



Victoria Park Tunnel

Moving the Rob Roy Hotel

Fact Sheet June 2010

The Rob Roy Hotel building lies in the path of the proposed Victoria Park Tunnel. It is to be moved twice, firstly up Franklin Road while the tunnel is being built and then back to its original site which will then be on top of the tunnel's roof adjacent to the southern portal.

The hotel structure

The Rob Roy Hotel is a two-storey unreinforced masonry building built in 1885-86. It has a Historic Places Category 1 classification.

It is a chevron shaped building with external brick walls. The external street façades have an attractive 'fairface' natural brick finish while the rear walls are plainer and are covered with a cement plaster render. The external walls are typically three bricks thick with no cavity.

Internally there were originally brick load bearing walls at ground floor level and a mixture of brick and timber frame partitions at the first floor. Many of the ground floor walls have subsequently been removed and replaced with steel beams at first floor level. The internal walls were typically two bricks thick. Those remaining, together with the steel beams, support the timber first floor and roof.

The Rob Roy has a one-storey basement but only the floors above the ground are to be moved.

The significant heritage features

Assessments of the Rob Roy have classified some original aspects of the building as highly significant from a heritage point of view. These are the brick facades that face Franklin Road and Victoria Street West and the first floor interior linings.



The oriel window above the corner door into the Rob Roy.

Among other scheduled heritage features of the building requiring special care and protection are the oriel window over the corner entrance to the building; the wooden staircase; the double hung windows; the plastered brick chimneys; timber skirtings and architraves; the board and batten ceilings; and the first floor living room.

Preparing for the move

Unreinforced brick masonry structures typically have little seismic strength and fall well short of current code requirements. In addition brick structures are inherently brittle and any differential settlement or subsidence can result in cracking. Brick is not a homogeneous material and its structural performance depends on the quality of both the brick itself and of the mortar that binds the bricks together. After 125 years neither the bricks nor the mortar are particularly strong.

To address these issues the building is being strengthened before it is moved. The strengthening is intended to give the structure more resilience and also to upgrade its seismic performance to meet, as near as is reasonably practicable, current code requirements.

The transport methodology is designed to make the move extremely gentle and to not expose the building to any significant acceleration or differential vertical movement. Also of utmost importance is to minimise the impact on the heritage fabric and to avoid any visible alterations to the listed heritage features, particularly the facade and first floor interior linings.

The key strengthening features are:

- Improving the 'in-plane' strength of the walls so they can act as effective bracing elements
- Improving the 'out-of-plane' performance of the walls so they can better resist seismic 'face-loads'
- Tying the walls to improved floor and roof 'diaphragms' so the building effectively acts as one structure.

A second focus has been to stiffen the building vertically to reduce the risk of differential settlement. This involves adding new foundation beams at the base of all the brick walls. The building will be supported by these beams while it is moved. The focus becomes moving the foundation beam frame, letting the Rob Roy Hotel structure piggy-back on it.

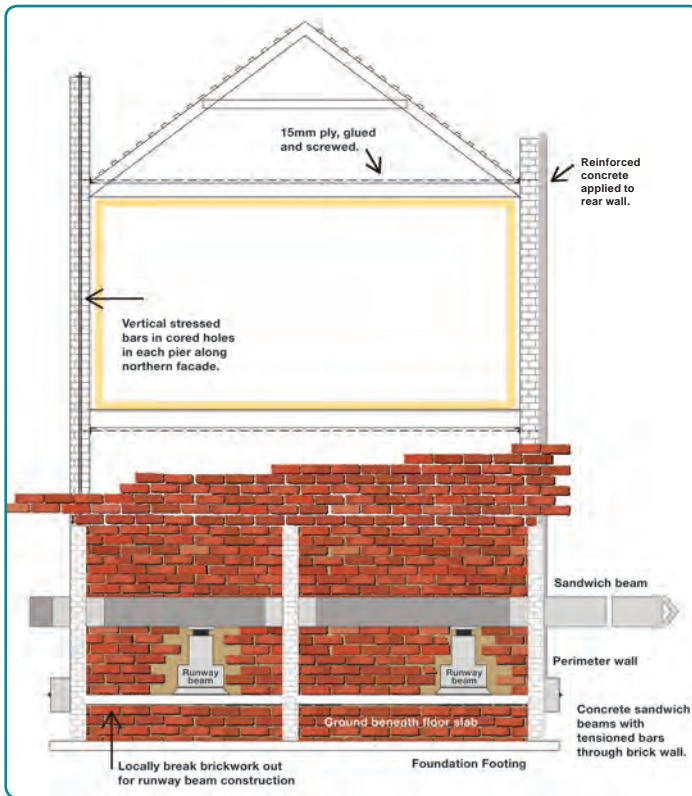
Protected places

Three significant historic structures are being protected by the NZ Transport Agency as part of the Victoria Park Tunnel project:

- The Rob Roy Hotel built on the original Freemans Bay foreshore
- The Campbell Free Kindergarten, Auckland's first kindergarten built in 1908 on Victoria Park
- Jacobs Ladder, built in the 19th Century to provide pedestrian access down the St Marys Bay cliff face to the harbour.



Major services including the Freemans Bay Stormwater Culvert have been moved away from the Rob Roy.



The Rob Roy strengthening and stiffening.

What's being done?

Work to prepare the Rob Roy for its move began in February 2010 and has involved:

- Removing additions built in recent years, such as the garden bar built in 1968, a new kitchen built in 1981 and the courtyard and conservatory built in 1982.
- Removing interior fittings and furnishings that were not original to the building. Most of these were sold by auction in February 2009.
- Removing and storing original features and materials which could be damaged in the move. These include kauri floor joists, ground floor ceilings and cornices, skirtings and architraves and interior doors and frames.
- Seismic strengthening by:
 - Coating the rear (non-heritage) walls with reinforced concrete, so that these walls act as shear (bracing) walls

- Installing structural diaphragms at first floor and roof levels to tie the building together and to distribute forces to the shear walls
- Vertically stressing the other exterior and interior brick walls with high tensile bars inserted through holes core drilled from the top and then tensioned
- Inserting carbon fibre reinforced strips into the chimney walls and securing the internal chimney to the roof and ceiling framing, and the external chimney to the parapets
- Providing a rigid foundation on which to move the building by:
 - Casting 'sandwich' beams on each side of each of the exterior and interior brick walls and then stressing these together to act as a single unit to form the moving frame
 - Casting stiff 'runway' beams below the building (and below the sandwich beams) which become the causeway for the building to move along.

How the building will be moved

The existing walls of the building will be supported by the concrete sandwich beams which are, in turn, supported on sliding bearings that will carry the Rob Roy along the runway beams. Details of the move are:

- To transfer the building load onto the runway beams, hydraulic flat jacks will be inserted between the sandwich beams and the runway beams at each of the 14 points where the beams intersect. These jacks will be carefully monitored to ensure that all points of the building remain level at all times.
- Beneath each flat jack will be a sliding bearing that consists of a low friction Teflon puck that will slide along a stainless steel strip fixed to the top surface of each runway beam.
- The jacks will be incrementally loaded until the building load is transferred from its existing foundations onto the new beam system.
- The building will not be lifted but once the flat jacks are carrying the load the old foundations will be cut away. This will be done after the building has been monitored for one to two days to ensure the new beams are satisfactorily carrying the load.
- Hydraulic pushing rams will be installed between the building and the runway beams to provide the moving force. Each stroke of the rams will move the building forward by about 1.5 metres.

While the tunnel is constructed the building will sit on temporary foundations 40 metres up Franklin Road.

The transport process will be repeated when the building is moved back to its original location following tunnel construction.

Our contact details

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

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