

# Foreword



**Chris Sexton**

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I am pleased to have been asked to contribute a foreword to this timely publication. As work on the Crossrail programme comes to a conclusion and we pass the baton of largest infrastructure project in Europe to High Speed 2, this is a valuable collection of insights into the design and construction process for the structural elements of the programme. Crossrail has always been committed to sharing lessons learned, embodied most effectively in our Learning Legacy initiative, through which we have published many examples of insight and good practice on a dedicated website.

Crossrail is a programme involving the construction of 10 new stations, 42km of new tunnels including shafts, portals and viaducts, and the repurposing and upgrading of existing infrastructure. It has been an extremely complex scheme to design and construct, with some of the challenges being met for the first time in a generation. It is very positive for industry and the nation that we now have a pipeline of projects that will add value to the UK, and a reinvigorated workforce, skilled and ready, to deliver them.

The papers in this issue represent a good cross-section of the project's endeavours. Contributions are included from our framework design consultants, our contractors, consultants to our oversight development (OSD) partners, and designers working for our key industry partner, Network Rail.

Crossrail's design journey began with the outline feasibility designs created to enable

a Bill for the scheme to be submitted to Parliament. Alongside the Bill process, the design was developed by a framework of multidisciplinary consultants, who in most cases were successful in being appointed to become Crossrail's Framework Design Consultants (FDCs) after the Crossrail Act was passed. The civil and structural elements of the scheme were then taken to RIBA Stage F to enable construction contracts to be let with an employer's design. The FDCs were engaged through NEC3 Professional Services Contracts to deliver design packages which were location- or technical discipline-specific and the coordination between them was managed by the Crossrail Chief Engineers Group. We would encourage future projects to integrate design consultants into the project as closely as possible, as this fosters good communication and, ultimately, the best outcome for the scheme.

Collaboration on design is wider even than Crossrail Ltd. Our stations and other structures need to integrate into a dense world city, and to interface with existing railway infrastructure. To this end, we have worked closely with the OSD partners to provide structures that will support high-value developments which work for the railway user and will result in maximised financial contributions back to the scheme. We have also established a function to oversee the On-Network Works which acknowledges Network Rail's expertise and responsibility for its own assets, but ensures delivery to the functional requirements set down by our sponsors, the Department for Transport and Transport for London.

I would like to thank *The Structural*

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*Engineer*, and Guest Editor Gordon Masterton, for bringing us this special issue and would encourage those whose interest in the design and construction of the Crossrail programme is piqued by these papers, to seek out more at <https://learninglegacy.crossrail.co.uk/>

**Chris Sexton** joined Crossrail in 2010 as Technical Director. His accountabilities include engineering, integration, technical information, sustainability, quality and assurance. Chris joined Crossrail from Laing O'Rourke where he was Head of Engineering for the European business. His first career was in the Royal Engineers. His final military role was Chief Engineer of the Army, responsible for the UK's military engineering capability worldwide.

## FURTHER READING

Further information about the Crossrail programme is also available in the following dedicated publications:

- ▶ **Black M., Dodge C. and Lawrence U. (2015) *Crossrail Project: Infrastructure design and construction (Vol. 1)*, London: ICE Publishing**
- ▶ **Black M., Dodge C. and Yu J. (eds.) (2015) *Crossrail Project: Infrastructure design and construction (Vol. 2)*, London: ICE Publishing**
- ▶ **Black M. (ed.) (2016) *Crossrail Project: Infrastructure design and construction (Vol. 3)*, London: ICE Publishing**
- ▶ **Vaughan Williams R. and Black M. (eds.) (2017) *Crossrail Project: Infrastructure design and construction (Vol. 4)*, London: ICE Publishing**

*Proceedings of the Institution of Civil Engineers - Civil Engineering*

- ▶ **Volume 170, Issue 5: Themed issue on Crossrail Project: designing and constructing the Elizabeth line (May 2017, pp. 2-64).**
- ▶ **Volume 170, Issue 6: Themed issue on Crossrail Project: programme managing the Elizabeth line (November 2017, pp. 2-63).**