



The Sizewell C Project

6.13 Additional Ecology Baseline Survey Reports Part 1 of 2

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ADDITIONAL ECOLOGY BASELINE SURVEY REPORTS PART 1 OF 2

Documents included within this issue are as follows:

- Northern Park and Ride Survey Report 2020
- Southern Park and Ride Survey Report 2020
- Sizewell Link Road Survey Report 2020
- Fish Surveys 2020
- Invertebrate Survey Report 2020
- Reptile Survey Report 2020
- Marsh Harrier Survey Report 2020
- Barn Owl and Nightjar Survey Report 2020
- Bat Backtracking Survey Report 2020
- Bat Static Monitoring Survey Report 2020

2020 ECOLOGY SURVEY REPORT – NORTHERN PARK AND RIDE

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1 SUMMARY

1.1 Baseline Receptor Status Summary (2011-2018)

1.1.1 An extended Phase 1 habitat survey of the Northern Park and Ride site boundary at Darsham was undertaken in 2011 by Wood Group. A review of aerial photographs and site visits in association with other protected species surveys were undertaken by Arcadis in 2014, and a 2018 site visit, to check site conditions, was also undertaken by Arcadis [[APP-364](#)] (Ref. 1).

1.1.2 During these surveys, the habitats present within the Northern Park and Ride site boundary at Darsham (here referred to as the 'site') comprised predominately arable farmland with a block of broadleaved woodland (Little Nursery Wood) located adjacent to the site on its western boundary. Small areas of field margin semi-improved, species-poor grassland and tall ruderals, species-poor hedgerows along the western, eastern and northern site boundaries were also present. One pond was present within the site boundary, and a number of small ponds were located within the study area.

1.1.3 The site was assessed as suitable or known to support the following species:

- Great crested newts
- Breeding birds
- Wintering birds
- Bats
- Hedgehog
- Brown hare
- Harvest mouse
- Water shrew

1.1.4 The site was assessed as having limited value to support the following species:

- Invertebrates.
- Reptiles.

- Otter.

1.2 Receptor Status 2020 Summary Overview

- 1.2.1 During 2020 an extended Phase 1 habitat and protected species survey, great crested newt Habitat Suitability Index (HSI) survey, environmental DNA (eDNA) survey and bat tree assessment surveys were undertaken in June 2020 at the proposed Northern Park and Ride site at Darsham.
- 1.2.2 The extended Phase 1 habitat and protected species survey identified several habitats present within and adjacent to the site boundary including broadleaved plantation woodland, arable fields, hedgerows, species poor semi-improved grassland, scattered trees, scrub and waterbodies. The site was assessed as suitable to support invertebrate species, amphibians, reptiles, breeding and wintering birds, bats, badgers, brown hare and water shrew.
- 1.2.3 The great crested newt eDNA survey undertaken on Pond 78 identified the presence of great crested newts within the pond. This pond has historically been known to support a small population of great crested newts.
- 1.2.4 The bat tree assessment survey identified 52 trees within and adjacent to the site boundary, of which two were assessed as having high potential to support roosting bats, 35 as having moderate potential, 12 as having low potential and three as having negligible potential to support roosting bats.
- 1.2.5 The updated survey results presented in this report are consistent with the application submitted for development consent. Results do not change the assessment of impacts on the receptors listed above, presented in Volume 3, Chapter 7 in the Sizewell C Project Environmental Statement (ES) (Ref. 7).
- 1.2.6 The results of the 2020 update surveys supports the DCO assessment based on the previous baseline survey data submitted in the Sizewell C Project ES. The proposed mitigation and the residual effects submitted for the Northern Park and Ride DCO would remain the same as that submitted in 2020 Environmental Statement.

2 OVERVIEW

2.1 The Aim of the 2020 Survey Updates

- 2.1.1 The aim of the 2020 survey updates was to see if the baseline conditions of the proposed Northern Park and Ride at Darsham site remained

consistent with surveys previously undertaken at the site and to provide a baseline for future monitoring.

- 2.1.2 The surveys are part of ongoing ecological monitoring of the site. Findings of previous surveys on the site are detailed within the Sizewell C Project ES, in Annex 7A4 – Primary Data [APP-364] (Ref. 1) and Appendix 7A – Ecological Baseline [APP-364] (Ref. 2). These data will contribute to mitigation and monitoring proposals throughout the planning, enabling and construction phases of the proposed development, inform any operational monitoring, detailed mitigation and ongoing site management and inform the required European Protected Species Licences to permit development to proceed.

2.2 Submitted Baseline Summary

- 2.2.1 The surveys undertaken to 2018 for the site and used to define the status of the receptor as described in the ES included the following:

- Extended Phase 1 habitat and protected species survey.
- Hedgerow Regulations assessment.
- Habitat Suitability Index (HSI) for great crested newt.
- Great crested newt environmental DNA (eDNA) surveys.
- Great crested newt population surveys
- Breeding bird surveys.
- Bat tree inspections.
- Bat static surveys.
- Bat activity transect surveys.

- 2.2.2 There are three statutory designated sites of nature conservation importance within 5km of the site that support habitat and/or species of European importance listed under Annex I of the EC Birds Directive and Annex I of the European Convention Habitats Directive.

- 2.2.3 There are six non-statutory designated County Wildlife Sites within 2km of the site that support habitat types listed on Section 41 of the NERC Act (Ref. 3) and are targeted for action in the Suffolk BAP and Suffolk's Priority Species and Habitats list (Ref. 4).

- 2.2.4 The habitats present within the site boundary comprised predominately arable farmland with a block of broadleaved woodland (Little Nursery Wood) located adjacent to the site on its western boundary. A small area of field margin of semi-improved, species-poor grassland is present within the site alongside the east side of Little Nursery Wood as well as an area of tall ruderals in the southern corner of the site. Species-poor hedgerows were present along the western, eastern and northern site boundaries; however, none were considered to be 'Important' when assessed against the Wildlife and Landscape Criteria of the Hedgerows Regulations. One pond was present within the site boundary, and a number of small ponds located within the study area. Some of these are located in gardens of residential properties on the eastern boundary of the site. A dry pond was also recorded within Little Nursery Wood.
- 2.2.5 The habitats within the site consisted of intensively managed arable fields that are unlikely to be of importance to invertebrate species. The adjacent Little Nursery Wood contained dead wood, and other features of value to invertebrates but the habitat assemblage of the site, and the wider area, is likely to be of limited value to invertebrates.
- 2.2.6 There were 21 ponds within 500m of the site. Eight ponds were located to the east of the A12, which is considered to be a substantial barrier to the dispersal of great crested newts (*Triturus cristatus*). A 'small' population of great crested newts was recorded in Pond 78.
- 2.2.7 Other amphibians recorded included smooth newt (*Lissotriton vulgaris*) and common frog (*Rana temporaria*). Surveys undertaken in 2019 confirmed the presence of great crested newt DNA in Pond 101; however, great crested newts were found to be absent from Pond 102.
- 2.2.8 The site was largely sub-optimal for reptiles as it comprised predominantly of intensively managed arable fields. Small pockets of suitable habitat for reptiles was recorded during the Phase 1 habitat survey suitable to provide sheltering and foraging habitat for all four common reptile species (grass snake (*Natrix helvetica helvetica*), adder (*Vipera berus*), common lizard (*Zootoca vivipara*), and slow-worm (*Anguis fragilis*). However, the available habitat to support reptile species was limited, of little value, and poorly connected to other suitable habitat, with the surrounding area primarily comprising arable farmland.
- 2.2.9 The site is known to support a range of bird species including farmland bird assemblages (Ref. 5), wintering bird species and species included on the Red List of Birds of Conservation Concern (Ref. 6), section 41 of the NERC Act (Ref. 3) and Suffolk BAP (Ref. 4).

- 2.2.10 Habitats within the site boundary consisted primarily of open arable land, which is of limited value for bats. However, habitat features such as woodland, hedgerows and scattered mature trees have potential for roosting bats and provide good quality commuting and foraging opportunities. Assessment of trees with bat roost potential identified three trees (one high potential, one medium potential, and one undetermined potential) within the site with the potential to support roosting bats. Little Nursery Wood, adjacent to the site, contained 41 trees with the potential to support roosting bats, which included a confirmed brown long-eared bat (*Plecotus auritus*) roost.
- 2.2.11 Bat activity surveys recorded predominantly common pipistrelle (*Pipistrellus pipistrellus*) and soprano pipistrelle (*Pipistrellus pygmaeus*) activity, with low levels of activity for all other species. The results from the activity surveys suggested the potential use of Little Nursery Wood by roosting barbastelle (*Barbastella barbastellus*), common pipistrelle, noctule (*Nyctalus noctula*) and soprano pipistrelle, in addition to the confirmed brown long-eared bat roost.
- 2.2.12 The ditch network present within the site was considered sub-optimal for water vole (*Arvicola amphibius*), and therefore this species is unlikely to be found within the site. The watercourses were assessed as sub-optimal to support otter (*Lutra lutra*) but could still be used by commuting otter.
- 2.2.13 No evidence of badgers (*Meles meles*) was recorded within the site surveyed, including a 30m buffer. Woodland and hedgerow habitats within the site were assessed as likely to provide foraging opportunities for badgers.
- 2.2.14 The woodland blocks and hedgerows within the survey area were assessed as suitable to support hedgehogs (*Erinaceus europaeus*). During the Phase 1 habitat and protected species survey several incidental sightings of brown hare (*Lepus europaeus*) were recorded within the site boundary. Additionally, the arable and hedgerow habitat present provided suitable habitat for brown hare. Habitat suitable to support harvest mouse (*Micromys minutus*) was recorded within the site including the arable fields and margins. The ponds present within the site were assessed as suitable to support water shrew (*Neomys fodiens*) with water shrew identified within Pond 78.
- 2.2.15 **Table 1** provides a summary of the value of these receptors for the Northern Park and Ride site at Darsham as assessed in the Sizewell C Project ES [[APP-363](#)] (Ref. 7).

Table 1: Summary of the importance of ecological receptors as assessed in the Northern Park and Ride Environmental Statement

| Feature/Receptor | Importance (CIEEM/EIA Methodology). |
|--|-------------------------------------|
| Statutory designated sites within 5km of the site boundary | International/high |
| Non-statutory designated sites within 2km of the site boundary | County/medium |
| Arable habitats | Local/very low |
| Little Nursery Woodland | Local/Low |
| Ponds within the site and ZOI | Local/very low |
| Hedgerows | Local/very low |
| Great crested newts | Local/Low |
| Reptile assemblage | Local/very low |
| Breeding and wintering bird assemblage | Local/low |
| Roosting, foraging and commuting bats | County/medium |
| Brown hare | Local/low |
| Hedgehog | Local/very low |
| Water Shrew | Local/low |

2.3 Updated Surveys

2.3.1 The surveys undertaken at the proposed development site receptor during 2020 were as follows:

- Phase 1 Habitat survey update.
- Great crested newt (*Triturus cristatus*) environmental DNA (eDNA) surveys.
- Great crested newt Habitat Suitability Index (HSI) surveys.
- Bat tree assessment surveys.

3 METHODS

3.1 Desk-study

3.1.1 The desk-study information is fully detailed within the Sizewell C Project ES Baseline [[APP-364](#)] (Ref. 2). This includes previous survey findings at the site, undertaken by Wood Group (2011) and Arcadis (2014, 2015, 2018 and 2019) outlined above. Other desk study sources include records from Suffolk Biodiversity Information Service (SBIS).

3.2 Surveyor information

3.2.1 The updated surveys were undertaken by suitably experienced ecologists from Arcadis. The extended phase 1 habitat survey, protected species and great crested newt HSI assessments were led by Consultant Ecologist Rory Roche (gradCIEEM) and assisted by Senior Consultant Dave Andrews. The bat tree inspections were led by Principal Consultant Nick Downs (MCIEEM, CEnv, licensed bat holder: 2015-11591-CLS-CLS) and assisted by Rory Roche.

3.3 Extended Phase 1 habitat and protected species survey

3.3.1 An extended Phase 1 habitat and protected species survey was undertaken in June 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 were undertaken (see **Figure 1, Appendix A**).

3.3.2 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.8). 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. 9). Any non-native invasive species present within and adjacent to the site were also recorded.

3.3.3 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.
- An external inspection of all trees within the site and with the adjacent Little Nursery Woodland was carried out to assess their suitability for occupancy by roosting and/or hibernating bats. The likely value of the various habitat features for foraging and commuting bats was also critically assessed.
- The site was investigated for its use by badgers 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.

3.4 Amphibian Surveys

- 3.4.1 During the 2020 extended Phase 1 habitat and protected species walkover survey, detailed site descriptions were taken for each waterbody within the site boundary, 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.
- 3.4.2 A Habitat Suitability Index (HSI) for great crested newts (Ref. 10) 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'.
- 3.4.3 The HSI for each pond was used to compare the general suitability of the ponds present for great crested newts. 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.
- 3.4.4 Great crested newt eDNA surveys were undertaken at ponds identified as being potentially suitable for breeding amphibians during the scoping surveys. Sampling methodologies followed details in Briggs et al.

‘Analytical and methodological development for improved surveillance of Great Crested Newt, Appendix 5, Technical advice note for field and laboratory sampling of great crested newt environmental DNA’ (Ref. 11). As required by Natural England, samples were collected by a licensed surveyor between 15th April and 30th June 2019.

3.4.5 The samples were sent to Nature Metrics eDNA testing service for analysis. The analysis method detects pond occupancy from great crested newts using traces of eDNA shed into the pond environment. The detection of great crested newt eDNA is carried out using real-time Polymerase Chain Reaction (PCR) to amplify part of the cytochrome 1 gene found in mitochondrial DNA. The method followed details in Briggs et al. (Ref. 11).

3.4.6 There are a number of limitations with this method as follows: (1) the results are based on analyses of the samples received by the laboratory; (2) any variation between the characteristics of the sample and a batch will depend on the sampling procedure used; (3) the method is qualitative and therefore the levels given in the score are for information only, they do not constitute the quantification of great crested newt DNA against a calibration curve; (4) a ‘not detected’ result does not exclude the presence at levels below the limit of detection.

3.4.7 Suitable aquatic vegetation at the pond margins was also checked at this time for the presence/absence of newt eggs.

3.4.8 Appropriate biosecurity measures were adopted whilst undertaking the surveys to avoid the inadvertent spreading of chytridiomycosis. This is a fungal disease which can have a devastating effect on amphibian populations. Measures implemented the application of Virkon antiseptic solution to survey equipment, wading poles and surveyor’s waders between visits, where ponds are separated by a distance of over 1km.

3.5 Bat Tree Assessment Survey

3.5.1 During the 2020 extended Phase 1 habitat and protected species survey, an external inspection of all trees on site was carried out to assess their suitability for occupancy by roosting and/or hibernating bats. 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.

4 RESULTS

4.1 Extended Phase 1 Habitat Survey and Protected Species Survey

4.1.1 The results of the updated 2020 extended Phase 1 habitat survey are presented on **Figure 1 (Appendix A)** and are described individually below.

a) Broadleaved Plantation Woodland

4.1.2 An area of semi-mature broadleaved plantation woodland (Little Nursery) with a partially open canopy is present along the western boundary of the site. The canopy comprises Ash (*Fraxinus excelsior*), with occasionally recorded Norway Maple (*Acer platanoides*), Hazel (*Corylus avellana*), Elm (*Ulmus* agg.), Field Maple (*Acer campestre*), Sycamore (*Acer pseudoplatanus*), Horse-chestnut (*Aesculus hippocastanum*) and Beech (*Fagus sylvatica*) with an understorey comprising Hawthorn (*Crataegus monogyna*), Elder (*Sambucus nigra*) and Bramble (*Rubus fruticosus* agg.). The ground flora comprises Dog's Mercury (*Mercurialis perennis*), Garlic Mustard (*Alliaria petiolata*), Dock (*Rumex* sp.), Wood Avens (*Geum urbanum*), Ground-ivy (*Glechoma hederacea*), Cleavers (*Galium aparine*), Primrose (*Primula vulgaris*), Pendulous Sedge (*Carex pendula*) and Mint (*Mentha* sp.). Grass species recorded comprised False Oat-grass (*Arrhenatherum elatius*), Annual Meadow-grass (*Poa Annua*) and Yorkshire-fog (*Holcus lanatus*).

b) Scattered Scrub

4.1.3 Areas of scattered scrub are present predominantly along arable field margins. Within these areas Bramble is the dominant species recorded with Blackthorn (*Prunus spinosa*), Rose (*Rosa* sp.) and Willowherb (*Epilobium* sp.) recorded less frequently.

c) Scattered Trees

4.1.4 Lines of scattered trees are present predominantly along the boundaries of the site. Along the eastern boundary of the site adjacent to the A12 is a line of scattered trees with dense bramble and scrub in between. The species comprise Oak (*Quercus* sp.) and White Willow (*Salix alba*).

4.1.5 A line of trees is also present along eastern boundary of the site adjacent to a large arable field. The trees are likely the result of an unmanaged, outgrown hedgerow. Species recorded included Field Maple, Blackthorn, Elm and Hawthorn.

4.1.6 Scattered individual Oak and Ash trees are also present throughout the site.

d) Species Poor Semi-improved Grassland

4.1.7 Two areas of species poor semi-improved grassland are present bordering the areas of broadleaved plantation woodland and to the south of the site. The areas of grassland had a sward ranging between 15-30cm in height and evidence of scrub clearance was observed. Species recorded comprised Yorkshire-fog, Rush (*Juncus* sp.), Forget-me-not (*Myostosis* sp.), Creeping Buttercup (*Ranunculus repens*), Creeping Thistle (*Cirsium arvense*) and Common Fleabane (*Pulicaria dysenterica*).

4.1.8 An area of poor semi-improved grassland is also present along the road verge of the A12. The sward height was between 15-25cm in height and species recorded comprised Cock’s-foot (*Dactylis glomerata*), Perennial Rye-grass (*Lolium perenne*) Ribwort Plantain (*Plantago lanceolata*) Yarrow (*Achillea millefolium*), Alexanders (*Smyrniolus satrum*), Spear Thistle (*Cirsium vulgare*), Dandelion (*Taraxacum* agg.), Bristly Oxtongue (*Helminthotheca echioides*) and Hogweed (*Heracleum sphondylium*).

e) Hedgerows

4.1.9 Seven hedgerows are present within the site, of these three were recorded as hedges with trees – species poor, two recorded as intact hedges – species poor, one intact hedge – species rich and one was recorded as a hedge with trees – species rich. Further details for each hedgerow are included in **Table 2**.

Table 2: Hedgerow details

| Hedgerow Number | Phase 1 Habitat Category | Description |
|-----------------|---------------------------------|---|
| Hedgerow 1 | Hedge with trees – species poor | Well managed hedgerow, approx. 2m tall. Associated with deep ditch on northern side. Dominated by Elm, with Blackthorn, Field Maple and Rose. The ground flora is consistent with the grassland recorded along the road verge margin with the addition of Milk Thistle (<i>Silybum marianum</i>). |
| Hedgerow 2 | Hedge with trees – species poor | Dense hedgerow with trees comprised of Blackthorn, Hawthorn, Turkey Oak (<i>Quercus cerris</i>), Pedunculate Oak (<i>Quercus robur</i>), |

NOT PROTECTIVELY MARKED


| Hedgerow Number | Phase 1 Habitat Category | Description |
|-----------------|---------------------------------|---|
| | | Rose and Elm. The ground flora is consistent with the grassland recorded along the road verge margin with increased Bramble and Dog's Mercury. A shallow ditch is located centre of the hedgerow, where the hedgerow thins to single stand the ditch deepens and is present along the site boundary. |
| Hedgerow 3 | Hedge with trees – species rich | Approx. 4m tall, thin hedgerow with a shallow ditch in centre which has been flailed along the roadside. The hedgerow is species rich but thin and outgrown at the top. Species recorded comprise Goat Willow (<i>Salix caprea</i>), Rose, Hazel, Field Maple, Hawthorn, Blackthorn, Elm, Dogwood (<i>Cornus sanguinea</i>), Bramble and Honeysuckle (<i>Lonicera periclymenum</i>). Standard Oak trees are present. The ground flora is consistent with grassland field margins. |
| Hedgerow 4 | Intact hedge – species poor | Young amenity hedgerow, bordering a residential property. Approx. 1m tall and 0.5m wide. Species comprised of Hazel, Rose, Hawthorn, Dogwood, Portugal Laurel (<i>Prunus lusitanica</i>), Bay (<i>Laurus nobilis</i>). The ground flora comprises Common Nettle (<i>Urtica dioica</i>) and Cleavers. |
| Hedgerow 5 | Intact hedge – species poor | Approx. 2m in height and gappy in places. Species comprised Hawthorn, Dogwood, Rose and Blackthorn. The ground flora is consistent with grassland field margins. |
| Hedgerow 6 | Hedge with trees – species poor | Hedgerow is relatively outgrown and bushy in places. Species comprised Dogwood, Blackthorn, Elm, Oak |

| Hedgerow Number | Phase 1 Habitat Category | Description |
|-----------------|-----------------------------|---|
| | | trees, Bramble and Hedge Bedstraw (<i>Galium album</i>). |
| Hedgerow 7 | Intact hedge – species rich | Hedgerow 2-4m in height with an associated dry ditch along the site boundary. Some evidence of management by flail. Species comprised Elm, Hawthorn, Blackthorn, Ash, Oak, Field Maple and Sycamore. The ground flora is consistent with grassland field margins with increased amounts of Hogweed and Soft-brome (<i>Bromus hordeaceus</i>). |

f) Waterbodies

- 4.1.10 One pond (Pond 78) is present along the eastern boundary of the site, details of this pond are provided in **Table 3**.

Table 3: Pond description

| Pond Number | Description | Photograph |
|-------------|--|--|
| 78 | Heavily shaded farm pond surround by Bramble, Willow trees and Common Nettle with no aquatic or emergent vegetation present. |  |

- 4.1.11 A shallow ditch containing approximately 5cm of stagnant water is present along the northern boundary of an arable field. The ditch is 30cm wide set within steep banks. Some stands of Willowherb were present within the ditch channel.
- 4.1.12 A dry ditch is present within Little Nursey Woodland. The ditch has a stone base with small pools of water present although the ditch was close

to drying and was culverted under an old farm track. It has steep banks, rising 1m in 0.25m. Species recorded within the ditch were consistent with the woodland ground flora species recorded within Little Nursery Woodland.

g) Arable

- 4.1.13 The site largely comprises arable fields. The largest arable field comprises a Wheat crop (*Triticum* sp.). Between the crop and grassland margin around the field perimeter is a six-meter buffer of bare ground. The grassland margin is approximately one metre in width and comprises grass species including Cock's-foot, Yorkshire-fog and False Oat-grass. Forb species recorded comprised Greater Plantain (*Plantago major*), Phacelia (*Phacelia tanacetifolia*), Dock, Common Nettle, Bristly Oxtongue, Field Bindweed (*Convolvulus arvensis*), Bramble, Dandelion, Spear Thistle, Wild Teasel (*Dipsacus fullonum*), Alexanders, Black Bryony (*Tamus communis*) and Selfheal (*Prunella vulgaris*).
- 4.1.14 To the north of the Wheat crop field the site boundary comprises part of an arable Rape (*Brassica napus*) field. Along the eastern boundary between the arable field and line of trees and scrub a grassland strip is present. The sward height ranges from 20-50cm and is dominated by grass species comprising Cock's-foot, Annual Meadow-grass, Perennial Rye-grass, Timothy (*Phleum pratense*), False Oat-grass and Yorkshire-fog. Forb species present comprises of Broad-leaved Dock (*Rumex obtusifolius*), Chamomile (*Chamaemelum nobile*) and Bristly Oxtongue.
- 4.1.15 North of the site boundary comprises part of an arable Sugar Beet (*Beta vulgaris* subsp. *vulgaris*) field. Surrounding the field is a 2-4m grassland margin with the species composition consistent with the field margin presentsurrounding the Wheat crop field.

h) Invertebrates

- 4.1.16 Within the site the arable fields and species-poor grasslands are of limited value to uncommon or notable invertebrate species. Within Little Nursery Woodland numerous log piles and brash piles were recorded which could offer suitable features to support invertebrate species and species-rich hedgerows within the site are likely to support a more diverse assemblage of invertebrate species, which could include notable species.

i) Amphibians

- 4.1.17 Within the site boundary, one pond (Pond 78) and two ditches are present, of which Pond 78 has previously been known to support a small population of great crested newts. Other amphibian species historically

recorded within this pond included smooth newt (*Lissotriton vulgaris*) and common frog (*Rana temporaria*). Within 500m of the site boundary are several ponds that have been surveyed for great crested newts in previous years with great crested newt also found to be present in ponds that have good levels of connectivity to Pond 78. See also section 4.2 below.

- 4.1.18 The arable field margins, hedgerows and Little Nursery woodland comprise suitable foraging habitat for amphibian species, with the woodland also containing brash piles and log piles which are considered suitable hibernation sites. Most of the land within the site comprised arable fields which is considered sub-optimal habitat to support amphibian species. Overall, the available terrestrial habitat to support amphibian species within the site is considered to be limited.

j) Reptiles

- 4.1.19 Within the site boundary, most of the land comprised arable fields which are considered sub-optimal habitat to support reptile species however the small areas of species poor semi-improved grassland around the arable field margins, the hedgerows and Little Nursery Woodland comprised suitable foraging habitat for reptile species, with the woodland also containing numerous brash piles and log piles which are considered suitable hibernation sites. Overall, the available habitat to support reptile species within the site is considered to be limited.

k) Birds

- 4.1.20 Within the site boundary the arable fields were assessed as suitable to support bird species associated with arable farmland habitat, which are included on the UK Farmland Indicator list (Ref. 5). Little Nursery Woodland and the hedgerows within the site boundary were assessed as suitable to support nesting birds and would also provide foraging opportunities. Fledgling yellowhammer (*Emberiza citrinella*) and lesser whitethroat (*Sylvia curruca*) were recorded within the site during the survey.
- 4.1.21 Previous breeding bird surveys undertaken within the site boundary recorded a range of species including linnet (*Carduelis cannabina*), skylark (*Alauda arvensis*) and yellowhammer (*Emberiza citrinella*) which are species associated with arable farmland habitat. house sparrow (*Passer domesticus*), dunnock (*Prunella modularis*) and starling (*Sturnus vulgaris*) were also recorded and associated with hedgerow habitat. Marsh tit (*Poecile palustris*), nightingale (*Luscinia megarhynchos*), song thrush (*Turdus philomelos*), mistle thrush (*Turdus viscivorus*), woodcock (*Scolopax rusticola*), and bullfinch (*Pyrrhula pyrrhula*) were previously

recorded within the site boundary and were associated with the Little Nursery Woodland habitat.

- 4.1.22 Previous wintering bird surveys undertaken within the site boundary recorded a number of winter visitor species including fieldfare (*Turdus pilaris*) and redwing (*Turdus iliacus*) that were considered to be using the site as a winter foraging resource and are listed on Schedule 1 on the Wildlife and Countryside Act 1981 (Ref. 12).

l) Bats

- 4.1.23 The extended Phase 1 habitat and protected species survey identified the habitats present to be primarily arable fields of limited value to foraging bats. The boundary hedgerows and tree lines contain several mature trees, which together with Little Nursery Woodland blocks and scattered mature trees have the potential to support roosting bats and offer good commuting and foraging opportunities.

m) Badgers

- 4.1.24 The extended Phase 1 habitat and protected species survey recorded no badger setts within the site, however the woodland and hedgerow habitats within the site provide suitable habitats for badger setts and foraging opportunities for badgers.
- 4.1.25 Previous surveys undertaken in 2011 within the site boundary recorded two badger outlier setts and latrines. Subsequent surveys undertaken in 2016 identified no evidence of badger setts however rabbit holes were recorded in the location where outlier setts were identified in 2011. No setts were recorded in 2020.

n) Other Notable Mammal Species

- 4.1.26 The arable and hedgerow habitat within the site was assessed as providing suitable habitat to support brown hare.

4.2 Amphibian Surveys

- 4.2.1 One pond was recorded within the site boundary (Pond 78), **Table 4** presents the results of the HSI survey. The pond was considered to have poor suitability to support great crested newts however the results of the eDNA survey for Pond 78 confirmed the presence of great crested newts.

Table 4: HSI survey results of Pond 78

| Feature | HSI Scores |
|------------------------------------|----------------|
| Location | 1 |
| Pond area (m ²) | 301-350 |
| Pond drying | Dries annually |
| Water quality | Poor |
| Shade (%) | 90 |
| Fowl | Minor |
| Fish | Absent |
| Ponds | 12+ |
| Terrestrial habitat | Poor |
| Macrophytes (%) | 0 |
| HSI Score | 0.46 |
| Suitability for Great Crested Newt | Poor |

4.3 Bat Tree Assessment Survey

4.3.1 Fifty-two trees were assessed during bat tree assessment surveys in 2020 as having specific features potentially suitable for use by roosting bats. A summary of the roost assessment levels assigned to these trees is provided in **Table 5**. Full details of the results of the bat tree assessment survey are provided in **Appendix B**. The location of assessed trees is illustrated on **Figure 2 (Appendix A)**.

Table 5: Summary of bat tree assessment results

| Tree Roost Assessment Level | Number of Trees Identified |
|-----------------------------|----------------------------|
| High potential | 2 |
| Medium potential | 35 |
| Low potential | 12 |
| Negligible potential | 3 |
| Total | 52 |

5 DISCUSSION

- 5.1.1 The extended Phase 1 habitat and protected species survey undertaken in 2020 identified several habitats present within and adjacent to the site boundary including broadleaved plantation woodland, arable fields, hedgerows, species poor semi-improved grassland, scattered trees, scrub and waterbodies.
- 5.1.2 The site is known to support great crested newts, breeding and wintering birds and has the potential to support invertebrate species, reptiles, roosting bats, badgers, brown hare and water shrew.
- 5.1.3 The updated survey results presented in this report are consistent with the results in the baseline described in the ES and do not change the assessment of impacts on the receptors listed above, presented in Volume 3, Chapter 7 in the Sizewell C Project ES [\[APP-363\]](#) (Ref. 7) and does not change the proposed mitigation detailed in the great crested newt licence method statement [\[APP-364\]](#) (Ref. 13) bat method statement [\[APP-364\]](#) (Ref. 14) and reptile method statement [\[APP-364\]](#) (Ref. 15).

6 CONCLUSION

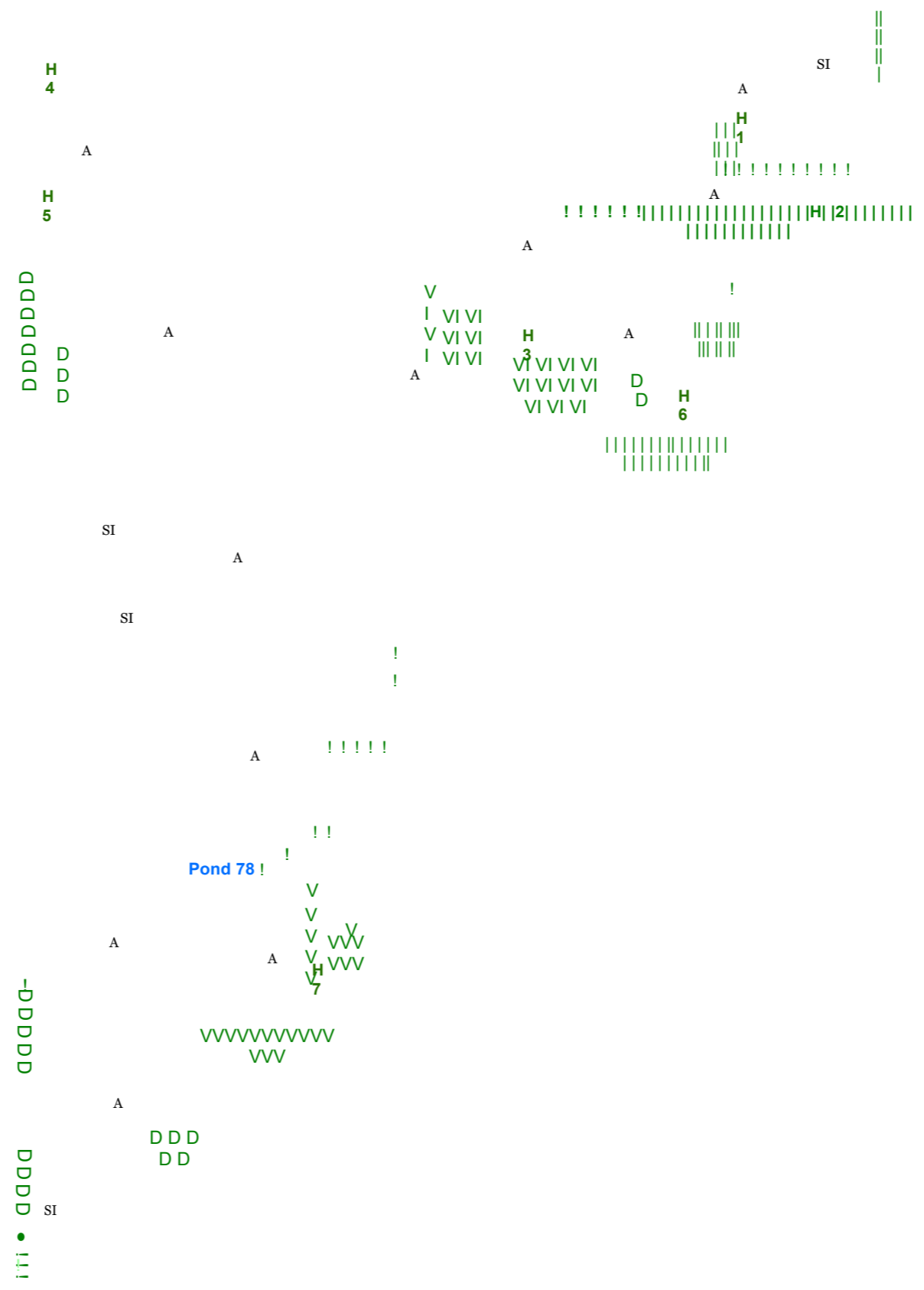
- 6.1.1 Overall, the results of the 2020 surveys are consistent with previous surveys undertaken, with the conditions on site remaining broadly unchanged between 2011 and 2020. Therefore, the updated results continue to support the submitted application for development consent.

REFERENCES

1. EDF 2020. Sizewell C Project Northern Park and Ride at Darsham: Volume 3, Chapter 7: Appendix 7A, Annex 7A4 Primary Data. [APP-364]
2. EDF 2020. Sizewell C Project – Northern Park and Ride at Darsham: Volume 3, Chapter 7: Appendix 7A – Ecological Baseline. [APP-364]
3. Natural Environment and Rural Communities Act. 2006. (Online). Available from: <http://www.legislation.gov.uk/ukpga/2006/16/contents> (Accessed 1 March 2019).
4. Suffolk Biodiversity Partnership. Suffolk Local Biodiversity Action Plan. May 2012. (Online). Available from: https://www.suffolkbis.org.uk/sites/default/files/biodiversity/prioritiespecieshabitats/actionplans/Planning_BAP_Final%2018%20May%202012.pdf (Accessed 7 February 2019).
5. DEFRA Farmland Bird Indicator Index Available: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/541593/agindicator-de5-29jul16.pdf
6. 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.
7. EDF 2020. Sizewell C Project Northern Park and Ride at Darsham: Volume 3, Chapter 7: Terrestrial Ecology and Ornithology. [APP-363]
8. Joint Nature Conservation Committee. 2010. Handbook for Phase 1 habitat survey: a technique for environmental audit. Peterborough: JNCC, 2010.
9. Stace, C. 2019. *New Flora of the British Isles*, 4th Edition. C&M Floristics, Stowmarket.
10. 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.
11. Biggs, N. Ewald, A. Valentini, C. Gaboriaud, R.A. Griffiths, J. Foster, J. Wilkinson, A. Arnett, P. Williams and F. Dunn. 2014.. Analytical and methodological development for improved surveillance of Great Crested Newt. Appendix 5. Technical advice note for field and laboratory sampling of great crested newt (*Triturus cristatus*) environmental DNA. Freshwater Habitats Trust, Oxford.

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12. Wildlife and Countryside Act 1981. HMSO
 13. EDF 2020. Sizewell C Development Northern Park and Ride at Darsham: Volume 3, Chapter 7: Appendix 7A, Annex 7A5 Draft GCN Licence Application. [[APP-364](#)]
 14. EDF 2020. Sizewell C Development Northern Park and Ride at Darsham: Volume 3, Chapter 7: Appendix 7A, Annex 7A6A Non-licencesable Method Statement -Bats. [[APP-364](#)]
 15. EDF 2020. Sizewell C Development Northern Park and Ride at Darsham: Volume 3, Chapter 7: Appendix 7A, Annex 7A6B Non-licencesable Method Statement – Reptiles. [[APP-364](#)]

APPENDIX A: FIGURES



NOTES

KEY

- SITE BOUNDARY
- BROADLEAVED WOODLAND - PLANTATION
- D SCATTERED SCRUB
- SCATTERED BROADLEAVED
- SCATTERED CONIFEROUS TREES
- SI POOR SEMI-IMPROVED GRASSLAND
- - - DITCH
- STANDING WATER
- A CULTIVATED/DISTURBED LAND-ARABLE
- VVVV INTACT HEGDE - SPECIES RICH (H7)
- INTACT HEGDE - SPECIES POOR (H4, H5)
- WWW HEDGE WITH TREES - SPECIES-RICH (H3)
- ||||| HEDGE WITH TREES - SPECIES-POOR (H1, H2, H6)
- HARDSTANDING

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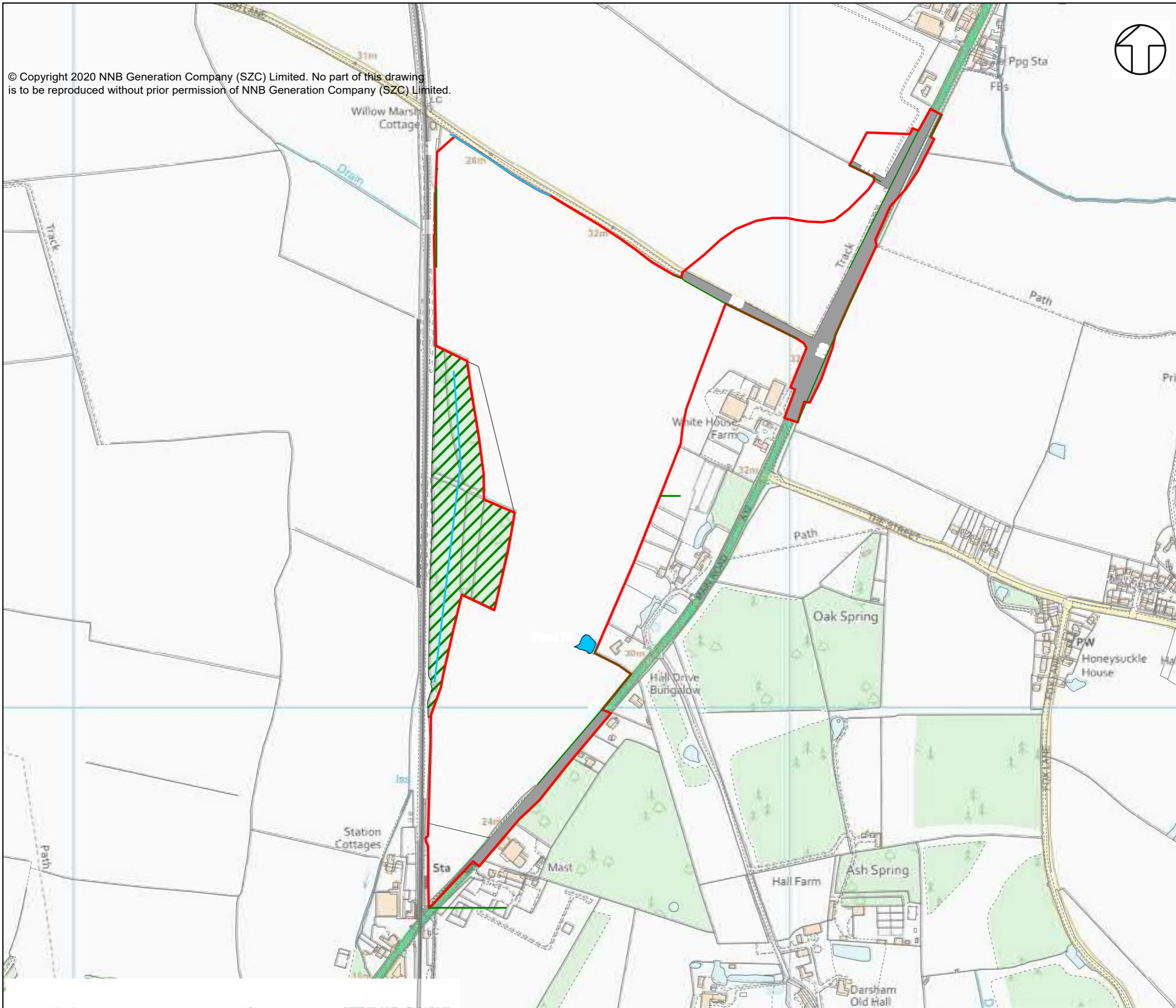
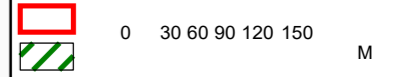
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DOCUMENT:
 SIZEWELL C
 NORTHERN PARK AND RIDE DARSHAM
 2020 ECOLOGY SURVEYS REPORT

DRAWING TITLE:
 DARSHAM PHASE 1 HABITAT PLAN

DRAWING NO:
FIGURE 1
 DATE: AUG 2020 DRAWN: R.G. SCALE: 1:5,000 @A3 REV: 01
 SCALE BAR

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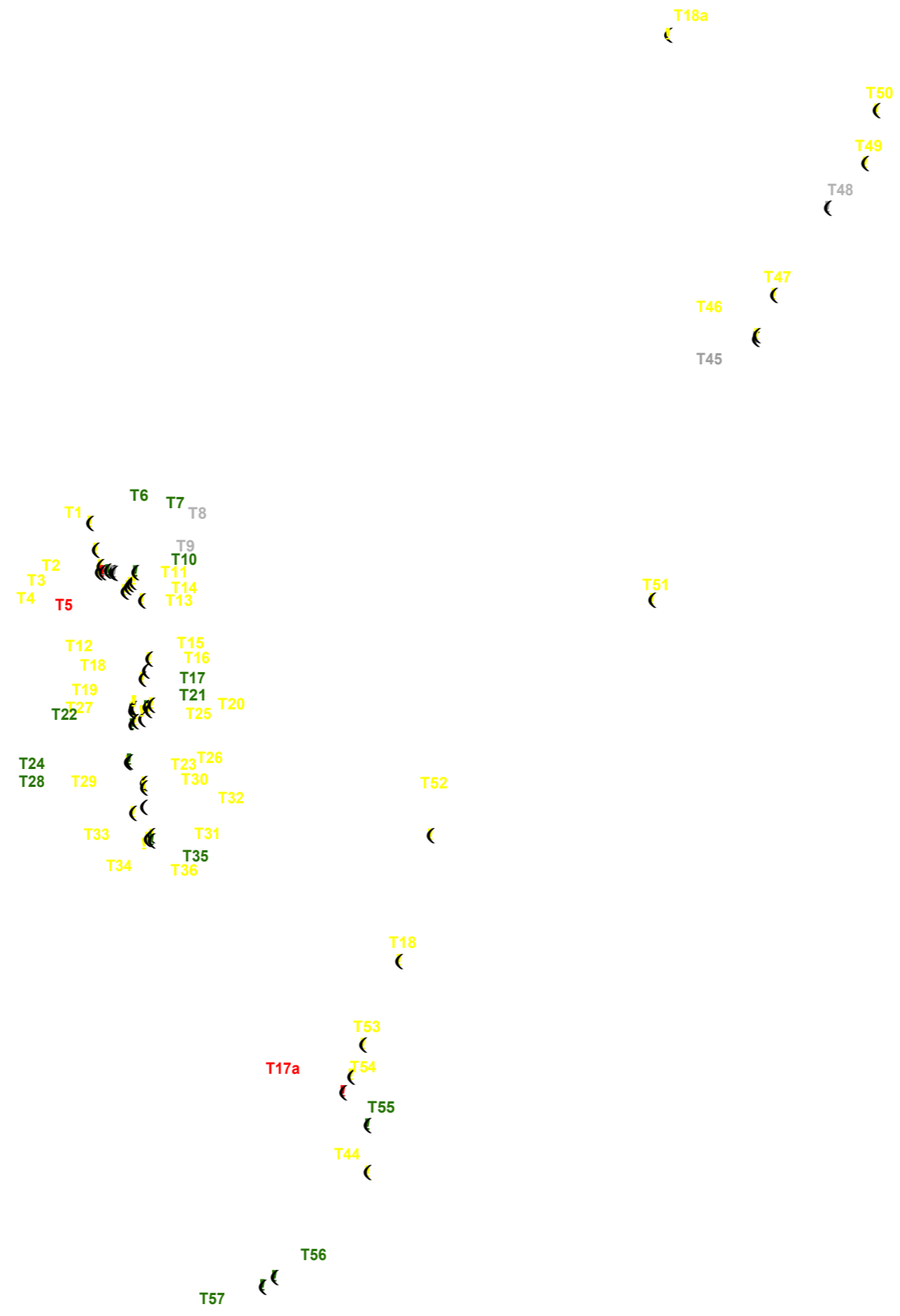
NOTES

KEY

SITE BOUNDARY

ROOST POTENTIAL CLASSIFICATION

- ☞ HIGH POTENTIAL
- ☞ MEDIUM POTENTIAL
- ☞ LOW POTENTIAL
- ☞ NEGLIGIBLE POTENTIAL



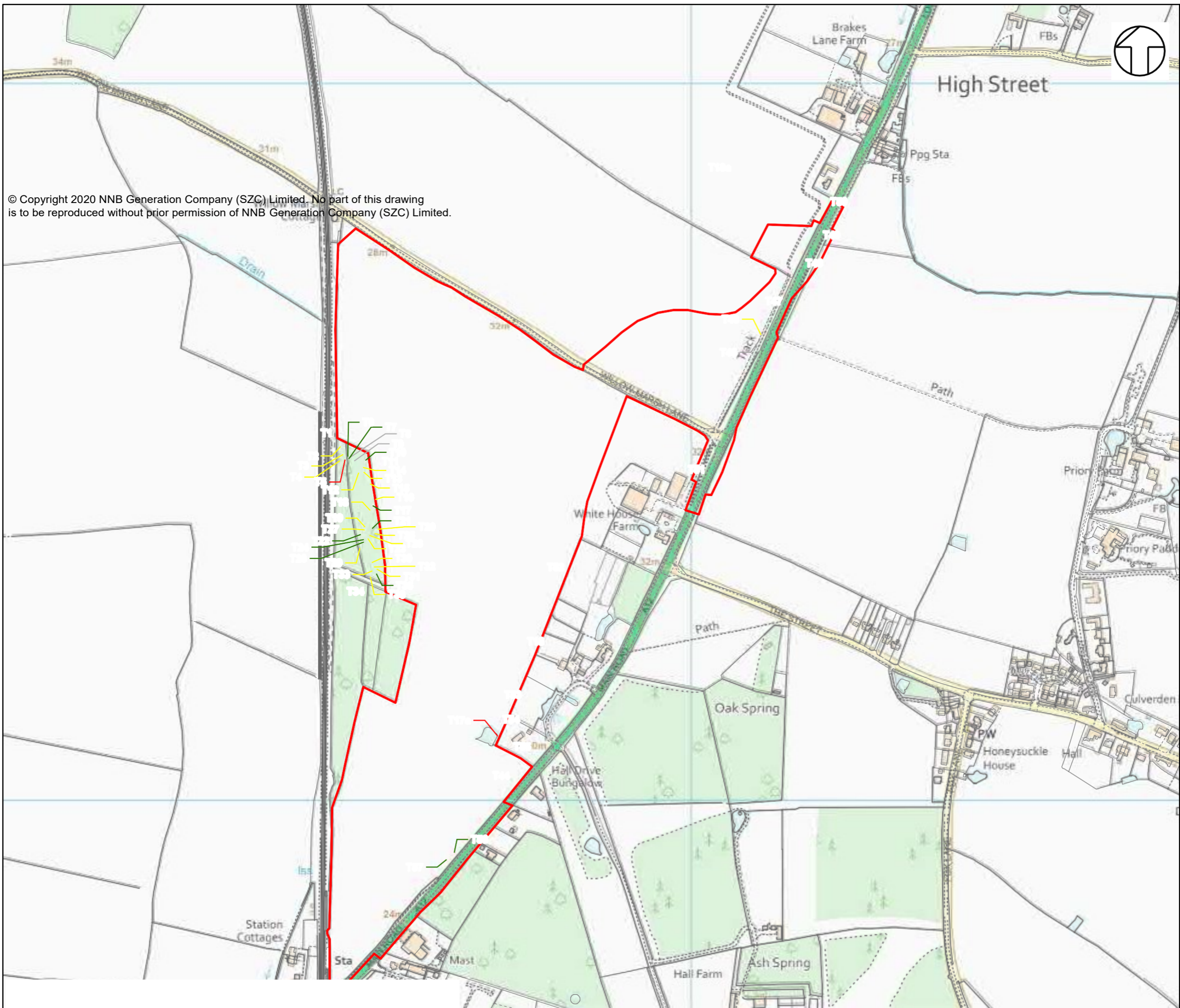
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DOCUMENT:
SIZEWELL C
NORTHERN PARK AND RIDE DARSHAM
2020 ECOLOGY SURVEYS REPORT

DRAWING TITLE:
DARSHAM BAT TREE PLAN

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DRAWING NO:
FIGURE 2

DATE: AUG 2020 DRAWN: R.G. SCALE: 1:5,000 @A3 REV: 01
SCALE BAR

0 30 60 90 120 150 M



APPENDIX B: BAT TREE GROUND ASSESSMENT SURVEY RESULTS

Table 6: Bat tree ground assessment survey results

| Tree Number | Tree Species and General Tree Description | Description of Feature | Potential of Feature | Overall Tree Potential |
|-------------|--|---|----------------------|------------------------|
| 1 | Ash, Semi-mature, DBH: 0.4m, Height: 9m, Single-stem | Stem, Type: Wounds, Height: 1.5m Aspect: South-east 1.5-4m linear crevice, decaying heartwood in centre providing various opportunities for bats, although most cavities quite exposed. Endoscope from ground but difficult to exhaustively search | Moderate | Moderate |
| 2 | Ash, Semi-mature, DBH: 0.3m, Height: 20m, Single-stem | Stem, Type: Frost crack, Height: 4m, Aspect: North Cavity extends upwards to undetermined length. Opening approx. 3cm by 2cm. Staining present below cavity. | Moderate | Moderate |
| 3 | Ash, Semi-mature, DBH: 0.25m, Height: 20m, Single-stem | Stem, Type: Tear out, Height: 4m, Aspect: North-east Length of tear out approx. 70cm. Appears to extend upwards 1cmx3cm and may extend downwards. | Moderate | Moderate |
| | | Limb, Type: Transverse snap, Height: 4m Aspect: South | Low | |
| | | Stem, Type: Frost crack, Height: 0.3m Aspect: South Frost crack from 0.3 to 2m. Cavity extends a further 40cm, 4cm x 3cm cavity | Moderate | |

NOT PROTECTIVELY MARKED

| Tree Number | Tree Species and General Tree Description | Description of Feature | Potential of Feature | Overall Tree Potential |
|-------------|---|---|----------------------|------------------------|
| 4 | Ash, Semi-mature, DBH: 0.3m, Height: 20m, Single-stem | Stem, Type: Frost crack, Height: 0.01m Aspect: North Significant rams horning. Starts at base of tree and extends upwards to approx. 4m. Cavity extends even further, unable to fully inspect. | Moderate | Moderate |
| 5 | Ash, Semi-mature, DBH: 0.3m, Height: 20m, Single-stem | Stem, Type: Frost crack, Height: 0.01m Aspect: South-east Frost crack from base to 4m. Lower half exposed where heartwood has rotted. Extends upwards into cavity, appears significant, approx. 5cm by 5cm | High | High |
| 6 | Ash, Semi-mature, DBH: 0.3m, Height: 20m, Single-stem | Limb, Type: Frost crack, Height: 1m Aspect: South-west 1-3m high on smaller limb. Heartwood has rotted away in places, approx. half. Remaining heartwood forms cavities, but likely to be exposed to elements. | Low | Low |
| 7 | Ash, Semi-mature, DBH: 0.3m, Height: 20m, Single-stem | Stem, Type: Frost crack, Height: 2.5m Aspect: South-west Crevice extends upwards, approx. 1cm x4cm. Too narrow for endo scope upwards, does not appear to go down. Use small headed endoscope. | Low | Low |
| 8 | Ash, Semi-mature, DBH: 0.3m, Height: 8m, Single-stem | Stem, Type: Frost crack, Height: 1.5m Aspect: East Feature extends along length of original stem, which appears dead with exposed and decaying heartwood. One | Negligible | Negligible |

NOT PROTECTIVELY MARKED

| Tree Number | Tree Species and General Tree Description | Description of Feature | Potential of Feature | Overall Tree Potential |
|-------------|--|---|----------------------|------------------------|
| | | very shallow crevice behind heart wood. Number of small cavities but no access for bats to behind heartwood. Features may develop over time to provide access. | | |
| 9 | Ash, Young, DBH: 0.07m, Height: 5m, Single-stem | Stem, Type: Frost crack, Height: 0.5m Aspect: North Exposed and decaying heartwood. Cavity in heartwood, extends down only for approx. 4cm before open end at base. Approx. 2cm x 2cm. | Negligible | Negligible |
| 10 | Ash, Young, DBH: 0.3m, Height: 18m, Multi-stem | Stem, Type: Compression fork, Height: 2m Aspect: South-west Compression between two stems of ash creating small cavity. Relatively exposed. | Low | Low |
| 11 | Ash, Dead, DBH: 0.3m, Height: 18m, Single-stem | Stem, Type: Lifting bark, Height: 4m Aspect: South-west Approx. 40cm x 30cm wide cavity behind peeling bark. Inspected with torch. Also other small sections of lifted bark around tree. | Moderate | Moderate |
| 12 | Ash, Young, DBH: 0.12m, Height: 11m, Single-stem | Stem, Type: Frost crack, Height: 1.5m Aspect: North-west Small cavity going up, approx. 2cm x 2cm, leading approx. 4cm up. Contains ant nest. | Low | Moderate |
| | | Stem, Type: Frost crack, Height: 4m Aspect: North-west | Moderate | |

NOT PROTECTIVELY MARKED

| Tree Number | Tree Species and General Tree Description | Description of Feature | Potential of Feature | Overall Tree Potential |
|-------------|--|--|----------------------|------------------------|
| | | Cannot see if lead to useable cavity - assume moderate potential | | |
| | | Stem, Type: Frost crack, Height: 7m Aspect: North-west Cannot see if lead to useable cavity - assume moderate potential | Moderate | |
| 13 | Ash, Young, DBH: 0.25m, Height: 19m, Single-stem | Stem, Type: Frost crack, Height: 1m Aspect: South Leads upwards to cavity, approx. 5cm x 5cm.extends upwards by 30cm. Rough internals. Evidence of roosting bird. | Moderate | Moderate |
| | | Stem, Type: Knot hole, Height: 7m Aspect: South May or may not lead to cavity. Potentially could climb but stem is very thin. | Moderate | |
| 14 | Ash, Semi-mature, DBH: 0.2m, Height: 20m, Single-stem | Stem, Type: Compression fork, Height: 3m Aspect: South Extends upwards but cannot inspect from ground. May lead to cavity | Moderate | Moderate |
| 15 | Ash, Semi-mature, DBH: 0.35m, Height: 20m, Single-stem | Stem, Type: Frost crack, Height: 1.5m Aspect: East Small cavity extending upwards by 5cm. Approx. 1.5cm x 1.5cm. Contains ant nest. | Negligible | Moderate |
| | | Stem, Type: Frost crack, Height: 6m Aspect: North-west | Moderate | |

NOT PROTECTIVELY MARKED

| Tree Number | Tree Species and General Tree Description | Description of Feature | Potential of Feature | Overall Tree Potential |
|-------------|--|---|----------------------|------------------------|
| | | Frost crack adjacent to signs of woodpecker pecking. Likely to extend into deeper cavity. | | |
| | | Stem, Type: Frost crack, Height: 6m Aspect: South-east Frost crack that has healed in middle but cavities at top at bottom, likely extensive cavity. Bird nest in top entrance. | Moderate | |
| 16 | Pedunculate Oak, Mature, DBH: 1m, Height: 17m, Single-stem | Limb, Type: Lifting bark, Height: 6m Aspect: North Present on west facing dead limb. | Low | Moderate |
| | | Limb, Type: Transverse snap, Height: 3m Aspect: North-west Number of cavities leading from split which may be extensive. Somewhat exposed but remnant of limb above provides some shelter. | Moderate | |
| | | Limb, Type: Tear out, Height: 7m Aspect: East On dead limb, cavity at base of tear out. Appears extensive e from ground. Potentially | Moderate | |
| | | Stem, Type: Pruning cut, Height: 3m Aspect: South-west | Moderate | |
| 17a | | Stem, Type: Lifting bark, Height: 0.5m Aspect: East | High | High |

NOT PROTECTIVELY MARKED

| Tree Number | Tree Species and General Tree Description | Description of Feature | Potential of Feature | Overall Tree Potential |
|-------------|---|--|----------------------|------------------------|
| | Pedunculate Oak, Over mature, DBH: 1m, Height: 16m, Single-stem | Large plate of lifted bark starting from 1-5m on trunk. also present on side limbs. Possibility of climbing but high possibility of destroying roost feature. | | |
| | | Limb, Type: Hazard beam, Height: 9m Aspect: North-west Largely facing upwards. Can potentially be climbed without impacting flaking bark (discussion with climbers) | High | |
| | | Limb, Type: Transverse snap, Height: 8m Aspect: West Possible cavity at base of snap. Can potentially be climbed without impacting flaking bark (discussion with climbers) | Moderate | |
| | | Limb, Type: Transverse snap, Height: 9m Aspect: North May be cavities around base as dead limb is rotting. Can potentially be climbed without impacting flaking bark (discussion with climbers) | Moderate | |
| | | Limb, Type: Transverse snap, Height: 11m Aspect: North-west May be cavities around base as dead limb is rotting. Can potentially be climbed without impacting flaking bark (discussion with climbers) | Moderate | |

NOT PROTECTIVELY MARKED

| Tree Number | Tree Species and General Tree Description | Description of Feature | Potential of Feature | Overall Tree Potential |
|-------------|---|--|----------------------|------------------------|
| | | Limb, Type: Impact shatter, Height: 4m Aspect: South-west Impacted limb still hanging on, creating small crevice between living and dead limbs, may extend into living limb but cannot determine from ground | Moderate | |
| 17 | Elm, Dead, DBH: 0.2m, Height: 5m, Single-stem | Stem, Type: Ivy, Height: 0.5m Aspect: East Cavity between stem and plate of ivy. Also cavity between flaking bark and ivy, approx. 20cm x 10cm | Low | Low |
| 18 | Ash, Mature, DBH: 0.65m, Height: 16m, Single-stem | Limb, Type: Woodpecker hole, Aspect: South-west Previously observed woodpecker hole now likely obscured by ivy. | Moderate | Moderate |
| 18a | Ash, Semi-mature, DBH: 0.3m, Height: 20m, Single-stem | Stem, Type: Frost crack, Height: 2m Aspect: North-west Frost crack which has healed in centre, entrances at 2m and 3.5m. Likely cavity between. Ant and wood lice present. Complex cavity present due to remaining heartwood and cannot inspect fully with endoscope. | Moderate | Moderate |
| | | Stem, Type: Woodpecker hole, Height: 9m Aspect: North-east Wood pecker hole. Climber discretion, limbs above are relatively small. | Moderate | |

NOT PROTECTIVELY MARKED

| Tree Number | Tree Species and General Tree Description | Description of Feature | Potential of Feature | Overall Tree Potential |
|-------------|--|---|----------------------|------------------------|
| 19 | Ash, Semi-mature, DBH: 0.2m, Height: 12m, Single-stem | Stem, Type: Frost crack, Height: 2m Aspect: South Cavity extends at least 30cm. Complex cavities surrounding heartwood, unable to fully inspect. Evidence of roosting bird and wood lice. | Moderate | Moderate |
| 20 | Ash, Semi-mature, DBH: 0.3m, Height: 20m, Single-stem | Stem, Type: Woodpecker hole, Height: 8m Aspect: North Woodpecker hole just below fork in tree | Moderate | Moderate |
| | | Stem, Type: Frost crack, Height: 4.5m Aspect: West Present from 4.5-6.5m. | Moderate | |
| 21 | Ash, Semi-mature, DBH: 0.3m, Height: 20m, Single-stem | Stem, Type: Butt rot, Height: 0.01m Aspect: North Cavity extends from base for 25cm. Number of snails in cavity. Potentially suitable for hibernation. | Low | Low |
| 22 | Ash, Semi-mature, DBH: 0.25m, Height: 15m, Single-stem | Stem, Type: Frost crack, Height: 0.3m Aspect: North From approx. 0.3-2.2m. Majority of crack free of cavities, only present at apex if feature. Extends upwards into cavity approx. 20cm, 2cm x 2cm. | Low | Low |
| 23 | Ash, Semi-mature, DBH: 0.2m, Height: 16m, Single-stem | Stem, Type: Frost crack, Height: 0.2m Aspect: East Cavity approx. 6cm x 5cm. Extends in 35cm. Feature is from 0.2-3m. Ant nest in lower portion. Extends downwards 35cm. | Moderate | Moderate |

NOT PROTECTIVELY MARKED

| Tree Number | Tree Species and General Tree Description | Description of Feature | Potential of Feature | Overall Tree Potential |
|-------------|--|--|----------------------|------------------------|
| 24 | Ash, Semi-mature, DBH: 0.15m, Height: 10m, Single-stem | Stem, Type: Tear out, Height: 1m Aspect: North-east Cavity extending down by 15cm. Small mammal nest present | Low | Low |
| 25 | Ash, Semi-mature, DBH: 0.3m, Height: 20m, Single-stem | Stem, Type: Knot hole, Height: 9m Aspect: North-west Remnant of old limb still present. | Moderate | Moderate |
| 26 | Ash, Semi-mature, DBH: 0.3m, Height: 17m, Single-stem | Stem, Type: Frost crack, Height: 0.2m Aspect: North-west Cavity extends upwards at least 1m, full length of endoscope. Cannot see termination of cavity, potentially extends further. Cannot be exhaustive with endoscope, hibernation potential. | Moderate | Moderate |
| 27 | Ash, Semi-mature, DBH: 0.25m, Height: 14m, Single-stem | Stem, Type: Frost crack, Height: 11m Aspect: North Located above left fork, cavity may be extensive. Dead stem, leaning on adjacent tree so unsafe to climb | Moderate | Moderate |
| | | Stem, Type: Knot hole, Height: 7m Aspect: South-west Does not appear to extend up, extends down only. | Moderate | |
| 28 | Ash, Semi-mature, DBH: 0.2m, Height: 6m, Single-stem | Stem, Type: Frost crack, Height: 0.01m Aspect: North Lots of decaying heartwood along length of stem, some small cavities between living and dead tissue. | Low | Low |

NOT PROTECTIVELY MARKED

| Tree Number | Tree Species and General Tree Description | Description of Feature | Potential of Feature | Overall Tree Potential |
|-------------|--|--|----------------------|------------------------|
| 29 | Ash, Semi-mature, DBH: 0.2m, Height: 18m, Single-stem | Stem, Type: Frost crack, Height: 8m Aspect: North-west | Moderate | Moderate |
| 30 | Ash, Semi-mature, DBH: 0.3m, Height: 20m, Single-stem | Stem, Type: Frost crack, Height: 0.3m Aspect: South 0.3-2m length, numerous small cavities along length. Crevice approx. 5cm x3cm | Moderate | Moderate |
| 31 | Ash, Semi-mature, DBH: 0.4m, Height: 20m, Single-stem | Limb, Type: Wounds, Height: 9m Aspect: East Downwards facing cavity | Moderate | Moderate |
| 32 | Ash, Semi-mature, DBH: 0.2m, Height: 12m, Single-stem | Stem, Type: Frost crack, Height: 1.5m Aspect: South-west Decaying heartwood providing cavity approve 2-2.5m. 5cm x 4cm cavity lead g upwards. Cannot see end | Moderate | Moderate |
| 33 | Ash, Semi-mature, DBH: 0.25m, Height: 20m, Single-stem | Stem, Type: Knot hole, Height: 5m Aspect: South Leading to cavity going up, unable to determine if goes down | Moderate | Moderate |
| 34 | Ash, Semi-mature, DBH: 0.5m, Height: 20m, Multi-stem | Stem, Type: Compression fork, Height: 4m Aspect: South-east Two adjacent stems meeting in compressions multiple times along height. 3rd meeting leads to definite cavity at approx. 4m. | Moderate | Moderate |

NOT PROTECTIVELY MARKED

| Tree Number | Tree Species and General Tree Description | Description of Feature | Potential of Feature | Overall Tree Potential |
|-------------|---|---|----------------------|------------------------|
| 35 | Ash, Dead, DBH: 0.2m, Height: 8m, Single-stem | Stem, Type: Tear out, Height: 2.5m Aspect: South-west Extends downwards into a cavity for approx. 5cm. | Low | Low |
| | | Stem, Type: Tear out, Height: 3m Aspect: North-west Extends downwards only to cavity for approx. 10cm. | Low | |
| 36 | Ash, Semi-mature, DBH: 0.2m, Height: 15m, Single-stem | Stem, Type: Frost crack, Height: 2m Aspect: East 2-3.5m. Decaying heartwood, extends up into likely crevice | Moderate | Moderate |
| 44 | Ash, Mature, DBH: 0.75m, Height: 11m, Single-stem | Limb, Type: Knot hole, Height 7.5m, Aspect: South-west On dead limb. No upwards extension but may extend downwards. | Moderate | Moderate |
| | | Limb, Type: Transverse snap, Height 9m, Aspect: North-east Open end of short north east facing limb | Moderate | |
| | | Limb, Type: Desiccation Fissure, Height 9m, Aspect: South-east Cavity into dead limb, approx. 40cm long limb. May extend further . | Moderate | |
| 45 | | Stem, Type: Ivy, Height 1m, Aspect: West | Negligible | Moderate |

NOT PROTECTIVELY MARKED

| Tree Number | Tree Species and General Tree Description | Description of Feature | Potential of Feature | Overall Tree Potential |
|-------------|--|--|----------------------|------------------------|
| | Pedunculate Oak, Mature, DBH: 0.7m, Height: 8m, Single-stem | Dense ivy all over tree, potentially concealing features of potential | | |
| | | Limb, Type: Knot hole, Height 5m, Aspect: North Visible from western side only. | Moderate | |
| 46 | Pedunculate Oak, Mature, DBH: 0.8m, Height: 12m, Single-stem | Stem, Type: Ivy, Height 1m, Aspect: West Dense ivy all over tree, potentially concealing features of potential | Negligible | Moderate |
| | | Limb, Type: Lifting bark, Height 4m, Aspect: South Two dead limbs, with sections of peeling bark 4-8m high, facing all around tree. Looks to be a large cavity behind one portion | Moderate | |
| | | Limb, Type: Knot hole, Height 5m, Aspect: West Series of knot holes, the top one of which leads to cavity. | Moderate | |
| | | Limb, Type: Desiccation Fissure, Height 11m, Aspect: South-east On dead limb at top of canopy. | Moderate | |
| | | Limb, Type: Transverse Snap, Height 10m, Aspect: South Feature present at end of limb | Moderate | |

NOT PROTECTIVELY MARKED

NOT PROTECTIVELY MARKED

| Tree Number | Tree Species and General Tree Description | Description of Feature | Potential of Feature | Overall Tree Potential |
|-------------|--|---|----------------------|------------------------|
| | | Limb, Type: Transverse Snap, Height 8m, Aspect: West Snap in branch leaving to upwards exposed cavity, may lead to larger cavity in branch | Moderate | |
| 47 | Pedunculate Oak, Mature, DBH: 0.8m, Height: 12m, Single-stem | Stem, Type: Ivy, Height 1m, Aspect: West Dense ivy all over tree, potentially concealing features of potential | Negligible | Moderate |
| | | Limb, Type: Lifting bark, Height 8m, Aspect: West Lifted bark all around limb | Moderate | |
| | | Stem, Type: Knot hole, Height: 6m, Aspect: South-west Two knot holes leading to same cavity, could be extensive | Moderate | |
| 48 | Willow, Mature, DBH:0.5m, Height:6m, Single-stem | Stem, Type: Lifting bark, Height 2m, Aspect: South-east Flaking bark all around the stumps, small section of living stem. Negligible potential tree. | Negligible | Negligible |
| 49 | Pedunculate Oak, Mature, DBH: 0.9m, Height: 16m, Single-stem | Limb, Type: Desiccation Fissure, Height 8m, Aspect: West Dead limb. Fissures extend further along stem. | Moderate | Moderate |
| | | Limb, Type: Lifting bark, Height 8m, Aspect: West On same limb as above. Cannot look closer due to land access. Feature likely to extend around limb | Moderate | |

NOT PROTECTIVELY MARKED

| Tree Number | Tree Species and General Tree Description | Description of Feature | Potential of Feature | Overall Tree Potential |
|-------------|--|--|----------------------|------------------------|
| 50 | Ash, Semi-mature, DBH: 0.4m, Height: 10m, Single-stem | Limb, Type: Tear out, Height: 6m, Aspect: West Tear out with potential cavity behind shown by cracks surrounding wound, | Moderate | Moderate |
| 51 | Pedunculate Oak, Semi-mature, DBH: 0.4m, Height: 8m, Single-stem | Limb, Type: Transverse snap, Height: 3m, Aspect: West Split at both ends of limb, approx. 1.5m long limb. | Moderate | Moderate |
| 52 | Ash, Mature, DBH: 0.7m, Height: 14m, Single-stem | Limb, Type: Transverse snap, Height: 7m, Aspect: West Split end of west facing limb, cavity facing upwards but cannot see if leads anywhere | Moderate | Moderate |
| 53 | Ash, Semi-mature, DBH: 0.4m, Height: 16m, Single-stem | Limb, Type: Desiccation Fissure, Height: 3m, Aspect: North-west Mainly facing upwards on south-west facing dead limb. | Moderate | Moderate |
| 54 | Ash, Mature, DBH: 0.6m, Height: 17m, Single-stem | Limb, Type: Knot hole, Height: 9m, Aspect: South Potential cavity initially into dead wood but cannot determine from ground | Moderate | Moderate |
| 55 | Field Maple, Semi-mature, DBH:0.7m, Height: 8m, Single-stem | Limb, Type: Desiccation fissure, Height: 5m, Aspect: South-west Fissures on dead limb facing upwards. May also extend downwards | Low | Low |

NOT PROTECTIVELY MARKED

| Tree Number | Tree Species and General Tree Description | Description of Feature | Potential of Feature | Overall Tree Potential |
|-------------|---|--|----------------------|------------------------|
| 56 | Ash, Mature, DBH:1m, Height: 13m, Single-stem | Limb, Type: Ivy, Height: 4m, Aspect: North-west Gap between ivy stem and tree. Longitudinal wound approx. 30cm long, may lead to deeper cavity. Facing downwards. Presence of ivy complicates possible useful structure. Other similar cavities around tree | Low | Low |
| 57 | Ash, Mature, DBH:1m, Height: 10m, Single-stem | Stem, Type: Wounds, Height: 4m, Aspect: South-west Knot hole on north facing aspect leading to hollow main stem, hollow for entirety of 4m height and open vertically. | Low | Low |

2020 ECOLOGY SURVEYS REPORT – SOUTHERN PARK AND RIDE

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1 SUMMARY

1.1 Baseline Receptor Status Summary (2014-2018)

1.1.1 An extended Phase 1 habitat survey was undertaken of the Southern Park and Ride site (hereafter referred to as the 'site') in 2014 and a 2018 site visit to check site conditions was undertaken by Arcadis [APP-395] (Ref. 1). A range of protected species surveys were also undertaken between 2011-2019 which included the following:

- targeted amphibian surveys were undertaken in 2011 by Amec and 2014 by Arcadis.
- breeding and wintering bird surveys covering the period 2014 to 2015 by Arcadis.
- bat activity and static detector surveys in 2014 by Arcadis.
- bat tree assessments in 2015 by Arcadis.

1.1.2 During these surveys the habitats present within the Southern Park and Ride site boundary at Wickham Market (here referred to as the 'site') comprised predominantly large arable fields bound by a mixture of fences and hedgerows.

1.1.3 Other habitats recorded included six woodland blocks, comprising broad-leaved plantation, broad-leaved semi-nature woodland and lowland mixed deciduous woodland, an improved grassland field, and an area of tall ruderals. A single pond, dry at the time of survey, was also present within the site boundary.

1.1.4 The site was assessed as suitable or known to support the following species:

- Amphibian species.
- Breeding birds.
- Wintering birds.
- Bats.
- Badgers.
- Brown hare.

1.1.5 The site was assessed as having limited value to support the following species:

- Invertebrates.
- Reptiles.

1.2 Receptor Status 2020 Summary Overview

1.2.1 During 2020 an updated extended Phase 1 habitat and protected species survey, great crested newt Habitat Suitability Index (HSI) survey, environmental DNA (eDNA) survey and bat tree assessment surveys undertaken in June 2020 at the proposed Southern Park and Ride facility at Wickham Market.

1.2.2 The extended Phase 1 habitat and protected species survey identified several habitats present within and adjacent to the site boundary including broadleaved plantation woodland mixed plantation woodland, scattered trees, arable fields, hedgerows, species poor semi-improved grassland, ruderal vegetation, scrub and ponds. The site was assessed as suitable to support invertebrate species, amphibians, reptiles, breeding and wintering birds, bats, badgers (*Meles meles*) and brown hare (*Lepus europaeus*).

1.2.3 The great crested newt (*Triturus cristatus*) eDNA survey undertaken on Pond 61 did not confirm the presence of great crested newts within the pond.

1.2.4 The bat tree assessment survey identified 31 trees within and adjacent to the site boundary, of which two were assessed as having high potential to support roosting bats, 19 as having moderate potential, seven as having low potential and three as having negligible potential to support roosting bats.

1.2.5 The updated survey results presented in this report are consistent with the application submitted for development consent. Results and do not change the assessment of impacts on the receptors listed above, presented in Volume 4, Chapter 7 in the Sizewell C Project Environmental Statement (ES) [[APP-395](#)] (Ref. 1).

1.2.6 The results of the 2020 update surveys supports the DCO assessment based on the previous baseline survey data submitted in the Sizewell C Project ES [[APP-394](#)] (Ref. 7). The proposed mitigation and the residual effects would remain the same as that submitted in Sizewell C Project ES [[APP-394](#)] (Ref.7).

2 OVERVIEW

2.1 The Aim of the 2020 Survey Updates

2.1.1 The aim of the 2020 survey updates was to see if the baseline conditions of the proposed Southern Park and Ride at the Wickham site remained consistent with surveys previously undertaken at the site and provide a baseline for future monitoring.

2.1.2 The surveys are part of ongoing ecological monitoring of the site. Findings of previous surveys on the site are detailed within the Sizewell C Project ES, in Appendix 7A – Ecological Baseline [APP-395] (Ref. 2), Annex 7A4 – Primary Data [APP-395] (Ref. 1). These data will contribute to mitigation and monitoring proposals throughout the planning, enabling and construction phases of the proposed development, inform any operational monitoring, detailed mitigation and ongoing site management and inform the required European Protected Species Licences to permit development to proceed.

2.2 Submitted Baseline

2.2.1 The surveys undertaken to 2018 for the site and used to define the status of the receptor as described in the ES included the following:

- Extended Phase 1 habitat and protected species survey.
- Hedgerow Regulations assessment.
- Habitat Suitability Index (HSI) for great crested newt.
- Great crested newt environmental DNA (eDNA) surveys.
- Great crested newt population surveys.
- Wintering bird surveys.
- Breeding bird surveys.
- Bat tree inspections.
- Bat static surveys.
- Bat activity transect surveys.

- 2.2.2 No statutory designated sites of nature conservation importance were identified within the 5km of the site.
- 2.2.3 There are seven non-statutory designated County Wildlife Sites within 2km of the site.
- 2.2.4 The site comprised predominantly large arable fields growing intensively managed crops, separated by a track and bound by a mixture of fences and hedgerows.
- 2.2.5 Other habitats within the study area consisted of six woodland blocks, comprising broad-leaved plantation, broad-leaved semi-nature woodland and lowland mixed deciduous woodland, an improved grassland field, and an area of tall ruderals. A single pond, dry at the time of survey, was also present within the site.
- 2.2.6 The 2018 site visit confirmed no substantial material changes to the habitats recorded during the extended Phase 1 habitat survey undertaken in previous years.
- 2.2.7 None of the habitats present within the site were considered of particular value to invertebrates, due to the intensively managed nature of the arable habitats present.
- 2.2.8 No great crested newts were recorded during surveys. Low numbers of smooth newt (*Lissotriton vulgaris*), palmate newt (*Lissotriton helveticus*) and common frog (*Rana temporaria*) were identified.
- 2.2.9 The majority of the site was considered unsuitable habitat for reptiles, and no evidence of reptiles was identified. However, an area of tall ruderals, woodland margins and the disused pit area south of Whin Belt were considered suitable foraging habitat for a small number of reptiles. Woodland adjacent to the site also had potential to provide hibernation sites.
- 2.2.10 The site is known to support a range of bird species including farmland bird assemblages (Ref. 3), wintering bird species and species included on the Red List of Birds of Conservation Concern (Ref. 4), section 41 of the NERC Act (Ref. 5) and Suffolk BAP (Ref. 6). Wintering bird surveys undertaken within the site boundary recorded a number of winter visitor species including fieldfare (*Turdus pilaris*) and redwing (*Turdus iliacus*) that were considered to be using the site as a winter foraging resource.
- 2.2.11 Habitats within the site boundary consisted primarily of open arable land, which is of limited value for bats. However, habitat features such as woodland, hedgerows and scattered mature trees were identified as having

potential for roosting bats and provide good quality commuting and foraging opportunities. Assessment of trees with bat roost potential identified 13 trees with bat roost potential (eight high potential, one medium potential, two low potential, and two undetermined), as well as several adjacent woodland blocks which have the potential to support roosting bats.

- 2.2.12 Activity and static detector surveys identified at least seven species (*Myotis* spp., noctule (*Nyctalus noctula*), common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*Pipistrellus pygmaeus*), Nathusius' pipistrelle (*Pipistrellus nathusii*), barbastelle (*Barbastella barbastellus*), and brown long-eared bat (*Plecotus auritus*)). Except for common and soprano pipistrelle activity, low levels of bat flight and foraging activity were recorded.
- 2.2.13 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 boundary.
- 2.2.14 A (potential main) badger (*Meles meles*) sett was identified within the vicinity of the site, while a latrine was identified along a hedgerow. No setts were recorded within the site boundary.
- 2.2.15 The majority of the site is arable fields, and so was considered unsuitable for hedgehog (*Erinaceus europaeus*). Brown hare (*Lepus europaeus*) was recorded incidentally during ecological surveys.
- 2.2.16 **Table 1** provides a summary of the value of these receptors for the Southern Park and Ride site at Wickham as assessed in the Sizewell C Project ES [[APP-394](#)] (Ref. 7).

Table 1: Summary of the importance of ecological receptors as assessed in the Southern Park and Ride Environmental Statement

| Feature/Receptor | Importance (CIEEM/EIA Methodology). |
|--|-------------------------------------|
| Non-statutory designated sites within 2km of the site boundary | County/medium |
| Arable habitats | Local/very low |
| Broadleaved woodland | Local/very low |
| Ponds within the site and 500m | Local/very low |
| Hedgerows | Local/very low |

| Feature/Receptor | Importance (CIEEM/EIA Methodology). |
|--|-------------------------------------|
| Amphibians | Local/very low |
| Reptile assemblage | Local/very low |
| Breeding and wintering bird assemblage | Local/low |
| Bat assemblage | County/low |
| Badger | Local/very low |
| Brown hare | Local/low |
| Hedgehog | Local/very low |

2.3 Updated surveys in 2020

2.3.1 The surveys undertaken at the proposed development site receptor during 2020 were as follows:

- Phase 1 habitat survey update.
- Great crested newt (*Triturus cristatus*) environmental DNA (eDNA) surveys.
- Great crested newt Habitat Suitability Index (HSI) surveys.
- Bat tree assessment surveys.

3 METHODS

3.1 Desk-study

3.1.1 The desk-study information is fully detailed within Volume 4, Chapter 7, Appendix 7A of the Sizewell C Project ES [[APP-395](#)] (Ref. 2). This includes previous survey findings at the site, undertaken by Wood Group (2011) and Arcadis (2014, 2015, 2018 and 2019) outlined above. Other desk study sources include records from Suffolk Biodiversity Information Service (SBIS).

3.2 Surveyor information

3.2.1 The updated surveys were undertaken by suitably experienced ecologists from Arcadis. The extended Phase 1 habitat survey, protected species and great crested newt HSI assessments were led by Consultant Ecologist Rory

Roche (gradCIEEM) and assisted by Senior Ecologist Dave Andrews. The bat tree inspections were led by Principal Ecologist Nick Downs (MCIEEM, CEnv, licensed bat holder: 2015-11591-CLS-CLS) and assisted by Consultant Ecologist Rory Roche.

3.3 Extended Phase 1 habitat and protected species survey

3.3.1 An extended Phase 1 habitat and protected species survey was undertaken in June 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 **Figure 1, Appendix A**).

3.3.2 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.8). 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. 9). Any non-native invasive species present within and adjacent to the site were also recorded.

3.3.3 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.
- An external inspection of all trees within the site was carried out to assess their suitability for occupancy by roosting and/or hibernating bats. The likely value of the various habitat features for foraging and commuting bats was also critically assessed.
- The site was investigated for its use by badgers (*Meles meles*) 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.

3.4 Amphibian Surveys

- 3.4.1 During the 2020 extended Phase 1 habitat and protected species walkover survey, detailed site descriptions were taken for each waterbody within the site boundary, 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.
- 3.4.2 A Habitat Suitability Index (HSI) for great crested newts (*Triturus cristatus*) (Ref. 10) 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'.
- 3.4.3 The HSI for each pond was used to compare the general suitability of the ponds present for great crested newts. 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.
- 3.4.4 Great crested newt eDNA surveys were undertaken at ponds identified as being potentially suitable for breeding amphibians during the scoping surveys. Sampling methodologies followed details in Briggs et al. 'Analytical and methodological development for improved surveillance of Great Crested Newt, Appendix 5, Technical advice note for field and laboratory sampling of great crested newt environmental DNA' (Ref. 11). As required by Natural England, samples were collected by a licensed surveyor between 15 April and 30 June 2019.
- 3.4.5 The samples were sent to Nature Metrics eDNA testing service for analysis. The analysis method detects pond occupancy from great crested newts using traces of eDNA shed into the pond environment. The detection of great crested newt eDNA is carried out using real-time Polymerase Chain Reaction (PCR) to amplify part of the cytochrome 1 gene found in mitochondrial DNA. The method followed details in Briggs et al. (Ref. 11).

- 3.4.6 There are a number of limitations with this method as follows: (1) the results are based on analyses of the samples received by the laboratory; (2) any variation between the characteristics of the sample and a batch will depend on the sampling procedure used; (3) the method is qualitative and therefore the levels given in the score are for information only, they do not constitute the quantification of great crested newt DNA against a calibration curve; (4) a 'not detected' result does not exclude the presence at levels below the limit of detection.
- 3.4.7 Suitable aquatic vegetation at the pond margins was also checked at this time for the presence/absence of newt eggs.
- 3.4.8 Appropriate biosecurity measures were adopted whilst undertaking the surveys to avoid the inadvertent spreading of chytridiomycosis. This is a fungal disease which can have a devastating effect on amphibian populations. Measures implemented the application of Virkon antiseptic solution to survey equipment, wading poles and surveyor's waders between visits, where ponds are separated by a distance of over 1km.

3.5 Bat Tree Assessment Survey

- 3.5.1 During the 2020 extended Phase 1 habitat and protected species survey, an external inspection of all trees on site was carried out to assess their suitability for occupancy by roosting and/or hibernating bats. 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.

4 RESULTS

4.1 Extended Phase 1 Habitat Survey and Protected Species Survey

- 4.1.1 The results of the extended Phase 1 habitat survey are presented on **Figure 1 (Appendix A)** and are described individually below.

a) Broadleaved Plantation Woodland

- 4.1.2 A strip of young to semi-mature broadleaved plantation woodland is present along Station Road. The canopy comprises Field Maple (*Acer campestre*), Hawthorn (*Crataegus monogyna*), Sycamore (*Acer pseudoplatanus*) and Blackthorn (*Prunus spinosa*). No distinct understorey was recorded, the ground flora is dominated by grass species including False Oat-grass (*Arrhenatherum elatius*) and Cock's-foot (*Dactylis glomerata*). Forb species

recorded include Common Ragwort (*Senecio jacobaea*), Perforate St. John's-wort (*Hypericum perforatum*), Dandelion (*Taraxacum* agg.), and White Clover (*Trifolium repens*).

b) Mixed Plantation Woodland

4.1.3 Several areas of young to semi-mature mixed plantation woodland are present along the A12. The composition of broadleaved tree species recorded within the canopy are similar to those recorded in the area of broadleaved plantation woodland, with the addition of Ash (*Fraxinus excelsior*), Birch (*Betula* sp.) and conifer species. No distinct understorey is present however Bramble (*Rubus fruticosus* agg.) and Elder (*Sambucus nigra*) scrub is present. The ground flora composition is similar to the area of broadleaved plantation woodland, with the addition of Great Mullein (*Verbascum thapsus*), Common Nettle (*Urtica dioica*) and Ground-ivy (*Glechoma hederacea*).

4.1.4 An area of mixed young to semi-mature planation woodland is also present west of a Sugar Beet (*Beta vulgaris* subsp. *vulgaris*) arable field. Oak (*Quercus* sp.) was the dominant broadleaved tree species with Field Maple, Cherry (*Prunus* sp.), Elder, Ash and conifers recorded occasionally. No distinct understorey is present however Bramble scrub and Cherry Laurel (*Prunus laurocerasus*) is present. The ground flora comprises grass species including Cock's-foot, Annual Meadow-grass (*Poa annua*), Perennial Rye-grass (*Lolium perenne*) and brome. Forb species comprised Common Nettle, Garlic Mustard (*Alliaria petiolata*), Hemlock (*Conium maculatum*) and Creeping Cinquefoil (*Potentilla reptans*).

c) Scrub

4.1.5 Scattered patches of scrub is present along a disused hardstanding access track off the A12. Bramble is the dominant species recorded with other species including Mugwort, (*Artemisia vulgaris*) Burdock (*Arctium* sp.) and Stonecrop (*Sedum* sp.) also present. Scattered scrub is also present along a field boundary to south of Site comprising Bramble, Field Maple, and a single young Oak tree.

4.1.6 Continuous scrub is present along an arable field boundary along fence line along A12 comprising predominantly of Bramble and Alexanders (*Smyrniolus atratum*), with young Oak and Sycamore trees.

d) Scattered Trees

4.1.7 Along the A12 and B1078 scattered trees are present along the roadside and comprises young to semi-mature Ash, Elder, Hawthorn, Sycamore,

Field Maple, Silver Birch (*Betula pendula*), Oak, Guelder-rose (*Viburnum opulus*), Spindle (*Euonymus europaeus*), Hazel (*Corylus avellana*) and Horse-chestnut (*Aesculus hippocastanum*).

- 4.1.8 Young to semi-mature Field Maple, Hawthorn, Blackthorn, Sycamore and a dead Elm (*Ulmus* sp.) are also present along the A12, north of the site.

e) Species Poor Semi-Improved Grassland

- 4.1.9 A large triangular area of species poor, semi-improved grassland is present north of the corn crop arable field. The sward height varies between 0.25-0.5m. False Oat-grass is the dominate species with Yorkshire-fog (*Holcus lanatus*), Annual Meadow-grass and Cock's-foot occurring less frequently. Forb species present comprise Crimson Clover (*Trifolium incarnatum* subsp. *incarnatum*), Goosefoot (*Chenopodium* sp.), Dandelion, Creeping Thistle (*Cirsium arvense*), Common Bird's-foot-trefoil (*Lotus corniculatus*), White Campion and Common Mallow (*Malva sylvestris*).

- 4.1.10 Areas of species poor semi-improved grassland are also present along the boundaries of arable Sugar Beet fields. The sward height ranges between 0.25-0.5m and was dominated by grass species including Perennial Ryegrass, Annual Meadow-grass, Cock's-foot, False Oat-grass. Other species present are Pineappleweed (*Matricaria discoidea*), Poppy (*Papaver* sp.), White Clover and Hogweed (*Heracleum sphondylium*).

- 4.1.11 Areas of species poor semi-improved grassland are also present within the roundabout to the south of the site.

f) Tall Ruderal

- 4.1.12 A strip of tall ruderal vegetation is present along the boundary of an arable field adjacent to the A12 slip road. Species present include Common Nettle, False Oat-grass, Spear Thistle (*Cirsium vulgare*), White Campion (*Silene latifolia*), Common Mallow and Poppy with occasional scrub and tree species present comprising Bramble, Oak, Elm and Elder.

g) Arable

- 4.1.13 The majority of the site comprises a Sugar Beet arable field with a 4-6m wide grassland margin along the south of the field boundary. The species present in the grassland margins are predominantly consistent with the other areas of grassland recorded within the site with the addition of Common Knapweed (*Centaurea nigra*), Salsify (*Tragopogon porrifolius*), Creeping Thistle, Alexanders, Creeping Cinquefoil, Dandelion, Bristly

Oxtongue, Common Vetch (*Vicia sativa*), Yarrow (*Achillea millefolium*) and Fat-hen (*Chenopodium album*).

4.1.14 To the south of the site a small area of a corn crop field is present within the site with a 7m wide ruderal margin which comprises Alexanders, Hogweed and Hemlock with some areas of Bramble and Privet (*Ligustrum* sp.) scrub.

h) Ephemeral/short Perennial

4.1.15 To the west of the Sugar Beet arable field an area of ephemeral/short perennial habitat is present. The area comprises bare ground colonised by arable crop, Broad-leaved Dock (*Rumex obtusifolius*), Bristly Oxtongue and Creeping Thistle.

i) Hedgerows

4.1.16 Six hedgerows are present within the site, of these, three are defunct species poor hedges, two are intact species poor hedges and one is a species poor hedge with trees. Further details for each hedgerow are included in Table 2.

Table 2: Hedgerow details


| Hedgerow Number | Phase 1 Habitat Category | Description |
|-----------------|-----------------------------|--|
| Hedgerow 1 | Intact hedge – species poor | Well managed, recently planted 2m tall hedgerow dominated by Hawthorn and Blackthorn and occasional Field Maple and Spindle. The ground flora is consistent with the species poor semi-improved grassland margins. constant with adjacent grassland margins. |
| Hedgerow 2 | Defunct hedge– species poor | Outgrown and unmanaged hedgerow, that more resembles a line of outgrown trees. Species recorded comprise Elm, Blackthorn, Oak, Field Maple and Hawthorn. With lots of Bramble and grass species present. The ground flora comprises Greater Burdock (<i>Arctium lappa</i>), Hemlock, Common Nettle, Alexanders, and Common Mallow. |


| Hedgerow Number | Phase 1 Habitat Category | Description |
|-----------------|---------------------------------|--|
| Hedgerow 3 | Defunct hedge – species poor | Outgrown hedgerow that more resembles a line of trees. Species recorded comprise Blackthorn, Oak, Bird Cherry (<i>Prunus padus</i>) and Hawthorn. The ground flora comprises Alexanders, Common Nettle, Bramble, Perennial Rye-grass, Annual Meadow-grass, and Garlic Mustard. |
| Hedgerow 4 | Intact hedge – species poor | Elm and Privet roadside hedgerow managed to a box with some gaps present. Approx. 1.5-2m tall. The ground flora is consistent with the adjacent arable field margins. |
| Hedgerow 5 | Defunct hedge – species poor | Outgrown Privet hedgerow with frequent gaps of over 20m in places. Some young Elm and Cherry trees present. |
| Hedgerow 6 | Hedge with trees – species poor | Elm hedgerow. |

j) Waterbodies

4.1.17 Two ponds (Pond 60 and Pond 61) are present in an area of semi-natural broadleaved woodland along the western boundary of the site outside of the site boundary. Table 3 provides further details of each pond.

Table 3: Pond description

| Pond Number | Description | Photograph |
|-------------|--|--|
| 60 | Dry woodland pond, area predominantly of mud. Small puddle of water still present. |  |

| Pond Number | Description | Photograph |
|-------------|---------------|--|
| 61 | Woodland pond |  |

k) Invertebrates

4.1.18 Within the site the arable fields and species-poor grasslands are of limited value to uncommon or notable invertebrate species. Within the areas of woodland, dead wood could offer suitable features to support invertebrate species. However, given the relatively young age of the woodland areas the invertebrate assemblage supported by this habitat is unlikely to be particularly diverse.

l) Amphibians

4.1.19 Two ponds are present within an area of woodland outside of the site boundary. The majority of the site is of limited suitability for great crested newts as it consisted of intensively managed arable fields. However, the arable field margins, hedgerows, areas of ruderal vegetation and areas of woodland would 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.

m) Reptiles

4.1.20 Within the site boundary, most of the land comprises arable fields which is considered sub-optimal habitat to support reptile species however the small areas of species poor semi-improved grassland around the arable field margins, hedgerows, areas of ruderal vegetation and woodland comprises suitable foraging habitat for reptile species. Overall, the available habitat to support reptile species within the site is considered to be limited.

n) Birds

4.1.21 Within the site boundary the arable fields were assessed as suitable to support bird species associated with arable farmland habitat, which are included on the UK Farmland Indicator list (Ref. 3). The woodland and

hedgerow habitat within the site boundary were assessed as suitable to support nesting birds and would also provide foraging opportunities. The habitats present within the site are still considered suitable to support these bird assemblages.

o) **Bats**

4.1.22 The extended Phase 1 habitat and protected species survey identified the habitats present to be primarily arable fields of limited value to foraging bats. The boundary hedgerows and tree lines contain several mature trees, which together with the woodland blocks and scattered mature trees have the potential to support roosting bats and offer good commuting and foraging opportunities.

p) **Badgers**

4.1.23 Two badger setts are present within an area of woodland outside of the site boundary. Details of the setts are described in **Table 4**.

Table 4: Badger sett descriptions

| Sett Type | Location in Relation to Site Boundary | Sett Description |
|------------|---------------------------------------|--|
| Main sett | 103m north-east | 6-8 well used entrances with old bedding material. Guard hair found in one entrance. Access to woodland not granted, further inspection not possible, likely further entrances under Bramble in woodland due to pathways and spoil heaps observed. |
| Annex sett | 83m north-east | Active annex within 25m of main sett. Two entrances, one active the other partially used. |

4.1.24 No badger setts are present within the site, however the woodland and hedgerow habitats within the site provide suitable habitats for foraging for badgers.

q) **Other Notable Mammal Species**

4.1.25 The arable and hedgerow habitat present at the site was assessed as providing suitable habitat to support brown hare.

4.2 Amphibian Surveys

4.2.1 Two ponds (Ponds 60 and 61) are present within an area of woodland outside of the site boundary. Pond 60 was a dry pond at the time of survey therefore a HSI survey was not undertaken. **Table 5** presents the results of the HSI survey for Pond 61, it is considered to have average suitability to support great crested newts. The eDNA survey for Pond 61 did not confirm the presence of great crested newts.

Table 5: HSI survey results for Pond 61

| Feature | HSI Scores |
|------------------------------------|-------------|
| Location | A |
| Pond area (m ²) | 501-600 |
| Pond drying | Never dries |
| Water quality | Poor |
| Shade (%) | 30 |
| Fowl | Minor |
| Fish | Possible |
| Ponds | 4 |
| Terrestrial habitat | Good |
| Macrophytes (%) | 0 |
| HSI Score | 0.69 |
| Suitability for Great Crested Newt | Average |

4.3 Bat Tree Assessment Survey

4.3.1 Thirty-one trees were assessed during bat tree assessment surveys in 2020 as having specific features potentially suitable for use by roosting bats. A summary of the roost assessment levels assigned to these trees is provided in **Table 6**. Full details of the results of the bat tree assessment survey are provided in **Appendix C**. The location of assessed trees is illustrated on **Figure 2**.

Table 6: Summary of bat tree assessment results

| Tree Roost Assessment Level | Number of Trees Identified |
|-----------------------------|----------------------------|
| High potential | 2 |
| Medium potential | 19 |
| Low potential | 8 |
| Negligible potential | 2 |
| Total | 31 |

5 DISCUSSION

- 5.1.1 The extended Phase 1 habitat and protected species survey undertaken in 2020 identified several habitats present within and adjacent to the site boundary including broadleaved plantation woodland, mixed plantation woodland arable fields, hedgerows, species poor semi-improved grassland, ruderal vegetation, scrub and ponds.
- 5.1.2 The site is known to support breeding and wintering birds and has the potential to support invertebrate species, amphibians, reptiles, roosting bats, badgers and brown hare.
- 5.1.3 The updated survey results presented in this report are consistent with the results in the baseline described in the ES and do not change the assessment of impacts on the receptors listed above, presented in the Sizewell C Project ES [APP-394] (Ref. 7) and does not change the proposed mitigation detailed in the bat method statement [APP-395] (Ref. 12) and reptile method statement [APP-395] (Ref. 13).

6 CONCLUSION

- 6.1.1 Overall, the results of the 2020 surveys are consistent with previous surveys undertaken, with the conditions on site remaining broadly unchanged between 2011 and 2020. Therefore, the updated results continue to support the submitted application for development consent .

REFERENCES

1. EDF 2020. Sizewell C Project Southern Park and Ride at Wickham: Volume 4, Chapter 7: Appendix 7A, Annex 7A4 Primary Data [[APP-395](#)]
2. EDF 2020. Sizewell C Project– Southern Park and Ride at Wickham: Volume 4, Chapter 7: Appendix 7A – Ecological Baseline. [[APP-395](#)]
3. DEFRA Farmland Bird Indicator Index Available: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/541593/agindicator-de5-29jul16.pdf
4. 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.
5. Natural Environment and Rural Communities Act. 2006. (Online). Available from: <http://www.legislation.gov.uk/ukpga/2006/16/contents> (Accessed 1 March 2019).
6. Suffolk Biodiversity Information Service. 2015. Priority Species and Habitats. (Online) Available from: <https://www.suffolkbis.org.uk/biodiversity/speciesandhabitats> (Accessed 2 February 2019).
7. EDF 2020. Sizewell C Project Southern Park and Ride at Wickham: Volume 4, Chapter 7: Terrestrial Ecology and Ornithology. [[APP-394](#)]
8. Joint Nature Conservation Committee. 2010. Handbook for Phase 1 habitat survey: a technique for environmental audit. Peterborough: JNCC, 2010.
9. Stace, C. 2019. *New Flora of the British Isles*, 4th Edition. C&M Floristics, Stowmarket.
10. 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.
11. Biggs, N. Ewald, A. Valentini, C. Gaboriaud, R.A. Griffiths, J. Foster, J. Wilkinson, A. Arnett, P. Williams and F. Dunn. 2014.. Analytical and methodological development for improved surveillance of Great Crested Newt. Appendix 5. Technical advice note for field and laboratory sampling of great crested newt (*Triturus cristatus*) environmental DNA. Freshwater Habitats Trust, Oxford.

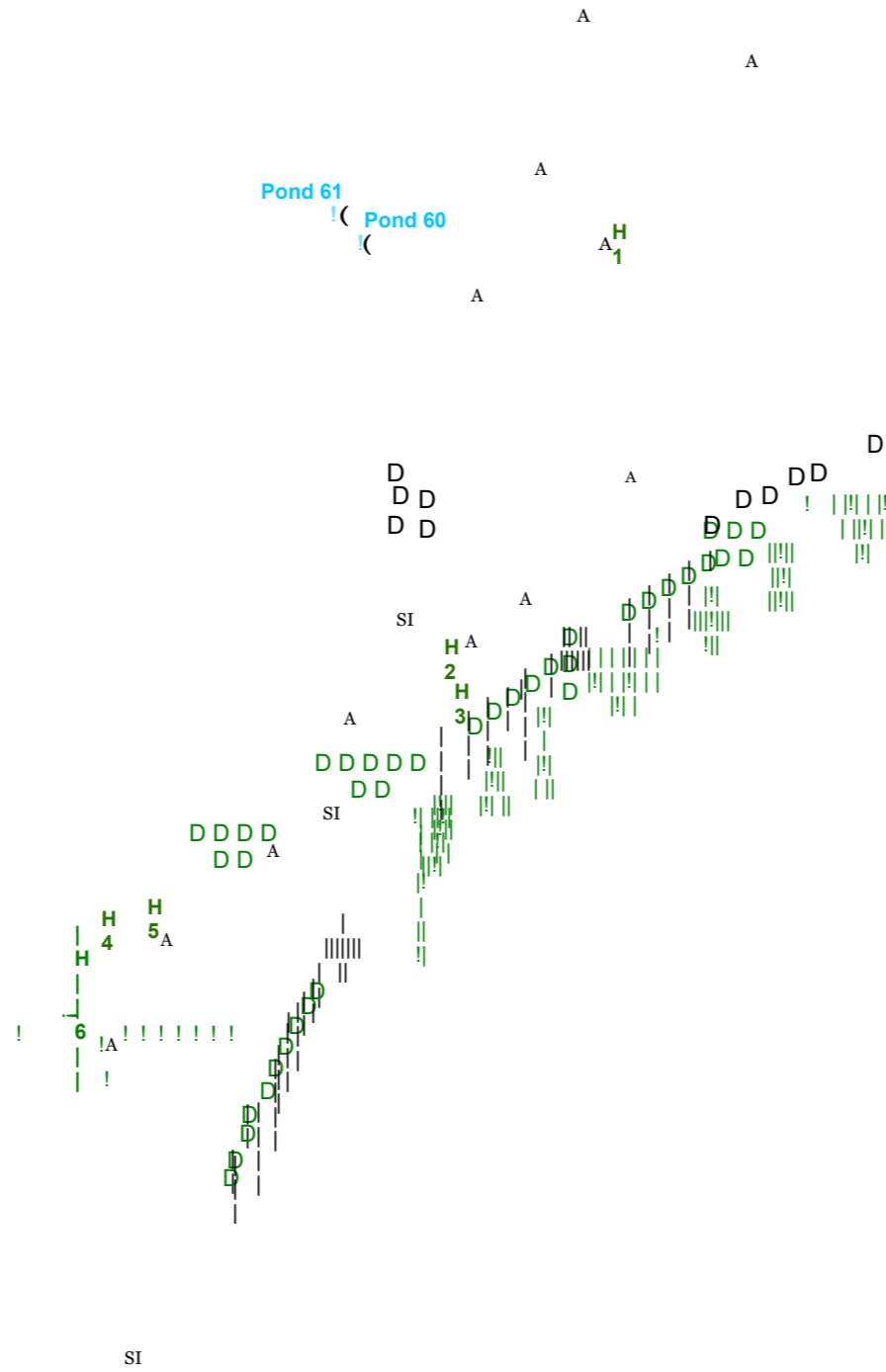
-
12. EDF 2020. Sizewell C Development Southern Park and Ride at Wickham: Volume 4, Chapter 7: Appendix 7A, Annex 7A5A Non-licensable method statement – Bats. [[APP-395](#)]
 13. EDF 2020. Sizewell C Development Southern Park and Ride at Wickham: Volume 4, Chapter 7: Appendix 7A, Annex 7A5B Non-licensable method statement – Reptiles. [[APP-395](#)]



APPENDIX A: FIGURES

NOTES
KEY

- SITE BOUNDARY
- BROADLEAVED WOODLAND - SEMI-NATURAL
- BROADLEAVED WOODLAND - PLANTATION
- MIXED WOODLAND - PLANTATION
- D SCATTERED SCRUB
- SCATTERED BROADLEAVED
- SI POOR SEMI-IMPROVED GRASSLAND
- OTHER TALL HERB AND FERN
- PONDS
- A CULTIVATED/DISTURBED LAND-ARABLE
CULTIVATED/DISTURBED LAND -
- D D EPHEMERAL/SHORT PERENNIAL
- VVVV INTACT HEGDE - SPECIES RICH
INTACT HEGDE - SPECIES POOR (H1, H4)
- DEFUNCT HEGDE - SPECIES POOR (H2, H3, H5)
- ||||| HEDGE WITH TREES - SPECIES-POOR (H6)
- ||||| FENCE
- HARDSTANDING



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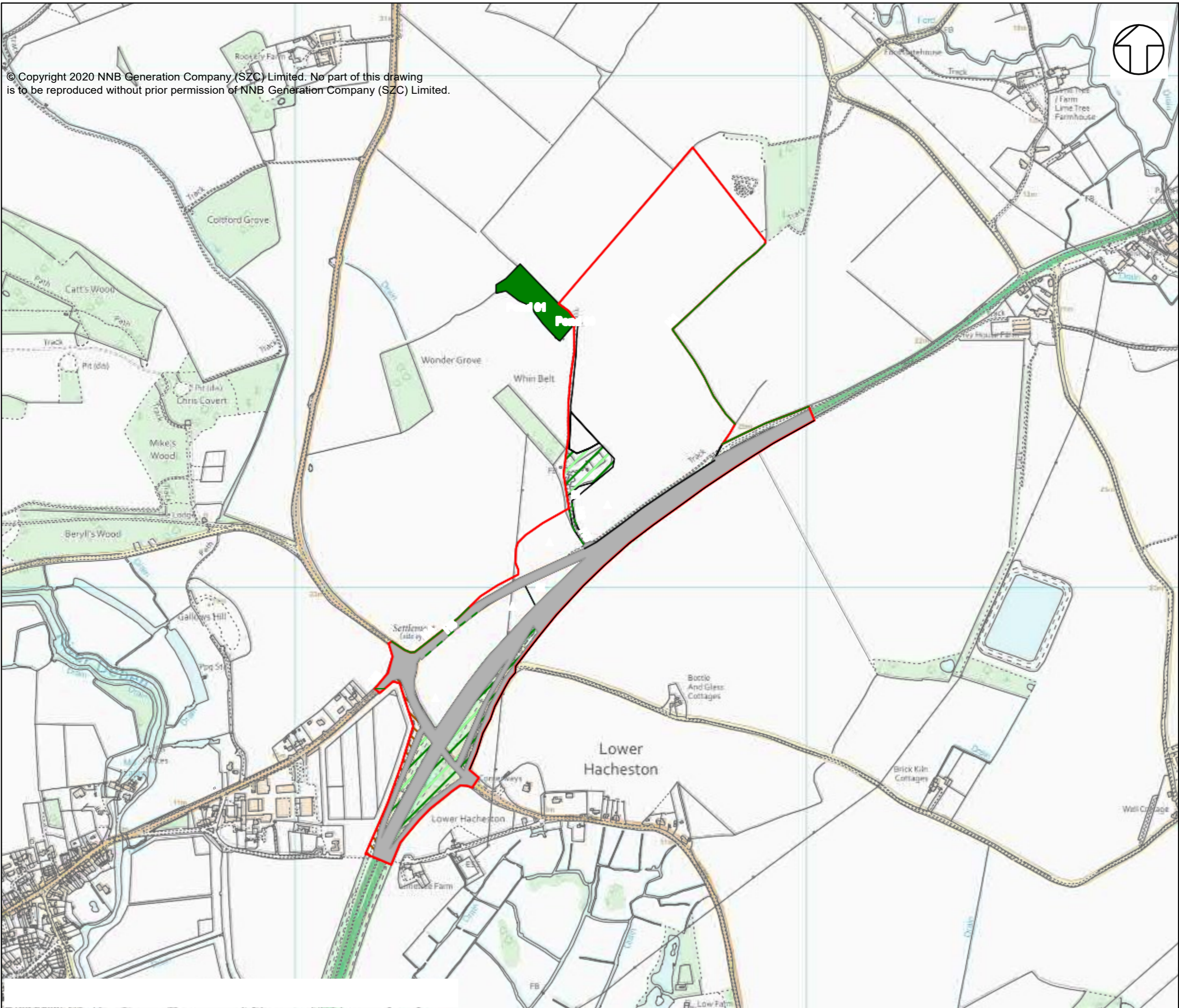
DOCUMENT:
SIZEWELL C
SOUTHERN PARK AND RIDE WICKHAM
2020 ECOLOGY SURVEYS REPORT

DRAWING TITLE:
WICKHAM PHASE 1 HABITAT PLAN

DRAWING NO:
FIGURE 1

DATE: AUG 2020 DRAWN: R.G. SCALE: 1:7,000 @A3 REV: 01
SCALE BAR

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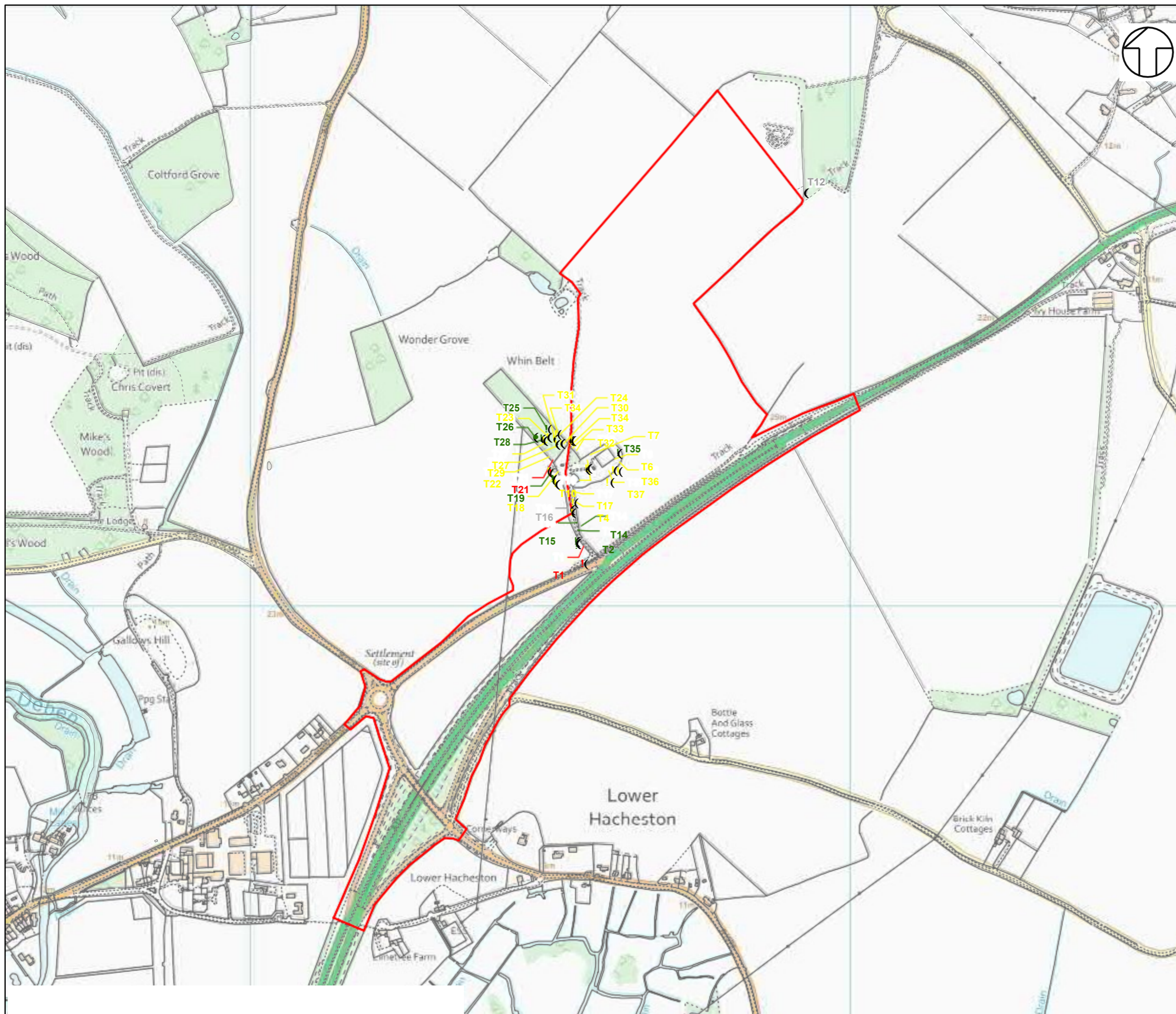
0 40 80 120 160 200 M

- [Red outline]
- [Green fill]
- [Green diagonal lines]
- [Orange diagonal lines]
- [White fill]
- [Green dashed line]
- [Grey fill]

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- NOTES**
- KEY**
- SITE BOUNDARY
- ROOST POTENTIAL CLASSIFICATION**
- ⤵ HIGH POTENTIAL
 - ⤵ LOW POTENTIAL
 - ⤵ MEDIUM POTENTIAL
 - ⤵ NEGLIGIBLE POTENTIAL

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DOCUMENT:
 SIZEWELL C
 SOUTHERN PARK AND RIDE WICKHAM
 2020 ECOLOGY SURVEYS REPORT

DRAWING TITLE:
 WICKHAM BAT TREE PLAN

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DRAWING NO:
FIGURE 2
DATE: **AUG 2020** DRAWN: **R.G.** SCALE: **1:6,000 @A3** REV: **01**
SCALE BAR 0 40 80 120 160 200 M



APPENDIX B: BAT TREE GROUND ASSESSMENT SURVEY RESULTS

APPENDIX C: TABLE 7: BAT TREE GROUND ASSESSMENT SURVEY RESULTS

| Tree Number | Tree Species and General Tree Description | Description of Feature | Potential of Feature | Overall Tree Potential |
|-------------|---|--|----------------------|------------------------|
| 1 | Pedunculate Oak, Mature, DBH: 1.05m, Height: 16m, Single-stem | Stem, Type: Knot hole, Height: 2.5m Aspect: North | Moderate | High |
| | | Limb, Type: Knot hole, Height: 3.5m Aspect: North | Moderate | |
| | | Limb, Type: Lifting bark, Height: 3.5m Aspect: North Largely on top of limb | Moderate | |
| | | Limb, Type: Knot hole, Height: 7m Aspect: North Dead limb still present, but rotting | Moderate | |
| | | Limb, Type: Knot hole, Height: 10m Aspect: West Definite cavity | High | |
| | | Limb, Type: Desiccation fissure, Height: 11m Aspect: East Cavity in dead limb | Moderate | |
| | | Limb, Type: Knot hole, Height: 12m Aspect: North-west May not lead to cavity, additional similar north-east facing knot whole on same limb | Low | |
| | | Limb, Type: Desiccation fissure, Height: 7m Aspect: East Crack underneath limb which may lead to cavity. Also possible cavities associated with dead opposite limb branching from same main limb. | Low | |

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| Tree Number | Tree Species and General Tree Description | Description of Feature | Potential of Feature | Overall Tree Potential |
|-------------|---|--|----------------------|------------------------|
| | | Stem, Type: Knot hole, Height: 5m Aspect: East Definite cavity | Moderate | |
| | | Limb, Type: Knot hole, Height: 8m Aspect: South Small portion of dead limb still attached, definite cavity. Approx. 0.5m from feature is another definite cavity in limb (desiccation fissure). | Moderate | |
| | | Limb, Type: Knot hole, Height: 9m Aspect: South-west Definite cavity, resembles tear drop shaped tear out but still supports part of dead limb. | Moderate | |
| | | Limb, Type: Knot hole, Height: 8m Aspect: South-west Definite cavity but likely shallow cavity. | Moderate | |
| 2 | Blackthorn, Dead, DBH: 2.05m, Height: 7m, Single-stem | Stem, Type: Knot hole, Height: 3m Aspect: North Entrance hole approx. 2cm W x3cm H. Leads to cavity going down only, approx. 20cm. Can see to termination with endoscope, full of woody debris/ invert frass. Blackthorn now dead, only single stem remaining, second stem manually felled. | Low | Low |
| 3 | Tree no longer present | N/A | N/A | N/A |
| 4 | | Stem, Type: Lifting bark, Height: 1.5m Aspect: East Small area of lifted bark, provides 20cm discrete cavity. | Moderate | Moderate |

NOT PROTECTIVELY MARKED

| Tree Number | Tree Species and General Tree Description | Description of Feature | Potential of Feature | Overall Tree Potential |
|-------------|--|--|----------------------|------------------------|
| | Pedunculate Oak, Mature, DBH: 1m, Height: 9m, Single-stem | Stem, Type: Ivy, Height: 0.1m Aspect: East Dense ivy covering from base of tree to canopy. Series of low potential cavities beneath dense ivy stems. Thick ivy trunks over 20cm diameter. Recommend emergence survey with thermal imaging assistance. | Low | |
| 6 | Ash, Semi-mature, DBH: 0.4m, Height: 10m, Multi-stem | Stem, Type: Knot hole, Height: 4m Aspect: East Open vertically but appears to lead downwards. | Moderate | Moderate |
| | | Limb, Type: Wounds, Height: 53m Aspect: North-west Present on underside of limb, evidence of bird nesting/roosting | Moderate | |
| 7 | Pedunculate Oak, Mature, DBH: 1m, Height: 14m, Single-stem | Limb, Type: Tear out, Height: 5m Aspect: South-west Cavity may extend upwards and to the side, cannot determine from ground | Moderate | Moderate |
| | | Stem, Type: Ivy, Height: 1m Aspect: South Dense inch forming cavities behind ivy stems. Cavities exposed to elements. Other low potential cavities behind ivy to west of main stem. | Moderate | |
| | | Stem, Type: Wounds, Height: 3m Aspect: South Some dead wood at base of main fork, may lead to cavity but obscured by ivy. | Moderate | |

NOT PROTECTIVELY MARKED

| Tree Number | Tree Species and General Tree Description | Description of Feature | Potential of Feature | Overall Tree Potential |
|-------------|--|--|----------------------|------------------------|
| 9 | Pedunculate Oak, Dead, | Oak has been felled. Only stump remains. No suitable features for bats. | N/A | N/A |
| 10 | Pedunculate Oak, Mature, DBH: 1m, Height: 10m, Single-stem | Limb, Type: Knot hole, Height: 3m Aspect: West Cavity extends approx. 5cm upwards, and possibly sideways also | Moderate | Moderate |
| | | Stem, Type: Tear out, Height: 4m Aspect: North-east View obscured by conifers, may lead to cavities, unsure from ground | Moderate | |
| | | Limb, Type: Knot hole, Height: 5m Aspect: South Dead wood still present, gaps between dead and living tissue observed, may lead to extensive cavities | Moderate | |
| | | Stem, Type: Lifting bark, Height: 6m Aspect: North-east Significant areas of lifted and peeling bark, extending all around trunk | Moderate | |
| 12 | Elm, Dead, DBH: 0.3m, Height: 5m, Single-stem | Stem, Type: Desiccation fissure, Height: 3m Aspect: West Exposed crevice on dead wood, likely shallow | Negligible | Negligible |
| | | Stem, Type: Desiccation fissure, Height: 1m Aspect: West Exposed crevice on dead wood, likely shallow | Negligible | |
| 14 | Elm, Dead, DBH: 0.3m, Height: 10m, Single-stem | Stem, Type: Lifting bark, Height: 2m Aspect: East | Low | Low |

NOT PROTECTIVELY MARKED

| Tree Number | Tree Species and General Tree Description | Description of Feature | Potential of Feature | Overall Tree Potential |
|-------------|---|---|----------------------|------------------------|
| | | Lifted and peeling bark all around dead stem. Recommend emergence survey, although some lower feature can be accessed using an endoscope. | | |
| 15 | Crab apple, Mature, DBH: 0.3m, Height: 10m, Multi-stem | Stem, Type: Knot hole, Height: 2.5m Aspect: West Entrance hole approx. 2cm W x3cm H. Leads to cavity going down approx. 40cm only, approx. 20cm. Can see to termination with endoscope, full of wordy debris and possible old bird nest. | Low | Low |
| | | Stem, Type: Lifting bark, Height: 3m Aspect: North-west Small sections of lifted bark around multiple stems. Starts at 2m and extends along height of tree | Low | |
| 16 | Field maple, Semi-mature, DBH: 0.2m, Height: 9m, Multi-stem | Stem, Type: Butt rot, Height: 0.1m Aspect: East Butt rot at base but does not appear to lead far | Negligible | Negligible |
| | | Stem, Type: Knot hole, Height: 2.5m Aspect: West Very shallow | Negligible | |
| 17 | Pedunculate oak, Semi-mature, DBH:0.4m, Height: 14m, Multi-stem | Limb, Type: Wounds, Height: 10m Aspect: North-east Small likely cavity at base of fork, one limb of which is dead. Potential to lead into branch. | Moderate | Moderate |
| 18 | | Stem, Type: Tear out, Height: 0.5m Aspect: East | Low | Moderate |

NOT PROTECTIVELY MARKED

| Tree Number | Tree Species and General Tree Description | Description of Feature | Potential of Feature | Overall Tree Potential |
|-------------|--|---|----------------------|------------------------|
| | Field maple, Semi-mature, DBH: 0.4m, Height: 8m, Single-stem | Cavity extends upwards approx. 15cm. Extends down approx. 3cm. Woody debris present. | | |
| | | Stem, Type: Tear out, Height: 2.5m Aspect: East Cavity extends up only, approx. 20cm. Smooth internal cavity. | Moderate | |
| 19 | Field maple, Semi-mature, DBH: 0.3m, Height: 8m, Multi-stem | Stem, Type: Lifting bark, Height: 2m Aspect: North Cavities behind lifted bark, present from base to 2m all around stem. | Low | Low |
| 20 | Dead tree, DBH: 0.3m, Height: 4m, Single-stem | Stem, Type: Butt rot, Height: 0.1m Aspect: South-east Cavity at base of tree, extends up 5cm. Surrounded by dead tree material and bramble | Negligible | Low |
| | | Stem, Type: Lifting bark, Height: 1m Aspect: South-east Small areas of lifted bark, creating cavities all around stem. Large portion on eastern aspect | Low | |
| 21 | Ash, Mature, DBH: 0.45m, Height: 13m, Single-stem | Stem, Type: Knot hole, Height: 3m Aspect: South Large knot hole. Likely extensive cavity. | High | High |
| | | Stem, Type: Butt rot, Height: 0.1m Aspect: North-east Likely extensive cavity from base of tree, not inspected as wasp nest present in feature | Moderate | |

| Tree Number | Tree Species and General Tree Description | Description of Feature | Potential of Feature | Overall Tree Potential |
|-------------|---|---|----------------------|------------------------|
| 22 | Field maple, Semi-mature, DBH: 0.25m, Height: 10m, Multi-stem | Stem, Type: Knot hole, Height: 2.5m Aspect: North Cavity leading upwards only, likely by 1m where another north facing knot hole. | Moderate | Moderate |
| 23 | Ash, Mature, DBH: 0.4m, Height: 16m, Single-stem | Stem, Type: Butt rot, Height: 0.1m Aspect: North-west Significant area of butt rot from base, with numerous cavities extending from ground to 2m, may all be connected. 1 cavity containing active wren nest so not exhaustively investigated. | Moderate | Moderate |
| | | Limb, Type: Knot hole, Height: 8m Aspect: South-west Likely extensive cavity | Moderate | |
| | | Limb, Type: Transverse snap, Height: 9m Aspect: West Limb split in two, may lead to cavities but appears exposed from ground. | Low | |
| 24 | Ash, Mature, DBH: 0.4m, Height: 16m, Single-stem | Stem, Type: Knot hole, Height: 7m Aspect: West Likely cavity located below fork | Moderate | Moderate |
| | | Stem, Type: Woodpecker hole, Height: 9m Aspect: North Likely cavity | Moderate | |
| | | Stem, Type: Butt rot, Height: 0.5m Aspect: North-east Shallow cavity leads up only 4cm and leads down 30cm. Exposed vertically. | Negligible | |

NOT PROTECTIVELY MARKED

| Tree Number | Tree Species and General Tree Description | Description of Feature | Potential of Feature | Overall Tree Potential |
|-------------|--|--|----------------------|------------------------|
| | | Stem, Type: Butt rot, Height: 0.1m Aspect: South-east Shallow cavity and exposed vertically. Leads down by 15cm only. | Negligible | |
| 25 | Pedunculate oak, Mature, DBH: 0.3m, Height: 10m, Single-stem | Stem, Type: Lifting bark, Height: 0.1m Aspect: South Small areas of lifted bark with crevices behind, all around stem. Lots of debris | Low | Low |
| 26 | Ash, Semi-mature, DBH: 0.2m, Height: 8m, Single-stem | Stem, Type: Butt rot, Height: 0.1m Aspect: North-east Large opening at base of tree, cavity extends 5cm upwards, space for single bat | Low | Low |
| 27 | Ash, Semi-mature, DBH: 0.35m, Height: 8m, Single-stem | Stem, Type: Butt rot, Height: 0.5m Aspect: North-west Cavity down approx. 10cm. Upwards the cavity is complex, endoscope cannot pass beyond the great wood. | Moderate | Moderate |
| | | Stem, Type: Knot hole, Height: 5m Aspect: North-west Potentially shallow but cannot determine | Moderate | |
| 28 | Field maple, Semi-mature, DBH: 0.2m, Height: 10m, Multi-stem | Stem, Type: Knot hole, Height: 2m Aspect: West Cavity extends 10cm up only. | Moderate | Moderate |
| | | Stem, Type: Knot hole, Height: 5m Aspect: West Cavity extends upwards. | Moderate | |

NOT PROTECTIVELY MARKED

| Tree Number | Tree Species and General Tree Description | Description of Feature | Potential of Feature | Overall Tree Potential |
|-------------|--|--|----------------------|------------------------|
| 29 | Field maple, Mature, DBH: 0.3m, Height: 12m, Single-stem | Stem, Type: Tear out, Height: 6m Aspect: North | Moderate | Moderate |
| 30 | Ash, Mature, DBH: 0.35m, Height: 10m, Multi-stem | Stem, Type: Butt rot, Height: 0.1m Aspect: West Large void at base of tree, leads to cavity approx. 80cm upwards. | Moderate | Moderate |
| | | Stem, Type: Knot hole, Height: 2m Aspect: West | Moderate | |
| | | Limb, Type: Tear out, Height: 7m Aspect: South-east Unable to determine depth from ground | Moderate | |
| 31 | Ash, Semi-mature, DBH: 0.3m, Height: 12m, Single-stem | Limb, Type: Knot hole, Height: 6m Aspect: South-east Located on limb beneath deadwood | Moderate | Moderate |
| 32 | Ash, Semi-mature, DBH: 0.18m, Height: 9m, Multi-stem | Stem, Type: Butt rot, Height: 0.1m Aspect: North Complex cavity, extending upwards but unable to endoscope fully due to presence of heart wood. Hollow main stem with gaps present between heartwood and living tissue. May extend high up trunk, at least 20cm | Moderate | Moderate |
| | | Limb, Type: Tear out, Height: 5m Aspect: South Upper area of side limb missing adjacent to main stem, may lead to cavity. | Moderate | |
| | | Stem, Type: Tear out, Height: 7m Aspect: West | Moderate | |

NOT PROTECTIVELY MARKED

| Tree Number | Tree Species and General Tree Description | Description of Feature | Potential of Feature | Overall Tree Potential |
|-------------|--|--|----------------------|------------------------|
| | | May lead to cavity in hollow stem | | |
| 33 | Ash, Semi-mature, DBH: 0.4m, Height: 11m, Single-stem | Limb, Type: Desiccation fissure, Height: 7m Aspect: South Crack formed in small branch present at second fork. Upward facing but may lead to cavity | Moderate | Moderate |
| 34 | Ash, Semi-mature, DBH: 0.3m, Height: 11m, Multi-stem | Limb, Type: Knot hole, Height: 6m Aspect: North-west Can't see termination of cavity from ground | Moderate | Moderate |
| 35 | Ash, Mature, DBH: 0.4m, Height: 14m, Single-stem | Stem, Type: Knot hole, Height: 0.5m Aspect: West Complex Cavity at base extends backwards and down by approx. 0.5m, doesn't extend upwards. Evidence of previous bird nest. | Low | Low |
| 36 | Field maple, Semi-mature, DBH: 0.3m, Height: 10m, Multi-stem | Limb, Type: Tear out, Height: 5m Aspect: West Long fissure in limb, may lead to cavity | Moderate | Moderate |
| 37 | Ash, Semi-mature, DBH: 0.3m, Height: 9m, Multi-stem | Stem, Type: Tear out, Height: 2m Aspect: North Endoscope from ground unable to move around rams horn, but potential for cavities to be present | Moderate | Moderate |

2020 ECOLOGY SURVEYS REPORT – SIZEWELL LINK ROAD

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PLATES

None Provided.

FIGURES

Figure 1: Sizewell Link Road Phase 1 Habitat Plan

Figure 2: Sizewell Link Road Bat Tree Assessment Plan

APPENDICES

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1 SUMMARY

1.1.1 A summary of the ecological baseline surveys undertaken across the route of the proposed Sizewell Link Road in 2019 is provided and then a summary of the results of the additional surveys in 2020 on land west of Theberton follows.

1.2 Baseline Survey of Sizewell Link Road corridor (2019)

1.2.1 An extended Phase 1 habitat survey and protected species survey and desk study was undertaken of land associated with the proposed Sizewell Link Road (hereafter referred to as the ‘survey area’) in 2019 [[APP-462](#) and [APP-462](#)] (Ref. 1, Ref. 2).

1.2.2 There are 12 statutory designated sites of nature conservation importance within 5km of the survey area and 15 non-statutory designated CWS within a 2km radius of the survey area.

1.2.3 The habitats present within the survey area boundary comprise predominantly intensively managed arable fields with no scarce arable weeds, or other notable plant species. The arable fields present within the survey area are bounded by fences and hedgerows, with the majority of the hedgerows present being species-rich with trees and intact species - poor hedgerows. There are also small areas of species-poor, semi-improved grassland within the survey area. Within the survey area there are four watercourses; two are classified as Main Rivers by the Environment Agency (referred to as the Middleton Watercourse and Theberton Watercourse and a further two further unnamed watercourses. There are also a number of ditches present within the survey area. One hundred and seven ponds were identified within 500 metres of the survey area. The majority of the survey area, however, consists of primarily arable fields with no species-rich margins, or other features of particular importance to invertebrates.

1.2.4 The broadleaved woodland blocks present within the survey area and species-rich hedgerows are of some value to invertebrates; in particular butterfly and moth species.

1.2.5 The survey area is known to support three meta-populations of great crested newts. Although the majority of the survey area comprises arable fields of limited suitability for foraging great crested newts, the scrub, hedgerows and woodland blocks are suitable foraging habitat, with the woodland providing suitable hibernation and resting sites, and hedgerows and associated margins providing connectivity between ponds and woodland blocks.

- 1.2.6 The survey area is largely sub-optimal for reptiles as it comprises predominantly of intensively managed arable fields. There are small pockets of suitable habitat for reptiles recorded during the Phase 1 habitat survey and grass snake (*Natrix helvetica helvetica*) was recorded during the survey, but these are isolated and discrete in nature. Suitable habitat for reptiles is therefore considered to be limited.
- 1.2.7 The survey area is known to support a range of bird species including marsh harrier (*Circus aeruginosus*), farmland bird assemblages (Ref. 3), species included on the Red List of Birds of Conservation Concern (Ref. 4), section 41 of the NERC Act (Ref 5) and Suffolk BAP (Ref 6).
- 1.2.8 Habitats within the survey area boundary consist primarily of open arable land, which is of limited value for bats. However, habitat features such as woodland, hedgerows and scattered mature trees have potential for roosting bats and provide good quality commuting and foraging opportunities. Eighty-four trees were assessed during bat tree assessments as having specific features potentially suitable for use by roosting bats, (three high, 41 medium, 36 low, and four negligible).
- 1.2.9 During activity and static transect surveys, common pipistrelle (*Pipistrellus pipistrellus*) and soprano pipistrelle (*Pipistrellus pygmaeus*) were the most frequently recorded bat species. All other species (serotine (*Eptesicus serotinus*), noctule (*Nyctalus noctula*), barbastelle (*Barbastella barbastellus*), *Myotis* spp., big bat, brown long-eared bat (*Plecotus auritus*), long-eared spp. (*Plecotus* sp.). Natterer's (*Myotis nattereri*) and Nathusius pipistrelle (*Pipistrellus nathusii*) were recorded at only very low levels. Survey results suggested use of the habitat within the survey area by foraging and commuting bats.
- 1.2.10 The ditch network present is considered sub-optimal for water vole (*Arvicola amphibius*), and therefore this species is unlikely to be found within the survey area. The watercourses were assessed as sub-optimal to support otter (*Lutra lutra*) but could still be used by commuting otter.
- 1.2.11 The Phase 1 habitat and protected species surveys did not record evidence of badgers (*Meles meles*) within the survey area, including a 30m buffer. Woodland and hedgerow habitats within the survey area are however likely to provide foraging opportunities for badgers.
- 1.2.12 The woodland blocks and hedgerows within the survey area present provide potentially suitable habitat for hedgehogs (*Erinaceus europaeus*). During the Phase 1 habitat and protected species survey several incidental sightings of brown hare (*Lepus europaeus*) were recorded within the survey area boundary. Additionally, the arable and hedgerow habitat present provides suitable habitat for brown hare. Habitat suitable to support harvest mouse (*Micromys minutus*) was recorded within the

survey area including the arable fields and margins. The ponds present within the survey area were assessed as suitable to support water shrew.

- 1.2.13 Table 1 provides a summary of the value of these receptors for Sizewell Link Road as assessed in the Volume 6, Chapter 7 of the Sizewell C Project Environmental Statement (ES) [[APP-461](#)] (Ref. 7).

Table 1: Summary of the importance of ecological receptors as assessed in the Sizewell Link Road Environmental Statement

| Feature/Receptor | Importance (CIEEM/EIA Methodology). |
|---|-------------------------------------|
| Statutory designated sites within 5km of the survey area boundary | International/high |
| Non-statutory designated sites within 2km of the survey area boundary | County/medium |
| Arable habitats | Local/very low |
| Lowland mixed deciduous woodland | County/medium |
| Ponds within the survey area and within 500m | Local/low |
| Hedgerows | County/medium |
| Invertebrate assemblage | Local/very low |
| Great crested newts | County/medium |
| Other amphibians | Local/very low |
| Reptile assemblage | Local/very low |
| Breeding bird assemblage | Local/low |
| Bats | County/medium |
| Badgers | Local/very low |
| Water vole | Local/very low |
| Otter | Local/very low |
| Brown hare | Local/very low |
| Hedgehog | Local/very low |
| Harvest Mouse | Local/very low |
| Water Shrew | Local/very low |

1.3 Additional baseline survey 2020

- 1.3.1 In 2020, an extended Phase 1 habitat and protected species survey was undertaken of land surrounding the B1122 at Theberton. This land had not previously been surveyed as part of the 2019 ecology surveys associated with the Sizewell Link Road. The 2020 survey identified several habitats present within and adjacent to the area surveyed including broadleaved semi-natural woodland, arable fields, hedgerows, grassland, scattered trees, scrub, ruderal vegetation, quarry, waterbodies and hard standing.
- 1.3.2 A large dense patch of the non-native invasive species Japanese Knotweed (*Fallopia japonica*) was recorded within the area surveyed. Japanese Knotweed has not been recorded in any other locations along the Sizewell Link Road corridor.
- 1.3.3 The area surveyed in 2020 was found to support a diverse range of invertebrate species, a range of bird species including barn owl (*Tyto alba*), lapwing (*Vanellus vanellus*) and blackcap (*Sylvia atricapilla*) and a range of mammal species. It also has potential to support amphibians, reptiles, breeding and wintering birds, roosting bats and badgers and other mammal species.

2 OVERVIEW

2.1 Aims of the Survey Update 2020

2.1.1 The aim of the 2020 surveys was to determine the ecological status of land surrounding the B1122 at Theberton that had not previously been surveyed as part of the 2019 ecology surveys associated with Sizewell Link Road.

2.1.2 Findings of previous surveys of the Sizewell Link Road corridor are detailed within the Sizewell C Project ES, in Appendix 7A – Ecological Baseline [[APP-462](#)] (Ref. 1), Annex 7A4 – Primary Data [[APP-462](#)] (Ref. 2).

2.2 Submitted Baseline (2019)

2.2.1 The surveys undertaken to date for the Sizewell Link Road corridor included the following:

- Extended Phase 1 habitat and protected species survey.
- Hedgerow Regulations assessment.
- Habitat Suitability Index (HSI) for great crested newts.
- Great crested newt environmental DNA (eDNA) surveys.
- Breeding bird surveys.
- Bat tree inspections.
- Bat static surveys.
- Bat activity transect surveys.

2.3 Update surveys (2020)

2.3.1 The following surveys were undertaken of the area surrounding the B1122 at Theberton. Further details of the survey methodology are covered in Section 3.

- Extended Phase 1 habitat and protected species survey
- Great crested newt HSI (Habitat Suitability Index) survey
- Bat tree assessment survey

3 METHODS

- 3.1.1 The desk-study information for the proposed Sizewell Link Road is provided within Volume 6, Chapter 7, Appendix 7A of the Sizewell C Project ES [[APP-462](#)] (Ref. 1). This includes desk study records for the Sizewell Link Road corridor, including the Theberton area and includes records from Suffolk Biodiversity Information Service (SBIS).
- 3.1.2 An extended Phase 1 habitat and protected species survey was undertaken in July 2020 of the area surrounding the B1122 at Theberton by Ecological Consultants Alister Killingsworth (GradCIEEM) and Ana Pino-Blanco.
- 3.1.3 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 8). 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 9). Any non-native invasive species present within and adjacent to the area surveyed were also recorded.
- 3.1.4 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 area surveyed for invertebrates was assessed and any habitats or features of particular value were identified;
 - the value of the area surveyed for reptiles was assessed and any habitats or features of particular value for reptiles were identified;
 - the value of the area surveyed for breeding birds was assessed;
 - an external inspection of all trees within the area surveyed was carried out to assess their suitability for occupancy by roosting and/or hibernating bats. The likely value of the various habitat features for foraging and commuting bats was also critically assessed;
 - the area surveyed was investigated for its use by badgers 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 area surveyed for terrestrial mammals was assessed and any habitats or features of particular value for terrestrial mammals were identified.

- 3.1.5 During the 2020 extended Phase 1 habitat and protected species walkover survey, detailed site descriptions were taken for each waterbody within the area surveyed, 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.
- 3.1.6 A Habitat Suitability Index (HSI) for great crested newts (Ref. 10) 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’.
- 3.1.7 The HSI for each pond was used to compare the general suitability of the ponds present for great crested newts. 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.
- 3.1.8 Limitations to the survey included not having full access to the area surveyed. In these cases, the surveyors assessed the habitats from aerial photography where possible.

4 RESULTS

4.1 Extended Phase 1 Habitat Survey and Protected Species Survey

4.1.1 The results of the extended Phase 1 habitat survey are presented in Appendix A Figure 1 and are described individually below. The results of the bat tree assessment survey are presented in Appendix A Figure 2.

b) Invasive Species

4.1.2 A large dense patch of Japanese knotweed (*Fallopia japonica*) was recorded along the boundary of arable field A4 that was spreading along a drainage channel (Target Note 18).

c) Broadleaved Semi-natural Woodland

4.1.3 A woodland strip of native broadleaved species (W1) is present through the centre of the area surveyed. Most trees appear to be of a similar age and many have been subject to management (coppicing). Some trees in this area showed evidence of squirrel damage/bark stripping. Several mature/veteran pollard Pedunculate Oak (*Quercus robur*) trees are present at the boundaries of the woodland. Tree species recorded within the woodland canopy comprised Ash (*Fraxinus excelsior*), Field Maple (*Acer campestre*), Hornbeam (*Carpinus betulus*), Pedunculate Oak and Sweet Chestnut (*Castanea sativa*). The southern end of the woodland had a sparse understorey and limited ground flora. Towards the north of the woodland the ground flora is dominated by Bramble (*Rubus fruticosus* agg.) scrub and dense stands of Common Nettle (*Urtica dioica*) and Bracken (*Pteridium aquilinum*). Much of the land is flat and lacking in undulations/topography. Bank features include a ditch at the southern end of the woodland and two large depressions (one pond) within central areas. Trees are predominantly located on the banks of the depression and around the tops of the banks. The centre/low areas are vegetated with Common Nettle, young Elder, and other saplings (Target Note 21).

4.1.4 A woodland strip (W2) is present along the northern boundary of A2/A3 and separating the fields from the B1122. The composition of tree species differed from W1 and comprised Yew (*Taxus baccata*), Lime (*Tilia* sp.), Sweet Chestnut, and Pedunculate Oak all of which appeared early-mature/mature. The understorey and ground flora comprises Common Nettle, Dog's Mercury (*Mercurialis perennis*), Elder (*Sambucus nigra*), Bracken, areas of bare earth, and deadwood (fallen limbs and tree stumps – some large). The ground within this woodland was undulating and some of the banks were covered by Bramble scrub.

NOT PROTECTIVELY MARKED

- 4.1.5 A small block of woodland (W3) is present along the B1122. The woodland is situated between a road, arable field, and dry ditch. A culvert at the northern end of the woodland connects a dry ditch to the north of the B1122. The canopy comprised Ash, Field Maple, Hawthorn and Hazel (*Corylus avellana*). The understorey includes Lesser Burdock (*Arctium minus*), Elm (*Ulmus* sp.), Ivy (*Hedera helix*), Ground-ivy (*Glechoma hederacea*), Wood Avens (*Geum urbanum*), and Wood Dock (*Rumex sanguineus*). Areas on the western edge of the woodland are dominated by Bramble scrub. The woodland has an undulating topography and a depression that may have been a dry pond.
- 4.1.6 A small woodland block (W4) is also present between agricultural fields and Pretty Road. The woodland has some very large Pedunculate Oak pollards. Bramble scrub and bare earth were recorded throughout. A dry ditch running through the woodland connects two dry ponds and which gave an undulating topography to this block.
- 4.1.7 Broadleaved woodland (W5) is also present separating two fields to the south of Pretty Road. The canopy comprises Ash, Sycamore, Horse-chestnut (*Aesculus hippocastanum*), Lime, and Elm, with a scrub/sapling understorey and Hazel coppice. A large block of dense Bramble scrub was recorded on the western edge of the woodland which was up to 2.5 metres in height. A dry ditch runs through the woodland. Deadwood and stumps were noted throughout the woodland.
- 4.1.8 A further area of broadleaved woodland, south-west of W1 and to the east of the wind turbine, was also recorded separating arable fields. The canopy comprises Ash, Sweet Chestnut, Hornbeam, Field Maple, Sycamore Pedunculate, Silver Birch (*Betula pendula*), and Wild Cherry (*Prunus avium*). The understorey comprises Holly (*Ilex aquifolium*), coppiced Hazel, and Bramble scrub. The ground flora is species poor and predominantly comprised False-brome (*Brachypodium sylvaticum*), Wood Dock and Common Nettle. At the southern end of the woodland the ground was flat and had little to no undulations/topography with a dry ditch running through.
- 4.1.9 A tree line/thin woodland strip is present within the south of the area surveyed. This has a very dense understorey along the field side, dominated by Blackthorn and Bramble scrub. Occasional semi-mature/early-mature trees were recorded that comprised predominantly Ash and Pedunculate Oak (Target Note 3).
- d) **Scattered Trees**
- 4.1.10 Lime and Pedunculate Oak trees were recorded in the corner of arable field A3 adjacent to the field entrance/gate along with a dense stand of Bracken (Target Note 21).

NOT PROTECTIVELY MARKED

4.1.11 Scattered trees comprising predominantly Field Maple were recorded along Pretty Road (Target Note 5).

e) Scrub

4.1.12 Areas of dense and scattered scrub are present throughout the area surveyed (Target Notes 2, 5, 13, 20).

4.1.13 Areas of scrub are present along Pretty Road verge (Target Note 5). The road verge contains Perennial Rye-grass (*Lolium perenne*), Yorkshire-fog (*Holcus lanatus*), saplings, scrub, Hogweed (*Heracleum sphondylium*), coppiced Hazel, and dead Elm within the scrub.

4.1.14 An area of dense scrub is present along a bank of a footpath adjacent to arable field A4. The dense vegetation along the bank comprises Elder, Bramble, Bracken, Blackthorn and Hawthorn (Target Note 13).

4.1.15 Within the corner of arable field A5 dense Bramble scrub is present that surrounded dead Elm trees and low Hawthorn scrub. Dense Ivy was also noted growing through the scrub and trees (Target Note 20).

f) Neutral Semi-improved Grassland

4.1.16 An apparently unmanaged area of grassland is present to the south of the area surveyed (Target Note 2). The grassland has relatively good botanical diversity comprising several species of grass and occasional flower species. Timothy (*Phleum pratense*) was the dominant grass species, with occasional Cock's-foot (*Dactylis glomerata*), Rough Meadow-grass (*Poa trivialis*) and Crested Dog's-tail (*Cynosurus cristatus*). Flower species recorded included Common Fleabane (*Pulicaria dysenterica*) and Bristly Oxtongue (*Helminthotheca echioides*).

4.1.17 A small grassland verge is also present along Pretty Road.

g) Improved Grassland

4.1.18 A mosaic of dense and scattered scrub, tall/rank grassland, and saplings/young trees is present in the south of the area surveyed (Target Note 4). The grassland areas were tussocky and dominated by False Oat-Grass with frequent herb species including Silverweed (*Potentilla anserine*) and Common Fleabane. Scrub and saplings species recorded comprised Dog-rose (*Rosa canina*), Bramble (*Rubus fruticosus* agg.), Field Maple (*Acer campestre*), Willow (*Salix* sp), Pedunculate Oak and Ash.

h) Tall Ruderal Vegetation

- 4.1.19 An area of ruderal vegetation was recorded surrounding an area of hard standing used as a Parking area/storage platform. Species recorded comprised Common Nettle, Mugwort (*Artemisia vulgaris*), Creeping Thistle (*Cirsium arvense*) and Spear-leaved Orache (*Atriplex prostrata*).
- 4.1.20 The western field margin of arable field A2 was dominated by tall ruderal species including Fat-hen (*Chenopodium album*), Common Nettle, Greater Burdock (*Arctium lappa*), Hogweed, Field Bindweed (*Convolvulus arvensis*) and Redshank (*Persicaria maculosa*) (Target Note 11).

i) Tall Ruderal/Quarry

- 4.1.21 An area of rough/open ground was recorded to the north of H1 and adjacent to a formerly used excavation (Target Note 8). Patches of bare ground were frequent throughout and several tree stumps and/or areas of rotting wood were also noted. The sward was predominantly 50cm tall across its extent and included a mixture of grasses, crop/fodder species, and weeds/forbs. Frequently recorded species included Tall Melilot (*Melilotus latissimus*), Chicory (*Cichorium intybus*), and Mugwort. The excavation was a mosaic of re-vegetation, bare ground, crop species, tall ruderals, and banks (Target Note 9). An area of self-seeded/planted spruce trees (likely former Christmas trees) was also recorded.

j) Arable

- 4.1.22 The majority of the habitat recorded within the area surveyed comprises five large arable fields.
- 4.1.23 An arable field (A1), possibly planted with Broad Beans (*Vicia faba*), that appeared to have been sprayed off was recorded to the south of the area surveyed. A number of weeds were recorded growing throughout comprising Common Poppy (*Papaver rhoeas*), Redshank and Scented Mayweed (*Matricaria chamomilla*). A rough grassland field margin approximately two metres wide was recorded to the south of the field leading to a steep sided ditch.
- 4.1.24 An arable field (A2) sown with Potato crop (*Solanum tuberosum*) was recorded towards the middle of the area surveyed. The field had very few arable weeds recorded, however a wide field margin including a vehicle access track was recorded comprising Wild-oat (*Avena fatua*), Timothy, and tall ruderal species separated the field from arable field A3. Along the eastern boundary of the field a large grassland margin was recorded up to 4 metres wide in places supporting Field Horsetail (*Equisetum arvense*) and ruderal species with a dry ditch and managed hedgerow along the boundary.

- 4.1.25 An arable field (A3) sown with Oil-seed-Rape (*Brassica napus* subsp. *Oleifera*) and Buckwheat (*Fagopyrum esculentum*) was recorded adjacent to arable field A2. Along the western boundary of the field was a woodland edge, with scrub and saplings growing out into the arable field margin. The southern half of the field had a grassland margin, approx. 1-1.5m wide, which was dominated by False Oat-Grass. The boundary separating the woodland from the field was marked by a managed Field Maple hedgerow. Also noted within this boundary were Hazel and Elm.
- 4.1.26 A harvested onion arable field (A4) was recorded to the north-west of the area surveyed. The field has grass/ruderal margins on all sides. The western boundary of the field had a shallow ditch that had Bramble growth along the length of the channel. Growing on the banktops was vegetation comprising umbellifers, grasses, and ruderal species with a sward height of approximately 1.5-1.8 metres. The northern arable margin had a bank leading to an adjacent arable field (outside the survey area). From the centre of the field leading to the north-west was a hedgerow/line of dense scrub comprising predominantly Blackthorn and Elder. Areas dominated by grassland and ruderal species comprised Wild-oat, Field Madder (*Sherardia arvensis*), Wall Speedwell (*Veronica arvensis*), False Oat-Grass and Cock's-foot. The southern boundary had a gappy hedgerow and a field margin of variable width. The margin was a mix of bare earth, grassland, and occasional dense Bracken growth.
- 4.1.27 A harvested arable field (A5), previously sown with potato crop was recorded to the north-east of the area surveyed. The north-western arable margin was wide and comprised a one metre band of ruderal and weed species dominated by Fat-hen and Perennial Sow-thistle (*Sonchus arvensis*) nearest the field, with a wide grassland margin behind up to eight metres wide. The sward was a mixture of Yorkshire-fog, False Oat-Grass and Barren Brome (*Anisantha sterilis*), with occasional forbs and ruderals recorded. There was a defunct hedgerow along the field boundary, comprising Hawthorn, Blackthorn and Elder.
- 4.1.28 Within the south-west corner of arable field A5 was an area left fallow which was dominated by arable weeds and tall ruderal species comprising Fat-hen, Common Fiddleneck (*Amsinckia micrantha*), Common Ragwort (*Senecio jacobaea*), and Yorkshire-fog.
- k) Hedgerows
- 4.1.29 Seven hedgerows are present within the area surveyed and further details for each hedgerow are included in Table 2.

Table 2: Hedgerow details

| Hedgerow Number | Phase 1 habitat category | Description |
|-----------------|-------------------------------|---|
| H1 | Hedge with trees species rich | A mature Blackthorn hedgerow at the northern boundary of an arable field with several standard trees including Ash and Pendunculate Oak and limited areas of Hawthorn. The hedgerow is approximately 4-5m high and 2m wide, runs alongside a large dry ditch, and connects to a woodland at its western end. It had limited species diversity and a very limited ground flora/understorey. There was little to no arable margin separating the hedgerow from the arable field at the western end/central sections of the hedgerow. Within these areas, vegetation encroaching into the field included Blackthorn suckers and ruderal species including Nipplewort (<i>Lapsana communis</i>). The eastern end of the boundary had a grassland margin comprising rough grassland species and Wild-oat, Common Field-speedwell (<i>Veronica persica</i>) and Nipplewort. |
| H2 | Hedge with trees species poor | A mature tall and thin tree line/field boundary that appeared managed. The hedgerow comprises large standard trees, with occasional Hawthorn between. At the base of trees/between larger trees were collections of fallen and piled logs. |
| H3 | Hedge with trees species poor | A treeline along the field boundary of arable field A1 and leading into the northern end of woodland block W4. The hedgerow mostly comprised Pedunculate Oak trees with occasional Ash and a Hawthorn understorey. There was a very large species poor grassland/disturbed margin to the east that had areas of bare earth. Several old bird nests were noted within the tree line. |

| Hedgerow Number | Phase 1 habitat category | Description |
|-----------------|-------------------------------|---|
| H4 | Hedge with trees species poor | Along the road boundary with a variable width margin adjacent – sometimes very small and comprising stands of Bracken and then expands to two metres with tall grassland and ruderal species. The hedgerow was managed to approx. 3 metres high and 1.5 metres wide. It predominantly comprised Elm with some Pedunculate Oak and Sycamore. At the eastern end, approx. 30 metres of the hedgerow was dominated by Hawthorn. |
| H5 | Hedge with trees species rich | Elm hedgerow that was managed/maintained to 2.5 metre height and two metre width. The adjacent arable margin was a mix of ruderal species, Bracken, Bramble scrub, and some grassland. Vegetation along this margin included Common Poppy, Green Alkanet (<i>Pentaglottis sempervirens</i>), and Hawkweed (<i>Hieracium agg.</i>) The hedgerow changed from Elm to Blackthorn after approx. 50 metres but had similar dimensions and adjacent habitats. |
| H6 | Hedge with trees species poor | Hedgerow comprised Elm, Ash, Field Maple and Hawthorn. The hedgerow is sometimes gappy and/or overgrown with bramble scrub. Moving away from the B1122, the hedgerow is almost entirely scrub. |
| H7 | Intact species poor hedgerow | The boundary separating the woodland from arable field A3 was marked by a managed Field Maple hedgerow. Also noted within this boundary were Hazel and Elm. |

I) Ponds

- 4.1.30 A pond (Pond 1) is present on the boundary of a field and woodland, with increasing levels of exposed muds. The margins and pond are well-vegetated with emergent species, comprising Hard Rush (*Juncus inflexus*), Bulrush (*Typha latifolia*), False Fox-sedge (*Carex otrubae*) Sea

Club-rush (*Bolboschoenus maritimus*), Common Spike-rush (*Eleocharis palustris*) and Water-plantain (*Alisma plantago-aquatica*). The northern half of the pond was more open, although it appeared stagnant and the surface/column was dominated by algae.

- 4.1.31 A large circular pond (Pond 2) is present inside an area of woodland approximately 10-15m in diameter. The pond was surrounded by large coppiced Sycamore (*Acer pseudoplatanus*) and scrub. Little aquatic vegetation was recorded comprising Common Duckweed (*Lemna minor*) and algae. The pond had receded exposing deep silt and there was leaf litter throughout. The water depth appeared to be around 20-30cm and there was one pipe/inflow from the adjacent field.
- 4.1.32 A dry pond (Target Note 4) was recorded in the centre of an area of woodland. The base of the pond appeared to be dominated by grassland and ruderal species comprising Common Nettle, Barren Brome and Great Willowherb (*Epilobium hirsutum*). The pond was surrounded by trees, with occasional deadwood in the canopies, and some standing deadwood.

m) Ditches

- 4.1.33 A dry ditch (D1, Target Note 5) is present parallel to Pretty Road (to the south of the road) and is approximately one metre deep and 1.5 metres wide. The ditch runs alongside and within the woodland strip and adjacent to a dry pond. The ditch is heavily shaded and overgrown with trees, scrub comprising Dog-rose and Bramble, and tall ruderal species. The ditch itself has fairly steep earth banks and appears unsuitable for water voles and otters. On the bend of the ditch was a section of standing water. The water depth appeared to be approximately 10-15 cm during the survey and supports a stand of Water-plantain and willow saplings. The area was open due to a gap in the tree line (Target Note 6).
- 4.1.34 A ditch was also recorded along the southern boundary of arable field A1. The ditch has earth banks and is heavily vegetated along its length with predominantly grassland and ruderal species, with wetland species less frequently. The margin grassland sward ranged in height from 1-1.5 metres. Grass species recorded comprised False Oat-Grass, Cock's-foot and Common Couch (*Elytrigia repens*). Herb species recorded comprised Bristly Ox-tongue, Common Fleabane, and Creeping Buttercup (*Ranunculus repens*).
- 4.1.35 Along the western boundary of arable field A4 a shallow ditch was recorded that had Bramble growth along the length of the channel. Vegetation growing along the bank top comprised umbellifer species, grass species and ruderal species with a sward height of approx. 1.5-1.8m.

n) Hard standing

- 4.1.36 An area of hard standing used as a Parking area/storage platform was recorded.

o) Invertebrates

- 4.1.37 Dragonflies and damselflies including brown hawker (*Aeshna grandis*) and ruddy darter (*Sympetrum sanguineum*) were recorded at Pond 1 and using the surrounding areas.
- 4.1.38 The southern boundary of Arable Field A4 had a defunct hedgerow which included deadwood, dense Ivy and scrubby trees which were assessed as suitable habitat to support invertebrate species.
- 4.1.39 A veteranised tree (possibly a dead Elm) (Target Note 14) was recorded beneath the canopy of a larger Pedunculate Oak tree in the west corner of Arable Field A5. This was hollow and was considered good habitat to support saproxylic invertebrate species.
- 4.1.40 A monolith/standing deadwood (Target Note 20) which had significant rot/decay, small splits, and minor lifted bark was assessed as good habitat to support saproxylic invertebrates.
- 4.1.41 An area of fallen trees and exposed roots with dead wood was recorded within an area of woodland north of the B1122 which was assessed as suitable to support saproxylic invertebrates (Target Note 20).
- 4.1.42 Dead wood recorded within woodland W2 appeared to provide good habitat for saproxylic invertebrates including stag beetle (*Lucanus cervus*).
- 4.1.43 An ungrazed/unmanaged area of grassland present towards the south of the area surveyed was seen to support a range of butterfly species including small white (*Pieris rapae*) and Essex skipper (*Thymelicus lineola*) (Target Note 2) and an area of thin woodland strip with dense scrub understorey was also actively used by invertebrates including skipper butterflies, meadow brown (*Maniola jurtina*), common blue (*Polyommatus icarus*), peacock butterfly (*Aglais io*) and common darter (*Sympetrum striolatum*) (Target Note 3).
- 4.1.44 An area of rough/open ground of ruderal vegetation and former excavation to the north of Hedgerow 1 was used extensively by bees, butterflies, and other pollinators (Target Note 8). The excavation was a mosaic of re-vegetation, bare ground, crop species, tall ruderals, and banks. The exposed sandy banks and flat ground were particularly good habitats for solitary bees and wasps, and many holes were noted in these habitats (Target Note 9).

p) Amphibians

4.1.45 Three ponds were recorded within the area surveyed (see above), of which two held water at the time of survey. Table 3 presents the results of the HSI survey undertaken of these ponds.

Table 3: HSI survey results

| Feature | Pond 1 | Pond 2 |
|-----------------------------|----------------|----------------|
| Location | Zone A | Zone A |
| Pond area (m ²) | 50-100 | 50-100 |
| Pond drying | Rarely dries | Rarely dries |
| Water quality | Moderate | Moderate |
| Shade (%) | 30 | 80 |
| Fowl | Absent | Absent |
| Fish | Possible | Absent |
| Ponds | >12 | >12 |
| Terrestrial habitat | Good | Good |
| Macrophytes (%) | 20 | 5 |
| HSI Score | 0.68 (Average) | 0.64 (Average) |

4.1.46 The arable field margins, grassland, ruderal vegetation, hedgerows and woodland comprise suitable foraging habitat for amphibian species, with the woodland also containing brash piles and log piles which are considered suitable hibernation sites.

4.1.47 Large brash and log pile was recorded within woodland W1 (Target Note 24) and W3 (Target Note 12) and dead wood present within woodland W2 was assessed as suitable hibernacula to support amphibian species.

4.1.48 A mosaic of dense and scattered scrub, tall/rank tussocky grassland, and saplings/young trees was recorded within the south of the area surveyed which was assessed as suitable habitat to support amphibian species (Target Note 4).

4.1.49 Most of the land within the area surveyed comprises arable fields which is considered sub-optimal habitat to support amphibian species. Overall, the available terrestrial habitat to support amphibian species within the area surveyed is considered to be limited.

q) Reptiles

- 4.1.50 Within the area surveyed the arable field margins, grassland, hedgerows, ruderal vegetation and woodland comprise suitable foraging habitat for reptile species, with the woodland also containing brash piles and log piles which are considered suitable hibernation sites.
- 4.1.51 Large brash and log pile was recorded within woodland W1 (Target Note 24) and W3 (Target Note 12) and dead wood present within woodland W2 was assessed as suitable hibernacula to support reptile species.
- 4.1.52 A mosaic of dense and scattered scrub, tall/rank tussocky grassland, and saplings/young trees was recorded within the south of the area surveyed which was assessed as suitable habitat to support reptiles (Target Note 4).
- 4.1.53 An area of rough/open ground of ruderal vegetation and former excavation to the north of H1 was considered good quality habitat to support reptiles (Target Note 8).
- 4.1.54 Most of the land comprises arable fields which are considered sub-optimal habitat to support reptile species. Overall, the available habitat to support reptile species within the area surveyed is considered to be limited.

r) Birds

- 4.1.55 Within the area surveyed the arable fields were assessed as suitable to support bird species associated with arable farmland habitat, which are included on the UK Farmland Indicator list (Ref. 6) and a number of species including on the list were recorded within the area surveyed including a flock of 20+ lapwing using the northern half of Arable field A5, yellowhammer (*Emberiza citrinella*), jackdaw (*Corvus monedula*), woodpigeon (*Columba palumbus*) and kestrel (*Falco tinnunculus*). Lapwing (*Vanellus vanellus*) and yellowhammer are also included on the BoCC red list (Ref. 4) whilst kestrel is included on the BoCC amber list (Ref. 4). Additionally, tawny owl (*Strix aluco*) which is included on the BoCC amber list was also recorded. Woodland and the hedgerows within the area surveyed were assessed as suitable to support nesting birds and would also provide foraging opportunities.
- 4.1.56 A mosaic of dense and scattered scrub, tall/rank tussocky grassland, and saplings/young trees was recorded within the south of the area surveyed in which a number of bird species were recorded utilising (Target Note 4).
- 4.1.57 Two barn owls were seen flying away from a cavity on the southern side of the Tree T28 tree and there were three roost/perch locations noted on/surrounding the tree. At each point droppings and pellets were found,

along with a feather. The pellets ranged in age from fresh to approx. 30 months.

- 4.1.58 Red-legged partridge (*Alectoris rufa*) and young were recorded within arable field A4 (Target Note 16).
- 4.1.59 An abandoned blackcap nest was recorded within the scrub in woodland W1 (Target Note 22)

s) Bats

- 4.1.60 The habitats present within the area surveyed comprised primarily arable fields which were assessed as being of limited value to foraging bats. The hedgerows, woodland blocks and areas of ruderal vegetation and grassland offer good commuting and foraging opportunities whilst the woodland blocks and scattered trees were assessed as offering roosting opportunities for bats.
- 4.1.61 Eighty-eight specific trees/tree groups were assessed during bat tree assessment surveys as having specific features suitable for use by roosting bats. Numerous low potential trees were also identified during the survey however these were not individually surveyed and mapped due to the vast numbers of trees assessed within this category. Nine trees were classified on area surveyed as having moderate potential but were re-classified as having low potential following subsequent discussion. A summary of the roost assessment levels assigned to these trees is provided in Table 4. Full details of the results of the bat tree assessment survey are provided in Appendix B. The location of assessed trees is illustrated on Figure 2.

Table 4: Summary of bat tree assessment results.

| Tree roost assessment level | Number of trees identified |
|-----------------------------|----------------------------|
| High potential | 29 |
| Moderate potential | 50 |
| Low | 9 |
| Total | 88 |

t) Otter and Water Vole

- 4.1.62 A dry ditch (D1) with steep earth banks was recorded running along parallel to Pretty Road (to the south of the road). The ditch ran alongside and within the woodland strip and adjacent to a dry pond and was assessed as unsuitable to support otter and water vole.

4.1.63 A number of other dry ditches were recorded within the area surveyed that were considered unsuitable to support these species. However, no field signs for either species have been recorded during the 2020 surveys.

u) Badger

4.1.64 The extended Phase 1 habitat and protected species survey recorded no badger setts within the area surveyed, however the woodland and hedgerow habitats within the area surveyed was considered suitable habitat for foraging opportunities for badgers, with woodland areas W2, W3, and W4 considered suitable to support badger setts.

4.1.65 A badger latrine comprising two dung pits was recorded along the edge of woodland W1 (Target Note 10). The latrine was well-used and was adjacent to a well-defined trail leading into/through the woodlands. A badger skull was also found along a field margin (Target Note 15).

v) Other Mammal Species

4.1.66 Rabbit (*Oryctolagus cuniculus*) burrows were noted along a bank, beneath and within scrub habitat in arable field A4 (Target Note 13) and within woodland W1 along with well-worn mammal paths running north-south with a large depression in the woodland (Target Note 21 and 23).

4.1.67 Large brash and log pile was recorded within woodland W1 (Target Note 24) and W3 (Target Note 12) which was assessed as suitable hibernacula to support hedgehog.

4.1.68 Within the former excavation evidence of at least three species of deer (Muntjac deer (*Muntiacus reevesi*), Fallow deer (*Dama dama*) and red deer (*Cervus elaphus*) were recorded using the area (from slots/ prints and droppings) and fox (*Vulpes vulpes*) footprints and scats were recorded (Target Note 9).

4.1.69 The arable fields were assessed as suitable to support brown hare whilst the arable field margins were considered suitable to support harvest mouse.

5 DISCUSSION

- 5.1.1 The extended Phase 1 habitat and protected species survey identified several habitats present within and adjacent to the area surveyed including broadleaved semi-natural woodland, arable fields, hedgerows, neutral semi-improved grassland, improved grassland, scattered trees, scrub, ruderal vegetation, quarry, waterbodies and hard standing.
- 5.1.2 The area surveyed is known to support a range of bird species including barn owl, lapwing and blackcap and a range of mammal species and has potential to support amphibian species, reptiles, breeding and wintering birds, roosting bats and badgers and other mammal species.
- 5.1.3 The non-native invasive species Japanese Knotweed is included on Schedule 9 of the Wildlife and Countryside Act 1981 (Ref. 11) has been recorded only in this location along the Sizewell Link Road route corridor. If works occur in the vicinity of this species there is a risk of spread.
- 5.1.4 Based on the current survey results presented above, the assessment of impacts presented at Section 7.6 in Volume 6, Chapter 7 of the Sizewell C Project ES [[APP-461](#)] (Ref. 7) has not changed however additional mitigation will be required, detailed below with regards to Japanese Knotweed.

6 CONCLUSION

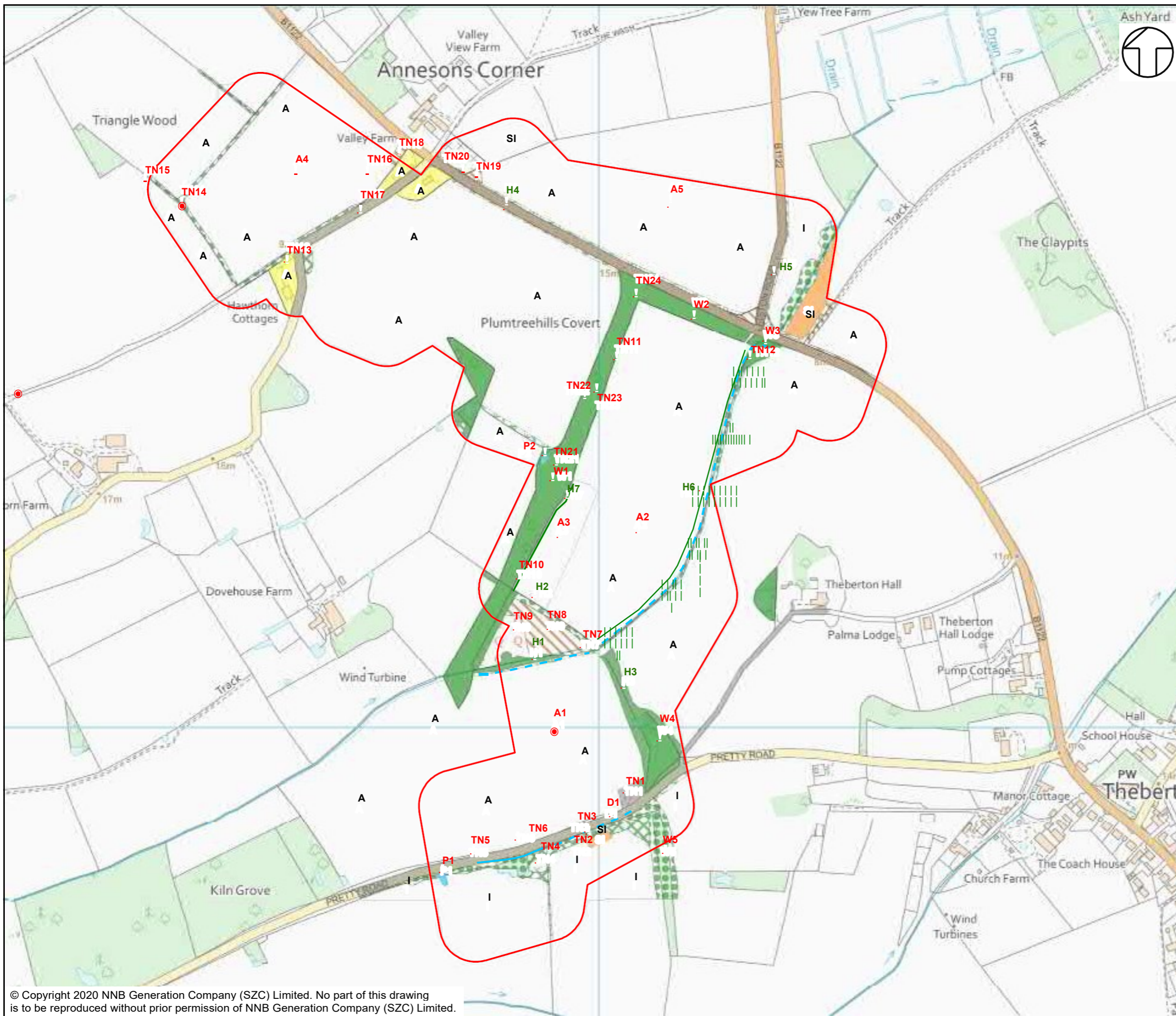
- 6.1.1 The extended Phase 1 habitat and protected species survey identified several habitats present within and adjacent to the area surveyed including semi-natural broadleaved woodland, arable fields, hedgerows, neutral semi-improved grassland, improved grassland, ruderal vegetation, quarry, scrub, ditches and ponds.
- 6.1.2 The area supports a range of common invertebrate species, a range of bird species including barn owl, lapwing and blackcap and a range of mammal species. The area has potential to support amphibian species, reptiles, breeding and wintering birds, roosting bats and badgers and other mammal species.
- 6.1.3 The non-native invasive species Japanese Knotweed was recorded within the area surveyed with additional mitigation measures required to remove and control the spread of this species.
- 6.1.4 The results of the 2020 update survey are in accordance with the baseline survey submitted in the Sizewell C Project ES [[APP-461](#)] (Ref.7). and the assessment presented in the ES remains unchanged.

REFERENCES

1. EDF 2020. Sizewell C Development – Sizewell Link Road: Volume 6, Chapter 7: Appendix 7A – Ecological Baseline. [APP-462]
2. EDF 2020. Sizewell C Development Sizewell Link Road: Volume 6, Chapter 7: Appendix 7A, Annex 7A3 Primary Data [APP-462]
3. DEFRA Farmland Bird Indicator Index Available: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/541593/agindicator-de5-29jul16.pdf
4. M. A. Eaton, et al. 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.
5. Natural Environment and Rural Communities Act. 2006. (Online). Available from: <http://www.legislation.gov.uk/ukpga/2006/16/contents> (Accessed 1 March 2019).
6. Suffolk Biodiversity Partnership. Suffolk Local Biodiversity Action Plan. May 2012. (Online). Available from: https://www.suffolkbis.org.uk/sites/default/files/biodiversity/prioritiespecieshabitats/actionplans/Planning_BAP_Final%2018%20May%202012.pdf (Accessed 7 February 2019).
7. EDF 2020. Sizewell C Development – Sizewell Link Road: Volume 6, Chapter 7: Terrestrial Ecology and Ornithology [APP-461]
8. Joint Nature Conservation Committee. 2010. Handbook for Phase 1 habitat survey: a technique for environmental audit. Peterborough: JNCC, 2010.
9. Stace, C. 2019. *New Flora of the British Isles*, 4th Edition. C&M Floristics, Stowmarket.
10. 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.
11. Wildlife and Countryside Act 1981. HMSO
12. EDF 2020. Sizewell C Development Sizewell Link Road: Volume 6, Chapter 7: Appendix 7A, Annex 7A5 Draft GCN Licence Application. [APP-462]
13. EDF 2020. Sizewell C Development Sizewell Link Road: Volume 6, Chapter 7: Appendix 7A, Annex 7A6A Non-licencesable Method Statement -Bats [APP-462]

14. EDF 2020. Sizewell C Development Sizewell Link Road: Volume 6, Chapter 7: Appendix 7A, Annex 7A6B Non-licencesable Method Statement – Reptiles [[APP-462](#)]

APPENDIX A: FIGURES



NOTES

KEY

- SITE BOUNDARY
- TARGET NOTE
- RUNNING WATER
- DRY DITCH
- BROADLEAVED WOODLAND - SEMI-NATURAL
- SCRUB - DENSE/CONTINUOUS
- SCRUB - SCATTERED
- BROADLEAVED PARKLAND - SCATTERED
- SEMI-IMPROVED NEUTRAL GRASSLAND
- IMPROVED GRASSLAND
- POOR SEMI-IMPROVED GRASSLAND
- OTHER TALL HERB AND FERN
- STANDING WATER
- QUARRY
- CULTIVATED/DISTURBED LAND - AMENITY GRASSLAND
- INTACT HEDGE - NATIVE SPECIES - RICH
- INTACT HEDGE - NATIVE SPECIES - POOR
- HEDGE WITH TREES - NATIVE SPECIES - RICH
- HEDGE WITH TREES - SPECIES - POOR
- HARDSTANDING
- OTHER HABITAT

KEYS :

- TN - TARGET NOTES
- A - ARABLE FIELDS
- D - DITCHES
- H - HEDGEROWS
- P - PONDS
- W - WOODLAND

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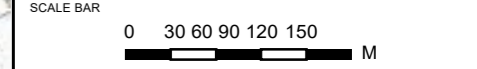


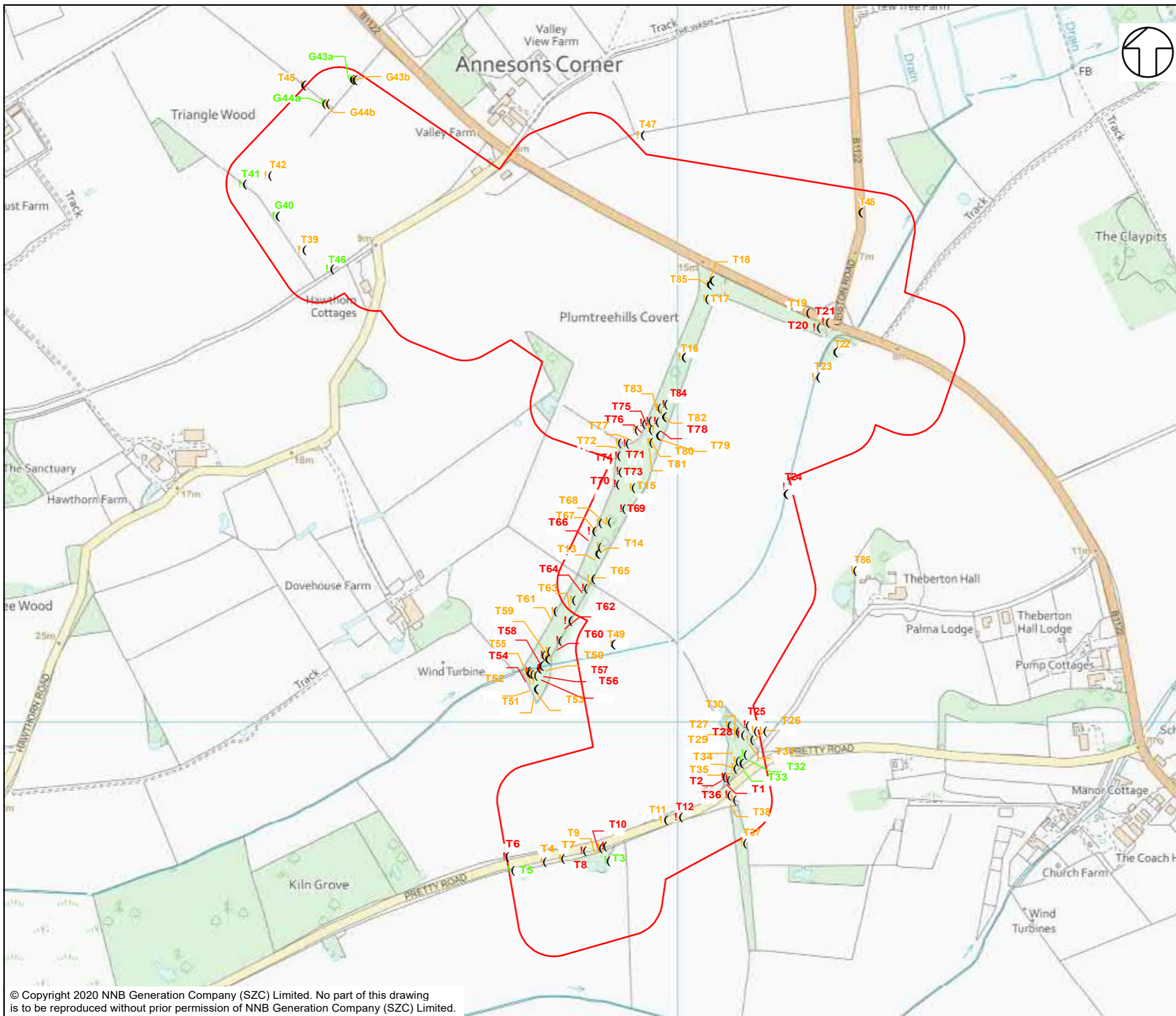
DOCUMENT:
 SIZEWELL LINK ROAD 2020 SURVEYS

DRAWING TITLE:
 PHASE 1 HABITAT PLAN

DRAWING NO:
 FIGURE 1

| | | | |
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NOTES

KEY

- SITE BOUNDARY
- TREES WITH BAT POTENTIAL**
- ! HIGH
- ! MODERATE
- ! LOW

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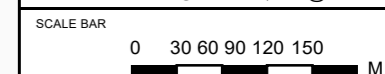


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 SIZEWELL LINK ROAD 2020 SURVEYS

DRAWING TITLE:
 BAT TREE ASSESSMENT

DRAWING NO:
 FIGURE 2

DATE: SEPT 2020 DRAWN: R.G. SCALE: 1:5,000 @A3 REV: 01



APPENDIX B: SPECIES LISTS

APPENDIX C: BAT TREE SURVEY RESULTS

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| Tree number | Tree species | Description of tree features | Tree potential |
|-------------|-----------------|--|----------------|
| T1 | Pedunculate Oak | Dead Pedunculate Oak tree with large split limbs in the canopy, lifted bark, and deadwood. | High |
| T2 | Ash | Dead Ash tree with numerous holes (knot holes and rot) that could lead into larger cavities given the condition of the tree. Deadwood and split limbs were noted within the canopy. | High |
| T3 | Pedunculate Oak | A pollard Pedunculate Oak on the edge of the dry pond. It had no obvious roosting features but did have some deadwood within the canopy and rot seen at the pollard points – may have cavities that could be used by bats. | Low |
| T4 | Pedunculate Oak | A veteranised/very mature Pedunculate Oak with lifted bark all around the stem and potential for cavities within higher areas through the centre of the tree (climb & inspect recommended). | Moderate |
| T5 | Pedunculate Oak | Mature Pedunculate Oak pollard with a very large DBH and some ivy cover on the stems above the pollard point. Would need to be climbed and inspected, although it doesn't appear to have obvious roosting features. | Low |
| T6 | Pedunculate Oak | Pollard Pedunculate Oak to the north of the road with large amounts of lifted bark, knot holes, and potential rot cavities. | High |
| T7 | Ash | An early-mature Ash tree on the southern edge of the road. Knot holes (northern aspect) appear to stop when viewed through binoculars (climb & inspect recommended). | Moderate |
| T8 | N/A | Standing deadwood with knot holes and a potential woodpecker hole on the northern aspect. Rot leading down the main stem from the holes. Possible feather seen on the entrance to the hole – potential use of the cavity by nesting birds. | High |

NOT PROTECTIVELY MARKED

| Tree number | Tree species | Description of tree features | Tree potential |
|-------------|-----------------|--|----------------|
| T9 | Ash | Twin-stemmed early-mature/mature Ash. There were two knot holes, one on each stem that appear to go into cavities. Both holes were on the northern aspect. | Moderate |
| T10 | Pedunculate Oak | An early-mature Pedunculate Oak growing on the edge of a ditch. The tree had lifted bark and potential cavities around tear-outs. Also noted was a split along the length of a limb (north facing) and other potential cavities around fallen/dropped limbs. | High |
| T11 | Ash | Early mature Ash with knot holes on the northern aspect – on the northern stem. One of these holes is at approximately 2m, the other at approx. 5-6m. | Moderate |
| T12 | Possible Ash | Veteranised pollard (possibly Ash). The tree had a completely open/hollow base and some lifted bark around the main stem. At least one stem rising from the main stem has potential cavity for at least 1m – area of rot and decay leading along the branch. | High |
| T13 | Ash | Multi-stemmed Ash tree with damage/split out stem. There was a hole on the stem, facing north-east, (at least large enough for a pipistrelle) at approximately 3m – requires endoscope inspection. | Moderate |
| T14 | Ash | A 3-stemmed Ash tree with one dead stem. Rot at the base of the tree creates a cavity leading up into the stem. Required assessment using endoscope. | Moderate |
| T15 | Sycamore | Mature multi-stemmed Sycamore on the woodland edge. The tree had a south-facing old wound/knot hole at approx. 5-6m. | Moderate |
| T16 | Pedunculate Oak | A Pedunculate Oak with a retrenching/receding crown that had a large amount of deadwood within the canopy. Splits on branches and lifted bark on branches and the main stem provided PRFs. The tree was surrounded by dense bramble growth. | Moderate |
| T17 | Pedunculate Oak | A mature coppiced Pedunculate Oak tree with a hazard beam (small), dead limbs, and lifted bark | Moderate |
| T18 | Pedunculate Oak | Coppiced/multi-stemmed Pedunculate Oak tree. The northernmost stem has a dead limb with splits along its length. Other stems are ivy covered (unable to fully inspect). | Moderate |

NOT PROTECTIVELY MARKED

| Tree number | Tree species | Description of tree features | Tree potential |
|-------------|-----------------|--|----------------|
| T19 | Field Maple | A coppiced Field Maple with significant rot at the base of two stems. A decay cavity appeared to extend for at least 50cm up into the stems. Although cobwebs were noted over the entrances, a full inspection using an endoscope would be required. | Moderate |
| T20 | N/A | A monolith/standing deadwood. This had significant rot/decay, small splits, and minor lifted bark. There was a possible hole facing the field at approx. 2.5-3m. | High |
| T21 | Sycamore | Multi-stemmed Sycamore (coppiced) with one dead stem. This was hollow and had a potential cavity leading down into the stem. There are holes on the largest stem at approx. 4m – rot at this point meant there could be potential cavities. | High |
| T22 | Ash | A mature Ash tree towards the southern extent of W3. This had a large knot hole on the western aspect and a tear-out above. The hole is at approx. 5-6m from ground level. | Moderate |
| T23 | Pedunculate Oak | Large mature Pedunculate Oak along the field boundary of A2. This had occasional large dead branches within the canopy, some lifted bark, and splits; however, dense ivy growth prevented full inspection and so would require climb and inspect. | Moderate |
| T24 | Pedunculate Oak | A large boundary Pedunculate Oak tree with tear-outs and potential large cavities. It also had potential cavities at former pruning/management points. | High |
| T25 | Pedunculate Oak | A large Pedunculate Oak pollard on the edge of the woodland. There was deadwood in the canopy, large areas of decay on some stems, lots of lifted bark, some splits in the deadwood. A young sycamore nearby has knot holes that could not be inspected. | High |
| T26 | Pedunculate Oak | A mature Pedunculate Oak pollard with some minor deadwood and a hole on the western aspect leading into a lost limb/tear-out – the hole appears to stop after 5-10cm but would require further inspection. The main stem also had some lifted bark. | Moderate |
| T27 | N/A | Very large monolith that has split from approx. 3m up the main stem. The stem was hollow but had lifted bark and a potential cavity facing towards the dry pond/depression. | Moderate |
| T28 | Pedunculate Oak | A very mature Pedunculate Oak pollard that had one living and one dead stem above the pollard point. Rot leading from the base of the tree and large amount of decay at a | High |

NOT PROTECTIVELY MARKED

| Tree number | Tree species | Description of tree features | Tree potential |
|-------------|--------------|---|----------------|
| | | tear-out point and potential large cavities. Lifted bark, splits, and deadwood were noted on all areas of the tree. Two barn owls were seen flying away from a cavity on the southern side of the tree and there were three roost/perch locations noted on/surrounding the tree. At each point droppings and pellets were found, along with a feather. The pellets ranged in age from fresh to approx. 30 months. | |
| T29 | Field Maple | Multi-stemmed Field Maple that had a knot hole on the largest stem at approx. 4m on the northern aspect. Using binoculars, the lower edge of the hole appeared smooth. Stem to the south had a hole at approx. 2.5m – the cavity (small) leads up the stem but would require climb and inspect/endoscope assessment. Other potential holes on both stems also require climb and inspect assessment. | Moderate |
| T30 | N/A | Standing deadwood/monolith that was approx. 4m tall. This was covered in ivy, but the southern aspect appears to have a hole/cavity at approx. 3-3.5m. The stem had abundant bracket/decay fungi, indicating potential cavities. | Moderate |
| T31 | Sycamore | A Sycamore that was twin stemmed from 2m. One stem was dead and had numerous knot holes/rot which could lead into cavities. It also had minor lifted/flaking bark. | Moderate |
| T32 | Field Maple | Field Maple growing prostrate then upwards. There is a potential split/inclusion area at approx. 3m, nearly overhanging the road/track to the south. When viewed through binoculars it appears to stop but may continue downwards into the branch. | Low |
| T33 | N/A | A fallen/dead tree. This had very little bark left but had a large number of splits and cracks along the main stem and branches. Some of these appear superficial but others are deeper. A number of these were checked using a torch (no bats found) but this would require further inspection. | Low |
| T34 | Sycamore | A Sycamore with a hole on its stem above a fork (at approx. 6m). This was a possible knot hole on the eastern aspect that appears open/to enter cavity that appeared large enough for bats or nesting birds (i.e. blue tits). | Moderate |

NOT PROTECTIVELY MARKED

| Tree number | Tree species | Description of tree features | Tree potential |
|-------------|-----------------|---|--------------------|
| T35 | Field Maple | A mature Field Maple coppice. The branched on the southern stem/aspect have knot holes/rot holes that appear to lead into cavities. One of these was at approx. 4m and the other at 5-6m; however, the branches were relatively small. | Moderate |
| T36 | Ash | Ash tree on the roadside that had a large cavity/opening on the main stem, facing the road. The cavity appeared to extend up into the stem. There were also possible cavities at previous pruning points, above the large cavity (possibly connected to it). | High |
| T37 | Field Maple | A mature Field Maple coppice within W5. This had two main stems, one of which had a cavity at approx. 1.3-1.5m from ground level. The cavity extends down into the stem and is dry. | Moderate |
| T38 | Ash | An early-mature Ash at the northern end of W5 with moderate Ivy cover on the main stem. There was a cavity/wound at approx. 1.2m from ground level on the southern aspect. This appeared to extend up into the stem and would require further inspection with an endoscope. | Moderate |
| T39 | Pedunculate Oak | A mature pollard Pedunculate Oak on the field boundary. This had two small knot holes and a possible cavity/crevice where two large branches join. | Moderate |
| G40 | Pedunculate Oak | Two mature Pedunculate Oak on the field boundary. Both had dense ivy cover that could be obscuring PRFs. | Low |
| T41 | Pedunculate Oak | A boundary Pedunculate Oak tree – unable to inspect fully due to dense Ivy growth on the main stem. The canopy contained minor deadwood. | Low |
| T42 | Pedunculate Oak | Mature Pedunculate on the northern boundary. This had tear-outs and split limbs (splits on major limbs) throughout the canopy; however, features were predominantly recorded on the northern aspect. | Moderate |
| G43 | Pedunculate Oak | Two mature Pedunculate Oak on the field boundary. The western tree had minor damage within the crown, but dense Ivy growth prevented full inspection. The eastern | Western tree – Low |

NOT PROTECTIVELY MARKED

| Tree number | Tree species | Description of tree features | Tree potential |
|-------------|-----------------|--|---|
| | | tree had splits on limbs over the field which appeared to lead into cavities within the limb. This also had Ivy cover on the main stem and so may have supported more PRFs. | Eastern tree - Moderate |
| G44 | Pedunculate Oak | Two Pedunculate Oak trees on the field boundary. The southern tree had very dense Ivy growth preventing full inspection and minor damage to the limbs from a flail or large machinery movement. The northern tree has a potential cavity on the western aspect at 3m on the main stem. This opening was approx. 30cm long and 15cm wide. | Southern tree – Low Northern tree - Moderate |
| T45 | Pedunculate Oak | A Pedunculate Oak with a receding crown/deadwood within the canopy. There were holes and potential cavities at former pollarding/pruning points. The tree also had some lifted bark and knot holes on the northern aspect at approx. 4m. | Moderate |
| T46 | Field Maple | Field Maple on the field boundary – in the south-west corner of A4. A dead stem had a potential cavity where the branch from another tree passes across it. There was a small hole visible which may lead a cavity, due to the decay of the stem. | Low |
| T47 | Holly | A mature Holly just outside the survey boundary. This had multiple holes at the ends of branches/previous pruning points. | Moderate |
| T48 | Pedunculate Oak | Pedunculate Oak on the field boundary/road bank. There was deadwood in the canopy and a small branch had an old pruning wound that could lead into a cavity. Branch lower to the ground had split, likely damage from passing farm machinery. All features were on the northern aspect of the tree. The tree appeared unlikely to have cavities; however, a climb and inspection survey would possibly be required if the tree is impacted by works (it was approx. 50m from the route/red line boundary). | Moderate |
| T49 | Ash | An Ash on the northern boundary of A1 and growing along a steep-sided dry ditch. It was twin stemmed from approx. 1.5m. One stem was dead/had large amounts of decay and two holes were noted along the line of decay leading along the stem. These holes should be checked with an endoscope. | Moderate |

NOT PROTECTIVELY MARKED

| Tree number | Tree species | Description of tree features | Tree potential |
|-------------|--------------|---|----------------|
| T50 | Ash | An Ash on the edge of the woodland. This had tree stems above 3m. At this split/join, the tree appeared to have rot and could split out. There was a knot hole on one of the smaller stems, this was south facing. | Moderate |
| T51 | Ash | Fallen Ash that was supported by an adjacent tree. This had a large split/hazard split running along the main stem and was approx. 3m long. | Moderate |
| T52 | Hornbeam | A Hornbeam in the corner of the woodland. On the southern aspect at approx. 6-7m were wounds/rot running along limbs/stem. There were three consecutive holes that possibly led into cavities. | Moderate |
| T53 | Hornbeam | Coppiced/multi stem Hornbeam. There was a wound at the fork at approx. 6-7m. There appeared to be a gap or crack along rot, potentially leading into a cavity. Another hole was noted on a separate limb at approx. 4m from the ground. This was small and might terminate (climb and inspection required). | Moderate |
| T54 | Hornbeam | Multi stem Hornbeam with a wound on the stem in the centre of the coppice. This was south facing at approx. 3m. The wound was approx. 50cm long and appeared to extend internally up the stem when viewed through binoculars. | High |
| T55 | Hornbeam | A three stemmed Hornbeam. The central stem had split at approx. 5m and fallen into adjacent limbs. There were possible crevices /gaps within the split. | Moderate |
| T56 | Ash | A three stemmed Ash with a hole on the western stem at approx. 5m. The hole runs straight through the stem, possibly two branches joining. When viewed through binoculars, the hole appeared to extend up into the main stem (internally). Beneath this, on the northern aspect, is another hole – possibly from the same join as above. The northern stem has knot hole/woodpecker hole at approx. 10m on the northern aspect. | High |
| T57 | Ash | A three stemmed Ash adjacent to T56. The largest stem had a wound/rot at a tear-out/point of lost limb. There was a possible woodpecker hole within the area of decay and other points of access above. | High |

NOT PROTECTIVELY MARKED

| Tree number | Tree species | Description of tree features | Tree potential |
|-------------|-----------------|--|----------------|
| T58 | Ash | An early mature Ash tree growing on the northern bank of the dry ditch. There were two holes on the northern aspect at approx. 6-7m; one was a woodpecker hole and one hole at a tear-out/lost limb. There was an open/clear flight path leading to the holes. | High |
| T59 | Pedunculate Oak | A semi/early mature Pedunculate Oak that had split at approx. 6m (tree broken in half). From this damage was rot and splits at the top of the remaining stem. At approx. 4m on the western side was a knot hole/wound that appeared to lead into the stem – it did not terminate when viewed through binoculars. | Moderate |
| T60 | Ash | Early mature Ash tree near to the edge of the woodland. At approx. 7-8m it forks and becomes two stems. One of the stems had fallen/split. At the split there is a large wound/rot (up to 1m in length) along a branch. This had a hole/cavity leading into the stem. | High |
| T61 | Hornbeam | Semi/early mature Hornbeam near to deer/stock proof fencing. There is a wound/rot from the base of the tree leading up the stem to approx. 3m. The decay on the stem appeared to have a cavity and points of ingress on the northern aspect – requires endoscope survey. | Moderate |
| T62 | Field Maple | Early mature Field Maple that had rot from the base/ground level and the stem had light Ivy cover. This was also near the woodland edge/stock proof fencing. The decay/rot led into splits and potential cavities. Splits and gaps appeared to extend up and down the main stem. | High |
| T63 | Ash | A twin stemmed Ash tree. One stem forked and was partially dead. The main living stem had a large knot hole/lost limb on the northern side at approx. 6-7m. This possibly opened into a cavity; however, assessment was not possible from ground level/using binoculars. | Moderate |
| T64 | Ash | Early mature twin stemmed Ash tree near the hedgerow connection. Both stems appeared to have rot/die back. The southern stem had rot/splits near ground level (approx. 1-2.5m); the northern stem had a knot hole/lost limb at approx. 4m. This knot | High |

NOT PROTECTIVELY MARKED

| Tree number | Tree species | Description of tree features | Tree potential |
|-------------|-----------------|--|----------------|
| | | hole/cavity appeared to extend up the stem internally when viewed through binoculars. This stem also had two further knot holes above a fork at approx. 8m. | |
| T65 | Ash | Multi-stem/formerly coppiced Ash tree. This had overlapping stems and rot near the base; however, no openings/points of ingress were noted at this point. A knot hole was visible from the arable field, at approx. 8-10m above ground level. Using binoculars, this appeared to open into a cavity on the main stem. | Moderate |
| T66 | Pedunculate Oak | Mature Pedunculate Oak pollard with a tear-out on the western aspect, facing the field, at approx. 2-3m (was a large limb). There was rot around this point and a hole/cavity appears to extend into the main stem – towards the pollard point. It also had a wound/growth where two branches meet and deadwood within the canopy. | High |
| T67 | Apple tree | Mature <i>Malus sp.</i> on the woodland edge. This had a lost limb/knot hole facing the field and a cavity on the end of a branch extending into the tree – appeared to be at least 15cm long. This was approximately 1m from the ground (or 1.5m from the base of the adjacent ditch). | Moderate |
| T68 | Ash | Twin stemmed Ash. The western stem forked at approx. 6-7m; the smaller stem above the fork appears to have rot/die back, and there was a woodpecker hole on this stem at approx. 10m – on the western aspect. | Moderate |
| T69 | Hornbeam | Multi-stemmed/mature Hornbeam coppice. The largest/most northern stem had a wound that was approximately 1m long and 8-10m from ground level, on the northern side. The rot appeared to extend up and down from this point and several holes were noted in and around the edge of the wound. | High |
| T70 | Pedunculate Oak | Mature Pedunculate Oak pollard on the edge of the woodland – near to a large dry depression (21 – detailed below). Large holes lead into a central cavity and appeared suitable for nesting owls. Also noted was a hole leading into a cavity along the length of a branch – facing the field boundary. | High |

NOT PROTECTIVELY MARKED

| Tree number | Tree species | Description of tree features | Tree potential |
|-------------|--------------|---|----------------|
| T71 | Sycamore | A multi stem Sycamore on the northern bank of the pond which had one dead stem. On this stem there were three woodpecker holes and significant rot/decay. | High |
| T72 | Sycamore | Multi stem Sycamore on the field boundary – at the north-west corner of the pond. The largest stem, which was nearest the pond, had a woodpecker hole (facing the pond) at approx. 10m. | Moderate |
| T73 | Sycamore | Multi stem Sycamore on the edge of the field – it had eight stems. One of the stems is dead/is standing deadwood. This had two woodpecker holes at approx. 3-4m and 5-6m facing towards the woodland/large depression. A small stem on the woodland edge has significant decay at the base and a wound from ground level to approx. 60cm. A hole within the wound extends up into the stem for at least 30cm – snails were noted inside, but it could support bats. | High |
| T74 | Sycamore | A mature Sycamore coppice with a very large base. There was evidence of decay and a lost stem. The stem nearest the pond has a wound/rot from the base leading upwards; the wound itself was approx. 2m long. Holes at the top of the wound appeared to extend upward into the stem; however, there was scarring/evidence of damage extending a further 3m above this – possible cavity for this length. | High |
| T75 | Sycamore | Mature Sycamore coppice. A large forked stem nearest the field had a wound/decay leading along the length of the stem for approx. 4-5m which starts around 5m from ground level. Within the diseased area was a branch connection, at this point was a hole that leads up into the stem – appeared to go upwards when viewed through binoculars. | High |
| T76 | Ash | Multi-stem mature coppice Ash on the field edge. The smallest stem had significant rot and a large wound running along its length. There were multiple points of ingress to possible cavities in the rotten stem, along the edge of the wound. | High |

NOT PROTECTIVELY MARKED

| Tree number | Tree species | Description of tree features | Tree potential |
|-------------|--------------|---|----------------|
| T77 | Sycamore | A mature Sycamore coppice on the field boundary, just north of a hedgerow connection. One stem had two parallel branches leading into the woodland. The upper branch had a lost limb/knot hole on the northern aspect. There was also a hole approx. 1m along the branch and associated decay appeared to lead into a cavity within the branch. | Moderate |
| T78 | Sycamore | An early mature Sycamore on the edge of the woodland. This appeared to have decay within the canopy and along the main stem (unhealthy crown). There were at least six woodpecker/rot holes along the stem from approx. 10m to 15-16m from ground level. The holes faced into the woodland. | High |
| T79 | Elm | Damaged <i>Ulmus sp.</i> that was lifting from the root plate and had fallen into the woodland. There was a wound at approx. 1.5m from the ground – the open area of the wound is 30cm x 7cm. A cavity leads up into the stem and was at least 30cm. | Moderate |
| T80 | Sycamore | An early mature twin stem Sycamore. The southern stem had a fork at approx. 10m, just below the fork was a woodpecker hole. | Moderate |
| T81 | Sycamore | Multi stem Sycamore on the woodland/field edge. The stem nearest the field (which had a branch leaning over the hedgerow) had a fork at approx. 7-8m. Just below the fork was a woodpecker hole, which was south facing. | Moderate |
| T82 | Sycamore | A multi stem Sycamore. The northern stem, which was leaning over the hedgerow, had a knot hole that appeared to have a cavity. It had a smooth entrance/was clear and open when viewed through binoculars. | Moderate |
| T83 | Sycamore | Multi stem Sycamore (twin stem + three stem). Two stems have knot holes/lost limbs and possible cavities leading into the stems. The features were high up on the stem and horizontal/facing upwards, preventing assessment using binoculars – requires climb and inspection. | Moderate |
| T84 | Sycamore | An early mature Sycamore with damage and scarring on the main stem and branches. There was a large wound on the first major branch (growing towards the hedge). The | High |

NOT PROTECTIVELY MARKED

| Tree number | Tree species | Description of tree features | Tree potential |
|-------------|--------------|---|----------------|
| | | wound had significant decay which extended up the branch (dead). There appeared to be an entrance/ingress point into the decay/possible cavity. | |
| T85 | N/A | Dead multi stem coppice. Two stems have light Ivy cover and two were clear. A clear stem had two holes (one possible woodpecker hole); these were approx. 4m and 7m above ground level – both south facing. | Moderate |
| T86 | Sycamore | A mature multi stem Sycamore coppice. Two holes were noted on the southern aspect (on separate stems); both at approx. 5-6m. The holes appeared to lead into cavities, when viewed through binoculars. | Moderate |

FISH SURVEYS 2020

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1 SUMMARY

1.1 Receptor Status 2020 Summary Overview

- 1.1.1 The Sizewell C Project Environmental Statement (ES): **Volume 2, Chapter 14 Terrestrial Ecology and Ornithology [APP-224]** (Ref. 1) identified the presence of European eel (*Anguilla anguilla*), a protected species, and rudd (*Scardinius erythrophthalmus*), a common course fish, within Sizewell Marshes Site of Special Scientific Interest (SSSI), based on incidental observations. The potential impacts on fish were assessed and the requirements for mitigation are outlined in the **Sizewell C – Main Development Site Aquatic Invertebrate and Fish Mitigation Strategy** (Ref. 2)
- 1.1.2 Fish surveys undertaken in 2020 recorded eight species of fish within the Sizewell and Leiston drains, and adjacent waterbodies, in the north-east area of Sizewell Marshes SSSI (SSSI Triangle). The presence of European eel was confirmed along with the presence of bullhead (*Cottus gobio*), a notable species usually found in waterbodies with gravel and pebble substrates.
- 1.1.3 The results of the 2020 fish surveys support the Development Consent Order (DCO) assessment based on the previous baseline survey data submitted in the 2020 Environmental Statement. The proposed mitigation submitted for the Sizewell C Main Development Site DCO and the residual effects would remain the same as that submitted in 2020 Environmental Statement.

2 OVERVIEW

2.1 The Aims of the 2020 Survey Updates

2.1.1 The aim of the 2020 survey was to provide a surveyed baseline to support the submitted Environmental Statement, which had relied on anecdotal and incidental records. The survey also provides a baseline for future monitoring and mitigation.

2.2 Submitted Baseline to 2019

2.2.1 Targeted fish surveys had not been undertaken as part of the Environment Statement however, glass (young) eels were found in the Leiston Drain during aquatic macrophyte surveys, showing that the Minsmere sluice is permeable to eels and that eels were therefore present within the ditch network of Sizewell Marshes SSSI. In addition, anecdotal evidence from the SWT suggest that Sizewell Marshes SSSI supported a population of coarse fish including rudd.

2.2.2 An eels regulations compliance assessment was undertaken to support the Development Consent Order (DCO) [[APP-332](#)] (Ref. 3) which showed that the key onshore and offshore construction and operation components of Sizewell C will not, overall, impact European eel populations and silver eel escapement.

2.2.3 Sizewell C Project ES: **Volume 2, Chapter 14 Terrestrial Ecology and Ornithology** [[APP-224](#)] (Ref. 1) assessed the potential impacts on fish and outlines the requirements for mitigation and the residual effects. Further mitigation is detailed in the **Sizewell C – Main Development Site Aquatic Invertebrate and Fish Mitigation Strategy** (Ref. 2)

2.3 2020 Update surveys

2.3.1 Surveys in 2020 consisted of electrofishing and environmental DNA (eDNA) analysis of Sizewell and Leiston drains, and their drainage systems.

3 METHODS

3.1 Sampling sites

3.1.1 Six sampling sites were chosen throughout the drainage network to capture spatial variability in fish assemblage within the proposed expansion area. Site 1 and 6 could not be surveyed at their original locations due to the dangerous underfoot conditions preventing the transportation of fisheries equipment and safe access. However, suitable and representable alternatives were found at other locations within the drainage system (locations and methods used are shown on **Plate 1**).

Plate 1. 2020 Fish sampling sites



Source: APEM

3.2 Fish survey methods

- 3.2.1 A combined methodological approach was used to assess the fish assemblage within the drainage network, by employing a combination of electrofishing and eDNA sampling techniques. Fyke nets were originally proposed to sample specifically for eels. However, due to the presence of water voles, fyke nets were considered to pose a potential mortality risk (even with otter guards installed) should one become entrapped. Therefore, these were not used and both electrofishing and eDNA sampling were extended to overcome this limitation.
- 3.2.2 The presence/absence electrofishing strategy involved three operatives (one anode operator and two people netting fish) fishing in an upstream direction using an electric fishing unit and following Environment Agency (EA) best practice (Ref. 4) and European guidelines (Ref. 5 & Ref. 6). During the fishing exercise as many fish as possible were caught in dip nets by operatives positioned either side, and downstream, of the anode. Following the survey, individual fish were placed into aerated containers using hand nets. These were then identified to species level and their fork length (mm) measured, before being returned to the watercourses unharmed.
- 3.2.3 To supplement electrofishing, eDNA samples were taken to further establish the presence and absence of fish species within the target waterbodies. eDNA samples were taken by collecting a large number of water samples along the course of the waterbody to provide a representative sample. The samples were passed through a filter to extract the DNA and then preserved using a fixative solution. These filters were then sent to a laboratory for metabarcoding analysis and identification of the fish species assemblage present within each of the ditches.
- 3.2.4 eDNA sampling is not without its limitations, however, which were minimised by sampling during the summer months (post-spawning). Fish are more active at this time of year due to the higher water temperatures, which results in shedding a greater volume of DNA into the water column. Additionally, all sampling was undertaken by fully trained APEM fisheries scientists following strict protocols to avoid sample contamination during the collection process. These measures ensure that the outputs from the sample processing were as robust as possible.

4 RESULTS

4.1.1 In total, seven species of fish were caught and/or identified across the seven sites on the Sizewell drainage system in September 2020 (**Table 2**). Three-spined stickleback (*Gasterosteus aculeatus*) & nine-spined stickleback (*Pungitius pungitius*) were the most prevalent species being identified across five sampling sites. However, stickleback species (*Gasterosteidae* sp.) were also observed during electrofishing at Site 1 but could not be captured as their size was less than the mesh of the dip nets (<10 mm). It is considered likely that both three-spined and nine-spined stickleback are ubiquitous throughout the whole drainage system. Rudd was the second most prevalent species but were only recorded at two sites.

4.1.2 Site 4 represented the highest species richness with five different species being recorded, which comprised of bullhead, roach (*Rutilus rutilus*), pike (*Esox lucius*) and both three- and nine-spined stickleback. It was unsurprising that this site had the highest species richness as it is located within the widest section of the drain. However, what was unexpected is that the upstream and downstream sampling sites on the same watercourse (Sites 5 & 6a respectively) showed significantly lower species richness with only 1 species being identified at both sites showing that the species richness was relatively limited.

4.1.3 Importantly, European eel was identified at Site 6b using eDNA but was not recorded at any other sites.

Table 1. Species composition per sampling site. Electric fishing results shown as a number, presence represents species identified by eDNA.

| Fish species | Site 1 | Site 2 | Site 3 | Site 4 | Site 5 | Site 6a | Site 6b |
|--------------------------|-----------|---------------|----------------|---------|---------|---------|---------|
| European eel | | | | | | | Present |
| Bullhead | | | | Present | | | |
| Roach | | | | Present | | | |
| Rudd | | Present | Present | | | | |
| Pike | | | | Present | | | |
| Stickleback sp. | *Observed | | | | | | |
| Nine-spined Stickleback | | 4/ Present | 1/ Present | Present | Present | | Present |
| Three-spined Stickleback | | Present | 10/ Present | Present | | 3 | 3 |
| Overall Species Richness | 1 | 3 | 3 | 5 | 1 | 1 | 3 |

* Stickleback sp. were observed but could not be captured as they were <10mm in length

- 4.1.4 Due to the overall low abundancies of fish captured during electrofishing (nine-spined stickleback: $n = 5$ and three-spined stickleback: $n = 16$), length frequency distributions were not constructed as they sufficient data were not available. The raw length data is presented in **APPENDIX A:**

5 DISCUSSION

- 5.1.1 Seven species of fish were recorded using across seven sampling sites on the Sizewell Marshes SSSI drainage system on the EDF Energy estate in September 2020. Stickleback species were the most prevalent fish species being present at six of the seven sites. Species richness was highest at Site 4 which represents the middle stretch of the largest drain surveyed. This is to be expected as this site represents that largest body of water. However, both the upstream and downstream sites on the same stretch yielded only a single species, suggesting fine scale spatial variation in fish assemblage which could potentially be a function of a lack of suitable habitat and/or water quality issues. This is supported by the qualitative *in-situ* assessment by the field team which noted extensive *Lemna* sp. coverage, macrophyte growth and anoxic sediments underfoot (**Plate 2**) highlighting potential eutrophic conditions.

Plate 2. Habitat created electrofishing limitations



Source: APEM

- 5.1.2 These *in-situ* conditions were also a limitation to the efficiency of the electrofishing exercise, which saw a significant disparity in the number of fish species identified between electrofishing (n = 2) and eDNA (n = 7). This is to be expected given the decrease in visibility and survey extent, however it is believed that the results of the combined electrofishing and eDNA sampling effort represent the true fish assemblage within this drainage system.
- 5.1.3 The composition of the fish assemblage is typical for a lowland ditch within close proximity to the sea. Importantly, the protected species European eel and bullhead were identified at sites 6b and 4 respectively, both through eDNA analysis. European eel is a critically endangered species (Ref. 7) protected under the Bonn Convention (Appendix II) (Ref. 8), and a Section 41 species under the NERC Act 2006 (Ref. 9). Whereas bullhead is an Annex II species listed under the Habitats Directive 2017 (Ref. 10), which list species that determine selection of Special Areas of Conservation. The presence of eel and the lack of connectivity between the drains and any other watercourse suggests eel migrate into the system from the sea. Moreover, this identification was found at site 6b which is a smaller tributary of the main ditch, further suggesting that there is good inter- and intra-connectivity between the sea and all drains respectively. Therefore, as the eDNA analysis cannot provide insight into the life stage, it should be assumed that eels of any life stage could be present within any of the drains and at any times of year. The development is not thought to impact eel populations or escapement, as highlighted in the eels regulations compliance assessment [[APP-332](#)] (Ref. 3).
- 5.1.4 Although the general fish composition is typical for a lowland ditch, the presence of bullhead is atypical due to their lithophilic nature and lack of suitable habitat (gravels and pebbles). It is unsure how bullhead has entered the system although their presence only being found at one site suggests their numbers are potentially low. No other notable species were identified in these surveys.
- 5.1.5 The survey results presented above do not change the assessment of impacts on fish presented at **Section 14.9** in **Chapter 14** of the Sizewell C Project ES [[APP-224](#)] (Ref. 1).
- 5.1.6 The key approaches to mitigating potential impacts to fish, particularly European eel, present within waterbodies likely to be impacted is detailed in the **Sizewell C – Main Development Site Aquatic Invertebrate and Fish Mitigation Strategy** (Ref. 2).

6 CONCLUSION

- 6.1.1 The impacts on fish were assessed in Sizewell C Project ES: **Volume 2, Chapter 14 Terrestrial Ecology and Ornithology** [[APP-224](#)] (Ref. 1).
- 6.1.2 Seven sampling sites were subjected to fish surveys in August 2020 consisting of a mixture of electric fishing and eDNA. Seven species in total were recorded, including protected and notable species, European eel and bullhead.
- 6.1.3 The composition of the fish assemblage is considered typical for a lowland ditch in close proximity to the sea however the presence of bullhead was unexpected due to the lack of suitable habitat for this species.
- 6.1.4 The results of the 2020 update survey support the assessment presented in the ES. The proposed mitigation and the residual effects described in the ES also remain unchanged.

REFERENCES

1. EDF 2020. Sizewell C Project – Environment Statement: Volume 2, Chapter 14: Terrestrial Ecology and Ornithology. [[APP-224](#)]
2. EDF 2020 – Aquatic Invertebrates and Fish Mitigation Strategy
3. EDF 2020 – Sizewell C Project – Environment Statement: Volume 2, Chapter 22: Marine Ecology, Appendix 22O – Eels Regulations Compliance Assessment [[APP-332](#)]
4. Beaumont, W.R.C, Taylor, A.A.L. & Lee, M.J., 2002. Guidelines for Electric Fishing Best Practice. Environment Agency R&D Publication SW2-054-TR-E-E, ISBN: 1 85705 636 1, 206 pp
5. European Committee for Standardization (CEN), 2003. BS EN 14011:2003, BS 6068-5.32:2003: Water quality. Sampling of fish with electricity, London: BSI.
6. European Committee for Standardization (CEN), 2006. BS EN 14962:2006, BS 6068-5.40:2006: Water quality. Guidance on the scope and selection of fish sampling methods, London: BSI.
7. Jacoby, D. and Gollock, M., 2014. *Anguilla anguilla*. The IUCN red list of threatened species. Version 2014.2. www.iucnredlist.org/details/60344/0
8. Convention on the Conservation of Migratory Species of Wild Animals . Bonn: UNEP/CMS Secretariat. 23 June 1979
9. Natural Environment and Rural Communities Act 2006. Legislation.gov.uk.
10. The Habitats Directive 2017. Europa. European Commission

APPENDIX A: RAW DATA AND SITE NOTES

A.1. Site 1

Fish caught:

- 10 stickleback sp. observed but too small for the dip net mesh.

Site comments:

- 80% of surface covered by *Lemna* sp.
- 95% emergency macrophyte coverage.

A.2. Site 2

Fish Caught

| 6.1.5 | Species | 6.1.6 | Fork Length (mm) |
|--------|-------------------------|--------|------------------|
| | Nine-spined stickleback | 6.1.7 | 21 |
| 6.1.8 | Nine-spined stickleback | 6.1.9 | 21 |
| 6.1.10 | Nine-spined stickleback | 6.1.11 | 18 |
| 6.1.12 | Nine-spined stickleback | 6.1.13 | 17 |

Site comments:

- No visibility from the surface due to 100% of surface covered by *Lemna* sp.

A.3. Site 3

Fish caught:

- No fish caught.

Site comments:

- No visibility from the surface due to 100% of surface covered by *Lemna* sp.
- Channel had heavy tree coverage, no flow and an anoxic silt present.

A.4. Site 4

Fish caught:

- Additional 30 fish seen but too small to be impacted by the electric field – species unknown.

| 6.1.14 | Species | 6.1.15 | Fork Length (mm) |
|--------|--------------------------|--------|------------------|
| 6.1.16 | Nine-spined stickleback | 6.1.17 | 30 |
| 6.1.18 | Three-spined stickleback | 6.1.19 | 22 |
| 6.1.20 | Three-spined stickleback | 6.1.21 | 15 |
| 6.1.22 | Three-spined stickleback | 6.1.23 | 27 |
| 6.1.24 | Three-spined stickleback | 6.1.25 | 38 |
| 6.1.26 | Three-spined stickleback | 6.1.27 | 35 |
| 6.1.28 | Three-spined stickleback | 6.1.29 | 28 |
| 6.1.30 | Three-spined stickleback | 6.1.31 | 34 |
| 6.1.32 | Three-spined stickleback | 6.1.33 | 15 |
| 6.1.34 | Three-spined stickleback | 6.1.35 | 30 |
| 6.1.36 | Three-spined stickleback | 6.1.37 | 21 |

A.5. Site 5

Fish caught:

- No fish caught.

Site comments:

- Watercourse heavily covered by *Lemna sp.*
- Anoxic silt present.
- Extensive overhanging tree coverage preventing boat use.
- Surveyed from the bankside and by wading where access was possible.

A.6. Site 6

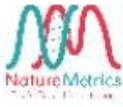
Fish caught:

| 6.1.38 | Species | 6.1.39 | Fork Length (mm) |
|--------|--------------------------|--------|------------------|
| 6.1.40 | Nine-spined stickleback | 6.1.41 | 47 |
| 6.1.42 | Three-spined stickleback | 6.1.43 | 20 |
| 6.1.44 | Three-spined stickleback | 6.1.45 | 25 |
| 6.1.46 | Three-spined stickleback | 6.1.47 | Not measured |

Site comments:

- Watercourse 100% covered by *Lemna* sp.
- Minor flow present.
- Channel had extensive emergent macrophyte growth.
- Anoxic silt present.
- Extensive overhanging tree coverage preventing boat use.
- Surveyed from the bankside and by wading where access was possible.

APPENDIX B: EDNA REPORT



Order number: 101678

Metabarcoding Results


Company: APEM Ltd
Project: Suffolk Fish - 5137
Sample type: NatureMetrics eDNA disk filter
Date of report: 27 October 20
Number of samples: 4

Thank you for sending your samples for analysis by NatureMetrics. Your samples have been **metabarcoded** following our eDNA survey - Fish pipeline. **A taxon-by-sample table of your samples is attached to this report (101678.client_OTUtable.txt)**. This file can be imported and viewed from any spreadsheet software. Care should be taken in interpreting the numbers in terms of relative species abundance, but a high sequence proportion can be interpreted as lending greater confidence to a detection.

Here we present an overview of the key results, followed by a more detailed report that starts with the taxonomic composition of the samples followed by a more detailed look at the steps taken to extract, amplify, sequence, and analyse your DNA. A glossary for terms in **bold** is provided at the end of the report to define key terms used within the report.

Overview of results

- A total of 18 **taxa**, including 7 fish species were detected
- Average taxonomic **richness** was 6.25 and ranged from 3 to 10
- Most commonly detected **species**: Nine-spined stickleback (*Pungitius pungitius*)
- Most abundant **sequences**: Red deer (*Cervus elaphus*)
- Species of note include the European eel (*Anguilla anguilla* - **critically endangered, UKBAP species**) and European bullhead (*Cottus gobio* - **SAC species**).



NatureMetrics Ltd, CABI site, Bakeham Lane, Egham, Surrey, TW20 9TY

2020 INVERTEBRATE SURVEY REPORT

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1 SUMMARY

1.1.1 This document provides the results of the 2020 invertebrate surveys conducted on the Sizewell C Main Development Site (MDS) site in 2020. To provide context a summary of previous surveys conducted to inform the Development Consent Order (DCO) submission is provided, along with a summary of the invertebrate species valuation and mitigation provided in the Sizewell C Project Environmental Statement (ES) [[APP-224](#)].

1.2 Receptor Status Submitted Baseline Summary Overview

1.2.1 **Sizewell C Project ES: Volume 2, Chapter 14: Appendix 14A4 – Invertebrates** [[APP-231](#)] (Ref. 1) identified habitats within the Main Development Site and adjacent areas that support both terrestrial and aquatic invertebrate assemblages of high nature conservation value. The assemblages recorded include a large number of species with recognised conservation status representative of the wetland habitats within the Sizewell Marshes SSSI and contiguous areas of habitat.

1.2.2 **Sizewell C Project ES: Volume 2, Chapter 14 Terrestrial Ecology and Ornithology** [[APP-224](#)] (Ref. 2) assessed the potential impacts on these invertebrate assemblages and outlines the requirements for mitigation and the residual effects. Further mitigation pertaining to aquatic species, particularly Norfolk hawkers, is described in the **Aquatic Invertebrate and Fish Mitigation Strategy** (Ref. 3)

1.3 Receptor Status 2020 Summary Overview

1.3.1 Three terrestrial invertebrate sampling visits, two moth trapping events and one aquatic sampling visit were conducted during the Summer 2020 between June and August. Standardised sampling methods and protocols were used to sample the invertebrate fauna of the site, with subsequent identification of material. Two discrete areas were sampled: Area 1 - SSSI triangle and Area 2 - fen meadow and woodland strip to the west of the Sizewell C platform (see Figure XX). The areas sampled included areas which will be lost due to landtake associated with the construction of Sizewell C and immediately adjacent areas which would be retained.

1.3.2 A total of 739 terrestrial invertebrate species were recorded within Areas 1 and 2, of which 51 have recognised conservation status. Fifteen species were recorded in Areas 1 and 2 during aquatic sampling, one of which had recognised conservation status. No adult Norfolk hawkers (*Anaciaeschna isoceles*) dragonflies were recorded in the survey areas, but individuals were seen within Sizewell Marshes Site of Special Scientific Interest (SSSI)

to the south and west of the survey areas. The aquatic sampling did not record any larval Norfolk hawkers.

- 1.3.3 Analysis using Pantheon, an online resource for recording and analysis of invertebrate assemblages, suggested that the principle value of these survey areas for invertebrates lies in the wetland, woodland/scrub edge and deadwood habitats.
- 1.3.4 The results of the 2020 invertebrate surveys support the assessment presented in the Sizewell C Project ES [[APP-224](#)] which was based on the baseline survey data collected to 2019.

2 OVERVIEW

2.1 The Aims of the Survey Updates

- 2.1.1 The aim of the survey updates in 2020 was to update the invertebrate baseline, particularly within areas likely to be impacted by the development and provide a baseline for future monitoring. The invertebrate assemblage associated with wet woodland was a particular focus as this was less well represented in previous surveys.

2.2 Submitted Baseline (2007-2019)

- 2.2.1 Terrestrial and aquatic invertebrate surveys were undertaken by Wood Group in 2007, 2009 and 2010 (Locations shown on **Figure 14A4.1, Appendix C**). Sampling techniques comprised pitfall traps, Malaise traps, water traps, sweep netting, vacuum sampling, pond netting of ditches and sweep netting of riparian habitats. Targeted white admiral (*Limentis camillis*) adult and larval surveys were undertaken in 2007 and 2009.
- 2.2.2 Arcadis carried out further invertebrate surveys in 2014 to 2016, in locations shown on **Figure 14A4.2 (Appendix C)**. This survey work was designed to update the surveys undertaken by Wood Group.
- 2.2.3 In 2014 survey effort was targeted specifically to include a more detailed survey of the reedbed, lowland ditches, wet woodland, fen meadow and dune grassland habitats, as well as more detailed mapping of invertebrate habitats. The aim was to survey a representative sample of each habitat, so that detailed species lists could be compiled.
- 2.2.4 A total of ten “Survey Areas” were assessed during the 2014 surveys. These areas were selected both on the basis that they constituted discrete areas of habitat likely to be of some value to invertebrates and to reflect the sampling locations surveyed in the previous Wood Group studies. Six of

the survey areas, Survey Area 1 to 6, were assessed in detail as these were considered most likely to be directly affected by the proposed development. In addition, a further four areas in the wider survey area, Survey Areas 7 to 10, were assessed for their invertebrate habitats to provide context to the assessment. All 2014 survey areas were subjected to a habitat survey. Broad habitats within the various sampling sites were mapped and plant communities recorded with sufficient resolution to characterise each individual sampling zone in terms of habitat type, structure and condition, with particular reference to the invertebrate assemblages that habitat types present were likely to support.

- 2.2.5 Further invertebrate survey work was carried out in 2015. The main focus of this work was to investigate reptile invertebrate prey availability, using pitfall traps, in both the donor and receptor sites proposed as part of the Reptile Mitigation Strategy.
- 2.2.6 Following consultation with Natural England (Ref. 4), the invertebrate populations and habitats within the Zone of Influence of the site were consolidated into a set of 15 Assessment Compartments (shown on **Figure 14A4.3, Appendix C**) on the basis of their distinct constituent invertebrate habitats and their position within the landscape.
- 2.2.7 Six of these Assessment Compartments (1, 3, 4, 4a, 13 and 15) were surveyed in 2016 to fill any gaps in the data acquisition from the previous survey work, including carrying out additional surveys in 2014 Survey Areas where late season surveys in 2014 had not been possible.
- 2.2.8 Habitats within the site and wider survey area were assessed as suitable to support a number of protected invertebrate species, species with recognised conservation status and invertebrate assemblages of high conservation value and, in some cases, national importance. **Table 1** summarises the number of species recorded within each assessment compartment, where data was available, based on the combined 2007 – 2016 dataset.

Table 1. Number of species recorded per Assessment Compartment

| Assessment Compartment | Total number of species recorded | Number of species with conservation status | Norfolk Hawker recorded |
|------------------------|----------------------------------|--|-------------------------|
| 1 | 769 | 32 | Yes |
| 2 | 360 | 19 | |
| 3 | 272 | 10 | |
| 4/4a | 624 | 23 | |
| 5 | 232 | 22 | |
| 6/6a | 248 | 11 | |
| 7 | Habitat assessment only | | |
| 8 | 48 | 5 | |
| 9 | 297 | 12 | Yes |
| 10 | Habitat assessment only | | |
| 11 | 253 | 17 | |
| 12 | 257 | 17 | Yes |
| 13 | 559 | 19 | |
| 14 | 161 | 4 | |
| 15 | 443 | 24 | |

- 2.2.9 The assemblages present, and their importance, were determined using Natural England’s own Invertebrate Species-habitat Information System (ISIS; now called Pantheon) (Ref. 5), an application for recognising invertebrate assemblage types in species lists.
- 2.2.10 Valued wetland invertebrate assemblages, especially those associated with “permanent wet mire” and “reed-fen and pool” habitats (typical of mires and seepages which may have little open water but remain permanently wet), were well represented across Sizewell Marshes SSSI and were considered of national importance in most cases. The invertebrate assemblage associated with “mineral marsh and open water” habitats (typically found in floodplain wetlands, fluctuating meres, carr and wet woodland), while not as well represented, was also considered of high conservation value. The presence of these assemblages emphasized the importance of the complex matrix of wetland habitats within Sizewell Marshes SSSI, and in the adjacent Minsmere European Site/SSSI.
- 2.2.11 Invertebrate assemblages associated with dry sandy habitats (such as the “unshaded early successional mosaic, bare sand and chalk” and “open short sward” invertebrate assemblages) were also well represented in the coastal zone habitats to the east of Sizewell Marshes SSSI, and were also considered to be of national importance. This includes habitats within Suffolk Shingle Beaches County Wildlife Site, Minsmere European

Site/SSSI and the site of the main platform itself, which is considered analogous to “Open Mosaic Habitat of Previously Developed Land”, a habitat of principal importance under Section 41 of the NERC Act 2006 (Ref. 6).

- 2.2.12 Similar invertebrate assemblages of dry sandy habitats were present in the conifer plantations to the north and west of Sizewell Marshes SSSI, namely Goose Hill, Kenton Hills and Nursery Covert. The rides within Goose Hill, in particular, which were sheltered with a mixture of dry, sandy habitats of benefit to species typically found on heathlands, supported invertebrate assemblages of national importance. Assemblages associated with these habitats benefited from the connectivity of such habitats at a landscape scale. The proximity of the valuable coastal and heathland habitats elevates the importance of the sandy woodland rides within these conifer plantations.
- 2.2.13 Finally, the field margins around the arable fields to the north-west of the conifer plantations, supported an invertebrate assemblage of some conservation value, associated with unshaded early successional habitats. This was considered primarily due to an overspill effect of invertebrate assemblages from surrounding areas of high-quality habitat.
- 2.2.14 **Table 2** provides a summary of the value of the invertebrate assemblage recorded in each assessment compartment within the proposed development site boundary as assessed in Sizewell C Environmental Statement (Ref 2). Importance was based on the number of notable species present, the Pantheon analysis and the proximity of the Assessment Compartment to designated sites considered important for invertebrates.

Table 2: Summary of the importance of invertebrate assemblages within each Assessment Compartment presented in the Environment Statement

| Assessment Compartment | Importance (CIEEM/EIA Methodology). |
|------------------------|-------------------------------------|
| 1 | National/High |
| 2 | National/High |
| 3 | National/High |
| 4/4a | National/High |
| 5 | National/High |
| 6/6a | International/High |
| 7 | County/Medium |

| Assessment Compartment | Importance (CIEEM/EIA Methodology). |
|------------------------|-------------------------------------|
| 8 | National/High |
| 9 | National/High |
| 10 | National/High |
| 11 | National/High |
| 12 | National/High |
| 13 | National/High |
| 14 | County/Medium |
| 15 | County/Medium |

2.3 2020 Update surveys

2.3.1 The surveys undertaken in 2020 focused on habitats within Assessment Compartments 1, 2, 3 and 4a (**Figure 14A4.3, Appendix C**) and comprised:

- Terrestrial invertebrate surveys;
- Moth trapping surveys; and
- Aquatic invertebrate surveys.

3 METHODS

a) Survey Area Selection

3.1.1 The 2020 survey focused on areas of predominately wetland habitats within and adjacent to Sizewell Marshes SSSI that have the potential to be directly impacted by the development. These habitats were split into two survey areas, shown on **Plate 1**, based on the 2016 Assessment Compartments and access.

Plate 1. Survey areas and terrestrial sampling locations. Area 1 (SSSI Triangle) and Area 2 (Fen Meadow and Woodland Strip)



Source: ESRI

b) Field Survey

3.1.2 Sampling visits were conducted in the summer of 2020 on the following dates shown in **Table 3**.

Table 3. Invertebrate survey visits

| Date | Survey Type |
|--------------------|--|
| 8th & 9th June | Terrestrial invertebrate sampling |
| 22nd & 23rd June | Moth trapping |
| 20th & 21st July | Terrestrial invertebrate sampling |
| 10th & 11th August | Terrestrial invertebrate sampling Moth trapping |
| 25th – 28th August | Aquatic invertebrate sampling |

i. Terrestrial invertebrate sampling and moth trapping

3.1.3 In accordance with Drake *et al* (Ref. 9), sampling for terrestrial invertebrates was undertaken using a combination of standard capture methods recommended for Common Standards Monitoring (CSM) of different habitat types.

3.1.4 During each visit, the following protocol was used at each discrete sampling location in the survey areas (as shown on **Plate 1**):

- General sampling.
 - 1 x 10 minutes transects with a sweep net where vegetation is vigorously swept.
 - 1 x 2 min suction samples with vacuum sampler.
 - 20 mins of beating trees, woodland edges, scrub and taller vegetation with a beating tray.
 - Direct searching and direct observation.
- Vane (flight interception) traps (4 in each of the sampling areas).
- SLAM (Sea, Land and Air Malaise) trap (1 in each of the woodland strip and SSSI triangle).

- Pitfall traps (2 rows of 5 traps in each of the sampling areas).
- Moth trapping (1 x Robinson trap; 1 x black-light; 1 x UV LED trap).

3.1.5 Sweep sampling allows the capture of terrestrial invertebrates in the sward and dense vegetation, including very mobile species. Vacuum sampling allows the capture of ground-dwelling species, including leaf-litter and tussock dwelling invertebrates. Several types of passive trap were used during this survey: pitfall traps, vane traps and SLAM traps. Passive traps are a very effective way of sampling invertebrates as they can be left in situ for extended periods and will catch species that are missed by direct techniques during discrete sampling events.

3.1.6 Pitfall traps were deployed, but many were flooded or disturbed by large animals. Vane traps are an excellent technique for the sampling of many insect orders, especially saproxylic species. They are installed in suitable positions and emptied once a month. SLAM traps are a fairly recent innovation that have the characteristics of a Malaise trap but are easier to install and more robust. SLAM traps can sample a large range of insect orders over long periods. Once installed they are emptied once a month.

3.1.7 Direct methods of catching invertebrates include spot sampling, where a net is used to catch large, conspicuous or fast-moving insects and ground searching, e.g. grubbing around the base of vegetation and in/under dead wood. Direct observation is where easily identifiable, usually charismatic macro-invertebrates observed on site should be identified and recorded in the field. This is normally done whilst undertaking other survey techniques.

3.1.8 Two visits were made to the site for the purposes of moth trapping. The timing of the visits was dictated by site access and weather conditions. The dates in June and August correspond with high moth diversity and thus maximise the number of species recorded during these visits.

3.1.9 For both moth trapping visits, three traps were deployed – 1 x 125W mercury vapour Robinson traps run from a petrol generator, 1 x 20W black light against a white sheet and a 6W UV LED. The Robinson trap and 20W black light run from a petrol generator, while the UV LED runs from a 12V batteries. All traps were run overnight and checked during the night and at dawn. The traps were positioned to maximise coverage of the site and its different habitats within the limitations of accessibility and the equipment.

ii. Aquatic invertebrate sampling

3.1.10 Pond netting was undertaken in accordance with the CSM described in Drake *et al.* (Ref. 9) within Area 1 (Leiston and Sizewell drains and adjacent ditches) and Area 2 (Sizewell drain and fen meadow ditches), shown on **Plate 2**.

Plate 2. Aquatic sampling locations



Source: ESRI

3.1.11 Three aggregated samples were taken for each survey area (**Plate 2**). Each aggregated sample comprised of three qualitative hauls, concentrating on the most productive habitats, that were sorted on the bankside for 10 minutes each. Each haul consists of “1 to 3 minutes” of sampling effort which ceased when the net becomes difficult to push, with the net being between a third and a half full of plant material. The bankside sort was undertaken by spreading the contents of each haul on a white plastic sheet, with ten minutes allocated to pick out animals and transfer to a vial with preservative, giving a total of thirty minutes of sorting time. The operation was repeated a further two times within bank sections approximately 25m in

length and the three resultant hauls were combined to produce a single aggregated sample. The three aggregated samples for each area were combined, giving a final single sample for each area, for subsequent laboratory analysis to identify species present.

iii. Data analysis

- 3.1.12 Species lists from Areas 1 and 2 were combined for Pantheon analysis due to the similarity and connectivity of habitats between the survey areas. Pantheon is an online resource for recording and analysis of invertebrate assemblages developed jointly by the UK Centre for Ecology and Hydrology and Natural England (Ref. 10). The resource includes a modified version of ISIS.
- 3.1.13 Pantheon recognises invertebrate assemblage types in species lists collected at scales ranging from management compartment to landscape character areas. The assemblage types are labelled in terms that relate to the constituent species' favoured habitats, from broad habitat type (i.e. wetland), to Specific Assemblage Type (i.e. reed-fen and pools).
- 3.1.14 The output gives an indication of the conservation status of analysed invertebrate assemblages.

iv. Limitations

- 3.1.15 Three visits were undertaken commencing in June 2020 for terrestrial invertebrates, an earlier sampling visit (April/May) would also have been preferred but was delayed due to COVID 19 mobilisation issues. This may result in an underrepresentation of species active earlier in the year, particularly those associated with early tree and scrub flowering. However, this was partially mitigated by the use of traps to catch invertebrates between survey visits.
- 3.1.16 Similarly, the spring aquatic visit was missed, and a single aquatic invertebrate visit was undertaken in August 2020. This may result in an underrepresentation of aquatic species active earlier in the year.
- 3.1.17 The swampy areas of the woodland strip in Area 2 and the large reed-bed in Area 1 were very difficult to sample adequately because of impenetrable and/or wet ground conditions. However, sampling the edges of these habitats and the use of passive traps in adjacent areas will have sampled a high proportion of the associated species.

4 RESULTS

4.1 Invertebrate habitat

a) Photographs of the survey areas are in **54APPENDIX B:**

i. Area 1: SSSI Triangle

- 4.1.1 A complex mosaic of habitats is present in this survey area, which forms part of Sizewell Marshes SSSI, and comprises areas of Common Reed (*Phragmites australis*) reed-swamp, with Alder (*Alnus glutinosa*) and Willow (*Salix* sp.) carr and both secondary and more mature wet woodland.
- 4.1.2 Open water was present grading into well vegetated shallows. Some areas were partially shaded by encroaching Alder and Willow providing sheltered areas and varying vegetation structure.
- 4.1.3 Reed-swamp was present in areas dominated by Common Reed with few associates other than Common Nettle (*Urtica dioica*) and Greater Willowherb (*Epilobium hirsutum*). Despite lacking floristic diversity dead stems in mature reedbed margins, such as at the peripheries of the open water area, could potentially support White-mantled Wainscot (*Archanara neurica*). The condition of the Area 1 reed-swamp suggested it has received little recent management, increasing the potential for such species but making it vulnerable to scrub succession. Inundation levels varied, generally increasing towards central lagoon. Some dry areas were noted with deep litter layer.
- 4.1.4 Various ditches, some of which are 4m wide x 0.75m at their deepest point and often shaded, were partially vegetated with Sweet-grass (*Glyceria plicata/fluitans*) forming a dense, surface mat with constants including Water-cress (*Rorippa nasturtium-aquaticum*) and Lesser Water-parsnip (*Berula erecta*) and emergent /marginal vegetation including frequent small stands of Common Reed and Branched Bur-reed (*Sparganium erectum*) and occasional Greater Reedmace (*Typha latifolia*). Water was clear throughout and slow flowing.
- 4.1.5 The interface between wet woodland and carr habitat and open reedbed provides structural variation beneficial to scrub edge invertebrate species as well as species associated with exposed mud and waterlogged wood. Wet woodland predominately Alder with Grey Willow (*Salix cinerea*), Crack Willow (*Salix fragilis*) and Downy Birch (*Betula pubescens*) overstanding a partially shaded ground layer with varied microtopography giving rise to diverse habitat structure and hydrological variation. Water Pepper (*Persicaria hydropiper*) was present in wetter depressions and open areas

of saturated silt at and around the water table provide potential habitat for seepage and inundated wood decay specialists. Mature trees with rot holes and other features favoured by saproxylic species were spread throughout the area. Bryophyte and lichen assemblages on more mature trees provided potential habitat for epiphyte invertebrate fauna and niches for species sensitive to water-level fluctuation.

- 4.1.6 Drier reed and woodland edge habitats with mature scattered trees including mature birch, Alder, Pedunculate Oak (*Quercus robur*) and Willow were also present. Some fallen and standing wood decay habitat, mainly Birch with peeling bark and sapwood decay would be beneficial for saproxylic invertebrates. Ground vegetation mainly tall herb with Common Nettle, Bramble (*Rubus fruticosus* agg.) and associated wet woodland species including Hemp Agrimony (*Eupatoria cannabinum*), Wild Angelica (*Angelica sylvestris*), Marsh Woundwort (*Stachys palustris*) and more open, shorter sward and areas with Yorkshire Fog (*Holcus lanatus*), Rough Meadow-grass (*Poa trivialis*) and herbs including Herb Robert (*Geranium robertianum*) and Lesser Stitchwort (*Stellaria graminea*). Whilst not botanically rich, the juxtaposition with reed-swamp increased the invertebrate diversity potential. The dry reed habitat is also likely to support a greater range of dry litter species than wetter areas.

ii. **Area 2: Fen Meadow and Woodland Strip**

- 4.1.7 The fen meadow consisted of a floristically diverse, partially inundated meadow forming part of a network of similar meadows bordered and traversed by floristically diverse wet ditches. The proximity to wet woodland and reed swamp habitat further increases its ecological potential. The diverse sward provided a resource for both polyphagous and monophagous herbivorous invertebrates as well as a nectar resource. Despite its diversity, the sward was fairly homogeneous, with limited topographical, hydrological or floristic variation save at the slightly cattle poached margins and interfaces. The wet ditches bordering the meadow provided potential hunting habitat for dragonflies.
- 4.1.8 The woodland strip consisted of largely secondary wet woodland with Alder, Willow and Birch. The habitat was generally shaded, however the silted carr edge habitat extending towards the fen meadow contained water-logged wood decay habitat, swamp macrophyte species such as Yellow Flag Iris (*Iris pseudacorus*) and Branched Bur-reed as well as Common Reed and Reed Canary Grass (*Phalaris arundinacea*). Exposed silt and wood decay habitat provided potential for seepage habitat associates and water-logged wood decay specialists. The canopy supporting typical wet woodland arboreal species.

4.2 Invertebrate species recorded

4.2.1 The terrestrial invertebrate sampling and moth trapping recorded 739 invertebrate species (see Appendix A.1 for full list). Of these, 51 have some degree of conservation status. The aquatic invertebrate sampling recorded 15 species, one of which had recognised conservation status (see Appendix A.2 for full list). Some of the more significant species are as follows:

- a) Norfolk Hawker (protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) (Ref. 8), IUCN Endangered (GB), S41, Nationally Scarce)

4.2.2 No Norfolk Hawker dragonflies were seen in Area 1 or 2, however three adults were observed slightly to the south and west of the survey area whilst the surveyors were accessing the site in July, shown on **Plate 3 (Photograph 17)**. No Norfolk Hawker larvae were recorded during the aquatic invertebrate survey.

Plate 3. Norfolk hawker incidental observations



Source: Grid Reference Finder

- b) Phoenix fly (*Dorycera graminum*) (proposed Nationally Scarce; proposed Near Threatened; S41)

4.2.3 This distinctive fly is Near Threatened and listed as a Section 41 Priority Species in the 2006 NERC Act (Ref. 6). It is widespread but generally scarce, with records concentrated in southern England north to the Midlands, especially coastal districts. However, there are also records from Elgin and Inverness in Scotland. Individuals were found in the south of Area 1.

- c) A trigonalid wasp (*Pseudogonalos (Trigonalis) hahnii*)

4.2.4 The only member of the Trigonalidae in Europe, this wasp is a hyperparasitoid. The larvae feed on endoparasitoids, tachinid fly larvae or ichneumonid wasp larva, that feed within the body of caterpillars and

perhaps sawfly larvae. The biology of trigonalids is very complex and the details of how this species completes its development are unknown. This wasp has no formal conservation status in the UK, in part because so little is known about its distribution. There are a scattering of 20 records across the UK with a small cluster in south Wales. This species was also recorded in the 2007 survey from the SSSI Triangle. A single individual was found during 2020 in the SLAM trap in Area 1.

d) **A limoniid crane fly (*Erioptera meijerei*) (RDB2)**

4.2.5 Little is known about the ecology/requirements of this species. Larvae are assumed to be aquatic or in water-logged soil. An individual was found in the SLAM trap in the northern part of the woodland strip in Area 2.

e) **A limoniid crane fly (*Dicranomyia Danica*) (RDB3)**

4.2.6 Little is known about the ecology/requirements of this species. Larvae are assumed to be aquatic or in water-logged soil. An individual was found in the SLAM trap in the northern part of the woodland strip in Area 2.

f) **Rest Harrow moth (*Aplasta ononaria*) (RDB3; S41)**

4.2.7 A locally distributed species in coastal areas of the south and south-east of England, and also occasionally appears elsewhere as a suspected migrant. The larval foodplant is restharrow (*Ononis repens*). A single individual was found during the second moth trapping event at the southern edge of Area 1.

g) **Grayling butterfly (*Hipparchia Semele*) (Vulnerable; S41)**

4.2.8 This butterfly is widespread on the coast and southern heaths but is declining in many areas, particularly inland. The larvae feed on various grasses: Sheep's-fescue (*Festuca ovina*), Red Fescue (*F. rubra*), Bristle Bent (*Agrostis curtisii*), and Early Hair-grass (*Aira praecox*). Coarser grasses such as Tufted Hair-grass (*Deschampsia cespitosa*) and Marram (*Ammophila arenaria*) are occasionally used. Individuals were found at the edge of the woodland strip in Area 2 where it borders the car park. This species is widespread across the coastal strip but is also colonising the recently created acid grassland areas in the Studio Field area.

h) **A darkling beetle (*Diaperis boleti*) (Nationally Scarce)**

4.2.9 The status of this beetle has recently been downgraded to Nationally Scarce to reflect an ongoing range expansion. Adults and larvae are

associated with Birch polypore *Piptoporus betulinus*. Numerous individuals were found in suitable habitat throughout the woodland strip of Area 2.

i) A darkling beetle (*Pseudocistela ceramboides*) (Nationally Scarce)

4.2.10 The larvae of this distinctive species live in wood-mould of hollow decayed Oak (*Quercus*), Beech (*Fagus*), and generally beneath bird nests. Adults generally in small numbers and typically found on blossom of hawthorn (*Crataegus monogyna*). A single individual was found in the northern part of Area 1.

j) A chequered beetle (*Tillus elongatus*) (Nationally Scarce)

4.2.11 A predator of other beetles on old broad-leaved trees, especially larvae of *Ptilinus pectinicornis*, and usually in hard dead heartwood of Beech. The larvae hunt nocturnally under bark and on the outside of the tree. An individual was found in the southern part of Area 1 on a dead willow.

4.2.12 In addition to the species above, a number of significant species were recorded during the second moth trapping event. The warm, humid weather appeared to have triggered a mass movement of insects. Most notable was the carabid beetle *Harpalus griseus*, which appears to be on the cusp of colonising the UK.

4.3 Pantheon results

4.3.1 The Pantheon analysis revealed that on a landscape (broad biotope¹) level, the greatest number of recorded species by far was attributed to the ‘Open habitats’ classification, with 269 recognised species (36%). Two hundred and nine (28%) and 178 (24%) species were ‘tree-associated’ and ‘wetland-associated’, respectively. Proportionately, these three classifications support a similar number of species in terms of the national pool of species attributed in the Pantheon database. The representation of this entire species pool was 6% for each of these classifications. These findings would be expected in consideration of the habitats available. Details of the biotopes identified by the pantheon analysis are presented in **Table 4**.

Table 4: Habitats & Resources – Broad Biotopes

| Broad biotope | No. of species | % representation | SQI | Species with conservation status |
|-----------------|----------------|------------------|-----|----------------------------------|
| open habitats | 269 | 6 | 123 | 18 |
| tree-associated | 209 | 6 | 124 | 15 |
| wetland | 178 | 6 | 149 | 14 |
| coastal | 8 | 2 | 300 | 4 |

4.3.2 The Species Quality Indices (SQI) reflect the proportion of rarities attributed to an assemblage and scores of around 100 generally indicate assemblages comprised of a high proportion of common species. In broad terms, scores of around 140 indicate the presence of assemblages of some conservation value, i.e. contains some rare or notable species within the particular assemblage. The higher the number of rare or notable species within the recorded assemblage, the higher the SQI score will be suggesting an assemblage of greater conservation value. It is important to note, however, that SQIs calculated from less than 15 species may not be reliable.

4.3.3 On the Pantheon ‘habitat’ level tier², (**Table 5**) there were nine assemblages attributed with a sufficient number of species recognised in

¹ The top-level Pantheon division into broad ecological groups. These are ‘open habitats’, ‘tree associated’, ‘wetland’ and ‘coastal’.

² The second level of the Pantheon hierarchy containing habitats which fall within one of the top-level broad biotopes, i.e. ‘tall sward and scrub’ and ‘short sward and bare ground’ habitats are components of the ‘open habitats’ broad biotope.

Pantheon to be considered to have a reliable SQI score. Two hundred and sixteen species (29%) were attributed to the ‘tall sward and scrub’ habitat, which comprises species associated with taller grassland, scrub and scrub edge habitats. The other robust invertebrate assemblages were attributed to ‘arboreal’ (97 species (13%)), ‘peatland’ (81 species (11%)), ‘marshland’ (79 species (11%)), ‘shaded woodland floor’ (60 species (8%)), ‘decaying wood’ (57 species (8%)), ‘short-sward and bare ground’ (46 species (6%)), ‘running water’ (24 species (3%)) and ‘wet woodland’ (22 species (3%)) habitats. Five of these, assemblages received an SQI score of higher than 140 suggesting these are invertebrate assemblages of some conservation value; ‘short sward and bare ground’ (SQI 187), ‘peatland’ (SQI 174), ‘decaying wood’ (SQI 149), ‘marshland’ (SQI 141) and ‘wet woodland’ (SQI 141).

- 4.3.4 The other habitat level invertebrate assemblages identified through Pantheon analysis, which contained less than 15 species, reflects the habitat requirements of a small proportion of the dataset (18 species (2%)). The presence of these invertebrate assemblages within the dataset suggest minor habitat features, such as localised brackish areas, are within the site or that mobile species, associated with surrounding coastal and wetland habitat, were picked up during sampling.

Table 5: Habitats and Resources – Habitats

| Broad Biotope | Habitat | No. of Species | % Representative | SQI | Species with Conservation Status |
|-----------------|---------------------------|----------------|------------------|-----|----------------------------------|
| open habitats | tall sward & scrub | 216 | 8 | 106 | 4 |
| tree-associated | arboreal | 97 | 7 | 111 | 4 |
| wetland | peatland | 81 | 7 | 174 | 8 |
| wetland | marshland | 79 | 9 | 141 | 6 |
| tree-associated | shaded woodland floor | 60 | 5 | 117 | 2 |
| tree-associated | decaying wood | 57 | 5 | 149 | 9 |
| open habitats | short sward & bare ground | 46 | 4 | 187 | 13 |
| wetland | running water | 24 | 2 | 113 | |
| wetland | wet woodland | 22 | 8 | 141 | 2 |
| tree-associated | wet woodland | 22 | 9 | 141 | 2 |
| coastal | saltmarsh | 8* | 3 | 300 | 4 |
| wetland | lake | 4* | 3 | 100 | |
| coastal | brackish pools & ditches | 3* | 3 | 300 | 2 |
| open habitats | upland | 2* | 1 | 100 | |
| coastal | sandy beach | 1* | <1 | 100 | |

Table 6: Habitats and Resources – Specific Assemblage Types (SAT)

| Broad biotope | Habitat | SAT | No. of species | % representation | SQI | Species with conservation status | SAT Code | Reported condition |
|-----------------|---------------------------|----------------------|----------------|------------------|-----|----------------------------------|----------|--|
| tree-associated | decaying wood | bark & sapwood decay | 28 | 6 | 133 | 3 | A212 | Favourable |
| open habitats | | scrub edge | 13 | 6 | 100 | | F001 | Favourable |
| wetland | peatland | reed-fen & pools | 11 | 10 | 282 | 4 | W314 | Favourable |
| open habitats | short sward & bare ground | open short sward | 11 | 6 | 164 | 2 | F112 | Unfavourable (Threshold = 13 species) |
| open habitats | short sward & bare ground | bare sand & chalk | 11 | 2 | 291 | 8 | F111 | Unfavourable (Threshold = 19 species) |
| open habitats | | rich flower resource | 9 | 4 | 100 | | F002 | Unfavourable (Threshold = 15 species) |
| tree-associated | decaying wood | heartwood decay | 8 | 5 | 213 | 2 | A211 | Favourable |

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| Broad biotope | Habitat | SAT | No. of species | % representation | SQI | Species with conservation status | SAT Code | Reported condition |
|-----------------|---------------|---|----------------|------------------|-----|----------------------------------|----------|--------------------------------------|
| tree-associated | decaying wood | fungal fruiting bodies | 5 | 6 | 160 | 2 | A213 | Unfavourable (Threshold = 7 species) |
| coastal | saltmarsh | saltmarsh & transitional brackish marsh | 4 | 4 | 425 | 3 | M311 | Unfavourable (Threshold = 9 species) |
| open habitats | | scrub-heath & moorland | 3 | <1 | 100 | | F003 | Unfavourable (Threshold = 9 species) |
| tree-associated | decaying wood | epiphyte fauna | 3 | 15 | 100 | | A215 | Favourable |
| | | epiphyte fauna | 1 | 5 | 100 | | A215 | Unfavourable (Threshold = 3 species) |
| wetland | marshland | undisturbed fluctuating marsh | 1 | 3 | 400 | 1 | W221 | Unfavourable (Threshold = 4 species) |
| wetland | peatland | Sphagnum bog | 1 | <1 | 100 | | W312 | Unfavourable (Threshold = 8 species) |

- 4.3.5 Pantheon analysis also considers Specific Assemblage Types (SATs)³. These were developed to establish site condition across the SSSI series and are characterised by ecologically restricted species, the quality of which can be measured by the number of specialist species that occur within it. A threshold score (i.e. a certain amount of specialist species) has been assigned to each SAT within Pantheon and if the threshold is reached, the particular SAT could be considered to be of Favourable condition status. SATs of Favourable condition suggest the presence of specialist invertebrate assemblages of high conservation value and potentially of SSSI quality.
- 4.3.6 In terms of the SATs within these habitats, **Table 6** shows the following were all reported to be in a favourable condition from the data collected during this survey:
- ‘reed fen and pools’
 - ‘bark and sapwood decay’
 - ‘scrub edge’
 - ‘heart wood decay’
 - ‘epiphyte fauna’
- 4.3.7 SATs have intrinsic value for nature conservation and were designed to be used in setting invertebrate conservation objectives on SSSIs. They can be selected as features of interest when they are well expressed in existing data. The “% of national species pool” score can be used to do this when a large body of data exists for a SSSI. A score of over 10% for most wetland SATs, and over 6% for most non-wetland SATs, indicates that it is of ‘national significance’ (Ref. 11).
- 4.3.8 Of the SATs that were considered unfavourable condition, SAT ‘open short sward’ was close to the favourable condition threshold.

³ Defined entities analogous to the National Vegetation Classification of plant communities, and represent ecological groupings derived from statistical ordinations from large, standard-effort survey datasets.

5 DISCUSSION

- 5.1.1 A large number of species with recognised conservation status have been recorded from Sizewell Marshes SSSI and adjacent areas during previous surveys. A rich mosaic of habitats is present, which has historically supported a diverse assemblage of invertebrates and the wetland invertebrate assemblages are well documented for the Sizewell Marshes SSSI and mentioned on the SSSI citation.
- 5.1.2 Surveys undertaken in 2020 found that the areas surveyed continue to support rich assemblages of invertebrates, principally those associated with wetland habitats. Invertebrate assemblages associated with woodland and scrub edges and dead wood habitats were also well represented with a number of interesting saproxylic invertebrate species recorded. There was also a notable assemblage associated with short sward and bare ground habitat. This latter habitat, although not the focus of these surveys, was represented at the eastern edge of Area 2 and large tracts of this habitat are found throughout the wider Sizewell area. The juxtaposition of wetland, waterbodies, woodland/scrub edge, deadwood and nectar sources make this a valuable landscape for invertebrates.
- 5.1.3 Area 1 and the fen meadows of Area 2 were the most valuable areas for invertebrates. Area 1 in particular has an interesting mosaic of habitats with a mosaic of reedbeds, water bodies, woodland edge, scrub, drier areas, and dead wood. The fen meadows of Area 2 were at their most interesting when there is an interface with ditches, hedgerows, woodland edges, and scrub.
- 5.1.4 The Norfolk hawkler, a species of particular note that has been recorded in previous surveys was not recorded in Areas 1 and 2. Individuals of this species were however recorded to the south of the survey area in 2020 and it is highly likely the adults use some of the habitat in Area 2, although the ditches in this area may be too shaded to be of use for breeding.
- 5.1.5 Of the areas surveyed in 2020, the least interesting for terrestrial invertebrates was the southern section of the woodland strip in Area 2. In this section of woodland, Sycamore (*Acer pseudoplatanus*) predominates, and the ground flora has minimal botanical diversity. This low value habitat also continues along the slope that borders the Sizewell B station. In the southern section, the interface of this woodland with the Alder carr and swamp is more interesting and there is abundant dead wood in this area.
- 5.1.6 In conservation assessments, SATs are generally regarded as the most valuable metrics for assessing site quality. This is because SATs are

made up of species with a high degree of habitat specialisation. Such species tend to be both uncommon and representative of sites supporting habitat of quality in terms of conservation value.

- 5.1.7 Previous survey results, undertaken within 2016 Assessment Compartments 1, 2, 3 and 4/4a, identified the following SATS considered favourable condition:
- ‘reed fen and pools’
 - ‘scrub edge’
 - ‘bare sand and chalk’
- 5.1.8 This is consistent with the 2020 results with ‘reed fen and pools’ invertebrate assemblage considered of national importance (Ref. 11). The exception was the SAT ‘bare sand and chalk’, which did not reach favourable condition in 2020. This is likely due to the survey extent of Assessment Compartment 4/4a in 2016, which included a large amount of open grassland habitat on the Sizewell C platform. Such areas were not covered in the 2020 surveys and so the component species are not as well represented.
- 5.1.9 SATs associated with dead wood habitats (‘bark and sapwood decay’ and ‘heartwood decay’) were not considered favourable condition in previous surveys however were considered favourable condition in 2020 with the ‘bark and sapwood decay’ invertebrate assemblage considered of national importance (Ref. 11). This does not suggest that these invertebrate assemblages have become more important from a conservation perspective since 2016 but that previous surveys were not sufficient to pick up a greater number of specialist species associated with these habitats.
- 5.1.10 The SAT ‘epiphyte fauna’ was also considered to be of favourable condition however to achieve this it only needs to be represented by three species, whilst the favourable condition threshold for the ‘bark and sapwood decay’ SAT is 19 (i.e. 20 or more species need to be attributed to this group for favourable condition status to be achieved). This does not suggest that the invertebrate assemblage recorded in 2020 associated with epiphytes is not significant but should be considered in context when comparing the importance of invertebrate assemblages.
- 5.1.11 Surveys of this type can only ever provide a limited ‘snapshot’ of the terrestrial diversity of any given site, but the data collected here gives a continuing indication of the high value of these habitats to support invertebrate assemblages of conservation importance, and adds to the

other surveys that have been conducted on the site. There will be always be a large number of species that are missed, either because of their very secretive habits; small, highly localised populations and short periods of adult activity during which they are more likely to be sampled.

- 5.1.12 Invertebrates active early in the year are thought to be underrepresented in the 2020 surveys due to lack of sampling visit in April/May. Solely aquatic invertebrates, or those with aquatic life stages are considered to be underrepresented due to only one survey visit being undertaken in August.
- 5.1.13 The survey results presented above do not change the assessment of impacts on the invertebrate assemblages recorded within the survey area presented at **Section 14.8** in the **Volume 2, Chapter 14** of the Sizewell C Project ES [[APP-224](#)] (Ref 2).

6 CONCLUSION

- 6.1.1 Three general terrestrial invertebrate sampling events and two moth trapping events were conducted during the Summer 2020 between June and August. Standardised sampling methods and protocols were used to sample the invertebrate fauna of the site, with subsequent identification of material. Two discrete areas were sampled: the SSSI Triangle and the Fen Meadow and woodland strip to the west of the current site.
- 6.1.2 A total of 739 terrestrial invertebrate species were recorded from Areas 1 and 2, of which 51 had recognised conservation status. 15 species were recorded from the aquatic invertebrate sampling, one of which had recognised conservation status.
- 6.1.3 The principle value of these survey areas for invertebrates lies in the wetland, woodland/scrub edge and deadwood habitats as highlighted by the presence of associated Specific Assemblage Types (SATs) considered of favourable condition.
- 6.1.4 The 2020 survey results are consistent with previous survey results from these areas however highlighted the presence of important dead wood associated invertebrate assemblages, which were considered underrepresented in previous surveys.

REFERENCES

1. EDF 2020. Sizewell C Project – Environment Statement: Main Development Site, Volume 2, Chapter 14: Appendix 14A4 – Invertebrates. [[APP-231](#)]
2. EDF 2020. Sizewell C Project – Environment Statement: Main Development Site, Volume 2, Chapter 14. [[APP-224](#)]
3. EDF 2020. Sizewell C Main Development Site Aquatic Invertebrate and Fish Mitigation Strategy.
4. Arcadis. 2015. Terrestrial Ecology Workshop 24 April 2015, Natural England response to questions. Arcadis UK.
5. Lott D.A. Alexander, K.N.A. and Drake, C.M., 2007. ISIS – invertebrate species – habitat information system – broad assemblage type descriptions – 31/01/2007 revised 14/12/2007.
6. Natural Environment and Rural Communities Act. 2006. (Online). Available at: <http://www.legislation.gov.uk/ukpga/2006/16/contents> (Accessed October 2020).
7. EDF 2020. Sizewell C Project– Main Development Site: Outline Landscape and Ecology Management Plan. [[APP-588](#)]
8. Wildlife and Countryside Act, as amended. 1981. (Online) Available at: <http://www.legislation.gov.uk/ukpga/1981/69/contents> (Accessed October 2020).
9. Drake CM et al. (2007). Surveying terrestrial and freshwater invertebrates for conservation evaluation. Natural England Research Report NERR005.
10. Webb, J., Heaver, D., Lott, D., Dean, H.J., van Breda, J., Curson, J., Harvey, M.C., Gurney, M., Roy, D.B., van Breda, A., Drake, M., Alexander, K.N.A. and Foster, G. (2018). Pantheon - database version 3.7.6
11. Lott, D.A., 2008. ISIS development report – synopsis of ISIS 2009 and its use in Common Standards Monitoring. Burrow Upon Soar: Stenus Research

APPENDIX A: SPECIES LIST

A.1. Terrestrial Survey and Moth Trapping Species List

Area Key

1S= Area 1 South; 1N= Area 1 North; 2M= Area 2 Fen Meadow; 2N= Area 2 Woodland Strip North; 2CP= Area 2 Car Park edges (drier areas); 2C= Area 2 Woodland Strip Central; 2S= Area 2 Woodland Strip South

Status key

VU= Vulnerable; Nb= Notable B; RDB2= Vulnerable; RDB3= Rare; S41= Section 41 priority species; S41-R= Section 41 priority species- research only; NA= Not Assessed; DD= Data deficient; Dde= Data deficient (European); [*status*]= Status considered out of date, use with caution; p*status*= proposed status; NS= Nationally Scarce; N= Notable

For species with a status

Species name*= recorded 8-9/06/2020; Species name**= recorded 26-27/06/2020; Species name***= recorded 21/07/2020; Species name****= recorded 10-11/08/2020

Table 7. Full species list from terrestrial survey and moth trapping

| Scientific Name | Common Name | Survey Area | Status |
|----------------------------------|-----------------|-------------|--------|
| <i>Acupalpus dubius</i> | A Ground Beetle | 2M | |
| <i>Agonum emarginatum</i> | A Ground Beetle | 2C, 1S | |
| <i>Amara apricaria</i> | A Ground Beetle | 1N, 1S | |
| <i>Amara majuscula</i> | A Ground Beetle | 1S | |
| <i>Badister collaris</i> **/**** | A Ground Beetle | 1N, 1S | NS |
| <i>Badister dilatatus</i> ** | A Ground Beetle | 1N | NS |
| <i>Bembidion assimile</i> | A Ground Beetle | 1S | |
| <i>Bembidion varium</i> | A Ground Beetle | 1S | |
| <i>Bradycellus verbasci</i> | A Ground Beetle | 1S | |
| <i>Carabus granulatus</i> | A Ground Beetle | 1S, 2C, 2S | |
| <i>Dromius quadrimaculatus</i> | A Ground Beetle | 2N | |
| <i>Elaphrus cupreus</i> | A Ground Beetle | 2C, 1N | |
| <i>Harpalus griseus</i> | A Ground Beetle | 1S | |

| Scientific Name | Common Name | Survey Area | Status |
|-------------------------------------|-----------------|-------------------|--------|
| <i>Harpalus rufipes</i> | A Ground Beetle | 1S | |
| <i>Harpalus smaragdinus</i> **/** | A Ground Beetle | 2M, 1S | NS |
| <i>Loricera pilicornis</i> | A Ground Beetle | 2C | |
| <i>Notiophilus biguttatus</i> | A Ground Beetle | 1S | |
| <i>Oxypselaphus obscurus</i> | A Ground Beetle | 2M | |
| <i>Paradromius linearis</i> | A Ground Beetle | 1S, 2N | |
| <i>Pterostichus diligens</i> | A Ground Beetle | 2M | |
| <i>Pterostichus melanarius</i> | A Ground Beetle | 2C | |
| <i>Pterostichus niger</i> | A Ground Beetle | 2C | |
| <i>Pterostichus nigrita</i> | A Ground Beetle | 2C | |
| <i>Tachys scutellaris</i> **** | A Ground Beetle | 1S | NS |
| <i>Anotylus rugosus</i> | A Rove Beetle | 1N, 1S | |
| <i>Bledius gallicus</i> | A Rove Beetle | 1S | |
| <i>Bledius limicola</i> | A Rove Beetle | 1N, 1S | |
| <i>Bledius opacus</i> | A Rove Beetle | 1S | |
| <i>Carpelimus corticinus</i> | A Rove Beetle | 1S | |
| <i>Carpelimus rivularis</i> | A Rove Beetle | 1S | |
| <i>Gabrius splendidulus</i> | A Rove Beetle | 1N | |
| <i>Gabrius trossulus</i> | A Rove Beetle | 2M | |
| <i>Lathrobium elongatum</i> | A Rove Beetle | 1N, 1S | |
| <i>Omalius italicum</i> | A Rove Beetle | 2S | |
| <i>Paederus riparius</i> | A Rove Beetle | 2M, 1N, 2N, 1S | |
| <i>Philonthus decorus</i> | A Rove Beetle | 2C | |
| <i>Philonthus quisquiliarius</i> | A Rove Beetle | 2M, 1S | |
| <i>Philonthus umbratilis</i> | A Rove Beetle | 1N | |
| <i>Quedius maurorufus</i> | A Rove Beetle | 2M | |
| <i>Rugilus erichsoni</i> | A Rove Beetle | 2M | |
| <i>Scaphidium quadrimaculatum</i> | A Rove Beetle | 1S | |
| <i>Sepedophilus bipunctatus</i> *** | A Rove Beetle | 2N | Nb |
| <i>Sepedophilus nigripennis</i> | A Rove Beetle | 1N | |
| <i>Stenus aceris</i> | A Rove Beetle | 2S | |

NOT PROTECTIVELY MARKED

| Scientific Name | Common Name | Survey Area | Status |
|------------------------------------|----------------------|----------------|--------|
| <i>Stenus bifoveolatus</i> | A Rove Beetle | 2N | |
| <i>Stenus bimaculatus</i> | A Rove Beetle | 2S, 2M, 2N, 1S | |
| <i>Stenus carbonarius</i> */*** | A Rove Beetle | 2M, 2N | Nb |
| <i>Stenus clavicornis</i> | A Rove Beetle | 2M, 1S | |
| <i>Stenus flavipes</i> | A Rove Beetle | 2M, 2S, 2N | |
| <i>Stenus fulvicornis</i> | A Rove Beetle | 2M, 1S, 1N | |
| <i>Stenus impressus</i> | A Rove Beetle | 2S | |
| <i>Stenus junco</i> | A Rove Beetle | 2M, 1S, 2S | |
| <i>Stenus latifrons</i> | A Rove Beetle | 2M, 1N | |
| <i>Stenus nitens</i> | A Rove Beetle | 1S | |
| <i>Stenus nitidiusculus</i> | A Rove Beetle | 2M, 1S, 2S | |
| <i>Stenus ossium</i> | A Rove Beetle | 2M | |
| <i>Stenus picipes</i> | A Rove Beetle | 2S, 2N | |
| <i>Stenus providedus</i> | A Rove Beetle | 2M | |
| <i>Stenus solutus</i> | A Rove Beetle | 2M | |
| <i>Tachinus rufipes</i> | A Rove Beetle | 1N, 2C | |
| <i>Tachyporus atriceps</i> | A Rove Beetle | 2M | |
| <i>Tachyporus chrysomelinus</i> | A Rove Beetle | 1N | |
| <i>Tachyporus dispar</i> | A Rove Beetle | 2S, 1N | |
| <i>Tachyporus hypnorum</i> | A Rove Beetle | 2M, 1N | |
| <i>Tachyporus solutus</i> | A Rove Beetle | 2S, 1S, 1N | |
| <i>Bryaxis bulbifer</i> | An Ant-loving Beetle | 2M, 2N | |
| <i>Reichenbachia juncorum</i> | An Ant-loving Beetle | 2M, 2N, 1N, 1S | |
| <i>Rybaxis longicornis</i> | An Ant-loving Beetle | 2M, 2N, 1S | |
| <i>Tatianaerhynchites aequatus</i> | A Rhynchitid Weevil | 2CP | |
| <i>Temnocerus nanus</i> | A Rhynchitid Weevil | 2C | |
| <i>Apion frumentarium</i> | An Apionid Weevil | 2M | |
| <i>Betulapion simile</i> | An Apionid Weevil | 1S | |
| <i>Ceratapion onopordi</i> | An Apionid Weevil | 2C | |
| <i>Cyanapion spencii</i> | An Apionid Weevil | 1S | |
| <i>Eutrichapion viciae</i> | An Apionid Weevil | 1S, 2M | |
| <i>Exapion ulicis</i> | An Apionid Weevil | 2CP, 2M | |
| <i>Ischnopterapion loti</i> | An Apionid Weevil | 2N | |

NOT PROTECTIVELY MARKED

| Scientific Name | Common Name | Survey Area | Status |
|------------------------------------|-------------------|--------------------|--------|
| <i>Oxystoma pomonae</i> | An Apionid Weevil | 2N, 1S, 1N | |
| <i>Perapion curtirostre</i> | An Apionid Weevil | 2M | |
| <i>Protapion dissimile*</i> | An Apionid Weevil | 1S | Nb |
| <i>Protapion fulvipes</i> | An Apionid Weevil | 1S | |
| <i>Protapion nigrirtarse</i> | An Apionid Weevil | 2N, 1N, 1S | |
| <i>Ceutorhynchus pallidactylus</i> | A Weevil | 2C | |
| <i>Ceutorhynchus typhae</i> | A Weevil | 2C | |
| <i>Dorytomus dejeani</i> | A Weevil | 1N | |
| <i>Euophryum confine</i> | A Weevil | 1N, 2N | |
| <i>Exomias pellucidus</i> | A Weevil | 2S | |
| <i>Limnobaris dolorosa</i> | A Weevil | 1S | |
| <i>Magdalis cerasi*</i> | A Weevil | 2CP, 1N | [Nb] |
| <i>Nedys quadrimaculatus</i> | A Weevil | 2C, 1S, 1N, 2S | |
| <i>Notaris acridulus</i> | A Weevil | 2M | |
| <i>Parethelcus pollinarius</i> | A Weevil | 2C | |
| <i>Phyllobius pyri</i> | A Weevil | 1S, 2M | |
| <i>Polydrusus cervinus</i> | A Weevil | 2CP, 1N | |
| <i>Polydrusus formosus*/***</i> | A Weevil | 1S, 1N, 2C | [Na] |
| <i>Rhinoncus castor</i> | A Weevil | 2CP | |
| <i>Sirocalodes mixtus*</i> | A Weevil | 1N | Nb |
| <i>Sitona lineatus</i> | A Weevil | 1S, 2M, 1N, 2C, 2N | |
| <i>Strophosoma melanogrammum</i> | A Weevil | 2C | |
| <i>Anisandrus dispar***</i> | A Bark Beetle | 2N | Nb |
| <i>Trypodendron domesticum</i> | A Bark Beetle | 2N | |
| <i>Xyleborinus saxesenii</i> | A Bark Beetle | 1N, 2N, 1S | |
| <i>Aphthona euphorbiae</i> | A Flea Beetle | 1S, 2C | |
| <i>Aphthona nonstriata</i> | A Flea Beetle | 2C | |
| <i>Chaetocnema concinna</i> | A Flea Beetle | 2N | |
| <i>Crepidodera aurata</i> | A Flea Beetle | 1S, 1N | |
| <i>Crepidodera fulvicornis</i> | A Flea Beetle | 1S | |

NOT PROTECTIVELY MARKED

| Scientific Name | Common Name | Survey Area | Status |
|--|--------------------------|-------------|--------|
| <i>Crepidodera plutus</i> | A Flea Beetle | 1S, 1N | |
| <i>Epitrix pubescens</i> | A Flea Beetle | 2S | |
| <i>Longitarsus flavicornis</i> | A Flea Beetle | 1S | |
| <i>Longitarsus luridus</i> | A Flea Beetle | 1S | |
| <i>Longitarsus parvulus</i> | A Flea Beetle | 2N | |
| <i>Longitarsus rubiginosus</i> | A Flea Beetle | 1N | |
| <i>Neocrepidodera transversa</i> | A Flea Beetle | 1N, 2M | |
| <i>Phyllotreta atra</i> | A Flea Beetle | 1S | |
| <i>Phyllotreta exclamationis</i> | A Flea Beetle | 1S | |
| <i>Psylliodes chrysocephala</i> | Cabbage Stem Flea Beetle | 1S, 2N | |
| <i>Psylliodes dulcamarae</i> | A Flea Beetle | 1N | |
| <i>Oulema obscura</i> | A Leaf Beetle | 1S, 2N | |
| <i>Phaedon armoraciae</i> | A Leaf Beetle | 1N | |
| <i>Phyllobrotica quadrimaculata</i> | A Leaf Beetle | 2S | |
| <i>Plagiodera versicolora</i> | A Leaf Beetle | 1S | |
| <i>Adalia decempunctata</i> | 10-spot Ladybird | 2CP, 2C, 2N | |
| <i>Calvia quattuordecimguttata</i> | Cream-spot Ladybird | 2N | |
| <i>Chilocorus renipustulatus</i> | Kidney-spot Ladybird | 2M | |
| <i>Coccinella undecimpunctata</i> | 11-spot Ladybird | 2CP | |
| <i>Coccinella septempunctata</i> | 7-spot Ladybird | All Areas | |
| <i>Harmonia axyridis</i> | Harlequin Ladybird | 2CP, 1S, 2N | |
| <i>Propylea quattuordecimpunctata</i> | 12-spot Ladybird | 2C | |
| <i>Psyllobora vigintiduopunctata</i> | 22-spot Ladybird | 2S, 2C | |
| <i>Rhyzobius litura</i> | A Ladybird | 2M | |
| <i>Subcoccinella vigintiquatuor punctata</i> | 22-spot Ladybird | 1N, 1S | |
| <i>Anthicus antherinus</i> | An Ant Flower Beetle | 1S | |
| <i>Notoxus monoceros</i> | An Ant Flower Beetle | 2M | |

NOT PROTECTIVELY MARKED

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| Scientific Name | Common Name | Survey Area | Status |
|-------------------------------------|-----------------------------|----------------|--------|
| <i>Agapanthia villosviridescens</i> | A Longhorn Beetle | 2M | |
| <i>Arhopalus rusticus</i> | A Longhorn Beetle | 1S | |
| <i>Clytus arietis</i> | Wasp Beetle | 1S | |
| <i>Grammoptera ruficornis</i> | A Longhorn Beetle | 2N, 1N | |
| <i>Rutpela maculata</i> | A Longhorn Beetle | 1N | |
| <i>Crypticus quisquilius</i> * | A Darkling Beetle | 2CP | NS |
| <i>Diaperis boleti</i> * | A Darkling Beetle | 1S, 1N, 2C | NS |
| <i>Isomira murina</i> | A Darkling Beetle | 2CP, 2M, 2N | |
| <i>Lagria hirta</i> | A Darkling Beetle | 1N, 2N | |
| <i>Prionychus ater</i> | A Darkling Beetle | 2M | |
| <i>Pseudocistela ceramboides</i> * | A Darkling Beetle | 1N | NS |
| <i>Dorcus parallelipipedus</i> | Lesser Stag Beetle | 2M | |
| <i>Acrotrichis sitkaensis</i> | A Featherwing Beetle | 2M, 1S | |
| <i>Ptenidium intermedium</i> | A Featherwing Beetle | 1S, 2S | |
| <i>Sericoderus brevicornis</i> | A Corylophid Beetle | 1S | |
| <i>Aulonium trisulcus</i> | A Cylindrical Bark Beetle | 1S | |
| <i>Mycetophagus piceus</i> | A Hairy Fungus Beetle | 2C | |
| <i>Cis bilamellatus</i> | A Minute Tree Fungus Beetle | 2C, 1S | |
| <i>Cis boleti</i> | A Minute Tree Fungus Beetle | 1N, 2N | |
| <i>Cis pygmaeus</i> | A Minute Tree Fungus Beetle | 2N | |
| <i>Dacne rufifrons</i> * | A Pleasing Fungus Beetle | 2C | DDe |
| <i>Antherophagus pallens</i> | A Silken Fungus Beetle | 2N | |
| <i>Atomaria atricapilla</i> | A Silken Fungus Beetle | 1N, 2S | |
| <i>Atomaria nitidula</i> | A Silken Fungus Beetle | 2N | |
| <i>Atomaria testacea</i> | A Silken Fungus Beetle | 2M | |
| <i>Cerylon histeroides</i> | A Cerylonid Beetle | 2N | |
| <i>Anisotoma humeralis</i> | A Fungus Beetle | 1N, 2N, 1S, 2C | |
| <i>Paromalus flavicornis</i> | A Clown Beetle | 1N | |
| <i>Necrodes littoralis</i> | A Carrion Beetle | 1S | |
| <i>Nicrophorus humator</i> | A Carrion Beetle | 1S | |

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| Scientific Name | Common Name | Survey Area | Status |
|------------------------------------|---------------------------------|--------------------|---------|
| <i>Nicrophorus interruptus</i> *** | A Carrion Beetle | 2C | Nb |
| <i>Nicrophorus vespilloides</i> | A Carrion Beetle | 1N, 1S, 2C, 2N | |
| <i>Oiceoptoma thoracicum</i> | A Carrion Beetle | 1N, 1S | |
| <i>Silpha atrata</i> | A Carrion Beetle | 1S, 2C | |
| <i>Silpha tristis</i> | A Carrion Beetle | 2M, 2C | |
| <i>Salpingus planirostris</i> | A Narrow Bark Beetle | 1N, 1S, 2N | |
| <i>Psammoecus bipunctatus</i> | A Flat Bark Beetle | 2M | |
| <i>Thanasimus formicarius</i> | A Chequered Beetle | 1S, 2N | |
| <i>Tillus elongatus</i> */**** | A Chequered Beetle | 1S | NS |
| <i>Eपुरaea biguttata</i> | A Sap Beetle | 2M, 1N | |
| <i>Eपुरaea marseuli</i> | A Sap Beetle | 1N | |
| <i>Glischrochilus hortensis</i> | A Sap Beetle | 1N, 1S, 2N | |
| <i>Meligethes aeneus</i> | A Pollen Beetle | 1S | |
| <i>Cartodere bifasciata</i> | A Minute Brown Scavenger Beetle | 2M, 2N, 1N, 1S, 2C | |
| <i>Corticicara gibbosa</i> | A Minute Brown Scavenger Beetle | 1N, 2M, 1S, 2N | |
| <i>Enicmus brevicornis</i> ** | A Minute Brown Scavenger Beetle | 1N | Notable |
| <i>Enicmus transversus</i> | A Minute Brown Scavenger Beetle | 1N | |
| <i>Adrastus pallens</i> | A Click Beetle | 1S, 2N | |
| <i>Agrypnus murinus</i> | A Click Beetle | 2CP | |
| <i>Athous haemorrhoidalis</i> | A Click Beetle | 1N | |
| <i>Dalopius marginatus</i> | A Click Beetle | 2S | |
| <i>Melanotus castanipes</i> | A Click Beetle | 1N, 2N | |
| <i>Melanotus villosus</i> | A Click Beetle | 1N, 1S | |
| <i>Stenagostus rhombeus</i> | A Click Beetle | 1S | |
| <i>Trixagus dermestoides</i> | A Throscid Beetle | 1N, 1S, 2N | |
| <i>Byturus ochraceus</i> | A Raspberry Beetle | 2C | |
| <i>Aphodius depressus</i> | A Dung Beetle | 2M | |
| <i>Aphodius rufipes</i> | A Dung Beetle | 1S | |
| <i>Serica brunnea</i> | Brown Chafer | 1N | |

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| Scientific Name | Common Name | Survey Area | Status |
|---------------------------------|------------------------------|-------------|--------|
| <i>Pyrochroa serraticornis</i> | Red-headed Cardinal Beetle | 1S | |
| <i>Cantharis cryptica</i> | A Soldier Beetle | 2M, 1N | |
| <i>Cantharis nigricans</i> | A Soldier Beetle | 2N, 2S, 1N | |
| <i>Cantharis pallida</i> | A Soldier Beetle | 2M, 1S, 1N | |
| <i>Cantharis rufa</i> | A Soldier Beetle | 2N, 2M | |
| <i>Cantharis rustica</i> | A Soldier Beetle | 2S | |
| <i>Malthinus seriepunctatus</i> | A Soldier Beetle | 1N | |
| <i>Malthodes marginatus</i> | A Soldier Beetle | 1S | |
| <i>Rhagonycha fulva</i> | A Soldier Beetle | All Areas | |
| <i>Rhagonycha lignosa</i> | A Soldier Beetle | 1N | |
| <i>Rhagonycha testacea</i> | A Soldier Beetle | 1S | |
| <i>Silis ruficollis</i> | A Soldier Beetle | 1S, 2C, 2N | |
| <i>Lampyris noctiluca</i> | Glow Worm | 1N, 2C | |
| <i>Anthocomus rufus</i> | A Soft-winged Flower Beetle | 1N | |
| <i>Malachius bipustulatus</i> | A Soft-winged Flower Beetle | 1S, 1N | |
| <i>Oedemera lurida</i> | A False Oil Beetle | 2M, 2CP, 2N | |
| <i>Oedemera nobilis</i> | A False Oil Beetle | 1N, 2M, 2CP | |
| <i>Anobium punctatum</i> | A Wood-boring Beetle | 1N | |
| <i>Grynobius planus</i> | A Wood-boring Beetle | 2CP | |
| <i>Ptilinus pectinicornis</i> | A Wood-boring Beetle | 1N, 2M, 2N | |
| <i>Rhizophagus bipustulatus</i> | A Root-eating Beetle | 1N | |
| <i>Brachypterus urticae</i> | A Short-winged Flower Beetle | 2C | |
| <i>Kateretes rufilabris</i> | A Short-winged Flower Beetle | 2M, 1S, 2N | |
| <i>Anaspis frontalis</i> | A False Flower Beetle | 2CP, 1S, 1N | |
| <i>Anaspis lurida</i> | A False Flower Beetle | 1S | |
| <i>Anaspis maculata</i> | A False Flower Beetle | 2C, 1S | |
| <i>Olibrus affinis</i> | A Shining Flower Beetle | 1S | |
| <i>Olibrus corticalis</i> | A Shining Flower Beetle | 1S | |
| <i>Cyphon coarctatus</i> | A Marsh Beetle | All Areas | |
| <i>Cyphon hilaris</i> | A Marsh Beetle | 1S, 1N | |

| Scientific Name | Common Name | Survey Area | Status |
|--------------------------------|----------------------------------|-------------------|--------|
| <i>Cyphon padi</i> | A Marsh Beetle | 1N, 1S, 2N | |
| <i>Cyphon palustris</i> | A Marsh Beetle | 2N, 1N | |
| <i>Cyphon variabilis</i> | A Marsh Beetle | 1S, 1N | |
| <i>Scirtes hemisphaericus</i> | A Marsh Beetle | 2M, 1S, 2N | |
| <i>Heterocerus fenestratus</i> | A Mud-loving Beetle | 1S | |
| <i>Anacaena globulus</i> | A Water Scavenger Beetle | 1N | |
| <i>Anacaena limbata</i> | A Water Scavenger Beetle | 1S, 2M, 2N, 1S | |
| <i>Berosus affinis</i> | A Water Scavenger Beetle | 1S | |
| <i>Cercyon analis</i> | A Water Scavenger Beetle | 1S | |
| <i>Cercyon marinus</i> | A Water Scavenger Beetle | 1S | |
| <i>Cercyon sternalis</i> | A Water Scavenger Beetle | 1S, 2C | |
| <i>Cercyon tristis</i> | A Water Scavenger Beetle | 1S | |
| <i>Cymbiodyta marginellus</i> | A Water Scavenger Beetle | 1S | |
| <i>Enochrus bicolor</i> ** | A Water Scavenger Beetle | 1N | NS |
| <i>Enochrus coarctatus</i> | A Water Scavenger Beetle | 1S | |
| <i>Hydrobius fuscipes</i> | A Water Scavenger Beetle | 2M, 1N, 1S, 2C | |
| <i>Megasternum concinnum</i> | A Water Scavenger Beetle | 1N | |
| <i>Helophorus minutus</i> | A Grooved Water Scavenger Beetle | 1N | |
| <i>Haliphus confinis</i> | A Crawling Water Beetle | 1N | |
| <i>Haliphus flavicollis</i> | A Crawling Water Beetle | 1S | |
| <i>Episyrphus balteatus</i> | A Hoverfly | All Areas | |
| <i>Eristalis pertinax</i> | A Hoverfly | 2C | |
| <i>Eristalis tenax</i> | A Hoverfly | 1N | |
| <i>Eupeodes luniger</i> | A Hoverfly | 1N | |
| <i>Helophilus pendulus</i> | A Hoverfly | 2M, 2C, 1S, 1N | |
| <i>Helophilus trivittatus</i> | A Hoverfly | 2M | |
| <i>Melanogaster hirtella</i> | A Hoverfly | 2M | |
| <i>Melanostoma mellinum</i> | A Hoverfly | 2M, 1N | |
| <i>Neoscia tenur</i> | A Hoverfly | 2N, 2M | |
| <i>Scaeva pyrastris</i> | A Hoverfly | 2M | |
| <i>Syrphus ribesii</i> | A Hoverfly | 1S, 2C, 2S | |
| <i>Xylota segnis</i> | A Hoverfly | 2C | |

| Scientific Name | Common Name | Survey Area | Status |
|--------------------------------|---------------------|----------------|------------------|
| <i>Dorycera graminum</i> * | Phoenix Fly | 1S | pNS; pNT; S21 |
| <i>Geomyza balachowskyi</i> | An Opomyzid Fly | 2S, 2M | |
| <i>Opomyza germinationis</i> | An Opomyzid Fly | 2C | |
| <i>Eudorylas montium</i> | A Big-headed Fly | 2M | |
| <i>Eudorylus zonellus</i> | A Big-headed Fly | 2M | |
| <i>Diastata adusta</i> | A Diastatid Fly | 2M, 1S | |
| <i>Beris vallata</i> | A Soldierfly | 1S | |
| <i>Chloromyia formosa</i> | A Soldierfly | 2M | |
| <i>Oplodontha viridula</i> | A Soldierfly | 2M | |
| <i>Pachygaster atra</i> | A Soldierfly | 2M | |
| <i>Rivellia syngenesiae</i> | A Signal Fly | 2M | |
| <i>Aedes flavescens</i> * | A Mosquito | 1S, 1N | DD; NR |
| <i>Anopheles claviger</i> | A Mosquito | 1S | |
| <i>Culex pipiens</i> | A Mosquito | 2M | |
| <i>Coremacera marginata</i> | A Snail-killing Fly | 1N, 2N | |
| <i>Hydromya dorsalis</i> | A Snail-killing Fly | 2M | |
| <i>Limnia unguicornis</i> | A Snail-killing Fly | 2N | |
| <i>Pherbellia griseola</i> *** | A Snail-killing Fly | 2M, 2C | N |
| <i>Pherbellia nana</i> **** | A Snail-killing Fly | 2M | N |
| <i>Pherbellia cinerella</i> | A Snail-killing Fly | 2N, 2M | |
| <i>Psacadina verbekei</i> **** | A Snail-killing Fly | 1S | N |
| <i>Sepedon spegea</i> | A Snail-killing Fly | 2M | |
| <i>Tetanocera ferruginea</i> | A Snail-killing Fly | 1N, 1S | |
| <i>Achalcus flavicollis</i> | A Long-legged Fly | 2M | |
| <i>Campsicnemus curvipes</i> | A Long-legged Fly | 2N | |
| <i>Campsicnemus scambus</i> | A Long-legged Fly | 2N | |
| <i>Dolichopus atratus</i> | A Long-legged Fly | 2C | |
| <i>Dolichopus latilimbatus</i> | A Long-legged Fly | 2N | |
| <i>Dolichopus longitarsis</i> | A Long-legged Fly | 2C | |
| <i>Dolichopus nubilus</i> | A Long-legged Fly | 2M | |
| <i>Dolichopus plumipes</i> | A Long-legged Fly | 1N, 2M | |
| <i>Dolichopus ungulatus</i> | A Long-legged Fly | 2C, 1S, 1N, 2N | |
| <i>Gymnopternus aerosus</i> | A Long-legged Fly | 1N, 2N, 2C | |

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| Scientific Name | Common Name | Survey Area | Status |
|---------------------------------|--------------------|---------------------------|--------|
| <i>Hercostomus chalybeus</i> | A Long-legged Fly | 2C | |
| <i>Hercostomus chrysozygos</i> | A Long-legged Fly | 1S | |
| <i>Hercostomus metallicus</i> | A Long-legged Fly | 1S, 2N | |
| <i>Hercostomus nigripennis</i> | A Long-legged Fly | 1N | |
| <i>Hercostomus nigriplantis</i> | A Long-legged Fly | 1S | |
| <i>Medetera micacea</i> | A Long-legged Fly | 1N, 2M | DD |
| <i>Rhaphium caliginosum</i> | A Long-legged Fly | 1N | |
| <i>Sciapus platypterus</i> | A Long-legged Fly | 2N | |
| <i>Syntormon bicolorellum</i> | A Long-legged Fly | 2N, 2C | |
| <i>Syntormon denticulatum</i> | A Long-legged Fly | 2N | |
| <i>Xanthochlorus galbanus</i> | A Long-legged Fly | 2C | |
| <i>Xanthochlorus ornatus</i> | A Long-legged Fly | 1N, 2C | |
| <i>Lonchoptera bifurcata</i> | A Spear-winged Fly | 2M, 1S | |
| <i>Lonchoptera lutea</i> | A Spear-winged Fly | 2N, 2C, 2M, 2S, 1N, 1S | |
| <i>Neria commutata</i> | A Stilt-legged Fly | 1N | |
| <i>Nemopoda nitidula</i> | An Ensign Fly | 2C, 2N | |
| <i>Sepsis cynipsea</i> | An Ensign Fly | 2M | |
| <i>Sepsis duplicata</i> | An Ensign Fly | 2M | |
| <i>Sepsis fulgens</i> | An Ensign Fly | 1S, 1N, 2M | |
| <i>Sepsis thoracica</i> | An Ensign Fly | 2C | |
| <i>Bicellaria simplicipes</i> | A Dance Fly | 2C | |
| <i>Leptopeza flavipes</i> | A Dance Fly | 2N | |
| <i>Ocydromia glabricula</i> | A Dance Fly | 1N | |
| <i>Platypalpus annulipes</i> | A Dance Fly | 1S, 2N | |
| <i>Platypalpus candicans</i> | A Dance Fly | 1N | |
| <i>Stilpon graminum</i> | A Dance Fly | 2M | |
| <i>Tachydromia umbrarum</i> | A Dance Fly | 1N | |
| <i>Meiosimyza decempunctata</i> | A Lauxaniid Fly | 2N, 2C, 1N, 1S | |
| <i>Meiosimyza platycephala</i> | A Lauxaniid Fly | 2C | |
| <i>Meiosimyza rorida</i> | A Lauxaniid Fly | 2C | |

| Scientific Name | Common Name | Survey Area | Status |
|--------------------------------|--------------------|-------------------|--------|
| <i>Minettia inusta</i> | A Lauxaniid Fly | 1S | |
| <i>Tricholauxania praeusta</i> | A Lauxaniid Fly | 2C, 2S | |
| <i>Drosophila phalerata</i> | A Fruit Fly | 2C, 2N | |
| <i>Drosophila suzukii</i> | A Fruit Fly | 2C | |
| <i>Scaptomyza pallidae</i> | A Fruit Fly | 1N, 2C | |
| <i>Cetema neglectum</i> | A Grass Fly | 2N, 2M, 1S, 1N | |
| <i>Chlorops hypostigma</i> | A Grass Fly | 1N, 2N | |
| <i>Conioscinella frontella</i> | A Grass Fly | 1S | |
| <i>Elachiptera brevipennis</i> | A Grass Fly | 2M | |
| <i>Elachiptera cornuta</i> | A Grass Fly | 2M | |
| <i>Lasiochaeta pubescens</i> | A Grass Fly | 2M, 2N, 1N | |
| <i>Neohaplegis tarsata</i> | A Grass Fly | 1S, 1N | |
| <i>Oscinella frit</i> | A Grass Fly | 1S, 1N, 2M, 2N | |
| <i>Oscinisoma cognatum</i> | A Grass Fly | 2N | |
| <i>Platycephala planifrons</i> | A Grass Fly | 1N, 1S, 2N | |
| <i>Champichoeta punctum</i> | A Campichoetid Fly | 2N | |
| <i>Ditrichophora calceata</i> | A Shore Fly | 2N | |
| <i>Hydrellia maura</i> | A Shore Fly | 2C | |
| <i>Ilythea spilota</i> | A Shore Fly | 1S | |
| <i>Parydra coarctata</i> | A Shore Fly | 2N, 2M, 1S | |
| <i>Parydra littoralis</i> | A Shore Fly | 2N, 2M, 1S, 1N | |
| <i>Psilopa compta</i> | A Shore Fly | 2M, 1S | |
| <i>Psilopa pulicaria</i> | A Shore Fly | 2N | |
| <i>Chrysopilus cristatus</i> | A Snipefly | 1S, 1N, 2M | |
| <i>Rhagio scolopaceus</i> | A Snipefly | 1S | |
| <i>Chrysops viduatus</i> | A Deerfly | 2M | |
| <i>Haematopota grandis****</i> | A Cleg Fly | 2M | NS |
| <i>Haematopota pluvialis</i> | A Cleg Fly | 1N, 2M | |
| <i>Hybomitra ciureai**</i> | A Horsefly | 2M | NS |
| <i>Tabanus bromius</i> | A Horsefly | 2M, 1N | |
| <i>Chelipoda albisetia</i> | A Daggerfly | 1S | |
| <i>Empis concolor</i> | A Daggerfly | 2S | |

| Scientific Name | Common Name | Survey Area | Status |
|---------------------------------|---------------------------|----------------|--------|
| <i>Empis livida</i> | A Daggerfly | 2N | |
| <i>Empis stercorea</i> | A Daggerfly | 2N | |
| <i>Thereva nobilitata</i> | A Stiletto Fly | 2M | |
| <i>Scathophaga furcata</i> | A Dung Fly | 2N, 1S | |
| <i>Scathophaga stercoraria</i> | A Dung Fly | 1S | |
| <i>Leptocera nigra</i> | A Lesser Dung Fly | 2M | |
| <i>Opacifrons coxata</i> | A Lesser Dung Fly | 2M | |
| <i>Rachispoda lutosoidea</i> | A Lesser Dung Fly | 2N | |
| <i>Spelobia clunipes</i> | A Lesser Dung Fly | 1N | |
| <i>Nigrotipula nigra</i> | A Crane fly | 2M, 1N | |
| <i>Tipula oleracea</i> | A Crane fly | 1S, 2M | |
| <i>Tipula paludosa</i> | A Crane fly | 2M | |
| <i>Dicranomyia danica</i> **** | A Limoniid Crane fly | 2N | RDB3 |
| <i>Erioptera mejerei</i> **** | A Limoniid Crane fly | 2N | RDB2 |
| <i>Helius longirostris</i> | A Limoniid Crane fly | 2N, 1S, 1N | |
| <i>Limonia macrostigma</i> | A Limoniid Crane fly | 2N | |
| <i>Limonia nubeculosa</i> | A Limoniid Crane fly | 2S, 2C | |
| <i>Limonia phragmitidis</i> | A Limoniid Crane fly | 2N, 2S | |
| <i>Molophilus griseus</i> | A Limoniid Crane fly | 1S | |
| <i>Molophilus serpentiger</i> | A Limoniid Crane fly | 2M, 1S | |
| <i>Pilaria discicollis</i> | A Limoniid Crane fly | 1S | |
| <i>Pseudolimnophila lucorum</i> | A Limoniid Crane fly | 1N | |
| <i>Ptychoptera albimana</i> | A Phantom Crane fly | 2N | |
| <i>Ptychoptera contaminata</i> | A Phantom Crane fly | 2C, 2M, 2N, 1S | |
| <i>Ptychoptera minuta</i> | A Phantom Crane fly | 2S, 2N, 1S | |
| <i>Sciara humeralis</i> | A Dark-winged Fungus Gnat | 2M | |
| <i>Dilophus febrilis</i> | A St. Marks Fly | 2M | |
| <i>Rhinophora lepida</i> | A Woodlouse Fly | 1N, 2M | |
| <i>Melanomya nana</i> | A Blowfly | 2C | |
| <i>Botanophila fugax</i> | An Anthomyiid Fly | 1N | |
| <i>Pollenia rudis</i> | A Polleniid Fly | 1N | |
| <i>Fannia serena</i> | A Faniid Fly | 1S, 2M | |

NOT PROTECTIVELY MARKED

| Scientific Name | Common Name | Survey Area | Status |
|------------------------------------|-------------------------------|-------------|---------|
| <i>Fannia similis</i> | A Faniid Fly | 2M | |
| <i>Fannia subsimilis</i> | A Faniid Fly | 2C | |
| <i>Coenosia pumila</i> | A House Fly | 2M, 2N, 1S | |
| <i>Coenosia testacea</i> | A House Fly | 1S, 2C | |
| <i>Coenosia tigrina</i> | A House Fly | 2M, 2N | |
| <i>Lispocephala erythrocerata</i> | A House Fly | 1S, 2M | |
| <i>Lispocephala faiculata</i> *** | A House Fly | 2N | pNS |
| <i>Lispocephala rubicornis</i> *** | A House Fly | 1N | pNS |
| <i>Morellia simplex</i> | A House Fly | 2M | |
| <i>Agromyza nigripes</i> | A Leaf-mining Fly | 1N | |
| <i>Amauromyza labiatarum</i> | A Leaf-mining Fly | 1N | |
| <i>Chromatomyia milii</i> | A Leaf-mining Fly | 1N | |
| <i>Anthomyza collini</i> | An Anthomyzid Fly | 1N, 2M | |
| <i>Aglais io</i> | Peacock Butterfly | 2CP | |
| <i>Aglais urticae</i> | Small Tortoiseshell Butterfly | 2CP | |
| <i>Aphantopus hyperantus</i> | Ringlet Butterfly | 2M | |
| <i>Hipparchia semele</i> *** | Grayling Butterfly | 2CP | S21; VU |
| <i>Lycaena phlaeas</i> | Small Copper Butterfly | 2CP | |
| <i>Maniola jurtina</i> | Meadow Brown Butterfly | 2M | |
| <i>Pararge aegeria</i> | Speckled Wood Butterfly | 2C | |
| <i>Pieris brassicae</i> | Large White Butterfly | 2M | |
| <i>Pieris napi</i> | Green-veined White Butterfly | 1S, 2M | |
| <i>Pieris rapae</i> | Small White Butterfly | 2M | |
| <i>Polygonia c-album</i> | Comma Butterfly | 1N | |
| <i>Polyommatus icarus</i> | Common Blue Butterfly | 2M | |
| <i>Pyronia tithonus</i> | Gatekeeper Butterfly | 2M, 1S | |
| <i>Thymelicus sylvestris</i> | Small Skipper | 2M | |
| <i>Vanessa atalanta</i> | Red Admiral Butterfly | 2M | |
| <i>Acleris forsskaleana</i> | A Micro Moth | 1S | |
| <i>Acrobasis repandana</i> | A Micro Moth | 2M | |

| Scientific Name | Common Name | Survey Area | Status |
|--------------------------------|-------------------|-------------|--------------|
| <i>Acronicta leporina</i> | Miller | 2M | |
| <i>Acronicta megacephala</i> | Poplar Grey | 2M, 1N | |
| <i>Acronicta psi</i> **/**** | Grey Dagger | 2M, 1N, 1S | S21-R |
| <i>Agriphila geniculea</i> | A Micro Moth | 2M, 1N | |
| <i>Agriphila selasella</i> | A Micro Moth | 1S | |
| <i>Agriphila straminella</i> | A Micro Moth | 2M, 1N, 1S | |
| <i>Agriphila tristella</i> | A Micro Moth | 1S | |
| <i>Agrotis exclamationis</i> | Heart and Dart | 1N | |
| <i>Agrotis vestigialis</i> | Archer's Dart | 1N, 1S | |
| <i>Apamea monoglypha</i> | Dark Arches | 2M, 1N | |
| <i>Aplasta ononaria</i> **** | Rest Harrow | 1S | RDB3; S21 |
| <i>Argyresthia goedartella</i> | A Micro Moth | 1S | |
| <i>Autographa gamma</i> | Silver Y | 2M, 1S | |
| <i>Bactra furfurana</i> | A Micro Moth | 2M | |
| <i>Bactra lancealana</i> | A Micro Moth | 2M | |
| <i>Biston betularia</i> | Peppered Moth | 1S | |
| <i>Blastobasis adustella</i> | A Micro Moth | 1S | |
| <i>Bryotropha terrella</i> | A Micro Moth | 1S | |
| <i>Cabera exanthemata</i> | Common Wave | 1S | |
| <i>Cabera pusaria</i> | Common White Wave | 2M | |
| <i>Calamotropha paludella</i> | A Micro Moth | 1N, 1S | |
| <i>Caloptilia alchimiella</i> | A Micro Moth | 1S | |
| <i>Caloptilia betulicola</i> | A Micro Moth | 1S | |
| <i>Caloptilia stigmatella</i> | A Micro Moth | 1S | |
| <i>Campaea margaritata</i> | Light Emerald | 1S | |
| <i>Camptogramma bilineata</i> | Yellow-shell | 2N, 1S | |
| <i>Cataclysta lemnata</i> | Small China-mark | 2M, 1S | |
| <i>Helotropha leucostigma</i> | Crescent | 1S | S21-R |
| <i>Celypha lacunana</i> | Common Marble | 2M, 1N | |
| <i>Chilo phragmitella</i> | A Micro Moth | 1N | |
| <i>Chilodes maritimus</i> | Silky Wainscot | 1N, 1S | |
| <i>Chrysoteuchia culmella</i> | A Micro Moth | 2M, 1N | |
| <i>Clepsis consimilana</i> | A Micro Moth | 1S | |

NOT PROTECTIVELY MARKED

| Scientific Name | Common Name | Survey Area | Status |
|--------------------------------|--------------------------|-------------|--------|
| <i>Cochylimorpha straminea</i> | A Micro Moth | 1S | |
| <i>Cochylis atricapitana</i> | A Micro Moth | 1S | |
| <i>Cochylis hybridella</i> | A Micro Moth | 1S | |
| <i>Cosmia trapezina</i> | Dun-bar | 1S | |
| <i>Crocallis elinguaris</i> | Scalloped Oak | 2M | |
| <i>Cryphia algae</i> | Tree-lichen Beauty | 1S | |
| <i>Cyclophora punctaria</i> | Maiden's Blush | 1S | |
| <i>Diachrysis chrysitis</i> | Burnished Brass | 1S | |
| <i>Dioryctria simplicella</i> | A Micro Moth | 1S | |
| <i>Ditula angustiorana</i> | A Micro Moth | 1S | |
| <i>Donacaula forficella</i> | A Micro Moth | 2M, 1N, 1S | |
| <i>Drepana falcataria</i> | Pebble Hook-tip | 1S | |
| <i>Drymonia dodonaea</i> | Marbled Brown | 2M | |
| <i>Earias clorana</i> | Cream-bordered Green Pea | 1S | |
| <i>Eilema complana</i> | Scarce Footman | 1S | |
| <i>Eilema depressa</i> | Buff Footman | 1S | |
| <i>Eilema griseola</i> | Dingy Footman | 1S | |
| <i>Eilema lurideola</i> | Common Footman | 1S | |
| <i>Ennomos alniaria</i> | Canary-shouldered Thorn | 1S | |
| <i>Epinotia nisella</i> | A Micro Moth | 1S | |
| <i>Epiphyas postvittana</i> | A Micro Moth | 1S | |
| <i>Eudonia lacustrata</i> | A Micro Moth | 1N, 1S | |
| <i>Euplexia lucipara</i> | Small Angle Shades | 1S | |
| <i>Euproctis chrysorrhoea</i> | Brown-tail | 2M, 1N | |
| <i>Euproctis similis</i> | Yellow-tail | 2M | |
| <i>Euzophera pinguis</i> | A Micro Moth | 1S | |
| <i>Furcula furcula</i> | Sallow Kitten | 1S | |
| <i>Gypsonoma sociana</i> | A Micro Moth | 1S | |
| <i>Hada plebeja</i> | Shears | 2M | |
| <i>Hedya nubiferana</i> | Marbled Orchard Tortrix | 2M | |
| <i>Hedya salicella</i> | A Micro Moth | 1S | |
| <i>Hemithea aestivaria</i> | Common Emerald | 2M | |
| <i>Hoplodrina alsines</i> | Uncertain | 1N | |

| Scientific Name | Common Name | Survey Area | Status |
|----------------------------------|--|----------------|--------|
| <i>Hoplodrina blanda</i> **/**** | Rustic | 1N, 1S | S21-R |
| <i>Hyoicus pinastri</i> | Pine Hawkmoth | 1S | |
| <i>Hypsopygia costalis</i> | Gold Triangle | 2M | |
| <i>Idaea aversata</i> | Riband Wave | 2M, 1S | |
| <i>Idaea dimidiata</i> | Single-dotted Wave | 1N, 1S | |
| <i>Lacanobia oleracea</i> | Bright-line Brown-eye | 1N | |
| <i>Laothoe populi</i> | Poplar Hawkmoth | 1S | |
| <i>Lomaspilis marginata</i> | Clouded Border | 1S | |
| <i>Lozotaeniodes formosana</i> | A Micro Moth | 1N | |
| <i>Lycophotia porphyrea</i> | True Lover's Knot | 1S | |
| <i>Lygephila pastinum</i> | Blackneck | 2M | |
| <i>Lymantria monacha</i> | Black Arches | 1S | |
| <i>Lyonetia clerkella</i> | A Micro Moth | 1S | |
| <i>Macaria alternata</i> | Sharp-angled Peacock | 1S | |
| <i>Macaria liturata</i> | Tawny-barred Angle | 1S | |
| <i>Macaria notata</i> | Peacock Moth | 1S | |
| <i>Macrochilo cribrumalis</i> | Dotted Fan-foot | 1N | |
| <i>Malacosoma neustria</i> ** | Lackey | 2M | S21-R |
| <i>Mesapamea secalis</i> | Common Rustic | 1N | |
| <i>Mesoligia furuncula</i> | Cloaked Minor | 1S | |
| <i>Miltochrista miniata</i> | Rosy Footman | 1N | |
| <i>Mythimna impura</i> | Smoky Wainscot | 2M, 1N | |
| <i>Mythimna pallens</i> | Common Wainscot | 2M, 1S | |
| <i>Mythimna pudorina</i> | Striped Wainscot | 2M, 1N | |
| <i>Mythimna straminea</i> | Southern Wainscot | 1N | |
| <i>Nemophora degeerella</i> | Yellow-barred Longhorn Moth | 1S, 1N, 2C, 2S | |
| <i>Noctua comes</i> | Lesser Yellow Underwing | 2M | |
| <i>Noctua janthe</i> | Lesser Broad-bordered Yellow Underwing | 1S | |
| <i>Noctua pronuba</i> | Large Yellow Underwing | 2M, 1N | |
| <i>Nonagria typhae</i> | Bulrush Wainscot | 1S | |
| <i>Notodonta dromedarius</i> | Iron Prominent | 1S | |
| <i>Notodonta ziczac</i> | Pebble Prominent | 1N | |
| <i>Ochropleura plecta</i> | Flame Shoulder | 1N | |

| Scientific Name | Common Name | Survey Area | Status |
|---------------------------------|---------------------------|-----------------|--------|
| <i>Oligia fasciuncula</i> | Middle-barred Minor | 2M | |
| <i>Orthonama vittata</i> **** | Oblique Carpet | 1S | S21-R |
| <i>Pammene regiana</i> | A Micro Moth | 2CP | |
| <i>Pandemis cerasana</i> | Barred Fruit-tree Tortrix | 2M | |
| <i>Parapoynx stratiotata</i> | Ringed China-mark | 2M, 1S | |
| <i>Parastichtis ypsilon</i> | Dingy Shears | 2M | |
| <i>Phalera bucephala</i> | Buff-tip | 1N | |
| <i>Pheosia tremula</i> | Swallow Prominent | 1S | |
| <i>Phragmatobia fuliginosa</i> | Ruby Tiger | 1S | |
| <i>Platyptilia gonodactyla</i> | Triangle Plume | 2M | |
| <i>Plutella xylostella</i> | Diamond-back Moth | 1N, 1S | |
| <i>Psyche casta</i> | A Bagworm Moth | 1S, 1N | |
| <i>Pterostoma palpina</i> | Pale Prominent | 1S | |
| <i>Rheumaptera undulata</i> | Scallop Shell | 1S | |
| <i>Rivula sericealis</i> | Straw Dot | 1S | |
| <i>Schoenobius gigantella</i> | A Micro Moth | 2M, 1S | |
| <i>Scoparia ambigualis</i> | A Micro Moth | 1N | |
| <i>Stathmopoda pedella</i> *** | A Micro Moth | 2S | Nb |
| <i>Thalpophila matura</i> | Straw Underwing | 1S | |
| <i>Udea ferrugalis</i> | Rusty-dot Pearl | 1S | |
| <i>Xestia triangulum</i> | Double Square-spot | 1N | |
| <i>Zygaena filipendulae</i> | 6-spot Burnet Moth | 2M | |
| <i>Glyptotaelius pellucidus</i> | A Caddisfly | 1S | |
| <i>Hydroptila vectis</i> | A Caddisfly | 2M | |
| <i>Leptocerus tineiformis</i> | A Caddisfly | 2M | |
| <i>Limnephilus auricula</i> | A Caddisfly | 2CP | |
| <i>Limnephilus binotatus</i> ** | A Caddisfly | 2M | NS |
| <i>Mystacides longicornis</i> | A Caddisfly | 2M, 1N | |
| <i>Phryganea grandis</i> | A Caddisfly | 2M | |
| <i>Aeshna cyanea</i> | Southern Hawker | 2M, 2C, 2CP, 1S | |
| <i>Aeshna mixta</i> | Migrant Hawker | 2M, 1S | |
| <i>Coenagrion puella</i> | Azure Damselfly | 1S, 1N, 2M | |
| <i>Enallagma cyathigerum</i> | Common Blue Damselfly | 1S, 1N, 2M | |

NOT PROTECTIVELY MARKED

| Scientific Name | Common Name | Survey Area | Status |
|-----------------------------------|--------------------------|-------------|--------|
| <i>Ischnura elegans</i> | Blue-tailed Damselfly | 1N, 2M | |
| <i>Libellula quadrimaculata</i> | Four-spotted Chaser | 1N, 2M, 2CP | |
| <i>Orthetrum cancellatum</i> | Black-tailed Skimmer | 2M | |
| <i>Pyrrhosoma nymphula</i> | Large Red Damselfly | 1N, 2M | |
| <i>Sympetrum sanguineum</i> | Ruddy Darter | 1S, 2M | |
| <i>Sympetrum striolatum</i> | Common Darter | 1S, 2M | |
| <i>Chorthippus albomarginatus</i> | Lesser Marsh Grasshopper | 2M, 1S | |
| <i>Chorthippus brunneus</i> | Common Field Grasshopper | 2M, 1S, 1N | |
| <i>Chorthippus parallelus</i> | Meadow Grasshopper | 2M | |
| <i>Conocephalus discolor</i> | Long-winged Conehead | 2M, 1S, 1N | |
| <i>Conocephalus dorsalis</i> | Short-winged Conehead | 2M, 1N | |
| <i>Leptophyes punctatissima</i> | Speckled Bush-cricket | All Areas | |
| <i>Metriopectera roeselii</i> | Roesel's Bush-cricket | 1N, 1S | |
| <i>Myrmeleotettix maculatus</i> | Mottled Grasshopper | 2CP | |
| <i>Omocestus viridulus</i> | Common Green Grasshopper | 1S, 1N | |
| <i>Pholidoptera griseoptera</i> | Dark Bush-cricket | 1N, 1S | |
| <i>Tetrix subulata</i> | Slender Groundhopper | 1S | |
| <i>Tetrix undulata</i> | Common Groundhopper | 2N, 1S | |
| <i>Tettigonia viridissima</i> | Great Green Bush-cricket | 1S | |
| <i>Panorpa communis</i> | A Scorpionfly | 2C | |
| <i>Chrysoperla carnea</i> | A Lacewing | 1S, 2N | |
| <i>Hemerobius humulinus</i> | A Lacewing | 2N | |
| <i>Nothochrysa capitata</i> | A Lacewing | 1N | |
| <i>Forficula auricularia</i> | Common Earwig | All Areas | |
| <i>Ectopsocus briggsi</i> | A Barkfly | 2CP | |
| <i>Ectopsocus petersi</i> | A Barkfly | 2CP | |
| <i>Loensia fasciata</i> | A Barkfly | 1S | |
| <i>Mesopsocus immunis</i> | A Barkfly | 2C | |

NOT PROTECTIVELY MARKED

| Scientific Name | Common Name | Survey Area | Status |
|-----------------------------------|---------------------------|----------------|--------|
| <i>Mesopsocus unipunctatus</i> | A Barkfly | 2CP | |
| <i>Psylla alni</i> | A Psyllid | All Areas | |
| <i>Psyllopsis fraxini</i> | A Psyllid | 2C | |
| <i>Chloriona smaragdula</i> | A Planthopper | 1S | |
| <i>Conomelus anceps</i> | A Planthopper | 2M, 2S, 2N, 1S | |
| <i>Criomorphus albomarginatus</i> | A Planthopper | 2M | |
| <i>Delphax pulchellus</i> | A Planthopper | 2M, 2S, 1S | |
| <i>Javesella pellucida</i> | A Planthopper | 2N, 1N, 1S | |
| <i>Alebra albotriella</i> | A Leafhopper | 2M | |
| <i>Allygus modestus</i> | A Leafhopper | 2N, 1S, 2C | |
| <i>Anoscopus albifrons</i> | A Leafhopper | 1S | |
| <i>Anoscopus serratulae</i> | A Leafhopper | 2M | |
| <i>Cicadella viridis</i> | A Leafhopper | 2M, 1S | |
| <i>Cicadula quadrinotata</i> | A Leafhopper | 2M | |
| <i>Conosanus obsoletus</i> | A Leafhopper | 2M | |
| <i>Eupterycyba jucunda</i> | A Leafhopper | 2C, 2M, 2N | |
| <i>Eupteryx aurata</i> | A Leafhopper | 2C, 1N | |
| <i>Eupteryx urticae</i> | A Leafhopper | 2C | |
| <i>Idiocerus lituratus</i> | A Leafhopper | 2N | |
| <i>Macrosteles horvathi</i> | A Leafhopper | 1S | |
| <i>Macustus grisescens</i> | A Leafhopper | 2M | |
| <i>Megophthalmus scabripennis</i> | A Leafhopper | 1N | |
| <i>Oncopsis alni</i> | A Leafhopper | 2C, 1S, 2M | |
| <i>Oncopsis flavicollis</i> | A Leafhopper | 1S, 1N | |
| <i>Psammotettix confinis</i> | A Leafhopper | 2M | |
| <i>Aphrophora alni</i> | A Froghopper | 2S, 2M, 2C, 1S | |
| <i>Neophilaenus lineatus</i> | A Froghopper | 2M, 2N, 1S | |
| <i>Philaenus spumarius</i> | Common Froghopper | 2M, 1S, 1N | |
| <i>Elasmotherus interstinctus</i> | Birch Shieldbug | 1S | |
| <i>Elasmucha grisea</i> | Parent Shieldbug | 1S | |
| <i>Eurygaster testudinaria</i> | Tortoise Shieldbug | 1N | |
| <i>Odontoscelis lineola*</i> | Lesser-streaked Shieldbug | 2CP | NS |

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| Scientific Name | Common Name | Survey Area | Status |
|------------------------------------|----------------------|-----------------------|--------|
| <i>Pentatoma rufipes</i> | Red-legged Shieldbug | 1S, 1N, 2CP | |
| <i>Arenocoris falleni</i> *** | Fallen's Leatherbug | 1N | NS |
| <i>Gampsocoris punctipes</i> | A Stiltbug | 2CP | |
| <i>Acalypta parvula</i> | A Lacebug | 1N | |
| <i>Kalama tricornis</i> | A Lacebug | 2N | |
| <i>Blepharidopterus angulatus</i> | A Plant Bug | 2M, 1S | |
| <i>Campyloneura virgula</i> | A Plant Bug | 2C | |
| <i>Capsus ater</i> | A Plant Bug | 2M, 1N | |
| <i>Deraeocoris flavilinea</i> | A Plant Bug | 2M, 2S, 2N, 1S | |
| <i>Dicyphus annulatus</i> | A Plant Bug | 2CP | |
| <i>Dicyphus epilobii</i> | A Plant Bug | 2C | |
| <i>Halticus luteicollis</i> | A Plant Bug | 1N | |
| <i>Heterotoma planicornis</i> | A Plant Bug | 1N | |
| <i>Leptopterna dolabrata</i> | A Plant Bug | 1N, 1S | |
| <i>Liocoris tripustulatus</i> | A Plant Bug | 2C, 1N | |
| <i>Macrotylus paykulli</i> | A Plant Bug | 2C, 2CP | |
| <i>Mecomma ambulans</i> | A Plant Bug | 1S | |
| <i>Megaloceroea recticornis</i> | A Plant Bug | 1N | |
| <i>Miridius quadrivirgatus</i> | A Plant Bug | 2M | |
| <i>Orthonotus rufifrons</i> | A Plant Bug | 2M, 1N, 2S | |
| <i>Orthotylus flavinervis</i> | A Plant Bug | 2M | |
| <i>Orthotylus marginalis</i> | A Plant Bug | 1S | |
| <i>Phylus melanocephalus</i> | A Plant Bug | 1N | |
| <i>Phytocoris tiliae</i> | A Plant Bug | 2N | |
| <i>Phytocoris varipes</i> | A Plant Bug | 2M | |
| <i>Plagiognathus arbustorum</i> | A Plant Bug | 1N, 2C | |
| <i>Plagiognathus chrysanthemii</i> | A Plant Bug | 2M | |
| <i>Psallus ambiguus</i> | A Plant Bug | 2C, 2M, 1S, 1N, 2N | |
| <i>Psallus betuleti</i> | A Plant Bug | 1S | |
| <i>Psallus montanus</i> | A Plant Bug | 2C, 1N | |
| <i>Psallus salicis</i> | A Plant Bug | 2CP, 2C, 2M | |

NOT PROTECTIVELY MARKED

| Scientific Name | Common Name | Survey Area | Status |
|------------------------------------|------------------------|---------------------------|--------|
| <i>Psallus variabilis</i> | A Plant Bug | 1N | |
| <i>Psallus varians</i> | A Plant Bug | 1N | |
| <i>Stenodema calcarata</i> | A Plant Bug | 2M, 1N, 1S | |
| <i>Stenodema laevigata</i> | A Plant Bug | 2S, 1S, 1N, 2M, 2N, 2C | |
| <i>Stenotus binotatus</i> | A Plant Bug | 1N, 1S | |
| <i>Sthenarus rotermundi</i> | A Plant Bug | 2M | |
| <i>Teratocoris antennatus</i> | A Plant Bug | 2M | |
| <i>Anthocoris nemoralis</i> | A Flower Bug | 2C, 2M, 1S, 1N, 2N | |
| <i>Anthocoris nemorum</i> | A Flower Bug | 2S, 2C, 2N, 1S | |
| <i>Cardiastethus fasciiventris</i> | A Flower Bug | 2CP, 1N | |
| <i>Alydus calcaratus</i> * | A Broad-headed Bug | 2CP | NS |
| <i>Himacerus apterus</i> | Tree Damsel Bug | 1S | |
| <i>Himacerus major</i> | A Damsel Bug | 2M | |
| <i>Himacerus mirmicoides</i> | Ant Damsel Bug | 1N | |
| <i>Nabis ferus</i> | A Damsel Bug | 2M | |
| <i>Nabis flavomarginatus</i> | A Damsel Bug | 2M | |
| <i>Nabis limbatus</i> | A Damsel Bug | 2M, 2S, 2C, 2N, 1N, 1S | |
| <i>Nabis rugosus</i> | A Damsel Bug | 1N | |
| <i>Aphanus rolandri</i> * | A Ground Bug | 1N, 2M | NA |
| <i>Drymus brunneus</i> | A Ground Bug | 2S, 2N | |
| <i>Drymus ryei</i> | A Ground Bug | 1S | |
| <i>Kleidocerys resedae</i> | Birch Catkin Bug | All Areas | |
| <i>Megalonotus praetextatus</i> * | A Ground Bug | 2CP | Nb |
| <i>Megalonotus sabulicola</i> *** | A Ground Bug | 2N | Nb |
| <i>Nysius ericae</i> | A Ground Bug | 1S | |
| <i>Scolopostethus affinis</i> | A Ground Bug | 2S, 1N | |
| <i>Scolopostethus thomsoni</i> | A Ground Bug | 1N | |
| <i>Trapezonotus desertus</i> | A Ground Bug | 2CP | |
| <i>Chartoscirta cincta</i> | A Shorebug | 2M | |
| <i>Callicorixa praeusta</i> | A Lesser Water Boatman | 2M | |

NOT PROTECTIVELY MARKED

| Scientific Name | Common Name | Survey Area | Status |
|---------------------------------|-------------------------|----------------|--------|
| <i>Xiphodria camelus</i> | A Sawfly | 1N | |
| <i>Apis mellifera</i> | Honeybee | 2C, 1N | |
| <i>Bombus hortorum</i> | Garden Bumblebee | 1N, 2CP, 2C | |
| <i>Bombus hypnorum</i> | Tree Bumblebee | 2CP, 2C | |
| <i>Bombus lapidarius</i> | Red-tailed Bumblebee | 2CP | |
| <i>Bombus lucorum</i> | White-tailed Bumblebee | 1N | |
| <i>Bombus pascuorum</i> | Common Carder Bumblebee | 2CP | |
| <i>Bombus pratorum</i> | Early Bumblebee | 1S, 2CP, 2C | |
| <i>Bombus terrestris</i> | Buff-tailed Bumblebee | All Areas | |
| <i>Andrena nigroaenea</i> | A Solitary Bee | 1S | |
| <i>Hylaeus confusus</i> | A Solitary Bee | 1S | |
| <i>Sphecodes reticulatus*</i> | A Blood Bee | 2CP | [Na] |
| <i>Ceropales maculata</i> | A Spider-hunting Wasp | 1S | |
| <i>Priocnemis hyalinata****</i> | A Spider-hunting Wasp | 2N | Nb |
| <i>Pseudogonalos hahnii</i> | A Trigonalid Wasp | 1S | |
| <i>Trypoxylon attenuatum</i> | A Solitary Wasp | 1S | |
| <i>Vespa crabro</i> | Hornet | 1S, 2C | |
| <i>Vespula vulgaris</i> | Common Wasp | 1S | |
| <i>Lasius brunneus*</i> | An Ant | 2CP | NA |
| <i>Lasius niger</i> | Black Garden Ant | 2N, 2CP, 2C | |
| <i>Lasius platythorax</i> | An Ant | 2N | |
| <i>Lasius psammophilus</i> | An Ant | 2CP | |
| <i>Myrmica rubra</i> | An Ant | 2M, 1N, 2S, 2N | |
| <i>Myrmica ruginodis</i> | An Ant | All Areas | |
| <i>Formica fusca</i> | An Ant | 1S, 2N, 2CP | |
| <i>Nemastoma bimaculatum</i> | A Harvestman | 2M, 2S | |
| <i>Oligolophus tridens</i> | A Harvestman | 2M | |
| <i>Opilio canestrinii</i> | A Harvestman | 1S | |
| <i>Anelosimus vittatus</i> | A Comb-footed Spider | 2CP | |
| <i>Enoplognatha ovata</i> | A Comb-footed Spider | 2S, 1S | |
| <i>Platnickina tinctoria</i> | A Comb-footed Spider | 2CP | |
| <i>Robertus lividus</i> | A Comb-footed Spider | 2S | |

NOT PROTECTIVELY MARKED

| Scientific Name | Common Name | Survey Area | Status |
|--------------------------------|--------------------------|-----------------------|--------|
| <i>Araneus diadematus</i> | Garden Spider | 2CP | |
| <i>Araneus quadratus</i> | An Orb-web Spider | 2M | |
| <i>Metellina merianae</i> | An Orb-web Spider | 2C, 1N | |
| <i>Metellina segmentata</i> | An Orb-web Spider | 2C, 1N, 1S | |
| <i>Argiope bruennichi</i> | Wasp Spider | 2M, 1S | |
| <i>Tetragnatha extensa</i> | A Large-jawed Orb-weaver | 2M | |
| <i>Tetragnatha montana</i> | A Large-jawed Orb-weaver | 2C, 2N, 2S, 1S, 1N | |
| <i>Tetragnatha nigrita</i> | A Large-jawed Orb-weaver | 2N, 2M, 1S | |
| <i>Heliophanus cupreus</i> | A Jumping Spider | 2CP | |
| <i>Heliophanus flavipes</i> | A Jumping Spider | 2CP, 1S, 2M | |
| <i>Ozyptila brevipes</i> | A Crab Spider | 1S | |
| <i>Philodromus albidus</i> | A Running Crab Spider | 2CP | |
| <i>Philodromus aureolus</i> | A Running Crab Spider | 2CP, 1N | |
| <i>Philodromus cespitum</i> | A Running Crab Spider | 2CP, 1N | |
| <i>Clubiona lutescens</i> | A Sac Spider | 1N | |
| <i>Clubiona neglecta</i> | A Sac Spider | 2M | |
| <i>Clubiona phragmitis</i> | A Sac Spider | 1N | |
| <i>Alopecosa pulverulenta</i> | A Wolf Spider | 1N | |
| <i>Pardosa prativaga</i> | A Wolf Spider | 2M, 1N, 2N | |
| <i>Pardosa pullata</i> | A Wolf Spider | 2M | |
| <i>Pardosa saltans</i> | A Wolf Spider | 1S, 1N | |
| <i>Harpactea hombergi</i> | A Woodlouse Spider | 1N | |
| <i>Drapetisca socialis</i> | A Money Spider | 2C | |
| <i>Armadillidium vulgare</i> | Common Pill Woodlouse | 1S, 1N, 2M, 2C, 2S | |
| <i>Ligidium hypnorum</i> | A Woodlouse | 1S, 2S, 2N | |
| <i>Oniscus asellus</i> | Common Shiny Woodlouse | 1S, 1N, 2C, 2S | |
| <i>Philoscia muscorum</i> | Common Striped Woodlouse | 1S, 1N, 2M, 2C, 2S | |
| <i>Porcellio scaber</i> | Common Rough Woodlouse | 1S, 1N, 2M, 2C, 2S | |
| <i>Ambigolimax valentianus</i> | Iberian Three-band Slug | 1S, 2S | |
| <i>Limax maximus</i> | Leopard Slug | 1S | |

| Scientific Name | Common Name | Survey Area | Status |
|-----------------------------|---------------------------|-------------|--------|
| <i>Aegopinella nitidula</i> | A Snail | 2S | |
| <i>Cepaea nemoralis</i> | Brown-lipped Banded Snail | 2CP, 2S | |
| <i>Ceriuella virgata*</i> | A Snail | 2CP | DD |
| <i>Cochlicopa lubrica</i> | A Snail | 1N | |
| <i>Oxychilus alliarius</i> | A Garlic Snail | 2S | |
| <i>Succinea putris</i> | Amber Snail | 2M, 2C | |
| <i>Lithobius forficatus</i> | A Centipede | 1S | |
| <i>Julus scandinavicus</i> | A Snake Millipede | 1S, 2N | |
| <i>Ophiulus pilosus</i> | A Snake Millipede | 1S | |
| <i>Polydesmus angustus</i> | A Flat-backed Millipede | 2S | |
| <i>Proteroiulus fuscus</i> | A Snake Millipede | 1S, 2S | |
| <i>Tachypodoiulus niger</i> | A Snake Millipede | 1S | |

A.2. Aquatic Survey Species List

| Scientific Name | Common Name | Survey Area | Status |
|---------------------------------|--------------------------|-------------|--------|
| <i>Agabus bipustulatus</i> | A Water Beetle | Area 1 | |
| <i>Asellus aquaticus</i> | Waterlouse | Area 1 | |
| <i>Bithynia tentaculata</i> | Faucet Snail | Area 1 + 2 | |
| <i>Cataclysta lemnata</i> | Small China-mark Moth | Area 1 + 2 | |
| <i>Coenagrion puella</i> | Azure Damselfly | Area 1 + 2 | |
| <i>Crangonyx pseudogracilis</i> | An Amphipod Crustacean | Area 1 + 2 | |
| <i>Enochrus testaceus</i> | A Water Scavenger Beetle | Area 2 | |
| <i>Erpobdella octoculata</i> | An Annelid Worm | Area 1 | |
| <i>Gammarus pulex/fossarum</i> | An Amphipod Crustacean | Area 1 | |
| <i>Ilyocoris cimicoides</i> | Saucer Bug | Area 2 | |
| <i>Odontomyia ornata</i> | Ornate Brigadier | Area 2 | NS |
| <i>Planorbarius corneus</i> | Great Ramshorn Snail | Area 1 + 2 | |
| <i>Planorbis carinatus</i> | A Snail | Area 2 | |
| <i>Pyrrhosoma nymphula</i> | Large Red Damselfly | Area 2 | |
| <i>Radix balthica</i> | Wandering Snail | Area 2 | |

APPENDIX B: SITE PHOTOGRAPHS

B.1.1. Site Photographs



1. Area 1 - SSSI triangle – deadwood resources, mostly *Salix* spp.



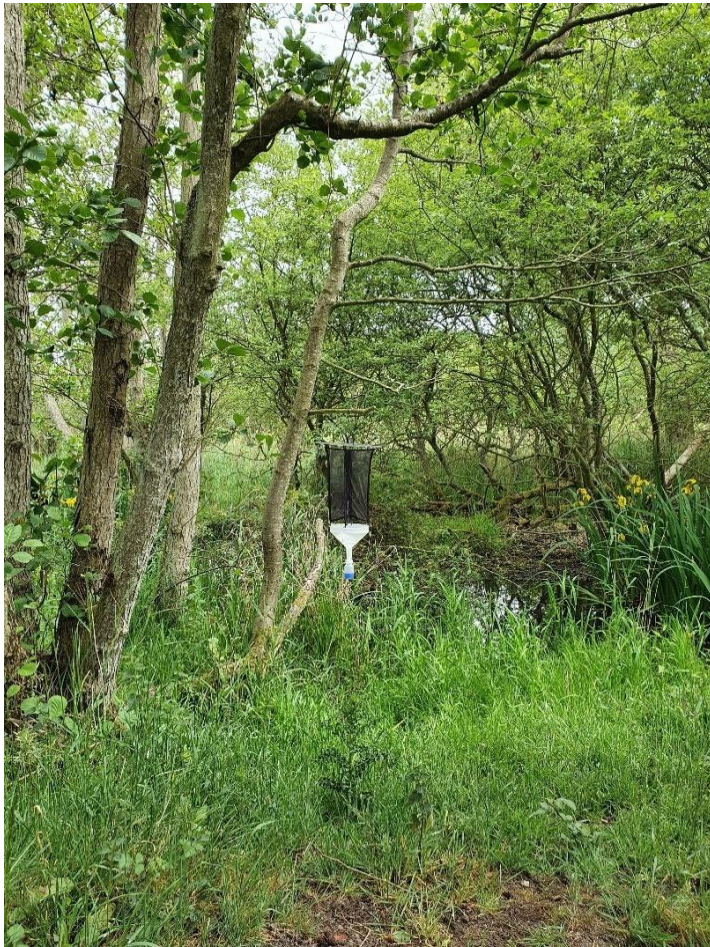
2. Area 1 - SSSI Triangle. Ditch edge with SLAM trap in situ.



3. Area 1 - SSSI triangle. Northern/central area with woodland edge and reed bed to right.



4. Area 1 - SSSI triangle. Northern part with woodland edge and reed bed to left.



5. Area 2 - Woodland strip undestorey with vane trap in situ.



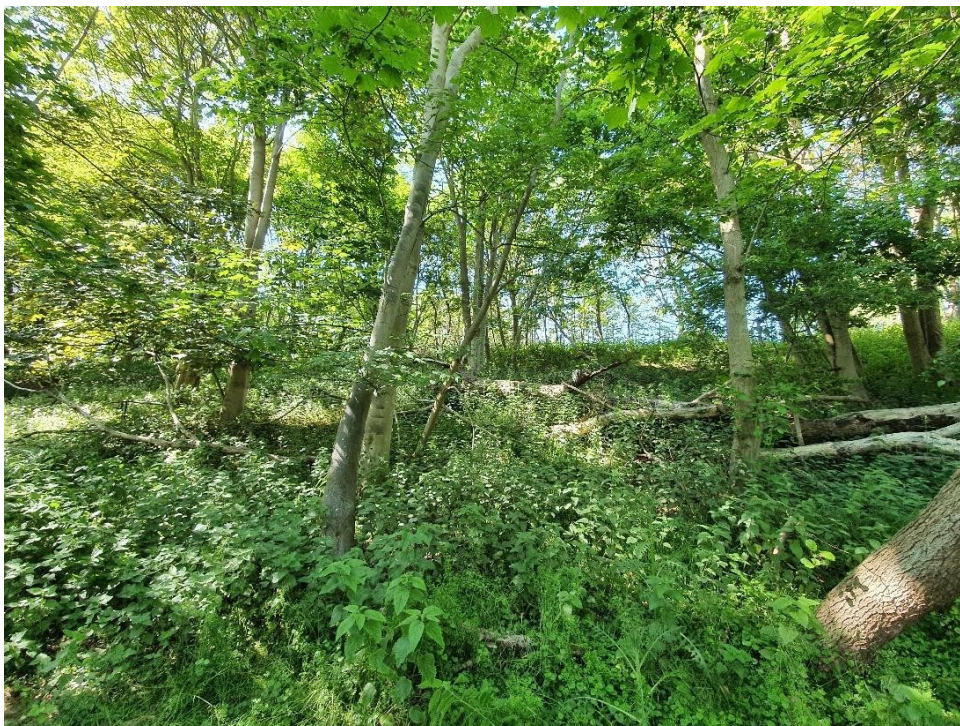
6. Area 2 - Woodland strip understorey with vane trap in situ near deadwood.



7. Area 2 - Woodland strip looking towards Sizewell B.



8. Area 2 - Woodland strip – typical habitat in this area.



9. Area 2 - Woodland strip - southern area – typical habitat.



10. Area 2 - Woodland strip - southern area and swamp – typical habitat. Vane trap in situ.



11. Area 2 - Fen meadow edge with vane trap in situ near deadwood.



12. Area 2 - Fen meadow – typical habitat and bordered on all sides by wet woodland.



13. Area 2 - Fen meadow – typical habitat and bordered on all sides by wet woodland.



14. Mercury vapour light insect trap in fen meadow.



15. Black light against white sheet at edge of SSSI triangle.

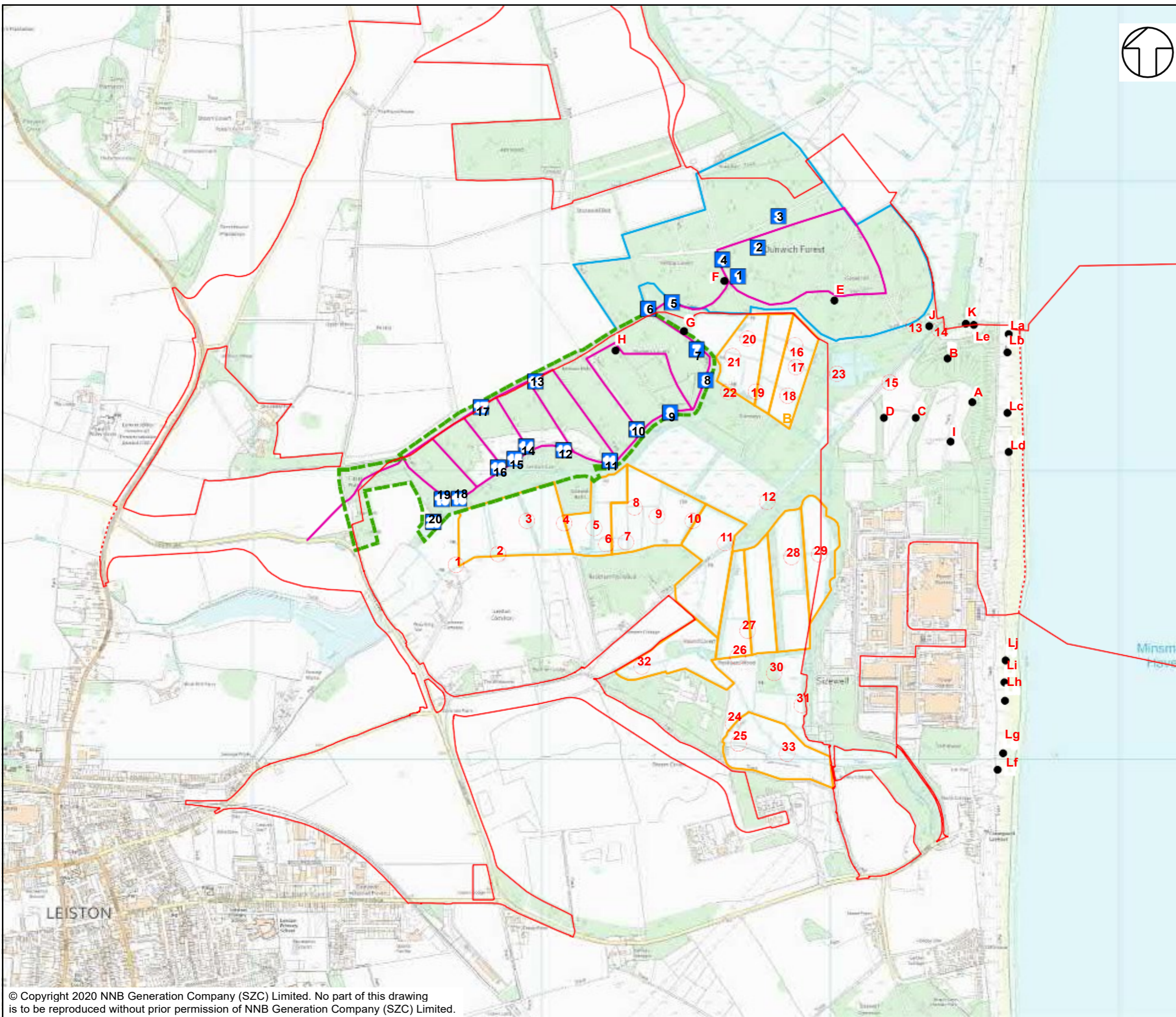


16. The rare hyperparasitoid wasp *Pseudogonalos hahnii*. The specimen was in a poor condition as it was from the SLAM trap (see photograph 2) installed in Area 1 (SSSI Triangle). This is the second time this species has been recorded from this area.



17. Norfolk hawker (female) observed July at TM 469 635.

APPENDIX C: FIGURES



NOTES

KEY

- SIZEWELL C MAIN DEVELOPMENT SITE BOUNDARY
- - - DEMARCATION LINE
- WOOD GROUP INVERT SAMPLE SITE 2007
- WOOD GROUP INVERT SAMPLE SITE 2009
- WOOD GROUP WHITE ADMIRAL LARVAL SEARCH AREA
- WOOD GROUP WHITE ADMIRAL LARVAL SEARCH AREA KENTON HILLS
- WOOD GROUP INVERT SAMPLE SITE 2010
- WOOD GROUP WHITE ADMIRAL TRANSECT 2007
- WOOD GROUP WHITE ADMIRAL LARVAL SEARCH AREA GOOSE HILL

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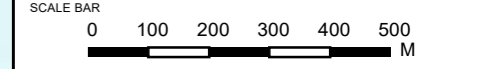


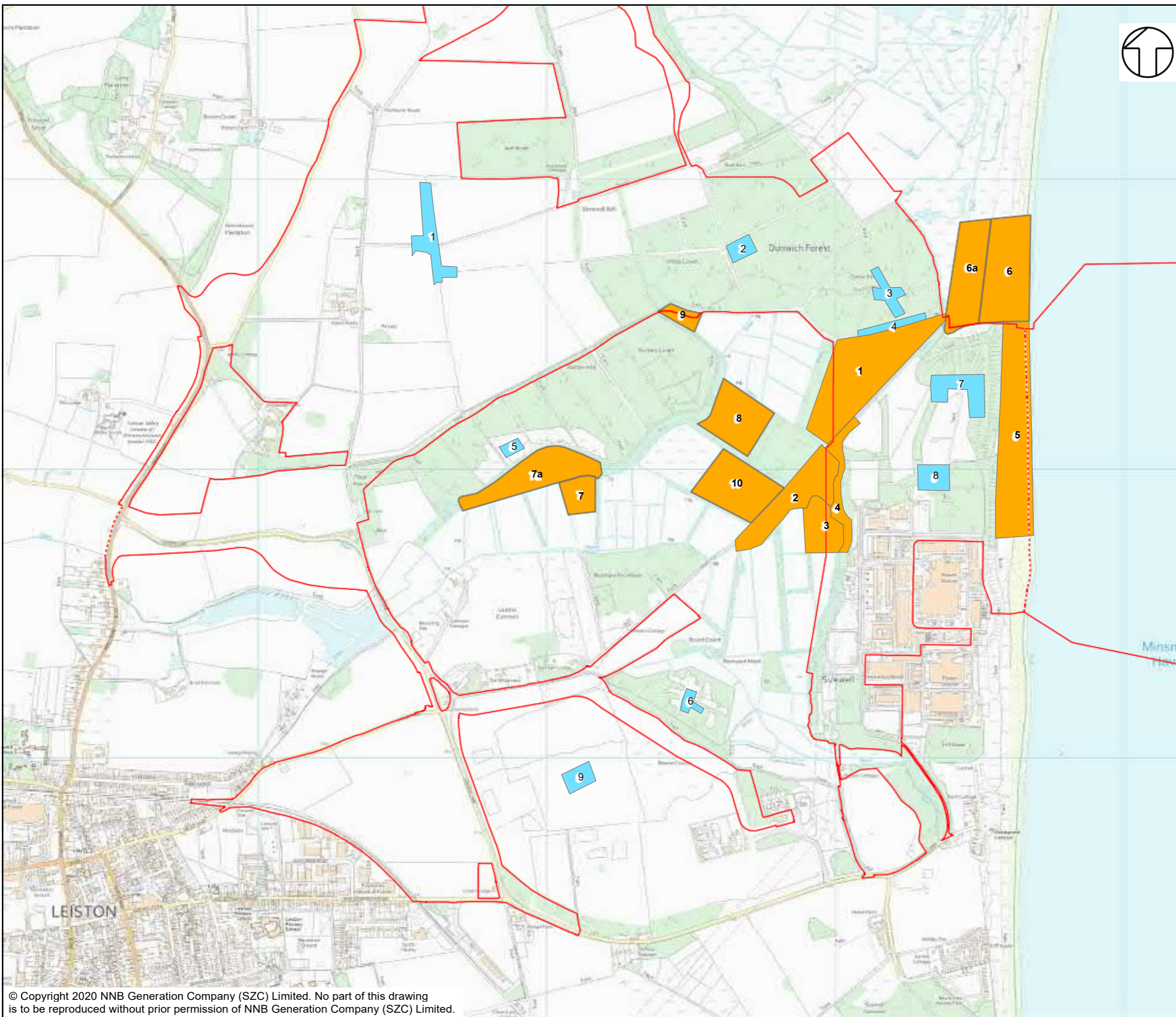
DOCUMENT:
 SIZEWELL C
 ENVIRONMENTAL STATEMENT
 VOLUME 2
 APPENDIX 14A4
 INVERTEBRATES

DRAWING TITLE:
 WOOD GROUP INVERTEBRATE
 SURVEY LOCATIONS, 2007-2010

DRAWING NO:
 FIGURE 14A4.1

| | | |
|--------------------------|-----------------------|-------------------------------|
| DATE: JAN 2020 | DRAWN: R.G. | SCALE: 1:12,500 @A3 |
|--------------------------|-----------------------|-------------------------------|





NOTES

KEY

- SIZEWELL C MAIN DEVELOPMENT SITE BOUNDARY
- - - DEMARCATION LINE
- ARCADIS INVERTEBRATE SURVEY AREA 2014
- ARCADIS INVERTEBRATE SURVEY AREA 2015

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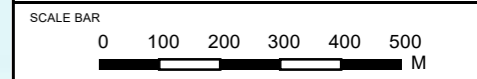


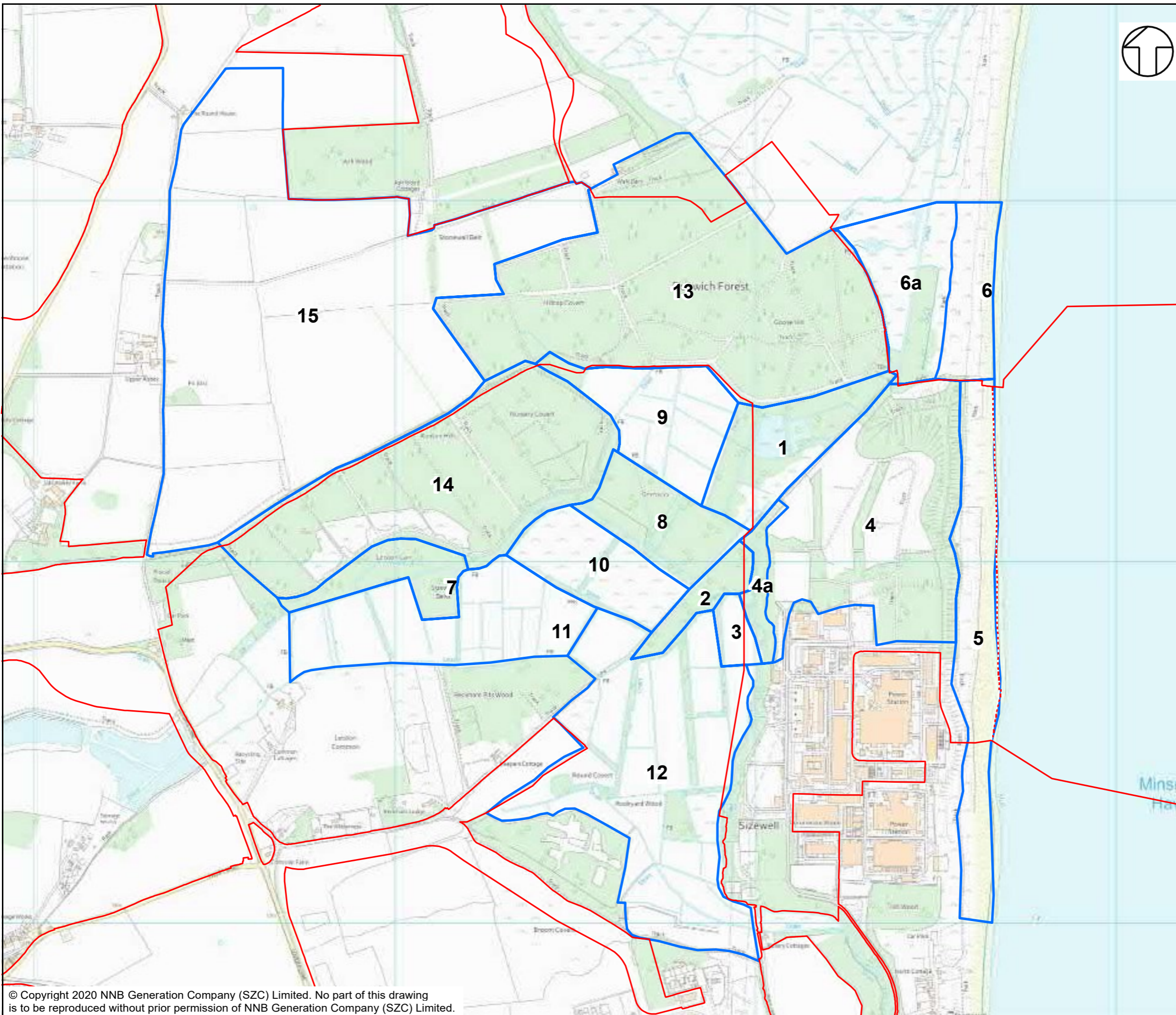
DOCUMENT:
 SIZEWELL C
 ENVIRONMENTAL STATEMENT
 VOLUME 2
 APPENDIX 14A4
 INVERTEBRATES

DRAWING TITLE:
 ARCADIS INVERTEBRATE
 SURVEY AREAS, 2014-2015

DRAWING NO:
 FIGURE 14A4.2

| | | |
|-------------------|----------------|------------------------|
| DATE: JAN 2020 | DRAWN: R.G. | SCALE: 1:12,500 @A3 |
|-------------------|----------------|------------------------|





NOTES

KEY

- SIZEWELL C MAIN DEVELOPMENT SITE BOUNDARY
- - - DEMARCATION LINE
- INVERTEBRATE ASSESSMENT COMPARTMENTS

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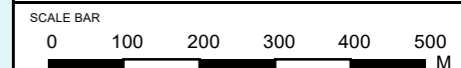


DOCUMENT:
 SIZEWELL C
 ENVIRONMENTAL STATEMENT
 VOLUME 2
 APPENDIX 14A4
 INVERTEBRATES

DRAWING TITLE:
 INVERTEBRATE ASSESSMENT
 COMPARTMENTS

DRAWING NO:
 FIGURE 14A4.3

| | | |
|-------------------|----------------|------------------------|
| DATE: JAN 2020 | DRAWN: R.G. | SCALE: 1:10,000 @A3 |
|-------------------|----------------|------------------------|



REPTILE SURVEY REPORT 2020

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1 SUMMARY

1.1 Receptor Status 2020 Summary Overview

- 1.1.1 The **Sizewell C Project Environmental Statement (ES): Volume 2, Chapter 14: Appendix 14A6 – Reptiles** [APP-235] (Ref. 1) identified adder (*Vipera berus*), grass snake (*Natrix natrix helvetica*), common lizard (*Zootoca vivipara*) and slow worm (*Anguis fragilis*) within the main development site and reptile receptor areas.
- 1.1.2 Reptile surveys were undertaken by Wood Group between 2007 – 2012 and by Arcadis in 2015 and 2016. Population sizes were estimated using results from the 2015-2016 surveys.
- 1.1.3 The **Sizewell C Project ES: Volume 2, Chapter 14 Terrestrial Ecology and Ornithology** [APP-224] (Ref. 2) assessed the potential impacts on reptiles and outlines the requirements for mitigation and the residual effects. Further mitigation documents produced were the Sizewell C Project– Main Development Site Reptile Mitigation Strategy [APP-252] (Ref. 3) and Sizewell C Project – Main Development Site – Reptile Method Statement [APP-252] (Ref. 4).
- 1.1.4 Reptile surveys undertaken in 2020 recorded lower populations of reptiles in the locations which would be lost to landtake from the construction of Sizewell C than previously recorded. However, similar populations were recorded in the proposed receptor sites as has been recorded previously. A review of the baseline population estimates suggests that these have previously been overestimated. A fall in recorded reptile population sizes within the locations which would be lost to landtake is attributed to possible natural population fluctuations as well as habitat changes, such as vegetation succession. In addition, focusing surveys in September/October may have also resulted in an underestimate of numbers.
- 1.1.5 The results of the 2020 reptile surveys support the assessment in the Sizewell C Project ES which was based on the previous baseline survey data collected up to 2019. The proposed mitigation and the residual effects would remain the same as those reported in the Sizewell C Project ES.

2 OVERVIEW

2.1 The Aims of the Survey Updates

- 2.1.1 The aim of the 2020 survey was to update the reptile baseline and provide a baseline for future monitoring.

2.2 Submitted Baseline (2007-2019)

2.2.1 Surveys were undertaken by Wood Group in 2007, 2008, 2010 and 2012 which recorded adder, grass snake, common lizard and slow worm throughout the areas surveyed (Sizewell C Platform and rides in Goosehill and Kenton Hills woodlands in 2007; Coronation Wood and the surrounding habitat in 2008 and 2012; and Aldhurst farm in 2010). The results are summarised in **Table 1**.

Table 1. Summary of Wood Group reptile surveys 2007 - 2012.

| Reptile Species. | Maximum Adult Count within Sizewell C Platform, Goosehill and Kenton Hills (163 refugia over 30ha) | Maximum Adult Count at Coronation Wood and Adjacent Land (54 refugia over 10ha) | Maximum Adult Count at Aldhurst Farm – Pre habitat creation (40 refugia in 1.5ha) |
|------------------|--|---|---|
| Adder. | 17 | 1 | 1 |
| Grass snake. | 9 | 1 | 3 |
| Common lizard. | 15 | 9 | 7 |
| Slow-worm. | 31 | 3 | 0 |

2.2.2 Reptile surveys were also carried out by Suffolk Wildlife Trust within Goose Hill and Kenton Hills from 2006 – 2009 which recorded all four common species of reptile, and at Black Walks in 2013 which recorded adder and grass snake. Surveys were also undertaken at Galloper Wind Farm onshore substation project between 2006 – 2013, which is situated in between Pillbox field and Studio fields complex. Low populations of all four species were recorded.

2.2.3 Arcadis undertook reptile surveys in 2014, 2015 and 2016. Reptile surveys carried out in 2015 and 2016 included a Capture-Mark-Recapture (CMR) study within 4 survey areas, the methodology of which is described in **Volume 2, Chapter 14: Appendix 14A6: Annex 14A6.4** of the Sizewell C Project ES [[APP-235](#)] (Ref. 5). The results of the 2014 - 2016 surveys are presented in **Table 2**.

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Table 2. Summary of the Arcadis reptile surveys 2014 – 2016

| Site | Site ID (Figure 14A6.6) | Adder | | Grass Snake | | Common Lizard | | Slow worm | |
|---|----------------------------|--------------------------|------------------|--------------------------|------------------|--------------------------|------------------|--------------------------|------------------|
| | | Maximum Number of Adults | Population Score | Maximum Number of Adults | Population Score | Maximum Number of Adults | Population Score | Maximum Number of Adults | Population Score |
| Donor Site | | | | | | | | | |
| Arable hedgerow margin. | 1 | 0 | Low | 2 | Low | 0 | Low | 7 | Good |
| | | - | - | 6* | Good | - | - | - | - |
| Conifer plantation, Goose Hill. | 2 | 0 | Low | 1 | Low | 1 | Low | 1 | Low |
| Ride habitat, Goose Hill. | 3 | 0 | Low | 1 | Low | 2 | Low | 5 | Good |
| Scrub habitat, Goose Hill. | 4 | 4 | Low | 2 | Low | 7 | Good | 15 | Good |
| | | 22* | Exceptional | - | - | - | - | - | - |
| Open grassland/ scrub habitat, main platform. | 7 | 4 | Low | 0 | Low | 11 | Good | 6 | Good |
| | | 22* | Exceptional | - | - | - | - | - | - |

NOT PROTECTIVELY MARKED

NOT PROTECTIVELY MARKED

| Site | Site ID (Figure 14A6.6) | Adder | | Grass Snake | | Common Lizard | | Slow worm | |
|--------------------------------------|----------------------------|--------------------------|------------------|--------------------------|------------------|--------------------------|------------------|--------------------------|------------------|
| | | Maximum Number of Adults | Population Score | Maximum Number of Adults | Population Score | Maximum Number of Adults | Population Score | Maximum Number of Adults | Population Score |
| Landscape plantation, main platform. | 8 | 1 | Low | 0 | Low | 4 | Low | 0 | Low |
| SSSI Triangle (Goodrums fen) | 10 | 5 | Good | 2 | Low | 5 | Good | 16 | Good |
| Receptor Site | | | | | | | | | |
| Clear fell habitat, Kenton Hills | 5 | 2 | Low | 1 | Low | 3 | Low | 4 | Low |
| | | 5* | Good | - | - | - | - | - | - |
| Clear fell habitat, St. James. | 6 | 1 | Low | 1 | Low | 1 | Low | 8 | Good |

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NOT PROTECTIVELY MARKED

| Site | Site ID (Figure 14A6.6) | Adder | | Grass Snake | | Common Lizard | | Slow worm | |
|----------------------------------|----------------------------|--------------------------|------------------|--------------------------|------------------|--------------------------|------------------|--------------------------|------------------|
| | | Maximum Number of Adults | Population Score | Maximum Number of Adults | Population Score | Maximum Number of Adults | Population Score | Maximum Number of Adults | Population Score |
| Former arable land, Studio Field | 9 | 1 | Low | 0 | Low | 2 | Low | 0 | Low |
| Other Site | | | | | | | | | |
| Pill Box Field | Blue cross hatching | 0 | Low | 0 | Low | 2 | Low | 2 | Low |

* Estimates from CMR analysis

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2.2.4 Population estimates for each species were calculated using the maximum number of individuals recorded in each area surveyed to define a value for density per hectare. This was multiplied by the perceived area of suitable habitat to get an estimate of how many reptiles could be present within each survey area. A multiplier was added, based on the number of reptiles observed through survey vs number of reptiles caught during translocation at the adjacent Galloper Windfarm development to try to give an upper range to ensure a precautionary assessment and therefore confidence in having sufficient carrying capacity for receptor areas. The results of this analysis are summarised in **Table 3**.

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Table 3. Submitted baseline population estimates

| Broad Habitat Area. | Habitat. | Perceived Area (ha) of Suitable Habitat | Densities/ha calculated from 2015–2016 Surveys. | | | | Estimated Numbers of Reptiles (without multiplier) | | | | Estimated Numbers of Reptiles (with multiplier) | | | |
|--|--------------------------------------|---|---|--------------|----------------|------------|--|--------------|----------------|------------|---|-------------------|---------------------|------------------|
| | | | Adder. | Grass Snake. | Common Lizard. | Slow Worm. | Adder. | Grass Snake. | Common Lizard. | Slow Worm. | Adder (2:1) | Grass Snake (3:1) | Common Lizard (3:1) | Slow Worm (10:1) |
| Main platform, Coronation Wood and adjacent hard standing. | Grassland/ scattered scrub. | 20.1* | 32 | 0 | 15.7 | 8.6 | 643 | 0 | 316 | 173 | 1286* | 0 | 948* | 1730* |
| | Landscape plantation. | 15.7 | 1.3 | 0 | 5 | 0 | 20 | 0 | 79 | 0 | 40 | 0 | 237 | 0 |
| Goose Hill/Kenton Hills complex. | Conifer plantation. | 83.8 | 0 | 1 | 1 | 1 | 0 | 84 | 84 | 84 | 0 | 252* | 252 | 840 |
| | Ride. | 3.8 | 0 | 3.7 | 7.4 | 18.5 | 0 | 14 | 28 | 70 | 0 | 42 | 84 | 700 |
| | Scrub. | 2.8 | 22.4 | 2 | 15 | 7 | 63 | 6 | 42 | 20 | 126 | 18 | 126 | 200 |
| | Clear fell (based on survey Area 5). | 3.9 | 5.6 | 1.1 | 3.3 | 4.4 | 22 | 4 | 13 | 17 | 44 | 12 | 39 | 170 |

NOT PROTECTIVELY MARKED

NOT PROTECTIVELY MARKED

| Broad Habitat Area. | Habitat. | Perceived Area (ha) of Suitable Habitat | Densities/ha calculated from 2015–2016 Surveys. | | | | Estimated Numbers of Reptiles (without multiplier) | | | | Estimated Numbers of Reptiles (with multiplier) | | | |
|--|--------------------------------------|---|---|--------------|----------------|------------|--|--------------|----------------|------------|---|-------------------|---------------------|------------------|
| | | | Adder. | Grass Snake. | Common Lizard. | Slow Worm. | Adder. | Grass Snake. | Common Lizard. | Slow Worm. | Adder (2:1) | Grass Snake (3:1) | Common Lizard (3:1) | Slow Worm (10:1) |
| Northern arable fields, temporary accommodation campus area, land north of Lovers Lane and Ash Wood. | Arable margin. | 5 | 0 | 25 | 0 | 29.2 | 0 | 125 | 0 | 146 | 0 | 375 | 0 | 1460 |
| Sizewell Marshes SSSI. | Goodrum's Fen. | 5.9 | 5 | 2 | 5 | 16 | 30 | 12 | 30 | 94 | 60 | 36 | 90 | 940 |
| Southern arable fields/acid grassland complex. | Arable margin. | 2.6 | 0 | 25 | 0 | 29.2 | 0 | 65 | 0 | 76 | 0 | 195 | 0 | 760 |
| | Grassland Pillbox Field ¹ | 7 | 0.6 | 1.8 | 4.5 | 7.8 | 4 | 13 | 32 | 55 | 8 | 39 | 96 | 550 |

¹ Surveys undertaken within Coronation Wood (and adjacent habitats) and Pillbox Field were unsuitable for use in the calculation of typical densities and are estimated.

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NOT PROTECTIVELY MARKED

| Broad Habitat Area. | Habitat. | Perceived Area (ha) of Suitable Habitat | Densities/ha calculated from 2015–2016 Surveys. | | | | Estimated Numbers of Reptiles (without multiplier) | | | | Estimated Numbers of Reptiles (with multiplier) | | | |
|---------------------|--------------------------------------|---|---|--------------|----------------|------------|--|--------------|----------------|------------|---|-------------------|---------------------|------------------|
| | | | Adder. | Grass Snake. | Common Lizard. | Slow Worm. | Adder. | Grass Snake. | Common Lizard. | Slow Worm. | Adder (2:1) | Grass Snake (3:1) | Common Lizard (3:1) | Slow Worm (10:1) |
| | Clear fell (based on survey Area 6). | 1.3 | 0.9 | 0.9 | 0.9 | 7.3 | 1 | 1 | 1 | 9 | 2 | 3 | 3 | 90 |
| Total. | | 152 | | | | | 783 | 323 | 623 | 744 | 1566 | 969 | 1869 | 7440 |

* over estimation of numbers – discussed in **Section 5**

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- 2.2.5 The assessment of each species and the reptile assemblage as a whole, assessing if each are Important Ecological Features (IEF) under the CIEEM guidelines and assigning importance following the EIA-specific assessment methodology, is summarised in **Table 4**.

Table 4. Assessment of reptiles as per the Environment Statement

| Species | Assessment |
|--------------------------|---|
| Adder | An IEF at the regional level and of medium importance |
| Grass Snake | An IEF at the county level and of medium importance |
| Common Lizard | An IEF at the local level and of low importance |
| Slow Worm | An IEF at the local level and of low importance |
| Whole reptile assemblage | An IEF at the regional level and of medium importance |

- 2.2.6 **Sizewell C Project ES: Volume 2, Chapter 14 Terrestrial Ecology and Ornithology** [APP-224] (Ref. 2) assessed the potential impacts on reptiles and outlines the requirements for mitigation and the residual effects. Further mitigation documents produced were the **Sizewell C – Main Development Site Reptile Mitigation Strategy** [APP-252] (Ref. 3) and **Sizewell C – Main Development Site – Reptile Method Statement** [APP-252] (Ref. 4).

2.3 Update surveys in 2020

- 2.3.1 Surveys in 2020 consisted of deploying and checking refugia for reptile presence, species and number within (i) habitats potentially impacted by the proposed construction of Sizewell C and (ii) mitigation areas, created for reptile translocation. A review of baseline population estimates is also undertaken in this report.

3 METHODS

3.1 Field Survey

3.1.1 Eleven survey areas were chosen for reptile surveys in 2020 comprising three survey areas where habitat is likely to be lost as a result of the proposed construction of Sizewell C project (here called ‘donor sites’) and eight receptor areas where the captured reptiles would be relocated. The surveys focused on a representative sample of suitable reptile habitat within each survey area and did not attempt to survey all available suitable and sub-optimal reptile habitat.

3.1.2 Representative sampling was undertaken, following guidance from Froglife (Ref. 6) and the Herpetofauna Workers Manual (Ref. 7), using artificial refugia (a mix of 50x50cm and 50x100cm roofing felt, and 100x100cm “Onduline” sheets) which were deployed within these areas in sections of habitat considered most suitable for reptiles, i.e. adjacent to scattered scrub and along linear features such as hedgerows and rides. Refugia were plotted onto a map using ArcGIS Collector and left to “bed in” for two weeks before surveys commenced, to give sufficient time for discovery and utilisation by reptiles. The survey area, habitat type and refugia deployment information is described in **Table 5** and shown on **Figure 1, Appendix A**.

Table 5. 2020 survey areas and reptile refugia deployment information

| Survey Area | Habitat | Number of refugia deployed | Approximate area surveyed (ha) | Refugia Density (refugia per hectare) | Area of suitable reptile habitat (ha) |
|---------------------|---|----------------------------|--------------------------------|---------------------------------------|---------------------------------------|
| Donor Sites | | | | | |
| Sizewell C Platform | A mosaic of open grassland on sandy substrate, scattered scrub, and landscape planting. A bund runs along the east and north boundary | 40 | 1.3 | 30 | 14 |
| ‘SSSI Triangle’ | Areas of wet and dry | 30 | 1.7 | 18 | 5.9 |

| Survey Area | Habitat | Number of refugia deployed | Approximate area surveyed (ha) | Refugia Density (refugia per hectare) | Area of suitable reptile habitat (ha) |
|-----------------------|--|----------------------------|--------------------------------|---------------------------------------|---------------------------------------|
| | Common Reed (<i>Phragmites australis</i>) reed-bed surrounded by wet woodland. Floods during winter months | | | | |
| Goose Hill | Conifer plantation woodland containing open rides with scrub and bracken edges | 40 | 2.5 | 16 | 7.5 |
| Receptor Sites | | | | | |
| Great Mount Walk | Large open grassland surrounded by hedgerows, artificial linear bund and hay reptile features present. | 50 | 4.5 | 11 | 5.8 |
| Studio | Habitat creation of grassland from arable. Contains created hibernacula and bunds with scrub and heather planting. | 50 | 6.7 | 7.5 | 16.9 |
| Halfway | Habitat creation of grassland from arable. Contains created | 20 | 3.3 | 6 | 8.6 |

| Survey Area | Habitat | Number of refugia deployed | Approximate area surveyed (ha) | Refugia Density (refugia per hectare) | Area of suitable reptile habitat (ha) |
|-----------------|---|----------------------------|--------------------------------|---------------------------------------|---------------------------------------|
| | hibernacula and bunds with scrub and heather planting. Field compartment to the south of Studio. | | | | |
| Lovers Lane | Habitat creation of grassland from arable. Contains created hibernacula and bunds with scrub and heather planting. Field compartment to the west of Halfway | 15 | 3.2 | 5 | 3.2 |
| Broom Covert | Ex-pasture grassland containing scattered scrub, bracken edges and woodland edge habitats. | 30 | 2 | 15 | 4 |
| St James Covert | Habitat creation through felling woodland clearance and creating hibernacula and bunds. | 35 | 1 | 35 | 1.5 |
| Aldhurst Farm | Habitat creation area of 4 lagoons, reed- | 30 | 2.5 | 12 | 6 |

| Survey Area | Habitat | Number of refugia deployed | Approximate area surveyed (ha) | Refugia Density (refugia per hectare) | Area of suitable reptile habitat (ha) |
|--------------|--|----------------------------|--------------------------------|---------------------------------------|---------------------------------------|
| | bed and grassland. Surrounded by hedgerows. | | | | |
| Kenton Hills | Habitat creation through plantation woodland clearance, hibernacula creation and scrub planting. Southern aspect due to slope to the south. Dense Bracken currently covers most of the area. | 15 | 0.5 | 30 | 1 |

3.1.3 Surveys were carried out during September and October 2020 by experienced surveyors, Duncan Sweeting (Senior Ecologist), Ana Pino-Blanco (Ecologist), Henry Gunning (Ecologist, ACIEEM) and Maico Weites (Graduate Ecologist, Qualifying CIEEM), accompanied by assistants. Survey areas were visited during periods of favourable weather for reptiles, walked over and refugia and other valuable reptile features, such as brash piles and scrub edges checked. The species, sex and age-class of reptiles seen on or underneath refugia and elsewhere within the survey area were recorded using ArcGIS Survey123 software.

3.1.4 A total of 20 survey visits were undertaken in each survey area except for the SSSI Triangle and Kenton Hills (see section 3.2 below).

3.2 Estimating reptile population of each survey area

3.2.1 Population size class estimates were undertaken for each species within each survey area using Froglife guidance for assessing Key Reptile Sites (Ref. 6) using the maximum number of adults (peak count) seen by observation and/or under refugia, by one person in one day.

3.2.2 The peak adult count for each species in each area was divided by the area surveyed to give an estimated number of adults per hectare. This number was then multiplied by the amount of suitable reptile habitat per survey area to give an estimated number of adult reptiles for each species for each survey area.

3.2.3 Following methods described in the Sizewell C Project ES [[APP-235](#)] (Ref. 1), which devised a ratio of the number of reptiles observed during survey to the number of reptiles caught during translocation from an adjacent development, the estimated number of adult reptiles per species, per survey area was subjected to the below multipliers:

- Adder (2:1)
- Grass Snake (3:1)
- Common Lizard (3:1)
- Slow Worm (10:1)

3.2.4 The multipliers then gave an estimated number of each species within each survey area. These population estimates are approximate and are based on the data collected and measuring available suitable habitat using aerial maps, Phase 1 data and site knowledge. The real populations are subject to seasonal and annual fluctuations and are therefore likely to vary from year to year.

3.3 Limitations

3.3.1 The 2020 reptile surveys were largely undertaken in September with a few final visits undertaken in October. Undertaking surveys solely at this time of the year may miss a proportion of reptile activity at other times in the year, i.e. between March and June.

3.3.2 Only 15 surveys were undertaken in the SSSI Triangle as a result of reed-bed cutting followed by water level rise. This was considered a health and safety constraint limiting access whilst flooding the refugia, reducing the suitability of the area for reptiles.

- 3.3.3 Kenton Hills contained stands of dense Bracken (*Pteridium aquilinum*), noted during surveys in July 2020, as a result of habitat succession. Refugia was deployed in late September once vegetation had reduced and there was more structural diversity suitable for reptiles. Three survey visits were undertaken in October 2020.

4 RESULTS

- 4.1.1 The results of the 2020 reptile survey are presented in **Table 6**. The location of each survey area, including tin locations are presented on **Figure 1, Appendix A**.

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Table 6. Peak counts for adults and sub-adults/juveniles per survey area (population size class classification is included for adult count).

| Site Type | Site Name | Peak Counts | | | | | | | |
|---|------------------------|-------------|------------|-------------|------------|---------------|------------|-----------|------------|
| | | Adder | | Grass Snake | | Common Lizard | | Slow Worm | |
| | | Adult | Sub-A/ Juv | Adult | Sub-A/ Juv | Adult | Sub-A/ Juv | Adult | Sub-A/ Juv |
| Donor site | Platform | 0 | 1 | 0 | 1 | 4 | 2 | 6 | 2 |
| | SSSI Triangle | 1 | 0 | 1 | 4 | 2 | 0 | 9 | 10 |
| | Goose Hill | 1 | 2 | 4 | 3 | 1 | 4 | 5 | 7 |
| Receptor site | Great Mount Walk | 1 | 1 | 4 | 5 | 7 | 5 | 5 | 4 |
| | Halfway | 0 | 1 | 1 | 1 | 2 | 2 | 5 | 6 |
| | Lovers | 0 | 1 | 1 | 0 | 1 | 2 | 1 | 2 |
| | Studio | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 2 |
| | Broom Covert | 0 | 0 | 1 | 0 | 2 | 2 | 2 | 1 |
| | St James' Covert | 0 | 0 | 0 | 2 | 1 | 0 | 2 | 3 |
| | Aldhurst Farm | 0 | 0 | 0 | 2 | 3 | 2 | 0 | 0 |
| Kenton Hills | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | |
| Froglife population size criteria based on max number of adults seen by observation and/or under tins (placed at a density of up to 10 per hectare), by one person in one day (Ref. 6) | | | | | | | | | |
| Population size criteria | Low Population | <5 | | <5 | | <5 | | <5 | |
| | Good Population | 5-10 | | 5-10 | | 5-20 | | 5-20 | |
| | Exceptional Population | >10 | | >10 | | >20 | | >20 | |

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- 4.1.2 The results show that in 2020 all survey areas supported adder, grass snake, common lizard and slow worm, except Broom Covert and St. James Covert, where no adders were recorded, and Aldhurst Farm, where only grass snake and common lizard were recorded. Population size, based on adult count, was estimated to be low for all species in all survey areas except for the Platform, SSSI Triangle, Goosehill and Halfway, where good populations of slow worm were recorded, and Great Mount Walk where good populations of common lizard and slow worm were recorded.
- 4.1.3 The 2020 survey results were used to calculate estimated density (peak count of adults and sub-adults by area surveyed) and extrapolated against the area of available suitable reptile habitat in each area to get a revised estimated population number for each species. This number was subjected to the multiplier described in the Environment Statement to get a final potential population number for each species, within each survey area. The results of this are presented in **Table 7**.

Table 7. Adult/sub-adult reptile population estimates based on 2020 survey data

| Survey | Estimated adult/sub-adult reptile density (individuals per hectare) | | | | Area of suitable habitat (ha) | Estimated number of adult/sub-adult reptiles (without ES multiplier) | | | | Estimated Numbers of adult/sub-adult reptiles (with ES multiplier) | | | |
|----------------------|---|-------------|---------------|-----------|-------------------------------|--|-------------|---------------|-----------|--|-------------------|---------------------|------------------|
| | Adder | Grass Snake | Common Lizard | Slow Worm | | Adder | Grass Snake | Common Lizard | Slow Worm | Adder (2:1) | Grass Snake (3:1) | Common Lizard (3:1) | Slow Worm (10:1) |
| Donor Site | | | | | | | | | | | | | |
| Platform | 0.8 | 0.0 | 3.8 | 4.6 | 14.0 | 10.7 | 0.0 | 53.7 | 64.5 | 21.5 | 0.0 | 161.2 | 644.8 |
| SSSI Triangle | 0.6 | 2.4 | 1.2 | 5.9 | 5.9 | 3.5 | 13.9 | 6.9 | 34.7 | 6.9 | 41.6 | 20.8 | 347.1 |
| Goosehill | 0.4 | 1.6 | 0.8 | 3.2 | 7.5 | 3.0 | 12.0 | 6.0 | 23.9 | 6.0 | 35.9 | 18.0 | 239.4 |
| Total | | | | | 27.4 | | | | | 34.4 | 77.6 | 200 | 1231.2 |
| Receptor Site | | | | | | | | | | | | | |
| Great Mount | 0.2 | 0.9 | 1.5 | 1.3 | 5.8 | 1.3 | 5.1 | 8.6 | 7.7 | 2.6 | 15.4 | 25.9 | 76.8 |
| Halfway | 0.0 | 0.3 | 0.6 | 1.8 | 8.6 | 0.0 | 2.6 | 5.2 | 15.6 | 0.0 | 7.8 | 15.6 | 156.4 |
| Lovers | 0.3 | 0.3 | 0.6 | 0.9 | 3.2 | 1.0 | 1.0 | 2.0 | 3.0 | 2.0 | 3.0 | 6.0 | 30.0 |
| Studio | 0.0 | 0.3 | 0.1 | 0.3 | 16.9 | 0.0 | 5.0 | 2.5 | 5.0 | 0.0 | 15.1 | 7.6 | 50.4 |
| Broom Covert | 0.0 | 0.5 | 1.0 | 1.0 | 4.0 | 0.0 | 2.0 | 4.0 | 4.0 | 0.0 | 6.0 | 12.0 | 40.0 |
| St James' Covert | 0.0 | 0.0 | 1.0 | 2.9 | 1.5 | 0.0 | 0.0 | 1.4 | 4.2 | 0.0 | 0.0 | 4.2 | 41.7 |
| Aldhurst Farm | 0.0 | 0.0 | 1.6 | 0.0 | 6.0 | 0.0 | 0.0 | 9.6 | 0.0 | 0.0 | 0.0 | 28.8 | 0.0 |
| Kenton | 0.0 | 0.0 | 0.0 | 1 | 0.85 | 0.0 | 0.0 | 0.0 | 1.2 | 0.0 | 0.0 | 0.0 | 12 |
| Total | | | | | 45.9 | | | | | 4.6 | 47.3 | 100.1 | 407.3 |

5 DISCUSSION

5.1.1 Surveys in 2020 recorded low populations of reptile species in most of the locations surveyed, with the exception of slow worm which had a good population in the three donor sites and two of the receptor sites surveyed. **Table 8** compares results from the 2020 surveys with previous surveys undertaken by Arcadis and Wood Group within donor and receptor sites. These are individually discussed below.

5.2 Donor Sites

5.2.1 **Table 8** shows Wood Group recorded an exceptional population of adder within their survey area and exceptional populations of adder were recorded by Arcadis in 2015, within the Sizewell C Platform and Goosehill scrub. Wood Group also recorded an exceptional population of slow worm and good populations of grass snake and common lizard. Arcadis 2015 results recorded a good population of grass snake in the arable field margins and good population of common lizard in the Sizewell C Platform/Goosehill area.

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Table 8. Comparison of peak adult reptile counts between Wood Group and Arcadis surveys

| Survey Area | Peak Adult Count | | | | | | | | | | | |
|---------------------------------------|------------------------|-------------------|--------------|------------------------|-------------------|--------------|------------------------|-------------------|--------------|------------------------|-------------------|--------------|
| | Adder | | | Grass Snake | | | Common Lizard | | | Slow Worm | | |
| | Wood Group 2007 - 2012 | Arcadis 2015/2016 | Arcadis 2020 | Wood Group 2007 - 2012 | Arcadis 2015/2016 | Arcadis 2020 | Wood Group 2007 - 2012 | Arcadis 2015/2016 | Arcadis 2020 | Wood Group 2007 - 2012 | Arcadis 2015/2016 | Arcadis 2020 |
| Donor Site | | | | | | | | | | | | |
| Sizewell C Platform | 17 | 22 | 0 | 9 | 0 | 0 | 15 | 11 | 4 | 31 | 6 | 6 |
| SSSI Triangle | | 5 | 1 | | 2 | 1 | | 5 | 2 | | 16 | 9 |
| Goose Hill Scrub | | 22 | 1 | | 2 | 4 | | 7 | 1 | | 15 | 5 |
| Goose Hill Rides | | 0 | | | 1 | | | 2 | | | 5 | |
| Goose Hill Conifer plantation | | 0 | | | 1 | | | 1 | | | 1 | |
| Kenton Hills Woodland | | | | | | | | | | | | |
| Arable margins | | 0 | | | 6 | | | 0 | | | 7 | |
| Receptor Site | | | | | | | | | | | | |
| Kenton Hills receptor area | | 5 | | | 1 | | | 3 | | | 4 | |
| Great Mount Walk | | | 1 | | | 4 | | | 7 | | | 5 |
| Halfway | | | 0 | | | 1 | | | 2 | | | 5 |
| Lovers | | | 0 | | | 1 | | | 1 | | | 1 |
| Studio | | 1 | 0 | | 0 | 1 | | 2 | 1 | | 0 | 1 |
| Broom Covert | | | 0 | | | 1 | | | 2 | | | 2 |
| St James' Covert | | 1 | 0 | | 1 | 0 | | 1 | 1 | | 8 | 2 |
| Aldhurst Farm | 1 | | 0 | 3 | | 0 | 7 | | 3 | 0 | | 0 |
| Population size class (Ref. 6) | Low | Good | Exceptional | | | | | | | | | |

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- 5.2.2 This comparison points to a decline in the estimates of population, particularly for adder, between 2007 to 2020 and which is likely attributed to natural fluctuations in population number, varying survey methodologies between years and changes in habitat suitability.
- 5.2.3 The Wood Group survey area consisted of 160 refugia placed in 30ha (approximately 5 per ha) of habitat within donor sites, with the peak count from a much larger area than subsequent Arcadis surveys (2015 – approximately 6ha surveyed, Arcadis 2020 – approximately 5.5ha surveyed). In terms of adder density, the exceptional population of adder recorded in 2007 consisted of 0.57 individuals per hectare, which is more consistent with the density of adder recorded in the Sizewell C Platform and SSSI Triangle in 2020.
- 5.2.4 The exceptional adder populations, recorded during the Arcadis 2015 survey, in the Sizewell C Platform and Goosehill scrub areas (Areas 7 and 4, **Figure 14A6.6, APPENDIX A:**) were based on an intensive survey from March to October that included deployment of 100 refugia over a small area (approximately 2ha in Area 7 and 1ha in Area 4) and consisted of over 30 visits and a Capture Mark Recapture (CMR) study. The data from 2015 shows that more adder were recorded in these areas between April and May of that year, with lower peak counts in September/October 2015. The peak adult count of 22 in each of these areas resulted from CMR analysis with MARK software, based on an overall yearly count of 15 and 14 individual adults on the Sizewell C Platform and within the Goose Hill scrub respectively. In comparison, surveys in 2020 were undertaken solely in September/October with fewer refugia deployed and no CMR analysis carried out. In addition to a lower survey effort, the refugia were checked relatively frequently which may have caused a level of minor disturbance and deterred adders from some of the refugia. It is therefore considered likely that adder numbers were underestimated in 2020.
- 5.2.5 Differences in population class of grass snake, common lizard and slow worm from previous years to 2020 are less apparent and are likely to be a result of natural fluctuations in population size.
- 5.2.6 Alongside variation in survey effort, habitat suitability change is also likely to have influenced changes in reptile numbers within the donor sites, particularly within Goose Hill (2015 survey compartment 4 2020 Goosehill survey area), shown in **Plate 1**.

Plate 1. Changes in reptile habitat suitability – Goose Hill scrub



Source: Google

- 5.2.7 As **Plate 1** shows, a strip of woodland was cleared along the southern edge of the conifer plantation prior to 2011 and reverted to grassland. By 2014/2015 this had developed a scattered scrub mosaic vegetation structure, considered optimal reptile habitat. Since then, vegetation has developed further and succession has shaded much of this habitat with dense scrub and young broadleaved trees. This has been further

exacerbated by growth of dense Bracken (*Pteridium aquilinum*), noted during 2020 and shown in **Plate 2**.

Plate 2. Dense Bracken and broadleaved tree growth in Goose Hill, July 2020



Source: Arcadis

- 5.2.8 Decreasing habitat suitability is most apparent in this area although scrub and reedbed encroachment and succession is also apparent on the Sizewell C platform and SSSI Triangle.
- 5.2.9 Estimating reptile population through refugia based surveys is challenging and can only give an approximation of realistic numbers. **Table 16** shows a comparison of reptile number estimates from surveys undertaken by Arcadis in 2015 and 2020. There is contrast between the number of reptiles estimated in the donor sites based on 2015 analysis than in 2020 with a decreased in estimated number for all species.

Table 9. A comparison of reptile population estimates between 2015 and 2020

| Site | Amount of suitable habitat within area (ha) | | Estimated number of reptiles | | | | | | | |
|-----------------------|---|--------------|------------------------------|--------------|-------------------|--------------|-------------------|--------------|-------------------|---------------|
| | | | Adder | | Grass snake | | Common Lizard | | Slow worm | |
| | Arcadis 2015/2016 | Arcadis 2020 | Arcadis 2015/2016 | Arcadis 2020 | Arcadis 2015/2016 | Arcadis 2020 | Arcadis 2015/2016 | Arcadis 2020 | Arcadis 2015/2016 | Arcadis 2020 |
| Donor Site | | | | | | | | | | |
| Platform | 20.1* | 14.0 | 1286.0* | 21.5 | 0.0 | 0.0 | 948.0 | 161.2 | 1730.0 | 644.8 |
| SSSI Triangle | 5.9 | 5.9 | 60.0 | 6.9 | 36.0 | 41.6 | 90.0 | 20.8 | 940.0 | 347.1 |
| Goose Hill Rides | 3.8 | 7.5 | 0.0 | 6.0 | 42.0 | 35.9 | 84.0 | 18.0 | 700.0 | 239.4 |
| Goose hill Scrub | 2.8 | | 126.0 | | 18.0 | | 126.0 | | 200.0 | |
| Goose hill Plantation | 83.8 | | 0.0 | | 252.0* | | 252.0 | | 840.0 | |
| Total | 116.4 | 27.4 | 1472.0 | 34.4 | 348.0 | 77.6 | 1500.0 | 200.0 | 4410.0 | 1231.2 |

* overestimation – discussed below

- 5.2.10 A review of the 2015 calculations revealed the following miscalculations which are likely to have led to an over estimation of reptile numbers.
- Lack of survey area accuracy, due to the transfer of drawn paper maps onto a digital platform, resulting in the area surveyed being presented as lower than actual.
 - An over assumption of available ‘optimal’ habitat (i.e. extrapolation assuming more suitable habitat than there is and that the habitat is more suitable than it is).
- 5.2.11 These assumptions are likely to have resulted in over inflated estimated reptile densities calculations and in some cases extrapolated reptile density by areas of habitat that were of lower value for reptiles.
- 5.2.12 This is mostly apparent in the results for the Platform area. The recorded survey area for 2015 Area 7 (**Figure 14A6.6, APPENDIX A:**) was noted to be 0.7ha and proposed the amount of available suitable habitat to be 20.1ha. This resulted in a calculated density of 32 adders per hectare (based on a CMR results of 22 individuals). This was then multiplied by 20.1ha and then doubled, to account for the multiplier described in **Paragraph 2.2.4**, to give an estimated adder number of 1286 individuals within the Sizewell C Platform. On review, the survey area was recalculated to be closer to 2ha, the discrepancy thought to be due to inaccuracies in transfer of paper maps to digital platform in 2015, while the 20.1ha area of perceived suitable habitat included short sward open grassland, which is considered to be low suitability for reptiles and not able to support the same density as the more favourable habitat surveyed. **Table 10** runs the same calculation with these alterations and provides a comparison to the initial figure.

Table 10. Recalculation of estimated reptile number with new parameters

| | 2015 Result | 2020 Review |
|---------------------------------------|-------------|-------------|
| Adult count | 22 | 22 |
| Area Surveyed | 0.7ha | 2ha |
| Adult density | 32 | 11 |
| Amount of suitable habitat | 20.1 | 14 |
| Estimated number (without multiplier) | 643 | 156 |
| Estimated number (with multiplier) | 1286 | 313 |

- 5.2.13 The other outlier in **Table 9** is the estimated number of grass snake in the Goose Hill plantation woodland (estimated at 252 individuals). This is based on a peak count of 1 grass snake on the boundary of the plantation woodland, most of which is dense, shaded vegetation and so sub-optimal, and it is likely that the individual recorded was moving through the area.
- 5.2.14 Whilst this review of estimated population size suggests there is likely to be a lower number of reptiles, particularly adders, present on site than estimated in 2015, the survey results presented above do not change the assessment of impacts on reptiles presented at **Section 14.11** in **Volume 2, Chapter 14** of the Sizewell C Project ES [[APP-224](#)] (Ref. 2).

5.3 Receptor Sites

- 5.3.1 Surveys in 2020 recorded low populations of reptiles throughout the receptor sites except in Great Mount Walk (good populations of common lizard and slow worm) and Halfway (good population of slow worm). More areas were covered in 2020 than in previous surveys but where comparisons can be made, there is broad consistency with the numbers of reptiles recorded by Wood Group and previously by Arcadis.
- 5.3.2 The exception is within Kenton Hills where a good population of adder were recorded, based on a CMR study, in 2015 but this species was not recorded here in 2020. Kenton Hills, like Goose Hill, was covered in dense Bracken during 2020 which may have decreased the suitability of this area for reptiles. The benefit of this however is there is less likely for natural colonisation to occur prior to any future translocation, when the Bracken can be managed in a relatively short term period to provide suitable habitat structure for reptiles.
- 5.3.3 Habitat within other receptor areas, particularly the Studio Field complex, has increased in suitability for reptiles since its creation, with scrub growth providing greater vegetation structure and heather patches developing, **Plate 3**. This has increased the carrying capacity of these areas for reptiles since they were created.

Plate 3. Heather growth in Studio



Source: Arcadis

- 5.3.4 Approximately 45.9ha of optimal habitat that has been created within the receptor sites. This habitat includes areas with varied vegetation structure provided by scattered scrub, heather, brash piles, hibernacula, reedbed along with retained hedgerows and ditches. This figure will increase when habitats within Kenton Hills are subjected to management to improve vegetation structure prior to future translocation. These habitat patches are interspersed with areas of sub-optimal but valuable reptile habitat such as rough grassland and woodland patches. The total area of all receptor areas, including optimal and sub-optimal habitat is approximately 130ha.
- 5.3.5 The optimal habitat within the donor sites, which would be lost to landtake from the construction of Sizewell C, is approximately 32ha in area (which includes habitats within the Sizewell C Platform, SSSI Triangle, Goosehill and hedgerows throughout the arable fields).
- 5.3.6 **Table 11** presents the max estimated number of reptiles per hectare within the donor sites based on estimates from 2015 data with recalculations, described in **Section 5**, applied. The ES multiplier, described in **Paragraph 3.2.3** has also been applied. The 2015 data set was used, over data from 2020, as it suggests the highest population estimates that may be present.
- 5.3.7 The max estimated number of reptiles per hectare within the donor sites has been used to suggest the maximum carrying capacity of the 45.9ha of optimal habitat within the receptor sites. This has then been adjusted to the

maximum likely available carrying capacity using the estimated populations of reptiles recorded in these areas in 2020.

- 5.3.8 The calculation presented in **Table 11** demonstrates that even using the likely maximum reptile population estimates for the donor site, the receptor site has over 90% of its carrying capacity remaining and would take all of the maximum donor site populations with capacity for over 30% more. Therefore, due to the extent of optimal habitat within the receptor sites and the presence of mostly low populations of reptiles there is enough available optimal habitat within the receptor sites to support the estimated maximum number of reptiles to be translocated from the development footprint.

Table 11 Receptor sites optimal habitat estimated carrying capacity (estimated reptile numbers rounded to nearest 10)

| Species | Optimal habitat within the donor sites (32ha) | | | Optimal habitat within the receptor sites (45.9ha) | | | | Ratio of donor site to receptor site carrying capacity |
|---------------|---|---|---|--|---|---|----------------------------------|--|
| | Estimated reptile number * | Max estimated reptile number (with ES multiplier applied) * | Max estimated number of reptiles per hectare (with ES multiplier applied) * | Max estimated carrying capacity | Estimated number of reptiles from 2020 data | Max estimated available carrying capacity | % of available carrying capacity | |
| Adder | 250 | 499 | 15.6 | 716 | 5 | 711 | 99.36 | 1:1.43 |
| Grass Snake | 157 | 471 | 14.7 | 676 | 47 | 628 | 93.00 | 1:1.33 |
| Common Lizard | 500 | 1500 | 46.9 | 2152 | 100 | 2052 | 95.35 | 1:1.37 |
| Slow Worm | 441 | 4410 | 137.8 | 6326 | 407 | 5918 | 93.56 | 1:1.34 |

* based on 2015 population estimates with recalculation post review (explained in **Section 5**)

6 CONCLUSION

- 6.1.1 The impacts on reptiles were assessed in Sizewell C Development – Environment Statement: Volume 2, Chapter 14 Ecology and Ornithology.
- 6.1.2 Eleven areas were surveyed in 2020, three which may be directly affected by the development through habitat loss (donor sites) and eight areas of set aside or newly created habitats (receptor sites).
- 6.1.3 The 2020 survey results confirm the presence of adder, grass snake, common lizard and slow worm in all the donor sites but recorded an apparent fall in population size. This is likely to be the result of natural population fluctuation and changes in habitat suitability, however lower survey effort in 2020 may have underestimated population size.
- 6.1.4 Estimating population numbers is difficult but a review of 2015 population estimates revealed an overestimation of reptile numbers, particularly adder numbers in the Sizewell Platform and Goose Hill areas. It is considered likely that fewer reptiles are present within the donor sites than were estimated in 2015.
- 6.1.5 Reptile population size in the receptor sites has remained relatively low however habitat development, particularly within the Studio Field complex, is increasing suitability of these areas for reptiles. Kenton Hills, however, has become less suitable due to dense Bracken encroachment, but this can be managed to create suitable reptile habitats prior to any future translocation.
- 6.1.6 Lower reptile population size in the donor sites and amount of optimal habitat in the receptor sites increases the chance of translocation success.
- 6.1.7 The results of the 2020 update survey support the assessment in the ES which was based on the previous baseline survey data submitted. The proposed mitigation and the residual effects would also remain the same as that submitted in the ES.

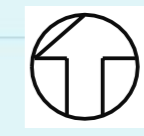
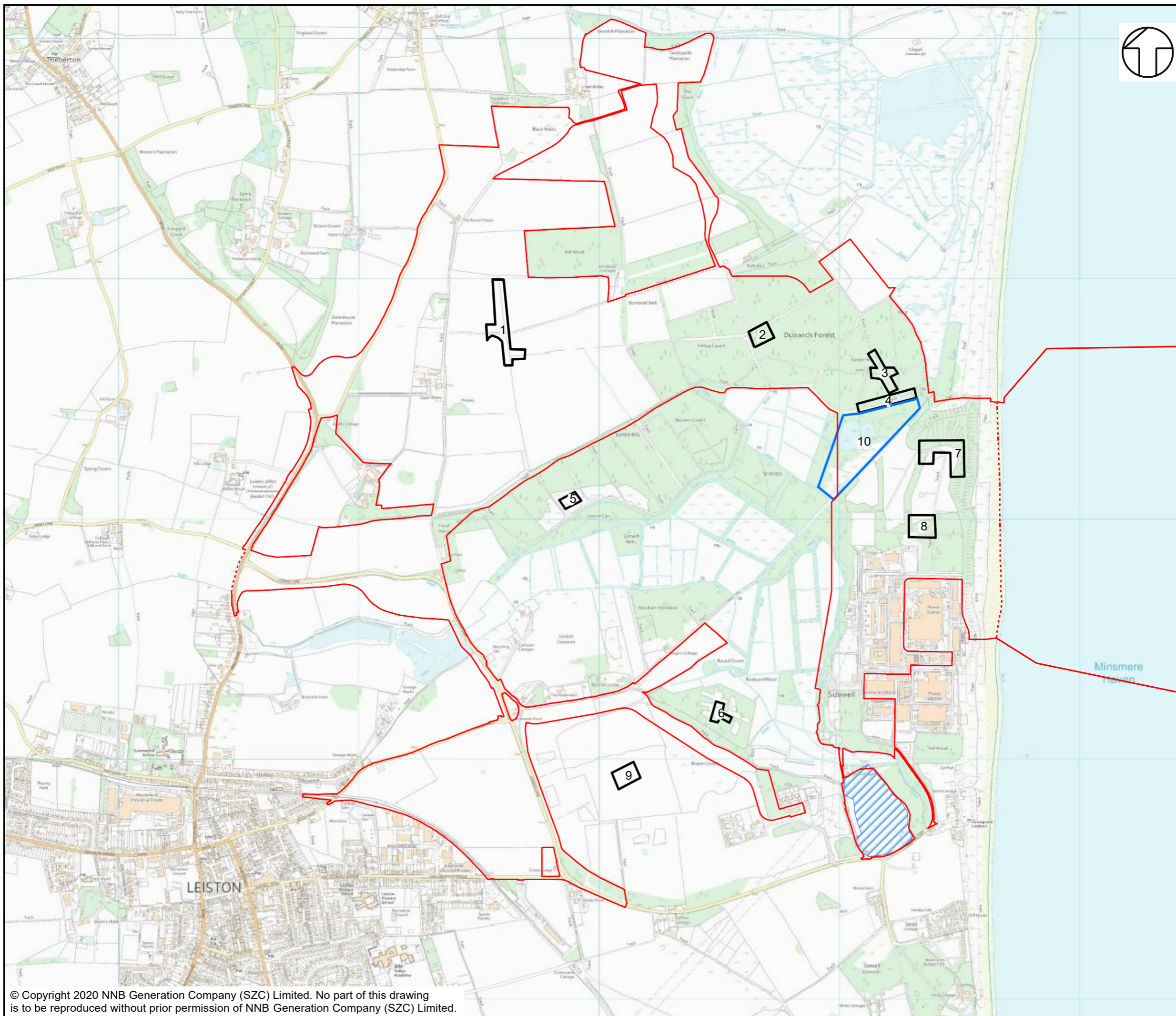
REFERENCES

1. EDF 2020. Sizewell C Development – Environment Statement: Volume 2, Chapter 14: Terrestrial Ecology and Ornithology: Appendix 14A6 – Reptiles. [\[APP-235\]](#)
2. EDF 2020. Sizewell C Development – Environment Statement: Volume 2, Chapter 14: Terrestrial Ecology and Ornithology. [\[APP-224\]](#)
3. EDF 2020 – Reptile Mitigation Strategy. [\[APP-252\]](#)
4. EDF 2020 – Reptile Method Statement. [\[APP-252\]](#)
5. EDF 2020: Sizewell C Development - Environment Statement: Volume 2, Chapter 14: Terrestrial Ecology and Ornithology: Appendix 14A6 – Reptiles: Annex 14A6.4. [\[APP-235\]](#)
6. Froglife. 1999. Reptile Survey, An introduction to planning, conducting and interpreting surveys for snake and lizard conservation. Froglife Advice Sheet 10. Peterborough: Froglife.
7. Gent, T. & Gibson, S. (eds). 2003. Herpetofauna Workers' Manual (revised reprint), JNCC, Peterborough, ISBN 1 86107 450 6.

APPENDIX A: FIGURES

Figure 14A6.6: Locations of reptile surveys carried out by Arcadis (2014-2016)

Figure 1: 2020 Reptile Survey Areas and Refugia Placement



NOTES

KEY

- SIZEWELL C MAIN DEVELOPMENT SITE BOUNDARY
- - - DEMARCATION LINE
- PILL BOX FIELD 2015
- LOCATION OF REPTILE SURVEY SITES - 2015
- LOCATION OF REPTILE SURVEY SITES - 2016

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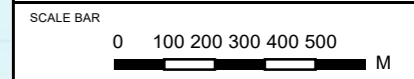


DOCUMENT:
 SIZEWELL C
 ENVIRONMENTAL STATEMENT
 VOLUME 2
 APPENDIX 14A6
 REPTILES

DRAWING TITLE:
 LOCATIONS OF REPTILE SURVEYS
 CARRIED OUT BY ARCADIS

DRAWING NO:
 FIGURE 14A6.6

DATE: JAN 2020 DRAWN: R.G. SCALE: 1:15,000 @A3





NOTES

KEY

- MAIN DEVELOPMENT SITE**
- SIZEWELL C MAIN DEVELOPMENT SITE BOUNDARY
- - - DEMARCATION LINE
- ▭ SURVEY AREA
- REPTILE REFUGIA LOCATIONS**
- ◀ ALDHURST FARM
- ◀ BROOM COVERT
- ◀ GOOSE HILL / SSSI TRIANGLE
- ◀ GREAT MOUNT WALK
- ◀ HALFWAY
- ◀ KENTON HILLS
- ◀ LEVERS
- ◀ SIZEWELL C PLATFORMS
- ◀ ST JAMES COVERT
- ◀ STUDIO



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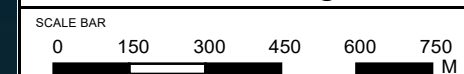


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 SHEET 1 of 7

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NOTES

KEY

- MAIN DEVELOPMENT SITE**
- SIZEWELL C MAIN DEVELOPMENT SITE BOUNDARY
- - - DEMARCATION LINE
- ▭ SURVEY AREA
- REPTILE REFUGIA LOCATIONS**
- 👉 ALDHURST FARM
- 👉 BROOM COVERT
- 👉 GOOSE HILL / SSSI TRIANGLE
- 👉 GREAT MOUNT WALK
- 👉 HALFWAY
- 👉 KENTON HILLS
- 👉 LEVERS
- 👉 SIZEWELL C PLATFORMS
- 👉 ST JAMES COVERT
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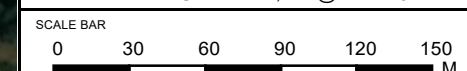


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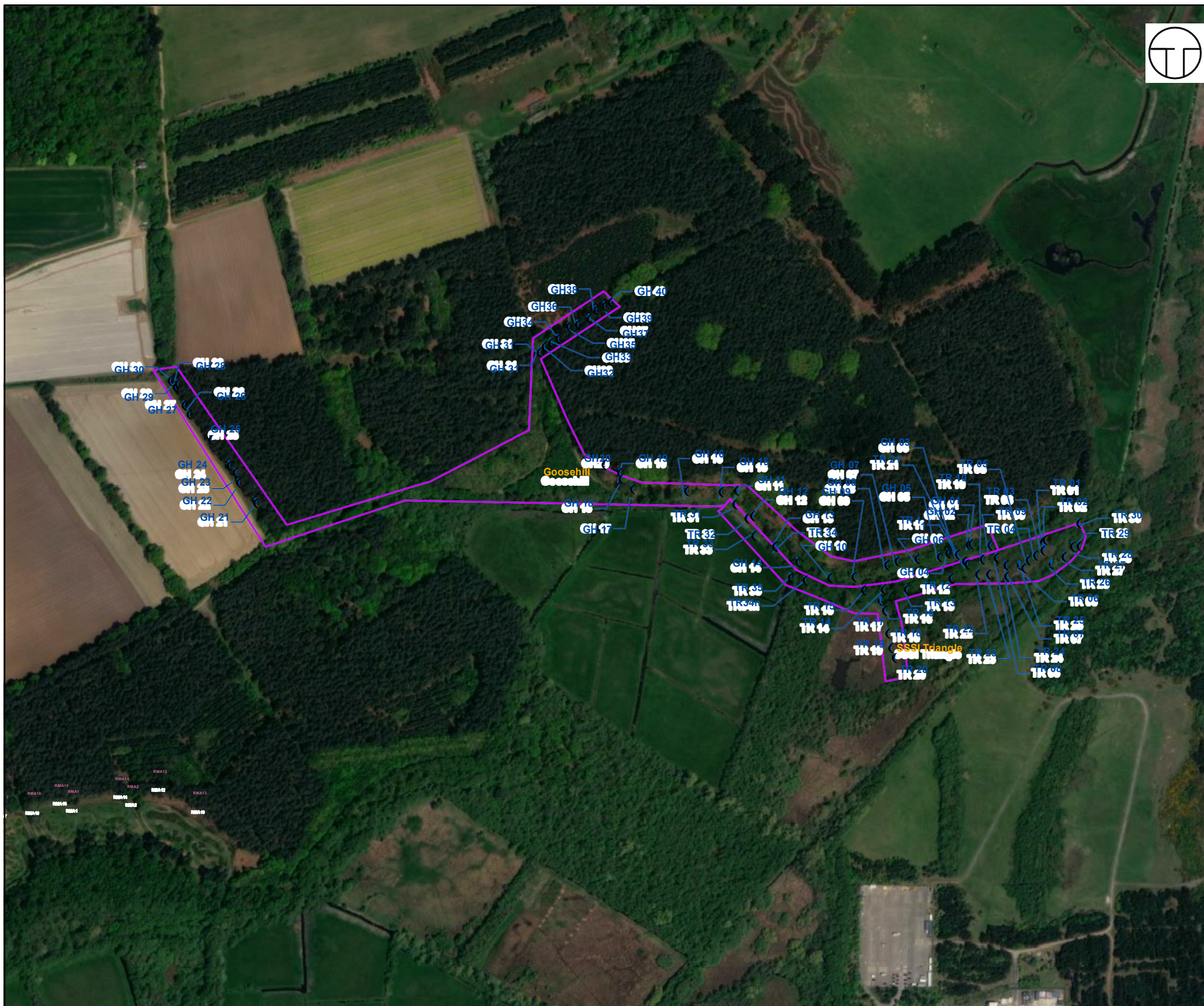




NOTES

KEY

- MAIN DEVELOPMENT SITE**
- SIZEWELL C MAIN DEVELOPMENT SITE BOUNDARY
- - - DEMARCATION LINE
- ▭ SURVEY AREA
- REPTILE REFUGIA LOCATIONS**
- ⤵ ALDHURST FARM
- ⤵ BROOM COVERT
- ⤵ GOOSE HILL / SSSI TRIANGLE
- ⤵ GREAT MOUNT WALK
- ⤵ HALFWAY
- ⤵ KENTON HILLS
- ⤵ LEVERS
- ⤵ SIZEWELL C PLATFORMS
- ⤵ ST JAMES COVERT
- ⤵ STUDIO



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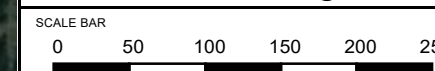


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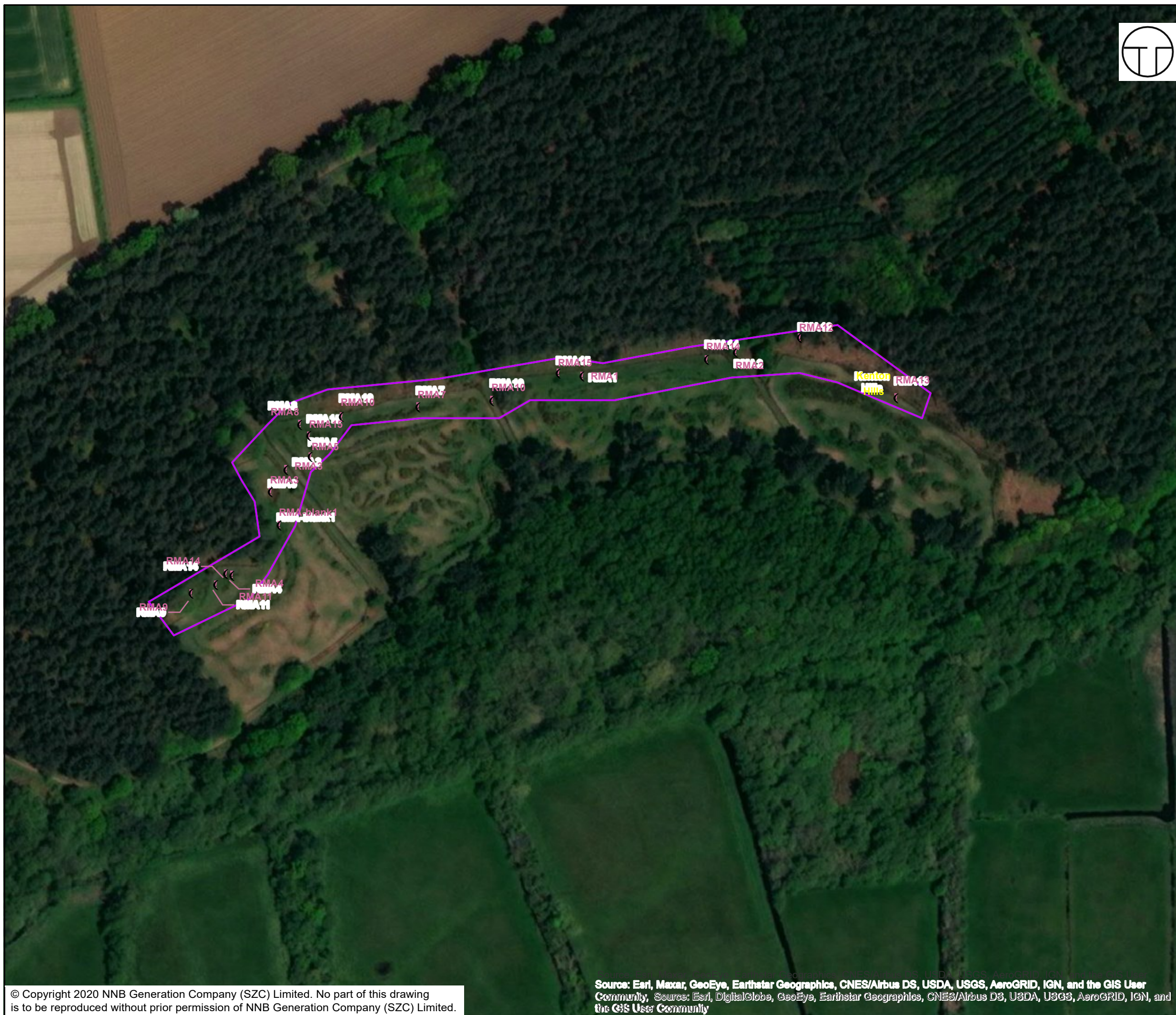




NOTES

KEY

- MAIN DEVELOPMENT SITE**
- SIZEWELL C MAIN DEVELOPMENT SITE BOUNDARY
- - - DEMARCATION LINE
- ▭ SURVEY AREA
- REPTILE REFUGIA LOCATIONS**
- 🐸 ALDHURST FARM
- 🐸 BROOM COVERT
- 🐸 GOOSE HILL / SSSI TRIANGLE
- 🐸 GREAT MOUNT WALK
- 🐸 HALFWAY
- 🐸 KENTON HILLS
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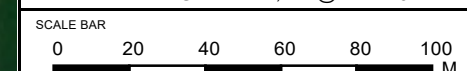


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NOTES

KEY

- MAIN DEVELOPMENT SITE**
- SIZEWELL C MAIN DEVELOPMENT SITE BOUNDARY
- - - DEMARCATION LINE
- ▭ SURVEY AREA
- REPTILE REFUGIA LOCATIONS**
- ⌋ ALDHURST FARM
- ⌋ BROOM COVERT
- ⌋ GOOSE HILL / SSSI TRIANGLE
- ⌋ GREAT MOUNT WALK
- ⌋ HALFWAY
- ⌋ KENTON HILLS
- ⌋ LEVERS
- ⌋ SIZEWELL C PLATFORMS
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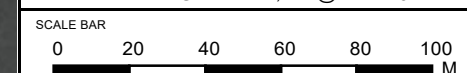


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 SHEET 5 of 7

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KEY

- MAIN DEVELOPMENT SITE**
- SIZEWELL C MAIN DEVELOPMENT SITE BOUNDARY
- - - - DEMARCATION LINE
- ▭ SURVEY AREA
- REPTILE REFUGIA LOCATIONS**
- 👉 ALDHURST FARM
- 👉 BROOM COVERT
- 👉 GOOSE HILL / SSSI TRIANGLE
- 👉 GREAT MOUNT WALK
- 👉 HALFWAY
- 👉 KENTON HILLS
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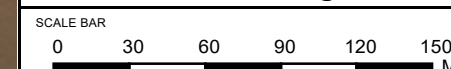


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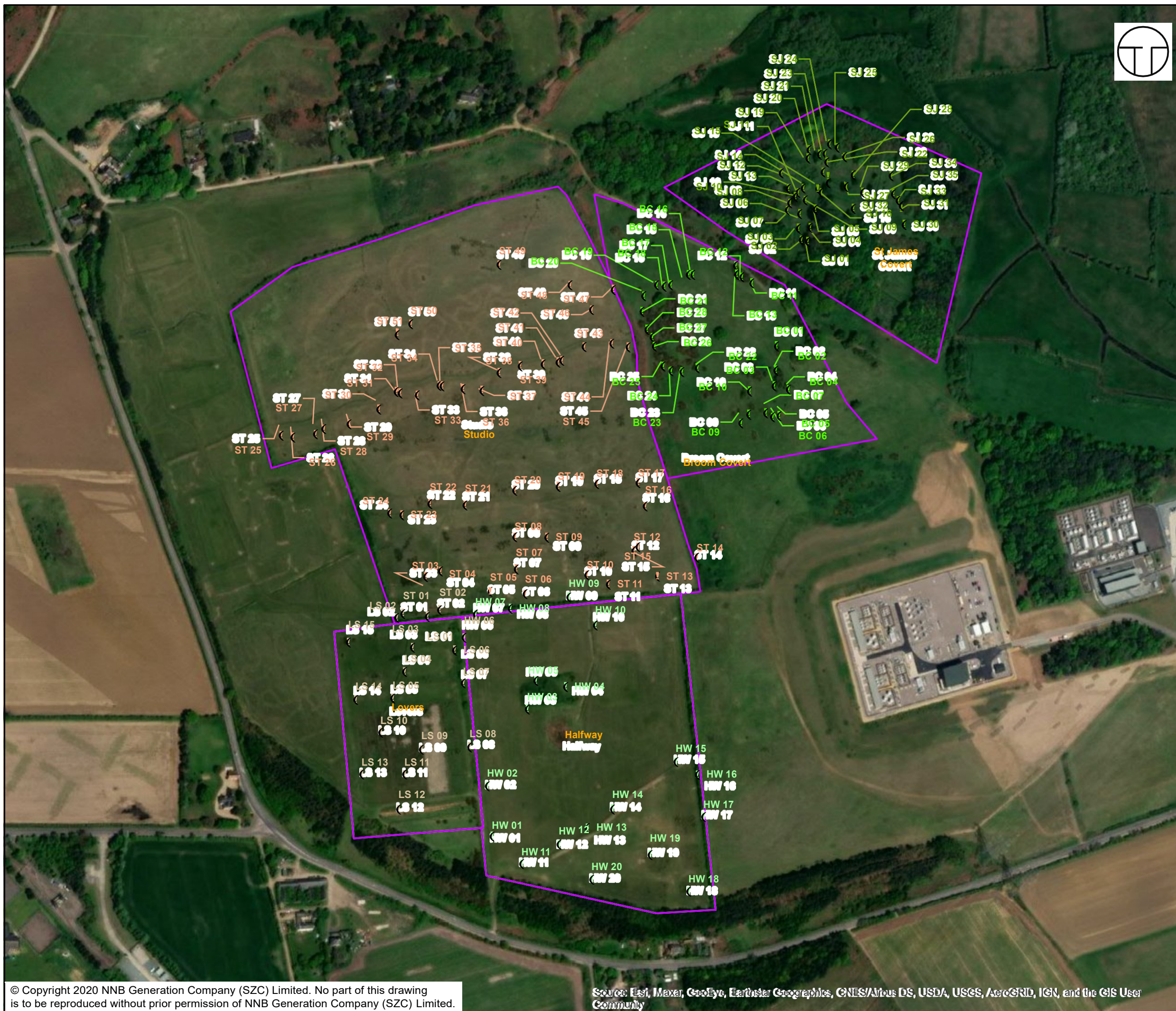




NOTES

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- - - - DEMARCATION LINE
- ▭ SURVEY AREA
- REPTILE REFUGIA LOCATIONS**
- ⌋ ALDHURST FARM
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- ⌋ HALFWAY
- ⌋ KENTON HILLS
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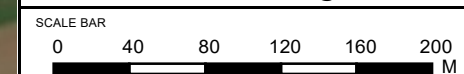


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APPENDIX B: 2020 SURVEY RESULTS

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Table 12. Reptile Survey Results - Platform

| Visit Number | Survey Date | Weather Conditions | | | | Start time | End time | Adder | | | | | Grass Snake | | | | | Common Lizard | | | | | Slow worm | | | | |
|--------------|-------------|--------------------|--------|---------|-------|------------|----------|-------|----|----|----|---|-------------|----|----|----|---|---------------|----|----|----|---|-----------|----|----|----|---|
| | | Cloud | Wind | Rain | Temp | | | AF | AM | AU | Sa | J | AF | AM | AU | Sa | J | AF | AM | AU | Sa | J | AF | AM | AU | Sa | J |
| 1 | 02/09/2020 | Clear | Breezy | Dry | 18-21 | 12:20 | 12:35 | | | | | | | | | | 1 | | 3 | | | 2 | | 4 | | 1 | |
| 2 | 04/09/2020 | Full | Breezy | Dry | 16 | 10:47 | 11:01 | | | | | | | | 1 | 2 | 1 | | | | 1 | | | | 2 | | |
| 3 | 07/08/2020 | Clear | Light | Dry | 11 | 07:55 | 08:19 | | | | | | | | | | | | | | | | | | 2 | | |
| 4 | 08/09/2020 | Full | Light | Dry | 15 | 08:59 | 09:27 | | | | 1 | | | | | | 1 | | 1 | | | 3 | | | | 1 | |
| 5 | 10/09/2020 | Clear | Calm | Dry | 15 | 09:34 | 10:01 | | | | | | | | | | 2 | | | | | 2 | | | 1 | | |
| 6 | 11/09/2020 | Clear | Light | Dry | 15 | 08:22 | 09:01 | | | | | | | | | | 1 | 2 | | | | 1 | | | | | |
| 7 | 14/09/2020 | Clear | Calm | Dry | 15 | 08:27 | 09:02 | | | | | | | | | | 1 | | | | 1 | | 1 | | | | |
| 8 | 16/09/2020 | Full | Light | Dry | 18 | 09:35 | 10:01 | | | | | | | | | | | | 1 | | 1 | | 1 | | | | |
| 9 | 17/09/2020 | Patchy | Breezy | Dry | 18 | 10:41 | 13:03 | | | | | | | | | | 2 | 2 | | 1 | | 2 | | | 1 | | |
| 10 | 18/09/2020 | Patchy | Breezy | Dry | 16 | 10:42 | 11:22 | | | | | | | | | | 1 | 2 | | | | 1 | 1 | | | | |
| 11 | 21/09/2020 | Clear | Light | Dry | 11 | 08:35 | 08:48 | | | | | | | | | | | | | | | | | | | | |
| 12 | 22/09/2020 | Patchy | Light | Dry | 18-21 | 09:21 | 10:14 | | | | | | | | | | | | | | | | | | | | |
| 13 | 24/09/2020 | Patchy | Breezy | Dry | 12 | 10:55 | 11:10 | | | | | | | | | | | | | | | | | | 1 | | |
| 14 | 28/09/2020 | Full | Breezy | Dry | 13 | 11:59 | 12:22 | | | | | | | | | | | | | | | | | | 1 | | |
| 15 | 29/09/2020 | Full | Calm | Drizzle | 10 | 09:00 | 09:22 | | | | | | | | | | | | 1 | | | | | | | | |
| 16 | 30/09/2020 | Patchy | Calm | Dry | 14 | 09:06 | 09:27 | | | | | | | | | | | | 2 | | | | | | | | |
| 17 | 01/10/2020 | Full | Calm | Dry | 12 | 09:09 | 09:29 | | | | | | | | | | | | | | | | | | 1 | | |
| 18 | 02/10/2020 | Full | Breezy | Dry | 12 | 10:49 | 11:01 | | | | | | | | | | | 1 | | 1 | 1 | | | | 1 | | |
| 19 | 15/10/2020 | Patchy | Breezy | Drizzle | 13 | | | | | | | | | | | | | | | | | | | | | | |
| 20 | 22/10/2020 | Patchy | Breezy | Dry | 12 | 10:00 | 10:30 | | | | | | | | | | | | | | | | | | 1 | | |

AF – Adult Female, AM – Adult Male, AU – Adult Unknown, Sa – Sub-adult, J - Juvenile

NOT PROTECTIVELY MARKED

Table 13. Reptile Survey Results - SSSI Triangle

| Visit Number | Survey Date | Weather Conditions | | | | Start time | End time | Adder | | | | | Grass Snake | | | | | Common Lizard | | | | | Slow worm | | | | | | | | | | |
|--------------|-------------|--------------------|--------|------|-------|------------|----------|-------|----|----|----|---|-------------|----|----|----|---|---------------|----|----|----|---|-----------|----|----|----|---|---|--|---|---|---|--|
| | | Cloud | Wind | Rain | Temp | | | AF | AM | AU | Sa | J | AF | AM | AU | Sa | J | AF | AM | AU | Sa | J | AF | AM | AU | Sa | J | | | | | | |
| 1 | 02/09/2020 | Clear | Breezy | Dry | 18-21 | 13:00 | 13:28 | | | | | | | | | | | | | | | | | | | | 1 | | | | | 1 | |
| 2 | 04/09/2020 | Patchy | Light | Dry | 18 | 14:27 | 15:33 | | | | | | | | 4 | | 1 | 1 | | | | | | | | | 4 | | | | 1 | 4 | |
| 3 | 07/09/2020 | Full | Light | Dry | 14 | 09:04 | 09:23 | | | | | | 1 | | 1 | | | | | | | | | | | | 1 | | | | 1 | 8 | |
| 4 | 08/09/2020 | Full | Light | Dry | 16 | 09:33 | 10:09 | 1 | | | | | | | 1 | 3 | | | | | | | | | | | 9 | | | | 1 | 9 | |
| 5 | 10/09/2020 | Clear | Calm | Dry | 14 | 09:00 | 09:33 | | | | | | | 1 | | | | | 1 | | | | | | | | 1 | | | | | 3 | |
| 6 | 14/09/2020 | Clear | Calm | Dry | 18-21 | 12:14 | 13:33 | | | | | | 1 | | | | | | | | | | | | | | 3 | 1 | | | | | |
| 7 | 15/09/2020 | Patchy | Calm | Dry | 18 | 17:51 | 18:44 | | | | | | | | | | | | | | | | | | | | 1 | | | | | | |
| 8 | 16/09/2020 | Full | Light | Dry | 18 | 10:10 | 11:04 | | | | | | 1 | | | | | | | | | | | | | | | | | | | 0 | |
| 9 | 17/09/2020 | Patchy | Light | Dry | 14 | 08:40 | 10:03 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | 18/09/2020 | Patchy | Breezy | Dry | 18 | 13:04 | 14:02 | | | | | | 1 | | | | | | | | | | | | | | 1 | | | | | 1 | |
| 11 | 21/09/2020 | Clear | Calm | Dry | 14 | 09:15 | 09:35 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | 22/09/2020 | Clear | Light | Dry | 18-21 | 10:38 | 10:51 | | | | | | | | | | | | | | | | | | | | | | | 1 | | 3 | |
| 13 | 24/09/2020 | Patchy | Breezy | Dry | 11 | 10:01 | 10:38 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | 28/09/2020 | Full | Calm | Dry | 13 | 13:36 | 13:53 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | 01/10/2020 | Full | Calm | Dry | 12 | 10:06 | 10:06 | | | | | | | | | | | | | | | | | | | | | | | | | | |

AF – Adult Female, AM – Adult Male, AU – Adult Unknown, Sa – Sub-adult, J – Juvenile

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Table 14. Reptile Survey Results - Goosehill

| Visit Number | Survey Date | Weather Conditions | | | | Start time | End time | Adder | | | | | Grass Snake | | | | | Common Lizard | | | | | Slow worm | | | | | | | | |
|--------------|-------------|--------------------|--------|---------|-------|------------|----------|-------|-----|-----|-----|---|-------------|-----|-----|-----|---|---------------|-----|-----|-----|---|-----------|-----|-----|-----|---|--|--|---|--|
| | | Cloud | Wind | Rain | Temp | | | A F | A M | A U | S a | J | A F | A M | A U | S a | J | A F | A M | A U | S a | J | A F | A M | A U | S a | J | | | | |
| 1 | 02/09/2020 | Clear | Breezy | Dry | 18-21 | 13:02 | 14:04 | | | | | | | | | | | | | | | | | | | 1 | | | | | |
| 2 | 04/09/2020 | Full | Breezy | Dry | 18 | 13:49 | 14:26 | | | | | | | | | | | | 2 | 2 | 4 | | | | | 4 | | | | 3 | |
| 3 | 07/09/2020 | Full | Light | Dry | 14 | 09:24 | 09:34 | | | | | | | | | 1 | | | | | | | | | 4 | | | | | | |
| 4 | 08/09/2020 | Full | Light | Dry | 18-21 | 10:09 | 10:54 | | | | | | 4 | | | 1 | | | | | 3 | 2 | | | | | | | | | |
| 5 | 10/09/2020 | Clear | Calm | Dry | 17 | 10:08 | 10:29 | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | 11/09/2020 | Patchy | Breezy | Dry | 17 | 12:42 | 13:54 | | | | | | | | | 2 | | | 1 | | | | | | 4 | 1 | | | | | |
| 7 | 14/09/2020 | Clear | Calm | Dry | 18-21 | 12:14 | 13:33 | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | | | | |
| 8 | 15/09/2020 | Patchy | Calm | Dry | 18-21 | 17:04 | 18:55 | | | | | | | | | | | | | | | | | 1 | | | | | | | |
| 9 | 16/09/2020 | Full | Calm | Dry | 18 | 11:18 | 13:44 | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | 17/09/2020 | Patchy | Light | Dry | 16 | 10:04 | 10:40 | 1 | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | 18/09/2020 | Clear | Breezy | Dry | 17 | 12:08 | 13:03 | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | 21/09/2020 | Clear | Calm | Dry | 14 | 09:15 | 09:35 | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | 22/04/2020 | Clear | Light | Dry | 18-21 | 11:42 | 12:29 | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | 24/09/2020 | Patchy | Breezy | Dry | 11 | 09:31 | 11:20 | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | 28/09/2020 | Full | Calm | Dry | 14 | 14:01 | 14:55 | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | 29/09/2020 | Full | Calm | Drizzle | 11 | 11:50 | 12:27 | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | 30/09/2020 | Patchy | Light | Dry | 16 | 10:53 | 11:40 | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | 01/10/2020 | Full | Calm | Dry | 12 | 09:34 | 16:04 | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | 02/09/2020 | Full | Breezy | Dry | 12 | 08:45 | 09:15 | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | 14/10/2020 | Patchy | Light | Dry | 13 | | | | | | | | | | | | | | | | | | | | | | | | | | |

AF – Adult Female, AM – Adult Male, AU – Adult Unknown, Sa – Sub-adult, J – Juvenile

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NOT PROTECTIVELY MARKED

Table 16. Reptile Survey Results - Halfway

| Visit Number | Survey Date | Weather Conditions | | | | Start time | End time | Adder | | | | | Grass Snake | | | | | Common Lizard | | | | | Slow worm | | | | | |
|--------------|-------------|--------------------|--------|------|-------|------------|----------|-------|----|----|----|---|-------------|----|----|----|---|---------------|----|----|----|---|-----------|----|----|----|---|--|
| | | Cloud | Wind | Rain | Temp | | | AF | AM | AU | Sa | J | AF | AM | AU | Sa | J | AF | AM | AU | Sa | J | AF | AM | AU | Sa | J | |
| 1 | 02/09/2020 | Clear | Calm | Dry | 18 | 10:00 | 10:39 | | | | | | | | | | 1 | | | | | | | | 1 | | | |
| 2 | 03/09/2020 | Patchy | Breezy | Dry | 14 | 11:22 | 11:59 | | | | | | | | | | | | | | 5 | | | | | | | |
| 3 | 04/09/2020 | Patchy | Light | Dry | 15 | 09:45 | 10:00 | | | | | | | | | | | 1 | | 1 | 2 | | | | | | | |
| 4 | 07/09/2020 | Full | Breezy | Dry | 15 | 12:47 | 13:05 | | | | | | | | | | | | 1 | | 2 | | | | 2 | | | |
| 5 | 09/09/2020 | Patchy | Light | Dry | 16 | 06:47 | 07:08 | | | | | | | | | | | 1 | | | | | | | | | | |
| 6 | 11/09/2020 | Patchy | Light | Dry | 17 | 10:19 | 10:46 | | | | | 1 | 1 | | | | | 2 | | | 1 | | | | | | | |
| 7 | 14/09/2020 | Clear | Light | Dry | 18 | 10:13 | 10:54 | | | | | | | | | | | | | | | | | | | | | |
| 8 | 15/09/2020 | Clear | Light | Dry | 17 | 07:34 | 08:26 | | | | | | | | | | | | | | | | | | | | | |
| 9 | 16/09/2020 | Full | Breezy | Dry | 16 | 16:40 | 17:05 | | | | | | | | | | | | | 2 | | | | 1 | 2 | | | |
| 10 | 17/09/2020 | Patchy | Breezy | Dry | 14 | 08:14 | 08:39 | | | | | | | | | | | | | | | | | | | | | |
| 11 | 18/09/2020 | Clear | Breezy | Dry | 15 | 08:57 | 09:18 | | | | | | | | | | | 1 | | | 1 | 1 | | | | | | |
| 12 | 21/09/2020 | Clear | Light | Dry | 18-21 | 12:20 | 12:44 | | | | | | | | | | | | | | | | | | | | | |
| 13 | 22/09/2020 | Patchy | Light | Dry | 18-21 | 15:59 | 16:22 | | | | | | | | | | | | | | | | | | | | | |
| 14 | 24/09/2020 | Patchy | Breezy | Dry | 15 | 11:37 | 11:58 | | | | | | | | | | | | | | | | | | | | | |
| 15 | 28/09/2020 | Full | Light | Dry | 13 | 10:52 | 11:20 | | | | | | | | | | | | | | | | | | | | | |
| 16 | 30/09/2020 | Full | Light | Dry | 15 | 13:28 | 13:50 | | | | | 1 | | | | | | | 1 | | 1 | | | 1 | 4 | 2 | | |
| 17 | 01/10/2020 | Full | Calm | Dry | 14 | 10:39 | 10:55 | | | | | | | | | | | | | 1 | | | | 1 | | | | |
| 18 | 02/10/2020 | Patchy | Breezy | Dry | 12 | 09:56 | 10:13 | | | | | | | | | | | | 1 | | | | | | | | 1 | |
| 19 | 13/10/2020 | Patchy | Breezy | Dry | 12 | | | | | | | | 2 | | | | | | | | | | | 1 | | | 1 | |
| 20 | 14/10/2020 | Patchy | Breezy | Dry | 13 | | | | | | | | | | | | | | | | | | | 1 | | | | |

AF – Adult Female, AM – Adult Male, AU – Adult Unknown, Sa – Sub-adult, J – Juvenile

NOT PROTECTIVELY MARKED

NOT PROTECTIVELY MARKED

Table 17. Reptile Survey Results - Lovers

| Visit Number | Survey Date | Weather Conditions | | | | Start time | End time | Adder | | | | | Grass Snake | | | | | Common Lizard | | | | | Slow worm | | | | |
|--------------|-------------|--------------------|--------|---------|-------|------------|----------|-------|----|----|----|---|-------------|----|----|----|---|---------------|----|----|----|---|-----------|----|----|----|---|
| | | Cloud | Wind | Rain | Temp | | | AF | AM | AU | Sa | J | AF | AM | AU | Sa | J | AF | AM | AU | Sa | J | AF | AM | AU | Sa | J |
| 1 | 02/09/2020 | Clear | Light | Dry | 16 | 11:00 | 11:14 | | | | | | | | | | | 1 | | | | | | | | | |
| 2 | 03/09/2020 | Patchy | Light | Dry | 13 | 11:09 | 11:21 | | | | | | | | | | 1 | | | | | | | | | | |
| 3 | 04/09/2020 | Patchy | Breezy | Dry | 14 | 09:31 | 09:44 | | | | | | | | | | 1 | | | | | | | | | | |
| 4 | 07/09/2020 | Full | Light | Drizzle | 16 | 12:24 | 12:45 | | | | | | 1 | | | | 1 | | | | | | | | 1 | | |
| 5 | 09/09/2020 | Clear | Light | Dry | 17 | 08:40 | 09:04 | | | | | | | | | | | | | | | | | | | | |
| 6 | 11/09/2020 | Clear | Light | Dry | 17 | 10:49 | 11:02 | | | | | | | | | | | | | | | | | | | | |
| 7 | 14/09/2020 | Clear | Light | Dry | 17 | 10:56 | 12:38 | | | | | | | | | | 1 | | | | | | | | | | |
| 8 | 15/09/2020 | Clear | Light | Dry | 18-21 | 08:26 | 09:20 | | | | | | | | | | | | | | | | | | | | 1 |
| 9 | 16/09/2020 | Full | Breezy | Dry | 15 | 17:10 | 17:25 | | | | | | | | | | | | | | | | | | 1 | | |
| 10 | 17/09/2020 | Patchy | Breezy | Dry | 15 | 08:40 | 08:52 | | | | | | | | | | | | | | | | | | | | 1 |
| 11 | 18/09/2020 | Clear | Breezy | Dry | 16 | 09:18 | 09:54 | | | | | | | | | | | | | | 1 | | 1 | | | | |
| 12 | 21/09/2020 | Clear | Calm | Dry | 18 | 12:05 | 12:15 | | | | | | | | | | | | | | | | | | | | |
| 13 | 22/09/2020 | Patchy | Light | Dry | 18-21 | 16:23 | 16:40 | | | | | | | | | | 1 | | | | | | | | | | |
| 14 | 23/09/2020 | Full | Breezy | Dry | 16 | 13:10 | 13:31 | | | | 1 | | | | | | | 1 | 1 | | | | | | | | |
| 15 | 24/09/2020 | Patchy | Breezy | Dry | 15 | 11:58 | 12:09 | | | | | | | | | | | 1 | | | | | | | | | |
| 16 | 28/09/2020 | Full | Light | Dry | 13 | 11:22 | 11:55 | | | | | | | | | | | | | | | | | | | | |
| 17 | 29/09/2020 | Full | Calm | Dry | 16 | 15:09 | 15:25 | | | | | | | | | | | 1 | | | 1 | | | | | | |
| 18 | 30/09/2020 | Full | Light | Dry | 15 | 13:53 | 14:09 | | | | | | | | | | | 1 | 1 | 1 | 1 | | | | | 2 | |
| 19 | 01/10/2020 | Full | Light | Dry | 14 | 10:56 | 11:10 | | | | | | | | | | 1 | | | | | | | | | | |
| 20 | 02/10/2020 | Patchy | Breezy | Dry | 12 | 11:19 | 11:25 | | | | | | | | | | 1 | | | | | | | | | | |

AF – Adult Female, AM – Adult Male, AU – Adult Unknown, Sa – Sub-adult, J – Juvenile

NOT PROTECTIVELY MARKED

NOT PROTECTIVELY MARKED

Table 18. Reptile Survey Results - Studio

| Visit Number | Survey Date | Weather Conditions | | | | Start time | End time | Adder | | | | | Grass Snake | | | | | Common Lizard | | | | | Slow worm | | | | |
|--------------|-------------|--------------------|--------|---------|-------|------------|----------|-------|----|----|----|---|-------------|----|----|----|---|---------------|----|----|----|---|-----------|----|----|----|---|
| | | Cloud | Wind | Rain | Temp | | | AF | AM | AU | Sa | J | AF | AM | AU | Sa | J | AF | AM | AU | Sa | J | AF | AM | AU | Sa | J |
| 1 | 02/09/2020 | Clear | Light | Dry | 18-21 | 10:00 | 10:30 | | | | | | | | | | | | | | | | | | | | |
| 2 | 03/09/2020 | Patchy | Light | Dry | 11 | 10:19 | 11:01 | | | | | | | | | 1 | | | | | | | | | | | |
| 3 | 04/09/2020 | Patchy | Light | Dry | 14 | 09:05 | 09:28 | | | | | | | | | | | | 1 | | | | | | | | |
| 4 | 07/09/2020 | Full | Light | Drizzle | 16 | 12:06 | 12:24 | | | | | 1 | | | 1 | | | | 1 | | | | | | 1 | | |
| 5 | 09/09/2020 | Patchy | Light | Dry | 16 | 07:08 | 07:38 | | | | | | | | | | | 1 | | | | | | | | | |
| 6 | 10/09/2020 | Clear | Calm | Dry | 17 | 09:27 | 09:46 | | | | | | | | | | | 1 | | | | | | | | | |
| 7 | 11/09/2020 | Clear | Light | Dry | 16 | 09:53 | 10:19 | | | | | | | | | | | 1 | | | 1 | | | | | | |
| 8 | 14/09/2020 | Clear | Calm | Dry | 18 | 09:39 | 10:13 | | | | | | | | | | | 1 | | | | | | | | | |
| 9 | 15/09/2020 | Clear | Light | Dry | 17 | 07:32 | 08:42 | | | | | | | | | | | | | | | | | | | | |
| 10 | 16/09/2020 | Full | Breezy | Dry | 16 | 16:43 | 17:22 | | | | | | | | | | | | | | 1 | | | | | | |
| 11 | 17/09/2020 | Patchy | Breezy | Dry | 16 | 08:52 | 09:29 | | | | | | | | | | | | | | | | | | | | |
| 12 | 18/09/2020 | Clear | Breezy | Dry | 15 | 08:29 | 08:57 | | | | | | | | | | | | 1 | | | | | | | | |
| 13 | 21/09/2020 | Clear | Calm | Dry | 18 | 11:29 | 12:05 | | | | | | | | | | | | | | | | | | | | |
| 14 | 22/09/2020 | Patchy | Light | Dry | 18-21 | 16:41 | 17:21 | | | | | | | | | | | | | | | | | | | | |
| 15 | 24/09/2020 | Patchy | Breezy | Dry | 16 | 12:13 | 12:52 | | | | | | | | | | | | | | | | | | | | |
| 16 | 28/09/2020 | Full | Light | Dry | 13 | 09:51 | 10:33 | | | | | | | | | | | | | | | | | | | | |
| 17 | 29/09/2020 | Full | Calm | Dry | 16 | 14:38 | 15:08 | | | | | | | | | | | | | | | | | | | 1 | |
| 18 | 30/09/2020 | Patchy | Breezy | Dry | 15 | 14:52 | 15:22 | | | | | | | | | | | | | | 1 | | | | | 2 | |
| 19 | 01/10/2020 | Full | Light | Dry | 13 | 11:16 | 11:44 | | | | | | | | | | | | | | | | | | | | |
| 20 | 02/10/2020 | Patchy | Breezy | Dry | 12 | 09:33 | 09:19 | | | | | | | | | | | | 1 | | | | | | | | |

AF – Adult Female, AM – Adult Male, AU – Adult Unknown, Sa – Sub-adult, J – Juvenile

NOT PROTECTIVELY MARKED

Table 19. Reptile Survey Results - Broom Covert

| Visit Number | Survey Date | Weather Conditions | | | | Start Time | End time | Adder | | | | | Grass Snake | | | | | Common Lizard | | | | | Slow worm | | | | |
|--------------|-------------|--------------------|--------|---------|-------|------------|----------|-------|----|----|----|---|-------------|----|----|----|---|---------------|----|----|----|---|-----------|----|----|----|---|
| | | Cloud | Wind | Rain | Temp | | | AF | AM | AU | Sa | J | AF | AM | AU | Sa | J | AF | AM | AU | Sa | J | AF | AM | AU | Sa | J |
| 1 | 02/09/2020 | Clear | Calm | Dry | 18-21 | 11:10 | 11:45 | | | | | | | | | | | | | | | | | | | | |
| 2 | 03/09/2020 | Patchy | Light | Dry | 11 | 09:15 | 09:56 | | | | | | | | | | | | | | | | | | | | |
| 3 | 04/09/2020 | Patchy | Breezy | Dry | 14 | 08:55 | 09:05 | | | | | | | | | | | | | | | | | | | | |
| 4 | 07/09/2020 | Full | Breezy | Drizzle | 15 | 11:41 | 11:52 | | | | | | | | | | | | 1 | | | | | | | 1 | |
| 5 | 09/09/2020 | Patchy | Light | Dry | 16 | 07:42 | 07:54 | | | | | | | | | | | | | | | | | | | | |
| 6 | 10/09/2020 | Clear | Calm | Dry | 18-21 | 08:26 | 09:25 | | | | | | | | | | 1 | 1 | | | | | | | | | |
| 7 | 14/09/2020 | Clear | Light | Dry | 16 | 09:02 | 09:39 | | | | | | | | | | | | | | | | | | | | |
| 8 | 15/09/2020 | Clear | Calm | Dry | 17 | 08:46 | 09:12 | | | | | | | 1 | | | | | | | | | | | | | |
| 9 | 16/09/2020 | Full | Breezy | Dry | 15 | 17:25 | 17:40 | | | | | | | | | | | | | | | | | | | | |
| 10 | 17/09/2020 | Patchy | Breezy | Dry | 16 | 09:34 | 09:48 | | | | | | | | | | | | 1 | | | | | | | | |
| 11 | 18/09/2020 | Clear | Breezy | Dry | 14 | 08:10 | 08:28 | | | | | | | | | | 1 | | | | | | | | | | |
| 12 | 21/09/2020 | Clear | Calm | Dry | 15 | 11:36 | 11:42 | | | | | | | | | | | | | | 1 | | | | | | |
| 13 | 23/09/2020 | Full | Light | Dry | 16 | 12:04 | 12:26 | | | | | | | | | | | | | | | | | | | 1 | |
| 14 | 24/09/2020 | Patchy | Breezy | Dry | 16 | 12:52 | 12:58 | | | | | | | | | | | | | | | | | | 2 | | |
| 15 | 28/09/2020 | Full | Light | Drizzle | 13 | 09:20 | 09:52 | | | | | | | | | | | | | | | | | | | | |
| 16 | 29/09/2020 | Full | Calm | Drizzle | 13 | 14:01 | 14:14 | | | | | | | | | | | | | | | | | | | | |
| 17 | 30/09/2020 | Full | Light | Dry | 15 | 14:17 | 14:29 | | | | | | | | | | | | | 2 | | 1 | 1 | | | | 1 |
| 18 | 01/10/2020 | Full | Light | Dry | 14 | 11:45 | 11:52 | | | | | | | | | | | | | | | | | | | | |
| 19 | 02/10/2020 | Patchy | Breezy | Dry | 12 | 09:27 | 09:32 | | | | | | | | | | | | | | | | | | | | |
| 20 | 14/10/2020 | Patchy | Breezy | Dry | 13 | | | | | | | | | | | | | | | | 1 | | | | | 1 | |

AF – Adult Female, AM – Adult Male, AU – Adult Unknown, Sa – Sub-adult, J – Juvenile

NOT PROTECTIVELY MARKED

Table 21. Reptile Survey Results - Aldhurst Farm

| Visit Number | Survey Date | Weather Conditions | | | | Start time | End time | Adder | | | | | Grass Snake | | | | | Common Lizard | | | | | Slow worm | | | | | |
|--------------|-------------|--------------------|--------|---------|-------|------------|----------|-------|----|----|----|---|-------------|----|----|----|---|---------------|----|----|----|---|-----------|----|----|----|---|--|
| | | Cloud | Wind | Rain | Temp | | | AF | AM | AU | Sa | J | AF | AM | AU | Sa | J | AF | AM | AU | Sa | J | AF | AM | AU | Sa | J | |
| 1 | 02/09/2020 | Patchy | Light | Dry | 18-21 | 15:00 | 15:26 | | | | | | | | | | | | 1 | | | | | | | | | |
| 2 | 03/09/2020 | Patchy | Breezy | Drizzle | 14 | 12:09 | 12:28 | | | | | | | | | | | | | | | | | | | | | |
| 3 | 04/09/2020 | Patchy | Light | Dry | 13 | 07:25 | 08:23 | | | | | | | | | | | | | | | | | | | | | |
| 4 | 07/09/2020 | Patchy | Light | Dry | 11 | 08:41 | 08:43 | | | | | | | | | 2 | | | | | 1 | 1 | | | | | | |
| 5 | 09/09/2020 | Clear | Breezy | Dry | 17 | 09:20 | 10:11 | | | | | | | | | 1 | | | | | | | | | | | | |
| 6 | 10/09/2020 | Patchy | Light | Dry | 17 | 11:57 | 13:18 | | | | | | | | | 1 | | 1 | | | | | | | | | | |
| 7 | 11/09/2020 | Patchy | Calm | Dry | 13 | 07:19 | 08:02 | | | | | | | | | | 1 | | | | | | | | | | | |
| 8 | 14/09/2020 | Clear | Calm | Dry | 13 | 07:36 | 08:26 | | | | | | | | | | | | | | | | | | | | | |
| 9 | 15/09/2020 | Clear | Calm | Dry | 18 | 10:27 | 11:05 | | | | | | | | | | | | | | | | | | | | | |
| 10 | 16/09/2020 | Full | Breezy | Dry | 16 | 15:59 | 16:30 | | | | | | | | | | | | | | 1 | | | | | | | |
| 11 | 17/09/2020 | Patchy | Breezy | Dry | 17 | 10:34 | 11:00 | | | | | | | | | | 1 | | | | | | | | | | | |
| 12 | 18/09/2020 | Patchy | Light | Dry | 13 | 07:31 | 08:10 | | | | | | | | | | | | | | | | | | | | | |
| 13 | 21/09/2020 | Patchy | Calm | Dry | 11 | 07:35 | 08:29 | | | | | | | | | | | | | | | | | | | | | |
| 14 | 23/09/2020 | Full | Light | Drizzle | 15 | 08:34 | 09:17 | | | | | | | | | | | | | | | | | | | | | |
| 15 | 24/09/2020 | Patchy | Light | Dry | 15 | 13:37 | 14:04 | | | | | | | | | | | | | | 3 | | | | | | | |
| 16 | 28/09/2020 | Full | Light | Drizzle | 13 | 08:17 | 09:19 | | | | | | | | | | | | | | | | | | | | | |
| 17 | 30/09/2020 | Patchy | Light | Dry | 15 | 12:51 | 13:16 | | | | | | | | | | | 1 | 2 | 1 | | | | | | | | |
| 18 | 01/10/2020 | Full | Calm | Drizzle | 13 | 09:59 | 10:28 | | | | | | | | | | | | | | | | | | | | | |
| 19 | 02/10/2020 | Full | Breezy | Dry | 11 | 08:26 | 09:03 | | | | | | | | | | | | | | | | | | | | | |
| 20 | 15/10/2020 | Full | Calm | Drizzle | 13 | | | | | | | | | | | | | | | | | | | | | | 1 | |

AF – Adult Female, AM – Adult Male, AU – Adult Unknown, Sa – Sub-adult, J – Juvenile

NOT PROTECTIVELY MARKED



SIZEWELL C PROJECT – MARSH HARRIER SURVEY
REPORT 2020

NOT PROTECTIVELY MARKED

MARSH HARRIER SURVEY REPORT 2020

NOT PROTECTIVELY MARKED

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PLATES

None Provided.

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1 SUMMARY

1.1 Receptor Status 2020 Summary Overview

1.1.1 This report presents the findings of the marsh harrier (*Circus aeruginosus*) surveys undertaken in 2020 as part of the proposed Sizewell C Nuclear Power Station project (hereafter referred to as ‘the Sizewell C Project’). Marsh harrier surveys were undertaken within the proposed main development site of the Sizewell C Project and adjacent habitats including Sizewell Marshes SSSI and Minsmere South Levels.

1.1.2 The surveys took place monthly between April and September 2020 (inclusive), using 11 Vantage Point (VP) locations, surveyed for six hours each. One VP (MH VP3) was surveyed twice per month, as requested by the RSPB.

1.1.3 The updated surveys show that the main development site and adjacent habitats continue to support foraging marsh harriers, with the Minsmere South Levels continuing to be a key foraging area for the species. The arable fields and Sizewell Marshes SSSI areas were also regularly used for hunting. No breeding behaviour was observed within the main development site, however breeding marsh harriers were observed at Aldhurst Farm receptor area and RSPB Minsmere. The updated survey results are consistent with the application submitted for Development Consent.

2 OVERVIEW

2.1 The Aims of the Survey Updates

2.1.1 The aim of the updated surveys was to monitor marsh harrier activity during the spring and summer to establish a baseline for flight paths, breeding areas and key foraging areas. Additionally, the surveys will update the baseline submitted with the application for development consent and provide a baseline for future monitoring and management.

2.2 Submitted Baseline (2008-2019)

2.2.1 As detailed within the Sizewell C Project Environmental Statement (ES) [[APP-237](#) and [APP-238](#)] (Ref. 1 and Ref. 2), various marsh harrier surveys have previously been undertaken on the site, in relation to the Sizewell C project by Wood Group (Entec) and Arcadis, a summary is shown in **Table 1** below.

Table 1: Previous marsh harrier surveys undertaken on the site

| Survey Type | Dates | Survey Area |
|--|--|---|
| Marsh harrier and wintering bird surveys | December 2018 to February 2019 | Aldhurst Farm and southern reptile receptor areas (Studio Fields and Lover's Lane). Sizewell Marshes SSSI and Minsmere South Levels |
| Arable marsh harrier surveys | April to September 2016 and April to August 2015 | Arable habitat within the EDF Energy Estate (VPs A, C, D, E and F) |
| Bittern, marsh harrier and hen harrier surveys | April to September 2015, October 2014 to March 2015 and May to August 2014 | Arable habitat within the EDF Energy Estate, Minsmere South Levels and Sizewell Marshes SSSI (VPs 1, 2, 3, 4, 5 and 6) |
| Bittern, marsh harrier and hen harrier | April 2011 to March 2012 and May to August 2008 | Sizewell Marshes SSSI, Arable habitat and Minsmere South Levels |

2.2.2 During previous surveys, there has been no evidence of marsh harrier breeding within the site (such as nesting sites, display flights, or food passes). In 2019, marsh harrier established a breeding territory within Aldhurst Farm within the reedbed creation area, adjacent to the site [[APP-237](#) and [APP-238](#)] (Ref. 1). Marsh harrier were recorded using the Minsmere South Levels, Sizewell Marshes SSSI and the arable fields within the survey area, as a foraging resource. Significantly more foraging activity was recorded over the Minsmere South Levels compared to Sizewell Marshes SSSI throughout the previous surveys. Marsh harrier have been recorded foraging within the site in both the breeding and non-breeding season.

2.2.3 Based on previous survey results, it was concluded that marsh harriers breed off-site nearby (at RSPB Minsmere, Dingle Marshes and RSPB North Warren reserve [[APP-238](#)] (Ref. 2)) and are using habitats within the site as a foraging resource only.

2.3 Updated Surveys 2020

2.3.1 The 2020 surveys took place monthly (twice per month for MH VP3) between April and September (inclusive), using 11 designated VPs, surveyed for a duration of six hours each.

2.3.2 The results of the updated surveys demonstrated that the main development site and adjacent habitats continue to support foraging marsh harriers, with the Minsmere South Levels continuing to be a key foraging area for the species. The arable fields and Sizewell Marshes SSSI areas were also regularly used for hunting. No breeding behaviour was observed within the main development site, however breeding marsh harriers were observed at Aldhurst Farm receptor area and RSPB Minsmere. The updated survey results are consistent with the application submitted for development consent.

3 METHODS

3.1 Desk Study

3.1.1 The full desk study information is detailed within the Sizewell C Project ES [APP-238] (Ref. 2), however a brief overview is provided below.

3.1.2 Thirty-two bird species classed as Important Ecological Features (IEFs) were identified and brought forward from the ornithology baseline into the 2019 detailed Ecological Assessment of the site [APP-237 and APP-238] (Ref. 1), including marsh harriers.

3.1.3 Marsh harrier are listed on Schedule 1 of the Wildlife & Countryside Act (W&C Act), 1981 (Ref 3) and are regarded as being of medium conservation importance in the UK following the inclusion on the Amber list of Birds of Conservation Concern (BoCC) (Ref. 4). This inclusion is due to a historical decline (but a recent recovery) and that 50-60% of the UK breeding population is found at ten or fewer sites (Ref. 4).

3.1.4 Marsh harrier form the qualifying features (as a breeding species or part of the breeding assemblage) of several of the designated sites within 20km of the main development site, as shown in **Table 2** below.

Table 2: Statutory designated sites that include breeding marsh harrier as a qualifying feature

| Designated Site | Marsh Harrier Qualifying Feature Detail |
|-------------------------------------|--|
| Minsmere to Walberswick Ramsar site | Marsh harrier forms a part of the site designation under criterion 2 for an important assemblage of breeding birds, with peak counts in the breeding season of 16 pairs, representing an average of 10.5% of the UK population (five-year mean 1993-1997). |

| Designated Site | Marsh Harrier Qualifying Feature Detail |
|---|---|
| Minsmere to Walberswick Special Protection Area (SPA) | Marsh harrier is an Annex 1 qualifying feature during the breeding season. This area supports 16 pairs, representing at least 10% of the UK breeding population (five-year mean, 1993-1997). |
| Alde-Ore Estuary SPA | Marsh harrier is an Annex 1 qualifying feature during the breeding season. This area supports three pairs, representing at least 1.9% of the breeding population in the UK (five-year mean, 1993-1997). |
| Minsmere to Walberswick Heaths and Marshes Site of Special Scientific Interest (SSSI) | These SSSIs all feature marsh harrier as a breeding species. |
| Alde Ore Estuary SSSI | |
| Leiston to Aldeburgh SSSI | |

3.1.5 Marsh harrier are known to breed at RSPB Minsmere, Dingle Marshes and RSPB North Warren reserves [[APP-238](#)] (Ref. 2). In 2018, a total of eight nests were reported at RSPB Minsmere (with 12 young fledged) (Ref. 5). In 2019, a total of ten nests were reported at RSPB Minsmere which fledged 12 young.

3.1.6 As discussed in **section 2.2**, in previous surveys, there has been no evidence of marsh harrier breeding within the site. The Minsmere South Levels, Sizewell Marshes SSSI and arable fields are used as a foraging resource. The Minsmere South Levels were noted as one of the key foraging areas. Additionally, in 2019, marsh harrier established a breeding territory within Aldhurst Farm.

3.2 Field Surveys 2020

3.2.1 The surveys were led and undertaken by experienced ornithologists, David Darrell-Lambert, Mike Hoit, Dave Andrews and Ryan Irvine.

3.2.2 The updated marsh harrier surveys are part of a suite of bird surveys being carried out in 2020 in relation to the proposed Sizewell C project. The aim of the current survey was to monitor marsh harrier activity during the spring and summer to establish a baseline for flight paths, breeding areas and key foraging areas, within the Sizewell Marshes SSSI,

Minsmere South Levels and arable field areas. Additionally, the survey aimed to update the submitted baseline and provide a baseline for future monitoring. The methodology is outlined below and follows the methods undertaken in previous marsh harrier VP surveys across the EDF Energy Estate, produced by Scottish Natural Heritage (Ref. 6). The methods are also detailed further in the Sizewell C Project ES [[APP-237](#)] (Ref. 7).

3.2.3 The surveys were undertaken monthly at 11 VP locations from April to September 2020 (inclusive). All VPs were surveyed once a month, for a duration of six hours, with the exception of MH VP3 which was surveyed twice a month. This was requested by the RSPB and followed the approach taken previously in the 2014 and 2015 surveys [[APP-237](#) and [APP-238](#)] (Ref. 1). Access was not granted by the RSPB for MH VP3 in April but was granted from May onwards (see limitations below).

3.2.4 The survey locations include the below and are shown in **Figure 1** in **Appendix A**:

- Minsmere South Levels (MH VP3 and MH VP7);
- Sizewell Marshes SSSI (MH VP1, MH VP2, MH VP4 and MH VP6); and
- Arable fields (MH VP5, MH VPA, MH VPC, MH VPD and MH VPE).

3.2.5

3.2.6 The full survey details and weather conditions are presented in **Table 5** in **Appendix C**.

3.2.7 MH VPF was omitted from the 2020 surveys given the coverage and overlap provided by MH VP5. Following the provision of access to RSPB land from the May surveys onwards, a new VP (MH VP7) was created to replace VPF to maximise the VP survey value.

3.2.8 The surveyors were equipped with binoculars and telescopes to aid identification, with observations digitally recorded using iPads. During the surveys, all species observed were identified and counted (with priority given to marsh harriers during busy periods), and their behaviour and distribution were recorded. Additionally, the following observations were recorded:

- Flight paths plotted on a map;
- Height of flights (in metres, with an estimated error margin);
- Length of the flight (in seconds);
- Gender of the bird and any obvious identification features;
- Noting when a bird was observed carrying prey items (if observable);

- In which direction the bird was travelling; and
- Noting any behaviour indicative of nesting birds.

3.2.9 In addition to marsh harriers, other species recorded as incidental records included all IEFs and otherwise notable species, including:

- Species listed on Schedule 1 of the Wildlife and Countryside Act, 1981 (as amended) (Ref. 3);
- Red and amber listed Birds of Conservation Concern (BOCC) (Ref. 4); and
- Species of Principal Importance under Section 41 (S41) of the Natural Environment and Rural Communities (NERC) Act, 2006 (Ref. 8).

3.3 Limitations

3.3.1 Access to MH VP3 was not confirmed by the RSPB during the April 2020 surveys but was granted from May onwards. During April, MH VP3 was covered by undertaking two alternate VPs, MH_VP3a to the west and MH VP3b to the south of the Minsmere South Levels within the EDF owned estate (refer to **Appendix B** for locations of these VPs). The surveys were undertaken at the same time so that they covered as much of the Minsmere South Levels as practicable and triangulated bird sightings. This area was only surveyed once in April as the survey area was subsequently covered by the MH VP3. MH VP7 was created to replace MH VPF to maximise the VP survey value, this VP was not surveyed until May, following the provision of access to RSPB land. The overall results of the surveys are not likely to be affected by this access limitation.

3.3.2 The surveyors prioritised recording marsh harriers during the targeted marsh harrier surveys, although all other bird species were also recorded where possible, with IEFs and species of conservation concern being the next priority. Because the surveyors prioritised marsh harriers, this avoided missing any marsh harriers and is not considered to have significantly affected the results of the surveys.

4 RESULTS

4.1 Overview

4.1.1 Throughout the updated marsh harrier surveys and other bird surveys undertaken on the site in 2020, a total of 220 flight lines were recorded with a total of 226 individual observations of marsh harriers (more than one marsh harrier recorded on some flight lines). Marsh harrier were recorded from each of the VP locations, plus incidental sightings were

recorded during other bird surveys undertaken on the site, as explained below. It should be noted that the same individuals could have been recorded more than once. Refer to **Figures 2-7** in **Appendix A** for the results of the surveys.

4.2 Targeted Marsh Harrier Survey Results

4.2.1 During the targeted marsh harrier surveys in 2020, there were 192 flight lines and 197 individual observations of marsh harriers recorded over from the VPs. **Table 3** shows the total flight lines recorded during the targeted marsh harrier survey.

Table 3: Total marsh harrier flight lines recorded during targeted marsh harrier surveys in 2020

| Survey Area | April | May | June | July | August | Sept |
|------------------|-------|-----|------|------|--------|------|
| MH VP1 | 6 | 6 | 8 | 3 | 5 | 0 |
| MH VP2 | 1 | 2 | 0 | 1 | 0 | 1 |
| MH VP3 (visit 1) | 4 | 4 | 3 | 10 | 3 | 1 |
| MH VP3 (visit 2) | N/A* | 3 | 9 | 9 | 0 | 4 |
| MH VP4 | 8 | 0 | 0 | 0 | 1 | 0 |
| MH VP5 | 3 | 1 | 1 | 0 | 0 | 2 |
| MH VP6 | 3 | 0 | 1 | 0 | 0 | 0 |
| MH VP7 | N/A* | 2 | 14 | 12 | 2 | 1 |
| MH VPA | 3 | 0 | 5 | 2 | 2 | 4 |
| MH VPC | 0 | 2 | 2 | 5 | 0 | 0 |
| MH VPD | 4 | 4 | 13 | 4 | 0 | 3 |
| MH VPE | 3 | 1 | 1 | 0 | 2 | 2 |

*MH VP3 only surveyed once in April from alternate VPs (MH VP3a and b) / MH VP7 surveyed from May onwards

a) Within the main development site boundary

4.2.2 Surveyed areas within the main development site boundary included the arable fields and the Sizewell Marshes SSSI reedbed triangle. Across both of these areas, marsh harriers were observed commuting and foraging only.

b) Outside of the main development site boundary

- 4.2.3 The highest density of marsh harrier flight lines throughout the surveys were observed over the Minsmere South Levels, where the majority of marsh harrier were observed foraging and commuting. A few individuals were also observed carrying food to RSPB Minsmere and a food pass was observed, as detailed below.
- 4.2.4 Marsh harrier were noted to indicate breeding behaviour (displaying, carrying food or food passes) near to and within the RSPB Minsmere reserve, with all of these sightings detailed below:
- 22nd April: one adult male displaying over MH VPD, just south of the RSPB Minsmere reserve.
 - 19th June:
 - One adult male displaying over RSPB Minsmere reserve (seen from MH VPD).
 - One female carrying food over the northwest of the Minsmere South Levels (seen from MH VPA) and flew towards the RSPB Minsmere reserve.
 - One female carrying food, flying from south to north flew towards the RSPB Minsmere reserve, over the west of the Minsmere South Levels (seen from MH VP7).
 - 22nd June: one adult male carrying food after successfully hunting towards the northern section of the Minsmere South Levels and flew towards the north (seen from MH VP3). Dropped down into the reedbed at RSPB Minsmere reserve, where it was noted to be likely nesting.
 - 10th July: one adult male flying from south to north over the Minsmere South Levels, passed food to a juvenile within the RSPB Minsmere reserve.
 - 20th July: one adult female carrying food flying from west to east, just south of RSPB Minsmere (seen from MH VPC).
- 4.2.5 A relatively large number of flight lines were also recorded in the Sizewell Marshes SSSI area (particularly Sizewell Belts and Gooderhams Fen), where marsh harriers were mostly observed commuting and a smaller number were observed foraging. No other behaviour was observed in the Sizewell Marshes SSSI survey areas. Additionally, marsh harriers were recorded to the north of MH VPD (north of the arable fields) and over the RSPB Minsmere reserve.

4.3 Incidental Marsh Harrier Sightings 2020

4.3.1 There were 29 marsh harriers recorded incidentally during other bird surveys undertaken on the site throughout 2020, the results are shown in **Table 4** below.

Table 4: Total marsh harrier flight lines recorded during other bird surveys in 2020

| Survey Area | Survey Type | April | May | June | July | Aug | Sept |
|---------------------------------------|--------------------|-------|-----|------|------|-----|------|
| Arable fields | Breeding birds | 0 | 2 | 0 | 0 | 0 | 0 |
| Leiston/Fiscal Policy (Aldhurst Farm) | Breeding birds | 4 | 2 | 1 | 0 | 0 | 0 |
| Sizewell Marshes SSSI Reedbed | Breeding birds | 1 | 0 | 0 | 0 | 0 | 0 |
| Aldhurst Farm Receptor Area | Breeding waterfowl | 5 | 3 | 7 | 0 | 0 | 0 |
| Barn Owl T2 (Minsmere South Levels) | Barn owls | 0 | 1 | 0 | 0 | 0 | 0 |
| Tern VP13a (RSPB Minsmere) | Terns | 0 | 1 | 0 | 0 | 0 | 0 |
| Tern VP15 (Dingle Marshes) | Terns | 0 | 0 | 0 | 0 | 2 | 0 |

4.3.2 At the Aldhurst Farm wetlands, there were indications of breeding marsh harrier in April and June 2020. At least two females were observed on 17th April, displaying and carrying nesting material indicating that they were likely to be breeding. Additionally, two female marsh harriers were observed using distraction display on 12th June. All of the marsh harriers observed during the Leiston/Fiscal Policy surveys (shown in Table 4) were recorded at Aldhurst Farm, as the transect route passes through this area.

4.3.3 Other incidental sightings of hunting, commuting and individual marsh harrier were mostly restricted to Aldhurst Farm. There were a few incidental sightings in other locations such as the arable fields and Sizewell Marshes SSSI during the breeding bird surveys and during the tern surveys at RSPB Minsmere and along the coast at Dingle Marshes.

4.4 Incidental Observations of Other Bird Species

4.4.1 Incidental sightings of other bird species recorded during the marsh harrier VP surveys have been reported in the breeding bird and waterfowl survey report (Ref. 9).

5 DISCUSSION

5.1.1 There continues to be no evidence of breeding marsh harrier within the main development site from the 2020 survey results and this is consistent with the application submitted for development consent. The surveyed areas provide a foraging resource for marsh harriers, particularly the Minsmere South Levels and Sizewell Marshes SSSI. The highest numbers of hunting marsh harriers were recorded over the Minsmere South Levels, with smaller numbers recorded at Sizewell Marshes SSSI (mostly Sizewell Belts and Gooderhams Fen). These areas are all located outside of the main development site.

5.1.2 Marsh harriers were thought to be breeding in Aldhurst Farm wetlands in 2020, following an established breeding territory recorded in 2019.

5.1.3 The RSPB Minsmere reserve continues to support breeding marsh harrier within its reedbeds, with at least four marsh harriers observed carrying food over to the reserve.

6 CONCLUSION

6.1.1 The updated survey results are consistent with the application submitted for development consent. The surveys have shown that the main development site and adjacent habitats continue to support foraging marsh harrier, with the Minsmere South Levels continuing to be a key foraging area for the species. The arable fields and Sizewell Marshes SSSI areas were also regularly used for hunting.

6.1.2 There was little marsh harrier activity noted at the SSSI reedbed triangle, with small numbers seen commuting and foraging over the site (four sightings in total throughout the surveys).

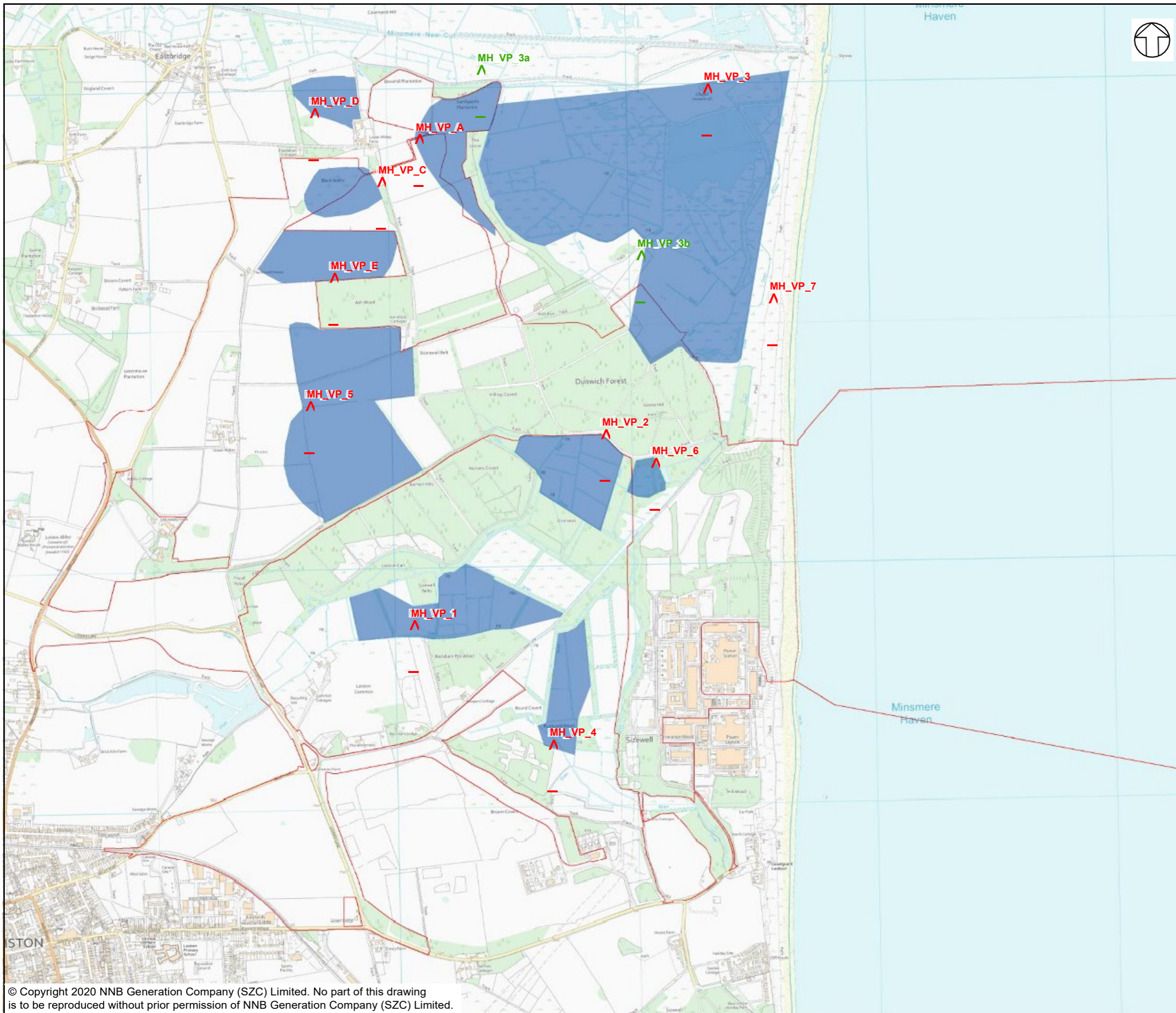
6.1.3 No marsh harrier breeding behaviour was observed within the main development site, although breeding marsh harriers were observed at the Aldhurst Farm wetlands, to the west of the main development site boundary. Additionally, the RSPB Minsmere reserve continues to provide an optimal habitat to support breeding marsh harrier.

REFERENCES

1. EDF 2020. Sizewell C Project – Main Development Site: Volume 2, Chapter 14: Appendix 14A7 – Ornithology. [[APP-237](#) and [APP-238](#)].
2. EDF 2020. Sizewell C Project – Main Development Site: Volume 2, Chapter 14: Appendix 14A7 – Ornithology: Annex 14A7.5 Qualifying Species Accounts. [[APP-238](#)].
3. Wildlife and Countryside Act, as amended. 1981. (Online) Available from: <http://www.legislation.gov.uk/ukpga/1981/69/contents> (Accessed 08 June 2020).
4. Eaton, M.A., Aebisher, N., Brown, A., Hearn, R., Lock, L., Musgrove, A., Noble, D., Stroud, D., and Gregory, R. 2015. BoCC 4: Population status of birds in the United Kingdom, Channel Islands and Isle of Man. British birds 108:708-746.
5. Suffolk Naturalists Society. 2019. Suffolk Birds, Vol.67. A review of the birds in Suffolk in 2018.
6. Scottish Natural Heritage. 2017. Recommended bird survey methods to inform impact assessment of onshore wind farms (Version 2).
7. EDF 2020. Sizewell C Development – Main Development Site: Volume 2, Chapter 14: Appendix 14A7 – Ornithology: Annex 14A7.2 Methodology. [[APP-237](#)].
8. Natural Environment and Rural Communities (NERC) Act. 2006. Section 41: Species of Principal Importance in England. (Online) Available from: <http://www.legislation.gov.uk/ukpga/2006/16/section/41> (Accessed 08 June 2020).
9. Arcadis. 2020. EDF Energy Sizewell C Project. Breeding Bird and Breeding Waterfowl Survey Report – Main Development Site.

APPENDIX A: FIGURES

- Figure 1: Marsh Harrier Vantage Point Locations 2020
- Figure 2: Marsh Harrier Results April 2020
- Figure 3: Marsh Harrier Results May 2020
- Figure 4: Marsh Harrier Results June 2020
- Figure 5: Marsh Harrier Results July 2020
- Figure 6: Marsh Harrier Results August 2020
- Figure 7: Marsh Harrier Results September 2020



- KEY**
- SIZEWELL C MAIN DEVELOPMENT SITE
 - - - - DEMARCATION LINE
 - ▲ MARSH HARRIER VANTAGE POINT LOCATIONS
 - VIEWSHED VISIBILITY SPLAYS

Note :
 MH_VP_3a and MH_VP_3b were alternative VPs surveyed in April only. Access was not granted for MH_VP_3 in April due to COVID-19 restrictions.

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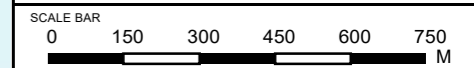


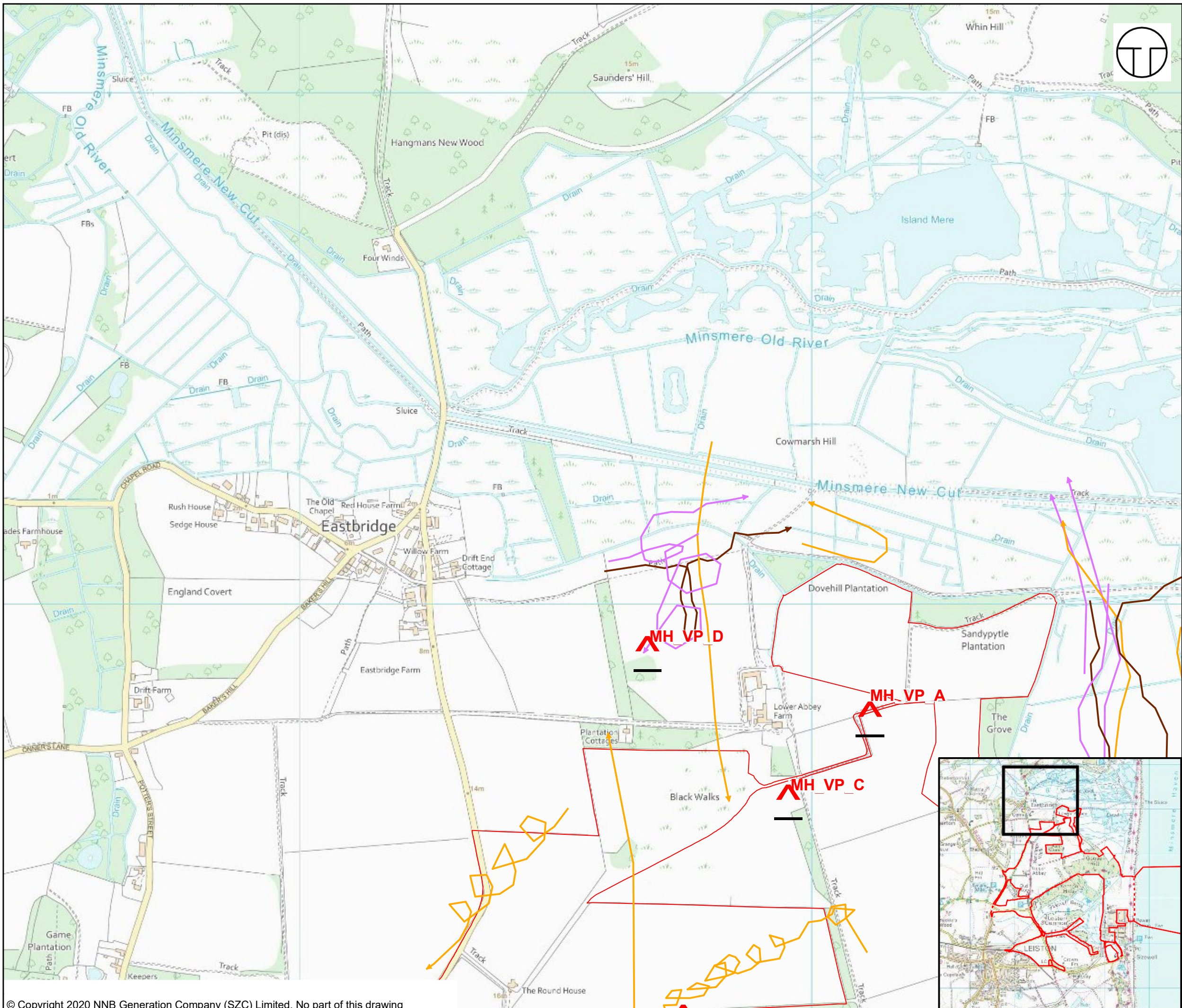
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- ▲ MARSH HARRIER VANTAGE POINT
- MARSH HARRIER RESULTS**
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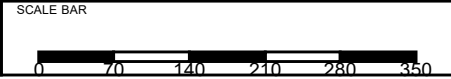


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MARSH HARRIER RESULTS

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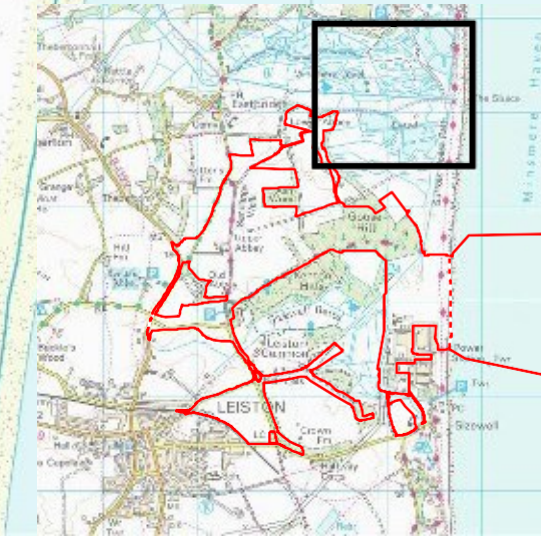
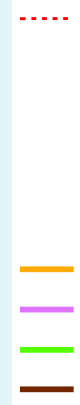
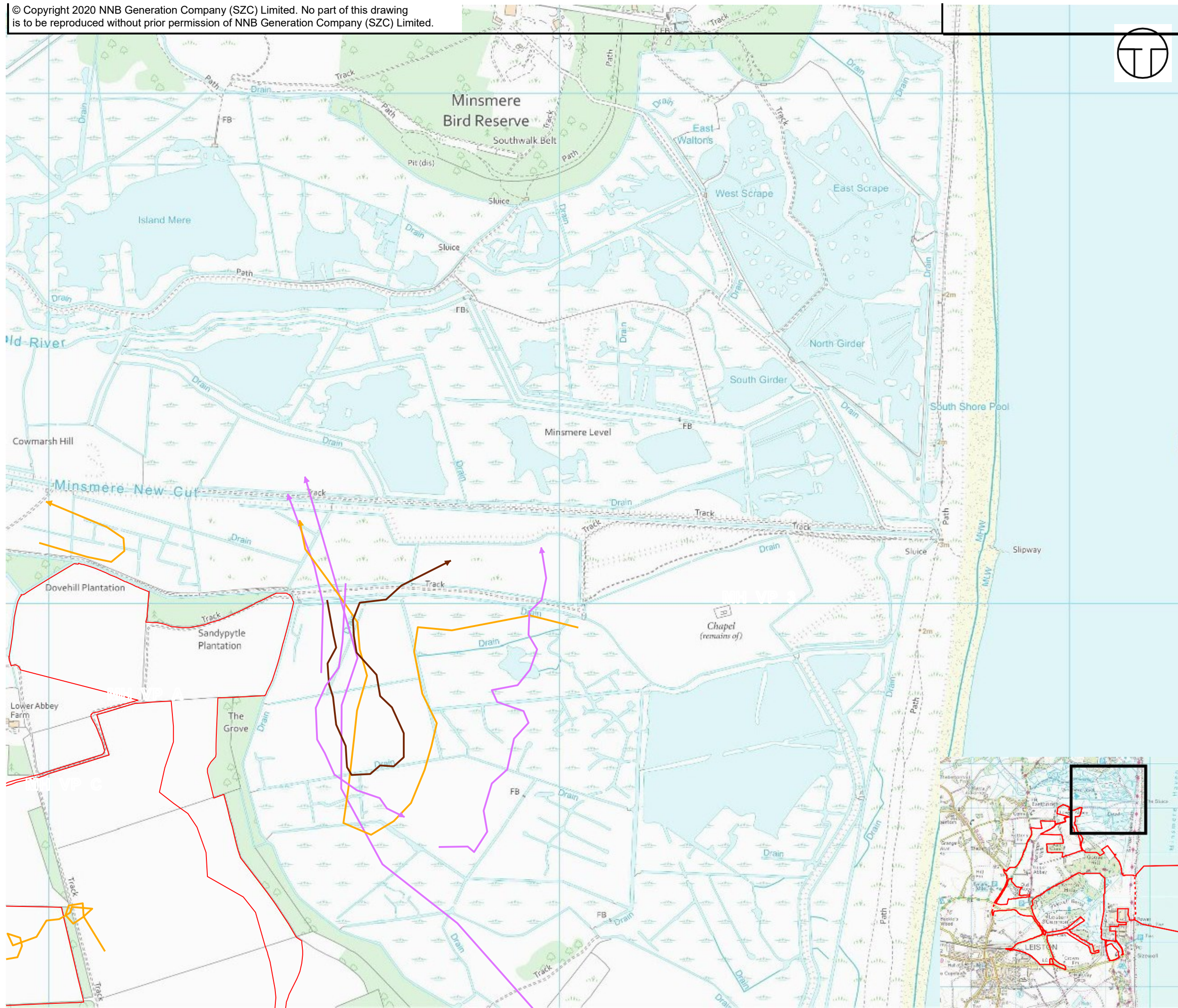
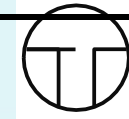
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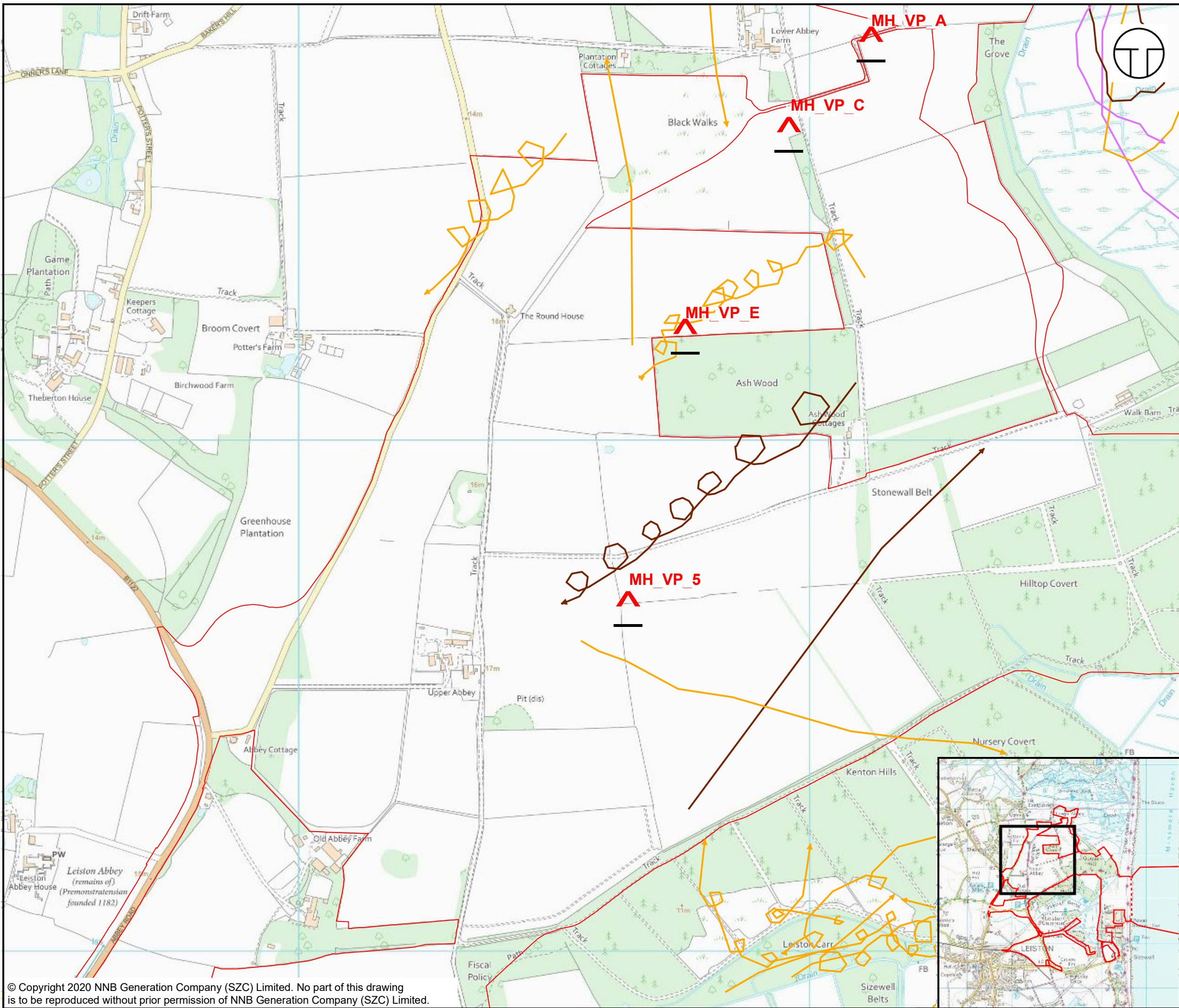
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- MARSH HARRIER RESULTS**
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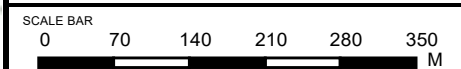


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MH_VP_A



MH_VP_C



MH_VP_7



MH_VP_2



MH_VP_6




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— DEMARCATION LINE

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MARSH HARRIER RESULTS

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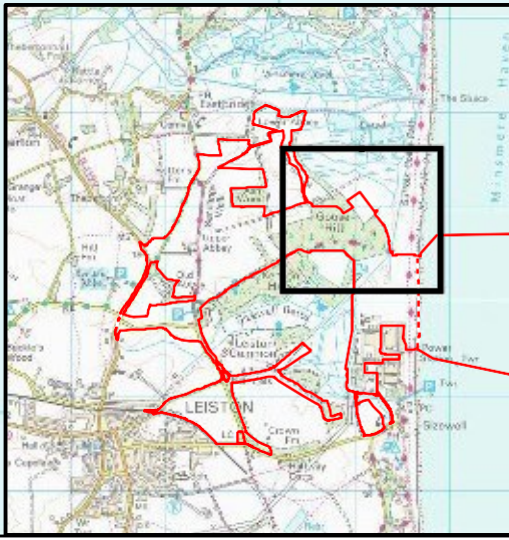
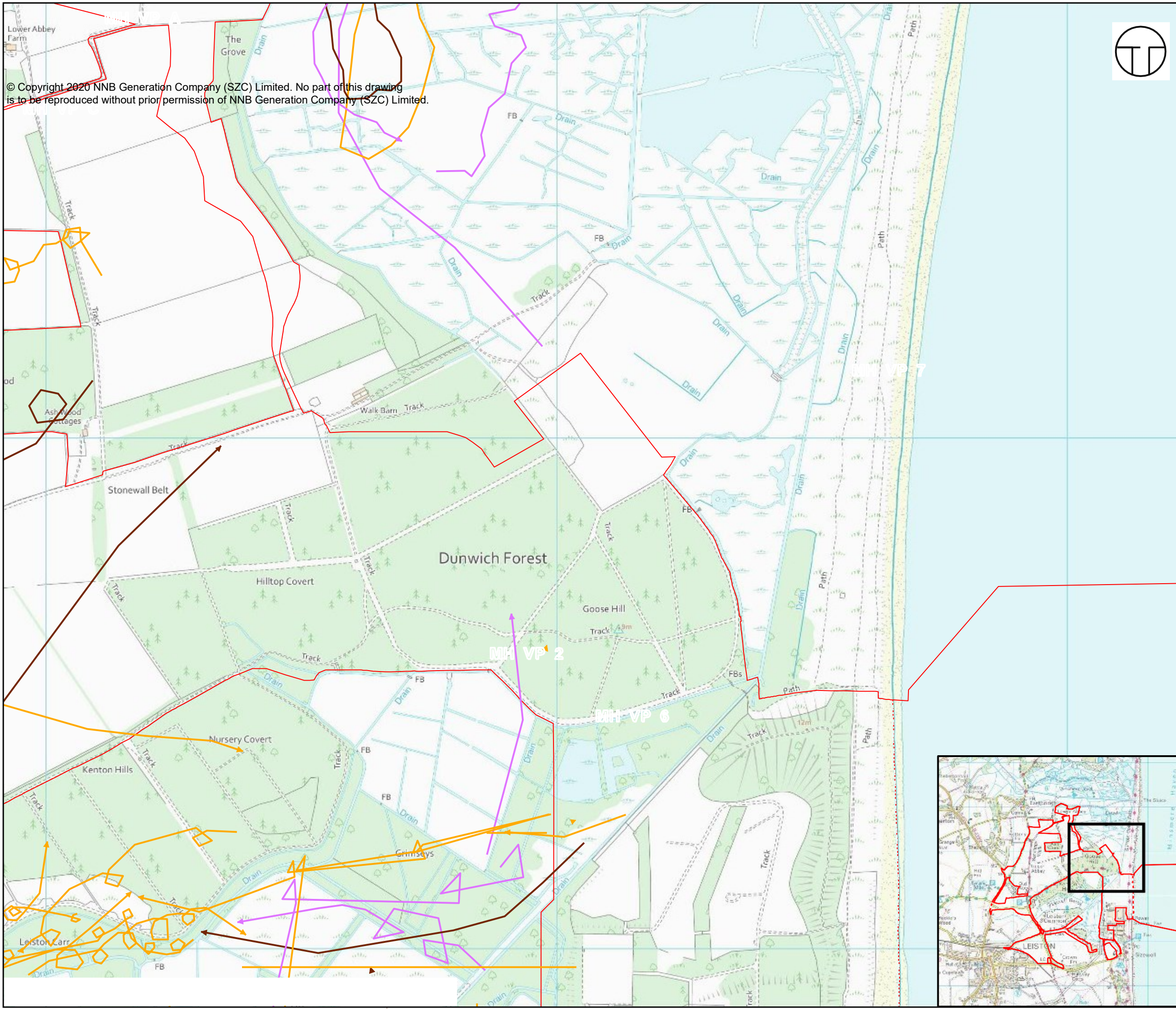
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Lower Abbey Farm
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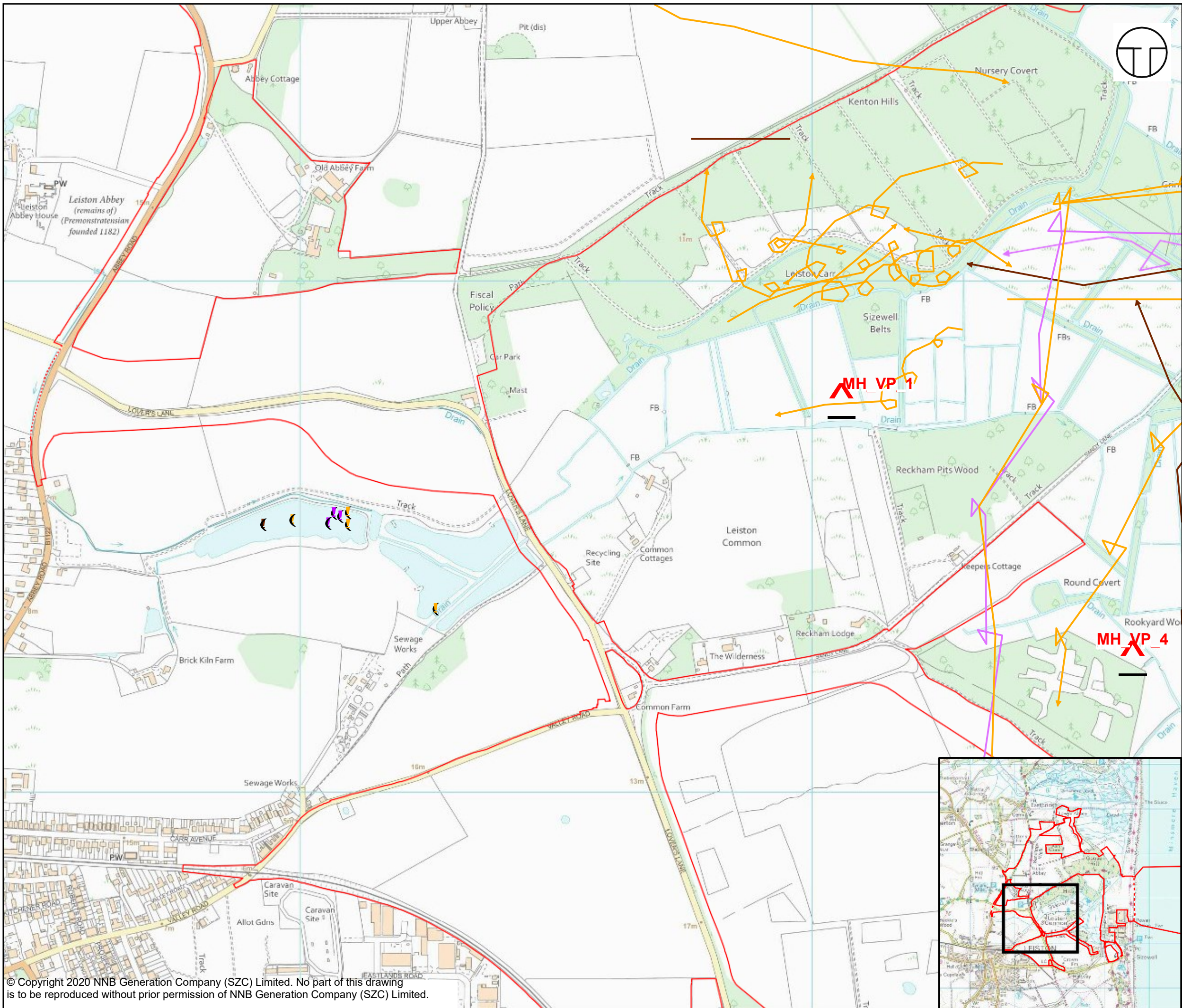


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- MARSH HARRIER RESULTS**
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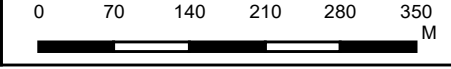


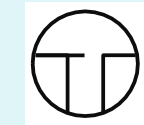
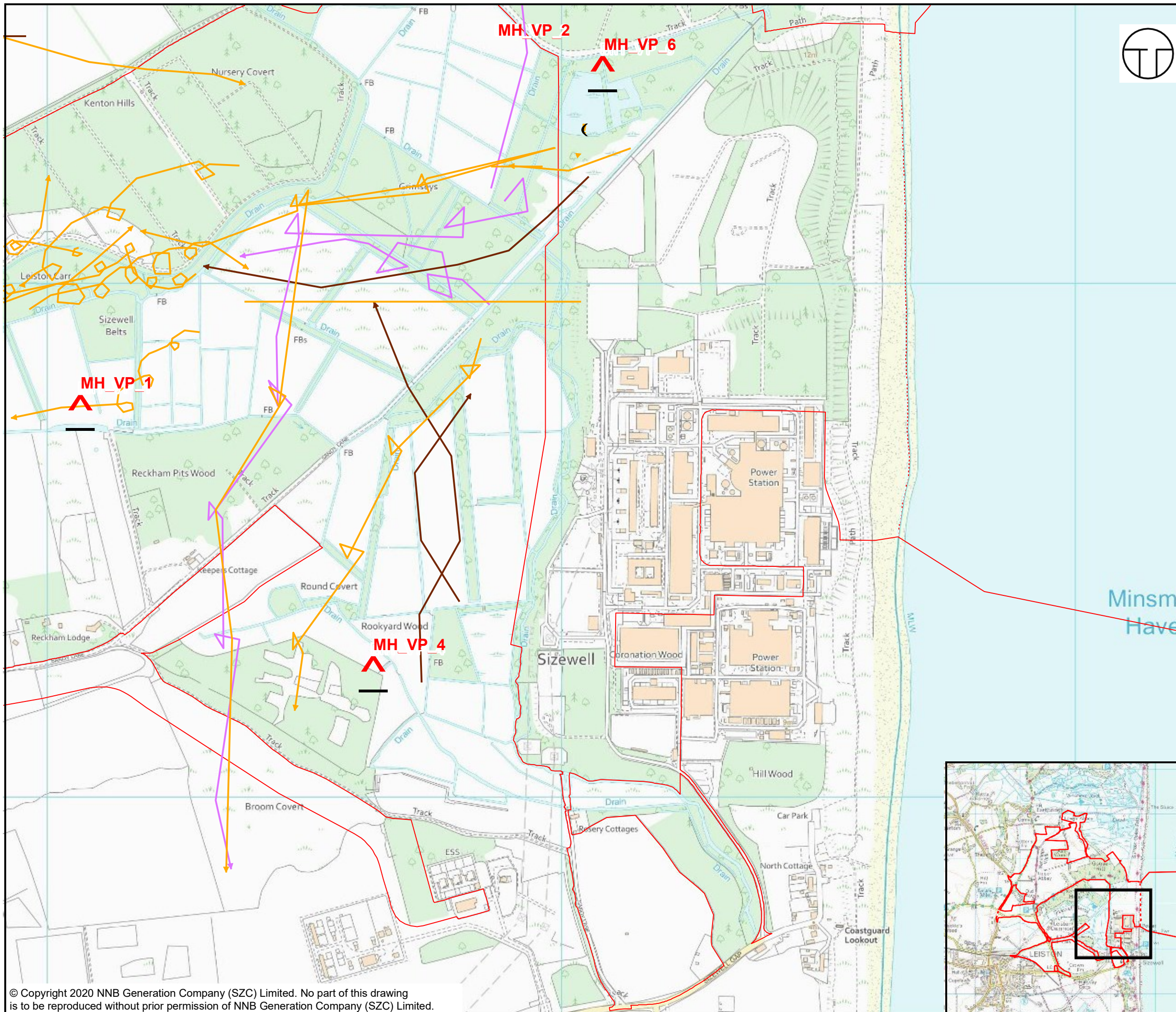
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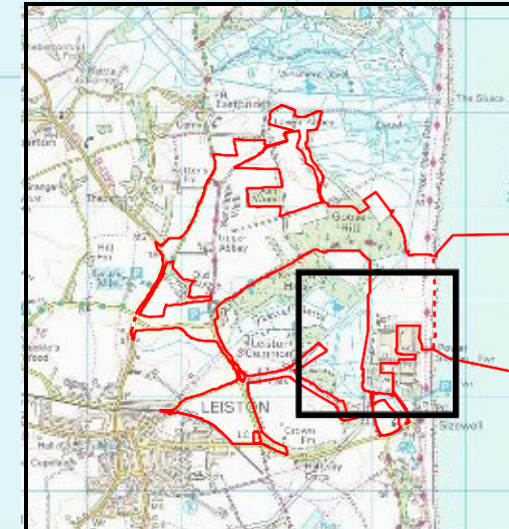
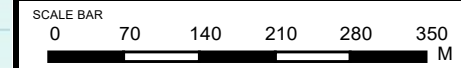


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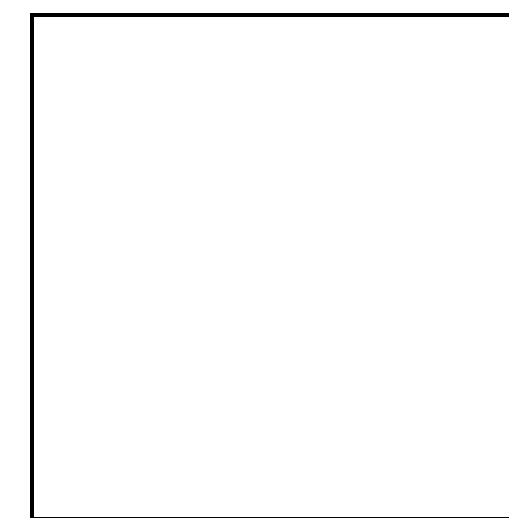
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FIGURE 3

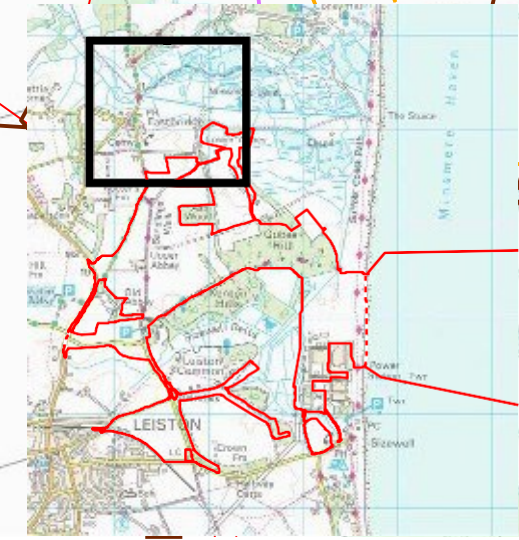
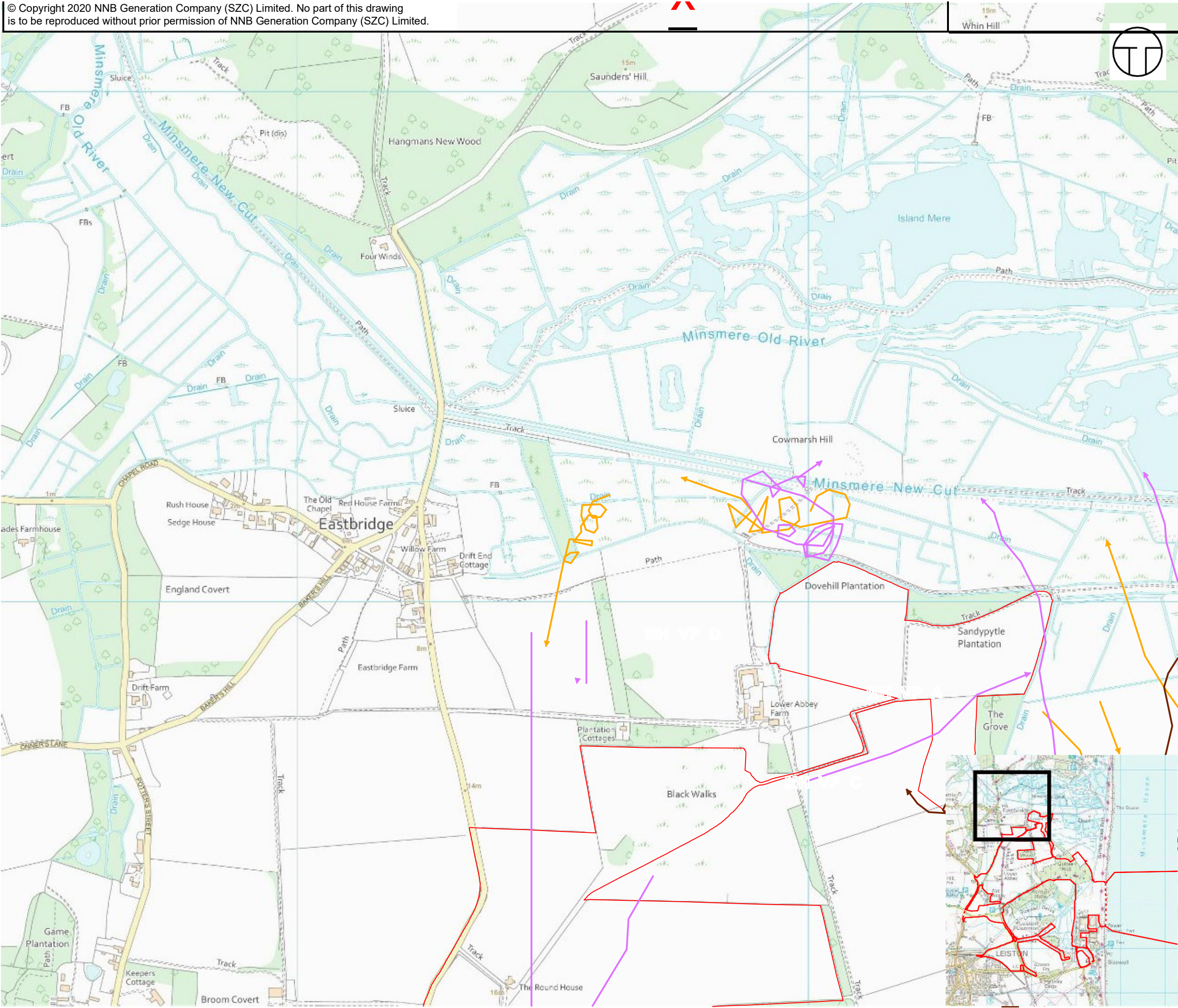
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MH_VP_D
▲
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MH_VP_A
▲
—

MH_VP_C
▲
—





NOTES

KEY

— SIZEWELL C MAIN DEVELOPMENT SITE BOUNDARY

— DEMARCATION LINE

▲ MARSH HARRIER VANTAGE POINT

MARSH HARRIER RESULTS

◐ JUVENILE

◑ FEMALE

◒ MALE

▶ ADULT FEMALE

◀ ADULT MALE

▴ UNKNOWN



MH_VP_3
▲
—

MH_VP_A
▲
—

MH_VP_C
▲
—

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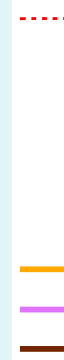
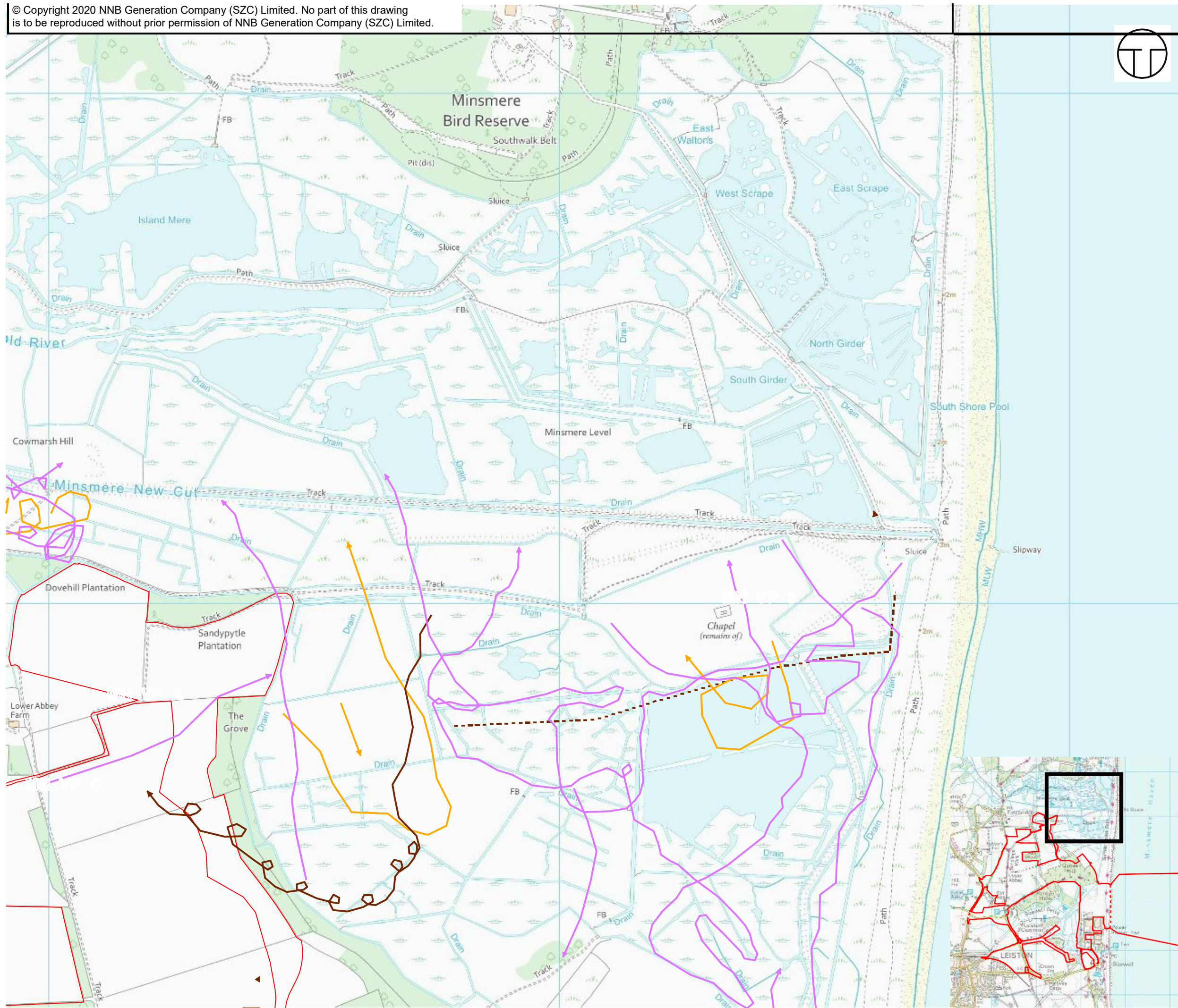
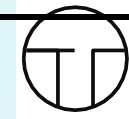


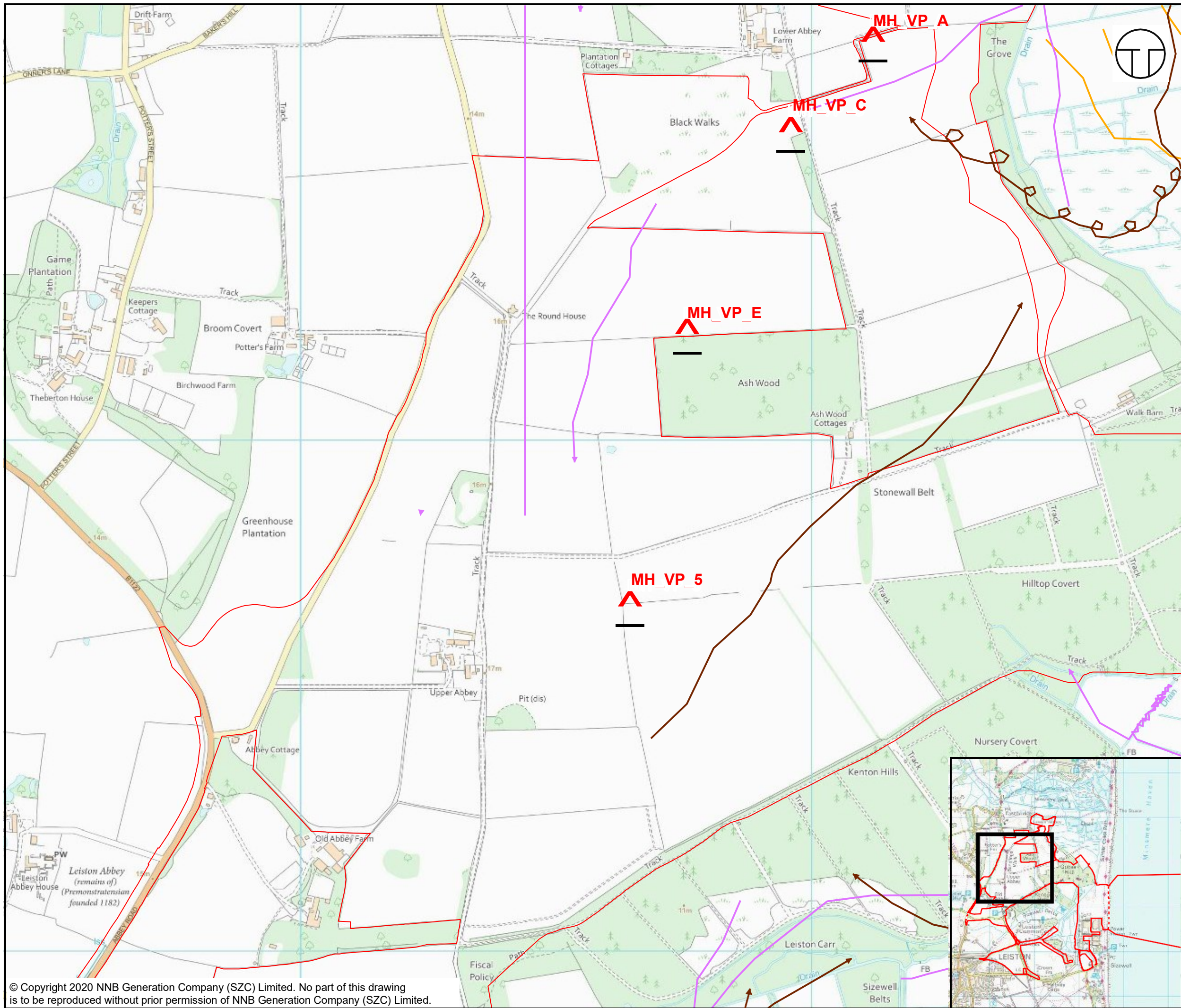
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MARSH HARRIER SURVEY REPORT 2020

DRAWING TITLE:
MARSH HARRIER RESULTS MAY 2020
SHEET 2 OF 6

DRAWING NO:
FIGURE 3

DATE: OCT 2020 DRAWN: R.G. SCALE: 1:15,000 @A3 REV: 01





NOTES

- KEY**
- SIZEWELL C MAIN DEVELOPMENT SITE BOUNDARY
 - - - DEMARCATION LINE
 - ▲ MARSH HARRIER VANTAGE POINT
- MARSH HARRIER RESULTS**
- JUVENILE
 - FEMALE
 - MALE
 - ADULT FEMALE
 - ADULT MALE
 - UNKNOWN

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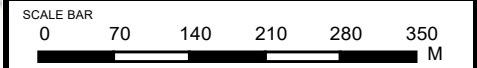


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 MARSH HARRIER RESULTS MAY 2020
 SHEET 3 OF 6

DRAWING NO.:
 FIGURE 3

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MH_VP_A



MH_VP_C



MH_VP_7



MH_VP_2



MH_VP_6



KEY

— SIZEWELL C MAIN DEVELOPMENT SITE BOUNDARY

— DEMARCATION LINE

▲ MARSH HARRIER VANTAGE POINT

MARSH HARRIER RESULTS

○ JUVENILE

○ FEMALE

○ MALE

○ ADULT FEMALE

○ ADULT MALE

○ UNKNOWN

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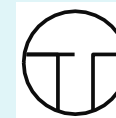
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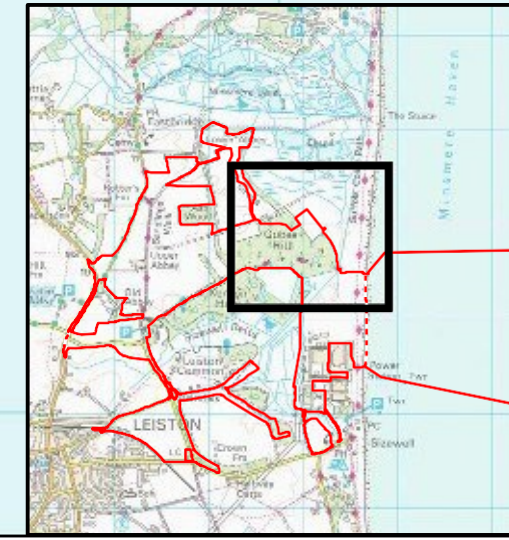
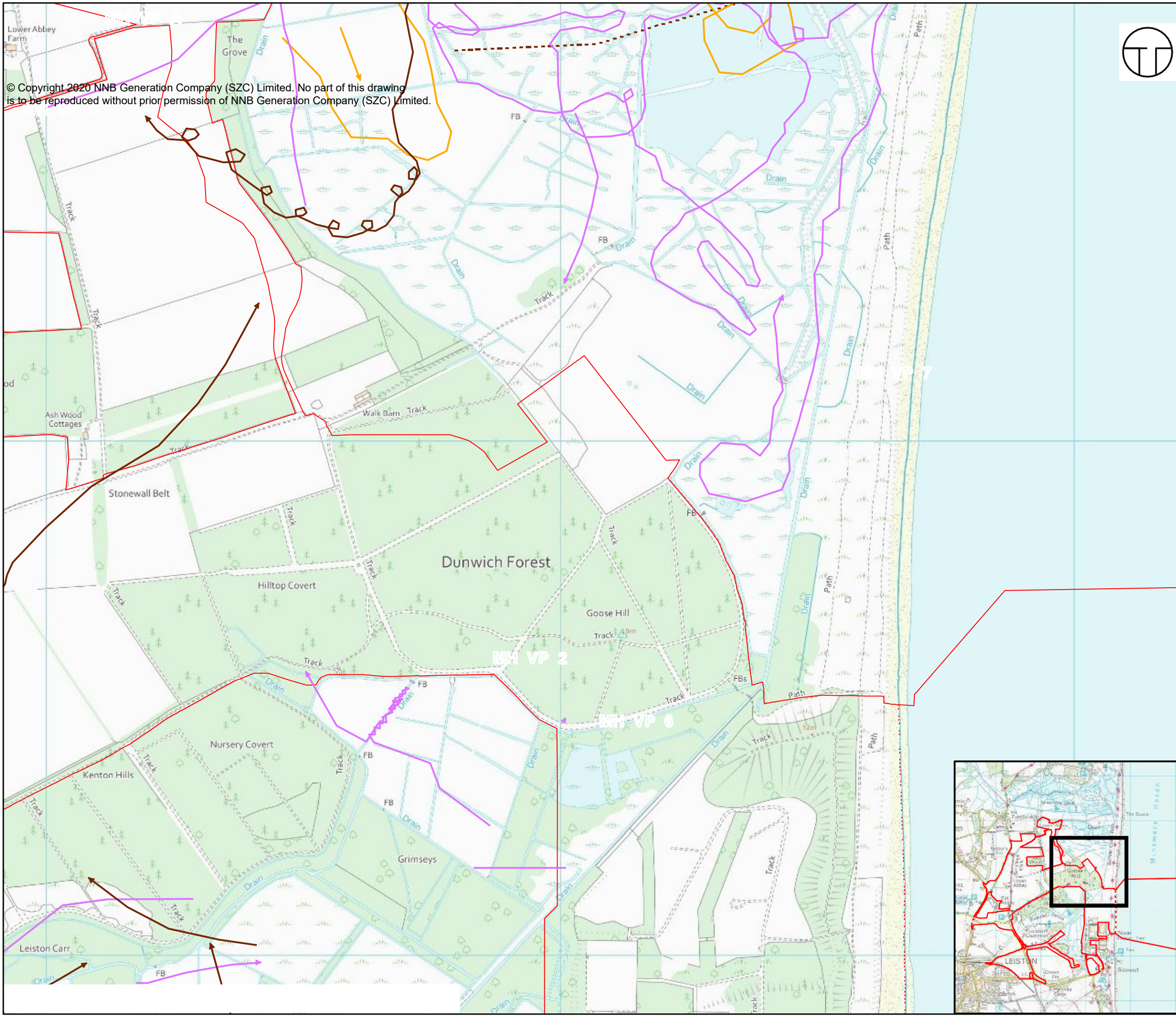
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MARSH HARRIER RESULTS MAY 2020
SHEET 4 OF 6

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DATE:
OCT 2020

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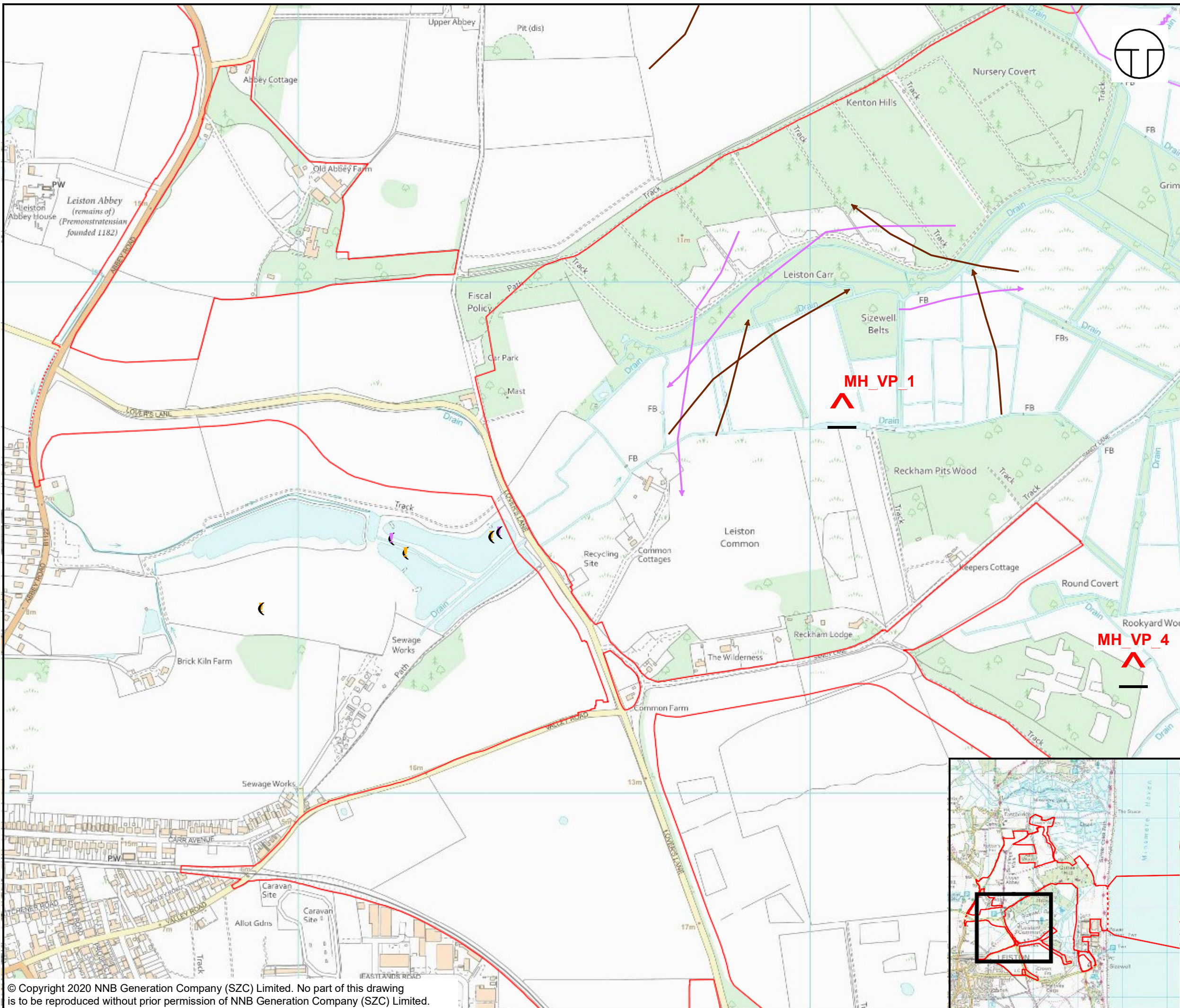


SCALE BAR
0 70 140 210 280 350
M



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NOTES

KEY

- SIZEWELL C MAIN DEVELOPMENT SITE BOUNDARY
- - - DEMARCATION LINE
- ▲ MARSH HARRIER VANTAGE POINT
- MARSH HARRIER RESULTS**
- ↖ JUVENILE
- ↖ FEMALE
- ↖ MALE
- ↖ ADULT FEMALE
- ↗ ADULT MALE
- ▶ UNKNOWN

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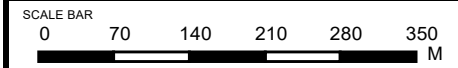


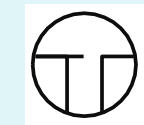
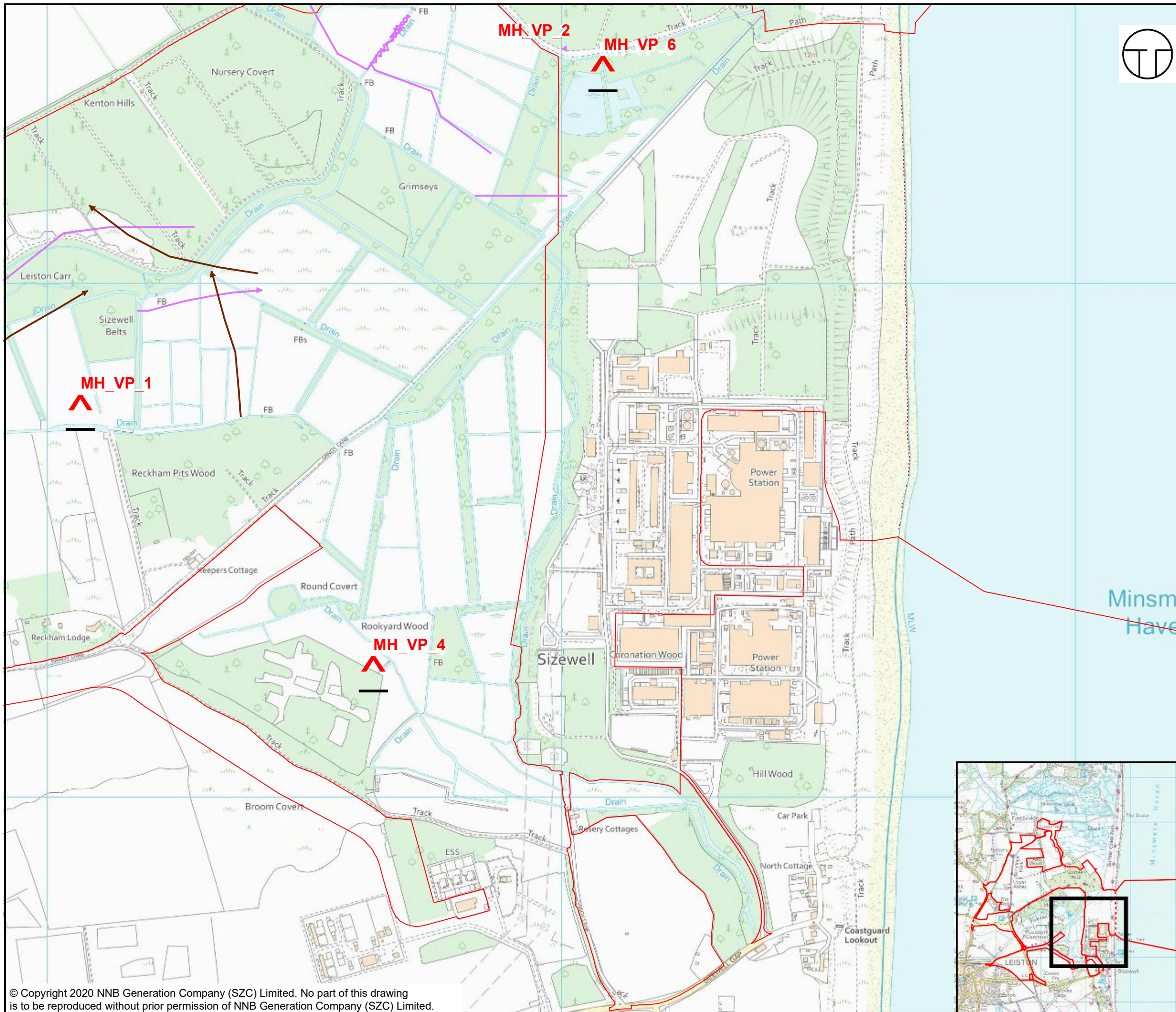
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 MARSH HARRIER RESULTS MAY 2020
 SHEET 5 OF 6

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FIGURE 3

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NOTES

KEY

- SIZEWELL C MAIN DEVELOPMENT SITE BOUNDARY
- - - DEMARCATION LINE
- ▲ MARSH HARRIER VANTAGE POINT
- MARSH HARRIER RESULTS**
- JUVENILE
- FEMALE
- MALE
- ▶ ADULT FEMALE
- ▶ ADULT MALE
- ▶ UNKNOWN

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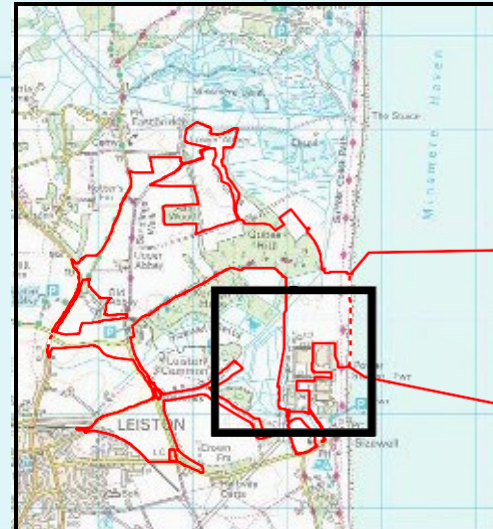
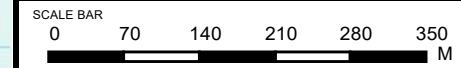


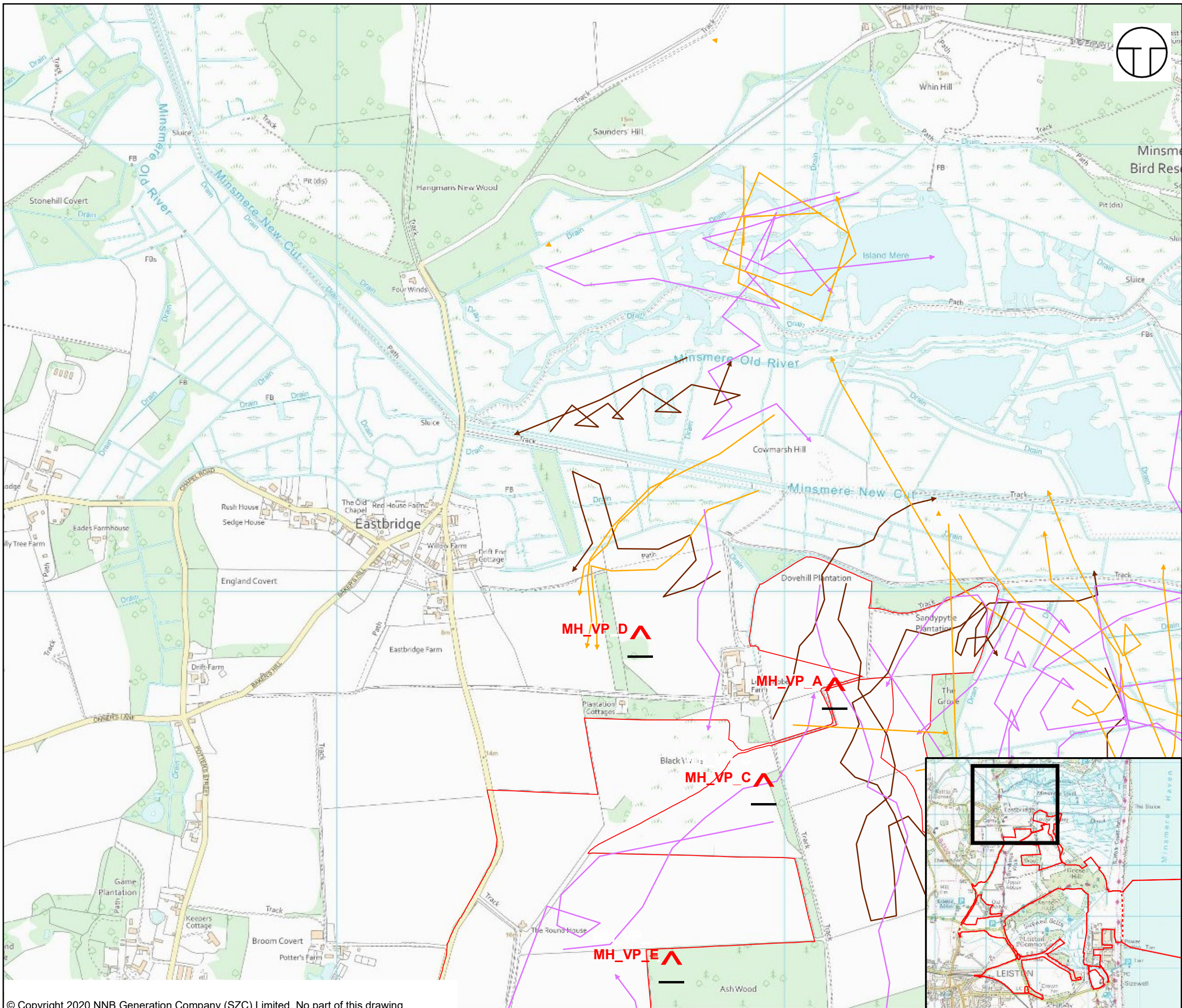
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NOTES

KEY

- SIZEWELL C MAIN DEVELOPMENT SITE BOUNDARY
- - - DEMARCATION LINE
- ▲ MARSH HARRIER VANTAGE POINT
- MARSH HARRIER RESULTS**
- UNKNOWN
- ADULT FEMALE
- ADULT MALE
- JUVENILE
- UNKNOWN

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SCALE BAR
0 80 160 240 320 400

M

KEY

 SIZEWELL C MAIN DEVELOPMENT SITE BOUNDARY


 DEMARCATION LINE

 MARSH HARRIER VANTAGE POINT

MARSH HARRIER RESULTS



 UNKNOWN

 ADULT FEMALE


 ADULT MALE

 JUVENILE

 UNKNOWN

MH_VP_3 


MH_VP_A 


MH_VP_C 


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MARSH HARRIER RESULTS JUNE 2020
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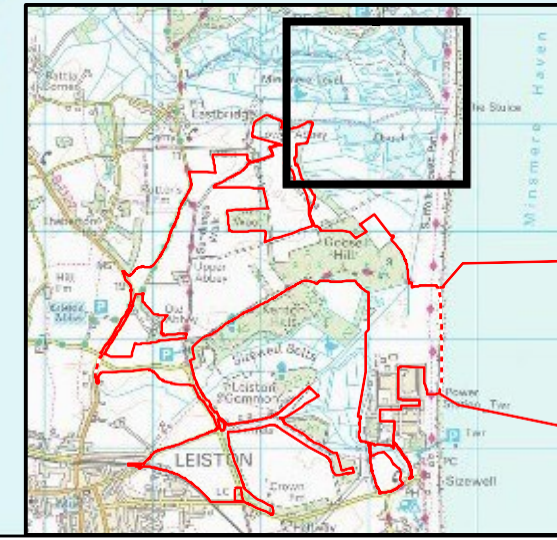
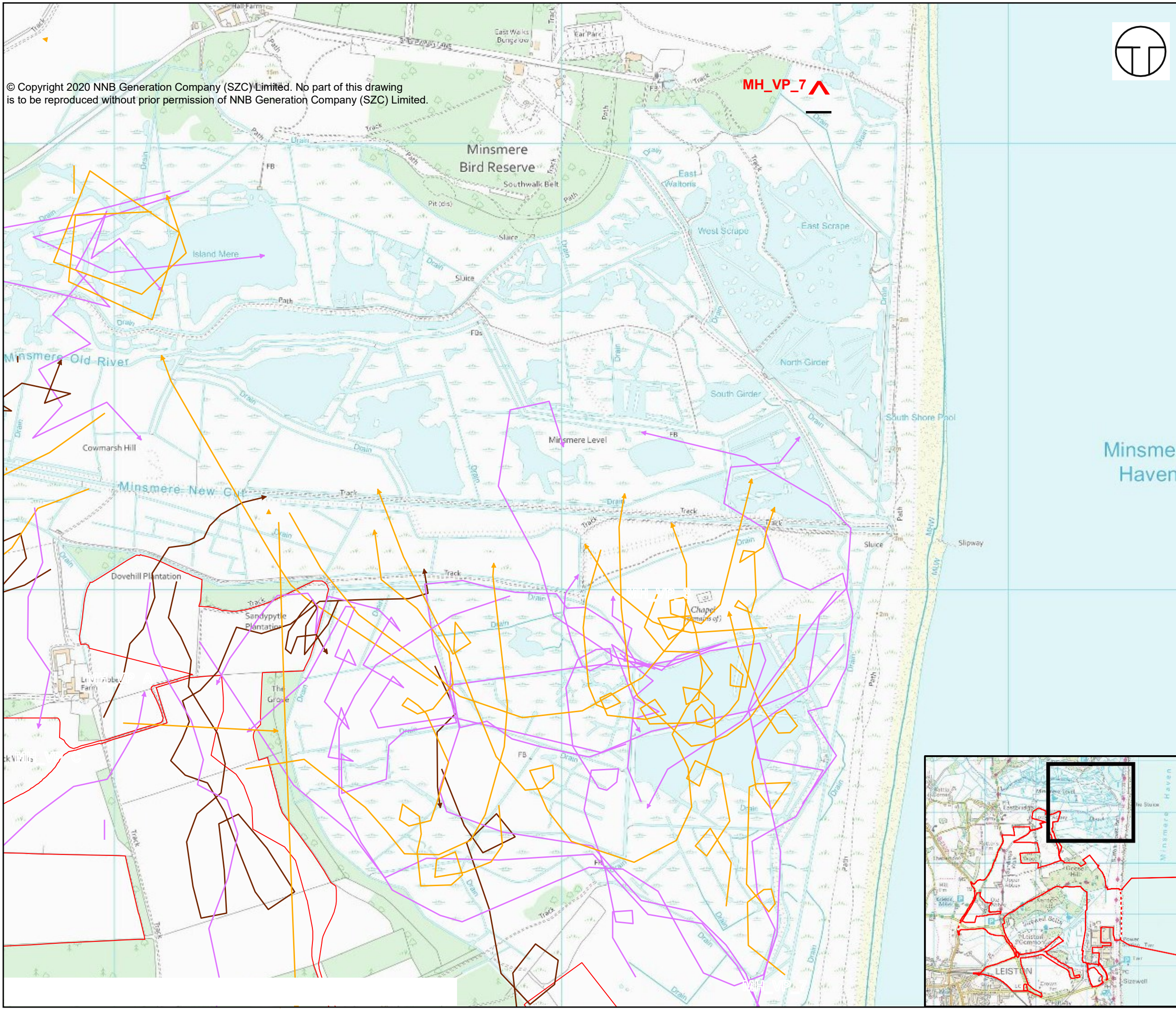
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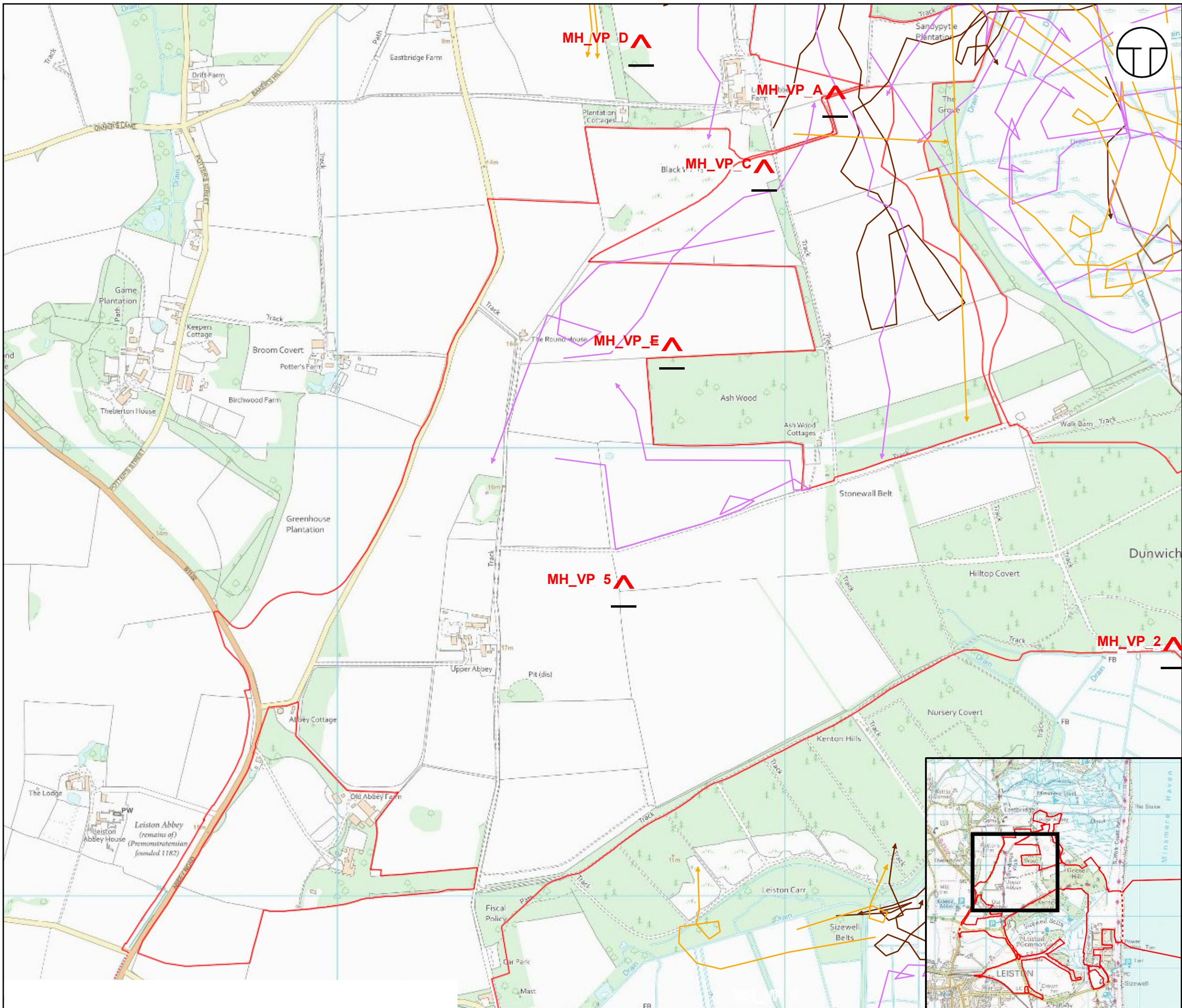
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SCALE BAR
0 80 160 240 320 400
M

MH_VP_7





NOTES

KEY

- SIZEWELL C MAIN DEVELOPMENT SITE BOUNDARY
- DEMARCATION LINE
- MARSH HARRIER VANTAGE POINT

MARSH HARRIER RESULTS

- UNKNOWN
- ADULT FEMALE
- ADULT MALE
- JUVENILE
- UNKNOWN

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SCALE BAR

MH_VP_1 



0 80 160
240 320
400 M



NOTES

KEY

SIZEWELL C MAIN DEVELOPMENT SITE
BOUNDARY

DEMARICATION LINE



MARSH HARRIER VANTAGE POINT

MARSH HARRIER RESULTS





UNKNOWN



ADULT FEMALE


ADULT MALE



JUVENILE



UNKNOWN

MH_VP_A 


MH_VP_C 


MH_VP_7 


MH_VP_2 


MH_VP_6 


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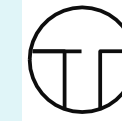
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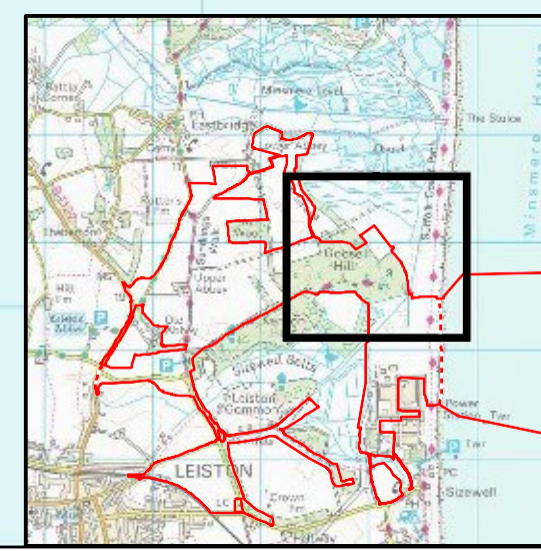
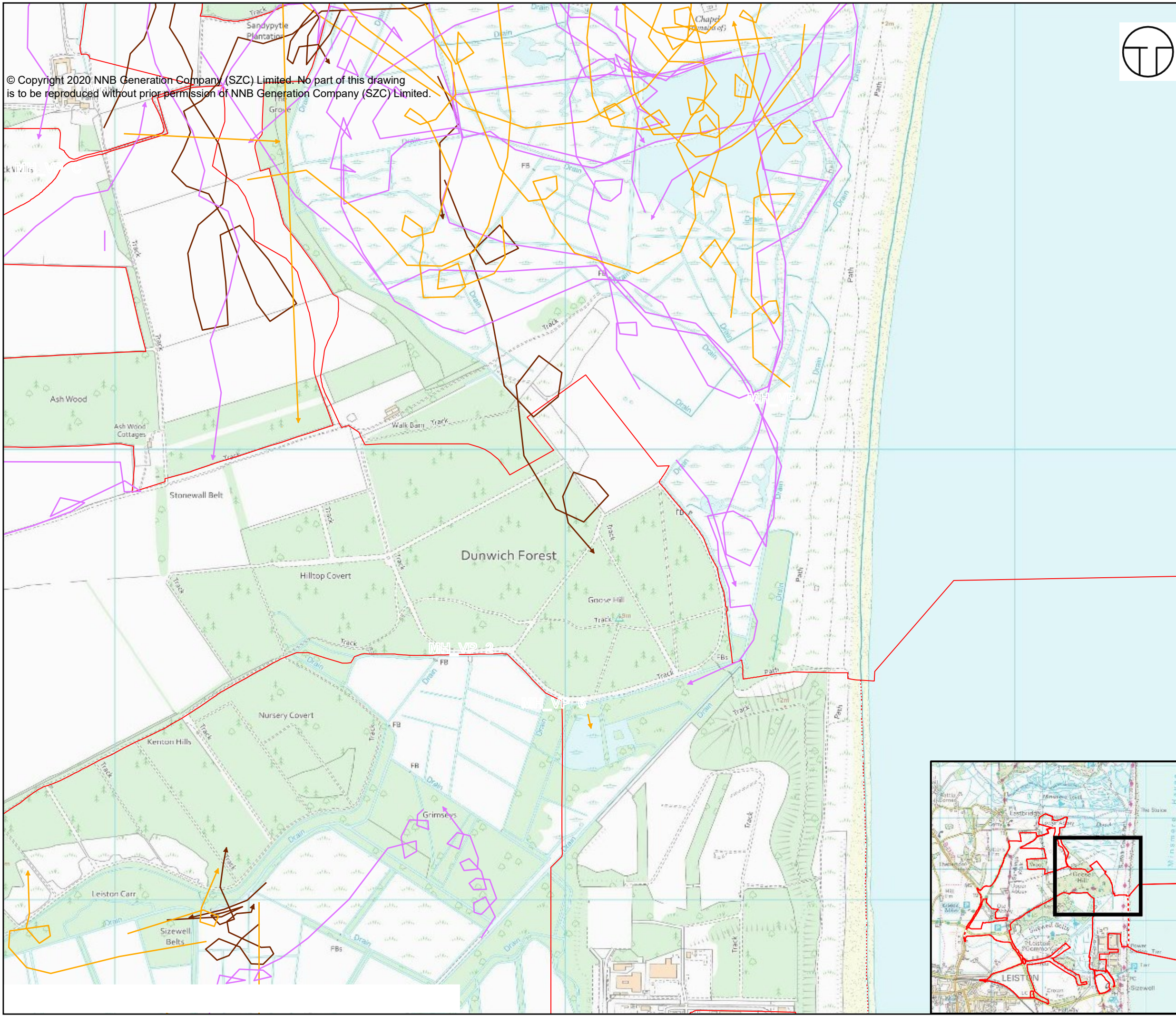
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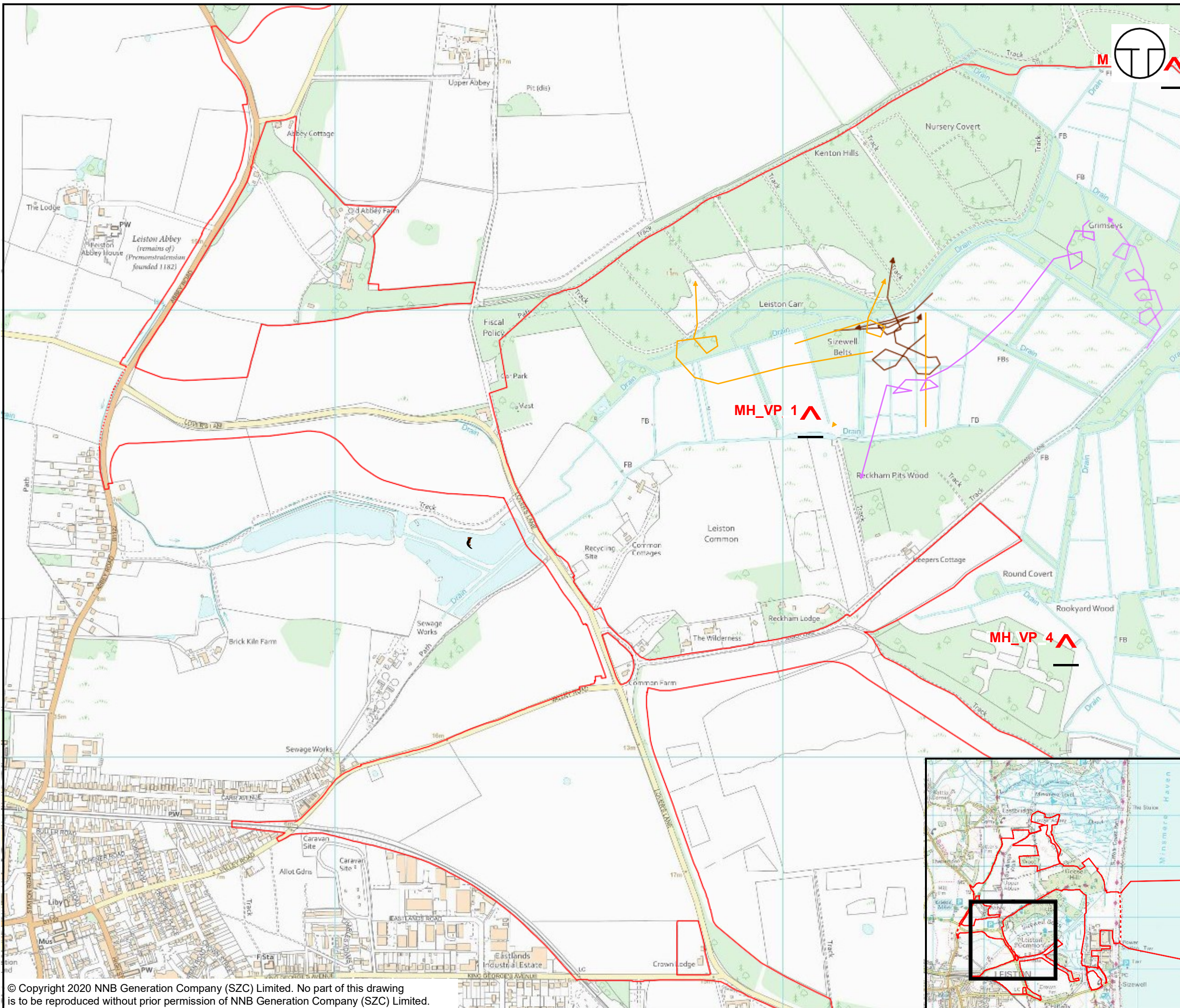
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SCALE BAR

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0 80 160 240 320 400 M





NOTES

KEY

- SIZEWELL C MAIN DEVELOPMENT SITE BOUNDARY
- - - DEMARCATION LINE
- MARSH HARRIER VANTAGE POINT

MARSH HARRIER RESULTS

- UNKNOWN
- ADULT FEMALE
 - ADULT MALE
 - JUVENILE
 - UNKNOWN

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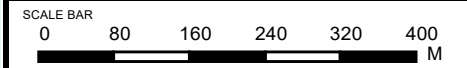


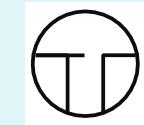
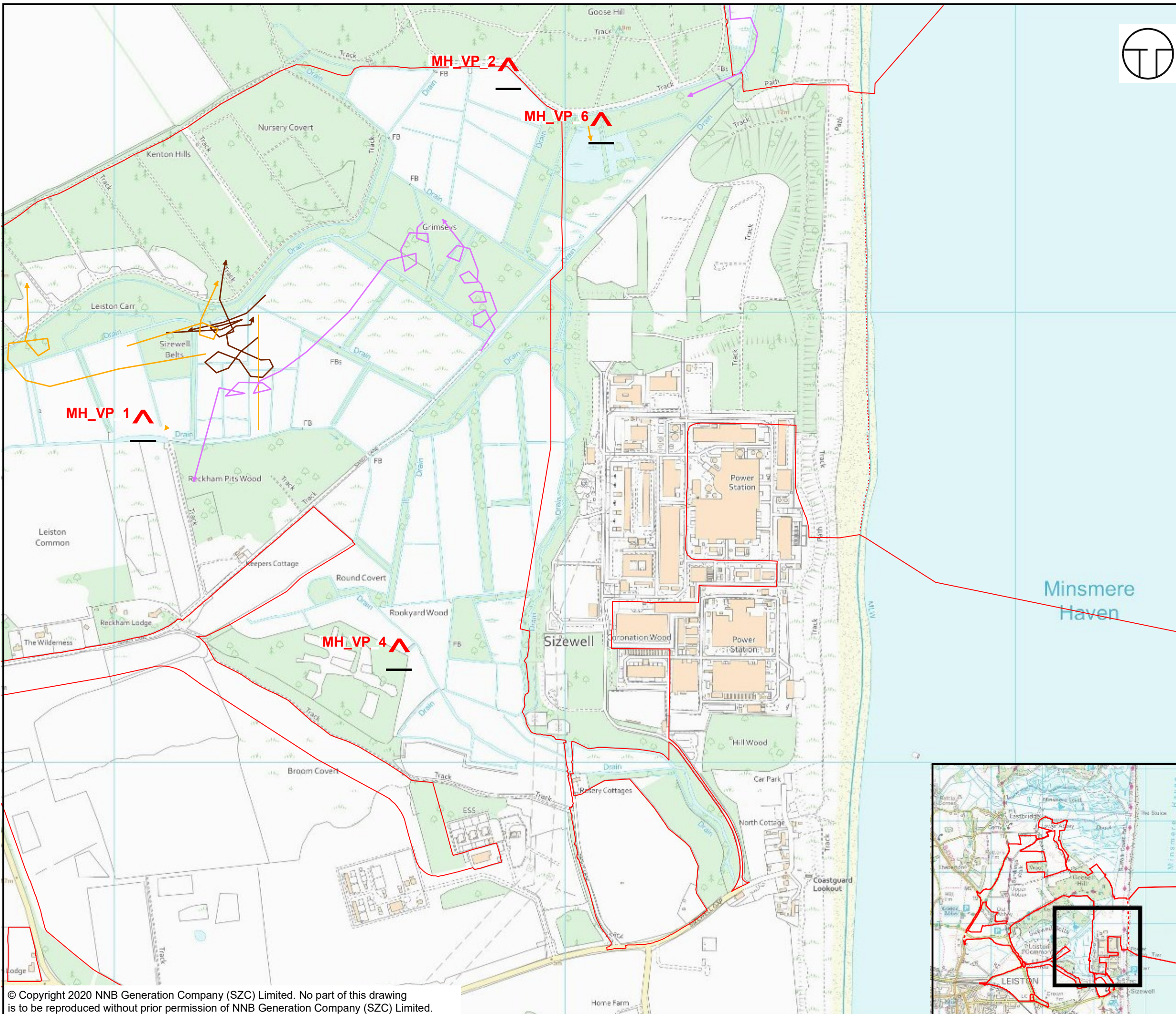
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 MARSH HARRIER RESULTS JUNE 2020
 SHEET 5 OF 6

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- NOTES**
- KEY**
- SIZEWELL C MAIN DEVELOPMENT SITE BOUNDARY
 - - - DEMARCATION LINE
 - ▲ MARSH HARRIER VANTAGE POINT
- MARSH HARRIER RESULTS**
- UNKNOWN
 - ▶ ADULT FEMALE
 - ▶ ADULT MALE
 - ▶ JUVENILE
 - ▶ UNKNOWN

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 MARSH HARRIER RESULTS JUNE 2020
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FIGURE 4

DATE: OCT 2020 DRAWN: R.G. SCALE: 1:15,000 @A3 REV: 01

SCALE BAR
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KEY

— SIZEWELL C MAIN DEVELOPMENT SITE BOUNDARY

— DEMARCATION LINE

▲ MARSH HARRIER VANTAGE POINT

MARSH HARRIER RESULTS

ADULT FEMALE

ADULT MALE

JUVENILE

UNKNOWN

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MH_VP_D ▲
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MH_VP_A ▲
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MH_VP_C ▲
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SIZEWELL C
MAIN DEVELOPMENT SITE
MARSH HARRIER SURVEY REPORT 2020

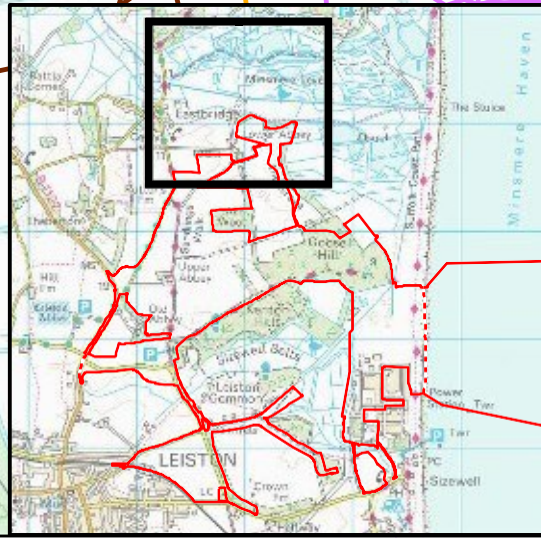
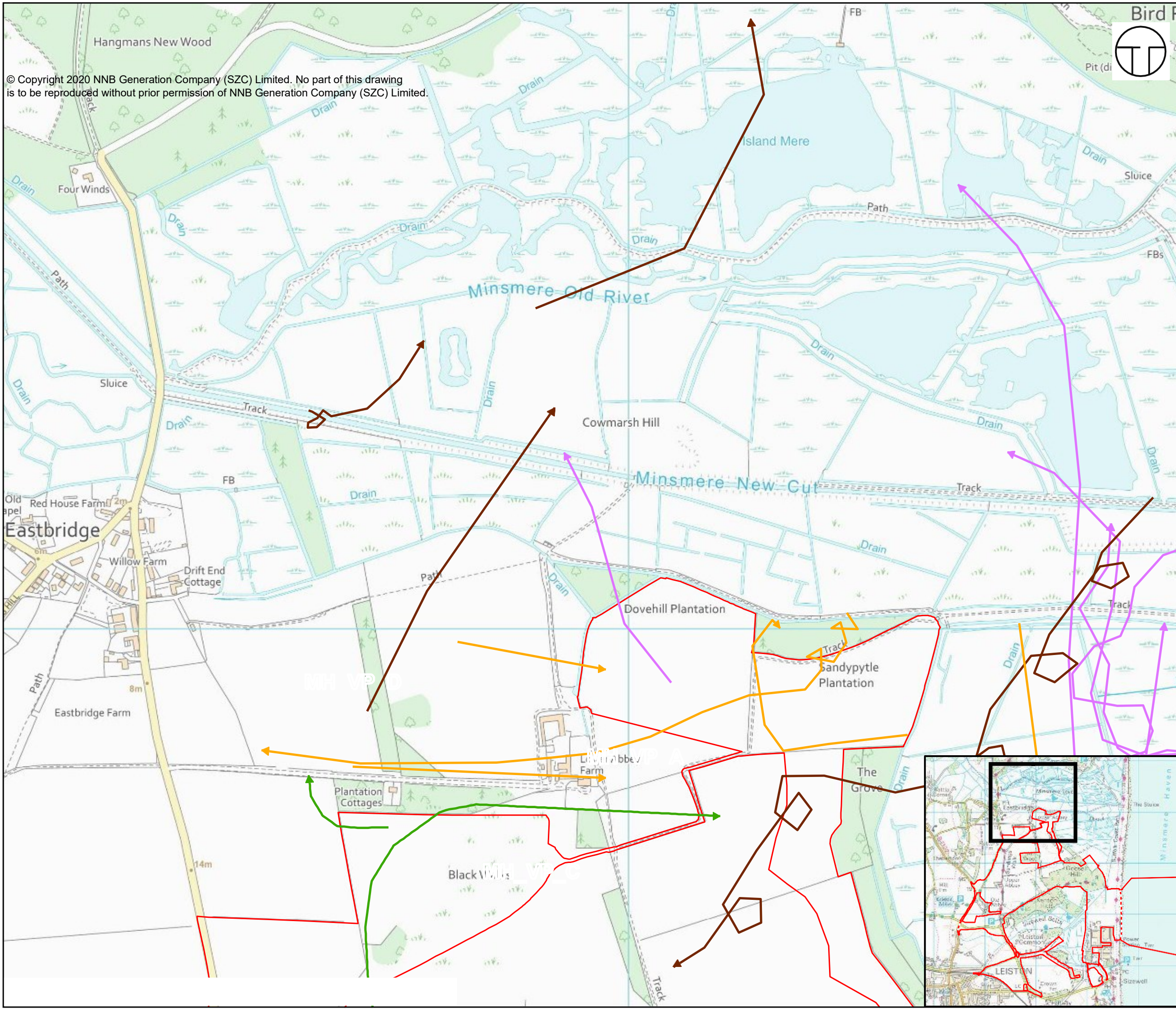
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MARSH HARRIER RESULTS JULY 2020
SHEET 1 OF 5

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FIGURE 5
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SCALE BAR

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0 50 100 150 200 250 M



NOTES

KEY

 SIZEWELL C MAIN DEVELOPMENT SITE BOUNDARY

 DEMARCATION LINE

 MARSH HARRIER VANTAGE POINT

MARSH HARRIER RESULTS

ADULT FEMALE

ADULT MALE

JUVENILE

UNKNOWN

MH_VP_3 


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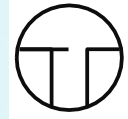
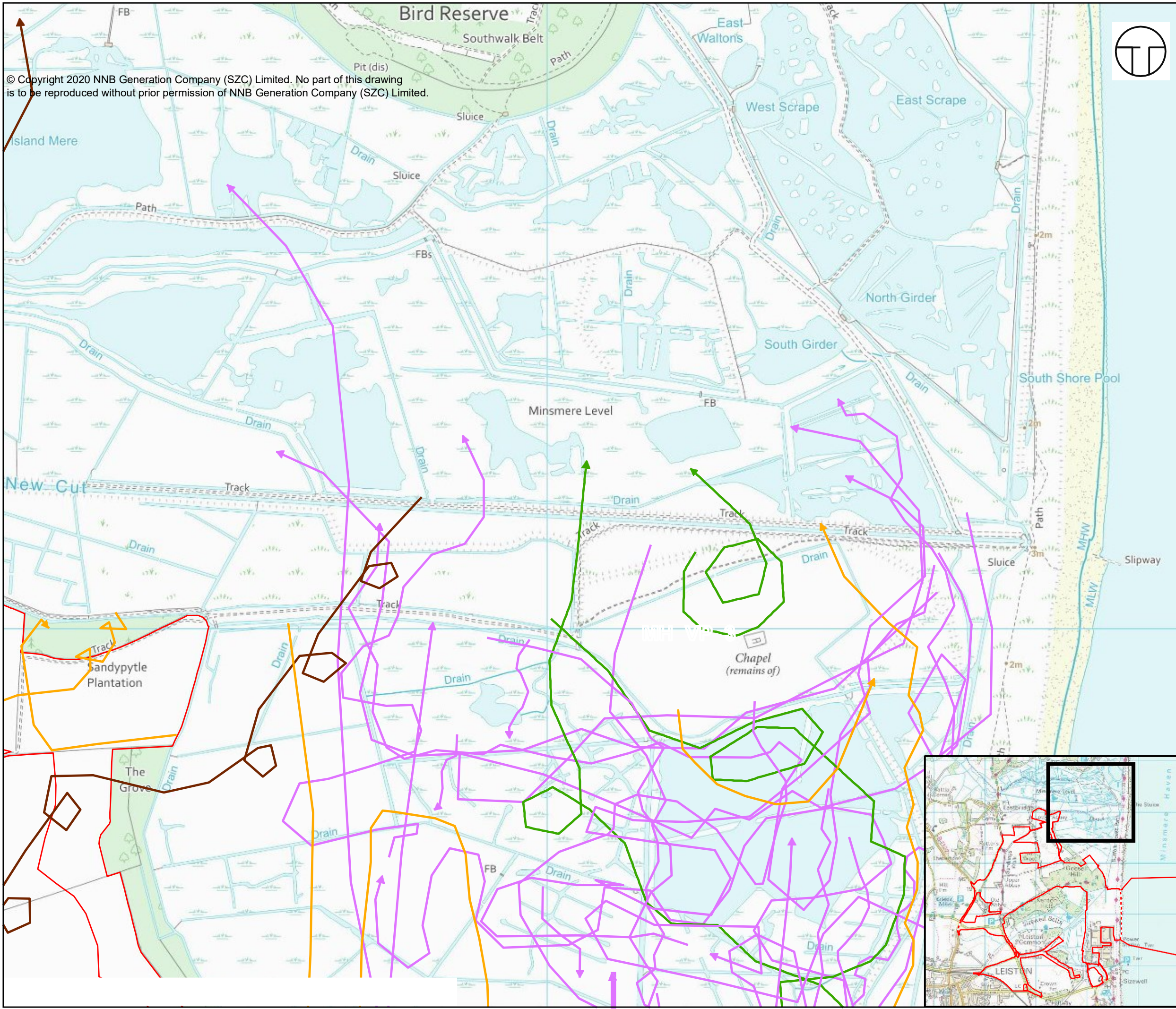
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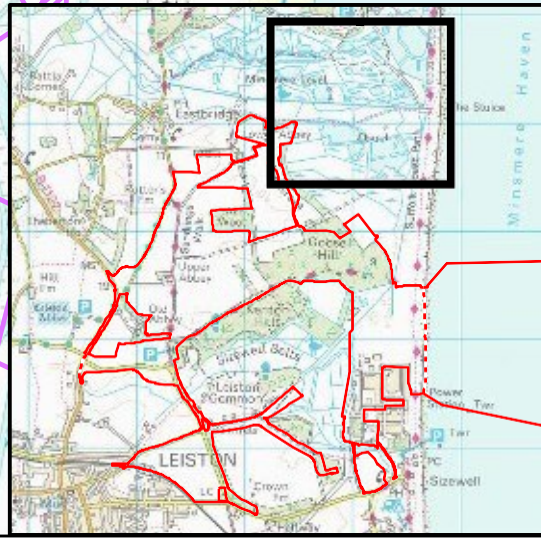
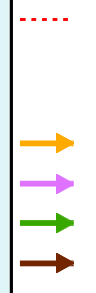
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SHEET 2 OF 5

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SCALE BAR

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0 50 100 150 200 250 M




MH_VP_C 



NOTES

KEY

 SIZEWELL C MAIN DEVELOPMENT SITE BOUNDARY

 DEMARCATION LINE

 MARSH HARRIER VANTAGE POINT

MARSH HARRIER RESULTS

 ADULT FEMALE

 ADULT MALE

 JUVENILE

 UNKNOWN

MH_VP_E 



MH_VP_5 



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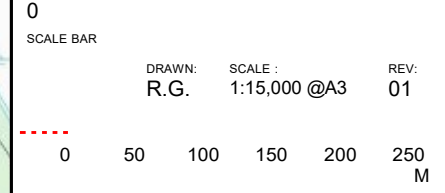
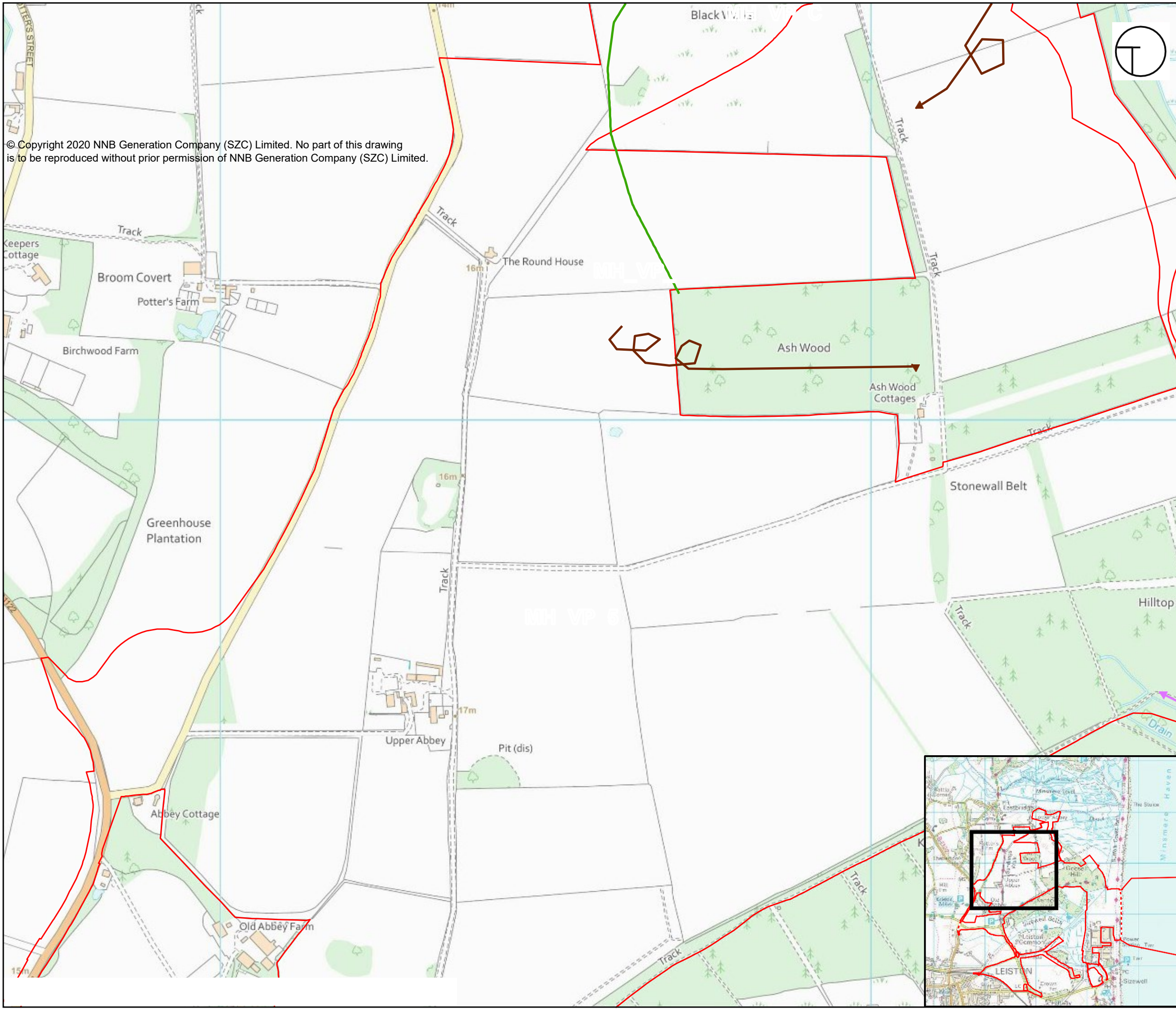
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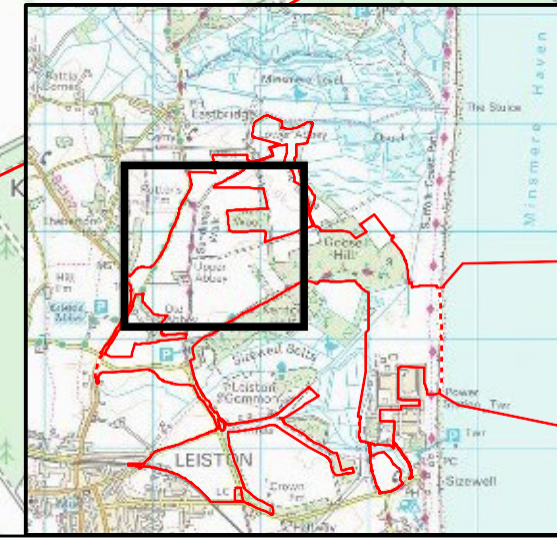
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FIGURE 5
DATE:

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| |
|--------------|
| Yellow arrow |
| Purple arrow |
| Green arrow |
| Brown arrow |



NOTES

KEY

— SIZEWELL C MAIN DEVELOPMENT SITE BOUNDARY

— DEMARCATION LINE

▲ MARSH HARRIER VANTAGE POINT

MARSH HARRIER RESULTS

ADULT FEMALE

ADULT MALE

JUVENILE

UNKNOWN

MH_VP_7 ▲



MH_VP_2 ▲



MH_VP_6 ▲



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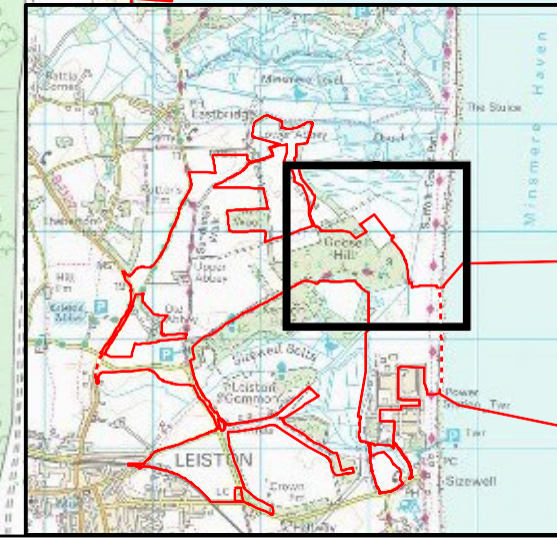
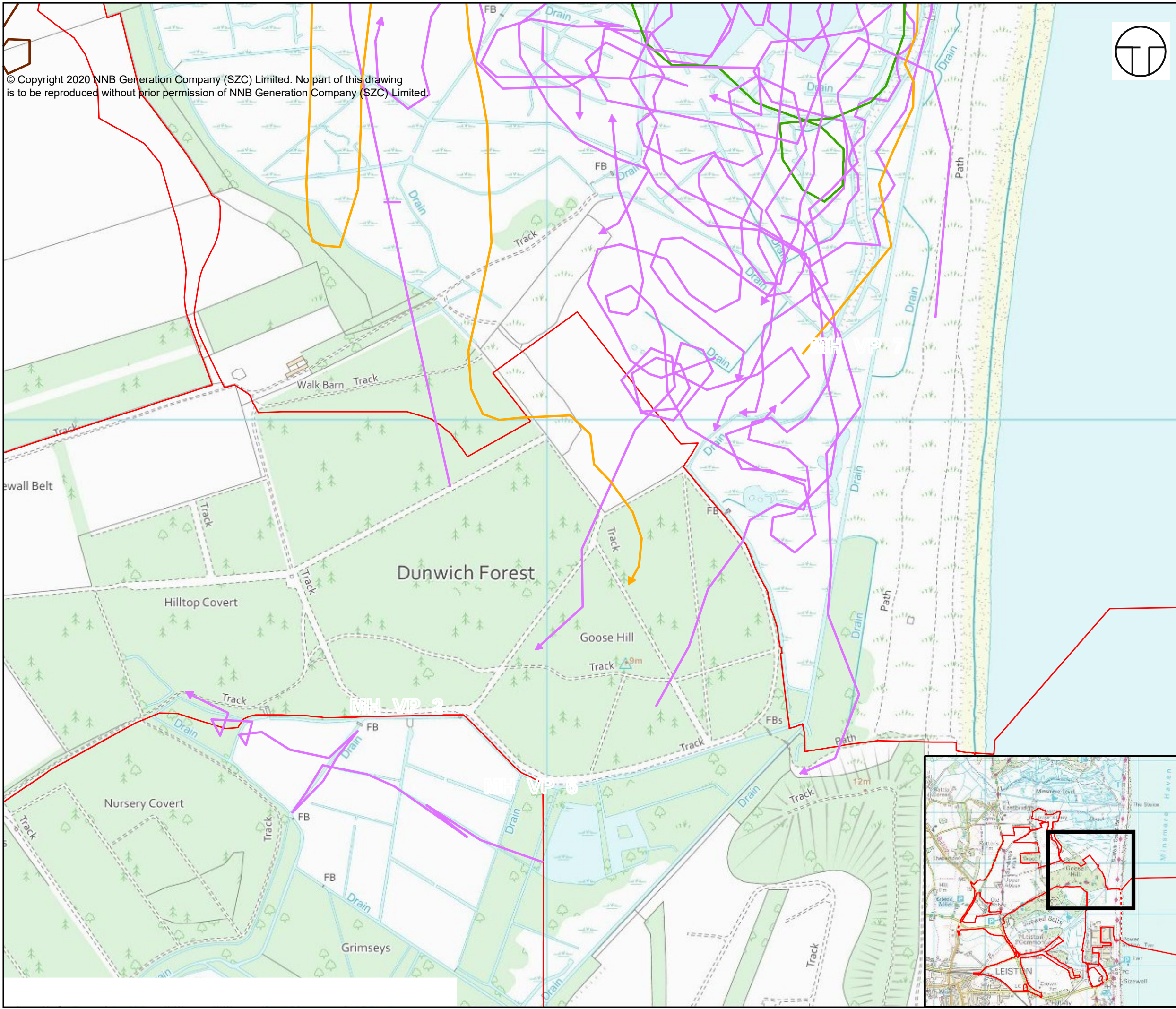
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SCALE BAR

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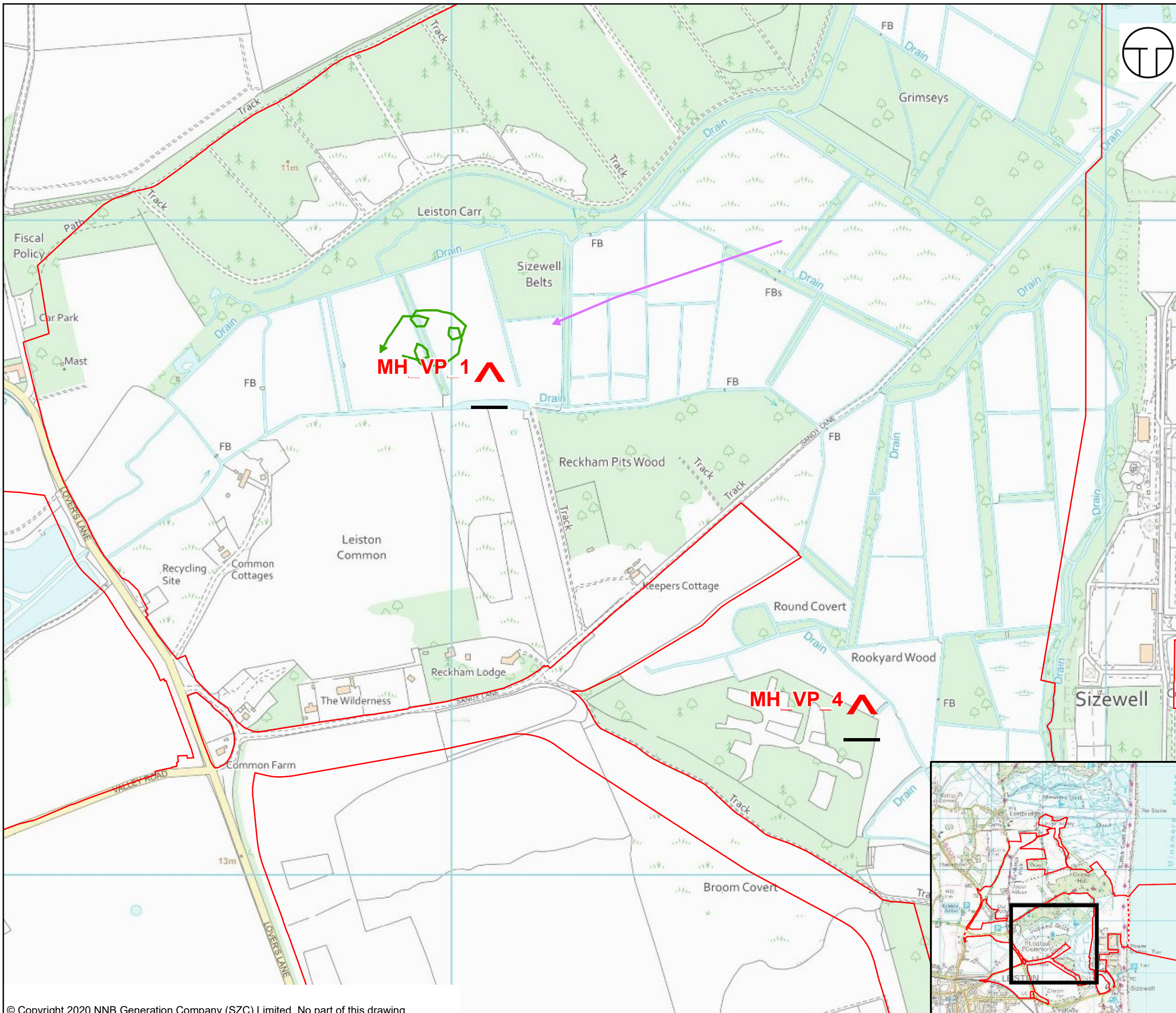


0 50 100 150 200 250 M



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NOTES

KEY

- SIZEWELL C MAIN DEVELOPMENT SITE BOUNDARY
- - - DEMARCATION LINE
- ▲ MARSH HARRIER VANTAGE POINT
- MARSH HARRIER RESULTS**
- ADULT FEMALE
- ADULT MALE
- JUVENILE
- UNKNOWN

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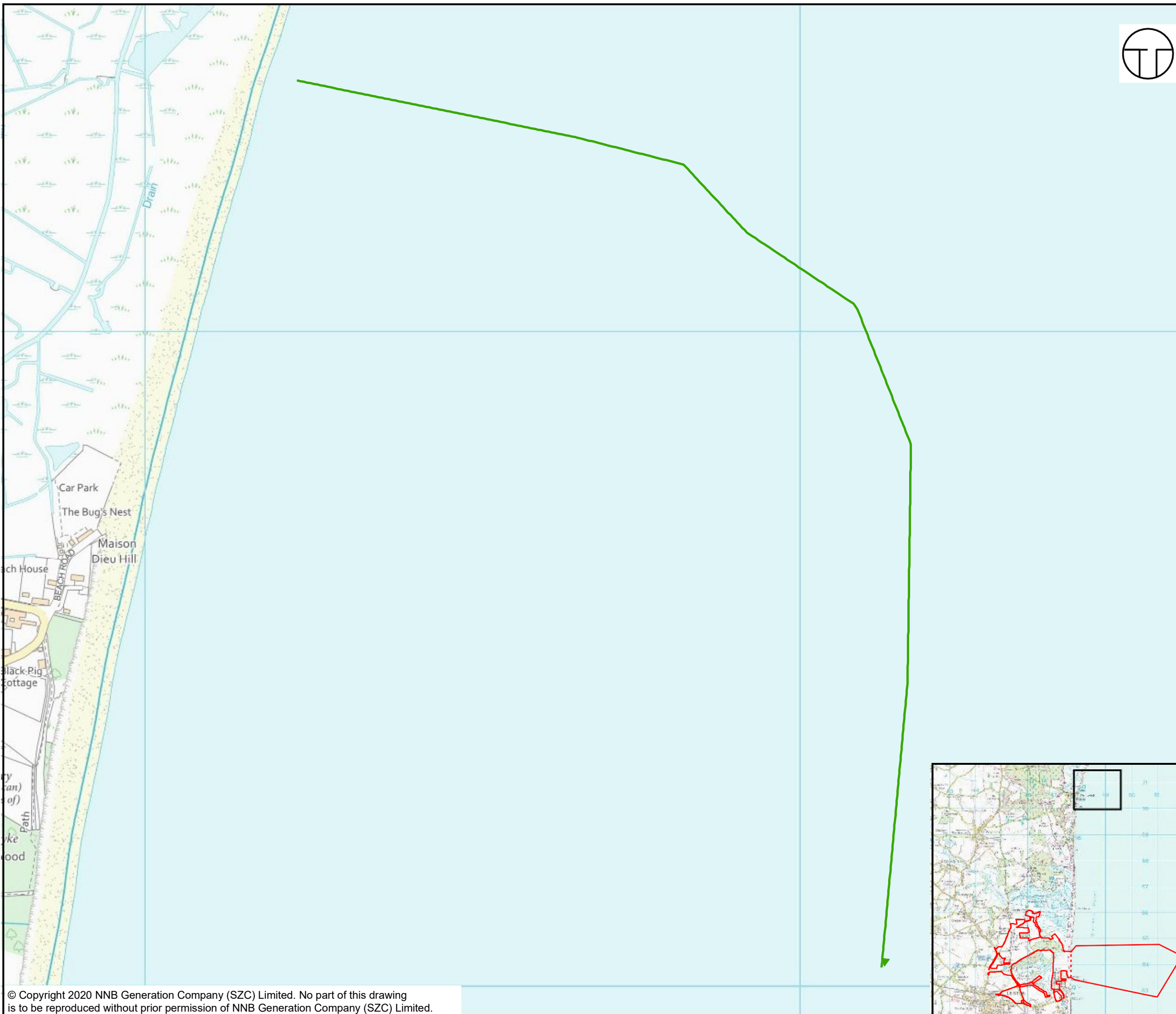
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NOTES

KEY

- SIZEWELL C MAIN DEVELOPMENT SITE BOUNDARY
- - - DEMARCATION LINE
- ▲ MARSH HARRIER VANTAGE POINT

MARSH HARRIER RESULTS

- ▶ ADULT FEMALE
- ▶ ADULT MALE
- ▶ JUVENILE

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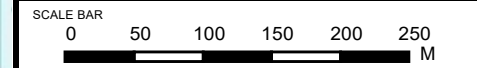


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MH_VP_D ▲

MH_VP_A ▲

MH_VP_C ▲

MH_VP_E ▲

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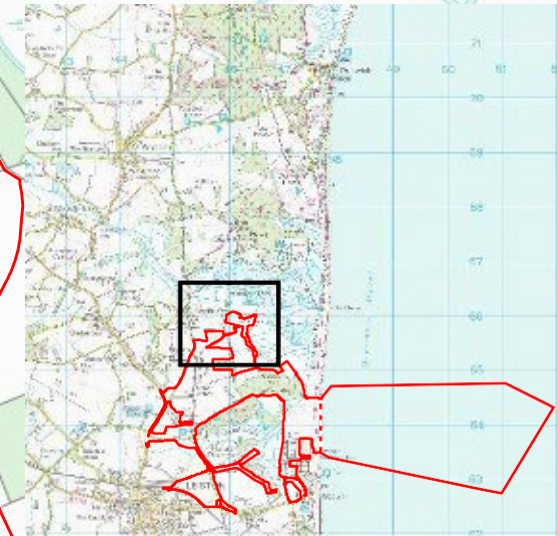
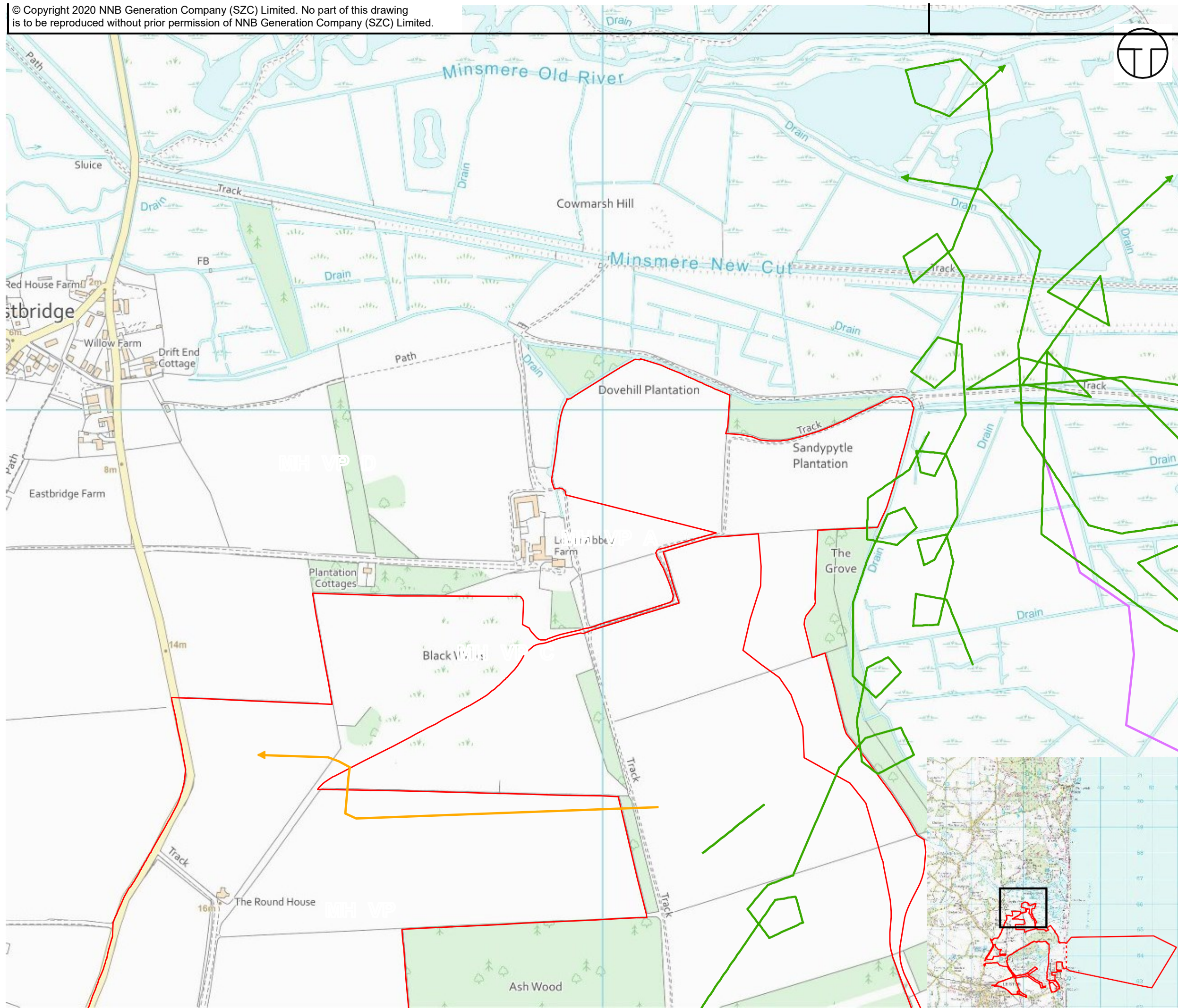
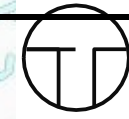



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MH_VP_3 
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MH_VP_7 
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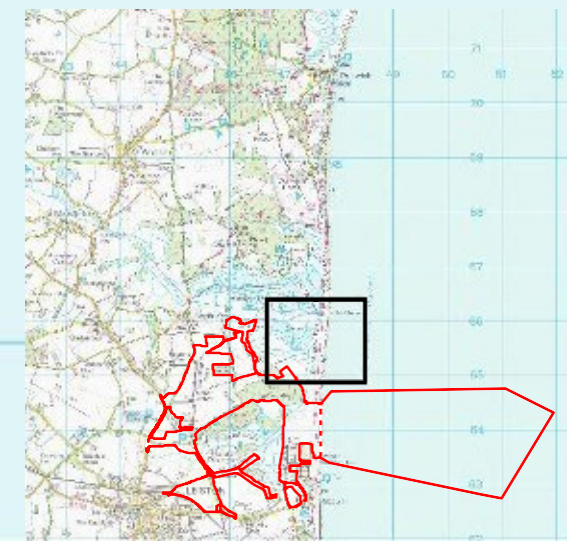
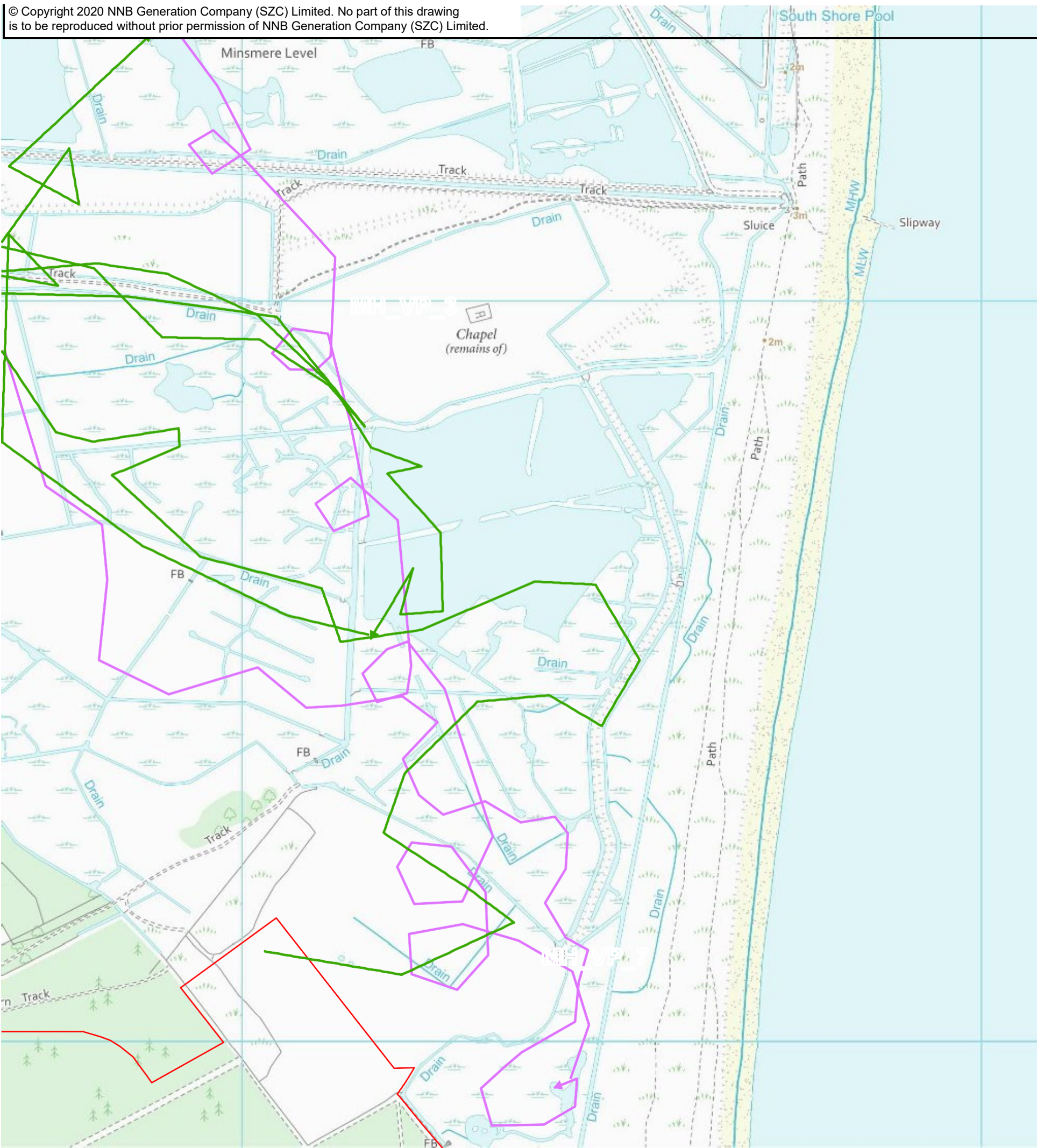
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SHEET 3 OF 5

DRAWING NO:
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Minsmere Haven



MH_VP_C



MH_VP_2



MH_VP_6



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MARSH HARRIER RESULTS

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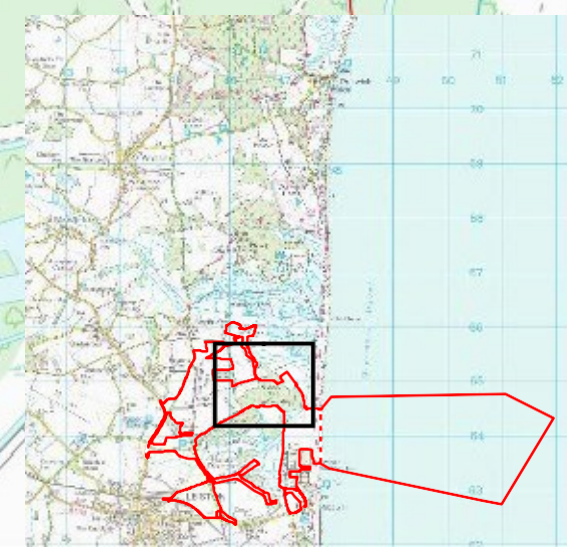
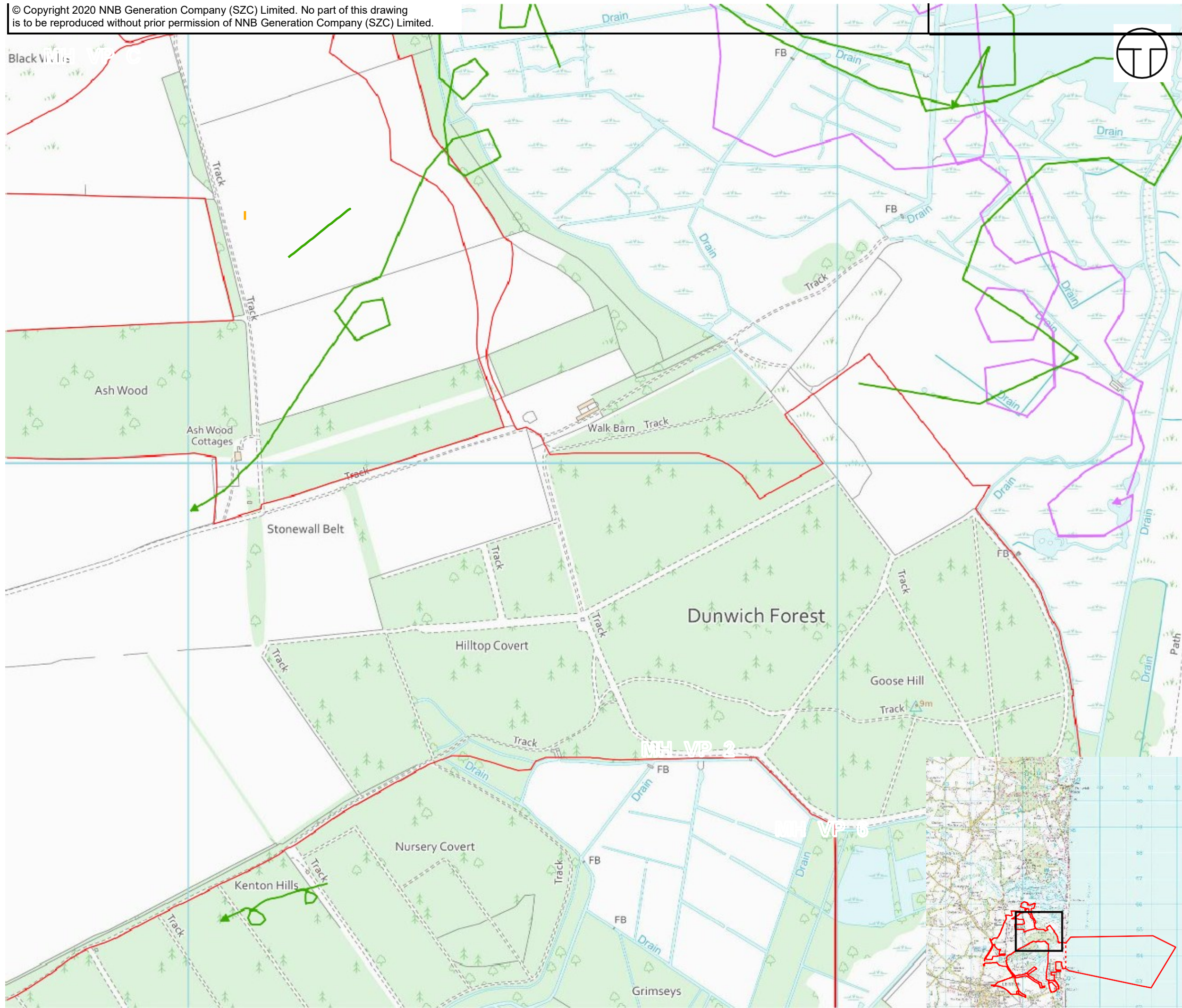


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MARSH HARRIER RESULTS

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MH_VP_6 ▲



MH_VP_1 ▲



MH_VP_4 ▲



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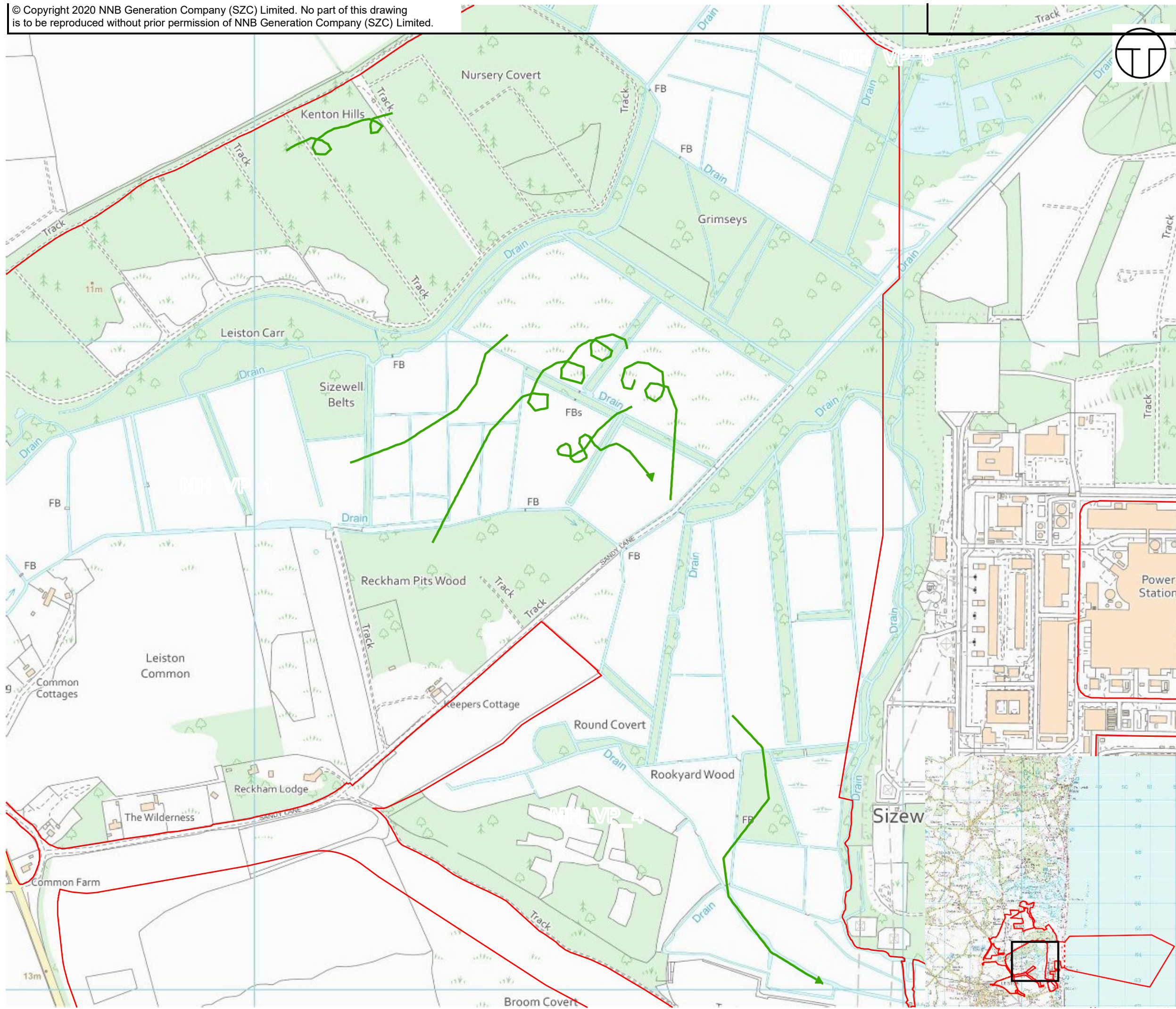


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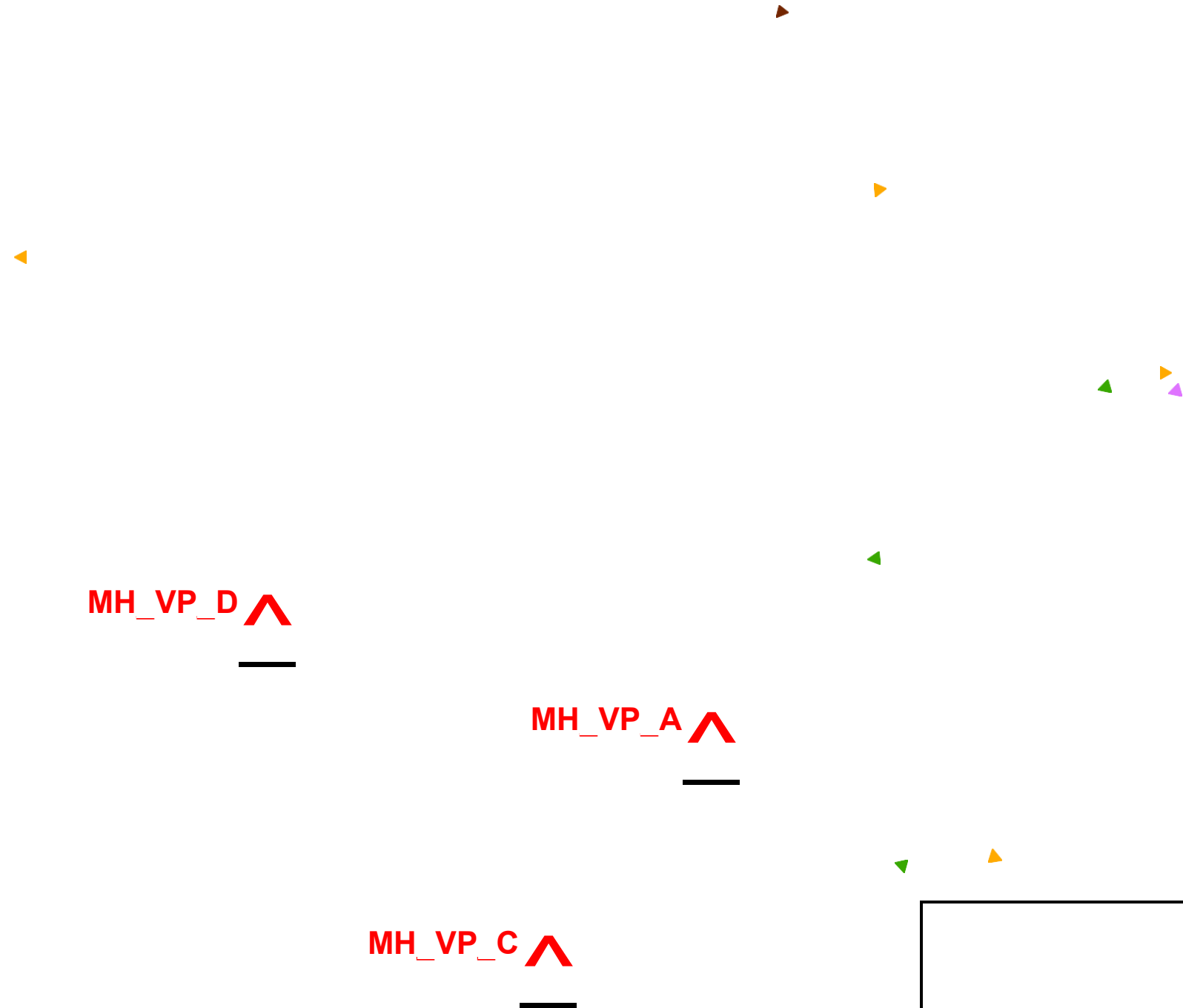
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▶ ADULT FEMALE

▶ ADULT MALE

▶ JUVENILE

▶ UNKNOWN



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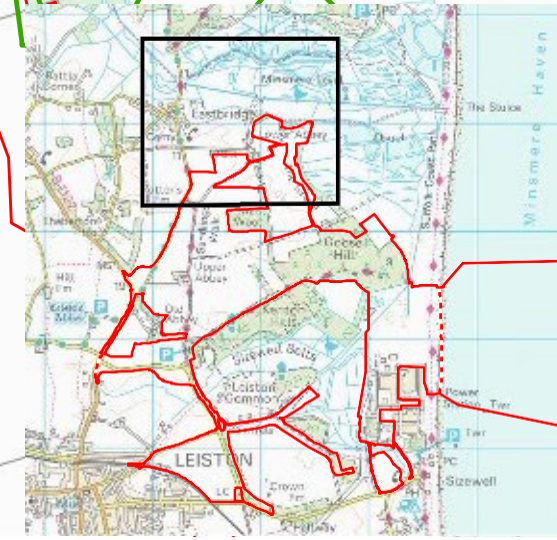
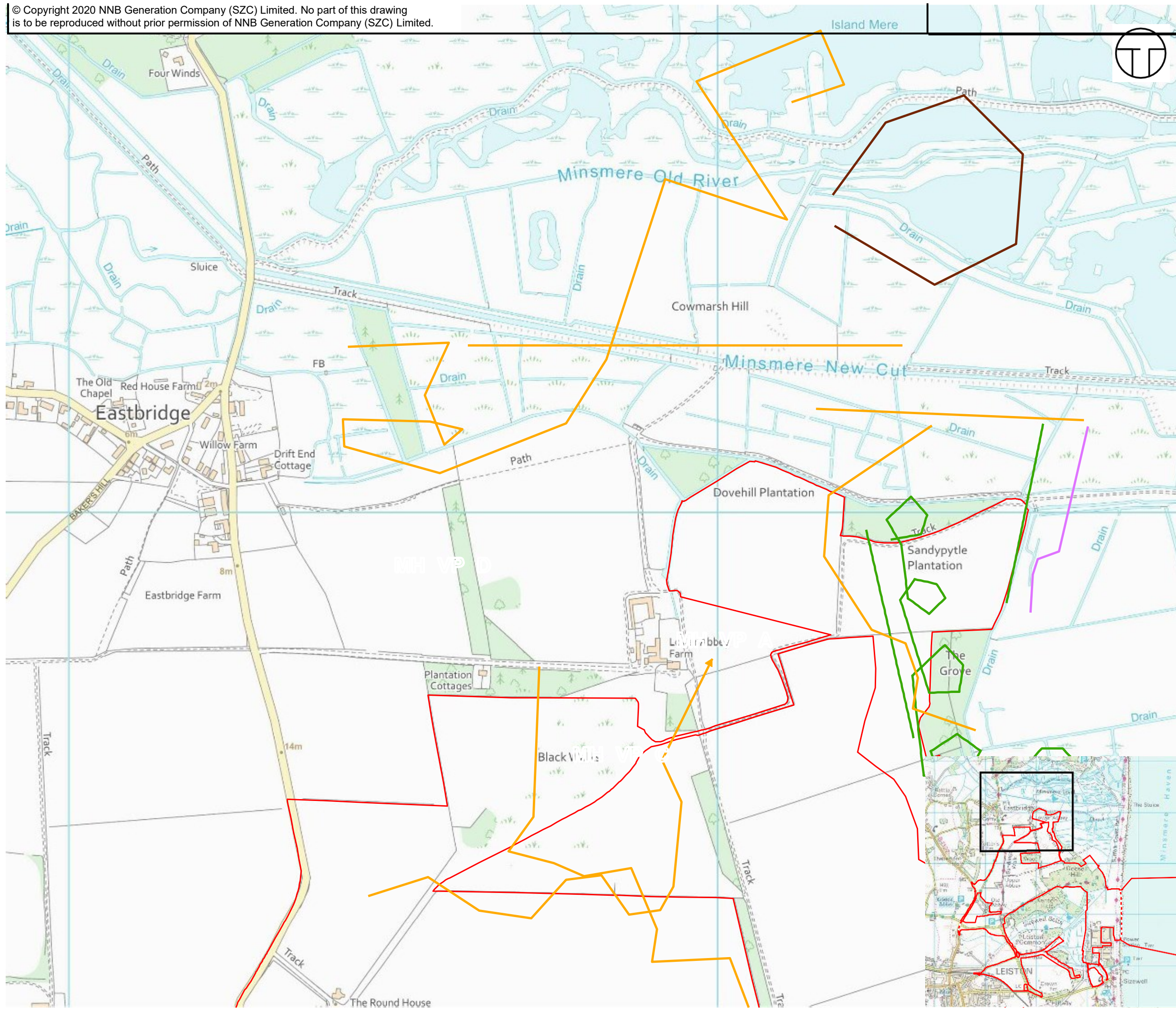


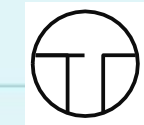
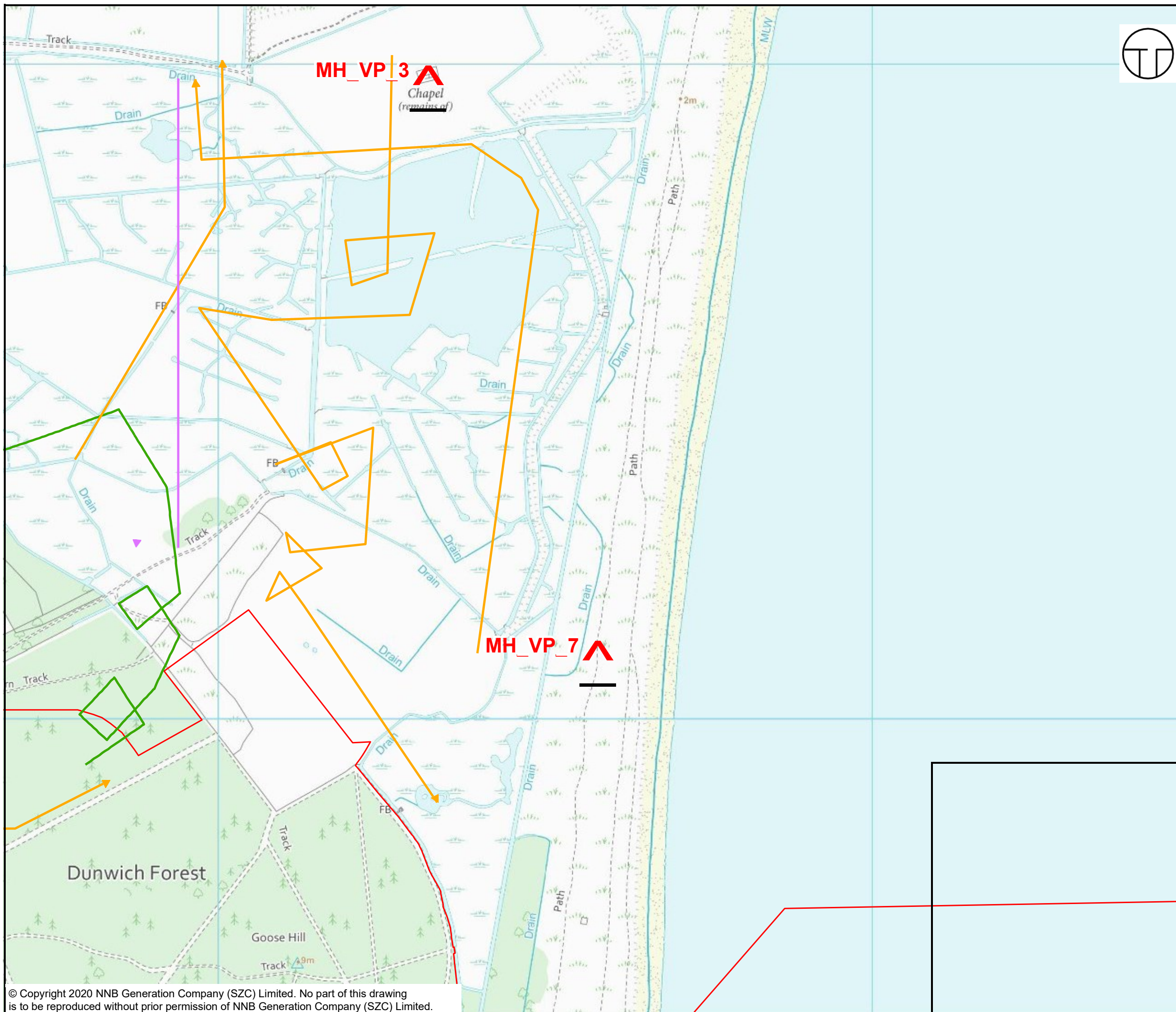
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- MARSH HARRIER RESULTS**
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- ▶ ADULT MALE
- ▶ JUVENILE
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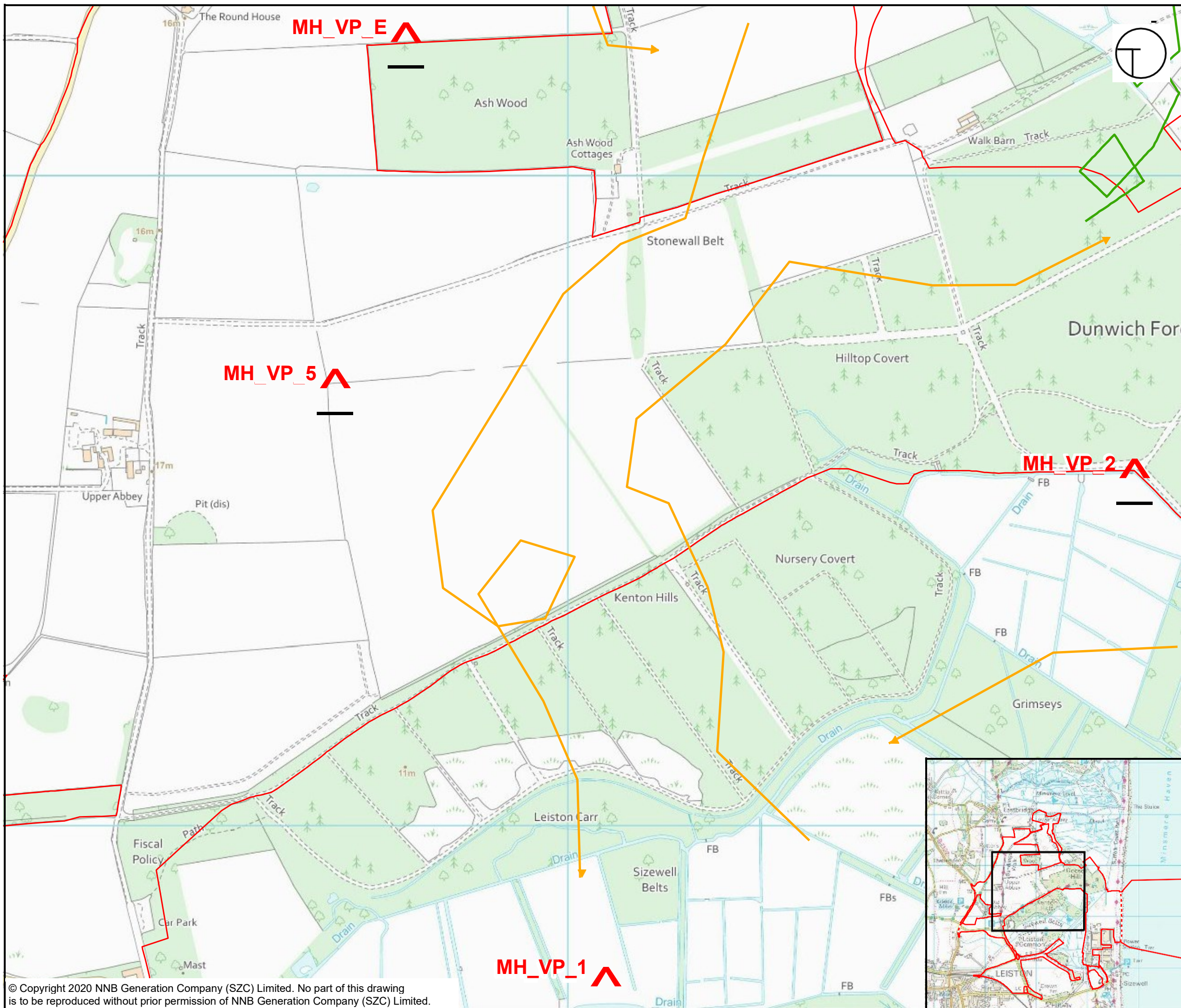
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MARSH HARRIER RESULTS

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- JUVENILE
- UNKNOWN

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APPENDIX B: LOCATIONS OF ALTERNATIVE VPS SURVEYED IN APRIL 2020

Figure 1: Alternate VP locations surveyed due to no access to MH_VP 3 in April (marked with blue dots), to cover the Minsmere South Levels survey area.



Source: Google

APPENDIX C: SURVEY DETAILS AND WEATHER CONDITIONS

Table 5 below detail the survey timings and weather conditions during each survey. Temperature (T) is measured in Celsius, cloud cover (CC) is measured in Oktas and wind speed (WS) is measured using the Beaufort Scale.

The surveys were undertaken by David-Darrell Lambert (DDL), Mike Hoit (MH), Dave Andrews (DA) and Ryan Irvine (RI).

Table 5: Survey details and weather conditions for marsh harrier surveys 2020

| Survey Month/Date | | Survey Location | Surveyor | Survey Timings (Start/End) | Weather Conditions |
|-------------------|------------|-----------------|---------------|----------------------------|---|
| April | 18/04/2020 | MH VP3a | MH | 07:45 - 10:45 | T: 8-9°C, CC: 8, WS: 3-4, light showers, excellent visibility |
| | | MH VP3b | DA | | |
| | 20/04/2020 | MH VP1 | DDL | 07:00 - 14:15 | T: 8-14°C, CC: 0, WS: 4-5, no rain, good-excellent visibility |
| | | MH VP2 | DA | 07:55 - 10:55 | |
| | | MH VPC | MH | | |
| | 22/04/2020 | MH VP4 | DA | 08:05 - 11:05 | T: 9-15°C, CC: 0, WS: 4-5, no rain, excellent visibility |
| | | MH VP5 | MH | | |
| | | MH VPA | DDL | 08:22 - 14:24 | |
| | 24/04/2020 | MH VP6 | DA | 07:50 - 14:20 | T: 8-15°C, CC: 1-4 WS: 2-3, no rain, excellent visibility |
| | | MH VPD | MH | | |
| MH VPE | | DDL | 08:35 - 14:35 | | |
| May | 11/05/2020 | MH VP1 | DDL | 06:58 - 13:00 | T: 6-10°C, CC: 4-7, WS: 4-6, light showers, excellent visibility |
| | | MH VP2 | DA | | |
| | | MH VP3 | MH | 06:25 - 12:55 | |
| | 13/05/2020 | MH VP4 | DA | 12:00 - 18:30 | T: 9-10°C, CC: 0-8, WS: 5, no rain, excellent visibility |
| | | MH VP5 | MH | | |
| | | MH VP6 | DDL | 12:06 - 18:10 | |

| Survey Month/Date | | Survey Location | Surveyor | Survey Timings (Start/End) | Weather Conditions |
|-------------------|------------|-----------------|----------|----------------------------|--|
| | 15/05/2020 | MH VP7 | DDL | 12:24 - 18:22 | T: 10-16°C, CC: 0-4, WS: 1-3, no rain, very good visibility |
| | | MH VPA | DA | 12:00 - 18:30 | |
| | | MH VPC | MH | | |
| | 25/05/2020 | MH VPE | DA | 13:05 - 19:35 | T: 18-20°C, CC: 1-3, WS: 1-3, no rain, very good visibility |
| | | MH VP3 | MH | | |
| | 30/05/2020 | MH VPD | DDL | 10:49 - 16:59 | T: 19-21°C, CC: 0 WS: 2, no rain, very good visibility |
| June | 15/06/2020 | MH VP1 | DDL | 08:36 - 14:35 | T: 17-23°C, CC: 0-3, WS: 0-3, no rain, excellent visibility |
| | | MH VP2 | DA | 05:35 - 12:05 | |
| | | MH VP3 | MH | 6:15 - 12:50 | |
| | 16/06/2020 | MH VP4 | DA | 05:40 - 12:10 | T: 16-22°C, CC: 0-3, WS: 2-4, no rain, excellent visibility |
| | | MH VP5 | MH | | |
| | | MH VP6 | DDL | 09:53 - 15:50 | |
| | 19/06/2020 | MH VP7 | DDL | 07:52 - 13:52 | T: 17-19°C, CC: 0-8 WS: 4-5, light shower, excellent visibility |
| | | MH VPA | MH | 13:00 - 19:30 | |
| | | MH VPD | DA | | |
| | 22/06/2020 | MH VPE | MH | 13:05 - 19:35 | T: 19-20°C, CC: 0-1, WS: 5-6, no rain, excellent visibility |
| | | MH VP3 | DA | 13:15 - 19:45 | |
| | 23/06/2020 | MH VPC | DDL | 10:35 - 16:35 | T: 23°C, CC: 0, WS: 4, no rain, excellent visibility |

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| Survey Month/Date | | Survey Location | Surveyor | Survey Timings (Start/End) | Weather Conditions |
|-------------------|------------|-----------------|----------|----------------------------|--|
| July | 10/07/2020 | MH VPD | DA | 06:20 - 12:50 | T: 15-16°C, CC: 7, WS: 3-4, light shower, excellent visibility |
| | | MH VP3 | MH | | |
| | 13/07/2020 | MH VP1 | DDL | 08:15 - 14:15 | T: 17-22°C, CC: 4. WS: 3-5, no rain, excellent visibility |
| | | MH VP2 | DA | 06:00 - 12:30 | |
| | | MH VP3 | MH | 06:25 - 12:55 | |
| | 15/07/2020 | MH VP4 | DA | 06:20 - 12:50 | T: 17-18°C, CC: 4-8, WS: 2-3, no rain/light showers, excellent visibility |
| | | MH VP5 | MH | 06:15 - 12:45 | |
| | | MH VP6 | DDL | 10:15 - 16:15 | |
| | 17/07/2020 | MH VP7 | DDL | 10:37 - 16:37 | T: 18-23°C, CC: 0-5, WS: 3-4, no rain, excellent visibility |
| | | MH VPA | DA | 06:25 - 12:55 | |
| | | MH VPE | MH | 06:15 - 12:45 | |
| | 20/07/2020 | MH VPC | DDL | 09:18 - 15:18 | T: 17-19°C, CC: 0-8, WS: 2, no rain, excellent visibility |
| August | 10/08/2020 | MH VP1 | DDL | 08:16 - 14:16 | T: 22-25°C, CC: 0-1, WS: 3, no rain, very good visibility |
| | 12/08/2020 | MH VP6 | DDL | 11:14 - 17:14 | T: 31°C, CC: 0 WS: 2, no rain, excellent visibility |
| | 14/08/2020 | MH VPE | DDL | 06:26 - 12:26 | T: 16-21°C, CC: 0, |

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| Survey Month/Date | Survey Location | Surveyor | Survey Timings (Start/End) | Weather Conditions | |
|-------------------|-----------------|----------|----------------------------|---|---|
| | | | | WS: 4, no rain, very good-excellent visibility | |
| 17/08/2020 | MH VPD | DA | 08:15 - 14:45 | T: 19°C, CC: 3, WS: 5, no rain, excellent visibility | |
| | MH VP3 | MH | 09:00 - 15:30 | | |
| 18/08/2020 | MH VPC | DDL | 08:18 - 12:18 | T: 16-22°C, CC: 0-6, WS: 4-5, no rain, excellent visibility | |
| | MH VP2 | DA | 09:00 - 15:30 | | |
| | MH VP5 | MH | 07:00 - 13:30 | | |
| 19/08/2020 | MH VP4 | DA | 08:50 - 15:20 | T: 21-22°C, CC: 6-7, WS: 4-6, heavy shower, good - excellent visibility | |
| | MH VPA | MH | 08:45 - 15:15 | | |
| 20/08/2020 | MH VP3 | MH | 07:30 - 14:00 | T: 22°C, CC: 1, WS: 4, no rain, poor visibility | |
| | MH VP7 | DA | | | |
| September | 14/09/2020 | MH VP1 | DDL | 10:59 - 16:59 | T: 23°C, CC: 0, WS: 1, no rain, excellent visibility |
| | | MH VP3 | MH | 07:23 - 13:53 | |
| | 15/09/2020 | MH VP3 | RI | 10:45 - 16:45 | T: 22°C, CC: 0, WS: 3, no rain, excellent visibility |
| | 16/09/2020 | MH VP5 | MH | 08:30 - 14:50 | T: 18°C, CC: 8, WS: 4, light shower, excellent visibility |
| | | MH VP6 | RI | 08:55 - 14:55 | |
| | 18/09/2020 | MH VPC | MH | 06:55 - 13:30 | T: 18°C, CC: 2, WS: 5, no rain, excellent visibility |
| 21/09/2020 | MH VP7 | MH | 08:08 - 14:38 | T: 19°C, CC: 0, | |

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| Survey Month/Date | Survey Location | Surveyor | Survey Timings (Start/End) | Weather Conditions |
|-------------------|-----------------|----------|----------------------------|---|
| | | | | WS: 1, no rain, excellent visibility |
| 21/09/2020 | MH VPD | RI | 11:50 – 17:50 | T: 20°C, CC: 0, WS: 2, no rain, excellent visibility |
| 22/09/2020 | MH VP2 | RI | 10:55 – 16:55 | T: 21°C, CC: 0, WS: 2, no rain, excellent visibility |
| 23/09/2020 | MH VP4 | RI | 11:25 – 17:25 | T: 17°C, CC: 8, WS: 2, drizzle/mist, excellent visibility |
| 29/09/2020 | MH VPE | RI | 11:45 – 17:45 | T: 17°C, CC: 8, WS: 1, light rain, good visibility |
| 30/09/2020 | MH VPA | RI | 10:35 – 16:35 | T: 16°C, CC: 8, WS: 3, no rain, excellent visibility |

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BARN OWL AND NIGHTJAR SURVEY REPORT 2020

Table 6: Results of the Fiscal Policy woodland backtracking surveys conducted

| Date (Dusk and Dawn) | Confirmed Roosts Identified | Potential Roosts Identified | Foraging Areas Identified | Commuting Routes Identified |
|----------------------|---|---|---|--|
| 22 – 23 /06/2020 | No | Common pipistrelle maternity roost very likely to be present within the 'Old Abbey' building complex (observed from a distance as did not have land access, hence did not see any bats leave or re-enter roost). | Common pipistrelles foraging along the track between Fiscal Policy and Upper Abbey Farm. | Common pipistrelle commuting line along the northern edge of Fiscal Policy/Leiston Carr. |
| 15 – 16 /07/2020 | TM 45626 63950. Bat box '2' (Leiston Carr) checked after dawn survey, contained at least 10 brown long-eared bats, including at least one baby. | A single swarming pipistrelle at dawn, around a group of mature pines near the mast. It is thought likely one of these trees is a roost, although the bat was not seen entering. | A serotine repeatedly foraged within the field along the northern boundary of Fiscal Policy (location of new access road). | No |
| 03 – 04 /08/2020 | No | Two soprano pipistrelles were recorded circling around a group of trees near the mast (field side) very early at dusk, and very late at dawn. Not seen leaving/entering roost, but it must be close. | No | No |
| 01 – 02 /09/2020 | No | Two bats were seen near the Leiston Carr bat box (TM 45626 63950) early in the dusk survey. They were flying around a distinct group of trees (probable roost location) – likely to be pipistrelle but not heard on detector. | A foraging barbastelle was recorded (and seen) within the sugar beet field east of the mast for a significant percentage of the dusk survey (was still present when we finished). | No |

4.2.4 The following bat boxes were checked following the dawn back tracking survey carried out on 6th August 2020 at Kenton Hills, following the observations of bats flying towards this area (**Table 8**). The inspections were undertaken by a licensed surveyor (Nick Downs: 2015-11591-CLS-CLS): The locations of the bat boxes are illustrated on **Figure 4**.

Table 7: Bat box check Results

| Grid Reference | Bat Box Number | Findings |
|----------------|-----------------|---|
| TM 46250 64069 | 17 | Empty |
| | 18 | Currently in use by birds |
| | 19 | Empty |
| TM 46200 64124 | 21 | Small amount of pipistrelle droppings present (approx. 5g) – likely soprano |
| | 20A | Moderate amount of pipistrelle droppings present (approx. 15g) – likely soprano |
| | 20B | Bird droppings |
| TM 46106 64286 | 31 | Birds Nest |
| TM 46083 64306 | 32 | 1x Natterer's bat (adult female) |
| TM 46060 64349 | 37 | Bird droppings (also typical Natterer's bat smell) |
| TM 46128 64269 | 33 | 1 x male common pipistrelle |
| | 24 | 6 x fresh pipistrelle droppings |
| | 35 | Empty |
| TM 46208 64137 | 22 | 30-40 Natterer's bats |
| | 23 | 30-40 Natterer's bats |
| | 24 | Approx. 3 cm deep layer of old bat droppings |
| TM 46146 64216 | 28 | Approx. 10 Natterer's bats. Not bats previously disturbed, as all semi-torpid |
| TM 46055 64347 | One bat box | Empty |
| TM 46079 64315 | Two bat boxes | Empty |
| TM 46108 64275 | One bat box | Empty |
| TM 46122 64258 | Three bat boxes | Empty |
| TM 46155 64220 | One bat box | One dead Natterer's bat inside, plus approx. 13mm deep layer of droppings |
| TM 46132 64150 | Two bat boxes | One empty, one containing 2 adult soprano pipistrelles (a male and a female) |

| Grid Reference | Bat Box Number | Findings |
|----------------|-----------------|--|
| TM 46202 64133 | Three bat boxes | Two empty, one containing approx. 50 Natterer's bats (SE facing) |
| TM 46213 64114 | Three bat boxes | Two empty, one containing 1 adult male common pipistrelle |

5 DISCUSSION

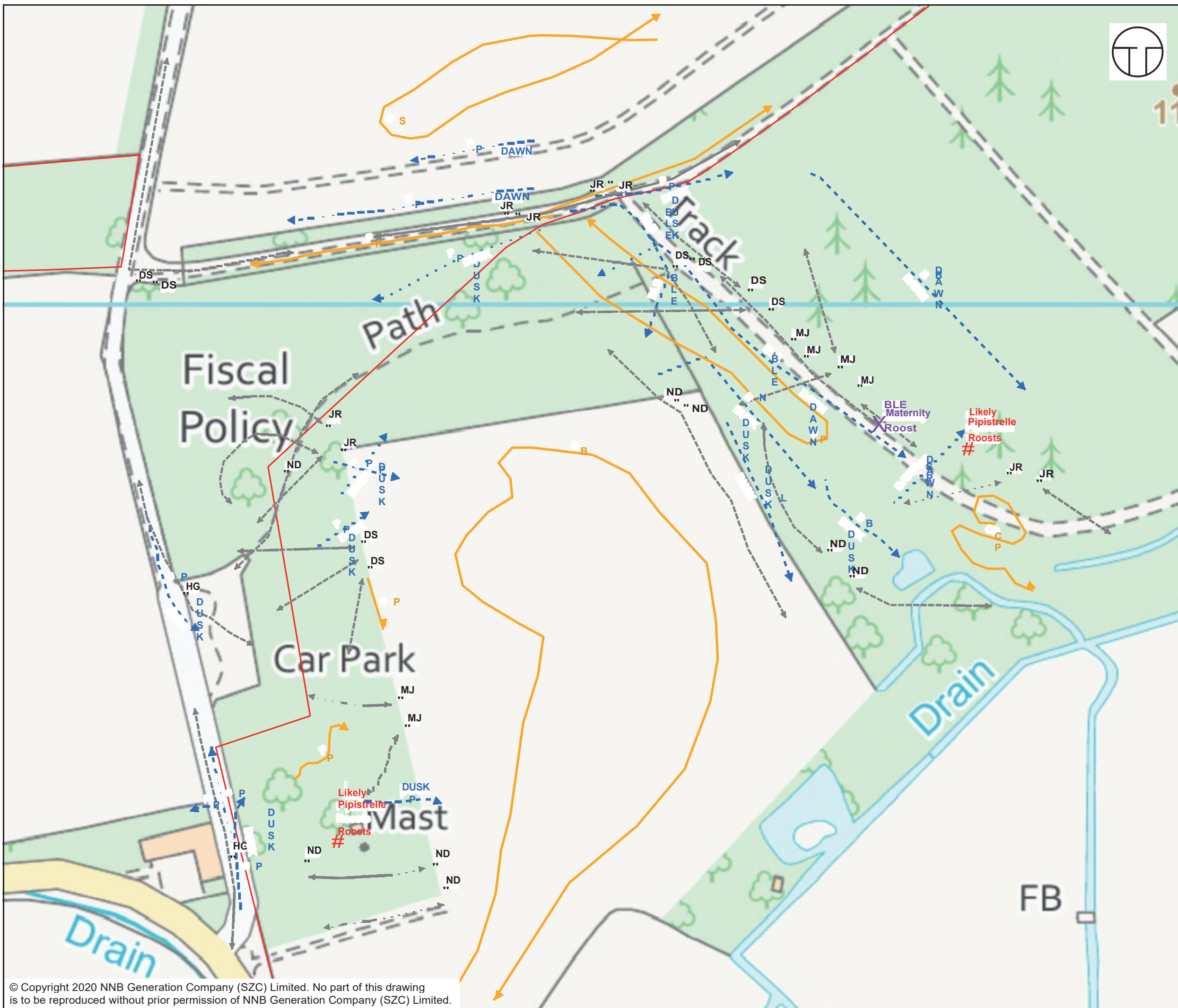
- 5.1.1 The 2020 survey results for bat backtracking surveys confirmed the continued presence of trees supporting roosting bats within and adjacent to the main development site.
- 5.1.2 Tree roosts are highly transitional (a strategy thought to be used by bats to reduce the likelihood of parasitism and predation) and therefore the chance of detection of a tree roost is reduced in comparison to other structures as the likelihood of presence during any one survey is reduced. In addition, it is possible the scheme will result in the loss of multiple trees with bat roost potential in any one particular area and therefore there is potential for a greater impact on the local population. It is therefore important to assume a proportion of potential roosts may be used by roosting bats at one time or another. This is an advantage of backtracking surveys, as they not only identify confirmed roosts, but also allow for the assessment of likely roosting use within a woodland and surrounding areas.
- 5.1.3 Fiscal Policy was found to be supporting a brown long-eared maternity roost within a bat box and several potential pipistrelle roosts. One likely pipistrelle roost was located in the vicinity of the mast to the south of Fiscal Policy. All of these were located within the areas of the woodland which are proposed to be retained.
- 5.1.4 Within the backtracking surveys at Goose Hill, no confirmed roosts within the trees proposed to be removed were identified. On 3 August 2020 one pipistrelle roost was considered likely to be located within the southern section of this woodland, around TM 47014 64624, identified through bat behaviour, but the exact location of this roost was not identified, though the southern extent of this woodland is to be retained.
- 5.1.5 Kenton Hills was found to be supporting several Natterer's maternity roosts, and pipistrelle roosts within bat boxes, and Goose Hill was found to be supporting potential pipistrelle roosts and two brown long-eared roosts. These were all in locations where the woodland will be retained.
- 5.1.6 During the surveys at Goose Hill, a number of bats were observed commuting along tracks through the woodland. Surveys were modified to

identify if these bats were roosting within Goose Hill. It was observed that the barbastelles identified appeared to originate to the south. No evidence was recorded to indicate the presence of a barbastelle roost within Goose Hill. Kenton Hills is thought to be the most likely location of the barbastelle maternity colony and Kenton Hills woodland will be retained.

- 5.1.7 During a survey at the north of Goose Hill, a single pipistrelle roost was identified in disused barns located along the northern edge of the woodland. These barns are to be retained.
- 5.1.8 The roosts/roost locations found supported Natterer's, brown long-eared, common pipistrelle and soprano pipistrelle bats but do not represent an exhaustive list of the roosts present. This is due to the large number of trees and that bats roosting within trees are highly mobile. Additional surveys (bat tree inspections) are being undertaken to gain further insight into the roost resource present.
- 5.1.9 From the suite of surveys undertaken to date, no barbastelle roosts that have been identified will be directly lost to the proposed development. However, as outlined above, not all trees to be removed have been fully surveyed for roosting potential.
- 5.1.10 Based on the current survey results presented above, the overall assessment of impacts on bats presented at Section 14.13 in the Sizewell C Project ES [[APP-224](#)] (Ref. 10) has not changed.
- 5.1.11 The backtracking results support the conclusion that Goose Hill is a low-level roost resource, with minimal numbers of trees with roosting potential and limited evidence of bat roosting behaviour. Despite the high number of trees being lost, it is considered that the overall impact on roosting bats would be low.
- 5.1.12 The backtracking results indicate that Fiscal Policy is a moderate level roost resource, though only a small area of this woodland is proposed for clearance. The roosts identified to date are located in areas to be retained.
- 5.1.13 The results of the 2020 backtracking surveys do not change the overall assessment of impacts to bats in the Sizewell C Project ES [[APP-224](#)] (Ref. 10) are not considered to change the proposed mitigation detailed in the Bat Mitigation Strategy [[APP-252](#)] (Ref 3) and Bat Method Statement [[APP-252](#)] (Ref. 2) which will form the basis of a Licence Method Statement anticipating that there will be additional bat roosts in trees that will be required to be removed.

REFERENCES

1. EDF 2020. Sizewell C Project – Main Development Site: Volume 2, Chapter 14: Appendix 14A8 – Bats. [[APP-242](#), [APP-243](#), [APP-244](#), [APP-245](#) and [APP-246](#)]
2. EDF 2020. Sizewell C Project – Main Development Site: Volume 2, Chapter 14: Appendix 14C1B – Bat Method Statement. [[App-252](#)]
3. EDF 2020. Sizewell C Project – Main Development Site: Volume 2, Chapter 14: Appendix 14C1A – Bat Mitigation Strategy. [[APP-252](#)]
4. Wildlife and Countryside Act, as amended. 1981. (Online) Available from <http://www.legislation.gov.uk/ukpga/1981/69>
5. Statutory Instruments 2017 No. 1012. The Conservation of Habitats and Species Regulations 2017.
6. Suffolk Biodiversity Partnership. Suffolk Local Biodiversity Action Plan. May 2012. (Online). Available from: https://www.suffolkbis.org.uk/sites/default/files/biodiversity/priorityspecieshabitats/actionplans/Planning_BAP_Final%2018%20May%202012.pdf (Accessed 7 February 2019).
7. Natural Environment and Rural Communities Act. 2006. (Online). Available from: <http://www.legislation.gov.uk/ukpga/2006/16/contents>.
8. Chartered Institute of Ecology and Environmental Management. Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland. Terrestrial, Freshwater, Coastal and Marine. Winchester: CIEEM, 2018
9. Collins. 2016. Bat Surveys for Professional Ecologists: Good Practice Guidelines. 3rd edition. London: The Bat Conservation Trust
10. EDF 2020. Sizewell C Project – Main Development Site: Volume 2, Chapter 14: Terrestrial Ecology and Ornithology. [[APP-224](#)]



NOTES

KEY

- MAIN DEVELOPMENT SITE**
- SIZEWELL C MAIN DEVELOPMENT SITE BOUNDARY
- - - DEMARCATION LINE
- ↔ INDICATIVE SURVEYOR MOVEMENTS
- SURVEYOR STARTING POSITION
- # INDICATIVE PIPISTRELLE ROOSTS
- # LIKELY PIPISTRELLE ROOSTS
- X BAT ROOST

BEHAVIOUR

- ▶ COMMUTING
- ▶ FORAGING

KEY

- B - BARBASTELLE
- BLE - BROWN LONG-EARED
- CP - COMMON PIPISTRELLE
- L - LEISLER
- N - NOCTULE
- P - PIPISTRELLE SPECIES
- S - SEROTINE
- SP - SOPRANO PIPISTRELLE

KEY FOR SURVEYOR STARTING POSITION

- DS - DUNCAN SWEETING
- ND - NICK DOWNS
- HG - HENRY GUNNING
- MJ - MARIELLE JAMES
- JR - JAMES ROWLAND
- AK - ALISTAIR KILLINGSWORTH
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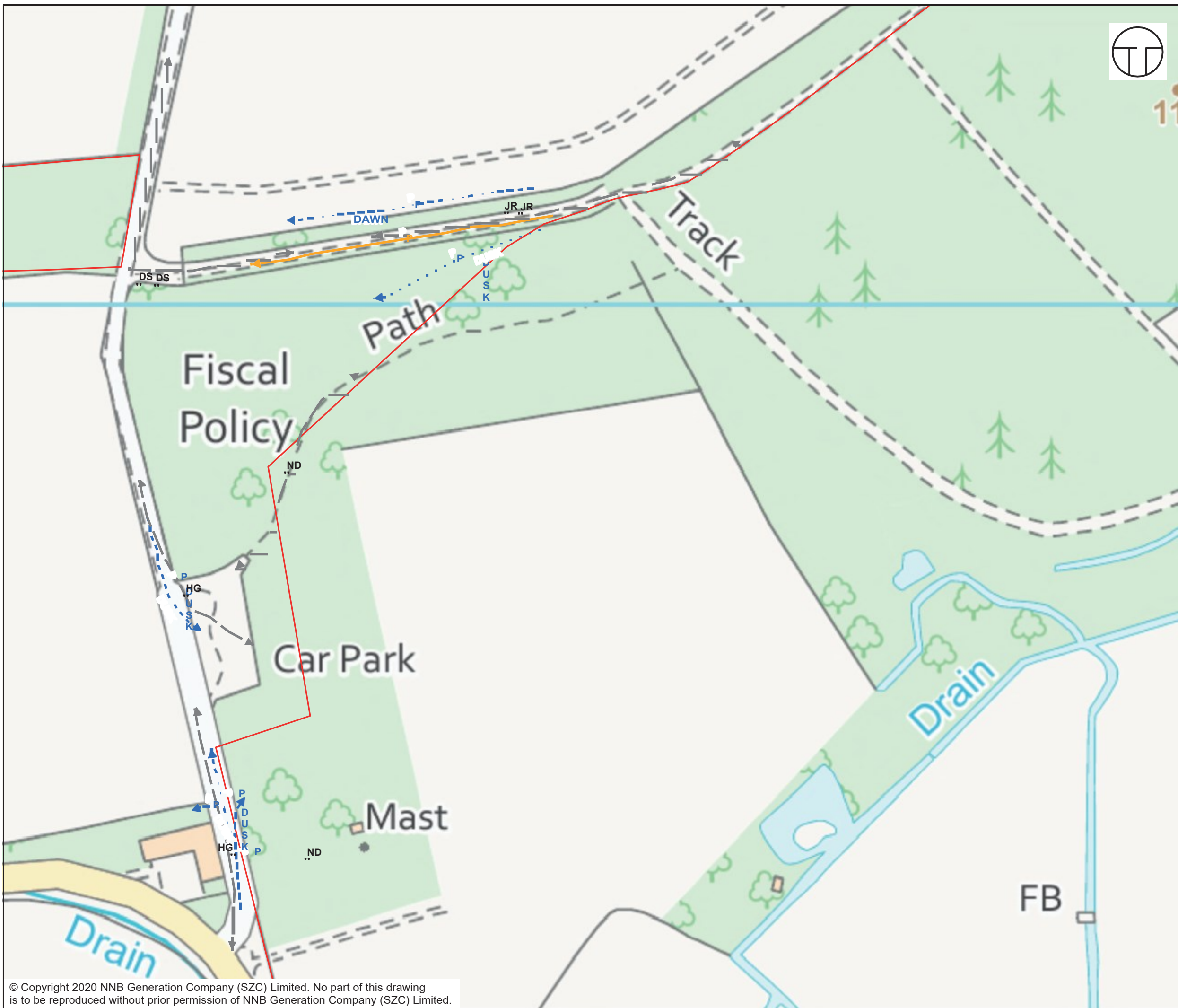
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 BAT BACKTRACKING RESULTS -
 OVERVIEW 2020

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NOTES

KEY

MAIN DEVELOPMENT SITE
 ——— SIZEWELL C MAIN DEVELOPMENT SITE BOUNDARY

- - - - - DEMARCATION LINE

" SURVEYOR STARTING POSITIONS

← INDICATIVE SURVEYOR MOVEMENTS

BEHAVIOUR

▶ COMMUTING

▶ FORAGING

KEY

P - PIPISTRELLE SPECIES

KEY FOR SURVEYOR STARTING POSITIONS

DS - DUNCAN SWEETING

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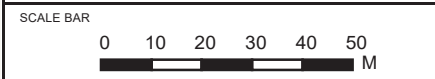


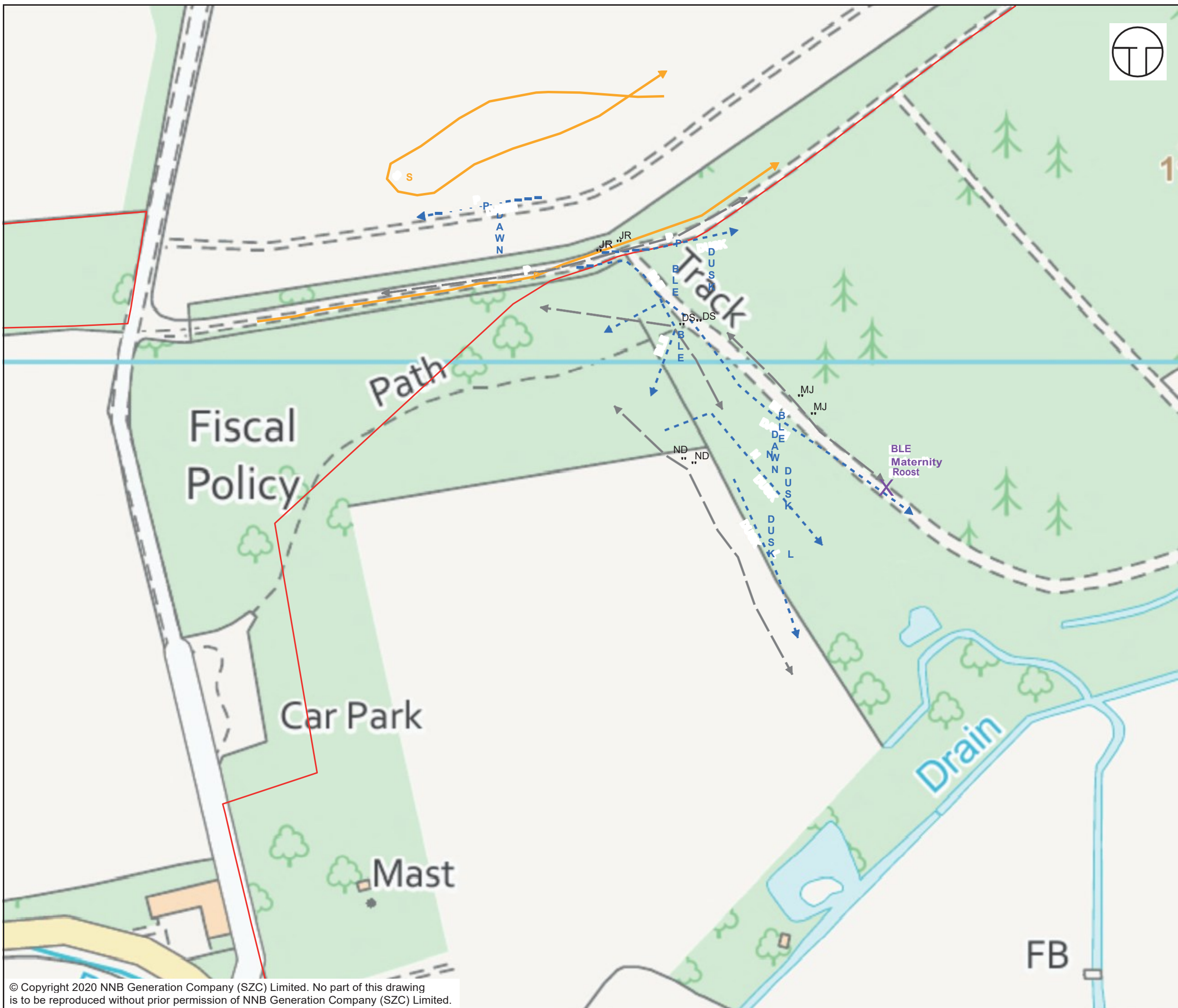
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 BAT BACKTRACKING RESULTS - JUNE 2020

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NOTES

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MAIN DEVELOPMENT SITE
 — SIZEWELL C MAIN DEVELOPMENT SITE BOUNDARY

- - - DEMARICATION LINE
 * SURVEYOR STARTING POSITIONS

X BAT BOX
 ⇄ INDICATIVE SURVEYOR MOVEMENTS

BEHAVIOUR

▶ COMMUTING
 → FORAGING

KEY

B - BARBASTELLE
 BLE - BROWN LONG EARED
 L - LEISLER'S
 N - NOCTULE
 P - PIPISTRELLE SPECIES
 S - SEROTINE

KEY FOR SURVEYOR STARTING POSITIONS

DS - DUNCAN SWEETING
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 MJ - MARIELLE JAMES
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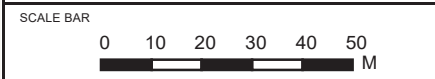
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 BAT BACKTRACKING RESULTS 2020

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NOTES

KEY

- MAIN DEVELOPMENT SITE**
- SIZEWELL C MAIN DEVELOPMENT SITE BOUNDARY
- DEMARCATION LINE
- " SURVEYOR STARTING POSITION →
- INDICATIVE SURVEYOR MOVEMENTS
- # LIKELY PIPISTRELLE ROOST BEHAVIOUR
- ▶ COMMUTING
- FORAGING
- KEY**
- B - BARBASTELLE
- P - PIPISTRELLE SPECIES

- KEY FOR SURVEYOR**
- DS - DUNCAN SWEETING
- ND - NICK DOWNS
- MJ - MARIELLE JAMES
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Likely
Pipistrelle
Roosts
#

Likely
Pipistrelle
Roosts
#

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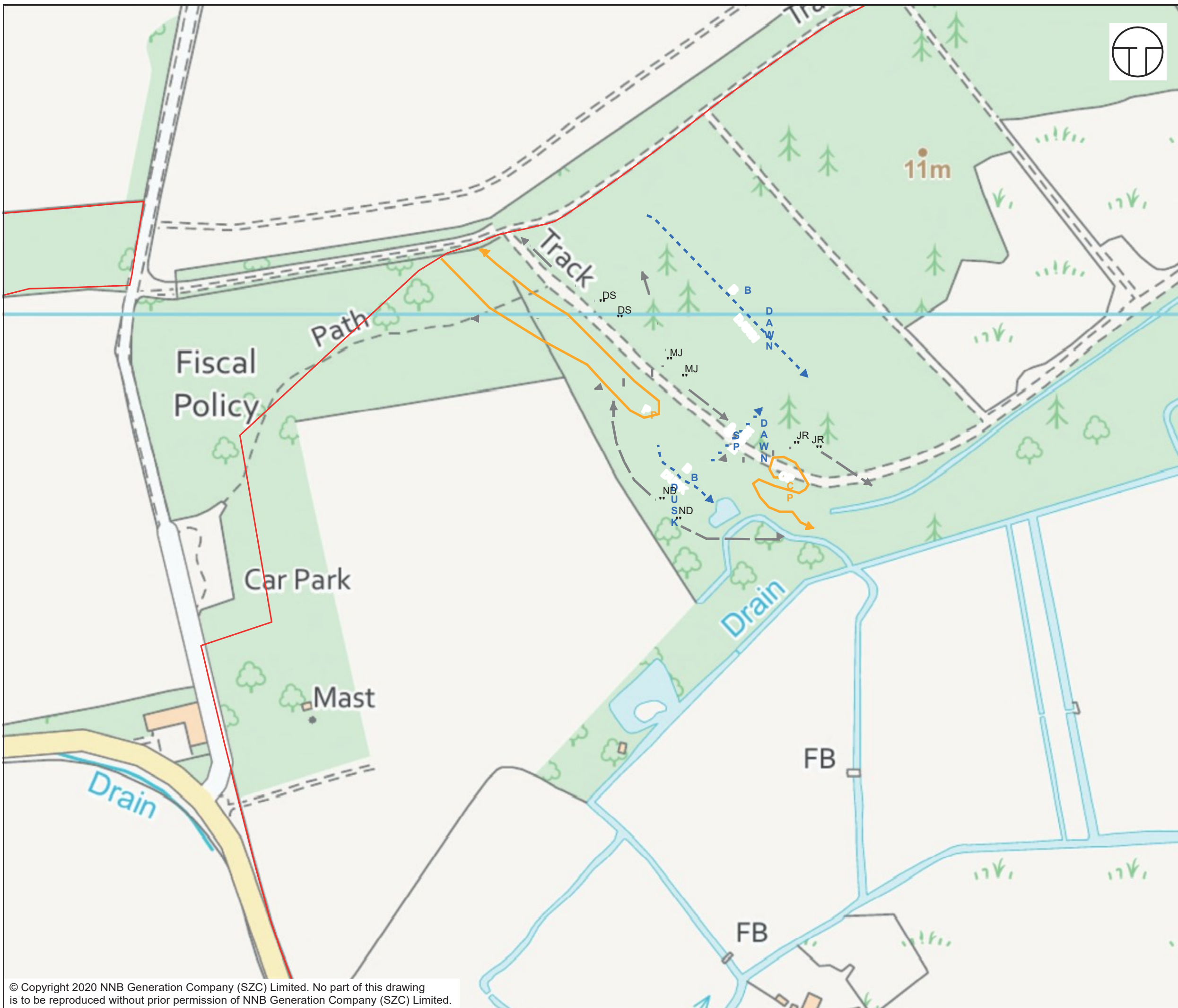
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NOTES

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- MAIN DEVELOPMENT SITE**
- SIZEWELL C MAIN DEVELOPMENT SITE BOUNDARY
 - - - DEMARCATION LINE
 - INDICATIVE SURVEYOR MOVEMENTS
 - " SURVEYOR STARTING POSITIONS
 - # INDICATIVE PIPISTRELLE ROOST BEHAVIOUR
 - ▶ COMMUTING
 - ▶ FORAGING

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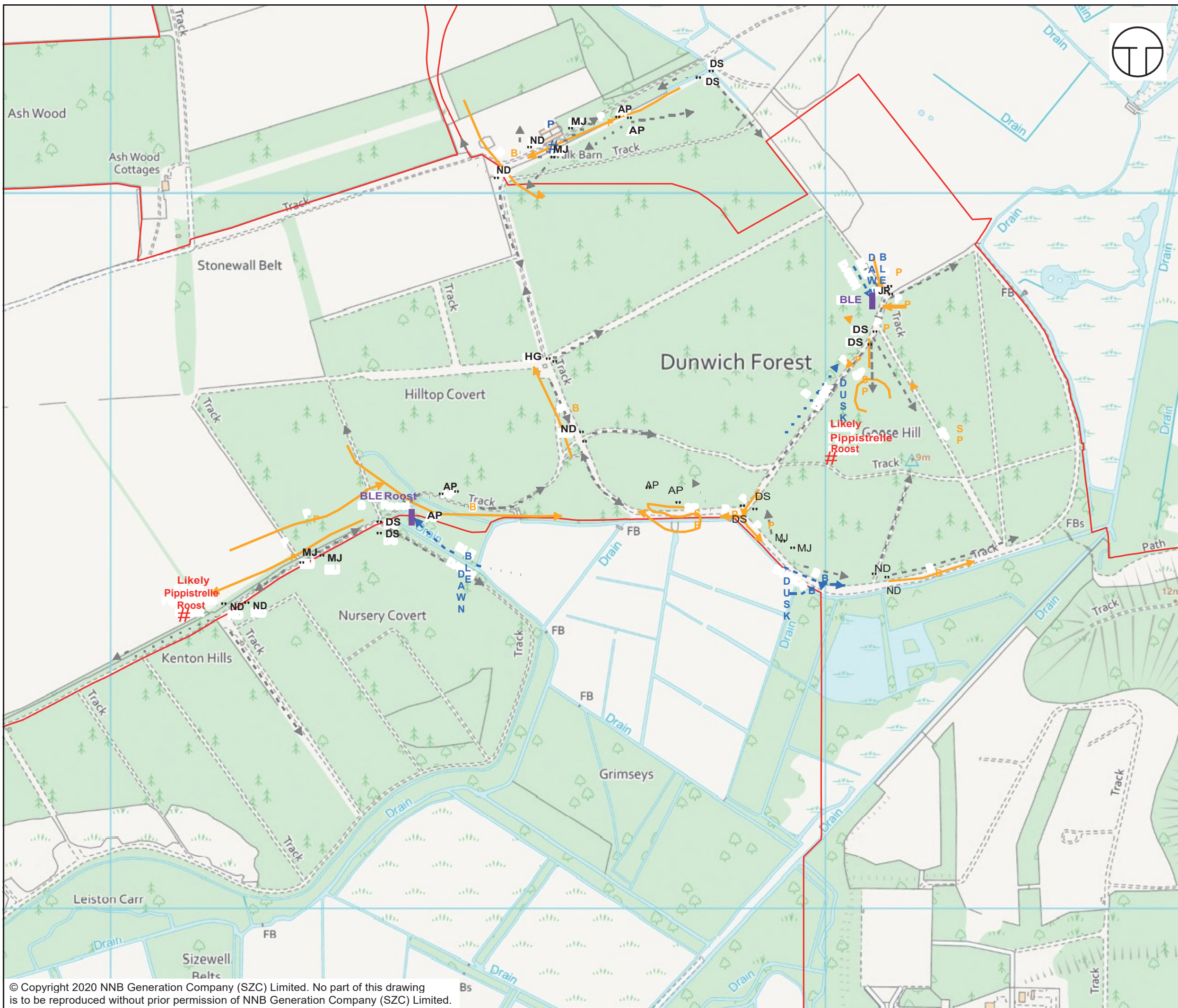
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NOTES

KEY

- MAIN DEVELOPMENT SITE**
- SIZEWELL C MAIN DEVELOPMENT SITE BOUNDARY
- - - - DEMARCATION LINE
- SURVEYOR STARTING POSITION
- # LIKELY PIPPISTRELLE ROOST
- # BUILDING ROOST
- # TREE ROOST
- ▶ INDICATIVE SURVEYOR MOVEMENTS

BEHAVIOUR

- ▶ COMMUTING
- ▶ FORAGING

KEY

- B - BARBASTELLE
 - BLE - BROWN LONG-EARED
 - P - PIPISTRELLE SPECIES
 - SP - SOPRANO PIPISTRELLE
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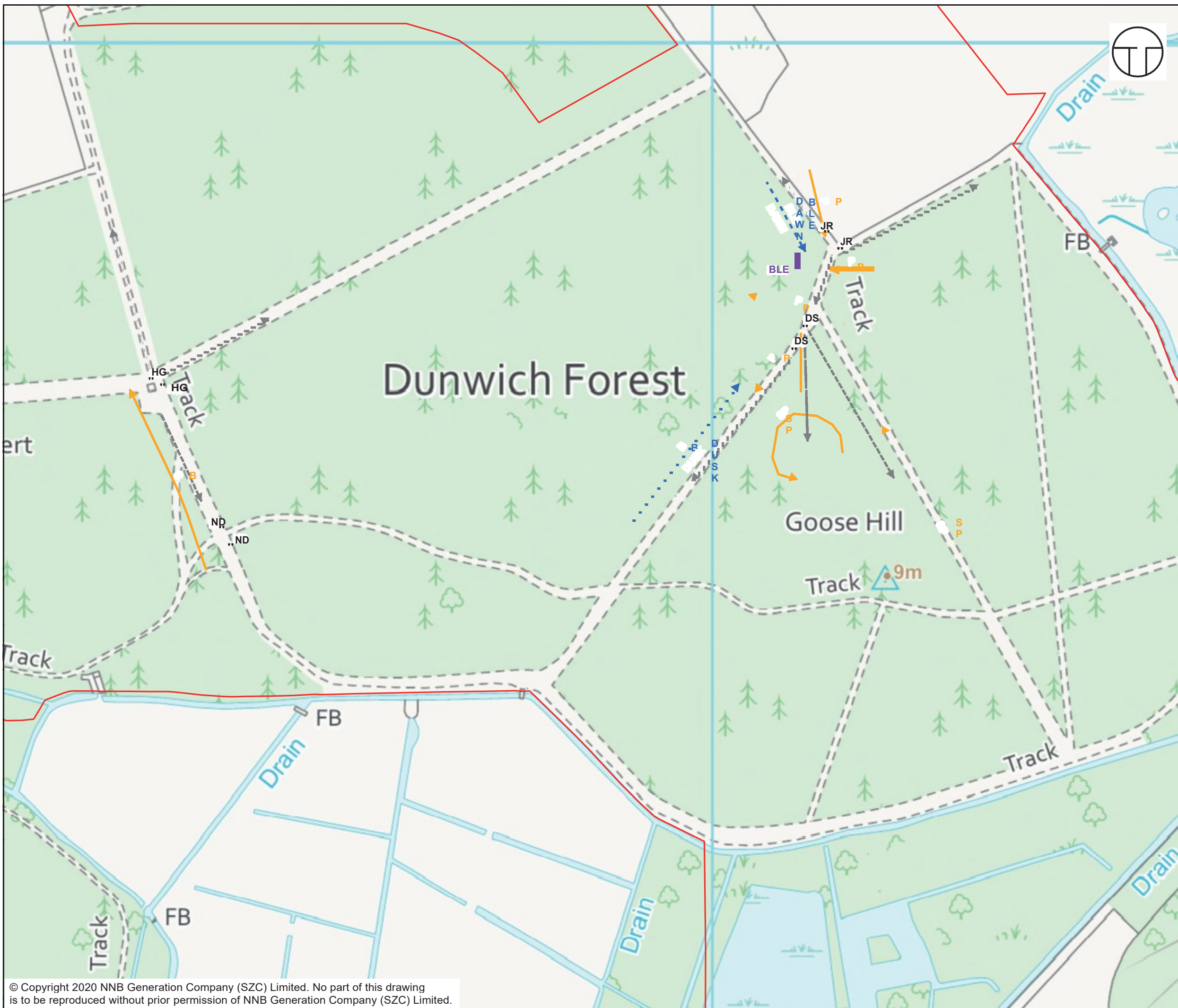
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 BAT BACKTRACKING RESULTS -
 OVERVIEW 2020

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NOTES

KEY

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- SIZEWELL C MAIN DEVELOPMENT SITE BOUNDARY
- - - DEMARCATION LINE
- SURVEYOR STARTING POSITION

- TREE ROOST
- INDICATIVE SURVEYOR MOVEMENTS
- BEHAVIOUR
- COMMUTING
- FORAGING

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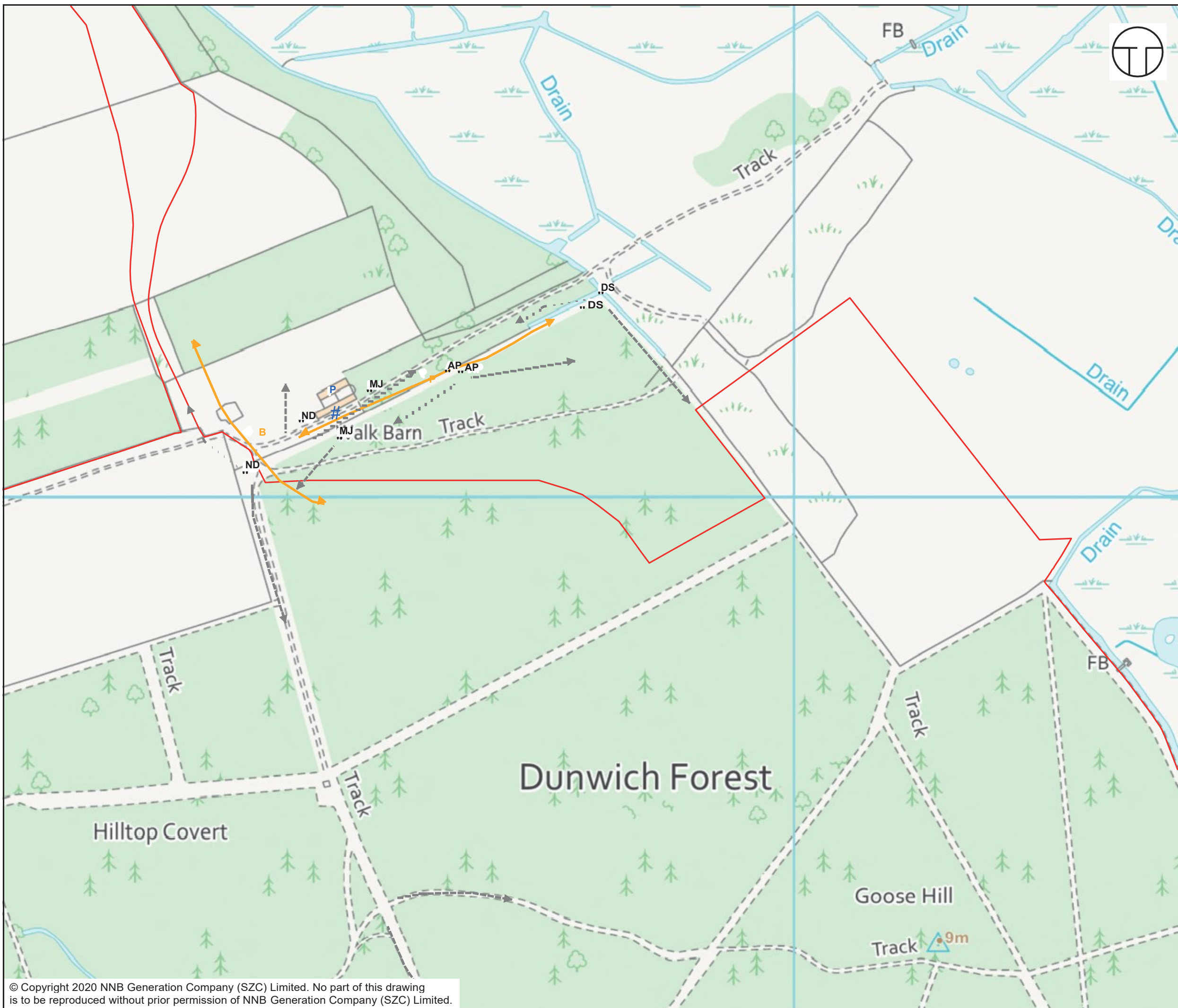
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 BAT BACKTRACKING RESULTS

DRAWING NO:
 FIGURE 2

DATE: SEPT 2020 DRAWN: Y.G. SCALE: 1:2,500 @A3 REV: 01





NOTES

KEY

- MAIN DEVELOPMENT SITE**
- SIZEWELL C MAIN DEVELOPMENT SITE BOUNDARY
- - - - DEMARCATION LINE
- INDICATIVE SURVEYOR MOVEMENTS
- SURVEYOR STARTING POSITION
- # BUILDING ROOST
- BEHAVIOUR**
- ↗ FORAGING

KEY

- B - BARBASTELLE
- P - PIPISTRELLE SPECIES

KEY FOR SURVEYOR

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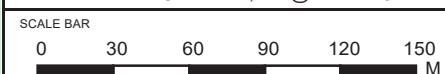


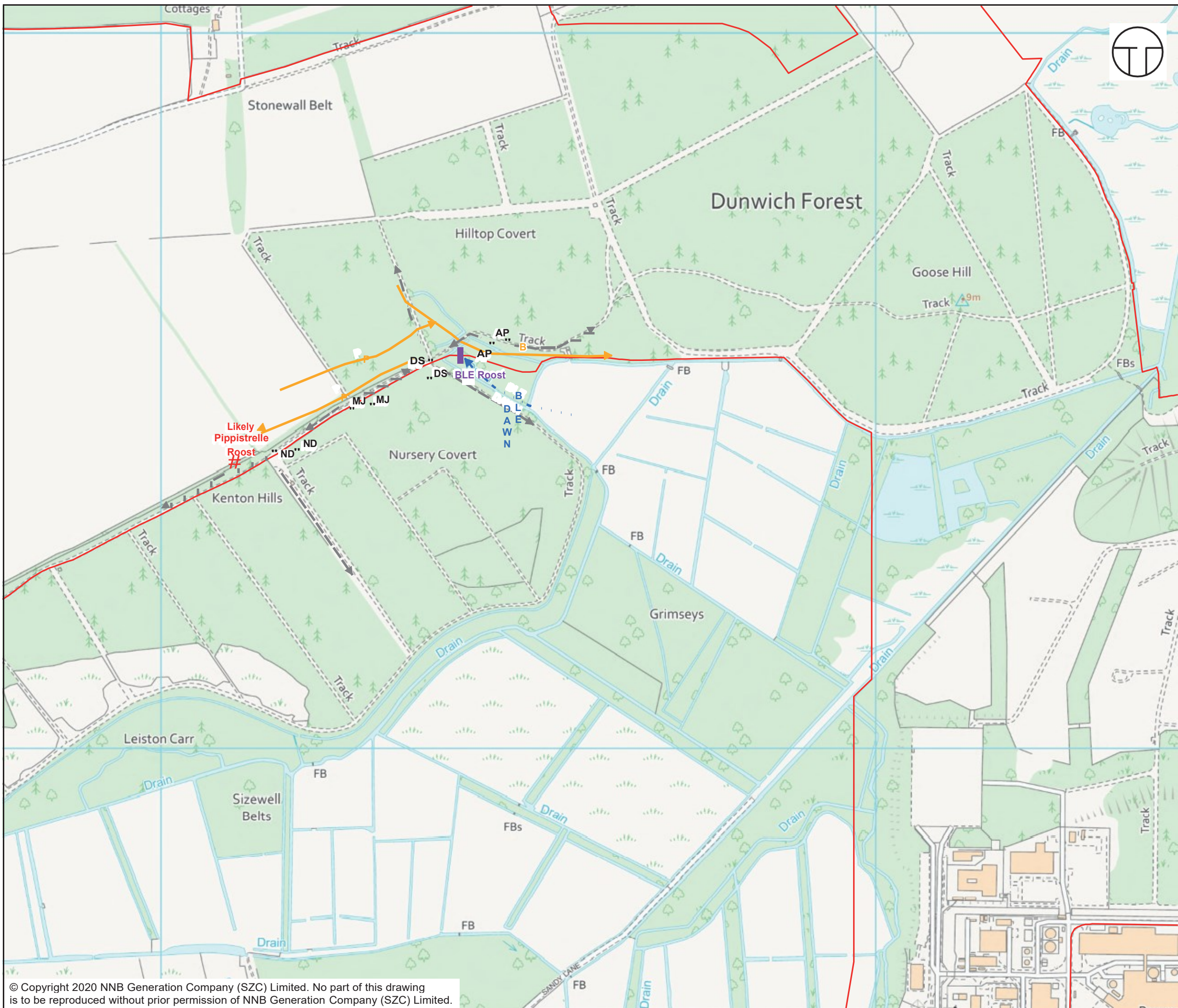
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NOTES

KEY

- MAIN DEVELOPMENT SITE**
- SIZEWELL C MAIN DEVELOPMENT SITE BOUNDARY
- - - DEMARCATION LINE
- SURVEYOR STARTING POSITION
- TREE ROOST
- # LIKELY PIPPISTRELLE ROOSTS
- ➔ INDICATIVE SURVEYOR MOVEMENTS

BEHAVIOUR

- ➔ COMMUTING
- ➔ FORAGING

KEY

- B - BARBASTELLE
- BLE - BROWN LONG-EARED
- P - PIPISTRELLE SPECIES

KEY FOR SURVEYOR

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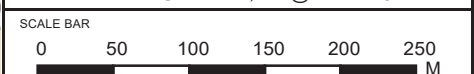


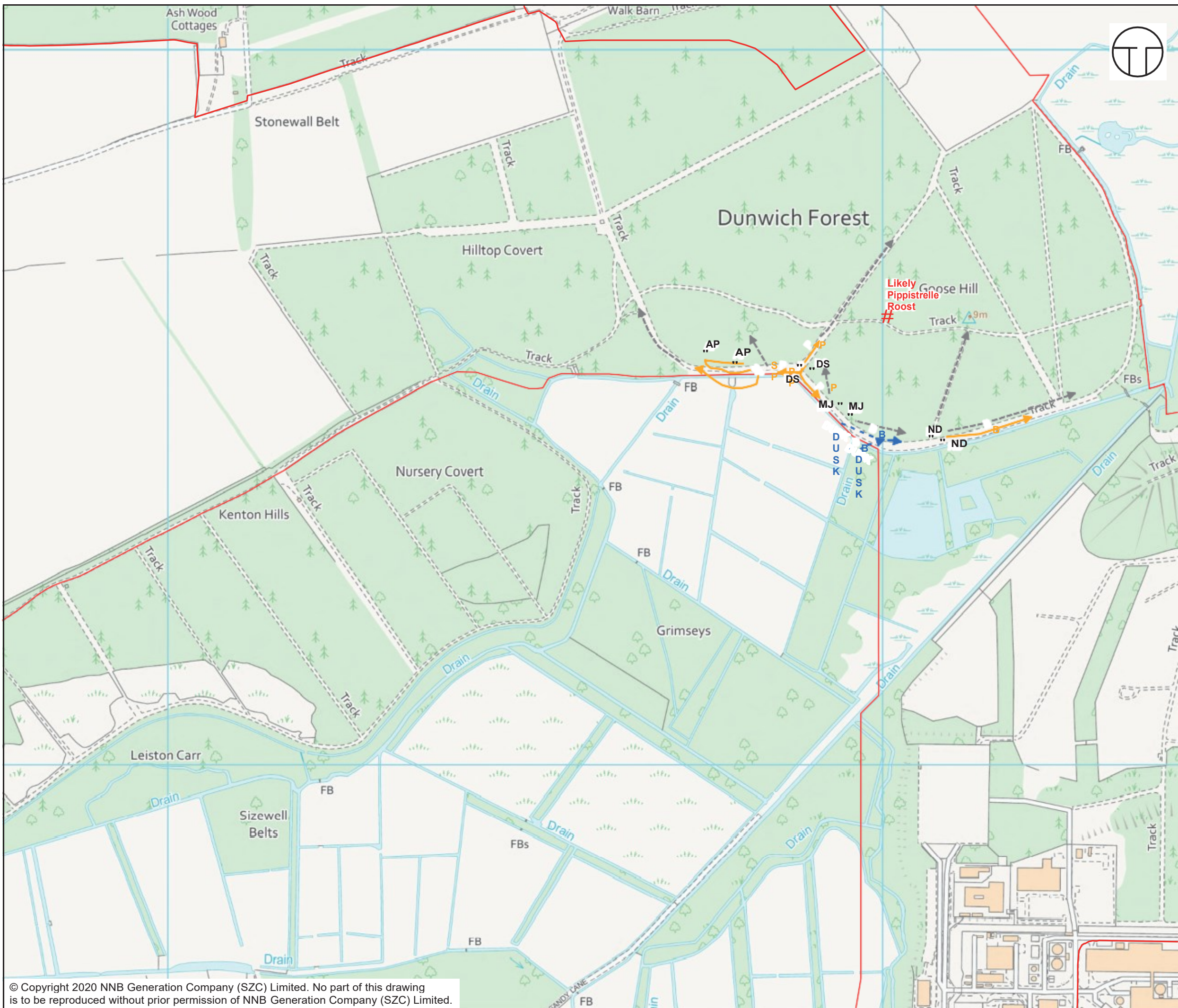
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 BAT BACKTRACKING RESULTS

DRAWING NO:
 FIGURE 2

DATE: SEPT 2020 DRAWN: Y.G. SCALE: 1:5,000 @A3 REV: 01





NOTES

KEY

- MAIN DEVELOPMENT SITE**
- SIZEWELL C MAIN DEVELOPMENT SITE BOUNDARY
- - - DEMARCATION LINE
- SURVEYOR STARTING POSITIONS
- # LIKELY PIPPISTRELLE ROOST
- INDICATIVE SURVEYOR MOVEMENTS
- BEHAVIOUR**
- ▶ COMMUTING
- FORAGING

KEY

- B - BARBASTELLE
- P - PIPPISTRELLE SPECIES
- SP - SOPRANO PIPPISTRELLE
- KEY FOR SURVEYOR STARTING POSITION**
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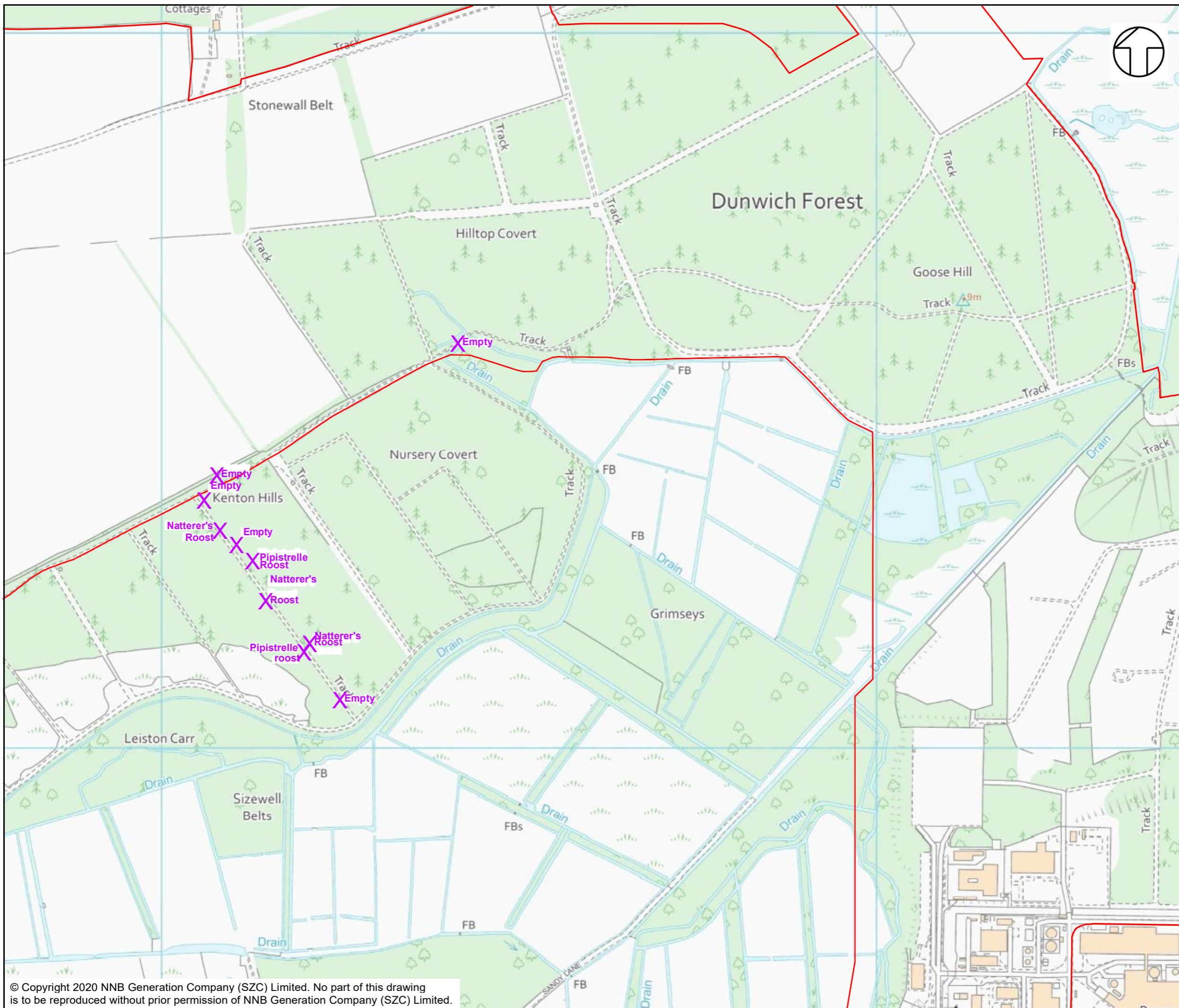
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NOTES

KEY

- MAIN DEVELOPMENT SITE**
- SIZEWELL C MAIN DEVELOPMENT SITE BOUNDARY
- - - DEMARCATION LINE
- X BAT BOX

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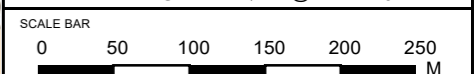


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NOTES

KEY

MAIN DEVELOPMENT SITE

— SIZEWELL C MAIN DEVELOPMENT SITE BOUNDARY

— DEMARCATION LINE

█ TREE ROOST

█ BUILDING ROOST

✕# BAT ROOST

LIKELY PIPPISTRELLE ROOST

KEY FORAGING AREA

KEY COMMUTING ROUTE

BEHAVIOUR

COMMUTING

FORAGING

KEY FOR SPECIES

B - BARBASTELLE

BLE - BROWN LONG-EARED

CP - COMMON PIPPISTRELLE

L - LEISLER

N - NOCTULE

P - PIPPISTRELLE SPECIES

S - SEROTINE

SP - SOPRANO PIPPISTRELLE

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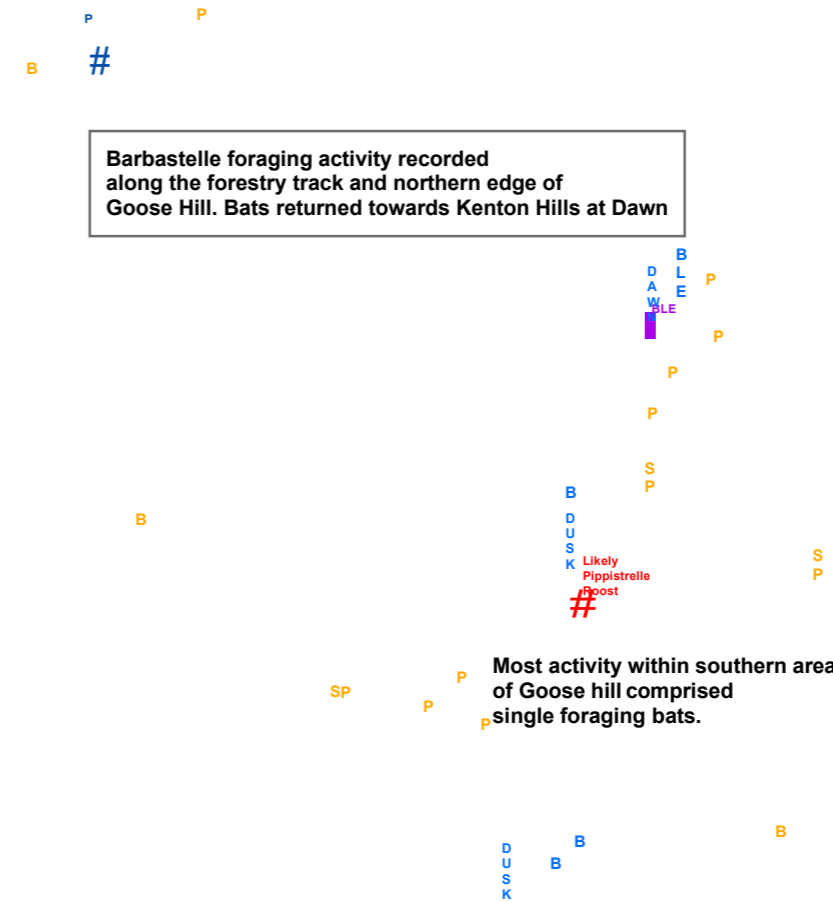
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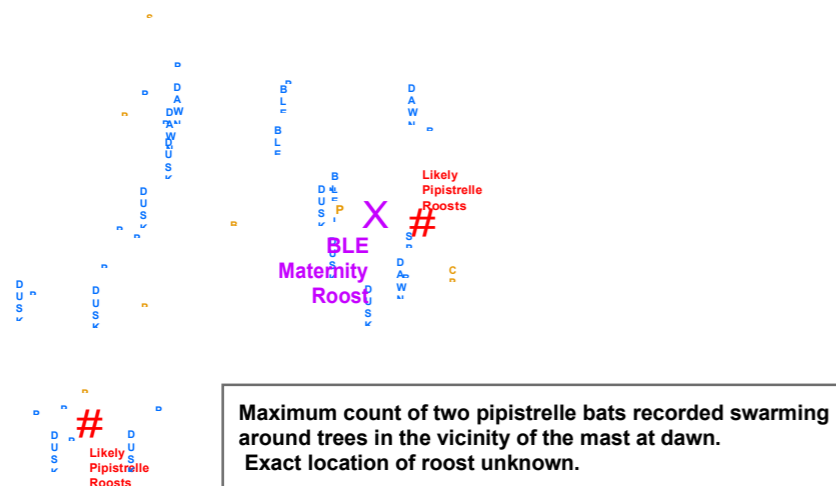
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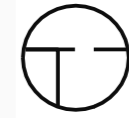
Pipistrelle commuting activity traced back to Old Abbey Farm building complex. No access provided so exact location within the complex has not been determined.

Bat commuting towards Kenton Hills at Dawn, including Barbastelle, though no definitive location for a roost identified. The surveyor located nearest to Kenton Hills always detected the first bat on the dusk surveys. Bat box inspections identified several roosts within this woodland including two Natterer's maternity colonies.

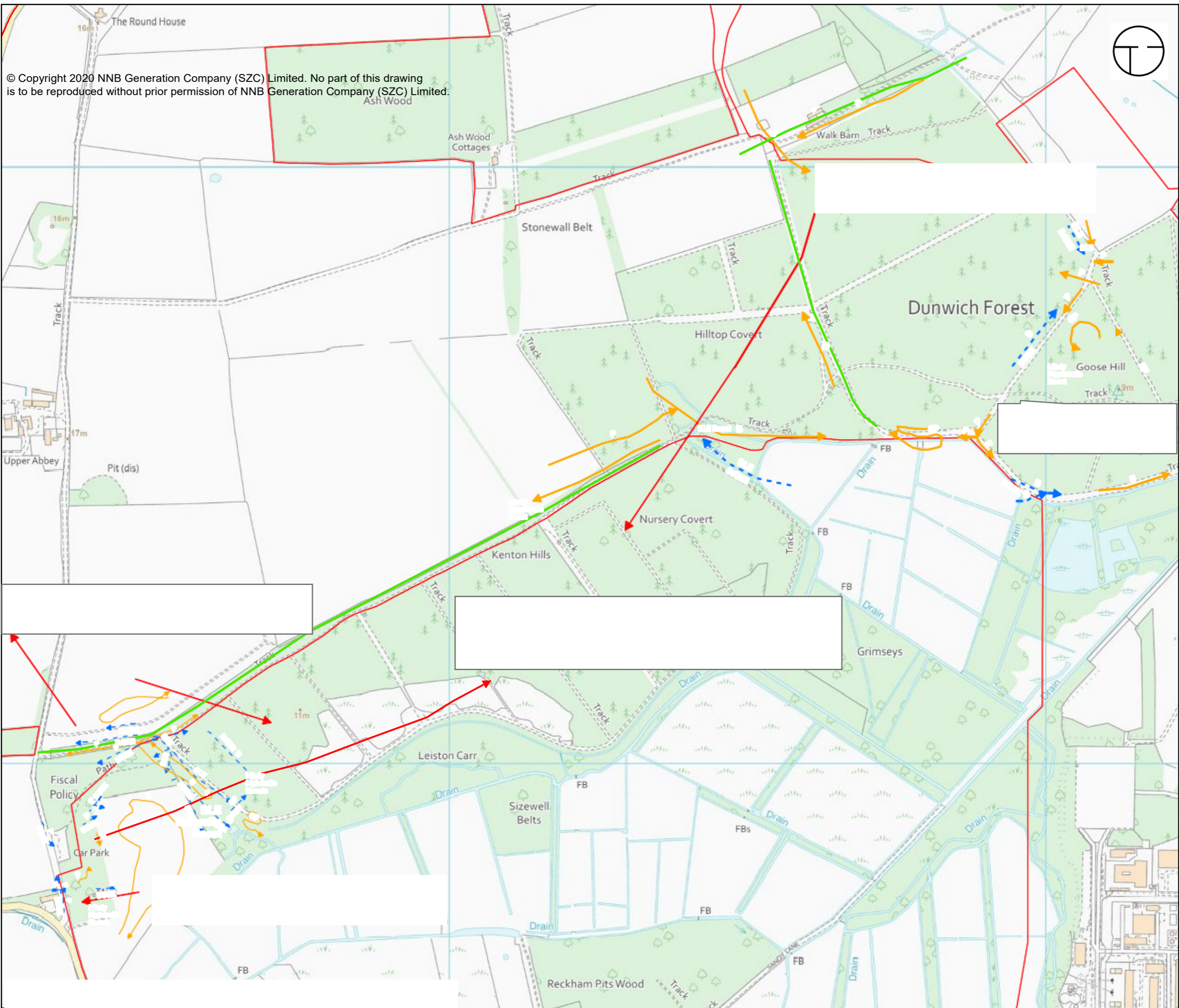


Maximum count of two pipistrelle bats recorded swarming around trees in the vicinity of the mast at dawn. Exact location of roost unknown.

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BARN OWL AND NIGHTJAR SURVEY REPORT 2020

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PLATES

None Provided.

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Figure 2: Barn Owl Results – All Surveys 2020

Figure 3: Barn Owl Results April 2020

Figure 4: Barn Owl Results May 2020

Figure 5: Barn Owl Results June 2020

APPENDICES

APPENDIX A: FIGURES 13

APPENDIX B: INCIDENTAL SIGHTINGS 14

1 INTRODUCTION

- 1.1.1 This report presents the findings of the barn owl (*Tyto alba*) and nightjar (*Caprimulgus europaeus*) surveys undertaken in May and June 2020 (inclusive) on the main development site of the proposed Sizewell C Nuclear Power Station project (hereafter referred to as ‘the Sizewell C Project’).
- 1.1.2 The surveys are part of on-going ecological monitoring of the main development site, following previous surveys undertaken on the site [[APP-238](#) and [APP-238](#)] (Ref. 1 and Ref. 2). These data will contribute to mitigation and monitoring proposals throughout the planning, enabling and construction phases of the proposed development. Monitoring will be undertaken over the 9 to 12 years of the main development site construction and these data will also inform any operational monitoring, detailed mitigation and ongoing site management.

2 METHODOLOGY

2.1 Field Surveys

- 2.1.1 A suite of bird surveys is currently being carried out on the proposed main development site, the barn owl and nightjar methodologies are detailed below, which follow previous survey methods detailed in the Volume 2, Chapter 14 Appendix 14A7 of the Sizewell C Project Environmental Statement (ES) [[APP-237](#)] (Ref. 3).
- 2.1.2 The surveys are being undertaken by surveyors equipped with binoculars to aid identification. Observations are being entered onto iPads, with the focus of the surveys being barn owl and nightjar. However, other sightings are also being recorded including the Important Ecological Features (IEFs) brought forward from the ornithology baseline into the 2019 detailed Ecological Assessment of the main development site [[APP-237](#) and [APP-238](#)] (Ref. 4). Additionally, all notable species are being recorded which includes species listed on Schedule 1 of the Wildlife and Countryside Act, 1981 (as amended) (Ref. 5), red and amber listed Birds of Conservation Concern (BoCC) (Ref. 6) and Species of Principal Importance under Section 41 (S41) of the Natural Environment and Rural Communities (NERC) Act, 2006 (Ref. 7). All IEF’s and notable species observed or heard were identified, counted and their location and distribution recorded along with key behavioural features.

2.2 Barn Owl Surveys

2.2.1 Barn owl are considered to be an IEF species [[APP-237](#) and [APP-238](#)] (Ref. 4) and are listed on Schedule 1 of the Wildlife and Countryside Act, 1981 (as amended) (Ref. 5). They are included on the Green List of BoCC (Ref. 6) due to their recent recovery and are listed as a priority species in Suffolk (Ref. 8).

2.2.2 The aim of the barn owl surveys was to establish a baseline for ongoing monitoring of breeding and foraging barn owl (which are known to have previously bred within the EDF Energy estate) [[APP-238](#)] (Ref. 1).

2.2.3 Barn owl transect (BO_T) surveys were undertaken in May and June 2020 (inclusive). Two surveys were carried out per month by two surveyors on four different transect routes (refer to **Figure 1** in **Appendix A** for the transect locations):

- Transect 1 (BO_T 1)
- Transect 2 (BO_T 2)
- Transect 3 (BO_T 3)
- Transect 4 (BO_T 4)

2.2.4 A combination of dusk and dawn transect surveys were undertaken, commencing approximately half an hour before dusk or half an hour before dawn. Each transect was walked and surveyors scanned the fields and hedgerows for any barn owl activity. Any observations of barn owl, flight lines and associated target notes were recorded.

2.2.5 The area around the main development site provides a range of habitat suitability for barn owl. The most suitable foraging habitat lies within Sizewell Marshes SSSI and areas of the Minsmere South Levels which are largely outwith the main development site red line boundary. The BO_T transects were undertaken within the main development site around the arable fields, with relatively narrow field margins, near to the breeding and roost sites, to the north of Kenton Hills. Building and tree inspections are also recommended to identify any barn owl breeding sites.

2.3 Nightjar Surveys

2.3.1 Nightjar are considered to be an IEF species [[APP-237](#)] (Ref. 3) and are regarded as being of medium conservation importance in the UK following its inclusion on the Amber List of BoCC (Ref. 5). This inclusion is due to a moderate breeding range decline of 45% since the first BoCC review (Ref.

5). Nightjar is also listed as a priority species in S41 of the NERC Act (2006) (Ref. 6) and a priority species in Suffolk (Ref. 7).

- 2.3.2 The aim of the nightjar transect (NJ_T) surveys was to identify whether breeding nightjar were present within the most suitable habitats within the MDS, Kenton Hills and Goose Hill woodland, although these areas are sub-optimal or largely unsuitable for breeding nightjar (due to small size, lack of suitable connectivity, overgrown etc.).
- 2.3.3 There are optimal habitats for nightjar at Dunwich/Westleton Heaths outside the main development site (3.5km to north of the site). Following the MDS survey in May, the surveyors assessed activity at Dunwich Heath for a calibrated comparison. Three singing nightjars were recorded in five minutes and wing-clapping was also heard. This confirms that nightjar are breeding in these habitats to the north of the RSPB Minsmere Reserve.
- 2.3.4 Nightjar walking transect surveys were undertaken in May and June 2020 (inclusive), with one survey undertaken on one transect (NJ_T 1) per month. The transect is located in an area that was previously considered to be a suitable breeding habitat [[APP-237](#)] (Ref. 3), notably open areas of forestry clear-fell and young plantations (refer to **Appendix A**, for the transect location).
- 2.3.5 The transect route was walked by two surveyors and commenced around dusk. Observations of nightjar were to be recorded, along with the song of breeding males and wing claps (if heard).

2.4 Limitations

a) Barn Owl

- 2.4.1 During the barn owl survey on 22nd May, there were unforeseen rain showers. The survey still took place due to prescribed site attendance protocols; however, it should be noted that the weather was not optimal for foraging barn owls. Due to suitable weather conditions on all other surveys, this is not considered to be a major limitation.

3 SURVEY RESULTS

3.1 Barn Owl Dedicated Survey and Incidental Observations

- 3.1.1 The four BO_Ts were surveyed twice a month in May and June 2020 (inclusive), **Table 1** below details the results of the surveys. Refer to **Figures 2-5 in Appendix A**.

Table 1: Results of barn owl surveys in May and June 2020.

| Date | Transect | Survey Timings | Surveyors* | Weather Conditions | Results |
|------------|----------|-----------------------|------------|---|---|
| 22/05/2020 | BO_T 1 | Dawn 03:50 – 05:05 | MH & DA | Temp: 16°C, cloud cover: 8/8, light breeze, light showers | No barn owl were recorded. Rain showers during survey which were not forecast. |
| 25/05/2020 | BO_T 2 | Dusk 20:45 – 22:05 | MH & DA | Temp: 15°C, cloud cover: 0/8, light air, no rain | No barn owl were recorded. |
| 26/05/2020 | BO_T 3 | Dusk 19:30 – 22:30 | DF & CR | Temp: 16-14°C, cloud cover: 2/8, light air, no rain | No barn owl were recorded. |
| 27/05/2020 | BO_T 4 | Dusk 20:30 – 21:30 | DF & CR | Temp: 17-14°C, cloud cover: 8/8, light air, no rain | No barn owl were recorded. |
| 28/05/2020 | BO_T 1 | Dusk 20:31 – 21:31 | DF & CR | Temp: 13-10°C, cloud cover: 1/8, light air, no rain | One barn owl seen between 21:30 and 21:31 in the northern field of the transect. Flew from north and perched at end of hedgerow within arable fields on the east of |

| Date | Transect | Survey Timings | Surveyors* | Weather Conditions | Results |
|------------|----------|-----------------------|------------|---|--|
| | | | | | transect. Flew west towards track and foraged along hedgerow heading north. |
| 28/05/2020 | BO_T 3 | Dusk 20:15 – 21:30 | MH & DA | Temp: 13-10°C, cloud cover: 1/8, light air, no rain | The same barn owl was seen in the same place and at the same time as the BO_T 1 survey on 28/05/2020. |
| 29/05/2020 | BO_T 2 | Dusk 18:20 – 22:00 | DDL & RI | Temp: 16-18°C, cloud cover: 0/8, light air, no rain | No barn owl were recorded. |
| 29/05/2020 | BO_T 4 | Dusk 20:10 – 21:35 | MH & DA | Temp: 16-18°C, cloud cover: 0/8, light air, no rain | One barn owl observed hunting close to Lower Abbey Farm at 20:33, 21:00, 21:08 and 21:17. Called when flying past barn at 21:20. |
| 01/06/2020 | BO_T 1 | Dawn 03:55 – 05:15 | MH & DA | Temp: 12°C, cloud cover: 0/8, calm, no rain | One barn owl seen hunting successfully around Upper Abbey Farm. Landed on two different |

| Date | Transect | Survey Timings | Surveyors* | Weather Conditions | Results |
|-------------|----------|-----------------------|------------|---|---|
| | | | | | posts to the south of the farm at 04:31 and 04:33. Hunting from post between 04:35 – 04:45. Went to roost in box in large oak tree to the north of the farm at 04:48. |
| 04/06 /2020 | BO_T 2 | Dawn 04:00 – 05:17 | MH & DA | Temp: 11°C, cloud cover: 8/8, gentle breeze, no rain | No barn owl were recorded. |
| 15/06 /2020 | BO_T 3 | Dawn 03:57 – 05:04 | MH & DA | Temp: 15°C, cloud cover: 5/8, light air, no rain, low-lying patchy mist | No barn owl were recorded. |
| 16/06 /2020 | BO_T 4 | Dawn 03:55 – 05:14 | MH & DA | Temp: 12°C, cloud cover: 2/8, light air, no rain | No barn owl were recorded. |
| 19/06 /2020 | BO_T 1 | Dusk 20:40 – 21:59 | MH & DA | Temp: 15°C, cloud cover: 1/8, light breeze, no rain | One barn owl seen leaving roost in box to the north of Upper Abbey Farm at 21:46. |

| Date | Transect | Survey Timings | Surveyors* | Weather Conditions | Results |
|------------|----------|--------------------------|------------|---|--|
| 22/06/2020 | BO_T 2 | Dusk 20:49 – 21:49 | MH & DA | Temp: 17°C, cloud cover: 0/8, light air, no rain | No barn owl were recorded. |
| 23/06/2020 | BO_T 3 | Dusk 20:45 – 21:50 | MH & DA | Temp: 18°C, cloud cover: 1/8, light breeze, no rain | No barn owl were recorded. |
| 24/06/2020 | BO_T 4 | Dusk 20:45 – 22:05 | MH & DA | Temp: 19°C, cloud cover: 0/8, gentle breeze, no rain | One barn owl observed, hovering outside entrance hole to barn at Lower Abbey Farm at the roost site. |

*Surveyors: MH = Mike Hoit, DA = Dave Andrews, DF = Dave Farrow, CR = Craig Robson, DDL = David Darrell-Lambert, RI = Ryan Irvine

3.1.2 There were incidental sightings of barn owl during other bird surveys undertaken within the MDS in April and June 2020, see Table 2 below:

Table 2: Incidental observations of barn owls within the MDS in April and June 2020

| Date | Dedicated Survey | Observation |
|------------|---|---|
| 10/04/2020 | Breeding bird survey (Arable fields transect) | One barn owl observed carrying food into a barn at Lower Abbey Farm |
| 14/04/2020 | Breeding bird survey (Leiston/Fiscal Policy) | One barn owl observed hunting/foraging over Rookyard Wood from south to north |
| 17/04/2020 | Breeding waterfowl survey (BW_VP_1) | One barn owl observed hunting towards the northwest corner of Minsmere South Levels |

| Date | Dedicated Survey | Observation |
|------------|-------------------------------------|---|
| 12/06/2020 | Breeding waterfowl survey (BW_VP_1) | One barn owl observed hunting to the east of Eastbridge and north of Lower Abbey Farm |
| 19/06/2020 | Marsh harrier survey (MH_VP_7) | One barn owl observed hunting over the northwest area of the Minsmere South Levels |

- 3.1.3 As shown in **Table 1**, there were no barn owl recorded on 10 of the 16 surveys. However, foraging barn owl were seen on various occasions both during the targeted barn owl surveys and during other bird surveys taking place on the main development site. Foraging barn owl were mostly observed near to Lower Abbey Farm and Upper Abbey Farm (see **Figures 2-5 in Appendix A**).
- 3.1.4 Barn owl were also observed entering and leaving built structures. A barn owl was observed carrying food into a barn at Lower Abbey Farm on 10th April; a barn owl was also seen hovering at the entrance to this barn on 24th June. Additionally, a barn owl was seen entering a barn owl nest box (located on a tree in the western hedgerow of the field directly north of Upper Abbey Farm) on 1st June at 04:48; a barn owl was also seen leaving this box on 19th June at 21:46.
- 3.1.5 The barn at Lower Abbey Farm was therefore categorised as an occupied breeding site, while the barn owl nest box to the north of Upper Abbey Farm was categorised as an active roost site and potential nest site.
- ## 3.2 Nightjar Dedicated Surveys
- 3.2.1 The NJ_T was surveyed once a month in May and June 2020 (inclusive), Table 3 below details the results of the surveys.

Table 3: Results of nightjar surveys in May and June 2020.

| Date | Transect | Survey Timings | Surveyors* | Weather Conditions | Results |
|------------|----------|--------------------------|------------|---|----------------------------|
| 28/05/2020 | NJ_T 1 | Dusk 19:50 – 23:00 | DDL & RI | Temp: 15-10°C, cloud cover: 0/8, light air, no rain | No nightjar were recorded. |
| 22/06/2020 | NJ_T 1 | Dusk 18:55 – 23:10 | DDL & RI | Temp: 17°C, cloud cover: 0/8, calm, no rain | No nightjar were recorded. |

b) No nightjar or signs of nightjar were recorded during either of the surveys or during any other bird surveys on the site up to the end of June 2020.

3.3 Other Species Incidental Observations

3.3.1 During the barn owl and nightjar surveys, there were other species observed or heard (see full species list of incidental observations in **Appendix B**).

3.3.2 Of particular note, hobby (*Falco subbuteo*) were recorded on numerous occasions throughout the surveys:

- 26/05/2020 = a hobby was observed foraging within the eastern field of transect 3 at dusk.
- 27/05/2020 = a hobby was noted to be foraging on the eastern edge of transect 4, along the hedgerow directly north of where a hobby was seen the night before on 26/05/2020
- 28/05/2020 = a hobby pair were heard calling for at least an hour from 21:00 on 28th May, at the east side of Goose Hill woodland, towards the edge of the Minsmere South Levels. This is a strong indicator that hobby are breeding in this area.
- 16/06/2020 = a hobby pair were observed at the north end of transect 4.

- 23/06/2020 and 24/06/2020 = two pairs of hobby observed on both surveys. One pair towards the northwest of Lower Abbey Farm and the other to the northeast of Ash Wood Cottages.

3.3.3 Tawny owl (*Strix aluco*) were also observed or heard on a few occasions. Tawny owls were heard calling in Goose Hill woodland on 28th May which indicates that they are likely to have bred. Tawny owl were also heard in the distance on 28th May and heard in Ash Wood on 15th June and 24th June. On 16th June, tawny owl were heard at Black Walks and The Grove (to the south of Lower Abbey Farm).

3.3.4 Bittern (*Botaurus stellaris*) were heard booming in the distance during the some of the surveys, most likely from RSPB Minsmere Reserve.

4 DISCUSSION

4.1 Barn Owl

4.1.1 As described in the Sizewell C Project ES (Ref. 2), barn owl is known to forage and breed within the main development site from previous surveys. During the Arcadis targeted barn owl surveys in 2015, breeding pairs at Lower Abbey Farm and Upper Abbey Farm were confirmed. In 2018, EDF reported a breeding barn owl pair raised three chicks in a barn owl nest box at the north end of Gooderhams Fen (referred to as the Goose Hill nest box). Prior to this, EDF also recorded successful breeding at Upper Abbey Farm in 2014, Lower Abbey Farm in 2007 and Gooderhams Fen in 2005 and 2006.

4.1.2 Barn owl have also been recorded regularly foraging across the site throughout the year (especially within the rough marshy grassland and reedbeds of Sizewell Marshes SSSI, and the marshy grassland to the north of the proposed development directly adjacent to RSPB Minsmere Reserve (Ref 3).

4.1.3 The arable fields near to the breeding and roost sites are considered to be the most suitable habitat within the main development site although they are of relatively poor quality for foraging barn owl due to their narrow field margins. RSPB Minsmere Reserve outside the main development site is considered to have more suitable foraging habitat

4.1.4 Two active barn owl sites were identified during the 2020 surveys, with one confirmed to be an occupied breeding site as a barn owl was identified carrying food into the barn at Lower Abbey Farm. The other active site was a barn owl nest box, located on a tree to the north of Upper Abbey Farm, categorised as an active roost site and potential nest site.

4.2 Nightjar

- 4.2.1 As described in the Sizewell C Project ES (Ref 2), Arcadis carried out targeted nightjar surveys in 2014 and 2015 on the same transect as the 2020 surveys, no nightjars were recorded. Additionally, no other nightjar activity was recorded as part of the 2014 breeding bird surveys across the main development site. Previous surveys were also undertaken by the Wood Group in May and June 2010, where no nightjars were recorded.
- 4.2.2 Nightjar have been reported to be breeding relatively close to the main development site at the RSPB Minsmere Reserve, RSPB North Warren Reserve, Dunwich Heath and Dingle Marshes (Ref 2) 3.5km to the north of the main development site. No confirmed breeding of nightjars have been confirmed on the MDS, which could partly be due to lower grade habitats available on the main development site (in their current condition).
- 4.2.3 No nightjar were recorded during the 2020 surveys or previous surveys; therefore, it is considered unlikely that there are breeding nightjar within the main development site.

5 CONCLUSION

- 5.1.1 The site supports at least one pair of breeding barn owl, located within the northern barn at Lower Abbey Farm and a probable breeding pair at the barn owl nest box in the field to the north of Upper Abbey Farm. Some of the habitats across the main development site are considered to be suitable for foraging barn owl such as areas of Sizewell Marshes SSSI and Minsmere South Levels. The arable margins within the site offer less suitable relatively poor foraging habitat.
- 5.1.2 The site also supports breeding hobby and breeding tawny owl.
- 5.1.3 Nightjar have not been recorded within main development site and are therefore not breeding on the site; however, nightjar is present in areas to the north (e.g. RSPB Minsmere Reserve and Dunwich Heath) and to the south (e.g. RSPB North Warren Reserve) of the survey area.

6 REFERENCES

1. EDF 2020. Sizewell C Project – Main Development Site: Volume 2, Chapter 14: Appendix 14A7 – Ornithology: Annex 14A7.6 Species Accounts (Schedule 1, Red and Amber List Species). [[APP-238](#)]
2. EDF 2020. Sizewell C Project – Main Development Site: Volume 2, Chapter 14: Appendix 14A7 - Ornithology: Annex 14A7.5 Qualifying Species Accounts (Qualifying Features and Other Seabirds/ Waterbirds). [[APP-238](#)]
3. EDF 2020. Sizewell C Project – Main Development Site: Volume 2, Chapter 14: Appendix 14A7 – Ornithology: Annex 14A7.2 Methodology. [[APP-237](#)]
4. EDF 2020. Sizewell C Project – Main Development Site: Volume 2, Chapter 14: Appendix 14A7 – Ornithology. [[APP-237](#) and [APP-238](#)]
5. Wildlife and Countryside Act, as amended. 1981. (Online) Available from: <http://www.legislation.gov.uk/ukpga/1981/69/contents> (Accessed 01 June 2020).
6. Eaton, M.A., Aebisher, N., Brown, A., Hearn, R., Lock, L., Musgrove, A., Noble, D., Stroud, D., and Gregory, R. 2015. BoCC 4: Population status of birds in the United Kingdom, Channel Islands and Isle of Man. British birds 108:708-746.
7. Natural Environment and Rural Communities (NERC) Act. 2006. Section 41: Species of Principal Importance in England. (Online) Available from: <http://www.legislation.gov.uk/ukpga/2006/16/section/41> (Accessed 01 June 2020).
8. Suffolk Biodiversity Information Service (SBIS). 2018. Priority Species List. (Online) Available from: <https://www.suffolkbis.org.uk/biodiversity/speciesandhabitats/specieslist> (Accessed 23 June 2020).

APPENDIX A: FIGURES

A.1. Figures

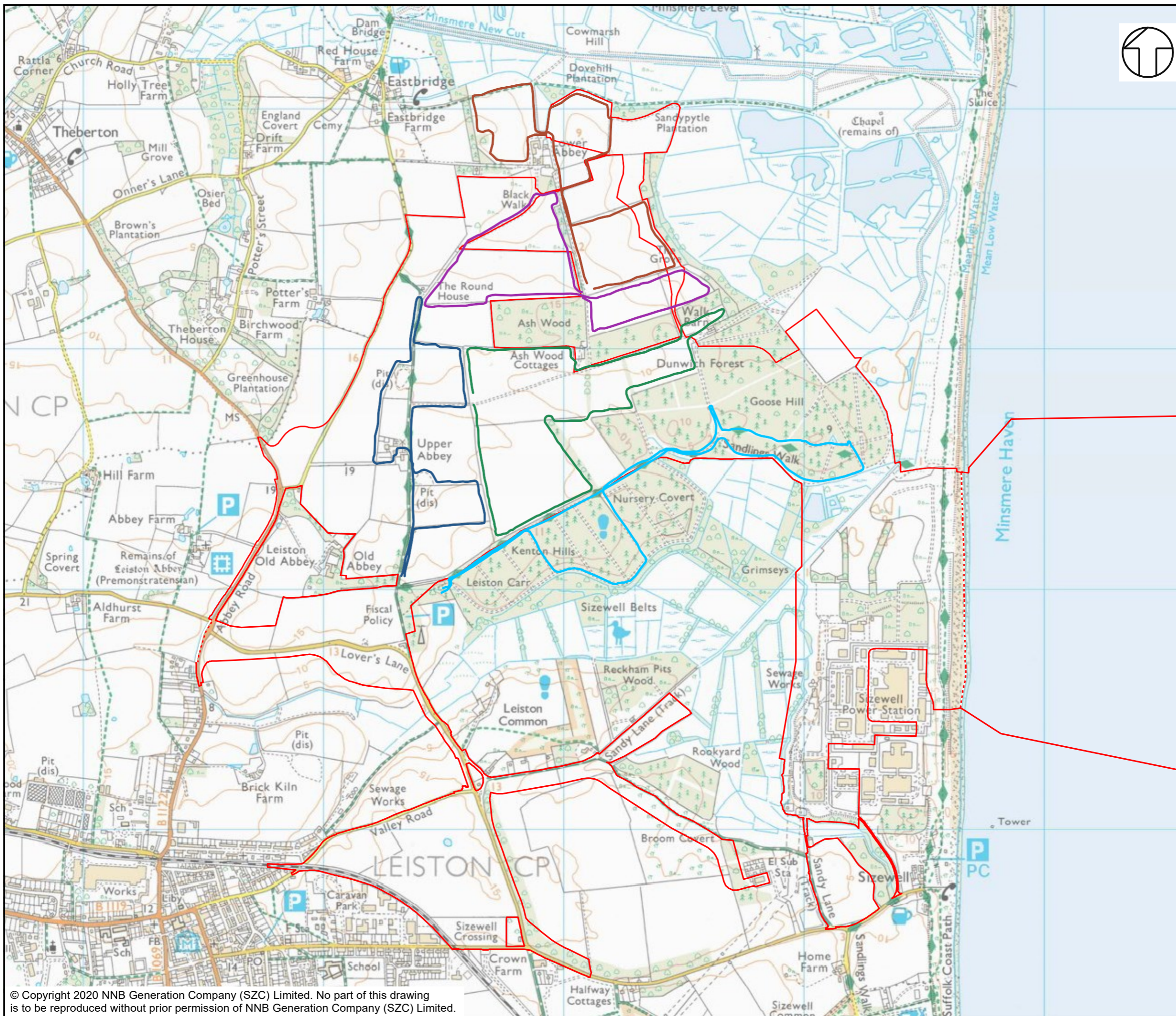
A.1.1. Figure 1: Barn Owl & Nightjar Survey Routes 2020

A.1.2. Figure 2: Barn Owl Results – All Surveys 2020

A.1.3. Figure 3: Barn Owl Results April 2020

A.1.4. Figure 4: Barn Owl Results May 2020

A.1.5. Figure 5: Barn Owl Results June 2020



NOTES

KEY

- SIZEWELL C MAIN DEVELOPMENT SITE BOUNDARY
- - - DEMARCATION LINE
- BARN OWL TRANSECT ROUTES**
- BO_T_1
- BO_T_2
- BO_T_3
- BO_T_4
- NIGHTJAR TRANSECT ROUTES**
- NJ_T_1

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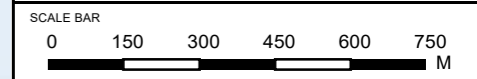


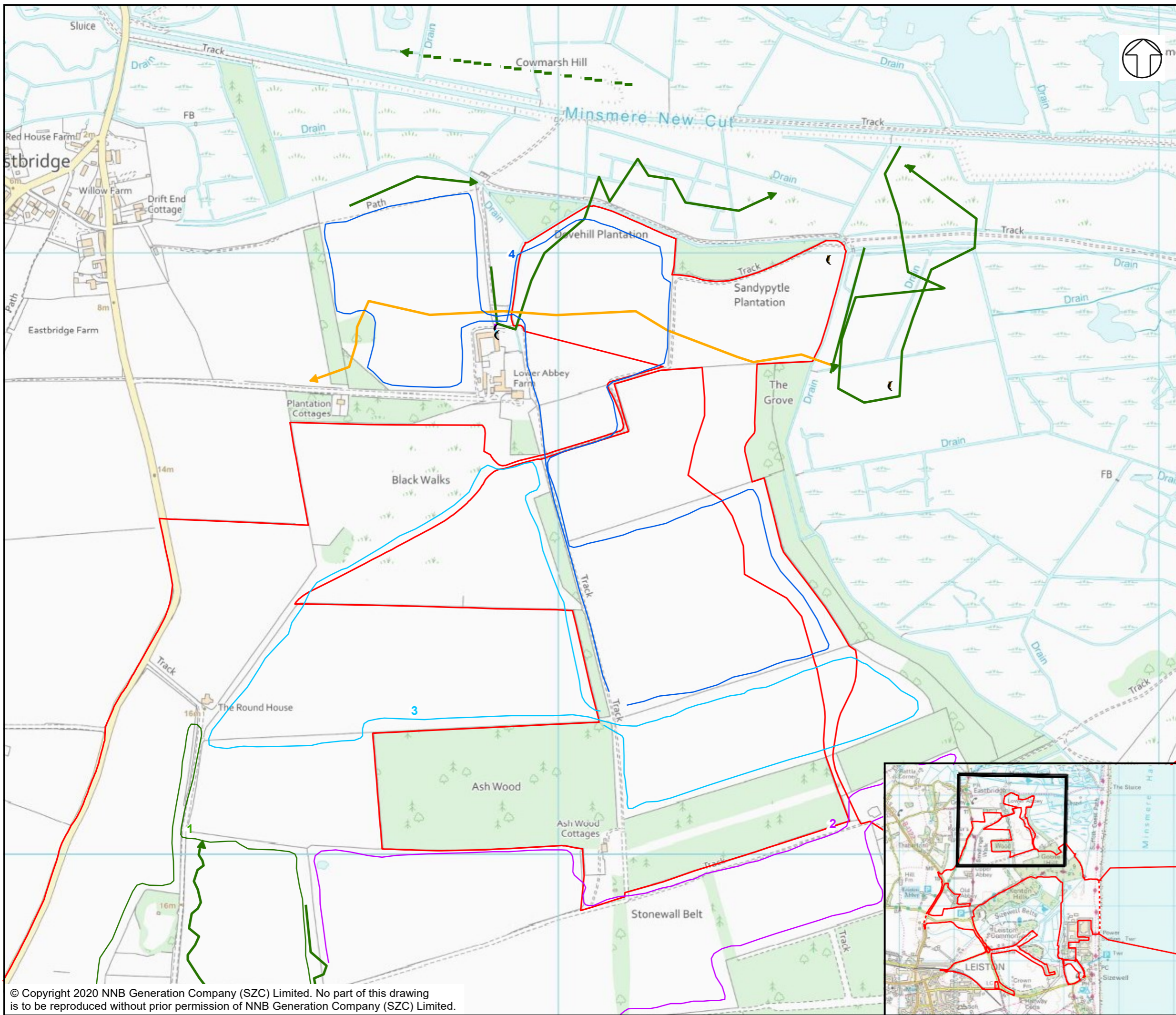
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 2020

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 BARN OWL AND NIGHTJAR TRANSECT ROUTES

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NOTES

KEY

— SIZEWELL C MAIN DEVELOPMENT SITE BOUNDARY

- - - - - DEMARCATION LINE

TRANSECT ROUTE

1

2

3

4

BARN OWL SURVEY RESULTS

○ INDIVIDUALS OBSERVED

● OCCUPIED NEST

→ COMMUTING

→ HUNTING/FORAGING

BARN OWL SURVEY INCIDENTAL RESULTS

○ INDIVIDUALS OBSERVED

→ HUNTING/FORAGING

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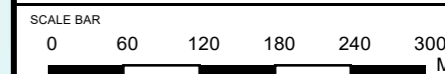


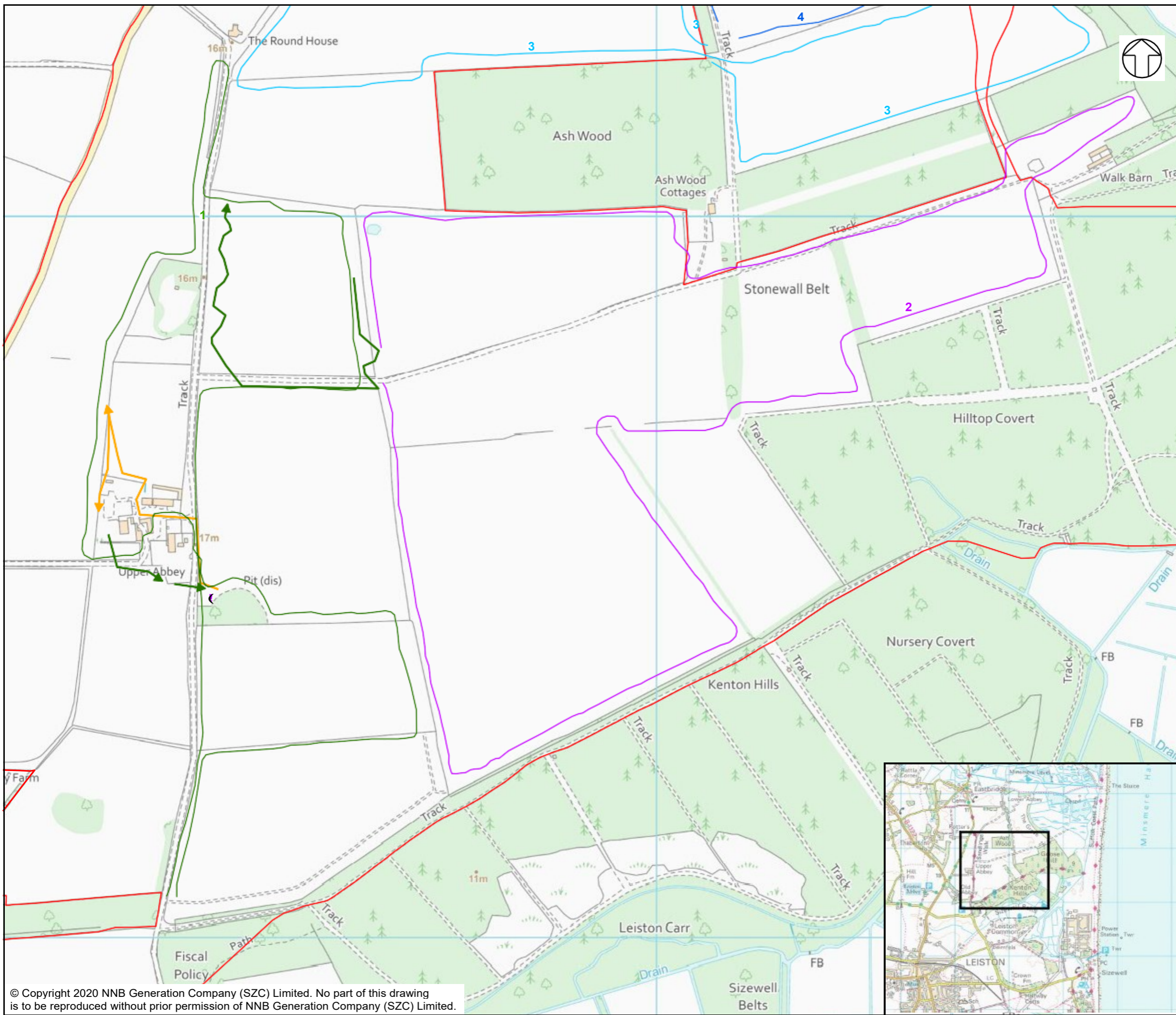
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Figure 2

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NOTES

KEY

- SIZEWELL C MAIN DEVELOPMENT SITE BOUNDARY
- - - DEMARCATION LINE

TRANSECT ROUTE

- 1
- 2
- 3
- 4

BARN OWL SURVEY RESULTS

- INDIVIDUALS OBSERVED
- OCCUPIED NEST
- COMMUTING
- HUNTING/FORAGING

BARN OWL SURVEY INCIDENTAL RESULTS

- INDIVIDUALS OBSERVED
- HUNTING/FORAGING

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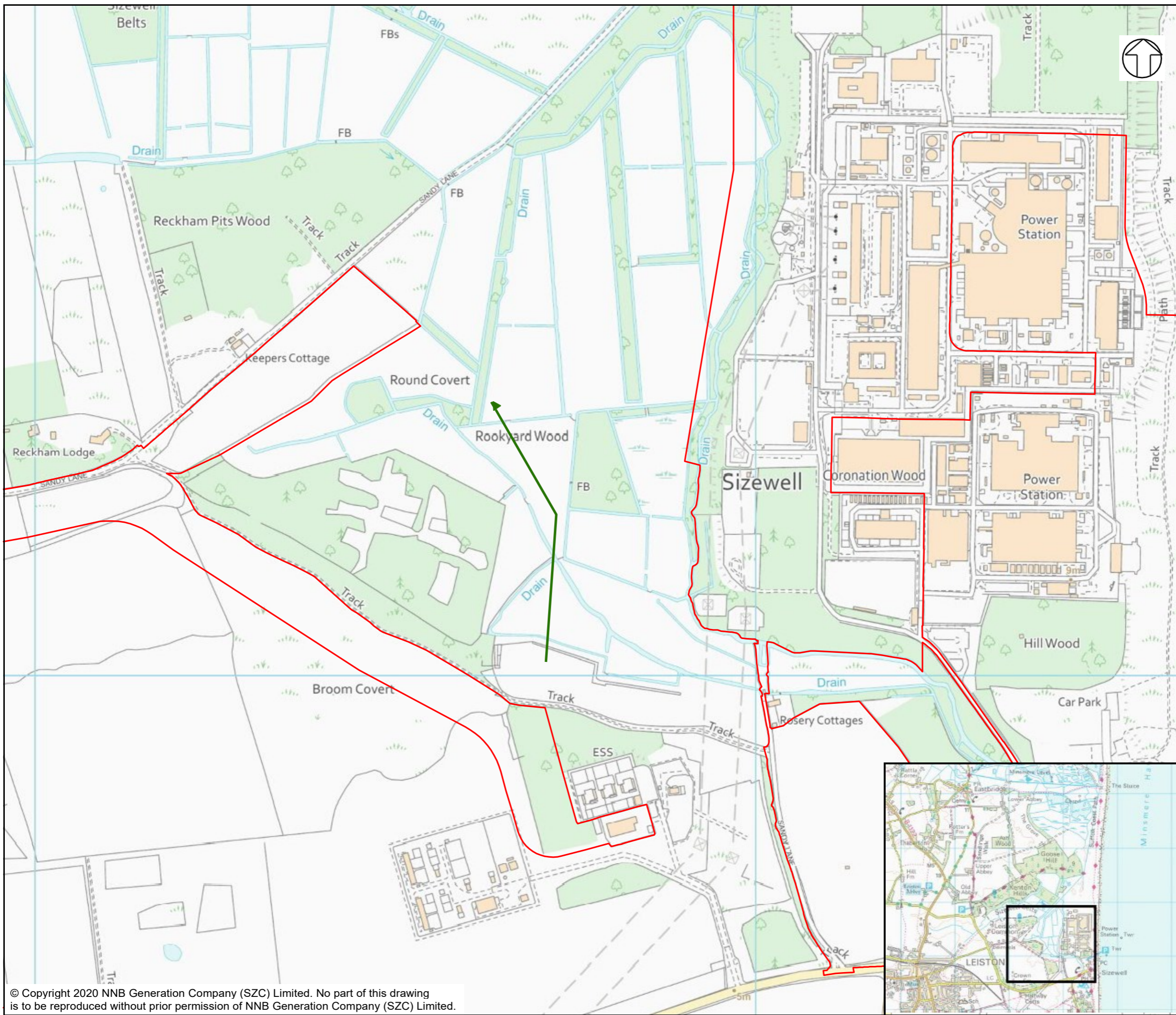
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- NOTES**
- KEY**
- SIZEWELL C MAIN DEVELOPMENT SITE BOUNDARY
 - - - - - DEMARCATION LINE
- TRANSECT ROUTE**
- 1
 - 2
 - 3
 - 4
- BARN OWL SURVEY RESULTS**
- INDIVIDUALS OBSERVED
 - OCCUPIED NEST
 - ➔ COMMUTING
 - ➔ HUNTING/FORAGING
- BARN OWL SURVEY INCIDENTAL RESULTS**
- INDIVIDUALS OBSERVED
 - ➔ HUNTING/FORAGING

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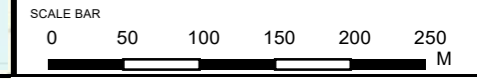


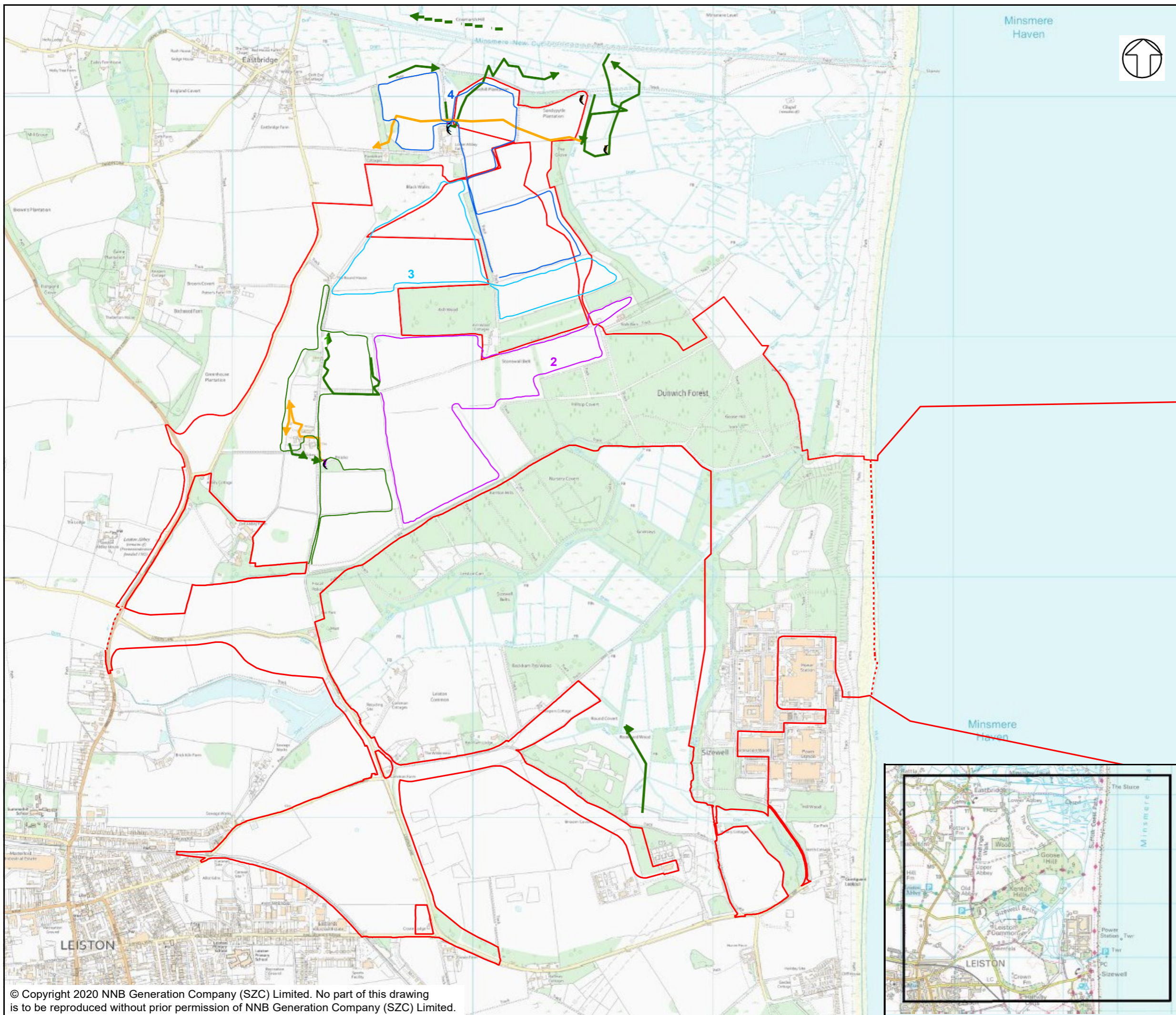
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NOTES

KEY

— SIZEWELL C MAIN DEVELOPMENT SITE BOUNDARY

- - - - - DEMARCATION LINE

TRANSECT ROUTE

— 1

— 2

— 3

— 4

BARN OWL SURVEY RESULTS

◐ INDIVIDUALS OBSERVED

◑ OCCUPIED NEST

→ COMMUTING

→ HUNTING/FORAGING

BARN OWL SURVEY INCIDENTAL RESULTS

◐ INDIVIDUALS OBSERVED

→ HUNTING/FORAGING

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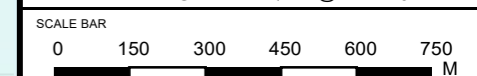


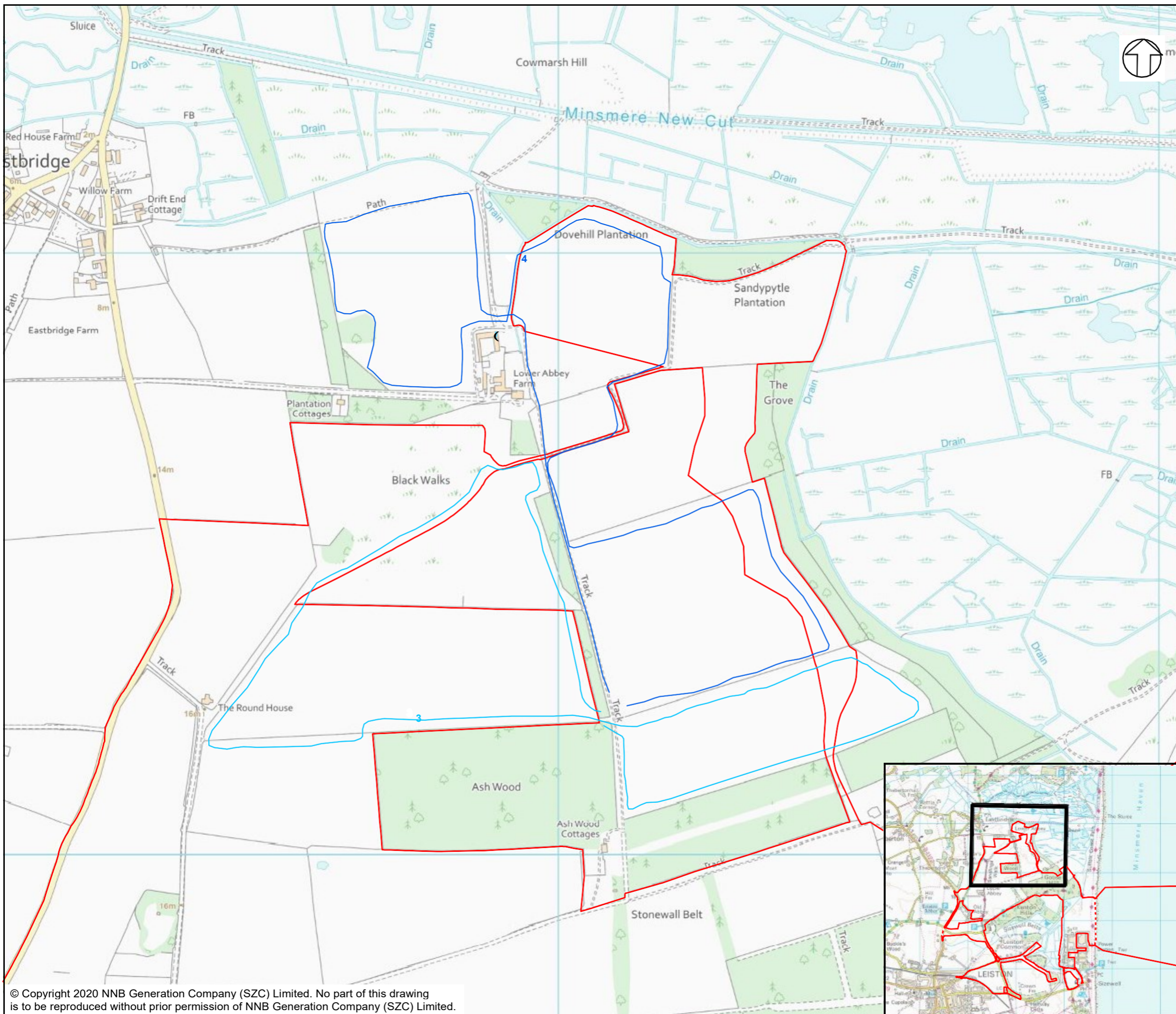
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 SHEET 4 OF 4

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- NOTES**
- KEY**
- SIZEWELL C MAIN DEVELOPMENT SITE BOUNDARY
 - - - DEMARCATION LINE
- TRANSECT ROUTE**
- 1
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 - 3
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- BARN OWL SURVEY RESULTS**
- ☾ OCCUPIED NEST
 - ➔ HUNTING/FORAGING
- BARN OWL SURVEY INCIDENTAL RESULTS**
- ☾ INDIVIDUALS OBSERVED
 - ➔ COMMUTING

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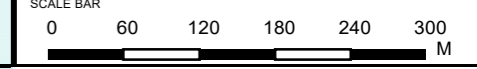


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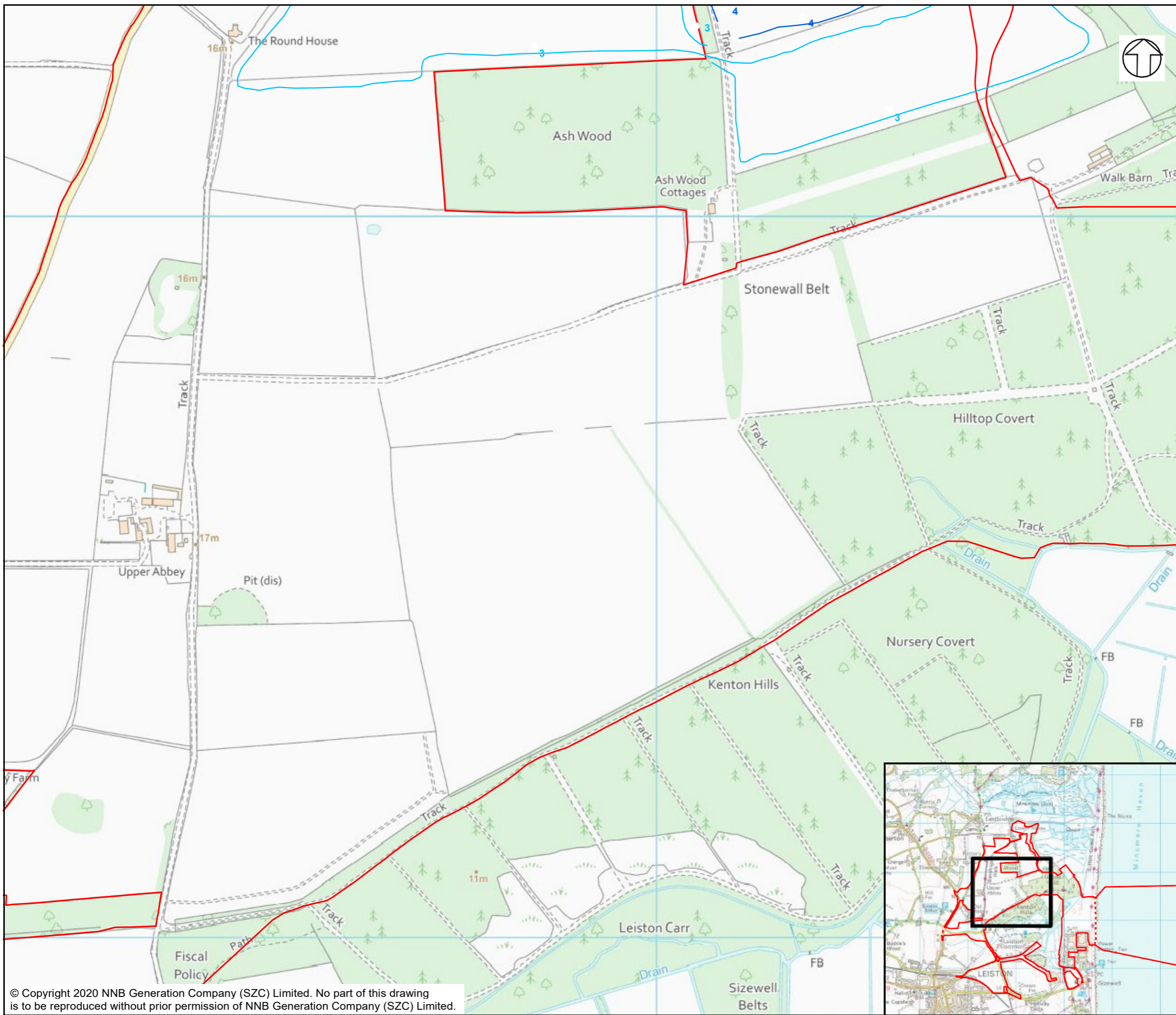
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NOTES

KEY

- SIZEWELL C MAIN DEVELOPMENT SITE BOUNDARY
- - - DEMARCATION LINE

TRANSECT ROUTE

- 1
- 2
- 3
- 4

BARN OWL SURVEY RESULTS

- ◀ OCCUPIED NEST
- ➔ HUNTING/FORAGING

BARN OWL SURVEY INCIDENTAL RESULTS

- ◀ INDIVIDUALS OBSERVED
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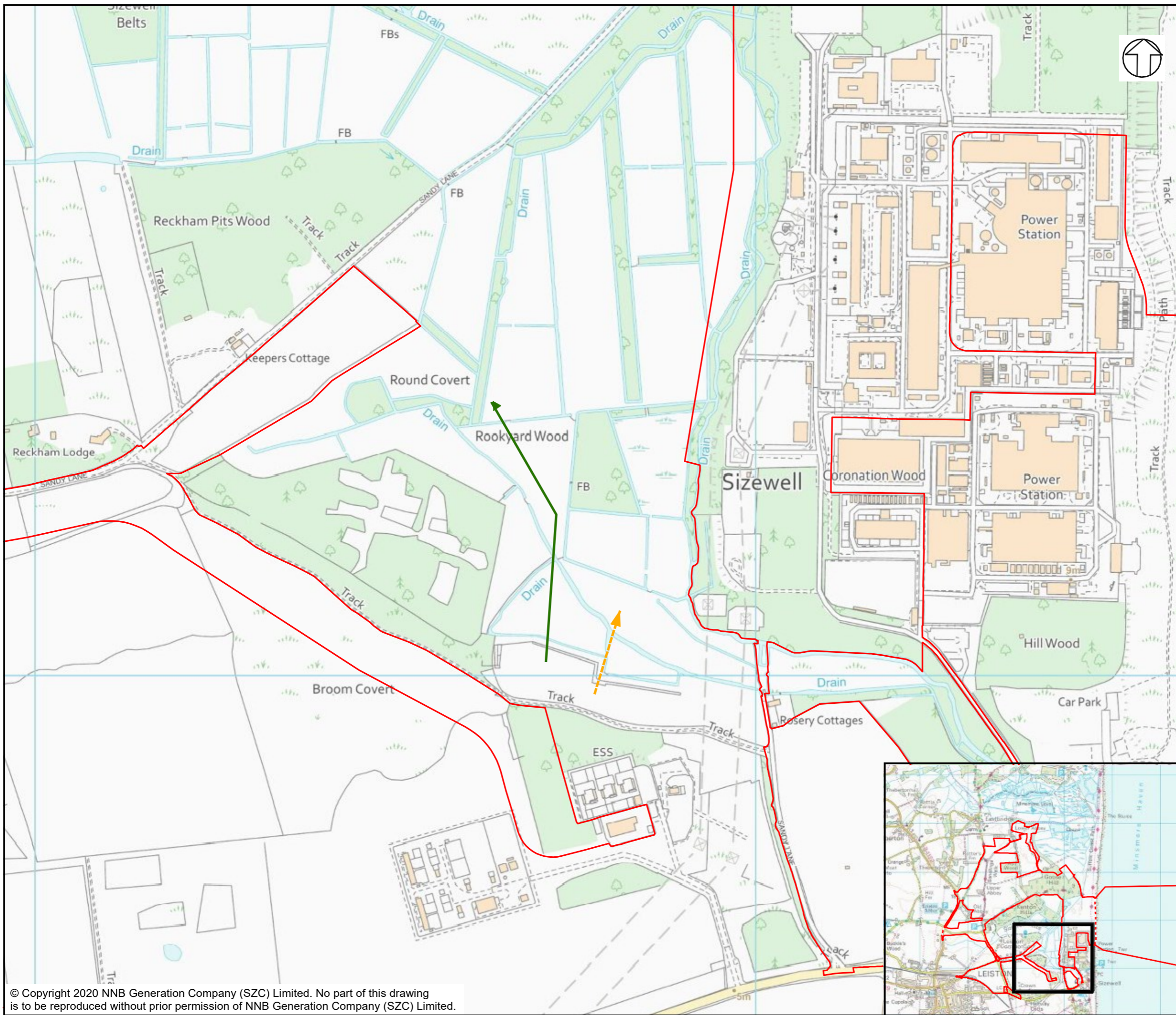
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- NOTES**
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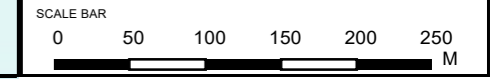


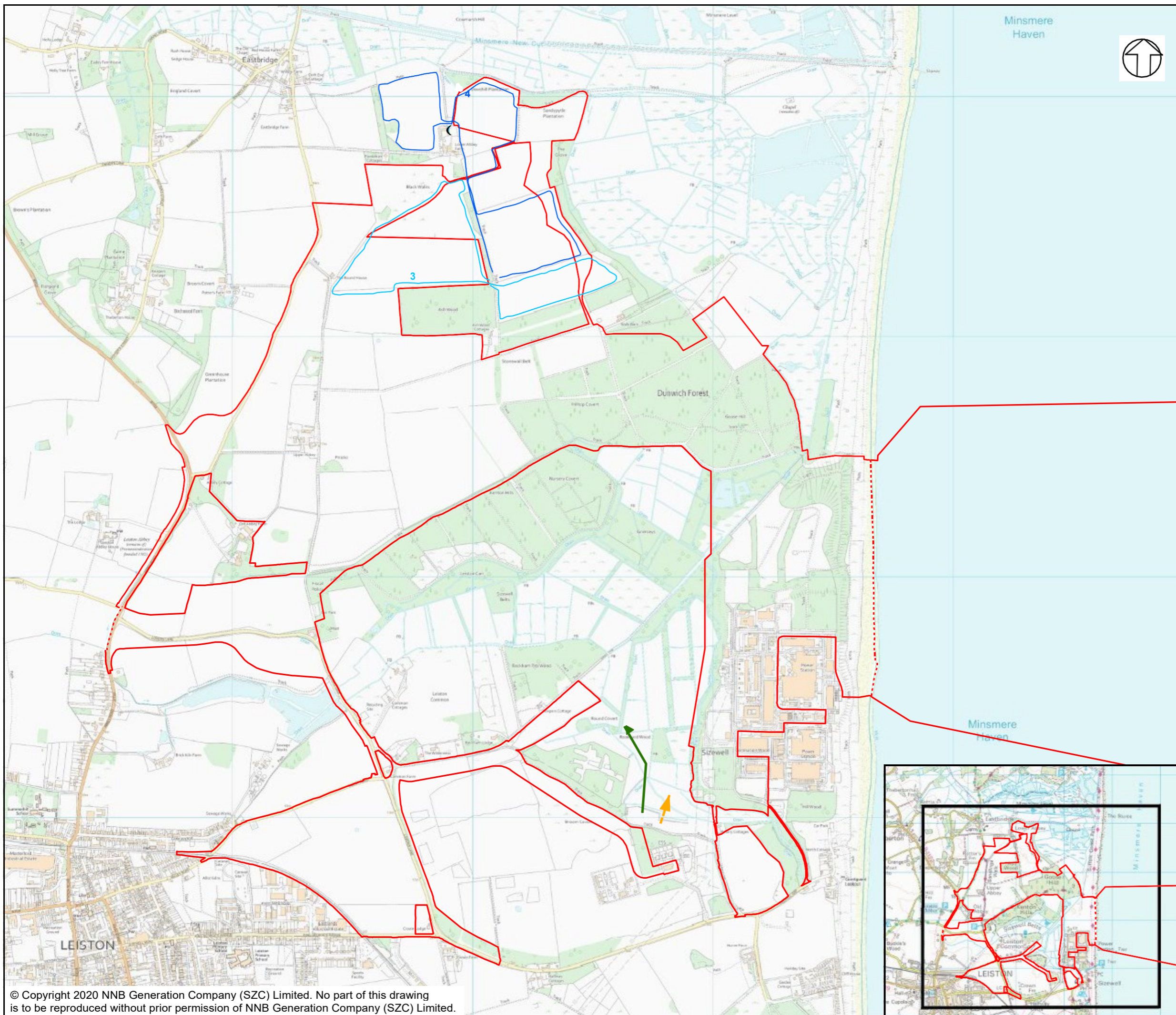
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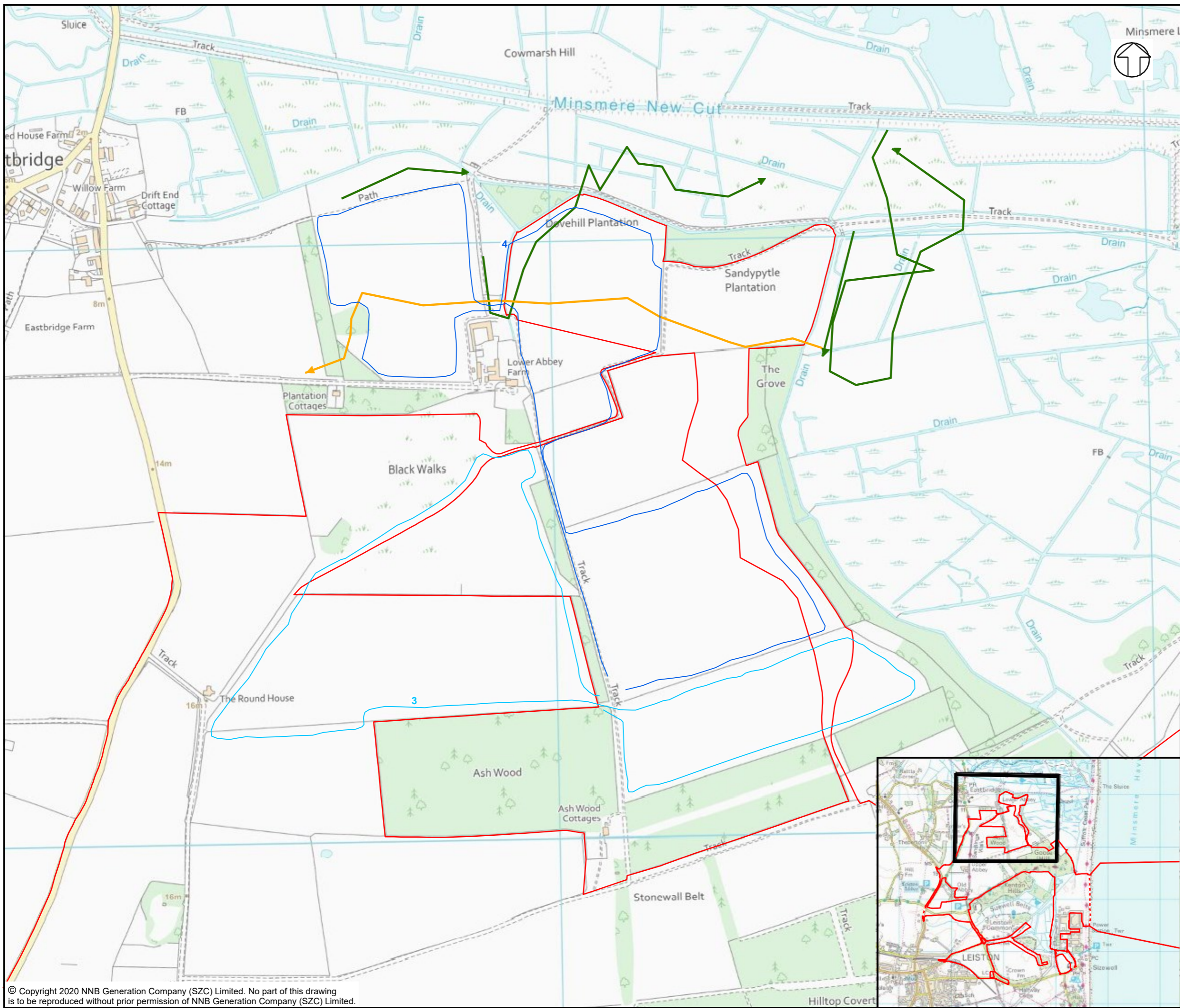
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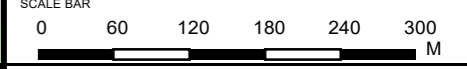


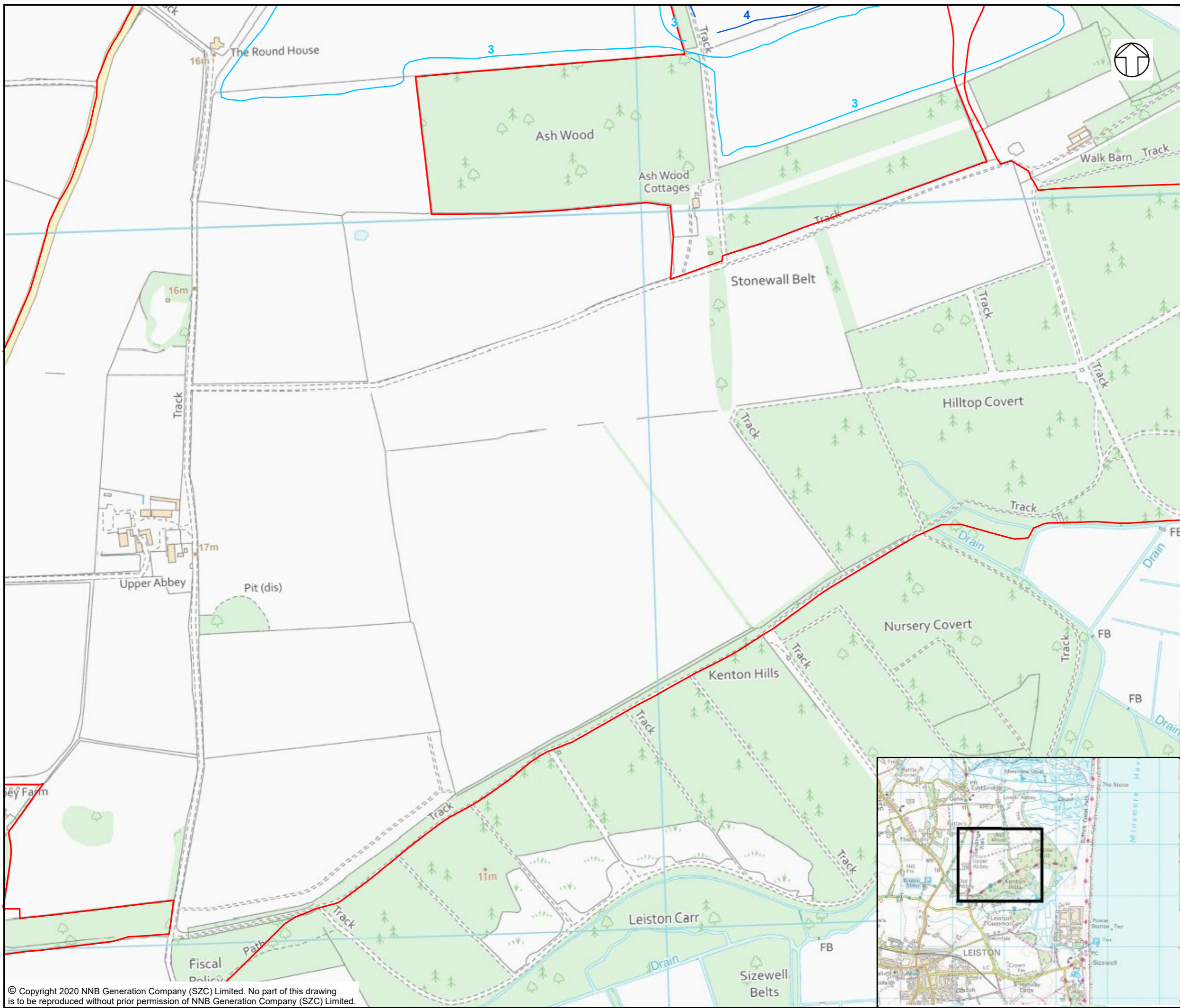
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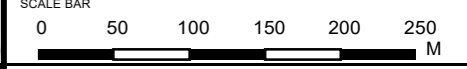


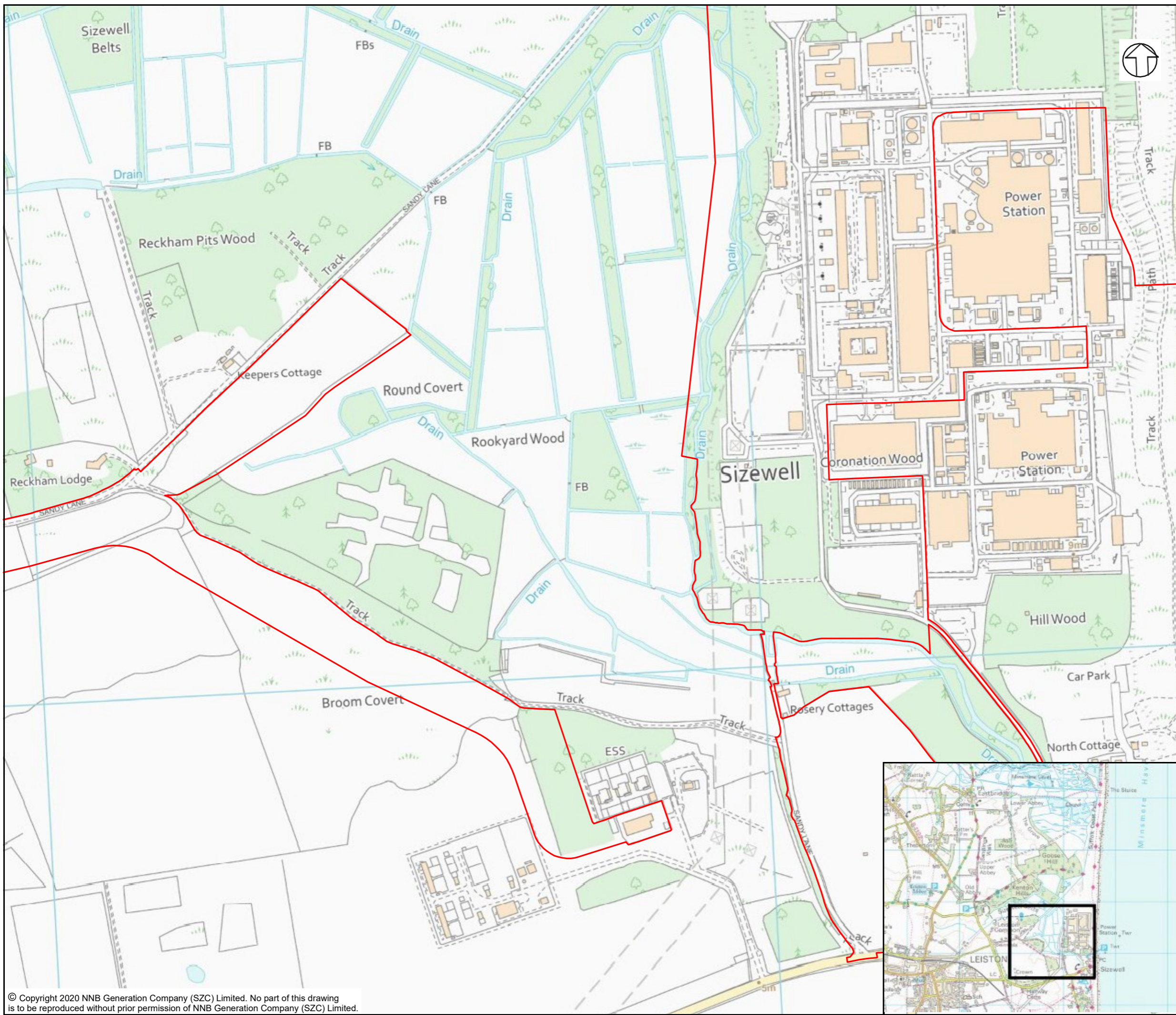
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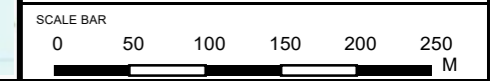


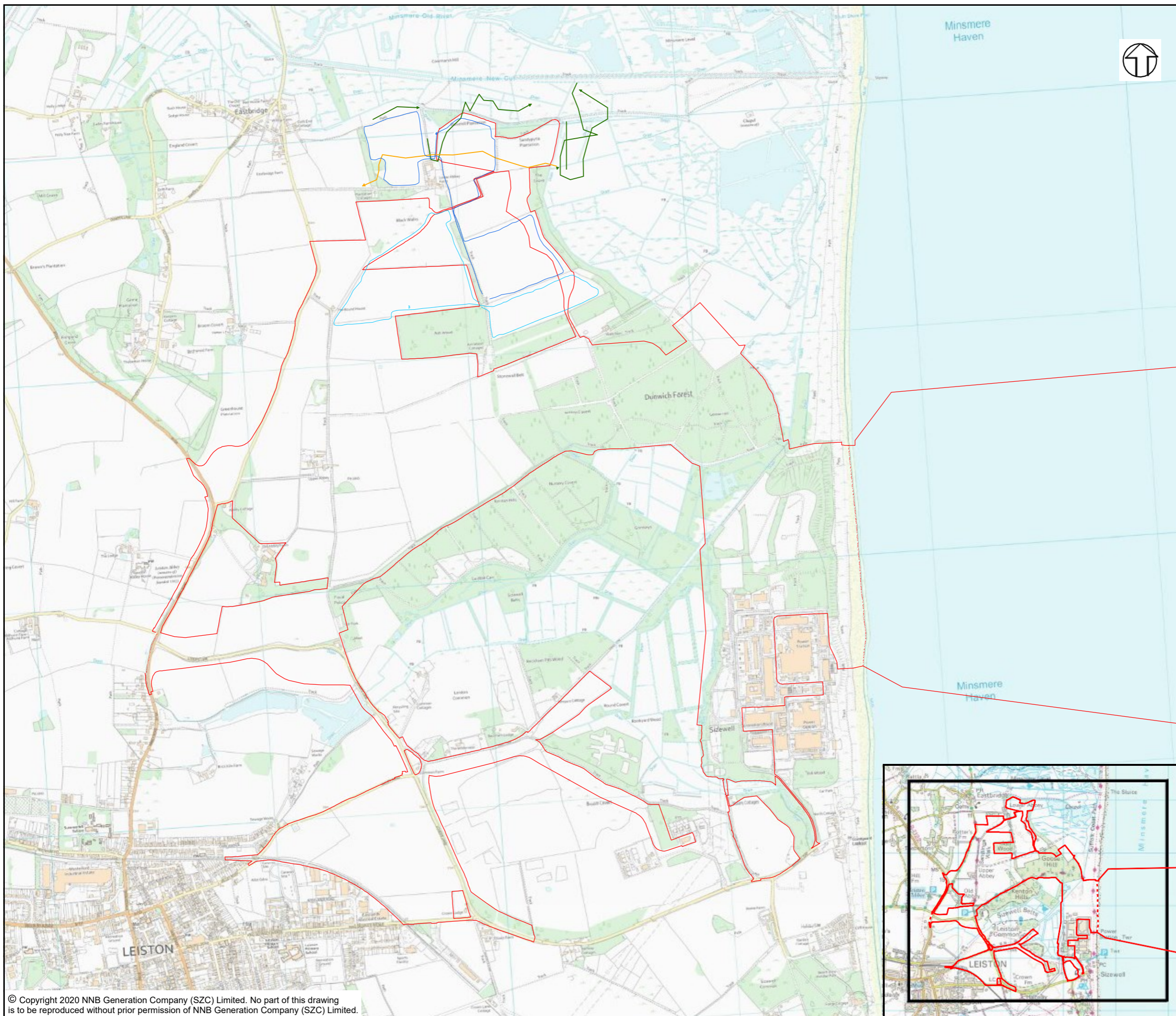
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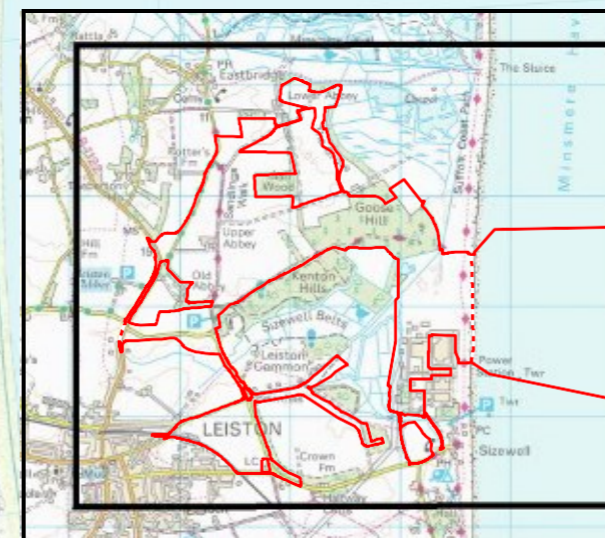
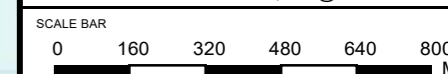


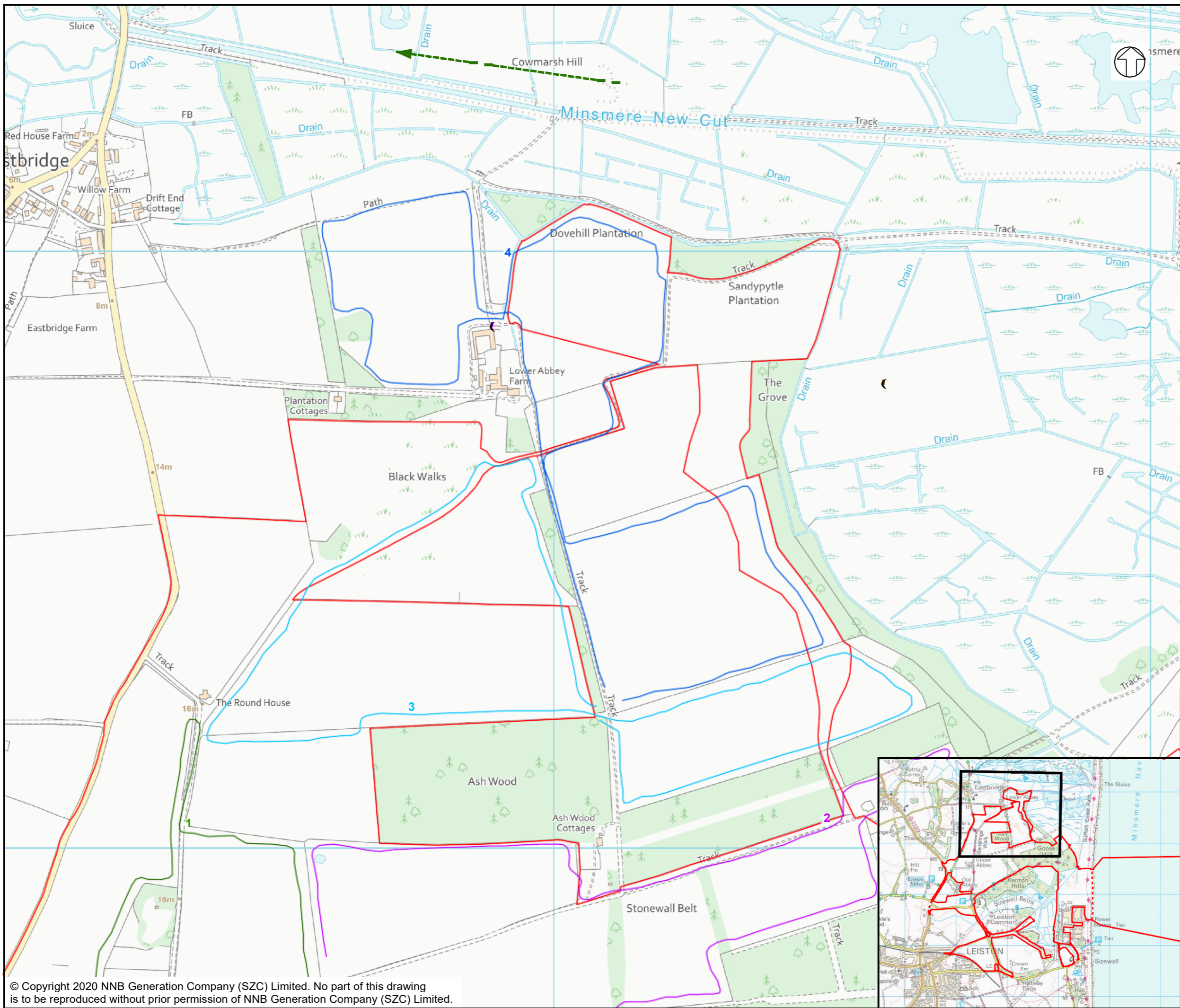
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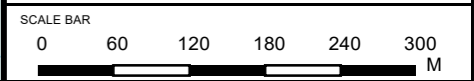


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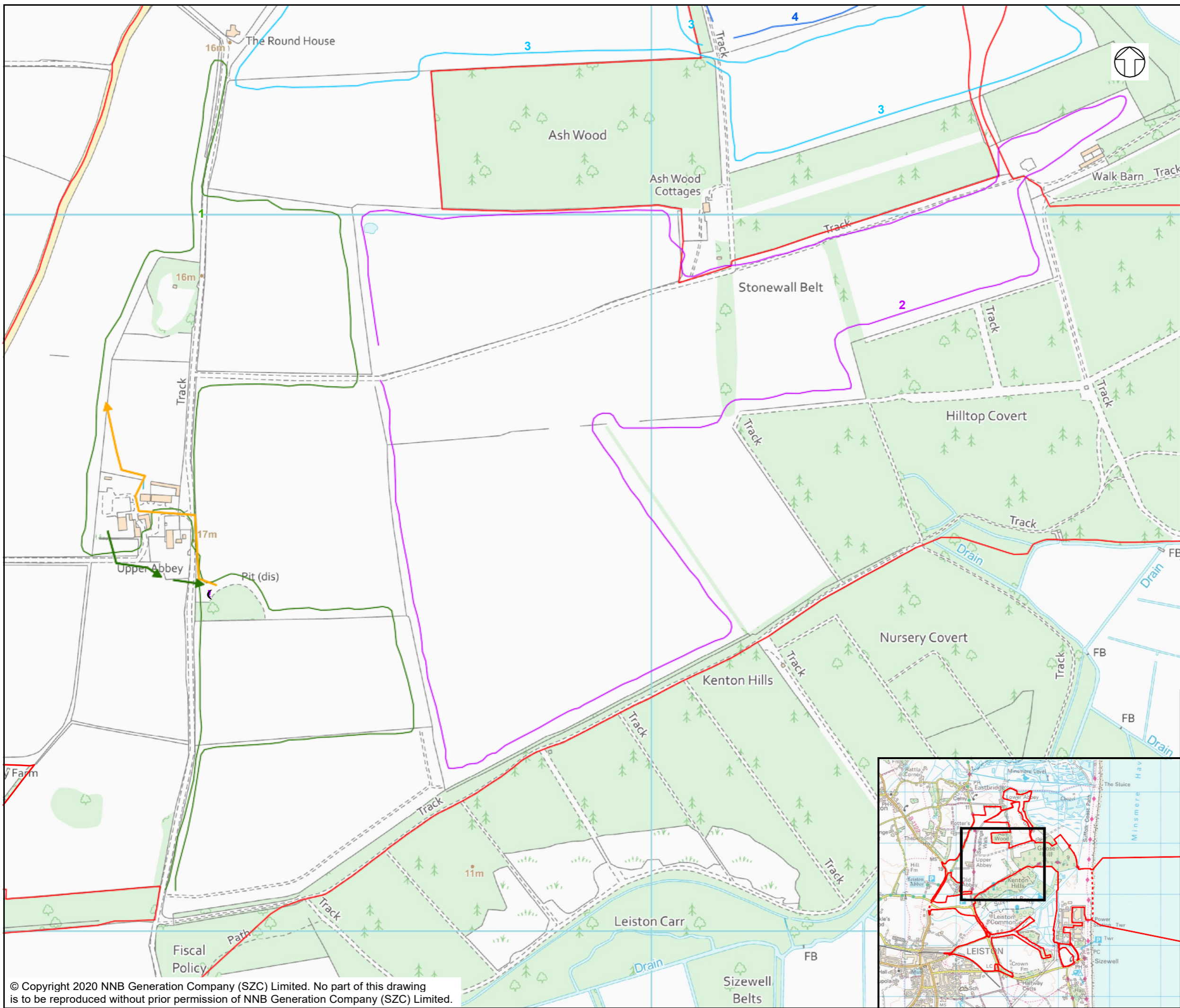
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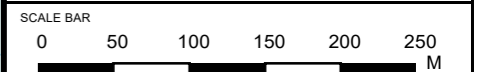


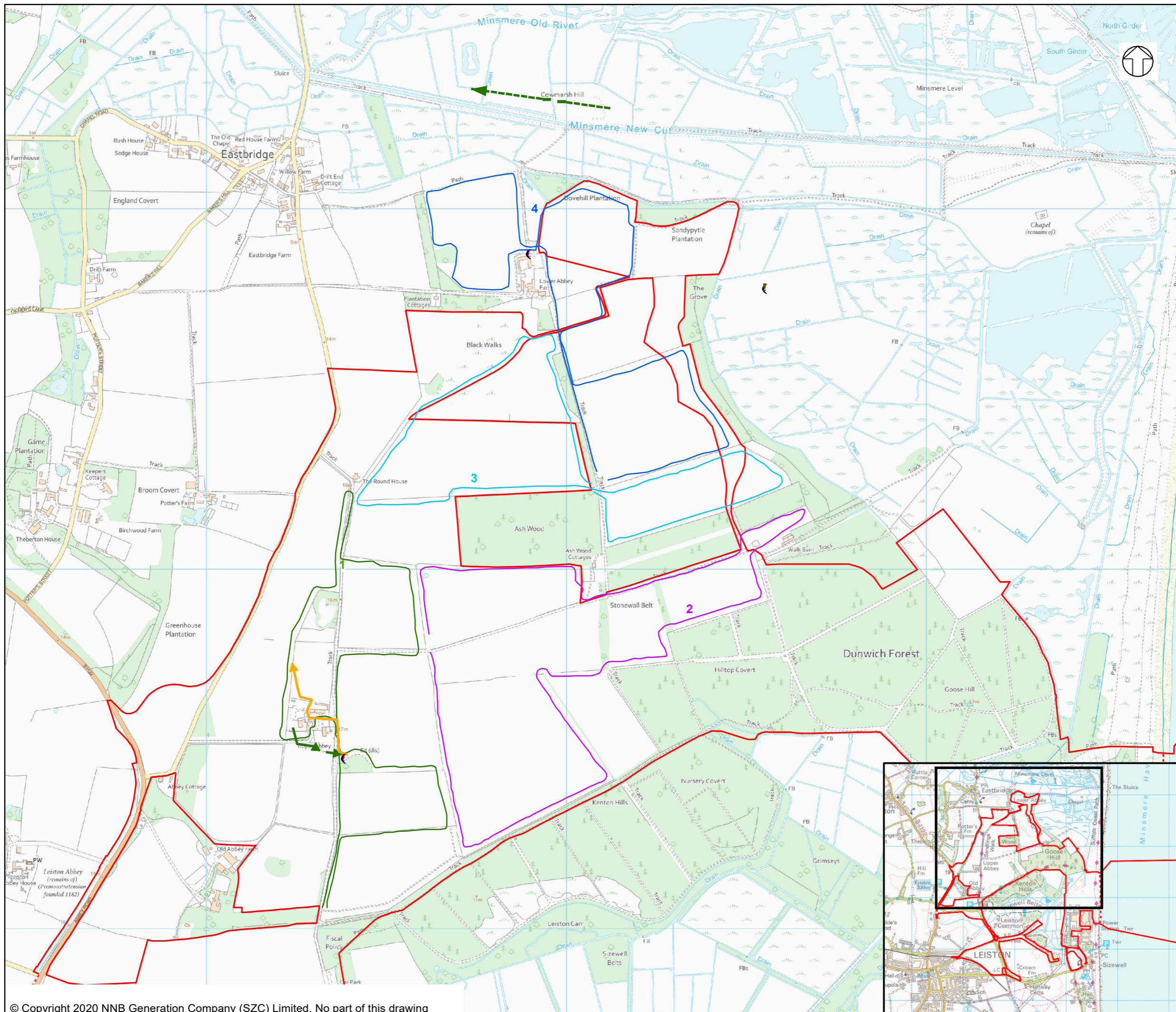
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APPENDIX B: INCIDENTAL SIGHTINGS

B.1. Incidental Sightings - Species List

Appendix B Incidental observations

| Common Name | Scientific Name | BO_T 1 | BO_T 2 | BO_T 3 | BO_T 4 | NJ_T 1 |
|--------------------------|-----------------------------------|--------|--------|--------|--------|--------|
| IEFs | | | | | | |
| Avocet | <i>Recurvirostra avosetta</i> | | | | | ✓ |
| Bittern | <i>Botaurus stellaris</i> | ✓ | | ✓ | ✓ | |
| Black-headed gull | <i>Chroicocephalus ridibundus</i> | | ✓ | ✓ | ✓ | |
| Cetti's warbler | <i>Cettia cetti</i> | | | | ✓ | |
| Herring gull | <i>Larus argentatus</i> | | | ✓ | | |
| Hobby | <i>Falco subbuteo</i> | | ✓ | ✓ | ✓ | ✓ |
| Lesser black-backed gull | <i>Larus fuscus</i> | ✓ | | ✓ | | |
| Marsh harrier | <i>Circus aeruginosus</i> | | ✓ | | | |
| Shelduck | <i>Tadorna tadorna</i> | | | | ✓ | |
| Teal | <i>Anas crecca</i> | | | | | ✓ |
| Other species | | | | | | |
| Blackbird | <i>Turdus merula</i> | | | ✓ | ✓ | ✓ |
| Blackcap | <i>Sylvia atricapilla</i> | ✓ | ✓ | ✓ | | ✓ |
| Blue tit | <i>Cyanistes caeruleus</i> | ✓ | ✓ | ✓ | | ✓ |
| Bullfinch | <i>Pyrrhula pyrrhula</i> | ✓ | | | | |
| Buzzard | <i>Buteo buteo</i> | ✓ | ✓ | ✓ | | ✓ |
| Carrion crow | <i>Corvus corone</i> | ✓ | | ✓ | ✓ | ✓ |
| Chaffinch | <i>Fringilla coelebs</i> | ✓ | ✓ | ✓ | | ✓ |
| Chiffchaff | <i>Phylloscopus collybita</i> | ✓ | | ✓ | ✓ | ✓ |
| Coal tit | <i>Parus ater</i> | | ✓ | ✓ | | ✓ |
| Cuckoo | <i>Cuculus canorus</i> | | ✓ | ✓ | ✓ | |

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| Common Name | Scientific Name | BO_T 1 | BO_T 2 | BO_T 3 | BO_T 4 | NJ_T 1 |
|--------------------------|--------------------------------|--------|--------|--------|--------|--------|
| Dunnock | <i>Prunella modularis</i> | ✓ | ✓ | ✓ | ✓ | ✓ |
| Garden Warbler | <i>Sylvia borin</i> | ✓ | | ✓ | | ✓ |
| Goldcrest | <i>Regulus regulus</i> | | ✓ | ✓ | | ✓ |
| Goldfinch | <i>Carduelis carduelis</i> | | | ✓ | | ✓ |
| Great spotted woodpecker | <i>Dendrocopos major</i> | | ✓ | ✓ | ✓ | |
| Great tit | <i>Parus major</i> | | | ✓ | | ✓ |
| Greenfinch | <i>Chloris chloris</i> | | | ✓ | | |
| Green woodpecker | <i>Picus viridis</i> | | ✓ | | | |
| Grey heron | <i>Ardea cinerea</i> | ✓ | | ✓ | ✓ | ✓ |
| Jackdaw | <i>Coloeus monedula</i> | ✓ | | ✓ | ✓ | ✓ |
| Jay | <i>Garrulus glandarius</i> | | | ✓ | | |
| Kestrel | <i>Falco tinnunculus</i> | | ✓ | | ✓ | |
| Linnet | <i>Linaria cannabina</i> | | | ✓ | | |
| Little egret | <i>Egretta garzetta</i> | | | ✓ | | |
| Long-tailed tit | <i>Aegithalos caudatus</i> | | | ✓ | ✓ | ✓ |
| Magpie | <i>Pica pica</i> | | | ✓ | | |
| Mallard | <i>Anas platyrhynchos</i> | | | ✓ | | |
| Moorhen | <i>Gallinula chloropus</i> | | | ✓ | | |
| Pheasant | <i>Phasianus colchicus</i> | | | ✓ | ✓ | ✓ |
| Red-legged partridge | <i>Alectoris rufa</i> | | | ✓ | | |
| Reed bunting | <i>Emberiza schoeniclus</i> | | | | ✓ | |
| Reed warbler | <i>Acrocephalus scirpaceus</i> | | | | | ✓ |

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| Common Name | Scientific Name | BO_T 1 | BO_T 2 | BO_T 3 | BO_T 4 | NJ_T 1 |
|--------------|--------------------------------|--------|--------|--------|--------|--------|
| Robin | <i>Erithacus rubecula</i> | ✓ | ✓ | ✓ | ✓ | ✓ |
| Rook | <i>Corvus frugilegus</i> | | ✓ | | | |
| Skylark | <i>Alauda arvensis</i> | ✓ | | ✓ | ✓ | |
| Song thrush | <i>Turdus philomelos</i> | | ✓ | ✓ | ✓ | ✓ |
| Sparrowhawk | <i>Accipiter nisus</i> | | | ✓ | | |
| Stock dove | <i>Columba oenas</i> | ✓ | | ✓ | ✓ | ✓ |
| Swift | <i>Apus apus</i> | | ✓ | ✓ | ✓ | |
| Tawny owl | <i>Strix aluco</i> | ✓ | | ✓ | ✓ | ✓ |
| Treecreeper | <i>Certhia familiaris</i> | | | | | ✓ |
| Whimbrel | <i>Numenius phaeopus</i> | | | ✓ | | |
| Whitethroat | <i>Sylvia communis</i> | | | ✓ | | |
| Wood pigeon | <i>Columba palumbus</i> | ✓ | ✓ | ✓ | ✓ | ✓ |
| Wren | <i>Troglodytes troglodytes</i> | | ✓ | ✓ | ✓ | ✓ |
| Yellowhammer | <i>Emberiza citrinella</i> | ✓ | ✓ | ✓ | | |