

BATTLE McCARTHY ©

Consulting Engineers & Landscape Architects



PROJECT:

RARE Headquarters, Twycross

CLIENT:

RARE Ltd./Nintendo

ARCHITECTS:

Feilden Clegg Bradley Architects

BM SERVICES:

Structural & Building Services (MEP) Engineering,
Environmental Design & Landscape Architecture

CONTRACT DATES:

2002 - 2005

VALUE:

£6million

DESIGN BRIEF

To develop a sustainable design with Feilden Clegg Bradley Architects for the new Manor Park headquarters for RARE Ltd., a major software developer and Nintendo's principal game supplier. The challenge of the project was to develop an environmentally sensitive and inspirational workplace that met the needs of an energy intensive high-tech business.

London UK Office
T: +44 (0)20 7440 8282
F: +44 (0)20 7440 8292
E: admin@battlemccarthy.com
www.battlemccarthy.com

DESIGN INITIATIVES/ACTIONS UNDERTAKEN

The project was developed on the site of an old farmhouse, near Twycross in the Leicestershire countryside. Due to the natural fragility of the site, the local authority and the Royal Fine Art Commission had to approve the designs in accordance with local environmental development plans. The resulting design integrated a self-sustaining landscape that requires minimum maintenance, with an environmentally configured building.

Environmental Design

Water plays both a functional and an aesthetic role within the site-wide masterplan including borehole cooling, the creation of formal gardens, a new lake and flood meadow and source control of storm run-off from hard surfaces.

- The borehole at RARE is at a depth of 130 metres below the surface.
- In the summer months, a maximum of 200 m³/day is drawn from the borehole for the purpose of providing cooling to the main office building and software development barns.
- A 9 kW pump draws the water up through the borehole at 12 °C into a heat exchanger and then takes the spent borehole water at 15 °C on to discharge into a pond and rill system located within formal gardens surrounding the building.
- The pond and rill also receive roof drainage from the surrounding development barns and main office building.
- The discharge from the rill system together with hard surface drainage from the access road and car park overflow into a semi-natural open ditch system and eventually into a lined lake at the lowest point on the site, some 750 m from the borehole abstraction point.

AWARDS

Environment Award for Engineers Award (highly commended) 2001
Engineering in the Natural Environment

Civic Trust Award 2001
Design Museum Award for Innovation (short Listed) 2000

BREEAM Excellent rating

- A small proportion of the water is retained in the ditch system by a series of timber weirs, and the channel has been oversized to allow for natural colonisation by native grassland and marginal plant species.
- Excess water during the winter period and peak summer cooling period overflows to a bunded flood meadow and is allowed to percolate back into the groundwater system.
- For storm events in excess of 1 in 100 years, a high level spill weir prevents the depth of water within the flood meadow from exceeding 600 mm (i.e. 400 mm below the crest of the bund).

Building Services

Sustainable practises, processes and materials were used to ensure the project had a reduced impact on the environment before, during and after construction. The construction provided employment in the immediate area and key materials used in the construction were locally made. The new structure is pre-cast and pre-fabricated to reduce the construction schedule, costs and production of the on-site waste. Most of the materials including Douglas Fir, cedar and copper can be recycled when the building reaches the end of its life. The original farm structures were recycled where possible, for example, the bricks from the old building were sold for housing. The new headquarters are also adaptable for future expansion.

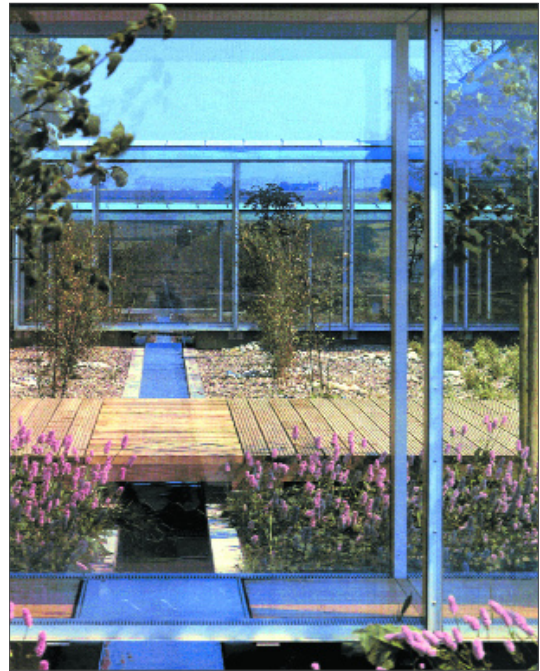
The building has an automated control system that reacts to outside conditions and adjusts the internal environment accordingly. This initiative minimises the need for artificial temperature and lighting controls. A mixed mode system utilises natural ventilation and supplements any necessary heating and cooling. In winter, modular condenser boilers provide the heating and in summer, night air is circulated to help moderate daytime temperatures. Cooling is supplemented by a borehole system using underground water. The building mass and positioning is designed to store or reject heat and this provides an extra means of cooling or heating the internal environment. A BREEAM pre-assessment provided a 'very good' rating.

Landscape Design

The landscape design demonstrates the intricate use of hard and soft materials to create a strong relationship between buildings and landscape. A series of formal gardens or 'outdoor rooms' between the barns progress to a naturalistic landscape extending existing woodland to link with the network of fields and hedgerows beyond. Battle McCarthy created a lake on site to collect and recycle rainwater runoff, minimising the use of external irrigation sources. A separate area was also created, which uses a reed-bed system to treat sewage. Any water that is extracted from below ground for building use is filtered through the landscape and returned to the groundwater system. The entire complex has been successfully integrated into the existing landscape and provides a haven for a diverse range of local wildlife including bats, badgers, birds, insects, and reptiles. This exemplary project demonstrates that high-tech industries such as software development can exist in a natural setting and be enhanced by environmental engineering.



Pond and timber deck



The Rill



Landscape Masterplan



Entrance Lobby