



WATERPROOFING A PRECAST CONCRETE TUNNEL

Service Tunnel Waterproofing Beneath the EdCity Development, London

THE EDCITY DEVELOPMENT

[EdCity](#) is a not-for-profit partnership between national education charity [Ark](#) and Hammersmith & Fulham Council. With £150m of investment, EdCity aims to build a place that will make a difference to local people in White City, including:

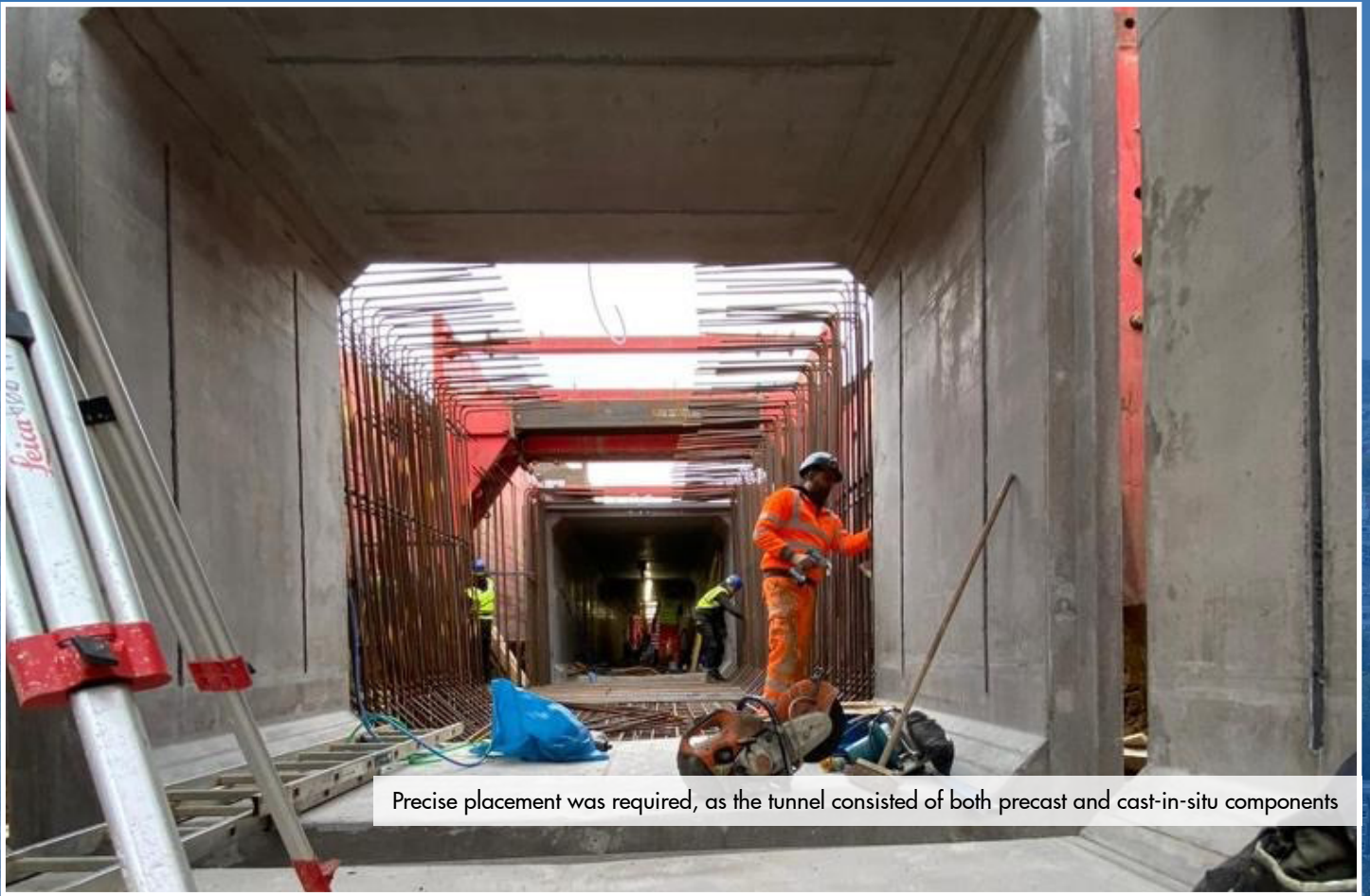
- Education and youth facilities: A state-of-the-art new primary school, as well as a nursery, adult community education centre, and a youth zone for young people.
- Affordable housing and new community space: Providing 132 affordable homes for local people and key workers.
- Office space: 10-storey, 95,000 sq/ft net office building.
- Public realm: Public spaces and pedestrian and cycle routes, improving community transport and accessibility

Phase One of EdCity began in July 2021, starting with the primary school, residential, youth zone and office building.

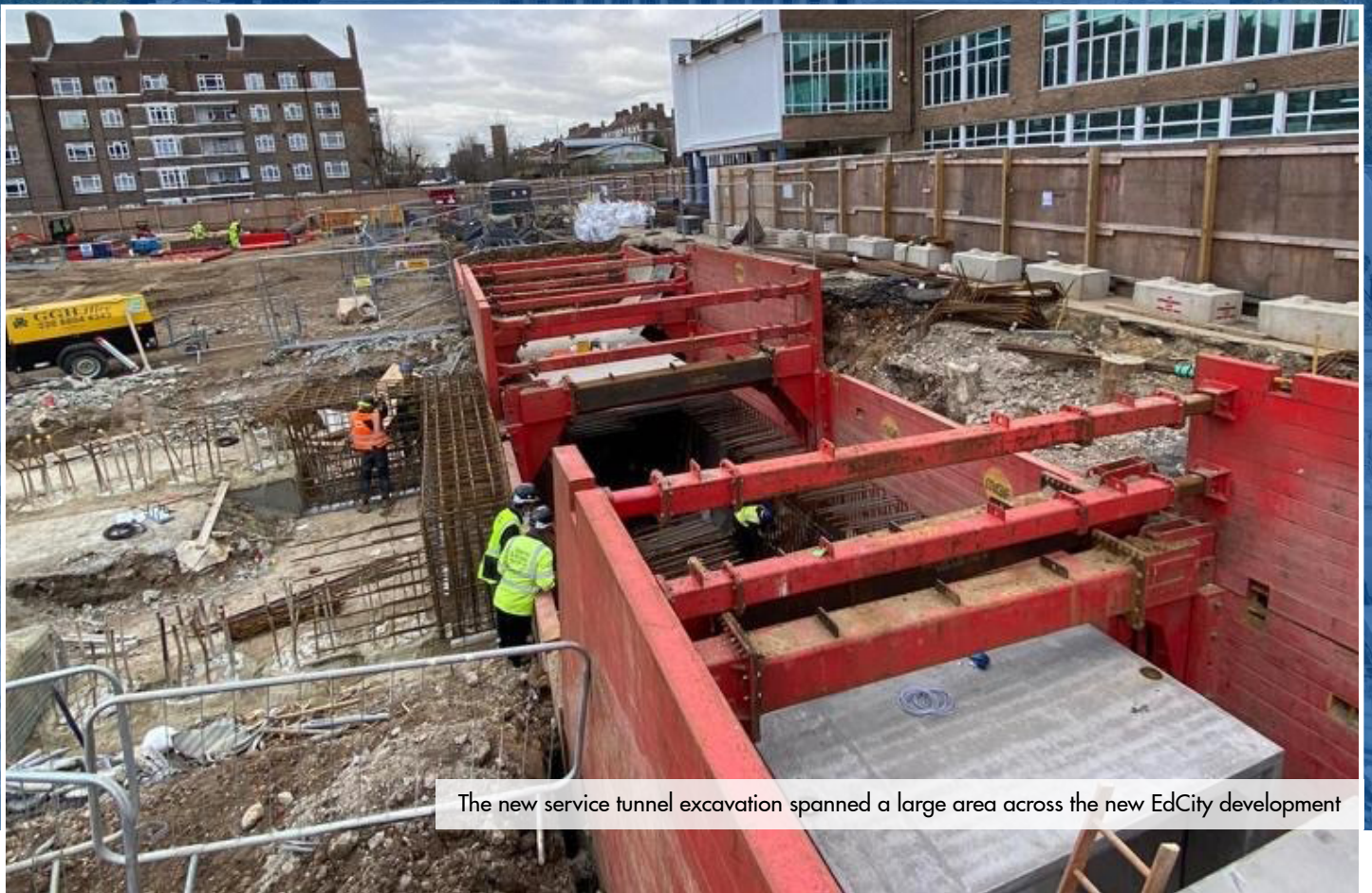
The primary school opened in Autumn 2023 and Phase Two also began on the nursery, adult education centre and affordable homes. The project is due to be completed in 2025.



The precast concrete tunnel sections were lowered into place



Precise placement was required, as the tunnel consisted of both precast and cast-in-situ components



The new service tunnel excavation spanned a large area across the new EdCity development

Waterproofing a Precast Concrete Tunnel

Service Tunnel Waterproofing Beneath the EdCity Development, London

PROJECT SCOPE

The project required a large service tunnel linking the energy centre to the other buildings within the EdCity development.

The project engineers [Mason Navarro Pledge](#) and main contractor [Bowmer & Kirkland](#) developed a construction strategy that utilised precast tunnel sections. In-situ concrete elements were also cast into place where the tunnel adjoined the other buildings and at changes in direction.

Finally, the boulevard above the tunnel is also used for pedestrian and emergency vehicle access. The design therefore had to allow for movement in the joints from settlement and future loading.

THE SOLUTION

Newton and our specialist contractor [ASF Waterproofing Specialists](#) worked together to develop a two-stage solution. The first created an integral seal in the joints using [PC 509 Rubber Acryl](#), a highly elastic acrylic rubber injection resin that was contained within the joints using [HydroCoat 203-RM](#) repair mortar and backing rods. As with all bonded systems, substrate preparation was a key element of the installation.

The second stage created an internal seal using [HydroCoat Monoflex](#), a flexible waterproof bandage combined with a solvent-free epoxy adhesive. The result is a waterproof seal that is easy to install and has excellent adhesion over construction joints that are subject even to extreme movement.

THE RESULT

The technique and sequencing for the base, sides and roof of the tunnel were all different, but still needed to provide a continuous seal along, around and through the whole joint.

Despite this, ASF were able to deliver an installation of Type A and Type B waterproofing to [British Standard 8102:2022](#).



ASF's operatives prepare the resin before application



ASF have specialist operatives trained in injection resins



With all concrete sections in place, the joints could be sealed, with backing rods holding the material in place

Waterproofing a Precast Concrete Tunnel

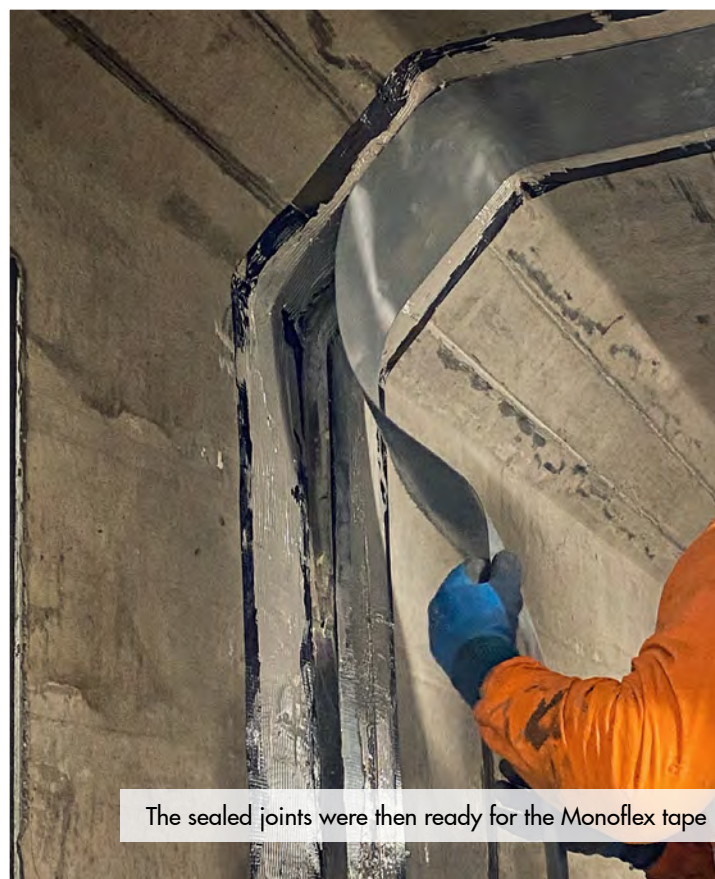
Service Tunnel Waterproofing Beneath the EdCity Development, London

PRODUCTS

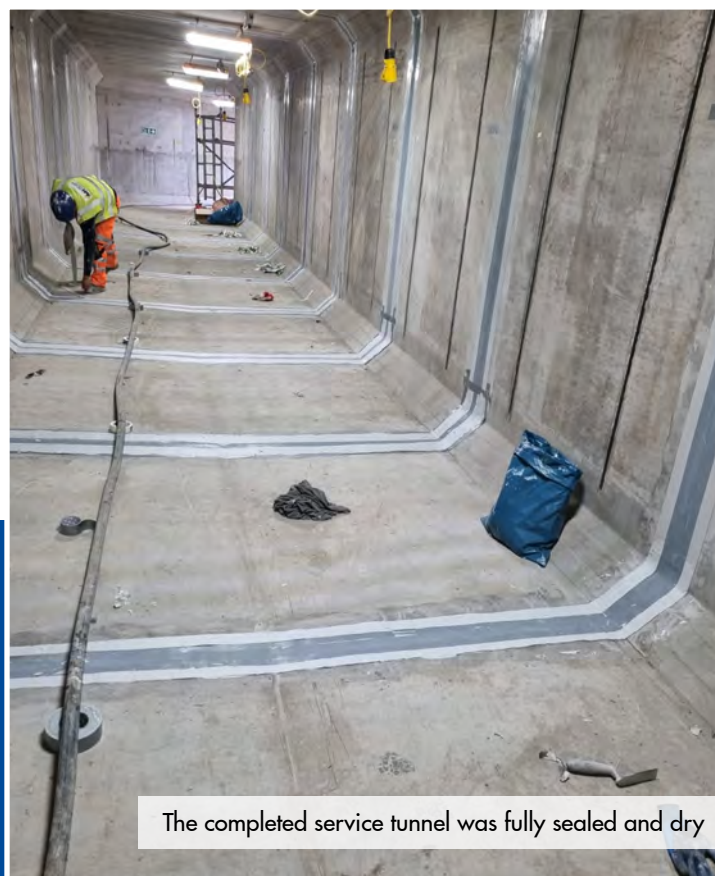
- [HydroCoat 203-RM](#) - Single-component, fast-setting, cement-based structural mortar for the durable repair of concrete. Polymer-modified, and fibre-reinforced, it quickly exhibits high adhesive and compressive strength.
- [PC 509 Rubber Acryl](#) - A five-component, highly elastic acrylic resin with low viscosity. Properties include excellent cohesion upon swelling and good stability. Ideally suited for water sealing underground structures and curtain injections.
- [HydroCoat Monoflex](#) - A high performance joint sealing system for construction, movement and expansion joints. Particularly suitable in areas where irregular, high and/or frequent movement is expected, as it accommodates movement whilst maintaining the waterproof seal over the joint.

NEWTON CONTRACTOR

ASF Waterproofing Specialists



The sealed joints were then ready for the Monoflex tape



The completed service tunnel was fully sealed and dry

Newton Specialist Contractors

We recommend that our systems are installed by one of our nationwide network of Specialist Basement Contractors (NSBCs). Trained by us, NSBCs offer a full guarantee on the design and installation, and can act as Waterproofing Design Specialists.

