Note on breeding redshanks on The Wash

for the

Royal Society for the Protection of Birds

Submitted for Deadline 3

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Planning Act 2008 (as amended)

In the matter of:

Application by Alternative Use Boston Projects Limited for an Order Granting Development Consent for the Boston Alternative Energy Facility

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Contents

1. Introduction

1.1 The following note is provided to aid the Examination with respect to the RSPB's position that breeding redshank on The Wash SSSI have declined significantly since the site was designated. This information is provided in response to the Applicant's request for the source of cited declines in The Wash SSSI breeding redshank population (as set out in their response to Written Representations (p.78; REP2-006).

1.2 We also note the Examining Authorities request to the Applicant to provide a note on the breeding redshank feature of The Wash SSSI and consider the following information to be helpful (Issue 5(e) of the Environmental Matters Issue Specific Hearing agenda; EV4-002).

1.3 The information set out below is based on the evidence we have collated to date. We will continue to review and update this information as appropriate at future submissions.

2. Saltmarsh-breeding redshank: UK context

2.1 The loss and degradation of important wetland breeding sites (Tucker & Heath, 1994; Eaton *et al*, 2009; BirdLife International 2004a, 2004b) and consequent lack of nesting habitat has driven low breeding redshank success in the UK and Europe in the last 25 years (Malpas *et al*, 2013). This has contributed to the loss of more than a quarter of the common redshank *Tringa totanus* population across a range of habitats (Massimino *et al*, 2017). The most recent population estimates for birds of the UK and Great Britain give a population of 22,000 breeding redshank in 2016 (Woodward *et al*, 2020). For this amber-listed species of conservation concern[1], the UK is an internationally important breeding ground, supporting over 18% of the northwest European breeding population (Piersma, 1986; Batten et al, 1990; BirdLife International 2004a, 2004b).

2.2 The National Saltmarsh Redshank Surveys carried out between 1985 and 2011 (Allport *et al*, 1986; Brindley *et al*, 1998; Malpas *et al*, 2011; Malpas *et al*, 2013), show that saltmarsh breeding redshank have declined overall by 53% over this period (21,431 pairs in 1985, 17,007 pairs in 1996 and 11,946 pairs in 2011) (regional trends vary across different time periods). At the current rate of decline redshank are likely to have disappeared from most British saltmarshes within the next 25 years unless conservation action is urgently taken (Malpas *et al*, 2013). This negative trend is in sharp contrast with that of other European saltmarsh breeding redshank populations, which have remained relatively stable despite widespread declines in inland habitats (Koffijberg *et al*, 2006; Hötker *et al* 2007; Joint Monitoring Group for Breeding Birds, 2010).

3. Redshank breeding behaviour

3.1 Although redshank breed on lowland wet grassland and upland rough pasture habitats in the UK, saltmarsh is their primary breeding habitat (Davidson, 1991; Smart, 2005; Malpas *et al*, 2013), with between 66% and 75% breeding on saltmarsh in England (Malpas *et al*, 2013, Mason, 2019).

3.2 In common with many waders, redshanks are highly faithful to their natal area (returning to the site where they were born), with both sexes returning to the same site each year to breed (Thompson & Hale, 1989). This means there is likely to be very little movement of populations between breeding habitats (Sutherland, 1997).

[1] The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain [redacted]

3.3 Smart (2005) used stable isotope analysis to research redshank foraging ecology on saltmarsh and lowland wet grassland. The study found that redshanks breeding on saltmarsh are strongly intertidal, inland-breeding females are strongly freshwater and coastal grassland females appear to make extensive use of nearby intertidal foraging habitat. Female redshanks breeding on coastal grasslands appeared to use intertidal foraging areas extensively during egg formation, but this varied between eggs from the same nest, between females and declined significantly with the distance between breeding sites to intertidal habitats. Other studies also found that redshanks on coastal grazing marsh will fly to nearby estuaries to feed (Beintema *et al*, 1991; Johansson and Blomqvist, 1996; Ausden *et al*, 2003), flying at least 1.5km to forage on high quality food sources during the egg incubation period (Jongbloed, 2005).

3.4 Once hatched, and dependant on weather, time of hatching and intensity of disturbances, birds generally preferred to stay in the nest area (Jongbloed, 2005). At this time the chicks can stay in the warm nest for 4 to 30 hours living on their yoke stock for another 1.5 to 2.5 days before the parent birds tempt the chicks to better foraging areas further away from the nest area. After three weeks the chicks are left alone for a few hours a day and by 27 to 33 days the chicks are able to fly and fully independent (Jongbloed, 2005). Smart (2005) found that chicks on grassland appeared to be dependent on aquatic prey whereas on saltmarshes the invertebrates within the saltmarsh vegetation were likely important.

3.5 Redshanks are short-distance winter migrants (Hale, 1988; Wernham *et al*, 2002) and bird ringing recoveries have shown that many British and Irish breeding populations winter in the coastal areas on which they breed (Lack, 1986). The survival of the redshanks wintering in The Wash SSSI and functionally linked areas will directly impact breeding populations (section 3.1, Natural England, 2020; Smart, 2005).

4. Saltmarsh breeding redshank on The Wash SSSI

a) The Wash SSSI

4.1 The Wash is England's largest SSSI. The SSSI citation states that "*The whole area is of exceptional biological interest*"[2]. The area supports internationally and nationally important wildlife populations, including the redshank. Breeding redshanks are a SSSI notified feature and are found on suitable saltmarsh habitats across The Wash. Analysis of five-year monthly averages Wetland Bird Surveys (WeBS) data for the 2020 England Coast Path Habitats Regulations Assessment (Natural England, 2020) indicated that The Wash breeding population of redshanks could be contributing between 6% and 10% of The Wash non-breeding population.

b) Declines in saltmarsh-breeding redshank on The Wash SSSI

4.2 Average breeding densities within The Wash SSSI declined significantly between 1985 and 1996. The overall estimated population remained relatively stable between 1996 and 2011 (Table 1), but data in Table 2 represents how declines have continued up to and after 2011 in saltmarsh breeding redshanks on The Wash, including in the areas closest to the Application Site (SSSI units 11 and 12).

[2] The Wash SSSI Citation [redacted]

Table 1. Redshank population estimates for The Wash SSSI for 1985, 1996 and 2011. Observed mean densities and estimated numbers of breeding pairs are reported with 95% confidence intervals (in parentheses) estimated from survey data. The data in this table presents results from the National Saltmarsh Redshank Surveys (1985, 1996 and 2011) and is taken from Malpas *et al*, 2011.

Density (pairs/km^2)			Saltmarsh area (ha)	Breeding pairs		
1985	1996	2011		1985	1996	2011
80.57 (51.62–109.52)	55.32 (32.27–78.38)	56.93 (30.75–83.11)	4,133	3,330 (2,133–4,526)	2,287 (1,334–3,239)	2,353 (1,271–3,435)

Table 2. The most recent breeding density data for seven units in The Wash SSSI. The current baseline of 85 pairs/km2 was established in 1985 based on sample surveys within the saltmarshes at Kirton, Dawsmere, Gedney and Wolferton. Data sources are given in the footnotes (Natural England data should be available upon request). The red and green colours show whether the unit should be favourable (green) or unfavourable (red) according to the Favourable Condition Table (FCT) (see section 3.3 below). The location of units is shown in Figure 1).

SSSI unit[3]	Most recent breeding density and the year the data relates to (pairs/km^2)	% change compared to FCT baseline (85 pairs/km^2)
11 (Frampton)	33.0 (2019)[4]	- 61%
12 (Kirton)	23.7 (2017)[5]	- 72%
15 (Dawsmere)	26.0 (2017)[6]	- 69%
16 (Dawsmere)	26.0 (2017)[7]	- 69%
17 (Gedney)	85.6 (2017)[8]	+ 1%
18 (Terrington)	13.8 (2017)[9]	- 84%
20 (Wolferton)	56.2 (2011)[10]	- 34%
Average	37.8	- 56%

[3] In most cases the actual area surveyed was only a subset of the SSSI unit but these areas would have been representative of the whole unit and because we are referring to breeding density it is reasonable to assume that this breeding density applies to the whole unit.

[4] RSPB Frampton Marsh Annual Reserve Monitoring data, unpublished, RSPB.

[5] Sharps, E., Smart, J., Mason, L. R., Jones, K., Skov, M. W., Garbutt, A., and Hiddink, J. G. (2017) Nest trampling and ground nesting birds: Quantifying temporal and spatial overlap between cattle activity and breeding redshank. Ecology and Evolution, 7(16), 6622–6633. https://doi.org/10.1002/ece3.3271

[6] Natural England Survey, unpublished, Natural England.

[7] Natural England Survey, unpublished, Natural England.

[8] Natural England Survey, unpublished, Natural England.

[9] Sharps, E., Smart, J., Mason, L. R., Jones, K., Skov, M. W., Garbutt, A., and Hiddink, J. G. (2017) Nest trampling and ground nesting birds: Quantifying temporal and spatial overlap between cattle activity and breeding redshank. Ecology and Evolution, 7(16), 6622–6633. https://doi.org/10.1002/ece3.3271

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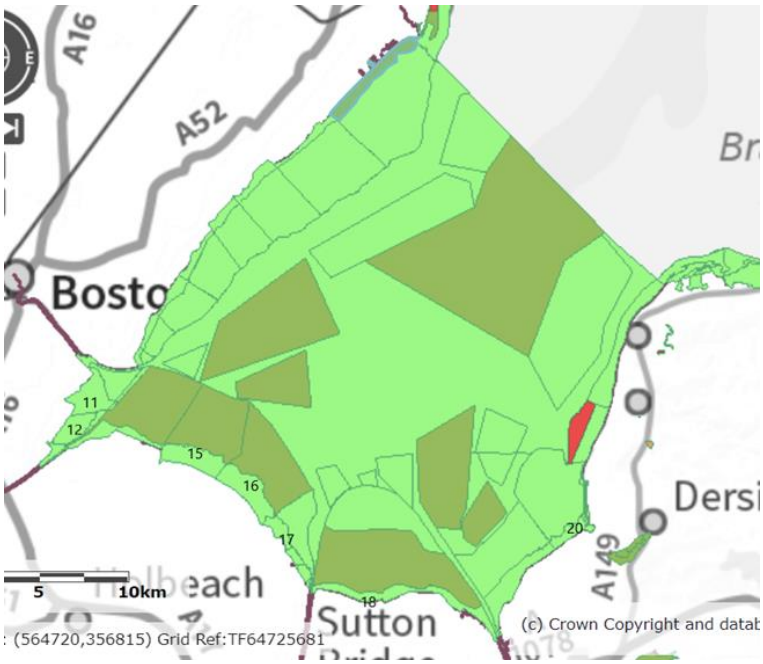


Figure 1. Location of The Wash SSSI units (numbered according to Table 2) for which breeding density data is available (Magic Maps, accessed 29 November 2021).

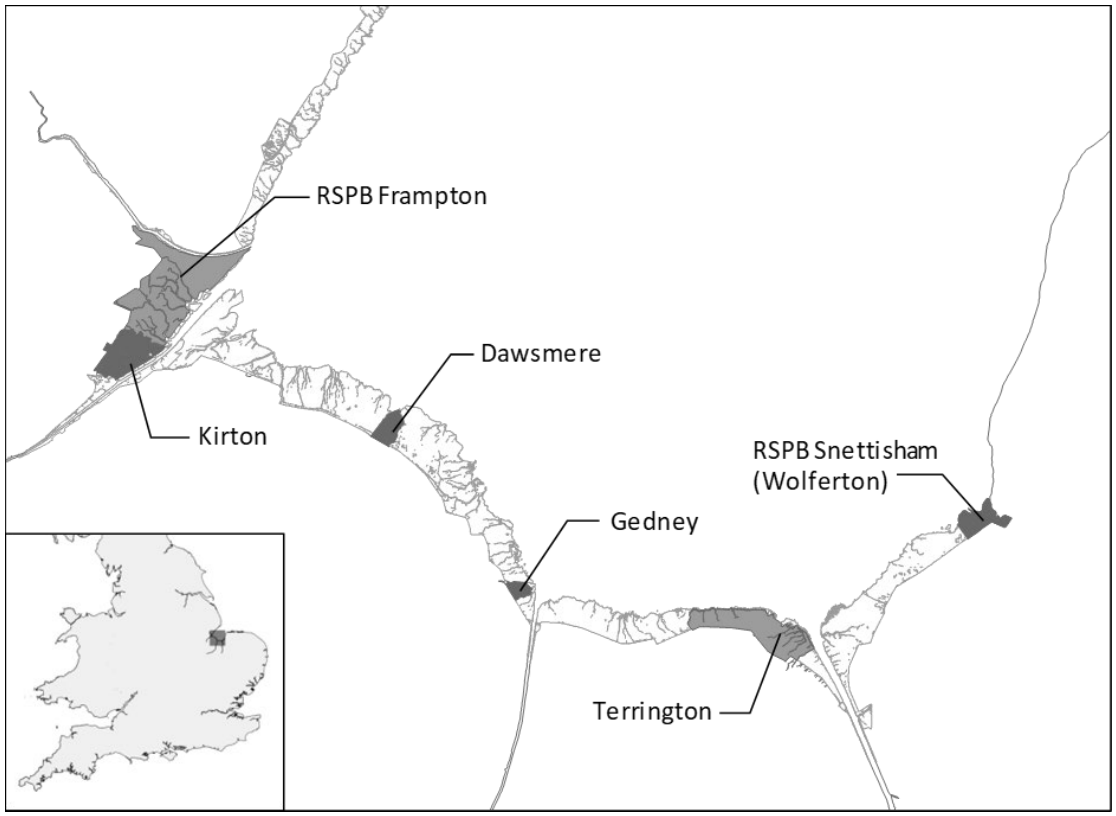


Figure 2. Locations of 6 study sites within The Wash SSSI for which breeding redshank population or density trend data are available.

4.3 The above data can be summarised as:

- **Frampton:** Annual monitoring on our Frampton Marsh reserve (mostly in unit 11) shows that the population has fallen from around 450 pairs in 1988 to 95 pairs in 2019, which is an overall decline of 79%.
- **Kirton:** Breeding densities have been in near-constant and dramatic decline on this site.
- **Dawsmere:** Breeding densities declined dramatically between 1985 and 2011, but may have stabilised 2011-2017 (although 2017 survey results are based on different methods to the other years so should be used with caution).
- **Gedney:** Breeding densities remained stable between 1985 and 1996, and increased between 1998 and 2011, and may have stabilised 2011-2017 (although 2017 survey results are based on different methods to the other years so should be used with caution).
- **Terrington:** This site shows an overall decline in redshank breeding density between 2005 and 2017.
- **Wolferton:** There was a decline in breeding density between 1985 and 1996, with an increase in numbers in the early 2000s, followed by a continued decline.

c) Condition Status of The Wash SSSI

4.4 The Wash SSSI is currently assessed by Natural England as being in overall favourable condition (68%)[11].

4.5 According to Common Standards Monitoring and targets in the FCT for The Wash SSSI, a decline of 25% or more in the notified feature breeding redshank should automatically trigger unfavourable condition status. The data in Table 2 clearly shows declines well in excess of 25%. The most recent breeding redshank surveys for assessment purposes were carried out in 2017 for just three saltmarsh units (units 15, 16 and 17). A lack of regular monitoring across all saltmarsh units means that declines in the population have been overlooked (based on our reserve data) and the SSSI condition status has remained as Favourable.

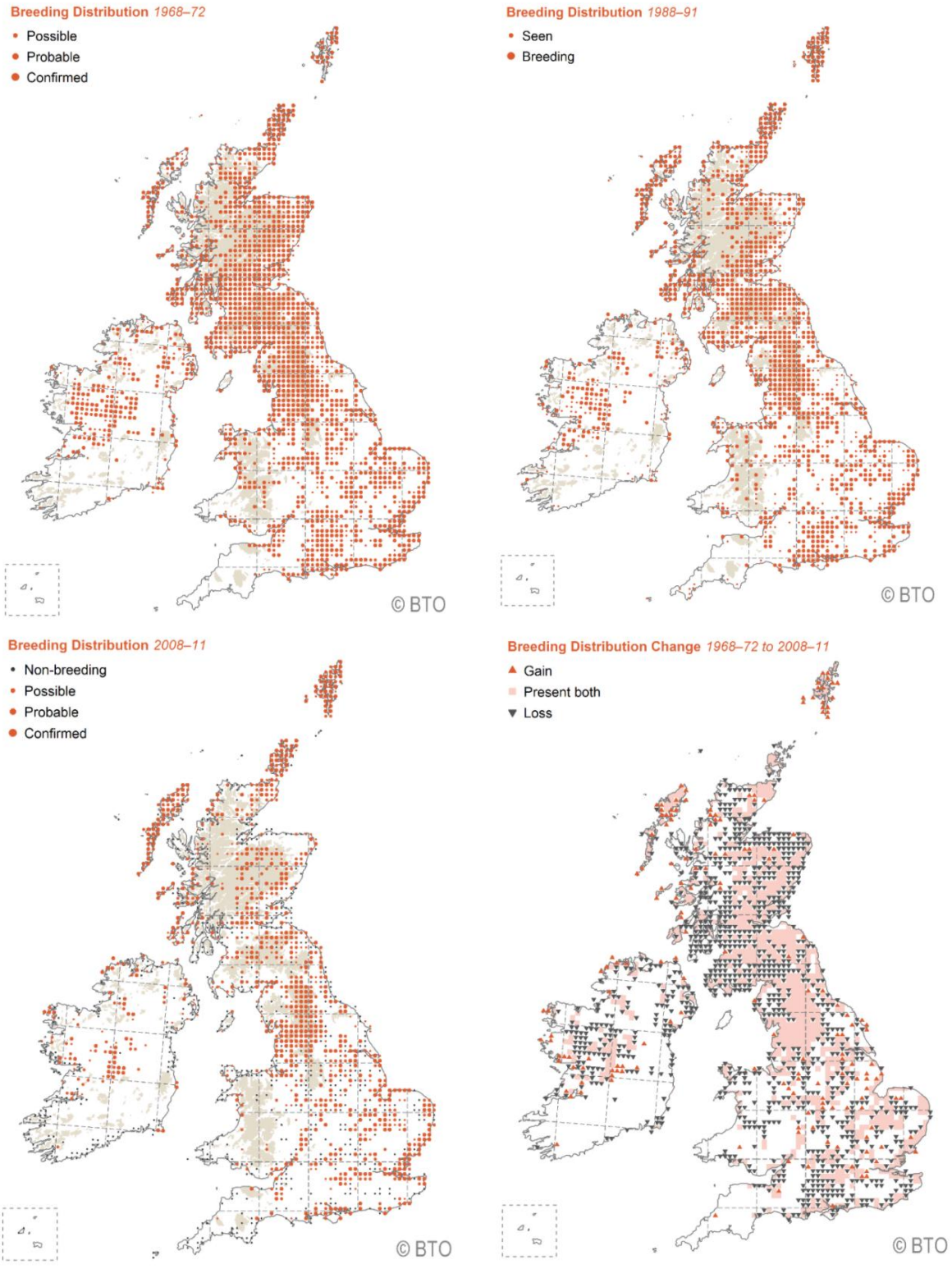
4.6 We understand that Natural England is commissioning a breeding redshank survey of saltmarsh within The Wash SSSI in 2022. This would provide up-to-date population estimates on which to base any further ecological assessments, although not in time for determination of the Application. It is important, therefore, that the current Favourable Condition assessment of The Wash SSSI is not used to assume a healthy breeding redshank population.

5. Breeding redshanks on functionally linked areas and the link to The Wash SSSI population

a) UK context

5.1 As mentioned previously, redshanks also breed on lowland wet grassland in England. Davidson (1991) found that although consistently higher numbers of breeding redshanks were found on saltmarshes than on adjacent wet grasslands, the latter was nevertheless an important breeding habitat. A loss of lowland wet grassland to other land uses and changes in grassland management has, however, caused the decline of wader species including redshanks using this habitat (Smith, 1983; Wilson *et al*, 2004; Wilson *et al*, 2005).

[11] Designated sites viewer: [redacted]



Figures 3 to 6. Maps using data from 2007-2011 Bird Atlas. Accessed 2 December 2021 from BTO Mapstore

[redacted]

5.2 Wader surveys on lowland wet grassland in 1982 and 2002 found that redshanks had declined by 29% in England and 89% in the East Midlands (including data from surveys on the Lincolnshire side of The Wash) (Wilson *et al*, 2005). And the widespread breeding range contraction of the species since 1968-

72 and 2007-11 was shown in the 2007-2011 Bird Atlas (Balmer *et al*, 2013), much of which occurred since 1988-91. Figures 3 to 6 show the change in breeding distribution recorded by the Bird Atlas.

b) Breeding redshank on lowland wet grassland around The Wash

5.3 Agricultural land-claim during the second half of the 20th century saw saltmarshes converted to arable land, meaning the wet grassland stage of saltmarsh succession was missed out (Davidson, 1991). The areas of lowland wet grassland around The Wash are now limited to nature reserve sites – Lincolnshire Wildlife Trust's (LWT) Gibraltar Point, RSPB Frampton Marsh (including LWT Marsh Farm) and RSPB Freiston Shore in Lincolnshire, RSPB Snettisham in north west Norfolk, and Norfolk Wildlife Trust's Holme Dunes in north-west Norfolk.

5.4 The RSPB reserves are those closest to the Application Site. Table 3 gives the lowland wet grassland breeding data for redshank at these sites and Figure 7 shows the location of lowland wet grassland habitat.

Table 3. Numbers of pairs of redshanks breeding on lowland wet grassland at RSPB reserves[12].

Reserve	Area (ha)	5-year breeding mean (pairs)
Frampton Marsh	109.01ha	54
Freiston Shore	71.2ha	1

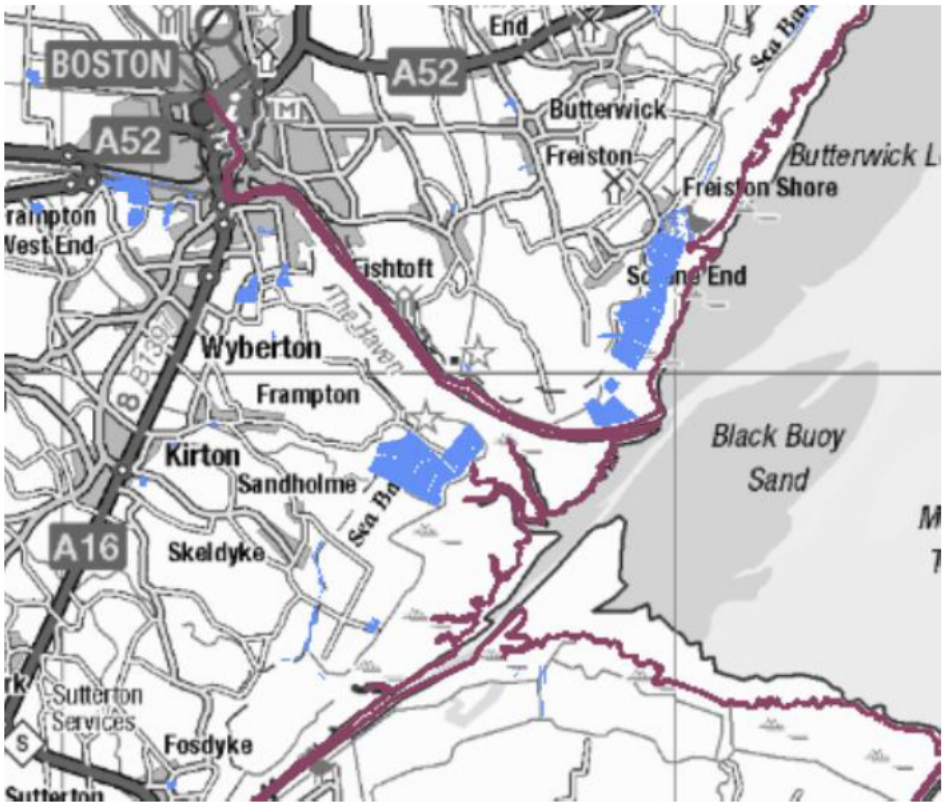


Figure 7. Map of Application Site area showing the location of wet grassland habitat (Magic Maps, accessed 25 November 2021).

[12] RSPB Frampton Marsh and Freiston Shore Annual Reserve Monitoring data, unpublished, RSPB.

c) Summary

5.5 Areas of lowland wet grassland habitat around The Wash are not extensive, but they are used by breeding redshanks. Whilst we know that breeding redshanks occur on our reserves on lowland wet grassland it is reasonable to assume that those birds would use adjacent intertidal habitat. This is based on the available evidence (Beintema *et al*, 1991; Johansson and Blomqvist, 1996; Ausden *et al*, 2003; Jongbloed, 2005; Smart, 2005). Away from reserves, however, additional survey work will be required to understand what numbers may use other lowland wet grassland areas identified on Figure 7.

6. Statement summary messages

6.1 We can summarise findings from our analysis of the available data and literature as:

- Saltmarsh breeding redshank populations are in decline across the UK and on The Wash SSSI.
- Redshanks have a preference for saltmarsh as breeding habitat, but will also use lowland wet grassland.
- The loss of both saltmarsh and lowland wet grassland habitats, and the consequent impact on breeding redshanks, is well documented.
- The Wash SSSI breeding redshank population is likely to be using both habitats to breed.
- Adverse effects on wintering redshank will have an impact on The Wash breeding redshank population

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