

# City Mill River Restricted Access Temporary Sheet Piling

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**Contract No:** C828a

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**Client:** Costain Skanska Joint Venture

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**Location:** City Mill River, Pudding Mill Lane, Stratford, London

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**Value:** Approximately £550,000.00

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**Summary:** Supply and installation of approximately 180no 12.0m long NSP.IV.W sheet piles to form various temporary retaining walls and cut off wall to allow construction of new bridge abutment foundations for Crossrail at Pudding Mill Lane.

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Sheet Piling UK Ltd were employed by Principal Contractor (Costain Skanska JV), to supply and install temporary sheet piling works within City Mill River to allow construction of new bridge abutment foundations as part of Crossrail Project.

The works were carried out within City Mill River which was temporarily backfilled above river level prior to works commencing. In addition, the site was adjacent to the Northern Outfall Sewer to one elevation and the existing Docklands Light Railway to another elevation.

The scheme was complicated further by being in close proximity to the Central Underground tube tunnel line and the northern cut off wall to the City Mill River having to be installed within restricted headroom under the DLR overbridge. Consequently, prior to works commencing, third party approvals for the sheet piling works were required from Crossrail, Network Rail, London Underground, Thames Water and the Environment Agency.

Originally, the sheet pile section has been specified by Crossrail's Consulting Engineers as an Arcelor AZ section. However, due to procurement issues with these piles from long ex. mill lead in periods and the limited availability of suitable pile pressing equipment for 'Z' shaped piles in the UK market; Sheet Piling (UK) Ltd own in-house technical division submitted an alternative design using a 600mm wide 'U' shaped Nippon Steel NSP.IV.W section which was in full compliance with Eurocode 3 Part 5 which was approved by Crossrail.

The most technically challenging aspect of the scheme was installation of sheet piles under the existing DLR overbridge to form a cut off wall for the new bridge abutment works. The maximum headroom available under the bridge was restricted to 4.0m and consequently Sheet Piling (UK) Ltd utilised a Giken UP150 Pile Press together with a JR22 Super Jet Reel for water lubrication/jetting. The overall height of the system was 3.8m leaving only 200mm of clearance under the bridge.

The 12.0m long piles were delivered to site in pre-cut maximum lengths of 3.0m and were pre-profiled ready for butt welding on site. The butt welding was carried out to a Lloyds Accredited Welding Procedure with associated Welder Qualifications and an Independent Weld Testing regime all to the approval of Crossrail.

Use of Giken Super Jet Reel system for water lubrication/jetting is particularly suitable for restricted access/headroom piling and removes the requirement for a full pile length 'traditional' jetting lance.

The works are due to be completed in June 2011.

## Project Images

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