



**Dogger Bank C/Sofia
Onshore Works Application**

Appendix 4 – Annex A

Ecology Survey Report 2020

Left Intentionally Blank



Ecology Survey Report

Doc. No. PM763-ARCUS-00001;
003655558-01
Rev. no. 01
Valid from: July 2020

**DOGGER BANK
WIND FARMS**



Table of Contents

1	Introduction	4
2	Methods	5
3	Results	8

1 Introduction

1.1 Purpose of the Report

This Report provides baseline information for the Ecology Assessment which supports the Environmental Appraisal submitted to support the planning application (the Application) made by Doggerbank Offshore Wind Farm Project 3 Projco Limited (the Projco) and Sofia Offshore Wind Farm Limited (SOWFL) (the Applicants), for consent pursuant to Section 62 of the Town and Country Planning Act 1990 as amended.

The Application includes five areas of alternative and additional infrastructure to the consented 9 kilometres (km) buried onshore grid connection, from approximately 1.5 km landward of the landfall for Dogger Bank Wind Farm C (DB-C) and Sofia Offshore Wind Farm (Sofia) to the National Grid at Lackenby Substation (the Works).

1.2 Development Context

For the ease of reference, the Works, as shown in Figure 1.2 (a – c) of the Environmental Appraisal, is split into areas as below:

- Area 1 – A174 Crossing;
- Area 2 – South of Kirkleatham Memorial Park;
- Area 3 – Wilton East;
- Area 4 – Main Welfare Hub south of Wilton; and
- Area 5 – HVAC Cable Corridor.

1.3 Scope of Ecology Studies

The 2014 ES included a suite of ecological studies to establish a baseline against which to assess potential impacts on designated nature conservations sites, habitats and plants, and animal species. In summary, these studies included:

- Desk Study;
- Extended Phase 1 Habitat survey;
- Species:
 - Great Crested Newt (GCN) surveys;
 - Reptile surveys;
 - Bat surveys;
 - Badger survey;
 - Riparian Mammals (Otter and Water Vole) surveys; and
 - Bird surveys.

Given the age and extent of the baseline in the 2014 ES, several studies have been repeated or updated in 2020 in order to provide an up-to-date and comprehensive baseline against which to assess the effects of the Works.

The scope of the 2020 studies has been determined by the design of the Works, the scope of the 2014 ES, advice from Natural England, and prevailing good practice. Where relevant, information from the 2014 ES

baseline is summarised in the relevant sections to provide rationale for scope of the 2020 surveys and to provide context for the 2020 survey results.

2 Methods

2.1 Desk Study

Existing information about designated sites and records of legally protected and notable habitats and species was sought from various sources. Information about species and habitats within 2 km of the Core Survey Area (shown in Figure 1.1 of the Ecology Assessment) was sought. Information about statutory and non-statutory designated sites was sought from within 5 km of the Works. The following resources and data providers were consulted:

- Environmental Records Information Centre (ERIC) North East;
- National Biodiversity Network (NBN);
- Multi-Agency Geographic Information for the Countryside (MAGIC)¹; and
- Tees Valley Biodiversity Action Plan (TVBAP).

Searches for species records were limited to legally protected animals considered to be potentially sensitive to the Works, as well as local conservation priorities, and therefore included:

- Habitat Regulations – Schedule 2 ‘European Protected Species’²;
- Wildlife and Countryside Act 1981 (as amended) – Schedule 5 animals³;
- Protection of Badgers Act 1992 – Badgers⁴;
- Birds listed in Annex I of the EC Birds Directive, Schedule 1 of the Wildlife and Countryside Act, and Red- and Amber-listed species of conservation concern⁵; and
- Local Biodiversity Action Plan (LBAP) priority species⁶.

A review of historic aerial imagery⁷ was also undertaken to gain an understanding of past land-use. The desk study included a review of the 2014 ES.

2.2 Extended Phase 1 Habitat Survey

An Extended Phase 1 Habitat survey⁸ was undertaken in January and February 2020. Phase 1 Habitat survey is a standard method for classifying and mapping British habitats. This is outside of the optimal survey period (April to September, inclusive); however, as the Survey Area was dominated by species-poor agricultural and industrial

¹ Multi-Agency Geographic Information for the Countryside [Online] Available at: www.magic.gov.uk (Accessed June 2020)

² UK Government (2018) Legislation.gov.uk *The Conservation of Habitats and Species and Planning (Various Amendments) (England and Wales) Regulations 2018* [Online] Available at: <http://www.legislation.gov.uk/uk/si/2018/1307/contents/made> (Accessed on June 2020)

³ excluding those only protected from sale and possession under Parts 5(a) and 5(b)

⁴ Legislation.gov.uk *Protection of Badgers Act 1992* [Online] Available at: <https://www.legislation.gov.uk/ukpga/1992/51/contents> [Accessed June 2020]

⁵ EUR Lex: Access to European Law *Birds Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds* [online] Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32009L0147> [Accessed June 2020]

⁶ Priority habitats and species in the Tees Valley – Update January 2012 [Online] Available at: <https://teesvalleynaturepartnership.org.uk/wp-content/uploads/2012/11/Tees-Valley-priority-habitats-and-species-updated-5-jan-2012-pdf.pdf> (Accessed June 2020)

⁷ Google Earth [Online] Available at: <https://earth.google.com/web/> (Accessed June 2020)

⁸ JNCC (2010) *Handbook for Phase 1 Habitat Survey: A technique for environmental audit*. 5th Edition

land. As the wider area had been comprehensively surveyed for the 2014 ES, this timing is not considered to be a limitation. The survey was 'extended' to include consideration of the potential of habitats to support protected or otherwise notable animal species (e.g. reptiles).

2.3 Great Crested Newt

GCN was not recorded during surveys for the 2014 ES. However, due to the age of the previous survey data and the sensitivity and legal protection of the species, it is necessary to update this baseline.

Water bodies within 500 m of the Works were identified from OS maps and subject to an initial Habitat Suitability Index⁹ (HSI) assessment (Figures 3.4 to 3.6). Of the 21 ponds subject to HSI assessment, nine were subject to further detailed presence/absence surveys in accordance with guidance^{10,11} and under licence from Natural England.

2.4 Reptiles

This species group was not identified in the 2014 ES as requiring a pre-construction survey. Local knowledge and the lack of desk study records, suggest that reptiles are not present in the Study Area. It is not considered proportionate to repeat the detailed reptile surveys of the 2014 ES as habitats and land-use have not significantly changed since the survey work was undertaken. However, the Study Area was assessed for its potential to support reptiles during the Extended Phase 1 Habitat Survey.

2.5 Bats

The 2014 ES concluded that the landscape provided opportunities for foraging and commuting bats. The number of bat passes detected during the surveys for the 2014 ES was very low and regional knowledge of the area supplied by local bat groups, supplemented by records received from the local data centre, suggest that this is to be expected. The temporary loss of relatively small sections of hedgerows to form access points within the Works is not considered likely to affect the local favourable conservation status of bats. In addition, Horizontal Directional Drilling (HDD) beneath sensitive habitats and culverting of watercourses will minimise disturbance of valuable bat habitats.

In line with the Bat Conservation Trust guidelines¹², it is considered that 2014 ES baseline surveys, the 2020 Extended Phase 1 Habitat Survey, local knowledge and updated desk study provide sufficient information to accurately assess the effects of the Works. Therefore, additional transect surveys are not proportionate or required with the 2014 ES mitigation implemented. Natural England Policy 4¹³ '*appropriate and relevant surveys where the impacts of development can be confidently predicted*', also provides context for the scope.

⁹ Oldham, R. S., Keeble, J., Swan, M J. S., and Jeffcote, M. (2000) Evaluating the suitability of habitat for the great crested newt (*Triturus cristatus*). *Herpetological Journal* (10) pp. 143–155.

¹⁰ English Nature (2001) *Great crested newt mitigation guidelines*. English Nature.

¹¹ ARG-UK Advice Note 4 *Amphibian disease precautions: a guide for UK fieldworkers*

¹² Collins. J. (ed) (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3rd edn). The Bat Conservation Trust, London.

¹³ <https://www.gov.uk/government/consultations/wildlife-licensing-comment-on-new-policies-for-european-protected-species-licences>

Given the aforementioned details, appropriate and relevant surveys have been undertaken and the potential impacts on bats can be confidently assessed. Further transect surveys are consequently considered disproportionate to the additional certainty that they would bring.

In line with the mitigation in the 2014 ES relating to potential bat roosts in trees, a visual assessment of trees and follow-up surveys, if required, should be undertaken if trees require removal. As limited tree removal is proposed as part of the Works, the trees (shown in Figure 3.7) were subject to a visual assessment in April 2020 to assess their potential to support roosting bats. The survey was conducted from ground level using binoculars and endoscopes, where appropriate. Trees with evidence of or suitability for roosting bats would be subject to further surveys.

2.6 Badger

Evidence of badger was sought during the Extended Phase 1 Habitat Survey, including revisiting setts identified in the 2014 ES. The survey included all areas within 30 m of the Works (Figure 3.8).

2.7 Riparian Mammals

Surveys for the 2014 ES recorded no evidence of water vole or otter, despite the presence of suitable habitats. Considering the mobile nature of these species and the time elapsed since the previous surveys, it was thought necessary to survey all waterbodies within 250 m of the Works (Figures 3.9 to 3.11). Two surveyors walked the banks of suitable watercourses in April 2020 searching for evidence of water vole and otter as well as recording watercourse characteristics.

2.8 Limitations to Assessment

Not all areas of the Works were accessed as some areas posed a health and safety risk, notably active areas within Wilton International (including Pond 19). Where access was not available, a lengthy review of the area through binoculars was undertaken to determine habitat types and signs of protected species. The areas where access was unavailable were areas of habitat similar to the rest of the Study Area and comprised hardstanding, industrial areas within Wilton International and arable land. The inaccessible areas are unlikely to support any sensitive habitats or notable species additional to those identified within the remainder of the surveys.

Access was not permitted within certain areas of Wilton International. Therefore, Ditch 9 (D9; Figure 3.10) was not subject to additional otter or water vole survey beyond the initial assessment during Extended Phase 1 Habitat Survey during which D9 was assessed to have low potential for water vole and to be unsuitable for otters.

Pond 19 (Figure 3.5) was not accessible at the time of survey due to its location within a secure area of Wilton International. Pond 19 achieved an average HSI score (when viewed from behind metal security fencing with binoculars) which would ordinarily necessitate further survey: however, further survey was not possible. Pond 19 lies 350 m north of the Works, separated by suboptimal terrestrial habitat comprising bare ground, short grassland and a series of fences. Due to these factors and the absence of GCN from all ponds within 500 m of the Works, the lack of access at Pond 19 is not considered to be a significant limitation to the assessment.

3 Results

3.1 Desk Study

3.1.1 Designated Sites

A summary of designated sites is provided in Table 3.1 and these are shown in Figure 1.2 of the Ecology Assessment. Most statutory designated sites remain unchanged since the 2014 ES, except for two minor changes.

Five Sites of Special Scientific Interest (SSSI) (Seal Sands SSSI, Cowpen Marsh SSSI, Seaton Dunes and Common SSSI, South Gare and Goathan Sands SSSI, Redcar Rocks SSSI and Durham Coast SSSI) have been amalgamated into a single SSSI, Teesmouth and Cleveland Coast SSSI.

Teesmouth and Cleveland Coast Special Protection Area (SPA) is in the final stages of consideration for expansion, this would bring the SPA into the area currently designated as Redcar to Saltburn Coast Local Wildlife Site (LWS), adjacent to the 2015 DCO Limits and 1.5 km east of the Works at its eastern extent.

There are seven non-statutory designated LWS within 2 km of the Works. The 2014 ES identified two LWS but considered only a smaller (1 km) search area; the five additional sites are all within the expanded search area.

Table 3.1: Designated Sites

Site	Status	Minimum distance and direction (km) from the Works	Description/Reason for Designation
Statutory Designated Sites			
Teesmouth and Cleveland Coast	SSSI	2.8 km north	Designated for its geological and ecological interest; supporting various breeding birds.
Teesmouth and Cleveland Coast Extension	pSPA	1.5 km north-east.	As above.
Teesmouth and Cleveland Coast	Ramsar	2.8 km north	Further section of above SSSI, designated as a wetland of international importance. A range of coastal habitats include: sand flats, mud flats, rocky shores, saltmarsh and sand dunes. These habitats support excellent feeding and roosting opportunities for various wading birds during the passage and winter months.

Site	Status	Minimum distance and direction (km) from the Works	Description/Reason for Designation
Teesmouth and Cleveland Coast	SPA	2.8 km north	During the breeding season the area regularly supports little tern <i>Sterna albifrons</i> . On passage the area regularly supports sandwich tern <i>Sterna sandvicensis</i> and over winter the area regularly supports knot <i>Calidris canutus</i> and on passage supports common redshank <i>Tringa tetanus</i> .
Eston Moor	LNR	1.3 km south	Area of moorland covering 101 hectares (ha).
Errington Wood	LNR	1.3 km south	Community woodland approximately 100 ha, planted in the 18 th century to provide a cash crop and extended in the early 20 th century with a resultant tree mix that is predominately coniferous. Remains of Cleveland's ironstone mining industry can be found within the woodland. The woodland supports deer and pine martens have also been spotted.
Lovell Hill Pools	SSSI	1.9 km south	Pools set within an undulating, well-wooded agricultural landscape to the north of the North York Moors. The area within the Works and surrounding habitats support GCN and smooth newt <i>Triturus vulgaris</i> , and outstanding assemblage of dragonflies and damselflies (including the nationally scarce variable damselfly) and other invertebrates restricted in distribution in the north east England such as dingy skipper <i>Erynnis tages</i> , a pondskater <i>Gerris lateralis</i> and a water spider <i>Argyroneta aquatica</i> .
North York Moors	SAC	7 km south-east	Lie entirely within the National Park, supporting areas of northern Atlantic wet heaths with <i>Erica tetralix</i> , European dry heaths and blanket bog.
North York Moors	SPA	7 km south-east	Area supporting breeding populations of merlin <i>Falco columbarius</i> and golden plover <i>Pluvialis apricaria</i> .
Non-Statutory Designated Sites			
Redcar to Saltburn Coast	LWS	1.4 km north-east	Designated for its importance for wintering populations of birds as % of national population
Redcar to Saltburn Foreshore	LWS	1.5 km north-east	Designated for coastal grassland habitats and vascular plants.
Wilton Woods Complex	LWS	0.6 m south	Designated for ancient woodland, broad-leaved woodland and replanted ancient woodland habitats.
Eston Hills	LWS	0.8 km south	No citation given.

Site	Status	Minimum distance and direction (km) from the Works	Description/Reason for Designation
Eston Moor	LWS	1.3 km south	Designated for lowland heath and basin mire habitats.
Soapwell Field	LWS	1.5 km south	Designated for neutral grassland habitats.
Dunsdale Wood Complex	LWS	1.8 km south	Designated for ancient woodland, broad-leaved woodland and replanted ancient woodland habitats.

3.1.2 Species Records

In comparison to the 2014 desk study, the 2020 review is relatively unchanged, despite the expanded search area (from 1 km to 2 km).

GCN feature in the 2020 data; however, these records are located 1.7 km south of the Works (dated 2010) whereas the original 2014 data search only considered amphibian records within 1 km of the Works, so these data was not included within their initial assessment.

ERIC returned 777 records of notable and/or protected species. Recent records (within the last 20 years) are summarised in Table 3.2.

Table 3.2: Desk Study (ERIC) Species Records

Taxonomic group	Species	Records	Date of most recent record	Distance and direction of most recent record from the Works
Amphibians	Common frog (<i>Rana temporaria</i>)	18	July 2016	0.8 km north
	Common toad (<i>Bufo bufo</i>)	9	May 2009	0.4 km north
	Great crested newt (<i>Triturus cristatus</i>)	2	May 2010	1.7 km south
	Palmate newt (<i>Lissotriton helveticus</i>)	4	May 2010	1.9 km south
	Smooth newt (<i>Lissotriton vulgaris</i>)	16	May 2019	0.5 km south
Mammals	American mink (<i>Mustela vison</i>)	1	February 2000	1.8 km south-east
	Brown hare (<i>Lepus europaeus</i>)	31	May 2019	150 m west
	Eurasian badger (<i>Meles meles</i>)	3	2006	1.7 km south
	Eurasian red squirrel (<i>Sciurus vulgaris</i>)	1	January 2008	1.8 km north
	European otter (<i>Lutra lutra</i>)	1	February 2000	2 km south

Taxonomic group	Species	Records	Date of most recent record	Distance and direction of most recent record from the Works
	European water vole (<i>Arvicola amphibious</i>)	3	April 2010	180 m north
	West European hedgehog (<i>Erinaceus europaeus</i>)	134	December 2019	500 m south
	Brown long-eared bat (<i>Plecotus auratus</i>)	1	May 2013	1.3 km south
	Common pipistrelle (<i>Pipistrellus pipistrellus</i>)	6	July 2009	Accurate location not provided.
	Natterer's bat (<i>Myotis nattereri</i>)	1	2006	Accurate location not provided.
	Noctule (<i>Nyctalus noctule</i>)	1	2005	2.2 km south-west
	Soprano pipistrelle (<i>Pipistrellus pygmaeus</i>)	2	July 2010	0.5 km north-east
Reptiles	Adder (<i>Vipera berus</i>)	No records since June 1991		
	Common lizard (<i>Zootoca vivipara</i>)	11	August 2011	2 km south
	Slow worm (<i>Anguis fragilis</i>)	4	2011	Accurate location not provided.

3.1.3 Biodiversity Action Plans

Biodiversity Action Plan (BAP) habitats and species identified since the 2014 ES remain relatively unchanged. Table 3.3 presents a summary of BAP habitats of relevance to the Works.

Table 3.3: Habitats Relevant to the Works and BAP Status

Habitat	UK BAP Priority Habitat	Local BAP	2014 ES Summary	Relevance to the Works
Arable	Yes (Arable Field Margins)	Yes	In general, the arable field margins within the survey area on site were not BAP priority habitats. Many fields had small field margins which contained no notable arable weeds and most contained common semi-improved grassland species assemblages.	A limited extent of arable fields are present.
Grassland	Yes (Lowland Meadow, Roadside Verges)	Yes	Most of the grassland was low quality improved and semi-improved pasture. None of these areas are considered as potential priority habitat. The most diverse of these grasslands appeared	Low quality semi-improved grassland and amenity grassland are present. They are limited in extent,

Habitat	UK BAP Priority Habitat	Local BAP	2014 ES Summary	Relevance to the Works
			to be associated with road verges which were still poor quality and species-poor.	species-poor and not considered priority habitat.
Broadleaved Woodland	Yes (semi-natural broadleaved lowland woodland)	Yes	Ancient woodland indicators were present in some woodlands. Much of the broadleaved woodlands were plantation shelterbelts or recent plantations which are not classed as priority habitat.	Limited areas of woodland are present. Most were recent plantations, not classed as priority habitat.
Mature trees	No (only considered in wood pasture and parkland habitat)	No	There were mature trees along the corridor, although none were found within a wood pasture or parkland habitat.	Limited numbers of mature trees are present.
Ponds	Yes	Yes	It is possible than at least some ponds on site would be considered priority habitat, although none were found to contain GCN, which is often a material consideration. None will be directly impacted by the scheme.	No (no ponds are present within the planning application boundary, 21 are located within 500 m).
Hedgerows	Yes	Yes	Most hedgerows regardless of quality, fall under the priority habitat type.	Yes. Small sections of species-poor hedgerow associated with arable land are present within the planning application boundary.

The LBAP lists 20 priority habitats, which are also listed as UKBAP priority habitats. Habitats recorded within the Study Area and covered by LBAP include semi-natural broadleaved woodland, roadside verges, streams and arable field margins.

The LBAP includes a number of species of conservation concern including bird, mammal, reptile, amphibian and invertebrate species. The data search returned records of priority species within 2 km of the Work, this included barn owl, ringed plover, grey partridge, swift, water vole, brown hare, bat species (all but the common pipistrelle), common lizard and slow worm.

3.2 Habitats

Habitat codes in the following sections follow those of the *Handbook for Phase 1 Habitat Survey*⁸. Results are shown in Figures 3.2 and 3.3. To facilitate the discussion of results, the habitat descriptions are provided separately for the five areas comprising the Works (shown in Figures 1.2 of the Environmental Appraisal).

3.2.1 Area 1 (A174 Crossing)

Works in this area consists of cable routes Work No 6 (A&B2) and temporary access No 10C (2). Additionally, two temporary construction compounds are proposed, CC B and CC C.

3.2.1.1 Overview

The northern extent comprises of an arable field with hedgerow boundaries at all aspects and a small area of semi-improved grassland to the south-east. South of the arable field is the A174 and associated semi-improved grassland, tall ruderal and broadleaved woodland boundaries. South-west of the A174 are three arable fields with boundary hedgerows; the far west hedgerow straddles an ephemeral ditch.

3.2.1.2 Habitat Descriptions

Semi-improved neutral grassland (B2.2)

Semi-improved grassland consists of the road verge and small area within the otherwise arable field to the north of the A174. Grass species present include: cocksfoot (*Dactylis glomerata*), perennial rye grass (*Lolium perenne*), Yorkshire fog (*Holcus lanatus*) and couch (*Elymus repens*). Other herb species present include: dock (*Rumex* sp.), vetch (*Vicia* sp.), spear thistle (*Cirsium vulgare*), common knapweed (*Centaurea nigra*), creeping buttercup (*Ranunculus repens*), nettles (*Urtica dioica*) and cleavers (*Galium aparine*).

Tall Ruderal (C3.1)

In places the verges of the A174 become increasingly tall ruderal in nature as they progress away from the road. Species present include: cocksfoot, perennial rye grass, common nettle, cleavers, broad-leaved dock (*Rumex obtusifolius*), cow parsley (*Anthriscus sylvestris*), creeping thistle (*Cirsium arvense*), common groundsel (*Senecio vulgaris*), ivy (*Hedera helix*), hogweed (*Heracleum sphondylium*) and bramble (*Rubus fruticosus*).

Built-Up Areas (J3)

A174 which runs in an east-west direction. It is a busy single carriageway road with associated hardstanding footpaths.

Arable Land (J1.1)

Four arable fields are present; one is north of the A174 and the remaining three are located to the south, adjacent to each other, separated by species-poor hedgerow. The arable fields contain no species of floristic value.

Broad-leaved semi natural woodland (A1.1.1)

Three small, discrete areas of broad-leaved woodland are present along the southern verge of the A174. Species in this area include: oak (*Quercus* sp.), alder (*Alnus glutinosa*), bramble, hawthorn (*Crataegus monogyna*), blackthorn (*Prunus spinosa*) and ash (*Fraxinus excelsior*).

Dense/Continuous Scrub (A2.1)

South of the A174, scrub, in addition to scattered trees and a ditch, forms the western boundary of the central most field. The scrub grows on a gradient as it traverses the ditch, its density varies along the ditch, which is reflected in the species diversity and composition. In sparser areas species such as; ivy, cleavers, nettles,

groundsel, thistle, dock, cocksfoot, hogweed, and cow parsley are abundant, with occasional ash saplings; however, in denser areas of scrub; bramble, gorse (*Ulex europaeus*), hawthorn, and blackthorn dominate.

Scattered Trees (A3.1)

Scattered trees punctuate the scrub along the dry ditch south of the A174. The trees are all of a similar age; it is likely they once formed a hedge which over time, through lack of management has become defunct and overrun by scrub with only occasional trees remaining. Species present include hawthorn, blackthorn, ash and elder (*Sambucus nigra*).

Intact, species-poor hedgerow (J2.1.2)

Species-poor hedgerow forms the arable field boundaries within this area. The hedgerows are heavily managed and species-poor; comprised of blackthorn, hawthorn and occasional bramble and cow parsley. They are no more than 0.5 m wide and up to 2 m in height.

Running Water (G2)

A ditch is present along the field boundary at the south-west extent of Area 1, it is associated with the defunct boundary hedge which is now formed of scrub and scattered trees. The ditch is up to 1.5 m wide and no more than 30 cm deep with bare earth banks which vary from vertical to near horizontal in places.

3.2.2 Area 1 (A174 Crossing): Grewgrass Lane Access

Works in this area consists solely of a temporary access (Work No 10E (2)) which provides access from the west of Grewgrass Lane.

3.2.2.1 Overview

Grewgrass Lane; a narrow single carriageway road linking Redcar and New Marske, is surrounded by arable field to the east and west, with a smaller semi-improved grassland donkey paddock to the north-west. Hedgerow and a stretch of amenity grassland separate the fields to the west of the road.

Rogers Dike runs in a south-north direction, within the 2015 DCO Limits and west of the Works; it has steep banks and was fast flowing on the day of survey, bankside vegetation is dominated by dense scrub and scattered trees.

3.2.2.2 Habitat Descriptions

Built-Up Areas (J3)

Grewgrass Lane runs parallel to the planning application boundary in a north-south direction. It is a narrow, relatively quiet, single carriageway road which links Redcar and New Markse to the south.

Arable Land (J1.1)

One arable field is present within the planning application boundary to the west of Grewgrass Lane, it is bound by intact hedgerow with a wide amenity grassland margin to the north. The arable field itself contains no species of floristic value.

Semi-improved neutral grassland (B2.2)

A large semi-improved grassland field is present to the west of Grewgrass Lane on the northern boundary of the planning application. The area is currently used as a donkey paddock. Consequently, the sward is relatively short, with the exception of the field boundaries. Despite this a variety of species are present, including: cocksfoot, perennial rye grass, Yorkshire fog, timothy (*Phleum pratense*), cleavers, nettles, dock, cow parsley, bird's-foot trefoil (*Lotus corniculatus*) and thistles.

Amenity Grassland (J1.2)

The arable field directly to the west of Grewgrass Road has a wide amenity grassland boundary at its northern extent. The grassland is heavily managed through regular mowing and species-poor.

Intact, species-poor hedgerow (J2.1.2)

A blackthorn hedgerow forms the border of the arable field with Grewgrass Lane. The hedge is approximately 0.5 m wide and 1.5 m tall and intensively managed.

3.2.3 Area 2: South of Kirkleatham Memorial Park

Works in this area consist of two temporary construction compounds CC D(3) and CC D(2). Both are similar in size and located directly east of Fishponds Road.

3.2.3.1 Overview

Habitats present in the location of the proposed construction compounds remain unchanged from the 2014 baseline; with the exception of the field the construction compounds are located in which is now comprised of amenity grassland. Further detail on protected species is provided in Section 3.3, however, the ditch outside of the Works has become increasingly overgrown since the baseline surveys and retains minimal riparian mammal suitability.

3.2.3.2 Habitat Descriptions

Amenity Grassland (J1.2)

The planning application boundary in this area is entirely comprised of amenity grassland. This is species-poor and was cow grazed at the time of survey. Occasional pigweed (*Amaranthus sp.*) and mayweed (*Anthemis sp.*) is present at the northern boundary adjacent the semi-improved grassland area.

3.2.4 Area 3: Wilton East

The Works in this area include a cable corridor to the south at the entrance to Wilton International (Work No 6 (A&B2)). Two temporary construction compounds are required within this area of Wilton International: CC E and CC F.

3.2.4.1 Overview

At the eastern extent of the Works is an arable field with amenity grassland margins and hedgerow boundaries. Past the western boundary hedge is a bridleway with a ditch, Mains Dike, running parallel to it. The banks of Mains Dike are comprised of tall ruderal vegetation.

To the west of the ditch is a large fenced area of mixed woodland surrounding an amenity grassland field. The woodland borders the A174 at its north-western extent. West of the A174 is a large arable field with a wide border of mixed woodland to the south and a culverted ditch lined with tall ruderal vegetation to the north.

Wilton Southway, the access road to Wilton International, is located to the north of the arable field. Wilton International comprises a large fenced compound with the induction centre building, associated car parking and amenity grassland landscaping, and a lorry park to the east. The induction centre itself is outside of the cable route, the lorry park is present within the northern extent. The car park and lorry park are separated by a swath of bare ground. Tall ruderal vegetation surrounds the compound, including a large tall ruderal bund to the east, adjacent the arable field.

Further detail is provided on the protected/notable species above in Section 3.3. The ditch east of the A174 continues to have suitability for riparian mammals and trees with suitability for roosting bats are present in the mixed woodland south of the A174.

3.2.4.2 Habitat Descriptions

Arable Land (J1.1)

The arable field to the east of the A174 has a narrow amenity grassland field margin and hedgerow boundaries. The arable field to the west of the A174 had been left to fallow at the time of the survey. Doves-foot cranes-bill has established throughout the arable field. The field margins are tall ruderal in nature and a boundary fence runs the perimeter.

Amenity Grassland (J1.2)

Amenity grassland north of the A174 is limited to road verges and landscaping within Wilton International; this is heavily managed through regular mowing and is species-poor. South of the A174 the northern corner of a large amenity grassland field is present within the planning application boundary. The fenced field appears to be well managed and regularly mowed.

Mixed plantation woodland (A1.3.1)

Mixed woodland has been planted on both sides of the A174. Tree species include: oak, lime (*Tilia x europaea*), ash, silver birch (*Betula pendula*), sycamore (*Acer pseudoplatanus*), holly (*Ilex aquifolium*), horse chestnut (*Aesculus hippocastanum*), scots pine (*Pinus sylvestris*) and lodgepole pine (*Pinus contorta*). Ground flora is limited; however, ground ivy, dog's mercury (*Mercurialis perennis*), broadleaved dock and common nettle are present. Both areas of woodland are contained by post and wire fencing.

Built-Up Areas (J3)

Roads comprise the A174 to the south of Wilton International and Southway within Wilton International. The A174 is a busy dual carriageway which runs south of Middlesbrough between the A19 and the east coast. Southway

is the access road to Wilton International; it is single carriageway but receives heavy industrial traffic. Remaining built up areas comprise the access roads to the Wilton International and a hardstanding car park in addition to the neighbouring hardstanding lorry park.

Dense/Continuous Scrub (A2.1)

Between Wilton Southway and the arable field, is a large fenced area of dense scrub. The area is comprised of bramble, dog rose (*Rosa canina*), silver birch, willow herb (*Epilobium* sp.), ash, buddleja, wild cherry (*Prunus avium*), sycamore and hawthorn.

Running Water (G2)

To the west Mains Dike runs along the woodland boundary until it is culverted under the road to the north. The channel is approximately 1 m wide and 0.5 m deep. The steep earth banks are heavily vegetated with tall ruderal vegetation and up to 2 m wide.

D9 runs parallel to Wilton Southway, it is culverted under access roads at several points. The ditch is steep sided with concrete slabs at the base, providing drainage for Wilton International. In channel, aquatic vegetation is minimal due to the poor substrate and the water level is variable dependant on rainfall and runoff. Tall ruderal vegetation is present on the southern bank where the concrete slabs give way to an earth substrate.

Tall Ruderal (C3.1)

Tall ruderal vegetation covers the banks of Main Dike. Species present include: bramble, yellow iris (*Iris pseudacorus*), pendulous sedge (*Carex pendula*), rosebay willow herb (*Chamerion angustifolium*), cow parsley and cleavers.

The arable field boundaries west of the A174 are also comprised of tall ruderal vegetation. The boundaries are narrow at a maximum of 2 m wide. Species present include: cocksfoot, Yorkshire fog, couch, perennial rye grass, nipplewort (*Lapsana communis*), willowherb sp., bramble, sow thistle (*Sonchus arvensis*), cow parsley, hogweed, common nettle, broadleaved dock, weld (*Reseda luteola*), spear thistle, doves foot cranesbill (*Geranium molle*), ribwort plantain (*Plantago lanceolata*) and groundsel.

Tall ruderal species also intermittently vegetate the southern bank of the Southway ditch (D9). Species present in this area include: Yorkshire fog, cocksfoot, common buttercup, pineapple weed (*Matricaria discoidea*), sow thistle, common ragwort, common mouse-ear (*Cerastium fontanum*), nipplewort, ragwort, groundsel, common toad flax (*Linaria vulgaris*), ribwort plantain, daisy, dandelion (*Taraxacum officinalis* agg.), hawkweed (*Hieracium* sp.), and speedwell (*Veronica* sp.).

Scattered scrub (A2.1)

Occasional scattered scrub is present along the banks of the Wilton Southway ditch (D9). Species present include: hawthorn, dog rose, young lodgepole pine, and ash saplings.

Intact, species-poor hedgerow (J2.1.2)

The boundary hedgerow around the arable field east of the A174 is species-poor, composed of blackthorn and hawthorn. It is heavily managed; approximately 0.5 m wide and 1.5 m tall.

3.2.5 Area 3: Wilton East

Works within this area are minimal, they include the marginal widening of the cable route at No 6(A&B2) and the construction compound (CC G) to the north of Wilton Southway.

3.2.5.1 Overview

Wilton Southway, the central access to Wilton International, runs east-west, meeting a cross roads at the western extent (and location of the Onshore Converter Station (OCS) access). Wilton Southway is hard standing with wide amenity grassland verges and several small junctions.

North of the arable field is a large area of dense scrub with a drainage ditch running parallel on its northern edge. North of Southway is a large mosaic area of ephemeral/ short perennial vegetation, bare ground and scattered scrub. CC G is located within this area of ephemeral/short perennial vegetation and scattered scrub. A mixed woodland copse is present to the south of this.

3.2.5.2 Habitat Descriptions

Built-Up Areas (J3)

Wilton Southway continues through this area; it is paved on both sides with amenity grassland verges and several small junctions and parking bays.

Amenity Grassland (J1.2)

Amenity grassland forms the verges of Wilton Southway and a majority of the soft landscaping associated with the industrial units along its route. This is heavily managed and relatively species-poor. Species present included: cocksfoot, Yorkshire fog, perennial rye, daisy, dandelion, groundsel, white clover (*Trifolium repens*), fescue species (*Poaceae sp*), speedwell species, common ragwort, creeping buttercup, ribwort plantain, hawkweed species, and wall barley (*Hordeum murinum*).

Running Water (G2)

D9 runs parallel to Wilton Southway it is culverted under the access roads in several places and likely adjoins the ditch system to the east of Wilton International. It is steep sided with a gravel base, providing drainage for Wilton International. In channel, aquatic vegetation is minimal due to the poor substrate and the water level is variable dependant on rainfall and runoff.

Bare Ground (J4)/ Scattered scrub (A2.1)/ Ephemeral/short perennial (J1.3)

North of Wilton Southway, directly east of the crossroads is an expanse of previously cleared land. Succession has taken hold in this area and patches of pioneering ephemeral/ short perennial vegetation are present, forming a mosaic with the bare ground. Scattered scrub has also prevailed in some areas. Species present included: dog rose, bramble, ash, willow herb, tree cotoneaster, broad leaved plantain, creeping buttercup, groundsel, sow thistle, and common knapweed.

3.2.6 Area 4: Main Welfare Hub south of Wilton

Works within this area includes a temporary construction compound (CC H).

3.2.6.1 Overview

A large arable field, contained by a post and wire fence is currently present in the proposed OCS location (consented as part of the 2015 DCO). To its north is a public footpath (this circles the whole field), running parallel to a dry ditch. The banks of the ditch are colonised by tall ruderal vegetation and scattered trees.

North of the arable field is a large area of tall ruderal vegetation, concealing a ditch, adjacent to a large scrub bund. The area north of the bund was fenced and inaccessible at the time of survey, viewed from a distance the area comprised hard standing with several piles of earth and diggers in situ. To the east of the arable field is an area of tall ruderal vegetation, surrounding a small electrical plant building. Outside the fencing to the east of the field is a mixed woodland plantation. A semi - improved grassland field is located to the south of the arable field, however, only a small section of this is present within the Study Area.

3.2.6.2 Habitat Descriptions

Arable Land (J1.1)

A ploughed arable field dominates the proposed CC H location, it is contained by a post and wire fence with tall ruderal field margins.

Bare Ground (J4)

A footpath which circles the arable field and creates the southern boundary of the planning application boundary represents the entirety of bare ground. This was popular with local dog walkers at the time of survey.

Tall Ruderal (C3.1)

Tall ruderal vegetation forms the western arable field boundary. Species present in these areas include: cocksfoot, Yorkshire fog, couch, perennial rye grass, nipplewort, willow herb *sp.*, bramble, sow thistle, cow parsley, hogweed, common nettle, broadleaved dock, weld, spear thistle, doves foot cranesbill, ribwort plantain, and groundsel.

Scattered Trees (A3)

Immature scattered trees are present within the tall ruderal vegetation within the field boundary. Species present include: hawthorn, blackthorn, and ash.

Semi-improved neutral grassland (B2.2)

A semi-improved grassland field is located south of the arable field within the Planning Application Boundary. Species present in this area include: Yorkshire fog, cocksfoot, perennial rye grass, thistle, cow parsley, ragwort and broadleaved dock.

3.2.7 Area 4: Main Welfare Hub south of Wilton

Works within this area consist of the construction of temporary construction compound (CC 1), the re-profiling and creation of a retaining wall (8S (2)) and a temporary haul road. This area also includes three new access points: No 10J(2), No 10J(3) and No10J(4).

3.2.7.1 Overview

An arable field is present to the eastern extent, south of which is an area of semi-improved grassland with several footpaths running through it, a log pile in the centre and mixed woodland to the south. The footpath continues in a westerly direction becoming surrounded by tall ruderal vegetation to the south and a hedge to the north. At the western extent, semi-improved grassland and mixed woodland are present south of the footpath, in addition to an arable field with a defunct hedge line to the north.

Access points: No 10J(2), No 10J(3) and No10J(4) provide access to the path through the defunct hedgerow.

3.2.7.2 Habitat Descriptions

Arable Land (J1.1)

A ploughed arable field is present to the north of the area, it is split into smaller linear sections by a defunct hedge.

Bare Ground (J4)

Bare ground comprises a network of footpaths popular with local dog walkers. The main path runs east-west through the planning application boundary, with several offshoots leading south to the village of Lazenby.

Tall Ruderal (C3.1)

The footpath is lined with tall ruderal vegetation. As the path progresses westward the tall ruderal boundary remains until it is replaced by semi-improved. Species present include: cocksfoot, Yorkshire fog, couch, perennial rye grass, giant fescue (*Festuca gigantea*), nipplewort, bramble, sow thistle, cow parsley, hogweed, common nettle, broadleaved dock, cleavers, spear thistle and ribwort plantain.

Semi-improved neutral grassland (B2.2)

A large semi-improved grassland field is located south of the footpath. Species present in this area include: Yorkshire fog, cocksfoot, perennial rye grass, white clover, dandelion, creeping buttercup, sow thistle, cow parsley, ragwort and broadleaved dock.

Mixed semi-natural woodland (A1.3.1)

A copse of mixed woodland covers a large bund, south of Wilton International and the footpath. Tree species include: oak, lime, ash, silver birch, sycamore, willow, holly, scots pine and lodgepole pine. All trees are immature. Ground flora is limited; however, bramble, ground ivy (*Glechoma hederacea*), broadleaved dock and common nettle are present.

Intact, species-poor hedgerow (J2.1.2)

To the west the footpath is bordered by an unmanaged hedgerow, approximately 4 m in height and 1 m wide. Species composition comprises primarily hawthorn and blackthorn with occasional bramble, elder, silver birch and ash.

Defunct, species-poor hedgerow (J2.2)

A defunct hedgerow is present between the two arable fields to the north of the footpath. Species present include ash, hawthorn, oak and silver birch. Frequent large gaps are present within the hedgerow which appears unmanaged.

3.2.8 Area 5: HVAC Cable Route

Works within this area consist of the widening of the cable corridor 8 (A&B2).

3.2.8.1 Overview

The area within 8 (A&B2) consists entirely of arable field with a public footpath running through it from the Greystone Road underpass in the east towards Lackenby Substation in the west. To the east of the arable field is a narrow belt of mixed woodland and Greystone Road. Ditches are present on both sides of the road, notably Kettle Beck to the west. The footpath continues towards Lackenby substation which is surrounded by a mixture of scrub, tall ruderal and amenity grassland habitats, in addition to hard standing access roads and private gardens.

3.2.8.2 Habitat Descriptions

Arable Land (J1.1)

The entirety of the planning application boundary within this area comprises arable land which was ploughed and devoid of plant species during the initial Extended Phase 1 Habitat survey. A public footpath passes through this from the Greystone Road underpass, towards Lackenby Substation.

3.3 Species

3.3.1 GCN and Other Amphibians

Of the 21 ponds within 500 m of the Works subject to HSI assessment, three were either no longer present or unsuitable for survey and seven achieved a poor or below average HSI score.

Pond 1 scored an average HSI; however, it was scoped out due to the ponds fluctuating water levels, concrete base and use in water treatment. The remaining 10 ponds achieved an HSI score of average to excellent, demonstrating suitability for GCN, and were subject to follow-up presence/absence surveys in April 2020. Of the ten suitable ponds, one (pond 19) was inaccessible. GCN were absent from all ponds.

Table 3.4: GCN Survey Results

Pond	Grid Reference	HSI Score	Habitat Suitability	Presence-absence survey result.
P1	NZ 56840 19491	0.63	Average (Scoped out)	Further survey not required.
P2	NZ 56717 19685	0.85	Excellent	GCN absent
P3	NZ 57141 20069	0.66	Average	GCN absent
P4	NZ 58064 20352	0.31	Poor	Further survey not required.
P5	NZ 59960 21122	0.57	Below Average	Further survey not required.
P6	NZ 60135 21343	0.76	Good	GCN absent
P7	NZ 59859 21411	0.83	Excellent	GCN absent
P8	NZ 62642 21855	0.75	Good	GCN absent
P9	NZ 62437 22090	0.59	Below Average	Further survey not required.
P10	NZ 61124 21919	0.74	Good	GCN absent
P11	NZ 61130 21892	0.58	Below Average	Further survey not required.
P12	NZ 61011 21798	0.68	Average	GCN absent
P13	NZ 60932 21847	0.68	Average	GCN absent
P14	NZ 60784 21807	Part of a ditch- unsuitable for HSI survey, scoped out.		Further survey not required.
P15	NZ 59813 21638	0.47	Poor	Further survey not required.
P16	NZ 59757 21623	Part of a ditch- unsuitable for HSI survey. Scoped in for further surveys.		GCN absent
P17	NZ 58769 21499	No longer present		Further survey not required.
P18	NZ 58778 21483	No longer present		Further survey not required.
P19	NZ 58507 21418	0.68	Average	Inaccessible for further survey.
P21	NZ 59820 21602	0.22	Poor	Further survey not required.
P22	NZ 59884 21717	0.38	Poor	Further survey not required.

3.3.2 Reptiles

Habitats with potential to support foraging and sheltering reptiles, such as scrub, woodland and grassland, were present within the Works and surrounding area (Target Notes 5, 8, 9 and 14, Figures 3.1 to 3.3). Wood piles and bunds offer opportunities for hibernating and sheltering reptiles (Target Notes 8 and 14, Figures 3.1 to 3.3). A summary of survey results from the 2014 ES and the Extended Phase 1 Habitat survey are presented in Table 3.5.

Recent records of common lizard and slow worm were returned by ERIC. Anecdotal evidence of common lizard at the north-east extent of Wilton International (the aspect furthest from the Works) was also provided by an employee at Wilton International.

Table 3.5: Summary of Reptile Survey Results

Evidence	Grid Reference	Proximity to Works	2014 ES Results	2020 Results
Suitable reptile habitat.	NZ 62124 22521	Immediately north	Habitat identified as suitable for reptiles, surveys undertaken, no reptiles recorded.	Semi-improved grassland area, remains suitable for reptiles. No surveys undertaken.
Suitable reptile habitat.	NZ 62211 21934	40 m east	Habitat identified as suitable for reptiles, surveys undertaken, no reptiles recorded.	Arable field with public footpath lined with scrub and a ditch through the centre. Limited suitability and connectivity for reptiles. No surveys undertaken.
Suitable reptile habitat.	NZ 60779 21807	180 m west	Habitat identified as suitable for reptiles, surveys undertaken, no reptiles recorded.	Rogers Dike lined with scrub and trees with arable land on both sides. Retains some reptile suitability, however, connectivity is limited (notably due to high levels of disturbance to the south) No surveys undertaken.
Suitable reptile habitat.	NZ 60393 21980	600 m north-east	Habitat identified as suitable for reptiles, surveys undertaken, no reptiles recorded.	Arable field boundary with hedgerow, limited reptile suitability. No surveys undertaken.
Suitable reptile habitat.	NZ 59027 21056	Within Planning Application Boundary	Habitat identified as suitable for reptiles, surveys undertaken, no reptiles recorded.	Woodland bordered by a ditch, public footpath and grassland habitat. Limited in extent but retains reptile suitability. No surveys undertaken.
Suitable reptile habitat.	NZ 58796 21189	Directly north-east of the Application Boundary	Habitat identified as suitable for reptiles, surveys undertaken, no reptiles recorded.	No longer suitable; high levels of disturbance from active lorry park and busy road, habitat comprises a manmade ditch surrounded by amenity grassland, limited scrub and an arable field.
Suitable reptile habitat.	NZ 57820 20680	Within Planning Application Boundary.	Not identified.	Area of ephemeral/ short perennial with areas of scrub and bare ground within Wilton International. Limited connectivity but suitable for reptiles.

Evidence	Grid Reference	Proximity to Works	2014 ES Results	2020 Results
Suitable reptile habitat.	NZ 56825 19951	Directly east of the Application Boundary.	Habitat identified as suitable for reptiles, surveys undertaken, no reptiles recorded.	Semi-improved grassland area adjacent to immature woodland with some reptile suitability.
Suitable reptile habitat.	NZ 57517 20183	Within Planning Application Boundary.	Not identified.	Semi-improved grassland habitat with wood piles suitable for reptiles. No survey undertaken.

3.3.3 Bats

Daytime inspections of trees were conducted under BCT guidelines¹² in 2020. 13 trees were recorded within the Works with suitable bat roosting features; they are all located within the woodland south-east of Wilton International and the A174; accurate location details and descriptions are provided in Table 3.6 below.

Each feature was assigned a level of bat roosting potential in line with the scale presented in BCT guidelines. Numerous ivy-covered trees of low bat roost potential were also recorded in this area but were not individually recorded due to the high numbers of trees all with similar low potential features.

Table 3.6: 3.3.3 Descriptions of Trees with Potential Roosting Features

Tree No	Grid Reference	Tree Species	Bat Roost Potential	Potential Roost Features
1	NZ 58987 21101	Dead standing monolith	Moderate	Lifted bark and rot holes
2	NZ 58995 21100	Horse Chestnut	Moderate	Large knot hole with potential cavity extending upward.
3	NZ 61134 21881 (0.2 km north of the works area)	Willow <i>sp.</i>	High	Several large cavities within the main trunk, the tree appears to be largely dead, a large rot column may have formed within the entire trunk.
4	NZ 59758 21611 (0,05 km north-west of the works area)	Willow <i>sp.</i>	Low	Dense ivy cover
5	NZ 58976 21070	Horse Chestnut	Moderate	Large split at base of tree with cavity extending upward through trunk.
6	NZ 58992 21066	Sycamore	Moderate	Tear-out approximately 3m up trunk, cavity extends vertically upwards within trunk.
7	NZ 59035 21073	Sycamore	Moderate	Large vertical split likely formed from old tear out, 3m in height, the split is approximately 2 m long. A majority of the split is too wide to be suitable for bats, however, there may be a cavity at the top end.
8	NZ 59012 21049	Horse Chestnut	Moderate	Large split at base, cavity extends upwards within trunk.

Tree No	Grid Reference	Tree Species	Bat Roost Potential	Potential Roost Features
9	NZ 59042 21060	Horse Chestnut	High	Large cavity at base, extends up throughout trunk a significant distance. Otherwise the tree is in average condition with occasional cankers and peeling bark.
10	NZ 59025 21022	Horse Chestnut	Moderate	Knot hole and tear out adjacent each other on a branch approximately 8m in height.
11	NZ 58978 21064	Horse Chestnut	Moderate	Large section of peeling bark approximately 8m up the trunk.
12	NZ 58927 21050	Dead standing monolith	Moderate	Dead monolith with thick ivy cover and large sections of peeling bark
13	NZ 58893 20990	Dead tree	Moderate	Dead tree with ivy cover and large sections of peeling bark.

The habitats in the area within the Works had variable potential for foraging and commuting bats. The industrial area and arable habitats are of low value; the landscape is flat and exposed to the heavy littoral winds. Hedgerows are also heavily managed and limited in extent; not conducive to habitat connectivity.

The woodland and semi-improved grassland within the Works does provide some suitability for commuting and foraging bats; notably the habitat between Greystone Road and Wilton International and the community woodland and playing fields north of Redcar Road. Overall, linear features such as developed hedgerows, ditches and woodland offer good opportunities for foraging bats, however they are limited in extent.

No buildings were located within the Works. Within Wilton International, the Wilton Induction Centre is located immediately adjacent to the planning application boundary (grid reference: NZ 58599 20948). The induction centre consists of two large buildings of a porta cabin like construction, joined by a central corridor, both roofs are flat and felted. No buildings will be directly affected by the Works and therefore no further assessment is required.

3.3.4 Badger

No active badger setts, latrines or snuffle holes were recorded. Three discrete, disused setts were recorded, and results are summarised in Table 3.3.4.7 and in Figure 3.8. No latrines, snuffle holes, recent digging, badger foot prints or hair were recorded in the vicinity of the setts and in a majority of cases the entrances are full of leaves and other detritus. Where sett use is apparent this is most likely by rabbits and foxes.

Table 3.7: Summary of Badger Survey Results

Evidence	Grid Reference	Proximity to Works	2014 ES Results	2020 Survey
Disused sett in arable margin east of Grewgrass Lane.	NZ 61508 21679	30 m north	Not identified.	Single entrance sett, now disused and utilised by rabbits. Evidence of fox in the vicinity.

Sett north of Wilton International.	NZ 58796 21595	260 m north	Potential main sett with 16 entrance holes identified, some activity attributable to rabbits.	An additional three entrance holes were identified; however, all entrances were inactive at the time of survey and no other evidence of badger presence was identified in the area. Soft blocking (a single stick in the sett entrance) was completed between survey visits and no movement was recorded. High levels of rabbit activity in the vicinity.
Disused sett east of Grewgrass Farm.	NZ 61134 21951	210 m north	Not identified.	Single entrance sett, which was possibly once an outlier, now inactive.

A majority of the area within the Works is suitable for badger sett creation and foraging due to the variety of suitable habitat types it encompasses (scrub, woodland and arable fields). With the exception of habitats segregated by major roads, such as the A174, connectivity is retained through tracts of woodland and hedgerows throughout the area of Works.

Wilton International is not considered suitable for badgers due to the heavy levels of disturbance and largely hard standing nature with areas segregated by concrete based palisade fencing which represents a significant barrier to movement.

Furthermore, the desk study returned three records of badger within 2 km of the area within the Works these consist of two trail camera recordings in 2011 (no specific location provided) and an unspecified record in 2006. With consideration to the absence of recent field signs and lack of records within the last decade it is considered that badgers are no longer resident in the area of the Works, However, badgers are a transient species and may utilise the area within the Works occasionally for foraging and commuting, albeit infrequently.

3.3.5 Riparian mammals

No evidence of riparian mammals was recorded during the Extended Phase 1 Habitat Survey; however, suitable habitat was identified. Due to the presence of suitable habitat a further, detailed survey was carried out in April 2020. No signs of otter or water vole were recorded. Results are summarised in Table 3.8 and ditch locations are shown in Figures 3.10 to 3.12.

Table 3.8: Summary of Otter and Water Vole Survey Results

Waterbody	Grid Reference	Proximity to Works (m)	2020 Survey
D3	NZ 61884 22582	360 m north	Roadside ditch, culverted at both sides, limited in extent. Suitably wide with gently sloping banks. Vegetated banks with bulrush in channel. Unsuitable for otter, low water vole suitability (no evidence).
D4	NZ 61494 21745	Within the Works	Suitably wide with gently sloping banks. Dry for a majority of the year but may be suitable for terrestrial populations. High levels of rabbit activity. Heavily shaded due to trees and scrub on both banks. Unsuitable for otter, low water vole suitability (no evidence).

Waterbody	Grid Reference	Proximity to Works (m)	2020 Survey
D5	NZ 61296 21767	40 m west	Suitably wide with gently sloping banks. Flows into P10. Was not holding water during April survey, a muddy depression. Well vegetated. Unsuitable for otter, moderate water vole suitability (no evidence).
D6 (Roger Dike)	NZ 60793 21764	160 m west	Suitably wide with steep banks which become more gently sloping to the southern extent. Central area is heavily shaded. Bankside vegetation has been cleared to the south but is otherwise a mix of trees, scrub and grass/ forbs. Low otter suitability (commuting only) and moderate water vole suitability (no evidence of either).
D7	NZ 59757 21602	20 m west	Culverted to the north the channel has a shallow profile to the northern extent, becomes gently sloping in the centre before it is reinforced with concrete (and unsuitable) to the south. To the centre the banks are vegetated with grass, bulrush and <i>Phragmites</i> in channel. Unsuitable for otter, low water vole suitability (no evidence).
D8 (Mains Dike)	NZ 59027 21056	Within the Works (HDD to be used at this location)	Gentle banks which become steeper to the south. Varying levels of shading from adjacent woodland and bankside vegetation. Low otter suitability (commuting only) and moderate water vole suitability (no evidence of either).
D9	NZ 58796 21189	Within the Works (HDD to be used at this location)	Gentle to steep banks vegetated with grass. Minimal in channel vegetation. Bed and banks are concrete to the western extent. Unsuitable for otter, low water vole suitability (no evidence). Unable to access in April.
D10	NZ 57578 20488	25 m north-west	Arable field drainage ditch. Gently sloping banks with grass and scrub vegetation. Dry in some areas later in the season. Unsuitable for otter, low water vole suitability (no evidence).
D11	NZ 57249 20374	40 m north	Narrow channel with shallow banks, entirely shaded by dense scrub vegetation including gorse and bramble. Unsuitable for otter and water vole.
D12 (Kettle Beck)	NZ 56483 19767	150 m west	Steep banks become more gently sloping in areas. A majority of the channel is choked with thick scrub vegetation which also shades the channel in addition to the adjacent dual carriageway and woodland. Fed by runoff from the road. Culverted to the south. Access is restricted by dense scrub. Unsuitable for otter, low water vole suitability (no evidence).
D13	NZ 56444 19732	90 m east	Narrow channel is sporadically dry, willow herb dominates in channel with areas of both scrub and grassland on the banks. Culverted to the south. Access is restricted by dense scrub in places. Unsuitable for otter, moderate water vole suitability (no evidence).

Kettle Beck (D12) was identified as suitable water vole habitat due to its abundance of food plants, earth banks of a varying profile and low levels of shading. Two records of water vole in Kettle Beck were returned by ERIC dated 1998 and 2007. The 2007 record is situated 180 m north of the Works.

Mains Dike (D8) was also found to be suitable for water vole. It has earth banks of a suitable profile, varying shade levels and an abundance of food vegetation. No historic records are located in this vicinity.

An additional confirmed water vole record, dated 2009, is located in Pond 10, adjacent to Grewgrass Farm. This is located 250 m north of the Works; however, the network of drainage ditches in the area may facilitate movement into Rogers Dike (D6). Rogers Dike was considered suitable for water vole.

A single otter record was returned for a location 2 km south of the Works. Watercourses were all narrow with minimal fish available for foraging otters to prey on and a majority were ephemeral. Therefore, habitats were considered suitable only for commuting otters.

3.3.6 Other Species

Brown hare were sighted several times during the Extended Phase 1 Habitat Survey in the arable land off Grewgrass Lane and around Wilton International.