

# Kaitiaki Wai

Wellington Water's magazine  
Spring/Summer 2020-21



**Wellington  
Water**

Our water, our future.



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*Photo left: 'Wise Old Owl' by Wellington Water's Accounts Administrator Dileepa Amali.  
Photo above: The owl was made with paper on foam board.  
Cover image: Water service person Robbie Miller*

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KIA ORA

# Working Together

By Colin Crampton, Chief Executive, Wellington Water

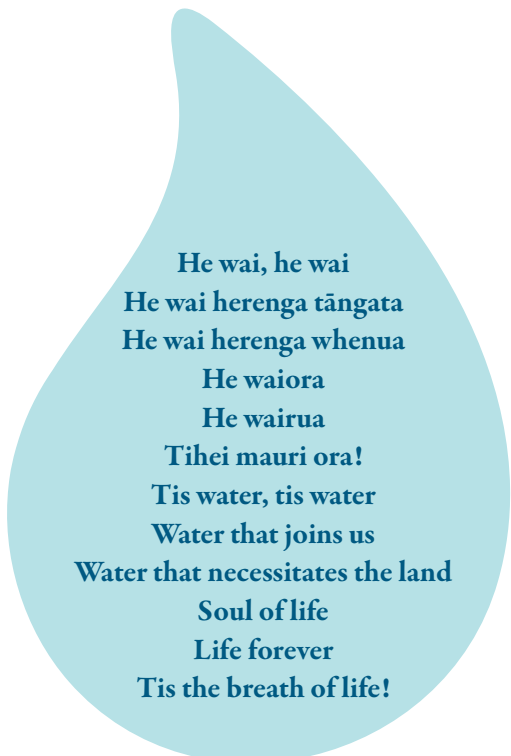
The arrival of the equinoctial winds signal the arrival of spring in Wellington. And spring starts you thinking about the arrival of the balmy weather we get after the New Year. I don't know about you but if the weather's good you'll usually find me in or on the sea somewhere, swimming or kayaking. Wellington harbour offers a great nature experience with good beaches but also enough wildness for some of our native sea birds to have enough solitude to flourish.

To keep our harbour clean and in a good state we have to think about our impact on the waterways that lead to the sea. Being a tidy kiwi with your litter, keeping an eye your local sump grate and clearing it regularly (where it's safe to do so), and washing your car on the grass or at a car wash are good starts.

The not-so-well-known problems are that our pipe networks can also lead to pollution in our waterways and in the sea. Stormwater pipes convey pollutants to the sea from our streets and in some cases convey E.coli to the sea from leaking wastewater pipes. Some of our wastewater pipes were put in the ground a long time ago and over time they can separate, or tree roots can prise them apart. These pipes don't like earthquakes either as there is nothing really holding them together. So when you add all this up, there is decent amount of E.coli in our streams, rivers and the harbour. We want to fix this. And we're going to need community help – more on that later.

Our council owners have funded what we call "roving crews" and these will be out working on our networks from early in 2021. They will systematically inspect, camera or smoke test the wastewater pipes, catchment by catchment, working out where all the problems are. Then we can start to figure out how to slowly, over future years, make our networks and your home pipes watertight so the leakage reduces and water quality improves.

Wellington Water, on behalf of our councils, will address the pipes under the streets leading to the wastewater treatment plants. But we need communities to help us with their pipes at home. It is estimated that up to 50% of the problems with



**He wai, he wai  
He wai herenga tāngata  
He wai herenga whenua  
He waiora  
He wairua  
Tihei mauri ora!  
Tis water, tis water  
Water that joins us  
Water that necessitates the land  
Soul of life  
Life forever  
Tis the breath of life!**

our leaky pipes are actually on private properties, and probably most people don't even know. Well, our "roving crews", with community permission, will inspect pipes and find out their condition. When residents find out their own pipes are leaking, they arrange to fix the problems straight away.

So if we all work together, councils, Wellington Water, communities and our "roving crews," we can begin the long slow journey to improving water quality throughout the Wellington region. And if we have good water quality then all of our well-being and our beautiful natural landscapes will be better off. That's something worth working together for in my opinion.

**ABOUT  
PRINT A.**

As passionate about the environment, as we are about our products and service.

We're proud to print Kaitiaki Wai on behalf of Wellington Water. We take true ownership of respecting and reducing our impact on the environment, by ensuring our product can be recycled and re-used as well as the equipment we use.

This magazine is printed on paper that comes from the only merchant in NZ to have Enivro-mark Gold

certification under NZ's leading environmental certification programme. We align with the Fuji Xerox Product Stewardship Scheme; the first in our industry to be accredited by the Ministry for the Environment, and achieves a re-use and recycling rate of over 99.5% for equipment we use.

# 'Keyhole surgery' rejuvenates 90-year old stormwater chamber

By Stephen Molineux, Senior Environmental Engineer and Deputy Team Lead, Connect Water

Six metres beneath Aro Street in Wellington there sits a 1930s brick stormwater chamber that collects gravel from the Polhill Reserve and Holloway Road streams. The gravel is collected to prevent it from entering the pipe network, and was historically cleared out of the chamber annually, in a risky and time-consuming operation.

Wellington Water engaged Connect Water to undertake a seismic assessment of the ageing chamber and then upgrade it. The site presented a number of challenges, including:

- hazardous confined spaces and a working at heights hazard within a potentially unsound structure
- several high-voltage cables, trunk water mains, gas and fibre optic cables located over the brick arched roof
- traffic management around the site on a busy road
- groundwater seepage
- limited access for concrete pouring
- installation of a weir and bypass pipes through the chamber to control the flow of incoming water during strengthening.

Initially, it was expected that sheet piling would be used to allow the removal of the brick arched chamber roof for strengthening from the inside, but the number of service lines over the roof ruled this out. The solution was to cut a hole in the roof to allow the installation of internal braces. Once the roof was strengthened, the hole was enlarged to complete the works. The operation could be described as seismic strengthening via keyhole surgery.



*The 1930s Aro St stormwater chamber full of gravel prior to its annual clean out and the upgrade carried out by Connect Water.*



*Temporary supports were installed to support the chamber roof during the upgrade.*



*The chamber after seismic strengthening and functional improvements. It will need to be cleared of gravel once every very two or three years now, rather than annually, and will be much safer for workers.*

Throughout the project, Connect Water developed an excellent understanding of the operational challenges Wellington Water faced cleaning the chamber, which required the construction of a temporary weir within the incoming pipe, from inside the chamber, along with a temporary flume through the chamber into the downstream pipe.

This process was extremely difficult, slow, and exposed workers to significant confined space hazards, reflected in Wellington Water's budget of \$50,000 and five days' work to clean the chamber annually.

Connect Water recommended three operational improvements to the chamber while strengthening it:

1. Enlarging the access chamber lids to improve access and safety.
2. Installing a penstock and bypass pipe to shut off water into the chamber, thereby avoiding the need for workers to enter it to set up a temporary weir and flume during cleaning.
3. Improvements to the intakes at Polhill Reservoir and Holloway Road to reduce the volume of gravel accumulated and reduce the regularity of cleaning.

Seismic strengthening of the brick chamber will greatly increase its resilience and the improvements carried out during strengthening will reduce the frequency and duration of cleanouts. Previously an annual task, it will now be carried out every two to three years, and the time spent on site will be reduced from five days to three, as the construction of a temporary weir and flume will no longer be required due to the new penstock. This will provide operational savings of approximately \$30,000-\$40,000 per annum. In addition, the upgrade will significantly reduce traffic disruption and, most importantly, make future cleanouts significantly safer, as entry into a difficult and dangerous confined space will no longer be required.

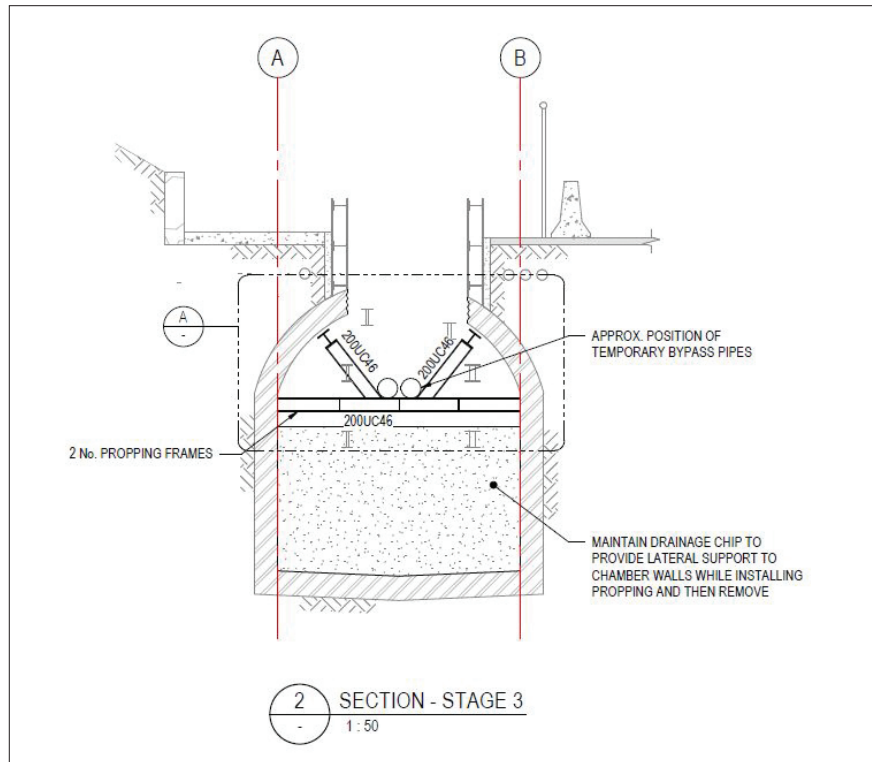


Figure 1: A cross-section view of the 'keyhole' entry into the stormwater chamber.

This will provide operational savings of approximately \$30,000–\$40,000 per annum.



The first 'keyhole' being cut into the brick arched chamber roof. The entire roof could not be removed because of service lines in the area.



The enlarged chamber lid and penstock in operation. Due to space restrictions above the chamber, the penstock has to close upwards rather than downwards as they typically do when shutting off water.

# New Porirua wetland to clean and manage stormwater

By Alannah Clark, Water Engineer, GHD



Alannah is an intermediate level water engineer at GHD. She has enjoyed contributing to a wide range of projects, from three waters renewals, to water and wastewater treatment projects. She is passionate about equitable access to clean drinking water and sanitation, and reducing the environmental impact of the three waters services.



*An artist's impression of the wetland in Porirua CBD when completed: a sustainable, environmentally sensitive and cost effective stormwater management project that also connects the community to a green space.*

In May 2015, Porirua experienced a 1-in-100-year storm event. At the peak of the storm, 33.6 mm of rain fell in 30 minutes, causing millions of dollars in flood-related damage and disrupting the lives of residents and business owners in the region. While the 2015 flood was severe it was, unfortunately, not the only flood in recent history. Parts of this catchment are regularly inundated, and the flooding is expected to

get worse in coming years as a consequence of climate change and continued urban development.

Flooding is not the only challenge in this catchment. Every time it rains, contaminants are washed off the road, industrial sites and homes. These pollutants make their way into the stormwater network and out into Te Awarua-o-Porirua Harbour to negatively impact its health and the health

of those who interact with it. The harbour is the largest tidal estuary in the lower North Island and is of fundamental ecological, cultural and economic importance for the region. Improving the harbour's health is a major driver for Porirua City Council, and is one of four long-term priorities shaping Council expenditure over the next 10-20 years.



*An overview of the Awarua wetland being constructed in Elsdon Park, Porirua. It will combine water sensitive urban design with large scale traditional infrastructure to greatly improve stormwater management.*

GHD Ltd and Morphum Environmental Ltd were engaged by Wellington Water in 2017 to deliver the Porirua Central Stormwater Upgrades project. This is a suite of works aimed at improving stormwater outcomes in Porirua. The first stage of this project focuses on stormwater infrastructure in Takapuwhia and Porirua CBD catchments. The surrounding catchments will be addressed in later stages of the project.

Using knowledge of the existing stormwater network, site constraints, known flooding issues, and Wellington Water stormwater modelling outputs, GHD and Morphum developed a plan to provide additional flood resilience for Porirua CBD and stormwater treatment for the Semple Street outfall. The upgrades included the construction of a new wetland area, a high capacity wetland bypass pipeline, and flood barriers to protect properties on Ngatitooa Street and Porirua School. The upgrades combine water sensitive urban design practices through the new wetland, with large scale



*The wetland will catch the first flush of stormwater events, which carry high levels of contaminants, particularly in run-off from roads. This by-pass main, due to be completed in March 2021, will divert remaining high volume flows away from the wetland to protect it from damage and potentially overflowing.*



traditional civil infrastructure. This provides a holistic stormwater management solution to reduce the risk of flooding, reduce contaminant loading, and provide an asset of value to the community.

The Awarua wetland, designed by Morphum, is a one hectare area designed to capture contaminants and improve water quality from the upstream urban catchment, prior to discharge into Te Awarua-o-Porirua. It can function under a range of flow conditions, providing treatment for dry weather flows, storage under higher flow conditions, and attenuation of flood waters.

The wetland will capture the first flush of storm events, which are typically highest in contaminant loading, containing toxicants from roads such as fuels, additives, oil, and brake and tyre residues. Remaining high volume flows will bypass the wetland to the new ocean outfall, to ensure the wetland is offline to these potentially damaging events. Wellington Water's stormwater models were used to visualise the benefits of the works prior to construction, through reducing "over-engineering" and optimising the size of the bypass main.

Not only will the harbour and people who directly interact with it benefit from the improvement in water quality provided by this new, innovative wetland, but the wider community as well. Extensive planting of native species will make it an attractive green space for recreation and enhance the urban habitat for native wildlife. Perhaps the most exciting aspect of this project is how it demonstrates that environmentally aware, sustainable and cost-effective stormwater design can connect a CBD to a green space.



A number of projects are underway to improve stormwater management in Porirua.



Landscaping will take place around March 2022.

## Key dates for the Porirua Central Stormwater Upgrades project:

- Bypass main construction began end of May 2020, estimated completion is March 2021
- Ngatitua Street flood protection works commence October 2020, estimated completion March 2021
- Porirua School flood protection works commence July 2021, and wetland works commence October 2021
- The wetland will be operational and landscaped around March 2022, with plants taking a few years to fully establish.

# One man's mission to clean up New Zealand's beaches continues

By Jim McNaughton, Wellington Water



*Des Watson passed through Wellington on his way to clean beaches along the Kapiti Coast and beyond.*

The December 2020 issue of Kaitiaki Wai featured a story about Des Watson, a man from Rarangi Beach, near Blenheim, who decided to spend a small inheritance on a trailer so he could travel around New Zealand beaches picking up rubbish, and raise public awareness about the magnitude of the problem as he went.

Last October, after speaking to us, he headed off to tackle the rest of the North Island—a mission documented on his Facebook page, Kiwis clean Aotearoa.

He worked his way around Cape Palliser and then on to Castlepoint. From there, he travelled up to Hawkes Bay and found a lot more litter than he had on Wairarapa beaches. After a tough stint, he realised he needed a wellbeing break and headed across to Raglan.

‘Your choices impact our waterways: Des’s Facebook page, Kiwis clean Aotearoa, documents his massive cleaning and awareness-raising effort.’

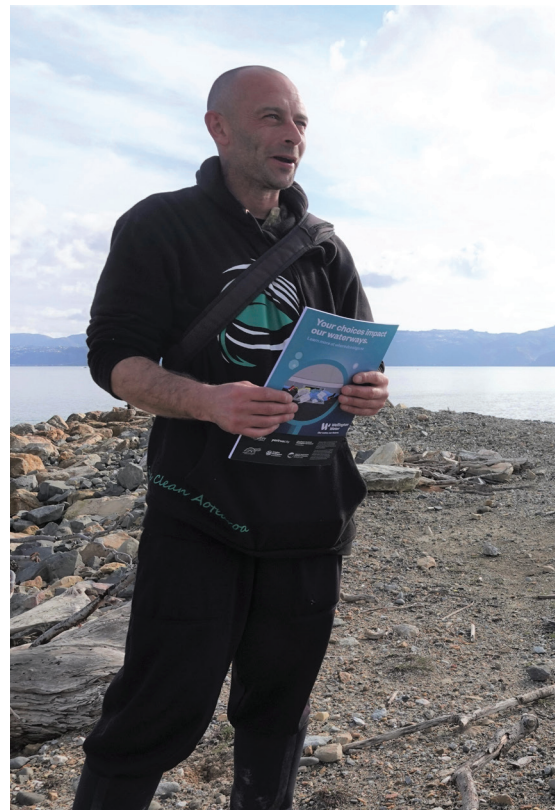


*Des Watson at work on Petone Beach in October 2019*

Covid-19 forced a change of plan. With Alert Level 4 looming, he'd left Raglan and gone home to Rarangi Beach for the lockdown.

Des returned to Wellington in June, and was cleaning a beach in Seaview when we caught up with him again. He looked fit and well but said that returning to Wellington had been a bit confronting. "I feel I could spend my entire life cleaning up the harbour beaches alone. There's so much micro plastic around Seaview Marina rock walls. Some of the plastic just breaks up in a cloud in my hand and I have to hold my breath to stop breathing it in. I've been picking up a thousand pieces a day here."

He led me to a small beach near the sea wall and started picking through the sand. Seeing the amount of plastic fragments he found in a square metre was eye-opening, and spoke to the huge numbers of plastic and micro plastics reported in the sea—a study in 2015 estimated about 150 million metric tons had accumulated in the world's oceans. Assuming business as usual, that amount is estimated to grow to 600 million metric tons by 2040. "Micro plastic is getting everywhere," Des said. "You have penguins, whales, dolphins, orca, kai moana here in Wellington. It's not a healthy combination."



*Your choices impact our waterways: Des's Facebook page, Kiwis clean Aotearoa, documents his massive cleaning and awareness-raising effort.*

Des said Hutt City Council's initiative to install litter traps in street drains in commercial areas, to catch litter before it enters the stormwater network, was great to see. "It'll help a lot. Good on them."

While Des sees consumer behavioural change as vital to reducing litter, he believes the heart of the litter problem lies with plastic packaging. "I'd like to see consumers have a lot more choices around product packaging when they walk into a supermarket. There's way too much single-use plastic. Supermarkets and the whole industry should be more responsible. They're not making the right choices for our planet, so they need to be regulated."

Des said that consumer choice drives change, and that people should be thinking about what they throw out. "I've picked up hundreds of straws. If people really need a straw, they can use a biodegradable one. Getting takeaway outlets to go biodegradable would be fantastic, too, because those straws are more likely to end up in the stormwater system." He recommends straw-makers, Straw the Line NZ [strawthelinenz.co.nz](http://strawthelinenz.co.nz) and, back at his trailer,

he gave the community engagement team a few samples. We're pleased to report that the straws work perfectly and that kids love them.

"I'm trying to look on the positive side," Des said. "Make some noise, and hopefully people will listen."

**I'm trying to look on the positive side," Des said. "Make some noise, and hopefully people will listen."**

Des supplies a key-ring maker in Christchurch with hard plastic he picks up, and is collecting bread tags for the community organisation, Bread Tags for Wheelchairs

NZ, who facilitate the sale of products made of recycled plastic tags to fund wheelchairs for people in need. [facebook.com/nzbreadtags](https://facebook.com/nzbreadtags)

He adds his plastic tally to Raglan Food Co's 1 Million Pieces of Plastic project [raglanfoodco.com/1-million-pieces](https://raglanfoodco.com/1-million-pieces). "It's really good to feel you're part of a bigger movement," he said.

Next are the beaches of Kapiti, then Taranaki and across to East Cape before heading further north. He'll be picking up rubbish six hours a day for the next few months. That's a lot of rubbish. "The thing that really keeps me going is the people of Aotearoa. Their amazing support and generosity are inspiring"



Straw the Line's raw straws are 100% biodegradable and come in eight colours.

# Assessment of drinking-water reservoirs boosted by underwater ROV

Wellington Water has purchased a Deep Trekker underwater remotely operated vehicle (ROV) for the ongoing inspection programme of its 150 drinking-water reservoirs located in Lower Hutt, Porirua, Upper Hutt, South Wairarapa and Wellington. Weighing only 8kgs and operating for up to 8 hours on its battery, the ROV shoots high-res video and can operate to a maximum depth of 200m. Hamish Black, advisor, smart services, for Wellington Water, said the ROV was easy to operate and provides great low light images for inspections.

Previously, the internal condition of a reservoir was often largely unknown prior to draining it for inspection, cleaning and maintenance. Hamish said that meant the costs and time needed to get the reservoir back in service were also largely unknown. “Not only does the ROV lessen the amount of time a reservoir is out of service for maintenance, it helps a lot with prioritising work and budgeting.”

Drinking-water reservoirs are currently on a 20-year maintenance programme. “The problem is that

you don’t know what you’ll find,” Hamish said. “The ROV means we’re not going in blind when we let a reservoir drain down for maintenance. We know the size of the job beforehand and can prepare for it.”

Underwater ROV inspections have been completed by contractors in the past but the high cost has meant they were mainly used to diagnose a known issue. “Now, with the ever-decreasing cost of technology, the ROV has become cost-effective, and we can run a full programme of inspection in-house.”

Divers have also been used for assessments in the past. “Diving in a reservoir tank is a risky activity and the logistics are complicated. ROVs are much safer and easier to manage.”

Hamish said the ROV’s efficiency means Wellington Water will be able to step up the reservoir assessment and maintenance programme. “The ROV reduces the amount of time reservoirs are out of service because it allows us to prepare in advance, helps us prioritise work, budget accurately, and keep people safe for assessments—and save money. It’s an awesome tool to have.”



*The underwater ROV about to dive on a reservoir inspection. A 100m signal cable is needed for the largest tank reservoirs.*

# Collaborating for customers, community and cost

## By Michelle Guest

Our Consultant Panel, made up of Stantec, Connect Water and GHD, was established four years ago as a collaborative model to deliver greater value-for-money outcomes for customers.

Typically competing in the same market, our panel consultants work together instead, sharing jobs according to capacity, resource and skill. And on the rare occasion when it's necessary to tender, the process is straightforward.

**A 250% time saving and 70% cost saving on the traditional approach.**

Notwithstanding project allocation, our consultants do the job with Wellington Water's service goals and customer outcomes firmly in mind.

The introduction of the panel model brought fundamental shifts that go beyond relaying cost-savings, such as the move from single, unconnected or disconnected jobs to planning for the future with a regional perspective. The panel can impact projects before those projects are fully defined, and this is enhanced by bringing in wider expertise and disciplines from resource management, planning, geotech, transport, and environmental services. These different perspectives combine to find the best outcomes for the community and value for money methods.

Moving from a transactional to strategic model has given our consultants licence to work in pioneering ways and strengthened our relationships and trust. Consequently, the panel has acquired extensive knowledge and developed ways of working that have led to the generation of greater than anticipated value-for-money initiatives.

## Flood Risk Survey Tool

We recognised the need to identify all Wellington City properties at risk of flooding to help appropriately prioritise investment. So we approached our panel to come up with an alternative to the traditional on-foot collection methods that can be expensive, time consuming, and sometimes intrusive for residents. Our Network Engineering Team worked with Stantec to collect property information. By using models created by the Modelling Team, combined with open source data from Land Information New Zealand, they came up with an innovative online flood risk survey tool called the Visual Property Assessment Tool. This web-based tool allows users to easily find properties identified as being at risk of flooding and view them both in map and street view.

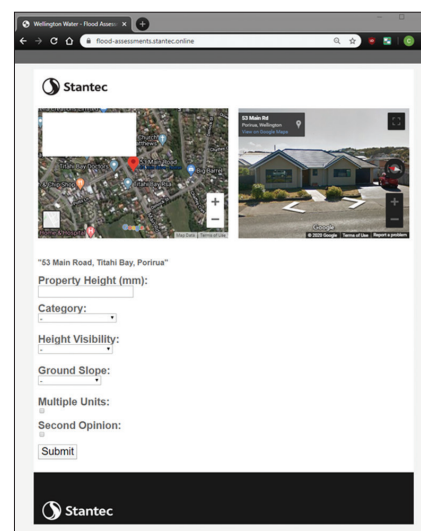
The project was largely desktop-based and supplemented by on-foot collection methods where street view imagery was obscured and it was difficult to collect information on ground floor height, property use and ground slope.

It was a huge success. Flood risk information for nearly 7,000 properties

was collected by five users in a two-week period, which represented a 250% time saving and 70% cost saving on the traditional approach. Furthermore, the tool reduces our carbon footprint, as well as the health and safety risks associated with having staff out in the field for long periods of time.

The flood risk tool enables users to record property information, such as confidence levels on the data collected based on property visibility. Of the 7,000 properties surveyed, users were confident that 80% of houses captured had complete or partial visibility.

We are using this flood assessment data to develop a prioritised programme for future investigations and design for flood reduction solutions. Because the process uses nationally consistent and open-source data sets, the tool can be easily applied across the region.



*Assessing properties for flood risk from the office rather than the field resulted in considerable time and cost savings.*

# Growing dunes with native species



*A few years ago, Petone Beach was pretty bare. With few plants to hold the dunes together, they were eaten away by storms and high tides, and blown away in the wind.*

In the mid-eighties, Friends of Petone Beach was formed as part of plans to beautify Petone. In 2004, with support of Hutt City Council, the Petone Dune Restoration Project kicked off and has seen the extension of dune formation all the way along the seawall between the Wharf and Jessie Street.

Dune restoration started with the planting of pingao, a native golden sand sedge only found in New Zealand, and spinifex, a silvery sand grass. These species help trap blowing sand allowing the formation of dunes.

In August, a group of Wellington Water staff popped across the road to the Petone foreshore, where we supported Friends of Petone Beach for a planting day. This was the fourth year Wellington Water has pitched in with planting.

The event organiser, Graeme Lyon, had about one hundred native pingao and muehlenbeckia (pohuehue) plants, donated by Hutt City Council, to plant along the back of the dunes.

“This was the fourth year Wellington Water has pitched in with planting.”



*Graeme Lyon giving Wellington Water staff a quick lesson in planting mingimingi.*



*Native plants create prime habitat for our native wildlife, as well as protecting the shoreline from coastal erosion.*

The plants were cultivated from seeds collected from Petone Beach by Hutt City Council Reserves Community Ranger, Riba, in December and January. Riba said she sends seeds for propagation to the Coastlands Nursery in Whakatane, which specialises in dune plants. "Using natives grown from seeds in the region means the plants have a better chance of surviving as they are genetically adapted for that specific environment."

Graeme said the plants were critical in protecting the dunes from storm surge damage and rising sea levels, reducing the amount of sand blown onto properties along the beachfront, and restoring the native biodiversity.

He said that natives have a functional advantage, too. "Natives, such as pingao, which is endemic to New Zealand, make a more resilient beach than exotic species. The natives catch the sand and make dunes for waves to roll over. An exotic like marram grass tends to make a shelf in the sand, which gets undercut by waves in storm surges."

Other species planted behind the fore-dunes

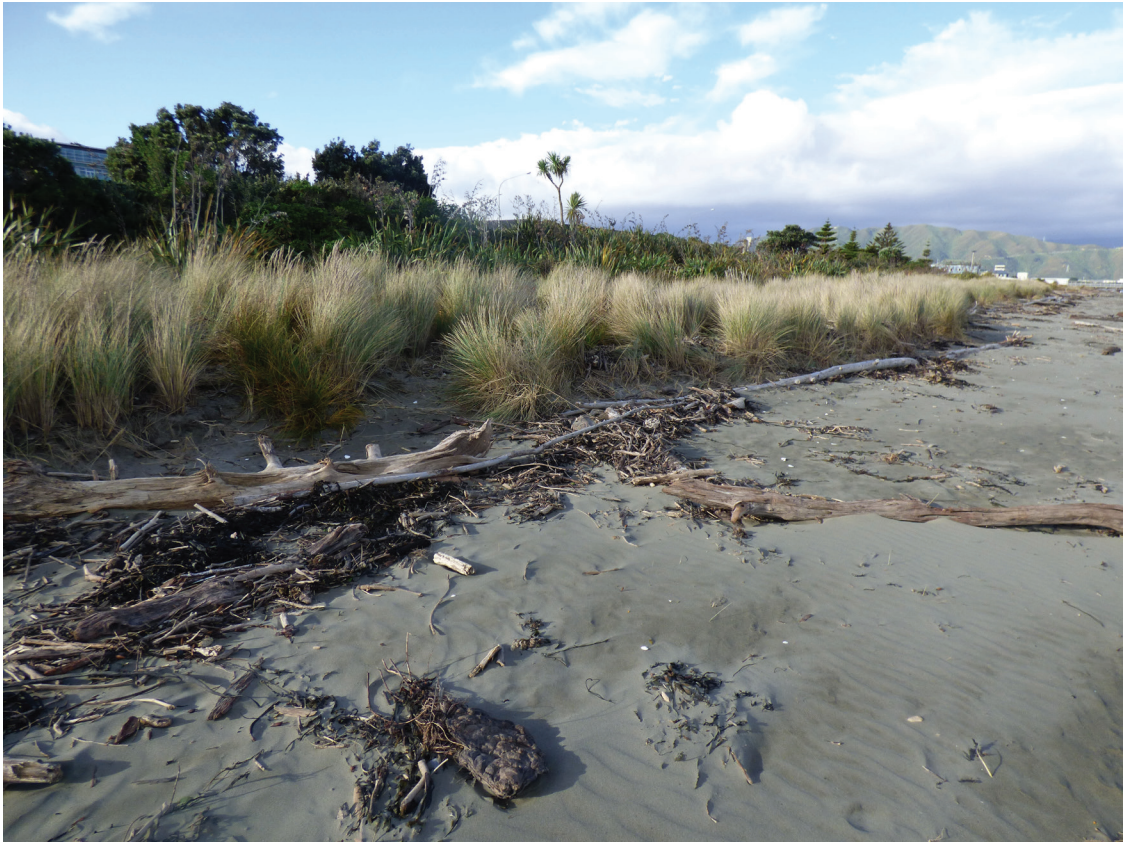
include bidibid, tauhinu, flax, coprosma solandri, pohuehue (wire weed) and knobby club rush.

Graeme has been active on the beach since 2006 and estimates the group has planted about ten thousand plants over the years. Aside from planting, The Friends of Petone Beach work hard to eradicate foreign weeds such as gorse, broom, marram and other plants which have blown in. They also do regular weeding and rubbish removal.

If you're interested in helping out, work parties are usually held on the first and third of the month on a Thursday morning, starting at about 9am, and finishing before noon. Meetings are usually near the wharf. For further information, contact Graeme Lyon on (04) 938 4583 or email [lyonpetone@gmail.com](mailto:lyonpetone@gmail.com). Meetings are weather dependent and Graeme will send a group email to let everyone know if there's a cancellation.

For people who want to help out on weekends, Tui Lewis has a group that meets on the first Sunday morning of every month. Meet near Patrick St at about 9.30am.





*Taken two years apart, in March 2017 and March 2019, these photos show marram grass replaced by native pingao, and illustrate how the native species enhances dune formation.*

# High stakes on Wellington's South Coast

## Sludge trucks prevent an ecological disaster

'Sludge' is the term for the solids produced from the wastewater treatment process. More than a million litres of sludge per day is usually piped 9km from the wastewater treatment plant at Moa Point to Carey's Gully sludge dewatering plant at the Southern Landfill as a slurry. Once most of the water is removed, about 45 tonnes of solids are buried in the landfill and the water returned to Moa Point via the wastewater network.

Two high-pressure pipes normally work together in a primary and back-up combination to carry that sludge from Moa Point to the landfill. When both pipes failed deep under Mt Albert in January 2020, an ecological disaster loomed. Because the pipes were not accessible for immediate repair, this sludge threatened to overflow from Moa Point and discharge into Cook Strait.

While the sludge pipes are encased in concrete so the flow was contained, and the Moa Point plant had capacity to store several days of sludge overflow, it was urgent that trucks start running the sludge to landfill—with great care on a narrow winding road.

From 23 January until 24 May 2020, when the sludge-pipes were repaired, the slow and steady procession of sludge trucks averaged five trips an hour, 24 hours per day, seven days a week along the narrow and winding coastal road, without a single major incident.

The operation may not have looked—or smelled—like success at the time, but the pressure to truck the sludge in trucks was unrelenting and the stakes were high. To prevent an environmental



Wellington Water's Chief Executive Colin Crampton with Dave Neru of Hydrotech, Derek Falvey of treatment plant operator Veolia, and Wellington City Councillor Sarah Free at an event to celebrate the completion of the successful trucking operation.

disaster that would adversely impact the health of local marine life and safety of local beaches, drivers had to transport up to 1200m<sup>3</sup> (1.2 million litres) of sludge every 24 hours from Moa Point to the landfill, a distance of approximately 13 kilometres.

Dave Neru of Hydrotech, who led Wellington Water's trucking operation, said that the route was very challenging. "It's a narrow and windy road popular with beach goers, surfers, cyclists and scenic drivers. It's also a bus route with bus stops in live lanes, and on top of that, an exposed coastal environment prone to wild weather."

Dave said the operation needed the right people. "They had to have experience in the sewer industry and have local knowledge. They needed to be able to work in a collaborative environment,

focused on clear objectives. And they had to be prepared for the commitment and demands required of a 24/7 operation."

Lots of things had to come together for the operation to succeed, including the inclusion of all stakeholders and supporting experts from NZTA, Wellington City Council Roding and the Southern Landfill in the planning of the operation. Adaptation to change had to be swift and any new risks identified quickly, and measures put in place. A high level of planning and preparation were necessary, as were constant reviews on performance and information.

Dave said that looking back, the operation was an amazing feat. "We averted a disaster. The operation was a successful, extended marine environment rescue mission, and I'm proud to have been a part of it."



The operation's health and safety standards were of a level that meant no changes were required when Covid-19 lockdown was imposed.



The scenic south coast is popular with drivers, cyclists, runners and surfers, and features a marine reserve.

### Some Statistics:

- The operation ran for 123 days or four months and two days
- 165 people worked in the operation
- 128,814m<sup>3</sup> (129 million litres) of sludge were moved, the volume of 51.6 Olympic swimming pools (on average 1050m<sup>3</sup>/day)
- 27,670 truck movements
- 332,040 kilometres travelled (or 8.2 times around the circumference of the earth)
- On average five trucks per hour, 24 hours a day, seven days a week.

# Dr Michael Taylor

## A Tribute to a Man Who Changed the Water Industry

On 3 August 2020, Dr Michael Taylor died peacefully in Waikanae, aged 90. Dr Taylor changed the way that drinking water is managed and made safe. His initiatives set the platform that enable New Zealand to now address significant regulatory reform of the water industry.

I had the good fortune to be asked to contribute to some of his many initiatives over the last 25 years. During that time I came to admire his intellect, his personal drive and his commitment to public health. He earned respect but didn't command it, and he never gave up trying to change things for the better.

For those who don't know Dr Taylor's work, here are a few of his accomplishments for the Ministry of Health:

- Drinking water standards that water suppliers are required to follow.
- A drinking water amendment to the Health Act that requires compliance.
- Water safety plans to address drinking water risks.
- Drinking water assessors who can audit and check suppliers, water quality testing and risk management.
- Approved treatment methods to take care of giardia and cryptosporidium.
- A national environment standard to protect water sources that are used for water supply.
- Government subsidies (\$50,000,000) and training schemes to support upgrades to small water supplies in communities that couldn't afford them.

Much of this work was done at a time when water suppliers were operating under the misconception that our water sources were perfectly okay and didn't need full treatment. Michael foresaw the inevitability of a crisis such as the campylobacter outbreak which occurred in Havelock North in 2016 and had to fight against naysayers to get standards and legislation adopted.

“He earned respect but didn't command it, and he never gave up trying to change things for the better.”

I remember in particular a meeting of local government engineers. I had been asked to accompany him to support his approach to new drinking water legislation, and the room was full of doubters. After the meeting we discussed how he was ever going to change their minds, and whimsically agreed that the only thing that was going to do that was a disaster.

Dr Taylor didn't give up. He did succeed. I am in awe of this man.

**Rob Blakemore**

*Chief Advisor, Service Planning*

*18 August 2020*



*Dr Taylor was the founding father of drinking water standards in New Zealand*

# Wellington's evolving wastewater systems

By Cindy Jemmett – reprinted with permission from Engineering New Zealand's quarterly magazine, EG, March 2020



Wellington harbour c. 1900, with the Wellington City Council Destructor visible right of centre. Image: Alexander Turnbull Library, Ref: 1/1-011944-G.

## A problem with wastewater

In the second half of the 19th century, Wellington had a growing problem with wastewater. By the end of the 1860s, the population was almost 7,500 and by the mid-1870s, it exceeded 10,000. Water sources were contaminated and disease was rife.

There were only rudimentary systems for the removal of effluent. Night soil, as it was called, was collected by “night men” with horse and cart and taken to manure depots located in valleys on the outskirts of town. For wealthier citizens, a water closet allowed them to flush their waste away into open drainage ditches and streams where, along with stormwater, it flowed into the harbour.

Businesses such as cattle yards also discharged their waste into the streams. Such was the state of the waterways that the council installed street lighting to stop residents falling into this polluted water on moonless nights.

Businesses such as cattle yards also discharged their waste into the streams. Such was the state of the waterways that the council installed street lighting to stop residents falling into this polluted water on moonless nights.

In the 1870s, it was believed that disease was spread by noxious vapours. The link between unclean water and disease was hypothesised, but until 1884, remained unproven. To solve the problem of the city's wastewater would take not only engineering skill, but political will and buy-in from ratepayers.

Understanding the story of these streams and the history of the development of our sewerage and stormwater infrastructure allows engineers to better envision the next chapter in their story.

The council commissioned two different plans for a wastewater system in the 1870s, but the cost of constructing such infrastructure was considered too high. Prominent businessman John Plimmer dismissed concerns about polluting the harbour and further moves towards the development of a wastewater system stalled.

In 1890, 77 people died from typhoid, cholera and other waterborne infectious diseases. The council could delay no longer. They commissioned engineer Harry Pasley Higginson to design a wastewater system. Construction began in 1892 and by 1899 the system was operational.

Sewage now flowed through pipes under the city to the south coast, where it was discharged, raw, into

Cook Strait. (It would be almost 100 years before the Moa Point treatment plant was completed, in 1998.)

The new wastewater system used Shone ejectors to pump waste through the pipes and out to the coast. The power needed for this was generated by the municipal rubbish destructor which sat at Clyde Quay, where Waitangi Park is today. The destructor was a huge incinerator. Workers toiled in shifts, shovelling in a mixture of the city's rubbish and coal. The wastewater system was electrified in the 1930s and the destructor closed in 1946.

## New directions

In the 19th century, the polluted state of Wellington's streams saw them banished below ground. The development of a contained wastewater system was a health revolution.

Today, the separation of our stormwater and wastewater is an opportunity to rediscover our urban streams, natural water courses that were once abundant with a range of freshwater species and were an important social, cultural and economic resource.

Understanding the story of these streams and the history of the development of our wastewater and stormwater infrastructure allows engineers to better envision the next chapter in their story. Uncovered streams can become the focal point of inner-city recreation spaces, enhancing the liveability of our cities.

Wellington Water's chief advisor, stormwater, Ben Fountain says the protection of public health is Wellington Water's main driver, but communities also expect services will enhance the natural environment and be resilient to earthquakes or the impacts of climate change. He says: "We are entering an era where significant proportions of the original three waters networks in the Wellington region will be replaced. This presents an opportunity to repurpose and transform our services to deliver on what our communities now value and to meet the needs of future generations that will inherit the decisions made today."

# Major infrastructure with minor disruption

Ramming a pipe casing 50m under a major intersection in downtown Wellington city without digging a major trench and disrupting traffic is just one of the impressive aspects of the Whitmore-Bowen Rising Main Renewal project.



*A new wastewater main is being installed in an area with heavy traffic and pedestrian flows.*

The project is an investment in new infrastructure for Wellington city's wastewater network – the first of a series of planned upgrades to improve resilience and capacity.

It introduces a new rising main, a pipe that conveys wastewater, under pressure from the Whitmore and Featherston intersection up Whitmore and Bowen streets to connect to the Interceptor Tunnel outside Bowen Campus.

To date, this seven-month project that started in August 2020, has been an exemplar of how collaboration, coordination and early community engagement can make an extremely complex and challenging project run smoothly.

It's a high-prolife area with Parliament, the Supreme Court, Victoria University, hotels and businesses within shouting distance of the worksite – and has heavy traffic and pedestrian flows.

Preparation for the works required a large joint communications effort with stakeholders. Engagement was initiated early to understand their requirements and build into the programme where practical.

“So far this project has been a fantastic example of how Wellington Water's consultant and contractor panels, Stantec and GP Friel Ltd in this instance, can work together through investigations and design to deliver a project, and the value that comes from early connection,” says Yassavie Sundarapperuma, Project Manager, Stantec.

Additionally, there are other construction works in the area including a significant development just 20m from the proposed connection to the Interceptor.

Wellington Water's combined consultancy/contractor team also worked in conjunction with Wellington City Council to minimise the effect of this project, and the other construction sites in the area.

“We aim to incorporate works of other sites into this project to allow for



*Multiple underground services are one of the complicating factors in the area.*

## “The project is an investment in new wastewater infrastructure for Wellington city's wastewater network.”

a single site, and reduced closure of lanes on Bowen Street for extended periods,” says Yassavie.

Other complexities include the multiple underground services in the area, reclaimed land, a high ground water table - and a connection to the critical main Interceptor.

Preliminary investigations involved

extensive ground penetration radar and potholing in 30 locations to find a viable alignment in this service-congested and traffic-heavy road corridor.

Stantec and GP Friel collaborated to determine the best methods of construction for sections of the pipeline which resulted in selecting pipe ramming for the Lambton Quay intersection.



This allowed for traffic flow in a key intersection including key bus routes minimising disruption to the public.

“It’s amazing to think that a critical component of this project has now been installed underneath the ground without digging any holes in this busy intersection,” says David Philipson, General Manager, GP Friel. “Traditionally this work would have involved at least four weeks of disruption to pedestrians and traffic. But trenchless methods, such as pipe ramming, are a great way of reducing disruption to the travelling public, minimising some of the risks associated with digging holes in busy streets and keeping our carbon footprint to a minimum.”

The team spent a week setting up the site for pipe ramming, excavating a 15m long, 4m deep launch pit from which to ram the pipe casing under the Lambton Quay intersection, and establishing a site in Bowen Street on the northern side of Lambton Quay to dig a receiving pit on the end of the newly installed pipe. Following this, the new rising main was inserted inside the casing.

With that work completed and the road reopened, following on from all the pipework having been installed across The Terrace intersection, the team moved on to the pipework at the Whitmore-Stout Street intersection.

They will also be connecting the pipe to the pump station at the Whitmore-Featherston Street intersection – which will need to be done during the night at low tide and when wastewater flows are low. The team has been working closely with neighbours, particularly the hotel, to ensure awareness of this work and noise controls are in place.

Stantec and GP Friel are also confirming the final design for the connection to the Interceptor outside the Bowen Campus – a technically challenging operation that the team is taking great care of to ensure the environment is protected.



*The site of the launch pit in Whitmore Street for the pipe-ramming operation beneath the busy Lambton Quay intersection.*



*Pipe-ramming in process in Whitmore Street. This trenchless technique avoided at least four weeks of interruption to traffic and pedestrians.*

# Lizard rehoming at Omāroro

Work is underway on excavating the site for Wellington’s new 35 million litre water reservoir in the Wellington Town Belt, which will double the city’s drinking water storage.

But some very delicate work has been undertaken before that can start with the rehoming of lizards that live in the vegetation around the site.

Wellington Water Major Project Director Stephen Wright says creating special new lizard habitats and capturing and relocating the lizards had to be done at the right time, after they came out of hibernation.

Four lizard habitats or ‘hotels’ were set up in an area overlooking the site during August by volunteers from the community and students from Wellington High School overseen by a team from the contractor HEB Construction.

Made of logs, soil and leaf litter, the habitats and the permit to relocate the lizards are managed by the Department of Conservation for the range of different species of lizards and skinks found in Wellington.

At the same time, Department of Conservation-approved ecologists set around 50 special lizard ‘traps’ in and around the reservoir site. These are very gentle traps, effectively small lined buckets buried in the ground covered in corrugated iron, which lizards can slip into but not be able to get out of. The traps were monitored daily.

Over a period of three weeks, a total of 27 lizards, including 26 Northern Grass skink, some of which were pregnant, and one Copper skink, were captured and rehomed in their new hotels. These habitats will be used to relocate any further lizards or skinks



*The new Omāroro reservoir site in Prince of Wales Park in the Town Belt. Lizards living in the area are being rehomed.*



*Lizards captured on the construction site (27 so far and counting) are being relocated to four 'lizard hotels' in the area.*

found during construction of the reservoir.

“It is important we protect the indigenous biodiversity and its habitat in the Wellington Town Belt while we build this crucial new piece of water infrastructure for Wellington city,” said

Stephen Wright.

Overall improvement to the environment through landscaping and working with the community has also been an important part of this project, he explained.

“During September, prior to



Northern Grass skink



Copper skink



Raukawa gecko

vegetation clearance of the reservoir site, members of the community also gathered on Saturday to collect trees, shrubs and ferns from the site for transplanting elsewhere in the Town Belt.”

Since then HEB crews have cleared vegetation and fenced the site, along with completing a range of other site preparations including creating 11 new residents' carparks at the top of Rolleston Street and a new pedestrian path connecting Rolleston to Hargreaves Streets.

Russell Obee, Contractor Community Liaison Person for HEB Construction, said he is always looking for ways to involve the community. “A potter was pretty happy to receive two wheelbarrows of clay from us the other day. And we donated a pile of woodchips for a nearby garden. Things like that. The Community Reference Group help keep an eye on things as well. A fresh set of eyes is always useful.”

Other key areas of work have included completion of the upper field sediment pond to capture any runoff from the site, setting up the site compound on the upper field, and creation of silt fences to protect Papawai and Waitangi streams.

Paul Reid, HEB Construction’s manager for the project, says protecting the environment is an inspiring and rewarding part of the project.

“Looking after the environment is really important to us the contractor on this project. We are very proud to be doing this work on behalf of Wellington and Wellingtonians.”



The upper field sediment pond shown here is one of two ponds that will capture runoff from the excavation. Once sediment has settled, the water collected will be used for dust control on site.



It's a great site! The new reservoir will be buried here so the park can remain a green space for the public.

# ‘Trickle, minor leak toby’

By Jim McNaughton, Wellington Water

## Job #1

The job description was ‘trickle, minor leak toby.’ I accompanied Water Service Person Robbie Miller to find out what fixing such a thing would involve.

We pulled up at the address in the truck and saw water trickling from the toby cover on the pavement. Robbie used a sponge to soak up the water filling the chamber. A ball valve was revealed, an on-off valve simpler than a tap-like toby and an unlikely point of failure, he said. The ground around the ball valve would have to be dug up. He told the resident their water would be turned off and got to work.

As he set up the safety barriers, leaving enough room for a wheelchair to get past, Robbie nodded to the day care centre at the end of the street. “We won’t be able to turn the water off in the street today, so I might be getting wet.”

In the interests of keeping noise to a minimum, he used a hand tool to break up the asphalt. After removing the toby chamber, he extended the hole with a shovel. The muddy water was barely moving.

When the puddle was emptied again, water could be seen leaking from a plastic fitting on to the valve. “A pretty common failure,” Robbie said. He pulled the leaky connector fitting off the pipes by hand and took a replacement from the truck’s toolbox. “The new ones have locks that fit on with the water pressure.” He wrapped thread seal tape around the pipe and then popped the new fitting on.

In the interests of keeping noise to a minimum, he used a hand tool to break up the asphalt.

Muddy water swirled around. Another leak. It was an elbow connector close to the new fitting. “You’ll often get this,” he said. “You fix one thing and another fails with the increase in pressure.”

He cut the elbow connector off and installed a new one, also with pressure locks. A very minor leak remained. “It’ll be the crox nut,” he said.



The truck's toolbox covers a lot of possibilities.



Using a hand tool to break up the pavement is much quieter for local residents.



*Cutting the leaky elbow connector for removal.*



*Wet earth is taken away and replaced with dry gravel.*

Robbie extended the hole on the other side of the valve with the digging tool to uncover the crox nut, and tightened it until it squeaked. The puddle was dead still. No more leaks.

After replacing the chamber he filled in the hole with clean dry gravel shovelled from the back of the truck. “The muddy stuff I took out isn’t firm enough,” he said. “A kid will hit it with a scooter and plant the front wheel.” He spread temporary bitumen over the gravel, raked it, and rammmed it down with a tool. “After I’ve cleaned the site up, the reinstatement crew will come and dig out the gravel I put in, square off the hole I made and lay new asphalt.”

## Job #2

The next job description was ‘slow leaking toby’. This one was in Karori, 20m up a path off the road, which meant that everything needed to be carried up by hand. Fortunately, this leak was relatively simple and didn’t require more than three trips to the truck.



*This time the fault was a pinhole leak in the pipe. The offending section was removed and replaced with a plastic fitting.*

Sponging out the water in the chamber revealed a manifold box, a newer version of the old toby boxes, and another unlikely source for a leak. Robbie dug up the asphalt with a hand tool again, quietly enough that two kererū stopped by for a look. This time the fault was a pinhole leak in the pipe near the manifold box. After talking to the resident, Robbie turned the water off, cut out the leaky section and replaced it with a fitting lock. A fast fix.

This time the temporary bitumen and dry gravel had to be carried up the path. Once Robbie had rammed it into place, he cleaned up the site and talked to the resident who popped out for an update and a chat. Back in the truck, he wrote the job up, including pictures of the job before and after, a work description, materials used, and a job request to the reinstatement team.



*Two kererū stopped by for a look.*



*Writing up the second job of the morning.*



*Communicating with residents around water issues is an important part of the job.*

# Water hacks for increased sustainability



By Karl Wheldon, Sustainability Trust

Sustainability Trust is a not-for-profit organisation that has been working with homeowners for over sixteen years. Our aim is to make Kiwi homes warmer, drier, healthier places to live. We help people to live more sustainably, efficiently and reduce carbon emissions to combat climate change.

We are partners in Wellington City Council's Home Energy Saver programme that provides Wellington city residents with expert advice on energy efficiency, healthy housing and lowering carbon emissions. Our team of trained assessors provides a free two-hour home visit where they thoroughly check everything from insulation and heating to curtain quality and even talk about home composting, solar energy and electric vehicles.

The amount of water supplied to the Wellington area is equivalent to 370 litres of water a day per person, more than most other countries. With half the world's population only using 95 litres of water per person per day, there is plenty of scope for Kiwi's to reduce their water use.

Discussing water and the part it plays in a healthy and economical households is a crucial part of the Home Energy Saver assessment. Water heating accounts for about a third of most people's energy bills and there are some easy ways to reduce this expense and reduce unhealthy levels of moisture in your home.

- The morning shower is the largest use of water in people's homes. The average 15-minute shower uses 180 litres of water, and lots of energy. By fitting a high-efficiency shower head or flow restrictor washer, we can reduce usage to under 30 litres per shower – a saving of 150 litres of water for each shower, and on average around \$120 a year per person on your power bill. That could stack up to an annual saving of \$480 a year for a family of four and a mind boggling 200,000 litres of water a year! To help monitor shower time, we leave the client with a Wellington Water

3-minute sand timer. It's a great way to keep an eye on how long you're in the shower. You can also set a timer on your cell phone, just don't be tempted to use the phone in the shower! Enjoying blogs, tweets, music, audio books and Netflix in the shower is very bad for shortening times.

- Energy can be saved by making sure your hot water cylinder is not set higher than 60 degrees Celsius – but no lower due to the risk from legionnaire's disease.
- Efficient appliances play a big role. Choosing an economic dishwasher and washing machine with 3 or 4 WELS (star) rating will save water. Often, they will be more energy efficient too.
- Rainwater collection is a great way to make use of an abundant water source. A water tank can be used to water your garden rather than a garden hose. Stored rainwater could be essential in an emergency too, especially if the mains water supply is not available. Just remember to boil it before you drink it.
- One full flush of the toilet uses at minimum 6 Litres of water. I guess a question worth asking in a home situation is whether or not to live by the old adage: If it's brown flush it down, if it's yellow let it mellow.
- High humidity can make our homes damp, which leads to mould and potential negative health effects. Humidity generators such as drying clothes inside, boiling pots without lids, lots of indoor plants, and leaving bathroom doors open while showering can release many litres of water vapour. Crying widows, rotting woodwork, damaged wall linings, and mould on curtains are signs of high humidity.
- Ventilation is key to preventing condensation. 15 minute "flushes" where you open windows at either end of your house can remove damp air and replace it with dry air, weather permitting



*Wellington Water's 3-minute shower sand timer is a great way to know how long you're in the shower!*

of course. Doing this small task morning and evening can break the dampness cycle and dry out your home. Dry air is easier to heat than damp air, another saving on that power bill. Using bathroom extractors and kitchen extractors are an important way to reduce the amount of moisture in your home. Boiling your kettle next to the range hood is a good hack for removing the steam as the kettle boils. Dehumidifiers and heat pumps run on their dry cycle can also help, but nothing beats opening your windows and doors.

There is a lot of smart tech around now, including modern water cylinders that are compatible with solar water heating systems. With climate change in mind, using renewable energy to pre-heat water before it enters the cylinder could become a common step in heating our water in the future. Emerging tech like heat pump inverters to heat water could see a significant drop in energy consumption, along with smart thermostats and apps to govern when our water is heated.

Having said all this, the quickest fix in your home is taking shorter showers (sad but true for all those shower lovers). Sustainability Trust's Home Performance Assessors love talking about this stuff, so if you are a homeowner book your assessment today by giving us a call on 0508 SUSTAIN, or visit our website at <https://sustaintrust.org.nz/home-energy-assessments>

Wellington Water's 3-minute shower sand timer is a great way to know how long you're in the shower!

**We have 20 shower sand timers to give away.**

First 20 to email [Samantha.McCluskey@wellingtonwater.co.nz](mailto:Samantha.McCluskey@wellingtonwater.co.nz) receive a timer. Please include your name and address in the email so we can post them to you.



# Flood mapping the Wellington Region

Wellington Water's new flood mapping programme will provide crucial data for urban planning, infrastructure investment and civil defence planning in the region.



An example of the hazard mapping used for District Planning.

After five years' work, the most comprehensive flood mapping programme in the metropolitan Wellington region is nearing completion. Covering urban areas of about 440 km<sup>2</sup> in Lower Hutt, Porirua, Upper Hutt and Wellington City, the programme models the likely impact of flooding from extreme rainfall and will provide crucial data for urban planning, infrastructure investment and civil defence planning.

These models show areas where there is a 1% possibility of flooding occurring in any given year (known as a one-in-100 year

flood risk). The work takes into account the projected impacts of climate change out to 2120. Studies identified localised flooding issues, overland flow paths and stream corridors. These maps are based on best practice flood modelling standards and take into account sea-level rise and predicted increased rainfall events. They have been peer-reviewed by an external independent party to ensure that we follow industry practice.

This information will be used for planning upgrades and will eventually be incorporated into Council's District Plans.

#### Stream Corridor:

The stream corridor consists of a buffer either side of the stream centreline. This is to represent the significant stream flows during a flood as well as allow for natural variations to the stream's bed. Open water courses in urban areas were selected to be included in the stream corridor layer alongside significant contributing branches in the upper reaches of stormwater catchments.

#### Overland Flow:

Overland flow paths are where water is likely to flow when natural or designed channels become over-full.

#### Inundation:

The inundation layer shows the areas where flooding is likely to exceed 50mm in the mapped flood event.

This is to ensure that any future developments are undertaken in a way that avoids the hazard and does not increase the flood risk to surrounding properties.

To ensure confidence in the flood mapping the following four-step process is in place:

1. A quality assured, proven and regionally consistent process to develop the hydraulic models has been used.
2. Confidence that the models accurately represent the natural drainage processes has been obtained through validation and sensitivity analysis.
3. The models' predictions and results have been consulted on with communities and their feedback incorporated into the models.
4. An independent peer review of the models has been undertaken to confirm they are fit for purpose.

Hazard maps used for district planning show hazards such as inundation, overland flow paths and stream corridors and will have different planning rules applied to them. Overland flow paths convey water during heavy rain when the pipe or stream network capacity is exceeded or blocked. These paths were identified and mapped using the model results and flood records.

wave generation that are known to occur during a flood, are difficult to include in the models. It is important for the management of flood risks that these hazards are also represented in the maps.

Community feedback brings vital understanding of localized flooding and issues.

An important part of finalising the maps is asking local people about their experiences of flooding

“Hazard maps used for District planning show hazards such as inundation, overland flow paths and stream corridors and will have different planning rules applied to them.”

Aerial photography, Google Street View and topography were used to further refine the location of overland flow paths. One of the most important steps we can take to reducing flooding is to maintain these overland flow paths.

Hazards, such as blocked culverts, sediment build up and

on their properties and in their neighbourhoods. We invite the community to email us any information you may have about previous flood events including photos, approximate dates you were flooded, you name and address and contact details. Please send this to: **FloodMap@wellingtonwater.co.nz**

As we approach summer we are encouraging Wellington and South Wairarapa residents to conserve and look after our water.

To help you water your garden more efficiently, we have a competition for a trigger nozzle and hose.

# GIVEAWAY



## ENTER FOR YOUR CHANCE TO WIN A TRIGGER NOZZLE AND HOSE

To enter visit our Facebook page at [www.facebook.com/wellingtonwater](http://www.facebook.com/wellingtonwater)



Or you can head there by scanning the QR code.

# LOVE EVERY DROP

Use less now so we have  
more all summer long.



Wellington Water is owned by the Hutt City, Porirua City, Upper Hutt City, Wellington City, South Wairarapa District and Greater Wellington Regional councils. The councils are all equal shareholders.



Our vision is to create excellence in regional water services so communities prosper. Our customers, the residents of the metropolitan Wellington Region, and South Wairarapa, use the services we provide: drinking water; wastewater; and stormwater in their homes, businesses, and communities every day.