# 132kV DATA CENTRE CONNECTION

## HEMEL HEMPSTEAD

## Power

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|---|---|
| **Value** | Multi-million |
| **Voltage** | 132kV |
| **Market segment** | Data Centre |
| **Duration** | 36 months |

### Project summary

This project involved the delivery of a 6.5km civil infrastructure route, primarily within public highways, as part of a 60MVA 132kV connection to a new data centre. JSM provided full design and phased construction, enabling early energisation and overcoming complex engineering, environmental, and coordination challenges.

### Pre-construction

JSM was awarded the contract to provide a 60MVA 132kV connection to a new data centre in Hemel Hempstead. As part of the contestable works, JSM delivered full power system design and reporting, along with full civils design of the 132kV/11kV substation. This included the construction of a dedicated 11kV substation building, a 132kV dual transformer bund area, and an iDNO-adoptable 132kV switchgear compound.

### Construction

JSM installed and jointed 6.5km of dual circuit 132kV cables and 1.6km of 33kV cables to support DNO network reinforcement. To provide temporary power during substation works, 1.6km of 11kV cables were also installed. The project was phased, with the 11kV building and cable works completed to support customer commissioning. After energising the 11kV network, JSM constructed the 132kV bunded transformer compound, iDNO-adoptable switchgear compound, and completed the 132kV cable route in line with DNO energisation dates.

### Post-construction

JSM's phased delivery approach enabled the customer to complete commissioning and partial handover ahead of full 132kV load availability. This flexibility helped prevent delays to the customer's energisation requirements.

- Principal Designer
- Principal Contractor
- Project management
- Site supervisor
- Asbestos soil remediation
- Civils
- Cables and Duct installation
- HV/EHV Plant installation
- Comissioning
- On Load testing/Energisation

# PROJECT CHALLENGES

## CHALLENGE

The customer's commissioning requirements meant full construction couldn't be completed within the required timeframes.

Construction had to be staggered due to the need for early power supply.

Complex sequencing was required to transition from temporary to permanent infrastructure.

Installation of specialised 132kV GIS switchgear (PASS M0H) required authorised Sf6 handling.

Connection of 132kV cable circuits to DNO-owned tower lines required precision and coordination.

Excavation halted due to water ingress from a natural underground spring.

Depth constraint at a cycle path crossing (approx. 6m below).

Crossing a BPA oil pipeline at two locations.

Route passed through a busy industrial park with dense existing services.

## SOLUTION

JSM arranged a temporary 11kV 'Bootstrap' connection from a nearby substation to supply power to the customer's 11kV substation.

JSM focused first on delivering a live 11kV substation within an active construction site.

After energising the 11kV substation, JSM achieved sectional completion and began constructing the dual bunded 132kV compound, installing dual 132kV/11kV transformers, and building a 9.7M Durasteel blast wall.

JSM collaborated with Hitachi's factory and commissioning teams, flying in authorised operatives from mainland Europe to complete the work.

JSM successfully connected both 132kV cable circuits in May 2023, enabling full energisation of the GIS switchgear, customer transformers, and the 11kV ring.

Environmental consultation led to a method statement; used a 6-inch pump, filtration tank, and watercourse discharge.

Directional drilling (HDD) used to bypass the bridge; required full road closure for plant and equipment.

Obtained formal consent and conducted supervised excavation (watch and brief).

Excavation carried out slowly and safely, navigating fibre optics, gas mains, HV circuits, and unknown services.