RELEVANT PROJECT EXPERIENCE

RAIL

- Design of reinforced earth approach embankments and load transfer platform for the Reading Station freight viaduct during redevelopment of this busy station. Liaison with large multi-disciplinary design team and direct interface with Network Rail.
- Design of soil nailing and piling solution for new abutments to allow successful replacement of a critical rail bridge at Spring Bank West, Hull. Site attendance and guidance.
- Assessment of existing retaining wall adjacent to a main rail line in London and optioneering design solutions for temporary works to enable track replacement during short possession.
- Geotechnical tender design for winning tender for a new rail passenger transfer route for Luton airport.

ROAD

- Lubbesthorpe M1 Crossing. Design of reinforced earth abutments and wingwalls for a new bridge over the M1.
- A19 Parkway Junction. Design of reinforced lightweight fill retaining walls to widen a road across an existing structure.
- A45 Daventry link road. Tender design alternatives for winning contractor on this major new road scheme. Designs included materials reuse, geotechnical parameters, cutting and slope design.
- A19 Silverlink Roundabout. Tender design alternatives for the winning contractor on this major new road junction scheme. Designs included materials reuse, piling alternatives, construction sequencing to remove piling, slope angles, cutting stabilisation, sheet piling and temporary works.
- Many other large and small road projects with advice given from tender through to detailed design and construction delivery, temporary and permanent works.

COASTAL, PORTS & HARBOURS

- Scarborough Spa Coastal Protection Scheme. Design Project Manager for large design team on the ECI phase of this critical and complex coastal protection scheme. Team included structural engineers, environmental and planning teams and specialist subcontractors. Managed all processes with authorities and council from planning application and public consultation to detailed design delivery and authority acceptance. Design included development of complex ground model including analysis of historical slips, soil nailing and piling.

OIL, NUCLEAR, UTILITIES & POWER

- Summail Gas Plant, Kurdistan. Caroline was one of the key geotechnical consultants providing specialist advice on gully debris flows and rock falls from a high mountain ridge above the proposed site for a gas plant, and also slope stability and foundation design. She managed the team responsible for the design of redirection works for the gully, including debris flow trap areas and river erosion prevention measures. The team also carried out assessment of rock fall from above the site and development of rockfall protection bunds.
- Tawke Oil Pipeline, Kurdistan. Caroline was lead geotechnical designer providing specialist advice, in conjunction with a hydro dynamics expert, on the river bank scour which had exposed a 24” oil pipeline in a major river and development of remedial options to remediate the situation and prevent ongoing erosion.

MINING & QUARRYING

- Caroline undertook detailed design for a reinforced platform to support a tailings dam for the Hemerdon Tungsten Mine which was built over an area of historical tin streaming mine workings. The dam is one of the largest in Europe and design of this sensitive area included extensive geological and historical research as well as complex geotechnical design work in order to obtain approval from the authorities.
- Caroline was lead designer for the enabling works tender design for the York Potash mining project in the North York Moors. Design work included design of alternative solutions for a slurry wall to prevent groundwater drawdown likely to be caused by the works for the main shaft. She also carried out specification development and materials reuse.

COMMERCIAL/PROPERTY

- Caroline has undertaken development of economic design solutions for the geotechnical aspects of large warehouses, enabling contracts to be won and buildings to be completed efficiently. Designs have included CMCs, lightweight concrete, piles, pads, and various ground improvement solutions.
- Caroline was lead designer for a large team during the detailed design of the foundations, retaining walls and cut slopes for a new factory to be built on a steep site adjacent the M62 at Ainley Top. The site has complex ground conditions with previous mining activity. She carried out liaison with local authorities, HE and stakeholders to ensure successful design delivery and planning approval.