

Barcroft School, Walsall, Ground Source Heating Boreholes

Client: Willmott Dixon
M&E Engineer: NG Bailey
Value: £165k
Date: June – July 2010

Installation of boreholes for a closed loop ground source heating system to a primary school extension. 15 nr 150mm diameter boreholes were drilled to 100m through 9m of overlying loose fills and then through coal measures strata including worked coal seams which were infilled and grouted as drilling progressed.

On completion of the first hole, a Thermal Response Test was carried out which allowed the designers to confirm the final number of holes required for the ground source system.

Drilling was carried out using a dual head drilling system allowing simultaneous steel casing of holes thus ensuring 'one-pass' borehole construction and production of a clean hole to the full depth allowing immediate installation of circulation loops and grout tube. As drilling progressed, when a worked coal seam was encountered, a gravel plug was inserted in the base of the hole and the plug grouted thus filling the working around the hole position, drilling was then progressed to full depth.

The drilling rigs were equipped with bespoke cuttings collection systems mounted below the lower drill head allowing collection of wet or dry cuttings to sealed skip thus enabling clean drilling to be carried out in the school environment.

On completion of the boreholes and ground loops, the header pipework from borehole array to plant room was completed together with the supply and installation of heat pumps and buffer vessel and final commissioning of system against load and pressure testing.

