

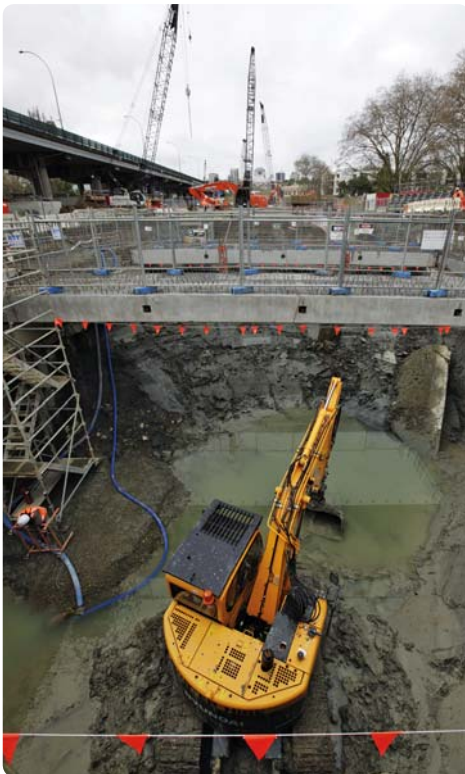


Victoria Park Tunnel, Auckland

Update

October 2010

Big dig underway for tunnel trench



Excavation of the 700-metre trench for the Victoria Park Tunnel and its approach has started.

Over the next six months 160,000 cubic metres of earth and rock will be removed – enough material to fill a hole the width and breadth of a rugby field and the depth of an eight-storey building.

Excavation began in early September on the section of tunnel that will run beneath Victoria Park. Here, progress has been rapid because fewer services ran across the path of the tunnel.

Elsewhere major services such as water, stormwater, telecommunications and sewerage have had to be relocated before tunnel work can begin. This preparatory work included moving the heritage listed Rob Roy Hotel to temporary foundations, away from the path of the tunnel, on 31 August and 1 September.

Other milestones recently achieved by the project have been:

- We've completed more than 1000 linear metres of tunnel wall, approximately two-thirds of the tunnel walls
- Hours worked per month reached 100,000, believed to be more than higher than on any other roading project
- We celebrated one year since the initial project team was formed
- The first 68 of 386 pre-cast 30-tonne tunnel roof beams were installed
- We closed the Wellington Street motorway on ramp for three months, enabling piling for the tunnel approach to get underway
- Restoration and strengthening of the Campbell Free Kindergarten started
- Traffic on Beaumont Street was shifted and now runs over the top of a completed section of tunnel
- Foundations of the transparent noise barrier through St Marys Bay were substantially completed
- The pedestrian walkway Beaumont Street to Pt Erin, including connection to Jacobs Ladder, was started
- Widening the Fanshawe Street motorway off ramp, to include a dedicated left-turn to Beaumont Street, started
- Diversion of the Orakei Main Sewer in Freemans Bay, the country's largest sewage line, started in Union Street
- The NZ Transport Agency's spend on the project reached \$100 million, approximately a third of the project's \$340 construction cost.

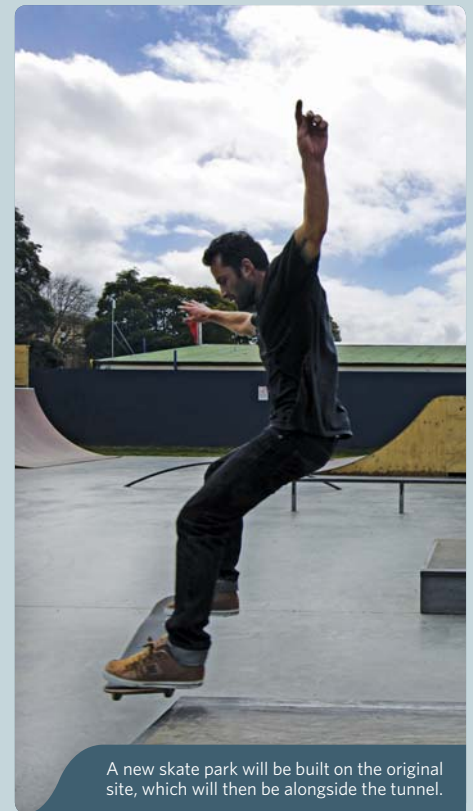
The NZ Transport Agency's target finish date for the Victoria Park Tunnel project is mid-2012. However, it aims to have construction of the tunnel structure completed, work off local roads, and as much as possible of the park restored by the time of the next year's Rugby World Cup.



How we moved the Rob Roy Hotel.
– story inside

Skaters return

Skaters and bikers returned to Victoria Park in August, to a temporary skatepark built by Auckland City Council to replace the one demolished to make way for the tunnel. Once the tunnel construction is complete a new skate park will be built on its site, which will effectively be on the roof of the tunnel.



A new skate park will be built on the original site, which will then be alongside the tunnel.

This project is being delivered under a project alliance agreement. For further information visit: www.nzta.govt.nz/projects/victoria-park-tunnel/



Charming old Auckland goes for a walk

Actually, it was more of a crawl, with the old Rob Roy needing plenty of rest in between. As one bystander put it, it was the 'slowest pub crawl I've ever been to'. But, when absolute preservation is your goal, time doesn't matter.

The many Aucklanders who turned up to watch this remarkable engineering feat may have hoped to see something a little more dramatic. But, even as they realised it was going to be a long haul over 31 August and 1 September, they lingered, fascinated by the mechanics of it all.

The stories told during those two days brought the old Rob Roy and a bygone era to life. Like the woman whose father ran to the hotel for help when she was born on nearby Union Street; the coroner's inquest held in the hotel after the untimely death of a great grandmother; of a boyhood spent living there; and of the city's rubbish collectors arriving for their regular jug of rum and coke after knocking off for the day.

The Victoria Park Tunnel team and specialist moving experts Dunning Thornton had hoped

to complete the 44.3 metre move in one day. But they were keen not to undo five months of strengthening work by hurrying the old building. Locals who had campaigned vigorously to have the Rob Roy preserved in its original context watched in the wings, simultaneously proud that their voices had been heard and anxious there may yet be a hitch or two.

The smallest degree of ground settlement during the move could have damaged the building. The team, led by project engineer

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How they did it

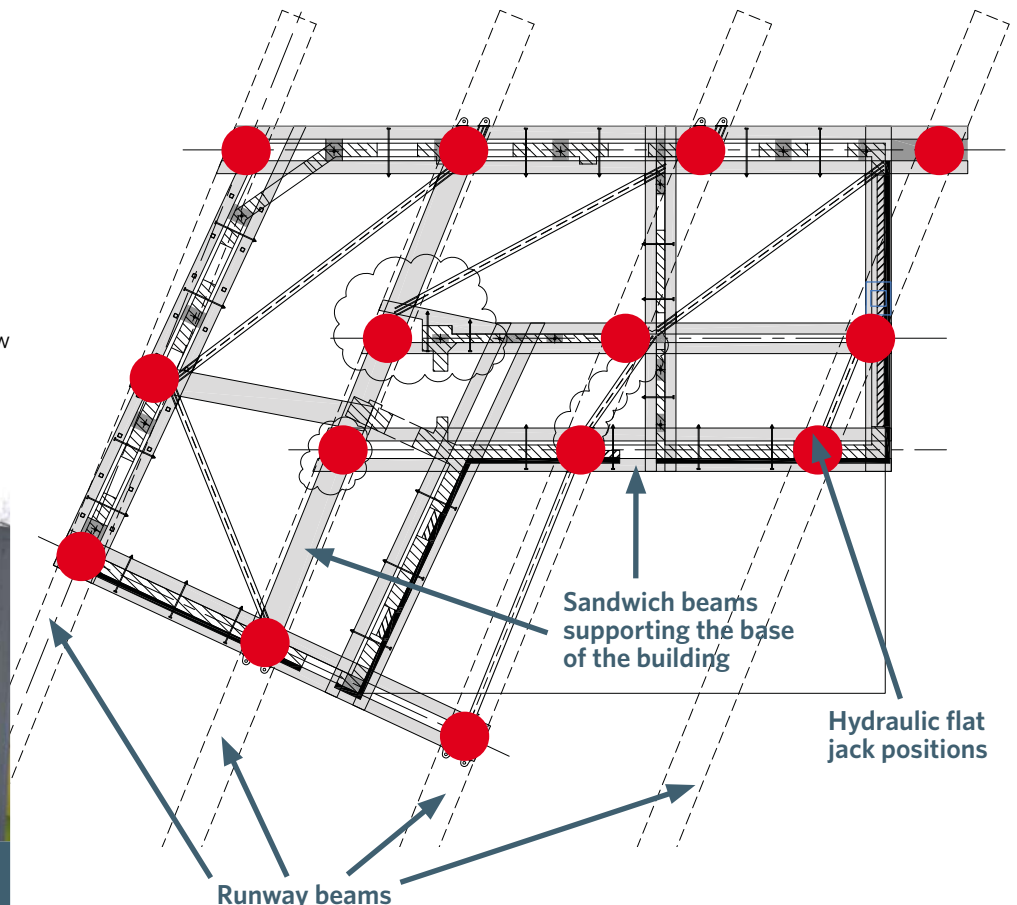
Step 1: Transferring the building onto the runway beams

Hydraulic flat jacks were inserted at the 14 points where the sandwich beams supporting the building and the runway beams intersected.

These jacks gradually transferred the building load from its existing foundations onto the new beam system, ready for the move, and the old foundations were cut away.



One of the hydraulic flat jacks.





Bryce Irving, scurried around and under the building constantly, monitoring and adjusting the hydraulic pressures at 14 jack points.

There was a collective sigh of relief from the team when the old building edged the final few centimeters to its destination, safely out of the way of tunnel construction.

“We took longer than we thought we were going to, but it’s all in one piece and we did it in a very smooth and controlled way - there’s absolutely no damage,” Bryce said afterwards

The Rob Roy will remain on its temporary foundations until the southern portal of the tunnel has been completed, early next year. It will then be moved back to its exact original site, which will then be on the roof of the tunnel.

The following videos of the Rob Roy Hotel are now on YouTube:

Preparation and Strengthening:

Part 1: <http://www.youtube.com/watch?v=Ko6LfHiXolw>

Part 2: http://www.youtube.com/watch?v=Ja_RMWz8g4o

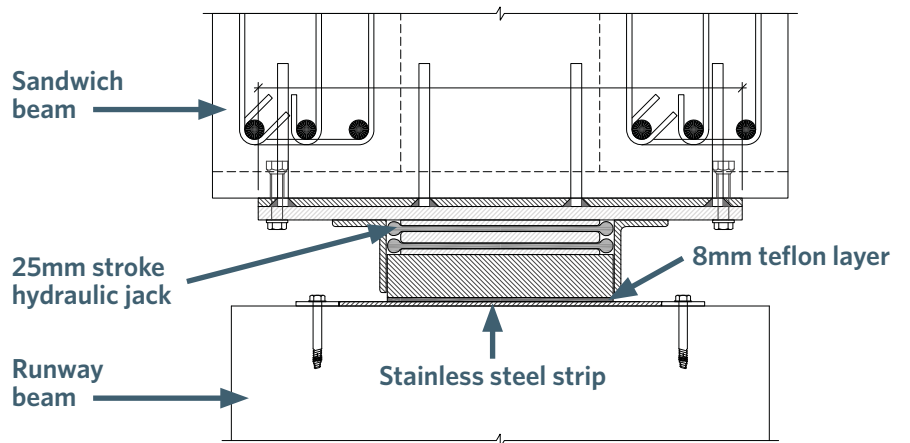
Timelapse of the Move: <http://www.youtube.com/watch?v=W10FGmgrTq8>

The Rob Roy Move #1: <http://www.youtube.com/watch?v=JvarryPBIMk>

A sliding bearing section showing the hydraulic flat jack in place

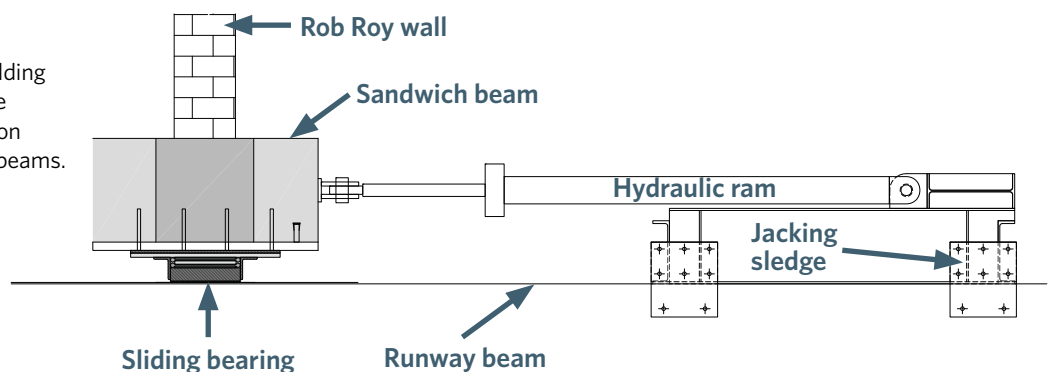
Different ground conditions along the 40m journey meant there was some ‘differential settlement’ along the way. The hydraulic flat jacks were expanded to keep the building level as it moved along the runway beams.

The moving team was constantly monitoring these jacks and adjusting hydraulic pressure during the move to make sure the Rob Roy stayed level.



Step 2: The Big Push

Hydraulic pushing rams between the building and the runway beams gently pushed the building along. The rams were mounted on jacking sledges, bolted onto the runway beams.



The project in a nutshell

The Victoria Park Tunnel project is the first of the Government's seven roads of national significance - identified as essential to economic growth - to be built. The project will upgrade 2.2km of State Highway 1, from the Auckland Harbour Bridge to the Wellington Street motorway overbridge, and will remove the last remaining traffic bottleneck on the central Auckland motorway system.

It comprises a 450m cut and cover tunnel under Victoria Park for three northbound traffic lanes, widening the motorway through St Marys Bay by one lane in each direction, and refurbishment of the Victoria Park viaduct to carry four southbound traffic lanes.

The Victoria Park Tunnel project is being delivered by the Victoria Park Alliance comprising the NZ Transport Agency, Fletcher Construction, Beca, Higgins and Parsons Brinckerhoff.



Economic benefits now - not just in the future

The Victoria Park Tunnel project will deliver significant growth benefits to the region when it is finished, by improving access to markets and giving freight operators more reliable access across the Waitemata Harbour and through to the Auckland CBD and Port.

The project is also delivering significant economic benefits to the region during construction. In the project's first 12 months it has pumped \$100 million - approximately one-third of the total project cost - into the New Zealand economy.

A significant number of the businesses that have won competitive tenders for project components are small to medium enterprises (SMEs), companies with fewer than 20 employees.

The project's commercial manager, Johannes Gouw, says this is in line with the project's objective to provide smaller businesses with an opportunity to be involved in delivery of major infrastructure.

Another objective has been to use New Zealand suppliers. "The Government's brief to the Victoria Park Alliance has been to make the best possible use of the local supply chain to stimulate economic growth.

"As a project we have recognised the important role of small businesses in growing the economy and have been keen to see as many as possible participate."

So far 45 suppliers to the tunnel project are SMEs. They include companies like Christchurch-based Bellamy & East, which is supplying special U bolts for reinforcing for the tunnel's diaphragm walls.

Johannes Gouw says Bellamy & East also met another requirement of the project: to use New Zealand supplies rather than imported goods as much as possible. "The bolts we needed would normally have come from China."

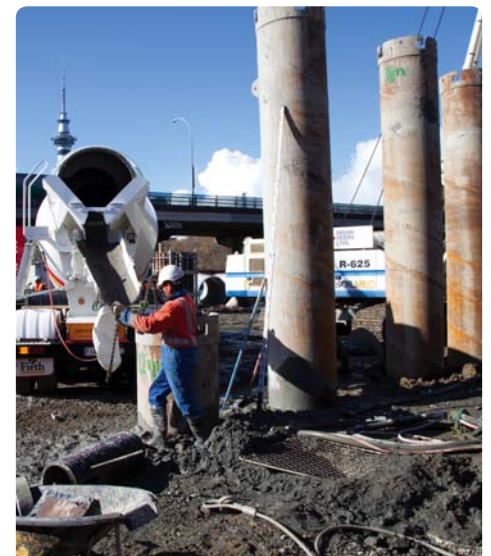
Another import replacement story comes from Auckland based company PC Environmental Coatings 2007 Limited, which is supplying locally developed and manufactured graffiti protection.

"The exposure small companies get from being involved in a project the size of Victoria Park Tunnel is often a toe-in-the-door to much bigger contracts in the future," Johannes Gouw says.

"It is a chance for those companies to test and refine their systems for safety and to come up to speed with the tough environmental and quality standards required by major infrastructure projects."

He says 130 of the Victoria Park Tunnel's more than 200 supply contracts are now in place. Underway is procurement of supplies for the tunnel's mechanical and electrical fit-out, worth more than \$20 million.

The specialist nature of many items required to operate the tunnel, which is Auckland's first urban road tunnel, means some of the items will come from overseas. However, suppliers are encouraged to source New Zealand made components if possible. "For example, the main engines of the generators needed for emergency power back-up will be imported but elements such as the louvers, attenuators and diesel tanks will be locally fabricated."



In line with its aim of maximising use of the local supply chain, the steel pile casings used on site are supplied by Steelpipe NZ and made from recycled car bodies.

Noise wall a first for New Zealand

A transparent noise wall will be erected early next year alongside the motorway through St Marys Bay ensuring that the iconic, pohutukawa-clad cliffline remains an important feature of Auckland's landscape. It is the first time the technology has been used in New Zealand.

Piling for the noise wall is almost complete and foundations panels are being laid ready for delivery of the transparent barrier panels early next year.

The noise barrier will comprise around 500 acrylic 'soundstop' sheets chosen for their high transparency and resistance to weathering and ageing. Each panel will be 2m wide, and individual heights will vary depending on the panel's location along the cliff.

Bird watchers will be pleased to know that the panels will be treated with 'Bird Guard' - embedded horizontal stripes between the acrylic layers that provide a visual barrier, deterring birds from flying into the otherwise transparent material and injuring themselves.

According to the manufacturer, the acrylic sheets are 11 times more break-resistant than window glass of comparable thickness, making them a better option than safety glass and ensuring they meet all the safety requirements for noise control materials.

The first acrylic panels are due to be installed in early October, for rigorously testing before the main installation.



See-through noise walls like these will be installed in 2011.



Noise wall foundations in progress.

Old sack holds clues to Freemans Bay past



The sack of bark soon after its recovery. The red scale measures 50cm.

A hessian sack filled with bark has been recovered from the tunnel excavation in Victoria Park. It was found on what appears to be the former sea bed of Freemans Bay, making it one of the oldest finds so far on the project.

A large portion of the thick hessian sack has survived and is in good condition. The bark inside is also in good condition, mainly due to the anaerobic conditions (without oxygen) of the clay in which it was buried.

The bag is likely to have fallen off a ship in Freemans Bay in the late 19th century. The bark was almost certainly destined for a tannery where it would have been ground up to provide tannic acid for the leather tanning process. Preparation of the bark often happened at a former flour mill, including

one in Waterview which was taken over by a tannery so that the millstones could be used for grinding.

The bag and its contents have gone to a conservation laboratory at the University of Auckland for preservation. Also, the bark will be analysed in an attempt to find out if it was locally sourced or imported.

Kindergarten future secured

The Campbell Free Kindergarten in Victoria Park, New Zealand's first purpose built kindergarten, is being restored as part of the Victoria Park Tunnel project.

Under an agreement between the building's owner Auckland City Council and the NZ Transport Agency, part of the building will become the electrical and communications plant room for the tunnel. In return, the NZTA is strengthening and upgrading the entire building at no cost to Auckland's ratepayers.

The NZTA's State Highways Manager for Auckland and Northland, Tommy Parker, says the agreement results in a small cost saving because the kindergarten is so close to the tunnel. The alternative to using the kindergarten would have been a purpose built plant room some distance away, requiring significantly more cabling.

"More important than the cost saving is the excellent outcome for the community. Through collaboration with Auckland City Council we will be able to return the building as an attractive and functional asset."

He says the tunnel equipment in the former kindergarten will be for emergency or standby use only and will have little impact on any future use the rest of the building is put to.

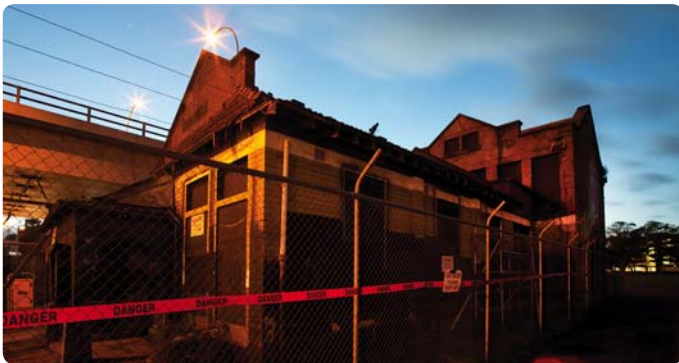
The Campbell Free Kindergarten was built in 1910 and funded by the "father of Auckland" John Logan Campbell and his wife on the condition it would operate as a free kindergarten.

The kindergarten continued to operate in Victoria Park until the 1950s when the service was moved to Myers Park and the building was taken over by the Auckland City Council. It served for a time as the clubrooms for the Grafton Cricket Club and as a practice room for a pipe band but has been unused for the past 20 years.

The kindergarten's restoration, including landscaping, will be completed and the building will be handed back to the council before next year's Rugby World Cup.



The 'father' of Auckland Sir John Logan Campbell arrives at Victoria Park to officially open the kindergarten on 10 October 1910.



The collapsed roof was an example of the building's deterioration over the past 20 years.

Our contact details

For general enquiries, or to contact the NZ Transport Agency please check our website www.nzta.govt.nz or email us at info@nzta.govt.nz

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