Stafford Western Access Route – Flood Compensation Works Stafford

Staffordshire County Council, Staffordshire Wildlife Trust, AMEY

BIG Biodiversity Challenge Award category: Medium Scale Permanent Award

Project overview

Stafford Western Access Route is a £62m infrastructure project to construct a new 1.2km road, linking A518 Newport Road and A34 Foregate Street.

The new road crosses the River Sow and associated floodplain to the north of Stafford Town Centre. The Amey design team engaged with environmental stakeholders and the supply chain to design a compensation scheme that maximised environmental benefits within the Doxey and Tillington Marshes SSSI adjacent to the route.

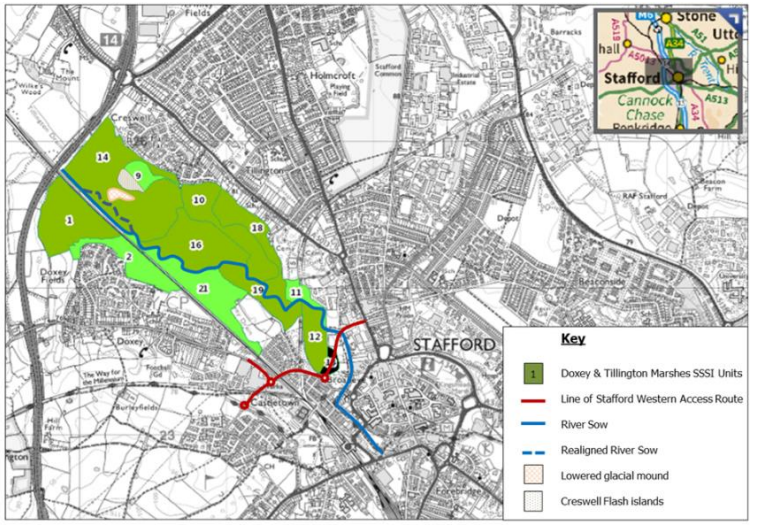
The £500k scheme involves the lowering of an elevated area of ground, re-alignment of the River Sow to re-introduce meanders following historic straightening, and creation of islands in a nearby water body for wetland habitat. The works commenced in early September 2016 and were completed at the end of March 2017.

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

The area for ground lowering was species-poor improved grassland of poorer quality than surrounding SSSI wetland habitat. The river section had been channelized as part of the West Coast Main Line construction in the late 19th century. The receptor pool was deep and of low value for wading birds which are an SSSI feature.

Were there any specific reasons that led to this project?

In developing the Environmental Statement for the Stafford Western Access Route scheme, the design team and Environment Agency identified an opportunity to protect Stafford Town Centre from historic flooding issues. To achieve this benefit, an 11,000m3 volume of flood compensation was provided within the upstream Doxey and Tillington



Scheme Location Plan

Were there any specific reasons that led to this project? (cont.)

Marshes Site of Special Scientific Interest (SSSI) by lowering of the raised area of poor habitat. River realignment was added to the scheme to provide biodiversity benefit to the SSSI and to contribute towards Water Framework Directive objectives for improvement of ecological status for the River Sow.

What were the biodiversity measures taken?

The project is innovative in the early engagement between Civil Engineers and environmental stakeholders to maximise environmental benefits. The deviation from a traditional 'level for level, volume for volume' approach to a detailed flood model to determine the provision of flood compensation, allowed the consideration of a number of areas of higher ground within the Doxey and Tillington Marshes SSSI, and assessment of their habitat quality and contribution to the SSSI.

Following the selection of the preferred option, a multi-disciplinary key stakeholder working group was established to develop the detailed design and incorporate as much ecological enhancement as possible. The working group included representatives from Staffordshire County Council, Staffordshire Wildlife Trust, Natural England, Environment Agency, Amey Design Team and Specialist Contractors.

The deposition of 11,000m^3 of organic material generated from the ground lowering and river re-alignment within the nearby Creswell Flash water body diverted this material from landfill and allowed the construction of a series of islands and spits.

The objective of this was to reclaim approx. 1.2 hectares of wetland habitat of value to wetland bird species that had been lost due subsidence associated with historic brine extraction. The lowering of land will create swamp/marsh habitats complementary to the SSSI wetlands, an enhancement from species-poor grassland. The river realignment has introduced increased structural diversity to a relatively featureless channelized stretch of the River Sow.

The project has resulted in biodiversity enhancement in the form of creation of 1.3 hectares of swamp/wet grassland, 500 metres of realigned river and 1.2 ha of wetland enhanced for wading birds all benefiting the SSSI designated for its bird and swamp interest.

Aerial Photograph taken prior to scheme completion

What were the biodiversity measures taken? (cont.)

Contribution has been made to the Staffordshire Biodiversity Action Plan Rivers & Streams Action Plan objective to "Restore and create further natural river features" and the Lowland Wet Grassland Action plan objective to "Increase the amount of lowland wet grassland in appropriate areas by creation and re-creation"

How would you best describe the project?

Enhancement

Further information

The project team sought supply chain involvement from a specialist contractor, Land & Water Services, to assist in developing the construction methodology and minimise the temporary environmental impacts. These included;

- Hydrographic survey of the Creswell Flash, matching excavated volumes with proposed wetland landforms in the Flash,
- Programming of the works to ensure that the granular material from the mound lowering was placed below the water level to provide a solid base for placing the surplus peat generated by the river excavation/ fill
- Use of specialist plant and operatives to carry out the works in the environmentally sensitive area, in particular use of an amphibious excavator to form natural islands in the Flash
- Re-location of fish from the Creswell Flash prior to works commencing
- The use of as-dug material to engineer a haul road across the floodplain
- Use of sustainable materials in the revetment design where scour might occur
- Timing of works to avoid impacts on breeding birds
- Surveys prior to works and ecological supervision to ensure that there would be no impacts on locally recorded species including otter, slow worm, common toad, harvest mouse and water shrew.
- Archaeological studies to ensure there were no impacts on historic water meadow features

In the short period following scheme completion (March 2017), it has been recorded that a number of the priority species Little Ringed Plover and Lapwing have been observed nesting on the newly formed islands.

Before & After Image of River Sow Re-alignment Works

What was your personal motivation for carrying out the enhancement?

The project team sought the early involvement of environmental stakeholders to maximise ecological enhancement and change the perception of the negative impacts that are often associated with Civil Engineering projects.