

Fisher Street - Shotcrete

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| Client: | BFK on behalf of Crossrail |
| Location: | High Holborn, Central London |
| Value: | £2m |
| Duration: | 4 Months |

In Brief...

Crossrail is Europe's largest railway and infrastructure construction project, under way mainly in central London to provide a new high-frequency commuter/suburban railway service.

Barhale undertook a technically challenging project in Holborn in central London working for BFK under the Crossrail project.

The scheme involved constructing a 30m deep shaft solely through the use of sprayed concrete lining (SCL) technique due to its flexibility in use. The shaft will be used for access into the underground tunnels.

Customer Benefits...

- Shotcrete method provides an improved settlement control with an increased flexibility in connecting to other underground structures
- Excavation and spraying were sequenced to reduce the settlement
- As-built of the excavation and lining profile were produced on a daily basis by using 3D modelling software
- RES (Required Excavation Support) methodology was used daily to control the size and sequence of the excavation and spraying profile.

Technical Features...

Sprayed concrete - Sprayed concrete consists of a mixture of cement, aggregate, steel fibres, admixtures, set accelerators and water. This is projected at high velocity from a nozzle into place to produce a dense, homogeneous mass

Quality control was strictly adhered to in order to comply with the material and workmanship specification for sprayed concrete linings

Testing - extensive trial and production testing was carried out in order to determine the performance of the steel fibre concrete applied.

Various concrete parameters were checked including: temperature, flow test, early strength, water permeability, flexural strength, fibre content and drying shrinkage



Nozzleman applying shotcrete using robot



460m³ base being poured by 43m boom pump