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**Delivering  
sustainable  
water solutions  
for communities**

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# New Zealand Water Projects

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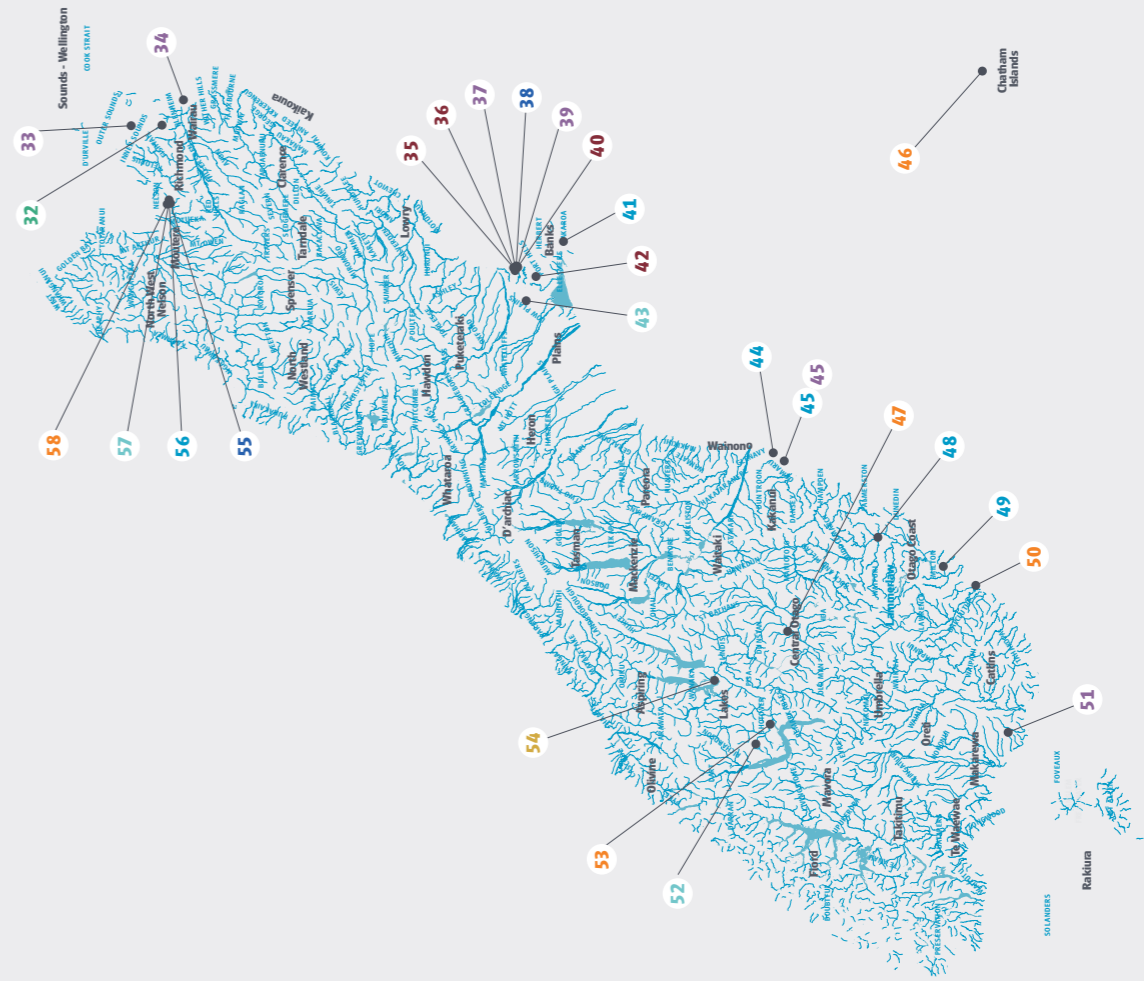
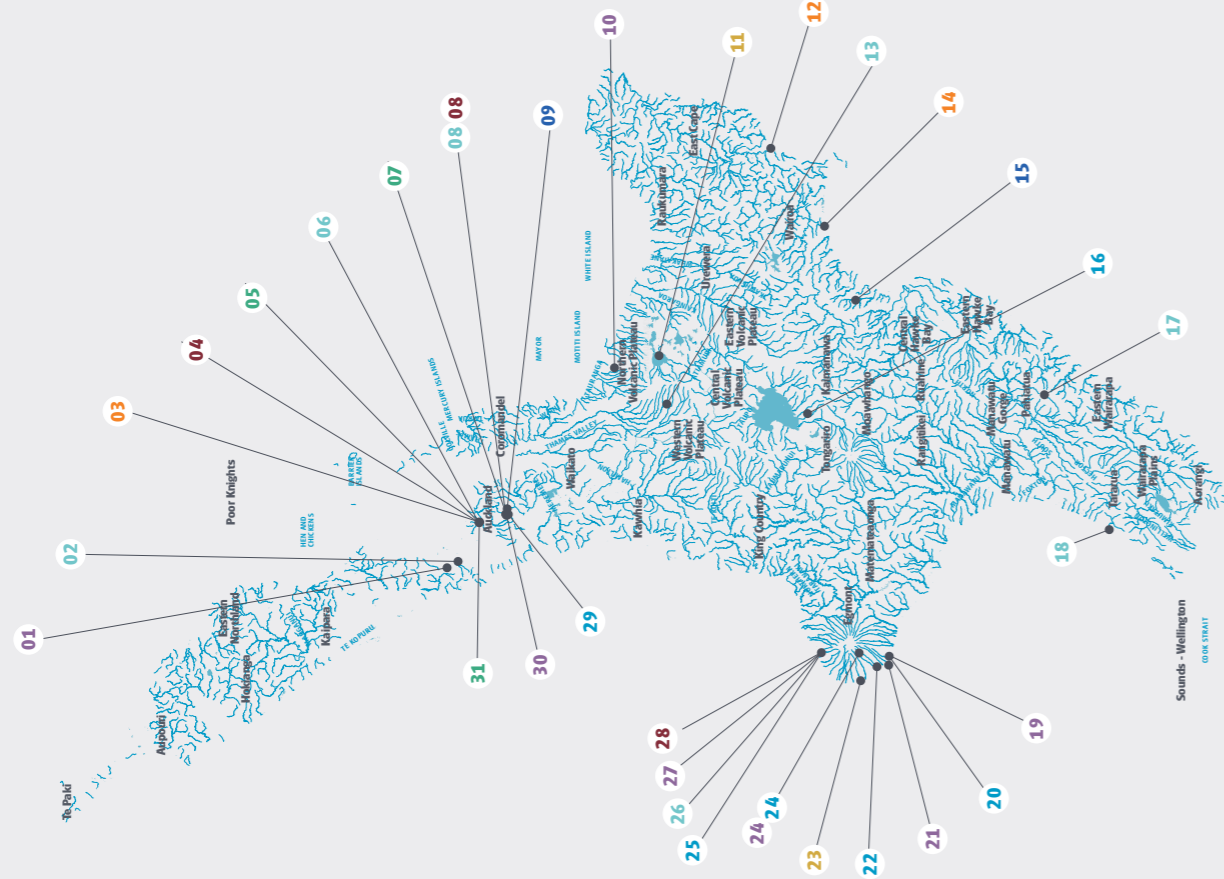
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**The New Zealand water industry is entering a period of substantial change and challenge. For over 23 years, Fulton Hogan has been working collaboratively with public and private sector customers to meet such challenges.**

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Fulton Hogan continues to deliver outstanding, innovative project and contract solutions in the fields of design management, water asset construction and information systems to support our clients. And our ongoing operation and maintenance of assets provides essential water services to the communities we work in.

All this, in an industry that is developing rapidly. We've seen: rising regulatory surveillance, increased customer expectations around transparency of service standards and cost, growing investment in the repair and replacement of aging infrastructure, and rapid technological change that affects the operation and maintenance of treatment plants and networks.

Fulton Hogan is committed to developing alongside this dynamic industry. Our focus is on creating long-lasting, productive relationships that deliver quality assets and services, and that bring sustained value to our customers. This commitment makes us the water-services contractor of choice in New Zealand.



## Collaborative and customer-focused

To support water infrastructure owners and managers meeting the challenges of today and tomorrow, we employ a team of experienced and skilled personnel across a range of disciplines from engineering, operations, stakeholder management, IT and finance, quality and safety. Our multi-faceted teams bring a collaborative can-do attitude to any challenge associated with the creation or maintenance and operation of water infrastructure.

## Sustainability is a key driver

We work closely with our customers and suppliers to actively reduce our environmental footprint. By applying innovation, life cycle thinking and effective planning to drive performance, we deliver more sustainable outcomes in our projects and contracts. We see sharing our sustainability journey with partners, customers and stakeholders as key to moving our communities towards a more sustainable future.

## Innovation that makes us fit for the future

We harness the innovative drive and knowledge of our teams through our Blue Skies platform. Blue Skies is a complete database of every innovation, big or small, that has delivered value for our customers. Blue Skies is available to our teams and clients via kiosks, as part of our commitment to developing a culture where innovation is considered business as usual.

## Living safely is part of our culture

The safety and well-being of our staff, our clients' staff, and all those who live and work in the communities in which we work, is key to the success of any project or service contract that we handle. It places people at the heart of everything we do. We see this as fundamentally important in delivering water services.



Hunua 4, welding of a cement lined steel pipe for the conveyance of drinking water

# Construction

From planning and design management, through procurement, construction, commissioning, maintenance and operation, Fulton Hogan works with customers to deliver water infrastructure for communities throughout New Zealand.

Our strong team of civil, mechanical and electrical engineers, commissioning experts, and environmental, safety and quality professionals, combine their technical excellence and a can-do attitude on every project.

The technical skills we provide for the construction of pump stations, storage tanks, pipework, mechanical, instrumentation, control and electrical systems, roads and drainage are backed up with award-winning community engagement initiatives, and a high regard for sustainability.

We partner with local authorities throughout New Zealand, and we also provide water solutions for private companies throughout New Zealand.

Many consider Fulton Hogan's greatest strength to be our ability to work with customers and their communities to develop innovative design and construction solutions that often exceed environmental, quality and performance expectations.



Wynyard Quarter Pump Station – a contemporary design that fits its inner city context. Completed in 2018

## Collaboration and community engagement on a massive water pipeline project

Client: Watercare Services

**Hunua 4 is the biggest water pipeline project in New Zealand's recent history. A joint venture between Fulton Hogan and John Holland, we laid 25km of steel pipeline along a route that crossed the Manukau Harbour, as well as motorways, railway lines and several suburbs.**

Our client Watercare was looking to expand capacity to cope with Auckland's population growth and to improve the resilience of the city's water supply.

We set out with two major aims. Firstly, we wanted to provide a quality result for Watercare. Equally important, was the necessity to engage with and manage the expectations of the many stakeholders who faced the prospect of major disruption while work was being carried out in their communities.

One cornerstone of the five-year project was applying NEC collaborative contracting principles. Working in the same office with Watercare, the John Holland team and other consultants, we invested time in planning and co-ordinating works through a collaborative, no-blame culture. As a result, we built mutual trust and got the best project solutions both from a programme and a cost point of view.

We used a detailed construction programme to co-ordinate all activities and manage challenges. We held five-week look-ahead meetings with the main team and subcontractors. By using the planning tool 'Last Planner', we ensured all works were being delivered as intended.

We held a number of community engagement initiatives to talk to those we were likely to disrupt, and discussed how we could work with their community and lessen the impact of our work. We built strong relationships with schools, inviting children on site tours, and our staff volunteered to undertake works to improve school grounds and assist at pedestrian crossings.


With the pipeline going through five suburbs and affecting residents, small business precincts and an industrial area, it was our priority to have open, honest communication and listen to people's needs and concerns. The engagement team visited more than 3,500 properties, staffed two 24/7 freephone lines and delivered work updates.

The project had a fulltime ambassador on site to offer assistance to residents. This key project team member carried bags, helped with courier drop-offs and Meals on Wheels deliveries, and organised the emptying of rubbish bins from a central site.

Watercare's feedback endorsed our professional attitude, solid planning and execution that led to this project's successful delivery.

The Hunua 4 watermain project won the Safety Leadership category at the Site Safe Construction Health & Safety Awards and won the Veolia Health & Safety Innovation Award at the Water NZ Awards.

OBJECTIVE Construction of a 25km watermain with minimal disruption to local stakeholders

| CONTRACT TYPE | DESIGNERS | COST          | COMPLETION | AWARDS                                                                                                                                                | LOCATION                                                                              |
|---------------|-----------|---------------|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| NEC           | Beca, GHD | \$173 million | Oct 2016   | Safety Leadership category, at the Site Safe Construction Health & Safety Awards.<br>Veolia Health & Safety Innovation Award, at the Water NZ Awards. |  |



Hunua 4, part of the 25km steel pipeline crossing through a dense urban environment

## Restoring Christchurch's critical water supply

When the 59 year old Huntsbury Reservoir and water pump station were severely damaged in Christchurch's February 2011 earthquake, Christchurch city lost 35,000m<sup>3</sup> of water storage and residents faced the real prospect of water shortages – especially over the approaching summer period.

Huntsbury is the city's main water storage reservoir, which meant it was critical that the emergency response was immediate and comprehensive.

When work began in September 2011, early underground drilling investigations revealed a shear zone (earthquake damaged land) was running through the centre of the reservoir. This meant the structure was unable to be rebuilt on the same footprint.

During the project's Early Contractor Involvement (ECI) phase, we collaborated with Beca on a design for two reservoirs that were set back from the shear zone. This solution offered long-term durability and ensured a safe working environment for our project teams, who were working on the site while significant aftershocks were still occurring. Seismic risks were further mitigated by the demolition of damaged structures as early as possible and the use of temporary bracing.

The ECI phase also focused on constructibility and speed, to ensure one reservoir could be operational before the summer. We were able to meet this goal in part due to the ECI phase with Beca and also by using sustainable design and construction. This included reusing and strengthening existing concrete from external walls, foundation, roof slabs and floor slabs. Concrete waste was also crushed on site and recycled as fill.

Client: SCIRT / Christchurch City Council

Stage one of the 6,000m<sup>3</sup> reservoir and new pump station was completed in November 2011, just three months after the project commenced, giving Christchurch a resilient new infrastructure in time for summer's peak demand. The Stage 2 reservoir on the Huntsbury site was commissioned in November 2012. The project has achieved excellent safety and environmental ratings.

Following this project we went on to work with Beca on several more SCIRT projects to restore earthquake-damaged facilities, including Clifton Reservoir 3, McCormack Bay Reservoir, and three water pump stations.



|                                                                                                        |           |              |            |                                                                                                                                       |                                                                                       |
|--------------------------------------------------------------------------------------------------------|-----------|--------------|------------|---------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| OBJECTIVE <b>Replace an essential water supply for the city of Christchurch as quickly as possible</b> |           |              |            |                                                                                                                                       |                                                                                       |
| CONTRACT TYPE                                                                                          | DESIGNERS | COST         | COMPLETION | AWARDS                                                                                                                                | LOCATION                                                                              |
| ECI                                                                                                    | Beca      | \$13 million | Dec 2013   | Excellence in Civil Concrete Construction Award at the Cement and Concrete Association of New Zealand Concrete Sustainability Awards. |  |

Huntsbury Reservoirs are the main water storage facility for Christchurch city

## Virtual reality brings communication and safety benefits

Client: New Plymouth District Council

During the New Plymouth Waste Water Treatment Plant upgrade, virtual reality (VR) was used by Fulton Hogan, the designers (Beca) and our client (New Plymouth District Council).

Visualising the project in advance was important because the complete mechanical fit out and the installation of the new plant had to be staged while the existing site remained operational.

VR provided the team with a much better understanding of the scale of the new inlet works and sludge handling facility, and our client appreciated the chance to view the completed structures and layouts in the design phase. This helped the team appreciate the design and construction challenges of the project, before they eventuated on the ground.

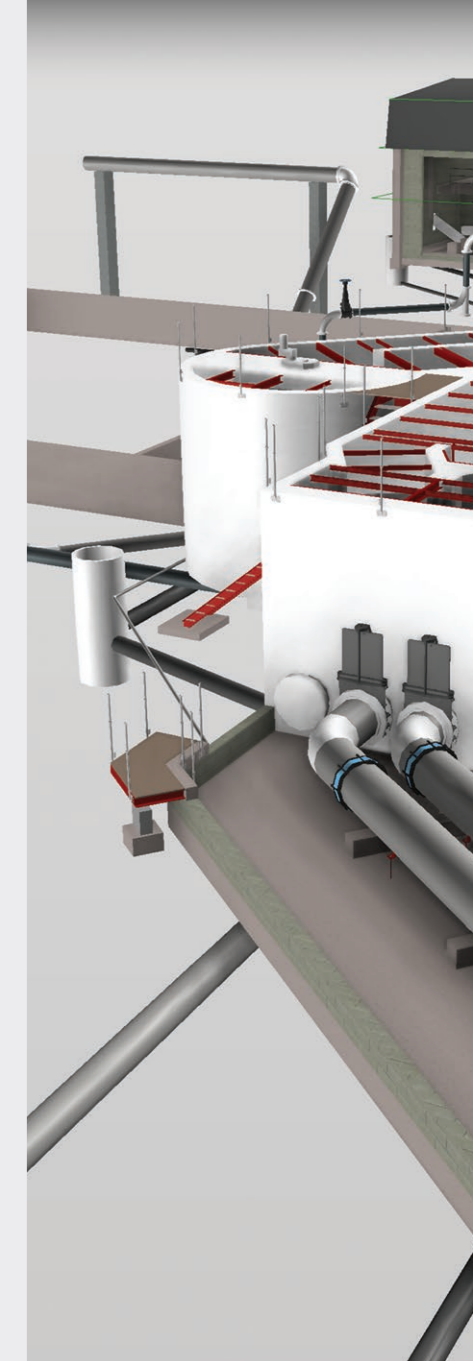
Using headsets, the foreman and crew were able to 'walk inside' the digital creation. They could become familiar with the critical dimensions of

key equipment and visualise the measurements for cable tray runs, pipe routes, plinth positions, walls and floors, ensuring the equipment would fit precisely into place. Workers could also raise safety concerns. A roof walkway was designed to the building code, but within the virtual model the team determined the design could be improved. Appropriate changes were suggested, approved and incorporated.

A 3D printed model of the structures was another well-received planning tool. It was a useful aid for teams to visualise what needed to be completed within different timeframes and point out and discuss technical issues. The model was also shared with workers at safety meetings, so risks, especially around the work in confined spaces and at height, could be discussed.

Virtual reality is still in its infancy, however, as we use it for more projects, it's becoming an important tool for collaborating with clients, enhancing worker safety and delivering cost efficient projects.

|                                                                                                                          |            |              |            |                                                                                       |  |
|--------------------------------------------------------------------------------------------------------------------------|------------|--------------|------------|---------------------------------------------------------------------------------------|--|
| OBJECTIVE <b>Construction of new concrete inlet and grit trap structures, associated mechanical and electrical works</b> |            |              |            |                                                                                       |  |
| CONTRACT TYPE                                                                                                            | DESIGNERS  | COST         | COMPLETION | LOCATION                                                                              |  |
| Construct only                                                                                                           | Opus, Beca | \$79 million | Dec 2018   |  |  |



## Successfully managing 1,000 workers requires early planning

Client: Fonterra

**When Fonterra was building the largest milk powder plant in the world on its Lichfield site in the Waikato, we were contracted to construct a new state-of-the-art waste water treatment plant at the same time.**

With the cheesemaking operation continuing on-site, we needed to consider the impact of our works on the food manufacturing bacteria testing process, including dust management.

By using an Early Contractor Involvement (ECI) process with Beca (project designers) and Aurecon (QA monitoring), we all offered treatment plan design, constructability and efficiency input from the start. This teamwork proved critical in helping Fonterra meet the conditions of the resource consent for the new milk powder dryer.

At the height of the project, 1,000 people were on site, so it was imperative that plant operational staff, subcontractors, stakeholders and our team collaborated and shared information regularly. We used a planning tool called "Last Planner" which helped the project team prioritise and optimise how the different on-site trades would interact most efficiently.

Regular meetings were also held to develop the project risk register and mitigate risks.

A key success of ECI was the decision to take the irrigation fields offline so the earthworks could be completed over the summer period. This collaborative approach helped us complete the project more expediently.

Prior to the commissioning of the main plant, the aeration ponds were filled and seeded with activated sludge so that influent was ready for biological treatment when the main plant was ready for wet commissioning. This ensured a smooth start up for the wastewater plant.


Additionally, pre-commissioning work was carried out as areas were completed. Pre-commissioning activities also had to be completed prior to the live tie-ins to the production facility, during the existing factory's shutdown period when waste flows were low. Once the tie-ins were completed and tested, wet commissioning of the treatment plant was completed with full input from the client's operational staff. This work provided on-the-job training for Fonterra staff prior to handover of the wastewater treatment plant.

Fonterra maintained its cheesemaking operation throughout the treatment plant's construction with no financial impact on its existing operations. We delivered the project within the revised budget and timeline, bringing extra capacity to accommodate future growth in Waikato's dairy industry.



Project Florence, a new waste treatment facility constructed at Fonterra's Lichfield dairy processing plant

OBJECTIVE Construction of a WWTP with minimal disruption and on programme

| CONTRACT TYPE | DESIGNERS | COST         | COMPLETION | AWARDS                                                                                            | LOCATION                                                                              |
|---------------|-----------|--------------|------------|---------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| ECI           | Aurecon   | \$20 million | Aug 2016   | Won Waikato Civil Contractors New Zealand Over \$4 million, Finalist in the CCNZ national awards. |  |



“The client was impressed with the way we responded to all the challenges”

Pukekohe Trunk Sewer, the pinch valve arrangement at the end of the pressure sewer at the WWTP

## Early collaboration helps future-proof pipeline

Client: Watercare Services

**Fulton Hogan and Beca worked alongside Watercare’s project team when Watercare wanted to increase the capacity of the sewer network for greater flows to the Pukekohe Wastewater Treatment Plant. This plant is in an area south of Auckland where the population is expected to more than double over the next 30 years.**

A quick completion was critical due to changes to the resource consent and the ability of the existing network to cope. We used an Early Contractor Involvement (ECI) phase to collaborate on the design, anticipate challenges, find solutions, and put the right plan in place to meet the deadline.

The contract required the construction of three new pump stations and the laying of a new

8km wastewater pipeline that would discharge into the existing Pukekohe wastewater treatment plant.

The bulk of the pipeline needed to be installed within busy roads. This included one 3km stretch on a street where there was restricted space to work and no detour available for residents. We worked closely with the affected residents, nearby businesses, schools and a kindergarten to ensure their business and day to day activities could continue as normally as possible.

An environmental challenge was posed when a local Hapu made a request for us to not carry out directional drilling for the pipeline under rivers. In order to achieve this, five open cut river crossings were carried out instead.

On the technical side, a key aspect was overcoming the natural static head on the new pipeline as it approached the treatment plant. We met this challenge by using a series of pinch valves. These valves increase and decrease in

area and are aligned with pump speeds at the new lift pump station to ensure lower velocity flows to the plant.

Working collaboratively with our client, project stakeholders and the local communities upfront has helped us construct a more capable treatment plant that’s future-proofed for Watercare and the growing population.

OBJECTIVE Upgrade to the Pukekohe WWTP pipeline to provide for future population growth

| CONTRACT TYPE | DESIGNERS | COST         | COMPLETION | AWARDS                                                                                                                                   | LOCATION                                                                              |
|---------------|-----------|--------------|------------|------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| ECI           | Beca      | \$39 million | Dec 2017   | Excellence in Civil Concrete Construction Award at the Cement and Concrete Association of New Zealand<br>Concrete Sustainability Awards. |  |

# Trusted operation and maintenance providers

Providing a complete whole-of-life service is imperative for many owners of water infrastructure. Having built or upgraded the infrastructure, we are frequently the go-to people for the end-to-end tasks that give asset owners reassurance their systems are being managed by experts.

Currently, our water operations and maintenance contracts and installation work mean we are reaching out to around 1.6 million consumers. We have more than 70 years' operation and maintenance experience in New Zealand for both urban and district water authorities.

## Robust asset management systems

Field crews are equipped with the latest mobile technology and customised software, so they have immediate access to asset data using GIS visualisation, customised apps and Maximo field applications. Real time data keeps customers and call centres informed of incidents on a network and ensures accurate communication of time-frames. Robust systems result in accurate job cost capture and jobs being closed off faster, lowering service interruptions for customers.

## Commitment to working responsibly in the water cycle

We manage projects sustainably, with independent audits confirming the quality of our approach. Our staff are trained in environmental management, public health and RMA consents, compliance, spill control and relevant environmental legislation. We manage contract operations in a safe, sustainable manner. Active audit and training programs ensure our staff have the skills and knowledge to run the essential services in your community. Safeguarding water supplies and ensuring treatment plant discharges meet consent conditions lie at the heart of our operations. We have an established pedigree of responding in emergencies such as earthquakes, floods, drought or snow.

## IT excellence providing data security

We employ highly experienced IT personnel to manage and integrate new technology, as evidenced by our partnership with Watercare, providing new water connections to more than 6000 households in Auckland every year.



Watercare customer inspecting new smart water meter

## Successfully connecting Auckland with its water supply

Client: Watercare Services

**Each month, our New Water Connections team is responsible for installing 550 new water meters for homes and business across Auckland, on behalf of our client Watercare.**

Once property owners or developers have booked an installation with Watercare, our team has just 15 days to plan, schedule, and install.

Job complexity ranges from straight-forward installations to the submain connection line, laying a water connection pipe to the main, through to complex commercial installations.

Our specialist water technicians keep on track through careful planning and efficient scheduling. Direct integration with Watercare's systems gives everyone real-time data on job progress and the team's location across some 4,500km<sup>2</sup> from Warkworth in the north to Pukekohe in the south.

This collaboration with Watercare and close communication with property owners helps Watercare to more accurately manage water distribution across the Auckland region.

If the consumption figures from the meters do not match the amount of water leaving Watercare's treatment plants, Watercare has early notice of a possible issue in its water distribution systems.

The new water meters benefit home owners and tenants too. Live billing means people can be more proactive in managing their water use and costs, confident that billing is accurate and they are only being charged for the amount of water they've used.

As Watercare meets the challenges of 320,000 to 400,000 new homes being built over the next 30 years, we're right there with them, investing in upskilling our own people and improving our strict quality procedures to maintain the security of Auckland's potable water.

OBJECTIVE **Timely and compliant connection of customers to Watercare's supply network**

| CONTRACT TYPE            | CUSTOMERS SERVED | CONNECTIONS/YEAR | START YEAR | DURATION | LOCATION                                                                              |
|--------------------------|------------------|------------------|------------|----------|---------------------------------------------------------------------------------------|
| Water Meter Installation | 1.6 million      | 6600 plus        | 2016       | 7 years  |  |



## 100% compliance for Nelson's water supply

Client: Nelson City Council

### When Nelson City Council was looking to upgrade its water service in 2002, it initially favoured a two-plant option.

As part of a design and build contract, a Fulton Hogan and MWH joint venture recommended a single treatment plant that could utilise water from the two raw water supply sources. This option had several advantages, including a significant reduction in whole life costs and better flexibility of raw water supply. In times of floods or drought, or other instances where water quality might be affected from one source, the council would have the option of accessing water from the alternative source. This also provided better ability to maintain minimum environmental flows in the river sources.

This solution required a 7.5km dual pipeline that ran through a number of sections on private land. As part of the contract, we undertook all the negotiations with property owners and the handling of resource consents.

We took an open and honest approach to our discussions with landowners and others in the community. Whilst these discussions took time to resolve, we ensured adequate time was spent helping people understand the project's benefit to the entire region. While constructing the pipeline, we were considerate and respectful of both the property owners and their land.

Although it proved a complex construction project, it was delivered one month early and, through two national awards has been recognised as an industry leading solution.

We have operated and maintained the plant for the 14 years since it was commissioned. Our diligent operation and maintenance of the ultrafiltration membrane technology – a sustainable option that drastically reduces water wastage – has seen membrane life extended three to four years beyond the manufacturer's predictions, with considerable savings to our client.


The council has extended our contract several times, in part because of the value for money

service we provide. We have been able to reduce power consumption and maintenance costs through two of our initiatives:

- Fulton Hogan replaced expensive-to-run motor driver vacuum pumps with an air ejector system to maintain the vacuum conditions for the plant's process.
- We enhanced the membrane aeration process, which allowed the plant to operate on one blower rather than two.

The council has expressed satisfaction that we work hard on its behalf to ensure the protection and safe supply of water that has been 100% compliant with the DWSNZ since the plant opened in 2004.

This project is just one example of our ability to work closely within a community, to ensure they see the advantages of our proposals and the way we offer whole-of-life services for water infrastructure.

| OBJECTIVE <b>Continuous and efficient production of A Grade water for Nelson residents</b> |                  |                                                                     |                           |            |          |                                                                                       |
|--------------------------------------------------------------------------------------------|------------------|---------------------------------------------------------------------|---------------------------|------------|----------|---------------------------------------------------------------------------------------|
| CONTRACT TYPE                                                                              | CUSTOMERS SERVED | PLANT TYPE AND CAPACITY                                             | DESIGN CAPACITY           | START YEAR | DURATION | LOCATION                                                                              |
| Design, Build, Operate Contract – Water Treatment Plant                                    | 51,400           | Coagulation, UF membrane filtration, pH correction and chlorination | 50 million litres per day | 2004       | 15 years |  |

Nelson WTP, plant operator carrying out routine maintenance on membrane equipment

## Exceeding expectations on a long-running maintenance contract

Client: Gisborne District Council

### Fulton Hogan's work in the Gisborne District has successfully covered water, wastewater and storm water infrastructure maintenance work since 1988.

Drawing on our depth of experience and extensive technical skills, we consistently meet or exceed the council's KPIs that range from response times to workmanship. It's these past successes that have led to Fulton Hogan being awarded other capital projects, such as pipe renewal projects, capacity enhancements and ongoing asset renewal works in both the pump stations and treatment plant.

We use a collaborative framework to manage this contract which has led to innovations including:

- Mobile field technology that improves work efficiency, provides real-time activity reporting and improves information sharing with the council's customers.

- The use of smartphone capability to measure noise and vibration movements – providing a cost effective and local solution to project noise control and monitoring required under project and contract resource consents.
- The design and implementation of a screenings pressing facility that reduced waste disposal costs by over 60% for our client.
- Devising new repair methodologies including the use of inflatable bags and fibreglass bandages to repair storm water and sewer mains under bridges.
- The introduction of reliability-centred maintenance initiatives into pump stations to reduce callouts and emergency breakdowns.
- The introduction of hydro-excavation technology to the region to reduce service strikes whilst conducting capital work.
- The application of lightweight trench shields to enable smaller excavators and transport plant to be used.

All this helps to provide more competitive construction solutions.

We utilise the client's HANSEN asset management system on this contract to manage the contract work flows and to record all maintenance and costs against the respective assets using Fulton Hogan field technology. We also meet regularly with customer services staff to address any customer concerns that may be evidence of impending service problem areas.

We have worked closely with the Council in its drive to reduce the impact of wet weather overflows by capturing critical information (photos and video) during storm events. These insights allow the Council to focus their resources on the areas where the greatest gains in environmental improvements can be made for the funding envelope they have available in any one year.

| OBJECTIVE <b>Efficient, compliant 3 Waters operation and maintenance services for Gisborne ratepayers</b> |                  |                                                                                                                                                                                            |            |          |                                                                                       |
|-----------------------------------------------------------------------------------------------------------|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|----------|---------------------------------------------------------------------------------------|
| CONTRACT TYPE                                                                                             | CUSTOMERS SERVED | SERVICES                                                                                                                                                                                   | START YEAR | DURATION | LOCATION                                                                              |
| 3 Waters Operations and Maintenance Contract                                                              | 47,400           | Water, wastewater and stormwater pump station and network operations and maintenance. Wastewater treatment plant operations and maintenance. Capital renewal works. Treatment plant works. | 1998       | 21 years |  |

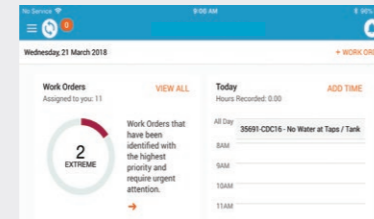
Gisborne, maintenance worker using tablet for real time activity reporting



# Leading the way with technology

At Fulton Hogan, we recognise technology is a critical enabler and informer for our clients in understanding the performance and costs associated with their assets. We regularly build and introduce sophisticated information technology to improve planning, delivery and the overall success of each project for our clients and our communities.

These are some of the technology tools we're currently using.



## IBM Maximo

Maximo is an industry-leading enterprise asset management system that lets us manage day-to-day jobs and workforce planning, costs and claims, planned and unplanned maintenance, and plant and linear asset capability.

Because it holds all asset and job information in a single centralised data repository, we get better data accuracy and availability and need fewer system-to-system integrations.

For a reactive service request, Maximo categorises the job, assigns the appropriate job plan and crew, notifies clients of the scheduled job date, monitors progress and sends alerts to management if a job is approaching a KPI limit.

For planned maintenance, Maximo generates a work programme by time frequency, usage meters or in response to alert trigger levels.

In the field, our Mobile Maximo app gives users job visibility plus travel time and materials used information.

Maximo aligns with the draft NZ Asset Metadata Standards and provides the database for 'whole of life' cost analysis of assets and networks.



## GIS Platform

Spatial platforms let our clients and operational teams analyse large amounts of data quickly. We can integrate with a client's GIS platform or clients can use our platform for benefits such as:

- Rapid data capture and visualisation of emergency events (loss of service, flooding etc).
- Identification of performance 'hotspots' which leads to faster issue resolution.
- Provision of real-time job information to customers and call centres.
- Loss of service visualisation through smart network connectivity.
- Collecting 'as built' data in the field which improves utility records and reduces risks of service strikes.
- Interfacing with eRoads to manage crew safety and improve work dispatch.

Our clients find that access to this level of detail optimises their operations and maintenance programmes, while improving their service to homeowners and businesses.



## Poseidon

Poseidon is a reporting and business intelligence platform that can be tailored for each client. It can provide data analysis capability across multiple data sources, including jobs, assets, customers, safety, and financial systems to offer near real time information on contract cost and performance.

We can use Poseidon to create bespoke queries of contract data sets to identify opportunities to improve whole of life costs and improve maintenance strategies. Our goal is always to bring value to the client.



## IT integration and support

While we provide a standard IT toolkit to our clients, we are experts at interfacing with third party systems. Our experienced IT staff understand the value of good data to support robust investment decision making and have the expertise to build the right integration tools for every situation. Our experience in building the systems for SCIRT (after the Canterbury earthquakes) and NCTIR (after the Kaikoura earthquake) is testimony to our team's ability to deliver successful, cost-effective IT solutions quickly.



## CCTV capability

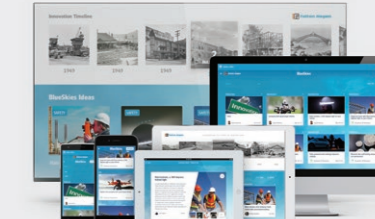
CCTV lets us give developers and councils the visibility and information they need to be sure that storm water or sewer pipes are compliant and it helps with programming forward asset renewal programmes.

A trained operator gathers real time imaging from a camera on a motorised trolley that can travel the length of the pipes.

The camera can show 360 degree views if necessary while the operator offers commentary so that clients can observe:

- The quality of joints.
- The cleanness of pipes.
- Quality control of any newly installed storm water or sewer pipe system.

All inspections are graded in line with the NZ Pipe Inspections Manual. Clients receive information as soon as inspections are completed enabling informed decision making in shorter time frames. This leads to reduced interruption to services.



## Mobile apps

We've developed mobile solutions and applications to improve our field team's access to systems and industry knowledge.

**Contract Workspace** – this platform lets us develop and share information with wider contract/project teams and with clients. It improves documentation control, knowledge transfer and access within a secure cloud-based platform. The result is better overall communication and lower administration costs.

**Skills View** – this app summarises the competency and training of all employees and helps supervisors get the right person on the job first time.

**Know How** – this app shares short safety refresher videos that are presented by expert field staff. Important safety notices and alerts are also available. Frontline staff find these presentations very useful to reinforce risks in critical safety areas.

**MyVoice** – this is our health, safety and environmental case management system that captures opportunities for improvement. Staff can quickly input:

- Leadership actions.
- Stay Safe Engagements.
- Incident or near miss reports.
- Appreciation for something good.
- Ideas for improvement.



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