



Lutra.

Wastewater Process Engineering

Capability Statement



Wastewater process capability

Councils across New Zealand are upgrading wastewater plants to meet tightening nitrogen and discharge consents, and under Local Water Done Well, non-compliance is no longer acceptable. Guarantees of performance cannot come from upgrades designed on paper alone.

Lutra pairs hands-on operational experience with strong process modelling and design skills, to give confidence that the plant leaving the page performs once it's running.

"Working with Lutra has been really great, right from the pilot plant through tendering and right through support during design and commissioning phases."

Divesh Sami , Project Engineer, Western Bay District Council (Now Tiaki Wai)

Lutra's Experience Extends Beyond Process Engineering

Optimisation & Training

Improved process performance, chemical usage and more. Backed by Lutra's training options.

Commissioning

From planning, and workshop facilitation to wet and dry onsite commissioning.

Investigations & Audits

Against performance targets or compliance requirements.

Tender Support Services

Tender document writing and technical advisory support during the tender evaluation stage.

Masterplanning

Long-term master planning for water and wastewater treatment plants.

Data Management

End-to-end data management via Lutra ID, can also be used by our engineers for detailed optimisation.

2006

Founded

39

Engineers & specialists

3

Offices, NZ & Australia

50+

WWTPs Improved

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We work from top to bottom through the process and the country

01

Investigate

Wastewater characterisation, consent targets, options study and MCA

02

Pilot*

On-site pilot trials (e.g. MBBR, MBR) to confirm treatment rates and de-risk the design

03

Design

Detailed process design, P&IDs, functional descriptions, cost estimate

04

Deliver

Procurement support, NZS 3916 contract administration, commissioning

05

Optimise

Setpoint tuning and ongoing performance monitoring via ID and Compass



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Case study: MBBR Nitrogen Removal Upgrade

Western Bay of Plenty District Council / Katikati WWTP, 2022 – Key Engineers – Andreas Fischer

The Katikati WWTP, a two-pond oxidation pond plant discharging to the coastal marine area, was not meeting its resource consent limits for total ammoniacal nitrogen (TAN) and total nitrogen (TN). Western Bay of Plenty District Council needed a reliable way to lift nitrogen removal without rebuilding the plant.

Lutra acted as technical advisor, and first designed, built and operated an on-site two-stage moving bed biofilm reactor (MBBR) pilot, an aerobic nitrification reactor followed by an anoxic denitrification reactor dosed with acetic acid, to prove the process and measure the removal rates needed to scale up to a compliant full-scale design.

After the pilot Lutra helped put the tender package together and assess the submission, followed by supporting the commissioning and testing phases of the MBBR implementation.



0.73

g N/m²/d TAN removal rate (SARR) at 15°C for full-scale design

85%

NOx removal achieved at optimal operating conditions

3,700

m³/d consented discharge the full-scale MBBR is sized for

Lutra's Role

- Pilot plant trial –Designed/Built/Operated - the results of which were used to inform and de-risk the design
- Preliminary process design
- Tender Support – Reference design, tender writing and construction partner selection assistance.
- Commissioning support and operational material authoring.

The upgraded plant is now fully operational and managed by the council's operations team, successfully achieves nitrogen removal standards, safeguarding local waterways and supporting community expectations.

For more on this project watch our video case study: [Watch the Video.](#)

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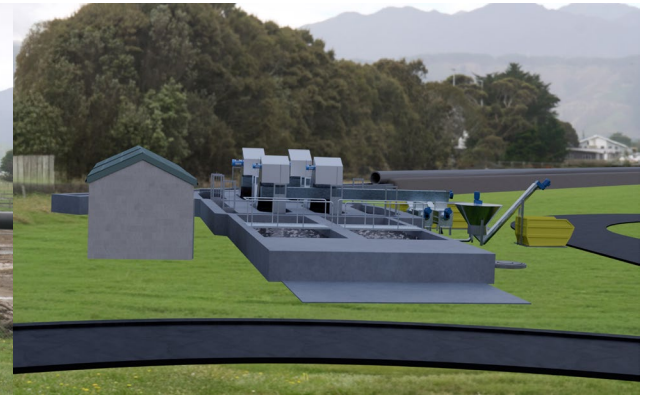
Case study: Wastewater Treatment Plant Masterplanning and Upgrade Support

Horowhenua District Council / Levin WWTP, 2024 – ongoing – Key Engineers – Song Li, Tim Miskimmin

The roughly 70-year-old Levin WWTP faced significant structural and operational challenges. Horowhenua District Council (HDC) engaged Lutra to lead a comprehensive masterplan guiding the district's wastewater strategy over the next 50 years, addressing population growth, climate change, evolving regulation and effluent quality requirements.

The masterplan included optioneering across treatment technologies and discharge pathways, and a strategic assessment of piping smaller surrounding communities to a centralised plant. Lutra then helped HDC navigate the Three Waters to Local Water Done Well transition with a phased upgrade strategy balancing long-term vision with short-term affordability.

Lutra are now working with HDC to help with supplier/equipment selection and implementation on a per phase basis.



50 years

Planning horizon for the district wastewater strategy

2026-2035

Staged upgrade programme developed with HDC

\$600k+

Ongoing programme of works delivered to date

Lutra's Role

- Masterplanning for major phased multi-year WWTP Upgrade.
- Headworks replacement and secondary treatment concept design.
- Anaerobic digestion process design and a council-wide sludge strategy.
- Optioneering, inflow & infiltration (I/I) reduction and fluoride dosing implementation.

Masterplan, options studies, concept design and tender support for headworks delivered on time and on budget. Lutra will continue to support HDC at various stages going forward.

For more on this project watch our Lutra TV episode on YouTube: [Watch The Episode](#).

Case study: Wellington Water / Tiaki Wai WWTP Portfolio Support

Wellington Water / Metropolitan WWTP Portfolio, 2023 – ongoing – Key Engineers – Tim Miskimmin, David Romilly

Wellington Water operates the metropolitan region's major wastewater treatment plants. Since 2023, Lutra has become a trusted process-engineering partner across this portfolio, delivering more than twenty separate engagements under the Master Services Agreement spanning all four WWTPs (Seaview, Moa Point, Porirua and Western), from strategic studies and detailed design through to day-to-day operational and emergency support.

The work spans asset and operational planning (Facility Management Plans for Seaview, Moa Point and Western), GPS-X process modelling and basis of design at Western, solids-handling upgrades and odour management review at Porirua, dryer basis of design and HAZOP at Seaview, and rapid emergency treatment options at Moa Point.



4 WWTPs

Seaview, Moa Point, Porirua and Western supported

20+

Separate engagements delivered under the MSA since 2023

~\$700k

Cumulative value of the ongoing partnership

Lutra's Role

- Prepared Facility Management Plans documenting plant processes, assets, condition, risks and operational requirements.
- Rebuilt the Western WWTP GPS-X model and authored its basis of design and specialist condition assessment.
- Supported Porirua solids-handling upgrades and peer-reviewed the odour management system and gasification report, and delivered the Seaview dryer BOD and HAZOP.
- Mobilised rapidly at Moa Point to assess emergency treatment options and develop a concept design and implementation plan.

A sustained, multi-plant partnership giving Wellington Water process-engineering depth, independent assurance, and responsive operational and emergency support across its entire wastewater portfolio.

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Case studies: Other Wastewater Projects

New Zealand Wide, 2016 to Present

Lutra has delivered wastewater projects across many treatment processes and clients. This section highlights Lutra’s broader experience.

Project	Client	Scope	Outcomes
Warrington WWTP Two-Stage MBBR Key Engineer: Tim Miskimmin	Dunedin City Council	Design & Delivery Two-stage MBBR designed, fabricated, procured, installed and commissioned for TAN and TN reduction, using sodium hydroxide and acetic acid dosing.	Upgraded treatment meeting the plant’s consent nitrogen limits.
Paeroa WWTP MBBR Upgrade Key Engineer: Andreas Fischer	Hauraki District Council	Concept & Process Design MBBR concept and preliminary process design to upgrade the Paeroa WWTP for improved nitrogen removal.	A costed, consent-aligned upgrade pathway for the plant.
Multi-Site WWTP Upgrades Key Engineer: Song Li	Waikato District Council	Design-Build (NZS3916) Process engineering and delivery support for WWTP upgrades at Te Kauwhata, Ngaruawahia and Raglan.	Compliant, modern treatment plants across the district.
Tokoroa WWTP Denitrification MBBR and Partial Denitrification Anammox (PdNA) Key Engineer: David Romilly	South Waikato District Council	Commissioning Support On-site commissioning support for a new MBBR with methanol-dosed denitrification, including the commissioning schedule, process start-up and performance verification.	MBBR commissioned into stable nitrogen-removal operation.
Tahuna WWTP GHG Reporting Key Engineer: Song Li	Dunedin City Council	Emissions Monitoring (ID) Configured Infrastructure Data to monitor and report greenhouse gas emissions at the Tahuna WWTP.	Automated GHG tracking and streamlined compliance reporting.
South Wairarapa WWTP Upgrades Key Engineer: Tim Miskimmin	South Wairarapa District Council	Process Design & Modelling Process engineering and WWTP modelling (GPS-X, BioWin) for the district’s wastewater treatment upgrades.	A sound design basis to progress the upgrades.

Plus many more New Zealand and Australian projects across all aspects of process engineering...**Just Ask**



Meet the Team

The people behind our wastewater work



Heiko Franz

Technical Director
Wastewater
*CPEng · BE Environmental
Engineering, UNITEC
Auckland (2006)*

Heiko brings 19 years in treatment plant processes and optimisation, leading quality reviews, project delivery, client liaison and plant commissioning across Lutra's wastewater work.

Heiko.Franz@Lutra.com



Alex Cliff

Process Engineer
Wastewater
*PhD Engineering, Massey
University (2022)*

With a PhD and a passion for modelling and data-driven problem-solving, Alex brings rigorous technical insight to complex operational and design challenges.

Alex.Cliff@Lutra.com



David Romilly

Chief Engineer
*CPEngNZ and CMEngNZ,
PE (Oregon-USA)
BSc (Env. Engineering),
Penn State University, 2002*

David brings 23 years of professional experience in wastewater treatment, civil, environmental engineering and management. He provides oversight to the engineering team.

David.Romilly@Lutra.com



Tim Miskimmin

Wastewater Team
Leader
*BE(Hons) Chemical and
Process Engineering,
University of Canterbury
(2011)*

Tim has 13 years across wastewater treatment, process modelling, procurement and operator training, guiding clients from options assessment through to delivery.

Tim.Miskimmin@Lutra.com

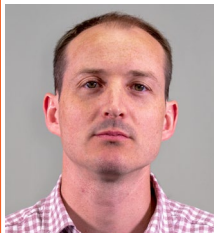


Song Li

Principal Process
Engineer Wastewater
*Masters Environmental
Engineering, Tongji
University (2007)*

Song brings 16 years designing, commissioning and optimising WWTPs and biosolids systems, including industrial dairy, pulp & paper and farm effluent, and biogas projects.

Song.Li@Lutra.com

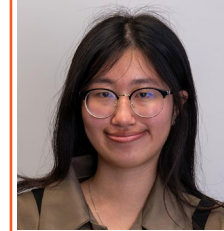


Andreas Fischer

Innovation Lead &
Senior Process
Engineer
*MSc Environmental
Engineering, ETH Zurich
(2010)*

Andreas has 14 years in wastewater treatment and innovation, specialising in WWTP process design and modelling (GPS-X, BioWin) and system commissioning.

Andreas.Fischer@Lutra.com

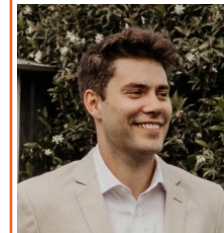


Sylvia Chia

Process Engineer
Wastewater
*BE (Hons) Chemical &
Bioprocess Engineering,
Massey University (2023)*

Sylvia has secondment experience with Wellington City Council's Moa Point SMF commissioning team, with additional strengths in plant optimisation, compliance troubleshooting and laboratory analysis.

Sylvia.Chia@Lutra.com



Josh Braithwaite

Process Engineer
Wastewater
*BE. Civil Engineering,
Waikato University (2019)*

Josh combines practical knowledge of construction and design with process engineering skills to assess treatment technologies and deliver efficient, constructible designs.

Joshua.Braithwaite@Lutra.com

Let's solve a problem together...

we're ready to deploy from our homes or one of these locations

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