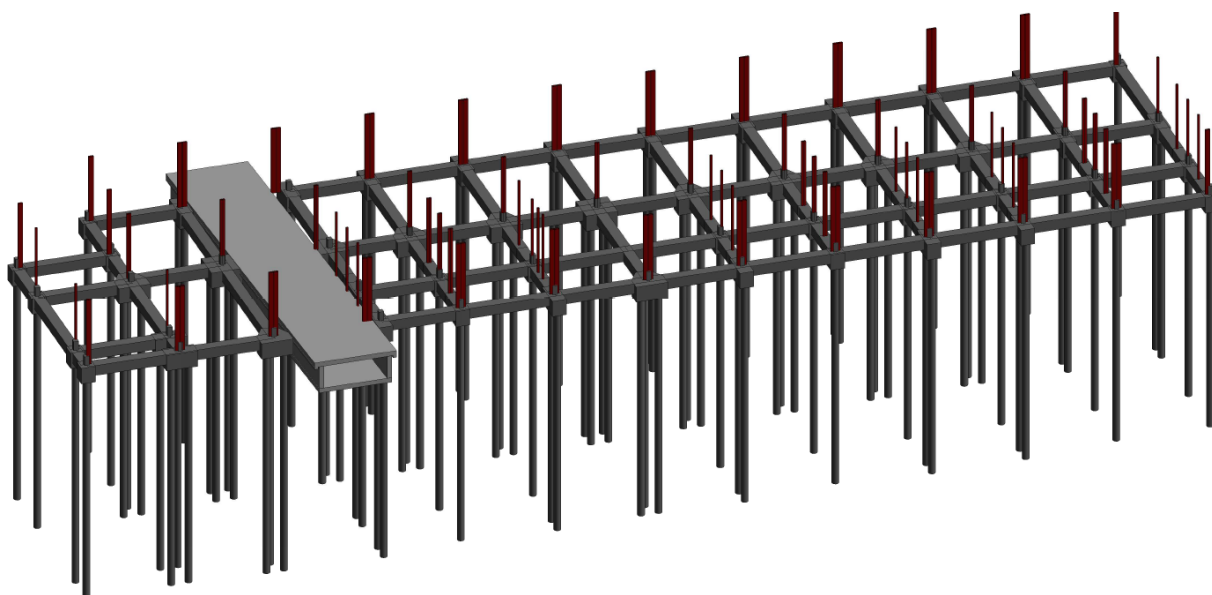




Modular Orthopaedics Theatres at Neath Port Talbot Hospital.

Piling Methodology Statement:



Document Reference:	Planning pre-app Piling Statement.
Job Number:	C7040
Report Author:	JF
Checked:	
Date:	Apr 2022
Revision	First Issue



Proposed Sub-structure Piling Method to Support Prefabricated Modular Units:

To account for the poor underlying ground conditions, the proposed modular super-structure requires a pile supported sub-structure.

Geotechnical investigatory borehole findings and soil sample analysis have established the depth and assessed load bearing capacity of a suitably identified below ground founding horizon. Based on these results, the geotechnical engineering recommendation advises the use of 300mm diameter, continuous flight auger (CFA) pile of 12m length.

The CFA pile will derive its capacity mainly from end bearing with lesser contributions from shaft adhesion in the alluvial clays and skin friction in the gravels. A small allowance for negative skin friction from the made ground has also been considered. The considered safe working load capacity per pile is in the order of 400kN.

The CFA pile shaft is formed by drilling (augering) a hole to the specified depth. The auger has a hollow core and concrete is placed down the core with the auger in place. As concreting proceeds, the auger is withdrawn. With the auger removed and the shaft filled with concrete, a cage of reinforcement can be inserted; a single cage which reinforces the top section of the pile is normal. The construction process ensures that the pile shaft remains intact as concrete is poured and the pile formed.

CFA piling is a variation on rotary auger piling which uses an auger to bore the shaft with the spoil being removed progressively to form an empty shaft prior to reinforcing and concreting. This method was discounted as the sides of an empty pile shaft will not hold prior to concreting due to the assessed ground conditions.

Alternative driven pile types, formed by driving preformed steel or precast concrete piles were discounted due to the dense crust of made ground encountered over the site prohibiting a driven installation.

The considered benefit of the CFA bored pile solution is impact noise and vibration associated with pile driving is negated, hence minimising disturbance to both hospital and local residents