



The Sizewell C Project

6.14 Environmental Statement Addendum
Volume 3: Environmental Statement Addendum Appendices
Chapter 9 Rail
Appendix 9.5.A Terrestrial Ecology and Ornithology

Revision: 1.0
Applicable Regulation: Regulation 5(2)(a)
PINS Reference Number: EN010012

January 2021

Planning Act 2008
Infrastructure Planning (Applications: Prescribed
Forms and Procedure) Regulations 2009



Appendix 9.5.A: Green Rail Route Ecology Survey Report 2020

CONTENTS

1	INTRODUCTION.....	1
1.1	The Aims of the Survey Updates.....	1
1.2	Submitted Baseline (2014-2019).....	1
1.3	2020 Update Surveys.....	5
2	METHODS	6
2.1	Extended Phase 1 Habitat Survey	6
2.2	Great Crested Newt HSI Assessment Update.....	7
2.3	Bat Tree Assessment Survey Update	7
3	RESULTS.....	8
3.1	Extended Phase 1 Habitat Survey	8
3.2	Great Crested Newt HSI Assessment Update.....	13
3.3	Bat Tree Assessment Survey Update	14
4	DISCUSSION.....	17
	REFERENCES.....	18

TABLES

Table 1.1: Ecological Receptor Importance.....	4
Table 4.1: Hedgerow Results	9
Table 4.2: Pond Results	11
Table 4.3: HSI Assessment Results.....	14
Table 4.4: Bat Tree Assessment Results	14

PLATES

None Provided.

FIGURES

Figure 9.5.A.1: Green Rail Route Phase 1 Habitat Survey

1 INTRODUCTION

1.1 The Aims of the Survey Updates

1.1.1 An extended Phase 1 survey was undertaken of the Green Rail Route in 2020. The aim of the 2020 survey was to establish if the conditions of the proposed Green Rail Route (hereafter referred to as the 'site') remained consistent with surveys previously undertaken at the site and identify any changes to habitats, update the existing baseline and also provide a baseline for future monitoring.

1.1.2 Findings of previous surveys on the site are detailed within the **Volume 9, Chapter 7, Appendix 7A** (Doc Ref. 6.10) [\[APP-556\]](#) and **Volume 9, Chapter 7, Appendix 7A, Annex 7A4** of the **Environmental Statement (ES)** (Doc Ref. 6.10) [\[APP-556\]](#). The 2020 data will contribute to mitigation and monitoring proposals throughout the planning, enabling and construction phases of the proposed development and will also inform any operational monitoring, detailed mitigation and ongoing site management.

1.2 Submitted Baseline (2014-2019)

1.2.1 Previous surveys undertaken by Arcadis between 2014 and 2016 and summarised in **Volume 9, Chapter 7** of the **ES** (Doc Ref. 6.10) [\[APP-555\]](#) consisted of the following:

- Extended Phase 1 habitat survey and protected species walkover survey in 2014. This included a badger survey.
- Great crested newt (*Triturus cristatus*) surveys (Habitat Suitability Index (HSI) and population surveys) from April to June 2014, and eDNA surveys in 2016.
- Breeding bird surveys (April to June 2014) and wintering bird surveys (November 2014 to March 2015).
- Bat surveys including transects and statics (2014) as well as updated potential tree roost assessments (2016).

1.2.2 The habitats present within the site comprised predominantly large arable fields bound by a mixture of fences and hedgerows, of which three were species-rich.

1.2.3 Other habitats recorded both within and adjacent to the site included three woodland blocks, comprising ancient broad-leaved semi-natural woodland

and lowland mixed deciduous woodland, and improved grassland fields. Two ponds were recorded adjacent to but outside the site boundary.

- 1.2.4 The site was assessed as suitable or known to support the following species:
- Amphibian species
 - Breeding birds
 - Wintering birds
 - Bats
 - Badgers
 - Brown hare
 - Hedgehog
- 1.2.5 The site was assessed as having limited value to support the following species:
- Invertebrates
 - Reptiles
- 1.2.6 Further details of the submitted baseline (2014-2019) are provided below.
- 1.2.7 Twelve statutory designated sites (two Ramsar sites, four Special Protection Areas (SPA), two Special Areas Conservation (SAC) and four Sites of Special Scientific Interest (SSSI)) were within 5km of the site.
- 1.2.8 Six non-statutory designated County Wildlife Sites (CWS) were within 2km of the site.
- 1.2.9 The site comprised predominantly intensively managed arable fields, separated by a combination of fences and hedgerows some of which were species-rich.
- 1.2.10 Other habitats present within and adjacent to the site included a number of woodland blocks comprising broadleaved semi-natural woodland and lowland mixed deciduous woodland and improved grassland fields. Thirty ponds were identified within 500m of the site, with two ponds recorded adjacent to the site, however none were identified within the site itself.

- 1.2.11 The majority of the habitats on site were not considered of particular value to invertebrates due to the intensively managed nature of the arable habitats present. The woodland blocks and species-rich hedgerows offered some value to invertebrates.
- 1.2.12 Great crested newts were identified in eleven ponds within 500m of the site with breeding confirmed in four of these, including Pond 30 located approximately 100m south of the site boundary. Additional evidence of great crested newts was also recorded in one pond within 500m of the site; great crested newts recorded within the 500m buffer of the site were considered to be part of a single meta-population bisected by the site. The field margins, woodland and hedgerows offer suitable terrestrial habitat for great crested newts as well as habitat connectivity between pond and woodland features. Common toad were also identified during surveys; the woodland on site offers suitability for the species.
- 1.2.13 The majority of habitats on site were considered sub-optimal for reptiles due to the intensively managed nature of the arable habitats present. Marginal habitats suitable for reptiles were scarce within the site and were often isolated within large tracts of arable farmland. Incidental sightings of a grass snake (*Natrix natrix helvetica*) and two slow worms (*Anguis fragilis*) were recorded within the site.
- 1.2.14 No Schedule 1 of the W&CA (Ref. 1) bird species were recorded during the breeding bird surveys, whilst three were recorded foraging during wintering bird surveys (redwing (*Turdus iliacus*), fieldfare (*Turdus pilaris*) and peregrine (*Falco peregrinus*)). The site is known to support a small number of breeding Bird of Conservation Concern (BoCC) Red List species (Ref. 2), whilst BoCC Amber List and Natural Environment and Rural Communities (NERC) Act 2006 (Ref. 3) listed species associated with farmland habitats are also likely to use the habitats within the site given the arable farmland recorded.
- 1.2.15 Habitats within the site predominantly comprised arable fields which is of limited value to bats. However, habitat features such as woodland blocks in the immediate vicinity, hedgerows and scattered mature trees were identified as having potential for roosting bats and provide good quality commuting and foraging opportunities. Sixteen trees were identified as having the potential to support bat roosts, including ten trees of high potential (this assessment excluded trees within the woodland).
- 1.2.16 Activity and static detector surveys demonstrated that activity within and immediately surrounding the site was dominated by common pipistrelle (*Pipistrellus pipistrellus*) and soprano pipistrelle (*Pipistrellus pygmaeus*). Other species identified as utilising the habitats immediately surrounding

the site at low levels were barbastelle (*Barbastella barbastellus*), Natterer's bat (*Myotis nattereri*), noctule (*Nyctalus noctula*), Daubenton's bat (*Myotis daubentonii*), serotine (*Eptesicus serotinus*) and Nathusius' pipistrelle (*Pipistrellus nathusii*).

- 1.2.17 During surveys, no habitat suitable for otter (*Lutra lutra*) or water vole (*Arvicola amphibius*) was identified and both species were considered absent from the site.
- 1.2.18 A single outlier badger sett and a subsidiary sett were recorded within the vicinity of the site. No setts or other evidence of badger was recorded within the site.
- 1.2.19 The majority of the site comprised arable fields and was therefore considered sub-optimal for hedgehog. The woodland and hedgerow habitats on site comprised some foraging habitat for the species. A single brown hare (*Lepus europaeus*) was recorded incidentally during ecological surveys. A single water shrew was recorded incidentally in a pond during amphibian surveys.
- 1.2.20 **Table 1.1** provides a summary of the value of these receptors for the proposed Green Rail Route as assessed **Volume 9, Chapter 7** of the **ES** (Doc Ref. 6.10) [[APP-555](#)].

Table 1.1: Ecological Receptor Importance

Feature/Receptor	Importance (CIEEM/EIA Methodology).
Statutory designated sites within 5km of the site boundary	International (SPA, SAC, Ramsar), National (SSSI)/High
Non-statutory designated sites within 2km of the site boundary	County/medium
Arable habitats	N/A/very low
Broadleaved woodland	N/A/ low
Ponds within the site and 500m	N/A/very low
Hedgerows	N/A/very low
Invertebrates	N/A/very low
Great crested newt	County/medium
Common toad	N/A/very low
Reptile assemblage	N/A/very low

Feature/Receptor	Importance (CIEEM/EIA Methodology).
Breeding and wintering bird assemblage	N/A/low
Bat assemblage	County/medium
Badger	Local/ low
Brown hare	N/A/very low
Hedgehog	N/A/very low
Water shrew	N/A/very low

1.3 2020 Update Surveys

1.3.1 During 2020 a series of surveys were undertaken to update the baseline. These included an updated Extended Phase 1 habitat and protected species survey, great crested newt Habitat Suitability Index (HSI) survey and bat tree assessment surveys.

1.3.2 The Extended Phase 1 habitat and protected species survey in 2020 confirmed previously recorded habitats present within and adjacent to the site boundary as described above. Himalayan Cotoneaster (*Cotoneaster simonsii*), listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) (W&CA) (Ref. 1) was recorded during the survey outside the site boundary. The site was assessed as suitable to support, breeding and wintering birds, bats, badgers (*Meles meles*), brown hare (*Lepus europaeus*) and hedgehog (*Erinaceus europaeus*). The site was assessed as having limited potential to support invertebrate species, reptiles and water shrew (*Neomys fodiens*).

1.3.3 The bat tree assessment survey in 2020 confirmed twenty trees and one woodland copse within and adjacent to the site boundary, of which five trees were recorded as having high bat roost suitability, one tree was recorded as having moderate/high bat roost suitability, eleven trees were recorded as having moderate bat roost suitability, one tree was recorded as having low/moderate bat roost suitability and two trees were recorded as having low bat roost suitability. The woodland copse comprised several trees of high and moderate bat roost suitability and was considered to have high bat roost suitability overall.

1.3.4 The updated survey results from 2020 presented in this report are consistent with the submitted baseline and do not change the assessment of impacts on the receptors listed above, the proposed mitigation or the

residual effects presented in **Volume 9, Chapter 7** of **ES** (Doc Ref. 6.10) [[APP-555](#)].

2 METHODS

2.1 Extended Phase 1 Habitat Survey

2.1.1 An extended Phase 1 habitat survey of the site was undertaken in October 2020. The survey area consisted of the entire site boundary, with a 50m buffer either side where access was possible to assess if conditions on site had changed since previous surveys undertaken in (see **Annex 1, Figure 9.5.A.1**).

2.1.2 The survey involved identifying and mapping the dominant habitat types following the Phase 1 habitat survey methodology recommended by Natural England (Joint Nature Conservation Committee (JNCC) (Ref. 5). Dominant plant species were noted, as were any uncommon species or species indicative of particular habitat types. Botanical names follow 'New Flora of the British Isles' (Ref. 6). Any non-native invasive species present within and adjacent to the site were also recorded.

2.1.3 The survey was extended to involve a critical assessment of the value of the habitats present for their use by protected species or species of conservation interest, as outlined below:

- the value of the site for invertebrates was assessed and any habitats or features of particular value were identified.
- The value of the site for reptiles was assessed and any habitats or features of particular value for reptiles were identified.
- The value of the site for breeding birds was assessed.
- The site was investigated for its use by badger by searching for the characteristic signs of badger activity including setts, latrines, paths, footprints, hairs, and feeding signs. The survey area was extended where necessary to search adjacent areas for badger setts.
- The value of the site for terrestrial mammals was assessed and any habitats or features of particular value for terrestrial mammals were identified.

2.2 Great Crested Newt HSI Assessment Update

- 2.2.1 During the 2020 extended Phase 1 habitat survey, detailed site descriptions were taken for each waterbody within the red line boundary + 100m, including photographs, measurements of the area and depth, descriptions of marginal, aquatic and surrounding vegetation, and a note was made of suitable survey methods for the waterbody.
- 2.2.2 A Habitat Suitability Index (HSI) for great crested newt (Ref. 7) was calculated for each waterbody. The HSI scores a waterbody against ten habitat suitability indices, which include water quality and the likely presence/absence of fish and aquatic plant cover. From these ten suitability indices, a geometric mean is calculated, which gives an overall numerical index ranging between zero and one. A score of near zero indicates highly sub-optimal habitat, whilst a score near one represents optimal habitat. HSI scores are then used to define pond suitability for great crested newts on a categorical scale, from 'poor' to 'below average', 'average', 'good', and 'excellent'.
- 2.2.3 The HSI for each pond was used to compare the general suitability of the ponds present for great crested newt. However, the HSI is not a substitute for undertaking newt surveys and, if a waterbody is awarded a high HSI score, this does not guarantee that great crested newts will be present, only that they are likely to be present.

2.3 Bat Tree Assessment Survey Update

- 2.3.1 During the 2020 extended Phase 1 habitat survey, an external inspection of all trees on site was carried out to assess their suitability for occupancy by roosting and/or hibernating bats. This was to update the status of trees previously recorded as suitable for roosting bats and to highlight any new ones. Potential roost features were observed from the ground with binoculars and scrutinised for their suitability to be used by bats, alongside searching for any evidence of use, such as staining, feeding remains or droppings. The likely value of the various habitat features for foraging and commuting bats was also critically assessed.

3 RESULTS

3.1 Extended Phase 1 Habitat Survey

3.1.1 The results of the extended Phase 1 habitat survey are presented on **Figure 9.5.A.1 (Annex 1)** and are described individually below.

a) Broadleaved Semi-Natural Woodland & Scattered Trees

3.1.2 Three woodland blocks are present adjacent to the south west boundary of the site, including Buckle's Wood CWS. Buckle's Wood is approximately 4ha of ancient semi-natural woodland dominated by Ash (*Fraxinus excelsior*) and Oak (*Quercus robur*), with an understory of Hazel (*Corylus avellana*), Holly (*Ilex aquifolium*), Hawthorn (*Craetagus monogyna*) and Rowan (*Sorbus aucuparia*). The ground flora is dominated by Bluebell (*Hyacinthoides non-scripta*) and Dog's Mercury (*Mercurialis perennis*).

3.1.3 A small wooded copse of approximately 30m in width is adjacent to the south west boundary of the site and alongside Buckleswood Road. Tree species present include Oak, Field Maple (*Acer campestre*), Hazel, and Sycamore (*Acer pseudoplatanus*). The ground flora comprised Greater Stitchwort (*Stellaria holostea*), Dog's Mercury, White Dead-nettle (*Lamium album*), False Brome (*Brachypodium sylvaticum*) and Moschatel (*Adoxa moschatellina*).

3.1.4 A small copse of ancient semi-natural woodland is present surrounding a pond within an arable field adjacent to the eastern boundary of the site. Trees present within the woodland included Ash, Oak, Field Maple and Elm (*Ulmus minor*), with an understory of Hazel, Hawthorn and Elder (*Sambucus nigra*). The woodland had a diverse ground flora, with species present including Bluebell, Moschatel, Lesser Celandine (*Ranunculus ficaria*) and Dog's Mercury.

3.1.5 Scattered broadleaved trees are present within the site and associated with hedgerows adjacent to and bisected by the site. Species present include Oak and Ash.

b) Scrub

3.1.6 Scattered patches of scrub are present along field margins close to and within the site. Bramble are dominant within these stands, whilst other species present include Ivy (*Hedera helix*), Blackthorn (*Prunus spinosa*), Hawthorn, Spindle (*Euonymus europaeus*) and Cherry Laurel (*Prunus laurocerasus*). Ruderals including Thistle (*Cirsium vulgare*) and Burdock (*Arctium minus*) were recorded within the ground flora. Some young trees

are also present including Wych Elm (*Ulmus glabra*), Field Maple, Goat Willow (*Salix caprea*), and Sweet Chestnut (*Castanea sativa*).

c) Improved Grassland

- 3.1.7 Three improved grassland fields are present surrounding Aldhurst Farm, adjacent to the site outside the site boundary.

d) Cultivated/Disturbed Land – Arable

- 3.1.8 The site comprises predominantly intensively managed arable fields; the crops were 'clean' and had been treated with herbicide, such that no scarce arable weeds or other notable plant species were identified within the fields or their margins. Some ruderal vegetation was present along the field margins, which were demarcated by dry ditches or hedgerows.

e) Tall Ruderal

- 3.1.9 Linear areas of tall ruderals were present along field margins delineated by dry ditches both within and adjacent to the site. The species composition was consistent across the areas and included Alexanders, Common Nettle, Great Willowherb (*Epilobium hirsutum*) and Cow Parsley (*Anthriscus sylvestris*).

f) Hedgerows

- 3.1.10 Eight hedgerows are present both within and adjacent to the site; of these, H1, H2 and H4 were defunct but species-rich supporting species including Elm, Hawthorn and Field Maple with ground flora comprising Dog's Mercury, Nettle and Alexanders (*Smyrnium olusatrum*). These three hedgerows are classed as 'Important' when assessed against the Wildlife and Landscape Criteria of the Hedgerows Regulations (Ref. 8). The remaining hedgerows are species-poor and dominated by Hawthorn. Full details of all hedgerows recorded are provided in **Table 4.1**.

Table 3.1: Hedgerow Results

Hedgerow Number	Phase 1 Habitat Category	Description
H1	Defunct – native species-rich	Hedgerow with some mature Ash and Oak trees; species present included Hawthorn, Dog Rose (<i>Rosa canina</i>), Bramble, Elm, Hazel, Blackthorn and Crab



Hedgerow Number	Phase 1 Habitat Category	Description
		Apple (<i>Malus sylvestris</i>).
H2	Defunct – native species-rich	Hedgerow with some mature trees over a dry ditch; species present included Dog Rose, Ash, Ivy, Hawthorn, Field Maple, Dogwood (<i>Cornus sanguinea</i>), Hazel and Bramble.
H3	Defunct – species-poor	Hedgerow over dry ditch; species present included Dogwood, Hawthorn, Field Maple, Elm and some tall ruderal herbs.
H4	Defunct – native species-rich	Hedgerow with scattered broadleaved trees; species present included Field Maple, Hawthorn, Dogwood and Ash.
H5	Intact – species-poor	Hedgerow with trees over ditch; two Oak trees were present with one having been recently pruned. Species present included Hawthorn, Elm, Blackthorn, Bramble, Dog Rose, Dogwood and Field Maple.
H6	Defunct – species-poor	Species present included Hawthorn, Blackthorn and Field Maple.
H7	Defunct – species-poor	Dominated by Elm and Bramble with Blackthorn.
H8	Defunct – species-poor	Species present included Elder

Hedgerow Number	Phase 1 Habitat Category	Description
		(<i>Sambucus nigra</i>), Elm and Bramble.

g) Standing Water

- 3.1.11 Two ponds (Pond 25 and Pond 30) were recorded outside the site boundary, one located alongside the western boundary of Buckle's Wood CWS and the latter immediately to the north of the small woodland copse within arable fields to the east of the site. Details of the ponds are provided in **Table 4.2**, below.

Table 4.2: Pond Results

Pond Number	Description	Photograph
25	Woodland pond	
30	Pond within arable field adjacent to wooded copse	

h) Invasive Non-native Species

- 3.1.12 Himalayan Cotoneaster was recorded in two locations within field boundaries surrounding Gipsy Lodge, approximately 500m north of the site boundary. No other invasive non-native species were recorded within the site.

i) Invertebrates

- 3.1.13 Within the site the arable fields are of limited value to uncommon or notable invertebrate species. Within the areas of woodland, dead wood offers suitable features to support some specialist invertebrate species, particularly in more extensive blocks such as Buckle's Wood due to its age and structure. The hedgerows on-site support Elm, indicating that they have potential to support White-letter hairstreak (*Satyrus w-album*) which has been recorded during the desk study.

j) Amphibians

- 3.1.14 Two ponds are present adjacent to areas of woodland outside of the site boundary; Pond 25 close to Buckle's Wood CWS and Pond 30, which has previously been surveyed and found to support great crested newts in 2014 and 2016. The majority of the site is of limited suitability for great crested newts as it consists of intensively managed arable fields. However, the arable field margins, hedgerows and woodland blocks have potential to provide suitable terrestrial habitat to support foraging and hibernating amphibian species. Overall, the available terrestrial habitat to support amphibian species within the site is considered to be limited.

k) Reptiles

- 3.1.15 The arable fields within the site are intensively managed and sub-optimal habitat to support reptile species. However, the hedgerows and woodland and their margins may provide some limited suitable foraging habitat for reptiles. Overall, the available habitat to support reptiles within the site is considered to be limited.

l) Birds

- 3.1.16 The arable fields on site were assessed as suitable for bird species associated with arable farmland habitat. The associated hedgerows and woodland blocks on site and adjacent to it were assessed as suitable to support nesting birds and would also provide foraging opportunities. Previous wintering bird surveys undertaken on site recorded a number of

winter visitor species including redwing, fieldfare and peregrine using the site as a foraging resource.

m) Bats

- 3.1.17 Within the site, the habitats present are primarily arable fields of limited value to foraging bats. The boundary hedgerows contained some mature trees, which together with the woodland blocks have the potential to support roosting bats and offer good commuting and foraging opportunities.
- 3.1.18 Previous activity surveys undertaken within the site identified the site was utilised by a number of species for foraging.

n) Badgers

- 3.1.19 No signs of badgers were identified during the updated Extended Phase 1 habitat survey. A subsidiary sett was previously recorded adjacent to the site boundary comprising three entrances. The habitat composition on site includes suitable foraging habitat for badgers, whilst sett building habitat is limited to the hedgerows and woodland blocks.

o) Other Mammal Species

- 3.1.20 No habitats with potential to support otter or water vole were recorded on site.
- 3.1.21 The ponds identified during the Extended Phase 1 habitat survey have the potential to support water shrew, although there is limited hydrological connectivity between waterbodies surrounding the site.
- 3.1.22 The hedgerows and woodland within and adjacent to the site are considered to have potential to support foraging hedgehog, whilst the arable fields that dominated the site are suitable for brown hare.

3.2 Great Crested Newt HSI Assessment Update

- 3.2.1 Two ponds (Ponds 25 and 30) were recorded outside of the site boundary during the Extended Phase 1 habitat survey. A Habitat Suitability Index (HSI) assessment was undertaken for both; the results are provided in **Table 4.3**. During previously surveys, Pond 25 and Pond 30 were assessed as having 'Good' and 'Excellent' suitability to support great crested newts respectively. In this survey, Pond 25 was considered to have 'Average' suitability to support great crested newts whilst Pond 30 was considered to have 'Below Average' suitability to support great crested newts but was confirmed to support great crested newts during surveys in 2014 and 2016 as detailed in **Volume 9, Chapter 7** of the **ES**.

Table 3.3: HSI Assessment Results

Feature	Pond 25	Pond 30
Location	A	A
Pond area (m ²)	490m ² - 1	690m ² - 1
Pond drying	Never dries – 0.9	Never dries – 0.9
Water quality	Poor – 0.33	Good – 1
Shade (%)	90% - 0.4	0 – 50% - 1
Fowl	Minor – 0.67	Major – 0.01
Fish	Absent – 1	Possible – 0.67
Ponds	10 – 0.95	15 - 1
Terrestrial habitat	Moderate – 0.67	Moderate – 0.67
Macrophytes (%)	10% - 0.4	60% - 0.9
HSI Score	0.68 – Average	0.57 – Below Average

3.3 Bat Tree Assessment Survey Update

3.3.1 Twenty trees and one woodland copse were assessed during bat tree assessment surveys as having specific features potentially suitable for use by roosting bats. Five trees were recorded as having high bat roost suitability, one tree was recorded as having moderate/high bat roost suitability, eleven trees were recorded as having moderate bat roost suitability, one tree was recorded as having low/moderate bat roost suitability and two trees were recorded as having low bat roost suitability. The woodland copse (TN10) comprises several trees of high and moderate bat roost suitability. Access into Buckle's Wood CWS was not possible during this survey. The locations of the assessed trees are provided as target notes on **Figure 9.5.A.1 (Annex A)** and a summary is provided in **Table 4.4**.

Table 3.4: Bat Tree Assessment Results

Tree Reference Number	Tree Roost Assessment Level	Description
TN1	High	Oak – branch stubs with loose bark at 4m facing north, loose bark on secondary limb, tearout wound facing north.

Tree Reference Number	Tree Roost Assessment Level	Description
TN2	High	Oak – Partially occluded tearout wound at 8m facing north, complex tearout wound on upper side of limb at 10m (central crown), extensive loose bark.
TN3	Moderate	Oak - Snapped off limb with deadwood at 7m on south-west side, fissures in bark along top of limb on second stem.
TN4	Moderate	Oak – Small limbs facing south with deadwood, missing bark, shallow cracks and fissures; deadwood and loose bark between limb facing south and dead spur on stem; two small rot holes on underside of north-eastern limb at 6m.
TN5	High	Oak – small patch of split bark/canker facing north at 2.5m; loose bark with cavity; large partially occluded tearout wound facing east at 8m with extensive deadwood.
TN6	Moderate	Oak - Tear out on limb facing south, small number of impact shatters facing north.
TN7	Moderate	Oak - Pruning cut facing south on stem.
TN8	Low – Moderate	Field Maple – Thick mature ivy stems on main stem.
TN9	Low	Oak - Three impact shatters on limbs approximately 4m high all facing north.
TN10	High	Woodland copse including Oak and Ash – several trees identified with high and moderate bat roost potential. Area considered to be high potential.

Tree Reference Number	Tree Roost Assessment Level	Description
TN11	Moderate	Oak - wound on limb facing south east.
TN12	High	Ash – Areas of minor deadwood with small splits; torn limb with splits/fissures at end of limb facing west at 8m; small pruning wound/knothole on underside of limb facing south-east.
TN13	Moderate	Ash - knot hole facing east on main stem.
TN14	Moderate	Oak - lifting bark in numerous places on main stem.
TN15	Moderate	Oak - old pruning cut on west side.
TN16	Moderate	Oak - Very old rotten pruning cut with features.
TN17	Moderate	Oak - South facing weld plus lifting bark and ivy.
TN18	Moderate -high	Oak - Impact shatter on east pointing limb. East facing tear out on small limb pointing south. Two more larger tear outs facing east.
TN19	Low	Oak – Deadwood with loose plates of bark, shallow splits and fissures above crown.
TN20	High	Field Maple – Truncated stem with multiple access points and cavity extending upwards in stem.
TN21	Moderate	Ash – Several partially occluded wounds on limb at 4m facing south on southern stem.

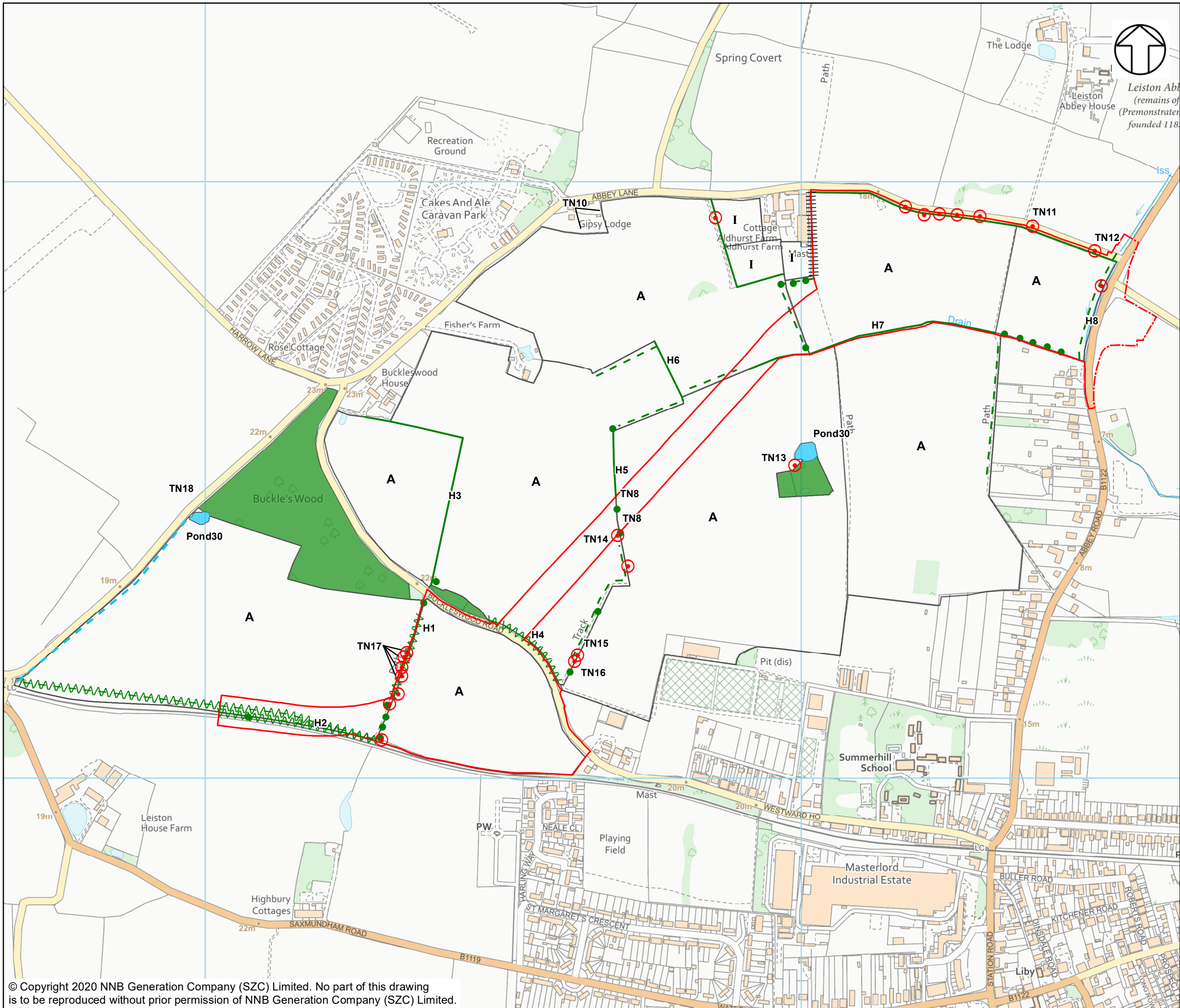
4 DISCUSSION

- 4.1.1 The extended Phase 1 habitat survey in 2020 identified several habitats present within and adjacent to the site boundary including broadleaved semi-natural woodland, ancient broadleaved woodland, arable fields, improved grassland, species-rich and species-poor hedgerows, and ponds. A single species, Himalayan Cotoneaster, listed under Schedule 9 of the W&CA (Ref. 1) was recorded outside the site boundary.
- 4.1.2 The site is known to support breeding and wintering bird, foraging bats and brown hare. It has the potential to support amphibians, roosting bats, badgers and hedgehog with limited potential to support invertebrate species and reptiles.
- 4.1.3 The updated survey results presented in this report are consistent with the submitted baseline in the ES and do not change the assessment of impacts on the receptors listed above, presented **Volume 9, Chapter 7** of the **ES** (Doc Ref. 6.10) [[APP-555](#)] and does not change the proposed mitigation detailed in the great crested newt method statement (**Volume 9, Chapter 7: Appendix 7A, Annex 7A6B** (Doc Ref. 6.10) [[APP-556](#)]) and reptile method statement (**Volume 9, Chapter 7: Appendix 7A, Annex 7A6A** (Doc Ref. 6.10) [[APP-556](#)]).

REFERENCES

1. HMSO (1981). The Wildlife and Countryside Act 1981 (as amended) (Online). Available from: <https://www.legislation.gov.uk/ukpga/1981/69/contents> (Accessed 20 November 2020)
2. M.A. Eaton. N. Aebisher. A. Brown. R. Hearn. L. Lock. A. Musgrove. D. Noble. D. Stroud. & R. Gregory. 2015. Birds of Conservation Concern 4: Population status of birds in the United Kingdom, Channel Islands and Isle of Man. British Birds, 2015, 94:452-504.
3. Natural Environment and Rural Communities Act. 2006. (Online). Available from: <http://www.legislation.gov.uk/ukpga/2006/16/contents> (Accessed 20 November 2020).
4. Suffolk Biodiversity Information Service. 2015. Priority Species and Habitats. (Online) Available from: <https://www.suffolkbis.org.uk/biodiversity/speciesandhabitats> (Accessed 2 February 2019).
5. Joint Nature Conservation Committee. 2010. Handbook for Phase 1 habitat survey: a technique for environmental audit. Peterborough: JNCC, 2010.
6. Stace, C. 2019. New Flora of the British Isles, 4th Edition. C&M Floristics, Stowmarket.
7. R.S. Oldham, J. Keeble, M.J.S. Swan & M. Jeffcote. 2000. Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*). Herpetological Journal, 2000, 10(4): 143-155.
8. The Hedgerows Regulations. 1997. (Online) Available from: <http://www.legislation.gov.uk/uksi/1997/1160/contents/made> (Accessed 20 November 2020).
9. British Standards Institute. 2012. British Standard for Trees in relation to design, demolition and construction (BS 5837:2012). British Standards Institute. 2012.

ANNEX A: FIGURES



NOTES

KEY

- GREEN RAIL ROUTE DEVELOPMENT
- SITE BOUNDARY
- VOLUME 9 ASSESSMENT AREA
- TARGET NOTE (TN)
- BROADLEAVED SCATTERED TREES
- INTACT HEDGE - SPECIES POOR
- DEFUNCT HEDGE - NATIVE SPECIES-RICH
- DEFUNCT HEDGE - SPECIES-POOR
- FENCE
- DRY DITCH
- SCRUB - DENSE
- BROADLEAVED WOODLAND - SEMI-NATURAL
- IMPROVED GRASSLAND
- CULTIVATED/DISTURBED LAND - ARABLE
- STANDING WATER

NOT PROTECTIVELY MARKED

COPYRIGHT
Reproduced from Ordnance Survey map with the permission of Ordnance Survey on behalf of the controller of Her Majesty's Stationary Office © Crown Copyright (2021). All Rights reserved. NNB GenCo 0100060408.



DOCUMENT:
ENVIRONMENTAL STATEMENT ADDENDUM
VOLUME 3
APPENDIX 9.5.A
GREEN RAIL ROUTE SURVEY ECOLOGY REPORT
2020

DRAWING TITLE:
GREEN RAIL ROUTE PHASE 1 HABITAT PLAN

DRAWING NO:
FIGURE 9.5.A.1

DATE: JAN 2021 DRAWN: R.G. SCALE: 1:6,000 @A3 REV: 01

