

CASE STUDY

The Hermitage, Petworth



Project Overview

A mass sandstone wall, constructed in the late 1700's overlooking the Shimmings Valley, suffered a small collapse, with blocks of sandstone rolling into a well used public footpath. Original proposals to replace the entire wall were deemed impractical due to restrictive access and costs. Given the soil properties at the site, Platipus Percussion Driven Earth Anchors (PDEA®) became a more viable option. The wall measuring 76m in length and retaining up to 3.8m height in some areas, required reconstruction of the collapsed area, strengthening of the existing wall, underpinning of the buttresses as well as rebuilding of a 0.9m high parapet.

Solution

Suitability testing proved that installation with hand held equipment would be possible. The remediation of the entire wall required specialist contractors from various disciplines as well as careful scheduling of work for the different stages of underpinning by means of geopolymer resin injection, anchoring and rebuilding. A 120 year design life anchor system, driven to 6m at a 20° angle below horizontal, formed part of the Indemnified Design. All ground anchors were proof tested to 20kN and locked off at 13kN. Rockfall netting was also spanned across the section of the dry stone wall, with anchors evenly spaced and terminating with an aluminium bronze patress plate. The overall design met the approval of several stakeholders including the Leconsfield Estate, Petworth Town Council, Southern Water, West Sussex Highways and South Downs National Park Authority.



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