

**THE SILL: NATIONAL LANDSCAPE DISCOVERY CENTRE
HEXHAM, NORTH EAST**

CLIENT: NORTHUMBERLAND NATIONAL PARK & YOUTH HOSTEL ASSOCIATION CONTRACTOR: SIR ROBERT MCALPINE

BIG Biodiversity Challenge Award Category: Small Scale

Project overview

The Sill National Landscape Discovery Centre is a world-class visitor destination in the Northumberland National Park, a UNESCO World Heritage Site. The Sill is a showcase of local pride and passion. It features exhibitions, learning and event spaces, a local food café, a brand new Youth Hostel, rural business hub, and a shop specialising in local crafts and produce.

What were the biodiversity conditions on site, prior to the enhancement?

- The development covers 30,600m² within proximity to existing local amenities.
- Pre-development, the site was assessed as having a low ecological value.
- Three broad habitat types were present pre-development: neutral semi-improved grassland (including streambanks), broad-leaved mixed and yew woodland, improved/amenity grassland and 4,645m² of hardstanding and buildings.
- Planning required that a ‘bat hotel’ be installed prior to any demolition works.

What were the reasons behind this project?

Planning requirements dictated an element of ecological mitigation on the project. However, given the location and purpose of the building, the project team wanted to surpass these requirements and deliver additional biodiversity value and enhancements wherever possible, which would form learning opportunities for all visitors as part of the legacy for the project.



Site clearance for groundworks preparation (Sir Robert McAlpine)



Pre-demolition dual-purpose ‘bat hotel’ and cycle storage (Sir Robert McAlpine)

What were the biodiversity measures taken?

Biodiversity has been increased by the manipulation of the existing, retained and new landscaping to replicate the native local habitats and a significant increase of diverse grassland areas. A phased programme of works also required construction of a bat hotel prior to any demolition of existing buildings and land clearance.

The most innovative and ambitious biodiversity measure is the Whin Sill Grassland Roof, which has never been tried before. The Great Whin Sill is a tabular layer of hard dolerite found in County Durham and Northumberland, which is highly resistant to erosion creating distinctive landscape features. Biodiversity Action Plans for bats and the Whin Grassland habitats are both identified on the Northumberland Wildlife Trust website.

Whin makes thin, poor soil, so plants have to be able to cope with tough conditions. Built to mimic the shapes and geology of The Great Whin Sill, the grass roof is planted in a substrate inspired by the surrounding landscape. Different soil mixtures and planting techniques were tested for the roof in a number of trial plots.

The soil was selected and mixed specifically for the project. It is made up of the soils found in the floor of an abandoned whinstone quarry where early successional species-rich grassland is developing well, whinstone chippings and composted pine bark.

A mix of grass and forb seed as sown on the roof, with the seed collected from Northumberland, Cumbria and Scottish Borders species including: Sheep's fescue, Common bent, Sweet vernal-grass and Thyme.

The species richness of the site has been increased significantly, including garden areas planted with native species. The green roof provides 2373m² of neutral and acidic grasslands and Whin Scree, with the retention of the established habitats and woodland diversity. Overall this has resulted in net gain in biodiversity.

The project has a long-term maintenance plan in place, managed by the local volunteer network, National Park staff and YHA.



Green roof replicating the locally rare Whin Scree Grassland (Sir Robert McAlpine)



The contemporary sustainable design respects the local habitats and landscape (Sir Robert McAlpine)

Further information

The centre has been designed and constructed in an exceptionally considerate way, delivering a contemporary sustainable building with the biodiversity measures incorporated alongside other sustainability features including solar panels, rainwater harvesting and gardens for staff wellbeing. Collaborative planning and consultation was vitally important to ensure that the building responded to the local context and delivered on its final purpose for the users.

The local landscape and biodiversity has shaped the building form and the biodiversity measures taken. One of the key aims of the project going forwards is to allow visitors to learn about the local biodiversity. The Whin Sill grassland roof is fully accessible to all, allowing all visitors to reach a viewing platform with panoramic views. It is the only one of its kind in the world and will be used by students to learn more about carbon capture, geology and ecology.

When the project began, the Northumberland National Park Authority also launched The Sill Activity programme to engage people of all ages throughout the region in the project. To date, there have been over 400 Sill-related events providing a range of educational and volunteering opportunities connected to the landscape and heritage of the Park. The project team also developed a New Naturalist Project, inviting future environmentalists to a free educational programme prior to the opening in summer 2017.

Project Team

- Northumberland National Park and Youth Hostel Association with Heritage Lottery Funding and 14 other supporters
- Sir Robert McAlpine: Kevin Alden – Project Manager, Julie Colbert – Design Manager, Matt Sleightholme – Chief Engineer, James Foster – QS, Gus MacDonald – Works Manager

What was the motivation for carrying out the enhancement?

As the project is situated in an internationally recognised natural landscape, the project team had a strong motivation to deliver an ecologically sensitive response. As a centre for visitors to the National Park, there was also the opportunity to educate visitors about the local biodiversity through the design of the building.



Locally native grassland species diversifying the planting scheme (Sir Robert McAlpine)



Signs on the roof assist with educating visitors on the local biodiversity (Sir Robert McAlpine)