



Fact sheet – tunnel boring machine

Western Harbour Tunnel

February 2025



We acknowledge the Traditional Custodians of the Country on which Western Harbour Tunnel is being constructed, including the Gadigal, Cammeraygal, and Wangal peoples, as well as the Aboriginal peoples of Emu Plains, and we pay respect to Elders past and present.

Western Harbour Tunnel is a major transport infrastructure project that will make it easier, faster and safer to get around Sydney.

Why are we using a tunnel boring machines?

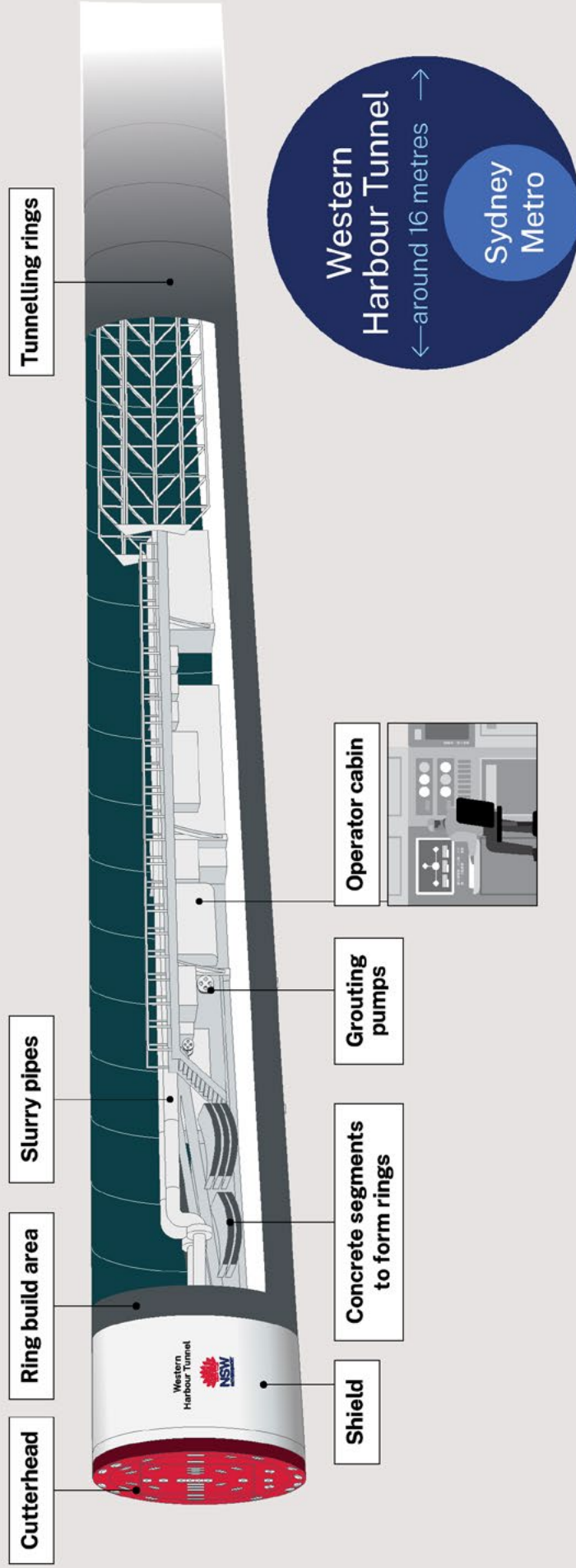
TBMs are used worldwide and in NSW as a safe and effective tunnelling solution. Using a TBM significantly reduces the impact of our work on the surface. By launching our TBMs completely underground, it removes the need for construction sites and cofferdams at Birchgrove and Waverton. It also removes the need for dredging in Sydney Harbour.

The two TBMs being used on the Western Harbour Tunnel project will be among the largest in the world at an approximate diameter of 16 metres. We will use mix shield or slurry TBMs because they are best suited to the mixed ground conditions underneath Sydney Harbour (sandstone and marine clay).



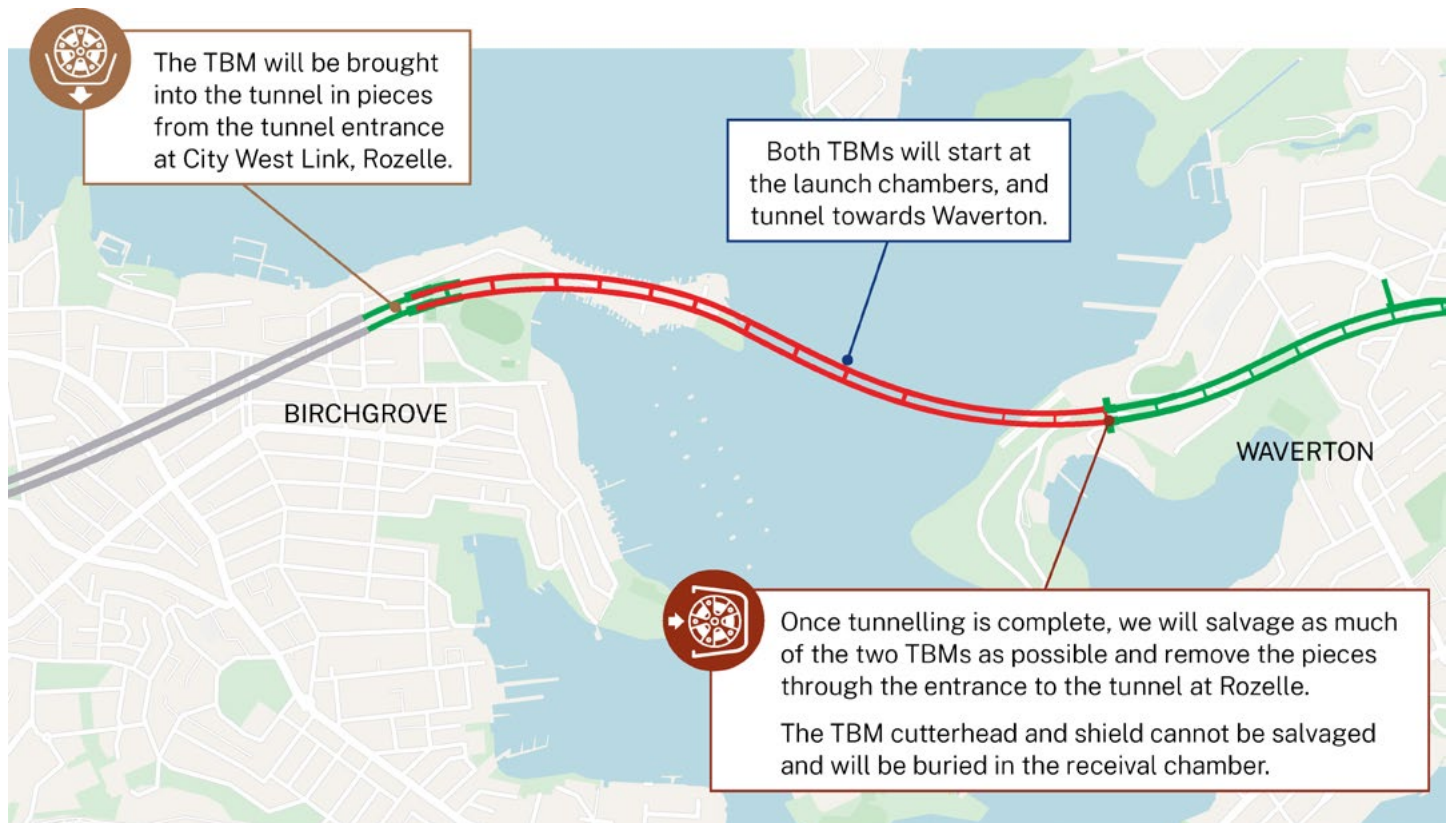
Inside a tunnel boring machine (TBM).

TBM cross section



Fast facts

- Twin underground launch chambers
- Two tunnel boring machines (TBMs)
- Each TBM is around 16 metres in diameter
- 20 people working on each TBM at any one time
- Each TBM is manned 24 hours a day. It's like working inside a large moving factory (or submarine) with facilities for staff allowing the machine to continuously work
- 45–55 metres of tunnel cut every week, on average per machine
- 87% boring through Sydney sandstone, the rest is marine clay
- 222 Olympic swimming pools or 1.5 million tonnes of crushed rock
- 1300 concrete rings (13,000 segments) will line the tunnels



How does the TBM work?

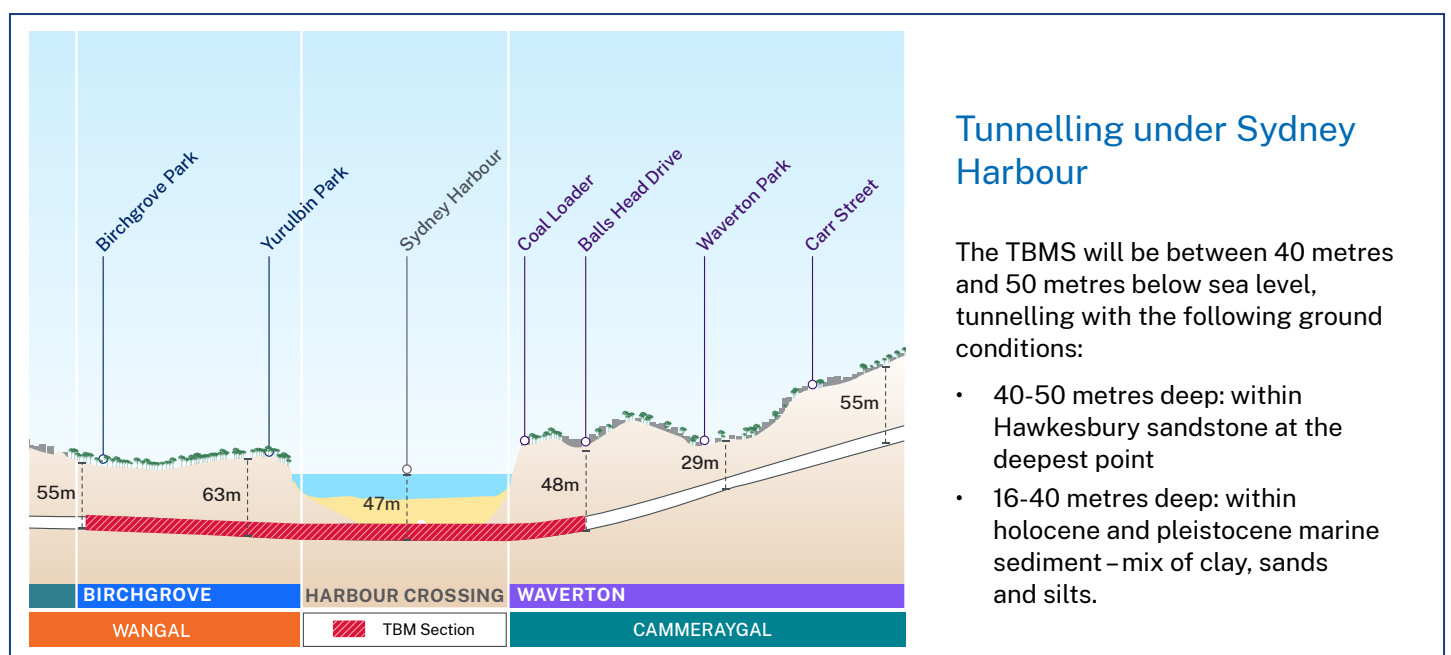
Each TBM will have a large cutterhead on the front and use hydraulic arms to move the machine forward. They will be operated by a team of people working in the TBMs underground.

Once the TBMs begin tunnelling, precast concrete segments are installed to create the tunnel lining. The displaced spoil of rock from the cutterhead will then be sent back through a pipe to a slurry treatment plant, proposed to be located underground. Once the spoil is dewatered, it can then be removed and transported offsite.

Where do the TBMs enter underground and start tunnelling from?

The TBMs will be assembled in an underground launch chamber that will be excavated in Birchgrove. No additional construction sites are required for the TBMs.

Each piece of the machine will be transported on a truck to the Western Harbour Tunnel entry at the Rozelle Interchange and driven to the launch chamber underground.



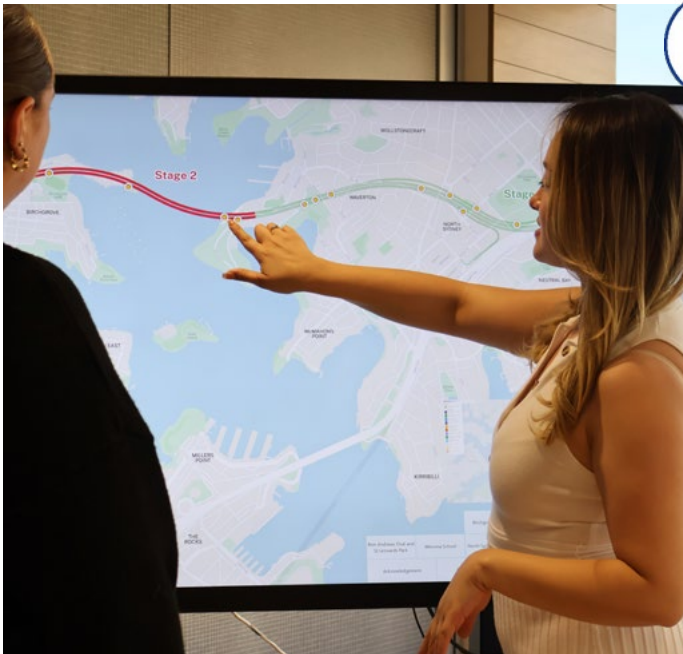


Come and talk to our team at the Community Information Centre.

The Western Harbour Tunnel Community Information Centre provides a modern and comfortable space where you can come and meet with the community engagement team to ask questions and learn about the project.

The space also includes interactive resources and up-to-date images from our temporary construction sites, to provide visitors with further insight into the project.

The Community Information Centre is located at Level 9, 60 Miller Street, North Sydney and is open weekdays from 9am to 5pm (excluding public holidays).



Contact us



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