EXPERIENCE-BASED VALUE ENGINEERING OF FOUNDATIONS & DEEP EXCAVATION SUPPORT SYSTEMS

Abid Adekunte, Deep Foundations Specialists, Maidenhead, Berkshire, U.K, +44 1753 396498, abid.adekunte@deep-foundations.co.uk
Abdulazeez Rotimi, Deep Foundations Specialists, Maidenhead, Berkshire, U.K, +44 1753 396498, azeez@deep-foundations.co.uk
Barry Sheppard, Sheppard Piling Limited, Leatherhead, Surrey, U.K, +44 1372 232090, barry@sheppardpiling.com

ABSTRACT

Good engineering practice is a function of sound theoretical knowledge, first-hand experience on previous projects of similar scope and scale, good acquaintance with case histories of similar projects completed by others in similar environmental conditions, as well as satisfactory degree of exposure to state-of-the-art methodologies.

The four factors itemised above are typically interdependent. They amalgamatively influence the judgement of the Engineer and they ultimately result in the delivery of safe and cost-effective solutions by Professional Engineers.

This technical paper presents detailed information on the ground engineering aspects of a large-scale housing development scheme located on a sloping site that had been presumed to be unstable in West Sussex, England. The ground engineering design package for the scheme comprised of temporary working platform designs & stability assessment for piling rigs and other construction machinery, geostructural designs for 700m total run of permanent bored pile retaining walls to support the split-level construction on the sloping site and geostructural designs for the permanent foundation piles to support the housing units.

The paper details how the 4 No. factors outlined above were amalgamated by the project's foundation specialist consultants & piling contractors to deliver safe and practical solutions for the development, with significant savings in materials, cost and project completion time.

Keywords: sustainability, carbon footprint, safety, economy, bored piles, foundations, slope stability, excavation support, pile retaining walls, buttress piles, push-pull mechanism, finite element modelling, geostructural designs, instrumentation, monitoring.