

**We're building the Central Interceptor, a super-sized wastewater tunnel to reduce overflows, creating a better environment for you to enjoy.**

Our Mount Albert War Memorial construction site has been a hive of activity since site establishment last year. This is a launch site for our micro-Tunnel Boring Machine (mTBM), Domenica. Once the shaft excavation is complete, we will lower Domenica into the shaft to start her journey boring 800 metres towards Norgrove Avenue. The Mount Albert shaft is the connection between Link Sewer B and the main Central Interceptor (CI) tunnel. The main CI tunnel runs along the site boundary on the YMCA side, approximately 25 metres from the shaft. The connection between the two tunnels will be hand dug and lined with concrete sections.

Our team has successfully excavated 30 metres into the ground using segmental caisson excavation (see page 2 for how this works). There are now 28 segment rings lining the shaft and another 11 metres left to excavate. The team will then grout between all the rings and do a series of concrete pours to line the base of the shaft. Once the shaft excavation is complete, the team will prepare for the arrival of the mTBM later this year. This includes setting up the jacking frame that is used for the pipe jacking of the mTBM. The pipe sections are lowered into the shaft and pushed into place behind the mTBM by the jacking frame.

Like many of our neighbours here in Mount Albert, we were impacted by the Auckland Anniversary weekend floods. Our shaft filled with water in a matter of hours, and it took many days for us to remove the water from the shaft completely. After carefully inspecting the shaft for damage and rectifying any issues, the team was able to continue working. We extend our condolences to those affected by the flooding and the cyclone.

Check out our website which now has a weekly update of the TBM's progress. <https://www.watercare.co.nz/Central-interceptor/Constructing-the-Central-Interceptor>.

**Where is Hiwa-i-te-Rangi?**

Our main tunnel boring machine is now here. So far she's bored 5152m and laid 3220 concrete rings behind her to form the Central Interceptor tunnel.

**Where is Domenica?**

Our micro TBM has completed her final drive to PS25 at Miranda Reserve on Link Sewer C.

**Legend:**

- Central Interceptor route
- Construction site
- TBM location
- Tunnel completed

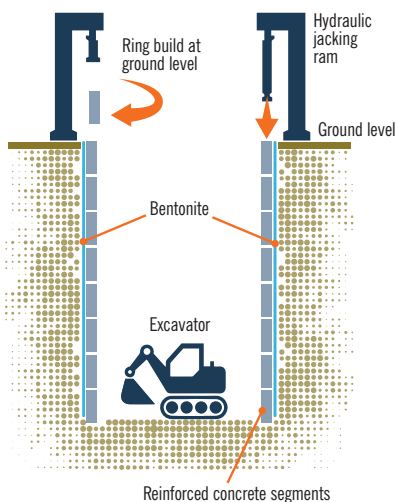




## Caisson shaft excavation

Mt Albert War Memorial Reserve is one of only two sites on the Central Interceptor project that uses segmental caisson excavation. We use this method to extract the spoil when the bedrock is very deep below the surface.

Pre-cast concrete sections are assembled like giant Lego blocks (12 sections per ring) at the surface level and are then pushed into the ground through a combination of excavation from an excavator inside the shaft and jacking pressure from hydraulic rams above the ground.



Bentonite, a thick clay slurry, is used on the outside of the rings as lubrication to help push the concrete sections into the ground. It also helps to keep the earth walls outside the shaft from collapsing. Once the shaft excavation is complete, we replace the bentonite with grout.

## Who it takes to build the Central Interceptor

The Central Interceptor project stretches across 16 sites from Māngere to Grey Lynn. Each of these sites has a team of people working on various activities and construction stages. There are numerous jobs on this project, each requiring different skills, backgrounds, experience and qualifications. This regular feature will give some insight into one of the many important roles on the project.

### Micro Tunnel Boring Machine (mTBM) Operator

#### What is an mTBM operator?

They are the pilot/driver of the mTBM. We have two experienced mTBM operators working on the Central Interceptor project.

#### What qualifications do you need to be an mTBM operator?

There is no formal qualification required to become an mTBM operator. For our project, the requirement is first-hand mTBM experience for two or more years.

#### What are some of the daily activities for an mTBM operator?

An mTBM operator will start their day with the site team completing a pre-start. Pre-starts are where the team gets together to discuss the work for the day, safety requirements and other important information. They then travel through the tunnel via electric locomotive to reach the mTBM to begin operating the machine. Their job is to drive the mTBM, operate it correctly and efficiently and inspect the mTBM to ensure everything runs as smoothly as possible.

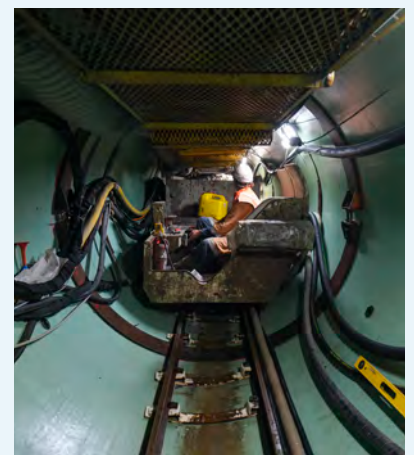
#### What are the challenges of being an mTBM operator?

There are unique challenges for those working underground, especially when it comes to tunneling. The space is confined and there is no natural light or air ventilation. There are risks of exposure to air contaminants, fire and floods. Our mTBM operators are skilled and experienced, having been trained to know what to do if an emergency occurs.

One of the biggest challenges for our mTBM operators is driving and steering

the mTBM completely "blind". The operators use a gyro navigation system to guide the mTBM through the earth. The gyro system is a device that uses gravity to determine the orientation of the machine and reports directional information back to the operator. The mines survey team (part of the tunnel crew) carries out periodic surveys every 40-80 metres to ensure that the mTBM is moving in the right direction.

Despite the challenge that is driving blind underground, our operators have achieved four breakthroughs into our receiving shafts on Link sewer C with incredible accuracy.



### Any questions?

For up to date information please see our website:

 [www.centralinterceptor.co.nz](http://www.centralinterceptor.co.nz)

You can also email us at:

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