

# SSR UPGRADE PROGRESS

by John Hawkins

Since the last article on track simplification for the sub-surface railway upgrade in August 2011 little seems to have happened on the ground, but detailed plans are about to be implemented. The changes have been sorted into two phases, the first associated with resignalling and the second to follow later when funding is available. One revelation in discussions is that the Thales system will not offer bi-directional capabilities which the Bombardier system promised, and some track proposals may have been modified.

Phase 1 scope consists of sites required to achieve the desired capacity enhancement, stabling capacity and operational flexibility, together with additional sites that simplify the railway and so reduce the resignalling implementation costs. These works have been sorted into five groups in relation to resignalling. Of course, timings may always be adapted to fit with other works. Not mentioned below are the related extensive modifications required to conductor rails, traction power isolation switches, power cables, point heaters and drainage.

## FIRST GROUP

The first group have points to be removed before resignalling to reduce costs of the new system. Most of these are scheduled for the 12 months from mid-2015, and were listed in *Underground News* No.641 for May 2015, pages 267-268. It also includes removal of the crossover west of East Putney (January 2017), removal of Farringdon Sidings (February 2017) to be done in conjunction with installation of a new double junction into the proposed City Sidings (see below) and Uxbridge (March 2018) where the facing crossover into the sidings from Hillingdon is due for removal. Simplification in the sidings includes removal of the northern reception road and the southern head-shunt.

## SECOND GROUP

The second group are changes to be installed and signalled under the current system before the new signalling is installed. This enables benefits to be obtained earlier but at the cost of signalling modifications to the current system. They include the new scissors crossovers at King's Cross (December 2015) and the high-speed eastbound link into Barking sidings (March 2016). The removal of all points at Putney Bridge (January 2017) with the westbound line diverted through the current bay road platform, suitably lengthened, will see the current platform abandoned. The Mansion House bay platform track and connections are also to be removed and tight curves to and from the eastbound platform eased. This replaces an earlier plan to abandon the eastbound platform and run through the bay road instead. These works will await the withdrawal of all D stock, but must be completed by November 2016. At Earl's Court (December 2016) the only change proposed is the replacement of the facing crossover on the eastbound lines west of the platforms with a scissors crossover, again allowing trains from Wimbledon to use either platform. The new route will be commissioned within six months if capacity can be found on the existing interlocking.

## THIRD GROUP

There is a third group where modifications are to be installed before the new signalling system, but not commissioned for use until the new signalling is installed. This reduces the time required when resignalling, but requires the current system to be modified to confirm that the new points are secured in their intended position until commissioning. This includes a new crossover at Paddington (February 2016), and the double junction into new City Sidings at Farringdon (February 2017) on the site of the current short sidings. At Tower Hill (March 2018) the bay platform will be connected to both running lines at its east end to allow reversal in either direction. Timetabled reversing trains will no longer have to crawl into the platform as they approach the end of the track. It would be good if the wider bay platform could become the usual eastbound route during heavy passenger traffic, although this could not happen when service reversal was scheduled.

## FARRINGDON CITY SIDINGS

Farringdon City Sidings (October 2018) will see a new double junction, just east of the entry road to the current short sidings which will have been removed, linking with the City Widened Lines which have been lifted in part for Crossrail works. The section from Moorgate to Farringdon is the last part of

Crossrail to be tunnelled, and work is underway as I write. Grout shafts and de-watering wells have been sunk in the former route, and will need to be filled. The two roads through to Moorgate will be designed for 20kph running and accommodate ten S7/S8 trains stabled almost nose to tail. A mix of train lengths will make it more difficult to release the correct train without being blocked in. No trains will stable in the platforms at Barbican and Moorgate. The track plan shows the two sidings joining as one beside Barbican's former eastbound platform before splitting again. This will allow eastbound trains to access either siding east thereof, and trains to be able to depart westbound from either siding east of Barbican. However, emergency reversal east to westbound using the sidings will require five stabling berths to be vacant, four west of Barbican and one to the east. Former Moorgate platform 6 will be abandoned, and the track in platform 5 will serve only to link the two roads, possibly avoiding trains being trapped behind a defective one.

Stopping marks are planned for the east end of each marked berth, suggesting that stabling will take place from Farringdon direct, and therefore the most westerly two trains on the former westbound line must shunt from the westbound platform. If trains were to reach these positions from the eastbound line they would need to reverse at Barbican and I would presume require stopping marks at their western ends. It is intended that two trains will stable at the Farringdon tunnel mouth, with more than a car in the open. Barbican station will provide access to four stabled trains, two to the west with their cabs just outside the platforms, and two to the east with a car or two in the platforms. Moorgate platform will provide access to two trains stabled just within the tunnel, and another two trains stabled beyond them. Why an additional two trains are not to be stabled in the former Moorgate platforms is unclear, especially since the current platforms 3 and 4 are already used in that way. *(But not from the new timetable of 17 May 2015 – Ed.)*

New covered stabling for ten trains will provide significant additional accommodation for S7 stock, only Hammersmith and Barking providing similar numbers for the Circle & Hammersmith services, and only Lillie Bridge and Parsons Green providing such numbers for the District Line, ignoring the two depots. This project is listed as the major threat to the 2019 Jubilee Line World Class Capacity project, which needs stabling for an additional ten trains which could presumably be released by moving ten trains from Neasden to Farringdon. However Neasden does not provide S7 stock for service, so perhaps the primary use of the new sidings will be for S8 stock. Perhaps the three overnight S7 stblers at Moorgate and Aldgate can be moved to the new sidings, allowing Metropolitan Line trains to stable in those roads again. The Jubilee Line will in future also stable overnight in Stanmore and Stratford platforms and will therefore require less than ten extra berths in Neasden Depot.

## **OTHER FOURTH GROUP STATIONS**

In the fourth group, sites are to be resignalled with the current layout before it is later revised and the new signalling is modified. This requires two passes by the resignalling crews. At Hammersmith (December 2018) the crossovers 'north' of the station are to be replaced by a high-speed scissors crossing. At Edgware Road (April 2019) the junction layouts at both ends of the station are to be relaid. At Aldgate (August 2019) a substantial realignment of the junction is planned, with the removal of the reversal route from the outer rail platform 1, and of the direct route into platform 2 so that those trains will need to enter by the route they now use to depart. However, a new crossover from platform 3 will allow departing trains to use the route from platform 4 to reach the westbound line and avoid trains entering platform 2 by the revised routing.

A revised layout at Baker Street (August 2020) will see the junction north of the platforms completely relaid with a shorter southbound loop road and a slightly longer northbound loop road. When the middle platforms were lengthened for S8 trains, the reversing move from platform 3 was lost with a promise that it would return with resignalling. A crossover will be laid to allow trains to again reverse in platform 3, but there will no longer be access to platform 2 from the north. So reversal will remain limited to three platforms rather than the traditional four. However, this will be an improvement on the current layout, since when an incident in the City requires trains to reverse at Baker Street, platform 2 cannot be used whilst it blocks the return of remaining trains from the east. In future, platform 3 could be immediately used for reversal along with the two bay roads.

## **FIFTH GROUP**

The fifth and final group have track layouts which are to be secured out of use at the time of resignalling and will later be removed. This will occur where existing layouts are required until new layouts are

signalled. The new signalling system must be able to confirm that the old points are secured in their intended position until removal. At Royal Oak (December 2018) the hand-worked crossover will be removed once the new one at Paddington is commissioned. The Amersham layout (October 2020) is no longer to be modified but the connection between the central platform and the left hand siding, which allows this move whilst a train leaves the right hand siding to the southbound platform, is to be removed to simplify the layout. The crossover by the Farringdon platforms (October 2018) will be removed with commissioning of the new City Sidings, which will permit east to westbound reversals. The crossover to the east of Aldgate East (September 2019) will be removed with commissioning of the new Tower Hill layout.

## LATER WORKS

Works at a further sixteen sites have been put into Phase 2 which includes desirable, but not essential, modifications that can be left until after resignalling. They have been given provisional timings if the budget permits.

At Barking (September 2021) the crossover into the bay road is to be relaid for high-speed running, and the train arrestor replaced with a standard S Stock one. Liverpool Street/Moorgate (October 2021) will see commissioning of a new high-speed scissors crossover in the tunnel between these stations, and the removal of the current trailing crossovers at both. Westminster (December 2021) will similarly see commissioning of a new high-speed scissors crossover between there and Embankment, and removal of the current trailing crossover at the latter.

At Harrow-on-the-Hill (January to March 2022) the crossings with moveable angles between the local and main lines south of North Harrow will be replaced with a 'ladder' of facing crossovers to simplify the track layout. For the same reason, those south of Harrow-on-the-Hill will be replaced with two separate crossovers in each direction linking fast and local roads, with the same arrangement linking the northbound fast and down Chiltern lines. The trailing crossover north of the Chiltern platforms will be removed, perhaps being replaced by the second crossover of the link from the northbound fast line. The trailing crossover for reversals back to the Uxbridge branch will receive a power trailing end in place of the current spring point, as will the trailing end of the crossover north of the local platform on the route to Watford.

At Chalfont & Latimer (April 2022) track simplification involves complete removal of the current layout, including removing the short bay road, and moving the Chesham junction to where the branch diverges from the mainline. This removes the three-track section of line, which will shorten the single-line section a little allowing additional recovery time from delays. Removal of the trailing crossover north of the station will prevent trains from being reversed in the event of problems at Amersham, but perhaps the new signalling will allow trains to reverse on the single line whilst a train is at the Chesham end of the branch.

The crossover at West Kensington (April 2022) is to be realigned further west, clear of the platforms. At South Kensington (June 2022) the trailing crossover east of the station will be removed. At High Street Kensington (August 2022) the links between the District and Circle lines, together with the crossovers into platform 3 and from platform 4 are to be substantially realigned for high-speed working. It is now proposed to remove the eastbound track into platform 4 so that trains have to enter that by crossing to the westbound track and back over to platform 4. It is also mentioned that the trailing crossover on the Circle Line west of Gloucester Road will be removed.

At East Ham (October 2022) the trailing crossover at the east end of the platform is to be removed and a replacement installed west of the Barking bay road entry points (October 2022) to allow trains to reverse direct from the eastbound platform. At the same time the trailing connection from the westbound line where it joins the bay road will be converted from spring to power operation. At Parsons Green (December 2022) the trailing crossover south of the platforms will be replaced by a new scissors crossover alongside the south sidings.

At Watford (January 2023) the only change is the removal of the first facing crossover which allows direct access to the south end of the siding on the right, access remaining from the north end of that siding. The Croxley Link to Watford Junction is not mentioned, being a self-contained project. At Northwood (March 2023) the sidings and emergency crossover are to be removed, with a new crossover installed on the local lines south of Moor Park (June 2023). Finally the removal of Wembley Park Sidings (January 2024) remains listed, but where can these four S7 trains be accommodated?