

Transforming Bond Street station



Winter 2012

Crossrail unveils tunnelling giants



Crossrail's first 1,000 tonne tunnel boring machine has been built.

The 140 metre long tunnel boring machine (TBM) is the first of eight that will be needed to construct the new rail tunnels under central London. Two of the custom-made machines will carve two 6.4 kilometre long tunnels between Royal Oak and Farringdon, passing under Paddington, Bond Street and Tottenham Court Road.

The TBMs will run 24 hours a day, 7 days a week. Each one will be operated by a 'tunnel gang' comprising of around twenty people – twelve people on the machine itself.

The TBMs have a rotating cutter head at the front to excavate the ground as they move forward. Concrete segments will be built in rings behind the cutter head to construct the tunnel.

Excavated material from the tunnels will be beneficially reused, with Crossrail providing 4.5 million tonnes of excavated material to create a new RSPB nature reserve at Wallasea Island in Essex.

The first TBMs will be launched from Royal Oak in March. These machines will drive east at a depth of up to 40 metres passing under the Mayfair area in late 2012 to arrive at Farringdon in late 2013.



Crossrail ticket halls – Hanover Square and Davies Street

Piling work for Crossrail’s two new ticket halls began in November and is well underway. The piles form part of the underground foundation walls needed for the new ticket hall.

Building the piles within small sites presents some big challenges. With limited storage space available, the steel reinforcement cages for the wall panels need to be delivered to the site just before they are used. This requires careful logistical management to ensure the cages arrive just in time.

Cranes are then used to excavate the ground to a depth of up to 45 metres and lift the steel cages into place. The movement of cranes is carefully choreographed to ensure the safety of their operators, the construction team and the public.

Piling for the Davies Street ticket hall is expected to be completed in the summer and piling for the Hanover Square ticket hall is scheduled to finish in the autumn. Excavation of the ticket hall boxes will begin when piling is complete.

Tube project update

Work to improve and expand the LU Bond Street station is ongoing at multiple locations within and around the station.

The building at 354-358 Oxford Street will be demolished to ground level in February; the new station ticket hall will be constructed at this site, with its entrance on Marylebone lane.

Within the station, escalator replacement work continues and the new escalator trusses and



motors have been installed. Following mechanical testing, the steps will be added, and the new machines will be in public use in May.

Oxford Street works

Work to strengthen utility services under Oxford Street is essential.

Engineering challenges presented by the condition and location of the services meant that the work could not be completed within 2011. After a site shut-down over the festive period to allow extra space for Christmas shoppers, work has now resumed and is scheduled to be complete in April. Below, Utility Shift Manager John Parker describes a typical day on site.

Diary of a shift with John Parker, Utilities Site Manager

I'm up at 5.15 to get to work for 6.30am. On arrival, I read the notes left by the night shift team and then prepare for the start of shift meeting, where I brief my team on progress made over night and explain what we will be doing during our shift.

My day is divided between the worksite and the office. When at my desk I work with the utilities engineers who programme the activities and timescales, and based on these plans I organise the necessary labour, plant and materials. I spend about 75 per cent of my day on site as I think my time is best used supporting my team on the ground; if they encounter an obstacle, it is better if I am there to see for myself, rather than at the end of the phone.

On a typical day shift I manage a team of between two and five operatives working on multi-utility diversions and site maintenance, as well as a team of between 15 and 25 operatives working on the water services. Their tasks are varied, ranging from working in pairs to excavate by hand, to teams of five or more working with heavy machinery to excavate to depths of up to four metres.

Utility services are usually surrounded by soil or gravel and are easy to access; however in this area we have faced a particular challenge, as the water mains are encased in metres of concrete. The fastest way to remove this would be to use a



mechanical breaker; however we cannot use this method for risk of damaging the live water mains. To overcome this we have used a technology called hydro-demolition, where a jet of water at high pressure is used to blast away concrete, whilst causing far lower levels of vibration.

The biggest challenge in our job is the unknown; records are kept of utility services, but they are not always accurate, and in spite of pre-work surveys we couldn't predict the depth and density of the services in some places. The good news is that we have now had a good look at everything and will be able to leave up to date records for future reference. Another challenge is the volume of people on Oxford Street; we have to co-ordinate our work and deliveries to site carefully to avoid disrupting pedestrian and traffic flows.

As the shift draws to an end I return to the office to fill in activity sheets which summarise the day's progress and resources used. When the night shift supervisor arrives at six thirty we have a handover meeting and take a walk around the site to review all the work areas. Finally before leaving I send a text message to all key personnel across the project to update on the status of the work.

Driving road safety

Mirrors have been installed around Crossrail's work sites in Mayfair to help reduce lorry drivers' blind spots and keep cyclists and pedestrians safe.

'Trixi mirrors' have been fitted to the existing traffic lights which, due to their convex shape, allow drivers to spot cyclists on the left hand side of their vehicles.

Crossrail sets high standards for vehicles operating on the project as part of its commitment to improving road safety. All regular drivers working on the project must complete a dedicated training programme concerning cyclists and pedestrians. Over 2,000 drivers have completed this training since 2009 which has been developed in consultation with cycling and road safety campaign groups.



Getting in contact

If you have any questions about the Bond Street station upgrade, or about Crossrail, please contact the 24 hour Helpdesk:
email on helpdesk@crossrail.co.uk
or call **0345 602 3813**

More information about the project can be found at www.tfl.gov.uk/bondstreet or at www.crossrail.co.uk

Key facts

An upgraded Bond Street station will include:

- New Tube entrance and ticket hall on Marylebone Lane
- Step-free access from street to platform
- Increased capacity and new escalators to reduce journey times
- Improved interchange between the Central and Jubilee lines and access to Crossrail within the station

The new Crossrail service will offer:

- New station entrances and ticket halls at Davies Street and Hanover Square
- New high capacity, high frequency trains
- 24 trains an hour in each direction, in the peak, through central London
- Easier journeys and more connections