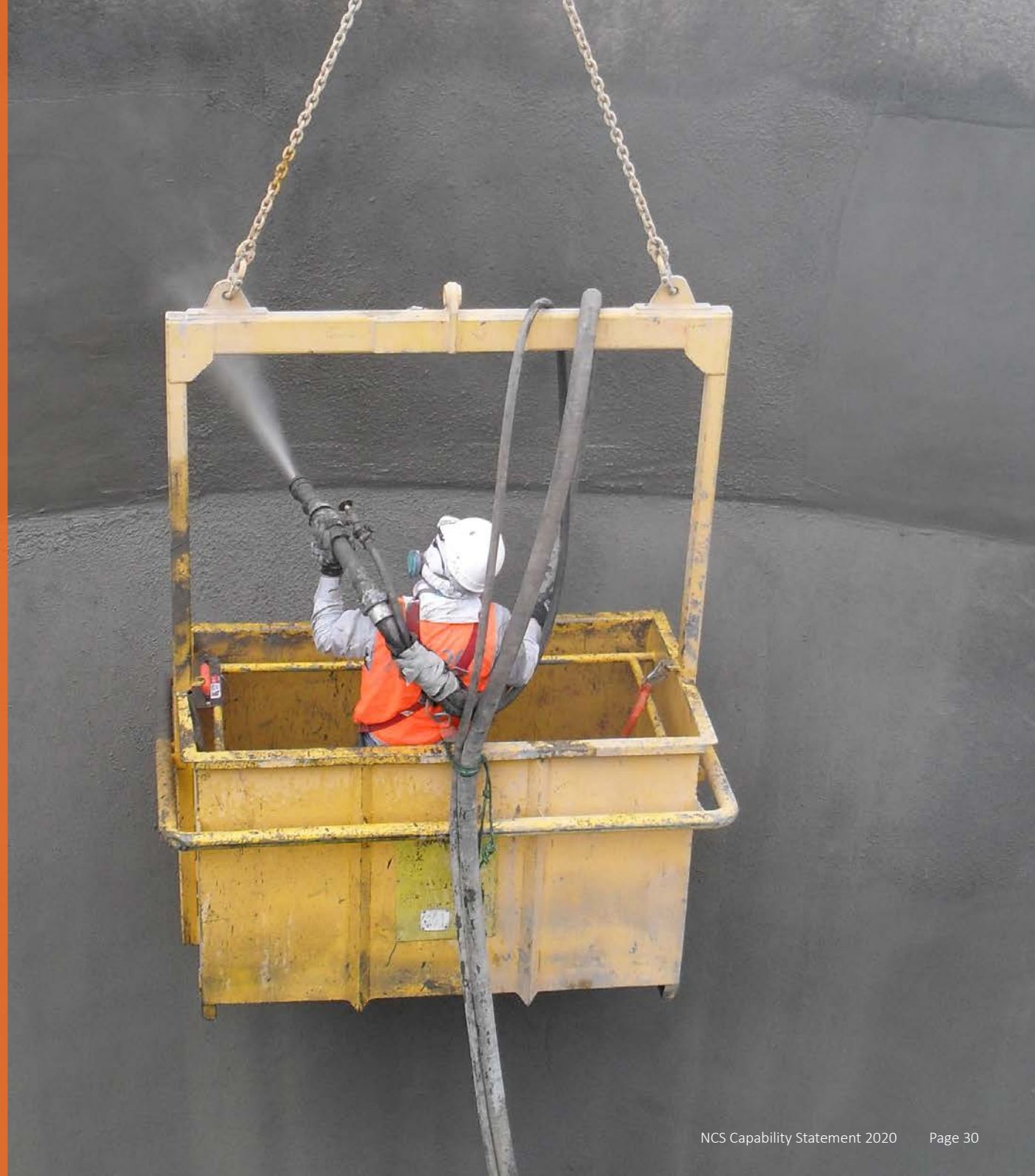


BEST PRACTICE MANAGEMENT SERVICES

NCS is certified under ISO standards for Quality, Environment and OH&S (WH&S). The standards we comply with are:

- AS/NZS ISO 9001: 2016 - Quality Management System
- AS/NZS ISO 14001:2016 – Environmental Management System
- AS/NZS ISO 45001:2018 – Occupational Health & Safety Management System

NCS are very proud in implementing these systems and take great pride in managing projects and achieving best practice in all areas of our work. This approach helps ensure you will gain a well-considered, planned, safe installation with high-quality outcomes for your concrete assets.



LAKE LYALL ENERGY

NEW SOUTH WALES

Client

Energy Australia

Project Outline

NCS were approached to assess and remediate spalling repairs necessary to the dam spillway. Although safety is always a priority for NCS, it was particularly forefront of this project due to access to the dam and spillway being restrictive.

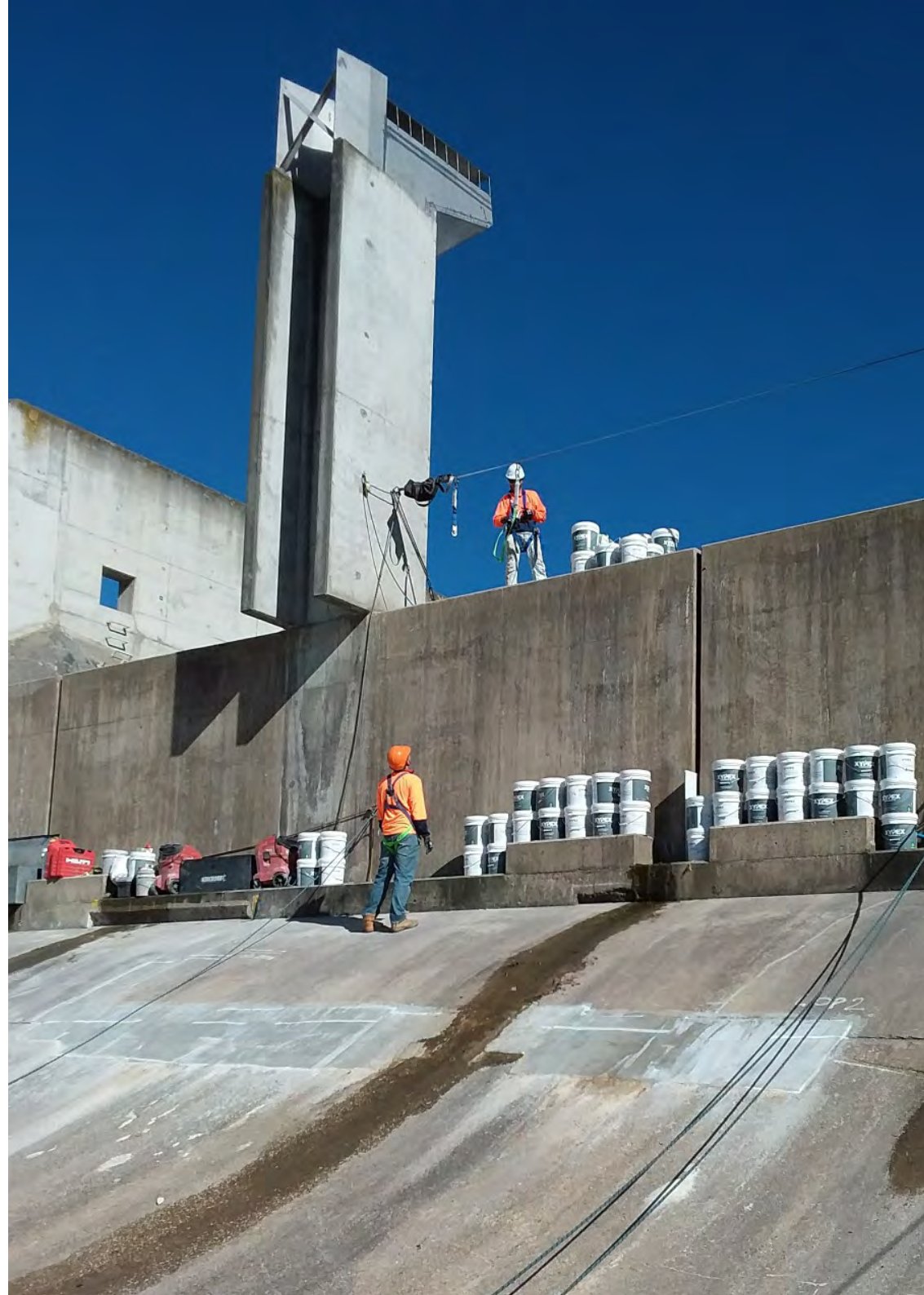
Works Undertaken

The challenging access to this Asset meant that the team had to access the dam via boat and then use rope access to be able to reach the remediation site. The team were able to erect a suitable and safe rope access system to achieve this.

The solution provided by NCS was to apply a high build repair mortar used for the patching and resurfacing of deteriorated concrete. Not only did this remediate the immediate problem of cracks within the spillway but also protected the concrete through waterproofing, and enhancing durability.

This project had to be completed within two stages to avoid the freezing winter conditions which would have affected the application and repairing properties of the repair mortar.

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NOOSA FILTER 4 QUEENSLAND

Client

SEQ Water

Project Outline

South East Queensland has many aging water infrastructure assets requiring remedial works to keep fresh water supplies up to speed for residents. NCS were engaged to remediate the eroding surface of Filter #4. With a focus on safety and quality, this project was to become a benchmark on delivery of concrete rejuvenation in water retaining structures.

Works Undertaken

NCS were engaged to do the following:

- prepare surfaces with high pressure water blasting to remove loose material
- conduct extension adhesion testing of the substrate to ensure surface preparation was to requirements
- Undertake full system test panels to ensure intercoat adhesion of system
- concrete repairs to Launder Beams and crack repairs to filter walls prior to application of coatings
- re-profiling surface to aggregate head and finally to coat all internal wall surfaces and backwash channel

NCS were able to achieve great results through extensive understanding of previous concerns of delivery of Epoxy coating systems to Assets, working through these and preparing a program to deliver these works.

The outcome was deemed a 'new benchmark' in surface rehabilitation, from not only a safety management process, but quality management, documentation and successful delivery.

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CONCRETE ASSET MANAGEMENT

Due to NCS's ability and knowledge of concrete assessment and remediation works, NCS can provide great assistance and services to develop recommendations around how to manage and prioritise your concrete asset management and remediation works.

After suitable inspections, testing, quantification and potentially engineering advice, NCS and partners assist in providing an opinion of costs to remediate the structure, indicate the estimated residual service life and potential repaired service life of your concrete asset. This allows you to effectively program remediation works with estimated budgets provided by an expert contractor and partners.



MURRAY IRRIGATION NEW SOUTH WALES

Client

Murray Irrigation

Project Outline

NCS were engaged by the Asset Owner, Murray Irrigation to supply solutions and services for bridge and culvert remediation and service life extension. Due to corrosion caused by water penetration and previous failed attempts at resolving the issues, NCS were required to provide a solution that would deliver a minimum of 15 years of service life.

Works Undertaken

With the ongoing drought throughout Australia, time was of the essence. Murray Irrigation has over 3000km of irrigation channels, supplying water to over 700,000 hectares of farming land.

In a small shutdown window of only 10 weeks, NCS successfully remediated 217 bridges. Render reinstatement, spalling, crack repairs and anti-carbonation coatings were all called upon to bring these Assets back to their original service life. Through the use of a high build repair mortar and a waterproofing coating, NCS were able to achieve great results with samples taken at only 3 weeks showing great success. By being able to spray apply (gunite) the products, NCS saved valuable time and were able to remediate all 217 in 9.5 weeks.

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SNIPEY ROAD BRIDGE

VICTORIA

Client

Goulburn Murray Water

Project Outline

NCS was contracted directly by the Asset Owner to carry out remedial repairs on Snipey Road Bridge. The concrete had lost approximately 10 mm of fines, exposing the aggregate and leaving the concrete vulnerable to further deterioration.

Works Undertaken

To fully understand the extent of deterioration, NCS used high pressure water to remove all laitance and material to leave a sound finish. The surface was then re-installed to its original profile. Approximately 1200 sq. m of concrete surface was rehabilitated providing re-assurance to the Asset Owner, that the steel reinforcing within the structure is protected, but also combining a surface that reduces ongoing maintenance and ultimately offering cost savings and extending the Service of Life of the structure.

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