Following the completion of the Preliminary Ecological Appraisal a number of protected species surveys were required for great crested newts, badgers, bats, reptiles, otter, white clawed crayfish, together with vascular plants and invasive species. The results of the surveys fed into the scheme design in an iterative process informing the approaches to certain maintenance elements and management of the soft estate.

The scheme is also located adjacent to and in close proximity to nationally designated sites (Oakley Wood SSSI and ancient woodland) and locally designated sites (local wildlife sites and locally prominent Dyers Greenwood). Liaison with Natural England and Leicestershire County Council’s Ecologist was undertaken to confirm an agreed approach to works in these areas. Through consultation with Natural England assent was not needed for works in the SSSI.

Landscape and visual considerations, including landscape design and specification and maintenance of the soft estate, were key drivers for the scheme. We updated and rationalised the existing Environmental Information System (EnvIS) data for vegetation and grassland plots which were out of date and identified the required management works needed for each plot.

The scheme also crosses three main rivers (Grace Dieu Brook, Black Brook and Long Whatton Brook) and associated flood risk zones. Careful consideration was given to the drainage design in relation to run-off rates and ensuring that the drainage for the scheme was Smart Motorways compliant.

The scheme was located adjacent to several noise Important Areas and the northern part was situated in an Air Quality Management Area (AQMA).

Purpose of the project
In response to increased levels of available funds and a focus on providing a high level of customer service, the Network Delivery and Development Directorate (NDD) is looking at new approaches to deliver essential maintenance that provide a long term sustainable solution and minimise future disruption.

The project on the M1 between J23 to 23a is a trial scheme aimed at demonstrating that a multi-disciplinary approach to maintenance can meet these aspirations. The intention is to carry out one major maintenance project at this location, which addresses all assets, so that no further major maintenance will be required at the same site within an anticipated 10 year period.

Description of the project
The proposed Major Maintenance scheme will include pavement resurfacing and reconstruction (the primary driver for the project), as well as the introduction of a concrete barrier in the central reserve, renewal of vehicle restraint systems, structural maintenance and painting, technology upgrades and drainage renewal. The works will also include comprehensive management and maintenance of the soft estate informed by detailed landscape design proposals and specifications.

The proposed scheme is anticipated to be carried out over a nine month period using contra-flow and lane closures with minimal overnight full carriageway closures.

All assets will be designed to be “Smart Motorway” compliant to ensure that future costs of upgrades to a smart motorway will be minimal.
Lessons learnt
During the course of the Phase 1 Ecological Survey a handheld tablet was used to map and record accurately key habitats, features and target notes. The data were then transferred to the GIS team to produce the Phase 1 habitat maps. This approach provided a more efficient method of recording and digitising the data which enabled key issues to be highlighted and reported back to the design team more efficiently.

Within the soft verge a significant badger sett was found on a cutting slope consisting of more than 20 large active entrances spread over an area of approximately 200m. The closest entrance hole lay within approximately 2m of the hard shoulder, immediately adjacent to the base of an overhead gantry. In order to establish the extent of the main sett and determine a way forward to manage the implications of the sett on the scheme design, the team looked to adopt the use of ground penetrating radar (GPR) methods which required advanced vegetation clearance to maximise the success of this approach. The project ecologist and landscape specialist factored this into an advanced specification brief for the contractor which included the presence of a Clerk of Works to supervise the vegetation clearance.

Prior to undertaking the great crested newt surveys, extensive liaison was required with the landowners to gain the necessary permissions to enter their land and undertake the presence/absence surveys. Through ongoing communications good links were established with them, which enabled the surveys to progress more efficiently. The surveys confirmed presence of great crested newt populations at the northern (vicinity of Junction 23a at Donington Services) and southern extents (Junction 23 within the boundaries of the Biffa Quarry site) of the scheme. This information was subsequently used to inform the great crested newt licence application, the extent of the advanced vegetation clearance works and methods of working needed at the northern and southern extents of the scheme.

Lessons learnt cont.
Whilst the results of protected species surveys were used to inform the design process, the evolution of the design itself was also an important process enabling certain survey requirements to be scoped in or out of the programme. For example, confirmation of the highways lighting being moved from the central reserve to the nearside verge to accommodate the concrete central barrier resulted in the reduction in the number of the trees with bat roost potential identified during the Phase 1 survey to be included in the bat tree climb surveys. In addition, confirmation by the design team that certain structures within the scheme extents were not being affected by the works enabled further bat survey work to be scoped out. This iterative design process and close communication between the environmental coordinator, project ecologist and design team enabled this effective, cost saving approach to take place.

The landscape design was informed by a detailed site visit to identified plots. The landscaping specification for each plot was updated together with the proposed landscape management requirements. This included identifying areas of scrub encroachment into areas of species rich grassland and areas of a locally prominent plant (Dyers Greenwood). This allowed areas of conservation value to be identified and an appropriate maintenance regime developed to safeguard areas of biodiversity value, together with managing and enhancing the soft verge in order to contribute to Highways England’s Biodiversity Action Plan targets and the visual interest of the travelling public.

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