



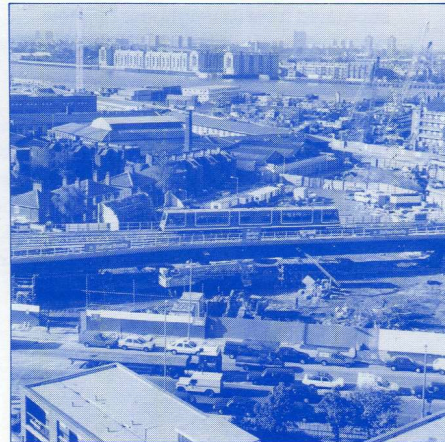
**Fri. 0930 hrs.**



**Sat. 0730 hrs.**



**Sat. 1500 hrs.**



**Mon. 0900 hrs.**

# Operation was a success

It's been hailed as a great engineering achievement! In just 54 hours, a 250-foot section of the DLR viaduct between Westferry and West India Quay stations was demolished and replaced by a purpose-built 1,400-tonne steel and concrete bridge.

Now it will be possible to build the Limehouse Link (an underground dual-carriageway road linking The Highway at Wapping with the Isle of Dogs) immediately beneath the railway without disruption to services.

*Continued overleaf*

The operation was carried out by Balfour Beatty Civil Engineering Limited, whose engineers were required to resolve a series of technical problems, some of which were encountered for the very first time.

Six reinforced concrete piles were needed to carry the new bridge. To provide the necessary support they had to be built to a diameter of six feet and a depth of approximately 80 feet. The Limehouse Link, when completed, will run between the new DLR foundations.

The old viaduct was built at the turn of the century for the Whitechapel-Tilbury Dock Railway. It was made of brick on 10 feet deep foundations which were still in good condition. After lengthy negotiations with all interested parties, it was decided that the most 'environmentally friendly' method of demolition was by means of a controlled explosion. Each one of the 1200 charges needed would fire on its own, separated from its neighbour by a few thousandths of a second. Blast matting was placed on top of the viaduct to minimise the environmental impact.

The demolition, at 0730 hours on Saturday 29 September 1990, was a success. The new bridge, complete with trackwork, had been constructed on the south side of the site between Garford Street and Westferry Road. The method of construction used was steel box girder sections supporting a reinforced concrete deck.

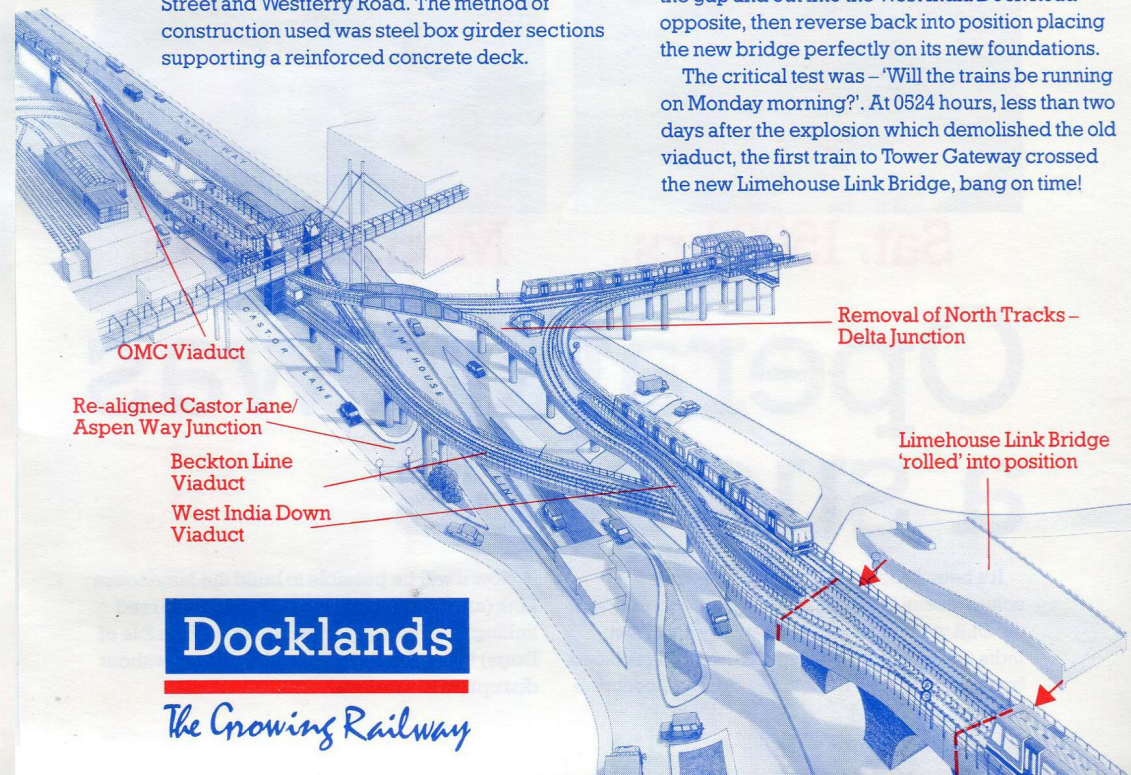
A major complication was the need to place the West India down junction, essential for the new Beckton extension of the DLR, on the bridge itself. This had to be on the north side, adjacent to the Garford Street Bridge. The completed structure would not be symmetrical, and its eastern end would be at a sharp angle to the existing tracks. The long side of the bridge would have to pass through the short side of the gap left by the demolition of the old viaduct!

The solution was to use a set of computer controlled hydraulically powered bogies - an



engineering 'first'. These machines, which look like huge 'moon buggies', would lift the bridge, turn it through 12 degrees, drive it slowly through the gap and out into the West India Dock Road opposite, then reverse back into position placing the new bridge perfectly on its new foundations.

The critical test was - 'Will the trains be running on Monday morning?'. At 0524 hours, less than two days after the explosion which demolished the old viaduct, the first train to Tower Gateway crossed the new Limehouse Link Bridge, bang on time!



**Docklands**

*The Growing Railway*