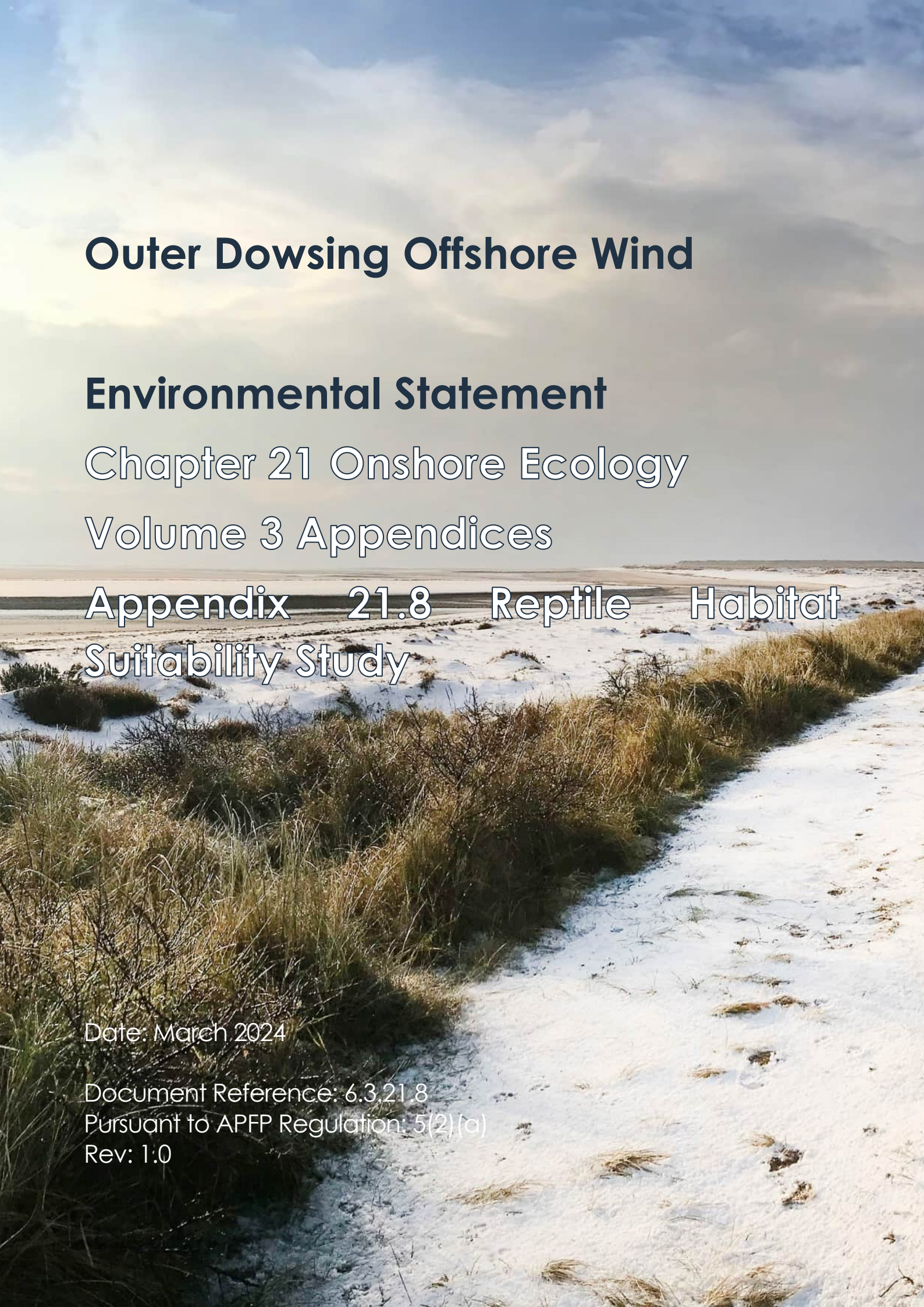

Outer Dowsing Offshore Wind

Environmental Statement

Chapter 21 Onshore Ecology

Volume 3 Appendices

Appendix 21.8 Reptile Habitat Suitability Study

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Volume 3, Appendix 21.8: Reptile Habitat Suitability Study

Outer Dowsing Offshore Wind Environmental Statement

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Basis of Report

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Acronyms and Abbreviations

Acronyms and Abbreviations	Description
BAP	Biodiversity Action Plan
CIEEM	The Chartered Institute of Ecology and Environmental Management
DCO	Development Consent Order
ECC	Export Cable Corridor
ECC	Export Cable Corridor (offshore ECC or indicative onshore ECC)
EIA	Environmental Impact Assessment
ES	Environment Statement
GLNP	Greater Lincolnshire Nature Partnership
HSI	Habitat Suitability Index
IDB	Internal Drainage Board
NGSS	National Grid Substation
NSIP	Nationally Significant Infrastructure Project
ODOW	Outer Dowsing Offshore Wind (The Project)
OnSS	Onshore substation
RSPB	The Royal Society for the Protection of Birds
SI	Suitability Indices
UK	United Kingdom

Terminology

Term	Definition
400kV cables	High voltage cables linking the OnSS to the NGSS.
400kV cable corridor	The 400kV cable corridor is the area within which the 400kV cables connecting the onshore substation to the NGSS will be situated.
Baseline	The status of the environment at the time of assessment without the development in place.
Connection Area	An indicative search area for the NGSS.
Development Consent Order (DCO)	An order made under the Planning Act 2008 granting development consent for a Nationally Significant Infrastructure Project (NSIP).
Environmental Impact Assessment (EIA)	A statutory process by which certain planned projects must be assessed before a formal decision to proceed can be made. It involves the collection and consideration of environmental information, which fulfils the assessment requirements of the EIA Regulations, including the publication of an Environmental Statement (ES).
Environmental Statement (ES)	The suite of documents that detail the processes and results of the EIA.
Export cables	High voltage cables which transmit power from the Offshore Substations (OSS) to the Onshore Substation (OnSS) via and the Offshore Reactive

	Compensation Platform (ORCP) if required, which may include one or more auxiliary cables (normally fibre optic cables).
Impact	An impact to the receiving environment is defined as any change to its baseline condition, either adverse or beneficial.
Landfall	The location at the land-sea interface where the offshore export cables and fibre optic cables will come ashore.
Mitigation	Mitigation measures are commitments made by the Project to reduce and/or eliminate the potential for significant effects to arise as a result of the Project. Mitigation measures can be embedded (part of the project design) or secondarily added to reduce impacts in the case of potentially significant effects.
Onshore Export Cable Corridor (ECC)	The Onshore Export Cable Corridor (Onshore ECC) is the area within which, the export cables running from the landfall to the onshore substation will be situated.
Onshore Infrastructure	The combined name for all onshore infrastructure associated with the Project from landfall to grid connection.
Onshore substation (OnSS)	The Project's onshore HVAC substation, containing electrical equipment, control buildings, lightning protection masts, communications masts, access, fencing and other associated equipment, structures or buildings; to enable connection to the National Grid.
Order Limits	The area subject to the application for development consent, the limits shown on the works plans within which the Project may be carried out.
Outer Dowsing Offshore Wind (ODOW)	The Project.
Receptor	A distinct part of the environment on which effects could occur and can be the subject of specific assessments. Examples of receptors include species (or groups) of animals or plants, people (often categorised further such as 'residential' or those using areas for amenity or recreation), watercourses etc.
Study Area	Area(s) within which environmental impact may occur – to be defined on a receptor-by-receptor basis by the relevant technical specialist.
The Applicant	GT R4 Ltd. The Applicant making the application for a DCO. The Applicant is GT R4 Limited (a joint venture between Corio Generation, Total Energies and Gulf Energy Development (GULF)), trading as Outer Dowsing Offshore Wind. The Project is being developed by Corio Generation (a wholly owned Green Investment Group portfolio company), Total Energies and GULF.
The Project	Outer Dowsing Offshore Wind, an offshore wind generating station together with associated onshore and offshore infrastructure.

21.0 Reptile Surveys

21.1 Introduction

1. Outer Dowsing Wind (ODOW) is a Nationally Significant Infrastructure Project (NSIP). An Environmental Impact Assessment (EIA) has been undertaken, the findings of which are presented within an Environmental Statement (ES), which accompanies a Development Consent Order (DCO) application under the Planning Act 2008.

2. SLR Consulting was commissioned by GoBe Consultants, whom has been instructed by GT R4 Limited (trading as Outer Dowsing Offshore Wind) (the Applicant), to undertake a suite of ecological surveys of relevant parts of the project site that may be affected by the construction and operation of the onshore aspects of ODOW (the Project). These comprise the installation of a cable within a working corridor and the construction of a substation (hereafter referred to as “onshore infrastructure”).

3. This report presents the findings of the reptile habitat suitability assessment and supports Volume 1, Chapter 21: Onshore Ecology (document reference 6.1.21).

21.2 The Project

4. The Project will include both offshore and onshore infrastructure including an offshore generating station (windfarm) located approximately 54km from the Lincolnshire coastline, export cables to landfall, onshore cables, an onshore substation, connection to the electricity transmission network, and ancillary and associated development (see Volume 1, Chapter 3: Project Description 6.1.3 (document reference 6.1.3) for full details).

5. The ES references the Project’s ‘Order Limits’ which comprises the extent of the land for which the DCO application has been made. Onshore it reflects the landfall, the Onshore Export Cable Corridor (a typically80m wide corridor around a centre line totalling approximately 70km in length)the Onshore substation (OnSS), a 400kV cable corridor connecting the OnSS to the Connection Area (an indicative search zone for the National Grid substation (NGSS) in to which the project will ultimately connect.

6. Due to the linear footprint of the Project, the Survey Area for some receptors is relatively large-scale, therefore to assist with the interpretation and explanation of associated data, the Order Limits have been split into segments. The extent of these segments has been

aligned with key geographical features such as roads or rivers which cross the Order Limits.

7. The segments for the Onshore Order limits are shown in Table 21.1.

Table 21.1: Onshore Segment Names

Segment Name
ECC 1: Landfall to A52 – Hogsthorpe
ECC 2: A52 – Hogsthorpe to Marsh Lane
ECC 3: Marsh Lane to A158 - Skegness Road
ECC 4: A158 – Skegness Road to Low Road
ECC 5: Low Road to Steeping River
ECC 6: Steeping River to Fodder Dike Bank/Fen Bank
ECC 7: Fodder Dike Bank/Fen Bank to Broadgate
ECC 8: Broadgate to Ings Drove
ECC 9: Ings Drove to Church End Lane
ECC 10: Church End Lane to The Haven
ECC 11: The Haven to Marsh Road
ECC 12: Marsh Road to Fosdyke Bridge
ECC 13: Fosdyke Bridge to Surfleet Marsh OnSS/Marsh Drove
ECC 14: Surfleet Marsh OnSS/Marsh Drove to the Connection Area

21.3 Purpose of this Report

8. This report presents the findings of the reptile habitat suitability assessment completed in October 2023.

21.4 Relevant legislation

9. British reptiles are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and are listed under Section 41 of the Natural Environment and Rural Communities Act 2006 as Species of Principal Importance.

10. For sand lizard (*Lacerta agilis*) and smooth snake (*Coronella austriaca*) all parts of Section 9 apply. This prohibits intentional killing, injuring or taking (capture. etc), possession, intentional disturbance whilst occupying a 'place used for shelter or protection' and destruction of these places, and trade (i.e. sale, barter, exchange, transporting for sale and advertising to sell or to buy).

11. Both sand lizard and slow worm are offered further protection under the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. These species have isolated populations restricted in range to pockets across England and Wales. Desk study results indicate that they are considered to be historically absent from the Lincolnshire region, and as such, are not considered within this assessment (JNCC, 2019).

12. For the four widespread species of reptile; namely the common lizard (*Zootoca vivipara*), slow-worm (*Anguis fragilis*), grass snake (*Natrix helvetica*) and European adder (*Vipera berus*), only part of sub-section 9(1) and all of sub-section 9(5) apply. These prohibit intentional killing, injuring and, trade (i.e. sale, barter, exchange, transporting for sale and advertising to sell or to buy).

21.5 Methodology

21.5.1 Desk Study

13. In August 2023, an updated desk study was undertaken for the Order Limits and land within a 2km surrounding buffer. As part of this desk study, designated sites within 15km from the Order Limits and habitat and species data up to 2km from the Order Limits was requested from Greater Lincolnshire Nature Partnership (GLNP). Online searches were also undertaken. Records were curtailed to within ten years of the survey, with exception of any records considered of particular note (for example, those that could indicate a large historic population of reptiles).

14. In addition, aerial imagery and the UKHab habitat data, collected during 2022 and 2023, were reviewed to inform the Habitat Suitability Assessment detailed within Section 21.6 of this report.

21.5.2 Study Area

15. The assessment was undertaken on all habitats within the Order Limits plus a 100m buffer, as shown in Volume 2, Figure 21.6. The habitats were mapped as detailed within Appendix 20.2: Habitat Classification.

16. Habitat Areas were mapped initially by aerial imagery during the desk study stage, with accessible areas then mapped in the field using the UK Habitat Classification v1.1 (Butcher *et al*. 2020) to capture the presence of Section 41 and Annex 1 habitat types.

21.5.3 Habitat Suitability Assessment

17. Habitat survey mapping, in the form of UKHab, was undertaken in 2022 and 2023 by suitably experienced ecologists from SLR Consulting Ltd and ecological sub-contractors from Thomson Environmental Consultants Ltd. The survey mapping data and aerial imagery were used to categorise any standalone habitats and habitat mosaic areas[1] within the survey area as either ‘negligible’, ‘poor’, ‘good’, or ‘exceptional’ for reptiles. To standardise this approach across the Project Study Area, a Habitat Suitability Index Assessment (HSI) was designed and is discussed in further detail in paragraph 20 onwards; however, initial scoping of the habitat types present within the survey area was

[1] Habitat mosaic areas are defined for the purpose of this report as areas of different habitats that are adjacent or connected to one another where biodiversity, in this specific case reptiles, could flourish. Distance thresholds for such habitat mosaics were decided upon following research. This decision-making process and the research that informed it is discussed in more detail in paragraph 17 onwards.

undertaken to broadly assign suitability where habitats were considered likely to be of similar condition throughout the survey area[2]. Decision making on how to classify such habitat types is detailed below.

18. Habitat identified from the survey mapping which was likely to be homogeneous across the Project and known to have relatively poor suitability for reptiles was identified and disregarded from further assessment. For example, arable fields and modified grassland (including areas of managed grassland beneath urban trees which formed part of industrial landscaping) were considered to offer negligible suitability due to the intensive nature of the management[3] of these habitats. Such habitat was removed from further assessment with the exception of the edge areas of these habitats if these areas were adjacent to potentially suitable habitat, such as woodland. These potentially suitable edge areas of otherwise unsuitable habitat were included for further assessment due to the potential to offer some, albeit potentially limited, opportunities for reptiles due to the likely variation in habitat present.

19. Furthermore, linear habitats, such as drainage ditches (and adjacent suitable habitat such as neutral grassland and small woodland areas) and hedgerows, can act as corridors for reptile species to commute along, or for populations to disperse through the landscape. These habitats could be vital connective habitat across the landscape[4], which is largely dominated by arable habitat. As such, these linear habitats were automatically graded as 'good reptile habitat' based on the assumption that the features were of 'good' ecological quality[5] and their functionality as a potential corridor for reptiles. Larger[6] drainage ditches, natural rivers, and habitats associated with such features, were subject to further assessment. Hedgerows and ditches were not considered exceptional,

[2] Any habitat types that did not fall into this category were subject to further assessment.

[3] As discussed within Brady *et al*. (2012) and Reading *et al*. (2009).

[4] Particularly for grass snake which have been recorded to travel greater distances in comparison to the other three species, with an individual home range estimate between 1.29ha and 3.56ha (Reading *et al*. 2009) and egg-laying resident females found to travel up to 1.5km (Elmberg *et al*., 2019).

[5] With data limited to UKHab habitat data and aerial imagery, it was considered such a precautionary approach was necessary.

[6] Larger in this instance were drainage ditches which were considered permanently wet linear habitats with a water surface width greater than 5m. Such drains were usually found to be named within the Scheme.

due to the regular management identified in places on these features within the Study Area[7].

20. Following the initial assigning of suitability to habitat types, a HSI was employed to assess the suitability of the habitat areas remaining (such habitat areas comprised habitat types considered 'poor' or above). In many instances, these areas were assessed as part of a habitat mosaic; habitat areas were assessed as part of a mosaic if further potentially suitable habitats were directly connected, or if further habitat areas were connected by suitable linear habitat features within 100m of each other. Linear habitats which did not link to further non-linear habitats within 100m were not included as part of the habitat mosaic. These habitat mosaics were then considered to act as potential home-ranges for a population of reptiles, should they be present. Furthermore, any areas of habitat or habitat mosaics smaller than 0.09 ha surrounded by an expanse of negligible habitat (over 50 m in all directions) and therefore isolated, were not considered within the assessment.

21. The 100m threshold was decided following review of research papers and recent reptile guidelines. For the purposes of this assessment, all four reptile species (grass snake, common lizard, slow worm, and adder) were considered as a group following research of each species average home range and likely commuting distances to establish a threshold applicable to all four species simultaneously.

22. The ARG UK HSI guidance (Brady *et al*. 2012) discusses the potential need to derive a HSI per species but also considers that it may not be as necessary for larger sites where multiple HSIs would then be required. Therefore, it was considered necessary for this assessment to establish a threshold distance applicable to each species for assessing habitats together as a grouped habitat mosaic, as well as ascertain a threshold for 'connective distance' within the HSI.

23. Recent research indicates that grass snakes have a much larger home range than the other species of reptile, ranging from 1.29ha to 3.56ha[8] with egg laying females travelling

[7] The drainage ditches were subject to dredging, whilst many of the hedgerows were subject to flailing and cutting. Example HSI assessments have been undertaken for a 'standard' ditch and hedgerow found within the survey area, see Table 21.4 within Section 21.7.2 of this report.

[8] Particularly for grass snake which have been recorded to travel greater distances in comparison to the other three species, with an individual home range estimate between 1.29ha and 3.56ha (Reading *et al*. 2009) and egg-laying resident females found to travel up to 1.5km (Elmberg, Hagman, Löwenborg, Pettersson, Voision,

up to 1.5km. Whereas adders, common lizard, and slow worm were known to have smaller dispersal distances and home ranges, with recent research into the home range of slow worm indicating an estimated 95% home range size of 0.38ha for the species (Schmidt *et al*, 2017). This equivalates to a circular area with a radius of just under 35m.

24. Adders can be known to move up to 2km within a year, however, many individuals are known to move no more than a few tens of metres (ARG UK, 2018). A research paper from 2008, (authored by Ortega-Rubio *et al*.) found that across three populations in France, the average home range of the common lizards studied was 919m^2 drawn from a study of six different sample areas. This equivalates a circular area with a radius of just under 17.2m.

25. Considering the above research, the threshold was set at 100m as it was considered a more than plausible commuting range for grass snake, but also reflected realistic home range for a more linear feature for the other species given the research findings discussed above. This information was also used to develop the connective habitat distance threshold within the HSI assessment.

26. Once the threshold distance was decided upon, the HSI assessment was undertaken. This involved assessing the remaining habitats and habitat mosaic areas against potential suitability criteria known to influence reptile presence. These habitat suitability criteria were then defined as suitability indices (SI) and are discussed in further detail within Table 21.2 which details the HSI developed[9].

Kärvemo (2019) Movements and habitat choice of resident and translocated adult female Grass Snakes (*Natrix natrix*) during egg-laying period. Herpetological Journal.29.4.245-251. [online]. Available at: Movements and habitat choice of resident and translocated adult female Grass Snakes (Natrix natrix) during the egg-laying period | British Herpetological Society (thebhs.org).

[9] This HSI was designed to capture potentially suitable reptile habitat within the study area for four species of 'common' reptile species (grass snake, adder, slow worm, and common lizard). Guidance on how to develop a Habitat Suitability Index Assessment for reptiles is outlined within Brady *et al*. (2012). Previously implemented HSI assessments were reviewed prior to developing the HSI utilised for the assessment. This included the common lizard and slow worm HSI assessments developed by Ipswich Borough Council (2021). Existing HSI assessments reviewed included the widely used and accepted Great Crested Newt Habitat Suitability Index assessment (ARG UK Advice Note 5, 2010).

Table 21.2: Habitat Suitability Index Assessment for Reptile Habitat Suitability Assessment

Indices	Poor Suitability (Score = 0.2)	Good Suitability (Score = 0.6)	Exceptional Suitability (Score = 1.0)
SI_1 Size of area[10]	<0.5ha	Where the area is >0.5ha and <4ha.	>4ha
SI_2 Vegetation structure	One habitat present, with little to no variability in the vegetation structure visible.	Two to three habitats present, and/or some vegetation variation present visible.	More than three habitats present, or large extent of clear vegetation variation present.
SI_3 Sun exposure on the site	Entirely shaded habitat areas.	N/A – no areas were evaluated to offer 'good suitability' as the data subject to assessment was considered too limited to inform variety for this criterion.	Basking areas clearly identifiable.
SI_4 Aspect[11]	North facing suitable habitat areas.	Between one and two east, south, or west facing suitable habitat areas.	East, south, and west facing suitable habitat areas.
SI_5 Topography	Visibly flat and featureless land that appears to be	N/A - no areas were evaluated to offer 'good suitability' as the data subject to assessment	Habitat that appears to offer varied topography with banks and gullies. Many

[10] Arable and intensively managed habitats were excluded.

[11]The topography of the landscape is considered relatively flat; however, there were still areas of both habitat and topography features, such as hedgerows, woodlands, and drainage ditches, considered to offer some, albeit limited, variations in aspect across the Order Limits.

Indices	Poor Suitability (Score = 0.2)	Good Suitability (Score = 0.6)	Exceptional Suitability (Score = 1.0)
	intensively managed.	was considered too limited to inform variety for this criterion.	potential refuges and hibernacula opportunities present.
SI_6 Surface substrate	The habitats potential for fossorial[12] slow worm and for mammal burrows (suitable opportunities for hibernacula and refuges for reptiles) was assumed exceptional as it was not possible to discount from the data available.		
SI_7 Disturbance	Evidently managed habitat for farming and/or recreational purposes.	Habitat that is occasionally to frequently accessed by the public and/or livestock, or shows signs of footpaths and/or 'desire lines' through the areas.	Habitat that is not notably accessed and not considered likely to be accessed by the public or livestock.
SI_8 Connectivity to further habitat mosaics of potentially suitable habitat within 250m	One or less links of suitable habitat to wider potentially suitable habitat.	Between two to three notably suitable habitat links to further potentially suitable habitats.	More than three notably suitable links to wider potentially suitable habitat.
SI_9 Prey abundance	Habitats considered likely subject to intensive management (such as pesticides). Exceptions were	N/A - no areas were evaluated to offer 'good suitability' as the data subject to assessment was considered too	All other habitats assumed to be exceptional due to lack of field data.

[12] Animals that are adapted for burrowing or digging.

Indices	Poor Suitability (Score = 0.2)	Good Suitability (Score = 0.6)	Exceptional Suitability (Score = 1.0)
	made for edge areas of such habitat if adjacent to habitat not likely subject to such management practices.	limited to inform variety for this criterion.	
SI_{10} Hibernation habitat potential	No habitats present considered likely to offer opportunities (lying deadwood for example). Habitat considered likely to offer such opportunities included hedgerows, mature scrub, and woodland.	Hedgerows and mature scrub habitat present.	Large areas of mature scrub and/or woodland habitat present.
SI_{11} Refuge opportunities	Arable fields and/or open fields with no observational shelter.	Areas of habitat that could offer potential refuge for such species. Such habitats include residential gardens, tree lines, and unmanaged tussocky grassland.	Areas of habitat that typically offer refuge for such species. Such habitats include hedgerows, ditches, woodland, scrub, and heathland.

27. As can be seen from Table 21.2, scores are allocated for each index, and can be seen within the column headings of the table. This HSI incorporates eleven suitability indices

overall, which relate to criterion known to affect reptile suitability[13]. Scores for each of the indices were applied via a precautionary approach due to the limited field data available. This is discussed further within the Limitations Section of this report (Section 2.4). The scores assigned for each of the indices were then inputted into the following equation to calculate the suitability of the area or habitat mosaic assessed:

28. HSI= (SI1 x SI2 x SI3 x SI4 x SI5 x SI6 x SI7 x SI8 x SI9 x SI10 x SI11) ^ (1/11)

29. Values closer to 0 indicate the habitat as poor for reptiles[14], whilst a value closer to 1 indicates exceptional habitat for reptile. Each of the 11 suitability indices together will result in one of the following suitability categories:

- <0.6 = Poor
- 0.6 – 0.8 = Good
- >0.8 = Exceptional

30. Habitat Areas scoring 'good', or above, were considered able to support a population of reptiles as a standalone area. Those scoring 'poor' were considered to offer potential 'spill over' habitat from any populations potentially occupying more suitable habitat areas or could offer commuting potential for reptiles between more suitable areas.

31. Any Habitat Areas identified as 'good' or 'exceptional' were then further reviewed to identify if they were suitably connected to any significant[15] local data records.

21.5.4 Limitations

32. Desk study data is unlikely to be exhaustive, especially in respect of reclusive species, such as reptiles, and is intended mainly to set a context for the study. It is, therefore,

[13] The indices have been drawn from the habitat requirements discussed within Edgar *et al* (2010) and Brady *et al* (2012). Egg laying potential sites were not considered as the data was not collected and this was only considered relevant to one of the four target species. Therefore, in this instance, all areas were considered to potentially offer egg laying sites for grass snake. Furthermore, other categories (such as predation potential, timing of grazing/mowing, livestock, and continuity of current management) advised within the Habitat Suitability Index guidance were not included due to limitations in the data gathering from aerial and UKHab Habitat Data. Species specific habitat requirements discussed within the Herpetofauna workers manual (Gent *et al*, 1998) and the reptile habitat management handbook (Edgar *et al*, 2010) were also considered in combination with the criteria set out above.

[14] No habitat other than arable, non-permeable urban habitat, or notably intensively managed land, such as modified grassland notably in use for recreational purposes, has been considered negligible as the assessment was undertaken via desktop using aerial and UKHab habitat data only.

[15] Significant records were considered to be records clustered within any particular area indicating a population of reptiles, or where the only lone records for common lizard or slow worm were returned.

possible that populations of reptiles not identified during the data search do in fact occur within the vicinity of the site. It has been assumed that the aerial imagery used accurately reflects the state of habitats present, but it has not been possible to verify the accuracy of any statements relating to land use and habitat context outside of the field Study Area. This constraint is not considered a significant limitation to this report.

33. An ecological study provides only a “snapshot” of the conditions prevailing at the time of survey. Lack of evidence does not necessarily preclude reptiles from being present within an area at a later date. Reptiles are highly mobile and can move in response to changes in environmental factors. As such, the results and evaluation detailed within this report are considered only valid for a period of 1 year from the date of the report.

34. The UKHab habitat data and aerial imagery was limited regarding information pertaining to the habitat suitability for reptiles, with limited field information indicating the prey abundance, vegetation structure, topography, surface geology, refuge opportunities, and hibernation habitat potential. The assessment for these criteria was based on aerial imagery and typical habitat characteristics only. This was considered a significant limitation to the report, and as such, a precautionary approach was implemented where indices were scored exceptional due to the limited data available to indicate such factors.

35. Whilst the HSI Assessment of the habitats for reptiles will provide a score on the habitat suitability of an area of habitats, it is not a substitute for reptile surveys and will not on its own prove presence or absence of this species. Habitat Areas identified as offering ‘exceptional’ habitat for reptiles that will be subject to impact, will be subject to preconstruction surveys. Habitat Areas identified as offering ‘good’ habitat that will be subject to impact, will have reasonable avoidance measures implemented for reptiles.

21.6 Results

21.6.1 Desk Study

21.6.1.1 Internal Drainage Board Biodiversity Action Plans

36. Within the Witham Forth Internal Drainage Board (IDB) Biodiversity Action Plan (BAP) (2022) and Welland and Deepings IDB BAP (2020) it is stated that they have reptiles recorded within the drainage area covered by the boards. The records are specifically for grass snake. There is no mention of reptile species within the Black Sluice IDB BAP (2014) or the Lindsey Marsh IDB BAP (2010).

21.6.2 Local Record Centre Data

37. The GLNP returned 23 records for reptiles from the study area. These records comprised the following three species of reptile:

- Common lizard;
- Grass snake; and,
- Slow worm.

38. Table 21.3 provides a summary of the records for each species and Volume 2, Figure 21.6 illustrates the locations.

Table 21.3: Overview of records for Reptiles within the Study Area

Total Number of Records						
Segment (and option)	Grass snake		Common lizard		Slow worm	
	Inside Order Limits	**Beyond Order Limits**	**Inside Order Limits**	**Beyond Order Limits**	**Inside Order Limits**	**Beyond– Order Limits**
ECC1 - Landfall to A52 – Hogsthorpe	0	0	0	1	0	0
ECC2 - A52 – Hogsthorpe to Marsh Lane	0	2	0	0	0	0
ECC3 - Marsh Lane to A158 – Skegness Road	0	1	0	0	0	0
ECC4 - A158 – Skegness Road – Low Road	0	0	0	0	0	0
ECC5 - A1 - Low Road to Steeping River	0	1	0	0	0	0
ECC6 - A2 – Steeping River to Fodder Dike Bank/Fen Bank	0	0	0	0	0	0

Total Number of Records						
ECC 7 - A3 - Fodder Dike Bank/Fen Bank to Broadgate	0	0	0	0	0	0
ECC8 - A4 - Broadgate to Ings Drove	0	0	0	0	0	0
ECC9 - A5 - Ings Drove to Church End Lane	0	0	0	0	0	0
ECC10 – Church End Lane – The Haven	0	0	0	0	0	0
ECC11 - The Haven – Marsh Road	0	14	0	0	0	1
ECC12 - Marsh Road – Fosdyke Bridge	0	2	0	0	0	0
ECC13 - Fosdyke Bridge – Weston Marsh Substation North	0	0	0	0	0	0
ECC14 - Surfleet Marsh OnSS/Marsh Drove to the Connection Area	0	0	0	0	0	0
Total	0	21	0	1	0	1

21.6.3 Grass Snake

39. Several segments were recorded as having no records at all for the species within ten years, with the records generally spread across the remaining segments of the route in low numbers (1-2 records). Many records were from within the drainage ditches/drains present within the local landscape. However, there is a clear concentration of records (over 50%) within Section ECC11 located approximately 150m southeast of the Order Limits within Frampton Marsh RSPB Reserve. This area is recorded to comprise of a mosaic of freshwater wetlands including reedbeds, wet grassland, and large shallow open waterbodies/scrapes.

21.6.4 Common Lizard

40. The segment, ECC1 - Landfall to A52 – Hogsthorpe, was the only one where a single record for the species was identified within ten years. The record was from 2016 and was of a single individual. The record was returned from an area approximately 2km to the south of the Order Limits.

21.6.5 Slow Worm

41. Only one record was returned for the species within ten years within 2km of the ECC11 - The Haven – Marsh Road section. This record was of an individual adult and was

recorded in 2013. This was located within a patch of woodland approximately 0.3km west of the Order Limits.

21.7 Habitat Assessment

21.7.1 General overview

42. Much of the Study Area comprises arable fields and modified grassland, under agricultural management, interspersed with drainage ditches of varying width and depth. Areas of neutral grassland, scrub, and several hedgerows were also recorded, albeit these were comparatively less frequent along the Order Limits when compared with the number of arable fields and drainage ditches. Habitats considered to be poor were those under intensive management as previously discussed. The remaining habitats were considered as part of the assessment (with potentially suitable habitat assessed together as habitat mosaics) due to their likely suitability to support a reptile population and are discussed in more detail within Section 21.7.2.

43. The arable fields offer limited potential for reptiles due to the intensive nature of their management. A lack of wide, species rich, field margins, the scarcity of field boundaries in general, and a monoculture approach to crop production (assumed to utilise various chemicals including pesticides) are all factors in reducing the habitats suitability for reptiles. Additionally, there is a general lack of habitat suitable for shelter and hibernation, with a likely high disturbance rate of the habitat also, and an assumed low prevalence of prey items (due to pesticides associated with arable land management). On balance, the arable fields within the study area are considered to offer negligible potential for reptiles. The exception to this is arable field boundaries where wet ditches and/or hedgerows are present, or where arable habitat is adjacent to much more suitable habitat such as woodlands. In these instances, the edge habitat present have been assessed as part of a habitat mosaic.

44. Areas of modified grassland under agricultural management, or managed for recreational purposes, were assessed similarly to the arable fields. Many of the modified grassland fields within the Study Area lacked a varied vegetation structure, refuge opportunities, and potential hibernacula for reptiles. Such fields were also considered likely subject to regular disturbance.

45. The drainage ditches and hedgerows within the Study Area were considered to offer a minimum of 'good' suitable habitat for reptiles[16] based on a HSI assessment which was undertaken for both a typical drainage ditch and a typical hedgerow found within the Study Area. Annex A shows the detailed results of this assessment whereas Table 21.4 shows the overall results.

21.7.2 Habitat Suitability Index Assessment Results

46. The HSI Assessment identified 10 areas of exceptional habitat potential for reptiles, 25 areas of good habitat potential, and 9 poor areas of habitat potential.

47. The good and exceptional habitat potential areas were considered able to support a population of reptiles, with the ditches and hedgerows within the Study Area also considered to offer good potential, particularly commuting opportunities for grass snake.

48. Table 21.4 presents a summary of the results of the HSI assessments of 44 habitat areas identified within the Study Area. Locations of the habitat areas can be reviewed within Volume 2, Figure 21.6.

[16] As previously discussed, where these habitats formed part of a potentially suitable habitat mosaic for reptiles, the features were assessed in more detail.

Table 21.4 HSI Results within the Study Area

Route Segment	Habitat Mosaic Label	Description	HSI Habitat Mosaic Suitability Rating
Typical Habitats across the Order Limits			
N/A	'Typical' Drainage Ditch	Size of the area was considered poor due to the narrow width of the features across the Project. The typical drainage ditch identified across the survey offered some vegetation variation, with basking areas clearly identifiable across many of the ditches. The aspect of the ditches was considered 'good' with at least one south, west, or east facing aspect. Topography, surface substrate, and prey abundance was assumed to be 'exceptional'[17]. Disturbance was considered likely to be frequent due to the narrow width of the habitat present exposing any reptiles present to adjacent disturbance such as the management of arable fields, or areas in use for recreational purposes. Connectivity to the wider landscape was evaluated as 'good'. Hibernation potential was evaluated as 'poor' due to an absence of woodland or scrub, and refuge opportunities were evaluated as 'exceptional'.	0.62 Good
	'Typical' hedgerow	Size of the area was considered poor due to the narrow width of the features across the Project. The typical hedgerow identified across the study area offered some vegetation variation, with basking areas clearly identifiable across all the hedgerows. Aspect of the hedgerows was considered 'good' with at least one south, west, or east facing aspect. Topography, surface substrate, and prey abundance was assumed to be 'exceptional'[18]. Disturbance was considered likely to be frequent due to the narrow width of the habitat present, likely exposing any reptiles present to adjacent disturbance such as the management of arable fields or areas in use for recreational purposes.	0.68 Good

[17] This was assumed exceptional across the Project as a precaution.

[18] This was assumed exceptional across the Project as a precaution.

Route Segment	Habitat Mosaic Label	Description	HSI Habitat Mosaic Suitability Rating
		Connectivity to the wider landscape was evaluated as 'good'. Hibernation potential was evaluated as ''good' with such habitat frequently offering hibernacula potential for reptiles within root systems of mature trees, rotted tree stumps, root holes, and under large lying deadwood; whilst refuge opportunities was evaluated as 'exceptional'.	
Habitats by Segment			
ECC 1	Habitat Area 1	This area comprised an area of approximately 8ha and included areas of scrub, grassland, standing freshwater, and freshwater streams. The vegetation structure was notably varied, with clear potential basking areas identified within suitable habitat along east, south, and west aspects within the habitat mosaic area. Topography was considered 'exceptional' with no sign of intensive management present or signs of flat landscaped areas. The disturbance of the area was evaluated as frequent due to the location of the habitat immediately along the beach front, ca. 100m south from the Anderby Springs Caravan Park. In addition, a walked footpath was clearly identified from aerial imagery through the habitats. Due to the habitats present, hibernation and refuge potential was evaluated as exceptional.	0.91 Exceptional
	Habitat Area 2	Habitat Area 2 comprised an area of approximately 1.47ha of neutral grassland, evidently in use for agricultural purposes, and adjacent drainage ditches and hedgerow. Potential basking areas were clearly identified within the habitat mosaic area along the east, south, and west aspects of suitable habitat. Topography was considered 'exceptional'; however, there was signs of intensive management present. The disturbance of the area was evaluated as poor due to the usage of the habitat for agricultural purposes. Furthermore, the connectivity of the area to other potentially suitable habitat within the wider landscape was considered poor with no suitable habitat linkages to further potentially suitable habitat mosaics for reptiles within 250m of the area.	0.59 Poor

Route Segment	Habitat Mosaic Label	Description	HSI Habitat Mosaic Suitability Rating
		With the presence of the ditches and the hedgerow within the habitat mosaic, the hibernacula potential was evaluated as 'good' with the refuge opportunities evaluated as 'exceptional'.	
	Habitat Area 3	Habitat Area 3 comprised an area of woodland that surrounded what appeared to be residential dwellings and farm buildings. In addition, there were areas of modified grassland and a hedgerow adjacent. The area was approximately 1ha in size. Potential basking areas were clearly identified within the habitat mosaic area along the south aspects of the hedgerow and ditches present. The disturbance of the area was evaluated as poor due to the usage of the habitat for agricultural purposes and residential areas. Furthermore, the connectivity of the area to other potentially suitable habitat within the wider landscape was considered poor with no suitable habitat linkages to further potentially suitable habitat mosaics for reptiles within 250m of the area. With the presence of the woodland, ditches, and the hedgerow within the habitat mosaic, the refuge and hibernation habitats were evaluated as 'exceptional'.	0.56 Poor
	Habitat Area 4	Habitat Area 4 comprised large neutral grassland fields, which appeared in use for agricultural purposes, interspersed by hedgerows and drainage ditches which connected to areas of woodland and waterbodies. The area was approximately 5.45ha in size. Potential basking spots were clearly identified along southern, eastern, and western aspects of such habitat. The disturbance was evaluated as 'poor' with the habitats present either forming part of residential gardens or immediately adjacent to habitat in use for agricultural purposes. With the presence of the woodland areas and hedgerow habitat, the refuge and hibernation potential of the habitat mosaic was evaluated 'exceptional'. The habitat mosaic was clearly linked to a further two areas of potentially suitable habitat within 250m.	0.79 Good
	Habitat Area 5	Habitat Area 5 comprised a neutral grassland field, which appeared in use for agricultural purposes, bordered by hedgerows and drainage ditches and adjacent to a large area of scrub; the area	0.71 Good

Route Segment	Habitat Mosaic Label	Description	HSI Habitat Mosaic Suitability Rating
		connected to areas of woodland and waterbodies. The area was just smaller than 0.5ha. Potential basking spots were clearly identified along southern, eastern, and western aspects of such habitat. The disturbance was evaluated as 'poor' with the habitats present either forming part of residential gardens, or immediately adjacent to habitat in use for agricultural purposes. With the presence of the woodland areas and hedgerow habitat, the refuge and hibernation potential of the habitat mosaic was evaluated 'exceptional'. The habitat mosaic was linked to a further two areas of potentially suitable habitat within 250m.	
	Habitat Area 6	Habitat Area 6 comprised areas of neutral grassland fields with interspersed areas of woodland, hedgerows, adjacent modified grassland, and a waterbody. The size of the area was approximately 1.42ha. Potential basking spots were clearly identified along southern, eastern, and western aspects of such habitat. The disturbance was evaluated as 'poor' with the habitats present either forming part of residential gardens, or immediately adjacent to habitat in use for agricultural purposes. With the presence of the woodland areas and hedgerow habitat, the refuge and hibernation potential of the habitat mosaic was evaluated 'exceptional'. The habitat mosaic was linked to two further areas of potentially suitable habitat within 250m.	0.75 Good
ECC 2	Habitat Area 7	Habitat Area 6 comprised a large neutral grassland field, which appeared in use for agricultural purposes, surrounded by hedgerows and drainage ditches which connected to further small areas of neutral grassland and woodland and waterbodies. The habitat mosaic was measured at 1.86ha in size. Potential basking spots were identified along the eastern and western aspects of such habitat. The disturbance was evaluated as 'poor' with the habitats present either forming part of residential gardens or immediately adjacent to habitat in use for agricultural purposes. With the presence of the woodland areas and hedgerow habitat, the refuge and hibernation potential of the habitat mosaic was evaluated 'exceptional'.	0.65 Good

Route Segment	Habitat Mosaic Label	Description	HSI Habitat Mosaic Suitability Rating
		The habitat mosaic was linked to a further area of potentially suitable habitat within 250m including to Habitat Area 5 to the north. However, the presence of the A52 between the areas likely discouraged reptiles commuting between the areas (this is why the areas were assessed separately).	
	Habitat Area 8	Habitat Area 8 comprised a neutral grassland field which contained a large pond. The field appeared in use for either recreational or agricultural purposes and was surrounded by hedgerows, a woodland strip, and drainage ditches. The habitat mosaic was measured at 1.92ha in size. Potential basking spots were identified along the southern, eastern, and western aspects of the habitat. The disturbance was evaluated as 'poor' with the habitats present either forming part of residential gardens or immediately adjacent to habitat in use for agricultural purposes. With the presence of the woodland, ditches and hedgerow habitat, the refuge and hibernation potential of the habitat mosaic was evaluated 'exceptional'. The habitat mosaic was linked to a single further area of potentially suitable habitat within 250m.	0.71 Good
	Habitat Area 9	Habitat Area 9 comprised a 0.63ha mosaic of woodland, open water, hedgerow, and modified grassland areas. Potential basking spots were identified along the southern, eastern, and western aspects of the habitat. The disturbance was evaluated as 'poor' with the habitats present either forming part of what appeared to be a residential garden which was situated immediately adjacent to habitat in use for agricultural purposes. With the presence of the woodland and hedgerow habitat, the refuge and hibernation potential of the habitat mosaic was evaluated 'exceptional'. The habitat mosaic was linked to a single further area of potentially suitable habitat within 250m.	0.71 Good
ECC 3	Habitat Area 10	Habitat Area 10 comprised a small area (less than 0.5ha) of woodland and an adjacent area of neutral grassland. Potential basking spots were clearly identified along southern aspect of the woodland.	0.53 Poor

Route Segment	Habitat Mosaic Label	Description	HSI Habitat Mosaic Suitability Rating
		The disturbance was evaluated as 'poor' with the habitats immediately to Marsh Lane and areas utilised for agricultural purposes. With the presence of the woodland habitat, the refuge and hibernation potential of the habitat mosaic was evaluated 'exceptional'. The habitat mosaic was not considered linked to further areas of potentially suitable habitat within 250m.	
	Habitat Area 11	Habitat Area 11 comprised a 0.14ha waterbody and adjacent habitat that was located within the corner of a large agricultural field. The mosaic was not considered to offer likely hibernation potential and was considered likely subject to high levels of disturbance. No other suitable habitat was located within 250m of the area.	0.48 Poor
	Habitat Area 12	Habitat Area 12 comprised large neutral grassland fields, which appeared in use for agricultural purposes and/or recreational use. The fields were surrounded by hedgerows and drainage ditches. The area was 8.28ha in size. Potential basking spots were clearly identified along southern, eastern, and western aspects of the habitats present. The disturbance was evaluated as 'poor' with the habitats present either in use for agricultural purposes or immediately adjacent to such habitat. With the presence of the hedgerow habitat, the refuge potential of the habitat mosaic was evaluated 'exceptional', whilst the hibernation potential was evaluated as 'good'. The habitat mosaic was considered linked to a further two areas of potentially suitable habitat within 250m.	0.75 Good
	Habitat Area 13	Habitat Area 13 comprised a 15.55ha area comprised of neutral grassland in use for agricultural purposes that was surrounded by hedgerows and drainage ditches. Potential basking spots were clearly identified along southern and western aspects of the hedgerows present. The disturbance was evaluated as 'poor' with the habitats present in use for agricultural purposes and immediately adjacent to further agricultural habitat.	0.65 Good

Route Segment	Habitat Mosaic Label	Description	HSI Habitat Mosaic Suitability Rating
		With the presence of the hedgerow habitat, the refuge potential of the habitat mosaic was evaluated 'exceptional', whilst the hibernation potential was evaluated as 'good'. The habitat mosaic was considered linked to a single area of potentially suitable habitat within 250m.	
ECC 4	Habitat Area 14	Habitat Area 14 comprised a single habitat of scrub which appeared from aerial to have a varying vegetation structure. The area was completed surrounded by arable fields but was not connected to other potentially suitable habitat within 250m. The size of the area was 0.43ha. However, there were potential basking spots identifiable within the scrub from aerial imagery, and the disturbance level of the internal area of the habitat was not considered frequent.	0.65 Good
ECC 5	Habitat Area 15	Habitat Area 15 comprised an area of neutral grassland and a small area of woodland, in addition to connected hedgerows and drainage ditches. The land was adjacent to arable fields, and the neutral grassland appeared in use for recreational purposes. The area was 2.32ha in size. Potential basking spots were clearly identified along southern, eastern, and western aspects of the habitats present. The disturbance was evaluated as 'poor' with the habitats present either in use for recreational purposes or immediately adjacent to arable habitat. With the presence of the hedgerow and woodland habitat, the refuge and hibernation potential of the habitat mosaic was evaluated 'exceptional'. The habitat mosaic was considered linked to a two areas of potentially suitable habitat within 250m.	0.79 Good
	Habitat Area 16	Habitat Area 16 comprised a 5.74ha mosaic of woodland, grassland, ditches, and hedgerows. Potential basking spots were clearly identified along southern, eastern, and western aspects of the habitats present. The grassland habitat appeared to be managed for agricultural purposes. With the presence of the hedgerow and woodland habitat, the refuge and hibernation potential of the habitat mosaic was evaluated 'exceptional'.	0.91 Exceptional

Route Segment	Habitat Mosaic Label	Description	HSI Habitat Mosaic Suitability Rating
		The habitat mosaic was not considered linked to further two areas of potentially suitable habitat within 250m.	
	Habitat Area 17	Habitat Area 17 comprised a 1.82ha mosaic of woodland, neutral grassland, and adjacent ditch habitat. Potential basking spots were clearly identified along southern, eastern, and western aspects of the habitats present. The neutral grassland habitat appeared to be managed for agricultural purposes, whilst the woodland was a part of a residential garden. With the presence of the woodland habitat, the refuge and hibernation potential of the habitat mosaic was evaluated 'exceptional'. The habitat mosaic was not considered linked to further two areas of potentially suitable habitat within 250m.	0.75 Good
	Habitat Area 18	Habitat Area 18 comprised a 2.75ha mosaic of areas of woodland, neutral grassland, with connective habitat including drainage ditches and hedgerows. The majority of the area was considered subject to disturbance through agricultural and residential land use. Potential basking spots were clearly identified along southern, western, and eastern aspects of the hedgerows and woodland edges present. With the presence of the hedgerow and woodland habitat, the refuge and hibernation potential of the habitat mosaic was evaluated 'exceptional'. The habitat mosaic was considered linked to one further area of potentially suitable habitat within 250m.	0.71 Good
	Habitat Area 19	Habitat Area 19 comprised areas of the Wainfleet Relief Channel and areas of neutral grassland adjacent to the channel. The area measured a total of 3.21ha. Much of the grassland present was considered in use for agricultural purpose and therefore considered frequently disturbed. Potential basking spots were clearly identified along southern and western facing aspects of the habitats.	0.62 Good

Route Segment	Habitat Mosaic Label	Description	HSI Habitat Mosaic Suitability Rating
		With the presence of the ditch habitat, the refuge potential of the habitat mosaic was evaluated 'exceptional', however, there was no notable habitat present considered likely to offer hibernation potential. As such this was evaluated as 'poor'. The habitat mosaic was considered linked to two further areas of potentially suitable habitat within 250m.	
	Habitat Area 20	Habitat Area 20 comprised an area of woodland, the steeping river, and associated grassland habitat. The area measured a total of 1.86ha. The woodland appeared to be located within a residential garden, whilst the surrounding habitat comprised of arable fields and therefore the habitat was considered frequently disturbed. Potential basking spots were clearly identified along southern aspects of the steeping river and the eastern aspect of the woodland. With the presence of the river channel and the woodland habitat, the refuge and hibernation potential of the habitat mosaic was evaluated 'exceptional'. The habitat mosaic was considered linked to a further three areas of potentially suitable habitat within 250m.	0.75 Good
ECC 6	Habitat Area 21	Habitat Area 21 comprised an 2ha area of woodland and adjacent drainage ditch. The woodland appeared to be plantation, and the surrounding habitat comprised arable fields, as such the habitat was considered subject to disturbance. Potential basking spots were clearly identified along western aspect of the habitats present. The area was linked by suitable habitat to a larger area of woodland that appeared suitable and was within 250m of the mosaic. With the presence of the woodland, the refuge and hibernation potential were evaluated as 'exceptional'.	0.65 Good
	Habitat Area 22	Habitat Area 22 comprised a large patch of woodland, of which 0.82ha was located within the study area. From aerial imagery it appeared that the woodland contained clearings and some glade areas.	0.91 Exceptional

Route Segment	Habitat Mosaic Label	Description	HSI Habitat Mosaic Suitability Rating
		The surrounding habitat comprised arable fields, however, the woodland was considered sufficiently large enough and showed little signs of recreational use, that it was evaluated as low for disturbance potential. Basking spots were clearly identified along the southern, eastern, and western areas within the habitat. The area was linked by suitable habitat to a further two areas within 250m. With the presence of the woodland, the refuge and hibernation potential were evaluated as 'exceptional'.	
	Habitat Area 23	Habitat Area 20 comprised 1.55ha of woodland and adjacent drainage ditches. From aerial imagery it appeared that the woodland contained clearings and some glade areas. The surrounding habitat comprised arable fields, however, the woodland was considered sufficiently large enough and showed little signs of recreational use, that it was evaluated as low for disturbance potential. Basking spots were clearly identified along the southern, eastern, and western areas within the habitat. The area was linked by suitable habitat to a further two areas within 250m. With the presence of the woodland, the refuge and hibernation potential were evaluated as exceptional.	0.91 Exceptional
	Habitat Area 24	Habitat Area 24 comprised a 1.5ha mosaic of grassland and adjacent hedgerows and ditches. The habitat was considered likely subject to high levels of disturbance as it was in use for agricultural purpose. Notwithstanding, basking areas were identified along the southern and western facing aspects of the habitats. Due to the presence of hedgerows, the refuge opportunities of the mosaic were considered 'exceptional' whilst the hibernation opportunities were considered 'good'.	0.62 Good

Route Segment	Habitat Mosaic Label	Description	HSI Habitat Mosaic Suitability Rating
	Habitat Area 25	Habitat Area 24 comprised a patch of 0.52ha of scrub located within the study area with further scrub outside the study area. The surrounding habitat comprised arable fields, interspersed with drainage ditches. Basking spots were clearly identified along the southern, eastern, and western aspects within the habitat. The area was linked by suitable habitat to a further two areas within 250m. With the presence of the scrub, the refuge and hibernation potential were evaluated as 'exceptional'.	0.79 Good
	Habitat Area 26	Habitat Area 26 comprised a 1.15ha patch of woodland. From aerial imagery it appeared that the woodland contained clearings and some glade areas. Furthermore, the presence of drainage ditches around the borders of the woodland and intersecting the arable fields adjacent were considered as part of the habitat mosaic. The surrounding habitat comprised arable fields, however, the woodland was considered sufficiently large enough and showed little signs of recreational use, that it was evaluated as low for disturbance potential. Basking spots were clearly identified along the southern, eastern, and western areas within the habitat. The area was considered linked by suitable habitat to an additional area of potentially suitable habitat within 250m. With the presence of the woodland, the refuge and hibernation potential were evaluated as 'exceptional'.	0.82 Exceptional
ECC 7	Habitat Area 27	Habitat Area 27 comprised 1.6ha of woodland, grassland, and adjacent drainage ditches. The vegetation structure of the woodland from aerial appeared to show some variety including suitable edge habitats along the east borders that could be utilised by reptiles for basking. Bordering the woodland were modified grassland fields in use for agricultural purposes, as such the area was considered frequently disturbed.	0.72 Good

Route Segment	Habitat Mosaic Label	Description	HSI Habitat Mosaic Suitability Rating
		The area was considered connected by suitable habitat to a single area of potentially suitable habitat for reptiles within 250m. With the presence of the woodland, the refuge and hibernation potential were evaluated as 'exceptional'.	
	Habitat Area 28	Habitat Area 28 comprised 2ha of woodland and neutral grassland. The vegetation structure of the woodland from aerial appeared to show some variety including suitable edge habitats along the south and west borders that could be utilised by reptiles for basking. The woodland, however, appeared to be located within a residential garden and was, therefore, evaluated as subject to frequent disturbance. Bordering the area were arable fields. The area was considered connected by suitable habitat to a single area of potentially suitable habitat for reptiles within 250m. With the presence of the woodland, the refuge and hibernation potential were evaluated as 'exceptional'.	0.75 Good
ECC 8	Habitat Area 29	Habitat Area 29 comprised woodland and standing open water within a small residential garden (0.26 ha). The vegetation structure of the woodland from aerial appeared to show limited variety that could be utilised by reptiles for basking. As the area was located within a residential garden it was evaluated as subject to frequent disturbance. Bordering the area were arable fields. The area was not considered connected by suitable habitat to a single area of potentially suitable habitat for reptiles within 250m. With the presence of the woodland, the refuge and hibernation potential were evaluated as 'exceptional'.	0.59 Poor
	Habitat Area 30	Habitat Area 30 comprised 0.27ha woodland and hedgerows bordering a small residential garden. The vegetation structure of the woodland from aerial appeared to show limited variety with some basking areas identified along the south and west aspects that could be utilised by reptiles for	0.59 Poor

Route Segment	Habitat Mosaic Label	Description	HSI Habitat Mosaic Suitability Rating
		basking. As the area was located within a residential garden it was evaluated as subject to frequent disturbance. Bordering the area were arable fields. The area was not considered connected by suitable habitat to a single area of potentially suitable habitat for reptiles within 250m. With the presence of the woodland, the refuge and hibernation potential were evaluated as 'exceptional'.	
	Habitat Area 31	Habitat Area 31 comprised an area of woodland, a drainage ditch immediately adjacent to the woodland, and an area of neutral grassland to the north of the woodland. The area measured in total 1.65ha. Aerial imagery of the woodland showed a dense continuous canopy. However, there were some basking areas identified along the south, east, and west aspects of the ditch and woodland, as well as several areas within the grassland that could be utilised by reptiles for basking. The area was surrounded by arable fields, and it appeared that the grassland field was subject to some level of disturbance from machinery. Overall, the area was evaluated as subject to frequent disturbance. The area was not considered connected by suitable habitat to a single area of potentially suitable habitat for reptiles within 250m. With the presence of the woodland, the refuge and hibernation potential were evaluated as 'exceptional'.	0.72 Good
	Habitat Area 32	Habitat Area 3 comprised a 2.81ha area of what appeared from aerial to be residential gardens with neutral grassland areas, woodland, a small drainage ditch, and hedgerows present. Several potential basking areas were identified, and it was considered that there were suitable sun exposed areas along east, south, and west areas within the habitat mosaic. However, as the area comprised mostly of residential gardens, it was considered likely to be frequently disturbed. There was two suitable connective habitat corridors present linking the area to a further two areas of potentially suitable habitat.	0.83 Exceptional

Route Segment	Habitat Mosaic Label	Description	HSI Habitat Mosaic Suitability Rating
		With the presence of the woodland, the refuge and hibernation potential were evaluated as 'exceptional'.	
	Habitat Area 33	Habitat Area 33 comprised an area of woodland surrounded by a margin of neutral grassland and small drainage ditch. The mosaic was surrounded by arable fields and Skipmarsh land to the west. The size of the area was 0.90 ha, with 0.43ha within the study area. The vegetation structure of the area from aerial appeared to show variety with basking areas identified along the south, east, and west aspects that could be utilised by reptiles for basking. Bordering the area were arable fields and it appeared that the internal aspects of the area was regularly accessed. The area was not considered connected by suitable habitat to a single area of potentially suitable habitat for reptiles within 250m. With the presence of the woodland, the refuge and hibernation potential were evaluated as 'exceptional'.	0.75 Good
ECC 9	Habitat Area 34	Habitat Area 34 comprised areas of woodland and hedgerows bordering a small residential garden (0.2 ha). The vegetation structure of the woodland from aerial appeared to show limited variety with some basking areas identified along the south and west aspects that could be utilised by reptiles for basking. As the area was located within a residential garden it was evaluated as subject to frequent disturbance. Bordering the area were arable fields. The area was not considered connected by suitable habitat to a single area of potentially suitable habitat for reptiles within 250m. With the presence of the woodland, the refuge and hibernation potential were evaluated as 'exceptional'.	0.65 Good
ECC 10	Habitat Area 35	Habitat Area 35 comprised Hobhole Drain and associated smaller drainage ditches connected, in addition to associated grassland and woodland habitats adjacent to the ditches. The area within the study area totalled 8.77ha.	0.95 Exceptional

Route Segment	Habitat Mosaic Label	Description	HSI Habitat Mosaic Suitability Rating
		Several basking spots were identified across southern, eastern, and western aspects of the mosaic. The area was considered subject to frequent disturbance from the management of the agricultural habitats adjacent. The areas connectivity to other potentially suitable habitats was evaluated as 'exceptional'. With the presence of the woodland, the refuge and hibernation potential were evaluated as 'exceptional'.	
	Habitat Area 36	Habitat Area 36 comprised The Haven and associated grassland, estuarine rocky habitats, bog, and woodland habitats adjacent to the ditches. The area within the study area totalled 6.41ha. Several basking spots were identified across southern, eastern, and western aspects of the mosaic. The area was considered subject to frequent disturbance from the management of the agricultural habitats adjacent. The areas connectivity to other potentially suitable habitats was evaluated as 'exceptional'. With the presence of the woodland, the refuge and hibernation potential were evaluated as 'exceptional'.	0.95 Exceptional
ECC 11	Habitat Area 37	Habitat Area 37 comprised an area of grassland, scrub, woodland, hedgerows, and drainage ditches. The area totalled 7.09ha with 4.92ha within the study area. Several basking spots were identified across southern, eastern, and western aspects of the mosaic. The area was considered subject to frequent disturbance from the management of the agricultural habitats adjacent. The areas connectivity to other potentially suitable habitats was evaluated as 'good' with connections to a further two potential suitable habitats. With the presence of the mature scrub and woodland, the refuge and hibernation potential were evaluated as 'exceptional'.	0.91 Exceptional

Route Segment	Habitat Mosaic Label	Description	HSI Habitat Mosaic Suitability Rating
	Habitat Area 38	Habitat Area 38 comprised a 0.17ha area of woodland adjacent to cereal crop. The area was immediately adjacent to further woodland and a waterbody just outside of the study area. Several basking spots were identified across southern and eastern aspects of the woodland. The area was considered subject to some disturbance from the management of the agricultural habitats adjacent. The areas connectivity to other potentially suitable habitats was evaluated as poor with only one connection to further potentially suitable habitats. With the presence of the woodland, the refuge and hibernation potential were evaluated as 'exceptional'.	0.65 Good
ECC 12	None	N/A	N/A
ECC 13	Habitat Area 39	Habitat Area 39 comprised the River Welland and associated wetland, grassland, drainage ditches, hedgerows, and woodland habitats connected to the river within the study area. The area within the study area totalled over 35ha. Several basking spots were identified across southern, eastern, and western aspects of the mosaic. The area was considered subject to frequent disturbance from the management of the agricultural habitats adjacent. The areas connectivity to other potentially suitable habitats was evaluated as exceptional. With the presence of the woodland, the refuge and hibernation potential were evaluated as 'exceptional'.	0.95 Exceptional
	Habitat Area 40	Habitat Area 40 comprised a 0.26ha area of woodland adjacent to Marsh Lane and cereal crop habitat. The area was considered likely to be subject to some level of disturbance from the cereal cropland adjacent and the roadway. However, basking spots were identified along the south-eastern aspect of the habitat.	0.59 Poor

Route Segment	Habitat Mosaic Label	Description	HSI Habitat Mosaic Suitability Rating
		The habitat was not considered linked to further habitats potentially suitable for reptiles but was considered to offer 'exceptional' hibernation and refuge potential.	
	Habitat Area 41	Habitat Area 41 comprised a 1.3ha area of grassland that appears to be subject to horse grazing. As such, the area was considered likely to be subject to high level of disturbance; however, basking spots were identified along the south-eastern aspect of the habitat. The habitat was not considered linked to further habitats potentially suitable for reptiles and was considered to offer only 'poor' hibernation and refuge potential.	0.38 Poor
	Habitat Area 42	Habitat Area 42 was a 0.9ha area of residential garden comprised of grassland, scrub, and associated hedgerow. The area was adjacent to cereal crop habitat, this in combination with the use of the habitat within the area as a residential garden led to the evaluation that it was subject to high levels of disturbance. The area showed some vegetation structure and basking spots were clearly identified along southern, eastern, and western aspects within the area. It was not considered linked to further suitable habitat within 250m.	0.56 Poor
ECC 14	Habitat Area 43	Habitat Area 43 was a 0.64ha area of residential garden comprised of woodland and grassland habitat. It was considered subject to high disturbance due to the nature of the use of the habitats, along with the presence of cereal crop adjacent to the habitat. There were basking spots identified however along southern, eastern, and western aspects of the habitats present. It was not considered linked to further suitable reptile habitat within 250m, but it was considered likely to offer 'exceptional' hibernation and refuge opportunities.	0.68 Good
	Area 44	Area 44 comprised an area of woodland and an associated drainage ditch. The mosaic was surrounded by arable fields. The size of the area was 0.8ha within the study area. The vegetation structure of the area from aerial appeared to show variety with basking areas identified along the south and east aspects that could be utilised by reptiles for basking. Bordering the area were arable fields and it appeared that the internal aspects of the area was regularly accessed.	0.72 Good

Route Segment	Habitat Mosaic Label	Description	HSI Habitat Mosaic Suitability Rating
		The area was not considered connected by suitable habitat to a single area of potentially suitable habitat for reptiles within 250m. With the presence of the woodland, the refuge and hibernation potential were evaluated as 'exceptional'.	

21.8 Discussion

49. Much of the Study Area has been assessed as negligible habitat for reptiles due to the presence of large swathes of intensively managed agricultural land.

50. It is important to note however, that there were also several linear habitats, particularly small field drainage ditches, which intersected such habitat and offered 'good' potential for reptiles, particularly commuting opportunities for grass snake to disperse to more suitable areas within the landscape.

51. The assessment also identified more suitable areas of habitat for reptiles within the Study Area, some of which are directly within the Order Limits. The drainage ditches and hedgerows that intersect the agricultural landscape were considered suitable areas that could offer suitable commuting corridors for reptiles, with records of grass snake returned from several drainage ditches clearly indicating that the species utilises such habitat. Overall, it was considered that the Study Area contained pockets of habitat that singularly could support a population of reptiles as well as corridors of suitable habitat dispersed amongst the poor and negligible habitat which dominated the area.

52. Of note were Habitat Areas categorised as 'exceptional' that were found to be suitably linked by potentially suitable reptile habitat to significant records for reptiles. These are discussed in detail for each species recorded within 2km of the Order Limits in the following sections.

21.8.1 Grass snake

21.8.1.1 Habitat Area 35, Habitat Area 36, and Habitat Area 37

53. Habitat Areas 35, 36 and 37 were directly connected to RSPB Frampton Marsh, an area from which over 10 records for grass snake were returned as part of the desk study (Volume 3, Appendix 21.1: Desk Study).

54. Furthermore, the UKHab survey recorded habitats within Habitat Areas 35 and 36 similar to that reported for the Frampton Marsh RSPB Reserve[19] and which are considered suitable for grass snake. However, the habitats within both Habitat Area 35 and 36 are likely subject to more disturbance than the Frampton Marsh RSPB Reserve.

[19] As detailed at Frampton Marsh | The RSPB.

55. The habitats recorded within Habitat Area 37 were also considered to offer opportunities for grass snake, in particular, hibernation and refuge potential due to the presence of woodland and scrub.

56. Overall, it is considered that all three areas offer additional commuting, foraging, and potentially refuge and hibernation habitat, available to the population present at the reserve, as well as a corridor for grass snake to commute through the landscape.

21.8.1.2 Habitat Area 39

57. Habitat Area 39 is linked, by the River Welland, to a location where two grass snakes were recorded. Similar habitats were recorded within Habitat Area 39 and the area where the records originate, with the river likely acting as an important commuting and hunting habitat for the reptile species. In addition, areas of woodland were identified within Habitat Area 39 which could offer hibernation potential for the species. Overall, Habitat Area 39 is assessed as offering 'exceptional' habitat for reptiles, and it is considered very likely that grass snake are present due to habitat quality and connectivity to historic records.

21.8.2 Common lizard

21.8.2.1 Habitat Area 1

58. Habitat Area 1 is directly connected by coastline scrub habitat to the location of the only record for common lizard retuned by the desk study and has been assessed as offering ‘exceptiona’l habitat for reptiles, particularly for common lizard. It is considered that Habitat Area 1 could also support other native species of reptiles.

59. Overall, Habitat Area 1 was assessed as ‘exceptional’ habitat and is considered to contribute to a large habitat unit/matrix which supports a larger metapopulation of common lizard in suitable habitats along the coast.

21.8.3 Slow worm

60. The area from which the single record for slow worm was returned was located outside of the Study Area and was not considered connected to the study area through suitable habitat for the species. However, several woodland and scrub habitat areas which made up ‘good’ and ‘exceptional’ mosaic areas were identified within the Study Area which were considered likely suitable to support a population of the species.

21.9 Conclusion

61. To conclude, there were limited Habitat Areas considered to be of potentially 'exceptional' habitat present within the Order Limits that offered suitable habitat to support one of the four species of reptiles (grass snake, adder, slow worm, and common lizard) considered potentially present due to the species' native range.

62. Four of these Habitat Areas were linked to clusters of records for grass snake, with a further area linked to the sole record for common lizard. No areas within the Order Limits were considered linked to the single record for slow worm, but several areas identified as part of this assessment were identified as offering suitable habitat for the species.

63. In addition, no records were identified for adder, however, Habitat Areas of 'good' and 'exceptional' habitat were identified that were considered suitable for the species.

64. Each of these identified areas are further discussed within the ES chapter (document reference 6.1.21)with potential impacts considered and mitigation proposed where necessary.

21.10 References

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Witham Forth District Internal Drainage Board (2022) Biodiversity Action Plan

Welland & Deepings Internal Drainage Board (2020) Biodiversity Action Plan

Figure 21.8.1: Habitat Suitability for Reptiles

553500 554000 554500 555000 555500 556000

376500 376000 375500 375000 374500 374000

N

ROMAN BANK
SANDY LANE
GRAGE CRESCENT
OCCUPATION LANE
SEA ROAD
Anderby Creek
SEA ROAD
THE DELL
PINFOLD LANE
SEA ROAD
SEA ROAD
SEA ROAD
GP
GP
ROMAN BANK
North Sea
Area 1
ROMAN BANK
Area 2
EMBER LANE
ANDERBY ROAD

Legend

- Order Limits
- Landfall Trenchless Works Area
- Transition Joint Bay Area
- Order Limits 100 m Buffer

Habitat Suitability for Reptiles

- Exceptional
- Poor

Sources:
Aerial Imagery (2021)
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Coordinate System: British National Grid

0 125 250 500 Metres

Scale: 1:10,000

A3 Page Size

Environmental Statement

Habitat Suitability for Reptiles

Figure 21.8.1.1

OUTER DOWSING OFFSHORE WIND

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552000 552500 553000 553500 554000 554500

374500 374000 373500 373000 372500 372000

N

LANGHAM ROAD
GREEN LANE (TRACK)
FOAL PLATS LANE (TRACK)
WILLEY'S LANE
LANGHAM ROAD
EMBER LANE
STONE'S LANE
Area 3
Authorpe Row
Area 4
LOWGATE ROAD
MAIDEN LANE
GP
A52
Helsey
ECC 1: Landfall to A52 - Hogsthorpe
ECC 2: A52 - Hogsthorpe to Marsh Lane
HELSEY LANE
LISTOFT LANE
Listoft
Area 5
Area 7
Area 6
WEST END
HIGH STREET
CARSON CLOSE
TAVERN LANE
THAMES STREET
JUBILEE CLOSE
MEADOW VIEW
GOODWIN DRIVE
Hogsthorpe
MILL LANE
SOUTH END
ST MARYS CLOSE
LANE
LANGHAM ROAD
MAIDEN LANE
BRADSHAW'S LANE
BLIND WELL LANE (TRACK)
SEA LANE
SEA ROAD

Legend

- Order Limits
- Onshore Segment Break
- Order Limits 100 m Buffer

Habitat Suitability for Reptiles

- Good
- Poor

Sources:
Aerial Imagery (2021)
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Coordinate System: British National Grid

0 125 250 500 Metres

Scale: 1:10,000

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Environmental Statement

Habitat Suitability for Reptiles

Figure 21.8.1.2

OUTER DOWSING OFFSHORE WIND

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552000 552500 553000 553500 554000 554500 555000

372500 372000 371500 371000 370500 370000

N

Area 5
Area 7
Area 5
Area 6
Area 8
Area 9
ECC 1: Landfall to A52 - Hogsthorpe
ECC 2: A52 - Hogsthorpe to Marsh Lane
BRACKEN LANE
WEST END
HIGH STREET
THAMES STREET
JUBILEE CLOSE
CARSON CLOSE
TAVERN LANE
MEADOW VIEW
GOODWIN DRIVE
MILL LANE
SEA LANE
SEA ROAD
SOUTH END
ST MARY'S CLOSE
LISTOFT LANE
SLOOTHBY HIGH LANE
SOUTH INGS LANE
LOW LANE (TRACK)
A52
GP
Listoft
Hogsthorpe
Stickholme End
Wyche

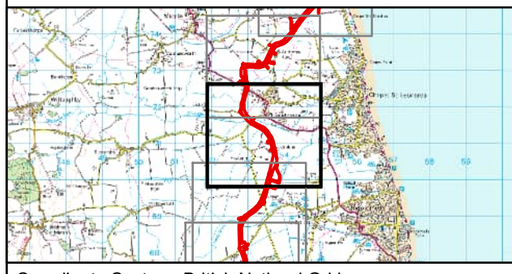
Legend

- Order Limits
- Onshore Segment Break
- Order Limits 100 m Buffer

Habitat Suitability for Reptiles

- Good

Sources:
Aerial Imagery (2021)
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



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Scale: 1:10,000

A3 Page Size

Environmental Statement

Habitat Suitability for Reptiles

Figure 21.8.1.3

OUTER DOWSING OFFSHORE WIND

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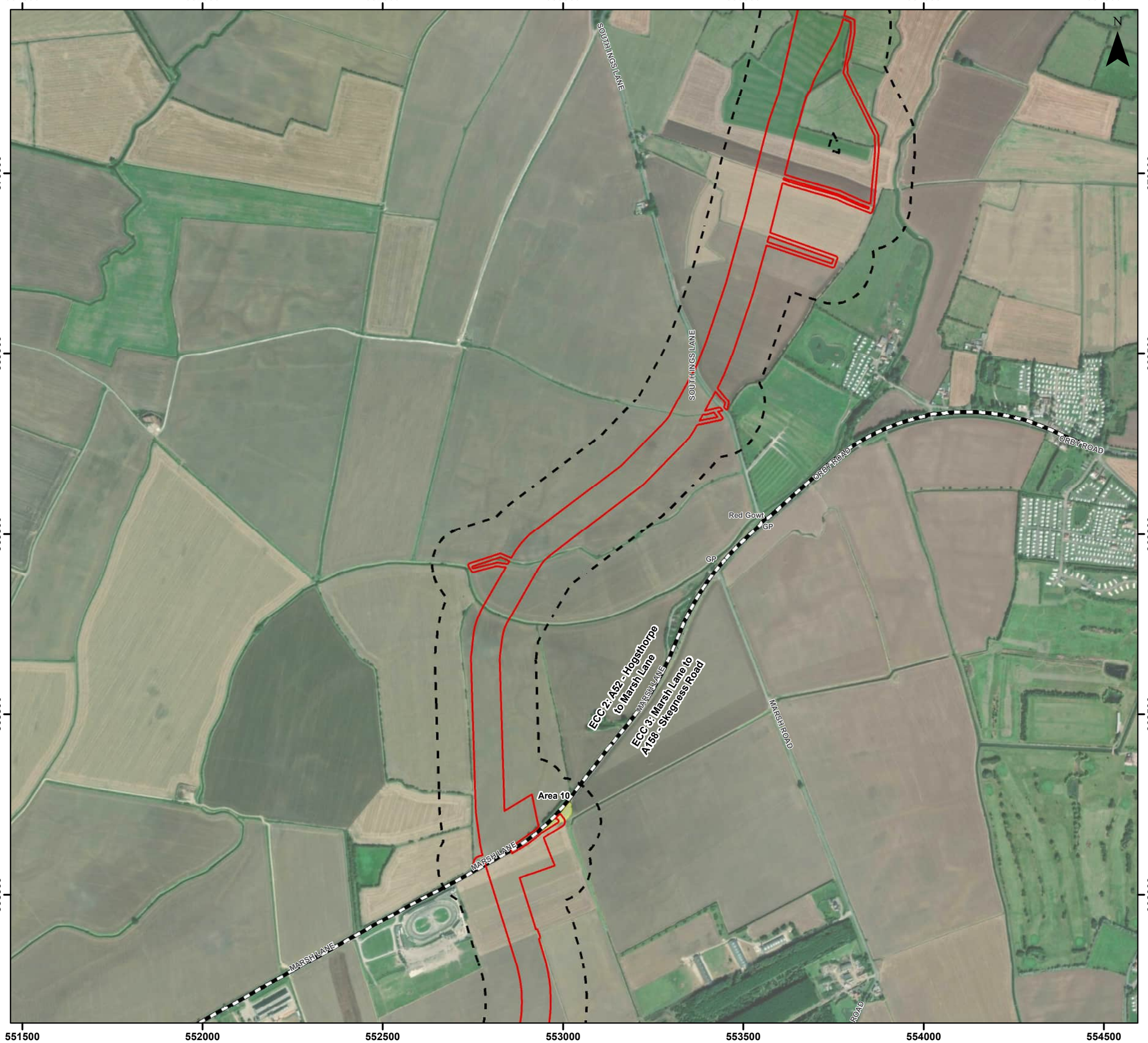


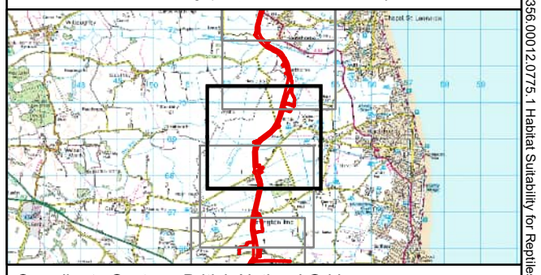
Legend

- Order Limits
- Onshore Segment Break
- Order Limits 100 m Buffer

Habitat Suitability for Reptiles

- Poor

Sources:
Aerial Imagery (2021)
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



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Habitat Suitability for Reptiles

Figure 21.8.1.4

OUTER DOWSING OFFSHORE WIND

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SLR

551500 552000 552500 553000 553500 554000

368500 368000 367500 367000 366500

N

Area 10

Area 11

ECC 2: A52 - Hogsthorpe to Marsh Lane

ECC 3: Marsh Lane to A158 - Skegness Road

MARSH LANE

MARSH ROAD

MARSH

INGOLDMELLS ROAD

GP

ROAD

HIDES

HIDES LANE

Ashington End

CHALK

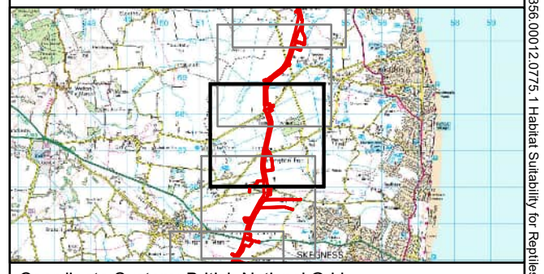
Legend

- Order Limits
- Onshore Segment Break
- Order Limits 100 m Buffer

Habitat Suitability for Reptiles

- Poor

Sources:
Aerial Imagery (2021)
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



Coordinate System: British National Grid

0 125 250 500 Metres

Scale: 1:10,000

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Environmental Statement

Habitat Suitability for Reptiles

Figure 21.8.1.5

OUTER DOWSING OFFSHORE WIND

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551500 552000 552500 553000 553500 554000

366500 366000 365500 365000 364500

N

Area 11
Area 12
Area 13
ECC 3: Marsh Lane to A158 - Skegness Road
ECC 4: A158 Skegness Road to Low Road

LANE
ROAD
GP
CHALK
THE COMMON
YOUNGER'S
YOUNGER'S LANE
HIDE'S
HIDE'S LANE
SKEGNESS ROAD
A158
Lay-by
BURGH
MIDDLEMARSH
MIDDLEMARSH ROAD

Legend

- Order Limits
- Onshore Segment Break
- Order Limits 100 m Buffer

Habitat Suitability for Reptiles

- Good
- Poor

Sources:
Aerial Imagery (2021)
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Coordinate System: British National Grid

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Scale: 1:10,000

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Environmental Statement

Habitat Suitability for Reptiles

Figure 21.8.1.6

OUTER DOWSING OFFSHORE WIND

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550500 551000 551500 552000 552500 553000

364500 364000 363500 363000 362500 362000

SKEGNESS ROAD
A158
ECC 4: A158 Skegness Road to Low Road
Lay-by
ECC 3: Marsh Lane to A158 - Skegness Road
GP
MIDDLEMARSH
MIDDLEMARSH ROAD
JOHNSON WAY
CUMBERLIDGE CLOSE
MARSH LANE
BILLGATE LANE
JOCK HEDGE
ROAD
LANE
Area 14
LOW ROAD
CHURCH LANE
ECC 5: Low Road to Steeping River
Area 15
PINCHBECK LANE

N

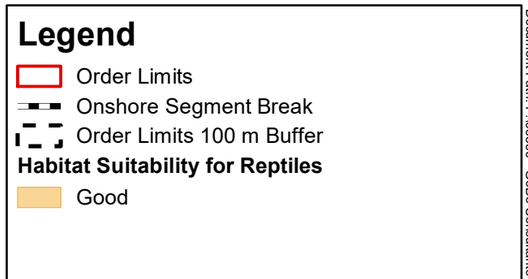
Legend

- Order Limits
- Onshore Segment Break
- Order Limits 100 m Buffer

Habitat Suitability for Reptiles

- Good

Sources:
Aerial Imagery (2021)
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



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Scale: 1:10,000

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Habitat Suitability for Reptiles

Figure 21.8.1.7

OUTER DOWSING OFFSHORE WIND

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550000 550500 551000 551500 552000 552500 553000

363000 362500 362000 361500 361000 360500

N

Area 14

HIGH LANE

LOW ROAD

MIDDLEMARSH ROAD

ECC 4: A158 Skegness Road to Low Road

LOW ROAD

ECC 5: Low Road to Steeping River

CHURCH LANE

Area 15

PINCHBECK LANE

LOW ROAD

PINCHBECK LANE

PINCHBECK LANE

WASHDIKE LANE

GP

GP

GP

SYCAMORE CL

Croft

CROFT LANE

LYMN BANK

GP

GP

CROFT LANE

Area 16

GUTHERAM DROVE (TRACK)

CROFT BANK

Layby

A52

A52

A52

WEDLAND

GP

Area 17

Weighbridge

CHURCH

CROFT

Area 18

ROAD

GP

CROFT

HAVEN

GP

LANE

Legend

- Order Limits
- Onshore Segment Break
- Order Limits 100 m Buffer

Habitat Suitability for Reptiles

- Exceptional
- Good

Sources:
Aerial Imagery (2021)
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Coordinate System: British National Grid

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Environmental Statement

Habitat Suitability for Reptiles

Figure 21.8.1.8

OUTER DOWSING OFFSHORE WIND

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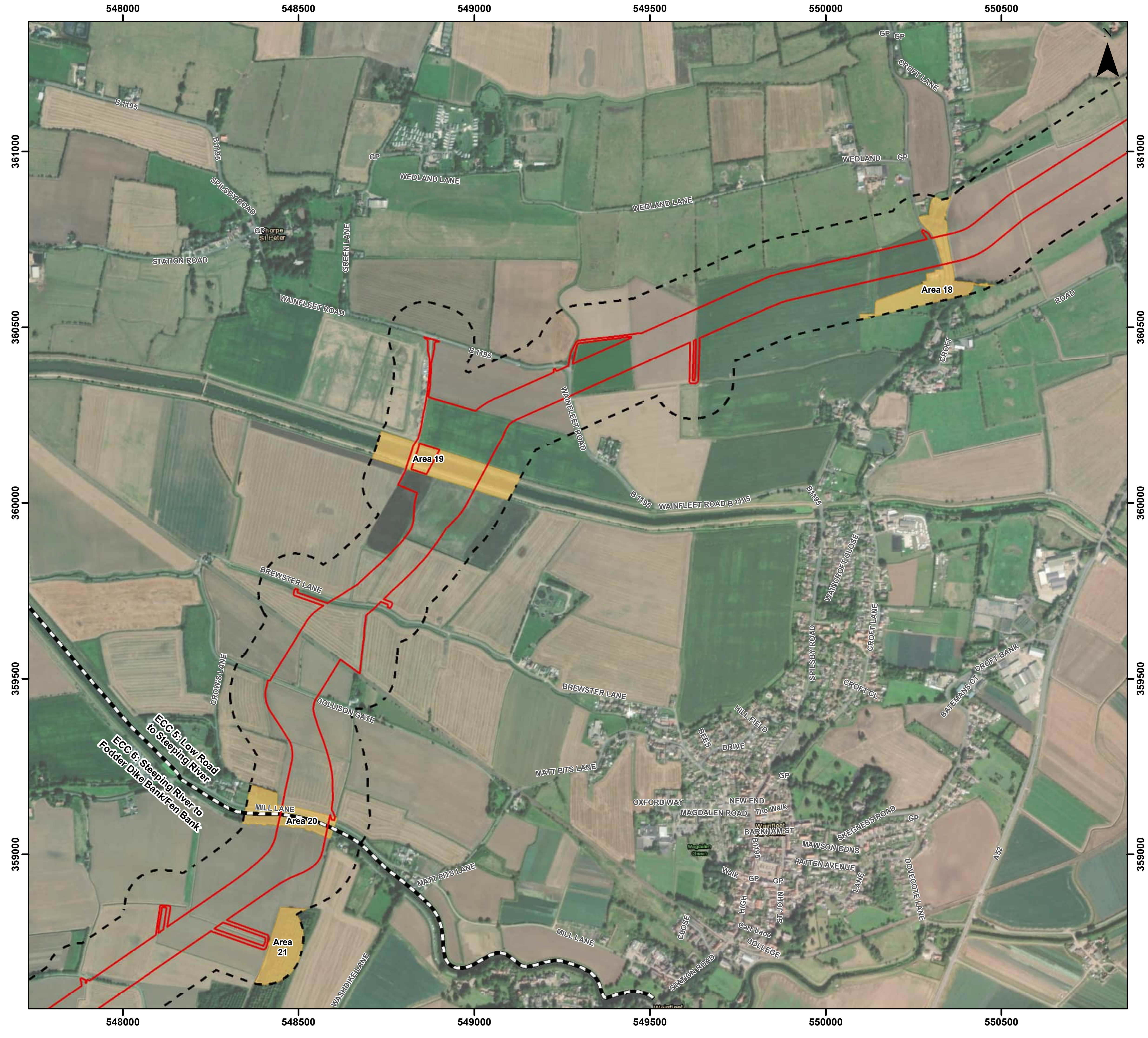

548000
548500
549000
549500
550000
550500
361000
360500
360000
359500
359000
Area 18
Area 19
Area 20
Area 21
B1195
WEDLAND LANE
WEDLAND
CROFT LANE
SPILSBY ROAD
STATION ROAD
GREEN LANE
WAINFLEET ROAD
WAINFLEET ROAD B1195
BREWSTER LANE
COLLISON GATE
CROWS LANE
MILL LANE
MATT PITS LANE
WASHDIKE LANE
ECC 5: Low Road to Steeping River
ECC 6: Steeping River to Fodder Dike Bank/Fen Bank
SPILSBY ROAD
WAINGROFT CLOSE
CROFT LANE
CROFT BANK
BATEMANS CT
OXFORD WAY
MAGDALEN ROAD
NEW END
The Walk
BARKHAM ST
SKEGNESS ROAD
MAWSON GDNS
PATTEN AVENUE
DOVECOTE LANE
HIGH
ST JOHN
STATION ROAD
COLLEGE
A52
N

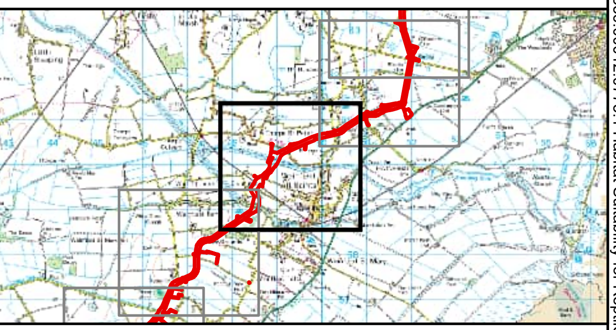
Legend

- Order Limits
- Onshore Segment Break
- Order Limits 100 m Buffer

Habitat Suitability for Reptiles

- Good

Sources:
Aerial Imagery (2021)
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



Coordinate System: British National Grid

0 125 250 500 Metres

Scale: 1:10,000

A3 Page Size

Environmental Statement

Habitat Suitability for Reptiles

Figure 21.8.1.9

OUTER DOWSING OFFSHORE WIND

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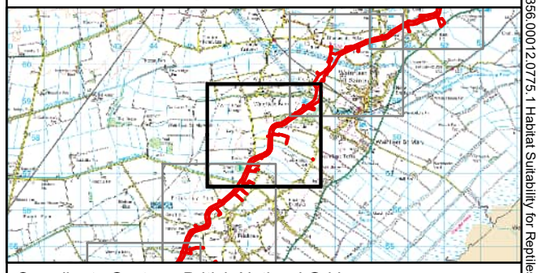
Legend

- Order Limits
- Onshore Segment Break
- Order Limits 100 m Buffer

Habitat Suitability for Reptiles

- Exceptional
- Good

Sources:
Aerial Imagery (2021)
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



Coordinate System: British National Grid

0 125 250 500 Metres

Scale: 1:10,000

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Environmental Statement

Habitat Suitability for Reptiles

Figure 21.8.1.10

OUTER DOWSING OFFSHORE WIND

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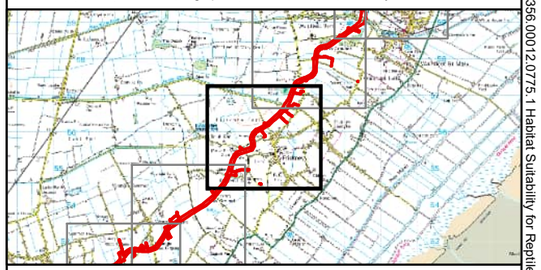
Legend

- Order Limits
- Onshore Segment Break
- Order Limits 100 m Buffer

Habitat Suitability for Reptiles

- Exceptional
- Good

Sources:
Aerial Imagery (2021)
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



Coordinate System: British National Grid

0 125 250 500 Metres

Scale: 1:10,000

A3 Page Size

Environmental Statement

Habitat Suitability for Reptiles

Figure 21.8.1.11

OUTER DOWSING OFFSHORE WIND

Date: 05/03/2024
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SLR

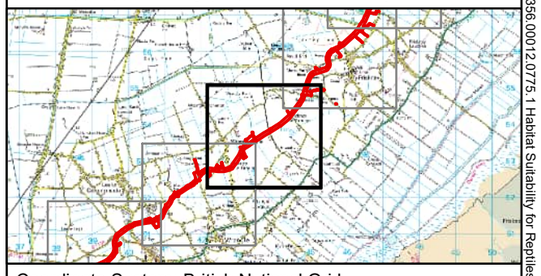
Legend

- Order Limits
- Onshore Segment Break
- Order Limits 100 m Buffer

Habitat Suitability for Reptiles

- Poor

Sources:
Aerial Imagery (2021)
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



Coordinate System: British National Grid

0 125 250 500 Metres

Scale: 1:10,000

A3 Page Size

Environmental Statement

Habitat Suitability for Reptiles

Figure 21.8.1.12

OUTER DOWSING OFFSHORE WIND

Date: 05/03/2024
Produced By: JCS
Revision: 0.1

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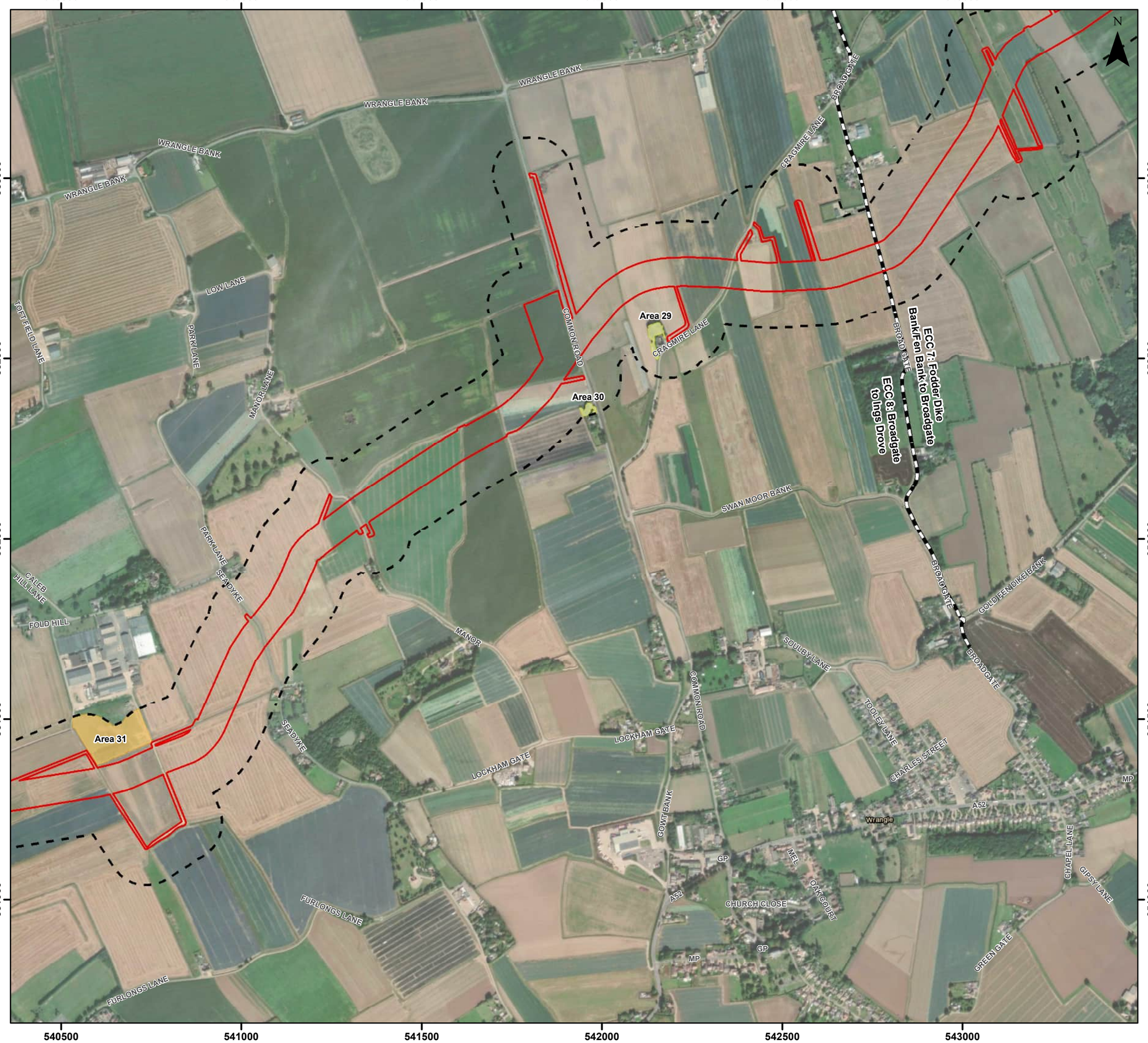


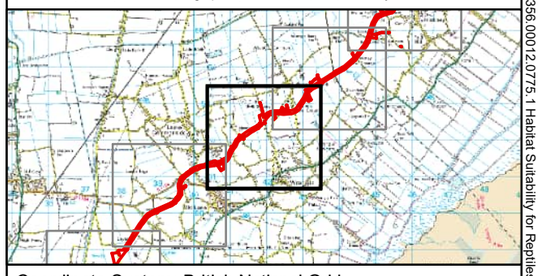
Legend

- Order Limits
- Onshore Segment Break
- Order Limits 100 m Buffer

Habitat Suitability for Reptiles

- Good
- Poor

Sources:
Aerial Imagery (2021)
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



Coordinate System: British National Grid

0 125 250 500 Metres

Scale: 1:10,000

A3 Page Size

Environmental Statement

Habitat Suitability for Reptiles

Figure 21.8.1.13

OUTER DOWSING OFFSHORE WIND

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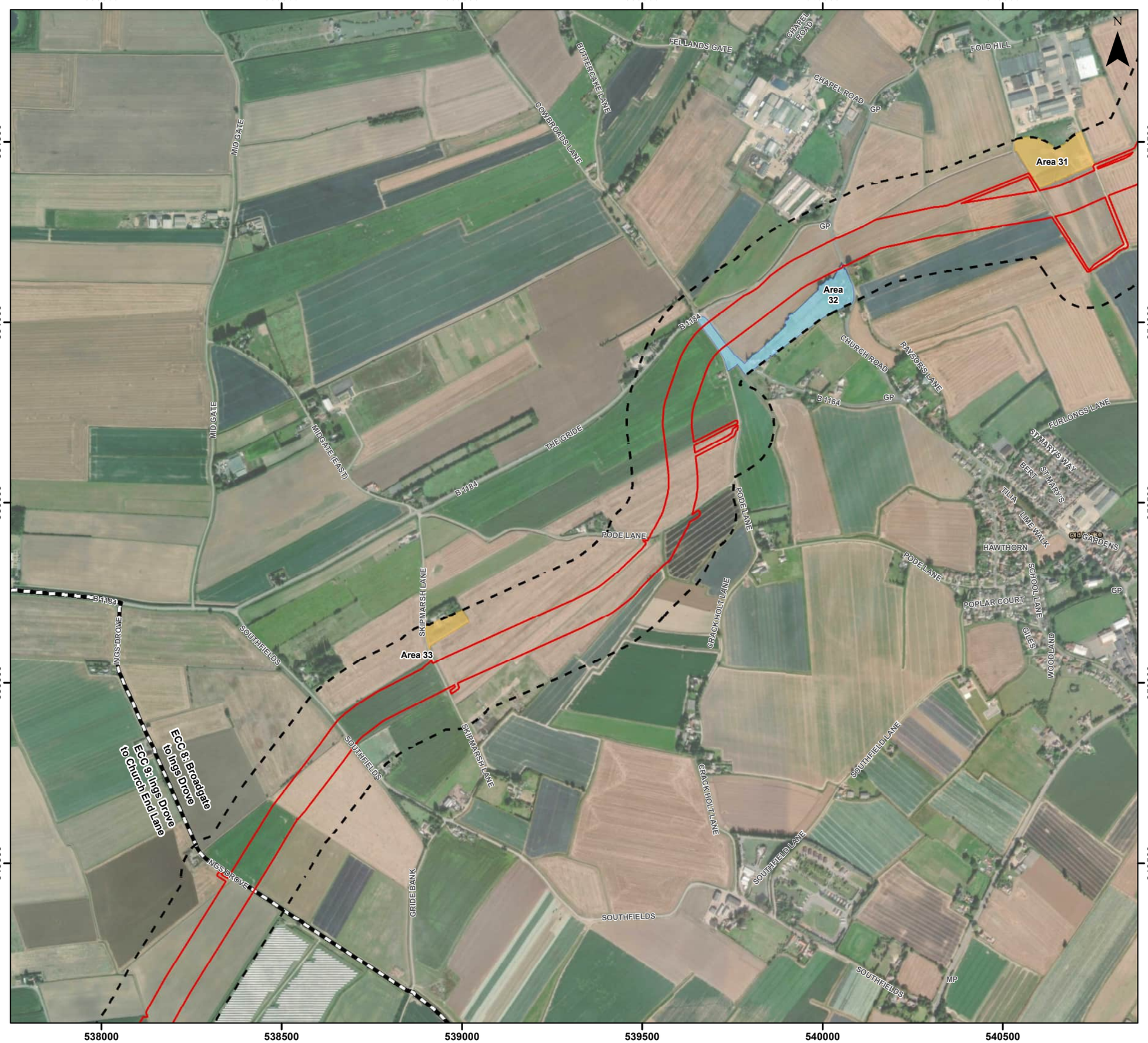


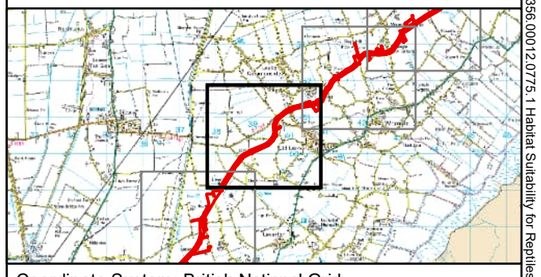
Legend

- Order Limits
- Onshore Segment Break
- Order Limits 100 m Buffer

Habitat Suitability for Reptiles

- Exceptional
- Good

Sources:
Aerial Imagery (2021)
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



Coordinate System: British National Grid

0 125 250 500 Metres

Scale: 1:10,000

A3 Page Size

Environmental Statement

Habitat Suitability for Reptiles

Figure 21.8.1.14

OUTER DOWSING OFFSHORE WIND

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536000 536500 537000 537500 538000 538500 539000

349000 348500 348000 347500 347000

N

ECC 8: Broadgate to Ings Drove

ECC 9: Ings Drove to Church End Lane

HOBHOLE BANK

INGS ROAD

INGS DROVE

INGS BANK

GRIDLE BANK

MIDDLEMERE BANK

LOWFIELDS ROAD

DOUBLE BANK

LACEY'S LANE

WEST END ROAD

FENDYKE END LANE

BOSTON LONG HEDGES

LOWFIELDS LANE

GP

Area 34

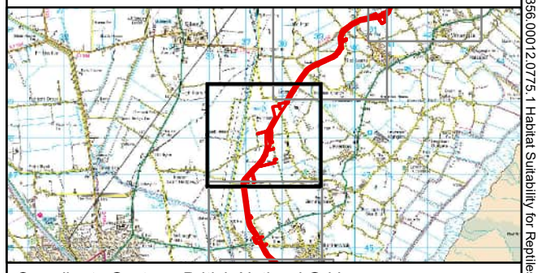
Legend

- Order Limits
- Onshore Segment Break
- Order Limits 100 m Buffer

Habitat Suitability for Reptiles

- Good

Sources:
Aerial Imagery (2021)
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



Coordinate System: British National Grid

0 125 250 500 Metres

Scale: 1:10,000

A3 Page Size

Environmental Statement

Habitat Suitability for Reptiles

Figure 21.8.1.15

OUTER DOWSING OFFSHORE WIND

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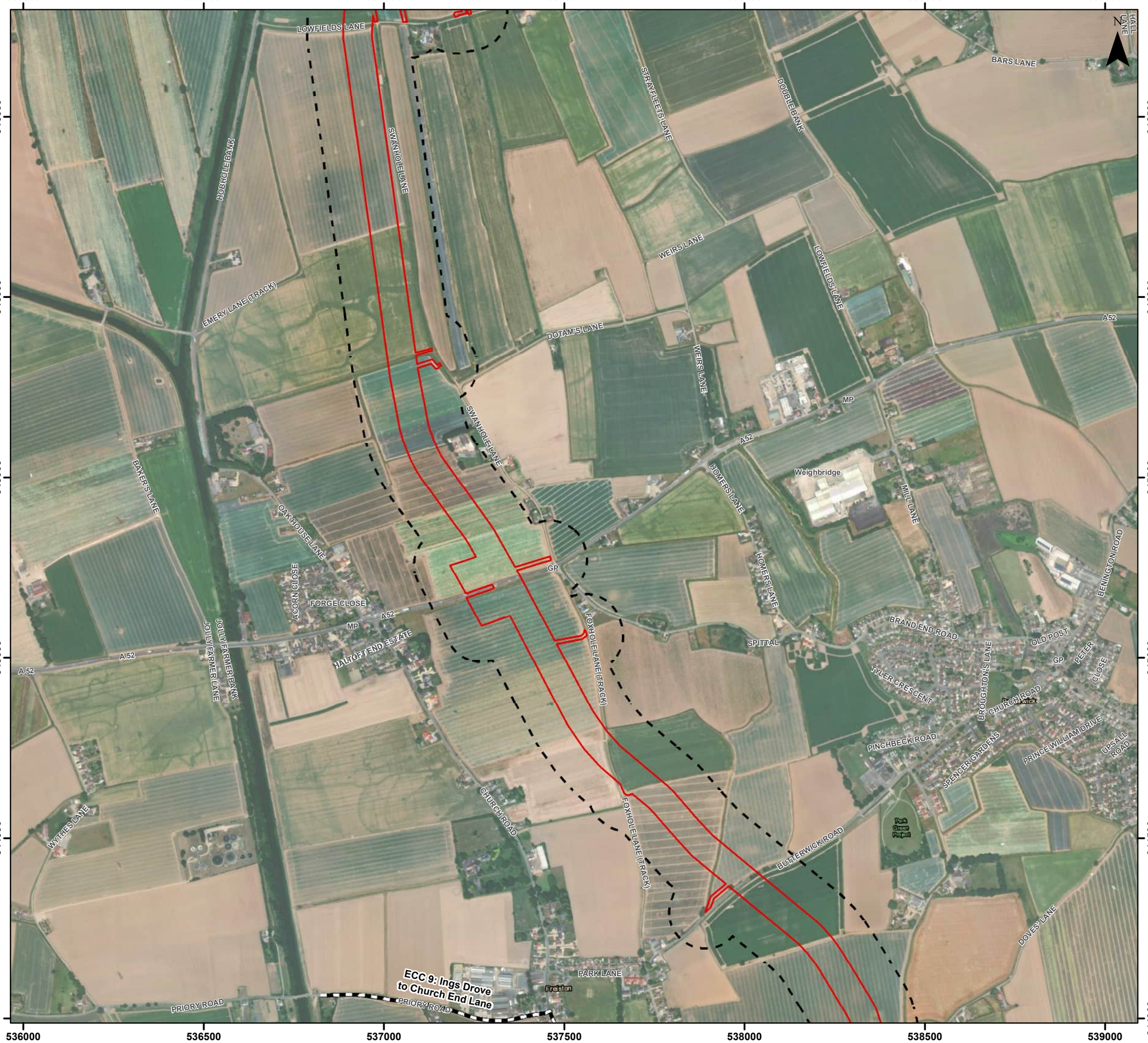

Legend

- Order Limits
- Onshore Segment Break
- Order Limits 100 m Buffer

Sources:
Aerial Imagery (2021)
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Coordinate System: British National Grid

0 125 250 500 Metres

Scale: 1:10,000

A3 Page Size

Environmental Statement

Habitat Suitability for Reptiles

Figure 21.8.1.16

OUTER DOWSING OFFSHORE WIND

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536500 537000 537500 538000 538500 539000

344500 344000 343500 343000 342500 342000

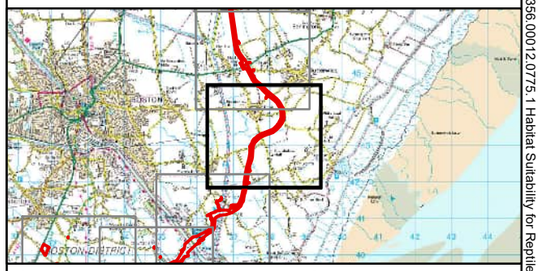
N

CHURCH ROAD
FOXHOLE LANE (TRACK)
BUTTERWICK ROAD
Park Green Project
DOVES' LANE
PARK LANE
Freiston
PRIORY ROAD
ROWAN FIELDS
BULL PASTURE
CHURCH VIEW
SHORE ROAD
GP
ECC 9: Ings Drove to Church End Lane
ECC 10: Church End Lane to The Haven
CHURCH END ROAD
JAIL LANE
WITHIES LANE
MILL LANE
Post
Posts
Tamworth Green
GROVEFIELD LANE
GROPPERS LANE
RECTORY CLOSE
ST GUTHLAC'S WAY
MANOR GRANGE
GAYSFIELD ROAD

Legend

- Order Limits
- Onshore Segment Break
- Order Limits 100 m Buffer

Sources:
Aerial Imagery (2021)
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



Coordinate System: British National Grid

0 125 250 500 Metres

Scale: 1:10,000

A3 Page Size

Environmental Statement

Habitat Suitability for Reptiles

Figure 21.8.1.17

OUTER DOWSING OFFSHORE WIND

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535000 535500 536000 536500 537000 537500

342000 341500 341000 340500 340000 339500

N

SCALP ROAD
PINFOLD LANE
CUT END ROAD
SOUTHFIELD LANE
WOAD LANE
ROOSDYKE LANE
GP
Post
Area 35
Area 36
Area 37
ECC10: Church End Lane to The Haven
ECC11: The Haven to Marsh Road
WYBERTON ROADS

Legend

- Order Limits
- Onshore Segment Break
- Order Limits 100 m Buffer

Habitat Suitability for Reptiles

- Exceptional

Sources:
Aerial Imagery (2021)
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Coordinate System: British National Grid

0 125 250 500 Metres

Scale: 1:10,000

A3 Page Size

Environmental Statement

Habitat Suitability for Reptiles

Figure 21.8.1.18

OUTER DOWSING OFFSHORE WIND

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533500 534000 534500 535000 535500 536000

340500 340000 339500 339000 338500 338000

ROWDYKE ROAD
WYBERTON ROADS
GP
WYBERTON ROAD
Area 37
GP
Area 37
Area 37
WILEY'S LANE (TRACK)
WYBERTON ROADS
SCALP ROAD
Area 36
ECC 11: The Haven to Marsh Road
Post
ECC 10: Church End Lane to The Haven
FRAMPTON ROADS
GP
FRAMPTON ROAD
FRAMPTON ROAD
SANDHOLME LANE
N

Legend

- Order Limits
- Onshore Segment Break
- Order Limits 100 m Buffer

Habitat Suitability for Reptiles

- Exceptional

Sources:
Aerial Imagery (2021)
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Coordinate System: British National Grid

0 125 250 500 Metres

Scale: 1:10,000

A3 Page Size

Environmental Statement

Habitat Suitability for Reptiles

Figure 21.8.1.19

OUTER DOWSING OFFSHORE WIND

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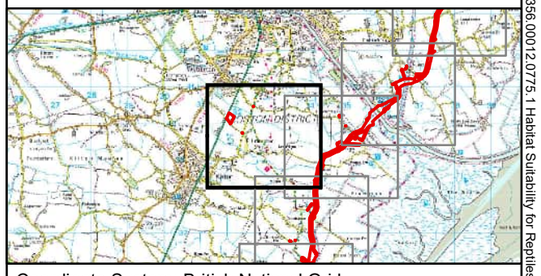
Legend

- Order Limits
- Order Limits 100 m Buffer

Sources:
Aerial Imagery (2021)
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



Coordinate System: British National Grid

0 125 250 500 Metres

Scale: 1:10,000

A3 Page Size

Environmental Statement

Habitat Suitability for Reptiles

Figure 21.8.1.20

OUTER DOWSING OFFSHORE WIND

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532500 533000 533500 534000 534500 535000 535500

338500 338000 337500 337000 336500 336000

N

BULL LANE (TRACK)
Area 38
GP
GP
SKELDYKE ROAD
SANDHOLME LANE
Sandholme
NIDD'S LANE
SKELDYKE ROAD
BURNHAM LANE
Skeldyke
GP
SANDHOLME LANE
BOOT LANE
ELEVEN ACRE LANE
ECC 12: Marsh Road to Fosdyke Bridge
NIDD'S LANE
SILT LANE
ECC 11: The Haven to Marsh Road
MARSH ROAD
BUCKLEGATE LANE
BUCKLEGATE LANE
MARSH ROAD
SANDHOLME LANE
WARSH ROAD
SEADYKE ROAD

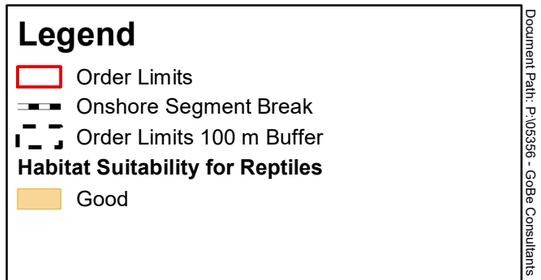
Legend

- Order Limits
- Onshore Segment Break
- Order Limits 100 m Buffer

Habitat Suitability for Reptiles

- Good

Sources:
Aerial Imagery (2021)
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



Coordinate System: British National Grid

0 125 250 500 Metres

Scale: 1:10,000

A3 Page Size

Environmental Statement

Habitat Suitability for Reptiles

Figure 21.8.1.21

OUTER DOWSING OFFSHORE WIND

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532500 533000 533500 534000 534500 535000

336500 336000 335500 335000 334500 334000

SILT LANE
MARSH ROAD
SEADYKE ROAD
BUCKLEGATE LANE
BUCKLEGATE LANE
MARSH ROAD
ECC 11: The Haven to Marsh Road
ECC 12: Marsh Road to Fosdyke Bridge
MARSH ROAD
SEADYKE ROAD
CLOUGH LANE
GP
LOW MILL LANE
WASH ROAD
HILTON'S LANE

N

Legend

- Order Limits
- Onshore Segment Break
- Order Limits 100 m Buffer

Sources:
Aerial Imagery (2021)
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Coordinate System: British National Grid

0 125 250 500 Metres

Scale: 1:10,000

A3 Page Size

Environmental Statement

Habitat Suitability for Reptiles

Figure 21.8.1.22

OUTER DOWSING OFFSHORE WIND

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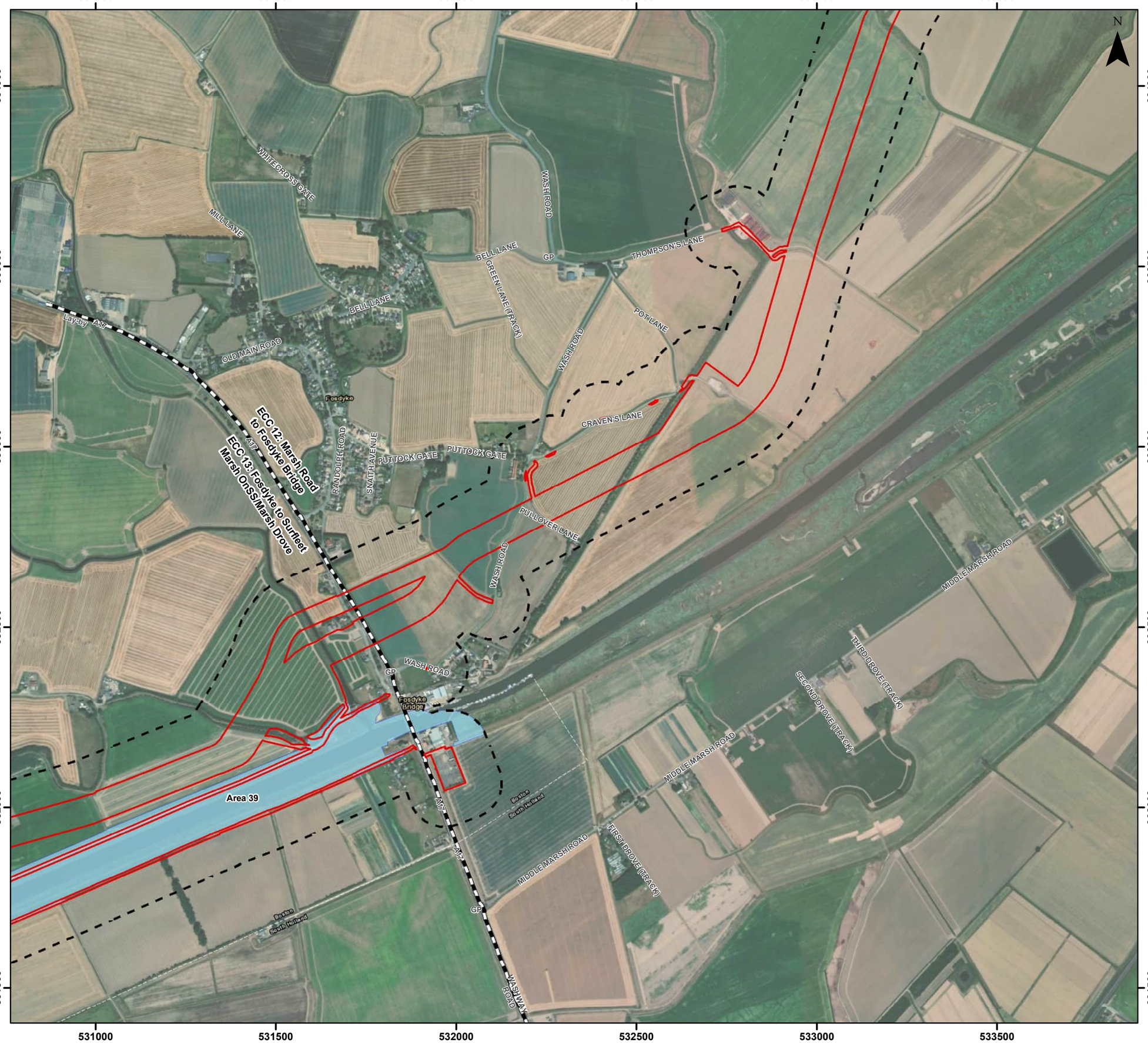


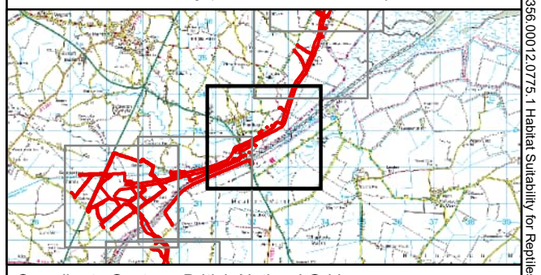
Legend

- Order Limits
- Onshore Segment Break
- Order Limits 100 m Buffer

Habitat Suitability for Reptiles

- Exceptional

Sources:
Aerial Imagery (2021)
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



Coordinate System: British National Grid

0 125 250 500 Metres

Scale: 1:10,000

A3 Page Size

Environmental Statement

Habitat Suitability for Reptiles

Figure 21.8.1.23

OUTER DOWSING OFFSHORE WIND

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529000 529500 530000 530500 531000 531500

332500 332000 331500 331000 330500 330000

N

SMEETON'S LANE
MARSH LANE
SMEETON'S LANE
MARSH LANE
WASH ROAD
GP
Fosdyke Bridge
A17
Area 40
Area 39
Area 39
Area 39
ECC 12: Marsh Road to Fosdyke Bridge
ECC 13: Fosdyke to Surfleet Marsh OnSS/Marsh Drove
ECC 13: Fosdyke to Surfleet Marsh OnSS/Marsh Drove
ECC 14: Surfleet Marsh OnSS / Marsh Drove to Connection Area
Boston
South Holland
Weighbridge
WB
MARSH ROAD
CARRINGTON ROAD

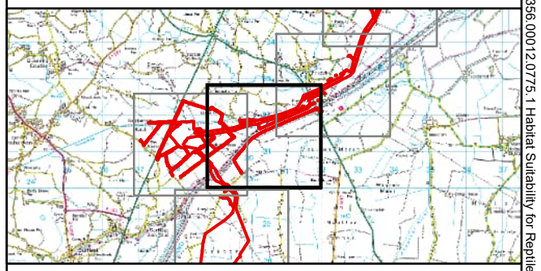
Legend

- Order Limits
- Onshore Segment Break
- Order Limits 100 m Buffer

Habitat Suitability for Reptiles

- Exceptional
- Poor

Sources:
Aerial Imagery (2021)
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



Coordinate System: British National Grid

0 125 250 500 Metres

Scale: 1:10,000

A3 Page Size

Environmental Statement

Habitat Suitability for Reptiles

Figure 21.8.1.24

OUTER DOWSING OFFSHORE WIND

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527000 527500 528000 528500 529000 529500

332500 332000 331500 331000 330500 330000

N

MARSH LANE

Area 40

A16

Boston

MARSH LANE

Boston

South Holland

Boston

South Holland

GOSBERTON ROAD

GOSBERTON BANK

A16

Area 42

Surfleet Marsh

Area 39

MARSH DROVE

ECC 14: Surfleet Marsh OnSS / Marsh Drove to Connection Area

SURFLEET BANK

Weighbridge

Area 41

Area 41

GP

Area 39

Weighbridge

WB

MARSH ROAD

SURFLEET BANK

CONEY GARTH LANE

CONEY GARTH LANE

NEWLANDS ROAD

ECC 13: Fosdyke to Surfleet Marsh OnSS/Marsh Drove

A16

A16

Area 43

527000 527500 528000 528500 529000 529500

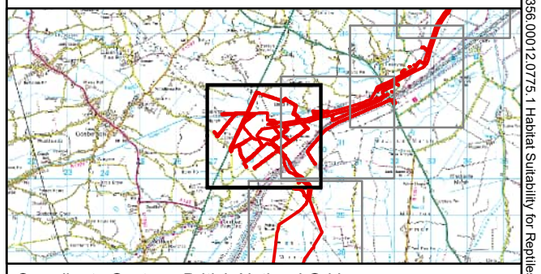
Legend

- Order Limits
- Onshore Segment Break
- Onshore Substation (OnSS) Footprint
- Order Limits 100 m Buffer

Habitat Suitability for Reptiles

- Exceptional
- Good
- Poor

Sources:
Aerial Imagery (2021)
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



Coordinate System: British National Grid

0 125 250 500 Metres

Scale: 1:10,000

A3 Page Size

Environmental Statement

Habitat Suitability for Reptiles

Figure 21.8.1.25

OUTER DOWSING OFFSHORE WIND

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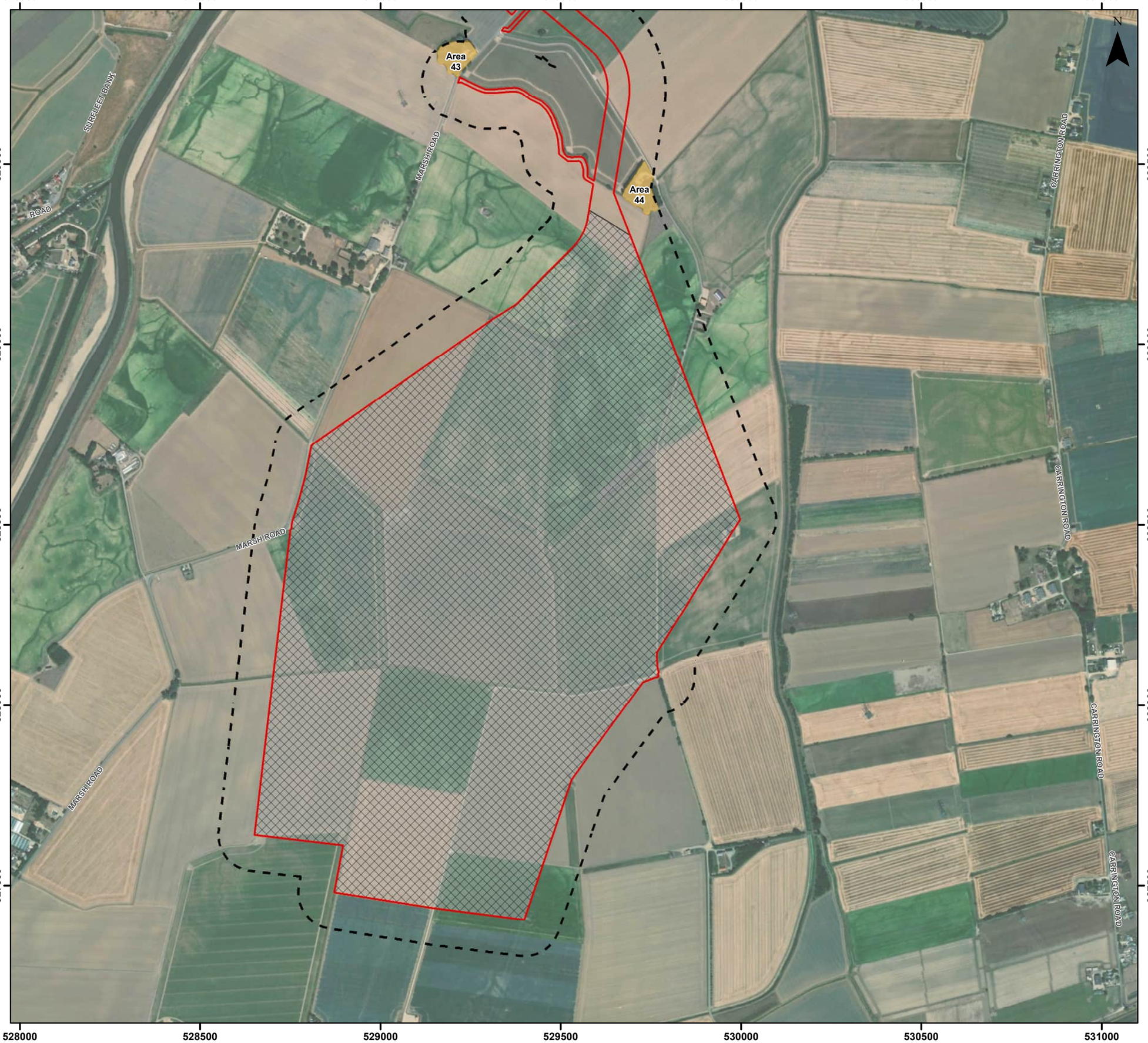


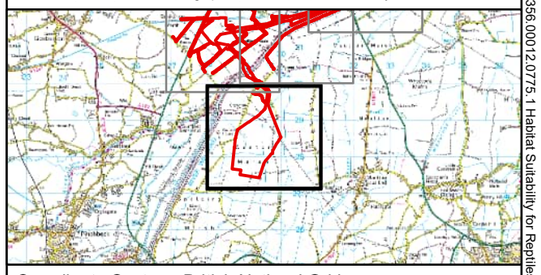
Legend

- Order Limits
- Connection Area
- Order Limits 100 m Buffer

Habitat Suitability for Reptiles

- Good

Sources:
Aerial Imagery (2021)
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



Coordinate System: British National Grid

0 125 250 500 Metres

Scale: 1:10,000

A3 Page Size

Environmental Statement

Habitat Suitability for Reptiles

Figure 21.8.1.26

OUTER DOWSING OFFSHORE WIND

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Annex A Habitat Suitability Index Assessment Tables

Outer Dowsing Offshore Wind Environmental Statement

Volume 3, Appendix 21.8: Reptile Habitat Suitability Study

GoBe Consultants Ltd

SLR Project No.: 410.V05356.00013

1 March 2024

Below are the habitat suitability assessments for reptiles per Habitat Area. Volume 2, Figure 21.6 provides the locations of each of the Habitat Areas.

Habitat Area 1		
Indices	**Evaluation**	**Score**
SI_1 Size of area	Exceptional	1.00
SI_2 Vegetation structure	Exceptional	1.00
SI_3 Sun exposure on the site	Exceptional	1.00
SI_4 Aspect	Exceptional	1.00
SI_5 Topography	Exceptional	1.00
SI_6 Surface substrate	Exceptional	1.00
SI_7 Disturbance	Good	0.60
SI_8 Connectivity to further habitat mosaics of potentially suitable habitat within 250m	Good	0.60
SI_9 Prey abundance	Exceptional	1.00
SI_{10} Hibernation habitat potential	Exceptional	1.00
SI_{11} Refuge opportunities	Exceptional	1.00
	Total Score	**0.91**
	Overall Evaluation	**Exceptional**

Habitat Area 2		
Indices	**Evaluation**	**Score**
SI_1 Size of area	Good	0.60
SI_2 Vegetation structure	Good	0.60
SI_3 Sun exposure on the site	Good	0.60

Habitat Area 2		
SI_4 Aspect	Exceptional	1.00
SI_5 Topography	Exceptional	1.00
SI_6 Surface substrate	Exceptional	1.00
SI_7 Disturbance	Poor	0.20
SI_8 Connectivity to further habitat mosaics of potentially suitable habitat within 250m	Poor	0.20
SI_9 Prey abundance	Exceptional	1.00
SI_{10} Hibernation habitat potential	Good	0.60
SI_{11} Refuge opportunities	Good	0.60
	Total Score	**0.59**
	Overall Evaluation	**Poor**

Habitat Area 3		
Indices	**Evaluation**	**Score**
SI_1 Size of area	Poor	0.60
SI_2 Vegetation structure	Good	0.60
SI_3 Sun exposure on the site	Good	1.00
SI_4 Aspect	Good	0.60
SI_5 Topography	Exceptional	1.00
SI_6 Surface substrate	Exceptional	1.00
SI_7 Disturbance	Poor	0.20
SI_8 Connectivity to further habitat mosaics of potentially suitable habitat within 250m	Poor	0.20
SI_9 Prey abundance	Exceptional	0.20

Habitat Area 3		
SI_{10} Hibernation habitat potential	Exceptional	1.00
SI_{11} Refuge opportunities	Good	1.00
	Total Score	**0.56**
	Overall Evaluation	**Poor**

Habitat Area 4		
Indices	**Evaluation**	**Score**
SI_1 Size of area	Good	1.00
SI_2 Vegetation structure	Exceptional	1.00
SI_3 Sun exposure on the site	Exceptional	1.00
SI_4 Aspect	Exceptional	0.60
SI_5 Topography	Exceptional	1.00
SI_6 Surface substrate	Exceptional	1.00
SI_7 Disturbance	Poor	0.20
SI_8 Connectivity to further habitat mosaics of potentially suitable habitat within 250m	Exceptional	0.60
SI_9 Prey abundance	Exceptional	1.00
SI_{10} Hibernation habitat potential	Good	1.00
SI_{11} Refuge opportunities	Exceptional	1.00
	Total Score	**0.79**
	Overall Evaluation	**Good**

Habitat Area 5		
Indices	**Evaluation**	**Score**
SI_1 Size of area	Exceptional	0.20
SI_2 Vegetation structure	Good	1.00
SI_3 Sun exposure on the site	Exceptional	1.00
SI_4 Aspect	Exceptional	1.00
SI_5 Topography	Exceptional	1.00
SI_6 Surface substrate	Exceptional	1.00
SI_7 Disturbance	Poor	0.20
SI_8 Connectivity to further habitat mosaics of potentially suitable habitat within 250m	Poor	0.60
SI_9 Prey abundance	Exceptional	1.00
SI_{10} Hibernation habitat potential	Exceptional	1.00
SI_{11} Refuge opportunities	Exceptional	1.00
	Total Score	**0.71**
	Overall Evaluation	**Good**

Habitat Area 6		
Indices	**Evaluation**	**Score**
SI_1 Size of area	Good	0.60
SI_2 Vegetation structure	Exceptional	0.60
SI_3 Sun exposure on the site	Exceptional	1.00
SI_4 Aspect	Exceptional	1.00
SI_5 Topography	Exceptional	1.00

Habitat Area 6		
SI_6 Surface substrate	Exceptional	1.00
SI_7 Disturbance	Poor	0.20
SI_8 Connectivity to further habitat mosaics of potentially suitable habitat within 250m	Exceptional	0.60
SI_9 Prey abundance	Exceptional	1.00
SI_{10} Hibernation habitat potential	Good	1.00
SI_{11} Refuge opportunities	Exceptional	1.00
	Total Score	**0.75**
	Overall Evaluation	**Good**

Habitat Area 7		
Indices	**Evaluation**	**Score**
SI_1 Size of area	Exceptional	0.60
SI_2 Vegetation structure	Exceptional	0.60
SI_3 Sun exposure on the site	Exceptional	1.00
SI_4 Aspect	Exceptional	0.60
SI_5 Topography	Exceptional	1.00
SI_6 Surface substrate	Exceptional	1.00
SI_7 Disturbance	Poor	0.20
SI_8 Connectivity to further habitat mosaics of potentially suitable habitat within 250m	Exceptional	0.20
SI_9 Prey abundance	Exceptional	1.00
SI_{10} Hibernation habitat potential	Good	1.00
SI_{11} Refuge opportunities	Exceptional	1.00

Habitat Area 7	
Total Score	**0.65**
Overall Evaluation	**Good**

Habitat Area 8		
Indices	**Evaluation**	**Score**
SI_1 Size of area	Exceptional	0.60
SI_2 Vegetation structure	Good	1.00
SI_3 Sun exposure on the site	Exceptional	1.00
SI_4 Aspect	Exceptional	1.00
SI_5 Topography	Poor	1.00
SI_6 Surface substrate	Exceptional	1.00
SI_7 Disturbance	Poor	0.20
SI_8 Connectivity to further habitat mosaics of potentially suitable habitat within 250m	Poor	0.20
SI_9 Prey abundance	Exceptional	1.00
SI_{10} Hibernation habitat potential	Good	1.00
SI_{11} Refuge opportunities	Exceptional	1.00
Total Score		**0.71**
Overall Evaluation		**Good**

Habitat Area 9		
Indices	**Evaluation**	**Score**
SI_1 Size of area	Poor	0.60

Habitat Area 9		
SI_2 Vegetation structure	Good	1.00
SI_3 Sun exposure on the site	Exceptional	1.00
SI_4 Aspect	Good	1.00
SI_5 Topography	Exceptional	1.00
SI_6 Surface substrate	Exceptional	1.00
SI_7 Disturbance	Poor	0.20
SI_8 Connectivity to further habitat mosaics of potentially suitable habitat within 250m	Poor	0.20
SI_9 Prey abundance	Exceptional	1.00
SI_{10} Hibernation habitat potential	Exceptional	1.00
SI_{11} Refuge opportunities	Exceptional	1.00
	Total Score	**0.71**
	Overall Evaluation	**Good**

Habitat Area 10		
Indices	**Evaluation**	**Score**
SI_1 Size of area	Good	0.20
SI_2 Vegetation structure	Good	0.60
SI_3 Sun exposure on the site	Exceptional	1.00
SI_4 Aspect	Good	0.20
SI_5 Topography	Exceptional	1.00
SI_6 Surface substrate	Exceptional	1.00
SI_7 Disturbance	Poor	0.20

Habitat Area 10		
SI_8 Connectivity to further habitat mosaics of potentially suitable habitat within 250m	Poor	0.20
SI_9 Prey abundance	Exceptional	1.00
SI_{10} Hibernation habitat potential	Good	1.00
SI_{11} Refuge opportunities	Exceptional	1.00
	Total Score	**0.53**
	Overall Evaluation	**Poor**

Habitat Area 11		
Indices	**Evaluation**	**Score**
SI_1 Size of area	Exceptional	0.20
SI_2 Vegetation structure	Good	0.20
SI_3 Sun exposure on the site	Good	1.00
SI_4 Aspect	Good	1.00
SI_5 Topography	Exceptional	1.00
SI_6 Surface substrate	Exceptional	1.00
SI_7 Disturbance	Poor	0.20
SI_8 Connectivity to further habitat mosaics of potentially suitable habitat within 250m	Poor	0.20
SI_9 Prey abundance	Exceptional	1.00
SI_{10} Hibernation habitat potential	Good	0.20
SI_{11} Refuge opportunities	Exceptional	1.00
	Total Score	**0.48**
	Overall Evaluation	**Poor**

Habitat Area 12		
Indices	**Evaluation**	**Score**
SI_1 Size of area	Poor	1.00
SI_2 Vegetation structure	Good	0.60
SI_3 Sun exposure on the site	Exceptional	1.00
SI_4 Aspect	Exceptional	1.00
SI_5 Topography	Exceptional	1.00
SI_6 Surface substrate	Exceptional	1.00
SI_7 Disturbance	Good	0.20
SI_8 Connectivity to further habitat mosaics of potentially suitable habitat within 250m	Poor	0.60
SI_9 Prey abundance	Exceptional	1.00
SI_{10} Hibernation habitat potential	Good	0.60
SI_{11} Refuge opportunities	Exceptional	1.00
	Total Score	**0.75**
	Overall Evaluation	**Good**

Habitat Area 13		
Indices	**Evaluation**	**Score**
SI_1 Size of area	Good	1.00
SI_2 Vegetation structure	Exceptional	0.60
SI_3 Sun exposure on the site	Exceptional	1.00

Habitat Area 13		
SI_4 Aspect	Exceptional	0.60
SI_5 Topography	Exceptional	1.00
SI_6 Surface substrate	Exceptional	1.00
SI_7 Disturbance	Poor	0.20
SI_8 Connectivity to further habitat mosaics of potentially suitable habitat within 250m	Good	0.20
SI_9 Prey abundance	Exceptional	1.00
SI_{10} Hibernation habitat potential	Exceptional	0.60
SI_{11} Refuge opportunities	Exceptional	1.00
	Total Score	**0.65**
	Overall Evaluation	**Good**

Habitat Area 14		
Indices	**Evaluation**	**Score**
SI_1 Size of area	Exceptional	0.20
SI_2 Vegetation structure	Exceptional	0.60
SI_3 Sun exposure on the site	Exceptional	1.00
SI_4 Aspect	Exceptional	1.00
SI_5 Topography	Exceptional	1.00
SI_6 Surface substrate	Exceptional	1.00
SI_7 Disturbance	Good	0.60
SI_8 Connectivity to further habitat mosaics of potentially suitable habitat within 250m	Good	0.20

Habitat Area 14		
SI_9 Prey abundance	Exceptional	1.00
SI_{10} Hibernation habitat potential	Exceptional	0.60
SI_{11} Refuge opportunities	Exceptional	1.00
	Total Score	**0.65**
	Overall Evaluation	**Good**

Habitat Area 15		
Indices	**Evaluation**	**Score**
SI_1 Size of area	Good	0.60
SI_2 Vegetation structure	Exceptional	1.00
SI_3 Sun exposure on the site	Good	1.00
SI_4 Aspect	Exceptional	1.00
SI_5 Topography	Exceptional	1.00
SI_6 Surface substrate	Exceptional	1.00
SI_7 Disturbance	Poor	0.20
SI_8 Connectivity to further habitat mosaics of potentially suitable habitat within 250m	Poor	0.60
SI_9 Prey abundance	Exceptional	1.00
SI_{10} Hibernation habitat potential	Exceptional	1.00
SI_{11} Refuge opportunities	Exceptional	1.00
	Total Score	**0.79**
	Overall Evaluation	**Good**

Habitat Area 16		
Indices	**Evaluation**	**Score**
SI_1 Size of area	Exceptional	1.00
SI_2 Vegetation structure	Good	1.00
SI_3 Sun exposure on the site	Good	1.00
SI_4 Aspect	Exceptional	1.00
SI_5 Topography	Exceptional	1.00
SI_6 Surface substrate	Exceptional	1.00
SI_7 Disturbance	Poor	0.60
SI_8 Connectivity to further habitat mosaics of potentially suitable habitat within 250m	Good	0.60
SI_9 Prey abundance	Exceptional	1.00
SI_{10} Hibernation habitat potential	Poor	1.00
SI_{11} Refuge opportunities	Exceptional	1.00
	Total Score	**0.91**
	Overall Evaluation	**Exceptional**

Habitat Area 17		
Indices	**Evaluation**	**Score**
SI_1 Size of area	Good	0.60
SI_2 Vegetation structure	Exceptional	0.60
SI_3 Sun exposure on the site	Exceptional	1.00
SI_4 Aspect	Good	1.00
SI_5 Topography	Exceptional	1.00

Habitat Area 17		
SI_6 Surface substrate	Exceptional	1.00
SI_7 Disturbance	Poor	0.20
SI_8 Connectivity to further habitat mosaics of potentially suitable habitat within 250m	Exceptional	0.60
SI_9 Prey abundance	Exceptional	1.00
SI_{10} Hibernation habitat potential	Exceptional	1.00
SI_{11} Refuge opportunities	Exceptional	1.00
	Total Score	**0.75**
	Overall Evaluation	**Good**

Habitat Area 18		
Indices	**Evaluation**	**Score**
SI_1 Size of area	Good	0.60
SI_2 Vegetation structure	Good	1.00
SI_3 Sun exposure on the site	Exceptional	1.00
SI_4 Aspect	Exceptional	1.00
SI_5 Topography	Exceptional	1.00
SI_6 Surface substrate	Exceptional	1.00
SI_7 Disturbance	Poor	0.20
SI_8 Connectivity to further habitat mosaics of potentially suitable habitat within 250m	Good	0.20
SI_9 Prey abundance	Exceptional	1.00
SI_{10} Hibernation habitat potential	Exceptional	1.00

Habitat Area 18		
SI_{11} Refuge opportunities	Exceptional	1.00
	Total Score	**0.71**
	Overall Evaluation	**Good**

Habitat Area 19		
Indices	**Evaluation**	**Score**
SI_1 Size of area	Good	0.60
SI_2 Vegetation structure	Exceptional	0.60
SI_3 Sun exposure on the site	Exceptional	1.00
SI_4 Aspect	Exceptional	0.60
SI_5 Topography	Exceptional	1.00
SI_6 Surface substrate	Exceptional	1.00
SI_7 Disturbance	Exceptional	0.20
SI_8 Connectivity to further habitat mosaics of potentially suitable habitat within 250m	Good	0.60
SI_9 Prey abundance	Exceptional	1.00
SI_{10} Hibernation habitat potential	Exceptional	0.20
SI_{11} Refuge opportunities	Exceptional	1.00
	Total Score	**0.62**
	Overall Evaluation	**Good**

Habitat Area 20		
Indices	**Evaluation**	**Score**

Habitat Area 20		
SI_1 Size of area	Good	0.60
SI_2 Vegetation structure	Exceptional	1.00
SI_3 Sun exposure on the site	Exceptional	1.00
SI_4 Aspect	Exceptional	0.60
SI_5 Topography	Exceptional	1.00
SI_6 Surface substrate	Exceptional	1.00
SI_7 Disturbance	Exceptional	0.20
SI_8 Connectivity to further habitat mosaics of potentially suitable habitat within 250m	Good	0.60
SI_9 Prey abundance	Exceptional	1.00
SI_{10} Hibernation habitat potential	Exceptional	1.00
SI_{11} Refuge opportunities	Exceptional	1.00
	Total Score	**0.75**
	Overall Evaluation	**Good**

Habitat Area 21		
Indices	**Evaluation**	**Score**
SI_1 Size of area	Good	0.60
SI_2 Vegetation structure	Exceptional	0.60
SI_3 Sun exposure on the site	Exceptional	1.00
SI_4 Aspect	Exceptional	0.20
SI_5 Topography	Exceptional	1.00
SI_6 Surface substrate	Exceptional	1.00

Habitat Area 21		
SI_7 Disturbance	Good	0.60
SI_8 Connectivity to further habitat mosaics of potentially suitable habitat within 250m	Good	0.20
SI_9 Prey abundance	Exceptional	1.00
SI_{10} Hibernation habitat potential	Exceptional	1.00
SI_{11} Refuge opportunities	Exceptional	1.00
	Total Score	**0.65**
	Overall Evaluation	**Good**

Habitat Area 22		
Indices	**Evaluation**	**Score**
SI_1 Size of area	Good	0.60
SI_2 Vegetation structure	Exceptional	1.00
SI_3 Sun exposure on the site	Exceptional	1.00
SI_4 Aspect	Exceptional	1.00
SI_5 Topography	Exceptional	1.00
SI_6 Surface substrate	Exceptional	1.00
SI_7 Disturbance	Exceptional	1.00
SI_8 Connectivity to further habitat mosaics of potentially suitable habitat within 250m	Poor	0.60
SI_9 Prey abundance	Exceptional	1.00
SI_{10} Hibernation habitat potential	Exceptional	1.00
SI_{11} Refuge opportunities	Exceptional	1.00
	Total Score	**0.91**

Habitat Area 22	
Overall Evaluation	**Exceptional**

Habitat Area 23		
Indices	**Evaluation**	**Score**
SI_1 Size of area	Poor	0.60
SI_2 Vegetation structure	Good	1.00
SI_3 Sun exposure on the site	Exceptional	1.00
SI_4 Aspect	Good	1.00
SI_5 Topography	Exceptional	1.00
SI_6 Surface substrate	Exceptional	1.00
SI_7 Disturbance	Good	1.00
SI_8 Connectivity to further habitat mosaics of potentially suitable habitat within 250m	Poor	0.60
SI_9 Prey abundance	Exceptional	1.00
SI_{10} Hibernation habitat potential	Exceptional	1.00
SI_{11} Refuge opportunities	Exceptional	1.00
	Total Score	**0.91**
	Overall Evaluation	**Exceptional**

Habitat Area 24		
Indices	**Evaluation**	**Score**
SI_1 Size of area	Good	0.60
SI_2 Vegetation structure	Good	1.00

Habitat Area 24		
SI_3 Sun exposure on the site	Exceptional	1.00
SI_4 Aspect	Good	0.60
SI_5 Topography	Exceptional	1.00
SI_6 Surface substrate	Exceptional	1.00
SI_7 Disturbance	Good	0.20
SI_8 Connectivity to further habitat mosaics of potentially suitable habitat within 250m	Poor	0.60
SI_9 Prey abundance	Exceptional	0.20
SI_{10} Hibernation habitat potential	Exceptional	0.60
SI_{11} Refuge opportunities	Exceptional	1.00
	Total Score	**0.62**
	Overall Evaluation	**Good**

Habitat Area 25		
Indices	**Evaluation**	**Score**
SI_1 Size of area	Good	0.20
SI_2 Vegetation structure	Good	1.00
SI_3 Sun exposure on the site	Exceptional	1.00
SI_4 Aspect	Exceptional	1.00
SI_5 Topography	Exceptional	1.00
SI_6 Surface substrate	Exceptional	1.00
SI_7 Disturbance	Poor	0.60
SI_8 Connectivity to further habitat mosaics of potentially suitable habitat within 250m	Poor	0.60

Habitat Area 25		
SI_9 Prey abundance	Exceptional	1.00
SI_{10} Hibernation habitat potential	Good	1.00
SI_{11} Refuge opportunities	Exceptional	1.00
	Total Score	**0.79**
	Overall Evaluation	**Good**

Habitat Area 26		
Indices	**Evaluation**	**Score**
SI_1 Size of area	Poor	0.60
SI_2 Vegetation structure	Good	1.00
SI_3 Sun exposure on the site	Exceptional	1.00
SI_4 Aspect	Good	1.00
SI_5 Topography	Exceptional	1.00
SI_6 Surface substrate	Exceptional	1.00
SI_7 Disturbance	Poor	1.00
SI_8 Connectivity to further habitat mosaics of potentially suitable habitat within 250m	Poor	0.20
SI_9 Prey abundance	Exceptional	1.00
SI_{10} Hibernation habitat potential	Exceptional	1.00
SI_{11} Refuge opportunities	Exceptional	1.00
	Total Score	**0.82**
	Overall Evaluation	**Exceptional**

Habitat Area 27		
Indices	**Evaluation**	**Score**
SI_1 Size of area	Good	0.60
SI_2 Vegetation structure	Good	0.60
SI_3 Sun exposure on the site	Exceptional	1.00
SI_4 Aspect	Good	0.60
SI_5 Topography	Exceptional	1.00
SI_6 Surface substrate	Exceptional	1.00
SI_7 Disturbance	Good	0.60
SI_8 Connectivity to further habitat mosaics of potentially suitable habitat within 250m	Poor	0.20
SI_9 Prey abundance	Exceptional	1.00
SI_{10} Hibernation habitat potential	Exceptional	1.00
SI_{11} Refuge opportunities	Exceptional	1.00
	Total Score	**0.72**
	Overall Evaluation	**Good**

Habitat Area 28		
Indices	**Evaluation**	**Score**
SI_1 Size of area	Good	0.60
SI_2 Vegetation structure	Good	0.60
SI_3 Sun exposure on the site	Exceptional	1.00
SI_4 Aspect	Exceptional	1.00
SI_5 Topography	Exceptional	1.00

Habitat Area 28		
SI_6 Surface substrate	Exceptional	1.00
SI_7 Disturbance	Good	0.60
SI_8 Connectivity to further habitat mosaics of potentially suitable habitat within 250m	Poor	0.20
SI_9 Prey abundance	Exceptional	1.00
SI_{10} Hibernation habitat potential	Exceptional	1.00
SI_{11} Refuge opportunities	Exceptional	1.00
	Total Score	**0.75**
	Overall Evaluation	**Good**

Habitat Area 29		
Indices	**Evaluation**	**Score**
SI_1 Size of area	Poor	0.20
SI_2 Vegetation structure	Good	0.60
SI_3 Sun exposure on the site	Exceptional	1.00
SI_4 Aspect	Good	0.60
SI_5 Topography	Exceptional	1.00
SI_6 Surface substrate	Exceptional	1.00
SI_7 Disturbance	Poor	0.20
SI_8 Connectivity to further habitat mosaics of potentially suitable habitat within 250m	Poor	0.20
SI_9 Prey abundance	Exceptional	1.00
SI_{10} Hibernation habitat potential	Exceptional	1.00

Habitat Area 29		
SI_{11} Refuge opportunities	Exceptional	1.00
	Total Score	**0.59**
	Overall Evaluation	**Poor**

Habitat Area 30		
Indices	**Evaluation**	**Score**
SI_1 Size of area	Poor	0.20
SI_2 Vegetation structure	Good	0.60
SI_3 Sun exposure on the site	Exceptional	1.00
SI_4 Aspect	Good	0.60
SI_5 Topography	Exceptional	1.00
SI_6 Surface substrate	Exceptional	1.00
SI_7 Disturbance	Poor	0.20
SI_8 Connectivity to further habitat mosaics of potentially suitable habitat within 250m	Poor	0.20
SI_9 Prey abundance	Exceptional	1.00
SI_{10} Hibernation habitat potential	Exceptional	1.00
SI_{11} Refuge opportunities	Exceptional	1.00
	Total Score	**0.59**
	Overall Evaluation	**Poor**

Habitat Area 31		
Indices	**Evaluation**	**Score**
SI_1 Size of area	Good	0.60
SI_2 Vegetation structure	Good	0.60
SI_3 Sun exposure on the site	Exceptional	1.00
SI_4 Aspect	Good	0.60
SI_5 Topography	Exceptional	1.00
SI_6 Surface substrate	Exceptional	1.00
SI_7 Disturbance	Good	0.60
SI_8 Connectivity to further habitat mosaics of potentially suitable habitat within 250m	Poor	0.20
SI_9 Prey abundance	Exceptional	1.00
SI_{10} Hibernation habitat potential	Exceptional	1.00
SI_{11} Refuge opportunities	Exceptional	1.00
	Total Score	**0.72**
	Overall Evaluation	**Good**

Habitat Area 32		
Indices	**Evaluation**	**Score**
SI_1 Size of area	Good	0.60
SI_2 Vegetation structure	Good	0.60
SI_3 Sun exposure on the site	Exceptional	1.00
SI_4 Aspect	Exceptional	1.00
SI_5 Topography	Exceptional	1.00

Habitat Area 32		
SI_6 Surface substrate	Exceptional	1.00
SI_7 Disturbance	Good	0.60
SI_8 Connectivity to further habitat mosaics of potentially suitable habitat within 250m	Good	0.60
SI_9 Prey abundance	Exceptional	1.00
SI_{10} Hibernation habitat potential	Exceptional	1.00
SI_{11} Refuge opportunities	Exceptional	1.00
	Total Score	**0.83**
	Overall Evaluation	**Exceptional**

Habitat Area 33		
Indices	**Evaluation**	**Score**
SI_1 Size of area	Good	0.60
SI_2 Vegetation structure	Good	0.60
SI_3 Sun exposure on the site	Exceptional	1.00
SI_4 Aspect	Exceptional	1.00
SI_5 Topography	Exceptional	1.00
SI_6 Surface substrate	Exceptional	1.00
SI_7 Disturbance	Good	0.60
SI_8 Connectivity to further habitat mosaics of potentially suitable habitat within 250m	Poor	0.20
SI_9 Prey abundance	Exceptional	1.00
SI_{10} Hibernation habitat potential	Exceptional	1.00

Habitat Area 33		
SI_{11} Refuge opportunities	Exceptional	1.00
	Total Score	**0.75**
	Overall Evaluation	**Good**

Habitat Area 34		
Indices	**Evaluation**	**Score**
SI_1 Size of area	Poor	0.20
SI_2 Vegetation structure	Good	0.60
SI_3 Sun exposure on the site	Exceptional	1.00
SI_4 Aspect	Good	0.60
SI_5 Topography	Exceptional	1.00
SI_6 Surface substrate	Exceptional	1.00
SI_7 Disturbance	Good	0.60
SI_8 Connectivity to further habitat mosaics of potentially suitable habitat within 250m	Poor	0.20
SI_9 Prey abundance	Exceptional	1.00
SI_{10} Hibernation habitat potential	Exceptional	1.00
SI_{11} Refuge opportunities	Exceptional	1.00
	Total Score	**0.65**
	Overall Evaluation	**Good**

Habitat Area 35		
Indices	**Evaluation**	**Score**
SI_1 Size of area	Exceptional	1.00
SI_2 Vegetation structure	Exceptional	1.00
SI_3 Sun exposure on the site	Exceptional	1.00
SI_4 Aspect	Exceptional	1.00
SI_5 Topography	Exceptional	1.00
SI_6 Surface substrate	Exceptional	1.00
SI_7 Disturbance	Good	0.60
SI_8 Connectivity to further habitat mosaics of potentially suitable habitat within 250m	Exceptional	1.00
SI_9 Prey abundance	Exceptional	1.00
SI_{10} Hibernation habitat potential	Exceptional	1.00
SI_{11} Refuge opportunities	Exceptional	1.00
	Total Score	**0.95**
	Overall Evaluation	**Exceptional**

Habitat Area 36		
Indices	**Evaluation**	**Score**
SI_1 Size of area	Exceptional	1.00
SI_2 Vegetation structure	Exceptional	1.00
SI_3 Sun exposure on the site	Exceptional	1.00
SI_4 Aspect	Exceptional	1.00
SI_5 Topography	Exceptional	1.00

Habitat Area 36		
SI_6 Surface substrate	Exceptional	1.00
SI_7 Disturbance	Good	0.60
SI_8 Connectivity to further habitat mosaics of potentially suitable habitat within 250m	Exceptional	1.00
SI_9 Prey abundance	Exceptional	1.00
SI_{10} Hibernation habitat potential	Exceptional	1.00
SI_{11} Refuge opportunities	Exceptional	1.00
	Total Score	**0.95**
	Overall Evaluation	**Exceptional**

Habitat Area 37		
Indices	**Evaluation**	**Score**
SI_1 Size of area	Exceptional	1.00
SI_2 Vegetation structure	Exceptional	1.00
SI_3 Sun exposure on the site	Exceptional	1.00
SI_4 Aspect	Exceptional	1.00
SI_5 Topography	Exceptional	1.00
SI_6 Surface substrate	Exceptional	1.00
SI_7 Disturbance	Good	0.60
SI_8 Connectivity to further habitat mosaics of potentially suitable habitat within 250m	Good	0.60
SI_9 Prey abundance	Exceptional	1.00
SI_{10} Hibernation habitat potential	Exceptional	1.00
SI_{11} Refuge opportunities	Exceptional	1.00

Habitat Area 37	
Total Score	**0.91**
Overall Evaluation	**Exceptional**

Habitat Area 38		
Indices	**Evaluation**	**Score**
SI_1 Size of area	Poor	0.20
SI_2 Vegetation structure	Good	0.60
SI_3 Sun exposure on the site	Exceptional	1.00
SI_4 Aspect	Good	0.60
SI_5 Topography	Exceptional	1.00
SI_6 Surface substrate	Exceptional	1.00
SI_7 Disturbance	Good	0.60
SI_8 Connectivity to further habitat mosaics of potentially suitable habitat within 250m	Poor	0.20
SI_9 Prey abundance	Exceptional	1.00
SI_{10} Hibernation habitat potential	Exceptional	1.00
SI_{11} Refuge opportunities	Exceptional	1.00
Total Score		**0.65**
Overall Evaluation		**Good**

Habitat Area 39		
Indices	**Evaluation**	**Score**

Habitat Area 39		
SI_1 Size of area	Exceptional	1.00
SI_2 Vegetation structure	Exceptional	1.00
SI_3 Sun exposure on the site	Exceptional	1.00
SI_4 Aspect	Exceptional	1.00
SI_5 Topography	Exceptional	1.00
SI_6 Surface substrate	Exceptional	1.00
SI_7 Disturbance	Good	0.60
SI_8 Connectivity to further habitat mosaics of potentially suitable habitat within 250m	Exceptional	1.00
SI_9 Prey abundance	Exceptional	1.00
SI_{10} Hibernation habitat potential	Exceptional	1.00
SI_{11} Refuge opportunities	Exceptional	1.00
	Total Score	**0.95**
	Overall Evaluation	**Exceptional**

Habitat Area 40		
Indices	**Evaluation**	**Score**
SI_1 Size of area	Poor	0.20
SI_2 Vegetation structure	Good	0.60
SI_3 Sun exposure on the site	Exceptional	1.00
SI_4 Aspect	Poor	0.20
SI_5 Topography	Exceptional	1.00
SI_6 Surface substrate	Exceptional	1.00

Habitat Area 40		
SI_7 Disturbance	Good	0.60
SI_8 Connectivity to further habitat mosaics of potentially suitable habitat within 250m	Poor	0.20
SI_9 Prey abundance	Exceptional	1.00
SI_{10} Hibernation habitat potential	Exceptional	1.00
SI_{11} Refuge opportunities	Exceptional	1.00
	Total Score	**0.59**
	Overall Evaluation	**Poor**

Habitat Area 41		
Indices	**Evaluation**	**Score**
SI_1 Size of area	Good	0.60
SI_2 Vegetation structure	Poor	0.20
SI_3 Sun exposure on the site	Exceptional	1.00
SI_4 Aspect	Good	0.60
SI_5 Topography	Exceptional	1.00
SI_6 Surface substrate	Exceptional	1.00
SI_7 Disturbance	Poor	0.20
SI_8 Connectivity to further habitat mosaics of potentially suitable habitat within 250m	Poor	0.20
SI_9 Prey abundance	Poor	0.20
SI_{10} Hibernation habitat potential	Poor	0.20
SI_{11} Refuge opportunities	Poor	0.20

Habitat Area 41	
Total Score	**0.38**
Overall Evaluation	**Poor**

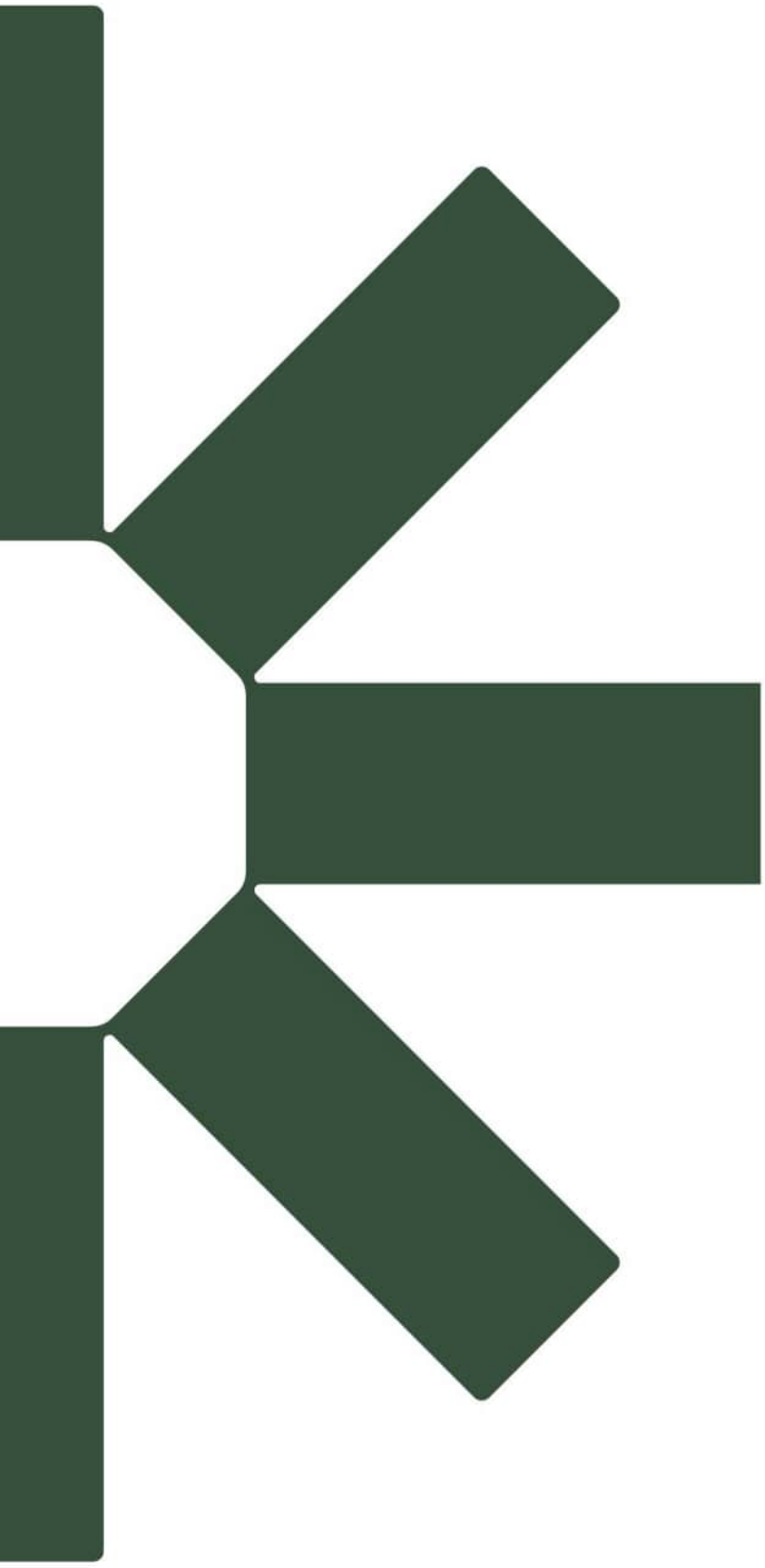
Habitat Area 42		
Indices	**Evaluation**	**Score**
SI_1 Size of area	Good	0.60
SI_2 Vegetation structure	Good	0.60
SI_3 Sun exposure on the site	Exceptional	1.00
SI_4 Aspect	Exceptional	1.00
SI_5 Topography	Exceptional	1.00
SI_6 Surface substrate	Exceptional	1.00
SI_7 Disturbance	Poor	0.20
SI_8 Connectivity to further habitat mosaics of potentially suitable habitat within 250m	Poor	0.20
SI_9 Prey abundance	Poor	0.20
SI_{10} Hibernation habitat potential	Good	0.60
SI_{11} Refuge opportunities	Exceptional	1.00
Total Score		**0.56**
Overall Evaluation		**Poor**

Habitat Area 43		
Indices	**Evaluation**	**Score**
SI_1 Size of area	Good	0.60

Habitat Area 43		
SI_2 Vegetation structure	Good	0.60
SI_3 Sun exposure on the site	Exceptional	1.00
SI_4 Aspect	Exceptional	1.00
SI_5 Topography	Exceptional	1.00
SI_6 Surface substrate	Exceptional	1.00
SI_7 Disturbance	Poor	0.20
SI_8 Connectivity to further habitat mosaics of potentially suitable habitat within 250m	Poor	0.20
SI_9 Prey abundance	Exceptional	1.00
SI_{10} Hibernation habitat potential	Exceptional	1.00
SI_{11} Refuge opportunities	Exceptional	1.00
	Total Score	**0.68**
	Overall Evaluation	**Good**

Habitat Area 44		
Indices	**Evaluation**	**Score**
SI_1 Size of area	Good	0.60
SI_2 Vegetation structure	Good	0.60
SI_3 Sun exposure on the site	Exceptional	1.00
SI_4 Aspect	Good	0.60
SI_5 Topography	Exceptional	1.00
SI_6 Surface substrate	Exceptional	1.00

Habitat Area 44		
SI_7 Disturbance	Good	0.60
SI_8 Connectivity to further habitat mosaics of potentially suitable habitat within 250m	Poor	0.20
SI_9 Prey abundance	Exceptional	1.00
SI_{10} Hibernation habitat potential	Exceptional	1.00
SI_{11} Refuge opportunities	Exceptional	1.00
	Total Score	**0.72**
	Overall Evaluation	**Poor**



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