



Ports and Marine - Capability Statement

Tonkin + Taylor has expertise in the engineering and environmental services underpinning the infrastructure developments and operations of our port and marine clients. We combine our skills in civil, structural, geotechnical, and environmental engineering with science, strategy, and local planning to provide an outstanding offering in coastal and marine engineering and science.

Enabling successful commercial operations in the coastal environment requires a high level of expertise - the environment is ecologically fragile and exposed to destructive natural forces. Our scientists, engineers and planners have a successful international track record in port and marine development, disaster recovery, assessment of effects, and climate change adaptation measures.

Capital work: development, expansion

Master planning: ports, marinas, ferry terminals, berth layout navigation channels.

Climate change adaptation: evaluate impacts, forecast design provisions, devise mitigation.

Field investigations: data collection, monitoring.

Numerical modelling: waves, tidal currents, water quality, sediment transport.

Design: environmental design criteria, marine structure design (wharves, breakwaters, seawalls, pavements, landing ramps, dolphins, fendering) from feasibility to detailed design, value and option engineering, safety in design.

Dredging and reclamation: design and multi-discipline assessments of effects on the environment.

Development on difficult ground: probabilistic seismic hazard assessment, soil-structure interaction, design specialist ground treatments.

Consenting and approval: strategy, planning, expert witness, stakeholder engagement and consultation.

Assessment of environmental effects: coastal processes, ecology, groundwater, contamination, air quality and water quality.

Management: project and design including engineer to the contract and construction supervision.

Operations: risk management, monitoring, and regulatory compliance

Disaster recovery and resilience: emergency works, rapid intervention and multi-hazard assessments.

Rehabilitation: inspection, condition assessment, monitoring, rehabilitation design.

Air quality: emissions modelling of particulates, sulphur dioxide, dust, odour, shore power assessment.

Alternative fuels: investigation, regulatory approval, hydrogen plant consents.

Marine ecology: biofouling, coastal and marine fauna surveys, assessment and monitoring.

Environmental risk: environmental management systems, adaptive environmental management plans.

Hazardous substances: risk assessment and management, biosecurity fumigant assessment.

Noise + vibration: measurement, modelling, assessment, and controls, including underwater noise (piling, operations) and impact on marine fauna.

Port stormwater: quality assessment, risk-based management, monitoring, consenting.

Ground contamination: sediment, soil, and water quality testing and management to support dredging, landside maintenance, and regulatory compliance.

Asset management: pavements, stormwater design, maintenance dredging monitoring and assessment.

Environmental monitoring: investigation, compliance monitoring, risk based monitoring.

Exceptional thinking together

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Selected Projects

Port Waitangi, Chatham Islands

Design, consents, and construction of a new port including reclamation, heavy duty pavements, Xbloc breakwater and two new wharves.

Downtown Ferry Redevelopment, Auckland

Complete re-configuration of the ferry berths. Services included establishing environmental design criteria, breakwater design, master planning the berth layout, full detailed design and design management of a multi-disciplinary team, consenting and construction supervision.

Quay Street Seawall Strengthening, Auckland

Project and design management services and consenting. Full project life cycle involvement from optioneering to detailed design and construction.

Refining NZ jetty, Marsden Point

Detailed design of the dredging requirements to reinstate all-tide access for deep draft vessels calling at the berth.

36th Americas Cup, Auckland

Field investigations, numerical and physical modelling of coastal processes and breakwater performance, flushing assessment, and wave loading analysis.

Kennedy Point, Waiheke Island

Design and consents for two ferry ramps, a recreational boat ramp and 160 m long rock breakwater.

Kaikōura Harbour

Designed emergency repairs to Kaikōura Harbour following the November 2016 earthquake, including dredging and boat ramp design.

Bounty Bay, Pitcairn Islands

Established environmental design criteria, numerical modelling of coastal processes, and breakwater design.

Rokobili Port Development, Fiji

Geotechnical investigations, assessment of environmental effects, study of coastal

processes, civil design, and construction cost estimates for the 40 ha reclamation, 800m long wharf and associated dredging.

Aiwo Wharf development, Nauru

Geotechnical investigations for a proposed port.

Whangamatā Marina, Coromandel

Detailed design and construction monitoring of a 200 berth marina and travel lift slipway.

Tauranga Bridge Marina Breakwater

Design, effects assessment and consenting of breakwater improvements.

Westport - Port Klang, Malaysia

Maritime and geotechnical detailed design for a 4 km port and wharf extension, including eight new container terminals, dredging and reclamation.

Ōrākei Marina, Auckland

Breakwater, dredging and civil works design from consent to detailed design and assessment of effects for a 180 berth marina.

Tryphena Ferry Terminal, Great Barrier Island

Master plan for the development and detailed design of reclamations and seawalls.

CentrePort, Wellington

Post-earthquake seawall and pavement rehabilitation, foundation engineering, assessment of environment effects for dredging assessments, geotechnical assessment for coastal structures.

Ports of Auckland

Air quality assessment, quantification of emissions, and feasibility study of emission reduction technologies.

Eastland Port, Gisborne

Geotechnical investigations to support design of wharves, slipways and pavements.

Napier Port

Geotechnical investigations and foundation design for structures and tanks.

Tri Marine Port, American Samoa

Concept, developed and detailed design of port in American Samoa. Design and build contract.

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