

Darbys Hill Quarry, Dudley

Site Area: 8 Hectares
Former Use: Quarry
Client: Bewley Homes
Value: £1.4 million

Darby's Hill Quarry is an 8 hectare former dolerite quarry in the side of a steep hill infilled with approximately 1.3 million cubic metres of household, commercial and industrial waste. The landfilling ceased around 1990 although the waste still produces large quantities of landfill gas. To the north and south of the site are some 30 acres of land associated with the quarry which were used for quarry spoil dumping and ash deposition but were not afflicted with refuse.

Provectus was instructed by a national housebuilder to investigate the whole site with a view to drawing-up a remediation strategy whereby the site could be safely, tastefully and economically developed.

Provectus carried out a detailed geoenvironmental site investigation across the site, including the landfill, which involved sinking 150 boreholes and trial pits to provide information on the chemical and geotechnical nature of the ground. Many investigation points were constructed with pipework inserted to facilitate gas and groundwater monitoring. The monitoring was carried out over a period of one year under all types of meteorological conditions

The major problem was the production and migration of landfill gas away from the landfill to existing houses and to those proposed. Provectus carried out a probabilistic risk assessment on the gas risks associated with developing the site. The result of the assessment was to design a remediation strategy which incorporated a multi-layered system of gas risk management. This was achieved by the installation of an active gas extraction system coupled to peripheral gas vent trenches, the construction of gas venting wells and gas barriers and the design of sub-floor voids in the new house foundations.

The development scheme also addressed the control of leachate presently egressing the landfill with a specially designed and located leachate collector ditch which will be connected to the new site drainage system. The scheme included the regrading of the development sites together with the reclamation/restoration of the landfill surface to ultimately provide a large public open space for the benefit of the existing and future communities.

The works were carried out by Provectus under a fixed price, all risk contract and were completed substantially ahead of programme.

