# M11 Junction 7A

Essex County Council

## AIES Screening Matrix

B3553F05-3000-REP-0060

23 January 2017

# M11 Junction 7A

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| Project Manager: | Paul Manamike |
| Author: | Robert Dray |
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1180 Eskdale Road,
Winnersh, Wokingham
Reading, England
RG41 5TU
United Kingdom
(Tel) +44 (0) 118 946 7000
(Fax) +44 (0) 118 946 7001

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## Document history and status

| Revision | Date | Description | By | Review | Approved |
|---|---|---|---|---|---|
| R0 | Jan 2017 | AIES Screening Matrix | RD/SB | AMC | PM |
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| Project Name | M11 Junction 7a (Stage 1 Assessment) | |
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| Natura 2000 Sites under consideration | Epping Forest Special Area of Conservation (SAC), Wormley Hoddesdonpark Woods SAC and Lee Valley Special Protection Area (SPA) and Ramsar | |
| Date: Description of Project/Plan | Author<br><br>(Name/Organisation): | Verified<br><br>(Name/Organisation): |
| November 2016 | Robert Dray, Senior Ecologist, Jacobs | Simon White, Jacobs |

**Description of Project/Plan**

*Describe any likely direct, indirect or secondary impacts of the project (either alone or in combination with other plans or projects) on the European Site by virtue of:*

Size and scale (road type and probable traffic volume)

The M11 Junction 7A scheme involves the construction of a new all-movements junction, including slip roads, the provision of roads linking M11 to the existing B183 (Gilden Way) and the widening of Gilden Way.

The proposed new junction is located approximately 6km north of the existing M11 Junction 7, north of the Moor Hall Road/Matching Road crossing and south of Sheering village. The Proposed Scheme runs close to the Pincey Brook to the north and an area of woodland known as The Mores Wood to the south (see Figure 2.1 in the Environmental Statement (ES)).

Indicative modelling of expected traffic flows has been undertaken; the baseline (2014) and predicted (2021) vehicle movements are summarised below. All figures given are average vehicles per day. The data and traffic model would be updated as the Proposed Scheme progresses. More detail of traffic figures used for air quality modelling can be found in the ES Chapter 5. For more information refer to the Traffic Forecasting Report (TFR).

| Road | Baseline (2014) | Predicted (2021) |
|---|---|---|
| Gilden Way | 12891 | 27116 |
| Proposed link roads | N/A | 28665 |

A search for all European Sites within 2km of the scheme in line with DMRB HD44/09 guidance was undertaken to inform this AIES. 2km is considered a precautionary distance for consideration of all European Sites, as the effects of habitat loss, fragmentation, inappropriate management, air pollution and introduction of invasive species are only likely to occur within less than 1km of the scheme and could therefore not directly affect the sites themselves. European Sites located within 200m of roads affected by the project which are further than 2km from the Proposed Scheme were also considered.

Changes to water levels and water quality could affect sites in hydrological connectivity with the scheme and therefore searches were also undertaken for European Sites where the scheme crosses/is adjacent to, upstream of, or downstream of, watercourses designated in part or wholly as a European Site following guidance in DMRB HD 44/09.

Sites which are designated for mobile species that travel beyond the boundaries of the designated site, such as bats and birds, could be affected by the scheme if designated species travel within the zone of influence of the impacts of the scheme. A further search was therefore carried out for European Sites where bats are a primary qualifying feature within 30km of the scheme in line with DMRB HD44/09, which is based on studies of movements of bats

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| | between summer and winter roosts.<br><br>Additionally a search was carried out for European Sites where wintering birds are qualifying features within 20km of the scheme. Wintering birds can range several kilometres from the site boundaries but it is considered that past 5km the extent of the area potentially available is so large that it is highly unlikely that habitat further afield would be critical to the integrity of the site and the population of the species. However, for the purpose of this initial AIES, the search area was extended from 5km to 20km to account for the low risk that some SPA/Ramsar qualifying features may have wintering foraging ranges that extend even further from the respective European Site.<br><br>Based on the current scheme assumptions, there are three European Sites within the search areas: Epping Forest SAC, Wormley Hoddesdonpark Woods SAC and Lee Valley SPA/Ramsar. |
| Land take | The Proposed Scheme is located approximately 10.5km from Epping Forest SAC, 8.1km from Lee Valley SPA/Ramsar and 11.8km from Wormley Hoddesdonpark Woods SAC. Given the distances involved, there would be no land take within any of these European Sites. No land take of habitat which adjoins or acts as a buffer to the habitats within these European Sites is likely to be affected.<br><br>There would be no land take of habitats that would be suitable to support the mobile qualifying features of Lee Valley SPA/Ramsar (bittern *Botaurus stellaris*, gadwall *Anas strepera* or shoveler *Anas clypeata*). |
| Distance from the European Site or key features of the site (from edge of the project assessment corridor) | Epping Forest SAC lies approximately 10.5km south of the Proposed Scheme when measured from the Gilden Way/London Road roundabout (the closest point of the current alignment).<br><br>Lee Valley SPA/Ramsar is approximately 8.1km west of the Proposed Scheme when measured from the closest point of the current alignment.<br><br>Wormley Hoddesdonpark Woods SAC is approximately 11.8km west of the Proposed Scheme when measured from the closest point of the current alignment. |
| Resource requirements (from the European Site or from areas in proximity to the site, where of relevance to consideration of impacts) | The scheme would require no resources from any European Site or land/water in proximity to any European Site. |
| Emissions (e.g. polluted surface water runoff – both soluble and insoluble pollutants, atmospheric pollution) | <u>Water</u><br><br>There is the potential for the scheme to result in increases in aquatic pollution, either during construction or operation. A hydrological link potentially exists between the Proposed Scheme and Lee Valley SPA/Ramsar via Pincey Brook and a tributary (unnamed watercourse), the River Stort and the River Lee. The Proposed Scheme intersects the unnamed watercourse in the reach from The Mores Wood to the Pincey Brook.<br><br>However, as the closest downstream section of the designated site is located approximately 19km from the Proposed Scheme, and as construction and operation would adhere to standard best practice pollution prevention guidelines and approved drainage designs, there would be no significant change to the water environment that could cause likely significant effects to the qualifying features of the Lee Valley SPA/Ramsar. |

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| | There are no hydrological links between the Proposed Scheme and Epping Forest SAC and Wormley Hoddesdonpark Woods SAC and so changes to the water environment are not likely within these European Sites.<br><br><u>Air</u><br><br>The operation of the Proposed Scheme has the potential to affect local air quality within European Sites. An air quality assessment has been undertaken to assess the potential impacts on local air quality and quantify the changes in regional emission resulting from the Proposed Scheme (see the Air Quality chapter of the ES and the TFR).<br><br>The operation phase study area comprised 'affected roads', which were defined using DMRB Volume 11 Section 3 Part 1 Air Quality (HA207/07) screening criteria for local air quality and regional impacts.<br><br>For local air quality, 'affected roads' are those that meet any of the following criteria as a result of the Proposed Scheme, based on the traffic data modelling for 2014 and 2021:<br><br>• Horizontal road alignment change by 5m or more;<br>• Daily traffic flows will change by 1,000 AADT (annual average daily traffic) or more;<br>• Heavy Duty Vehicles (HDV) flows will change by 200 AADT or more;<br>• Daily average speed will change by 10km/hr or more; or<br>• Peak hour speed will change by 20km/hr or more.<br><br>For regional emissions, 'affected roads' are those that meet any of the following criteria, based on the traffic data modelling for 2014 and 2021:<br><br>• A change of more than 10% in AADT;<br>• A change of more than 10% to the number of HDV; or<br>• A change in daily average speed of more than 20km/hr.<br><br>The guidance provided in Volume 11, Section 3, Part I Air Quality, of the Design Manual for Roads and Bridges, recommends that air quality of assessments of impacts to European Sites need only be undertaken for designated sites within 200m of a proposed road scheme or affected roads. The three designated sites are all well beyond the 200m zone of influence from the Proposed Scheme or affected roads, within which changes in air quality should be assessed (HA 207/07). |
| Excavation requirements (e.g. impacts of local hydrogeology) | No excavation would be required within or adjacent to any European Site. As the closest European Site to the Proposed Scheme is 8.1km away, effects as a result of excavations would not arise. |
| Transportation requirements | Construction vehicles would access the construction site areas via the main road network, potentially including points on the existing Gilden Way and Moor Hall Road. No transportation would be required within any European Sites and therefore, effects as a result of transportation would not arise. However, as none of the European sites are located within 200m of the proposed scheme or affected roads, it is anticipated that impacts associated with air quality change arising from transportation requirements would not arise. |
| Duration of construction, operation etc. | If the proposed route option is taken forward and consented, the anticipated start of construction would be in 2019 and the opening year of the completed scheme would be in 2022. |
| Other | N/A. |
| Description of avoidance and/or mitigation measures | |

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| Describe any assumed (plainly established and uncontroversial) mitigation measures, including information on: | |
| Nature of proposals | A Construction Environment Management Plan (CEMP) would be prepared during construction stage by the contractor to prescribe appropriate working methodologies and to implement measures to avoid or reduce any adverse impacts to levels which are not significant. The CEMP would require adherence to best practice guidelines with respect to pollution prevention control measures. |
| Location | Avoidance or alleviation measures contained within the CEMP would be implemented throughout the scheme with specific measures being implemented where required. |
| Evidence for effectiveness | All measures within the CEMP would be based on construction best practice and on standard measures to avoid or reduce environmental impacts. These would draw on the professional experience of Highways England, the scheme designers, and the contractors to provide the most effective practicable measures available at the time of construction.<br><br>The creation of new habitat is a standard component of infrastructure projects and is routinely used to mitigate or compensate for impacts to valuable or sensitive habitats. |
| Mechanism for delivery (legal conditions, restrictions or other legally enforceable obligations) | All measures set out in the ES would be captured within the CEMP. Following the measures within the CEMP would be a requirement of ECC and Highways England during construction of the scheme. Implementation of the CEMP would be monitored by Essex County Council, the contractor and the Environmental/Ecological Clerk of Works appointed to the scheme. Parts of the scheme would require consents from appropriate statutory agencies; adherence to particular working methods and practices would be a condition of such consents. |
| Characteristics of European Site(s) | |
| A brief description of the European Site should be produced, including information on: | |
| Name of European Site and its EU code | Epping Forest SAC (UK0012720)<br><br>Lee Valley SPA (UK9012111) and Ramsar (UK11034)<br><br>Wormley Hoddesdonpark Woods SAC (UK0013696) |
| Location and distance of the European Site from the proposed works | Epping Forest SAC lies approximately 10.5km south of the Proposed Scheme.<br><br>Lee Valley SPA/Ramsar is approximately 8.1km west of the Proposed Scheme.<br><br>Wormley Hoddesdonpark Woods SAC is approximately 11.8km west of the Proposed Scheme. |
| European Site size | Epping Forest SAC: 1630.74ha<br><br>Lee Valley SPA/Ramsar: 447.87ha<br><br>Wormley Hoddesdonpark Woods SAC: 336.47ha |
| Key features of the European Site including the primary reasons for selection and any other qualifying interests | **Epping Forest SAC**<br><br>Annex I habitats that are the primary reason for selection of the site: 9120 Atlantic acidophilous beech forests with *Ilex* and sometimes also *Taxus* in the shrublayer (*Quercion robori-petraeae* or *Ilici-Fagenion*).<br><br>Annex I habitats present as a qualifying feature, but not the primary reason for selection of the site: 4010 Northern Atlantic wet heaths with *Erica tetralix* and 4030 European dry heaths.<br><br>Annex II species that are a primary reason for selection of the site: 1083 Stag beetle *Lucanus cervus* |

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| | **Lee Valley SPA/Ramsar**<br>The site supports populations of European importance of overwintering bittern, gadwall and shoveler.<br>**Wormley Hoddesdonpark Woods SAC**<br>Annex I habitats that are the primary reason for selection of the site: 9160 Sub-Atlantic and medio-European oak or oak-hornbeam forests of the *Carpinion betuli.* |
| Vulnerability of the European Site – any information available from the standard data forms on potential effect pathways | Vulnerabilities from external sources outwith the designated sites are described below (taken from the respective Natura 2000 data forms).<br>**Epping Forest SAC:**<br>· Changes in biotic conditions;<br>· Air pollution, air-borne pollutants; and<br>· Human induced changes in hydraulic conditions.<br>**Lee Valley SPA/Ramsar:**<br>The JNCC standard data form does not list any external impacts to which the Lee Valley SPA/Ramsar is vulnerable. However, projects which may influence changes such as water levels or water quality may adversely affect the site.<br>**Wormley Hoddesdonpark Woods SAC:**<br>· Invasive non-native species;<br>· Problematic native species, and;<br>· Air pollution, air-borne pollutants. |
| European Site conservation objectives – where these are readily available | The conservation objectives for the European sites are:<br>Subject to natural change, to maintain or restore:<br>· The extent and distribution of qualifying natural habitats and habitats of qualifying species;<br>· The structure and function (including typical species) of qualifying natural habitats and habitats of qualifying species;<br>· The supporting processes on which qualifying natural habitats and habitats of qualifying species rely;<br>· The populations of qualifying species; and<br>· The distribution of qualifying species within the site. |
| **Assessment Criteria** | |
| *Describe the individual elements of the project (either alone or in combination with other plans or projects) likely to give rise to impacts on the European Site.* | |
| The screening assessment has concentrated on those issues upon which the integrity of habitats within the European Sites or on which their designated species are dependent as indicated by the sites' conservation objectives. The screening assessment has therefore focussed on the following issues:<br>· Habitat loss, modification and fragmentation;<br>· Change in water levels and quality;<br>· Change in visual or acoustic stimuli;<br>· Change in air quality; and<br>· Introduction of invasive species. | |
| **Initial Assessment** | |
| *The key characteristics of the site and the details of the European Site should be considered in identifying potential impacts. Describe any likely changes to the site arising as a result of:* | |
| Reduction of habitat | There would be no habitat loss within any European Site as a result of the |

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| area | scheme. |
| Disturbance to key species | **Epping Forest SAC and Wormley Hoddesdonpark Woods SAC:**<br>The qualifying features of Epping Forest SAC and Wormley Hoddesdonpark Woods SAC are not vulnerable to disturbance caused by changes in visual or acoustic stimuli and so an assessment of disturbance effects is not applicable<br>**Lee Valley SPA/Ramsar:**<br>Given the distances separating the Proposed Scheme from Lee Valley SPA/Ramsar, disturbance to key species within the designated sites is not considered likely. The habitats adjacent to and within the footprint of the Proposed Scheme are unsuitable for the qualifying species of bird for which the Lee Valley SPA/Ramsar is designated, and so disturbance to these species whilst they are occupying habitats out with the SPA/Ramsar is not considered likely. |
| Habitat or species fragmentation | **Epping Forest SAC and Wormley Hoddesdonpark Woods SAC:**<br>There would be no habitat fragmentation within Epping Forest SAC and Wormley Hoddesdonpark Woods SAC as a result of the scheme.<br>**Lee Valley SPA/Ramsar:**<br>There would be no habitat fragmentation within Lee Valley SPA/Ramsar siteas a result of the scheme or in combination with other relevant plans and projects.<br>The Proposed Scheme does not involve the loss of habitats suitable for the qualifying species of bird for which the Lee Valley SPA/Ramsar is designated. As such, no habitat fragmentation effects (notably affecting the mobile bird species of the Lee Valley SPA/Ramsar) would arise as a result of the Proposed Scheme or in combination with other relevant plans and projects. |
| Reduction in species density | **Epping Forest SAC and Wormley Hoddesdonpark Woods SAC:**<br>There would be no reduction in species diversity within Epping Forest SAC or Wormley Hoddesdonpark Woods SAC as a result of the Proposed Scheme or in combination with other relevant plans and projects.<br>**Lee Valley SPA/Ramsar:**<br>Given the distance from the site and the unsuitability of the affected habitats for the qualifying species, it is unlikely that there would be a reduction in species density at Lee Valley SPA/Ramsar site as a result of the Proposed Scheme or in combination with other relevant plans and projects. |
| Changes in key indicators of conservation value (water quality etc.) | Changes in the air environment are predicted to be insignificant given the distances involved. The closest boundary of a European Site (i.e. Epping Forest SAC) is located approximately 2.5km from the nearest affected road.<br>No habitat likely to be used by Lee Valley SPA/Ramsar features are likely to be significantly affected.<br>No other pathways for change exist between the Proposed Scheme and any designated sites. |
| Climate change | Climate change effects on the three designated sites are unknown, but the design of the scheme has allowed for climate change to ensure no effects on the environment are predicted. |
| *Describe any likely impacts on the European Site as a whole in terms of:* | |
| Interference with the key relationships that define the structure | No Likely Significant Effects |

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| of the site | |
| Interference with key relationships that define the function of the site | No Likely Significant Effects |
| *Indicate the significance as a result of the identification of impacts set out above in terms of:* | |
| Reduction of habitat area | No Likely Significant Effects. |
| Disturbance to key species | No Likely Significant Effects. |
| Habitat or species fragmentation | No Likely Significant Effects. |
| Loss | No Likely Significant Effects. |
| Fragmentation | No Likely Significant Effects. |
| Disruption | No Likely Significant Effects. |
| Disturbance | No Likely Significant Effects. |
| Change to key elements of the site (e.g. water quality, hydrological regime etc.) | No Likely Significant Effects |
| *Describe from the above those elements of the project or plan, or combination of elements, where the above impacts are likely to be significant or where the scale or magnitude of impacts is not known.* | |
| None of the elements of the project, or combination of elements, are likely to lead to a significant effect on any European Site. The scale and magnitude of all effects are known as far as is reasonably practicable based on current scientific knowledge. | |
| Outcome of screening stage (delete as appropriate) | No Likely Significant Effects on Epping Forest SAC, Lee Valley SPA/Ramsar, or Wormley Hoddesdonpark Woods SAC. |
| Are the appropriate statutory environmental bodies in agreement with this conclusion (delete as appropriate and attach relevant correspondence) | Consultation pending. |