



**Stabilising
the sewer
above Baker
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underground
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We've inserted a state of the art stainless steel structure, which supports a glass fibre reinforced polymer liner, inside a sagging sewer above Baker Street underground station. This way, we've avoided the need for large-scale engineering works, which could have caused significant disruption to people and traffic on the roads above, and to trains in the tunnel below.

Background.

The large Kings Scholar Pond Sewer, which crosses the top of the Tube tunnel at Baker Street station, was sagging and needed to be repaired. Instead of large-scale engineering works, involving digging up Marylebone Road and causing huge disruption to people and traffic on the roads above as well as to the underground train network, we designed a novel structure which could be inserted through manholes and then assembled inside the sewer to strengthen it.

Working offsite.

The steel structure and liner were manufactured and assembled off-site using a detailed modelling system. This allowed the construction teams to visualise building the structure before production. The steel structure has been designed so it doesn't require maintenance for the duration of its service life, which is approximately 120 years. The liner, which has a lifespan of 50 years, has been designed so that individual panels can be removed to allow the sewer bricks to be inspected in future.



Stainless steel support structure to be installed in the sewer.

Keeping things moving.

Best of all, this solution has allowed the sewer to remain in operation. To keep our teams safe, flows were carefully managed during construction, and there was a system of cameras and alarms upstream in the sewer to alert teams to evacuate if rainfall increased the flow.

Materials were only taken into the sewer to assemble as they were required. This ensured that no parts would be lost or damaged if work had to be temporarily stopped.

Further project benefits.

As well as avoiding significant disruption to road and rail users in this very busy part of London, eliminating the need for large scale excavation has saved 26,443 tonnes of embodied carbon and approximately £23 million, not accounting for the cost of disruption to road and rail networks.



Support structure being installed in the sewer.

- Saving 26,443 tCO₂e
- Designed to last 120 years
- Avoiding significant disruption to road and rail commuters

