



"Clarity from complexity"

Ports

Engineering and Environment
Consulting Services

The company

BMT is a leading international engineering, science and technology consultancy offering a broad range of products and services across the energy, environment, shipping, ports and logistics and defence sectors. Clients are served by professionals located in a network of international subsidiary companies across 5 continents.

BMT supports clients at each stage of the planning, development and operation of ports, terminals and harbours. Our holistic approach combines engineering experience with sustainable environmental management and economic practicality.

All BMT companies implement and maintain management systems compliant with internationally recognised standards covering health and safety, quality and environment management, in line with the BMT Group Ltd. accreditation to ISO9001, ISO14001 and OHSAS18001.

BMT in Ports

Coastal processes and structures

We offer a range of services relevant to the construction and maintenance of coastal infrastructures, with particular expertise in the following:

- Coastal and marine structure design
- Construction supervision of ports, harbours, marinas, boat ramps, jetties, breakwaters, groynes and sea walls
- Advanced data provision, analysis and numerical modelling of metocean conditions
- Hydrodynamic, coastal processes and sediment transport modelling using TUFLOW FV including:
 - Collection, compilation and interpretation of technical data such as metocean measurements, modelling outputs, geology, geomorphology and sediment characteristics
 - Baseline and impact data collection to support 2D and 3D models
- Identification of sustainable solutions and options for coast stabilisation schemes
- Design and management of coastline monitoring and survey programs.

Specialist dredging consulting

We provide an integrated approach to campaign management of capital and maintenance dredging, reclamation and sand bypassing. Our staff have experience in a wide range of dredging methods and dredging related issues augmented by our complementary services in project and environmental management.

Our key services include:

- Reclamation advice and design
- Dredging options assessment
- Dredged material characterisation
- Cartography and drafting
- Sand bypassing and beach renourishment projects
- Unexploded and exploded ordnance (UXO/EXO) investigations
- Port planning to define dredging needs
- Expert services including peer review.

Critical infrastructure and bulk handling

From design to advice, BMT can provide quality engineering services that would benefit day-to-day, short-term and long-term operations, including:

- Investment and planning:
 - Market and economic assessments
 - Marine and transport planning, including site investigation and selection and feasibility studies
 - Concept designs:
 - of new systems integrating with remaining plant facilities
 - for rail, hopper and feeder system, conveyor system, reclaimers, ship loaders, associated electrical and control equipment and SCADA system
 - Marine facilities masterplanning
 - Technical review of supply and erect contractors
 - Technical due diligence studies
- Engineering design services for:
 - Pavements
 - Geotechnical and environmental engineering
 - Mechanical and electrical systems
 - Plant life extension
 - Design audits and specifications of machines and systems
 - Bulk materials handling and conveyor dynamics
 - Design management
- Project and construction management and commissioning for machinery including:
 - Procurement scope and technical specification documentation, for machinery such as:
 - conveyor system, including rail in load facility
 - ship loaders
 - portal scraper reclaimers
 - storage shed dust suppression
 - capital cost estimate
 - Test and measurement services
 - Quality assurance
- Operations:
 - Ship navigation simulation and consultancy (using REMBRANDT)
 - Risk and hazard assessment
 - Annual independent structural and mechanical inspections
 - Mooring analysis
 - Port security.



Specialist tools for analysis and design

BMT offers a wide range of in-house and industry technologies and advanced simulation services to provide clarity to our clients most complex problems, including:

- TUFLOW-FV and SWAN modelling for hydrodynamics, waves and sediment transport
- Ship navigation simulation and consultancy (REMBRANDT)
- Reclamation and dredge material placement capacity modelling
- Finite element analysis (FEA)
- Computational dynamics (CFD)
- Discrete element modelling (DEM)
- Fatigue and structural analysis
- Dust emissions
- Blast simulation.



Water and environment solutions

Complementing our engineering services and capabilities are our expert coastal and marine science teams that regularly work with ports, terminals and other waterfront industries.

Our water and environment services in this sector include:

- Environmental Impact Assessment/Statement (EIA/EIS) and environmental approvals and permits including:
 - Environmental Management Plans (EMP)
 - Dredged material placement option assessments (on land and at sea) using multi-criteria analysis
 - Approval documentation and management
 - Environmental offset strategies and plans
 - Regulator and stakeholder consultation and liaison including compliance
 - Environmental audits and due diligence studies
 - Responses to submissions and appeals including expert advice services
- Marine benthic habitat mapping and ecological surveys including advanced mapping technologies and marine megafauna surveys
- Water quality numerical modelling using TUFLOW-FV in 2D and 3D environments associated with tailwater management, dredge plumes, oil spills, cargo spillage and other receiving environment issues
- Water and sediment quality monitoring including:
 - Quality sampling, data collection and analysis against regulatory water and sediment quality objectives
 - NAGD (National Assessment Guidelines for Dredging) marine sediment sampling and analysis
 - Field calibration, deployment and telemetry for water quality monitoring equipment including development of reactive water quality monitoring programmes
 - Incident response to ship groundings and oil spill events
- Biosecurity including:
 - Application of environmental DNA technologies for invasive/introduced marine species surveys
 - Ship hull and benthic marine pest species inspections
 - Ballast water management plans
- Seagrass meadow, coral reef and other ecological rehabilitation and restoration projects
- Surface water management:
 - Stormwater management strategies across Port lands and tenancies
 - Flood, storm tide, cyclone and climate change risk assessments and management plans
 - Integrated Water Cycle Management (IWCM) studies
 - Water and wastewater efficiency audits and advice.

BMT has a proven record in addressing today's engineering and environmental issues.

Our dedication to developing innovative approaches and solutions enhances our ability to meet our client's most challenging needs.



● BMT in Environment

● Other BMT offices

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