

STR17591 – ROCHDALE SIXTH FORM COLLEGE
PLANNING – FOUNDATION

The Rochdale Six Form College project comprises an extension to the original six storey Rochdale Sixth Form College. The proposed extension is to be on the existing carpark in front of the existing building.

Site investigation works were carried out as part of the design process to determine the most suitable foundation system for the proposed works.

A Generic Quantitative Risk Assessment (Ref WIE19085-108-4-R-4.1.3-GQRA) was issued in July 2023 following the site investigation works. The document comprises the interpretative reporting of the geotechnical aspects of the site and recommendations on the foundation system to be considered.

The existing ground conditions currently comprises of hardstanding of tarmac, concrete or paving slab up to depths of 0.15m bgl underlain by Made Ground of variable composition but generally consisting of sand and gravel. Layers of sand and clay were recorded underlying Made Ground at variable thickness followed by weak mudstone of Pennine Lower Coal Measures bedrock to a maximum depth of 12.91m bgl.

Due to the relatively low strength/density of the shallow natural soils and the loadings from the proposed extension structure is expected to exert, recommendations for a piled foundation system was made.

The piled foundation system is to be end bearing piles, keyed into the mudstone bedrock at depth of between 9m and 12.5m bgl.

It is to be noted that the existing Six Form College building's foundation also comprises of piled foundation following a review of as-built information. A drawing produced by White Young Green ref)A035187-27-S-(10 L-00 Rev 8 dates 23.03.09) – Piling G.A, indicates the piles used to be 300mm square driven precast concrete piles.

As part of the design process for the proposed extension, Waterman have been in contact with Northern Piling, a piling specialist and contractor, to review the piling system to be adopted for the proposed works.

Feedback from Northern Piling suggests that the best solution was for a 244mm driven steel tube pile into the mudstone which would provide a 750kN working load capacity.

The proposed steel tube piles are usually surplus stock Oil Country Tubular Goods (OCTG) line pipe or well casing, grade L80 which is 552 N/mm² with wall thickness of approx. 12mm. The steel tubes would be open ended to limit vibration propagation to the existing building.

The proposed driven tube piling would be the most effective in terms of programme, with up to 50 piles installed in 2 days to limit any nuisance. The timing of the proposed piling could also be reviewed such that piling works are done outside working hours for the school to further avoid disruptions.

Vibration monitoring have been specified as part of our specification for the duration of the piling works.