



INDUSTRIAL PROFILE



World-class skills. World-class team.

Consulting Engineers

HYDRO

GEOTHERMAL

THERMAL

WATER

INDUSTRIAL



World-class skills.

MTL's core Industrial design skills available.

* We partner with Electrical and Controls Consultants

Key Software Capabilities:
Pipe Stress Analysis – AutoPipe
Pipe FEA – Nozzle Pro
Transient Modelling – Hytran
Head Loss – Pipeflow
Process – AutoCAD P&ID, HYSYS, WinGEMS
Piping Design – AutoCAD Plant 3D
Machine & Equipment Design – Inventor
Structural Frame Analysis – Microstran
Structural Design – AutoCAD Structural
Detailing / Revit Structure

MTL Scope

MTL, established in 1994, is a medium sized owner operated engineering design consultancy based in New Zealand employing Mechanical Engineers, Designers, Civil and Structural Engineers and Project Managers.

MTL Industrial Projects

Recent industrial design projects undertaken by MTL include boiler replacements and a dual fuel installation for Fonterra, a waste leachate filtration facility, aluminium processing plant, Powder Activated Carbon (PAC) and Chlorine dosing facilities, and a mineral extraction process utilizing titanium rich steel mill slag.

MTL Project Delivery

Our experienced engineers provide the complete package from project feasibility studies, detailed process, mechanical, civil and structural design, contract management and commissioning for delivery of your Industrial project.

Chris Mann
Project & Contract Management
Commissioning Management
HAZOP Facilitator

Don Purdie
Process / Mechanical Design
Project & Contract Management
Commissioning Management
Asset Management

Matt Chubb
Civil and Structural Design
Project & Contract Management
Asset Management

Chris Brown
Mechanical Design
Contract Management
Commissioning
Asset Management

World-class team.

James Powell
Project & Contract Management
Procurement, Scheduling

Stephen Kennedy
Design Management,
Detailed Engineering Design

MTL Design Process

MTL's process /mechanical design methodology utilises industry standard P&IDs and Engineering Lists to define the equipment specifications and interfaces. These documents provide the basis for asset management of new plant or retrofits for the life of the installation.

MTL Skills & Knowledge

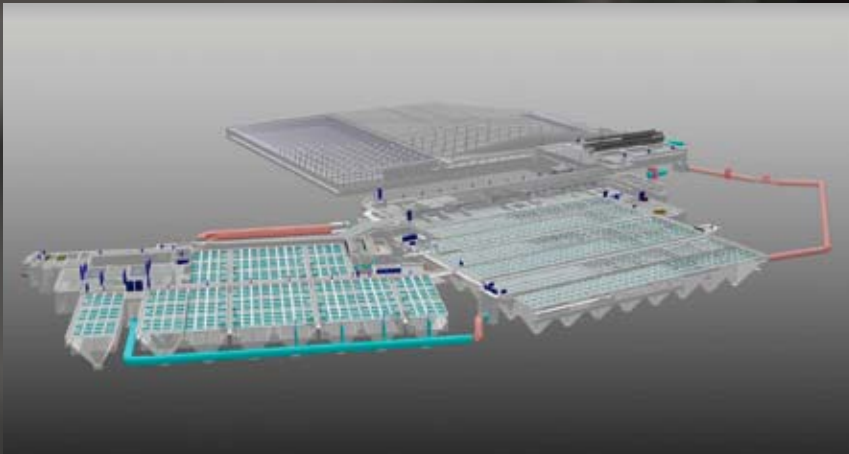
Collectively, MTL's engineering personnel have significant specialist knowledge and experience to draw on. An overview of some of our key industrial engineering projects, personnel and partner consultants can be provided on request.

MTL Role

We believe we have a unique offering due to our range of skills and our organisation's size. We are able to work closely with clients and partner consultants to repeatedly provide quality results.



World-class results.



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CONTRACT MANAGEMENT SERVICES



Why invest in an experienced and suitably qualified Contract Administrator to manage your Construction Contract?

Because your project is likely to be at risk of significant avoidable delays and costs, without their expertise. MTL have Senior Professional Engineers who have considerable experience in administering Construction Contracts. We understand the commercial constraints that Clients and Contractors face.

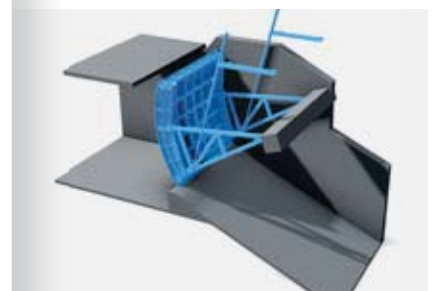
A project is a true success if everyone, including Clients, Stakeholders and Contractors accomplish their project objectives.

Recognition of each other's objectives and working together proactively to achieve these is beneficial for all parties. The Contract Administrator is best placed to promote collaborative working relationships between parties. This is assisted by providing clear and concise contract documentation to clearly communicate expectations to avoid surprises.

A Construction Contract in its strictest form is only relied upon when either party fails to deliver to agreed expectations. It is therefore essential that day to day business is managed to comply with general requirements of the contract to ensure it can be relied upon if needed. This includes the preparation of suitably worded contract instructions throughout the project to ensure time, cost and quality are closely managed.

Contract Management Services MTL offer:

- Tender document preparation
- Tender process management
- Advice on suitable forms of contract to be utilised
- Preparation of Construction Contract documentation
- Compilation of Contract Scope documents (Employers Requirements)
- Coordination of Technical on site Supervision
- Administration of a range of Construction Contracts
- Knowledge and advice concerning NZS3910, NZS3916, FIDIC, NEC3 forms of contract and CCA compliance requirements
- Fulfilment of "Engineer"& "Project Manager" contract representative roles



ASSET OPERATING DOCUMENTATION



Up to date, accurate and clear Plant Asset Documentation is essential to be able to efficiently and safely manage assets.

MTL are experienced at preparing Asset Operating Documentation for new and existing plant. MTL provide these services for Clients with critical facilities such as Hydro Power Stations, Geothermal Power Plants and Steamfields, Water Treatment Plants, General Industrial Applications and associated balance of plant.

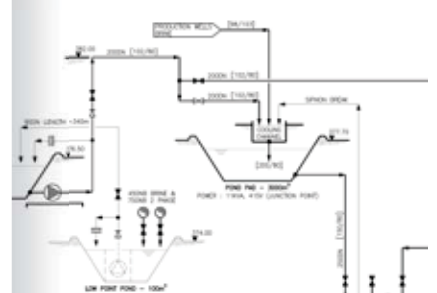
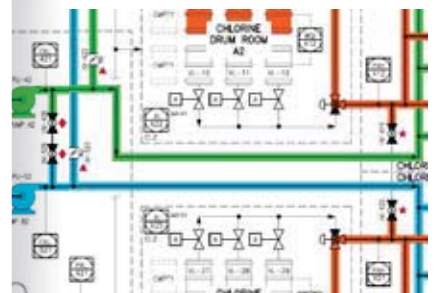
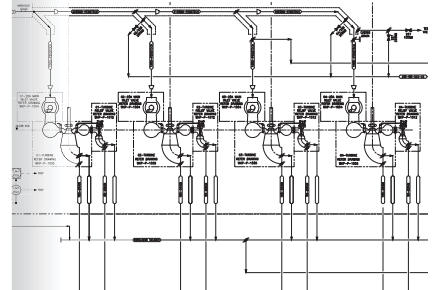
There are significant, and sometimes unrealised, benefits of producing up to date Asset Documentation.

They provide a foundation for a robust engineering process for upgrade works, improves understanding of Plant capabilities, results in clearer communication of asset operations/requirements amongst operators and third party contractors. Ultimately health, safety and environmental risks are reduced as a result.

MTL would typically spend time on site liaising with Plant Operators and review existing drawings/documentation to gain a clear understanding of how the specific plant is operated. MTL can tailor documentation to specific Client needs and with a focus on the end users specific knowledge/capabilities.

Asset Documentation Services MTL offer:

- As-built Process Flow Diagram (PFD) and Piping & Instrumentation Diagrams (P&ID's)
- AutoCAD Plant 3D capabilities featuring integrated P&ID - Plant Models – Engineering Lists
- Customised plant numbering systems (including KKS format)
- Operating and Maintenance Manuals (O&M)
- Standard Operating Procedures (SOP's)
- H&S Plant Isolation Procedures
- 2D or 3D as built documentation (Using 3D laser scanning if required)





ALUMINIUM PROCESSING PLANT

Fletcher Aluminium, Christchurch

Project:

South Island Aluminium Processing Plant

MTL Role:

MTL was engaged in October 2011 to provide project management and engineering services to Fletcher Aluminium to deliver a new aluminium processing plant in Christchurch. MTL undertook the process and mechanical and structural design for the processing plant including the chemical dosing plant, trade waste treatment plant, automated crane, dipping tank system, tank heating/circulation system, control system, platforms, and other auxiliary equipment. Key design criteria was to ensure compliance with all relevant HSNO and Building Act legislation and Approved Codes of Practice.

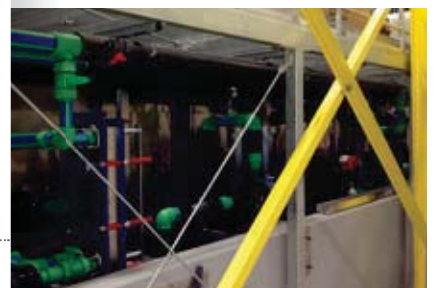
Project management included coordinating building owner's works to meet Fletcher Aluminium's requirements and managing Resource/Building Consent applications. We liaised with overseas equipment suppliers for aluminium powder coating equipment, managed the tender process, supervised the construction works and managed the plant commissioning/handover.

Project Outcome:

MTL's involvement in the project concluded with the successful commissioning and handover of the plant in August 2012.

Project Partners:

Fletcher Aluminium, Pacific Consultants, Ergo, Industrial Controls Christchurch



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KAURI DAIRY FACTORY BOILER REPLACEMENT Fonterra, Kauri, Northland

Project:

Kauri Dairy Factory Boiler Replacement

MTL Role:

MTL was engaged to provide project management and engineering assistance to Fonterra for the upgrade to the Energy Centre at their Kauri Dairy Factory in Northland.

MTL's scope of engagement included:

- Project and contract management for the demolition of two redundant thermal fluid boilers
- Project and contract management for the installation of a new 10MW boiler
- Developing methodology for the safe removal and installation of the boilers from the Energy Centre
- Identification of tie in works during production outages
- Design of new steam piping and upgrade to existing steam network

Project Outcome:

MTL's involvement in the project concluded with the successful removal of the last redundant boiler in July 2013.

Project Partners:



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MOBILE CHLORINE DOSING UNIT

Watercare Services Ltd, Auckland, New Zealand

Project:

Mobile Chlorine Dosing system to boost Cl_2 residual near the end of a new CLS water main.

MTL Role:

MTL provided process and mechanical design, project management and commissioning services for the containerised unit to maintain Cl_2 residual due to initial low water demand. The system included the following features:

- High & low range Cl_2 gas dosing capability
- Automatic gas dosing control via PLC
- Inlet treated water and dosed treated water analysers
- Operation at water main pressures of 200 to 1600 kPa
- Hardwired emergency gas shut-off and gas leak detection systems
- HSNO compliant design
- Remote monitoring and alarms via SMS

Project Outcome:

MTL worked very closely with Filtration Technology, the Siemens dosing equipment supplier and installation contractor to ensure the dosing unit met the high standards required.

Project Partners:

Ergo Consulting Ltd (Electrical & Controls) and Filtration Technology/Kinetic/PLNZ



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ARDMORE PAC DOSING

Watercare Services Ltd, Auckland, New Zealand

Project:

Ardmore Water Treatment Plant Activated Carbon Dosing System Replacement

MTL Role:

MTL provided fast track design and contract management services for the replacement of Watercare's Activated Carbon Dosing facility. Design services included overall Mechanical & Electrical (MECL Ltd) design, Civil/Structural design and ancillary / services design. The works were split into three packages to best meet the accelerated delivery programme and specialist process requirements.

Project Outcome:

The new PAC dosing facility is designed to exceed HSNO Regulation and Hazardous Area Zone electrical requirements for storage and handling of combustible dust. MTL designed the building to be constructed over the operational plant which enabled the new facility to be available for dosing <6 months from H2O's contract award while maintaining PAC dosing capability.

Project Partners:

McMahon Electrical, H2O Engineering, DMCS, Cassidy Construction

