

Providing access to energy

Innovative solutions have seen leading civil engineering company Jones Bros overcome a number of challenges while constructing an access road to a new multi-million pound Energy from Waste (EfW) plant in Buckinghamshire

The project, off the A41 in Buckinghamshire, involves constructing a four and a half kilometre road along a former railway track, incorporating three road bridges across it. The road bridge work involves upgrades to two existing structures and building a third from scratch, with Jones Bros working to its own designs.

Engineers battled with severe weather conditions and also had to contend with the discovery of two high-pressure gas mains under the road leading off a roundabout being constructed by them.

Concrete protection slabs were built in stages to enable traffic management, with engineers digging down to one metre above the gas mains and three metres either side to install them.

"It was crucial that we provided protection for the gas mains from the construction process," said Rhydian Hafal, site agent for Jones Bros. ***"It is important to protect against vibration and compaction, as well as ensuring the road, containing compacted tarmac, is fit for the industrial vehicles and general traffic that will pass over it."***

Buckinghamshire County Council awarded a residual waste contract to leading recycling and waste management company FCC Environment in 2013 to manage the county's non-recyclable waste. This includes building and operating a state of the art EfW facility in the county.

Engineers originally believed that the ballast running under the old railway tracks would need to be dug up and removed, with new stone being laid. However, they felt that the existing stone was sufficiently strong to withstand the weight required by a new road and diagnostic tests carried out prior to the job starting proved this to be the case.

Facing challenges

The first kilometre of the road runs past an existing industrial estate, cutting through greenfield sites and along a disused railway line. Engineers were initially held up due to the sheer volumes of rainwater that needed to be pumped off the road surface.

Engineers installed 450 metre attenuation tanks to help prevent flooding by providing storage for surface water before it is discharged into ditches.

Hydroslides were also used to regulate the release of water to just two litres per second into the existing watercourses.

Engineers worked closely with ecologists to relocate butterfly habitats and badger setts, as well as funding and creating five newt crossings.

They stripped 100mm of railway ballast to form new butterfly habitats, whilst high box culvert units were reinforced with precast concrete walls to create an underpass tunnel system to allow the newts to migrate safely from one side of the road to the other.

A lengthy traffic diversion was removed early after key bridge works were finished ahead of schedule. The repairs to a former overhead railway bridge were completed in just 18 weeks, a total of four weeks ahead of schedule.

The completion of construction at the new deck at Shipton Lee Bridge enabled the two sections of the new access road to be joined for the first time, leading to a public highway underneath the bridge re-opening early.

The contract to construct the new access road is due to be completed during the summer, with 30 employees from Jones Bros working on the project at any one time, as well as locally recruited labour.

"We are developing a proud tradition of value engineering at Jones Bros, where our considerable expertise can save our clients time and considerable sums of money," added Hafal.

Jones Bros has also hired a Buckinghamshire-based kerbing company to assist with the project, as well as hiring tree fellers and general local labour.

The plant is expected to be operational by early 2016 and will produce 22 MW of electricity, sufficient to satisfy the energy demands of up to 36,000 homes.

Founded in the 1950s, Jones Bros has developed considerable expertise in constructing highways; with all the major constituents of highways schemes planned and carried out in-house. ➔

The new access road will be used to transport waste to a new multi-million pound Energy from Waste (EfW) plant

