

Building the railway

Construction steps up at Old Oak Common

Permanent works are due to begin at Old Oak Common this month as we start to construct the largest newly-built station in the UK for 100 years.

The station is being built on the site of a former railway depot three miles west of Paddington. It will link high-speed trains with the Elizabeth Line (Crossrail), Heathrow Express and the Great Western main line, serving up to 250,000 passengers a day.

"Having spent 18 months developing the design, procuring suppliers and undertaking enabling works, it's exciting to see the permanent works beginning," said Nigel Russell, project director for construction partner Balfour Beatty VINCI SYSTRA (BBVS).

The team will begin by building the 850m reinforced concrete box structure, 20m deep, that will house six 'sub-surface' platforms for HS2 services.

"We are about to commence work on the diaphragm wall that will surround the

box," said Emmanuel Pringalle, senior package manager in charge of piling. "We'll also install 161 piles to support the construction of the box."

The challenges are in scale and logistics. Emmanuel said: "It's a very significant piece of foundation works to be done in one go, on a constrained site with only one entrance and exit."

As well as the box, BBVS is tasked with building eight conventional rail platforms together with 34 staircases, 44 escalators and 52 lifts to connect the different levels.

A vast, arched roof will unify the space, allowing in natural light and creating a calm atmosphere. Its design has been modified to use 27 per cent less steel, saving more than £7 million. The roof will be mounted with 3,000 square metres of solar panels to generate clean energy for the station.

"We are aiming for the best possible BREEAM rating," said Rachel Cakebread, of WSP, design partner for the integrated



The station site last month

project team (IPT). "The design is working hard to achieve different aims, from avoiding pollution to operating with net zero carbon."

Innovative measures include recycling surface water run-off, which can be used to flush toilets and controlling the station's temperature with air source heat pumps, powered by solar energy from the roof.

Outside, there are plans to create a public park including trees, water features and outdoor event spaces as well as a surface transport hub.

Old Oak Common will not only benefit passengers. It is at the centre of a major

regeneration project including new housing and commercial development that is set to create tens of thousands of new jobs and homes, giving the local area an economic boost worth billions of pounds.

With works due to complete in 2030, BBVS's Nigel Russell believes the IPT's team spirit will get the job done. "The strength of Team Old Oak is in integrated, collaborative working. I have been really impressed with how people have come together in a virtual world to keep the project progressing and I'm looking forward to building on this solid foundation when we finally get to be together on site."

Curzon Street station deal to create 1,000 jobs

Joint venture Mace Dragados, winner of the contract to build Birmingham's new HS2 station, is set to create more than 1,000 jobs and boost the West Midlands supply chain.

The new jobs, welcomed by HS2 Minister Andrew Stephenson on a visit to the Curzon Street site, includes about 100 new entrant roles and 100 apprenticeships.

Roles will be created in environmental management, community engagement and health, safety and wellbeing as well as traditional construction jobs. The station contract, worth up to £570 million, also opens up

opportunities for supply chain companies in the West Midlands, with 40 per cent of project spend set to go to SMEs.

Jason Millett, Mace Group board director, said: "The scope for job creation and upskilling is huge and we are committed to making sure our recruitment approach places emphasis on local people, local business and the next generation.

"Indeed, the learning opportunity for people entering the industry will be second to none and this project will help to close the skills gap in our industry."

The signing of the contract took place at Curzon Street ahead of the

city introducing a Clean Air Zone on 1 June. Early works contractor LMJV (Laing O'Rourke and J Murphy & Sons Joint Venture), demonstrated clean construction innovations including the world's first 250-tonne battery-powered crawler crane, eco-hybrid trucks, an electric sweeper, a generator powered by hydrogenated vegetable oil, solar-powered generators, recycled curbing and sustainable asphalt.

The station design has achieved the BREEAM 'excellent' rating, which is an industry recognised standard for buildings that reduce energy use and materials waste and minimise impact on the natural environment.



HS2 Minister Andrew Stephenson

New college placements with HS2



Student Eshana Kainth

Main works contractor BBV is partnering with Walsall College to provide T-level students with an industry placement and the opportunity to work on HS2.

Students aged 16 to 19 studying the T-level in Construction, Design, Surveying and Planning will spend 45 days with the joint venture as part of their two-year course. During that time, they will get to contribute first-hand to Europe's biggest infrastructure project with practical learning in areas such as engineering, logistics, innovation, design and engineering as well as concrete batching. T-level student Eshana Kainth says: "At the moment, I'm working on a project in college to design and build a four-

bedroom detached house with a budget of £575,000. I'm really enjoying learning the whole process and finding out about different building materials and the regulations you must comply with.

"I'm excited to be starting my placement with BBV and working on HS2. It's a really amazing opportunity. To see how design and engineering works in real life will put it all into perspective. I'm particularly interested in architecture but if I see something else during the work placement I like I'm open to that idea as well."

Eshana adds: "If I tell people I'm doing construction they are quite shocked because it's still seen as male-dominated but it's just another job that anyone can do if they work hard."

BBV is keen to support the introduction of new qualifications with about a quarter of the railway workforce due to retire by 2028.

Shilpi Akbar, head of stakeholders and communities at BBV, says: "Supporting the new T-level means we can directly help shape future talent, ensuring that learners can experience our industry first-hand alongside members of our best-in-class workforce."

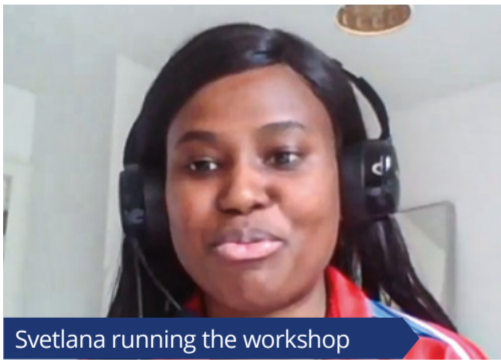
SCS building pupils' aspirations

Ask most people to imagine an engineer and they probably wouldn't picture Svetlana Joao. That made the Angolan-Portuguese structural engineer the perfect role model to represent Skanska Costain STRABAG joint venture at Netley Primary School in the diverse London borough of Camden.

Svetlana was one of four team members to run virtual workshops last month as part of an SCS scheme called 'I SEE ME'. Children in Year 4 were told about the HS2 Project and the jobs it is creating across the UK.

"It was a good opportunity to break any stereotypes the students might have had about engineers," says Svetlana. "I also wanted to help them raise their aspirations, and especially to encourage more girls to consider STEM careers."

The children took part in their 'spaghetti' building activity enthusiastically during Svetlana's session, asking questions



Svetlana running the workshop

about building materials, processes and safety. SCS's skills, education and employment lead Rosemarie O'Donnell devised the initiative. She says: "The concept came from talking to schools, who felt that a lot of the role models children saw in the curriculum weren't representative of their own backgrounds. For us, it was a way to make our careers engagement as effective as possible."

Rosemarie is now looking to book in sessions with schools across the seven boroughs touched by the SCS project. "We are going to be one of the major employers in the area for a long time, so we want to build young people's knowledge of construction, STEM and engineering and help them into strong, reliable work," she says.

"Hopefully some of the teenagers we're talking to now will go on to our graduate programmes."



Align starts to recruit tunnelling apprentices

More than 250 people attended the official launch event for Florence, HS2's first tunnel boring machine (TBM), at the South Portal in May.

And as the 170m TBM set off, Align joint venture announced it is creating nine tunnelling operative apprenticeships.

"This is a unique opportunity for nine individuals to begin their construction career as part of the team building the longest tunnels on HS2," says Tina Bailey, HR director for Align.

The apprentices will get a range of practical, on-the-job training, working alongside team members with experience from tunnelling projects including Crossrail and the

Channel Tunnel. They will spend 20 per cent of their time on a study programme to further build their knowledge of construction, infrastructure and engineering.

"We actively encourage applications from local people, particularly those who are unemployed, and really hope to attract interest from female candidates, the under-25s and those with disabilities," says Tina.

The programme is part of our skills legacy for the UK, helping to support emerging talent into careers in tunnelling, adds Neil Hancox, chair of TunnelSkills.

- More information about the apprenticeships can be found on HS2's online jobs board.

Fusion's work experience bridges the skills gap

Young people are taking part in week-long placements with Fusion JV to learn about the challenges faced by enabling works contractors.

"It's all about inspiring the next generation," says Becky Tranter, Fusion's skills and employment manager. "We know there is going to be a skills shortage in this sector, so we need to engage with young people from an early age."

Students aged 14 to 18 are given a 1km section of the high-speed route and are tasked with solving the archaeological, ecological or engineering challenges associated with that particular section.

They attend sessions with experts and present their findings at the end of the week. There are also workshops offering advice on preparing for interviews and writing CVs.

"Some of the students come in with a set career in mind and some with no idea at all, but by the end of the week they have

had their eyes opened to lots of careers they never knew existed," says Becky.

"They definitely gain confidence throughout the week and that's really rewarding to see. Most of our programmes have had a 50/50 split in terms of gender and it's fantastic to see all these young women who want to go into engineering."

Before the pandemic, pupils attended Fusion's office in Birmingham but Covid-19 led to the programme going virtual. This has had the advantage of widening participation with schools in Buckinghamshire, Oxfordshire and Northamptonshire getting involved. Over the past 12 months, nearly 90 young people have taken part.

One student said: "Although leaning towards aeronautical engineering at the beginning, I found it immensely interesting to gain further insight into varied career routes which I had not considered."



BBVS designing for diversity

Old Oak Common station will be used by people from all walks of life. With this in mind, Balfour Beatty Vinci Systra (BBVS), part of the integrated project team building the station, is making sure its team reflects the local community.

The joint venture is taking part in a Greater London Authority (GLA) Design Lab to support young black men into employment. About a third of black men aged 16 to 24 are unemployed compared with 15% for their white counterparts, says the GLA – suggesting they face additional barriers to finding work.

BBVS has joined 10 other employers on a 12-month programme to design and test strategies to combat the problem.

"We have an exciting opportunity to contribute to the regeneration of the area around Old Oak Common and in doing so we are keen to target communities that have been historically neglected and disadvantaged, particularly African-Caribbean men,"

says Alpa Kapasi, equality, diversity and inclusion manager for BBVS.

Through the Design Lab, the team has attended workshops focusing on themes like inclusive recruitment, looked closely at their diversity data and are considering what actions to take, says Alpa. "The Design Lab will enable us to improve standards and drive greater inclusion in our industry."

Meet some of the people working on HS2



Iain Campbell
Plant operative, EKFB
EKFB

'The training has been a fantastic opportunity'

"I was made redundant last May from my job as a data centre team manager having worked in IT for over 30 years," says father-of-five Iain Campbell.

"Covid meant everywhere just shut down and I couldn't find another job. I was applying for about three jobs a day... it was mentally challenging, almost to the point where I was close to suffering depression.

"I hadn't thought about construction before and then I saw a news report about EKFB offering free training, so I

looked it up on the website. The chance to drive big machines floated my boat. If you look at the bigger picture, there's a lot of construction projects around, so there's going to be plenty of work.

"I did the articulated dump truck training with provider Apple Construction. I was a bit nervous about operating a 20-tonne machine, but I took my test and got my ticket. I'm now working with L Lynch Plant Hire who put me through further training, so I'm now qualified to operate a roller, forward tipping dumper and track dumper.

"I'm still getting used to construction but the job I'm on now is brilliant. It's a massive infrastructure project and I'd love to do more on HS2. The training has been a fantastic opportunity. I'd almost eaten up all my redundancy money. If it wasn't for HS2 and EKFB, I would still be unemployed."

More than 700 people who were jobless or had never worked in construction have gained industry standard experience through the EKFB training hub.



Tareq Swaya
Computer science graduate, BBV
Balfour Beatty VINCI

'I successfully completed a work placement'

"I studied Computer Science at Birmingham City University (BCU) and graduated with a first-class degree but struggled to find work after leaving university in July 2020. The pandemic made it harder.

"To boost my career potential, I joined and successfully completed a work placement with BBV, securing a job as a digital transformation technician.

"I'm learning new skills, which you can only really develop in the workplace, as I'm working on real projects and seeing

and understanding all the various inter-dependencies and challenges.

"I work on projects within the innovation and transformation team. I train and support staff and subcontractors to adopt and use new business technologies in the collation and processing of data and information."

Junaid Mangera, digital transformation manager at BBV and Tareq's line manager, says: "Tareq has brought new skills to the team that we simply didn't have. His technical knowledge and

understanding have added real value to our team, allowing us to progress elements of the Project sooner, saving both time and money."

Shilpi Akbar, head of stakeholders and communities at BBV, adds: "We have a monumental construction programme ahead of us which will see us recruit for thousands more roles, across a broad range of subjects and we want Birmingham's student community to be at the heart of those opportunities."



Julia Podlinska
Civil engineering apprentice, SCS
SKANSKA COSTAIN STRABAG

'I'm part of a project that will change the UK'

"My dad worked in construction but I didn't think about having a career in it until my school ran a learning programme called 'Design... Engineer... Construct!' (DEC). We used software to design and plan the construction of a community centre.

"In the sixth form, I took part in a DEC competition to design a hyperloop transportation system. I heard about the HS2 Project in my A-level economics class and having learned a little bit about construction and transport already, was really interested.

"I researched apprenticeship opportunities with the companies involved and Skanska was offering a Level 6 degree apprenticeship in civil engineering so I applied. My friends and I had been worried when our A-level exams were cancelled because we weren't sure what grades we'd get. But I got an offer from Skanska and was really happy.

"Now I'm working for SCS joint venture, on a vent shaft that will connect to the London tunnels. It's a small team, so I help out with everyone's to-do

list and they guide me through what's happening onsite.

"I get opportunities that you wouldn't get sitting in an office, like being there for the first concrete pour. Seeing how it all comes together is the best.

"I've just submitted my assignments for the first of five years of my apprenticeship. It's amazing to be part of a project that will change the UK."

'I've helped set up an early careers network'

Quinn Bailey

Graduate trainee, Mace Dragados



"Starting the final year of my architecture and design management degree, I felt lucky to have been offered a graduate job with Mace, after spending my placement team at their Heathrow Airport business unit.

"Midway through my final year, though, Covid-19 hit and I was incredibly concerned. Some of my friends had job offers retracted, and obviously aviation had been badly affected. So it was a relief when Mace told my cohort they'd be able to send us to other projects.

"After interviewing I was taken on by Mace Dragados joint venture, which is building HS2 Euston station. It's an exciting project and I've settled in well, working first in the temporary works

team and now helping with a design strategy for some of our subcontractors.

"I've also volunteered to help set up an early careers network. Our first event is happening this month and we'll have our IPT director as a guest speaker.

"The idea is to connect people of any age who are new to construction, whether they work for Mace Dragados or any other major players in the Euston project. And we'll be pairing people who want to be chartered with mentors.

"My personal goal is to become a chartered design manager and maybe someday a leader on a project like this."

To join the early careers network, contact EECN@macedragados.com

'This job is pretty varied and I love it so much'

Rachel Stevens

Freight train driver, EKFB



"The rail industry is still male-dominated but it doesn't need to be. When I was at secondary school, they didn't encourage the girls to look at engineering or industry. We just weren't given that sort of career advice. Perhaps that's a reason why fewer women are in rail.

"I drive trains operated by DB Cargo for main works contractor EKFB. I was one of around 700 applicants to apply for 20 trainee driver vacancies, passing out in 2019. One of the routes I now regularly take is from Acton, London, to HS2's Calvert railhead in Buckinghamshire. I operate a Class 66 locomotive, with the train measuring 335 metres long and carrying stone weighing 2,200 tonnes which is unloaded on arrival to be used on the Project.

"I think HS2 is absolutely fantastic. Our railway network needs to be

brought into this century and I'm proud to be part of it.

"Before starting the course, I had to pass a series of psychometric aptitude tests designed to assess my reaction time and ability to decipher information. In-depth classroom-based learning at DB Cargo's training facility in Didcot, Oxfordshire, focused on the locomotives, their engines, traction, brake force and what a driver would be expected to fix if there was an issue or fault while in service as well as driver rules. Hands-on learning followed.

"This job is pretty varied and I love it so much. With three children I have to juggle the shifts, so I do have to be flexible. However, it's so rewarding, the pay is good and I come home happy every day."

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We have a plan to generate over 7,000 jobs across the life of our project.”



A word from Michael Dyke MD, Balfour Beatty VINCI

It's an absolute must that HS2 plays a part in providing the platform for jobs and skills for the future.

Despite the challenges of the last year, UK construction is going through a purple patch in terms of activity. Economic infrastructure, which HS2 sits at the heart of, is building momentum and that is going to create a potential skills crunch.

At BBV, we are working with HS2 colleagues to identify the pinch points and one area is tunnelling specialists and other roles that operate underground. Frontline civil engineers are another area where we know we need to build further capability.

We are seeing a great opportunity to breathe life into HS2 through apprenticeships. I am incredibly proud that the 500th apprentice was from BBV and some of the brightest talent is emerging in this space. We are committed to 400 apprenticeships in total and there are already over 60 now.

I think back to 35 years ago when I started my journey and I elected to pursue a day-release degree which meant I learned as I worked, and it was a fantastic way to accelerate my own capability. We are creating career paths, so apprentices gain almost a decade's worth of experience in five or six years because we can redeploy people across locations and in different roles.

It's not one silver bullet either. Turning to our relationship with Birmingham City University, we will also look to bring people in through graduate schemes. We are also

working with supply chain partner Flannery at the newly-established Operator Skills Hub at Dunton Wharf in the north Warwickshire village of Curdworth. The Hub is geared around training and upskilling plant operators to meet the standards required on HS2, which provides a different, but equally accessible, route into our organisation.

We have a plan to generate over 7,000 jobs across the life of our project. We know we have an obligation not just to build a railway for the future but to deliver on the jobs and skills agenda too. BBV is a £6 billion enterprise and the scale of our project matches our ambition to create hundreds of apprenticeships and a clear line of sight to the wide range of jobs that are emerging. In the last year, we exceeded our Skills, Education and Employment targets by 80 per cent.

Recruiting more women sits at the heart of our equality, diversity and inclusion (EDI) ambitions. Around 20 per cent of our staff are female – but it's not enough. And while we have a healthy level of achievement against our other diversity measures, it's a constant journey.

Our retention rates are good because we try to create the right culture. We had our first employee engagement survey and I was really pleased with the 90 per cent score achieved for the pride people feel being part of HS2.

We're here to provide amazing careers. Schemes like HS2 accelerate knowledge and ability to handle complexity, uncertainty and ambiguity and I can't think of a better way to learn and develop and be the best you can.

Have your say

We're asking our supply chain family to take part in a survey to tell us about qualifications gained on HS2 from 1 April 2020 to 31 March 2021. The survey can be accessed [here](#) and is open until 5 July 2021.