

Protecting residential and geological surroundings by meticulously adhering to vibration limit regulations.

Project: Water Pumping Station
Client: Northumbria Water
Contractor: J N Bentley
Location: Waren Mill, Northumbria

The project

Having been commissioned to fulfil a drilling and blasting contract for a shaft sinking and trenching operation, EPC-UK Civils worked closely with its engineering department to ensure that a challenging project within a sensitive area was achieved safely and successfully.

The task involved drilling and blasting a shaft sinking capable of housing a wastewater pump for Northumbria Water, together with adjoining trenching.

Situational challenges

With residential properties nearby, as well as structures with protected status, it was vital to present blast designs that could ensure optimum energy was being utilised in providing enough fragmentation. The geological conditions were considered challenging and dictated that specified vibration limits were adhered to.

Key Facts

Vibration objectives & constraints:

- Vibration levels for this project were set at 12 mm/s.

Blasting / environmental performance:

- Strict pollution constraints were placed on this project due to the proximity of a water course. To mitigate the risk of pollution to the water course in the event of a mechanical failure, EPC-UK ensured that all the oil required for the drilling rig was converted into a biodegradable substance.



Tailored blasting procedure

The project was carried out in a designated SSSI (Site of Special Scientific Interest) area with part of the trenching running alongside a river. During the project, all operations were closely monitored to ensure that the work carried out was performed in full compliance with regulations stated in the contract documents.

Our team created the wastewater pump shaft sinking using the precision capabilities and impressive power of Epiroc D7 drilling equipment, which is ideally suited to rock excavation. Blasting mats and steel shaft covers were used to create effective blast protection, and authorised nitro-glycerine explosives were used via a non-electric detonator system.



Safety & social responsibility

As part of our duty to protect the environment, all lubricant and grease used on the Epiroc D7 drilling rig was converted to a biodegradable standard.

Environmental performance

All blasting activity was carried out with vibration results within the specified limit and no environmental issues occurred during the project.

Civils solutions

Leading our Civils Solutions team is EPC-UK Civils Manager Mark Jones. With 33 years of experience within the quarrying, offshore and civil engineering industry, Mark is well placed to drive our capable civils team, having managed numerous drilling and blasting and civil engineering projects within the UK, as well as several offshore developments across the globe.

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Values that define the way we work



Within all operations, EPC-UK performs using methods that support our company's established SPIRIT ethos, demonstrating **safety, passion, integrity, respect, innovation, and teamwork.**

The Northumbria Water civils project highlights an example of our industry-leading values in practice.

Shaft sinking and trenching are highly sensitive operations, demanding exceptional levels of **safety**-focused performance and transparency. Executing blast operations within the water plumbing station's challenging conditions required engineering knowledge and geological **respect**, delivered by skilled professionals that value the benefits of **teamwork.**