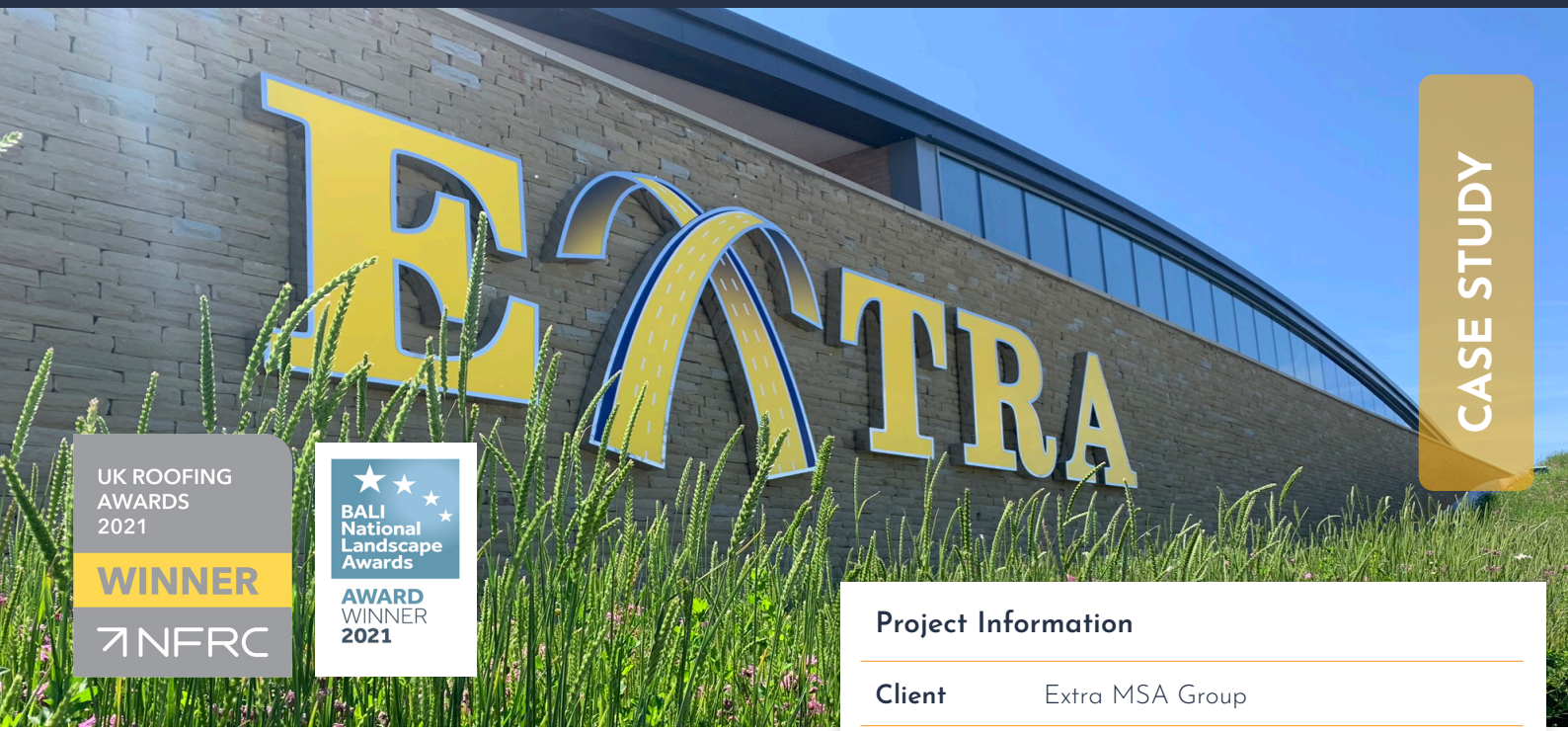
Green Roof

Extensive Wildflower Roof, Leeds Skelton Lake Services, UK



Project Information

Client	Extra MSA Group
Contractor	Geogreen Solutions
Architect	Corstorphine + Wright
Products	ABG Extensive Green Roof system (Roofdrain reservoir board & filter textile, growing media, Wildflower Turf)
Quantity	6,000m²
Benefits	• Absorbs rainwater and minimises surface water run-off • Limits rainfall response to that of pre-developed natural land, allowing infiltration into the roof build up • Filters dust and pollutants from rainfall and the air

Project Description

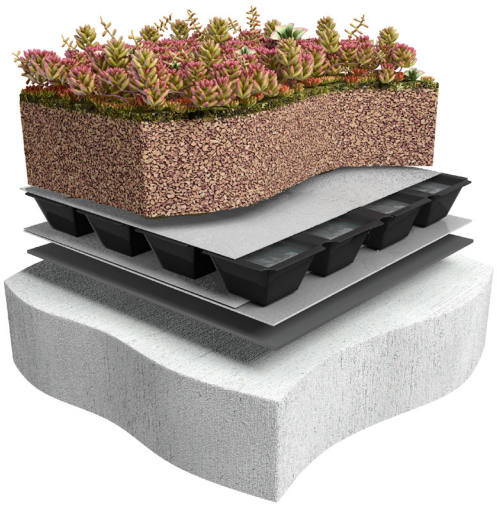
A 'new concept' building design was employed by Extra for the Leeds Skelton Lake Motorway Services site, located at Junction 45 on the M1, focusing on providing a wide choice of food outlets and business, leisure and community facilities within attractive and relaxing surroundings.

The Challenge

The new services are located adjacent to Skelton Lake, a 40,000m² area of ecologically diverse country park, 2 miles south east of Leeds city centre. To minimise the visual impact of the development on the natural landscape and local wildlife, the main 5,277m² amenity building features an over sailing, undulating green roof. The roof is configured in a unique 'ribbon' pattern in eleven separate sections adjoining a 100 room hotel building.

The Solution

Designed as part of the development's 'landscape mitigation and green space strategy', the extensive green roof with wildflower turf and sedum planting adds to the biodiversity of the area, providing a significant area of native grassland for invertebrate species. The green roof also plays an important function as part of the site's overall sustainable drainage strategy, by absorbing rainwater and minimising surface water run-off. As much as 95% of rainfall on undeveloped land is naturally absorbed into the vegetated surface. A green roof is therefore a practical way to attenuate rainfall and limit the development to a similar rainfall response as the natural land, allowing infiltration into the roof build up.



ABG Extensive Green Roof

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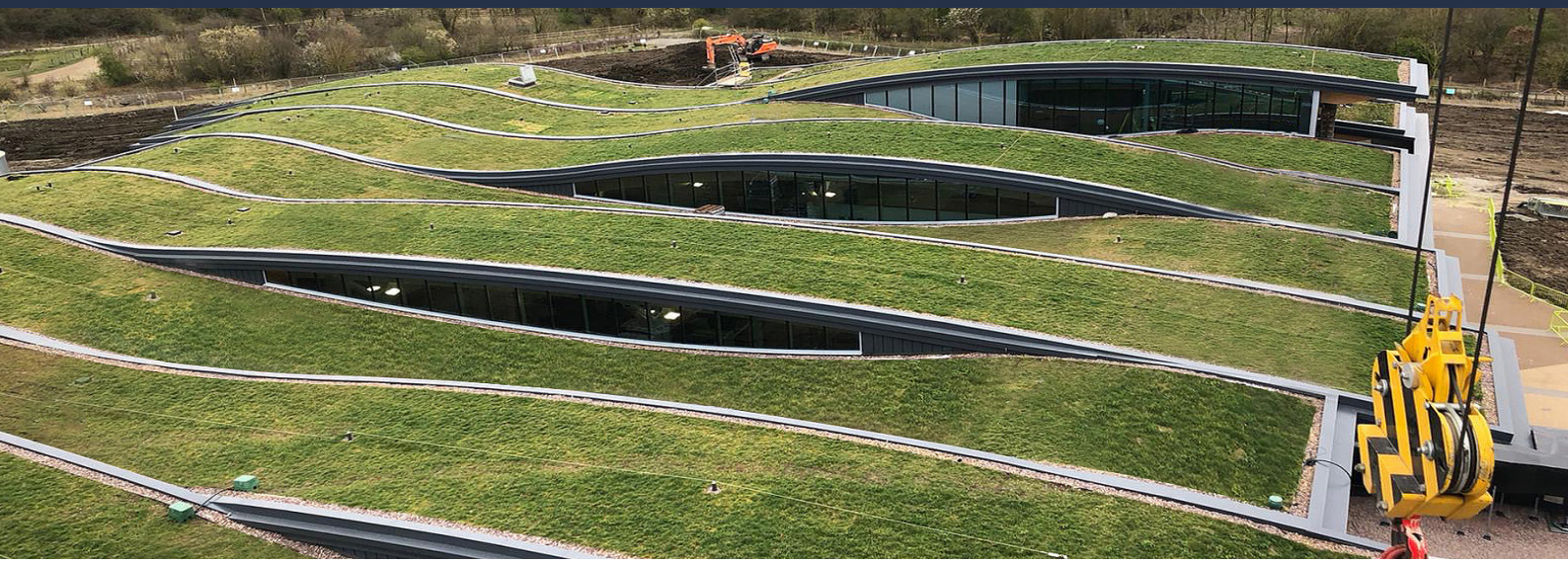

The vegetation, growing media and filtration fabrics within the green roof construction help to filter dust and pollution from the air and rainfall, thus reducing the amount of chemicals and pollutants that reach the surrounding waterways. Incorporating a green roof also significantly reduces the carbon emissions from the amenity building, by allowing the heat generated to be drawn into the cool roof construction and then dissipated more gradually to the environment than with traditional roof constructions. In summer months this reduces the air conditioning requirement, and in winter months provides a level of insulation against heat loss. The green roof is also very good at reducing low frequency sounds from the nearby motorway, with the extensive build up insulating up to 40dB.

The ABG Service

Insulation, water control membrane, the green roof and the irrigation system were all installed by Geogreen Solutions. In total 5,000m^2 of green roof sedum and wildflower matting, over 6,000m^2 of insulation board, geocomposite drainage and waterproof membrane, 28 tonnes of 20mm pea gravel for fire break borders and 12 arctic loads of 1m^3 growing media bags were delivered and installed to complete the green roof for the new services.

For the base of the living roof structure, a combination of 20mm and 40mm deep multipurpose reservoir and drainage geocomposite is installed directly onto the water flow reduction and insulation layers.

To complete the living roof installation a total of 4,622m^2 of meadow planting was provided by Wildflower Turf

Additional geogrid and geocell layers to retain the green roof build-up onto the steeper sections

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