

PROJECT UPDATE

Northern Ventilation Stack towers at Waterview

One of the most distinctive features of the Waterview Connection project is rapidly taking shape above ground at Great North Road in Waterview.

The Northern Ventilation Stack, required to exhaust vehicle emissions into the air, is steadily towering to its peak height of 15 metres alongside Great North Road.

Architects set the project's designers and engineer some tricky challenges. Instead of something conventional that's round or square, they planned a stack that's ellipse or egg shaped then cut out the middle section of the ellipse and joined the two remaining sections together.

"Currently the eastern and western joints in the stack give it the appearance of the bow of a ship. The complicated geometry is not easy to work

with as no two panels are exactly the same," says Site Engineer Devon Bainbridge.

To make things a little more complicated it's on a 10 degree lean.

"It's made up of five levels of rings. There are four concrete segments to each ring. We have two more to install to complete the structure by early-October," says Devon.

The bronze coloured steel fins will start to be installed upon completion of the main structure to provide an architectural finish. The fins wrap around the stack with an ever changing kink fabricated into them giving the illusion of a spiral.

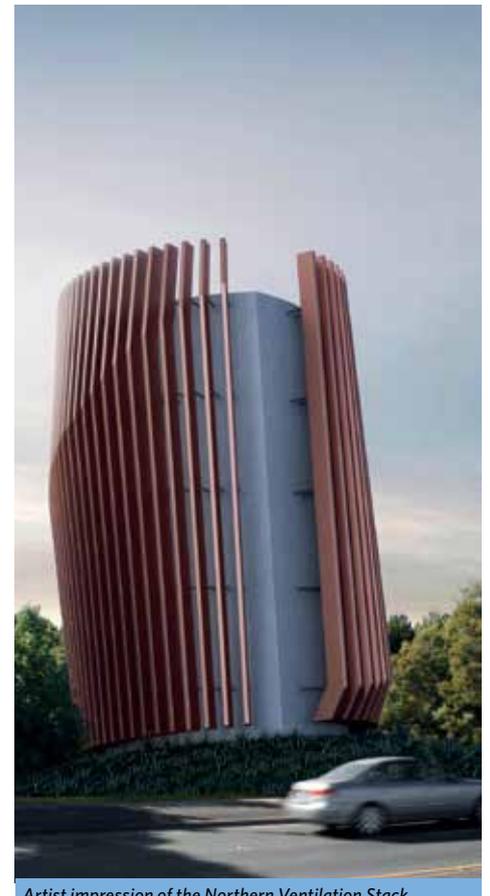
Air from inside the tunnels will be pushed by jet fans into the Northern Ventilation Building along a 90 metre long ventilation tunnel under Great North Road before being ejected into the atmosphere through the stack.

The air up there

- Tunnel vent stacks are considered the most efficient way of dispersing air from the tunnels.
- Moving traffic through the tunnels and mechanically venting air to the atmosphere through stacks means better local air quality than the same traffic volumes using local roads.
- Air quality monitoring will take place prior to opening of the tunnels to demonstrate that the relevant National Environmental Standards for air quality standards are being met by the Well-Connected Alliance.



The Northern Ventilation Stack will tower to 15 metres high.



Artist impression of the Northern Ventilation Stack at Great North Road.

Northern Ventilation Tunnel surges ahead

Work on the Northern Ventilation Tunnel (NVT) is surging ahead with excavation passing the halfway stage with completion set for the month's end. The 90 metre long NVT lies eight metres under Great North Road and connects the vent stack to the Northern Approach Trench (NAT). During September our team will complete the removal of penetrations from the NAT which will eventually house four exhaust fans. Following work to complete the wall structure and base slab of the NVT before construction of a roof to close it in.



Jet fans pass first test

Four state of the art jet fans inside the southbound tunnel passed their first significant testing last month.

"It was a good first up result for the Well-Connected Alliance Mechanical and Engineering (M&E) team," says Justin Johnson.

"It certainly gives us plenty of confidence that we're on the right track to having all 62 jet fans inside both tunnels successfully commissioned by the end of 2016."

Tested under the watchful eyes of a Commissioning Engineer from German manufacturer, Whitt & Sohn and our M&E team.

A five minute 'flow test' was utilised for the exercise which involved switching on each fan to run independently while assessing its operation and electrical usage for each flow direction.

Each jet fan was controlled from a switchboard in Cross Passage 16, and operated at speeds of over 140 kph. Its initial thrust is about the same pushing force as an All Black prop at 1.47 kilonewtons.

"To be able to share knowledge and expertise with Whitt and Sohn people has been a great experience for our team as we aim to complete our final drive in world class fashion," says Justin.



BIG BOYS TAKE POSITION

Four massive exhaust fans have taken position inside the Southern Ventilation Building (SVB) at Owairaka. The exhaust fans were installed on-site after its different parts were shipped in from overseas - from India (evase and ducting), Malaysia (attenuators and dampeners) and Germany (exhaust fans). All blessed with an imposing presence, standing at four metres high and almost 15 metres long each. The exhaust fans at the SVB will draw air flow from the southern end of the tunnels before transitioning it through to the vent stack at SH20. Installation of similar fans at the Northern Ventilation Building are underway.

Embankment for Hendon Footbridge taking shape

Construction of the embankment for the northern approach of the Hendon Footbridge has passed the halfway point towards completion.

“Our team have made a strong start to construction and will finish our work later this year,” says Section Engineer Sunil Punwani.

Situated alongside Oakley Creek at the Owairaka end, the embankment will have the approach ramp for pedestrian access to Hendon Footbridge built on top.

“Our team is taking extreme care while working next to the creek to ensure that we don’t spoil the local environment.”

Approximately 80 metres long and five metres high at its highest point from the ground. The embankment is being built using large stone strong blocks.

“In total we have 127 of these mostly three tonne blocks which will make up the five rows for this embankment,” says Sunil.

“The bottom two rows have been filled with concrete to withstand a 100 year flood. While the top three rows will have topsoil instead as they will have plantings extending through its sides.”

After completion of the northern approach, various features will be constructed including a concrete shared path to Richardson Road, balustrades on the footbridge and installation of lighting.



Embankment wall is being built alongside Oakley Creek.



The northern approach to Hendon Footbridge will be established on top of the embankment.

PLANTING WALL FEATURE

- Large holes on the stone strong blocks will allow for native New Zealand plants to be installed into the embankment wall.
- Over time these plants will extend out and cover the embankment wall.
- Four inlets will be established on the top row of the embankment, with drainage running throughout the wall to water the planting before going into the stream.

Tunnel pavement’s massive milestone

Our pavement team working underground will achieve a massive milestone in early September.

After completing the establishment of three layers of structural asphalt inside both tunnels, the commencement of the final phase of the pavement work marks a significant marker in the team’s work programme.

“Our team will lay a Stone Mastic Asphalt (SMA) on top of the structural asphalt to complete the tunnels’ road surface,” says Site Engineer Brady Church.

“We’ll remove all other machines and plant to lay the SMA in the entire northbound tunnel. The application of SMA effectively makes it road ready.”

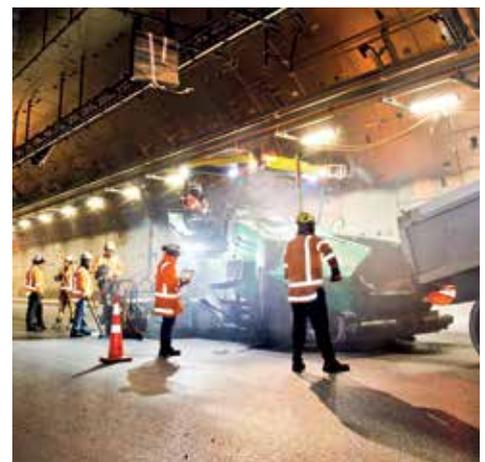
The road surface of the northbound tunnel

will have SMA applied to it first, before the southbound tunnel, in total a paved area of 209,600 square metres.

The SMA layer replaces the open graded porous asphalt (OGPA) layer that is found on the open-air motorway, as the tunnel is watertight and won’t be affected by weather.

Each 2.4km tunnel will carry three lanes of traffic and will connect the southwestern and northwestern motorways creating a direct motorway link between the central business district and the Auckland International Airport.

Road markings and motorway signage will be installed prior to commissioning and opening of the Waterview Connection project in early 2017 – New Zealand’s largest roading project ever.



Our pavement team lay the final layer of structural asphalt.



Surfacing works is set to start at the end of September

Ramps ready for surfacing

Surfacing work on the Great North Road Interchange is set to resume next month.

“Our team will initially start with a thoroughly planned trial run of the surfacing works on a small section of ramp three,” says Site Engineer Scott Staples.

“We can assess from this trial any dips, rises in the road level before filling any voids or correcting any humps. This trial will be used to guide surfacing work on the other ramps.”

The team have already completed significant areas of pavement, approximately 13000m² earlier this year. The large majority of the remaining work is to add open graded porous asphalt (OGPA) to complete the road surface on

the ramps of the Great North Road Interchange, ensuring a smooth and quiet ride.

Local residents and stakeholders will be notified well in-advance of our pavement work by our dedicated Well-Connected Alliance Stakeholder and Communications Team.

Sections of State Highway 16, on either side of Carrington Road bridge, will also be resurfaced as part of this pavement work.

All four ramps on the Great North Road total 1.7kms in length to connect the Southwestern and Northwestern motorways (State Highways 20 and 16) immediately north of the tunnels to complete the Western Ring Route.

TAG ALONG WITH FRIENDS OF OAKLEY CREEK

Join the Friends of Oakley Creek for their September activities as they continue to help care for the wonderful awa (stream).

Sunday 4 September – Community Planting day at the Waterview Esplanade (Glades), 10am – 12pm. This is the last opportunity to help with the tree planting on the creek until next year.

Saturday 10, 17, 24 September – Rodent control at different locations along the creek, 9am.

OUR NEXT COMMUNITY LIAISON GROUP

The Waterview Connection project’s next Community Liaison Group (CLG) is Tue 13 September 2016.

This is a regular three month forum for various stakeholder groups to meet with our construction team, urban designers and Auckland Council to listen, ask questions about the Waterview Connection project.

The CLG starts at 6pm and is held in the training room at 150 Stoddard Road. To all attendees please arrive early as a light meal will be provided by the Well-Connected Alliance.

Maioro Street Widening

The Well-Connected Alliance has made steady start to widen the Stoddard Road entrance to Maioro Street over the past two months.

Our team started work in early July by building a retaining wall, relocating electrical services and installing new drainage. Work to establish a water main will take place this month before the road is constructed. It’s expected that road closures will be in place while this latter work is carried out.

Maioro Street is being widened to allow for an extra lane for vehicles joining from Stoddard Road before connecting onto the State Highway 20 southbound on-ramp.

This will improve access onto State Highway 20 allowing for vehicles on Stoddard Road to turn immediately left on to the southbound motorway.

Don’t walk on the road

A reminder to all people that during the Maioro Street widening works, the footpath on the southern side of Stoddard Road is closed between the Countdown car park access and the intersection with Maioro Street (with access to local business only).

The signalised pedestrian crossing over Maioro Street is also temporarily closed and fenced off while we work in this area. Please do not walk on live lanes traffic lanes to gain access to the closed footpath.



Maioro Street is being widened to allow for an extra lane for vehicles joining from Stoddard Road.



Waterview Connection

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