

BRILLIANT BUILDINGS

PERRY BARR

Raising the Barr

Willmott Dixon takes MMC to the next level with 430 apartments for Birmingham City Council



HOUSING DELIVERY AT ITS MOST INNOVATIVE

Willmott Dixon played a vital role in the revitalisation of Perry Barr in Birmingham, harnessing new technology and modern methods of construction to accelerate the delivery of more than 400 new apartments.

The vision for Perry Barr was to create a neighbourhood bustling with new activities and vibrancy, supported by much-needed housing – some 5,000 homes within the next two decades. Working with Lendlease – which managed the construction of 968 homes across the site – we delivered plots 8 and 9, creating 430 new apartments for the city council, as part of the Perry Barr Residential Scheme (PBRs).

From the start, modern methods of construction (MMC) were a key element of the apartment buildings, which feature light-gauge steel frames, brick slip facades and almost 700 bathroom pods. By adopting more standard configurations and manufacturing approaches, our team was able to design the scheme in just 13 weeks, where it might have taken two years for a more traditional build.

Our wealth of offsite expertise also contributed to rapid delivery of the plots. Thanks to the speed and quality of the project, the customer also chose our team for the fit-out of plots 8 & 9, for which we installed kitchens as well as decorated all apartments and common areas.

Our approach has had a long-term impact on the way Birmingham City Council plans to deliver projects. We're proud to say that, having witnessed this building method alongside traditional construction, the council says it has rethought future approaches for both commercial and residential schemes.

Over the next ten pages, Brilliant Buildings tells the story of this landmark regeneration project – and how it could set a template for the future design and build of high-density homes.



Nick Gibb, deputy managing director, Willmott Dixon

PERRY BARR: KEY OUTCOMES

1

430 exemplary, high-quality homes, helping to deliver Birmingham City Council's vision for the regeneration of Perry Barr

2

Use of MMC provided programme surety versus traditional build programmes

3

134 jobs created for local people – increasing new construction talent

4

£46.5m of the £78m project spent within 30 miles of site

5

PBRs plots 8 & 9 generated 20% of the waste of a comparable traditional scheme

6

Social value return on investment equated to £1.6m across our plots

"WILLMOTT DIXON WERE OUTSTANDING. THEY WERE ON TIME, ON BUDGET AND ON QUALITY."

MUMTAZ MOHAMMED, PROJECT LEAD, BIRMINGHAM CITY COUNCIL

On site

Number of homes: **430 for rent and sale**

Project value for the two sites: **£78m**

Number of offsite manufactured bathroom pods: **700**

Time taken to complete: **114 weeks**

Project partners: **Corstorphine & Wright; Hoare Lea; Derek Evans & Partners**

HOW FACTORY FABRICATION WON THE DAY

Light-gauge steel frame, brick slip facades, and bathroom pods helped Willmott Dixon to build 430 apartments quickly and defect-free during the pandemic – and within a budget that was affordable to Birmingham City Council.

Our plots on the Perry Barr Residential Scheme demonstrate the impact of MMC. This is a way to build more efficiently and often more quickly, by manufacturing and assembling building elements in a factory and reducing the work needed on site. MMC also reduces risk and increases programme certainty.

Following government encouragement and numerous high-profile reports that stressed its many advantages – including 2016's Farmer Review – more progressive clients and contractors are increasingly turning to MMC to deliver new homes.

So, when we were appointed by Lendlease and Birmingham City Council in 2019 to deliver 430 one and two-bedroom apartments on the Perry Barr Residential Scheme, MMC was a clear option. We began discussing the merits of this approach with Birmingham City Council from the earliest opportunity.

The advantages

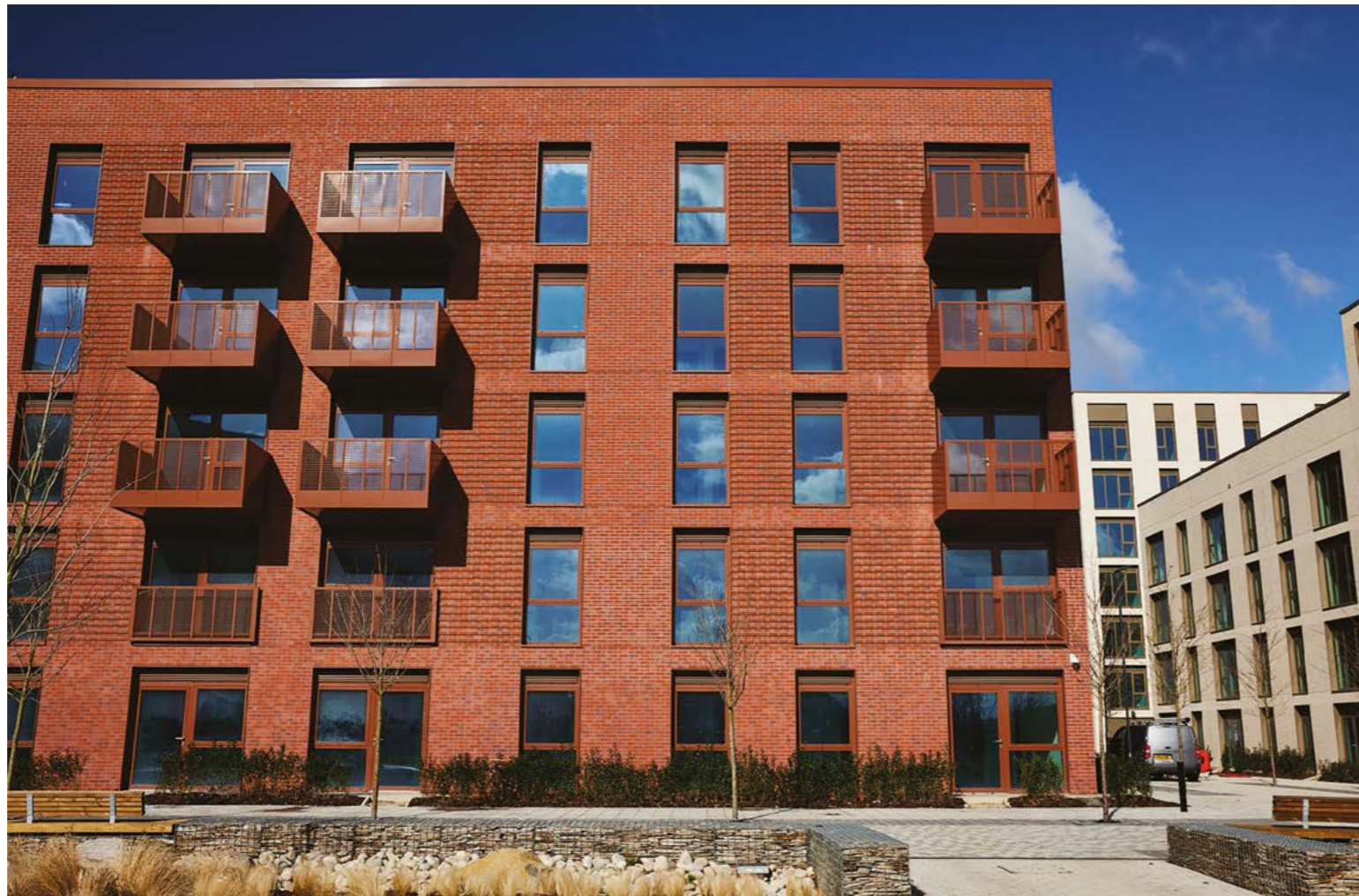
Nick Gibb, deputy managing director of Willmott Dixon, led early discussions on our work in Perry Barr. He says: "We spend a lot of time talking to customers about MMC because we believe that in the right circumstances – and certainly not in every case – it can be the best solution.

"Sometimes customers tell us they see it as too risky and too expensive. But we have done enough analysis to prove that MMC, when used in the right situations, is beneficial and offers greater efficiency than traditional build methods.

"One of its great advantages is that it gives far more programme certainty and with greater quality. And there are so many other advantages such as carbon reduction, greater safety on site and far less fire risk," he adds.

Solving customer challenges

Anna Evans was the project director at Lendlease and oversaw the whole scheme's construction programme. She says: "The council put new housing at the heart of the area's regeneration, which was accelerated by investment secured to host the Birmingham 2022 Commonwealth Games. It kicked off with significant new housing provision in Perry Barr – totalling 968 homes."



"DELIVERING THE HOMES USING ONLY TRADITIONAL BUILDING TECHNIQUES WAS TOO GREAT A RISK."

ANNA EVANS, PROJECT DIRECTOR, LENDLEASE

This saw Willmott Dixon and two other tier-one contractors appointed across four plots. We worked closely with the council to understand what they wanted to achieve and when. This led to us proposing an MMC solution for our two plots, which the council accepted.

Evans adds: "At a time when external factors, particularly Brexit, were wreaking havoc on materials and resources, delivering the new homes using only traditional building techniques was far too great a risk, particularly in a heated Midlands market and with the scale of other works planned in Perry Barr simultaneously."

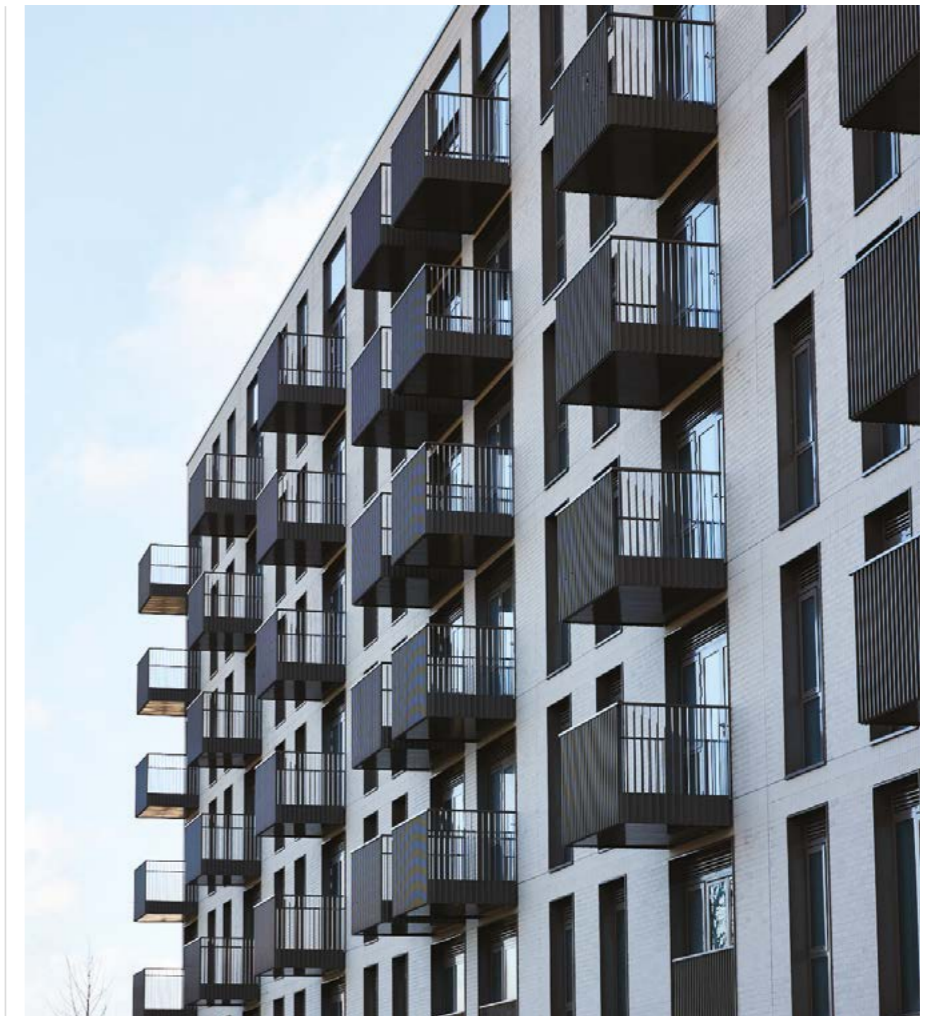
Reducing risks and wastage on site

Chris Warren was Willmott Dixon's senior operations manager for plots 8 & 9. He says: "I became involved during the summer of 2019 and developed the programme - MMC gave

greater assurance over programme. It also reduced the risk of over-stretching the resource pool, given the level of development in the local area.

"This choice of construction method provided the customer with a product that was quicker to build because of reduced susceptibility to inclement weather, repetition through standardisation and installation. It also reduced wastage, with Perry Barr producing 20% of the waste of a comparable traditional project."

Above and right: The mechanically fixed, brick slip facades required no scaffolding – improving safety and eliminating temporary works. The method also reduced cement use by 80%.



"MMC REDUCED THE RISK OF OVER-STRETCHING THE RESOURCE POOL."

CHRIS WARREN, SENIOR OPERATIONS MANAGER, WILLMOTT DIXON



FAST TRACK TO A VIBRANT NEIGHBOURHOOD

Like many towns and cities across the UK, Birmingham is under pressure to increase housebuilding. Nearly 80,000 new homes are needed in the next two decades, and around 5,000 of these are being earmarked for Perry Barr, 15 minutes north-west of the city centre.

Birmingham City Council identified more than 60 hectares of land for new homes – a footprint equivalent to three Wembley Stadiums – all within a short distance of Perry Barr. The idea is to create a vibrant neighbourhood, and since 2020 the city has spent £700m regenerating the area. As well as new homes, there have been improvements

“I HAD NOT WORKED WITH WILLMOTT DIXON BEFORE, BUT I WILL BE HAPPY TO WORK WITH THEM AGAIN. THEIR PLOTS QUICKLY BECAME THE BENCHMARK FOR THE REMAINDER OF THE SCHEME.”

DAVID CRITCHLOW, SENIOR PROJECT MANAGER, LENDLEASE

to public transport, walking and cycling routes, new community facilities and lively public spaces, as well as a new secondary school. Perry Barr's Alexander Stadium, already a focal point for international and regional athletics, was transformed to host the Birmingham 2022 Commonwealth Games.

The Perry Barr Residential Scheme – including the new homes we built – was on the site of the former Birmingham City University campus. Planning consent for this scheme was secured in December 2018. Construction of the first 968 homes started in January 2020 and was completed in stages by spring 2023. These homes are being marketed for rent and sale, some at a discounted price for first-time buyers.

Project design

Our team, together with partner architect Corstorphine & Wright, designed the project in just two weeks. Within 13 weeks we were on site, with early orders already placed for crucial offsite components.

The timetable meant the team had to design and procure for offsite manufacture during the planning application.

The approach was also more sustainable, explains senior operations manager Chris Warren: “As well as vast improvements in waste, our carbon footprint was reduced massively. Compared to other methods, MMC considerably reduces onsite waste due to the factory nature of the build. The reduced weight of the construction system meant that foundations are decreased by up to 70% relative to concrete and blockwork construction.”

The ability to install 15-20 bathroom pods per day, along with all the other advantages of MMC, saw us handover the project six weeks earlier than planned.

The labour advantages were equally impressive. The steel frame required 25 people on site to assemble, compared to 160 for an equivalent concrete frame. No scaffolders were required, due to the use of brick slip cladding.

This was a major advantage during a period of market turbulence, caused by Brexit and the pandemic, as well as a limited labour pool, which was already stretched due to simultaneous building on other nearby sites.

Left: The buildings are based on a steel-framed panel system, which requires 70% less foundations than traditional methods.



Key components of an MMC apartment block

Ground-floor plant rooms, cycle stores and entrance lobbies

Stairwells and lift access from all lobbies to apartment-access corridors up to level six

Terrace access at levels 4 and 5 only

Electrical risers and smoke shafts in each block

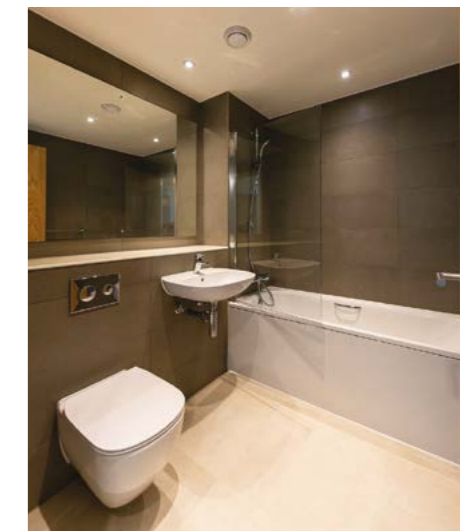
Utility services in the form of electric and water only, all heating being electrically sourced.



Above right: The project included 430 new apartments.

Right and below: Following the successful delivery of plots 8 & 9, Willmott Dixon was also appointed to fit kitchens and carpets to the homes.

Below right: The project included the installation of 700 bathroom pods, at a rate of 15-20 per day.



A WIDER COMMITMENT TO THE COMMUNITY



“THIS REGENERATION WAS ABOUT MUCH MORE THAN BUILDING HIGH-QUALITY HOUSING. AS WELL AS DELIVERING COMMUNITY PROJECTS AND ENGAGING WITH SCHOOLS, WE CREATED 134 JOBS FOR LOCAL PEOPLE AND 34 APPRENTICESHIPS.”

MARIE WILKES, HEAD OF SOCIAL VALUE,
WILLMOTT DIXON

Left and above: As well as new homes, the £700m regeneration scheme includes improvements to public transport, walking and cycling routes, new community facilities and public spaces.

Birmingham City Council wanted the Perry Barr Residential Scheme to benefit the community, not only when it was completed, but also while it was being built. We were completely aligned with this aspiration.

Marie Wilkes was our head of social value across this project. She worked with other contractors to benefit local communities collectively. Willmott Dixon’s contribution to social value return on investment totalled over £1.6m.

“This regeneration was about much more than building high-quality housing in Perry Barr,” says Wilkes. “We worked with Lendlease and other contractors to deliver a host of community and economic activities that will benefit local people now and in the future.

As well as delivering community projects and engaging with schools, we created 134 jobs

for local people and 34 apprenticeships, she adds. “On top of this, together with Lendlease and the other plot contractors, we supported 2,800 students and dedicated almost 40,000 hours to supporting young people in work.”

To promote jobs and training opportunities in local communities, we worked with Birmingham City Council’s Employment Access Team on a variety of initiatives. “These included a Construction Skills Hub giving local people access to pre-employment training programmes to help them gain the skills required by construction employers. The Hub supported the training of women through the Women into Construction programme sponsored by the Home Builders Federation.”

Another initiative at Perry Barr was the partnership with RMF, a social enterprise that focuses on finding work for ex-offenders,

ex-military personnel, the BAME community, women in construction and the long-term unemployed. Through this scheme, Willmott Dixon successfully employed 12 people in conjunction with our supply chain partners.

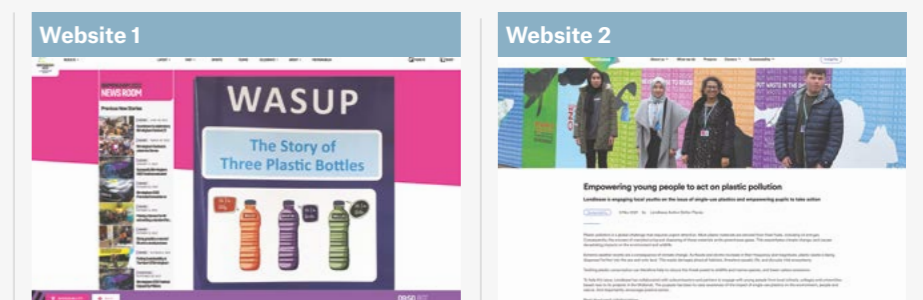
“We had similar success with the government’s Kickstart Scheme, where we placed three 16-to-24-year-olds for a period of 24 weeks,” says Wilkes. “One individual extended that period through to our project completion and Chris [Warren, senior operations manager] mentored him personally.”

Mumtaz Mohammed, programme manager for Birmingham City Council, praised Willmott Dixon’s efforts, saying: “The social value that has been delivered will leave a lasting legacy in the community, with a number of job opportunities created, school visits delivered and a significant amount of local spend achieved.”



Read and recycle: Book leaves its mark by inspiring local children

The main contractors on the scheme came together during the project to help fund a book that teaches children about the importance of recycling and aims to inspire them to look after the planet. It was created by Professor AR Gatrad, founder of World Against Single Use Plastics (WASUP), and Suzanne Kalloghlian, a teaching assistant and children’s author, and is a fantastic project legacy.



TECHNOLOGY THAT DELIVERS PEACE OF MIND

We seamlessly integrated technology to improve the customer experience, as well as to increase efficiency and quality.

One example is the use of laser scanning and heat mapping to survey the project with great accuracy as it was built, to compare against the initial digital model.

This was especially useful during the installation of the facade. By scanning and heat mapping to determine any parts of the external walls that varied from the model, we were able to precisely brief the installation team of any deviations ahead of time, rather than waiting until arriving on site. With lead times of up to six weeks on each bracket used to fix the facade, this saved significant time.

Full internal mapping

Augmented reality was also used in the internal areas, with apartments scanned at various stages of the construction, from the installation of the light-gauge steel frame all the way to M&E and fire protection installation.

This created a full internal map that provides an accurate picture of any wall inside the building, showing where services are installed, and thereby saving time during the fit-out and inspection process.

"These comparison images are a great way to clearly see how much work has been completed and which stage of the transformation process has been reached," says senior operations manager Chris Warren.

"Images can be updated as regularly as required, ensuring that the customer is always informed on how the scheme is developing in real time, further supporting our mission to work as collaboratively as possible."

Enhancing fire safety

Digital scanning also enabled the site team to check the positioning of fire-stopping barriers against design to ensure they were correctly positioned to stop the spread of flames if a fire were to occur. In a more traditional build, this is trickier to achieve. Using scanning technology provides photographic evidence showing exactly where the barriers are and provides peace of mind for customers and residents.

'A golden thread'

Using technology helps contractors, designers and developers to comply with the Building Safety Act 2022 and the requirement to provide a golden thread of information for residential construction of 18m or seven storeys and upwards. It demonstrates the building was completed in exactly the way it was designed, with all the fire safety measures in place – a necessary condition as part of Gateway 3.

A new process under the Building Safety Act, Gateway 3 requires the contractor to hand over an extensive set of information to allow the developer to register the property with the Building Safety Regulator before it can be occupied.

"DIGITAL MAPPING IS A GREAT WAY TO CLEARLY SEE HOW MUCH WORK HAS BEEN COMPLETED AND WHICH STAGE OF THE TRANSFORMATION PROCESS HAS BEEN REACHED."

CHRIS WARREN, SENIOR OPERATIONS MANAGER, WILLMOTT DIXON

Left and below: The buildings wrap around a secure, landscaped courtyard garden.



Birmingham City Council's verdict

The resulting 430 homes vindicated Birmingham City Council's decision to back the use of MMC. Mumtaz Mohammed, Birmingham City Council's lead on the project, says: "Willmott Dixon were outstanding. They were on time, on budget and on quality."

Looking back at the early days of the project, he says: "Things started slowly and there was a big learning curve. MMC is slower up front while doing design and sub-structure, when comparing to traditional build.

"With three different contractors on site using different techniques, we could compare pace of progress. One director was concerned with the pace of progress with MMC given the project programme, but Lendlease and Willmott Dixon were confident. And once the structures were up, Willmott Dixon raced ahead. Their management of the stakeholders was brilliant.

"The quality of finish of the bathroom pods is much better and time taken to fit was significantly quicker."

He adds: "MMC's benefits must be balanced. We're certainly now looking at using MMC in other areas, such as housebuilding and commercial spaces."





WILLMOTT DIXON

SINCE 1852

**BRILLIANT
BUILDINGS**

Willmott Dixon is a privately-owned contracting and interior fit-out group. Founded in 1852, we are family-run and dedicated to leaving a positive legacy in our communities and environment. Being a large company means we can create a huge and lasting positive impact on our society. This is not only done through what we build and maintain; it's achieved through the fantastic efforts of our people who make a major contribution to enhancing their local communities.

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Scan the QR code
for more information



For more on the wider regeneration of Perry Barr, see
www.birmingham.gov.uk/info/50253/perry_barr_regeneration

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