How we'll build the rail bridges

LEVEL CROSSING REMOVAL PROJECT

We're removing four dangerous and congested level crossings at Coburns, Exford and Ferris roads in Melton, and Hopkins Road in Truganina to make Melton boom gate free.

We're also building a new, accessible Melton Station with modern facilities for passengers.

The new Melton Station will feature four platforms, paving the way for future improvements to the line and increased train capacity along the rail corridor.

With four tracks and complex rail crossovers the new elevated Melton Station needs to be built on an earth foundation.

We're removing the level crossings at Coburns and Exford roads by building rail bridges over the roads.

Due to the unique constraints of the rail line and surrounding area, we'll use various construction methods to build different sections of the rail bridges and the station.

This approach optimises construction to keep trains running for as long as possible, reducing disruptions to passengers. We'll communicate travel changes in advance to allow you to plan your journey.

Construction is underway, with all four sets of boom gates gone and trains running to the new Melton Station in 2026, two years ahead of schedule.

New Melton Station aerial view from Brooklyn Road. Artist impression subject to change.

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VICTORIA'S BIG BUILD

What we'll use to build the rail bridges

Your Coburns Road rail bridge

The Coburns Road rail bridge will be around 220 metres long, including a steel bridge around 42.5 metres long over Coburns Road. The rail bridge will be supported by concrete pad footings. The ground at Coburns Road has a layer of rock that provides a naturally strong base for the rail bridge to sit on. This means we won't need to drill into the ground and will instead place concrete slabs below the ground to support the rail bridge.

Your Exford Road rail bridge

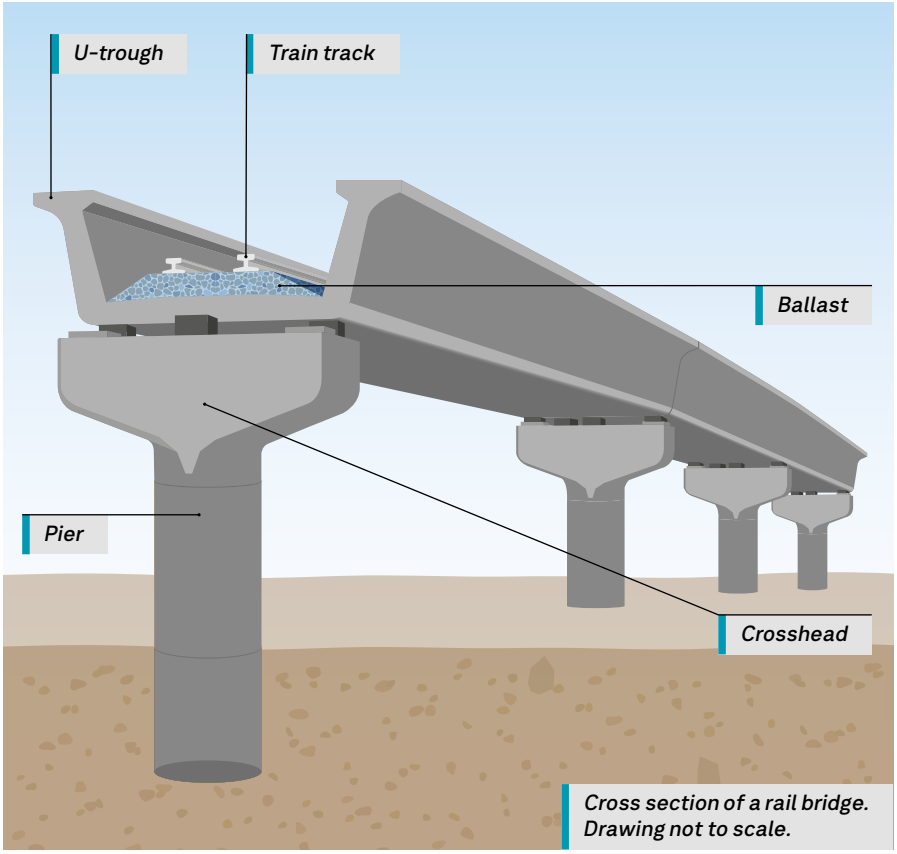
The Exford Road rail bridge will be around 70 metres long, supported by pile foundations. Piles are deep underground concrete pillars that support the weight of the rail bridge and the new station. Piling rigs will drill four holes for each pier that will be reinforced with cylindrical steel cages, filled with concrete and topped with a concrete 'pile cap'. With four piers and crossheads at Exford Road, in total we'll be drilling 16 piles up to 9 metres in depth. Once piling is complete, the rest of the bridge and elevated station structure will take shape above ground for the community to see.

Piers and crossheads

Bridge columns, called piers, are the upright concrete columns that hold up the bridge structures. Crossheads are the beams that sit on top of the piers, supporting the rail bridge. You'll see four piers and crossheads installed at Exford Road, and 16 piers and crossheads installed at Coburns Road to support the rail bridge structures.

L-beams and U-troughs

The bridge is built in sections known as U-troughs, made up of two L-shaped beams installed on top of the crossheads and connected in the middle. The two beams will be lifted by large cranes into place on top of the crossheads and connected with concrete to form a U shape. This is where we lay the train tracks and ballast for the trains to travel over the bridge. These structures will be supplied from casting yards in Kilmore. At Coburns Road, 32 L-beams will be joined to form 16 U-troughs. At Exford Road, 12 L-beams will be joined to form 6 U-troughs.



Cross section of a rail bridge. Drawing not to scale.

Super Ts

Super Ts are large pre-fabricated concrete beams in the shape of a T. Eight of these beams will be installed in the station area to support the elevated platforms at the new Melton Station.

Retaining walls

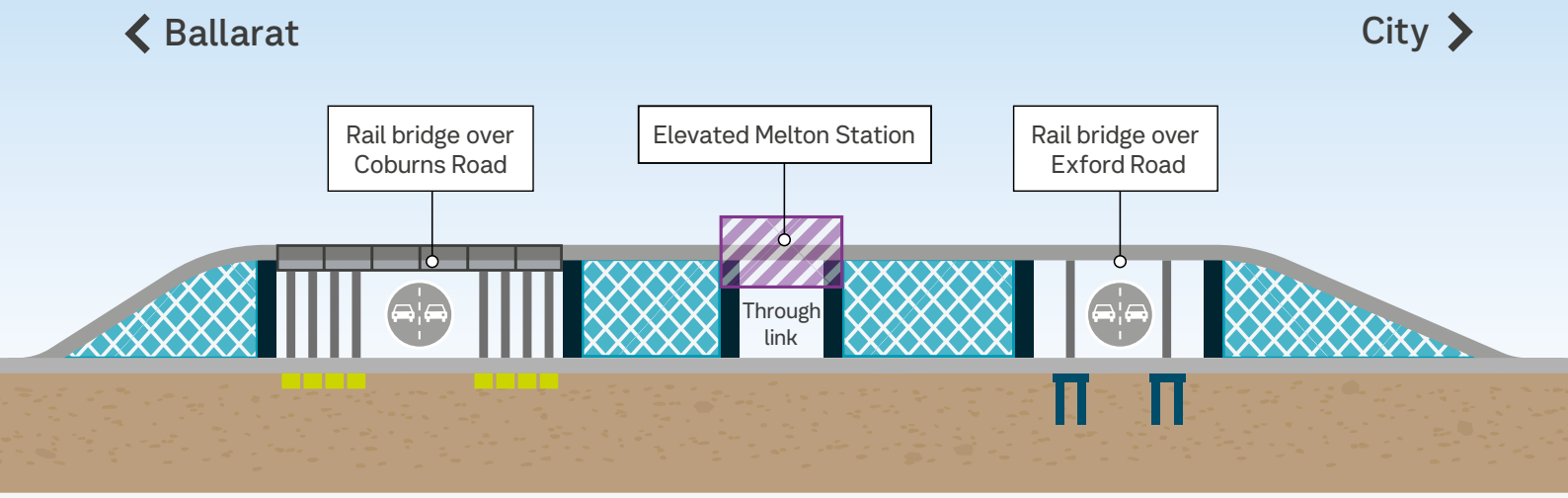
Retaining walls hold compacted soil in place to support the rail line as it rises from the ground at each end of the rail bridges. Between the rail bridges, you'll see concrete retaining walls and sloped dirt retaining walls called earth battering.

Abutments

The bridges will have a support structure at each end made up of concrete which is called an abutment. The abutments will support the load of the bridge horizontally and vertically as it returns to ground level. They play an integral role in ensuring the walls surrounding the rail infrastructure are solid and secure.


New rail bridge over Coburns Road. Artist impression only, subject to change.

Elements of the project design at Melton.
Drawing not to scale.



Rail bridge
Road under the rail bridge
Retaining walls
Melton Station
Piles
Steel bridge
Piers
Concrete pads
Abutments
Not to scale

Step by step at Melton

Building the elevated rail bridges starts with building strong concrete foundations.

1. At Exford Road, piling rigs drill holes up to 9 metres deep.
2. A cylindrical steel reinforcement cage is inserted into each hole.
3. Each hole is filled with concrete creating a deep foundation called a pile.
4. A mould is placed around the cage. Concrete is poured into the mould to form the bridge column and crosshead at the same time.
5. At Coburns Road, excavators dig shallow holes into the ground and concrete is poured to form the pad foundations.
6. Long L-shaped beams are lifted on top of the crossheads. Each pair of L-beams is joined together with concrete to form a U-trough.
7. The rail bridge over Coburns Road will also have a 42.5-metre steel bridge section, connecting the U-troughs on either side of the elevated rail over the road.
8. The U-troughs are connected to retaining walls and earth batters made from compacted soil at each end of the bridge where trains return to ground level. Abutments are added at each end of the retaining walls to support the bridge and ensure the structure is secure.
9. Crushed rock ballast and train tracks are laid and connected to the existing track.

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