

CHESTER BUS INTERCHANGE GREEN ROOF CHESTER Graham Construction

BIG Biodiversity Challenge Award category: Small Scale Permanent Award

Project overview

The £13.5m building project, which is located within the Chester City Conservation area, incorporates an enclosed terminus, canopy, retail space and café.

The horseshoe-shaped design promises a better integration between bus services and the rail station alongside improved linkages to pedestrian and cycle routes along the Shropshire Union Canal.

The design incorporates glulam timber beams creating a curved roof form and providing visual interest from within the passenger waiting environment.

The roof itself is covered with an extensive sedum system, reinforcing the original concept to provide green space terracing in relation to Chester Cathedral.

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

The site previous to development was a pay and display car park catering for 168 spaces and the dilapidated Victoria Inn public house. The area was predominately covered with tarmac which supported very little biodiversity.

Were there any specific reasons that led to this project?

The new interchange will provide a strategic link to Chester and the wider area whilst also acting as a transport node to the proposed £300m Northgate development. The new station consolidates the outdated facilities and replaces the Princess Street exchange. In addition to the sedum roof which increases bio diversity the project by its very nature aims to reduce congestion in the town and intern reducing air pollution in the area.



Aerial View of Chester Bus Interchange following installation in September 2016

Another aim of the design was to create a large “green plateau” space adjacent to the Cathedral.

Due to the type of the building it was not required to have a BREAAAM assessment, although local Cheshire West and Chester Council plan policy was taken into account which outlines national sustainability targets.

What were the biodiversity measures taken?

The key biodiversity element to this project is the large horseshoe shaped green roof. This area of 3,434sqm sedum NatureMat, creates important microclimates for insects, bird life and other rare species.

Vegetation on the roof is actually made up of a mix of mature sedum plants placed on top of a layer of soil. It will be allowed to grow wild and won't require mowing / maintenance.

It also positively affects the heat produced within the urban setting in Chester town centre decreasing the urban heat island effect and subsequent effect on wildlife.

The roof will also significantly reduce the surface run off of rainfall creating a mechanism for sustainable urban drainage (SUDS).

The air quality in the area will also be significantly improved due to the filtering mechanism of the plants and substrate.

The roof also has aesthetic benefits and creates a more pleasant view from the walls and other tall buildings in the surrounding area.

By implementing a sedum roof on this scale in an urban setting, Chester is gaining a sustainable easily maintained biodiverse environment which will have a huge positive effect on the biodiversity net gain of the area.

To complement the Green Roof, a landscape architect was appointed to design a planting scheme suitable for the bus exchange. 6 Oak trees, already in situ had tree protection erected to safeguard them during the build. A further 13 ornamental pear trees are to be added to the area supplemented with an additional 996 pollinator friendly shrubs and plants, including alliums, ferns, tulips, hebes, and sweetbox.



Christine Gaskell, chair of Cheshire and Warrington Local Enterprise Partnership and Cllr Karen Shore, cabinet member for the environment, laying the roof with Martin Bambrick, Project Manager

During the development of this scheme, consultation took place between various local community and resident groups, describing the scheme and giving opportunity for comment and feedback.

The bus interchange is capable of handling 156 bus movements per hour. In such a high profile building with lots of traffic, interpretation signage is being designed to explain and engage service users on biodiversity.

How would you best describe the project?

Enhancement

Further information

The complex geometry of the design means that using Revit design software was the best way of understanding the design and build challenges for the team.

This has been the tool from which the sub-contractors developed their design packages with Jefferson Sheard (Architect) in control of the federated model.

The project was delivered to BIM Level 2 with relevant client asset data interpreted within the model. This ensured programme certainty and minimised risk of error in construction.

Participating in the BIG Biodiversity Challenge has given the all partners, GRAHAM Construction, Jefferson Sheard Architects, Mott McDonald, HLM Landscape Architects, and the client, Cheshire West and Chester Council a great platform to promote and enhance local biodiversity through the construction of a landmark building.



Photo Description: Aerial View of Chester Bus Interchange before opening in May 2017

What was your personal motivation for carrying out the enhancement?

The interchange will provide a much improved gateway for people entering Chester via public transport. It is a fantastic landmark that makes an instant impression when you arrive in the city.

Simply put, this will attract more wildlife and biodiversity than before and improve air quality whilst also improving the appearance of public realm in a sustainable manner.



