

Millmarsh Service Reservoir Nr Shepton Mallet, Somerset

Kier Services

BIG Challenge 2015 submission category: Large scale permanent

Project overview

Millmarsh Reservoir is a new 10.8 mega-litre potable water service reservoir constructed on an agricultural site on behalf of Bristol Water.

The reservoir was a cast in-situ reinforced concrete structure with dimensions approximately 40m x 70m x 5m high. Located on a sloping field the reservoir was founded between 1 and 2m below ground level with the excavated material used to form the embankment around the reservoir.

Attached to the reinforced concrete structure was a 16m x 10m valve house. The site works also included the construction of a stone faced communications building, installation of a 30m high communications mast, Truckpave access road and site drainage.

Two large soakaways were constructed; a deep crate type soakaway (540m²) to provide discharge capacity for the reservoir and underslab drainage and a larger shallow soakaway (580m²) for the site



Photo: Millmarsh wildflowers

drainage. The project value was £2.2m and was delivered on budget in 53weeks.

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

The land had been previously used for cattle grazing and consisted of improved grassland of poor quality, with hedgerow along two of the four sides of the site.

Several mature trees were within the hedgerow. The site had very poor species diversity.

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

Client requirements meant that additional hedgerow and trees were to be planted up completion of the project.

A planting guide was provided. There was also a requirement to grass the site with a standard easy maintenance grass seed.

What were the biodiversity measures taken?

A decision was taken early in the project to change the standard low-maintenance grass-seed mix, which is used as standard by water companies on their assets to a wildflower grassland mix.

The standard seed mix is easy maintenance and has low species diversity.

A grasslands specialist from Somerset Wildlife Trust was contacted to help determine which wildflower seed mix would be most suitable for the site. After taking and analysing soil samples he advised that an EM3 wildflower seed-mix was most suitable for the site.

The mix included species such as Salad Burnet, Yellow Rattle, Wild Marjoram; species important to locally found invertebrates, including many butterfly and moth species.

The seed mix was spread over the whole site, which in total covers just over one acre. On completion of the project the site was handed back to the client but advice was given regarding future maintenance of the grassland, which is being followed by their parks maintenance team.

The cost of the wildflower seed mix was the same as the standard low-maintenance mix, so there is no financial disadvantage to an enhancement such as this.

The client, Bristol Water, was extremely pleased with the installation of the



Photo: Millmarsh wildflowers

wildflower meadow and are now looking to do similar seeding projects on all of their new developments.

How would you best describe the project?

An enhancement.

Further information

Early planning of the ecological enhancements was essential; permission had to be sought from the client for changing the scope of works and planned maintenance program.

It was a good opportunity for site staff to engage with the environmental aspects of the project and many of them volunteered their own time to help complete the enhancement work.

Basic surveys of the site and camera traps have shown that several species

of birds and butterflies as well as amphibians and small mammals are frequently using the site.

The client, Bristol Water, have a Biodiversity Rating Tool which allows them to give a value to each of their operational sites and helps them monitor levels of environmental improvements.

The tool showed that for this site an increase of 7.2 was provided, which equates to a significant increase in biodiversity and far exceeds their expectations.

Further monitoring of the site will take place by both the client and Kier to ensure the enhancements are still adding value and are being maintained.

What was your personal motivation for carrying out the enhancement?

The site team was well established and had worked together on many environmentally challenging projects, including in National Parks.