

Churchover Ditch Diversion Scheme

Rugby, Warwickshire

J Murphy and Sons Ltd

BIG Challenge 2015 submission category: Large scale permanent

Project overview

As part of the overall civil engineering scheme there was a requirement to divert a natural drainage ditch and remove a number of trees.

The initial design was to install a culverted ditch and to leave the surrounding landscape grassed for livestock to graze, resulting in a net loss of biodiversity.

J Murphy and their client have an agenda to replace habitat loss and create betterment where possible.

It was agreed to build a new open 'green' ditch which consisted of a mixture of natural willow fencing and use of a pre-seeded blended mix, specifically chosen for riparian areas.

404 native saplings were also planted to compensate, thus providing a net benefit. In addition, connectivity gaps in hedges were in-filled with a native species mix to improve existing habitat.

Approximately 10 people were involved, which included subcontractors. Infrastructure project in a rural setting Cost: approximately £50,000



Photo: Completion of willow fencing

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

Prior to works commencing the original ditch was well established and provided a haven for wildlife.

The surrounding willow coppice, was also mature, however, some trees were showing decay and there was little connectivity for mammals to the surrounding hedgerows and woodland plantations.

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

The works on the ditch were subject to Environment Agency consent. Creating a diversion of the ditch was discussed with the

Environment Agency at length, to determine a build that met civil engineering requirements.

It would also offer a net benefit to the local area in terms of biodiversity, compensating for the initial loss of riparian habitat.

What were the biodiversity measures taken?

The idea of willow fencing is replicable and not innovative in itself as it was used widely before modern methods, however, this natural method has provided a great benefit to the area and the adjacent surroundings by attracting wildlife.

In certain areas a pre-seeded naturally degradable mat was installed on the embankment, this served a dual purpose.

Firstly, to mitigate against scour/silt run-off from a bare ditch embankment and secondly, to establish a diverse mix of grasses and wild flowers, which have attracted insects, bees and butterflies.

The project team adopted a policy of replanting 4 trees for every one removed, resultantly 404 trees were replanted. This policy is easily replicated, on any scale as long as space allows, any ratio of 2:1 and beyond provides a net benefit.

Management of the area was considered during the design, to ensure maximum benefit and longevity of the area. Trees will be thinned out as they establish and grass cut. The willow will be coppiced during the winter period, cutting back old growth, thus encouraging new growth the following season. This will also add strength to the willow fencing.

As the area further matures, it is hoped that the area will continue to attract a variety of wildlife, for future generations.



Photo: Completion of installation of pre-seeded matting

A variety of bat species have been identified in the local area and also form part of the Local Biodiversity Action Plan, so in years to come when the trees mature it is hoped that bats will roost within them.

Water voles are also noted as a priority species on the Biodiversity Action Plan, so it is hoped that as the new ditch matures in years to come that it will attract a population of water voles.

[How would you best describe the project?](#)

An enhancement.

[Further information](#)

The willow fencing was undertaken by a specialist subcontractor. Upright willow posts were installed at regular intervals along the ditch line, then live willow rods were interweaved along the length.

The ends of the willow were cut allowing the freshly exposed end to root once pushed into the ground.

The pre-seeded matting was installed by site operatives, it come in rolls so was easy to roll down the embankments.

The matting needed to be fixed to the strata below, allowing the matting to bind into the soil below.

Biodegradable starch pegs were used in favour of conventional metal pegs, therefore not leaving a hazard and undesirable legacy.

A rich diverse range of saplings were planted by a specialist arboriculturist, the species mix entailed blackthorn, hawthorn, hazel, oak, field maple, elderberry, silver birch and rowan.

The build has been a success. Through the recent summer months there has been an increased presence in bees, various insects and butterflies.

In years to come it is hoped it will become a haven for other types of wildlife including bats and water voles.

If a similar project was to take place with the use of live willow, it must be ensured that the material is ordered well in advance.

The willow is only harvested in the autumn/winter of each year, so stocks are not limitless with suppliers.

What was your personal motivation for carrying out the enhancement?

It is common place to see natural areas built upon, often leaving a negative impact on the surrounding environment.

In this case it was a credit to be involved in continuing the company ethos in not harming the environment we work in and to leave a legacy for the future.



Photo: Willow fencing & pre seeded matting growth