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HS2 Pipeline Diversions



Tunnelling machine (Balsall Common)



Reception shaft (Balsall Common)

Ultimate Client:	HS2 Ltd
Project Location	
Country / region:	UK
Project Dates:	2018-2019
Overall Project Value:	£6M
Project Phases:	Detailed Design / Construction Management / Commissioning

BPA manages major hydrocarbon transmission pipeline systems and bulk storage assets in the United Kingdom on behalf of their owners. We offer over 40 years of experience in setting up, operating and maintaining facilities, reducing operating costs, increasing system capacity and extending the operational life of oil and gas infrastructure.

Background:

High Speed Two (HS2) is a new high speed railway connecting major cities between north and south Britain. The project is being executed in two phases. Phase 1 will create a new high-speed line between London and Birmingham and Phase 2 will create two branches north from Birmingham on either side of the Pennines.

The problem:

An assessment of the HS2 Phase1 proposed route identified the need for 2 pipeline diversions on the Blisworth to Kingsbury section of the UKOP pipeline system managed by BPA.

The solution:

As the UKOP Statutory Operator, BPA acted as owner's engineer and was the principal designer for both pipeline diversion projects at Balsall Common (1.3km) and Burton Green (0.5km).

Client Feed-back:

"I would like to thank the BPA team for their hard work and dedication to delivering the programme of work in a safe and professional manner. The site had a good feel about it with the team steadily progressing the project work from design to construction." David Scarth, Project Director – Routewide Logistics, Utilities & Transport, Phase 1, HS2 Ltd

Fast facts:

Each diversion was executed in 3 stages:

- Concept design and procurement of long lead items (incl. appointment of main works contractor)
- Detailed design
- Construction and Commissioning

The total length of both diversions is 1.8Km and the works were carried out using a combination of open cut (1.5Km) and trenchless (0.3Km) construction techniques. The decision on which construction technique to use for various sections along the route was based on ground conditions, depth of cover required, environmental factors, and client requirement. One of the trenchless sections is the longest microtunnelling work undertaken by BPA (150m).

Challenge 1:

Complex geology in the area with geological faults transecting the diversion route. The geology deposits along the route varied from very weak to strong sandstone. The length and depth of some sections of the diversion route made predicting the geology difficult. The trenchless drill head had to be changed frequently to address the changing geology.

Challenge 2:

Large number of external stakeholders to manage with competing interest. The stakeholders involved include HS2 Contractors, Local Authorities, Local Community Groups (e.g. a successful campaign to save an old oak tree at Burton Green), landowners, EA, the New Village Hall contractor.

Challenge 3:

Large number of HS2 requirements stipulated by the HS2 Act and HS2's system of work (incl. archaeology, wildlife protection, constraints due to assurances agreed in the HS2 Act of Parliament such as limited number of daily vehicle movements, pre-determined vehicle routes, access constraints).

The BPA Project team managed the challenges efficiently and were able to deliver the project on time and on budget.