

M3 Junction 9 Improvement

Scheme Number: TR010055

6.3 Environmental Statement Appendix 8.1y - Biodiversity Desk Study Report 2021

APFP Regulation 5(2)(a)

Planning Act 2008

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6.3 ENVIRONMENTAL STATEMENT - APPENDIX 8.1Y: BIODIVERSITY DESK STUDY REPORT
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1 Biodiversity Desk Study Report

1.1 Background

- 1.1.1 Stantec UK is working with Volker Fitzpatrick and National Highways to undertake design and assessment of the M3 Junction 9 Improvement Scheme (the Scheme). National Highways is planning to submit an application for a Development Consent Order for the Scheme in spring 2022.
- 1.1.2 This Biodiversity Desk Study Report has been prepared to inform the Environmental Impact Assessment process; principally **Chapter 8 (Biodiversity)** of the **Environmental Statement (ES) (Document Reference 6.1)**. In addition to this Ecological Desk Study Report, a suite of ecological field surveys has been undertaken and would be reported within the ES.
- 1.1.3 Land within and adjacent to the Application Boundary is known to be within the vicinity of sites designated for their nature conservation importance. Habitats within and adjacent to the Application Boundary also have the potential to support protected or notable species, with some habitats being of conservation importance. The presence or potential presence of these designated areas, species, and habitats within and adjacent to land within the Application Boundary would need to be given due consideration within the ES.
- 1.1.4 This desk study report presents a summary of desk study data received in relation to designated areas, and notable or legally protected habitats and species.

1.2 Scheme description

- 1.2.1 M3 Junction 9 is a key transport interchange which connects South Hampshire and the wider sub-region, with London via the M3 and the Midlands/North via the A34. A significant volume of traffic currently uses the grade separated, partially signalised gyratory (approximately 6,000 vehicles per hour during the peak periods) which acts as a bottleneck on the local highway network and causes significant delay throughout the day.
- 1.2.2 National Highways is looking to reconfigure the junction to improve the situation for vehicle traffic and non-motorised users.
- 1.2.3 The improvements proposed as part of the Scheme both maintain existing connectivity on the road network, whilst providing enhanced capacity, simplified routing, and improved facilities for non-motorised users. The Scheme would provide new free flow links between the M3 and A34, as well a dedicated new A33 alignment. The main changes from the existing junction are:
- Widening of the M3 from a dual two-lane motorway (two-lane motorway and a hard shoulder) to a four-lane motorway between the south-facing roundabout slip roads

- A new smaller grade separated gyratory roundabout arrangement within the footprint of the existing roundabout, incorporating new connections over the M3 with improved non-motorised users facilities
- Connector roads from and to the new gyratory roundabout
- Improved slip roads to/from the M3

1.2.4 The Application Boundary is approximately 109 hectares (ha). This includes the proposed land required for gantries, signage, temporary construction compound areas, areas for environmental mitigation and areas for drainage requirements.

2 Methods

2.1 Data sources

2.1.1 Data in relation to the M3 Junction 9 Improvement was initially requested from Hampshire Biodiversity Information Centre in 2016 and is presented within M3 Junction 9 Improvement Scheme: Ecological Desk Study, June 2016 (WSP, 2016). This included biological records in relation to statutory and non-statutory nature conservation sites, notable habitats and species, and controlled species.

2.1.2 To ensure desk study data used to inform the ongoing assessment work in the ES is current, and to ensure data has been obtained for any areas recently added to the Application Boundary, the following desk study data was requested from Hampshire Biodiversity Information Centre and provided on the 30 July 2021:

- Non-statutory areas within 2km of the Application Boundary
- Non-statutory areas within 200m of the Affected Road Network
- Priority habitats within 2km of the Application Boundary
- Notable and protected species within 2km of the Application Boundary
- Bat species within 5km of the Application Boundary
- Invasive Non-Native Species within 2km of the Application Boundary

2.1.3 In addition, data in relation to non- statutory designated areas within 200m of the Affected Road Network was also requested from Thames Valley Environmental Records Centre and provided on the 25 July 2021. Whilst the Scheme is many kilometres from the Thames Valley Environmental Records Centre area, this data is required to inform the assessment of potential effects from pollution from vehicles which can result some distance from a scheme.

2.1.4 In addition to data from the local records centres, the following data sources have been used:

- The Multi Agency Geographic Information for the Countryside website (www.magic.gov.uk - MAGIC) was used to provide information on statutory designed nature conservation areas, Habitats of Principal Importance, and European Protected Species
- JNCC and Natural England websites were used to obtain detailed information on statutory designed nature conservation areas
- The UK GOV website was used to obtain information on fish species recorded

- Ordnance Survey mapping and aerial imagery

2.2 Study areas

2.2.1 The study areas that are being used to inform the consideration of impacts to biodiversity features reported in the ES are set out below. Due to differing zones of influence (Zoi) over which ecological features may be subject to impacts and subsequent effects, both during construction and operation, a range of study areas are being used. Selection of the study areas has been informed by the Guidelines for Ecological Impact Assessment in the UK and Ireland (Chartered Institute of Ecology and Environmental Management (CIEEM), 2018).

2.2.2 The following study areas have been used during the desk study:

- Information relating to internationally designated areas within 10km of the Application Boundary, extended to 30km for Special Areas of Conservation (SACs) designated for bats
- Designated areas within 200m of the Air Quality Affected Road Network
- 2km radius for all other statutory and non-statutory designated sites
- 2km radius for notable habitats¹
- 2km radius for protected species records (excluding bats)
- 5km radius for bats

¹ Habitats listed in accordance with Section 41 of the Natural Environment and Rural Communities (NERC) Act (2006) known as 'Habitats of Principal Importance', ancient woodland and veteran trees

3 Results

3.1 European Designated Areas

3.1.1 The River Itchen SAC passes under the existing A34 and A33 and lies partially within the Application Boundary. The River Itchen SAC is designated for its riverine habitats and species which it supports. Further details are outlined in **Table 3.1**.

3.1.2 Mottisfont Bats SAC lies approximately 16km to the west of the Application Boundary and is designated due to an important population of barbastelle *Barbastella barbastellus* bats.

Table 3.1: Internationally Designated Areas within the Study Area

Designated Areas	Location	Qualifying Features
The River Itchen SAC	The SAC passes through the Application Boundary	<p>This site is notified as a classic example of a sub-type 1 chalk river. The river is dominated throughout by aquatic <i>Ranunculus spp.</i> The headwaters contain pond water-crowfoot <i>Ranunculus peltatus</i>, while two <i>Ranunculus</i> species occur further downstream: stream water-crowfoot <i>R. penicillatus ssp. pseudofluitans</i>, a species especially characteristic of calcium-rich rivers, and river water-crowfoot <i>R. fluitans</i>.</p> <p>Qualify species including southern damselfly <i>Coenagrion mercurial</i>, bullhead <i>Cottus gobio</i>, white-clawed crayfish <i>Austropotamobius pallipes</i>, brook lamprey <i>Lampetra planeri</i>, Atlantic salmon <i>Salmo salar</i>, and otter <i>Lutra lutra</i></p> <p>The river is also designated as a Site of Special Scientific Interest (SSSI).</p>
Mottisfont Bats SAC	Approximately 16km to the west of the Application Boundary	The qualifying features of the Mottisfont Bats SAC is that the woodland supports an important population of the rare barbastelle

Designated Areas	Location	Qualifying Features
		<i>Barbastella barbastellus</i> . It is one of only six known maternity sites in the UK (2002 data) and the only one in Hampshire. The general woodland is made up of broad-leaved deciduous woodland (80%) and coniferous woodland (20%).

3.2 Nationally Designated Areas

3.2.1 Nationally designated areas within the study area are set out in **Table 3.2** below.

Table 3.2: Nationally Designated Areas within the study area

Designated Areas	Location	Features
The Riven Itchen Site of SSSI	The SSSI passes through the Application Boundary	This site is notified for classic chalk stream and river, fen meadow, flood pasture and swamp habitats, particularly formations of in-channel vegetation dominated by water crowfoot <i>Ranunculus spp</i> , riparian vegetation communities (including wet woodlands) and side channels, runnels and ditches associated with the main river and former water meadows. The site is also notified for significant populations of the nationally rare southern damselfly <i>Coenagrion mercuriale</i> and assemblages of nationally rare and scarce freshwater and riparian invertebrates, including the white-clawed crayfish <i>Austropotamobius pallipes</i> . This site is notified for otter <i>Lutra lutra</i> , water vole <i>Arvicola terrestris</i> , freshwater fishes including bullhead <i>Cottius gobbo</i> , brook lamprey <i>Lampetra planeri</i> and Atlantic salmon <i>Salmo salar</i> , and the assemblage of breeding birds including tufted duck <i>Aythya fuligula</i> , pochard <i>A. ferina</i> and

Designated Areas	Location	Features
		shoveler <i>Anas clypeata</i> , the waders lapwing <i>Vanellus vanellus</i> , redshank <i>Tringa totanus</i> and snipe <i>Gallinago gallinago</i> , and wetland passerines including sedge warbler <i>Acrocephalus schoenobaenus</i> , reed warbler <i>A. scirpaceus</i> and Cetti's warbler <i>Cettia cettia</i> .
St Catherine's Hill SSSI	Approximately 500m south of the Scheme	The Iron Age Hill fort is a scheduled ancient monument and the grazed chalk grassland with representative flora and insect fauna is a Hampshire and Isle of White Wildlife Trust Nature Reserve. This site is also designated as a Local Nature Reserve.
Cheesefoot Head SSSI	Over 2km from the Application Boundary, but within 200m of the ARN	Designated for chalk grassland
River Test SSSI	Over 2km from the Application Boundary, but within 200m of the ARN	Designated for chalk stream habitats
Highclere Park SSSI	Over 2km from the Application Boundary, but within 200m of the ARN	Designated for wood pasture and grassland habitats
Burghclere Beacon SSSI	Over 2km from the Application Boundary, but within 200m of the ARN	Designated for chalk grassland

3.3 Locally Designated Areas

3.3.1 Sites of Importance for Nature Conservation (SINCs) within 2km of the Application Boundary are detailed in **Table 3.3**.

Table 3.3: Locally Designated Areas within 2km of the Application Boundary

Site Name (SINC)	Grid Reference	SINC criteria ²
Easton Down	SU49503160	2D
River Itchen Meadow	SU50803250	5B/6A
St. Swithun, Headbourne Worthy	SU48703200	2D/5A/6A
Magdalen Hill Down North	SU50472932	2B
Magdalen Hill Down	SU50502920	2A/2B/6A
Hockley Golf Course	SU48502660	2A/2B/2D
St Catherine's Hill (base)	SU48102730	2A/6A
The Dongas	SU49002750	2A/6A
Deacon Hill	SU49602760	2A/2D/6A
Chilcomb Ranges, Area A	SU50182777	2B
Land at St Cross F	SU47742782	2B
Clausentum Road Fen and Woodland	SU47852820	5B/6A
Itchen Meadows Chilland	SU52903240	2B/5B/6A
Rutherley Copse West	SU51703490	1A
Shroner Wood	SU52003550	1A
Itchen Wood	SU52803570	1B/6A
Bushfield Camp - B	SU47002750	2D/6A
Whiteshute Ridge	SU46702760	2D
Avington Lake and Woods	SU52703226	6A

² <https://documents.hants.gov.uk/biodiversity/SINCCriteria.pdf>

Site Name (SINC)	Grid Reference	SINC criteria ²
A31 Petersfield Road, Chilcomb	SU50472910	6A
Chilcomb Wood and Downland	SU51002780	1A/2B/2D
St. Andrew's Church, Chilcomb	SU50702790	2D/6A
The Knoll, Chilcomb	SU50952790	2B
Beech Hill	SU52403180	1A/1B
West Hill Cemetery	SU47462926	2B/6A

3.3.2 There are two Road Verges of Ecological Importance (RVEIs) within 2km of the Application Boundary which are detailed in **Table 3.4**.

Table 3.4: Road Verges of Ecological Importance (RVEI) within 2km of the Application Boundary

Site Name (RVEI)	Grid Reference	Features
U173 London Road (Loop)	SU49293237	<i>Ophrys apifera</i> (bee orchid)
A31 Petersfield Road, Chilcomb	SU50502907	22 Chalk grassland indicators. Geranium pratense (Meadow Crane's-bill), <i>Shargacucullia lychnitis</i> (striped lychnis moth NS)

3.3.3 Locally designated areas within 200m of the ARN are set out in **Table 3.5**.

Table 3.5: Locally Designated Areas within 200m of the ARN

Site Name
Allbrook Clay Pit SINC
A31 Petersfield Road (East) SINC and RVEI

Site Name
Bradley Wood SINC
Bypass Meadow SINC
Durden Copse SINC and ancient woodland (AWL)
Freemantles and Great Moorlands Copse Complex SINC and AWL
Flowerdown, Littleton SINC
Great Litchfield Down (and South) SINC
Great Pen Wood SINC and AWL
Hockley golf Course SINC
Hurstbourne Park SINC
Hedgerow Copse SINC and AWL
Little Hitchens Copse SINC
Magdalen Hill Down SINC
Magdalen Hill Down (and North) SINC
Otterbourne Hill Common and Great Moorlands Copse Complex SINC
Pitmore Copse SINC
Powells Grove Copse SINC and AWL
Shorley Copse SINC and AWL
St. Swithun, Headbourne Worthy SINC
Wash Water Railway Field SINC
Shawford Down SINC and Local Nature Reserve (LNR)
Tidbury Ring Wood SINC and AWL
A31 Petersfield Road, Chilcomb RVEI

Site Name
A31 Petersfield Road, RVEI
C5 Foxs Lane RVEI
C67 Newbury Road RVEI
U11 Litchfield Road RVEI

3.4 Habitats

- 3.4.1 No parcels of ancient woodland, ancient trees, or veteran trees have been identified within the M3 J9 Improvement Application Boundary.
- 3.4.2 The nearest ancient woodland is Worthy Copse located approximately 500m northwest of the Application Boundary.
- 3.4.3 A number of veteran trees have been identified within 2km, the closest being 475m north-east of the Application Boundary in Easton where there are 5 veteran trees (3 large leaved limes, 2 common sycamore); 1 ancient tree (large leaved lime) and 1 notable tree (willow).
- 3.4.4 Records of Habitats of Principal Importance within 2km of the Application Boundary received from Hampshire Biodiversity Information Centre are presented in **Table 3.6**. Many of these habitats are associated with the River Itchen and adjacent floodplain habitat, and some parcels lie adjacent to or within the Application Boundary.

Table 3.6: Habitats of Principal Importance within 2km of Application Boundary

Habitat of Principal Importance	Number of areas where registered
Coastal and Floodplain Grazing Marsh	326
Lowland Calcareous Grassland	187
Lowland Fens	2
Lowland Meadows	105
Lowland Mixed Deciduous Woodland	748
Purple Moor Grass and Rush Pastures	47

Habitat of Principal Importance	Number of areas where registered
Reedbeds	38
Rivers	7
Wet Woodland	56

3.5 Notable Species

Amphibians and Reptiles

3.5.1 Post 2000 records of four notable amphibians and reptiles were received within 2km of the Application Boundary, which are 5 common toads (*Bufo bufo*), 1 grass snake (*Natrix natrix*), 9 common lizards (*Zootoca vivipara*) and 10 slow worms (*Anguis fragilis*).

Bats

3.5.2 Records of eleven bat species within a 2km of Application Boundary have been received which consist of: brown long-eared bat (*Plecotus auritus*), common pipistrelle (*Pipistrellus pipistrellus*), Daubenton's bat (*Myotis daubentonii*), greater horseshoe bat (*Rhinolophus ferrumequinum*), lesser noctule (*Nyctalus leisleri*), Natterer's bat (*Myotis nattereri*), noctule bat (*Nyctalus noctula*), serotine (*Eptesicus serotinus*), soprano pipistrelle (*Pipistrellus pygmaeus*), western barbastelle (*Barbastella barbastellus*), whiskered/Brandt's bat (*Myotis mystacinus/ Myotis brandtii*).

Birds

3.5.3 Two thousand records within 2km of the Application Boundary from post-2000 were received. This included 113 registered species recorded within 2km of IAB. 48 of these species are designated as red list which are listed in **Table 3.7**.

Table 3.7: Red list species registered within 2km of Application Boundary

Taxon Name	Common Name
Poecile montanus	willow tit
Emberiza citrinella	yellowhammer
Linaria cannabina	linnet
Sturnus vulgaris	starling
Turdus philomelos	song thrush

Taxon Name	Common Name
<i>Turdus viscivorus</i>	mistle thrush
<i>Motacilla cinerea</i>	grey wagtail
<i>Alauda arvensis</i>	Eurasian skylark
<i>Turdus pilaris</i>	fieldfare
<i>Passer domesticus</i>	house sparrow
<i>Turdus iliacus</i>	redwing
<i>Scolopax rusticola</i>	woodcock
<i>Acanthis cabaret</i>	lesser redpoll
<i>Falco columbarius</i>	merlin
<i>Motacilla flava</i>	western yellow wagtail
<i>Muscicapa striata</i>	spotted flycatcher
<i>Perdix perdix</i>	grey partridge
<i>Phoenicurus ochruros</i>	black redstart
<i>Larus argentatus</i>	European herring gull
<i>Larus fuscus</i>	lesser black-backed gull
<i>Saxicola rubetra</i>	whinchat
<i>Vanellus vanellus</i>	lapwing
<i>Circus cyaneus</i>	hen harrier
<i>Locustella naevia</i>	grasshopper warbler
<i>Cuculus canorus</i>	cuckoo
<i>Dryobates minor</i>	lesser spotted woodpecker
<i>Aythya ferina</i>	pochard
<i>Poecile palustris</i>	marsh tit
<i>Coccothraustes coccothraustes</i>	hawfinch
<i>Luscinia megarhynchos</i>	nightingale
<i>Ficedula hypoleuca</i>	European pied flycatcher
<i>Streptopelia turtur</i>	turtle dove
<i>Calidris pugnax</i>	ruff
<i>Anthus trivialis</i>	tree pipit

Taxon Name	Common Name
Turdus torquatus	ring ouzel
Emberiza calandra	corn bunting
Oriolus oriolus	golden oriole
Anser albifrons	white-fronted goose
Phalacrocorax aristotelis	shag
Rissa tridactyla	kittiwake
Limosa limosa	black-tailed godwit
Numenius phaeopus	Eurasian whimbrel
Clangula hyemalis	long-tailed duck
Aythya marila	scaup
Numenius arquata	curlew
Charadrius hiaticula	common ringed plover
Charadrius morinellus	dotterel
Phylloscopus sibilatrix	wood warbler

Mammals (Excluding Bats)

- 3.5.4 Ten records of notable mammals from post-2000 were received which were: brown hare, Eurasian badger, Eurasian water shrew, European otter, European water vole, harvest mouse, hazel dormouse, polecat, west European hedgehog, and yellow-necked mouse.
- 3.5.5 The harvest mouse is categorised as declining – near threatened.

Plants

- 3.5.6 One thousand records from post-2000 were received for higher plants registered within 2km of Application Boundary. This included 2 species of conifer (juniper and common juniper), 4 species of fern (maidenhair spleenwort, southern polypody, polypody, spleenwort), and 1246 species of flowering plants.
- 3.5.7 Twelve records from post-2000 were received for lower plants registered within 2 km of Application Boundary. These are bendy ditrichum, common stonewort, constricted feather-moss curving feathermoss, drab brook-moss, *Hygrohypnum luridum* var. *luridum*, sassari crisp-moss, velvet feathermoss, and *Zygodon viridissimus* var. *stirtonii*.

Invertebrates

- 3.5.8 Three thousand records from post-2000 were received which included 6 species of spider, 2 species of cockroach, 28 species of beetle, 1 species of crayfish (freshwater), 21 species of fly, 5 species of hemiptera (bugs), 44 species of Hymenoptera (bees, wasps and sawflies), 341 species of Lepidoptera (butterflies and moths), 4 species of mollusca (slugs and snails) and 2 species of odonata (dragonflies and damselflies).
- 3.5.9 There are eight nearly threatened or declining species of invertebrate noted as: adonis blue, chalk hill blue, purple emperor, silver-spotted skipper, small blue, small heath, swallowtail, wall.

Fish

- 3.5.10 Records of the following twelve fish species were obtained: 3-spined stickleback, Atlantic salmon, brook lamprey, brown/sea trout, bullhead, European eel, greyling, minnow, perch, pike, roach, stone loach.