



PRELIMINARY ECOLOGICAL APPRAISAL

FARNBOROUGH NORTH HATCHES LEVEL CROSSING FARNBOROUGH HAMPSHIRE

**GOL-20-73
AUGUST 2021**



Naturally Wild Consultants Limited
3 Halegrove Court
Cygnet Drive
Bowesfield
Stockton-on-Tees
TS18 3DB

Email: hello@naturallywild.co.uk

PRELIMINARY ECOLOGICAL APPRAISAL

FARNBOROUGH NORTH HATCHES LEVEL CROSSING FARNBOROUGH HAMPSHIRE GU14 8AQ

GRID REF: SU 88427 56561

REPORT FOR OSBORNE INFRASTRUCTURE Ltd.

Quality Assurance

Version	Prepared by	Date	Checked by	Date	Approved by	Date
R1		23/08/2021		07/01/2022		07/01/2022

This assessment is intended to provide an accurate description of findings from the desktop study and from survey work undertaken on the date shown; however, it cannot fully account for the reliability of third party data provided or for any changes to site conditions following the completion of the survey work due to activities carried out on site or the dynamic nature of the natural environment. All work carried out by Naturally Wild Consultants Ltd is subject to our Terms and Conditions.

The report has been produced in accordance with current best practice guidelines.

REPORT CONTENTS

EXECUTIVE SUMMARY	4
SUMMARY OF POTENTIAL ECOLOGICAL CONSTRAINTS.....	5
1 INTRODUCTION.....	7
2 RELEVANT LEGISLATION.....	8
3 METHODOLOGY.....	9
3.1 Overview	9
3.2 Survey Area.....	9
3.3 Survey Constraints	10
3.4 Field Survey.....	10
3.4.1 Habitat Assessment.....	10
3.4.2 Protected Species Impact Assessment.....	10
3.4.3 Biodiversity Baseline Calculation	12
4 RESULTS	13
4.1 Desktop Study	13
4.1.1 Designated Sites.....	13
4.1.2 Biological Records	Error! Bookmark not defined.
4.2 Site Assessment.....	15
4.2.1 On-Site Ecological Features	15
4.2.2 Off-Site Ecological Features	16
4.3 Protected Species	16
4.4 Invasive Species.....	18
4.5 Biodiversity Baseline Calculation.....	18
5 CONCLUSIONS AND RECOMMENDATIONS.....	19
5.1 Mitigation Measures	19
5.2 Enhancement Measures.....	19
6 SITE IMAGES	21
7 BIBLIOGRAPHY AND REFERENCES.....	24
8 APPENDICES.....	25
8.1 Additional Information for the Legislation of Other Protected Species.....	25
8.2 Biodiversity Baseline Calculation Results.....	27

EXECUTIVE SUMMARY

Naturally Wild were instructed to undertake a Preliminary Ecological Appraisal (PEA) at Farnborough Hatches Level Crossing, Farnborough. The site includes an area of railway approximately 200 m south of the Hatches Level Crossing. The proposals are to install passenger footbridges at Farnborough North and Hatches to replace the level crossings, for the replacement of blackwater bridge to improve access to the adjacent Fishery lakes from Farnborough North, and the construction of a circular walking route for rail passengers and the local public between these locations.

The PEA comprised two parts: a desktop study and a site visit. The desktop study collated available public information regarding the biodiversity of the area, including the habitat structure of the site and surrounding area and the presence of any statutory or non-statutory designated sites.

The site visit consisted of an assessment of all habitats on site and in the surrounding area to determine their ecological importance to protected species and was conducted on the 15.08.2021 by ecologist Sean Darlow MSc, BSc.

The surveyed area was found to be of low ecological value due to the lack of presence of notable/vulnerable/protected species within the work boundaries. Additionally, this is due to the localised nature of the vegetation clearance works, and significant presence of suitable habitat for a variety of valuable species within the locale.

Following the site assessment and in review of the findings, a series of ecological mitigation enhancement measures to be incorporated into the works have been outlined. These include the installation of a number of non-invasive camera traps to monitor the potential badger set for activity and presence, sensitive positioning of lighting to avoid unnecessary spill for bats, to reduce the height of lighting columns to avoid unnecessary light spill onto nearby scrub and woodland to minimise disturbance to local birds and bats, that an ecologist should be consulted to agree appropriate action in the unlikely event that reptiles are encountered on site, and that site clearance should be carried out in a precautionary manner in relation to hedgehogs. Full details are provided in Section 5.

Providing the recommendations of this report are implemented in full, Naturally Wild would conclude that there will not be a significant impact to protected species or habitats as a result of the proposed works.

SUMMARY OF POTENTIAL ECOLOGICAL CONSTRAINTS

Summary Assessment

Works can start only once authorised by an ecologist.	Additional ecological works required.	No action required

Potential Ecological Constraints		
Designated sites		No designated sites
Ecologically valuable watercourses		None identified
Plants and habitats		None identified
Badgers		None identified
Bats		Mature trees in railway corridor bordering and adjacent to work site. Potential PRFs
Dormice		None identified
Great crested newts		None identified
Nesting birds		Trees and shrubs in railway corridor bordering and adjacent to work site. Potential nesting.
Otters		None identified
Reptiles		None identified
Water voles		None identified
White-clawed crayfish		None identified
Invasive species		None identified
Other		None identified

Recommended Actions		
Requirement for formal Environmental Impact Assessment		Not required.
Requirement for consultation with statutory environmental bodies		Not required
Requirement for 'assent' from Natural England (e.g., within or adjacent to a European site or SSSI)		Not required
Requirement for further ecological surveys		Potential requirement for nesting bird survey check if any trees/shrubs require removal/de-veg.
Requirement for protected species licensing		Not required
Requirement for an ecologist to oversee the works (see below)		Not required

The contractor should inform the ecologist of the works programme with sufficient notice to coordinate the following

Ecologist to be on site before works begin (includes vegetation clearance)		Not required
Ecologist to be on site during the first day of works		Potentially to undertake nesting bird check.
Ecologist to be on site throughout the works		Not required
Ecologist to be on site as the works are completed		Not required
Ecologist to be on site once all the works is completed		Not required

PRELIMINARY ECOLOGICAL APPRAISAL: FARNBOROUGH NORTH HATCHES LEVEL CROSSING

1 INTRODUCTION

Naturally Wild were instructed to undertake a Preliminary Ecological Appraisal (PEA) at Farnborough North Hatches Level Crossing, Farnborough (Figure 1). The site includes an area of railway approximately 200m south of the Hatches Level Crossing. The main objective of the assessment was to determine the suitability of the site to support protected species and to check for any evidence of the presence of protected species, as well as the presence of any protected or notable habitats.

The proposed works are to conduct vegetation clearance in essential areas for the installation of passenger footbridges at Farnborough North and Hatches to replace the level crossings. In accordance with Network Rail’s environmental policy and relevant UK legislation, an ecological assessment is required to determine if any protected or notable species/habitats are likely to be affected by the proposed works, and to show how any negative ecological impacts would be mitigated and compensated.

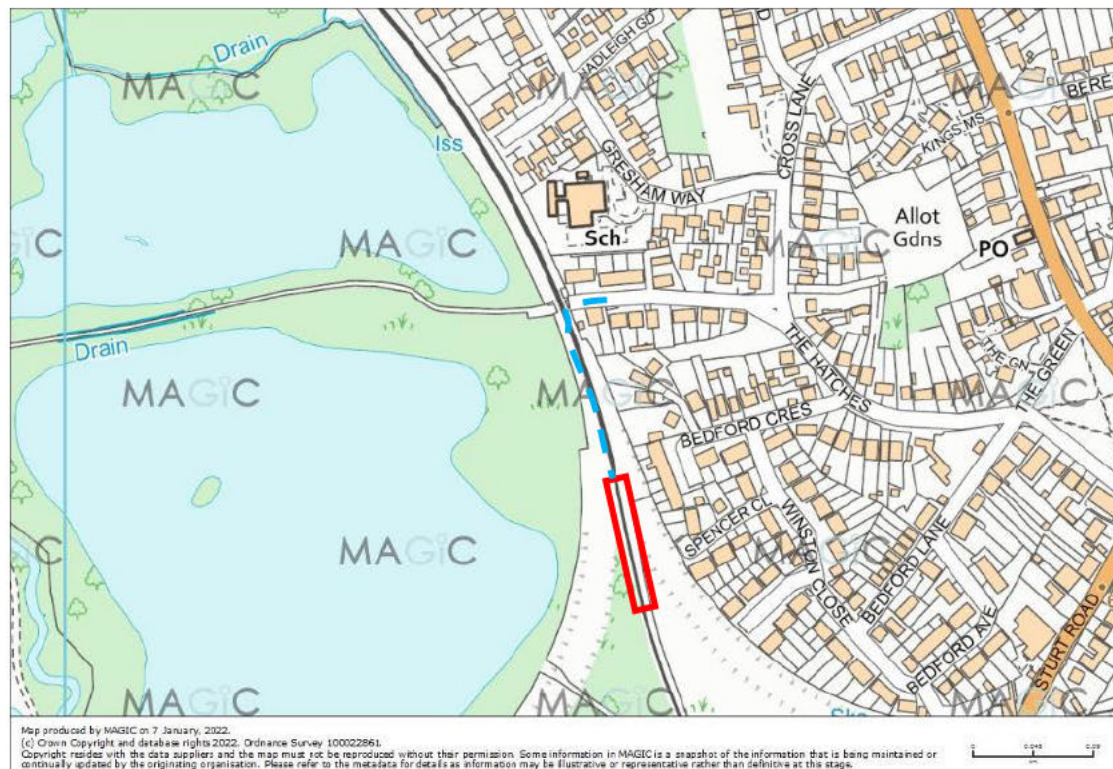


Figure 1. Farnborough North and Hatches site location plan. Red line shows the areas of the proposed works. Site access is shown in blue dashes.

(© Crown Copyright and MAGIC database rights 2022. Ordnance Survey 100022861).

2 RELEVANT LEGISLATION

British wildlife is protected by a range of legislation, the most important being the Wildlife and Countryside Act 1981 (as amended), The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, and the Natural Environment and Rural Communities (NERC) Act 2006. The Wildlife and Countryside Act, as amended mainly by the Countryside Rights of Way (CRoW) Act 2000, protects species listed in Schedules 5 and 8 of the Act (animals and plants respectively) from being killed, injured, and used for trade. For some species, such as great crested newts and all bat species, the provisions of this Act go further to protect animals from being disturbed or taken from the wild and protects aspects of their habitats. The Act also stipulates that offences occur regardless of whether they were committed intentionally or recklessly. The parts of this legislation that apply to most reptile species are in regard to killing, injury and trade only and do not protect their habitat, nor are they protected from disturbance or from being taken from their habitat.

The Conservation of Habitats and Species Regulations is the English enactment of European legislation and provides similar but subtly different protection for species listed on Schedules 2 and 4 of those regulations. Species to which these provisions apply are known as European Protected Species. Activities that might cause offences to be committed can be legitimised by obtaining a licence from the relevant statutory body.

The NERC Act 2006 extends the biodiversity duty set out in the CRoW Act to public bodies and statutory undertakers to ensure due regard to the conservation of biodiversity. Section 40 of the Act states: *“every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity.”* Section 41 of the Act sets out a list of habitats and species that are considered to be of principal importance for the conservation of biodiversity in England. These species may be referred to as ‘priority species/habitats’ or ‘UK Biodiversity Action Plan (BAP) priority species/habitats.’

Further details on the legislation protecting species of British wildlife relevant to this assessment can be found in Section 8.1 of this report.

3 METHODOLOGY

3.1 Overview

The PEA comprised of a desktop study and a site visit. All work undertaken has been completed in line with official guidelines produced by Natural England and the Chartered Institute for Ecology and Environmental Management, and British Standard document BS 42020: 2013 '*Biodiversity – Code of practice for planning and development.*'

The desktop study collated available public information regarding the biodiversity of the area, including the habitat structure of the site and surrounding area and the presence of any statutory or non-statutory designated sites, and any records of previously granted European Protected Species (EPS) mitigation licences in relation to certain species, using the Multi-Agency Geographic Information for the Countryside (MAGIC) resource, along with a search of the Local Planning Authority's website for any trees in the area covered by Tree Preservation Orders (TPOs). Site images and works remits as provided by Osborne, along with project details including potential timeframes, were also consulted.

The objective of the survey was to ascertain if any protected species may be using the site, document the habitats present and determine any potential ecological impacts during and following the completion of the works. The survey would be completed under suitable weather conditions and by an experienced ecologist. Further to this, the results of the desktop study and site survey would be assessed to determine the ecological impacts posed by the work, any additional survey work required, and how such impacts should be mitigated and compensated for.

The survey work and the preparation of this report has been conducted by ecologist Sean Darlow MSc, BSc, who is experienced in undertaking ecological assessments.

In addition to the PEA, a biodiversity baseline calculation for the site has also been undertaken using the DEFRA Biodiversity Metric. This is discussed further in section 3.4.3.

3.2 Survey Area

The site is located at Grid Reference SU 88427 56561 and can be accessed via The Hatches, off the B3012. The assessment focused on the site itself, as well as all habitats in the immediate surrounding area (where access was available).



Figure 2. Location of the surveyed area. Site boundaries are shown by the red line.

(Image taken from Google Earth Pro: ©2022 Map Data Google)

3.3 Survey Constraints

There were no constraints to the survey.

3.4 Field Survey

3.4.1 Habitat Assessment

The survey was carried out on Sunday 15th August 2021 and consisted of an assessment and classification of the habitats on and adjacent to the site, based on their structure and the dominant vegetation coverage, where present. Following this, the habitats present were assessed for their suitability to support protected species and for the presence of any evidence of protected species.

Weather conditions were good during the time of the survey, with temperatures (17 °C high and 14 °C low), minimal cloud cover (1 oktas), light wind (Beaufort scale 2) with no precipitation.

3.4.2 Protected Species Impact Assessment

Based on the habitats present, the site was assessed with particular regard to determine the presence or otherwise of badgers (*Meles meles*), bats, great crested newts (GCN), (*Triturus cristatus*), hazel dormice (*Muscardinus avellanarius*), nesting birds, and reptiles. An overview of the survey methods used is outlined below.

Badgers: An assessment of the site and surrounding habitats (where access was available), with particular focus on any areas of dense vegetation, was carried out in order to identify any evidence of badgers, including:

- the presence of any setts
- well-used runs/tracks

- supplementary evidence, such as hairs or prints
- badgers themselves

Bats: A preliminary ground level roost assessment of any trees on or directly adjacent to the site was carried out in order to identify the presence of any potential roost features (PRFs) for bats, such as split bark, woodpecker holes and other cavities for bats and/or evidence of roosting bats. All trees assessed were categorised in terms of their value in accordance with the current Bat Conservation Trust (BCT) survey guidelines (Collins, 2016), shown in Table 1.

Table 1. Guidelines for assessing bat roosting potential of structures and trees.

Suitability	Habitat description	Further action required?
Negligible	Negligible habitat features on site likely to be used by roosting bats.	No further bat risk assessment effort or bat activity surveys are required.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation).	Structures: One bat activity survey is required to determine whether the structure is being utilised by roosting bats; this may be a dusk or dawn survey. This survey must occur between May and August. The discovery of a roosting bat during this single bat activity survey will require further survey effort.
	A tree of sufficient size and age to contain PRFs, but with none seen from the ground or features seen with only very limited roosting potential.	Trees: No further bat risk assessment effort or bat activity surveys are required.
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection conditions and surrounding habitat, but unlikely to support a roost of high conservation status.	Two bat activity surveys are required to determine whether the structure or tree is being utilised by roosting bats; this should be comprised of one dusk and one dawn survey. One survey must occur between May and August.
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.	Three bat activity surveys are required to determine whether the structure or tree is being utilised by roosting bats; this should be comprised of one dusk and one dawn survey, with an additional survey (either dusk or dawn). Two surveys must occur between May and August.

Evidence of roosting bats includes: bat droppings in, around or below an entrance hole; staining around an entrance hole; small scratches around an entrance hole; audible squeaking at dusk or in warm weather; smoothing of surfaces around cavity or an entrance hole; distinctive smell of bats.

The assessment was completed using ladders, binoculars and a powerful torch. An endoscope was also available to check any small gaps/cracks for evidence of bats.

Great Crested Newts: An assessment of the habitats present on the site was carried out in order to determine their suitability to support GCN and any natural or artificial refugia (such as logs, stones, discarded building materials etc.) present were also lifted to check for the presence of GCN.

Hazel Dormice: Although the survey was conducted during hazel dormouse hibernation, an assessment of the habitats on site was carried out in order to determine their suitability for hazel dormice, including a 'nut search' of characteristically chewed hazel nuts around any identified hazel trees.

Nesting Birds: Although the survey was conducted outside of the bird nesting season, an assessment of the habitats on site was carried out in order to determine their suitability for nesting birds, including a check for the presence of any existing disused nests.

Reptiles: The assessment for reptiles followed a similar methodology to that for GCN, with an assessment of the habitats present carried out to determine their suitability to support reptiles, and with any refugia lifted to check for the presence of reptiles or evidence of reptiles, such as sloughs (shed skins).

Other Wildlife: In accordance with good practice, the site was checked for the presence of any other protected/notable species, with particular regard to any other species highlighted in the desktop study.

Invasive Species: The site was also surveyed for the presence of any invasive, non-native flora or fauna.

3.4.3 Biodiversity Baseline Calculation

Following the completion of the desktop study and survey work, a biodiversity baseline calculation has been undertaken to determine the number of 'biodiversity units' present on site prior to the works. The baseline has been determined using the DEFRA Biodiversity Metric tool. A summary of the results is provided in Section 5.3 and shown in the Appendix. Full results will be provided separately.

4 RESULTS

4.1 Desktop Study

4.1.1 Designated Sites

Statutory Designated Sites: There are no statutory designated protected areas located within or directly adjacent to the proposed work site. The closest statutory protected area is Basingstoke Canal Site of Special Scientific Interest (SSSI), located approximately 762 m east of the proposed work site. This area is known as nationally important for aquatic invertebrates, 24 species of dragonfly and two nationally rare Red Data Book insects. There are eight additional statutory protected areas within a 5 km radius of the proposed work site (Table 3).

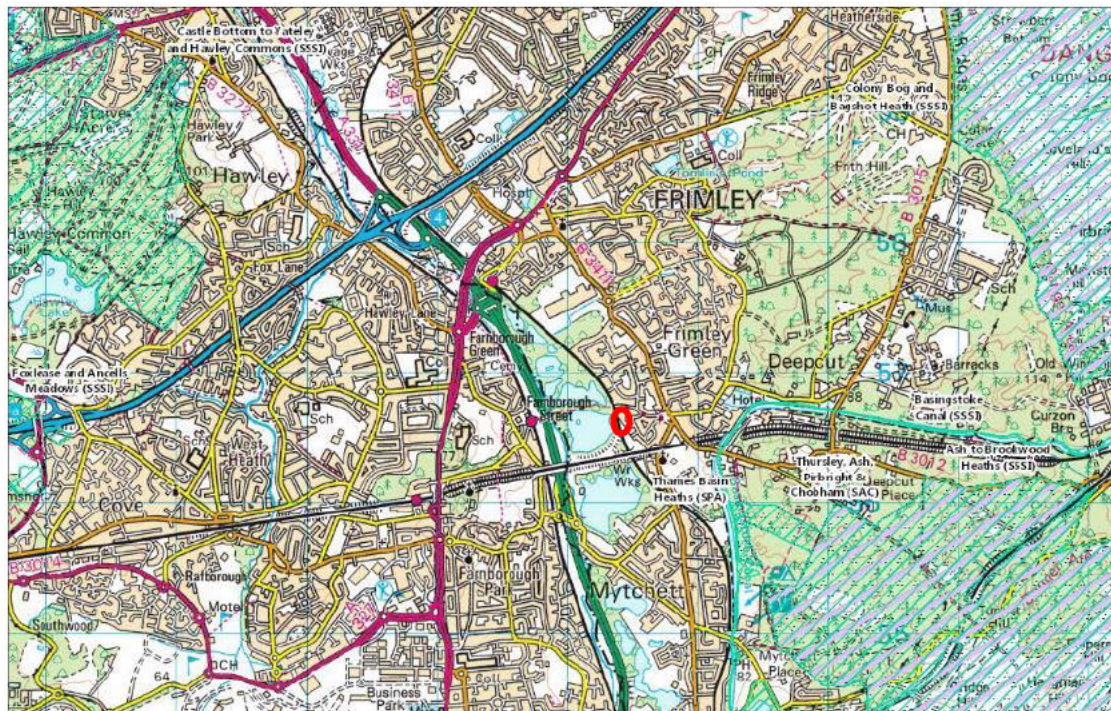


Figure 3. Location of the surveyed site (red) in relation to the surrounding designated sites.

(© Crown Copyright and MAGIC database rights 2021. Ordnance Survey 100022861).

Due to the relatively small-scale nature of the works, which is highly localised to within the work site boundaries, it will not disturb any habitats essential to the statutory protected areas the work site is in relative proximity to. Therefore, it is expected that the proposed light vegetation clearance within the areas selected for footbridge installations and the new pedestrian walking route would not result in any negative impacts (direct or indirect) to statutory protected areas either within the area or the wider area.

Non-statutory Designated Sites: There were no non-statutory designated sites located on or directly adjacent to the substation compound. The nearest non statutory designated sits were Farnborough Town Cemetery Site of Importance for Nature Conservation (SINC), located approximately 1.38 km west of the proposed work site, and the Meadow off the M3 Junction 4 SINC, located 2.09 km north of the proposed work site.

Again, due to the relatively small-scale nature of the works, which is localised to the work site boundaries and will not disturb any habitats essential to the designated areas due to the significant distance between the site and such areas, it is expected that the proposed light vegetation clearance would not result in any negative impacts (direct or indirect) to non-statutory protected areas in the wider area.

Table 3. Statutory and non-statutory designations in the areas surrounding the site.

Designation	Reference	Name	Area (ha)	Distance and direction from site
Site of Special Scientific Interest (SSSI)	1000595	Blackwater Vally	33.92	
	1000518	Foxlease and Ancells Meadows	68.79	4.16 km W
	1000626	Eelmoor MARsh	66.34	4.56 km SW
	1000384	Colony Bog and Bagshot Heath	1130.51	3.35 km NE
	1000598	Basingstoke Canal	101.31	762 m E
	1000584	Castle Bottom to Yateley and Hawley Commons	922.74	3.51 km W
	1000146	Ash to Brookwood Heaths	1576.35	1.59 km SE
Special Protection Areas (SPA)	UK9012141	Thames Basin Heaths	8309.50	4.99 km NW
Special Areas of Conservation (SAC)	UK0012793	Thursley, Ash and Pirbright and Chobham	5154.33	4.81 km NE
Sites of Importance for Nature Conservation (SINCs)	RU0021	Farnborough Town Cemetery	1.47	1.38 km west
	RU0019	Meadow north of M3 Junction 4	1.94	2.09 km north-west

Notable Habitats: The proposed site is not located within or directly adjacent to any notable habitats. The closest notable habitat to the proposed work site is an area of UK BAP good quality semi-improved grassland and UK BAP Priority Lowland Heathland, both located 1.30 km south-east of the proposed work site. No areas of Ancient or Ancient Replanted Woodland, were identified either within, adjacent to, or in the wider area of the proposed work site.

For the same reasons as those outlined above, it is expected that the proposed vegetation clearance, limited to only the areas necessary for new and improved bridges and circular walking route, would not result in any negative impacts (direct or indirect) to any notable habitats in the wider area.

Tree Preservation Orders: There are no TPO's identified on or directly adjacent to the proposed work site. The nearest TPO area is located approximately 450 m east of the proposed work site (Figure 4).

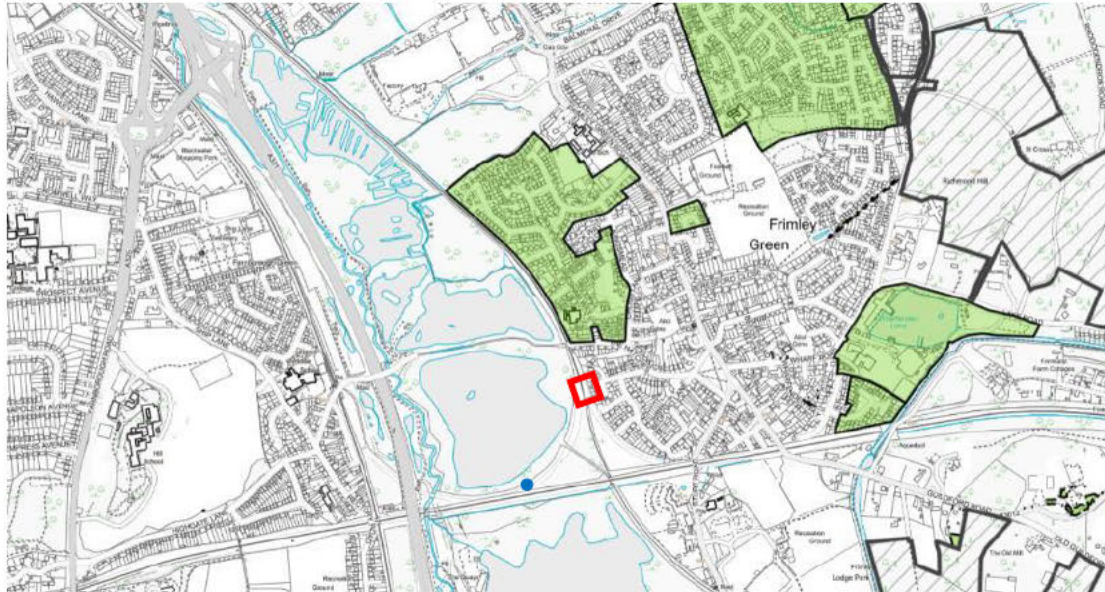


Figure 4. Location of Tree Protection Order (TPO) areas (shown in green polygons) in relation to the proposed work site (outlined in red).

(© Crown Copyright and Surrey Heath database rights 2021).

4.2 Site Assessment

4.2.1 On-Site Ecological Features

The site comprised of an area of railway corridor 200m south of The Hatches Level Crossing. Across the site the following habitat types were identified: (1) ruderal vegetation, (2) semi-improved grassland, (3) bramble scrub, and (4) mixed deciduous woodland habitat. The general ecological value of each habitat is described in the paragraphs below, with any notable species-specific findings detailed in Section 4.3.

Ruderal vegetation

Dominating the trackside areas was a mixture of ruderal vegetation comprising of ivy (*Hedera helix*) and nettle (*Urtica dioica*), located on either side of the tracks. Overall, this habitat was considered of low ecological value, based on the small area of ruderal vegetation and size of the oak trees in question, species composition, suitability for local wildlife, and the absence of any notable/vulnerable/protected species actively utilising this habitat.

Semi - improved Grassland

Additionally located on both sides of the track in the survey area are patches of semi-improved grassland. This area of grassland is composed of flora species including cow parsley (*Anthriscus sylvestris*), drooping sedge (*Carex pendula*), common nettle (*Urtica dioica*), ivy (*Hedera helix*), and wild geranium (*Geranium maculatum*). Overall, this habitat was considered of low ecological value, based on the small area of semi-improved grassland and lack of wildlife presence observed within the sycamore trees in question during the time of the survey, species composition, suitability for local wildlife, and the absence of any notable/vulnerable/protected species actively utilising this habitat.

Bramble Scrub

Dominating the survey area away from trackside was bramble scrub habitat, predominantly comprised of bramble (*Rubus fruticosus*), cleavers (*Galium aparine*), ferns (*Athyrium femina*), ivy (*Hedera helix*), nettle (*Urtica dioica*). Overall, this habitat was considered of moderate ecological value, based on the area, species composition of the habitat in question and suitability for local wildlife such as nesting birds, though the absence of any notable/vulnerable/protected species identified actively utilising this habitat was noted.

Mixed Deciduous Woodland

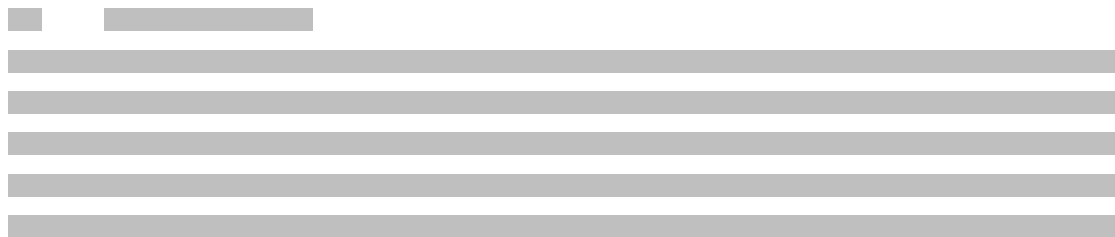
Forming a treeline at the survey site boundaries was mixed deciduous woodland. This woodland habitat was dense in areas, particularly the southern end of the survey area. This habitat composed of mostly mature trees including oak (*Quercus rubur*), Ash (*Fraxinus excelsior*), and sycamore (*Acer pseudoplatanus*). Amongst the deciduous trees was sporadic patches of ferns (*Athyrium filix-femina*), nettle (*Urtica dioica*), ivy (*Hedera helix*), and holly (*Ilex aquifolium*).

Overall, this habitat was considered of moderate-high ecological value. This was based on the maturity of the habitat within the worksite area, and the presence of a number of mature ivy-clad trees with potential PRFs that could not be fully observed during the walkover survey.

4.2.2 Off-Site Ecological Features

The wider area surrounding the worksite encompassed a large area of mixed deciduous woodland and fishery lakes, which is considered highly suitable habitat for a variety of local wildlife species, including nesting birds, roosting bats and is suitable for badger sett creation and foraging. Furthermore, the proposed work site is bordered by a mixture of sub-urban and urban development including some ornamental garden habitat, as well as sporadic patches of open green space and parkland within the locale. Additionally, the A331 road which is a direct and busy link with the M3 motorway runs directly adjacent to the worksite to the East.

Due to the nature of the works in question, which is localised to the work site boundaries and network rail owned land, it is considered that the proposed works at Farnborough Hatches would not result in any negative impacts (direct or indirect) to off-site features of ecological value such as nearby greenspaces, as well as deciduous woodland habitat and the fishery lakes adjacent to the worksite, due to the large area of the habitats and connectivity to other areas.



Bats: The proposed work site showed a moderate likelihood of bat roosting potential within the survey area due to the presence of large mature trees with some ivy-clad, potentially harbouring suitable PRFs within railway corridor. No other indicators of potential bat presence (scratchings, droppings etc) were recorded during the walkover survey. There is moderate foraging potential for bats within and surrounding the worksite, however, areas of mixed deciduous woodland and protected areas in the wider locale may also be suitable for roosting bats due to the potential presence of PRFs in other mature trees.

Due to the localised nature of the works limited to within the existing work site boundaries, and provided the appropriate mitigation measures are implemented, it is expected that there will be a low impact (direct or indirect) to bats, as a result of the proposed works.

Great Crested Newts: There are numerous small waterbodies and watercourses running through the wider area, feeding the Basingstoke Canal and nearby areas. However, no waterbodies or terrestrial habitat were identified within or directly adjacent to the proposed work site that would be deemed suitable for GCN, due to the size of the waterbodies in question and predator presence including fish and waterfowl. Additionally, no suitable ponds, waterbodies were identified within 500 m of the proposed work site, due to lack of connectivity to the worksite caused by residential development. Thus, the likelihood of encountering GCN within the worksite is expected to be low/negligible.

Therefore, any negative impacts to GCN's as a result of the planned works is expected to be low/negligible.

Hazel Dormice: With regards to hazel dormice, there was no suitable habitat identified either within or directly adjacent to the worksite. Additionally, no sign of dormouse presence or activity was identified (characteristically chewed nuts, ground nesting etc.) within the work site. Therefore, any negative impacts (either direct or indirect) to hazel dormice as a result of the planned works is expected to be negligible.

Nesting Birds: Significant suitable bird nesting habitat was identified within the proposed work site due to the presence of suitable substantial shrubs and trees identified next to the tracks and site boundaries. However, significant suitable areas of suitable deciduous woodland and shrubs as nesting and foraging habitat was also identified in the wider locale, in the wider railway corridor and surrounding nearby greenspaces. No bird nests were identified (including active and disused nests), during the time of the walkover survey.

Due to the localised nature of the proposed works being limited to within the site boundary, providing appropriate mitigation and compensation measures are incorporated into the works and presence of suitable habitat in the surrounding area, the overall impact to nesting birds is expected to be low.

Reptiles: Most of the habitats within the proposed worksite offered low potential habitat for reptiles, as there was little suitable grassland due to dominance of bramble scrub and woodland, and limited suitable habitat for basking. Additionally, there is little suitable habitat within the immediate surrounding area due to a lack of long-sward grassland and significant presence of residential urban development.

Therefore, the likelihood of encountering reptiles within the proposed work site is low. Thus, providing appropriate mitigation measures are implemented and presence of suitable habitat in the wider locale, due to the highly localised nature of the works, any impacts (direct or indirect) to reptiles as a result of the works is expected to be low.

Other Wildlife: Due to the presence of hibernacula within the surrounding area of the site in the form of log piles, although no direct evidence of their presence was observed during the survey, the proposed work site is considered as suitable habitat for hedgehogs (*Erinaceus europaeus*). As a UK BAP priority species, it is recommended that appropriate mitigation measures should be incorporated into the re-development works to ensure that any impacts to hedgehogs are avoided.

4.4 Invasive Species

No invasive species were observed or identified within or bordering the substation compound at the time of the survey.

4.5 Biodiversity Baseline Calculation

A biodiversity baseline calculation was undertaken on the proposed work site to determine the number of biodiversity units currently within the site under the habitat types identified during the walkover survey. As a result, across 0.05 ha of semi-improved grassland, 0.1 ha of bramble scrub, 0.05 ha of ruderal vegetation, and 0.1 ha of mixed deciduous woodland, 3.45 habitat units were calculated for Farnborough North and Hatches using the DEFRA Biodiversity Metric tool.

5 CONCLUSIONS AND RECOMMENDATIONS

Overall, the ecological value of the proposed work site is considered to be low due to the lack of presence of notable/vulnerable/protected species within the work boundaries, and due to the localised nature of the vegetation clearance works, and significant presence of suitable habitat for a variety of valuable species within the locale. Following the site assessment and in review of the findings, the following measures are considered to be required to be incorporated into the works:

5.1 Mitigation Measures

- Due to the suitability of deciduous woodland and bramble scrub habitat to support nesting birds, clearance works should be carried out outside of the nesting season, which is defined as running from March to August, inclusive. If this is not feasible for any reason, a nesting bird survey must be carried out by a suitably qualified ecologist shortly prior to the start of works to ensure no active nests are present. In the event that any active nests are found during this survey or at any point during the works, a suitable exclusion zone should be put around the nest, with no work taking place in this area until such time as the nest can be confirmed as no longer active.
- A sensitive lighting scheme should be implemented during and after the works to avoid indirect disturbance to foraging and commuting bats, birds and small mammals that may be using the mixed deciduous woodland habitat, and should include the following elements:
 - Sensitive positioning of lighting to avoid unnecessary spill onto surrounding mature woodland habitat;
 - Angle of lighting: avoidance of direct lighting and light spill onto areas of habitat that are of importance as commuting pathways and/or foraging areas;
 - Type of lighting: studies have shown that light sources emitting higher amounts of UV light have a greater impact to wildlife. Use of narrow-spectrum bulbs that avoid white and blue wavelengths are likely to reduce the number of species impacted by the lighting;
 - Reduce the height of lighting columns to avoid unnecessary light spill.
- In the unlikely event that reptiles are encountered during vegetation clearance or long-sward grass or being found in relatively high numbers for any reason within the worksite, work should temporarily stop and an ecologist should be consulted to agree appropriate action.
- Site clearance should be carried out in a precautionary manner in relation to hedgehogs. If any hedgehogs are encountered at any time, they should be carefully moved to a safe location away from the works, or be allowed to move off of their own accord. Any trenches or other excavations created during construction works should be covered overnight or provide a means of escape for any nocturnal wildlife, such as hedgehogs, that may become entrapped. A suitable means of escape would comprise a ramp with adequate grip, at least 30 cm wide and set at an angle of no greater than 45°.

5.2 Enhancement Measures

- The biodiversity baseline calculated for the site should be used as a basis for any soft landscaping to be carried out following the completion of the main works, with an aim to achieve

an enhancement in biodiversity units post-works, in accordance with Network Rail's commitment to biodiversity net gain.

Providing the recommendations of this report are implemented in full, Naturally Wild would conclude that there will not be a significant impact to protected species or habitats as a result of the proposed works.

6 SITE IMAGES



Image 1. North-facing view of the survey area. And access route from Hatches level crossing.



Image 2. South-facing view of the survey area from the access route. Illustrating potential wildlife refugia and grassland.



Image 3. South-facing view of survey area illustrating ruderal vegetation and woodland.



Image 4. One of many mature deciduous trees within worksite boundary.



Image 5. Small mammal trail identified leading to trackside.



Image 6. Mixed deciduous woodland and conifer treeline within railway corridor. Facing south.

7 BIBLIOGRAPHY AND REFERENCES

- Amphibian and Reptile Groups of the UK (2010) *ARG UK Advice Note 5: Great Crested Newt Habitat Suitability Index*. Available: <http://www.arguk.org/download-document/9-great-crested-newt-habitat-suitability-index-arg-advice-note-5>
- British Standards Institution (2013) *BS 42020:2013. Biodiversity – Code of practice for planning and development*. British Standards Institution, London.
- CIEEM (2016) *Guidelines for Accessing and Using Biodiversity Data*. CIEEM, Winchester.
- CIEEM (2017a) *Guidelines for Preliminary Ecological Appraisal (2nd ed.)*. CIEEM, Winchester.
- CIEEM (2017b) *Guidelines for Ecological Report Writing (2nd ed.)*. CIEEM, Winchester.
- CIEEM (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine*, version 1.1, CIEEM, Winchester.
- Collins, J. (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines, 3rd edn*. Bat Conservation Trust, London.
- The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019.
- Cresswell, W. and Whitworth, R. (2004) *An assessment of the efficiency of capture techniques and the value of different habitats for great crested newts*. English Nature Research Reports 576. English Nature, Peterborough.
- European Commission. Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds.
- European Economic Community. Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora.
- Harris, S., Cresswell, P, and Jeffries, D. (1989) *Surveying Badgers*. Occasional Publication No. 9. The Mammal Society, London.
- Ministry of Housing, Communities and Local Government (2019) *National Policy Planning Framework*. Crown Copyright 2019.
<https://www.gov.uk/government/collections/revised-national-planning-policy-framework>
- Mitchell-Jones, A.J. (2004) *Bat Mitigation Guidelines*. English Nature, Peterborough.
- Multi-Agency Geographical Information for the Countryside (MAGIC). Crown Copyright and database rights [2021]. Ordnance Survey 100022861. Available at: <http://www.magic.gov.uk/>
- Oldham, R.S., Keeble, J., Swan, M.J.S. and Jeffcote, M. (2000) *Evaluating the suitability of habitat for the Great Crested Newts (Triturus cristatus)*. Herpetological Journal 10: 143-155.
- The Protection of Badgers Act (1992).
- Rose, F. and O'Reilly, C. (2006) *The Wild Flower Key*, Revised Edition. Penguin Books, London.
- The UK Biodiversity Action Plan. Available: <http://jncc.defra.gov.uk/page-5155>
- Wildlife and Countryside Act 1981 (as amended).

8 APPENDICES

8.1 Additional Information for the Legislation of Other Protected Species

Badgers: The badger is geographically widespread across the UK; however, they are still vulnerable to baiting, hunting and detrimental impacts of development to their habitat. Both the badger and its habitat are protected under The Protection of Badgers Act 1992, Schedule 6 of the Wildlife and Countryside Act 1981 (as amended) an Appendix Three of the Bern Convention; therefore, badgers have legal protection against deliberate harm or injury and it is an offence to:

- Interfere with a badger sett by damaging or destroying it
- Kill, injure, take or possess a badger
- Cruelly ill-treat a badger
- Obstruct access to a badger sett
- Disturb a badger whilst it is in a badger sett

Bats: All British bat species are listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and are therefore afforded protection under Section 9 of this Act. In addition, all bat species are listed in Schedule 2 of The Conservation of Habitats and Species Regulations and are protected under Regulation 39 of the Regulations. These Regulations make provision for the purpose of implementing European Union Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora 1992, under which bats are included on Annex IV. The Act and Regulations makes it an offence, *inter alia*, to:

- Intentionally kill, injure, take (handle) or capture a bat;
- Intentionally or recklessly damage, destroy or obstruct access to any place that a bat uses for shelter or protection (this is taken to mean all bat roosts whether bats are present or not) - under the Habitats Regulations it is an offence to damage or destroy a breeding site or resting place of any bat; or
- Intentionally or recklessly disturb a bat while it is occupying a structure or place that it uses for shelter or protection - under the Habitats Regulations it is an offence to deliberately disturb a bat (this applies anywhere, not just at its roost) in such a way as to be likely to affect its ability to survive, breed, reproduce, rear or nurture their young or hibernate.

Further details of the above legislation, and of the roles and responsibilities of developers and planners in relation to bats, can be found in Natural England's Bat Mitigation Guidelines (Mitchell-Jones, 2004).

Nesting Birds: Birds receive protection under the Wildlife and Countryside Act 1981 (as amended). It is an offence to intentionally or recklessly kill, injure or take any wild bird; take, damage or destroy a nest of a wild bird whilst it is in use or being built; or to take, damage or destroy an egg of a wild bird. The bird-nesting season is defined as being from 1st March until 31st August with exceptions and alterations for some species.

Great Crested Newts: Great crested newts are protected under Schedule 2 of The Conservation of Habitats and Species Regulations. This species is also afforded full protection under the Schedule 5 of the Wildlife and Countryside Act 1981. Under such legislation it is an offence to:

- Intentionally or recklessly* kill, injure or capture a great crested newt;
- Possess or control any live or dead specimen or anything derived from a great crested newt;
- Intentionally or recklessly* damage, destroy or obstruct access to any structure or place used for shelter or protection by a great crested newt; and
- Intentionally or recklessly* disturb a great crested newt while it is occupying a structure or place which it uses for that purpose.
- Damage or destroy a breeding site or resting place.
- Sell, barter, exchange or transport or offer for sale great crested newts or parts of them.

**Reckless offences were added by the Countryside and Rights of Way Act 2000, which applies only to England and Wales.*

To undertake surveys for great crested newts it is necessary to hold an appropriate licence issued by Natural England.

Reptiles: All native British species of reptile (of which there are six) are listed on Schedule 5 of the Wildlife and Countryside Act 1981 and, as such, are protected from deliberate killing, injury or trade; therefore, where development is permitted and there will be a significant change in land use, a reasonable effort must be undertaken to remove reptiles off site to avoid committing an offence. The same Act makes the trading of native reptile species a criminal offence without an appropriate licence.

8.2 Biodiversity Baseline Calculation Results

Farnborough Hatches Level Crossing		Return to results menu	
Headline Results			
On-site baseline	Habitat units	3.45	
	Hedgerow units	0.00	
	River units	0.00	
On-site post-intervention <small>(Including habitat retention, creation, enhancement & succession)</small>	Habitat units	0.00	
	Hedgerow units	0.00	
	River units	0.00	
Off-site baseline	Habitat units	0.00	
	Hedgerow units	0.00	
	River units	0.00	
Off-site post-intervention <small>(Including habitat retention, creation, enhancement & succession)</small>	Habitat units	0.00	
	Hedgerow units	0.00	
	River units	0.00	
Total net unit change <small>(including all on-site & off-site habitat retention/creation)</small>	Habitat units	-3.45	
	Hedgerow units	0.00	
	River units	0.00	
Total net % change <small>(including all on-site & off-site habitat creation + retained habitats)</small>	Habitat units	-100.00%	
	Hedgerow units	0.00%	
	River units	0.00%	