
# London's Super Sewer double lined with steel fibre reinforced concrete

## Project overview ›

The Thames Tideway Tunnels are the new sewage and storm water tunnels that intercept the existing London sewage system. The tunnels are lined with a primary lining constructed using steel fibre reinforced pre cast tunnel lining segments and a secondary Cast in Place lining that sits on the inside circumference of the primary tunnel lining.

**Project title:** Thames Tideway – Tideway Central

**Client:** Tideway (Bazalgette Tunnel Limited)

**Contractor:** Ferrovial Agroman UK and Laing O'Rourke Construction Joint Venture (FLO JV)

**Concrete Producer:** Hanson Concrete

**Segment producer:** Pacadar UK Ltd

**Location:** London, United Kingdom

**Working environment:** Up to 60m below ground and under the river Thames

**Distance:** 12.6km

**Internal diameter of the tunnels:** 7.8m

**Duration:** 2016 - 2024

**ArcelorMittal Fibres used:** 3600 tonnes HE++ 90/60

**Dosage:** 32kg/m$^3$

> "ArcelorMittal provided a brilliant service on a very challenging project and, most importantly, navigated the challenging period through COVID very successfully, ensuring that not a single delivery was missed when required. This was more crucial than usual as the project was a 24/7 operation."
>
> James Lloyd,
> Hanson Concrete

LONDON'S SUPER SEWER DOUBLE LINED WITH STEEL FIBRE REINFORCED CONCRETE

## The challenge ›

The Thames Tideway Tunnel will connect 34 of the most polluting combined sewer overflows (CSOs), via a series of transfer tunnels, reducing the number of overflow events. The tunnels will transfer the captured sewage to Beckton Sewage Treatment Works for treatment before the recycled clean water is then released into the River Thames. A double lining, using pre cast tunnel lining segments and a secondary Cast in Place lining was specified to mitigate water ingress and provide a durable and smooth bore for the hydraulic performance of the tunnel.

## The solution ›

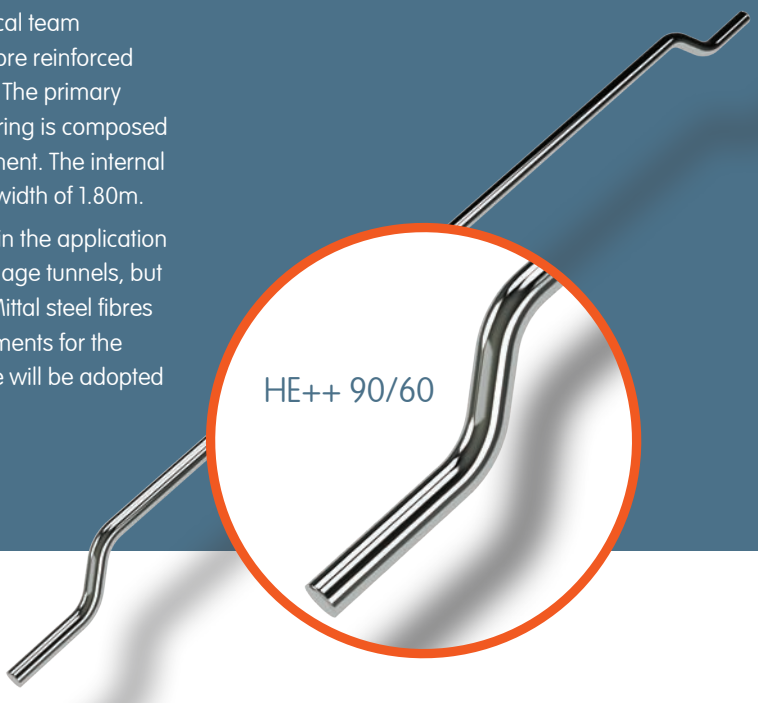
The success of the tunnel lining construction process, and its performance, relies heavily on consistent concrete characteristics. Having worked with project partners during the project set up and specification stages, including specification of batched delivery of 3600 tonnes of fibres (with a tensile strength greater than 1900 MPa), ArcelorMittal's technical team remained onhand providing detailed guidance on dosing, mixing and performance testing for the primary tunnel lining solution.

## The result ›

For the primary lining of the central tunnels, ArcelorMittal's technical team delivered pre project and onhand support for some 7,044 steel fibre reinforced concrete rings with a total precast concrete volume of 114,000m$^3$. The primary lining is constructed using SFRC rings made of 8 segments. Each ring is composed of 5 standard segments, 2 counter key segments, and 1 key segment. The internal diameter of each ring is 7.8m, with a thickness of 350mm and a width of 1.80m.

London's Thames Tideway Tunnel project represents a milestone in the application of steel fibre reinforced concrete for, not only sewerage and drainage tunnels, but also the combined use of pre cast TLS and CIP solutions. ArcelorMittal steel fibres have been used to reinforced pre cast concrete tunnel lining segments for the primary linings, while Cast-in-Place steel fibre reinforced concrete will be adopted for the secondary lining.

Please read our Thames Tideway Cast in Place case study for more information.

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CS_TT_V1_2022