



Seawall Construction

Land & Marine specialises in seawall construction in the Sydney region for a range both public and private clients.

Jacksons Landing Seawall was completed in 2006 with construction methods including precast, sandstone block and mass concrete works.



Jacksons Landing with sections from left showing mass concrete seawall, reconstructed sandstone block wall and precast concrete panels on piled headstocks.



Hydraulic Ramps on our MV Reliance were used in the construction of many seawalls to access over the wall using trucks, excavators and concrete pumps.

For more information, contact us at:
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Loading trucks on the MV Reliance



Completed seawall - Point Piper

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Mass concrete repairs using epoxy dowells and mesh.



Sandstone seawall and dry stack stone walls in waterfront park behind.



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HMAS KUTTABUL REMEDIATION WORKS

For: DEFENCE MAINTENANCE MANAGEMENT - 2009

Garden Island – West Dock Subsidence Remediation Project

This project involved the construction of approximately 500 square metres of hard stand for the Royal Australian Navy base at Garden Island – HMAS Kuttubul.

Work included sheet piling the perimeter of the site, stabilisation of the substrate, construction of detailed concrete headstocks and tie-backs; and the construction of 500mm thick concrete slabs using specialised marine concrete with high pozzolanic content.

Work was carried out around highly sensitive Navy equipment and included the disconnection and reconnection of services, trenching and vital communication equipment.



Sheet Pile Caisson



Overview

Garden Island Naval Base is a high value Navy facility with strict access and high demand on contractor and management personnel.

Land & Marine successfully managed the excavation and disposal of contaminated waste material from the HMAS Kuttubul site, in close liaison with Naval personnel, and provided detailed waste tracking information. All waste was transported to a licensed waste management facility for further processing.

Land & Marine contained and encapsulated remaining hazardous material on the site using a sealed steel sheet curtain wall, high pressure grout injection methods, geotechnical isolation and concrete slabs.

Construction works at the site included extensive sheet piling operations, detailed backfilling utilising material recycled and stabilised on site and extensive structural concrete works with a design life in excess of 100 years in the marine environment. The area was returned to the Navy on time and under budget, by thorough coordination between the client and contractors to deliver a high quality project.



Site location



Piling construction



Sheet piling



Headstock reinforcing



Finishing slab construction

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TEMPE BOAT RAMP - KENDRICK PARK - 2010

Land & Marine constructed a new boat ramp at Kendrick Park in Tempe NSW for Marrickville Council and Jeankon Contractors. The boat ramp was constructed using precast sections manufactured on site, placed on a prepared stabilised bed. Land & Marine used precise laser positioning to ensure that the precast panels were installed to the specified survey tolerances.



Land & Marine constructed precast concrete panels on site to be used for the underwater sections of the work. These were lifted into place and dropped onto a carefully prepared base of rock and geotech material prepared by L&M engineers.



The precast panel was dropped into place and fit within the tolerance limit of only 20mm.

The finish on the concrete was to specification, which would not have been possible with underwater concrete pouring methods.



The final result is a world class boat ramp and viewing platform.

TELSTRA CABLE WATER ENTRY PROJECT - SILCAR COMMUNICATIONS - 2004 - 2008

Land & Marine designed and constructed protective structures for Telstra's high value cable infrastructure at transition locations from land to sea. These were prefabricated concrete structures laid upon a prepared bed to ensure protection of existing cables and allow installation of future works. Land & Marine completed 35 of these sites.





DEEP OCEAN OUTFALL PROJECT - SYDNEY WATER CORPORATION - 1985 - ongoing

Since its' inception in the mid 1980s, Land & Marine has provided information and monitoring for Sydney's deep ocean outfalls. The information gathered has provided the EPA with the information required to monitor and measure the extent of effects caused by the deep ocean outfalls and to provide ongoing licensing to Sydney Water Corporation for the operation of those facilities. Land and Marine's team of scientific and engineering personnel ensure that SWC is not compromised in its' reporting requirements to the EPA, by providing high quality information and footage of the installations, and the extent of their effects on the surrounding ocean.

2.2.6 North Sydney Station Upgrade Project

Land & Marine organised highly complex structural engineering modifications within the rail corridor at North Sydney Station to enable emergency access to the new platforms. Works were completed around rail operations on weekends at nights using highly coordinated approach to ensure that contractors worked to program and quality was ensured on all aspects of the work. Land & Marine worked with the project designers and the other organisations on the project to ensure delivery was seamless and defect free.

JACKSONS LANDING FORESHORE CONSTRUCTION - BOVIS LEND LEASE - 2005 - 2007

This project involved the construction and remediation of approximately 650 metres of seawall and park at Jackson's Landing, Pyrmont NSW which included the management of contractors in a wide range of specialties including piling, underwater concrete remediation and civil construction. Works were undertaken for Bovis Lend Lease for Sydney City Council and Sydney Harbour Foreshore Authority. The work included:

- Excavation and remediation of in-situ materials
- Recycling of heritage sandstone and items from the sugar refinery
- Management of environmental issues such as site runoff, waste record keeping and bulk materials management.
- Underwater remediation of concrete seawalls, including 400 square metres of under water formwork.
- Installation of underground water storage
- Construction of new seawalls using recycled sandstone
- Construction of piled foundations for new concrete seawall
- Construction of new concrete seawalls
- Remediation of existing concrete seawalls
- Extensive park construction including a timber seat wall amphitheatre and sandstone works



- Architectural Concrete pavement



Photograph of Caisson construction



Photograph of seawall concrete repairs



Catalina Rose Bay

LNM carried out substantial substructure repairs to the concrete structure at Catalina's Rose Bay Restaurant, including the detailed demolition and repairs to the reinforcing steel, and reinstatement of concrete using Parchem Renderoc repair system, with Nitoprime Zincrich primer, and Galvashiled XP cathodic protection system.



Repair area

Telstra Cable Water Entry Project

Land & Marine managed the concept and detailed design; management; construction management and planning for the Telstra Cable Water Entry Project. This project involved protecting Sydney's telecommunication network from potential terrorist damage.

Telstra determined that there was a significant exposure to vandalism and terrorist damage to high value cables in the Sydney region at the locations where communication cables enter the water from underground trenching.

Land & Marine completed 29 cable protection structures in Sydney Harbour, the Hawkesbury River, Brisbane Waters and the Georges River.

Each project involved site investigation, concept design, detailed design management, construction management, environmental management, liaison with NSW Maritime and planning over a wide distribution of the twenty nine sites ranging from the Georges River to Brisbane Waters.

We have carried out rock stabilization works for Telstra at all of their cable water entries around Sydney totaling 45 sites. This included the detailed placement of rock around sensitive communications cables, in the marine environment.

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Photograph of Telstra cable protection structure construction

Third Runway Seagrass Remediation Project

Land & Marine provided consulting advice, design and implementation of remedial works to reinstate seagrass beds in the areas affected by the construction of the Third runway at Sydney International Airport.

This was a high visibility project with many interested stakeholders and highly sensitive marine environment.

Land & Marine delivered this project to the highest environmental standards, achieving a CASE earth Award for Civil Engineering Excellence.

Land & Marine Pty Ltd harvested, transported and transplanted 1.8 hectares of *Zostera* seagrass - the first successful large scale, mechanical transplanting of *Zostera* on the east coast of Australia according to Sydney Ports Authority.



Ocean Reference Station Project

The Ocean Reference Station project involved monitoring of oceanographic conditions at sea and real time data collection and automatic dissemination of data for use by the Bureau of Meteorology and for modelling of sewerage emissions from Sydneys Deep Ocean Outfalls.

Land & Marine rebuilt the data collection system and developed new software for the ORS whilst maintaining data distribution.

The system was operated successfully by Land & Marine from 2002. The data provided by the ORS system included 21 temperature readings, giving a full depth profile; two current readings; CTD information; and, two anemometers, all calibrated and transmitted in real-time to our offices where the data was quality controlled and disseminated to several government agencies.

This type of data acquisition project reflects Land & Marines ability to manage environmental monitoring on a project such as the Hawkesbury Creek project.



Rail Construction Experience

Land & Marine has worked in the construction industry since 2002 and has a professional approach to construction in the rail environment. We have experience in a wide range of work in the construction industry.

As a wholly Australian owned and operated company, Land & Marine prides itself on the successful delivery of quality projects while exceeding OH&S standards and implementing the highest environmental practices.

Our professional personnel and management staff are directly involved in the operational aspects of our project delivery. These personnel will build a close relationship with the principals staff to ensure that the project requirements are continually reviewed and satisfied.

Our experience on projects carried out on public infrastructure projects such as Jacksons Landing, Catalina Rose Bay, Sydney Water Renewals Project, Newtown TSU project, North Sydney Rail Upgrade, Telstra Cable Water Entry Projects, Garden Island Navy Base, and other high value projects has allowed us to develop the knowledge, skills and professional ability required to deliver a successful outcome for the client and to manage their exposure to project risks.

Land & Marine has developed the skills required to manage complex projects and operations involving interfacing between government organisations, the public, equipment operators and contractors.

Some of the projects we have been involved in recently are listed below. Land & Marine have been operating since the late 1960s and have completed many successful projects both in Australia and Overseas.



Products & Services

PROJECTS:

Civil and structural construction services to the Civil, Rail, Maritime and industrial sectors through Fitz Projects and Land & Marine OE. Some noteworthy projects to date include:

NEWTOWN TRACTION SUPPLY UPGRADE

For: RAIL CORPORATION NSW – 2010



Newtown TSU - Complete

Land & Marine undertook the construction of the Newtown TSU substation for RailCorp As part of the Traction Supply Upgrade project. We project managed and undertook the detailed construction works including:

- Excavation, processing and disposal of 4,300 tonnes of hazardous and contaminated waste material to an EPA licensed waste management facility. The material was contaminated with a range of identified hazardous materials including heavy metals, benzo(a)pyrene, PAH and asbestos. A detailed environmental plan was created for the site, addressing the issues of contaminated water runoff, wind-blown dust, odour control and issues relating to its' close proximity to neighbours and the Newtown local community. Land & Marine excavated the site and disposed of the hazardous material to a processing facility where it was treated and disposed of to landfill. Land & Marine provided all detailed waste records to the client as part of our construction environmental plan. Environmental monitoring was conducted to monitor the levels of contamination and to ensure the site was properly remediated.
- Construction of a gravity retaining wall 6 metres in height and 55 metres in length.

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- Construction of all trenching and pits for the intricate cable runs required for 33KV_a, 11KV_a, 1500V d.c. and other supply and control cables.
- Constuction of all pits, plinths and detailed concrete work required for the substation building
- Construction of the substation building, paving, roofing etc.
- Construction of high security fencing to RailCorp Standards.



Conduit Route Construction



Shoring and trenching



Slab and pit Construction



Preparing site for Concreting



Precast pits used to accelerate program constructed by L&M



Cable routes



Conduit Templates used to ensure precise positioning of cable routes



Trenching under live 1500DC



Cable Route constructions



Shoring of existing structures



Humeceptor Oil Separator Installation

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Concrete retaining wall preparation



Pits and wall construction



Bunded yards



NORTH SYDNEY STATION UPGRADE PROJECT

For: TIDC – BOVIS LEND LEASE - 2008

Land & Marine worked with BLL to upgrade North Sydney Station to comply with the current requirements for public transportation infrastructure. Land & Marine worked during shut down periods and during night works to ensure the train timetables were not interfered with or interrupted.

Land & Marine finished our contracts well within the contract period and budget to minimise disruption to the public and maximise the benefit to the customer.

Land & Marine carried out the following works:

- Detailed demolition of over rail structures including concrete cutting and removal during shut down works
- Design, Erection and dismantling of approved scaffolding over rail lines during power-out periods for the purpose of constructing formwork and detailed concrete structures.
- The design and construction of precast reinforced concrete stair soffits to ensure that no formwork was required over live rail
- The construction of a substation building and 2 ancillary buildings.
- Detailed concrete works and structural modifications to the station upgrade.



Concrete Stair emergency access built during possessions 4 months ahead of program.

Work included demolition of structural overhead concrete members and replacement with fabricated structural steel members, all installed from hi-rail equipment and manual hoists.

The blockwork was constructed during possession works and full scaffolding was erected during weekends to allow construction to six metres in height.



Scaffolding was erected and dismantled during each stage of the activity to allow access to the soffit of the roof structure. The photograph above shows scaffold erected to provide a safe "catch deck" for additional safety, in case any materials were dropped during overhead demolition works.



Detailed concrete cutting works using wire sawing to minimise disruption to neighbouring properties and prevent vibration.

Wall saws, upright road saws and hand demolition saws were also used as part of the detailed demolition.

Slabs of concrete were carefully removed using the mini-crane and recycled.



Slab section removed.



Precast concrete stair panels were designed, constructed and installed by L&M to prevent encroachment of formwork into the rail envelope; to accelerate program; and, to significantly improve safety.

These slabs provided a safe access to construct the stairway from within an enclosed area, minimising exposure to rail hazards.



Lifting gear was established above the work site, and access was gained from hi-rail trucks with boom lifts mounted on the deck.



Scaffolding was used extensively to carry out the works. Scaffold similar to that shown was erected and dismantled during each possession weekend to allow demolition safely, and allow track vehicles to pass beneath the scaffolding.

L&M designed and managed the installation of all scaffolding.






This scaffold was erected to allow modification to the hotel structure, and to construct a new transfer beam between existing columns.



Scaffold and drop sheets were erected to ensure rail ballast was kept clean at all times.



	<p>Demolition work using a track mounted wall saw was used to remove structural concrete members.</p>
	<p>Blockwork erected from scaffolding.</p>
	<p>Hirail access was used to erect steel structural members shown red, and to install grout packing.</p>



Lifting equipment on the overhead walkway.