



Hiwa-i-te-Rangi about to be lowered underground

Tunnel boring off to a good start

Watercare's Tunnel Boring Machine (TBM), Hiwa-i-te-Rangi, has now begun her five-year journey to build New Zealand's longest wastewater tunnel, from Māngere to Grey Lynn. In July her 5.4m-diameter cutterhead, the main operations vehicle and a number of gantry sections were lowered into the main shaft at Māngere Pump Station construction site.

Before Hiwa-i-te-Rangi began her journey, Auckland Mayor Phil Goff officially launched her on her way at a special 'Cutting through' ceremony on 30 July. Other special guests included the Chair and members of the Watercare Board, mana whenua and senior Watercare managers along with Auckland Council elected members.

Following the ceremony, guests were able to view Hiwa-i-te-Rangi in the shaft. They then took a self-guided tour around the site, learning about the various aspects of construction from information boards.

Tunnelling also underway from May Road

Not to be outdone by her big sister, our micro-TBM, Domenica, is also on her way. On 24 May, she cut through the shaft wall to begin her journey from May Road, Mt Roskill, to Miranda Reserve in Avondale, as she creates our Link Sewer C. While we call her a 'micro'-TBM, Domenica is 2.56m in diameter, 12m long and weighs 80 tonnes.

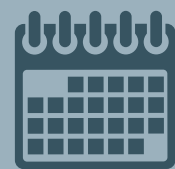
In April, to celebrate her launch, we invited some of our neighbours and whānau from nearby schools to join our workers and their families for an Open Day at May Road. Many left their handprints on Domenica to farewell her on her journey.



Domenica proved popular for handprints and memorable photos

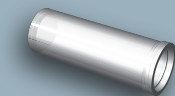
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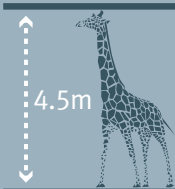


Project build
2019
to early
2026

14.7 kilometres



longest
wastewater
tunnel in
NZ



high
enough
to fit a
giraffe



wide
enough
to fit four
rhinos side
by side

Public open days bring project construction to life

Over three warm and sunny winter days, CI hosted more than 2000 visitors at our main construction site, Māngere Pump Station. After the Mayor officiated at our 'Cutting through' ceremony on Friday morning, 30 July, the site was opened for tours over the next three days. The Open days were made possible as we could shut the site with Hiwa-i-te-Rangi in the shaft being readied to cut through the shaft wall on 12 August.

We enjoyed hosting mana whenua, Auckland Councillors and local boards members, project partners, stakeholders and our commercial customers, along with workforce families and members of the public. All were able to gain a clearer idea of the sheer scale of project construction, particularly what is involved in excavating the shafts and assembling a tunnel boring machine for operation.

One of the main attractions was to look down into the two shafts from a viewing platform built across the divide between them. Visitors could view Hiwa-i-te-Rangi deep in the shaft, right up against the shaft wall where she would begin to cut through on 12 August.

Lending a helping hand

With operations all shut down for the Open Days, our workforce wasn't able to come on site. But rather than just sit back with their feet up, a number of them went to help planting māra kai (food gardens) at Makaurau Marae, Ihumatao.



Paula Fa'olui enjoying getting his hands into the soil



Alongside construction equipment we assembled a full-sized tunnel segment ring



Mayor Phil Goff starts the TBM engines



Visitors could view both shafts from the specially-built platform



Lots of our visitors helped with our colourful mural



Kids big and small enjoyed trying out the real-life diggers

Leaving a legacy in our communities: Dig Deep literacy programme

As part of our wellbeing initiatives, CI wants to enhance the long-term employment prospects and personal situations of our Central Interceptor workforce. One way we can help is to improve their language, writing and maths skills, with the benefits of better communication and well-being on site.

During COVID-19 Level 4 lockdown last year, we launched the 20-week Dig Deep Literacy Programme, with a two-hour workshop each week. Our first class of seven students was chosen from a wide range of backgrounds across South Auckland, all with varying levels of work experience.

We've now run four classes in the training and induction centre, with 22 graduates in total. Three graduates have also earned a Dogman qualification. This is a key role on site, responsible for rigging crane loads and safe crane operations. We hope to extend the programme to other trade qualifications which will help our staff qualify for greater responsibilities and better pay.

The Programme has also been good for communications and team building between employees and their supervisors. Some of the students also said they now have more patience, feel less stressed and want to keep learning. We are pleased that improved literacy is a practical help for our people, at work and in family and community situations.



The Dig Deep course creates an informal learning atmosphere



Dig Deep students receiving their certificates with training staff and CI management



With his new qualifications, Ernie Gotz (foreground) was successful in applying for promotion to Leading Hand, his first chance in years, with an increase in responsibilities and pay

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Covid-19 again disrupts construction

At Level 4, the vast majority of our work was forced to stop. We were granted an exemption to keep the two TBMs moving slowly forward. If they too had to stop there was a serious danger of the earth closing in on them and sealing them in. This would have created havoc for us underground.

Nevertheless, our construction schedule needs to be reset, particularly as we had planned to open six sites from September to March next year. We don't yet know the full effects this lockdown will have. We can't really return to full work activity until Level 1 due to increased health & safety precautions. As soon as we have a new construction timetable we will share it with those who live and work around our sites.

Focus on sustainability and the environment

Each newsletter we'll bring you the latest in our initiatives to make the Central Interceptor a more sustainable project. We'll also have news on the practical actions we are taking to improve the environment.

Taking practical steps to reduce, reuse and recycle

The Central Interceptor is integrating sustainability into every element of the project's design, construction and operations. To us, sustainability means meeting our own needs without compromising the ability of future generations to meet their own needs. To do so, we focus on the efficient use of resources such as energy, materials and water, on reducing waste and on reusing what would otherwise be dumped.



Where we can, we relocate trees from our construction sites, rather than just cut them down

As you might rightly expect from our name, Watercare is active in reducing our water consumption. We can do this by using non-drinkable ('non-potable') water. We collect rainwater on site, use bore water and reuse water we've already used onsite for construction. In another major initiative, we are building a plant to treat and re-use wastewater from our Māngere wastewater treatment plant. This water will help run the TBM as it bores forward from our Māngere construction site.

As with water, using less energy is vital to us. For example, we've reduced driving distances of the trucks carrying away our dirt and soil. We also dry this spoil on-site to reduce the weight of transported material. We also look to use electric equipment, wherever possible, rather than use fossil fuels. The locomotives transporting people, equipment and rocks and dirt ('spoil') up

and down the tunnels are electric battery-powered and so also improve the air quality in the tunnel. CI is also about to introduce electric trucks for hauling tunnel spoil to Puketutu Island in Māngere.



We use solar power on our sites to save on fossil fuels

For some of our construction sites we've had to buy land with existing houses on and remove them. Rather than the traditional 'smash and bash' approach, taking all the material to the dump, we now 'deconstruct' the buildings. We systematically take them apart so most of the material can be reused. From two houses in Grey Lynn, for example, we kept 91% of the material out of landfill, with the doors being sent to Tonga for reuse. Deconstruction is also quieter for our neighbours than demolition.



Rather than demolish we deconstruct and recycle

Getting an outside view of our initiatives

With sustainability now in all our planning, design and construction practices, we wanted an independent test of our work. To do so, in late 2020 we submitted the 'design' component of the project to the Infrastructure Sustainability Council for an ISCA Award. This organisation grades a

project's level of sustainability programmes and actions. CI was awarded the Council's highest design assessment, a 'Leading' rating. As we build the tunnel and shafts, we are now compiling the evidence for a rating for the 'construction' phase of CI.



Olivia Philpott is Watercare's Sustainability Lead for CI and is often on site driving our initiatives, along with the sustainability team from our contractor, GAIV.

On the Central Interceptor, sustainability is a team effort, with responsibilities shared with those who can help achieve sustainability outcomes, such as our design, construction, environmental and procurement managers. Our belief is: *Ehara taku toa i te toa takitahi, engari kē he toa takitini* – my success should not be bestowed onto me alone, it was not individual success but the success of a collective.



Olivia and Shayne Cunis, CI Executive Programme Director, proudly receive the ISCA Award