



OCU

HS2 Multi-Utilities Capability Statement

Feasibility Studies | Diversions | Network Reinforcement | Trenchless

Critical Network Infrastructure

Power | Telecoms | Water & Wastewater | Gas



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1. Overview

OCU has been a market leader in the provision of Multi-Utility Solutions for over 25 years and coupled with our in-house Trenchless Technology design and construction teams has aided us to successfully deliver water, sewer, power and telecommunication diversions on major infrastructure projects to include HS2. OCU have established a core team that is dedicated to HS2, and is working in collaboration a number of the Joint Ventures (JVs) to meet the stringent and specific environmental and sustainability commitments pledged by the UK Government to reduce the impact of the construction works on the lives of local residents and businesses.

Sector Offering

OCU prides itself on offering clients a bespoke turnkey solution for network diversions, reinforcement schemes and point-to-point connections, including route feasibility, local council liaison, production of detailed route planning and submission of notices. In addition, OCU as a member of the United Kingdom for the Society of Trenchless Technology (UKSTT) means we can provide fully independent trenchless solutions, where our in-house professionals are authorities in design and construction, technical consultation and site surveying; utilising industry leading processes and innovations to deliver complex projects.

- Early Contractor Involvement to assist Designs
 - Buildability Reports
 - Safety by Design
 - With an experienced HS2 team we work with our client to provide (VFM) Value for Money Solutions during the design stages.
 - Manage risk reduction meetings
 - Look at the feasibility of construction techniques
 - Undertake designs
 - Preconstruction Ground Investigation to aid designs
 - Undertake clash detection – hold meetings to understand all other diversions being planned in for HS2.
 - Attend IDR and EDR meetings
 - Assist with L3 design approval as understand the process
 - We work direct for Utility Providers maximising our established relationships
 - Development of Undertrack Pro Forma documentation
- Management of all Undertakings and Insurances to remain complaint
- In house trained Vehicle Compliance Officers
 - To attend meetings on daily allowances
 - Issue reports on compliance and non-compliance daily
 - Undertake vehicle check in
 - Liaise with delivery teams
- We are (FORS) Fleet Operator Recognition Scheme accredited to meet HS2 requirements
- Develop and Manage NRMM Registers both Pre-Construction and during the build
- We have developed working relationships with suppliers that are fully averse to HS2 requirements
- We are a NERS, GIRS and WIRS contractor
- HS2 Specific Documentation
 - Section 61
 - Schedule 17
 - Schedule 4 part 1 & 2
 - Logistic Management Plans
- Development of Health & Safety Files as works progress to aid with a swift hand over to HS2

OCU are experienced in undertaking the role and responsibility of Principal Contractor under the CDM Regulations, where we have robust processes for compliance and co-ordination of supply chain partners and other contractors. In addition, OCU holds the Network Rail Principal Contractor Licence (PCL) which we have used to act as Principal Contractor on several projects over the years for power and telecom installations, both trackside and for works that interface with the public highway.




2. Our Contracts

Selection of OCU HS2 related diversionary works:-

2.1 Fusion - Addison Road




Contract Name:	Addison Rd Sewer Diversion
Contract Duration:	8 months
Contract Start Date:	August 2020
Contract End Date:	March 2021
Contract Value:	c. £2m
Geography:	Buckinghamshire 
Brief Description:	Horizontal Directional Drilling (HDD), Shaft Construction, pipe installation and testing



2.2 Fusion - School Hill



Contract Name:	School Hill UTX
Contract Duration:	15 months
Contract Start Date:	April 2021
Contract End Date:	July 2022
Contract Value:	c. £8m
Geography:	Buckinghamshire 
Brief Description:	10 No HDDs Chamber Construction Sewer Diversion Works Clean Water Diversion works Communication Diversion Works 33kV and 11kV Diversion Works Substation installation




2.3 National Grid Electricity Distribution - Burton Green (Formerly Western Power Distribution)

Contract Name:	EHV Burton Green 132kV Diversion
Contract Duration:	12 months
Contract Start Date:	January 2021
Contract End Date:	December 2021
Contract Value:	c. £3m
Geography:	Midlands, Mid Wales, South Wales, South West and Peninsula. 

Brief Description:	<p>7 No HDDs 132kV Cable Diversion 11kV Cable Diversion 33kV Cable Diversion Cable Sealing End works within Live Substation Civil aspect of Ducted system Cable Jointing Cable Testing and Commissioning</p>
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2.4 National Grid Electricity Distribution - 132kV Diversion 4




Contract Name:	EHV Diversion 4 132kV Diversion
Contract Duration:	14 months
Contract Start Date:	February 2021
Contract End Date:	April 2022
Contract Value:	c. £4m
Geography:	<p>Midlands, Mid Wales, South Wales, South West and Peninsula.</p> 
Brief Description:	<p>4 No HDDs 132kV Cable Diversion Cable Sealing End works within Live Substation Civil aspect of Ducted system Cable Jointing Cable Testing and Commissioning</p>

2.5 National Grid Electricity Distribution - 132kV Diversion 5



Contract Name:	EHV Diversion 5 132kV Diversion
Contract Duration:	6 months
Contract Start Date:	March 2021
Contract End Date:	August 2021
Contract Value:	c. £1m

Geography:	Midlands, Mid Wales, South Wales, South West and Peninsula.	
Brief Description:	1 No HDD 132kV Cable Diversion Cable Sealing End works within Live Substation Civil aspect of Ducted system Cable Jointing Cable Testing and Commissioning	

3. Resources

Contract Management & Operations

Our dedicated HDD Director manages a highly experienced management team and drilling crews that consistently execute projects on-time and to budget, where we currently have in excess of 40 individuals that form part of the in-house trenchless installation team with an additional pool of resources for HS2 diversionary works, competent to work on Power, Telecoms, Water and Gas networks. Furthermore, this in-house capability enables seamless project integration and savings on management costs. Similarly, our in-house maintenance, servicing and engineering support teams enable improved reliability and reduced downtime. OCU currently boasts the largest privately owned collection of HDD rigs across the UK, reinforced with back-up and contingencies should more power and/or machinery resource ever be required. We continue to remain at the forefront of this technological development and have been frequently commended for innovation in, and completion of, our HDD project work.

Our highly committed workforce undergoes continual assessment and training to ensure we maintain industry competencies and expand their skill sets to meet changes in product technologies and construction methodologies etc, and by doing so OCU is able to maintain a safety record that we are very proud of. All of our depots have storage facilities that enable us to hold our own or clients' vested stocks of specialist materials, i.e., jointing accessories, cable and ducting. These facilities assist us to respond quickly to our clients' requirements. We have an extensive fleet of wholly owned and maintained plant and transport, to include our specialist HDD rigs, and a range of specialist vehicles that enables us to operate in remote and difficult locations, including the provision of reactive support and resources for clients during significant weather events.

Design & Planning

To bolster our offering, we maintain comprehensive Professional Indemnity Insurance to support HDD design capability that undertakes full project evaluation for all new drill locations, including:-

- Site Investigations
- Utility Location Mapping
- Topography and Ground Condition Surveys
- Feasibility Studies
- Environmental Impact Assessments
- Ground Settlement and Heave Calculations
- Annular Pressure, Buoyancy and Over-bend Calculations

In addition, we can undertake Technical Proposals that enable our clients to go out to tender with viable HDD designs and, offer Geotechnical Risk Assessments and pipeline stress analysis for submission of Network Rail, National Highways, Canal & Rivers Trust and National Grid consent applications.

4. Case Studies

A selection of HS2 projects that OCU has recently completed are outlined below:-

4.1 School Hill - Undertrack Crossing



The School Hill Under Track Crossing (UTX) was undertaken for Hs2 Early Works Contractor Fusion. OCU had been awarded the contract on the back of the successful Addison Rd Scheme for Fusion. The purpose for the project was to divert existing services that are crossing the new proposed route Hs2 Route. OCU worked closely with Fusions designers whilst works on the Addison Rd scheme had been on going. As works had been required to cross using trenchless solutions under the new trace OCU provided HDD design proposals and undertook the UTX proformas. This aided in a swift design proposal and allowed for a smooth transition from the Addison Rd project to School Hill. The project was split into two sections and required significant planning and organisation prior to the works commencing on site. To the West of the new hs2 rate the works had been complete in a densely populated area and significant community engagement had been undertaken.

Plant required for the works to minimise disruption and noise pollution, location of the plant and timescales of when works would be undertaken had been the key items on the successful delivery of the project. The project involved completion of 10 number drill shots under the trace. Due to the community engagement OCU proposed to drill from the east side of the site whilst original plan was to complete from the East. This was undertaken to reduce noise and working activities in the proximity to the local community. By doing so OCU brought an additional drilling rig to site for pipe installation only as welding and pipe stringing could only be complete to the east of the works due to working space. Upon the successful completion of all of the drills civil works for the following activities had been required:-

- 33kV Cable diversion in Ducted System
- 11kv Cable Diversion in Ducted System
- Installation of 11kV Substation
- Clean Water Diversion
- Pumped Sewer Main Diversion
- Comms diversion
 - Open Reach
 - Gigaclear

These civil works had been undertaken under similar restrictions as per the drills following community engagement and plant selection and programming had been planned up front to significantly reduce the impact of the community. OCU are currently assisting the final commissioning works for WPD and Fusion on what shall be a successful project.



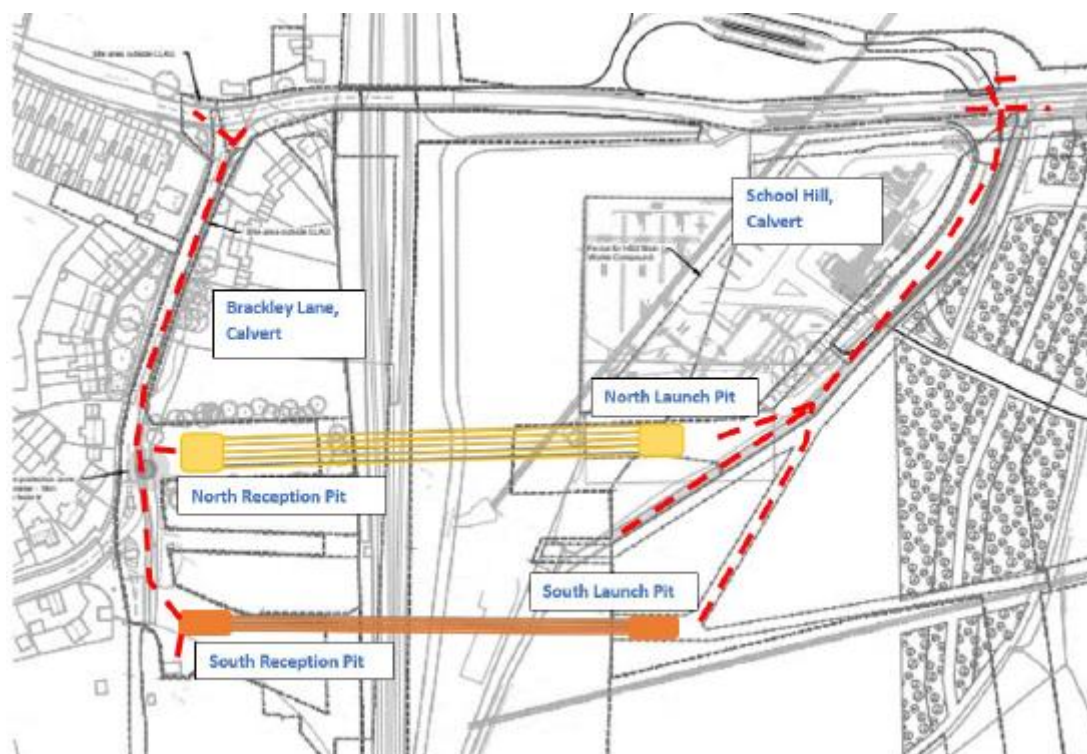
4.2 National Grid Electricity Distribution - 132kV Diversion 4

OCU were contracted to design and install, by HDD, diversion of the existing Lea Marston to Kitts Green and Lea Marston to Chelmsley Wood 132kV Circuits. As part of the HS2 scheme and design works by the Main Works Contractor it was ascertained that the existing circuits clashed with the newly proposed viaduct HS2 section at the intersection junction of the new HS2 line and the Birmingham Line. National Grid Electricity Distribution (NGED) provided a design layout to provide the requirements of the main contractor and OCU undertook a full technical and constructability review to provide a design capable of satisfying both WPD and HS2 Main Works Contractor. Diversion 4 had significant ecological constraints from the environmental agency and Natural England with the following constraints:-

- NEWTs – These had been confirmed by a Hs2 early works contractor within the floodplain
- Himalayan Balsam – Confirmed by OCU as being located adjacent to the civils areas
- Flood Plain – Drilling was undertaken under the flood plain

Due to lessons learnt from others drilling in the area and from OCU experience of working close to water courses and flood plains with Ecological constraints OCU designed and installed sleeving to protect contamination of the water course and newt populated flood plain. An extensive review of the Ground Investigation report, technical report for NGED asset and the HDD had been undertaken and a design of a 900mm steel casing to a depth of 10m at an angle of 15 degrees was complete. This allowed OCU to drill through the casing until solid ground was ascertained to reduce the risk of drilling fluid contamination. OCU successfully complete 4 number 580m drills shots with zero environmental incidents occurring. This was recognised as being extremely successful and engineering innovation that shall be adopted across the scheme.

The project also called for significant open cut for the installation of both NGED circuits inclusive of the removal of the existing joint bays in installation of 3 number new 132kV Joint Bays. Once all excavations had been complete 6 number 1,100m cable drums had been mobilised to site and installed. Due to design constraints for the new HS2 Viaduct the route was unconventional with a significant number of changes in directions. A full and detailed assessment of the as laid was undertaken by the OCU team and it was establish several push pits had been required along with using numerous winch points. All cable installation, jointing, testing and commissioning had been undertaken by OCU. The project was successfully complete in April 2022.



ALIGN

4.3 ALIGN JV - C1 Package Multi-Utility Diversions

The Align JV was awarded the HS2 C1 package in July 2017, to design and construct 21.6km of railway infrastructure including a 3.37km viaduct over the River Colne near Denham. Align, a JV between Volker Fitzpatrick, Bouygues and Sir Robert McAlpine. In September 2020 OCU was awarded 5no major utility diversions and has been the sole partner delivering utility diversions on this section of HS2. On completion of the first batch of works, we were awarded 11 additional schemes, totalling approximately £6m to be completed during 2022.

One scheme involved the diversion of a 400mm sewer rising main, required to enable the construction of the 3.37km viaduct at pier 55 crossing the A412 in Denham. The objectives to manage the works, maintain site access and avoid any outage on Thames Water's rising main, were overcome by our proposed solution to install a 450mm PE main into the A412 carriageway, affording access for piling rigs. We constructed a line stop to facilitate the connection, therefore maintaining asset functionality throughout the works. An adjacent work package entailed the diversion of an existing 525mm drain needed to construct the new HS2 railway line above it. Thames Water was closely involved in programming and network planning, which required future-proofing to meet anticipated flow increases and comply with the required 120 year lifespan. We interacted with Thames Water as the primary asset owner and a number of third party developers who had operational accountability for several connection points into adjacent sites.

We installed 4no permanent manholes along the route of the new asset and 230m of 750mm concrete pipework between manholes. For the final section, we installed a 630mm PE pipe as the main flow with a 600mm concrete overflow pipe, controlled by an Althon Penstock. Durability and long-term asset resilience were key requisites for Align and Thames Water. Consequently we did not construct the pipeline route with conventional shingle surround and opted to install pipework in a steel mesh with concrete encasement to cater for planned and future potential loading scenarios. This solution provided confidence to all parties and enabled developers to consider future implications for their sites. We used a Clay Master compressible polystyrene grade filter board to provide flexibility along the pipeline.



Additional resilience was provided which complied with Thames Water's asset standards. Quality was paramount for all our diversion projects. OCU undertook a rigorous inspection and training programme with the collaborative project team, including:-

- Joint visual inspection of works by OCU, Align and Thames Water
- Pipe air testing; concrete slump and cube testing – coordinated by OCU using specialist suppliers approved by the client
- Detailed surveys including local topography, pipe levels and gradients and in-pipe CCTV

We worked to Align's stipulated KPIs, which formed part of their own governance with HS2. Stakeholder management is vital to Instalcom so for all these works, we proactively engaged with Align, Thames Water, residents, business users and authorising agencies to develop and plan the optimum solution for sewer diversion works. Providing client value, securing confidence in our abilities and managing risks, are key to OCU's operating ethos. Our success and positive approach is evidenced by the quantity of repeat business.



An example of our detailed work sequencing follows. This was the adopted high-level activity deployed on the above schemes:-

- Site set up and over-pump installation – an over-pumping system was installed to temporarily divert flows during construction adjacent to the existing sewer. The system met the challenge and coped with high flows during days with heavy rain
- Ground works required weir wall chamber and manhole bases to be constructed on a concrete blinding to required invert and progress pipe installation towards the next manhole
- Ground stability was an issue so the solution for the 750mm concrete pipe between manholes, necessitated the construction of stepped excavations incorporating reinforcement mesh and suitable compressible filler boards to create viable construction joints in the concrete supporting structure
- Future ground water and potential flooding meant that we needed to install side restraints to the pipe to prevent flotation and movement
- To control concrete quality, slump and temperature, cube tests samples were taken every 25 metres along the line of route
- An air test was carried out for each completed pipe run between manholes. This was part of the works Quality Plan and established good working practice
- Once all the concrete runs were completed, the new 750mm sewer was lined with GL16 Liner and UV cured. This was an addition to future proof and prevent filtration. A CCTV survey was carried after completion to confirm overall integrity

Much of the work we have undertaken for Align JV was affected by an extremely high-water table. Dewatering was a constant feature in our project planning and this situation was exacerbated by frequent severe rainfall. We interacted with the EA and the client's environmental team to plan and agree the daily water discharge protocol. Working with Affinity Water, Thames Water and the statutory bodies has been a constant throughout the programme.

4.4 EKFB JV - Chilton Tunnel Multi-Utility Diversions



EKFB is a joint venture that brings together international, market leading expertise from four leading civil engineering and construction companies: Eiffage, Kier, Ferrovial Construction and BAM Nuttall, who have been appointed by HS2 to deliver civil engineering works across an 80km section of the new high speed rail link between the Chiltern Tunnel and Long Itchington Wood. The scope of the works includes 15 viaducts, 6.9km of green tunnels, 22km of road diversions, 81 bridges and around 30 million cubic metres of excavation. In early 2022 OCU was awarded several contracts by the EKFB JV to undertake multiple diversions of Power, Telecoms and Water assets and following successful completion of the ALIGN JV works OCU have mobilised our HS2 Team onto the EKFB Contract to commence with this latest batch of complex utility engineering works.

5. Financials

The OCU turnover exceeds £300m per annum and our Multi-Utilities business successfully delivers complex major projects in excess of £10m along with multiple schemes within framework contracts typically generating over £100m per annum. Detailed report and account information is available and can be provided on request.

6. Insurances

Insurance cover held by OCU is renewed on 1st March annually by our brokers UK & Ireland includes [but is not limited to]:-

- Contractor's all risks: £25m
- Employers liability: £10m
- Professional indemnity: <£10m
- Public liability and products: £20m

Full details of this and other specialist insurance cover held by OCU are available on request.



7. Assurances

Rail Sector

- Network Rail Principal Contractor Licence Holder
- Railway Group Standards (RSSB), Company Standards (Network Rail) and National Hazard Directory - Direct online access
- Network Rail's Possession Planning System (PPS) - Direct online access
- OCU also employs a number of Contractor's Responsible Engineers (CREs) for both design and installation roles

8. Project Management Office (PMO)

Project Controls & Planning

OCU employs dedicated and experienced Project Planners within our PMO with cross-matrix responsibilities for both the individual Project Teams and the Planning function. The planning process is embedded into the organisation from Tender stage through to project completion in an integrative manner involving all stakeholders. It is closely linked to meeting both internal and client requirements in terms of Programme Management and Project Control. Supporting the process, Primavera is the standard planning software for the organisation, providing robust time and resource management for each individual project.

Furthermore, the portfolios of project programmes are managed using the Enterprise functionality allowing the organisation to provide the ultimate service across the board. With P6 also being used extensively throughout the rail industry, our capability and experience allows close integration with the client, in turn contributing to overall success. The following tools and techniques are used and incorporated into the process:-

- Work Breakdown Structure (WBS)
- Critical Path Analysis
- Earned Value Analysis
- Resource/Cost Loading
- Programme Configuration Control

9. Design

OCU has experience of utilising BIM/CAD and we are fully conversant in the following CAD applications:-

- Cable System Design CYMCAP
- Bentley Microstation V8i - Full 3D/BIM capability
- Bentley Building Electrical (3D/BIM)
- Bentley Building Mechanical (3D/BIM)
- Bentley Acosim (3D/BIM)
- AutoCAD Revit (3D/BIM)
- Cad Duct
- Projectwise Management System (Bentley)

10. Memberships

- British Quality Foundation
- BSI Standards Membership
- Building Services Research and Information Association (BSRIA)
- COMIT (Construction Opportunities for Mobile IT)
- Constructing Excellence

- Constructionline
- CompeteFor
- Council of Registered Gas Installers (CORGI)
- Electrical Contractors' Association
- Engineering Construction Industry Training Board
- Heating and Ventilating Contractors Association (HVCA)
- Institute of Customer Service
- Institution of Electrical Engineers
- Joint Industry Board
- National Inspection Council for Electrical Installation (NICEIC)
- SELECT
- United Kingdom for the Society of Trenchless Technology (UKSTT)
- UK Green Building Council
- CIBSE Patron

In addition, OCU has a number of employees that are Chartered Members/Members of the following professional bodies and regularly attend their meetings as part of their on-going Continuing Professional Development (CPD):-

- Association for Project Management (APM)
- Chartered Institute of Building (CIOB)
- Institute of Civil Engineering (ICE)
- Chartered Institute of Purchasing & Supply
- Chartered Institution of Highways and Transportation
- Institution of Occupational Safety & Health
- Institute of Engineering and Technology IET
- Chartered Institute of Building Service Engineers CIBSE
- Chartered Management Institute (CMI)

11. Sustainability




ECO Sustainability Strategy

ECO - Building Sustainable Infrastructure for future Generations

Environment	Communities	Operations
		
Reducing Impact	Enhancing Lives	Working Viably

ECO is the OCU Sustainability Strategy based upon 3 Pillars encompassing Environment to reduce the impact of our operations on the planet, Communities to enhance the lives of our employees and local communities in which we operate & Operations to ensure that we work efficiently and innovate to continually improve for a sustainable future. Each of these pillars is supported by 3 strategic objectives aligned with the guiding principles of the United Nations Sustainability Development Goals.



Environment - Reducing our Impact					
Reducing Emissions		Preventing Damage		Conserving Natural Resources	
	Reduction of Greenhouse Gas emissions towards Government targets of Carbon net Zero by 2050.		Avoiding detrimental activities to Land, Water, Heritage, and Eco-systems. Reducing use of Hazardous materials.		Monitoring and reducing water usage. Protecting & Enhancing Natural Resources.
Communities - Enhancing Lives					
Valuing & developing our workforce		Ensuring personal Wellbeing		Supporting Communities	
	Paying a Living Wage. Ensuring Equality & Diversity in our workforce. Training & Development of our workforce.		Ensuring the Health & Safety of our workforce and those who may be affected by our operations. Protecting Human Rights in our supply chain.		Providing local Jobs for local people. Using Local Suppliers. Adding value through Volunteering, Charitable Work & Donations.
Operations - Working Viably					
Reducing Waste		Encouraging Innovation		Collaborating with Stakeholders	
	Zero avoidable waste to Landfill.		Identification and Development of sustainable solutions.		Working with Clients and Supply Chain to achieve common goals.



12. Supply Chain Management

The key role for our procurement activities is to create a sustained competitive edge for OCU by managing the acquisition of all externally supplied resources upon which the business depends both now and in the future. The Senior Leadership Team believes that applying best – practice methods to the process of selecting and managing our suppliers is a major contributor to our long – term business success. This will be seen in better solutions for our clients, faster deployment of innovation, low total costs, lower risk and enhanced contribution to our goals. The Procurement Team is responsible for ensuring best value is achieved for OCU, this applies to goods and services associated with operational or overhead spend. To ensure we consistently achieve best value: we operate an approved supplier list, agree T&C's and pricing, work with internal stakeholders to review and monitor supplier performance, carry out audits on suppliers, continually review potential new products and sources of supply. We work across many different departments and recognise that each has their own exacting needs and demands from the supply chain, we provide specialist support, advice and expertise to Project Managers.

Our Supply Chain Management Teams are MCIPS qualified and utilise accepted best practice to drive innovation and achieve a differentiation from our supply base. We also aggregate our spend portfolio group-wide in order to leverage the market more effectively, this ensures we are maximising our utilisation of optimum suppliers and delivering best value throughout the project cycle. All projects are allocated a procurement lead prior to design commencement (or pre-commencement where the client has already undertaken the design) this individual's responsibility is to develop the project procurement strategy and ensure we achieve the best commercial and technological results for the project. Key projects are allocated procurement resource who will be site based as appropriate to ensure a consistent approach OCU's procurement procedures are cascaded from group level and utilise best practice from across industry to ensure we achieve differentiation from our supply chain, as well as effectively protecting the interests of ourselves and our clients. The OCU Procurement Teams are actively involved with the construction planning process to ensure timely deliveries of key materials (especially those sitting on the critical path). At the initial programme development stage the procurement lead is responsible for the issuing of manufacturers lead-in times to the project planner, these are then incorporated into the baseline construction programme. At all stages through the project this document is utilised as the key tool to ensure the procurement and expediting of materials is undertaken as timely and efficiently as possible. These key dates will also include any commissioning/erection periods as required.



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Coverage:



With depots strategically
located throughout the UK,
OCU can offer a Nationwide
Service

Sectors:

OCU offers infrastructure
services across the following
sectors:

- Power
 - Energy Transition
 - Water & Wastewater
 - Telecoms
 - Rail
 - Trenchless
-