



## Environmental Statement

**Chapter 6: Ecology & Arboriculture**  
**Appendix 6.7: Butterfly Survey Report**

Document 6.6G

On behalf of  
**Oxfordshire Railfreight Limited**

Prepared by FPCR Ltd.  
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FPCR | environment  
& design



# ES6.7: Butterfly Survey Report

Client

**Oxfordshire Railfreight Limited**

Project

**Ardley, Oxfordshire Strategic Rail Freight Interchange (OxSRFI)**

Date

**July 2025**

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## 1.0 NON-TECHNICAL SUMMARY

Oxfordshire Railfreight Ltd. commissioned FPCR Environment and Design Ltd. to undertake butterfly surveys within and adjacent to the Ardley Cutting and Quarry Site of Special Scientific Interest (SSSI), as part of the ecological assessment for the proposed Strategic Rail Freight Interchange (OxSRFI). Surveys followed routes consistent with earlier surveys undertaken in 2022, enabling direct comparison.

The SSSI is designated for its limestone grassland and associated butterfly assemblage, including small blue, brown argus, dark green fritillary, green hairstreak and Duke of Burgundy. The SSSI grassland is threatened by scrub encroachment resulting from limited active management.

A series of eleven transects were undertaken across spring and summer. These recorded a total of 1,547 butterflies of 25 species in 2025, and 1229 in 2022. The most frequently recorded species were marbled white, meadow brown and gatekeeper.

The key butterfly species listed within the SSSI citation were scarce in abundance, with brown argus recorded twice in 2025, dark green fritillary recorded three times, 41 small blue recorded across four transect visits, and Duke of Burgundy unrecorded. The field data therefore confirm the SSSI habitats continue to support a good level of butterfly diversity, but with few specialist species and no evidence of the continued presence of Duke of Burgundy.

Mitigation and enhancement measures are proposed comprising:

- Sensitive long-term grassland management with scrub control and rotational mowing to maintain calcareous grassland in favourable condition.
- The creation of new calcareous and neutral species-rich grassland areas within the development site suitable to provide breeding and foraging habitat for specialist butterfly species.
- The creation/enhancement of green infrastructure corridors linking the SSSI to neighbouring habitats to support butterfly movement across the landscape.
- Implementation of a post-construction butterfly programme of monitoring and review to track species trends and adapt management accordingly.
- Engagement with Natural England, BBOWT, Network Rail and other relevant partners to coordinate habitat management and secure long-term conservation benefits.

Implementation of the above measures will address ecological constraints associated with the Proposed Development and deliver enhancements for butterfly species consistent with planning policy requirements.

## 2.0 INTRODUCTION

- 2.1 Oxfordshire Railfreight Ltd. commissioned FPCR Environment and Design Ltd. to complete an ecological assessment of an area of land at Ardley, Bicester (central OS grid reference SP533263).
- 2.2 This report provides details of butterfly transects undertaken in 2025 as part of the ecological assessment. These specifically focussed on accessible land within and adjacent to the Ardley Cutting and Quarry Site of Special Scientific Interest (SSSI). FPCR had previously undertaken surveys across the area in 2022, and where relevant this report refers also to the 2022 dataset.
- 2.3 Walked transect surveys were undertaken to record butterfly species presence within the survey area, particularly that of any species of nature conservation importance. Additional objectives were to identify any potential ecological constraints to the proposed development of the wider OxSRFI application site and to consider opportunities for ecological mitigation and enhancement for butterfly species, as appropriate.

### Development Proposals

- 2.4 The Proposed Development comprises a Strategic Rail Freight Interchange with associated infrastructure and industrial units (referenced to herein as the 'Main Site') and associated Highway Works (referred to collectively herein as the 'Highway Works'). Full details of the Proposed Development are provided in the Environmental Statement Chapter 2: Proposed Development.

### Background

- 2.5 Ardley Cutting and Quarry SSSI was notified for its biological and geological interest. The SSSI citation<sup>1</sup> notes that the limestone grassland on the steep railway embankments and in the adjacent quarry comprises the main biological interest. This is noted as being tall-sward grassland dominated by upright brome *Bromus erectus* and/or a mixture of brome and Tor-grass *Brachypodium pinnatum* that additionally supports a range of calcareous forb species. Reference is also made to an area of woodland habitat located within Ardley Wood Quarry that is managed by Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust (BBOWT). The SSSI citation makes reference to a large population of calcareous grassland butterflies, including small blue *Cupido minimis*, brown argus *Aricia agestis*, dark green fritillary *Speyeria aglaja*, green hairstreak *Callophrys rubi* and Duke of Burgundy *Hamearis lucina*, all of which are uncommon in Oxfordshire.
- 2.6 Botanical work undertaken by FPCR within the SSSI in July 2025 noted that succession to scrub and secondary semi-natural woodland represent the main threat to the priority grassland habitats within the surveyed sections of the SSSI<sup>2</sup>. The SSSI is subject to irregular management that encompasses a mowing regime and scrub clearance. No evidence of recent management was noted during the habitat survey in July 2025, though influence of localised rabbit grazing maintaining small areas of open grassland was apparent.
- 2.7 Details of habitats recorded present within each section of the transect route are provided within the F1(L): Butterfly Transect Details Form (Large Site) at Appendix A.

<sup>1</sup> English Nature 1999. Ardley Cutting and Quarry SSSI Citation. <https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1000903.pdf> [Accessed 22.07.25].

<sup>2</sup> FPCR 2025. Ardley Cutting & Quarry SSSI Botanical Survey Report. Appendix ES 6.2.

### 3.0 METHODOLOGY

#### Desktop Study

- 3.1 In order to compile existing baseline information for the study area, relevant ecological information was requested from Thames Valley Environmental Records Centre (TVERC), with updated data requested and received in March 2025. The search area encompassed the Application Site and a 1km buffer. Data received was filtered to include only those records dating from the last 20 years.

#### Field Survey

- 3.2 The surveys entailed eleven walked transects timed during the flight period of the key butterfly species listed within the Ardley Cutting and Quarry SSSI citation (small blue, brown argus, dark green fritillary, green hairstreak and Duke of Burgundy) to record any confirmed sightings of these species and provide a general overview of the butterfly assemblage during this period.
- 3.3 The survey methodology was broadly adopted from that of Butterfly Conservation's (BC) standard methodology for Butterfly Site Recording<sup>3</sup>. Eleven pre-determined fixed route walked transects were undertaken approximately weekly in May and June 2025 and fortnightly in July 2025 between the hours of 8:50 and 16:10 during suitable weather conditions<sup>4</sup>.
- 3.4 Table 1 provides the dates and a summary of the weather conditions during the 2025 transects. The transect route and sections are shown on Figure 1 and described at Appendix A.

**Table 1: Survey Dates and Weather Conditions**

Transect No.	Survey Date	Timings	Weather Conditions
1	01/05/2025	11:00-13:50	23°C, full sun, 5% cloud, light air (1)
2	07/05/2025	11:45-14:15	16°C, bright sunshine, 10% cloud, light to gentle breeze (2-3)
3	14/05/2025	11:45-14:30	21.5°C, sunny, 5% cloud, light air (1) to light breeze (2)
4	23/05/2025	11:10-14:00	19°C, bright sunshine, 40% cloud, light breeze (2)
5	30/05/2025	11:00-13:35	22.5°C, bright, 60% cloud, light breeze (2) to gentle breeze (3)
6	10/06/2025	12:51-16:10	20°C, sunny spells, 20% cloud, light air (1) to light breeze (2)
7	18/06/2025	9:30-12:30	21.5°C, bright sunshine, 5% cloud, light air (1)
8	25/06/2025	10:36-12:58	22.5°C, sunny spells, 60% cloud, light air (1) to light breeze (2)
9	03/07/2025	9:25-13:30	20.5°C, full sun, 0% cloud, light air (1)
10	16/07/2025	10:23-12:17	20°C, sunny, bright, 10% cloud, light breeze (2)
11	29/07/2025	08:50-10:20	15°C, bright but cloudy, 60% cloud, light air (1)

- 3.5 The transects were walked at a slow, steady pace counting all butterflies and day-flying moths observed, with no fixed distance for recording from the transect line. Each included short stops three minutes in duration where there was a clear view into the SSSI.
- 3.6 During the botanical surveys of the SSSI habitats cowslip *Primula veris* and primrose *Primula vulgaris* specimens (Duke of Burgundy host plants) were selected at random and searched for eggs and for evidence of caterpillar feeding.

<sup>3</sup> Butterfly Conservation 2022. G2: Field Guidance Notes for Butterfly Transects [Online]. Available from: <https://ukbms.org/sites/default/files/downloads/UKBMS%20G2%20Transect%20field%20guidance%20%20notes.pdf> [Accessed 22.07.25].

<sup>4</sup> Minimum criteria of either 13-17°C with at least 60% sunshine, or without sunshine >17°C and windspeed <5 (fresh breeze) on the Beaufort Scale.

## Limitations

- 3.7 Direct access to the SSSI along the railway embankments was not feasible for the butterfly transects due to Network Rail's stringent access policies, which require access permission for specific dates to be booked months in advance, and the need for surveyors to be accompanied at all times by a member of Network Rail's Asset Protection team. This process is not compatible with the flexibility needed to ensure that butterfly surveys are undertaken during suitable weather conditions.
- 3.8 During the final transect (29/07/25) the survey had to begin earlier than recommended BC timings as the weather forecast predicted rain from 11:00 onwards. The survey date was considered the most suitable day of that week due to a forecast of account of unsettled weather. Given the overall level of survey effort this was not considered a constraint to the overall results.

## 4.0 RESULTS

### Desktop Study

- 4.1 No records of butterfly species listed on the SSSI citation were included within the consultation data received covering the period 2005-2025. Two historic records of small blue were however identified among the unfiltered data, both from Ardley Wood and both dating from 2003. Other species recorded locally comprised: brown hairstreak *Thecla betulae*, dingy skipper *Erynnis tages*, grizzled skipper *Pyrgus malvae*, small heath *Coenonympha pamphilus*, a single record of white-letter hairstreak *Satyrium w-album* (towards Bicester), white admiral *Limenitis camilla* (all Stoke Wood to the northeast) and cinnabar moth *Tyria jacobaeae*.

### Field Survey

- 4.2 Table 2 details the butterfly species and numbers recorded during each transect. Record locations along each transect are shown on Figures 2-12.
- 4.3 A total of 1,547 individual butterflies and 25 species were recorded across the eleven transects completed in 2025 (and 1229 records across 26 species in 2022). Due to the difficulty in differentiating small skipper *Thymelicus sylvestris* and Essex skipper *Thymelicus lineola* on the wing these two species were grouped together.
- 4.4 The most frequently recorded species during the 2025 transects were marbled white *Melanargia galathea* with 303 records across five surveys, representing 19.6% of the individuals registered; meadow brown *Maniola jurtina* (225 records across seven surveys, c.14.6%) and gatekeeper *Pyronia tithonus* (198 records across four surveys, c.13.0% of records). The least frequently encountered butterfly species were painted lady *Vanessa cardui* (single record), brown argus (two records in one survey) and dark green fritillary (three records across two surveys).
- 4.5 The species recorded by the most transects were small heath, recorded during 10 of the 11 transect surveys (116 records) and large white, recorded during 8 of the transects (85 records). Butterfly species recorded by 7 surveys were: meadow brown (221 records), peacock (49 records), red admiral (12 records), small white (47 records) and small/Essex skipper (83 records).

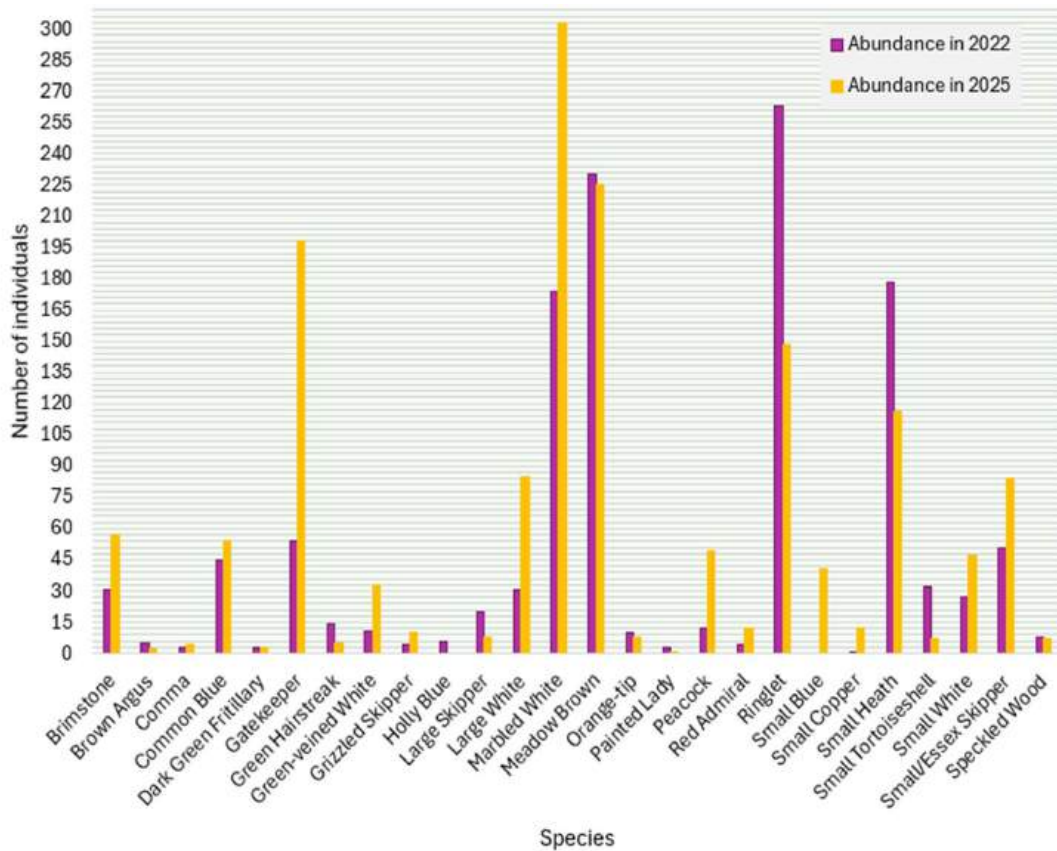
Table 2: Butterfly Species Recorded During the Transects

Vernacular Name	Scientific Name	Transect No.											Conservation Status <sup>5</sup>
		1	2	3	4	5	6	7	8	9	10	11	
Brimstone	<i>Gonepteryx rhamni</i>	13	14	11	11	4	-	-	1	3	-	-	Low priority
Brown argus	<i>Aricia agestis</i>	-	-	-	-	-	-	-	-	2	-	-	Low priority
Comma	<i>Polygonia c-album</i>	-	2	-	-	-	-	-	-	-	1	1	Low priority
Common blue	<i>Polyommatus icarus</i>	-	4	18	7	10	2	-	-	2	11	-	Low priority
Dark green fritillary	<i>Speyeria aglaja</i>	-	-	-	-	-	-	-	2	-	1	-	Medium priority
Gatekeeper	<i>Pyronia tithonus</i>	-	-	-	-	-	-	-	19	81	88	10	Low priority
Green hairstreak	<i>Callophrys rubi</i>	-	1	-	3	1	-	-	-	-	-	-	Medium priority
Green-veined white	<i>Pieris napi</i>	-	5	3	4	1	-	-	14	-	6	-	Low priority
Grizzled skipper	<i>Pyrgus malvae</i>	5	4	1	-	-	-	-	-	-	-	-	High priority, NERC S41
Large skipper	<i>Ochlodes sylvanus</i>	-	-	-	-	2	2	4	-	-	-	-	Low priority
Large white	<i>Pieris brassicae</i>	7	4	3	-	-	-	3	13	23	30	2	Low priority
Marbled white	<i>Melanargia galathea</i>	-	-	-	-	4	21	176	74	28	-	-	Low priority
Meadow brown	<i>Maniola jurtina</i>	-	-	-	-	5	7	55	75	40	34	9	Low priority
Orange-tip	<i>Anthocharis cardamines</i>	3	4	-	1	-	-	-	-	-	-	-	Low priority
Painted lady	<i>Vanessa cardui</i>	-	-	-	-	-	-	-	-	-	-	1	Low priority
Peacock	<i>Aglais io</i>	6	4	4	-	1	1	-	23	10	-	-	Low priority
Red admiral	<i>Vanessa atalanta</i>	2	-	1	-	-	1	1	1	2	4	-	Low priority
Ringlet	<i>Aphantopus hyperantus</i>	-	-	-	-	-	-	93	23	31	1	-	Low priority
Small blue	<i>Cupido minimus</i>	-	-	-	16	17	-	-	1	-	7	-	Medium priority, NERC s41
Small copper	<i>Lycaena phlaeas</i>	-	4	-	-	-	-	-	-	-	-	8	Low priority
Small heath	<i>Coenonympha pamphilus</i>	7	9	4	18	23	10	11	3	5	26	-	High priority, NERC S41
Small tortoiseshell	<i>Aglais urticae</i>	-	-	-	-	1	5	-	1	-	-	-	Low priority
Small white	<i>Pieris rapae</i>	3	-	-	-	-	1	1	7	30	4	1	Low priority
Small/Essex skipper	<i>Thymelicus sylvestris/lineola</i>	-	-	-	1	1	7	20	24	25	6	-	Low priority
Speckled wood	<i>Pararge aegeria</i>	-	2	1	2	-	-	1	-	1	-	-	Low priority
<b>Total Number of Species Recorded</b>		7	12	9	9	12	10	10	15	14	13	7	<b>25</b>
<b>Total Number of Individual Butterflies Recorded</b>		46	57	46	63	70	57	365	296	283	232	32	1533

<sup>5</sup> <https://butterfly-conservation.org> [Accessed 22/07/25].

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- 4.6 The transect with the highest butterfly count in terms of individuals recorded was Transect 7 undertaken on 18th June 2025 with the 365 butterflies recorded representing 23.6% of the 2025 butterfly records. The lowest number (32 butterflies) was recorded on 29th July (Transect 11), which represented just 2% of the total records that season.
- 4.7 Incidental day-flying moth records comprised 12 cinnabar moth *Tyria jacobaeae* caterpillars recorded on common ragwort *Jacobae vulgaris* during Transect 8, three cinnabar moth caterpillars during Transect 10, and a six-spot burnet *Zygaena filipendulae* also during Transect 10.
- 4.8 The greatest species diversity was recorded by the transects on 18th and 25th June (Transects 8 and 9), with 15 and 14 species respectively, whereas the lowest butterfly diversity was recorded by the initial and final transects (1st May and 29th July), with seven species each.
- 4.9 The most notable difference between the 2025 and 2022 data was that the 2022 transects recorded six instances of holly blue *Celastrina argiolus* but this species was not recorded during the 2025 surveys. Conversely small blue was absent from the 2022 data but was recorded on 41 occasions during the 2025 surveys. The datasets from the two field seasons were otherwise broadly comparable, with the same additional 24 species confirmed present by both.
- 4.10 Whereas the most abundant species recorded in 2025 were marbled white, meadow brown and gatekeeper, in 2022 these were ringlet *Aphantopus hyperantus* (263 records), meadow brown (230 records) and small heath (178 records) (see Graph 1 and Appendix B).
- 4.11 No evidence of Duke of Burgundy eggs or caterpillars were recorded during the botanical surveys of the SSSI.

**Graph 1: Abundance of Butterfly Species Recorded During the Transects**



**5.0 DISCUSSION AND RECOMMENDATIONS**

- 5.1 The majority of butterfly species recorded during surveys are common and widespread, the exceptions being brown argus, green hairstreak, dark green fritillary, grizzled skipper, small heath and small blue, and are considered typical of the grassland, woodland, and woodland/scrub edge habitats that characterise the SSSI and adjacent land.
- 5.2 No evidence of the target species Duke of Burgundy was recorded during the 2025 or 2022 season. Small blue was not detected by the surveys undertaken in 2022 transects however was recorded by four of the transect surveys during the 2025 season. It is not currently known when the last sighting of Duke of Burgundy was. Prior to the 2025 transects the most recent confirmed sighting of small blue was from within Ardley Wood Quarry in 2003. Other butterfly species listed within the SSSI citation (brown argus, dark green fritillary and green hairstreak) were each recorded in small numbers during both field seasons surveyed.
- 5.3 The host plant of small blue, kidney vetch *Anthyllis vulneraria* is rare within the SSSI. It was recorded as locally occasional in the CG3 *Bromus erectus* grassland community G132 present on the northern bank in Section 4. Elsewhere it was noted as a rarity in the CG5 *Bromus erectus* - *Brachypodium pinnatum* grassland G51 on the northern bank in Section 5 and in the CG4 *Brachypodium pinnatum* grassland community G47 on the northern bank in Section 2. It was also noted as a rarity within the short grazed grassland community G49, located outside the SSSI near the Valencia quarry bridge.

- 5.4 To provide context for the flight periods of the target species Duke of Burgundy, the earliest sighting of this species in the Upper Thames Branch (UTB) Region (since 2004) was 11<sup>th</sup> April<sup>6</sup>, with peak counts in May. The 2022 and 2025 survey periods therefore each covered the main flight period of this species, and the absence of records indicates the SSSI no longer supports Duke of Burgundy, or at most supports it only infrequently and/or in very small numbers.
- 5.5 Brown argus is a species of more localised occurrence within Oxfordshire and the lowlands of the East Midlands, and the species has a status of Least Concern across the UK<sup>7</sup>. Brown argus was only recorded in early July in 2025 (Transect 9) with individual butterflies recorded in sections 2 and 9. In 2022 this species was recorded in small numbers (1 to 3) during the 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> transects all in mid to late May.
- 5.6 Green hairstreak is widespread though not common in Oxfordshire and has a status of Least Concern across the UK. The species was recorded along Transects 2, 4 and 5 within Sections 1 and 6 where the species was associated with scrub habitat along the south facing railway embankment and within Ardley Wood Quarry. The larval host plant for this species, common rock-rose *Helianthemum nummularium*, was recorded as a rarity on the northern embankment (G38 CG5) and also rarely at the ridge of the southern bank (G44 Cg3). The nectar plants used by adult green hairstreak include dogwood *Cornus sanguinea*, buckthorn *Rhamnus cathartica* and bramble *Rubus fruticosus* agg.<sup>8</sup> which are present along the railway embankments and within the adjacent woodland. Some small losses of scrub including bramble scrub are proposed to facilitate the new railway connections. Such habitats are however widely available across the site and adjacent habitats. Furthermore, the proposed creation of new embankments and of substantial areas of neutral species-rich grassland and calcareous grassland as part of the proposals will provide more extensive foraging and egg-laying opportunities for this species.
- 5.7 Dark green fritillary is also widespread, though not common in Oxfordshire and is associated with grassy, herb-rich slopes, clearings in light woodland and damp meadows and heaths<sup>9</sup>. This species was recorded on two occasions during the 2025 surveys (Transects 8 and 10) within sections 3, 4 and 6 within Ardley Wood Quarry where it the species has previously been recorded. The 2025 records corresponded with the published flight times for this species, with the earliest recorded emergence in the UTB Region being 28<sup>th</sup> May<sup>9</sup>, and with general emergence from mid-June and peak emergence in early July. The host plants for this species are common dog-violet *Viola riviniana* and hairy violet *Viola hirta*. Hairy violet was recorded as occasional in some areas of the SSSI and rarely occurring otherwise, whereas common dog-violet was not recorded present within the SSSI. It is considered that any loss of habitats supporting these larval food plants will represent a minor and localised impact to this species and will be appropriately mitigated by the proposed grassland creation as outlined above, that will include hairy violet within the species composition.
- 5.8 Although small heath was not amongst the most abundant species, it was the one that was recorded on the most survey occasions (10 out of 11). Small heath is listed as a Section 41 species

<sup>6</sup> Butterfly Conservation 2022. *Upper Thames Branch. Duke of Burgundy (Hamearis lucina)* [Online]. Available from: <https://www.upperthames-butterflies.org.uk/butterflies> [Accessed 22/07/25].

<sup>7</sup> Butterfly Conservation 2022. *Upper Thames Branch. Brown Argus (Plebeius agestis)* [Online]. Available from: <https://www.upperthames-butterflies.org.uk/butterflies> [Accessed 22/07/25].

<sup>8</sup> Butterfly Conservation 2022. *Upper Thames Branch. Green Hairstreak (Collaphys rubi)* [Online]. Available from: <https://www.upperthames-butterflies.org.uk/butterflies> [Accessed 22/07/25].

<sup>9</sup> Butterfly Conservation 2022. *Upper Thames Branch. Dark Green Fritillary (Argynnis alglaja)* [Online]. Available from: <https://www.upperthames-butterflies.org.uk/butterflies> [Accessed 22/07/25].

of principle importance under the NERC Act. It uses fine grasses including fescues *Festuca* sp., meadowgrasses *Poa* sp. and bent grasses *Agrostis* sp., for larval foodplants and is often associated with well-drained grassland sites where the sward is short and sparse<sup>10</sup>. The largest numbers recorded during the 2025 field season were recorded during the fifth and tenth transects within the improved and semi-improved neutral grassland south of the railway line, in the vicinity of the proposed eastern railway connection. Given there are abundant suitable habitats and host plant species present in the local area, and with consideration of the green infrastructure proposed as part of the development scheme, it is considered that the proposals will result in an overall benefit to local small heath populations in terms of food plant availability and habitat connectivity.

- 5.9 Grizzled skipper is listed as a Section 41 species of principle importance under the NERC Act. It was not listed on the SSSI citation but has previously been recorded within Ardley Wood Quarry<sup>11</sup>. The species is associated with woodland rides, glades and clearings and calcareous soils. During the 2025 transect surveys this species was only recorded during the initial three surveys visits, on each occasion located within Ardley Wood. Host plants were recorded along the SSSI embankments included patches of abundant wild strawberry *Fragaria vesca* and occasional-frequent agrimony *Agrimonia eupatoria* and occasional to locally frequent creeping cinquefoil *Potentilla reptans*<sup>2</sup>.
- 5.10 The proposals will require the removal of some of this habitat, however none of the areas where this species was recorded are to be directly impacted by the proposals as these lie outside of the Order Limits. Opportunities to create new areas of forb-rich grassland with the structural variation preferred by this species including areas with sparse vegetation and larval foodplants, and areas of taller vegetation suitable for shelter and roosting will help to provide an overall enhancement for this declining species.
- 5.11 Marble white and meadow brown were both recorded in significant numbers, particularly during Transects 7 and 8 which corresponded with the peak flight periods of mid-June to mid-July, and mid-June to mid-September, respectively. Whilst there is an incomplete understanding of the larval food plant requirements for marble white, red fescue *Festuca rubra* agg. is considered to be an essential element of the larvae diet, but with sheep's-fescue *Festuca ovina*, Yorkshire-fog *Holcus lanatus* and tor-grass *Brachypodium pinnatum* are also used<sup>12</sup>. Red fescue and Yorkshire-fog were widely recorded across the site and within areas of grassland along the transect, and Yorkshire-fog and tor-grass are frequent and locally abundant within the SSSI. Good populations of marble white are supported by the habitats within and adjacent to the SSSI. The small areas of habitat loss would be mitigated and compensated for via the creation of extensive areas of calcareous and neutral species-rich grassland. It is therefore considered the resident marble white colonies of this species will not be adversely impacted by the proposals and will likely experience overall enhanced food plant availability and habitat connectivity.

<sup>10</sup> Butterfly Conservation 2022. Small Heath (*Coenonympha pamphilus*) [Online]. Available from: <https://www.upperthames-butterflies.org.uk/butterflies> [Accessed 22/07/25].

<sup>11</sup> Butterfly Conservation 2022. Upper Thames Branch. Grizzled Skipper (*Pyrgus malvae*) [Online]. Available from: <https://www.upperthames-butterflies.org.uk/butterflies> [Accessed 22/07/25].

<sup>12</sup> Butterfly Conservation 2022. Upper Thames Branch. Marbled White (*Melanargia galatheas*) [Online]. Available from: <https://www.upperthames-butterflies.org.uk/butterflies> [Accessed 22/07/25].

Asher, J., Warren, M., Fox, R., Harding, P., Jeffcoate, G., & Jeffcoate, S. 2001. *The Millennium Atlas of Butterflies in Britain and Ireland*. Oxford: Oxford University Press.

- 5.12 Meadow brown uses a more diverse range of foodplants than marbled white, though there is some overlap, specifically in the case of fescues (*Festuca* spp.). Meadow brown can also use meadowgrasses (*Poa* spp.), cock's foot (*Dactylis glomerata*) and false brome (*Brachypodium sylvaticum*), all present within the SSSI and adjacent habitats.
- 5.13 The highest gatekeeper numbers were recorded on Transects 9 and 10, undertaken in early and mid-July respectively, a little earlier than the peak season for this species (early August in the UTB<sup>13</sup>), possibly influenced by a notably hot and dry spring/summer. The foodplants used by gatekeeper also overlap with those used both by marble white and meadow brown, with the species showing a preference for bents, fescues and meadowgrasses.
- 5.14 Overall, the highest numbers of butterflies were recorded within Ardley Wood Quarry and along transect sections 1, 2 and 9. The proposals will not result in any habitat loss from Ardley Wood Quarry, and whilst there will be some minor loss of suitable butterfly habitats required to enable the construction of the Ardley Bypass and eastern rail connection, the areas of calcareous grassland in this area were noted to be heavily encroached and overgrown with scrub and therefore in poor condition. Of the target butterfly species cited within the SSSI, small blue (41 records), brown argus (two records) and green hairstreak (five records) were recorded along sections 1, 2, 6, 7, 8, 9 and 10.

### Mitigation

- 5.15 The minor loss suitable butterfly habitat will be mitigated via the establishment of more extensive areas of calcareous grassland including along the new cuttings created as part of the rail connections, and calcareous/neutral species-rich grassland in adjoining areas. Suitable methods to be employed include translocation of material from areas lost and/or the sowing of grassland seed collected from the SSSI and other suitable donor sites. New grassland will be appropriately managed in the long term so that it does not become overgrown with scrub. As the new rail track cuttings will form part of the site there will be no significant limitation to access for management, permitting the delivery of more effect management than is achieved along the main track.
- 5.16 The inclusion of plug plants and seeds of larval foodplants of butterfly species associated with calcareous grassland and the SSSI, including those of small blue, brown argus, dark green fritillary, green hairstreak, grizzled skipper and Duke of Burgundy, will provide additional mitigation for the loss of existing butterfly habitat.
- 5.17 To maximise the potential for successful colonisation or range expansion by the target butterfly species, the management will aim to create optimal habitat conditions including:
- Creation of a varied vegetation structure, including areas of tall sward grassland and scrub providing shelter and roosting sites and focal points for mating, and shorter grassland and bare ground with scattered larval food plants, providing suitable egg-laying sites, and
  - Provision of an abundance of the 'key' larval foodplants within newly established grassland areas, with a particular focus on those adjacent to the SSSI.
- 5.18 The minor habitat losses required by the proposals therefore will not result in any significant adverse impact on the existing butterfly populations that utilise habitats within Ardley Wood

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<sup>13</sup> Butterfly Conservation 2022. Upper Thames Branch. Gatekeeper (*Pyronia tithonus*) [Online]. Available from: <https://www.upperthames-butterflies.org.uk/butterflies> [Accessed 22/07/25].

Quarry and along the SSSI railway embankments. It is further considered that that the scheme will deliver appropriate mitigation to ensure the conservation status these populations is maintained, and that the proposed habitat creation and connectivity enhancement will provide opportunities for the colonisation of new habitat areas.

## **6.0 SUMMARY AND CONCLUSION**

- 6.1 Most butterfly sightings recorded during transect surveys were associated with Ardley Wood and transect sections 1, 2 and 9, the majority of which were common and widespread species.
- 6.2 No evidence of the targeted species of Duke of Burgundy was recorded during transect surveys completed in 2022 and 2025. The four other butterfly species listed within the SSSI citation (small blue, brown argus, dark green fritillary and green hairstreak) were recorded in small numbers, though with no small blue sightings during the 2022 transects. With the exception of the absence of small blue, and the presence of common blue, the species list compiled during the 2025 transects matches the list recorded in 2022.
- 6.3 The creation of new areas of calcareous grassland along the new rail track embankments and establishment of a combination of calcareous and neutral species-rich grassland adjacent to the SSSI and extending into the local area will mitigate for the minor permanent loss of suitable grassland habitats from within the Application Site and will provide opportunities for the SSSI target species to increase in population size and range extent. As such, the proposals will not result in an adverse impact on the butterfly communities currently present and an overall minor beneficial effect is anticipated for grassland specialist species.

**APPENDIX A: F1(L): BUTTERFLY TRANSECT DETAILS FORM (LARGE SITE)**

# F1(L): BUTTERFLY TRANSECT DETAILS FORM (LARGE SITE)

## DETAILS OF RECORDER, HABITAT, MANAGEMENT & ROUTE MAP



Please fill in this form as fully as possible, with reference to Guidance Notes G3 & G4

<b>SITE NAME</b>	Ardley Cutting and Quarry SSSI			<b>COUNTY</b>	Oxfordshire						
<b>OS GRID REF. (6 FIG.)</b>	SP 537 270	<b>OS MAP NO. (1:50 000)</b>		<b>YEAR TRANSECT ESTABLISHED</b>			2025				
<b>TRANSECT LENGTH (M)</b>	6485	<b>TRANSECT WIDTH (m) (tick one)</b>		5	<input type="checkbox"/>	6	<input type="checkbox"/>	10	<input type="checkbox"/>	OTHER	<input checked="" type="checkbox"/>
<b>OVERALL HABITAT DESCRIPTION</b>								<b>HAB. CODE(S)</b>			
<b>LAND USE</b> (if the transect is on a disused industrial site indicate type)	RAILWAY	<input checked="" type="checkbox"/>	QUARRY	<input type="checkbox"/>	PIT/MINE	<input type="checkbox"/>	OTHER (add to notes)			<input type="checkbox"/>	
<b>SITE'S CONSERVATION STATUS</b>	SSSI			<b>TYPE OF RECORDER</b>		BC Volunteer, FPCR Ecologist					
<b>RECORDER DETAILS</b>	Natalie Kay, Senior Ecologist (FPCR - Dorking) Ame Hernández, Ecologist (FPCR Exeter)										
<b>OWNER DETAILS</b>	Valencia Waste Management Ltd; MacColl & Pickford; Robert Adams; Denis Mulcock										

**SITE MAP:** 1:10 000 or 1:12 500 photocopy based on an OS map, showing scale and sections



By submitting these records you confirm that they contain data that you have collected, give permission for the records to be used for research, education and public information, and to be made generally available for re-use for any other legal purpose under the terms of the Open Government Licence (<http://www.nationalarchives.gov.uk/doc/open-government-licence/>), and agree that your name will be associated with the record. The UKBMS partners collect personal data in order to administer, run and share results of the scheme. The personal data we will collect and how it will be stored, shared and deleted (as necessary) are covered in our Privacy Notice <http://www.ukbms.org/privacy-notice>.

# F1(L): BUTTERFLY TRANSECT DETAILS FORM (LARGE SITE)

## DETAILS OF RECORDER, HABITAT, MANAGEMENT & ROUTE MAP



Centre for Ecology & Hydrology  
NATURAL ENVIRONMENT RESEARCH COUNCIL



JNCC UKBMS

Please fill in this form as fully as possible, with reference to Guidance Notes G3 & G4

### SECTION DETAILS:

Section Number	Central Grid Ref.	Length (m)	HABITAT	
			Description/notes & main species	Code(s)-see G4
1	SP 54743 26073	600	Calcareous grassland arable margin adjacent to unimproved calcareous grassland and mixed scrub along railway embankment.  Cut through broadleaved woodland to neutral semi-improved grassland adjacent to dense scrub with localized open areas of unimproved calcareous grassland on railway embankment.	15, 17, 18, 22, 26, 35
2	SP 54295 26489	675	Neutral semi-improved grassland adjacent to dense scrub on railway embankment.  Ends at broadleaved woodland belt.	17, 22, 26
3	SP 53752 27003	940	Neutral semi-improved grassland arable margins adjacent to dense scrub on railway embankment.  Small pockets of unimproved limestone/calcareous grassland on railway embankment in between scrub pockets, grazed by rabbits.	15, 17, 22, 35
4	SP 53135 27517	630	Cut through two species-poor hedgerows into arable field with unimproved limestone/calcareous grassland and dense scrub along railway embankment.	15, 17, 22, 25, 35
5	SP 52846 27799	700	Cut through species-poor hedgerow into agricultural field with dense scrub along railway embankment.  Double back and cross railway bridge with view of scrub and limestone/calcareous grassland.	15, 22, 25
6	SP 53774 27240	1170	Cross railway bridge into Ardley Wood, a broad-leaved woodland.  Ground flora species, particularly along rides and in clearings, included dragon's-teeth <i>Tetragonolobus maritimus</i> , cowslip <i>Primula veris</i> , bird's-foot trefoil <i>Lotus corniculatus</i> , wild strawberry <i>Fragaria vesca</i> , dog's mercury <i>Mercurialis perennis</i> , common knapweed <i>Centaurea nigra</i> , bush vetch <i>Vicia sepium</i> and common dog violet <i>Viola riviniana</i> .	26
7	SP 53966 26941	420	Follow footpath through agricultural fields adjacent to broad-leaved woodland belt.	17, 26
8	SP 54256 26630	575	Cut through two hedgerows along Station Road to reach two arable fields, separated by species-rich native hedgerow, with unimproved limestone/calcareous grassland and dense scrub patches along railway embankment.	15, 22, 25, 35
9	SP 54609 26266	590	Neutral semi-improved grassland field adjacent to unimproved limestone/calcareous grassland and dense scrub patches on railway embankment. After Railway bridge, trackside grassland is short grazed calcareous grassland before grading into dense scrub over a bund.	15, 17, 22
10	SP54889 26007	185	Grazed calcareous grassland field adjacent to unimproved limestone/calcareous grassland on railway embankment.	15, 17

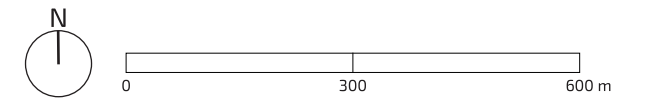
### Notes:

- Limestone grassland on steep banks of railway cutting and adjacent quarry forms main biological interest of SSSI. One of the largest limestone grasslands in the Oxfordshire Cotswolds where unimproved grassland is now very rare.
- Large populations of calcareous grassland butterflies, including small blue *Cupido minimis*, brown argus *Aricia agestis*, dark green fritillary *Argynnis aglaja*, green hairstreak *Callophyrus rubi* and Duke of Burgundy *Hamearis Lucina*, all of which are uncommon in Oxfordshire.
- 11ha area called Ardley Wood Quarry managed by Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust (BBOWT).

## APPENDIX B: 2022 BUTTERFLY SURVEY RESULTS

Vernacular Name	Scientific Name	Transect No.											Conservation Status <sup>14</sup>
		1	2	3	4	5	6	7	8	9	10	11	
	Date	07/05/22	15/05/22	17/05/22	27/05/22	04/06/22	10/06/22	14/06/22	22/06/22	01/07/22	11/07/22	26/08/22	
Brimstone	<i>Gonepteryx rhamni</i>	3	11	7	4	-	1	4	1	-	-	-	Low priority
Brown argus	<i>Aricia agestis</i>	-	1	1	3	-	-	-	-	-	-	-	Low priority
Comma	<i>Polygonia c-album</i>	-	-	-	-	-	-	-	1	1	-	-	Low priority
Common blue	<i>Polyommatus icarus</i>	-	4	5	15	1	5	3	1	-	-	10	Low priority
Dark green fritillary	<i>Speyeria aglaja</i>	-	-	-	-	-	-	1	2	-	-	-	Medium priority
Gatekeeper	<i>Pyronia tithonus</i>	-	-	-	-	-	-	-	-	1	53	4	Low priority
Green hairstreak	<i>Callophrys rubi</i>	-	4	1	8	-	-	1	-	-	-	-	Medium priority
Green-veined white	<i>Pieris napi</i>	2	3	2	-	-	3	1	-	-	-	-	Low priority
Grizzled skipper	<i>Pyrgus malvae</i>	1	2	1	-	-	-	-	-	-	-	-	High priority, NERC S41
Holly blue	<i>Celastrina argiolus</i>	4	2	-	-	-	-	-	-	-	-	-	Low priority
Large skipper	<i>Ochlodes sylvanus</i>	-	-	-	2	-	-	4	8	6	-	-	Low priority
Large white	<i>Pieris brassicae</i>	2	3	1	2	-	2	-	-	8	7	5	Low priority
Marbled white	<i>Melanargia galathea</i>	-	-	-	-	-	7	21	54	69	22	-	Low priority
Meadow brown	<i>Maniola jurtina</i>	-	-	-	-	-	7	30	90	68	40	2	Low priority
Orange-tip	<i>Anthocharis cardamines</i>	2	5	1	2	-	-	-	-	-	-	-	Low priority
Painted lady	<i>Vanessa cardui</i>	-	-	-	1	-	-	1	1	-	-	-	Low priority
Peacock	<i>Aglais io</i>	2	4	3	2	-	-	-	-	1	-	-	Low priority
Red admiral	<i>Vanessa atalanta</i>	-	-	-	-	2	-	1	-	-	-	1	Low priority
Ringlet	<i>Aphantopus hyperantus</i>	-	-	-	-	-	-	1	72	129	62	1	Low priority
Small copper	<i>Lycaena phlaeas</i>	-	1	-	-	-	-	-	-	-	-	-	Low priority
Small heath	<i>Coenonympha pamphilus</i>	-	11	14	38	8	21	28	22	12	10	15	High priority, NERC S41
Small skipper	<i>Thymelicus sylvestris</i>	-	-	-	-	-	-	-	-	18	-	-	Low priority
Small tortoiseshell	<i>Aglais urticae</i>	1	1	-	-	2	2	9	6	7	3	-	Low priority
Small white	<i>Pieris rapae</i>	-	2	9	4	-	-	2	-	-	5	5	Low priority
Small/Essex skipper	<i>Thymelicus sylvestris/lineola</i>	-	-	-	-	-	-	-	-	-	30	3	Low priority
Speckled wood	<i>Pararge aegeria</i>	-	-	2	-	1	1	-	2	-	-	2	Low priority
<b>Total Number of Species Recorded</b>		8	14	12	11	5	9	14	12	11	9	10	
<b>Total Number of Individual Butterflies Recorded</b>		17	54	47	81	14	49	107	260	320	232	48	

<sup>14</sup> <https://butterfly-conservation.org> [Accessed 22/07/25].

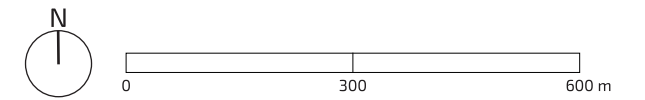


**Key:**

**Transect:**

- Non-Survey Section
- Section 1
- Section 2
- Section 3
- Section 4
- Section 5
- Section 6
- Section 7
- Section 8
- Section 9
- Section 10

date	18/08/25	drwn/chkd	DAHM / LHG / RG
client	Oxfordshire Railfreight Ltd.		
project	Oxfordshire SRFI, Oxfordshire		
title	Ardley Butterfly Transect Survey Routes	scale	1:10,000 @ A3
number	<b>FIGURE 1</b>	rev	—



**Key:**

**Butterfly Species (with count reference):**

- |                            |                       |
|----------------------------|-----------------------|
| <b>B</b> Brimstone         | <b>P</b> Peacock      |
| <b>GS</b> Grizzled Skipper | <b>RA</b> Red Admiral |
| <b>LW</b> Large White      | <b>SH</b> Small Heath |
| <b>OT</b> Orange Tip       | <b>SW</b> Small Wood  |

**Transect:**

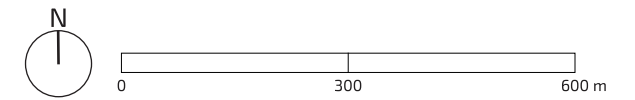
- |                    |            |
|--------------------|------------|
| Non-Survey Section | Section 6  |
| Section 1          | Section 7  |
| Section 2          | Section 8  |
| Section 3          | Section 9  |
| Section 4          | Section 10 |
| Section 5          |            |

**Additional Protections:**

- NERC S41

date	18/08/25	drwn/chkd	DAHM / LHG / RG
client	Oxfordshire Railfreight Ltd.		
project	Oxfordshire SRFI, Oxfordshire		
title	Ardley Cutting and Quarry SSSI	scale	1:10,000 @ A3
number	Butterfly Survey 01.05.25	rev	-

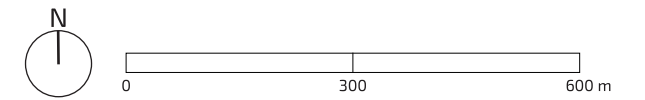
**FIGURE 2**



- Key:**
- Butterfly Species (with count reference):**
- |                              |                          |
|------------------------------|--------------------------|
| <b>B</b> Brimstone           | <b>LW</b> Large White    |
| <b>C</b> Comma               | <b>OT</b> Orange Tip     |
| <b>CB</b> Common Blue        | <b>P</b> Peacock         |
| <b>GH</b> Green Hairstreak   | <b>SC</b> Small Copper   |
| <b>GV</b> Green-veined White | <b>SH</b> Small Heath    |
| <b>GS</b> Grizzled Skipper   | <b>SPW</b> Speckled Wood |
- Transect:**
- |                    |            |
|--------------------|------------|
| Non-Survey Section | Section 6  |
| Section 1          | Section 7  |
| Section 2          | Section 8  |
| Section 3          | Section 9  |
| Section 4          | Section 10 |
| Section 5          |            |
- Additional Protections:**
- NERC S41

date	18/08/25	drwn/chkd	DAHM / LHG / RG
client	Oxfordshire Railfreight Ltd.		
project	Oxfordshire SFRI, Oxfordshire		
title	Ardley Cutting and Quarry SSSI	scale	1:10,000 @ A3
number	Butterfly Survey 07.05.25	rev	-

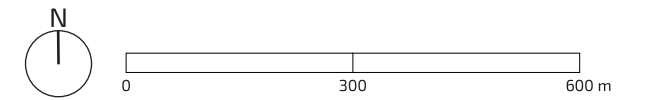
**FIGURE 3**



- Key:**
- Butterfly Species (with count reference):**
- |                              |                          |
|------------------------------|--------------------------|
| <b>B</b> Brimstone           | <b>P</b> Peacock         |
| <b>CB</b> Common Blue        | <b>RA</b> Red Admiral    |
| <b>GV</b> Green-veined White | <b>SH</b> Small Heath    |
| <b>GS</b> Grizzled Skipper   | <b>SPW</b> Speckled Wood |
| <b>LW</b> Large White        |                          |
- Transect:**
- |                    |            |
|--------------------|------------|
| Non-Survey Section | Section 6  |
| Section 1          | Section 7  |
| Section 2          | Section 8  |
| Section 3          | Section 9  |
| Section 4          | Section 10 |
| Section 5          |            |
- Additional Protections:**
- NERC S41

date	18/08/25	drwn/chkd	DAHM / LHG / RG
client	Oxfordshire Railfreight Ltd.		
project	Oxfordshire SRFI, Oxfordshire		
title	Ardley Cutting and Quarry SSSI	scale	1:10,000 @ A3
number	Butterfly Survey 14.05.25	rev	

**FIGURE 4**



- Key:**
- Butterfly Species (with count reference):**
- B** Brimstone
  - CB** Common Blue
  - GH** Green Hairstreak
  - GV** Green-veined White
  - OT** Orange Tip
  - SB** Small Blue
  - SH** Small Heath
  - SPW** Speckled Wood
  - SES** Small/Essex Skipper
- Transect:**
- Non-Survey Section
  - Section 1
  - Section 2
  - Section 3
  - Section 4
  - Section 5
  - Section 6
  - Section 7
  - Section 8
  - Section 9
  - Section 10
- Additional Protections:**
- NERC S41

date 18/08/25 drwn/chkd DAHM / LHG / RG

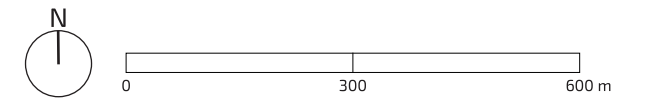
client **Oxfordshire Railfreight Ltd.**

project **Oxfordshire SRFI, Oxfordshire**

title **Ardley Cutting and Quarry SSSI** scale 1:10,000 @ A3

number **Butterfly Survey 23.05.25** rev -

**FIGURE 5**



**Key:**  
Butterfly Species (with count reference):

- |                              |                                |
|------------------------------|--------------------------------|
| <b>B</b> Brimstone           | <b>MB</b> Meadow Brown         |
| <b>CB</b> Common Blue        | <b>P</b> Peacock               |
| <b>GH</b> Green Hairstreak   | <b>SB</b> Small Blue           |
| <b>GV</b> Green-veined White | <b>SH</b> Small Heath          |
| <b>LS</b> Large Skipper      | <b>ST</b> Small Tortoiseshell  |
| <b>MW</b> Marbled White      | <b>SES</b> Small/Essex Skipper |

- Transect:
- |                    |            |
|--------------------|------------|
| Non-Survey Section | Section 6  |
| Section 1          | Section 7  |
| Section 2          | Section 8  |
| Section 3          | Section 9  |
| Section 4          | Section 10 |
| Section 5          |            |

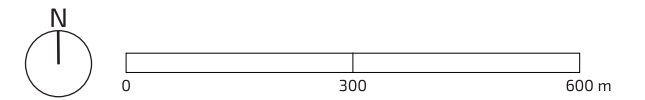
- Additional Protections:
- NERC S41

date 18/08/25 drwn/chkd  
 DAHM / LHG / RG

client  
**Oxfordshire Railfreight Ltd.**  
 project  
**Oxfordshire SRFI,  
 Oxfordshire**

title scale  
**Ardley Cutting and Quarry SSSI 1:10,000 @ A3**  
**Butterfly Survey 30.05.25**  
 number rev

**FIGURE 6**



**Key:**

Butterfly Species (with count reference):

- |                         |                                |
|-------------------------|--------------------------------|
| <b>CB</b> Common Blue   | <b>RA</b> Red Admiral          |
| <b>LS</b> Large Skipper | <b>SH</b> Small Heath          |
| <b>MW</b> Marbled White | <b>ST</b> Small Tortoiseshell  |
| <b>MB</b> Meadow Brown  | <b>SW</b> Small Wood           |
| <b>P</b> Peacock        | <b>SES</b> Small/Essex Skipper |

Transect:

- |                    |            |
|--------------------|------------|
| Non-Survey Section | Section 6  |
| Section 1          | Section 7  |
| Section 2          | Section 8  |
| Section 3          | Section 9  |
| Section 4          | Section 10 |
| Section 5          |            |

Additional Protections:

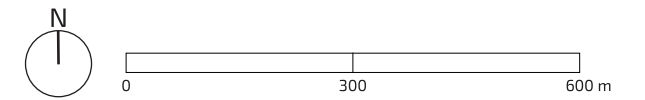
- NERC S41

date 18/08/25 drwn/chkd  
DAHM / LHG / RG

client  
**Oxfordshire Railfreight Ltd.**  
project  
**Oxfordshire SRFI,  
Oxfordshire**

title **Ardley Cutting and Quarry SSSI** scale  
1:10,000 @ A3  
**Butterfly Survey 10.06.25**  
number rev  
-

**FIGURE 7**



**Key:**

Butterfly Species (with count reference):

- |                         |                                |
|-------------------------|--------------------------------|
| <b>LS</b> Large Skipper | <b>R</b> Ringlet               |
| <b>LW</b> Large White   | <b>SH</b> Small Heath          |
| <b>MW</b> Marbled White | <b>SW</b> Small Wood           |
| <b>MB</b> Meadow Brown  | <b>SPW</b> Speckled Wood       |
| <b>RA</b> Red Admiral   | <b>SES</b> Small/Essex Skipper |

Transect:

- |                       |                |
|-----------------------|----------------|
| —  Non-Survey Section | ↔↔↔ Section 6  |
| ↔↔↔ Section 1         | ↔↔↔ Section 7  |
| ↔↔↔ Section 2         | ↔↔↔ Section 8  |
| ↔↔↔ Section 3         | ↔↔↔ Section 9  |
| ↔↔↔ Section 4         | ↔↔↔ Section 10 |
| ↔↔↔ Section 5         |                |

Additional Protections:

- NERC S41

date 18/08/25 drwn/chkd  
DAHM / LHG / RG

client  
**Oxfordshire Railfreight Ltd.**

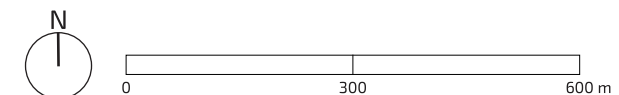
project  
**Oxfordshire SRFI,  
Oxfordshire**

title **Ardley Cutting and Quarry SSSI** scale  
1:10,000 @ A3

**Butterfly Survey 18.06.25**

number rev

**FIGURE 8**



**Key:**

- |                                  |                                |
|----------------------------------|--------------------------------|
| <b>B</b> Brimstone               | <b>RA</b> Red Admiral          |
| <b>DGF</b> Dark Green Fritillary | <b>R</b> Ringlet               |
| <b>GK</b> Gatekeeper             | <b>SB</b> Small Blue           |
| <b>GV</b> Green-veined White     | <b>SH</b> Small Heath          |
| <b>LW</b> Large White            | <b>ST</b> Small Tortoiseshell  |
| <b>MW</b> Marbled White          | <b>SW</b> Small Wood           |
| <b>MB</b> Meadow Brown           | <b>SES</b> Small/Essex Skipper |
| <b>P</b> Peacock                 |                                |

**Transect:**

- |                        |                |
|------------------------|----------------|
| --- Non-Survey Section | --- Section 6  |
| --- Section 1          | --- Section 7  |
| --- Section 2          | --- Section 8  |
| --- Section 3          | --- Section 9  |
| --- Section 4          | --- Section 10 |
| --- Section 5          |                |

**Additional Protections:**

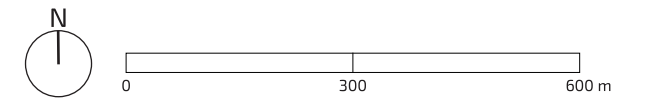
- NERC S41

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**Oxfordshire Railfreight Ltd.**  
 project  
**Oxfordshire SRFI,  
 Oxfordshire**

title  
**Ardley Cutting and Quarry SSSI** scale 1:10,000 @ A3  
**Butterfly Survey 25.06.25**  
 number rev

**FIGURE 9**



- Key:**
- Butterfly Species (with count reference):**
- |                         |                                |
|-------------------------|--------------------------------|
| <b>B</b> Brimstone      | <b>P</b> Peacock               |
| <b>BA</b> Brown Argus   | <b>RA</b> Red Admiral          |
| <b>CB</b> Common Blue   | <b>R</b> Ringlet               |
| <b>GK</b> Gatekeeper    | <b>SH</b> Small Heath          |
| <b>LW</b> Large White   | <b>SW</b> Small Wood           |
| <b>MW</b> Marbled White | <b>SPW</b> Speckled Wood       |
| <b>MB</b> Meadow Brown  | <b>SES</b> Small/Essex Skipper |

- Transect:**
- |                       |                |
|-----------------------|----------------|
| —  Non-Survey Section | ↔↔↔ Section 6  |
| ↔↔↔ Section 1         | ↔↔↔ Section 7  |
| ↔↔↔ Section 2         | ↔↔↔ Section 8  |
| ↔↔↔ Section 3         | ↔↔↔ Section 9  |
| ↔↔↔ Section 4         | ↔↔↔ Section 10 |
| ↔↔↔ Section 5         |                |

- Additional Protections:**
- NERC 541

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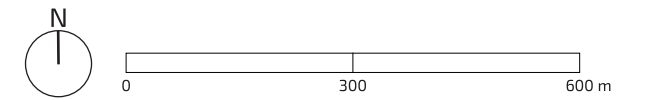
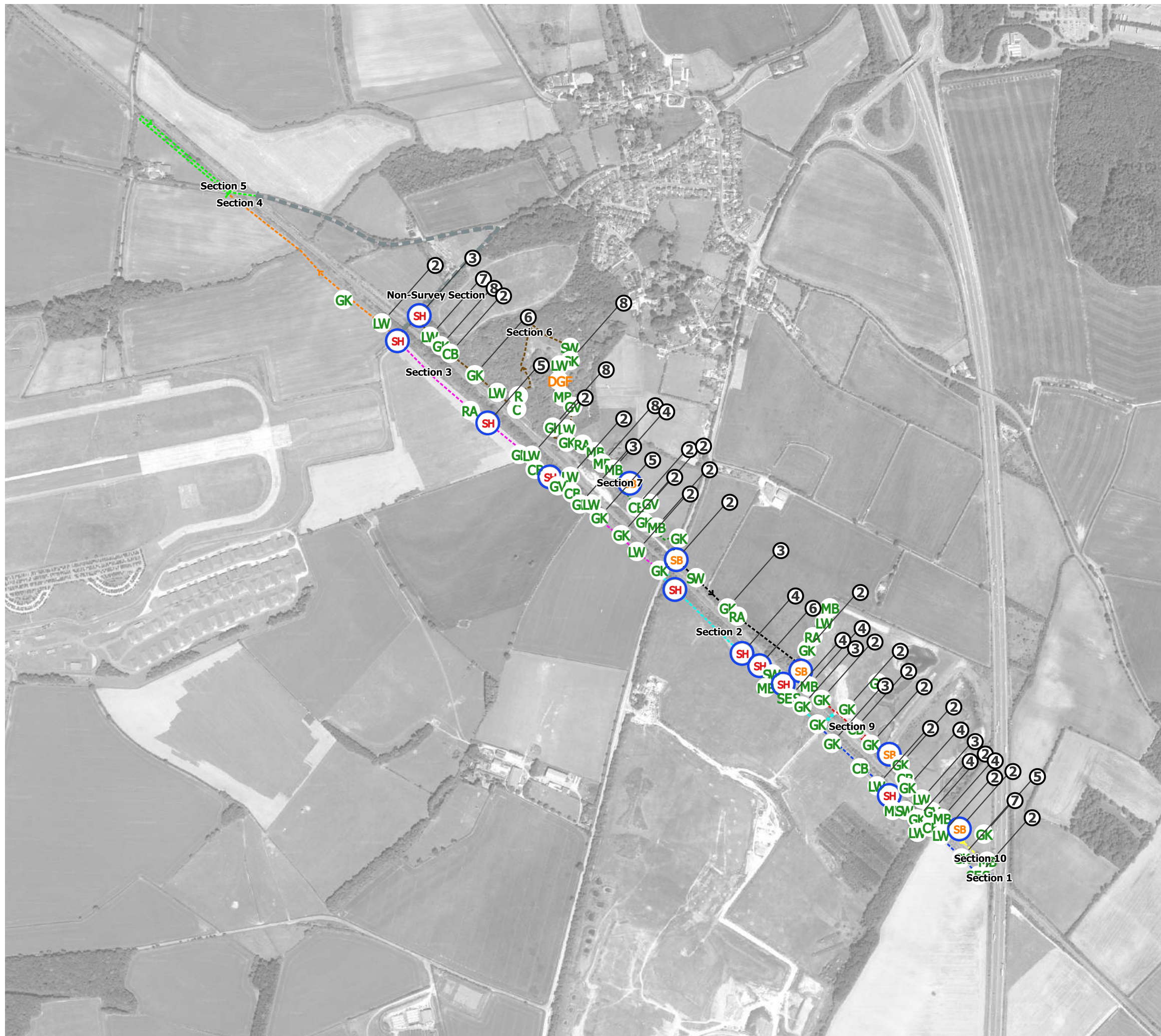
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title scale  
**Ardley Cutting and Quarry SSSI 1:10,000 @ A3**

number rev  
**Butterfly Survey 03.07.25**

**FIGURE 10**



**Key:**

**Butterfly Species (with count reference):**

- C** Comma
- CB** Common Blue
- DGF** Dark Green Fritillary
- GK** Gatekeeper
- GV** Green-veined White
- LW** Large White
- MB** Meadow Brown
- RA** Red Admiral
- R** Ringlet
- SB** Small Blue
- SH** Small Heath
- SW** Small Wood
- SES** Small/Essex Skipper

**Transect:**

- Non-Survey Section
- Section 1
- Section 2
- Section 3
- Section 4
- Section 5
- Section 6
- Section 7
- Section 8
- Section 9
- Section 10

**Additional Protections:**

- NERC S41

date 18/08/25 drwn/chkd  
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client  
**Oxfordshire Railfreight Ltd.**

project  
**Oxfordshire SRFI,  
 Oxfordshire**

title  
**Ardley Cutting and Quarry SSSI**

scale  
**1:10,000 @ A3**

number  
**Butterfly Survey 16.07.25**

**FIGURE 11**

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