EIA Quality Mark Case Study

M42 Junction 6 Scheme – Bickenhill Meadows Site of Special Scientific Interest

Purpose of the project:
Through the delivery of the M42 Junction 6 Scheme (the project) in Birmingham, Highways England is seeking to improve the movement of existing traffic and provide capacity on the road network for future traffic growth associated with the planned High Speed 2 Birmingham Interchange Station. The project objectives include making the network safer, supporting the smooth flow of traffic, encouraging economic growth, and helping cyclists, walkers and other vulnerable road users on the road network.

As a Nationally Significant Infrastructure Project, AECOM supported the development of the preliminary design for the project, undertook detailed Environmental Impact Assessment (EIA) and prepared the Development Consent Order (DCO) application.
Description of the project:
The project’s main components include: a new junction on the M42, located approximately 1.8 km south of the existing Junction 6 (referred to as M42 Junction 5A); a new 2.4 km long dual carriageway link road between M42 Junction 5A and Clock Interchange on the A45 (west of M42 Junction 6), incorporating a free flow slip road to the A45 Coventry Road westbound; and other highway modifications and improvements to integrate the project into the local road network.

The project is situated within a semi-rural, predominantly agricultural setting which is heavily influenced by existing road and rail infrastructure and wider commercial development such as the National Exhibition Centre. Environmentally sensitive sites and features in proximity to the project include: Bickenhill Meadows Site of Special Scientific Interest (SSSI); Asbury’s Copse Ancient Woodland; local wildlife sites; and various protected species.

Key issues:
Bickenhill Meadows SSSI is designated for its nationally important wet grassland assemblages. The site is split into two distinct parcels of land, referred to as the north-western and south-eastern units, located approximately 600 meters apart and separated by the B4438 Catherine-de-Barnes Lane.

Through the design-development process, efforts were made to minimise the footprint of the project and integrate the alignment of the link road into the local landform, whilst seeking to minimise potential noise impacts on residents. These considerations led to an alignment for the link road being chosen that passed between both of the SSSI units, thereby avoiding encroachment into the site.

Following assessment, the EIA identified that the loss of surface water catchment resulting from the project could potentially affect the hydrology and drainage of the SSSI. In response, a collaborative approach to better understand the site’s characteristics and the potential impacts was adopted by the project’s environmental, drainage and engineering teams. This involved: site monitoring (involving below-ground investigations to establish soil and rock composition and hydrological conditions); a review of topographical LIDAR data; micro-drainage modelling; and the use of dipwell and data weather loggers to build a conceptual model of both units.

Several potential design solutions were subsequently identified by the project team and shared with statutory consultees. Based on the evidence gathered, the collective view was that potential impacts on the south-eastern SSSI unit could be mitigated through the installation of a closed pump system designed to move water into the unit from the opposite side of the link road.
Although accepting of the mitigation, stakeholders expressed a preference for a less engineered solution to be developed. Through continued monitoring, an improved understanding of how the south-eastern SSSI unit functioned was obtained which confirmed that the wet grasslands in the site are recharged by rainwater and not through groundwater conditions as initially thought.

By sharing the monitoring data with statutory consultees and taking account of their views, this allowed the project team to confidently move away from an engineered solution to a more passive solution based on a gravity fed drainage system that maximises the use of existing topography and rainwater runoff from the new carriageway. Commitments were also made in the DCO application to undertake continued botanical and hydrological monitoring of the site during the construction phase and through the initial operational years of the project, and to establish a SSSI Monitoring Steering Group to oversee the monitoring programme and make decisions on any corrective actions (if necessary).

**Lessons Learnt:**

Critical to the development of the mitigation solution was the timely involvement of Natural England and other stakeholders throughout the preliminary design stage, and the periodic sharing of assessment information. Collectively this enabled a more environmentally sensitive and sustainable solution to be developed to mitigate the project’s potential impacts on the site.

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