

Cuddington Brook Cuddington, Northwich

J Murphy and Sons Ltd

BIG Challenge 2015 submission category: Small scale permanent

Project overview

Cuddington Brook project (infrastructure) was undertaken by J Murphy & Sons on behalf of Network Rail.

The project is categorised as a minor work scheme. The location of the works are located on a railway earthwork embankment within deciduous woodland in a rural setting.

The scope was to remove any debris and fallen trees from the railway embankment and undertake minor scour protection works at the bottom of the embankment located within Cuddington Brook (main watercourse).

A meeting was held between ourselves and the client to discuss engineering options and how we can reuse the debris and fallen trees onsite.

The outcome was to take a green engineering approach by using Solu-form bags covered with soil and seeded geotextile matting and reuse debris and fallen trees as hibernaculum for beetles, reptiles and amphibians.



Photo: Scoured Embankment before the works started

The project value: £26,000, team included 6 General Operatives, 1 site manager and Environmental Advisor.

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

The habitats surrounding Cuddington Brook comprise of deciduous woodland with semi-mature and mature trees.

The ground flora is largely bare earth with leaf litter and occasional bracken and common nettle dominated areas.

40m² of the work area is omitting a shaded and suitable habitat areas for invertebrates.

Were there any specific conditions that led to you carrying out this work?

Specified Flood Defence Conditions were met on behalf of EA.

The EA were involved at the early stage of the project including site visits and meeting to elaborate on how we can enhance biodiversity within the area and take a green engineer approach instead of the typical grey.

My personal aim for this project was to shift designer's concepts from a grey engineering to green engineering to support biodiversity.

What were the biodiversity measures taken?

Cuddington Brook can be replicated to larger projects as J Murphy and Sons carry out larger embankment/cutting stabilisation works on behalf of Network Rail throughout the country.

Long term management has been agreed annually between J Murphy and Sons Ecologist and EA to follow the progress of the enhancement of the vegetation along the railway embankment.

Three new areas of habitats have been created on this project resulting in high enhancement of biodiversity due to the fact a grey engineering approach was firstly proposed by the client resulting in rock armour and debris and fallen trees to be removed off site via rail causing extra cost to the project.

By leaving the rotten trees and debris onsite we were able to create a reptile hibernaculum and a habitat pile.

The Cheshire Local Biodiversity Action Plan contains all the species and habitats that are identified as being in need of assistance in the Cheshire region.



Photo: Hibernaculum

The habitats we created helped the following which are listed in their action plan, this included; beetles, reptiles, small mammals and fungi.

An interactive workshop took place before the works began to explain the reasons why we took green engineering approach and the benefits of reusing the rotten wood onsite.

The site team demonstrated high levels of collaborative/collective working with and increased their local knowledge of biodiversity.

How would you best describe the project?

An enhancement.

Further information

The first hibernaculum was created by gathering the fallen trees out the watercourse and stacking

the material ready to build the hibernaculum's. The foundation of the pile were designed with 6-10 inch diameter logs placed parallel to each other one foot apart.

Medium size branches and logs perpendicularly on top of the foundation. Lastly, smaller debris were added on top to form a mound.

The second hibernaculum was constructed installing the logs vertically into the ground, we ensured the logs were well secured into the ground, we then placed spoil in-between the logs and covered it with vegetation.

J Murphy and Sons Ecologist has re-visited the site after the works and has reported activities of beetles and fungi within both hibernaculum's.

A tip for similar schemes would be to involve local authorities/Environmental Agency from an early stage of a project. Without support and advice from the Environment Agency this project wouldn't have reached its full capacity relating to biodiversity.

What was your personal motivation for carrying out the enhancement?

My personal motivation was to enhance biodiversity on a smaller scale project where money and resources are harder to come by.

I am driven by influencing the culture in construction so all can consider biodiversity as part of their schemes, to 'Do One Thing'.