

Ecological Assessment

Including Development Feasibility Assessment

**Bartons Point Coastal Park, Marine Parade,
Sheerness on Sea, Isle of Sheppey**

Report for Swale Borough Council

July 2025

Our Ref: KENME12 709



Quality Assurance

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About Us

Bakerwell Limited has two offices, led by directors Fiona Baker and Donna Popplewell. The Directors have collectively 28 years’ experience in the ecological consultancy industry, hold relevant degrees, are qualified botanists, and are trained in the use of biodiversity metrics to calculate no net loss/gain.

All staff are members, or training to be members, of the professional body for the environmental industry, the Chartered Institute of Ecology and Environmental Management (CIEEM) and hold Natural England European protected species licences for great crested newts, bats and dormice. Bakerwell Limited has SMAS Worksafe Health and Safety Accreditation; all staff hold relevant CSCS cards.

Bakerwell Limited is a consultancy specialising in ecological planning advice and surveys. Bakerwell also work in collaboration with trusted associates to provide Landscape Architecture, Arboriculture and Energy assessments.

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Figure 1: UK Habs Survey Results 2024

Site: Bartons Point, Swale

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Date: July 2025

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Key			
	Site boundary		h3 - Dense scrub
	Priority habitats		g4 - Modified grassland
	g19 - Coastal and floodplain grazing marsh		g3c - Other neutral grassland
	u1c - Artificial unvegetated, unsealed surface		f2e 73 - Saltmarshes and saline reedbeds
	t2g - Saline lagoon		g16 - Tall forbs
	u1b - Developed land; sealed surface		g 200 - Tree
			w33 - Line of trees
			r1 50 - Ditches

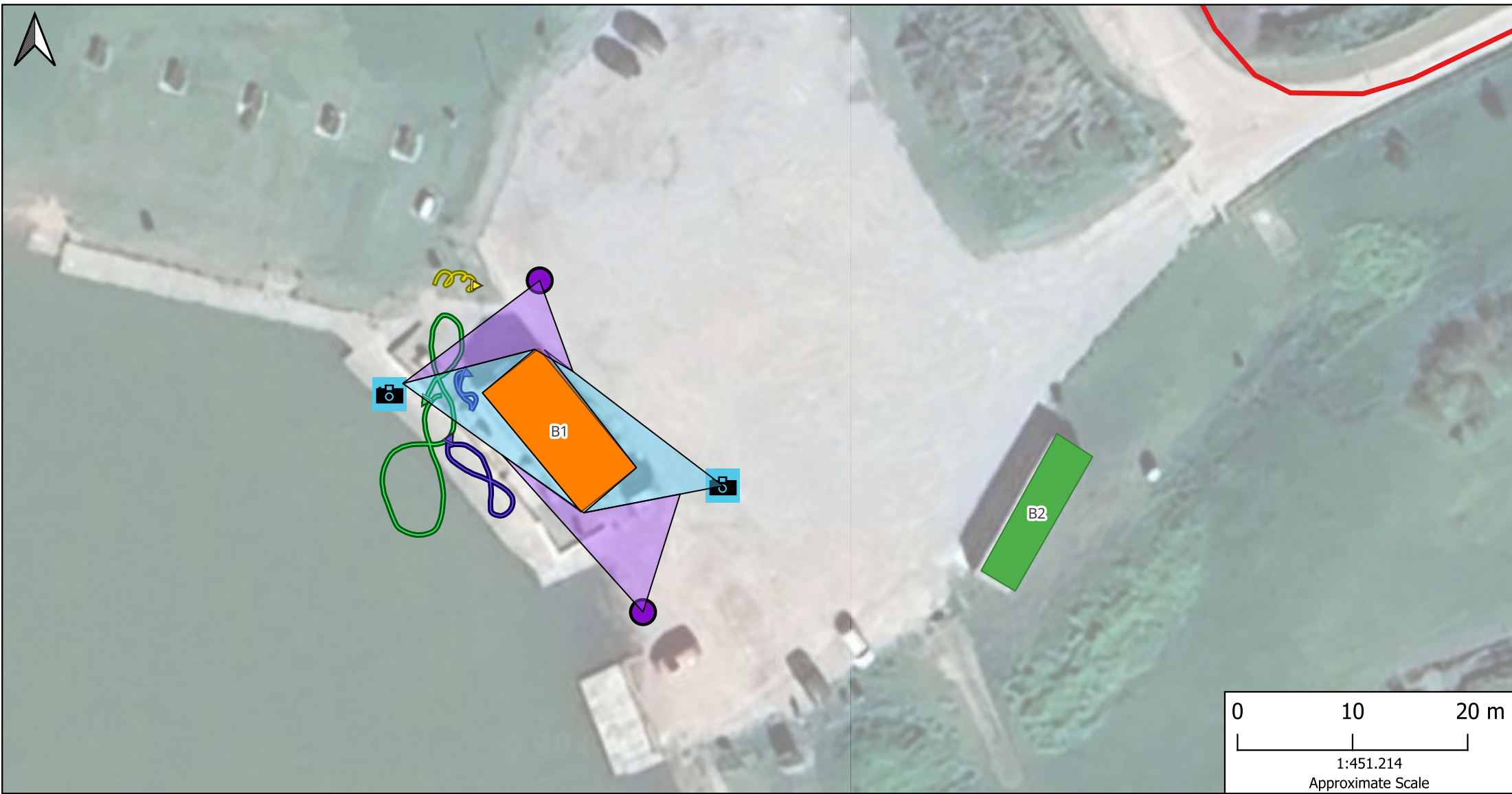


Figure 2: Bat Survey Results 2024		Key Site boundary Bat Survey Points Infrared Camera Position Bat Surveyor Locations Surveyor field of vision Infrared field of vision Building Roost Potential Low Moderate Observed flight lines Common Pipistrelle 06/06/24 Soprano Pipistrelle 06/06/24 Common Pipistrelle 04/07/24 No flight lines were recorded during the survey conducted on 17/09/24. Noctule was heard but not seen (HNS).			
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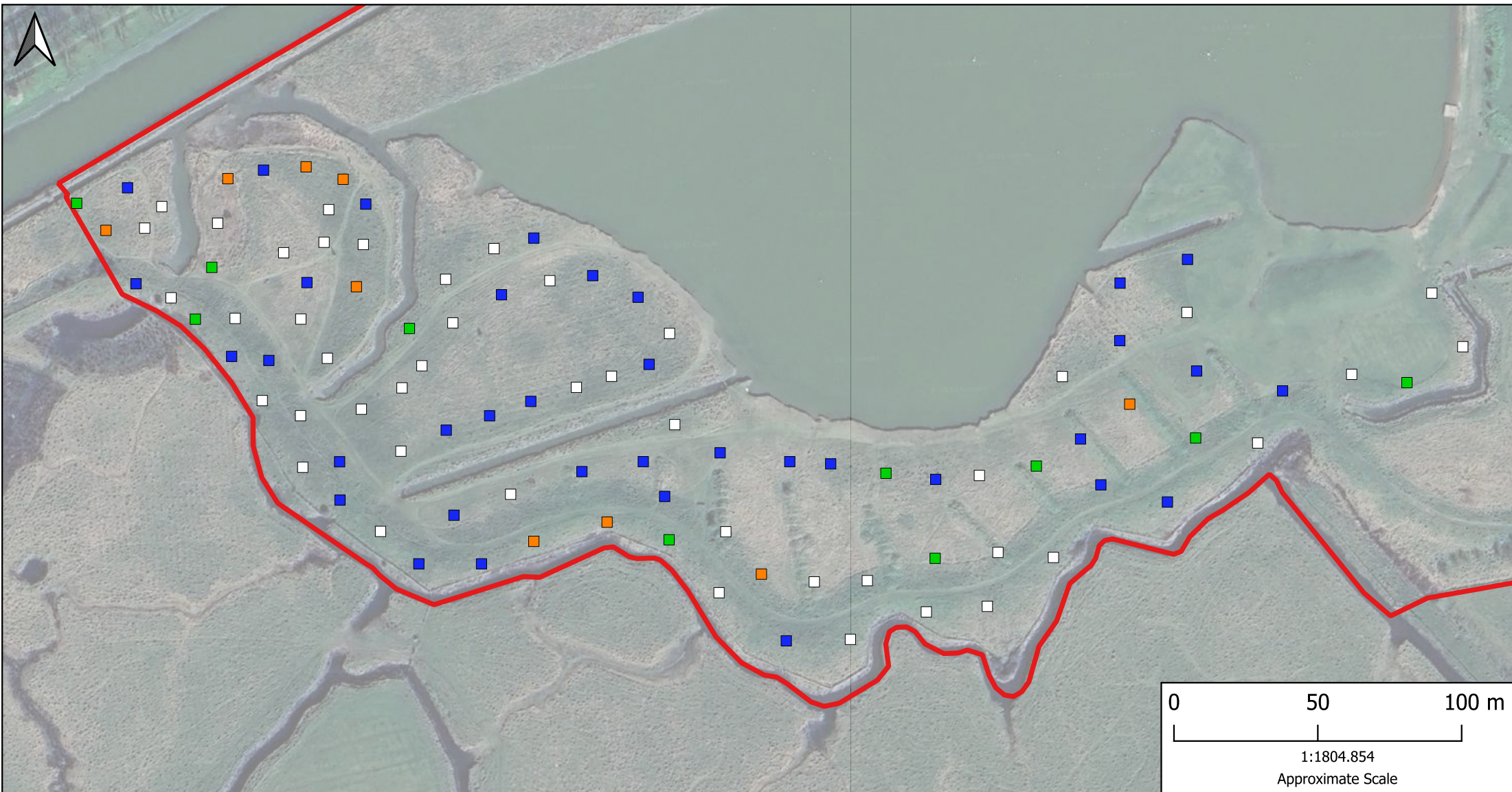


Figure 3a: Reptile Survey Results 2024		Site boundary Common lizard Slow worm Common lizard & slow worm No reptiles found
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Job: KENME12 709		
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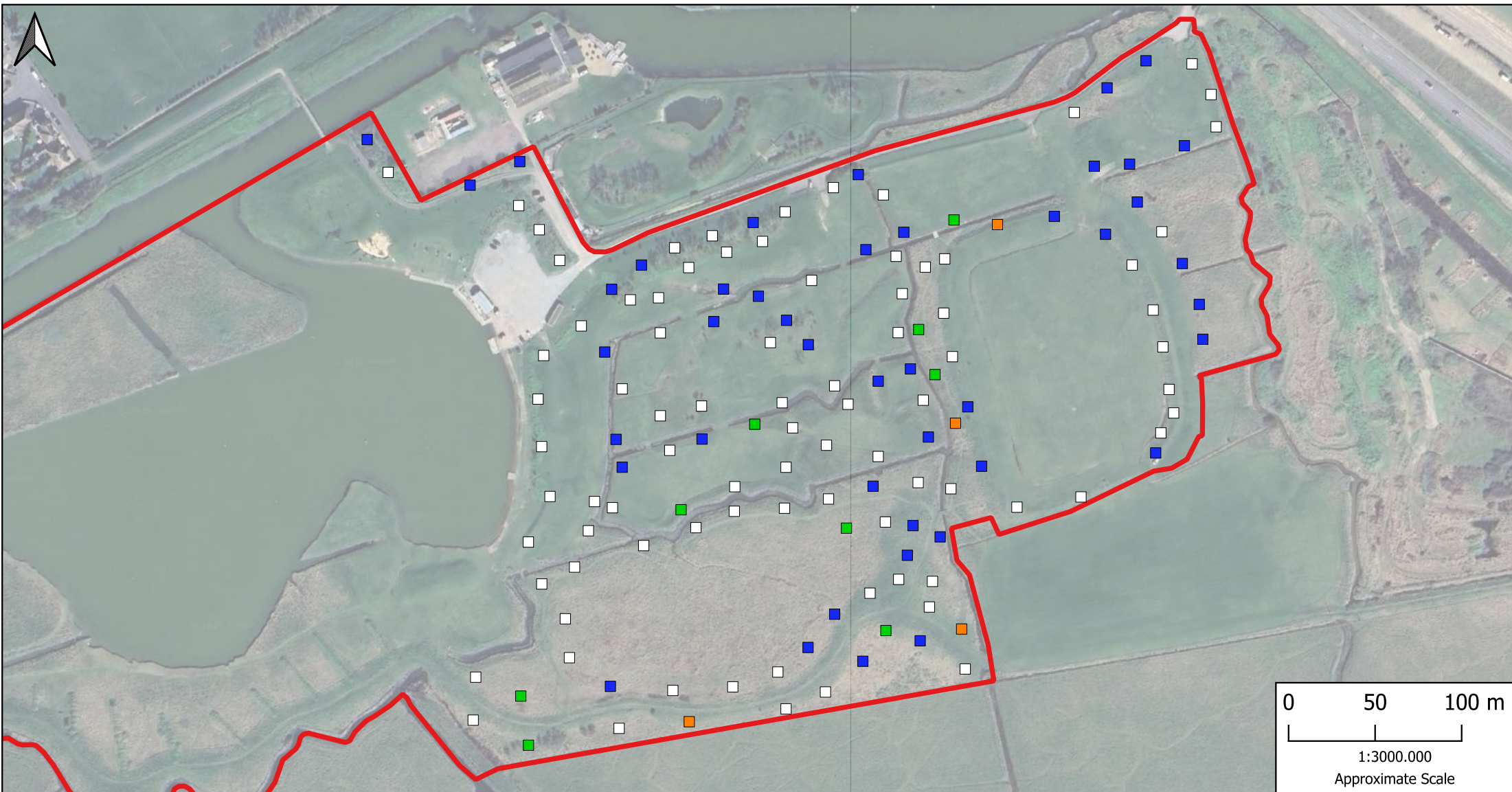


Figure 3b: Reptile Survey Results 2024			Site boundary Common Lizard Slow Worm Common Lizard & Slow Worm No Reptiles Found
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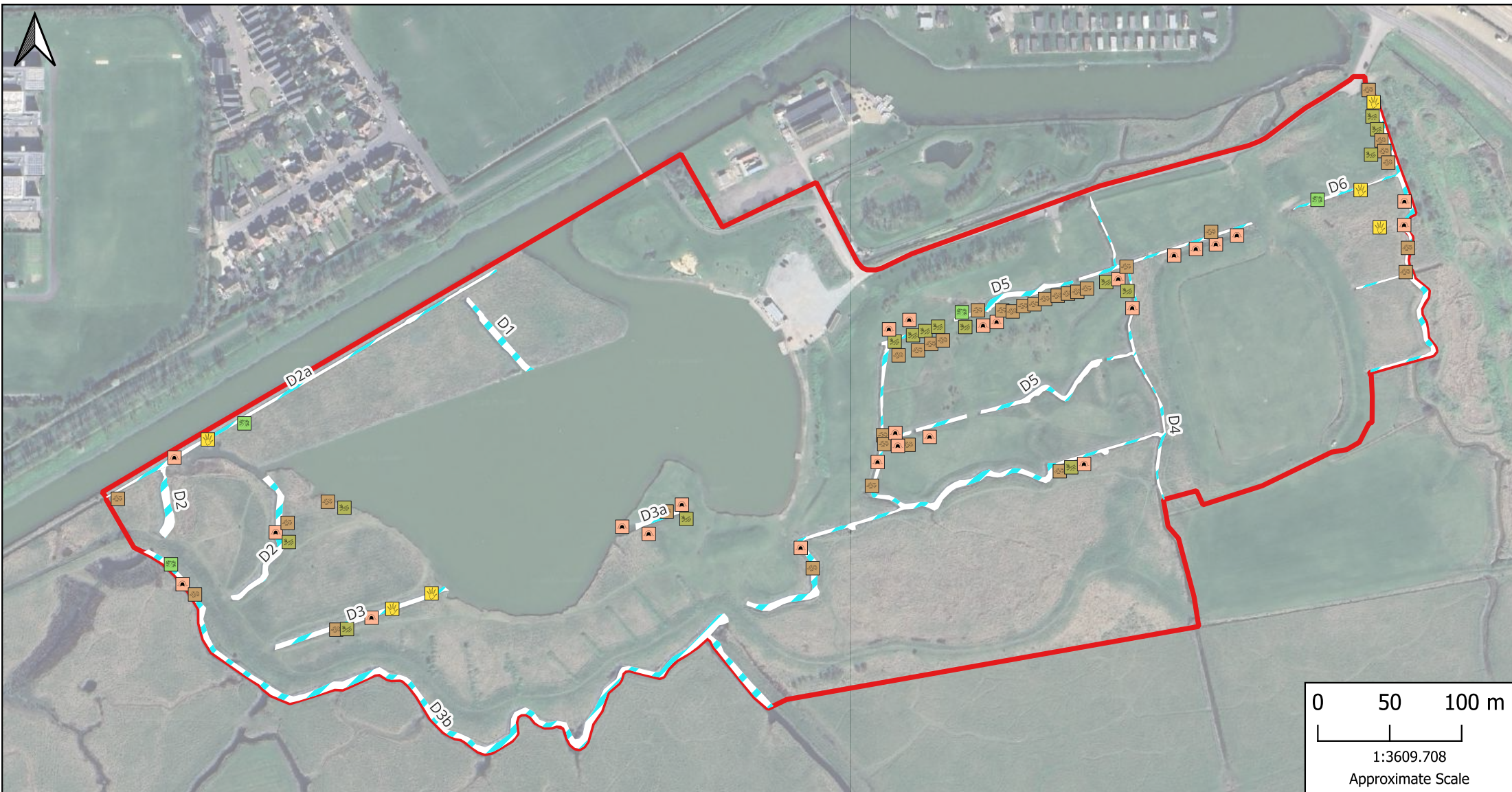


Figure 4: Watervole Presence/Absence Survey Results 2024

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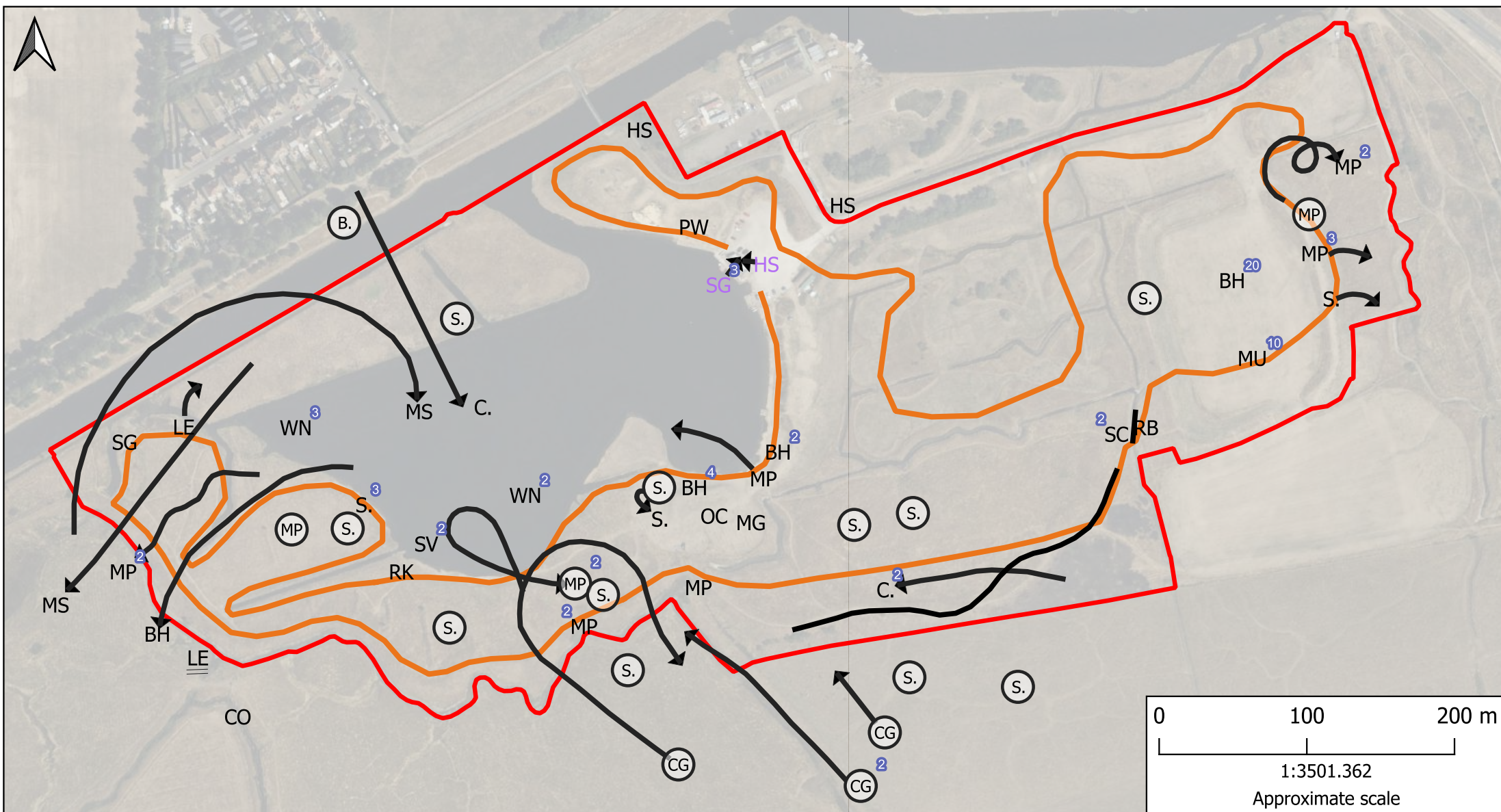
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- Site boundary
- Ditches
- Watervole footprint
- Watervole burrow
- Watervole run
- Watervole poo/latrine
- Watervole feeding remains

Population size should not be estimated based on incidental field signs alone.

However, since all ditches showing signs of presence are connected to inaccessible waterways, continuous presence is assumed across the entire site.



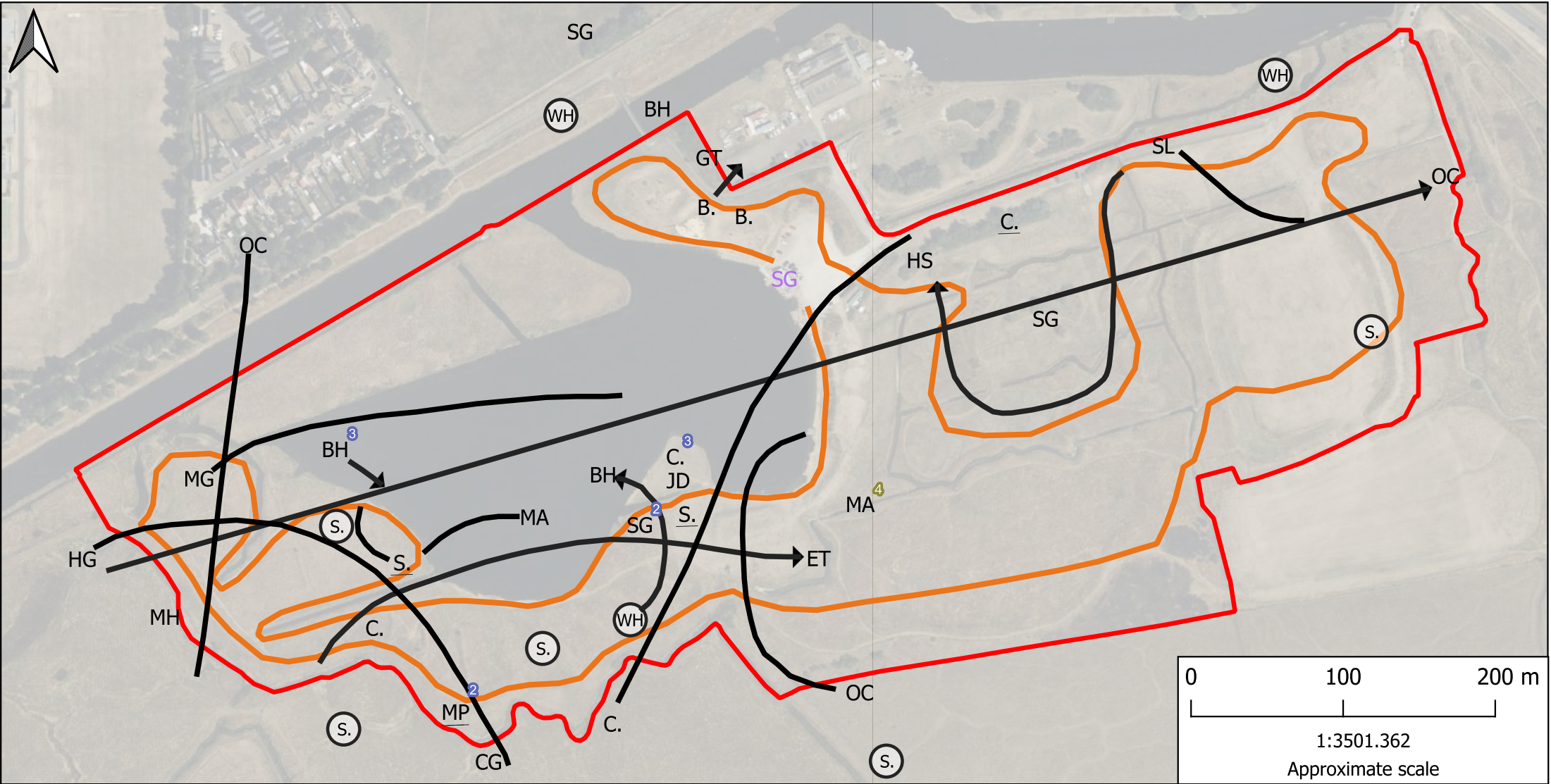


Figure 5c: Breeding Bird Survey Results 21/05/24

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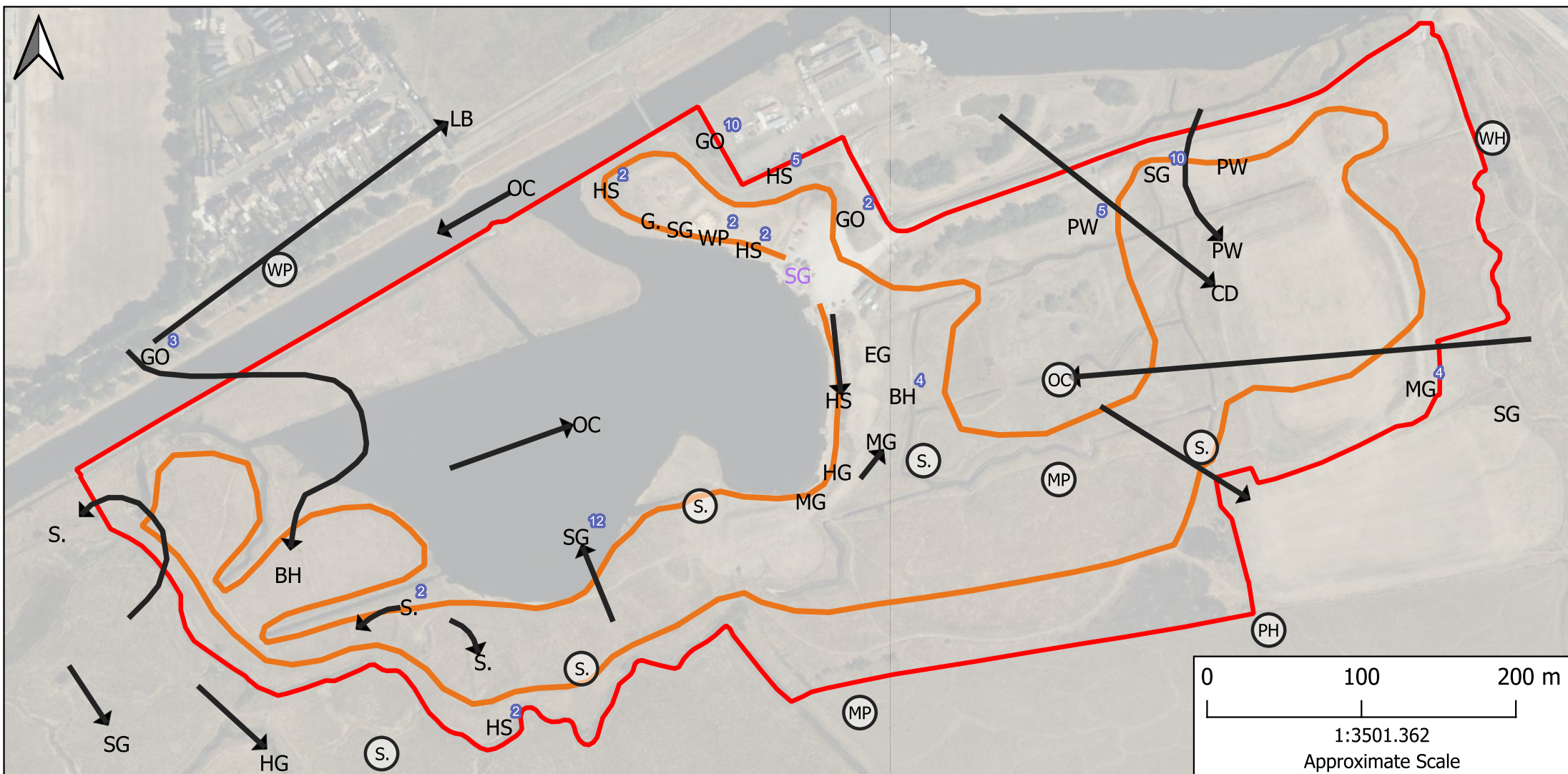
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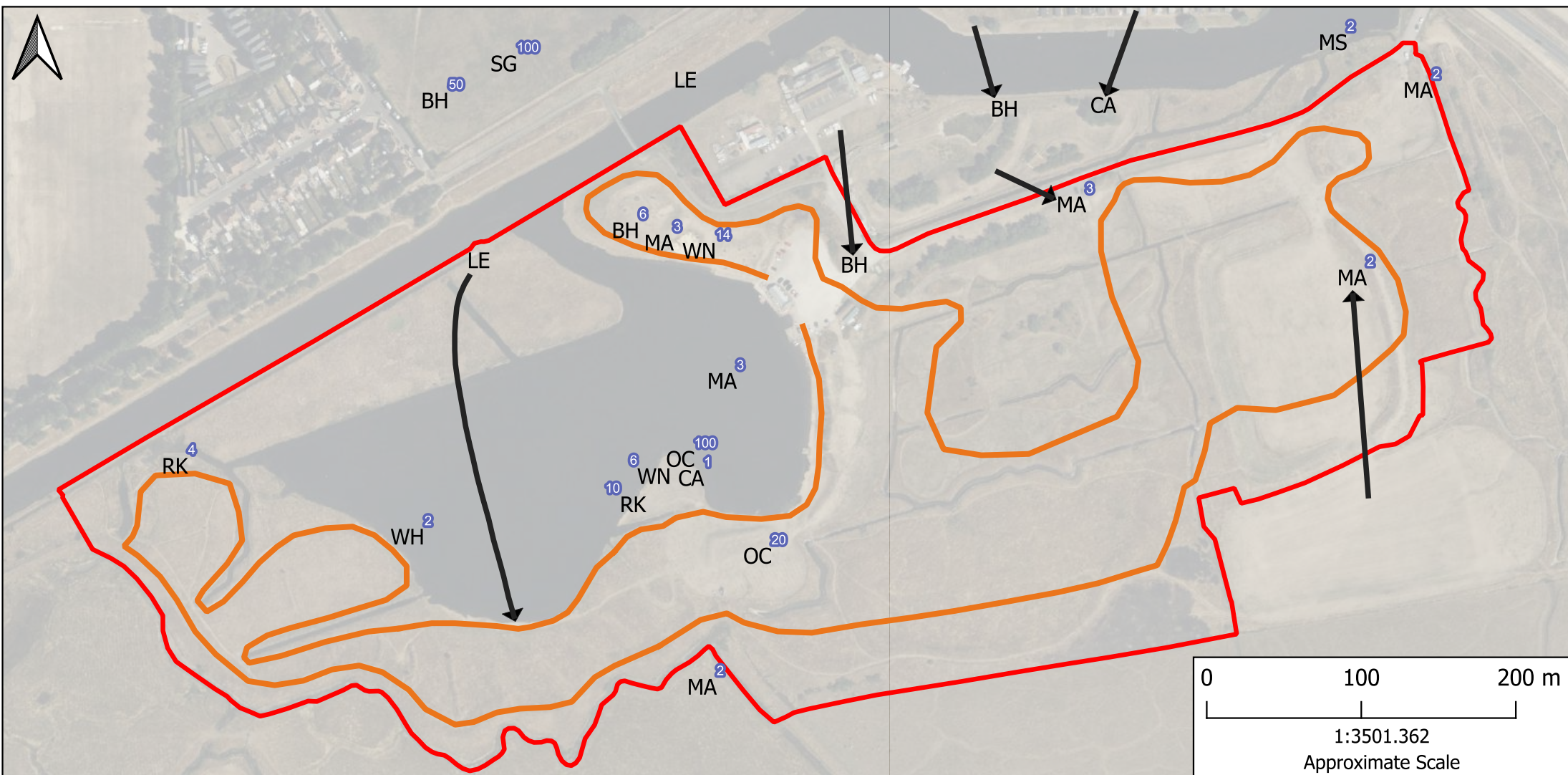
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Key:

Site boundary	GT Great Tit	MH Moorhen
Bird survey transect	JD Jackdaw	OC Oystercatcher
B. Blackbird	HG Herring Gull	S. Skylark
BH Black-headed Gull	HS House Sparrow	SL Swallow
C. Carrion Crow	MA Mallard	SG Starling
CG Canada Goose	MG Magpie	WH Whitethroat
ET Little Egret	MP Meadow Pipit	Underlined - Calling

Circle - Singing	Nesting Birds in B1
→ - Flushed from ground	SG Starling
→ - Lands detected in flight	
- Detected in flight	
• - Total of species	
• - Total offspring	





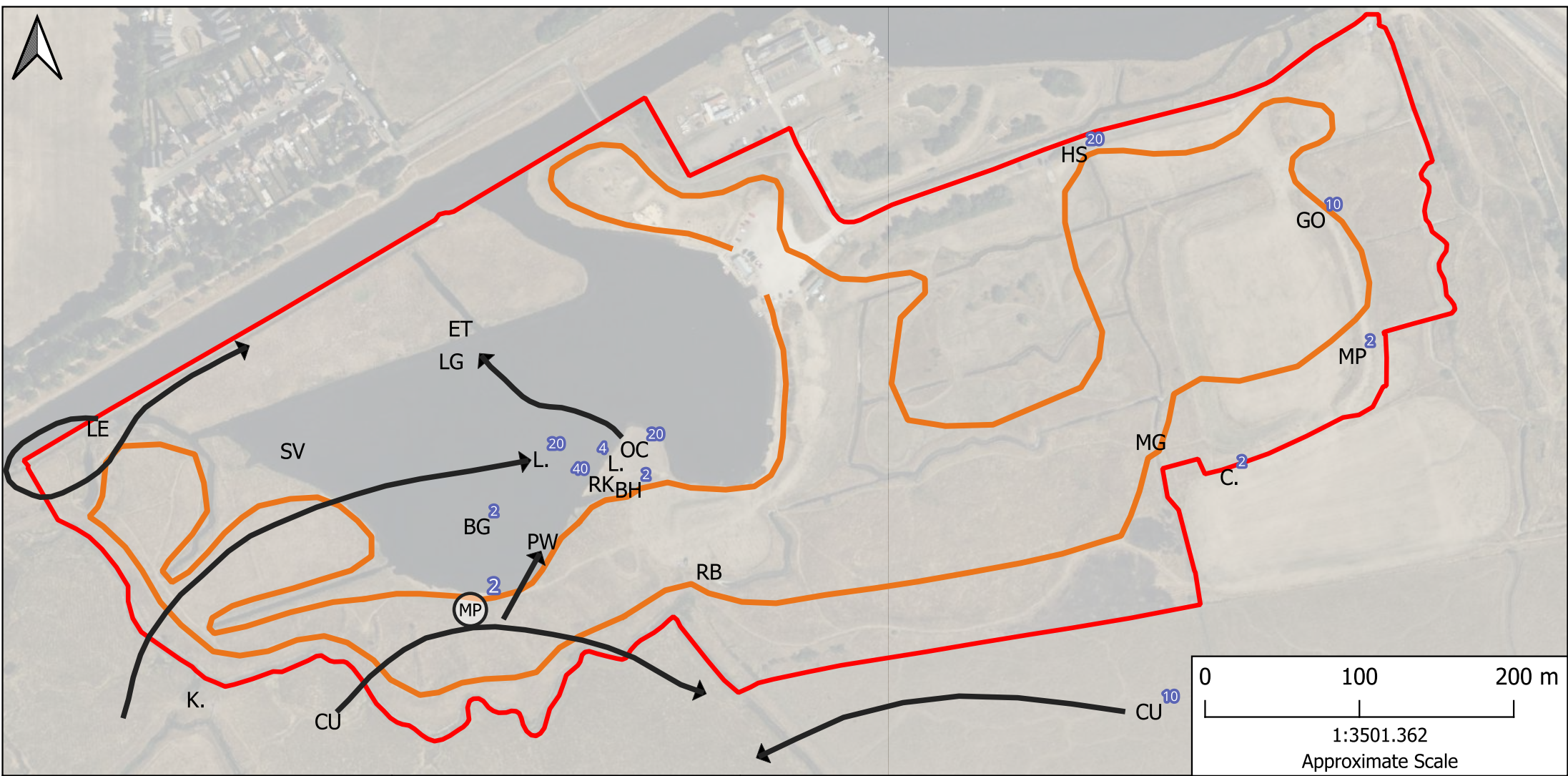


Figure 6b: Wintering Wetland Bird Survey Results 01/11/24

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Key:

Site boundary

Bird survey transect

BH Black-headed Gull

BG Brent goose

C. Carrion crow

CA Cormorant

CU Curlew

ET Little egret

GO Goldfinch

HS House sparrow

K. Kestrel

L. Lapwing

LE Long-eared owl

LG Little grebe

MG Magpie

MP Meadow pipit

OC Oystercatcher

PW Pied wagtail

RB Reed bunting

RK Redshank

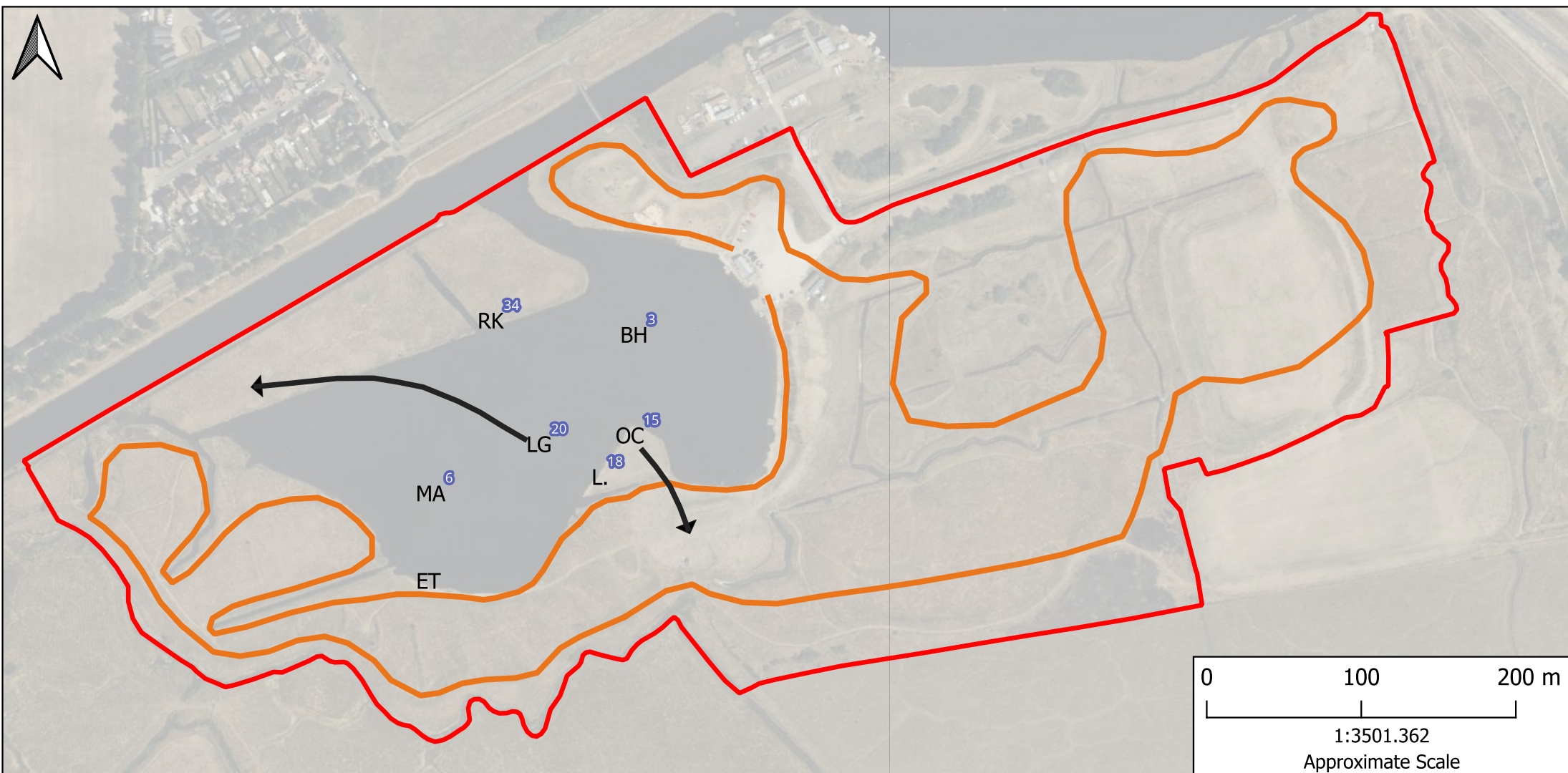
SV Shoveler

Circle - Singing

→ - Flushed from ground

→ - Lands detected in flight

● - Total of species



**Figure 6c: Wintering Wetland Bird
Survey Results 06/12/24**

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Key:

Site boundary

Bird survey transect

BH Black-headed Gull

ET Little egret

JD Jackdaw

L. Lapwing

LG Little grebe

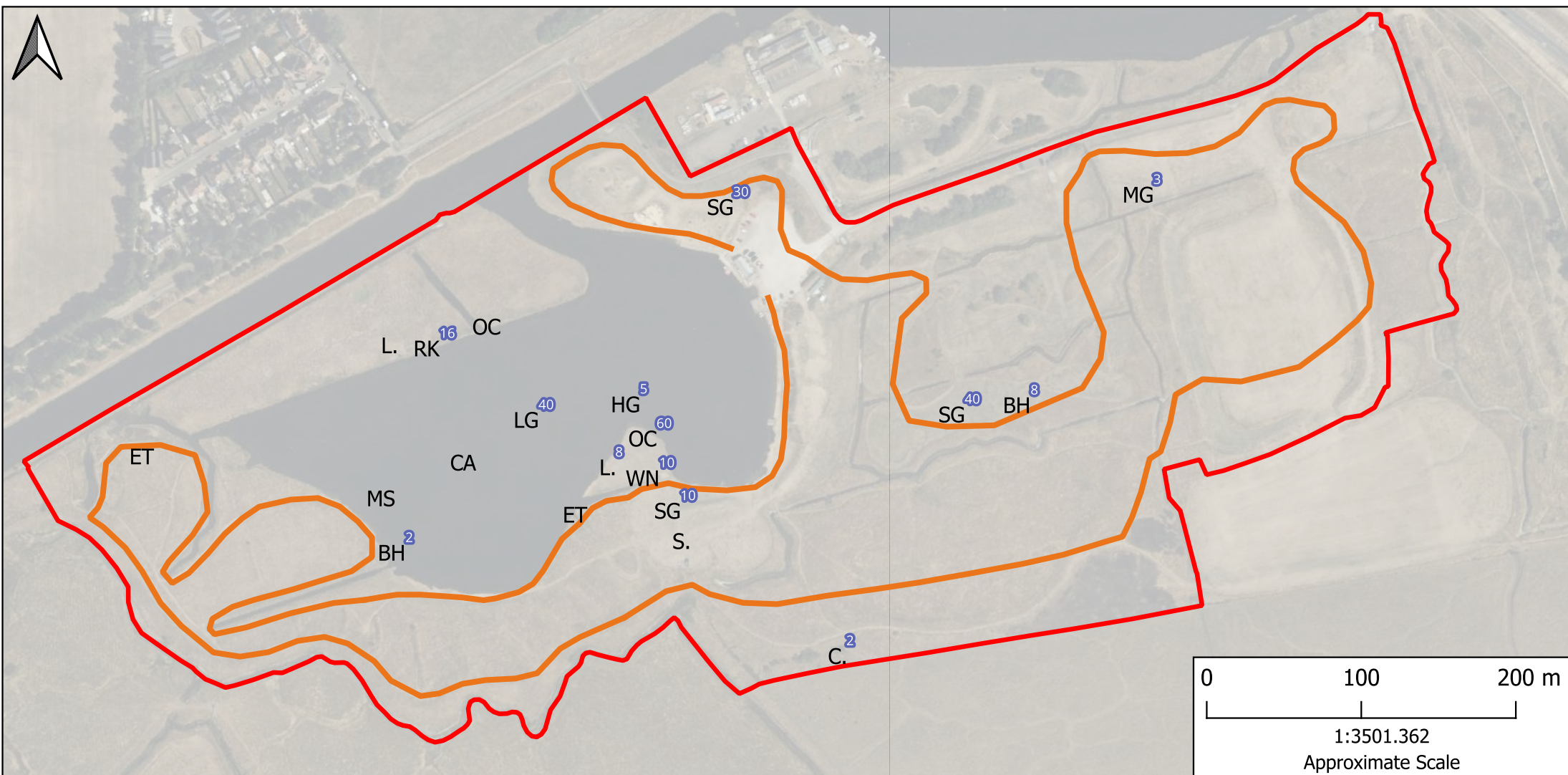
MA Mallard

OC Oystercatcher

RK Redshank

 - Flushed from ground

• - Total of species



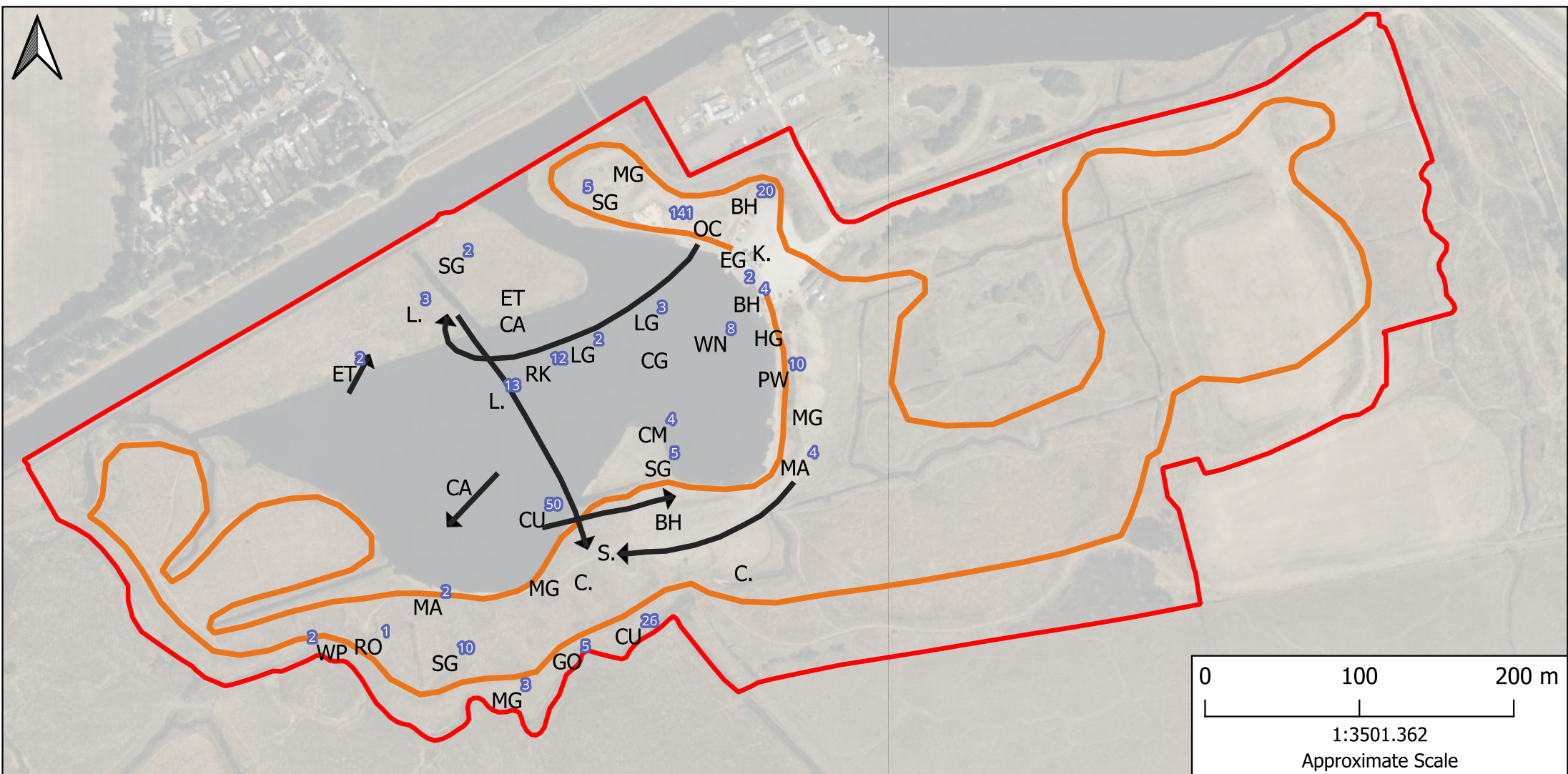


Figure 6e: Wintering Wetland Bird Survey Results 11/02/25

Site: Barton's Point, Swale

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Key:

 Site boundary

 Bird survey transect

 BH Black-headed gull

 C. Carrion crow

 CA Cormorant

 CG Canada goose

 CM Common gull

 CU Curlew

 EG Egyptian goose

 ET Little egret

 GO Goldfinch

 HG Herring gull

 K. Kestrel

 L. Lapwing

 LG Little grebe

 MA Mallard

 MG Magpie

 OC Oystercatcher

 PW Pied wagtail

 RO Rook

 RK Redshank

 S. Skylark

 SG Starling

 WP Wood pigeon

 WN Wigeon

 - Flushed from ground

 - Lands detected in flight

 - Total of species

1 Executive Summary

- 1.1 Swale Borough Council commissioned an Ecological Assessment (EA) to inform the feasibility of recreational development options at Bartons Point, Sheerness, Isle of Sheppey. This Ecological Assessment (EA) is informed by a desk study of biological records and designated sites information and surveys conducted over 2023 – 2025; comprising bat, water vole, reptile presence/likely absence, bird (breeding and wintering), invertebrate surveys and a Biodiversity Net Gain feasibility assessment.
- 1.2 The desk study confirmed the site is designated as a Local Wildlife Site, forming part of the Minster Marshes Local Wildlife Site with priority habitats Saline Lagoon and Coastal Floodplain Grazing Marsh present on site. The UK Habs Survey confirms the presence of modified and other neutral grassland and saline ditches which collectively form Coastal Floodplain Grazing Marsh priority habitat (Figure 1). The lake does meet the criteria for Saline Lagoon and areas of relic Coastal Saltmarsh are also present.
- 1.3 Four SPA are located within 6km of the site: Outer Thames Estuary SPA (Marine Component), Medway Estuary and Marshes SPA and Ramsar, the Swale SPA and Ramsar, Thames Estuary and Marshes SPA and Ramsar.
- 1.4 The site surveys overall confirm the site does support priority habitats Saline Lagoon, Coastal Floodplain Grazing Marsh (CFGM) and Coastal Saltmarsh.
- 1.5 No signs of roosting bats were observed; therefore a Natural England (NE) European Protected Species Mitigation Licence (EPSML) is not required for bats. Low levels of foraging and commuting from common pipistrelle *Pipistrellus pipistrellus* and soprano pipistrelle *Pipistrellus pygmaeus* were observed around the building B1 (Figure 2).
- 1.6 A low breeding population of slow worm *Anguis fragilis* and common lizard *Zootoca vivipara* are present, distributed widely across the site (Figures 3a and 3b).
- 1.7 Water vole were recorded in all ditches on site (Figure 4). The site is part of a nationally important area for water voles. A NE PSML will be required for any works affecting water voles or their burrows.
- 1.8 Breeding bird surveys recorded forty bird species on site (Figures 5a-5d). Starling *Sturnus vulgaris* and house sparrow *Passer domesticus* were noted nesting in building B1. Four red listed species (skylark *Alauda arvensis*, starling, house sparrow and herring gull *Larus argentatus*), were nesting across the grassland of site. Seventeen amber listed bird species were found using the site, of these meadow pipit *Anthus pratensis*, sedge warbler *Acrocephalus schoenobaenus*, oystercatcher *Haematopus ostralegus*, wood pigeon *Columba palumbus*, and mallard *Anas platyrhynchos* behaviours were observed that point to breeding on site.
- 1.9 Wintering bird surveys recorded 39 species of birds on site (Figures 6a-6e) with seven red listed and 14 amber listed species. Redshank *Tringa tetanus* and oystercatcher

recorded on site across all five surveys are qualifying species of the SPA/RAMSARs within 5km. However peak counts (maximum numbers recorded during a single survey) of these species indicate that the site does not form functionally linked land. An additional 11 species are listed as qualifying or within the SPAs/RAMSARs assemblages of international importance.

- 1.10 Invertebrate surveys found 215 species present, with a very rare invertebrate assemblage in the brackish ditch complex to the east of site which are in favourable condition when reviewed against Site of Special Scientific Interest (SSSI) standards and indicate this element of the site is likely to be of significant importance to invertebrates (Appendix 9).
- 1.11 The preliminary Biodiversity Net Gain (BNG) assessment found the 24ha (area habitats), a baseline total value is calculated at 306.92 biodiversity units for the site. This high value is due to the presence of the high distinctiveness priority habitats present. In addition, (linear habitats) are one line of trees generating 1.26 hedgerow units and the ditches on site generate 42.72 watercourse units.
- 1.12 A feasibility review of the recreational development options have confirmed that wake boarding, in particular, but also the aqua park and slip and slide would likely result in major negative impacts to water voles invertebrate and vegetation assemblages present in ditches connected to the lake, requiring a mitigation and translocation under Natural England licence and potential degradation of the Saline Lagoon and associated CFGM ditch and Coastal Saltmarsh habitats.
- 1.13 Increased camping or raised glamping pods in areas currently modified grassland away from ditches could be undertaken in limited numbers and locations. This would need to be carefully designed to meet exemplar standards and undertaken under a detailed mitigation strategy to avoid or minimise impacts to notable and rare flora and fauna including priority habitats, ground nesting skylarks and reptiles. Careful consideration would also be needed to meet the statutory requirement for 10% biodiversity net gain. The BNG feasibility assessment has shown that increasing modified grassland on site to extend camping or recreation provision could not be offset by on site measures to improve habitat condition, therefore, off site BNG units would be required, and priority habitats are difficult to find in off site compensatory schemes.
- 1.14 Locations for paddleboarders to access the lake and undertake paddle boarding activity on the lake in summer needs to be carefully located to the eastern end of the lagoon and managed to avoid disturbing and negatively impacting the water voles, nesting birds and priority habitats on site.
- 1.15 Given the presence of priority habitats on site which are uncommon in Kent there is potential to generate some biodiversity offsetting units, which could be sold to developments which require compensatory off-site units. This could generate funds which would be used to improve the condition of habitats on site for a period of 30

years. This would involve the results of a BNG assessment being used to register the location of units available and subsequent implementing of a Habitat Management and Monitoring Plan (HMMP) in line with Defra guidance. However, any enhancement approach would need to be undertaken in liaison with relevant species specialists, in particular water vole and invertebrate experts regarding ditches and associated adjacent habitat due to the invertebrate interest, other stakeholders would include Kent Wildlife Trust given the Local Wildlife Site designation.

- 1.16 Precautionary measures have been recommended for bats, water voles, reptiles, birds, invertebrates and rare/ notable fauna. Precautionary measures to avoid disrupting foraging and commuting bats are also provided.

2 Introduction

- 2.1 Bakerwell Ltd were commissioned by Swale Borough Council to complete protected species surveys and an Ecological Assessment of Bartons Point Coastal Park, Marine Parade, Sheerness on Sea, Isle of Sheppey, Kent (hereafter referred to as the site).
- 2.2 This ecological assessment is based on the results of a UK Habitat Classification, NVC assessment, bat emergence surveys, breeding and wintering bird surveys, reptile survey, water vole survey and invertebrate survey.
- 2.3 The EA identifies the broad habitat types on and in the vicinity of a given site. It aims to identify habitats, species or the potential for species that are protected by European and UK law, are nationally or locally rare or add biodiversity value. The report provides recommendations to ensure that the development is compliant with UK and EU legislation, that any impacts to protected species are mitigated, and biodiversity enhancements are incorporated into the development
- 2.4 The site is a coastal park located on the north coast of the Isle of Sheppey, between the towns of Sheerness and Minster on Sea, central O.S. grid reference TQ 93826 74567. The site is approximately 24.5ha in size. To the east lies the coast road and sea wall, to the north lies the Queensborough Lines, a scheduled monument consisting of a earthen rampart with a wide ditch and narrow catchwater ditch and south and west is a further expanse of grazing marsh.
- 2.5 The recreational development options include a possible aqua park, wake boarding, slip 'n' slide, paddle boarding, increased camping offering and/or raised glamping pods.
- 2.6 This report has been compiled to follow the British Standard 42020:2013 Code of Planning and Development and the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Preliminary Ecological Appraisal (2018) and Guidelines for Ecological Report Writing (2017).
- 2.7 Recommendations within this report aim to demonstrate measures that will conserve and enhance biodiversity in accordance with Chapter 15 of National Planning Policy, Section 180.

3 Aims and Objectives

- 3.1 The aim of this assessment is to inform potential development at the site, to identify and make recommendations to mitigate any impacts to protected habitats and species which may be utilising the habitats on/near to site and may be affected by the approved development. Specifically, objectives are to:
 - Identify presence / likely absence of protected or notable species and habitats

- Assess the impact of any likely proposals on the above species and habitats, if present
- Provide outline recommendations for mitigation of negative impacts
- Provide outline recommendations for biodiversity enhancements
- To provide the above in the context of legislation, local planning policy and evaluation of any potential impacts.

4 Methodology

Desk Study

- 4.1 Desk studies are conducted to ascertain which habitats and species are or have been recorded on or within the surrounds of a proposed site. This information highlights areas of local ecological importance and provides an indication of which habitats and species may be expected to be in the vicinity. It also identifies statutory and non-statutory sites that are important for nature conservation within the locality and facilitates an assessment of the potential direct and/or indirect impacts a development may have on these areas.
- 4.2 Records of designated statutory and non-statutory sites within 1km of the site were obtained from Kent and Medway Biological Records Centre (KMBRC). Protected, rare, scarce and invasive non-native species, in addition to species of conservation concern within 1km, bird records within 1km, bat records within 5km, and a bat roost map within a 1km radius of the central grid reference of the site was provided. For consistency, only records from observations within the last 10 years are discussed within Section 6 of this report.
- 4.3 Online searches were also carried out using Defra's interactive GIS map on the natural environment MAGIC, Swale borough council's website, Google maps, Woodland Trust; the Ancient Tree Inventory, Woodland Wildlife Toolkit and Buglife's Important Invertebrate Areas was searched. Results, and their implications for development are discussed in Section 6.
- 4.4 The site falls within the Natural England National Character Area 81 'Greater Thames Estuary'. This NCA is characterised by shallow creeks, drowned estuaries, low lying islands, mudflats and broad tracts of tidal salt marsh and reclaimed grazing marsh. Sea defences protect large areas of reclaimed grazing marsh and its associated ancient fleet and ditch systems. The coastal habitats of the NCA are internationally important for their biodiversity interest and support large numbers of overwintering and breeding wetland birds, rare plant and invertebrate species, and diverse marine wildlife. The vast majority of the coastline and estuaries are designated as Ramsar sites and Special Protection Areas (SPA), while the Essex Estuaries are a Special Area of Conservation (SAC). Brownfield sites support priority open mosaic habitat and its associated

nationally rare invertebrate species. A key challenge is to accommodate increasing development pressure in the area with the protection and enhancement of the natural landscape and its internationally important coastal habitats and species, and nationally important open mosaic habitat. Rising sea levels due to climate change present a major threat to coastal areas in the NCA through coastal squeeze, the alteration of coastal processes and increased flood risk – and the integrated management of these issues provides a major challenge.

4.5 Relevant conservation opportunities within the NCA include:

- SE01: Maintain and enhance the expansive, remote coastal landscape – with its drowned estuaries, low islands, mudflats, and broad tracts of tidal salt marsh and reclaimed grazing marsh – maintaining internationally important habitats and their wildlife, and underlying geodiversity, while addressing the impacts of coastal squeeze and climate change and considering dynamic coastal processes.
- SE02: Work with landowners and managers to incorporate measures to improve biodiversity, geodiversity, pollination, water quality, soil quality and climate adaptation and to prevent soil erosion in this important food providing landscape, while maintaining its historic character.
- SE03: Ensure that the tranquil and remote character of the estuary is maintained by conserving and enhancing important coastal habitats and distinctive historic and geological features, while providing increased opportunities for recreation and enjoyment of the landscape.
- SE04: Encourage a strategic approach to development that is informed by and makes a positive contribution to local character, incorporates green infrastructure which provides ecosystem services where they are needed most, and promotes recreation and addresses climate change, while maintaining important open mosaic and coastal habitats, and historic and geological features.

Plants

UK Habitat Classification Survey

- 4.6 Bakerwell Limited undertook a UK Habitat Classification Habitat Survey on 24th October 2023. The survey was carried out by Donna Popplewell (FISC Level 4) and Jo Lewis (PID Level 4), who identified habitats present, following the standard UK Habitat Classification (Butcher et al, 2020). The site was surveyed on foot and existing habitats and land uses were recorded on an appropriately scaled map (Figure 1). Any evidence of protected species, invasive species, habitats suitable for protected species and/or areas of ecological interest were plotted on the map as Target Notes.

Non-native invasive plant species

- 4.7 The survey on the 24th October 2023 also included a search for the presence of non-native invasive plant species as listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended).

Bats

Bat Roost Assessment of Buildings

- 4.8 Donna Popplewell bat survey licence number CL18-2020-45501-CLS-CLS level 2 and Jo Lewis undertook an inspection of two buildings (B1 and B2, Figure 1) on 24th October 2023, to assess the potential for, or evidence of roosting bats.
- 4.9 An external assessment of the buildings were undertaken in full sunlight from ground level using binoculars and a high-powered torch where necessary to assess potential bat roosting suitability including: access points and/or roosting features, lifted roof materials such as tiles, flashing or felt and gaps in the building structure, for example under the eaves, in the soffits, roof apex and external beams and around doors and windows. Where present these features were recorded as target notes (Figure 1).
- 4.10 A search for evidence of use by bats was conducted; looking for individuals or dead animals, droppings, tiny scratches, urine staining, flies, smoothing of surfaces to access points, a bat distinctive smell and, in warm weather, audible squeaking. The roof areas were assigned a category of potential suitability as a bat roost as shown in Table 2.

Table 1: Potential Bat Roosting Features and Evidence

Potential Bat Roosting Features	Signs Indicating Possible Use by Bats
• In trees • Natural holes • Woodpecker holes • Cracks/splits in major limbs • Loose bark • Hollows/cavities • Dense epicormic growth • Bird and bat boxes	• Live, dead, or skeletons of, bats • Feeding remains e.g. insect wings • Tiny scratches around entry point • Urine staining around entry point • Bat droppings in or around entry points • Audible squeaking at dusk or in warm weather • Flies around entry point • Distinctive smell of bats • Smoothing of surfaces around cavity
• In buildings • Gaps to windows / doors / mortar / brickwork / cracked / broken / missing ridge tiles, roof tiles and hanging tiles	• Live, dead, or skeletons of, bats • Bat droppings in the roof void (particularly below ridge beam and apex) • Feeding remains e.g. insect wings

• Gaps under lead flashing and between roofing felt flaps • Large roof void • Gaps into soffits, barge boards, gable ends and under eaves	• Tiny scratches around entry point • Urine staining around entry point • Bat droppings in or around entry points • Audible squeaking at dusk or in warm weather • Flies around entry point • Distinctive smell of bats • Smoothing of surfaces around cavity
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Table 2: Categories for Bat Roosting Potential for Roosting Habitats in Structures after (BCT, 2023)

Potential suitability	Description: Roosting habitats in structures
None	No habitat features on site likely to be used by any roosting bats at any time of the year (i.e. a complete absence of crevices/ suitable shelter at all ground/ underground levels).
Negligible	No obvious habitat features on site likely to be used by roosting bats, however, a small element of uncertainty remains as bats can use small and apparently unsuitable features on occasion. Limited connectivity to wider landscape with other bat habitats.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically at any time of the year. Does not provide enough space, shelter, protection, appropriate conditions and/ or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e unlikely to be suitable for maternity and not a classic cool/ stable hibernation site but could be used by individual hibernating bats). Limited connectivity to wider landscape with other bat habitats.
Moderate Potential	A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only, such as maternity and hibernation- the categorisation described in this table is made irrespective of species conservation status, which is established after presence is confirmed). Connected to wider landscape with good foraging habitat.
High Potential	A structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat. These structures have the potential to support high conservation status roosts e.g. maternity of classic cool/ stable hibernation site. Well connected to good foraging habitat and known roosts nearby.

Potential suitability	Description: Roosting habitats in structures
Confirmed Roost category	PRFs with evidence of use present, observation or previous records of bats confirmed to be roosting.

- 4.11 The BCT survey guidelines (2023) states that: “These categories are allocated irrespective of the presence of a roost. If a roost is confirmed to be present then the categorisation still stands (because other roosts may be present but undiscovered) but ‘confirmed roost’ should be added, e.g. low-confirmed roost, medium- confirmed roost, high- confirmed roost.”

Ground Level Tree Assessment

- 4.12 During the preliminary ecological appraisal Donna Popplewell and Jo Lewis undertook an inspection of the trees on site and directly adjacent to site boundaries on the 24th October 2023, to assess the potential for or evidence of roosting bats. The inspection followed the Bat Conservation Trust (BCT) Good Practice Guidelines 4th edition (2023) survey methodology. Trees were assessed in full sunlight from ground level using binoculars and a high-powered torch where necessary to assess potential bat roosting suitability including: and natural holes, hollows and cavities (cracks and splits), loose bark, epicormic and ivy growth were investigated as potential bat roosting features. Where accessible cavities were checked with an endoscope by Donna Popplewell
- 4.13 A search for evidence of use by bats was also conducted as above, see Table 1. Individual trees were then assigned a category as defined in Table 3. Where present these features were recorded as Target notes on the UK Habitat Classification (Figure 1). Where a large number of trees were present, these were assessed as groups, based on age and general condition. Where relevant further survey to assess trees individually from the ground or by aerial assessment is recommended to inform the requirement for presence/absence (emergence) surveys.

Table 3: Categories for the Suitability of Trees

Suitability	Description
None	Either no PRFs in the tree or highly unlikely to be any
FAR	Further assessment required to establish if PRFs are present in the tree.
PRF	A tree with at least one PRF present

DNA Analysis

- 4.14 During the bat roost assessment a single mammal dropping was found in a cobweb on B1. The dropping was collected and sent to Swift Ecology for DNA analysis on 11th April 2024 to aid species identification.

Bat Emergence Surveys

- 4.15 Three dusk emergence surveys of buildings B1 (Figure 2) were completed on 6th June, 4th July and 17th September 2024 by the following surveyors: Donna Popplewell, Lucy Price, Jo Lewis and Katie Lanning. Following BCT guidance (2022, 2023) NVAs (infra-red cameras and binoculars) were used in all surveyor locations, or where cameras are used instead of surveyors there are sufficient surveyors to ensure all aspects of the building or tree are under constant observation throughout the survey to ensure equipment is operational and infra-red lights provide observable conditions throughout all light levels. Surveyor and NVA positions, emergence points and flight paths of all species were recorded on a plan (Figure 2) to give important context. Weather conditions are provided in Table 4.

Table 4: Bat Survey Weather Conditions

Date of survey	Sunrise/ Sunset time	Start time (BST)	End time (BST)	Cloud Cover (%)	Temperature (°C)	Wind	Rainfall
04.07.24	21.16	21.01	22.44	90	S – 19 F - 16	5mph	0
06.06.24	21.10	20:55	22:30	60	S – 15 F - 14	4-7mph	0
17.09.24	19.06	18:49	20.36	70	S – 17 F – NA	3mph	0

- 4.16 The EMT automatically identifies calls in the field, using the Kaleidoscope Pro Bat Auto-identification software. However, auto identification is designed for records of single bats in free flight and uncluttered environments (*e.g.* open fields) and is not appropriate for roost emergence, multiple bats, cluttered environments (*e.g.* among tall vegetation) or social calls. Calls were therefore further analysed in line with published guidance (*e.g.* Russ 2013; Reason *et al.* 2016) using Kaleidoscope and Anabat Insight.
- 4.17 Analysis of bat calls may not always provide a confident conclusion of the species recorded, due to the overlap in range of peak frequencies of some species and the way that calls may change within cluttered environments. BCT (2016) and other literature have shown that identifying *Myotis* species with confidence without observing species-specific behaviour is extremely difficult (Parsons and Jones 2000; Walters *et al.* 2012). Where a confident conclusion could not be drawn as to the species, calls were identified to genus level such as *Myotis* sp.
- 4.18 Review of footage recorded by NVAs is carried out as soon as possible after surveys and where possible by surveyors present during the emergence survey to ensure contextual

information around site variations is given due considerations. Actual date after survey of footage viewing will depend on health and safety precautions around late night and long hour working practices. Observation of emergence locations, either through on site observation or NVA footage review will lead to further consideration of internal roost positions and deployment of internal cameras and recording devices if appropriate.

Reptiles

Reptile Habitat Assessment

- 4.19 The habitats on site were assessed for their potential to support reptiles. Features suitable for hibernation, basking, feeding and raising young are considered.

Reptile Presence/Absence Survey

- 4.20 Jo Lewis, Abby Knight, Jaimie Gillham, Katie Lanning and Jessica Marlow completed reptile surveys comprising seven visits conducted between May and September 2024. Reptile refugia (roofing felt of a minimum of 50cm²) were laid in transects, at a density of 12 per hectare, across the site (Figures 3a and 3b).
- 4.21 Surveys commenced two weeks following distribution of the refugia, to allow reptiles to become familiar with their presence. Visits were conducted in suitable weather conditions (temperatures between 9-18°C), in accordance with Froglife (1999), see Table 5. Results are shown on Figures 3a and 3b.

Table 5: Survey Conditions for Reptile Surveys

Survey Visit No.	Date	Time	Temperature (oC)	Cloud Cover %	Wind (Beaufort)	Rain
1	14.06.24	10.30	17 - 18	50	1	Dry
2	20.06.24	07.00 – 10.02	11	90	1	Dry
3	16. 07.24	09.40 – 12:10	17 – 20	60	3	Dry
4	12.09.24	10.20	11	20	1	Dry
5	17.09.24	13.50	19	90	1	Dry

Survey Visit No.	Date	Time	Temperature (oC)	Cloud Cover %	Wind (Beaufort)	Rain
6	24.09.24	10.00	14 - 15	100	1	Dry
7	29.09.24	10.24	17	40	1	Little rain

- 4.22 Where reptiles are found the maximum count of adults found on a single survey (the peak count) can be used to estimate population size. This is based on an extended survey with an additional 13 visits (Froglife, 1999). However, where presence/likely absence surveys reveal a very low number of reptiles, additional visits may not be a proportionate approach, where they are unlikely to significantly change the results.
- 4.23 The maximum count of adults found on a single survey (the peak count) can be used to estimate population size. The Froglife survey methodology is based on 10 refugia per ha, therefore where more are used to ensure coverage of good quality habitat, the following adjustment is made to account for the increase in survey effort. $10 \times (\text{ha}) / (\text{refugia}) \times (\text{peak number of reptiles}) = \text{the peak number per ha}$ (this must be carried out for each species present). The result is then compared with the table below to give a population size. HGBI (1998) criteria (Table 6) was used to estimate population size.

Table 6: Reptile Population Classes (HGBI, 1998)

Species	Adult Peak Count Per Hectare		
	Low Population	Medium Population	High Population
Adder	<2	2-4	>4
Grass Snake	<2	2-4	>4
Slow worm	<50	50-100	>100
Viviparous lizard	<20	20-80	>80

- 4.24 The Key Reptile Site Register is designed to allow the safeguard of important reptile sites. Based on Froglife (1999) criteria, this can provide an objective evaluation of the importance of the reptile populations on a site.
- 4.25 To qualify for the Key Reptile Site Register the site must a) support three or more reptile species; b) support two snake species; c) support an exceptional population of one species, d) support an assemblage of species scoring four or more; e) or be of particular

importance due to local rarity e.g. in Kent a good or exceptional population of adder *Vipera berus*, based on Froglife (1999).

- 4.26 The Froglife (1999) scoring criteria is based on the number of adult individuals of each species found in one day by one person, with refugia density of no more than 10 per hectare.
- Adder / grass snake: <5 animals score 1 (low population); 5-10 animals score 2 (good population); over 10 animals score 3 (exceptional population);
 - Slow worm / viviparous lizard: <5 animals score 1 (low population); 5-20 animals score 2 (good population); over 20 animals score 3 (exceptional population).
- 4.27 The Kent Reptile and Amphibian Group (KRAG) has adopted and amended this criteria and covers sites with; a) sand lizards *Lacerta agilis*; b) a good/exceptional population of adders; c) an exceptional population of one species or d) an assemblage of species scoring four or more based on the Froglife (1999) criteria. Priority is given to designating sites with a breeding population (determined by the identification of eggs, neonates and/or juveniles).

Water vole

- 4.28 A water vole survey in the ditches and lake was conducted on the 7th May and 3rd August 2024 by Lucy Price, Jo Lewis, Fiona Baker, Joe Blackwell-Hallett, Abby Knight, Sam Ashby, Bryony Ticehurst, Katie Lanning and Olivia Padua in line with best practice guidance set out in the Water Vole Mitigation Handbook (Dean et al, 2016). To determine the presence or likely absence of water voles, the banks of the stream were walked slowly, taking care not to disturb the edge habitat or any signs. Signs searched for included latrines, faeces, feeding stations, burrows, lawns, nests, footprints and runways. Evidence of mink and otter were also searched for. Due to the number of ditches, the extent of vegetation obscuring the banks and the feasibility nature of this study, once the field survey recorded evidence of water vole presence within a ditch, no further search for field signs within that ditch was undertaken.

Birds

Breeding bird survey

- 4.29 The methodology for this survey largely follows that of the 'Breeding Bird Survey' (BBS) of the British Trust for Ornithology (BTO). A transect route was defined across the site. The species present, location on site and distance from transect path was recorded. The survey days were selected when conditions were optimal with little to no rain, light winds and normal temperatures for the time of year (Table 7)
- 4.30 Following a reconnaissance survey, three survey visits were conducted by Jo Lewis, Lucy Price, Joe Blackwell-Hallett, Jaimie Gilham and Katie Lanning, during the breeding bird

season between the hours of 6am and 11.30am when breeding birds are generally most active, in accordance with BTO methodology (2018). The surveys were carried out on 28th March, 25th April, 21st May and 20th June 2024.

- 4.31 Transects were walked at a slow pace with regular pauses at optimal vantage and listening points. Any birds seen or heard calling during the surveys were recorded along with their location and behaviour. As the surveys were undertaken in optimal conditions (Table 7) and covered the entirety of the site, the results of the surveys are considered to provide an accurate representation of breeding bird activity on site. Information was transferred to a single map and analysed to identify the number of breeding territories present.

Table 7: Weather Conditions During Breeding Bird Surveys

Date	Time	Cloud cover (%)	Temp. (°C)	Wind (Beaufort scale)	Rain (%)
28.03.24	05:45 – 08:00	70	7	3	0
25.04.24	05:45 – 08:25	80	4	1	0
21.05.24	05:00 – 07:00	86	12	3	0
20.06.24	05:10 – 06:54	81	13.8	2	0

Wintering Bird Survey

- 4.32 Five survey visits were conducted by Jo Lewis, Lucy Price and Katie Lanning, on 1st November 2024, 6th December 2024, 14th January 2025 and 11th February 2025. The survey followed the methodology of the BTO Wetland Bird Survey (WeBS) Bird Survey Guidelines which is applicable where wetland habitats are present with potential to support priority wintering waterbird species.
- 4.33 As the site is not an intertidal site the key focus is to maximise visual detectability but also to collect data on wetland birds which may congregate at open waterbodies such as the lake. Therefore, visits took place during daylight hours within two hours either side of high-tide (Table 8). A transect with vantage points was walked and all waterfowl species seen using were recorded on a map. Only birds using the site were recorded. The December survey took place after sunset to assess the site as a roost for certain species.

Table 8: Weather Conditions During Wintering Bird Surveys

Date	Time	Cloud cover (%)	Temp. (°C)	Wind (Beaufort scale)	Rain (%)
01.11.24	10:20 – 12:24	100	14	0	0
06.12.24	14:43 – 17:15	78	8.6	3	0
14.01.25	09:05 – 12:05	100	7	1	0
11.02.25	10:30 – 13:30	100	4	2	0

Badger

4.34 All habitats within the site boundary and immediately adjacent (where access was possible) were surveyed by Bakerwell for evidence following the methodology recommended by Harris et al, and the Forest Operations and Badger Setts Guide 9 and involved searching for:

- Flattened or oval hole entrances of 25cm > diameter;
- Footprints, claw-marks and soil smoothed by the passage of badgers at the entrance;
- Hay, bracken, grass, reeds and rushes excavated from the tunnels and or fresh spoil, piled around the entrances;
- Tracks, and pathways;
- Dung pits, latrines and scratching posts; and
- Snuffle holes and other foraging signs.

Invertebrates

4.35 Four site visits were undertaken on the 17th April, 17th May, 3rd July and 6th September 2024 by Jonty Denton FRES FLS CEcol MCIEEM. Standard field techniques were employed to sample the invertebrate fauna across the site. These included sweeping vegetation with a wide mouthed sweep net, beating trees and bushes over a beating tray, and grubbing amongst tussocks and key host plant rosettes etc. A 0.5mm mesh pond net was used to sample the aquatic habitats. The main emphasis of the survey was to find as many species with conservation designations as possible within reviewed groups.

Ecological Impact

- 4.36 Ecological Impact Assessment (EclA) is most formally used to provide the ecological component of an Environmental Impact Assessment (EIA) required under EIA Regulations. The alternative use of assessing the impact of a proposal to ecology as used for the purposes of this report, is to demonstrate the approved development accords with relevant planning policy and legislation. This approach is recommended by BS42020: 2013
- 4.37 The impact assessment identifies, quantifies and evaluates likely significant effects on habitats and species. The methodology used in this assessment broadly follows guidelines in CIEEM (2018). Ecological features are classified in terms of importance at a geographic scale (Appendix 1). Evaluation of impacts follows the mitigation hierarchy. This involves avoiding impacts, mitigating unavoidable impacts, compensation for remaining significant residual effects and seeking enhancements for biodiversity.

5 Limitations

- 5.1 The results of surveys detailed within this report provide evidence of the presence of protected species of flora and fauna, or the potential for such species, evident at the time of the survey.
- 5.2 Due to the transient nature of fauna such as bats and their habitats, the results of this survey are considered to be valid for 18 months (12 for GCN and bats) from completion of the survey (CIEEM, 2019), unless otherwise stated in relation to specific species within this report and unless there is sufficient justification to show otherwise, in line with best practice guidance.
- 5.3 Survey methodology guidance is updated periodically following advances in ecological evidence and technology. Survey methodology is consistent with best practice guidance at the time of survey.
- 5.4 The age and methodology of survey data collected, and mitigation considered acceptable by Natural England for the purpose of assessing whether to grant a European Protected Species Mitigation Licence (EPSML) is subject to change by Natural England at any time. Survey data may need to be updated within the survey season immediately prior to the EPSML application. Online desk studies are completed using data acquired from www.magic.gov.uk interactive maps, managed by Natural England. Data present has not been updated consistently. For example, granted protected species records do not contain information succeeding 9th February 2022 reference made to this online data is in accordance with the data as is available on Magic at the time of undertaking the search.
- 5.5 Assessment for the presence or absence of protected or invasive species will depend on the accessibility of the habitats on site, and the time of year for example scrub, other

dense vegetation or impassable waterbodies will restrict access and visibility. Surveys carried out in winter may not capture plants where leaf growth has not started.

- 5.6 Assessments within this report are based on site visits. Subsequent changes to the layout may result in a requirement to reassess the potential impacts of the development and the requirements for future survey, or avoidance, mitigation and enhancement measures.
- 5.7 Recommendations for mitigation and enhancements provided within this report are based on the initial findings of habitat and/or protected species surveys undertaken to date, current best practice guidance and legislation in place at the time of writing.
- 5.8 Findings and recommendations within this report are based on the professional opinion of qualified and experienced ecologists and do not constitute professional legal advice. In submitting these recommendations, Bakerwell Limited has no Design Liability associated with these recommendations.

6 Results and Discussion

- 6.1 In this section the results and subsequent implications of the surveys are discussed and assessed in context of ecological assessments and the potential impacts of the proposed development. The results of the BNG baseline and review of proposals are provided in Section 7, feasibility of proposals is provided in Section 9. Recommendations for mitigation, in the context of relevant guidance and legislation are provided in Section 10, enhancement in Section 11. A summary of relevant legislation is provided in Appendix 2.

Desk Study

- 6.2 The immediate boundary habitats to site are ditches, with a small number of trees and stock fences with occasional hedge or bramble scrub. To the east lies the coast road and sea wall, to the north lies the Queensborough Lines, a scheduled monument consisting of an earthen rampart, a wide ditch and narrow catchwater ditch are located immediately offsite to the northwest, south and west is a further expanse of grazing marsh.

Statutory Designated Sites

- 6.3 The following European designated sites are located within 6km of the site: Outer Thames Estuary SPA (Marine Component), Medway Estuary and Marshes SPA and Ramsar, the Swale SPA and Ramsar, Thames Estuary and Marshes SPA and Ramsar. A table of qualifying species is provided in Appendix 3. Designated sites and their distance from the site are summarised in Table 9.
- 6.4 As the sites are located within 6km zone of the SPAs/Ramsar further measures will be required to support a planning proposal as detailed in Section 10.

Non-statutory Designated Sites

- 6.5 The site is located within Minster Marshes Local Wildlife Site which is formed of 124ha of grazing marsh, bound by ditches and areas of salt marsh. The LWS designation, the results of the surveys within this EA in relation to the LWS designation, and the implications for any proposed development are discussed further in Section 10.

Table 9: International Statutory Designated Sites within 6km of the Site

Site Designation/ Reference	Reason for Designation	Approx. Distance and Direction from Site
International Statutory Designated Sites within 6km		
Outer Thames Estuary SPA (Marine Component)	Marine areas, sea inlets, tidal rivers, estuaries, mud flats, sand flats, lagoons, salt marshes, salt pastures, and salt steppes. Protected features: Supports 38% of the Great Britain (GB) overwintering population of red throated diver <i>Gavia stellata</i> . Supports breeding populations of common tern <i>Sterna Hirundo</i> (2.66% of the GB population) and little tern <i>Sternula albifrons</i> (19.64% of the GB population).	0.2km N
Medway Estuary and Marshes SPA and Ramsar	A complex of rain-fed, brackish, floodplain grazing marsh with ditches, and intertidal saltmarsh and mudflat. These habitats together support internationally important numbers of wintering waterfowl. Rare wetland birds breed in important numbers. The saltmarsh and grazing marsh are of international importance for their diverse assemblages of wetland plants and invertebrates.	3.1 km SW
The Swale SPA and Ramsar	Habitats comprise a complex of brackish and freshwater, floodplain grazing marsh with ditches, and intertidal saltmarsh and mudflat. These habitats together support internationally important numbers of wintering waterfowl. Rare wetland birds breed in important numbers. The saltmarsh and grazing marsh are of international importance for their diverse assemblages of wetland plants and invertebrates.	3.4km S

Site Designation/ Reference	Reason for Designation	Approx. Distance and Direction from Site
Thames Estuary and Marshes SPA and Ramsar	A complex of brackish, floodplain grazing marsh ditches, saline lagoons and intertidal saltmarsh and mudflat. These habitats together support internationally important numbers of wintering waterfowl. The saltmarsh and grazing marsh are of international importance for their diverse assemblages of wetland plants and invertebrates. Threats to the site include invasive non-native species, outdoor sports and leisure activities and recreational activities and changes in biotic and abiotic conditions.	3.9km W
Non-Statutory Designated Sites		
Minster Marshes LWS	An 124ha site with open and remote landscape characterised by grazing marsh associated with wetlands. Fields are bounded by creeks and ditches – many of which have a long history, creating a distinctive pattern. These landscape features support salt marsh and intertidal mudflats stretching from the River Thames estuary in the west to the Swale Estuary in the east. Saltmarsh extends inland along creeks and drainage dykes and in places grazing marsh has been converted to arable cultivation.	0km on site

6.6 The site falls within the biodiversity opportunity area 'North Kent Marshes'. Key objectives for this area are:

1. *Protect and enhance existing important marine and terrestrial habitats.*
2. *Deliver more, bigger, better and connected habitats as part of a functioning ecological network which supports more resilient and diverse populations of important wildlife.*
3. *Restore grazing marsh on improved grassland to extend/connect existing habitats.*
4. *Create new intertidal mudflat and saltmarsh to help offset historical losses across the UK, including contributions to the Kent Biodiversity Strategy target of creating 50 ha of intertidal sediment habitat by 2020.*
5. *Maintain the total extent of coastal vegetated shingle habitat, as the UK target.*

6. *Conserve and enhance important intertidal and marine habitats: secure the protection of important marine habitats through Marine Conservation Zone designation; implement appropriate management of Marine Protected Areas to allow marine habitats and associated species to recover.*
7. *Maintain and enhance important ecological features within new development and create ecological networks within the built environment.*
8. *Implement a sustainable access strategy, including the creation of alternative natural greenspace, to mitigate recreational impacts including monitoring the impact of new development and coastal access.*

Priority Habitats

- 6.7 The desk study records priority habitats Coastal and Floodplain Grazing Marsh and Saline Lagoons are found on site. These priority habitats are discussed further in Section 10 below.
- 6.8 The site is also located approximately 70m from the priority habitat Coastal Vegetated Shingle to the northeast of site, 240m from the closest area of priority habitat Mudflats to the north and 670m from the closest area of priority habitat Maritime Cliffs and Slopes to the east.

Protected Species

- 6.9 A summary of the relevant records of protected, rare and species of conservation concern held by KMBRC are provided in Table 10. Records, or absence of such records, for species relevant to the habitats on or adjacent to site from the last decade (with the exception of bat records) are discussed below.

Table 10: Summary of Protected Species Recorded within 2km of the Site Boundary

Species Scientific Name	Species Common Name	Number of Records	Distance and Direction (of closest record) from Site
Bats			
<i>Plecotus auritus</i>	Brown long-eared bat	1	1.2km W
<i>Pipistrellus pigmaeus</i>	Soprano pipistrelle	2	1.6km S
<i>Pipistrellus pipistrellus</i>	Common pipistrelle	1	1.8km E
Reptiles			
<i>Zootoca vivipara</i>	Viviparous lizard	19	0km Onsite

Species Scientific Name	Species Common Name	Number of Records	Distance and Direction (of closest record) from Site
<i>Anguis fragilis</i>	Slow worm	1	0km Onsite
Other mammals (excluding bats)			
<i>Arvicola amphibius</i>	European Water vole	1	0.1km S
<i>Erinaceus europaeus</i>	West European Hedgehog	2	0.5km E

Habitats

UK Habs Habitat Classification

- 6.10 A total of ten UK Habs Primary habitat types were recorded on site, namely: g3c Other neutral grassland, g4 Modified grassland, t2a Coastal saltmarsh, t2g5 Saline lagoon, r1 Standing open water and canals, h3 Dense scrub, u1b Developed land sealed surface, u1c Artificial unvegetated unsealed surface.
- 6.11 The following essential secondary codes are also present: 16 Tall forbs, 19 Coastal and floodplain grazing marsh, 33 Line of trees, 50 Ditch, 86 Green roof.
- 6.12 Figure 1 shows the location of these habitat types within the site footprint. A full list of plant species recorded across the site is provided in Appendix 4. Photographs of habitats on site are included in Appendix 11.

g3c 19 Other neutral grassland, coastal and floodplain grazing marsh

- 6.13 The majority of the site is made up of meadows with ditches that maintain water levels containing brackish water. The grassland is made up of a tall, tussocky sward of grasses and herbs, dominant grass species within these areas include common couch *Elytrigia repens*, meadow foxtail *Alopecurus pratensis*, creeping bent *Agrostis stolonifera* and marsh foxtail *Alopecurus geniculatus* with broadleaved herbs frequently found such as smooth tare *Vicia tetrasperma*, divided sedge *Carex divisa* and lesser stitchwort *Stellaria graminea*. At the time of survey this habitat is unmanaged. Other species indicative of salinity levels are also present particularly closer to the brackish ditches such as Sea couch *Elymus pungens*.

g4 19 Modified Grassland, coastal and floodplain grazing marsh

- 6.14 Grassland parcels across the site include parcels which are regularly mown, including used for recreational purposes and receive higher levels of footfall resulting a much shorter sward with species that will tolerate this type of management. The dominant

grass in these areas is perennial rye *Lolium perenne*, with meadow barley *Hordeum secalinum*, white clover *Trifolium repens*, and daisy *Bellis perennis* frequent. Other species indicative of salinity levels are also present including buckthorn plantain *Plantago coronopus* and birds foot clover *Trifolium ornithopodioides*.

t2a Coastal saltmarsh

- 6.15 Vegetated areas around the water line of the ditches, around the lagoon and within depressions in the grazing marsh consists of halophytic (salt-tolerant) species such as purple glasswort *Salicornia ramosissima*, common saltmarsh grass *Puccinellia maritima*, annual sea blight *Suaeda maritima*, sea aster *Aster tripolium* and sea barley *Hordium marinum*.

t2g5 Saline lagoon (H1150)

- 6.16 Located in the centre of site is a saline lagoon, of approximately 4ha and containing brackish water. Vegetation found within the lagoon comprises fennel pondweed *Stuckenia pectinata*. The lagoon is artificial with brackish water present.

r1 50 Standing open water and canals, ditch

- 6.17 Many brackish water ditches intersect the meadows on-site. Vegetation within the ditches include spiral tassel weed *Ruppia cirrhosa* and fennel pondweed.

h3 Dense scrub

- 6.18 Three small areas to the north and north-east of site have colonised with a mix of scrub species such as bramble *Rubus fruticosus* and hawthorn *Crataegus monogyna*.

g16 Tall forbs

- 6.19 Areas that support tall perennials are found around the car park and the eastern edge of the lake, species within these areas include alexanders *Smyrniololus atratum*, bristly ox-tongue *Picris echioides*, broadleaved dock *Rumex obtusifolius* and willowherb *Epilobium sp.*

w33 Line of trees

- 6.20 To the north of site and running parallel to the road on site is a line of trees. Species include English oak *Quercus robur*, ash *Fraxinus excelsior* and white poplar *Populus alba*.

u1b Developed land sealed surface

- 6.21 To the north-east of site is a tarmacked road leading from the public road, Marine Parade, to the onsite car park and the adjacent model railway and sea cadet sites.

u1b5 Buildings

- 6.22 Two buildings are located within the car park. B1 is formed of breeze block with wooden cladding and a corrugated iron roof. B2 is a toilet block unit with integrated green roof.

u1c Artificial unvegetated unsealed surface

- 6.23 To the central northeast of site a car park is formed of gravel and a play area is formed of sand.

Trees

- 6.24 Trees scattered over the north of site around the car park and high-use areas include oak, ash, white poplar and Norway maple *Acer platanoides*.

Evaluation of Habitats on Site

- 6.25 The site is formed of uncommon habitats such as the saline lagoon and salt marsh habitats and the coastal flood plain grazing marsh habitats formed of a mosaic of ONG, modified grassland and brackish ditches. Habitats are therefore of high ecological importance. These habitats are important for many protected species, including water vole, reptile, breeding birds and invertebrates, this is discussed further below.

Protected Species*Bats*

- 6.26 The desk study provided no records for bats within the site boundary. Two granted European Protected Species Mitigation Licences (EPSML) are located within 2km of the site. The closest is located 1.6km south of the site involving destruction of a common pipistrelle resting place (EPSM2013-5606).

Bat Roost Assessment of Buildings

- 6.27 Two buildings, the Boathouse Cafe (B1) and the toilet block (B2) were inspected on the 24th October 2023, to assess the potential for, or evidence of roosting bats. These were assessed externally and internally where access was granted. The locations of the buildings are detailed on Figure 1.
- 6.28 Building B1, the Boathouse Cafe, is formed of a breeze block base with timber cladding and a pitched corrugated metal roof. Gaps are present beneath the wooden soffit, between the wooden cladding, behind the fold-down shutters, behind the old sign, and above the middle window.
- 6.29 Due to the number of Potential Roosting Features (PRFs) and presence of a mammal dropping, building B1 was classified as having high roost potential. Three emergence/re-entry surveys were recommended. The toilet block, B2, is an enclosed

modular building with a green roof and timber cladding. No PRFs were recorded on this building.

DNA Analysis

- 6.30 A single mammal dropping was observed and collected from a cobweb on the external fold-down shutters on the south-west wall. However, results from the DNA analysis came back as 'undetermined' due to the sample failing to yield DNA of sufficient quality or quantity, likely as a result of a small sample size.

Emergent and Re-entry Surveys

- 6.31 No bats were seen to emerge or re-enter the potential roosting features of building B1 during any of the surveys.
- 6.32 Low levels of activity were recorded from common pipistrelle, soprano pipistrelle and noctule surrounding the building (Table 11, Figure 2). Activity was dominated by common pipistrelle.

Table 11: Bartons Point Bat Emergence Survey Results

Date	Species	First Pass	No Bats	No Passes	Activity Type / Observations
06.06.24	Common Pipistrelle	22:16	2	24	Commuting, foraging & social calls
	Soprano pipistrelle	22:23	1	5	Commuting & foraging
04.07.24	Common Pipistrelle	22:44	1	1	Commuting
17.09.24	Noctule	20:29	1	2	Commuting

Ground Level Tree Assessment

- 6.33 A single willow *Salix sp.* was identified to the north of the site with peeled bark categorised as PRF-I, (feature suitable to support an individual roosting bat). In accordance with updated guidance (BCT, 2023), no further surveys are recommended at this stage. Further measures will be required in the event the tree will be affected by future proposals/or considerations for health and safety, prior to any works the PRF will be inspected by a suitably experienced ecologist prior to felling for evidence or lack of bats, as detailed in Section 10.

Ecological Importance of Bats on Site

- 6.34 All UK bats are European protected species. Common and soprano pipistrelles are the most common and widespread bat species estimated in England, and in Kent. Noctule

are one of our largest bat species. The limited level of commuting and foraging activity of the species recorded indicates this site is of local (site importance).

Evaluation of Bats in Light of the Development

- 6.35 Bats, and their roosts, are protected under the EU Habitats Directive (transposed into UK law as the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019), and the Wildlife and Countryside Act 1981 (as amended). This protects bats from killing, injury, capture and disturbance and their roosts from damage, destruction and obstruction.
- 6.36 As no bats were found to be roosting in building B1, no impacts to roosting bats will result from the proposals and therefore an EPSML is not required. Due to the presence of foraging and commuting bats on site further recommendations for any future proposed lighting scheme are provided in Section 10, with enhancement options in Section 11.

Great Crested Newt (GCN)

- 6.37 Waterbodies on-site and within 200m of site contain saline or brackish water, therefore are unsuitable for GCN. HSI assessments were not considered necessary and GCN are not therefore, not discussed further in this report.

Reptiles

- 6.38 The survey undertaken was a survey to establish presence or absence of reptile species on site. A further 13 survey visits would be required to give comparable data to achieve 20 survey visits in line with guidance for a population assessment. Surveys were spread through the season and population calculation methodology was used to provide an early indication of the population potential, therefore, results below should be interpreted with caution.
- 6.39 A peak count of 26 adult slow worms and 35 adult common lizards were recorded during the surveys over seven survey visits, with both species distributed across both sides of the site, see Figure 3a and 3b), results are provided in Table 12. No other reptile or amphibian species were recorded during the surveys.
- 6.40 The peak counts recorded are consistent with a low population of both species according to HGBI (1998) criteria (Table 13). However, whilst the HGBI population criteria is per ha, the HGBI survey methodology does not account for surveyor effort by specifying the number of refugia per ha used. This can be achieved by comparing to Froglife (1999) criteria (with the peak count adjusted to account for the number of refugia deployed per ha). Tables 14 and 15 show the calculation of population using the Froglife (1999) methodology, this also results in a calculation of Low population for both species.

Table 12: Adult Reptiles Recorded On Site

Survey Visit No	Date	No. Grass Snakes		No. Slow Worms		No. Viviparous Lizards	
		East	West	East	West	East	West
1	14.06.24	0	0	8	18	4	17
2	20.06.24	0	0	6	1	12	4
3	16.07.24	0	0	4	7	7	10
4	12.09.24	0	0	2	1	4	4
5	17.09.24	0	0	1	0	13	15
6	24.09.24	0	0	1	0	18	13
7	26.09.24	0	0	2	0	15	11
PEAK count*		0	0	8	18	18	17
Peak count (summed by species)		0		26		35	

Table 13: Reptile Population Size (HGBI, 1998)

Species	Peak Count	No Hectares	Population Size
Slow worm	26	20	Low (26/20=1.3)
Common lizard	35	24.5	Low (26/20=1.75)

Table 14: Determining Reptile Peak Count Size Using Froglife (1999). Results Adjusted for Number of Refugia

Species	Refugia		Size of site (ha)		Refugia p. ha (rounded)		Froglife Refugia p.ha		Division Figure	Peak count adjusted
Slow Worm	239	/	20	=	12	/	10	=	1.195	26 / 1.195 = 21.75

Common Lizard	239	/	20	=	12	/	10	=	1.195	$35/1.195 = 29.28$
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Table 15: Reptile Population Size (Froglife, 1999). Results Adjusted for Number of Refugia

Species	Peak Count (rounded)	No Refugia	No Hectares	Population Size
Slow worm	22	10	20	Low $(22/20) = 1.1$
Common lizard	29	10	20	Low $(29/20) = 1.45$

- 6.41 Assessment of peak counts against Froglife (1999) confirm that based on the data collected, this site would not be considered a key reptile site. The survey undertaken was a survey to establish presence or absence of reptile species on site. A further 13 survey visits would be required to give comparable data to achieve 20 survey visits in line with guidance for a population assessment.

Ecological Importance of Reptiles on Site

- 6.42 Common species of reptiles are protected from killing/injury under the Wildlife Countryside Act 1981 (as amended). Slow worms have a widespread distribution in Britain and are locally common in southeastern England, however due to the increase in habitat loss, modification and fragmentation, slow worms are declining in Britain (Platenberg & Langton 1996). Common lizards are considered locally abundant in Kent (KRAG, accessed 10th June 2025), however expert opinion consider this species to be generally declining in Britain (Tinsley-Marshall, et al, 2022).

Evaluation of Reptiles in Light of the Development

- 6.43 The populations of both species found on site are low according to Froglife (1999) criteria. However, with breeding confirmed for both species and distribution reasonably even across the site, consideration of the structure of the sward and undisturbed nature of the site leads to a conclusion that the survey may underrepresent an established population with many high-quality options for their lifecycle, shelter and food source available on site. Therefore, whilst the site does not meet the criteria for a Key Reptile Site it is considered to be a site of likely local importance for reptiles.
- 6.44 Given the wide distribution of reptiles across the site any future proposals will need to ensure appropriate mitigation measures to avoid killing and injury of reptiles present

and to avoid negative effects on the reptile population present. Recommendations for mitigation and enhancements are provided in Section 10 and 11 respectively.

Water Voles

- 6.45 The desk study provided a single record of water vole approximately 0.1km from the site boundary in Minster Marshes.
- 6.46 Water vole surveys conducted over May and August 2024 confirmed presence of water vole within all ditches on site. Ditch D1 which was not possible to access during the survey. Evidence recorded included burrows, footprints, runs, latrines and feeding remains (Table 16, Appendix 5).

Table 16: Water Vole Survey Results Summary

Survey date	Ditch No.	Signs recorded
07.05.24	D1, D2a, D3b	No signs
07.05.24	D2, D3a, D6	Latrines and/or feeding remains
07.05.24	D3, D4, D5	Burrow(s), latrine and feeding remains
03.09.24	D1, D2, D3, D3a, D3b	Burrow(s) and tracks/lawn/run
03.09.24	D2, D2a, D2b	Burrows
03.09.24	D4, D5, D6	No recent signs (old latrine in D4 only)

- 6.47 Due to the extent of evidence noted, the number of ditches present on site, and the early feasibility nature of this study, the focus was on recording presence and distribution rather than recording of all locations of evidence across the site. Once signs of water vole use was established at a given waterbody, the survey moved to the next waterbody. Ditch D5 included a more detailed recording process, to establish indicative use of ditch lengths to be extrapolated across site. The results in Figure 4 show where presence was observed, notation of field signs should be interpreted with care as these are a result of sampling effort rather than demonstrating higher/lower use by water voles.

Ecological Importance of Water Voles on Site

- 6.48 Water voles have suffered a significant decline in Britain from 1.169 million to 132,000. In Kent water vole distribution is linked with the complex water systems and reed beds found within the North Kent Marshes which Swale is located within. The water vole populations in Kent are of national importance with the North Kent Marshes forming one of three national key sites (Tinsley-Marshall, P., et al, 2022).

- 6.49 In addition to impacts from American mink *Neogale vison* factors detrimental to water vole habitat include wetland drainage, overgrazing and the degradation of the structural and vegetative suitability of banks for water vole burrows (Tinsley-Marshall, P., et al, 2022).

Evaluation of Water Voles in Light of the Development Proposals

- 6.50 Water voles are protected under the WCA (1981, as amended). A Natural England mitigation licence is required where a watercourse with water vole *Arvicola amphibius* present will be interrupted or disrupted by a proposal.
- 6.51 Proposals such as the aqua park, wakeboarding, slip n slide have the potential to result in degradation to water vole habitat and disturbance to water voles within their burrows on a permanent basis as a result of water levels and flow and visitor s. This is discussed further in Section 10 below.

Birds

- 6.52 The trees and buildings on site provide suitable habitat for nesting birds, with skylark and house sparrow observed nesting within building B1 at the time of the UKHabs Habitat Assessment. The grazing marsh and saline lagoon are suitable for wetland and overwintering birds. Observations during the initial site visit included three red-listed species (BoCC), lapwing *Vanellus vanellus*, starling and house sparrow and two amber-listed species, black headed gull *Larus ridibundus* and kestrel *Falco tinnunculus*.
- 6.53 Further wintering/wetland and breeding bird surveys were undertaken to inform the assessment of the coastal floodplain grazing marsh and saline lagoon habitats and whether the site supports bird assemblages present in the statutory designated sites within the wider area.
- 6.54 Bird species are classified according to their conservation status. This includes those listed as Birds of Conservation Concern (BoCC) within the UK and includes the following. Red List are birds of high conservation concern considered to be globally threatened according to IUCN criteria. Amber List are birds of medium conservation concern and those that are considered with an unfavourable conservation status within Europe. The Green List covers other species of birds that are least critical.

Breeding bird survey

- 6.55 Starling and house sparrow were noted nesting in building B1. Breeding bird surveys recorded forty bird species on site (Figures 5a-5d). Starling *Sturnus vulgaris* and house sparrow *Passer domesticus* were noted nesting in building B1. Four red listed species (skylark, starling, house sparrow and herring gull). Seventeen amber listed bird species were found using the site, a full species list is provided in Appendix 7.
- 6.56 Probable breeding is indicated by singing behaviour on site. All of the red listed species observed are considered to be breeding on site, skylark are breeding across the

grassland of the site. Of the amber listed species breeding on site meadow pipit, sedge warbler, oystercatcher, wood pigeon, and mallard behaviours were observed that point to breeding on site. Carrion crow *Corvus corone* and goldfinch *Carduelis carduelis* were also noted calling on site.

- 6.57 Redshank and oystercatcher are detailed as one of the qualifying species of the SPA/RAMSAR located approximately 3km from the site boundary. This is discussed in more detail below.

Wintering bird survey

- 6.58 Given the proximity of the site to internationally designated sites designated for their bird assemblages and the habitats on site wintering bird surveys were carried out.
- 6.59 The wintering bird surveys recorded use of the site by 39 species of birds. This includes seven red-listed species including skylark, house sparrow, lapwing *Vanellus vanellus*, mistle thrush *Turdus viscivorus*, herring gull *Larus argentatus* starling and curlew *Numenius arquata*. The full list is included in Appendix 8, Figures 6a to 6e illustrate the results of the surveys. Fourteen amber listed species were recorded including black headed gull, mallard, oystercatcher, redshank, song thrush, white throat, wigeon, brent goose, kestrel, meadow pipit, reed bunting, shoveler, rook and wood pigeon.
- 6.60 Redshank and oystercatcher were recorded on site over all five surveys, with a peak count of 40 and 141 individuals respectively. A wintering population of redshank are the qualifying feature of the Medway Estuary and Marshes SPA/RAMSAR, the Thames Marshes and Estuary SPA/RAMSAR and the Swale SPA, with a spring/autumn population at the Swale RAMSAR. A wintering population of oystercatcher are the qualifying feature of the Medway Estuary and Marshes SPA and the Swale SPA.
- 6.61 The following species found on site are also listed as the qualifying feature of one or more of the SPA/RAMSARs detailed above northern shoveler (peak count of one on site) *Anas clypeata*, mallard (peak count of six), brent goose *Branta bernicla bernicla* (peak count of one) and cormorant (peak count of one).
- 6.62 In addition, seven species recorded on site are also listed on the SPAs/RAMSARs assemblages of international importance include little grebe, redshank, curlew, great crested grebe, cormorant, wigeon, oystercatcher and lapwing.

Ecological Importance of Breeding and Wintering Birds on Site

- 6.63 No Schedule 1 species were found on site. Breeding bird activity was distributed across the site particularly in areas of longer grassland and scrub, hedges and trees. Wintering bird activity recorded was associated with the saline lagoon and grassland immediately surrounding the lagoon.
- 6.64 Two non-native birds listed on Schedule 9 of the WCA 1981 (as amended) were observed on site, Schedule 9 lists it is an offence to release into the wild, these are

Canada goose *Branta canadensis* and Egyptian goose *Alopechen aegyptica* were observed on site, no observable breeding behaviour was noted.

- 6.65 Davies et al (2023) defined functionally linked land (FLL) as areas of land occurring within 20km of an SPA that are regularly used by significant numbers of qualifying bird species. Significant numbers is defined as 0.5% of the GB population or 1000 individuals.
- 6.66 Table 17 provides a comparison of the numbers seen on site in relation to the numbers found. When compared with the peak counts on site the site does not form FLL for redshank and oystercatcher occurring within the SPA/RAMSARs.
- 6.67 Given the number of wintering and breeding bird species on site, the number of species that are qualifying species or of note for the nearby SPA/RAMSARs and the number of red and amber listed species the site is considered to be of county importance.

Table 17: Qualifying Bird Species at nearby SPA/RAMSAR Comparison with Bartons Point

Species (Peak Count on Site)	Medway Estuary and Marshes SPA	Thames Marshes and Estuary SPA/ RAMSAR	Swale SPA/RAMSAR
Redshank <i>Tringa totanus</i> (peak of 40)	SPA: 3,690 individuals 2.5% of the Great Britain (GB) wintering population RAMSAR: 3709 individuals or 1.4% of the spring/autumn population	SPA: 2.2% of the wintering Eastern Atlantic population RAMSAR: 1178 individuals or 1% of the GB wintering population	SPA: 2.1% of the wintering Eastern Atlantic population RAMSAR: 1712 individuals, or 1.4 of the spring/autumn Eastern Atlantic population
Oystercatcher <i>Haematopus ostralegus</i> (peak count of 141)	SPA: 3672 individuals 1% of the GB wintering population RAMSAR (3632 individuals 1.1% of the GB winter population		SPA: (3672 individuals 1% of the GB winter population RAMSAR (4509 individuals 1.4% of the GB winter population

Evaluation of Birds in Light of the Development Proposals

- 6.68 All active bird nests are protected under the WCA 1981 (as amended) from damage/destruction. Furthermore, birds that are listed on Schedule 1 of the Act are also protected from disturbance while they are nesting.

6.69 Proposals such as the aqua park, wakeboarding, slip n slide and expanded camping or other recreation activities have the potential to result in disturbance and loss of habitat availability to birds, both during breeding and overwintering activities. Significant mitigation including limiting the proposals and controlling visitor access to enhance these for birds to maintain the conservation of the species present.

6.70 Further recommendations in relation to breeding and wintering birds are provided in Section 10.

Invertebrates

6.71 Invertebrate surveys were undertaken over April, May, July and September 2024 by Dr Jonty Denton. The results are summarised below with a copy of the full report provided in Appendix 9, which includes a plan showing the location of significant captures.

Ecological Importance of Invertebrates on Site

6.72 The surveys confirmed 215 invertebrate taxa to be present on site, of these, 25 species had a conservation designation.

6.73 The brackish ditch complex across the eastern half of the site was confirmed to support a very rare assemblage. The most important find was the Schedule 5 Bembridge beetle *Paracymus aeneus*, the first record for East Kent and only the sixth known site in Britain.

6.74 The following species of note were also recorded within the brackish ditches across eastern ditches; water beetles *Berosus fulvus*, *Enochrus bicolor*, *E.halophilus*, *Helophorus fulgidicollis*, *H.alternans*, *Heterocerus obsoletus*, *Agabus conspersus* and *Hygrotus parallelogrammus*. Water boatman *Sigara stagnalis* was recorded in abundance with occasional *S.selecta*, and the shorebug *Saldula opacula* was frequent on the ditch edges and drawn down zones in the ditches.

6.75 Ditches to the south of the lagoon with an assemblage reflecting lower levels of salinity typical of the grazing level community on Minster Marshes, with the nationally scarce diving beetles *Hydaticus seminiger*, *Graptodytes bilineatus*, and the long-horned general soldierfly *Stratiomys longicornis*.

6.76 Three section 41 species were recorded. The sea aster mining bee *Colletes halophilus* (of which Britain supports a significant proportion of the world population) was recorded in July and September. Two section 41 butterflies were recorded within the grassland comprising the small heath *Coenonympha pamphilus* and the wall brown *Lasiommata megera*.

6.77 The Pantheon database tool was used to analyse the invertebrate sample data and assess assemblage data for favourable or unfavourable condition against SSSI standards. If an assemblage is found to be in favourable condition this would indicate the site is likely to be of significant importance for invertebrates.

- 6.78 The saltmarsh and transitional brackish marsh associated with the ditches on site was recorded with 9 species present and is in favourable condition, and therefore, likely to be of significant importance for invertebrates (Table 18, Appendix 9).

Table 18: Specific Assemblage Type Scores

Code	SAT	No Species	Reported Condition
M311	Saltmarsh & transitional brackish marsh	9	Favourable (9 species, 9 required)
W314	Reed fen and pools	4	Unfavourable (4 species, 11 required)
F002	Rich flower resource	10	Unfavourable (10 species, 15 required)
F112	Open short sward	4	Unfavourable (4 species, 13 required)
W211	Open water on disturbed mineral sediments	3	Unfavourable (3 species, 6 required)

Evaluation of Invertebrates in Light of the Development Proposals

- 6.79 Proposals such as the aqua park, wakeboarding, slip n slide and expanded camping or other recreation activities have the potential to result in disturbance and loss of habitat availability to invertebrates particularly where the water levels or wave power influence ditches. Visitor pressure and pet activity (particularly through commonly used flea and tick treatments such as imidacloprid and fipronil) cause mortality to invertebrates in waterbodies. Significant mitigation including limiting the proposals and controlling visitor access to enhance these for invertebrates will be required to maintain the conservation of the species present. Recommendations are provided in Section 10.

Assessment of Habitats on Site Against Priority Habitat Criteria

- 6.80 The following section provides an assessment of the habitats and species recorded on site against the Joint Nature Conservation Committee (JNCC) Biodiversity Action Plan (BAP) Criteria and UK Habitat Classification Criteria for Coastal Floodplain Grazing Marsh (CFGM) Habitats.
- 6.81 The habitats dominating the site meet the classification as CFGM due to being comprised of Other Neutral Grassland meadow and modified grassland with brackish ditches, see Tables 19, 20. The ditches include those of a sinuous nature and those

which are artificial drainage ditches. Most on site ditches maintain the water levels, however, some were noted to have dried in October 2024 to the east of the site. There is currently no clear management for grazing or hay/silage evident. The ditches support a rare invertebrate assemblage which is a key factor for CFGM and a wide range of wintering and breeding birds are present across the site.

Table 19: **Coastal Floodplain Grazing Marsh Criteria and Site Evaluation**

UK Habitat Classification Criteria – Coastal Floodplain Grazing Marsh
Definition: periodically inundated pasture, or meadow with ditches that maintain the water levels, containing standing, brackish or fresh water. The site is a complex of brackish drainage ditches with grassland meadows. Water levels are maintained in some but not all ditches. Landscape and Ecological Context: The habitat can form on reclaimed land behind sea walls. It may contain areas of lowland meadow, modified grassland and other neutral grasslands. The meadows are formed of other neutral grassland and modified grassland.
BAP Criteria – Coastal Floodplain Grazing Marsh
Grazing marsh is periodically inundated pasture, or meadow with ditches which maintain the water levels, containing standing brackish or fresh water. See above The ditches are especially rich in plants and invertebrates. Surveys confirm that the ditches support a rich invertebrate assemblage with a very rare invertebrate assemblage to the east of the site and other rare species to the south of the site. Almost all areas are grazed and some are cut for hay or silage. The habitats on site are not currently managed via grazing or cutting for hay/silage. Sites may contain seasonal water-filled hollows and permanent ponds with emergent swamp communities, but not extensive areas of tall fen species like reeds; although they may abut with fen and reed swamp communities. Seasonal water filled hollows are present on site. Grazing marshes are particularly important for the number of breeding waders such as snipe <i>Gallinago gallinago</i>, lapwing and curlew they support. Breeding waders such as oystercatcher, great white egret and shoveler. Internationally important populations of wintering wildfowl also occur including Bewick swans <i>Cygnus bewickii</i> and whooper swans <i>Cygnus cygnus</i>. Whilst Bewick and whooper swans were not recorded on site and site bird populations are not considered to be at internationally important levels, the site does support wintering wildfowl such as oystercatcher, redshank and curlew in relatively high numbers given the site size.

- 6.82 The boating lake meets the criteria for saline lagoon, being a saline artificial waterbody partially separated from the sea. Sea water exchange occurs through the connection to the Queensborough Lines scheduled ancient monument ditch, a 19th century defensive

linear earthwork. A salinity test undertaken on the lake on 14th January 2025 by Jo Lewis confirmed a result of 35 ppt which is the average value of natural seawater.

- 6.83 Small areas of residual saltmarsh habitat also occur to the edges of the brackish ditches to the west of site and to the saline lagoon. This includes the more sinous natural ditches to the northwest of the site where habitats are transitioning from relict saltmarsh habitats. In these areas purple glasswort *Salicornia ramosissima*, lesser sea spurrey *Spergularia marina*, greater sea spurry *S.media* and annual sea blight *Suaeda maritima* occur.

Table 20: **UK Habs Condition Description and Site Evaluation**



UK Habitat Classification Criteria – Coastal Saline Lagoon
Definition: Lagoons in the UK are essentially bodies, natural or artificial, of saline water that are partially separated from the adjacent sea. They retain a proportion of their sea water at low tide and may develop as brackish, full saline or hyper saline water bodies. The saline lagoon is an artificial waterbody, a boating lake which is connected to the adjacent Queensborough Lines, which was breached between 1973 to 1978 to enlarge the boating lake (Historic England, accessed 10th June 2025). The lagoon is saline at a level of 35ppt. Landscape and ecological context: Saline lagoons can contain a variety of substrata, often soft sediments that in turn may support tasselweeds and stoneworts as well as filamentous green and brown algae. In addition, saline lagoons contain invertebrates rarely found elsewhere. They also provide important habitat for waterfowl, marshland birds and seabirds. The flora within the lagoon was very limited. More diversity was present to the margins and boundaries as detailed in coastal saltmarsh above. Sea barley, golden samphire, purple glasswort and sea aster were all recorded to the lagoon margins. The lagoon and immediate surrounding habitats are also the focal point for wintering wildfowl e.g. oystercatchers, redshank and curlew. Ditches to the northeast of site include many invertebrate species of conservation value.
BAP Criteria – Saline lagoon
Overview as detailed by UK Habs criteria above. See above. The flora and invertebrate fauna present can be divided into three main components: those that are essentially freshwater in origin, those that are marine/brackish species, and those that are more specialist lagoonal species. The presence of certain indigenous and specialist plants and animals make this habitat important to the UK's overall biodiversity. The flora and fauna on site are saline/brackish species. There are several different types of lagoons, ranging from those separated from the adjacent sea by a barrier of sand or shingle ('typical lagoons'), to those arising as ponded waters in depressions on soft sedimentary shores, to those separated by a rocky sill or artificial construction such as a sea wall. The lagoon is separated from the sea by the shingle beach and artificial constructions including roads, car park, CFGM. Sea water exchange in lagoons occurs through a natural or man-modified channel or by percolation through, or overtopping of, the barrier. The salinity of the systems is determined by various levels of freshwater input from ground or surface waters. The degree of separation and the nature of the material separating the lagoon from the sea are the basis for distinguishing several different physiographic types of lagoon. The saline water within the lagoon is a result of the connection to the Queensborough Lines fortification. The lagoon does not appear to be tidal.

BAP Criteria – Coastal Saltmarsh Coastal saltmarshes comprise the upper, vegetated portions of intertidal mudflats, lying approximately between mean high water neap tides and mean high water spring tides. The lower limit of saltmarsh is defined as the lower limit of pioneer saltmarsh vegetation (but excluding seagrass <i>Zostera</i> beds) and the upper limit as one metre above the level of highest astronomical tides to take in transitional zones. Saltmarshes are usually restricted to comparatively sheltered locations in five main physiographic situations: in estuaries, in saline lagoons, behind barrier islands, at the heads of sea lochs, and on beach plains. Saltmarsh on site occurs to the edges of the saline lagoon and the brackish artificial ditches, with floral interest varying around the site. The development of saltmarsh vegetation is dependent on the presence of intertidal mudflats. Saltmarsh vegetation consists of a limited number of halophytic (salt tolerant) species adapted to regular immersion by the tides. A natural saltmarsh system shows a clear zonation according to the frequency of inundation. At the lowest level the pioneer glassworts <i>Salicornia</i> spp can withstand immersion by as many as 600 tides per year, while transitional species of the upper marsh can only withstand occasional inundation. The communities include small amounts of purple glasswort and transition to terrestrial plants at upper level of the banks. The zonation is less obvious in many places likely due to the artificial nature of the constructed saline lagoon and many drainage ditches but can be seen to some extent in association with the sinuous ditches present to the northwest and southern boundary. The communities of stabilised saltmarsh can be divided into species-poor low-mid marsh, and the more diverse communities of the mid-upper marsh. On traditionally grazed sites, saltmarsh vegetation is shorter and dominated by grasses. At the upper tidal limits, true saltmarsh communities are replaced by driftline, swamp or transitional communities which can only withstand occasional inundation. Saltmarsh communities are additionally affected by differences in climate, the particle size of the sediment and, within estuaries, by decreasing salinity in the upper reaches. The species poor ONG areas may be a result of saltmarsh which has transitioned/stabilised into CFGM over time.
UK Habitat Classification Criteria – Coastal Saltmarsh Comprise the upper vegetated portions of intertidal mudflats, lying approximately between mean high water neap tides and mean high water spring tides. The lower saltmarsh limit is defined as the lower limit of pioneer saltmarsh vegetation (but excluding sea grass <i>Zostera</i> beds) and the upper limit as 1m above the level of highest astronomical tides, to take in transitional zones. As above.

7.1 This section details a Biodiversity Net Gain (BNG) assessment based on calculations using Defra's Statutory Biodiversity Metric (2025) during 2025 to calculate the biodiversity baseline for habitats, hedgerows and watercourses on site. A feasibility level review of potential compensatory requirements if there were to be any loss of neutral grassland/impacts to ditches or lagoon, and potential if no onsite impacts were proposed the possibility for market offering of offsetting units is also included.

Baseline

- Table 20: Baseline Area Biodiversity Units*

Existing area habitats				Distinctiveness	Condition	Strategic significance	Required Action to Meet Trading Rules	Ecosystem benefits
Broad Habitat	Habitat Type	Irreplaceable habitat	Area (hectares)	Distinctiveness	Condition	Strategic significance		Total habitat units
Coastal lagoon	Coastal lagoon	No	6.5141	High	Moderate	Formally identified in local strategy	Some habitat required =	62.20
Coastal saltmarsh	Saltmarsh and saline wetlands	No	9.8669	High	Good	Formally identified in local strategy	Some habitat required =	5.50
Grassland	Floodplain wetland mosaic and OFOM	No	6.8814	High	Moderate	Area/compensation not in local strategy/ no local strategy	Some habitat required =	76.78
Grassland	Floodplain wetland mosaic and OFOM	No	11.6665	High	Moderate	Formally identified in local strategy	Some habitat required =	159.89
Heathland and shrub	Mixed scrub	No	0.1154	Medium	Poor	Location ecologically desirable but not in local strategy	Some broad habitat or a highly distinctive/rare habitat required (x)	0.01
Sparsely vegetated land	Tall tussock	No	0.33	Low	Moderate	Location ecologically desirable but not in local strategy	Rarely distinctive/rare or better habitat required =	1.43
Urban	Artificial unvegetated, unsealed surface	No	0.3889	V Low	N/A - Other	Area/compensation not in local strategy/ no local strategy	Compensation Not Required	0.00
Urban	Developed land; sealed surface	No	0.5103	V low	N/A - Other	Area/compensation not in local strategy/ no local strategy	Compensation Not Required	0.00
Watercourse footprint	Watercourse footprint	No	0.7063	V low	N/A - Other	Area/compensation not in local strategy/ no local strategy	Compensation Not Required	0.00
Individual trees	Rural tree	No	0.0814	Medium	Moderate	Location ecologically desirable but not in local strategy	Some broad habitat or a highly distinctive/rare habitat required (x)	0.72
Total habitat area				24.66				395.45
Site Area (Excluded area of individual trees, some water, individual buildings)				1.00				

Hedgerow Baseline

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Table 21: Baseline Hedgerow Biodiversity Units

Existing hedgerow habitats				Distinctiveness	Condition	Strategic significance	Required Action to Meet Trading Rules	Ecological baseline
Ref	Hedge number	Habitat type	Length (km)	Distinctiveness	Condition	Strategic significance	Required Action to Meet Trading Rules	Total hedgerow units
1		Line of trees	0.336	Low	Moderate	Area/compensation not in local strategy/ no local strategy	Same distinctiveness band or better	1.36
2								
3								
4								
5								
6								
			0.32					1.36

Watercourse Baseline

- 7.5 Six ditches were recorded on site (Table 22), a total of 2.78km which equates to 43.33 watercourse units.

Table 22: Baseline Watercourse Biodiversity Units

Existing watercourse type			Distinctiveness	Condition	Strategic significance	Watercourse encroachment	Riparian encroachment	Required Action to Meet Trading Rules	Ecological baseline
Ref	Watercourse type	Length (km)	Distinctiveness	Condition	Strategic significance	Extent of encroachment	Extent of encroachment for both banks	Required Action to Meet Trading Rules	Total watercourse units
1	Priority habitat	0.067	V High	Good	Formally identified in local strategy	No Encroachment	No Encroachment/ No Encroachment	Same habitat required - bespoke compensation option 2	1.85
2	Priority habitat	1.704	V High	Moderate	Formally identified in local strategy	No Encroachment	No Encroachment/ No Encroachment	Same habitat required - bespoke compensation option 2	35.01
3	Priority habitat	0.021	V High	Poor	Formally identified in local strategy	No Encroachment	No Encroachment/ No Encroachment	Same habitat required - bespoke compensation option 2	8.47
4									
5									
6									
7									
8									
			2.78						43.33

Baseline Biodiversity Units Summary and Net Gain Requirements

- 7.6 The only habitat which does not generate any units is artificial unvegetated surface and sealed land urban and sealed land.
- 7.7 In the event of an on site proposal being taken forward in the future which generates the requirement for statutory biodiversity net gain, in order to achieve a 10% net gain in line with the current policy requirement a minimum of 337.62 area habitat units and 1.39 hedgerow units and 47.67 watercourse units would be required post development in line with trading rules.

Mitigating the Loss of Area and Linear Habitats to Development

Habitats lost or impacted by any proposal would require compensation:

The metric rules ensure that habitat provided as compensation for loss of habitat used by protected species is not double counted when calculating the required habitat uplift

to achieve 10% net gain. For example, habitat required for BNG delivery is in addition to receptor areas for reptiles.

The metric also provides recommended actions to address the loss of each habitat, failing to meet these may result in a “trading error” which means BNG cannot be achieved. Broad indications of the recommendations are provided below.

- Priority habitat loss: requires the provision of the same types of priority habitat, (or similar measures for off site units) to be provided at the same or better condition.
- Scrub, hedge or tree loss: creation or restoration of the same broad habitat or higher distinctiveness habitat is required for example either by planting more scrub or a higher quality habitat such as lowland mixed deciduous woodland.
- Lagoon compensation could look to litter management for minor improvements

Register for Marketplace BNG Unit Sales

- 7.8 Potential for delivering off site compensation as part of marketplace offering for BNG units for sale: This has been explored at feasibility level, and there is a potential for ONG (grassland CFGM) and ditch improvements and management to be funded through sale in the marketplace (subject to all legal and administration responsibilities and costs of registration) of a small number of units (if there are no offsetting requirement generated by on site proposals).
- 7.9 Given the presence of priority habitats on site which are uncommon in Kent there is the potential to generate biodiversity offsetting units, which could be sold to developments which require off site units of this type and could be used to improve the habitats on site. This could involve improvements to grassland and ditch areas to allow increased or maintained water levels. However, any such enhancement approach would need to be undertaken in liaison with invertebrate experts due to the invertebrate interest and other stakeholders such as Kent Wildlife Trust given the Local Wildlife Site designation.
- 7.10 The implementation of a 30-year management plan would be required as a condition of BNG.

8 Planning Context

- 8.1 Relevant protected species legislation is given in Appendix 2.

National Planning Policy

- 8.2 Biodiversity, in particular protected species and habitats, is a material consideration of all planning applications. The National Planning Policy Framework (NPPF) was first published in March 2012 and updated in July 2018, February 2019, July 2021,

September 2023 and 20th December 2023. This sets out the government's planning policies for England and how these are expected to be applied.

- 8.3 The NPPF requires that the local planning authority should aim to enhance biodiversity when determining planning applications, and opportunities to incorporate biodiversity in and around developments should be encouraged, especially where this can secure measurable net gains for the environment. Chapter 15 "Conserving and enhancing the natural environment, paragraphs 180-194", states that this should be achieved by:

"..minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.."

- 8.4 Chapter 15 of the NPPF covers the natural environment and biodiversity; paragraphs 187-199 are provided in full in Appendix 10.

- 8.5 The relevant primary legislation for the statutory framework for biodiversity net gain is principally set out under Schedule 7A (Biodiversity Net Gain England) of the Town and Countryside Planning Act 1990. This legislation was inserted into the 1990 Act by Schedule 14 of the Environment Act 2021, and was amended by the Levelling Up and Regeneration Act 2023. The Biodiversity Gain (Town and Country Planning) (Consequential Amendments) Regulations 2024 made consequential amendments to other parts of the 1990 Act.

- 8.6 The biodiversity net gain regulations most directly relevant to planning are:

- The Environment Act 2021 (Commencement No. 8 and Transitional Provisions) Regulations 2024 which commence biodiversity net gain for most types of new planning applications and provides transitional arrangements for section 73 permissions.
- The Biodiversity Gain Requirements (Exemptions) Regulations 2024 which prescribe exemptions for categories of development to which biodiversity net gain does not apply.
- The Biodiversity Gain (Town and Country Planning) (Modifications and Amendments) Regulations 2024 which amend the Town and Country Planning (Development Management Procedure) (England) Order 2015 and the Town and Country Planning (Section 62A Applications) (Procedure and Consequential Amendments) Order 2013 to include provisions in respect of applications for planning permission and the submission and determination of Biodiversity Gain Plans, as well as modifications of Schedule 7A of the Town and Country Planning Act 1990 for phased development.
- The Biodiversity Gain Requirements (Irreplaceable Habitat) Regulations 2024 which set out the modifications for irreplaceable habitat, irreplaceable listed are blanket bog, lowland fens, limestone pavements, coastal sand dunes, ancient woodland, ancient and veteran trees, Spartina saltmarsh swards and Mediterranean saltmarsh scrub.

- 8.7 In addition, there are regulations for the Biodiversity Gain Site register established under section 100 of the Environment act 2021 for registered offsite biodiversity gains.

Regional/Local Planning Policy

- 8.8 The Swale Borough Council Local Plan “Bearing Fruits 2031” was adopted July 2017. Core Policy 7 provides the principal policy regarding the natural environment and policy, DM17 relates to the provision of open space, sports and recreation facilities, DM18 refers to local green spaces, which the site is designated as, DM28 relates specifically to conservation of biodiversity and DM30 relates to enabling development for landscape and biodiversity enhancement:

Policy CP 7 – Conserving and Enhancing the Natural Environment – Providing for Green Infrastructure

“The Council will work with partners and developers to ensure the protection, enhancement and delivery, as appropriate, of the Swale natural assets and green infrastructure network and its associated strategy. Development proposals will, as appropriate:

- 1. Recognise and value ecosystems for the wider services they provide, such as for food, water, flood mitigation, disease control, recreation, health and well-being;*
- 2. Protect the integrity of the existing green infrastructure network as illustrated by the Natural Assets and Green Infrastructure Strategy Map, having regard to the status of those designated for their importance as set out by Policy DM24 and Policy DM28;*
- 3. Where assessment indicates it is necessary to enhance and extend the network (including when management, mitigation and/or compensatory actions are required to address adverse harm), be guided by the Green Infrastructure Network and Strategy Map, prioritising actions toward identified Biodiversity Opportunity Areas;*
- 4. Ensure that there is no adverse effect on the integrity of a SAC, SPA or Ramsar site, alone or in combination with other plan and projects, as it would not be in accordance with the aims and objectives of this Local Plan;*
- 5. Require the completion of project specific Habitats Regulations Assessment, in accordance with Policy DM28, to ensure there are no likely significant effects upon any European designated site. For residential sites within 6km of an access point to any of the North Kent Marshes, development must contribute to its Strategic Access Management and Monitoring Strategy;*
- 6. Contribute to the objectives of the Nature Partnerships and Nature Improvement Areas in Kent;*
- 7. Make the enhancement of biodiversity and landscape as their primary purpose;*

8. *Promote the expansion of Swale’s natural assets and green infrastructure, including within new and existing developments, by:*

c. taking into account the guidelines and recommendations of relevant management plans and guidance, Biodiversity Action Plans and Supplementary Planning Documents;

e. achieving, where possible, a net gain of biodiversity;

h. including proposals to ‘green’ existing and proposed developed areas by increasing opportunities for nature in domestic gardens, streets and buildings, including street trees and in and around formal open spaces and sports provision.”

Policy DM 17 – Open space, sports and recreation provision

“Proposals for residential and other developments as appropriate will:

1.Safeguard existing open space, sports pitches and facilities in accordance with national policy having regard to the Council’s open space assessment and strategy and facilities planning model;

2.Make provision for open space in accordance with Table 7.5.1 and for sports facilities in accordance with the needs identifies bu the Council’s facilities planning model and the Open Space Strategy, whilst ensuring that the location of new open space, sports and recreation provision does not result in increased levels of recreational pressure on internally designated sites;

3.Where it is not appropriate to make provision for new open space and sports facilities on site, make contributions to the off-site funding of facilities to meet local deficiencies or to the qualitative or quantitative improvement of existing provision; and

4.Provide for the multi-use and purpose of open space and sports facilities as appropriate, with particular emphasis on contributing towards the Local Plan Natural Assets and Grenn Infrastructure Strategy, provided by Policy CP7, so as to achieve benefits for both communities and biodiversity.”

Policy DM 18 – Local Green Spaces

“Within designated Local Green Spaces planning permission will not be granted other than for:

1.The construction of a new building for one of the following purposes: essential facilities for outdoor sports or recreation, cemeteries, allotment use, or other uses of land where preserving the openness of the Local Green Space and not conflicting with its purpose;

2. *The re-use or replacement of an existing building, provided the re-use does not include any associated uses of land around the building which might conflict with the openness of the Local Green Space or the purposes of including land within it; and*

3. *The carrying out of an engineering or other operation or the making of any material change of use of land, provided that it maintains the openness and character of the Local Green Space.”*

Policy DM 28 – Biodiversity and Geological Conservation

“Development proposals will conserve, enhance and extend biodiversity, provide for net gains in biodiversity where possible, minimise any adverse impacts and compensate where impacts cannot be mitigated.

Part A. For designated sites

Development proposals will give weight to the protection of the following designated sites for biodiversity, as shown on the Proposals Map, which will be equal to the significance of their biodiversity/geological status, their contribution to wider ecological networks and the protection/recovery of priority species as follows:

1. *Within internationally designated sites (including candidate sites), the highest level of protection will apply. The Council will ensure that plans and projects proceed only when in accordance with relevant Directives, Conventions and Regulations. When the proposed development will have an adverse effect on the integrity of a European site, planning permission will only be granted in exceptional circumstances, where there are no less ecologically damaging alternatives, there are imperative reasons of overriding public interest and damage can be fully compensated.*

2. *Within nationally designated sites (including candidate sites), development will only be permitted where it is not likely to have an adverse effect on the designated site or its interests (either individually or in combination with other developments) unless the benefits of the development at this site clearly outweigh both the impacts that it is likely to have on the features of the designated site that make it of national importance and any broader impacts on the national network of Sites of Special Scientific Interest. Where damage to a nationally designated site cannot be avoided or mitigated, compensatory measures will be sought. Development will also accord with and support the conservation objectives of any biodiversity site management plans;*

3. *Within locally designated sites (including draft published sites), development likely to have an adverse effect will be permitted only where the damage can be avoided or adequately mitigated or when its need outweighs the biodiversity interest of the site. Compensation will be sought for loss or damage to locally designated sites.*

Part B: All Sites

Development proposals will:

1. Apply national planning policy in respect of the preservation, restoration and re-creation of:

a. the habitats, species and targets in UK and local Biodiversity Action Plans and Biodiversity Strategies;

b. linear and continuous landscape features or those acting as stepping-stones for biodiversity;

c. aged or veteran trees and irreplaceable habitat, including ancient woodland and traditional orchards;

2. Be informed by and further the guidelines and biodiversity network potential of the Council's Landscape Character and Biodiversity Assessment SPD;

3. Support, where appropriate, the vision and objectives of relevant environmental and biodiversity management and action plans

4. Be accompanied by appropriate surveys undertaken to clarify constraints or requirements that may apply to development, especially where it is known or likely that development sites are used by species, and/or contain habitats, that are subject to UK or European law;

5. When significant harm cannot be avoided through consideration of alternative sites or adequate mitigation provided on-site or within the immediate locality, compensatory measures will be achieved within the relevant Biodiversity Opportunity Area, or other location as agreed by the Local Planning Authority;

6. Provide, where possible, a net gain of biodiversity overall; and

7. Actively promote the expansion of biodiversity within the design of new development and with reference to the wider natural assets and green infrastructure strategy in Policy CP7."

Policy DM 30 – Enabling Development for Landscape and Biodiversity Enhancement

"Exceptionally, enabling development will be permitted for proposals that contravene planning policies for the protection of the countryside, when it is:

1. Proposing an outstanding design, layout and landscaping scheme that benefits the condition of landscape and biodiversity both substantially and disproportionately;

2. Securing the long-term future and appropriate management of land within Biodiversity Opportunity Area as identified by Policy CP 7 and/or landscapes in poor or moderate condition as identified by the Swale Landscape Character and Biodiversity Appraisal 2011;

3. Contributing significantly to targets identified in UK, Kent and Swale Biodiversity Action Plans and/or Biodiversity Strategies;

4. In the Kent Downs AONB, and is in accordance with its Management Plan and guidance;

5. In accordance with the objectives of any Nature Improvement Area or other relevant environmental management plan for the area;

6. Wholly necessary to resolve problems arising from the condition of the landscape and its biodiversity, rather than the circumstances of the present owner, the purchase price paid, or to make schemes viable;

7. Demonstrated that sufficient subsidy is not available from any other sources and that the amount of enabling development is the minimum necessary;

8. In locations that do not lead to dispersed development patterns and/or lengthy journeys to access jobs and services;

9. Demonstrated that after any dis-benefits have been minimised and mitigated, the overall landscape and biodiversity benefits of the proposal decisively and disproportionately outweigh harm to other public interests and policies;

10. Subject to legal monitoring and review arrangement intended to secure enhancements in perpetuity against agreed objectives and targets; and

11. Compliant with criteria for biodiversity as set out in Policy DM 28."

9 Feasibility Assessment

- 9.1 Recreational development options included within this feasibility assessment include a possible aqua park, wake boarding, slip n slide, paddle boarding, increased camping offering or raised glamping pods.

Wakeboarding, Aqua Park, Slip n Slide

- 9.2 The provision of wakeboarding which involves the use of mechanised boat or arm pulling boards around the lake is of particular concern due to the impact that the waves formed by the wakeboarding would have on the saline lagoon, the connected ditches, watervoles present year round and the wintering and breeding bird assemblages noted on the site.
- 9.3 The impact would be dependent on the level of wakeboarding. However, the lake is a relatively small area for motorised activities and the waves would be likely to cause increased degradation / deterioration and spread distribution of wave impacts

(undercutting of banks and scouring of vegetation) to the margins and the associated flora interest of the saline lagoon and potentially impact ditches and their associated species assemblages.

- 9.4 Dependent of location there is a low - high risk that this activity if introduced could result in a direct killing and injury of water voles. This is considered low if situated to the eastern extent of the lagoon, high to the west as the main activity was noted to the associated ditches and western lagoon banks. However, it cannot be ruled out that water voles will move through the lagoon from time to time. Noise, hydraulic changes pollution etc all have the potential to cause disturbance or destruction of resting/breeding places.
- 9.5 The installation of an aqua park or slip n slide would result in the loss of a significant area of grassland and lagoon bank, in addition, similar impacts of disturbance and hydrological changes could result, although, potentially at a lower intensity but for more prolonged periods and localised impacts due to the lack of motorised features, and fixed positioning of these features.
- 9.6 The increased level of noise and wave activity is likely to cause disturbance to water voles present within any burrows impacted by the activity and damage/ degradation to burrows and associated risk of harm or displacement of water voles.
- 9.7 The wakeboarding, slide and aqua park would normally occur in summer. A high proportion of the wintering bird activity on site is associated with the saline lagoon and immediate surrounding habitats. Although the wintering bird species are not all present at that time of year, some species which are present in higher amounts such as oystercatcher are present during the summer too. Where habitats become degraded impacts may also occur to the invertebrate communities which the bird communities are likely to forage upon.
- 9.8 The invertebrate fauna associated with the saline lagoon is considered to indicate a unfavourable condition for invertebrates currently and therefore any increase in degradation of the lagoon would likely contribute further to this.
- 9.9 Therefore, any proposal for wakeboarding would likely require a translocation exercise for water voles under licence where impacts to burrows occur and mitigation to off set the impacts of any likely degradation of the Saline Lagoon and associated CFGM ditch and Coastal Saltmarsh habitats. Such mitigation would likely comprise a mix of on site measures to protect and enhance parts of the saline lagoon where activities will not occur and purchase of off site units at significant cost (if comparable units type can be found) to compensate for any residual loss.
- 9.10 Whilst a more detailed study including hydrological and landscape modelling could be pursued with a detailed costing exercise, overall, given the balance of impacts to the flora and fauna interest on site and the likely cost of any mitigation exercise, incorporation of these activities is unlikely to be feasible.

- 9.11 Non-motorised watercraft such as paddle boarding could be incorporated into the recreational sport options on the lake in summer. This is a low impact and temporary option and may if managed appropriately provide opportunities for observing nature. Advice on the biodiversity present and appropriate behaviours along with recommendations of timing and location, e.g. restricted to the saline lagoon (exit and entry at eastern end only) and avoiding the ditches, to avoid disturbing and negatively impacting the water voles, nesting birds and priority habitats on site is given in Section 10.

Glamping and Camping Provision

- 9.12 The site currently offers the ability for camping on site. Detailed information on the existing extent and level of activities has not been provided however observations during the site visits indicate levels are relatively low and limited to the east of the site where modified grassland is present and maintained as a short sward.
- 9.13 Notable plant species are present to the eastern section of the site, in areas of short grassland. This may be due to low levels of recreational use from camping and dog walkers restricting the pressure from the grasses present allowing a more diverse fauna to develop. Therefore, a low level increase in the provision of camping areas, which results in some areas of modified grassland managed at a shorter sward to facilitate camping areas and informal mown paths for access could be beneficial to the grassland interest if managed and implemented appropriately. Increasing areas of modified grassland resulting in a loss of neutral grassland would need to be considered carefully in line with statutory BNG objectives to offset impacts.
- 9.14 Any such provision would need to be carefully managed to avoid impacting breeding skylarks, reptiles present on site and ditch plant assemblages, water vole and invertebrate populations.
- 9.15 There is a large area of short grassland which is used irregularly throughout the summer for circus and other recreational events and this would also be an ideal location to cite any increased provision for camping whilst ensuring limited impacts to species present.
- 9.16 A provision of a very low number of glamping pods could be undertaken in a small number of locations. This option would need to be carefully designed to ensure exemplar standards given the location within a local wildlife site and undertaken under a detailed mitigation strategy to avoid or minimise impacts to notable and rare flora and fauna on site including priority habitats, ground nesting skylarks and reptiles. Liaison with stakeholders such as Kent Wildlife Trust given the Local Wildlife Site designation is recommended.
- 9.17 Any increased camping / new glamping provision would need to be on the basis that no new toilet or other utility infrastructure would be implemented within these areas, the pre-existing shower and toilet provision within the car park areas would need to be used, this could be extended where the extension is placed in the existing hard standing

area and/or there is no resulting impact to the priority habitats and protected species present.

- 9.18 Where an updated BNG assessment is required to support a planning application, given the high baseline value of the site it is possible that off site BNG units would be required to offset any impacts and meet the statutory requirement for 10% biodiversity net gain.

10 Mitigation Measures

- 10.1 The following recommendations are provided to ensure no harm will come to protected species residing on or moving through site and to mitigate the loss of habitat or functionality of habitat.

Designated Sites

- 10.2 The site is located within 6km of the sites: Outer Thames Estuary SPA (Marine Component) Medway Estuary and Marshes SPA and Ramsar, the Swale SPA and Ramsar, Thames Estuary and Marshes SPA and Ramsar.
- 10.3 Individual planning applications need to be assessed for their effects on, and possible contributions to, the Green Infrastructure Network and for likely significant effects on Natura 2000 sites.
- 10.4 In addition, Swale Borough Council set out the requirement to minimise and mitigate impacts of recreational disturbance on the qualifying bird species for the internationally designated sites for biodiversity from developments within 6km of an SPA. This requires financial contributions toward the North Kent Strategic Access Management and Monitoring Strategy (SAMMS) for additional dwellings with other developments such as guest houses, camps and caravan sites assessed on a case-by-case basis (Swale Borough Council).
- 10.5 In the event a development proposal such as the provision of additional glamping units, or an increase in the caravan / camping provision is taken forward which has the potential to impact the SPA/SACs, a Habitat Regulations Assessment (HRA) may be required dependent on the type and extent of proposals. The HRA will be undertaken by the competent authority, however, a report to Inform the Competent Authorities Habitat Regulations Assessment would be provided with planning application documentation.
- 10.6 The proposed development has the potential to impact upon a SSSI. The Local Planning Authority will need to consult Natural England on likely risks from any proposal from proposed glamping units.
- 10.7 Due to the presence of priority habitats across the site, any proposal will incorporate mitigation measures to ensure that no indirect impact or disturbance occurs during

construction. These measures will be included within a Construction Environmental Management Plan and will include;

- Appropriate hoarding or fencing to any works area buffer from disturbance.
- Dust control during dry conditions
- Pollution control measures
- A sensitive lighting strategy to ensure disturbance to invertebrates and nocturnal wildlife is minimised.
- Works to take place in daytime hours only
- Noise and vibration levels to be controlled and minimised where possible.
- Post development planting will ensure that there is a vegetated buffer, to include native scrub and tree planting along the site boundary between the site and Franks Park SINC. No non-native species will be included within this planting.
- A post development lighting strategy will be adhered to ensure there is no inappropriate lighting directed within the LWS.

Priority Habitats

- 10.8 Two priority habitats are present on site; Coastal Lagoon (Saline Lagoon) and Coastal Floodplain Grazing Marsh. The latter includes the mosaic of other neutral grassland and modified grassland along with the ditches. Given the high status of the priority habitats present on site and early stage of the study at this stage it is assumed that no loss of priority habitat will occur. Any loss of priority habitat will be extremely difficult to off set on site and where trading standards for BNG are not achievable on site, would require purchase of off site units (if available) at significant cost to address.

Bats

- 10.9 Surveys found no bats to be roosting within B1 on site. A single willow *Salix sp.* was identified to the north of the site with peeled bark categorised as PRF-I, with the potential to support an individual roosting bat. In the event the tree is found to be affected by future proposals, the PRF will be inspected by a suitably experienced ecologist prior to felling.
- 10.10 Due to the current use of the site by foraging and commuting bats, any future lighting scheme will ensure there is no light spillage on the boundary hedgerows and trees, ditches or lagoon. This will include use of baffles/downward facing lights, bollard level lighting or low wattage lights with limited lighting within the UV spectrum. Security lights will be motion sensor and timed to be on for as short a time as possible.

10.11 In line with published guidance (CIEEM, 2019), and due to the mobile nature of bats, and potential for new roosting features to occur over time the results of the bat roost assessment within this report will be valid for 12 months. After this time period an updated bat roost assessment will be required.

Reptiles

10.12 Due to the presence of viviparous lizard and slow worm on site, any proposals such as that required for new glamping units will be subject to a detailed Ecological Mitigation Strategy (EMS) identifying the methodology for translocation or displacement of reptiles from any area of works to an identified receptor area on site, the process for translocation would be as.

- A 60-day translocation will be carried out during suitable weather periods between March and September avoiding the sensitive hibernation period from October to February.
- The translocation can be carried out once a suitable receptor area has been provided on site.
- Enhancement measures will be carried out to ensure that the receptor habitats are enhanced for reptiles. This receptor location will ensure that reptiles can disperse naturally into the wider area.
- Reptile fencing will be erected around the construction footprint boundary to prevent reptiles from re-entering the site prior to works.
- Where the total working area is very small and in modified grassland only the approach may not require a full 60 day translocation, displacement or a shorter period (subject to <5 days of no finds) would be employed as a proportional approach to be fully detailed in the EMS.

10.13 Providing these measures are followed the development would be compliant with all known legislation and planning policy pertaining to reptiles.

Water Voles

10.14 Due to the feasibility nature of this assessment at this stage no impact to the ditches is anticipated. In the event a later proposal is explored an updated survey will be undertaken prior to the commencement of any works to the ditches which will document the presence of any burrows within the area of works (or of indirect impacts arising from any proposed change in activities).

10.15 The design will aim to avoid any impacts where possible in the first instance, with mitigation for impacts to occur only as a last resort. Where it is not possible to design out any impacts an appropriate mitigation strategy will be implemented to ensure no impacts to the favourable conservation status of the water vole population on site.

- 10.16 A NE PSML may be required prior to the commencement of any works to the ditches or saline lagoon which will impact water vole habitat. If measures are temporary and can be carried out to avoid impact periods of most sensitivity (May – Sept and Nov – Feb) a licence may not be needed. Compensatory habitat will be required on a like for like basis, therefore, if ditches are impacted an increase in on site ditches will be required (subject to achieving BNG) or suitable improvements to an off site location

Breeding Birds

- 10.17 The boundary hedgerows and trees and grassland across the site provide suitable nesting habitat. Skylark and meadow pipit which are ground nesting birds were present across the site. Removal of grassland, trees or hedges will, where possible, avoid the bird nesting season, March to August inclusive. Should it not be possible to avoid this period, works will be completed under the supervision of a suitably qualified ecologist. A survey will be carried prior to works to identify nest sites. If an active bird nest is discovered a buffer zone (appropriate to the species identified) will be erected and works will cease in that area until the young have fledged.

Wintering Birds

- 10.18 Any works undertaken during the winter period will have regard to the wintering bird species present and any key foraging areas used around and within the Saline Lagoon. No works above 50 decibels will progress during the key overwintering period (Nov – mid - March).

Invertebrates

- 10.19 Given the rare assemblage of invertebrate species on site and early stage of the study at this stage, following discussion with the client it is assumed that no loss of or impacts to ditch habitat will occur. Where a proposal (including those to improve the biodiversity value of habitats within ditches) may impact the hydrological patterns, water levels or inundation rates modelling to establish impacts will be undertaken to inform discussions with an invertebrate expert and KWT to ensure that any impacts to the rare invertebrate communities and water vole are avoided or mitigated in accordance with the mitigation hierarchy.

11 Enhancement Recommendations

- 11.1 The NPPF requires that the local planning authority should aim to enhance biodiversity when determining planning applications and opportunities to incorporate biodiversity in and around developments should be encouraged.
- 11.2 Given the priority habitats on site and presence of protected species including water voles, reptiles, breeding and wintering birds including skylarks, redshanks, oystercatchers and rare invertebrate assemblages any enhancement would need to be

carefully considered to ensure no detrimental impact to the species and habitats found on site.

- 11.3 The national requirement for development projects to achieve 10% biodiversity came into force in February 2024 for major projects and for small sites from April 2024. In addition, the NPPF states 'opportunities to incorporate biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for the environment of enhance public access to nature where this is appropriate'.
- 11.4 There is potential for improvement in the condition of grassland, ditches and the lagoon via the implementation of a 30-year management plan, partial funding for this may be possible via registration and sale of BNG offsetting units. However, careful consideration of the ecology of all species/species assemblages and habitats present in the context of hydrological changes will be required. Local stakeholder (Kent Wildlife Trust) liaison is also recommended.
- 11.5 A separate detailed National Vegetation Classification Survey was undertaken in 2024, the results of which will be provided in a separate standalone report.
- 11.6 The following enhancements could be considered in :
 - Retention of all hedgerows and mature trees, where possible
 - Retention of dead wood piles to provide habitat for reptiles and invertebrates
 - Addition of at least three log / brash piles using cuttings from site to provide wildlife habitat
 - Addition of bat boxes installed onto the café area to provide roosting opportunities for bats
 - Addition of bird boxes to the café area to provide nesting opportunities for birds
 - Installation of at least two invertebrate boxes
 - Implementing a management plan to allow the grazing or annual hay cut and removal of cuttings to the grassland to a minimum height of 15cm (to avoid injury to reptiles) to increase the species diversity of the grassland.

12 Conclusion

- 12.1 The site is located within 6km of the site: Outer Thames Estuary SPA (Marine Component), Medway Estuary and Marshes SPA and Ramsar, the Swale SPA and Ramsar, Thames Estuary and Marshes SPA and Ramsar. Two priority habitats are present on site; Coastal Lagoon (Saline Lagoon) and Coastal Floodplain Grazing Marsh. The latter includes the on site mosaic of other neutral grassland and modified grassland along with the ditches.
- 12.2 Survey found no bats roosting on site, but use of the linear habitats for foraging. Water vole were found to be utilising all waterbodies on site. Bird surveys found starling and house sparrow using the café building B1 to nest. Skylark and meadow pipit are ground nesting birds using rough grassland Drafton site. Reptile species slow worm and common lizard were found across the site. Redshank and oystercatcher were recorded on site over all five surveys, with a peak count of 40 and 141 individuals respectively. A wintering population of redshank are the qualifying feature of the Medway Estuary and Marshes SPA/RAMSAR, the Thames Marshes and Estuary SPA/RAMSAR and the Swale SPA, with a spring/autumn population at the Swale RAMSAR. A wintering population of oystercatcher are the qualifying feature of the Medway Estuary and Marshes SPA and the Swale SPA.
- 12.3 Section 6 gives results of habitat and protected surveys and impacts in the context of relevant ecological functionality, local and site context. Section 10 provides mitigation measures required to meet legislation. Section 11 provides enhancement opportunities, which, in line with Chapter 15 of the NPPF, will enhance the biodiversity of the site and offer opportunities for a wide range of species including invertebrates, birds and bats.
- 12.4 Section 7 provides the Biodiversity Net Gain baseline unit value of 304.25 AUBU, 1.26 baseline hedge units, 43.33 watercourse units. In line with the current policy requirement a minimum of 337.62 area habitat units and 1.39 hedgerow units and 47.67 watercourse units would be required post development to achieve a 10% BNG uplift.

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14 Appendices

Appendix 1: Level of Importance

Appendix 2: Relevant Legislation

Appendix 3: Designated Features of Internationally Designated Sites

Appendix 4: List of Terrestrial Plant Species

Appendix 5: Water Vole Survey Results

Appendix 6: Reptile Survey Results

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Appendix 9: Invertebrate Report

Appendix 10: NPPF Chapter 15

Appendix 11: Site Photographs

Appendix 1 Level of Importance

Geographic Scale	Example
International	An internationally designated site¹, or site which would meet the criteria for such a designation. A viable area of Annexe 1 habitat type, or smaller area essential to maintain the viability of a larger whole. Any regularly occurring population of an internationally important species, threatened or rare in the UK. A regularly occurring, nationally significant population/ number of any internationally important species.
National	A nationally designated site², or site which would meet the criteria of such a designation. A viable area of a Habitat of Principal Importance and priority habitats in England (NERC Act 2006) or smaller areas essential to maintain the viability of a larger whole. Any regularly occurring, regionally or county significant population/number of any nationally important species. A feature identified as of Habitat or Species of Principal Importance or Priority habitats
Regional	Sites which exceed the County-level designations but fall short of SSSI selection guidelines. Viable areas of key habitat identified in the Regional BAP or smaller areas essential to maintain the viability of a larger whole. Viable areas of key habitat of Regional value in the appropriate Natural Area profile. Any regularly occurring, locally significant population of a species nationally scarce which occurs in 16-100 10km squares in the UK or in a Regional BAP or relevant Natural Area on account of regional rarity or localisation. A regularly occurring, locally significant number of a regionally important species.
Metropolitan, County, Vice County	Semi-natural ancient woodland greater than 0.25ha. County/Metropolitan sites which meet the published ecological selection criteria for designation, including Local Nature Reserves (LNR) selected on County/Metropolitan ecological criteria. A viable area of Habitat of Principle Importance and Priority Habitats in England (NERC) A regularly occurring, locally significant population of a County/Metropolitan “red data book” or LBAP species on account of regional rarity or localisation. A regularly occurring, locally significant number of a County/Metropolitan important species.

Geographic Scale	Example
District	Semi-natural ancient woodland smaller than 0.25 ha. Areas of habitat identified in a sub-county (District/Borough) BAP or in the relevant Natural Area profile. District sites that meet the published ecological selection criteria for designation, including LNR selected on District/Borough ecological criteria. Sites/features scarce within the District/Borough. A diverse and/or ecologically valuable hedgerow network. A population of a species that is listed in a District/Borough BAP because of its rarity in the locality or in the relevant Natural Area profile because of its regional rarity or localisation. A regularly occurring, locally significant number of a District/Borough important species during a critical phase of its life cycle.
Local	Areas of habitat considered to appreciably enrich the habitat resource within the context of the parish or neighbourhood (e.g. species-rich hedgerows); and LNRs selected on parish ecological criteria.

¹ Such as Special Protection Areas (SPAs), Special Areas of Conservation (SACs) or, Wetlands of International Importance (RAMSAR)

² Such as Site of Special Scientific Interest (SSSI)

Appendix 2 Relevant Legislation

Species	Legal Protection
Bats, Dormice, GCN	All British species of bats, GCN and dormice and their resting and breeding sites, have legal protection under UK and European law (Wildlife and Countryside Act (WCA) 1981 (as amended), and the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019) It is an offence to: • capture, kill, disturb or injure a dormouse • damage or destroy a breeding or resting place • obstruct access to their resting or sheltering places • possess, sell, control or transport live or dead individuals, or parts of them
Badgers	Badgers, and their setts, are protected in the UK under the Protection of Badgers Act 1992. It is an offence to: • intentionally capture, kill or injure a badger • damage, destroy or block access to their setts • disturb badgers in setts • treat a badger cruelly • deliberately / intentionally allow a dog into a sett • bait or dig for badgers
Reptiles	All common reptiles are protected from killing or injury under the WCA 1981, as amended.
Birds	All active bird nests are protected under the WCA 1981, as amended from damage/destruction. Furthermore, birds that are listed on Schedule 1 of the Act are also protected from disturbance while they are nesting.

Invasive Plants/Animals	Species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) are considered to be invasive. It is an offence to plant or cause these species to grow in the wild.
Protected plants, fungi or lichens	For plants, fungi or lichens listed on Schedule 8 of the Wildlife and Countryside Act 1981 (as amended) it is an offence to intentionally pick, uproot, or destroy them, unless it could not be reasonably avoided (e.g. the incidental result of a lawful action).
Section 41 Priority Species	Regard must be given to the conservation of species listed as rare and threatened species under Section 41 of the Natural Environment and Rural Communities Act (2006) when making planning decisions.

Appendix 3. Designated Features of Internationally Designated Sites

Site Designation/ Reference	Reason for Designation
Outer Thames Estuary SPA (Marine Component)	Protected features: Supports 38% of the Great Britain (GB) overwintering population of red throated diver <i>Gavia stellata</i> . Supports breeding populations of common tern <i>Sterna Hirundo</i> (2.66% of the GB population) and little tern <i>Sternula albifrons</i> (19.64% of the GB population).
Medway Estuary and Marshes SPA and Ramsar	Qualifying species: During the breeding season the area regularly supports avocet <i>Recurvirostra avosetta</i> (6.2%), Little tern <i>Sterna albifrons</i> (1.2%), common tern <i>Sterna Hirundo</i> (0.6%). 0.7% of the population, <i>Calidris alpina alpina</i> 2.3% of the GB population, <i>Tringa tetanus</i> 0.9% of the GB population Also qualifying for important overwintering assemblage of birds: Over winter the area regularly supports waterfowl, including: bewickii swan <i>Cygnus columbianus bewickii</i> (0.2%), avocet (24.7%), pintail <i>Anas acuta</i> (1.2%), shoveler <i>Anas clypeata</i> (0.8%), teal <i>Anas crecca</i> (1.3%), wigeon <i>Anas penelope</i> (1.6%), turnstone <i>Arenaria interpres</i> (0.9%), brent goose <i>Branta bernicla bernicla</i> (1.1%), dunlin <i>Calidris alpina alpina</i> (1.9%), knot <i>Calidris canutus</i> (0.2%), ringed plover <i>Charadrius hiaticula</i> (1.6%), oystercatcher <i>Haematopus ostralegus</i> (1%), black-tailed godwit <i>Limosa limosa islandica</i> (12.9%), curlew <i>Numenius arquata</i> (1.7%), grey plover <i>Pluvialis squatarola</i> (2%), shelduck <i>Tadorna tadorna</i> (1.5%), greenshank <i>Tringa nebularia</i> (2.6%), redshank <i>Tringa totanus</i> (2.1%).
The Swale SPA and Ramsar	Qualifying species: brent goose <i>Branta bernicla bernicla</i> , <i>Anas strepera</i> , <i>Anas crecca</i> , oystercatcher <i>Haematopus ostralegus</i> , ringed plover <i>Charadrius hiaticula</i> , grey plover <i>Pluvialis squatarola</i> , dunlin <i>Calidris alpina alpina</i> , curlew <i>Numenius arquata</i> , redshank <i>Tringa totanus</i> .
Thames Estuary and Marshes SPA and Ramsar	Qualifying species: Supports 38% of the Great Britain (GB) overwintering population of red throated diver <i>Gavia stellata</i> . Supports breeding populations of common tern <i>Sterna Hirundo</i> (2.66% of the GB population) and little tern <i>Sternula albifrons</i> (19.64% of the GB population).

Appendix 4. List of Terrestrial Plant Species

Habitat Type & Area	Common Name	Scientific Name	Presence (DAFOR scale)
Area 1. lowland meadow , mesotrophic grassland covering the majority of the south and west of site			
	Common Couch	<i>Elytrigia repens</i>	D
	Meadow Foxtail	<i>Alopecurus pratensis</i>	D
	Creeping Bent	<i>Agrostis stolonifera</i>	D
	Smooth Tare	<i>Vicia tetrasperma</i>	A
	False Oat Grass	<i>Arrhenatherum elatius</i>	A
	Meadow Fescue	<i>Festuca pratensis</i>	A
	Cock's Foot	<i>Dactylis glomerata</i>	A
	Sea Couch	<i>Elytrigia atherica</i>	A
	Yorkshire fog	<i>Holcus lanatus</i>	F
	Divided sedge	<i>Carex divisa</i>	F
	Lesser Stitchwort	<i>Stellaria graminea</i>	F
	Marsh Foxtail	<i>Alopecurus geniculatus</i>	O
	Spear-leaved Orache	<i>Atriplex prostrata</i>	O
	Cleavers	<i>Gallium aparine</i>	O
	Grass Vetchling	<i>Lathyrus nissolia</i>	O
	Wild Carrot	<i>Daucus carota</i>	O
	Meadow Barley	<i>Hordeum secalinum</i>	O
	Jacobaea erucifolia	<i>Hoary Ragwort</i>	O
	Timothy	<i>Phleum pratense</i>	O
	Common Bent	<i>Agrostis capillaris</i>	R
	Smaller cats tail	<i>Typha angustifolia</i>	R
	Common vetch	<i>Vicia sativa</i>	R
	Curled Dock	<i>Rumex crispus</i>	R

	Meadow Vetchling	<i>Lathyrus pratensis</i>	R
	Hairy Vetchling	<i>Lathyrus hirsutus</i>	R
	Spear Thistle	<i>Cirsium vulgare</i>	R
Area 2.			
Central C3.1 areas	Thistle spp.	Cirsium spp.	A
Central C3.1 areas	Willowherb sp.	Epilobium sp.	O
Central C3.1 areas	Common nettle	<i>Urtica dioica</i>	A
Central C3.1 areas	Ox eye daisy	<i>Leucanthemum vulgare</i>	R
Central C3.1 areas	Cleavers	<i>Galium aparine</i>	O
Central C3.1 areas	Moss spp.	-	D
	Bare ground	-	R
J2.1.2 Intact hedge – species-poor: Several sections around the site boundary			
South boundary line	Leylandii sp.	<i>Cupressus × leylandii</i>	R
Southeast corner, Eastern boundary line & North east corner	Blackthorn	<i>Prunus spinosa</i>	A
Eastern and western boundaries	Rose sp.	<i>Prunus</i> sp.	F
Eastern and western boundaries	Ash	<i>Fraxinus excelsior</i>	F
Eastern and western boundaries	Hazel	<i>Corylus avellana</i>	F
Eastern and western boundaries	Common ivy	<i>Hedera helix</i>	A
A2.1 Scrub - Dense: Across whole site, excluding a strip in the centre			
Across whole area	Bramble	<i>Rubus fruticosus</i>	D
Along eastern boundary beside hedge	Blackthorn	<i>Prunus spinosa</i>	A
A2.2 Scrub - Scattered: Within ruderal vegetation in the centre of site			
Two patches within ruderals	Bramble	<i>Rubus fruticosus</i>	D

Appendix 5 Water Vole Survey Results

Survey date	Ditch No.	Signs recorded
07.05.24	D1	No signs
07.05.24	D2	4 latrines, 2 feeding remains
07.05.24	D2a	No signs
07.05.24	D3	1 latrine, 1 feeding remains & 1 burrow
07.05.24	D3a	1 latrine, 1 feeding remains
07.05.24	D3b	No signs
07.05.24	D4	1 latrine, 1 feeding remains & 1 burrow
07.05.24	D5	17 latrines, 7 feeding remains & 8 burrows
07.05.24	D6	7 latrines, 3 feeding remains
03.09.24	D1	Above water burrows and tracks
03.09.24	D2	Five above water burrows
03.09.24	D2a	Above water burrow
03.09.24	D2b	Above water burrow
03.09.24	D3	Prints, burrow
03.09.24	D3a	Above water burrow, lawn.
03.09.24	D3b	Above water burrow and run
03.09.24	D4	Old latrine
03.09.24	D5	No signs
03.09.24	D6	No signs
03.09.24	D3	Prints, burrow
03.09.24	D3a	Above water burrow, lawn
03.09.24	D3b	Above water burrow and run
03.09.24	D4	Old latrine
03.09.24	D4	No fresh signs

Survey date	Ditch No.	Signs recorded
03.09.24	D5	No fresh signs
03.09.24	D5	No fresh signs
03.09.24	D6	No fresh signs

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Appendix 6 Reptile Survey Results

Date	Species	No	Adult/ Juvenile	Mat Number
14 June 24	Common lizard	33	Adult	200,201,210,133,240,243,242,239,226,224,174,178,179,191,192,193,170,168,103,44,31,21,46,67,52,74,78
14 June 24	Common lizard	17	Juvenile	202,217,155,242,238,232,231,228,222,173,92,93,12,46,48,81
14 June 24	Slow worm	25	Adult	201,207,169,168,157,249,246,238,184,185,193,194,181,107,41,42,59
14 June 24	Slow worm	22	Juvenile	201,203,171,164,159,156,151,234,233,176,177,161,193,175,169,151,100,19,58
20 June 24	Common lizard	20	Adult	179,192,191,193,170,168,103,44,31,21,46,67,52,74,78
20 June 24	Common lizard	14	Juvenile	202,217,155,242,228,222,173,92,93,12,46,48,81
20 June 24	Slow worm	7	Adult	181,107,41,42,59
20 June 24	Slow worm	6	Juvenile	175,169,151,100,19,58
16 July 24	Common lizard	111	Adult	233,220,217,183,174,173,169,168,168,194,48,87,244,239,239,238,236,227,227,74,107,112,113,114,98,243,236,227,227,122,46,11,20,24,36,41,52,54,61,69,17,123,230,214,195,186,231
16 July 24	Common lizard	75	Juveniles	227,170,166,157,128,113,99,125,248,247,242,239,238,236,233,194,186,167,161,162,160,154,155,152,130,131,29,58,72,66,80,87,85,246,231,217,173,169,167,163,131,135,99,106,121,50,30,81,246,215,167,167,221,221,227,212
16 July 24	Slow worm	18	Adult	235,232,191,166,163,151,123,43,45,64,32,189,124,97,119,111,107

Date	Species	No	Adult/ Juvenile	Mat Number
16 July 24	Slow worm	16	Juvenile	231,246,129,99,245,216,99,232,177,117,32,114,109,186
12 Sept 24	Common lizard	7	Adult	98,32,212,162,162,194,48
12 Sept 24	Common lizard	1	Juvenile	125
12 Sept 24	Slow worm	7	Adult	32,189,124,97,119,111,107
12 Sept 24	Slow worm	12	Juvenile	245,216,99,232,177,117,32,114,109,186
17 Sept 24	Common lizard	59	Adult	244,239,239,238,236,227,222,201,194,185,184,184,163,162,153,52,15,24,77,81,87,74,107,112,113,114,98,243,236,227,226,192,173,171,170,169,168,167,153,135,101,109,119,122,46,11,20,24,36,41,52,54,61,69
17 Sept 24	Common Lizard	37	Juvenile	248,247,242,239,238,236,233,194,186,167,161,162,160,154,155,152,130,131,129,58,72,66,80,87,85
17 Sept 24	Slow worm	3	Adult	189,124,97
17 Sept 24	Slow worm	2	Juvenile	99
24 Sept 24	Common Lizard	31	Adult	243,236,227,226,192,173,171,170,169,168,167,153,135,101,109,119,122,46,11,20,24,36,41,52,54,61,69
17 Sept 24	Common Lizard	18	Juvenile	246,231,217,173,169,167,163,131,135,99,106,121,50
17 Sept 24	Slow worm	1	Adult	119
17 Sept 24	Slow worm	3	Juvenile	232,177,117
26 Sept 24	Common Lizard	26	Adult	17,22,24,30,37,109,136,63,79,98,102,102,215,168,221,229,230,214,195,186,231
26 Sept 24	Common Lizard	17	Juvenile	246,231,217,173,169,167,163,131,135,99,106,121
26 Sept 24	Slow worm	2	Adult	111,107

Date	Species	No	Adult/ Juvenile	Mat Number
26 Sept 24	Slow worm	4	Juvenile	32,114,109,186

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Appendix 7 Breeding Bird Survey Results

Birds Recorded on Site During The Breeding Bird Survey						
Date	Common name	Scientific name	Peak Count	Possible No Territories	BoCC Status	Behaviour
28.03.24	Black Headed Gull	Chroicocephalus ridibundus	20	3	Amber	In flight landed on site
28.03.24	Carrion Crow	Corvus Corone	1	1	Green	In flight on site
28.03.25	Canada Goose	Branta canadensis	1	1	Green (schedule 9)	In flight on site
28.03.24	Meadow Pipit	Anthus pratensis	3	4	Amber	Singing, calling and in flight
28.03.24	Mediterranean gull	Larus melanocephalus	10	1	Amber	No notable behaviour on site
28.03.24	Mute Swan	Cygnus olor	1	1	Green	On lake
28.03.25	Oystercatcher	Haematopus ostralegus	1	1	Amber	On the ground
28.03.26	Pied Wagtail	Motacilla alba	1	1	Green	On the ground
28.03.24	Redshank	Tringa totanus	1		Amber	No notable behaviour
28.03.24	Reed Bunting	Emberiza Schoeniclus	1	1	Amber	No notable behaviour
28.03.24	Skylark	Alauda arvensis	3	4	Red	Singing and calling
28.03.24	Stonechat	Sazicola rubicola	2	1	Green	No notable behaviour on site
28.03.24	Wigeon	Mareca penelope	3	2	Amber	On lake
28.03.24	Magpie	Pica Pica	1	1	Green	No notable behaviour
28.03.24	House Sparrow	Passer domesticus	1	1	Red	Nesting in B1
28.03.24	Starling	Stumus vulgaris	3	1	Red	Nesting in B1
25.04.23	Blackbird	Turdus merula	1	1	Green	In flight on site
25.04.24	Carrion Crow	Corvus Corone	1	1	Green	Observed on site
25.04.25	Black Headed Gull	Chroicocephalus ridibundus	1	1	Green	In flight
25.04.24	Goldfinch	Carduelis carduelis	1	1	Green	Singing
25.04.24	Great Crested Grebe	Podiceps cristatus	1	1	Green	On lake
25.04.24	Great White Egret	Ardea alba	1	1	Amber	In flight on site
25.04.24	Kestrel	Falco tinnunculus	1	1	Amber	In flight
25.04.24	Lesser Whitethroat	Curruca curruca	1	1	Green	No notable behaviour on site
25.04.24	Mallard	Anas platyrhynchos	2	3	Amber	On lake, on site, and flying onto site
25.04.24	Oystercatcher	Haematopus ostralegus	2	1	Amber	Singing & in flight from site
25.04.24	Sedge Warbler	Acrocephalus schoenobaenus	1	1	Amber	Flying off site from site
25.04.24	Skylark	Alauda arvensis	2	4	Red	Singing
25.04.24	Starling	Stumus vulgaris	1	1	Red	Seen with nest material flying into B1
25.04.24	House Sparrow	Passer domesticus	1	1	Red	Nesting in B1
25.04.24	Wren	Troglodytes troglodytes	1	1	Amber	Singing off site adjacent to boundary
21.05.24	Blackbird	Turdus merula	1	2	Green	In flight on site
21.05.24	Carrion Crow	Corvus corone	1	1	Green	Calling & in flight
21.05.25	Great Tit	Parus major	1	1	Green	In flight on site
21.05.24	Jackdaw	Coloeus monedula	1	1	Green	No notable behaviour on site
21.05.24	Little Egret	Egretta garzetta	1	1	Green	In flight on site
21.05.24	Whitethroat	Sylvia communis	1	3	Amber	Singing in flight towards lake
21.05.24	Starling	Stumus vulgaris	1	1	Red	Seen with nest material flying into B1
21.05.24	House Sparrow	Passer domesticus	1	1	Red	No notable behaviour on site
21.05.24	Mallard	Anas platyrhynchos	5	2	Amber	On lake and a female mated with 4 ducklings recorded within the ditch on site.
21.05.25	Magpie	Pica Pica	1	1	Green	In flight on site
21.05.26	Meadow pipit	Anthus pratensis	2	1	Amber	Singing
21.05.24	Swallow	Hirundo rustica	1	1	Green	In flight landed off site, adjacent to boundary
20.06.24	Herring Gull	Larus argentatus	1	1	Red	In flight
20.06.24	House Sparrow	Passer domesticus	5	4	Red	No behaviour
20.06.25	Goldfinch	Carduelis carduelis	2	1	Green	Singing
20.06.24	Magpie	Pica Pica	4	2	Green	In flight and on site
20.06.24	Collared Dove	Streptopelia decaocto	1	1	Green	In flight
20.06.24	Egyptian Goose	Alopochen aegyptiaca	1	1	Green (schedule 9)	No notable behaviour on site
20.06.24	Green Woodpecker	Picus viridis	1	1	Green	No notable behaviour on site
20.06.24	Pied Wagtail	Motacilla alba	5	1	Green	In flight onto site
20.06.24	Starling	Stumus vulgaris	12	2	Red	In flight circling or ariel foraging over a small area of land.
20.06.24	Wood pigeon	Columba palumbus	2	1	Amber	Singing and present on site

Birds Recorded Off Site during the Breeding Bird Survey					
Date	Common name	Scientific name	Peak Count	BoCC Status	Behaviour
28.03.24	Canada goose	Branta canadensis	4	Green (Sche)	Singing and flying off site
28.03.24	Eurasian coot	Fulica atra	1	Green	In ditch off site
28.03.24	Long eared owl	Asio otus	2	Green	Alarm calling off site
28.03.24	Blackbird	Turdus merula	1	Green	In hedgrow offsite
28.03.24	Skylark	Alauda arvensis	2	Amber	Singing in fields to the south of site.
25.04.24	Cormorant	Phalacrocorax carbo	1	Green	In flight off site
25.04.24	Oystercatcher	Haematopus ostralegus	2	Amber	Alarm calling off site
25.04.24	Skylark	Alauda arvensis	2	Amber	Singing in fields to the south of site.
25.04.24	Eurasian coot	Fulica atra	1	Green	In ditch off site
25.04.24	Meadow Pipit	Anthus pratensis	2	Amber	Singing, calling and in flight
25.04.24	Canada goose	Branta canadensis	2	Green	Singing and flying off site
25.04.25	Swallow	Hirundo rustica	1	Green	In flight landed off site, adjacent to boundary
21.05.25	Moorhen	Gallinula chloropus	1	Green	No notable behaviour Off site
21.05.26	Whitethroat	Sylvia communis	1	Amber	Singing in fields to the north of site
21.05.27	Black Headed Gull	Chroicocephalus ridibundus	1	Green	On the canal to the north of the site
21.05.28	Starling	Sturnus vulgaris	1	Red	20+ Starling foraging on the field to the south of the site
21.05.29	Skylark	Alauda arvensis	2	Amber	Singing in fields to the south of site.
21.05.30	Oystercatcher	Haematopus ostralegus	2	Amber	Flying across the site from west to east and north to south
21.05.31	Canada goose	Branta canadensis	2	Green	Singing and flying off site
21.05.32	Herring Gull	Larus argentatus	1	Red	In flight from over fields to the west
20.06.24	Lesser Black Backed Gull	Larus fuscus	1	Green	In flight off site
20.06.24	Pheasant	Phasianus colchicus	1	Non native	Singing off site
20.06.24	Oystercatcher	Haematopus ostralegus	2	Amber	Flying across east to west along the canal to the north of the site
20.06.24	Skylark	Alauda arvensis	2	Amber	Singing in fields to the south of site.
20.06.24	Whitethroat	Sylvia communis	1	Amber	Singing in scrub to the west of the site
20.06.24	Wood pigeon	Columba palumbus	2	Amber	Singing from the hedgrow to the north of the site
20.06.24	Starling	Sturnus vulgaris	1	Red	Flying north to south above the offsite fields to the west of site
20.06.24	Herring Gull	Larus argentatus	1	Red	In flight from north to south over fields to the west
20.06.24	Meadow Pipit	Anthus pratensis	1	Amber	Singing and calling in fields to the south of the site

Appendix 8 Wintering Bird Survey Results

Birds Recorded On Site

Birds Recorded On Site During the Wintering Bird Survey						
Date	Common name	Scientific name	No	BoCC Status	SPA species	Behaviour
12/03/2024	Black Headed G	<i>Chroicocephalus</i>	1	Green		Visual
12/03/2024	Cormorant	<i>Phalacrocorax c</i>	1	Green	Yes (1)	Visual
12/03/2024	Eurasian Skylar	<i>Alauda arvensis</i>	1	Red		Visual
12/03/2024	Long eared owl	<i>Asio otus</i>	1	Green		Visual
12/03/2024	Mallard	<i>Anas platyrhyn</i>	3	Amber	Yes (1)	Visual
12/03/2024	Oystercatcher	<i>Haematopus os</i>	100	Amber	Yes (1, 2)	Visual
12/03/2024	Redshank	<i>Tringa totanus</i>	10	Amber	Yes (1)	Visual
12/03/2024	Song thrush	<i>Turdus philome</i>	1	Amber		Visual
12/03/2024	Whitethroat	<i>Sylvia commun</i>	1	Amber		Visual
12/03/2024	Wigeon	<i>Mareca penelo</i>	14	Amber		Visual
01/11/2024	Black Headed G	<i>Chroicocephalus</i>	2	Green		Visual
01/11/2024	Brent goose	<i>Branta bernicla</i>	1	Amber		Visual
01/11/2024	Chiffchaff	<i>Phylloscopus co</i>	2	Green		Visual
01/11/2024	Coot	<i>Fulica atra</i>	10	Green		Visual
01/11/2024	Cormorant	<i>Phalacrocorax c</i>	1	Green		Visual
01/11/2024	Goldfinch	<i>Carduelis cardue</i>	10	Green		Visual
01/11/2024	House sparrow	<i>Passer domestic</i>	20	Red		Visual
01/11/2024	Kestrel	<i>Falco tinnunculu</i>	1	Amber		Visual
01/11/2024	Lapwing	<i>Vanellus vanellu</i>	20	Red		Landed on the lake
01/11/2024	Little Egret	<i>Egretta garzetta</i>	1	Green		Visual
01/11/2024	Little grebe	<i>Tachybaptus ru</i>	1	Green		Visual
01/11/2024	Long eared owl	<i>Asio otus</i>	1	Green		Visual
01/11/2024	Meadow pipit	<i>Anthus pratensi</i>	2	Amber		Singing
01/11/2024	Mistle thrush	<i>Turdus viscivoru</i>	1	Red		Visual
01/11/2024	Oystercatcher	<i>Haematopus os</i>	20	Amber	Yes (1, 2)	Visual
01/11/2024	Redshank	<i>Tringa totanus</i>	40	Amber	Yes (1, 2)	Visual
01/11/2024	Reed bunting	<i>Emberiza schoe</i>	1	Amber		Visual
01/11/2024	Shoveler	<i>Anas clypeata</i>	1	Amber		Visual
06/12/2024	Black Headed G	<i>Chroicocephalus</i>	3	Amber		Visual
06/12/2024	Lapwing	<i>Vanellus vanellu</i>	18	Red		Visual
06/12/2024	Little Egret	<i>Egretta garzetta</i>	1	Green		Visual
06/12/2024	Little Grebe	<i>Tachybaptus ru</i>	20	Green		Visual
06/12/2024	Mallard	<i>Anas platyrhyn</i>	6	Amber		Visual
06/12/2024	Mute swan	<i>Cygnus olor</i>	1	Green		Visual
06/12/2024	Oystercatcher	<i>Haematopus os</i>	15	Amber	Yes (1, 2)	Visual
06/12/2024	Redshank	<i>Tringa totanus</i>	34	Amber	Yes (1, 2)	Visual
14/01/2025	Black Headed G	<i>Chroicocephalus</i>	8	Green		Visual
14/01/2025	Carion crow	<i>Corvus corone</i>	1	Green		Visual
14/01/2025	Cormorant	<i>Phalacrocorax c</i>	1	Green		Visual
14/01/2025	Eurasian Skylar	<i>Alauda arvensis</i>	1	Red		Visual
14/01/2025	Herring gull	<i>Larus argentatu</i>	5	Red		Visual
14/01/2025	Great Black Bac	<i>Larus marinus</i>	1	Green		Visual
14/01/2025	Lapwing	<i>Vanellus vanellu</i>	8	Red		Visual
14/01/2025	Little Egret	<i>Egretta garzetta</i>	1	Green		Visual
14/01/2025	Little Grebe	<i>Tachybaptus ru</i>	40	Green		Visual
14/01/2025	Maggie	<i>Pica pica</i>	3	Green		Visual
14/01/2025	Mute swan	<i>Cygnus olor</i>	1	Green		Visual
14/01/2025	Oystercatcher	<i>Haematopus os</i>	60	Amber	Yes (1, 2)	Visual
14/01/2025	Redshank	<i>Tringa totanus</i>	16	Amber	Yes (1, 2)	Visual
14/01/2025	Starling	<i>Sturnus vulgaris</i>	40	Red		Visual
14/01/2025	Wigeon	<i>Mareca penelo</i>	10	Amber		Visual
11/02/2025	Black Headed G	<i>Chroicocephalus</i>	20	Amber		Visual
11/02/2025	Canada goose	<i>Branta canad</i>	1	Green		Visual
11/02/2025	Carion crow	<i>Corvus corone</i>	1	Green		Visual
11/02/2025	Common Gull	<i>Larus canus</i>	1	Amber		Visual
11/02/2025	Cormorant	<i>Phalacrocorax c</i>	1	Green		Visual
11/02/2025	Curlew	<i>Numenius Arqu</i>	50	Red	Yes (1)	Visual
11/02/2025	Egyptian Goose	<i>Alopochen aegy</i>	2	Green		Visual
11/02/2025	Eurasian Skylar	<i>Alauda arvensis</i>	1	Red		Visual
11/02/2025	Goldfinch	<i>Carduelis cardue</i>	5	Green		Visual
11/02/2025	Great Black Bac	<i>Larus marinus</i>	1	Green		Visual
11/02/2025	Herring gull	<i>Larus argentatu</i>	1	Red		Visual
11/02/2025	Kestrel	<i>Falco tinnunculu</i>	1	Amber		Visual
11/02/2025	Lapwing	<i>Vanellus vanellu</i>	13	Red		Visual
11/02/2025	Little Egret	<i>Egretta garzetta</i>	1	Green		Visual
11/02/2025	Little Grebe	<i>Tachybaptus ru</i>	1	Green		Visual
11/02/2025	Maggie	<i>Pica pica</i>	6	Green		Visual
11/02/2025	Mallard	<i>Anas platyrhyn</i>	3	Amber		Visual

Birds Recorded Off Site

Date	Common name	Scientific name	No	BoCC Status	Behaviour
12/03/2024	Starling	<i>Sturnus vulgaris</i>	100	Red	Off site
11/02/2025	Curlew	<i>Numenius arquata</i>	26	Red	Off site

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Appendix 9 Invertebrate Report

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INVERTEBRATE SURVEY
OF
BARTON'S POINT COASTAL PARK,
SHEERNESS,
KENT

SEPTEMBER 2024



Dr. Jonty Denton FRES FLS CEcol MCIEEM

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Summary

A survey of terrestrial and aquatic invertebrates was carried out across the on the 17th May , 3rd July and 6th September 2024.

Species totals: 215 species were recorded of which 25 had a conservation designation see table below:-

Species	Family	Order	Conservation status
<i>Podagricra fuscicornis</i>	Chrysomelidae	Coleoptera	NS
<i>Mononychus punctumalbum</i>	Curculionidae	Coleoptera	NS
<i>Agabus conspersus</i>	Dytiscidae	Coleoptera	NS
<i>Graptodytes bilineatus</i>	Dytiscidae	Coleoptera	NS
<i>Hygrotus parallelogrammus</i>	Dytiscidae	Coleoptera	NS
<i>Hydaticus seminiger</i>	Dytiscidae	Coleoptera	NS
<i>Rhantus frontalis</i>	Dytiscidae	Coleoptera	NS
<i>Helophorus alternans</i>	Helophoridae	Coleoptera	NS
<i>Helophorus fulgidicollis</i>	Helophoridae	Coleoptera	NS
<i>Heteroceris obsoletus</i>	Heteroceridae	Coleoptera	NR
<i>Berosus fulvus</i>	Hydrophilidae	Coleoptera	NR
<i>Enochrus bicolor</i>	Hydrophilidae	Coleoptera	NS
<i>Enochrus halophilus</i>	Hydrophilidae	Coleoptera	NS
<i>Paracymus aeneus</i>	Hydrophilidae	Coleoptera	EN; Legal Protection; NR
<i>Stratiomys longicornis</i>	Stratiomyidae	Diptera	NS
<i>Dioxyna bidentis</i>	Tephritidae	Diptera	[Notable]
<i>Melieria picta</i>	Ulidiidae	Diptera	pNS
<i>Raglius alboacuminatus</i>	Lygaeidae	Hemiptera	NS
<i>Aquarius paludum</i>	Gerridae	Hemiptera	NS
<i>Sigara selecta</i>	Saldidae	Hemiptera	NS
<i>Saldula opacula</i>	Saldidae	Hemiptera	NS
<i>Tetrix ceperoi</i>	Tetrigidae	Orthoptera	NS

Schedule 41 Priority Species

<i>Colletes halophilus</i>	Colletidae	Hymenoptera	[Na]; Section 41 Priority Species
<i>Coenonympha pamphilus</i>	Nymphalidae	Lepidoptera	Section 41 Priority Species; VU
<i>Lasiommata megera</i>	Nymphalidae	Lepidoptera	EN; Section 41 Priority Species

PANTHEON ANALYSIS

The M311 saltmarsh & transitional brackish marsh Sat was in favourable condition.

INTRODUCTION

Project brief was to carry out a baseline invertebrate survey on the habitats across the area marked on map 1.

METHODOLOGY

Because it is impracticable to survey all the potential invertebrates within any given site, only specific groups of species were examined during fieldwork. These groups are sufficiently well known as to allow meaningful comparisons to be made with other sites, both locally and nationally. They are also important as indicators of the quality of a site and the habitats present (see Brooks 1993).

Groups covered during the survey were;

- Mollusca (slugs and snails)
- Arachnida (spiders, harvestmen & pseudoscorpions)
- Isopoda (woodlice)
- Thysanura (bristletails)
- Ephemeroptera (mayflies)
- Odonata (dragonflies & damselflies)
- Plecoptera (stoneflies)
- Orthoptera (grasshoppers & crickets)
- Dictyoptera (cockroaches)
- Dermaptera (earwigs)
- Hemiptera-Heteroptera (true-bugs)
- Hemiptera-Homoptera (hoppers)
- Neuroptera (lace-wings)
- Mecoptera (scorpion-flies)
- Lepidoptera (butterflies & moths)
- Trichoptera (caddis flies)
- Diptera (true flies)
- Aculeate Hymenoptera (ants, bees & wasps)
- Coleoptera (beetles)

The main emphasis of the survey was to find as many species with conservation designations as possible within the reviewed groups.

SURVEYS AND SITE VISITS

The site was visited by the author on the 17th April, 17th May, 3rd July and 6th September 2024.

Standard field techniques were employed to sample the invertebrate fauna across the site. These included sweeping vegetation with a wide mouthed sweep net, beating trees and bushes over a beating tray, and grubbing amongst tussocks and key host plant rosettes etc. A 0.5mm mesh pond net was used to sample the aquatic habitats.

RESULTS

In all 215 taxa were recorded, the list of species recorded are shown in Appendix 1. Of these 25 had a conservation designation (see table 1).

Species	Family	Order	Conservation status
<i>Podagrica fuscicornis</i>	Chrysomelidae	Coleoptera	NS
<i>Mononychus punctumalbum</i>	Curculionidae	Coleoptera	NS
<i>Agabus conspersus</i>	Dytiscidae	Coleoptera	NS
<i>Graptodytes bilineatus</i>	Dytiscidae	Coleoptera	NS
<i>Hygrotus parallelogrammus</i>	Dytiscidae	Coleoptera	NS
<i>Hydaticus seminigir</i>	Dytiscidae	Coleoptera	NS
<i>Rhantus frontalis</i>	Dytiscidae	Coleoptera	NS
<i>Helophorus alternans</i>	Helophoridae	Coleoptera	NS
<i>Helophorus fulgidicollis</i>	Helophoridae	Coleoptera	NS
<i>Heteroceris obsoletus</i>	Heteroceridae	Coleoptera	NR
<i>Berosus fulvus</i>	Hydrophilidae	Coleoptera	NR
<i>Enochrus bicolor</i>	Hydrophilidae	Coleoptera	NS
<i>Enochrus halophilus</i>	Hydrophilidae	Coleoptera	NS
<i>Paracymus aeneus</i>	Hydrophilidae	Coleoptera	EN; Legal Protection; NR
<i>Stratiomys longicornis</i>	Stratiomyidae	Diptera	NS
<i>Dioxyna bidentis</i>	Tephritidae	Diptera	[Notable]
<i>Melieria picta</i>	Ulidiidae	Diptera	pNS
<i>Raglius alboacuminatus</i>	Lygaeidae	Hemiptera	NS
<i>Aquarius paludum</i>	Gerridae	Hemiptera	NS
<i>Sigara selecta</i>	Saldidae	Hemiptera	NS
<i>Saldula opacula</i>	Saldidae	Hemiptera	NS
<i>Tetrix ceperoi</i>	Tetrigidae	Orthoptera	NS

Schedule 41 Priority Species

<i>Colletes halophilus</i>	Colletidae	Hymenoptera	[Na]; Section 41 Priority Species
<i>Coenonympha pamphilus</i>	Nymphalidae	Lepidoptera	Section 41 Priority Species; VU
<i>Lasiommata megera</i>	Nymphalidae	Lepidoptera	EN; Section 41 Priority Species

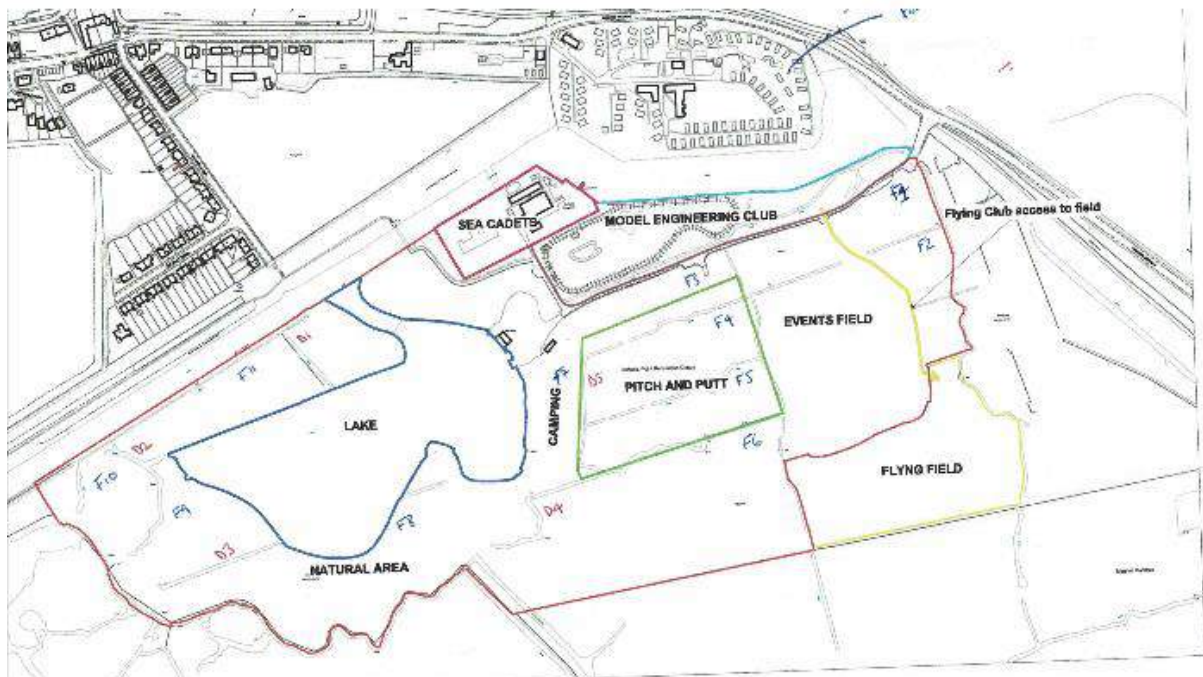


Figure 1. Site map

This species list was run through PANTHEON and M311 saltmarsh & transitional brackish marsh was in favourable condition and reflects the quality of the aquatic beetle and bug assemblage.

HABITAT ASSESSMENT- USING ISIS TO MEASURE SITE QUALITY

Although there is currently no standard framework for evaluating the invertebrate value of a site as part of Ecological Impact Assessment. Most active invertebrate ecologists have adopted the Pantheon database tool developed by Natural England and the Centre for Ecology & Hydrology. Pantheon is an on line spreadsheet used to analyse invertebrate sample data and assess assemblage data for favourable versus unfavourable condition by SSSI standards. Hence, if an assemblage or suite of assemblages are found to be in favourable condition this would indicate that the site is likely to be of significant importance for invertebrates. Further information on Pantheon is available here: <http://www.brc.ac.uk/pantheon/about/pantheon>

Users import lists of invertebrates (called "samples") into Pantheon, which then matches the species to the preferred name in the *UK species inventory* (A list of species maintained by the Natural History Museum). Not all macro-invertebrate taxa are included in the database. To date over c13,000 species have been assessed, this being about a quarter of the total macro-invertebrate fauna (estimated at 37,000). It remains limited to those taxa and families where there is enough ecological information to give a fair level of coding accuracy. These include species such as beetles, flies, bugs and hoppers, moths, ants, bees, wasps, spiders and molluscs.

The method for defining species resources was broadly similar to that followed in Natural England Research Report 024 (Webb *et. al.*, 2010).

'For each species, a literature search was undertaken. All relevant ecological information was extracted and added to a spreadsheet. This included 'structural elements of the habitats that the species is generally associated with (e.g. emergent vegetation, seed heads) and/or other environmental factors that it requires, host plant and/or animal species alongside ecological guild of larvae as well as adults where these differed, (e.g. herbivore, carnivore). Only those resources which were considered important to the species in completing its life cycle were included'.

The assemblage types are labelled in terms that relate to their favoured habitats in order to make them accessible to non-specialists. However, they are actually defined by lists of characteristic species that are generally found together in nature. Two levels are recognised in the classification. Broad assemblage types (BATs) are a comprehensive series of assemblage types that are characterised by more widespread species. They can be expressed in lists from a wide range of sites. Specific assemblage types (SATs) are characterised by ecologically restricted species and are generally only expressed in lists from sites with conservation value. Since 2008 there has also been a third category of assemblage types that cut across this

classification. They are mainly defined by lists of species dependent on a particular environmental resource, such as flowers as a source of pollen and nectar.

Table 2. Specific assemblage type (SAT) scores

Code	SAT	No. of species	Reported condition
M311	saltmarsh & transitional brackish marsh	9	Favourable (9 species, 9 required)
W314	reed-fen & pools	4	Unfavourable (4 species, 11 required)
F002	rich flower resource	10	Unfavourable (10 species, 15 required)
F112	open short sward	4	Unfavourable (4 species, 13 required)
W211	open water on disturbed mineral sediments	3	Unfavourable (3 species, 6 required)

SURVEY LIMITATIONS

Clearly diurnal surveys will miss the vast majority of night flying species (moths, many Ichneumons etc.).

ECOLOGICAL ASSESSMENT

The grassland is generally very species poor but did support some uncommon plants (ie Narrow leaved bird's-foot trefoil *Lotus tenuis* which was locally abundant along the southern edge of the site and hairy vetchling *Lathyrus hirsuta*) but did support the grass feeding small heath *Coenonympha pamphilus* and wall *Lasiommata megera* butterflies which are both schedule 41 priority species.

The brackish ditch complex across the eastern half of the site supports a very rare assemblage with the water beetles *Berosus fulvus*, *Enochrus bicolor*, *E.halophilus* *Helophorus fulgidicollis*, *H.alternans*, *Heterocerus obsoletus*, *Agabus conspersus*, *Hygrotus parallelogrammus* and the corixids *Sigara stagnalis* in abundance with occasional *S.selecta* as well as the shorebug *Saldula opacula* which was frequent on the ditch edges and drawn down zones in the ditches.

The most important find was the Schedule 5 Bembridge beetle *Paracymus aeneus*: the first for East Kent and only the sixth known site in Britain.

The sea aster mining bee *Colletes halophilus* was visiting most stands of its host plant in July and September. Britain supports a significant proportion of the world population of this localised bee (Allen, 2009).

The ditches south of the lagoon support a different assemblage reflective of much lower levels of salinity more typical of the grazing level community on Minster marshes. These yielded the nationally scarce diving beetles *Hydaticus seminiger*, *Graptodytes bilineatus*, and the long-horned general soldierfly *Stratiomys longicornis*.

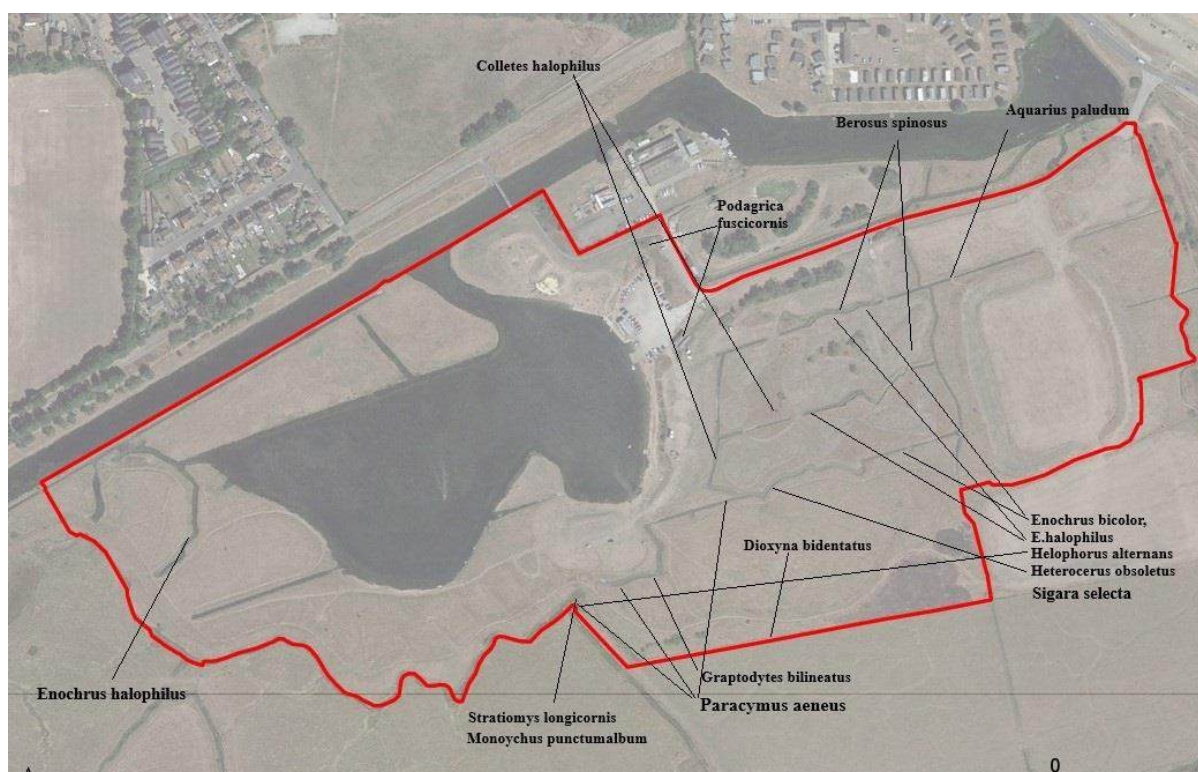


Figure 2. Locations of significant captures



Figure 2. Brackish ditch looking northeast

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APPENDICES

APPENDIX 1. SPECIES LIST 2024

Species	Family	Order	Conservation status
<i>Agalenatea redii</i>	Araneidae	Araneae	local
<i>Araneus diadematus</i>	Araneidae	Araneae	common
<i>Araneus quadratus</i>	Araneidae	Araneae	local
<i>Hypsosinga pygmaea</i>	Araneidae	Araneae	common
<i>Larinioides cornutus</i>	Araneidae	Araneae	common
<i>Mangora acalypha</i>	Araneidae	Araneae	common
<i>Neoscona adianta</i>	Araneidae	Araneae	common
<i>Clubiona neglecta sensu stricto</i>	Clubionidae	Araneae	common
<i>Clubiona phragmitis</i>	Clubionidae	Araneae	common
<i>Dictyna uncinata</i>	Dictynidae	Araneae	common
<i>Micaria micans</i>	Gnaphosidae	Araneae	common
<i>Erigone atra</i>	Linyphiidae	Araneae	common
<i>Erigone dentipalpis</i>	Linyphiidae	Araneae	common
<i>Microlinyphia pusilla</i>	Linyphiidae	Araneae	common
<i>Oedothorax fuscus</i>	Linyphiidae	Araneae	common
<i>Oedothorax retusus</i>	Linyphiidae	Araneae	common
<i>Prinerigone vagans</i>	Linyphiidae	Araneae	local
<i>Pardosa prativaga</i>	Lycosidae	Araneae	common
<i>Pirata piraticus</i>	Lycosidae	Araneae	common
<i>Ero cambridgei</i>	Mimetidae	Araneae	common
<i>Cheiracanthium erraticum</i>	Miturgidae	Araneae	local
<i>Philodromus cespitum</i>	Philodromidae	Araneae	common
<i>Philodromus dispar</i>	Philodromidae	Araneae	common
<i>Philodromus praedatus</i>	Philodromidae	Araneae	local
<i>Pisaura mirabilis</i>	Pisauridae	Araneae	common
<i>Euophrys frontalis</i>	Salticidae	Araneae	common
<i>Heliophanus flavipes</i>	Salticidae	Araneae	common
<i>Metellina segmentata</i>	Tetragnathidae	Araneae	common
<i>Tetragnatha extensa</i>	Tetragnathidae	Araneae	common
<i>Tetragnatha montana</i>	Tetragnathidae	Araneae	common
<i>Tetragnatha striata</i>	Tetragnathidae	Araneae	local
<i>Zora spinimana</i>	Zoridae	Araneae	common
<i>Anthicus antherinus</i>	Anthicidae	Coleoptera	common
<i>Aspidapion radiolus</i>	Apionidae	Coleoptera	common
<i>Malvapion malvae</i>	Apionidae	Coleoptera	common
<i>Pseudapion rufirostre</i>	Apionidae	Coleoptera	common
<i>Rhagonycha fulva</i>	Cantharidae	Coleoptera	common
<i>Bembidion minimum</i>	Carabidae	Coleoptera	local
<i>Bembidion varium</i>	Carabidae	Coleoptera	common
<i>Aphthona nonstriata</i>	Chrysomelidae	Coleoptera	common
<i>Bruchus rufimanus</i>	Chrysomelidae	Coleoptera	common
<i>Podagrica fuscicornis</i>	Chrysomelidae	Coleoptera	NS

<i>Adalia bipunctata</i>	Coccinellidae	Coleoptera	common
<i>Anisosticta novemdecimpunctata</i>	Coccinellidae	Coleoptera	local
<i>Coccidula rufa</i>	Coccinellidae	Coleoptera	common
<i>Coccidula scutellata</i>	Coccinellidae	Coleoptera	local
<i>Propylea quattuordecimpunctata</i>	Coccinellidae	Coleoptera	common
<i>Psyllobora vigintiduopunctata</i>	Coccinellidae	Coleoptera	common
<i>Rhyzobius chrysomeloides</i>	Coccinellidae	Coleoptera	common
<i>Rhyzobius litura</i>	Coccinellidae	Coleoptera	common
<i>Subcoccinella</i>			
<i>vigintiquattuor punctata</i>	Coccinellidae	Coleoptera	common
<i>Tytthaspis sedecimpunctata</i>	Coccinellidae	Coleoptera	common
<i>Rhamphus pulicarius</i>	Curculionidae	Coleoptera	common
<i>Monoychus punctum album</i>	Curculionidae	Coleoptera	NS
<i>Sitona lineatus</i>	Curculionidae	Coleoptera	common
<i>Agabus bipustulatus</i>	Dytiscidae	Coleoptera	common
<i>Agabus conspersus</i>	Dytiscidae	Coleoptera	NS
<i>Colymbetes fuscus</i>	Dytiscidae	Coleoptera	common
<i>Graptodytes bilineatus</i>	Dytiscidae	Coleoptera	NS
<i>Hydaticus seminiger</i>	Dytiscidae	Coleoptera	NS
<i>Hydroporus angustatus</i>	Dytiscidae	Coleoptera	common
<i>Hydroporus planus</i>	Dytiscidae	Coleoptera	common
<i>Hygrotus inaequalis</i>	Dytiscidae	Coleoptera	common
<i>Hygrotus parallellogrammus</i>	Dytiscidae	Coleoptera	NS
<i>Laccophilus minutus</i>	Dytiscidae	Coleoptera	common
<i>Helophorus alternans</i>	Helophoridae	Coleoptera	NS
<i>Helophorus brevipalpis</i>	Helophoridae	Coleoptera	common
<i>Helophorus fulgidicollis</i>	Helophoridae	Coleoptera	NS
<i>Helophorus minutus</i>	Helophoridae	Coleoptera	common
<i>Heteroceris obsoletus</i>	Heteroceridae	Coleoptera	NR
<i>Ochthebius minimus</i>	Hydraenidae	Coleoptera	common
<i>Anacaena limbata</i>	Hydrophilidae	Coleoptera	common
<i>Berosus fulvus</i>	Hydrophilidae	Coleoptera	common
<i>Cercyon sternalis</i>	Hydrophilidae	Coleoptera	local
<i>Cymbiodyta marginella</i>	Hydrophilidae	Coleoptera	common
<i>Enochrus bicolor</i>	Hydrophilidae	Coleoptera	NS
<i>Enochrus halophilus</i>	Hydrophilidae	Coleoptera	NS
<i>Paracymus aeneus</i>	Hydrophilidae	Coleoptera	EN; Legal Protection; NR
<i>Malachius bipustulatus</i>	Malachiidae	Coleoptera	common
<i>Noterus clavicornis</i>	Noteridae	Coleoptera	common
<i>Meligethes aeneus</i>	Nitidulidae	Coleoptera	common
<i>Meligethes ruficornis</i>	Nitidulidae	Coleoptera	common
<i>Olibrus aeneus</i>	Phalacridae	Coleoptera	common
<i>Contacyphon coarctatus</i>	Scirtidae	Coleoptera	common
<i>Contacyphon laevipennis</i>	Scirtidae	Coleoptera	local

<i>Brachygluta helferi</i>	Staphylinidae	Coleoptera	local
<i>Drusilla canaliculata</i>	Staphylinidae	Coleoptera	common
<i>Ochtheophilum collare</i>	Staphylinidae	Coleoptera	local
<i>Paederus littoralis</i>	Staphylinidae	Coleoptera	common
<i>Paederus riparius</i>	Staphylinidae	Coleoptera	common
<i>Stenus juno</i>	Staphylinidae	Coleoptera	common
<i>Tasgius ater</i>	Staphylinidae	Coleoptera	common
<i>Lagria hirta</i>	Tenebrionidae	Coleoptera	common
<i>Palaemon varians</i>	Palaemonidae	Decapoda	common
<i>Forficula auricularia</i>	Forficulidae	Dermaptera	common
<i>Adia cinerella</i>	Anthomyiidae	Diptera	common
<i>Anthomyia procellaris</i>	Anthomyiidae	Diptera	common
<i>Delia florilega</i>	Anthomyiidae	Diptera	local
<i>Delia platura</i>	Anthomyiidae	Diptera	common
<i>Pegomya betae</i>	Anthomyiidae	Diptera	common
<i>Pegomya cunicularia</i>	Anthomyiidae	Diptera	common
<i>Pegoplata aestiva</i>	Anthomyiidae	Diptera	common
<i>Leptogaster cylindrica</i>	Asilidae	Diptera	common
<i>Lucilia sericata</i>	Calliphoridae	Diptera	common
<i>Poecilobothrus nobilitatus</i>	Dolichopodidae	Diptera	common
<i>Dicranomyia modesta</i>	Limoniidae	Diptera	common
<i>Dicranomyia sera</i>	Limoniidae	Diptera	common
<i>Symplecta stictica</i>	Limoniidae	Diptera	common
<i>Chamaepsila rosae preocc.</i>	Psilidae	Diptera	common
<i>Ptychoptera minuta</i>	Ptychopteridae	Diptera	common
<i>Sarcophaga crassimargo</i>	Sarcophagidae	Diptera	common
<i>Sarcophaga dissimilis</i>	Sarcophagidae	Diptera	common
<i>Beris vallata</i>	Stratiomyidae	Diptera	common
<i>Nemotelus uliginosus</i>	Stratiomyidae	Diptera	local
<i>Nemotelus pantherinus</i>	Stratiomyidae	Diptera	local
<i>Odontomyia tigrina</i>	Stratiomyidae	Diptera	local
<i>Pachygaster atra</i>	Stratiomyidae	Diptera	common
<i>Stratiomys longicornis</i>	Stratiomyidae	Diptera	NS
<i>Eristalinus aeneus</i>	Syrphidae	Diptera	common
<i>Eristalis arbustorum</i>	Syrphidae	Diptera	common
<i>Eristalis pertinax</i>	Syrphidae	Diptera	common
<i>Eristalis tenax</i>	Syrphidae	Diptera	common
<i>Eupeodes corollae</i>	Syrphidae	Diptera	common
<i>Platycheirus albimanus</i>	Syrphidae	Diptera	common
<i>Platycheirus manicatus</i>	Syrphidae	Diptera	common
<i>Sphaerophoria scripta</i>	Syrphidae	Diptera	common
<i>Syrpitta pipiens</i>	Syrphidae	Diptera	common
<i>Syrphus ribesii</i>	Syrphidae	Diptera	common
<i>Haematopota crassicornis</i>	Tabanidae	Diptera	common
<i>Eriothis rufomaculata</i>	Tachinidae	Diptera	common

<i>Siphona geniculata</i>	Tachinidae	Diptera	common
<i>Triarthria setipennis</i>	Tachinidae	Diptera	local
<i>Dioxya bidentis</i>	Tephritidae	Diptera	[Notable]
<i>Tephritis formosa</i>	Tephritidae	Diptera	common
<i>Tipula oleracea</i>	Tipulidae	Diptera	common
<i>Melieria picta</i>	Ulidiidae	Diptera	pNS
<i>Philaenus spumarius</i>	Aphrophoridae	Hemiptera	common
<i>Opsiurus stactogalus</i>	Cicadellidae	Hemiptera	local
<i>Paramesus obtusifrons</i>	Cicadellidae	Hemiptera	local
<i>Populicerus albicans</i>	Cicadellidae	Hemiptera	common
<i>Sigara stagnalis</i>	Corixidae	Hemiptera	local
<i>Sigara selecta</i>	Corixidae	Hemiptera	NS
<i>Aquarius paludum</i>	Gerridae	Hemiptera	NS
<i>Kleidocerys resedae</i>	Lygaeidae	Hemiptera	common
<i>Peritrechus geniculatus</i>	Lygaeidae	Hemiptera	common
<i>Raglius alboacuminatus</i>	Lygaeidae	Hemiptera	NS
<i>Ischnodemus sabuleti</i>	Lygaeidae	Hemiptera	common
<i>Kleidocerys resedae</i>	Lygaeidae	Hemiptera	common
<i>Atractotomus mali</i>	Miridae	Hemiptera	common
<i>Deraeocoris ruber</i>	Miridae	Hemiptera	common
<i>Lygus maritimus</i>	Miridae	Hemiptera	common
<i>Megaloceroea recticornis</i>	Miridae	Hemiptera	common
<i>Notostira elongata</i>	Miridae	Hemiptera	common
<i>Plagiognathus arbustorum</i>	Miridae	Hemiptera	common
<i>Sthenarus rotermundi</i>	Miridae	Hemiptera	common
<i>Tuponia hippophaes</i>	Miridae	Hemiptera	local
<i>Notonecta glauca</i>	Notonectidae	Hemiptera	common
<i>Notonecta viridis</i>	Notonectidae	Hemiptera	common
<i>Aelia acuminata</i>	Pentatomidae	Hemiptera	common
<i>Podops inuncta</i>	Pentatomidae	Hemiptera	common
<i>Plea minutissima</i>	Pleidae	Hemiptera	common
<i>Chartoscirta cincta</i>	Saldidae	Hemiptera	common
<i>Saldula opacula</i>	Saldidae	Hemiptera	NS
<i>Microvelia reticulata</i>	Veliidae	Hemiptera	common
<i>Physa</i> sp.	Physidae	Hygrophila	common
<i>Andrena flavipes</i>	Andrenidae	Hymenoptera	common
<i>Panurgus calcaratus</i>	Andrenidae	Hymenoptera	common
<i>Apis mellifera</i>	Apidae	Hymenoptera	common
<i>Bombus lapidarius</i>	Apidae	Hymenoptera	common
<i>Bombus pascuorum</i>	Apidae	Hymenoptera	common
<i>Bombus pratorum</i>	Apidae	Hymenoptera	common
<i>Bombus terrestris</i>	Apidae	Hymenoptera	common
<i>Colletes halophilus</i>	Colletidae	Hymenoptera	[Na]; Section 41 Priority Species
<i>Lasius flavus</i>	Formicidae	Hymenoptera	common

<i>Lasius niger</i>	Formicidae	Hymenoptera	common
<i>Myrmica rubra</i>	Formicidae	Hymenoptera	common
<i>Lasioglossum puncticolle</i>	Halictidae	Hymenoptera	Local [Nb]
<i>Lasioglossum villosulum</i>	Halictidae	Hymenoptera	common
<i>Gammarus locusta</i>	Gammaridae	Amphipoda	common
<i>Armadillidium vulgare</i>	Armadillidiidae	Isopoda	common
<i>Idotea chelipes</i>	Idoteidae	Isopoda	common
<i>Ligia oceanica</i>	Ligiidae	Isopoda	common
<i>Oniscus asellus</i>	Oniscidae	Isopoda	common
<i>Agriphila straminella</i>	Crambidae	Lepidoptera	common
<i>Agriphila tristella</i>	Crambidae	Lepidoptera	common
<i>Chrysoteuchia culmella</i>	Crambidae	Lepidoptera	common
<i>Phragmatobia fuliginosa</i>	Erebidae	Lepidoptera	common
<i>Hemithea aestivaria</i>	Geometridae	Lepidoptera	common
<i>Thymelicus lineola</i>	Hesperiidae	Lepidoptera	common
<i>Thymelicus sylvestris</i>	Hesperiidae	Lepidoptera	common
<i>Agrotis exclamationis</i>	Noctuidae	Lepidoptera	common
<i>Autographa gamma</i>	Noctuidae	Lepidoptera	common
<i>Mythimna pallens</i>	Noctuidae	Lepidoptera	common
<i>Coenonympha pamphilus</i>	Nymphalidae	Lepidoptera	Section 41 Priority Species; VU
<i>Lasiommata megera</i>	Nymphalidae	Lepidoptera	EN; Section 41 Priority Species
<i>Maniola jurtina</i>	Nymphalidae	Lepidoptera	common
<i>Vanessa atalanta</i>	Nymphalidae	Lepidoptera	common
<i>Pieris brassicae</i>	Pieridae	Lepidoptera	common
<i>Pieris rapae</i>	Pieridae	Lepidoptera	common
<i>Potamopyrgus antipodarum</i>	Tateidae	Littorinimorpha	common
<i>Aeshna mixta</i>	Aeshnidae	Odonata	common
<i>Orthetrum cancellatum</i>	Libellulidae	Odonata	common
<i>Sympetrum striolatum</i>	Libellulidae	Odonata	common
<i>Ischnura elegans</i>	Coenagrionidae	Odonata	common
<i>Pyrrhosoma nymphula</i>	Coenagrionidae	Odonata	common
<i>Chorthippus albomarginatus</i>	Acrididae	Orthoptera	common
<i>Chorthippus brunneus</i>	Acrididae	Orthoptera	common
<i>Pseudochorthippus parallelus</i>	Acrididae	Orthoptera	common
<i>Conocephalus dorsalis</i>	Conocephalidae	Orthoptera	local
<i>Conocephalus fuscus</i>	Conocephalidae	Orthoptera	common
<i>Meconema meridionale</i>	Meconematidae	Orthoptera	common
<i>Tetrix ceperoi</i>	Tetrigidae	Orthoptera	NS
<i>Roeseliana roeselii</i>	Tettigoniidae	Orthoptera	common
<i>Cepaea hortensis</i>	Helicidae	Pulmonata	common
<i>Limnephilus flavicornis</i>	Limnephilidae	Trichoptera	common

Appendix 2. Status categories for rare and Notable species

Red Data Book Category 1 (RDB 1) – Endangered

Definition.

Taxa in danger of extinction *in Great Britain* and whose survival is unlikely if the causal factors continue operating.

Included are those taxa whose numbers have been reduced to a critical level or whose habitats have been so dramatically reduced that they are deemed to be in immediate danger of extinction. Also included are *some* taxa that are *possibly* extinct.

Criteria.

Species which are known *or believed to occur* as only a single population within one 10 km square of the National Grid.

Species which only occur in habitats known to be especially vulnerable.

Species which have shown a rapid or continuous decline over the last twenty years and are now *estimated* to exist in five or fewer 10 km squares.

Species which are *possibly* extinct *but have been recorded this century* and if rediscovered would need protection.

Red Data Book Category 2 (RDB 2) - Vulnerable

Definition.

Taxa *believed* likely to move into the endangered category in the near future if the causal factors continue operating.

Included are taxa of which most or all of the populations are decreasing because of *over-exploitation*, extensive destruction of habitat or other environmental disturbance; taxa with populations that have been seriously depleted and whose ultimate security is not yet assured; and taxa with populations that are still abundant but are under threat from serious adverse factors throughout their range.

Criteria.

Species declining throughout their range.

Species in vulnerable habitats.

Red Data Book Category 3 (RDB 3) – Rare

Definition.

Taxa with small populations *in Great Britain* that are not at present endangered or vulnerable, but are at risk.

These taxa are usually localised within restricted geographical areas or habitats or are thinly scattered over a more extensive range.

Criterion.

Species which are estimated to exist in only fifteen or fewer 10 km squares. *This criterion may be relaxed where populations are likely to exist in over fifteen 10 km squares but occupy small areas of especially vulnerable habitat*

Nationally Scarce Category A - Notable A (Na)

Definition.

Taxa which do not fall within **RDB** categories but which are none-the-less uncommon in Great Britain and are thought to occur in 30 or fewer 10 km squares of the National Grid or, for less well recorded groups, within seven or fewer vice-counties.

Nationally Scarce Category B - Notable B (Nb)

Definition.

Taxa which do not fall within **RDB** categories but which are none-the-less uncommon in Great Britain and are thought to occur in between 31 and 100 10 km squares of the National Grid or, for less well recorded groups, within eight and twenty vice-counties.

Nationally Scarce - Notable (N)

Definition.

Taxa which do not fall within **RDB** categories but which are none-the-less uncommon in Great Britain and are thought to occur in between 16 to 100 10 km squares of the National Grid. Species within this category are often too poorly known for their status to be more precisely estimated.

Summary of the IUCN categories and criteria.

- **REGIONALLY EXTINCT (RE)**

A taxon is Extinct when there is no reasonable doubt that the last individual has died. In this review the last date for a record is set at fifty years before publication.

- **CRITICALLY ENDANGERED (CR)**

A taxon is Critically Endangered when the best available evidence indicates that it meets any of the criteria A to E for Critically Endangered.

- **ENDANGERED (EN)**

A taxon is Endangered when the best available evidence indicates that it meets any of the criteria A to E for Endangered.

- **VULNERABLE (VU)**

A taxon is Vulnerable when the best available evidence indicates that it meets any of the criteria A to E for Vulnerable.

- **NEAR THREATENED (NT)**

A taxon is Near Threatened when it has been evaluated against the criteria but does not qualify for Critically Endangered, Endangered or Vulnerable now, but is close to qualifying for or is likely to qualify for a threatened category in the near future.

- **LEAST CONCERN (LC)**

A taxon is Least Concern when it has been evaluated against the criteria and does not qualify for Critically Endangered, Endangered, Vulnerable or Near Threatened. Widespread and abundant taxa are included in this category.

- **DATA DEFICIENT (DD)**

A taxon is Data Deficient when there is inadequate information to make a direct, or indirect, assessment of its risk of extinction based on its distribution and/or population status. A taxon in this category may be well studied, and its biology well known, but appropriate data on abundance and/or distribution are lacking. Data Deficient is therefore not a category of threat. Listing of taxa in this category indicates that more information is required and acknowledges the possibility that future research will show that threatened classification is appropriate.

- **NOT EVALUATED (NE)**

A taxon is Not Evaluated when it has not yet been evaluated against the criteria.

GB Rarity Status categories and criteria

- **Nationally Rare (NR)**

Native species which have not been recorded from more than 15 British hectads since 31st December 1979 and where there is reasonable confidence that exhaustive recording would not find them in more than 15 hectads. This category includes species which are probably extinct.

- **Nationally Scarce (NS)**

Native species which are not regarded as Nationally Rare AND which have not been recorded from more than 100 British hectads since 31st December 1979 and where

there is reasonable confidence that exhaustive recording would not find them in more than 100 hectads.

Other species status terminology.

- **Local.** Species that are restricted in distribution either geographically or by habitat. Also used for species that are widespread but infrequently encountered, e.g. encountered in no more than 300 10km squares of the national Ordnance Survey grid since 1970. Or those species listed as such, based upon modern geographical data, by ISIS (2010) and/or relevant recording schemes.
- **Widely Scattered.** Generally distributed but at low densities.
- **Southern.** Mainly or completely confined to southern England and/or its westerly or easterly regions – as indicated.
- **Common.** Generally widespread throughout the UK.
- **Unknown.** Usually indicates a lack of available data for difficult taxa but may also imply recent taxonomic confusion.

Appendix 10 NPPF Chapter 15

“The NPPF requires that the local planning authority should aim to enhance biodiversity when determining planning applications, and opportunities to incorporate biodiversity in and around developments should be encouraged, especially where this can secure measurable net gains for the environment. Chapter 15 “Conserving and enhancing the natural environment, paragraphs 187-199”; states that this should be achieved by:

187. Planning policies and decisions should contribute to and enhance the natural and local environment by:

- a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);*
- b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;*
- c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate;*
- d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures and incorporating features which support priority or threatened species such as swifts, bats and hedgehogs;*
- e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and*

Habitats and Biodiversity

192. To protect and enhance biodiversity and geodiversity, plans should:

- a) Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity⁶⁸; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation⁶⁹; and;*

- b) promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.*

⁶⁸ *Circular 06/2005 provides further guidance in respect of statutory obligations for biodiversity and geological conservation and their impact within the planning system.*

⁶⁹ *Where areas that are part of the Nature Recovery Network are identified in plans, it may be appropriate to specify the types of development that may be suitable within them.*

193. When determining planning applications, local planning authorities should apply the following principles:

- a) If significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;*
- b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the Site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;*
- c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons⁷⁰ and a suitable compensation strategy exists; and*
- d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate."*

⁷⁰ *For example, infrastructure projects (including nationally significant infrastructure projects, orders under the Transport and Works Act and hybrid bills), where the public benefit would clearly outweigh the loss or deterioration of habitat.*

194. The following should be given the same protection as habitats sites:

- a) potential Special Protection Areas and possible Special Areas of Conservation;*

- b) listed or proposed Ramsar sites⁷¹; and*
- c) sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.*

⁷¹ *Potential Special Protection Areas, possible Special Areas of Conservation and proposed Ramsar sites are sites on which Government has initiated public consultation on the scientific case for designation as a Special Protection Area, candidate Special Area of Conservation or Ramsar site.*

195. The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site. “

14.1 In addition, this chapter of the NPPF covers ground conditions and pollution, paragraphs directly relevant to biodiversity are summarised below.

196. Planning policies and decisions should ensure that:

- a) a site is suitable for its proposed use by taking account of ground conditions and risks arising from land instability and contamination. This includes risks arising from natural hazards or former activities such as mining, and any proposals for mitigation including land remediation (as well as potential impacts on the natural environment arising from that remediation);*

198. Planning policies and decisions should also ensure that the new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise for the development. In doing so they should:

- a) mitigate and reduce to a minimum potential adverse impacts resulting from noise and new development – and avoid noise giving rise to significant adverse impacts of health and the quality of life⁷²;*
- b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason; and*
- c) limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.*

⁷² *See Explanatory Note to the Noise Policy Statement for England (Department for Environment, Food & Rural Affairs, 2010).*

Appendix 11 Site photographs

Building 1



Building 2



Ditch 2



Ditch 2



Ditch 3



Ditch 4



Ditch 5



Field 1



Field 4



Lagoon Shore



Lagoon



Field 9

