Copperas Wood Railway Embankment Stabilisation

Contract No:	C762
Client:	Kier Construction / Network Rail
Location:	Copperas Wood, Near Ramsey, Harwich, Essex
Value:	Approximately £666,000.00
Summary:	Supply and installation of approximately 334 No steel sheet piles average 13.5m long to form permanent anchored retaining wall to stabilise existing railway embankment which had slipped resulting in disruption to passenger and freight services.

Sheet Piling (UK) Ltd were employed by Principal Contractor Kier Construction to supply and install a 200m line of sheet piles on the down side (North side) of the existing embankment between Wrabness and Harwich. This was to stabilise the existing embankment which had slipped down side (North side) of the existing embankment between Wrabness and Harwich. This was to stabilise the existing embankment which had slipped.

The track was consistently monitored for movement and the trains restricted to a 10mph speed limit through the affected area. The only access available was through agricultural land on the South side, and the principal Contractor constructed an access road and compound area using aluminium track panels. All plant and materials accessed the site from the South side and was lifted over the tracks using a 300 tonne crane during weekend track possessions.

During the initial mobilisation of the works further movement was noted and the project moved to emergency status. This involved complete closure of the tracks and 24 hour working to complete the works in the least possible time. The soils were predominantly stiff to very stiff clays and, owing to the sensitivity of the works, Installation was specified using a Giken silent vibration free pile press.

The line of sheet piles were positioned approximately 12m from the running rail and, owing to the restricted access it was necessary to use the Giken UP150 pile press and clamp crane and monorail system to transport the piles along the line and pitch them into the press. The service crane was a 50 tonne telescopic jib crawler crane, and both crane units were fitted with slew restrictors to stop them from slewing over or towards the railway tracks. The sheet piles consisted on alternate steel sheet piles type Nippon 3W and 4W sections 13m and 14m long respectively in high yield steel. The design required them to be tied back using permanent ground anchors.

The lifting over and sheet pile installation works commenced on Saturday 17th October at 06.00 during full track possession, and by 04.00 on Monday 19th approximately 60% of the materials were lifted over and 14 No dummy piles and 17 No contract piles installed. The monorail and pile runner system was set up and piling continued through the week achieving an average of 15No piles per day working a 12 hour shift.

The following weekend was worked as a full track possession and 24 hour working commenced Monday 26th October. The sheet pile installation works were completed during Saturday 31st October and the pile press and clamp crane walked back to the start position.

All equipment was lifted back over the tracks by the evening of Sunday 1st November, and the tracks handed over to Network Rail at 04.00 on Monday 2nd November for commencement of train passenger and freight train operations.

Project Images