Intertidal Bird Report

Brandy Hole

On Behalf of:

Brandy Hole Yacht Club

April 2013

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Contents

1.0 Introduction

1.1 There is a proposal to build a series of 13 two-bedroom holiday chalets on stilts at Brandy Hole Yacht Club. They will be a maximum of 5.95m above ground level and have open veranda on two sides. They will be sited close to the Clubhouse behind the sea wall. They will be rented out on a weekly basis throughout the year as holiday lets.

1.2 An application for planning permission, submitted in 2012, was rejected by the Local Planning Authority as it was considered possible that the development could impact wintering birds on the adjacent intertidal habitats which form part of the Crouch and Roach Estuaries Special Protection Area (SPA) and Site of Special Scientific Interest. Southern Ecological Solutions was commissioned to undertake a bird survey of the adjacent intertidal area to assess the importance of the wintering and staging bird resource and the potential direct and indirect impacts of the proposed development.

1.3 The Crouch and Roach Estuaries SPA supports an internationally important population of dark-bellied brent geese over winter (five-year mean 06/07-10/11: 4,073, which constitutes over 1% of the international population.). It is also designated an SPA on account of supporting over 20,00 individuals of wintering waterfowl and currently supports internationally important numbers of black-tailed godwits (five-year mean 06/07-10/11: 663). The SSSI citation includes the following additional species regularly occurring in nationally important numbers (with most recent five-year mean figures taken from the Wetland Bird Survey Report 2010/11 (Holt et al. 2012):

- shelduck (1,096)
- shoveler (254)
- redshank (1,871)
- dunlin (4,094)
- lapwing (7,731)
- golden plover (4,588)

1.4 In addition, the following species currently occur in nationally important numbers (Holt et al. 2012):

- grey plover (518)
- avocet (170)
- ringed plover (499)

2.0 Methods

2.1 Six bird survey visits were undertaken through a single tidal cycle (three on the ebbing tide and three on the flowing tide), between October 2013 and March 2013, at approximately monthly intervals. Dates, weather conditions and tidal states for each survey visit are presented in Table 1.

2.2 Table 1. Winter bird survey dates, weather conditions and tidal states.

Date	Weather	High tide	Tidal state
16/10/12	Cloud 8/8, calm, 5oC, dry	13:43hrs	Rising
15/11/12	Cloud 3/8, NW1, 5oC, dry	13:09hrs	Falling
11/12/12	Cloud 0/8, N1, 4oC, dry, frosty	10:20hrs	Falling
07/02/13	Cloud 8/8, SE2, 4oC, dry	09:32hrs	Falling
05/03/13	Cloud 0/8, S1, 15oC, dry	17:55hrs	Rising
27/03/13	Cloud 6/8, NE4, 0oC, dry	12:37hrs	Rising

2.3 All surveys were undertaken by Dr Matthew Denny MCIEEM who is an experienced estuarine bird surveyor. The survey area included all intertidal habitats within 250m of the proposed development site as well as all other areas within direct line of sight up to 550m (to the east) and 650m (to the west). The count area was split into ten count sectors shown in Figure 1. The location of count point A was selected to allow the widest possible view of the survey area. Most of sector ten was not viewable from count point A and was counted from count point B. Instantaneous counts were undertaken approximately every 45 minutes through the tidal cycle to include a high tide and low tide state resulting in at least five counts being conducted on each visit. This allowed the number and distribution of feeding and roosting birds at different tidal states to be assessed through the season.

2.4 All waterfowl species using (not overflying) the intertidal habitats were counted including all waders, ducks, geese, grebes, cormorants and gulls.

2.5 To monitor existing potential disturbance sources, the number of people using the riverside path along the southern shore of the river was monitored on each visit and anecdotal observations of other disturbance sources were noted.

3.0 Results

3.1 A summary of the different habitats and features of each sector, and distance from the proposed development site, are presented in Table 2.

3.2 Table 2. Habitats and features and minimum distance from the proposed development site of each count sector.

Sector	Min. distance from site	Habitats and features
1	15	Narrow gravel, rock and mud intertidal area bordered by vertical seawall with some pontoons
2	130	Narrow gravel, rock and mud intertidal area bordered by vertical seawall with some pontoons
3	400	Mud substrates with concrete revetment to seawall. Several boat moorings
4	150	Mud substrates with rock closer to shore and concrete revetment to seawall. Several boat moorings
5	100	Mud substrates with rock closer to shore and earth bank to seawall
6	110	Mud substrates with concrete revetment to seawall. Several boat moorings
7	225	Mud substrates with concrete revetment to seawall. Several boat moorings
8	350	Broad mud substrates exposed for longer period through tidal cycle than other parts of survey area. Concrete revetment to seawall and patches of saltmarsh forming a spit at east end of sectors which form islands or become submerged at high tide depending on spring/neap tide heights
9	15	Very narrow mud substrate intertidal area bordered by vertical 'cliff' of high saltmarsh to south. Several boat moorings and a 100m long pontoon
10	15	Area of high saltmarsh dominated by the grass *Puccinellia maritima* and dissected by a mosaic of deep muddy creeks. The habitats are ungrazed and have developed a tall, rank structure which interrupts sightlines and is therefore generally unsuitable for roosting birds.

3.3 A total of 24 species was recorded. Wader species constituted the majority of the birds recorded during the surveys with regular black-headed gulls, teal and wigeon also recorded and occasional flocks of brent geese using the area to drink, loaf and roost, in bouts between feeding on grass fields to the north. A list of all species recorded is presented in Appendix 1.

3.4 There was a distinct difference in the assemblage and numbers of birds using the count area when there were exposed mudflats as opposed to when these habitats were inundated by the tide, with very few birds using the survey area when the mudflats were not exposed. The saltmarsh edge in sector eight was used regularly by small (<10) numbers of oystercatcher and turnstones as a high tide roost, the creeks and flooded saltmarsh of sector ten were used by teal (max. 14) and mallard (max. 2) for feeding and roosting at high tide, whilst little grebes continued to feed across the count area during high tide. But no other species used the survey area when the main mudflats were covered with birds mainly departing downstream to high tide roosts elsewhere. Anecdotal observations of birds during high tide suggest that the main wader roosts nearby are located in the Clementsgreen and Hawbush Creek areas to the north, but also used the areas of recently re-created saltmarsh downstream from the survey area.

3.5 *Non-high tide counts*

Mean and maximum recorded numbers of all counted species in the survey area across the season are presented in Table 3, and mean numbers of all counted species in each sector across the season are presented in Table 4.

3.6 Waders

3.6.1 The most numerous species recorded in the survey area was dunlin with an average of 85 per count and a maximum of 368 recorded in early February. Almost all of these were recorded in sectors six, seven and eight. Often dunlin flocks landed for only short periods of time to feed on their way up or downstream. They were only recorded using the area north of the river channel.

3.6.2 The most ubiquitous species was redshank which was recorded on every survey and in all sectors other than sector one. They were concentrated in sectors six to eight.

3.6.3 Lapwing and oystercatcher were recorded regularly and concentrated I sectors two (where they often roosted with gulls) and eight. Turnstone were recorded fairly regularly in small numbers particularly in sector one where they fed on the more gravelly and rocky habitats. Ringed plover were recorded occasionally except in early March when a flock of 30 frequented sector five, which may refer to passage migrant rather than regularly wintering birds. Curlew, grey plover, black-tailed godwit and avocet were recorded only occasionally and in small numbers; mostly in sectors five, six and seven.

3.7 Ducks and geese

3.7.1 Brent geese were noted grazing on fields to the north of the river, adjacent to sectors three and four, on all visits except in October. These birds were recorded within the survey area on several occasions to roost, preen, drink and loaf, particularly in sectors two, five and six. They were never observed feeding within intertidal habitats presumably due to a lack of intertidal vegetation within the survey area.

3.7.1 Wigeon and teal were recorded regularly feeding along the water's edge particularly in sector eight and in March in sectors nine and ten probably to consume seed from saltmarsh vegetation carried into adjacent creeks by the tide at a time of year and in weather (it was very cold throughout March) when other food resources became scarce.

3.7.1 Shelduck feed on intertidal invertebrates by sifting through mud and were recorded in small numbers in sectors six, seven and eight only. A single mute swan and a mallard were recorded on separate occasions.

3.8 Gulls

Lesser black-backed, herring, common and black-headed gulls were recorded but only the latter was frequent and numerous. All species were concentrated in sector two where they were often roosting or feeding around the mud and gravel spit.

3.9 Other waterfowl species

Little grebes were recorded regularly in small numbers feeding in river channel and once in the main creek in sector ten. Little egrets were recorded feeding in sectors five and six on three occasions and two were noted feeding along the creeks in sector ten at high tide on the December survey. Single grey heron and cormorant were recorded on different visits.

3.10 Other bird species of interest

3.10.1 Although not directly relevant to the aims of this report, the following species of raptor, probably attracted to the area by the intertidal bird resource, were noted: short-eared owl, merlin, marsh harrier, peregrine falcon and sparrowhawk.

3.10.2 Table 3. Mean and maximum number of individuals of each species recorded within the survey area when mudflats were exposed, totalled across the survey season.

	LB	L	BH	LG	RK	MA	OC	DN	CA	RP	HG	TL	MS	WN	ET	SU	CU	GV	H	TN	BG	BW	CM	AV
MEAN	1	36	34	4	21	0	10	85	0	13	0	8	0	9	0	1	1	0	0	3	39	1	0	1
MAX	2	146	136	11	40	1	18	368	1	32	2	18	1	38	1	4	2	2	2	15	169	3	1	2

3.10.3 Table 4. Mean number of individuals (to one decimal point) of each species recorded within the survey area when mudflats were exposed for each count sector, totalled across the survey season.

SECTOR	LB	L	BH	LG	RK	MA	OC	DN	CA	RP	HG	TL	MS	WN	ET	SU	CU	GV	H	TN	BG	BW	CM	AV
1	0.2	0.9	0.3	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0
2	0.2	11.1	19.3	0.1	0.9	0.1	3.0	0.0	0.0	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	13.2	0.0	0.1	0.0
3	0.1	0.3	0.8	0.6	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	1.0	0.9	0.2	0.8	0.0	0.7	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.3	0.0	0.0	0.0	0.0
5	0.0	0.4	1.4	0.0	0.2	0.0	0.9	0.4	0.0	6.7	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.2	4.5	0.0	0.0	0.0
6	0.0	2.6	4.1	0.2	5.0	0.0	0.2	10.2	0.0	0.1	0.1	0.5	0.0	0.0	0.1	0.3	0.2	0.0	0.1	0.0	4.6	0.0	0.0	0.0
7	0.0	0.2	0.1	0.6	5.7	0.0	0.2	3.3	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	7.8	0.3	0.2	6.5	0.0	1.4	40.0	0.0	0.0	0.1	3.0	0.1	1.8	0.0	0.5	0.0	0.0	0.0	0.0	1.4	0.2	0.0	0.3
9	0.0	0.5	0.4	0.6	0.6	0.0	0.2	0.0	0.1	0.2	0.0	0.0	0.0	5.2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.5	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.3	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.0

3.11 *Potential human disturbance sources*

3.11.1 During the surveys an average of 5.6 people per hour walked past the survey count point on the seawall, all of which came from the direction of Hullbridge to the west. Of these, 2.1 people were dog-walkers and 2.4 people went into the Yacht Club building and were assumed not to continue further east. Whilst a formal count of pedestrians using the northern seawall footpath was not undertaken, it was noted that considerably more used this footpath than the southern seawall path (estimated as approximately double).

3.11.2 Other anecdotal observations of potential disturbance sources included infrequent access to boats on the pontoon in sector one and the slipway on the eastern edge of sector 10, infrequent overflying by helicopters, frequent use of the Yacht Clubhouse decking area by diners, and frequent, regular dredging for cockles by a fishing boat immediately west of sector eight. This boat operates throughout the day on weekdays and music emanating from this boat can be heard up to 2km away.

4.0 Assessment and conclusions

4.1 A range of waterfowl species use the survey area on a regular basis in the winter, almost exclusively during the non-high tide period. These numbers are generally fairly low. Of those species occurring in nationally or internationally important numbers on the Crouch and Roach Estuaries (i.e. for which the SSSI and SPA are designated), maximum numbers recorded within the survey area (i.e. within 550m direct sightline of the proposed development) represent less than 1% of the total Crouch and Roach Estuaries populations. The majority of these species are concentrated in sectors six, seven and eight where there are more extensive mudflats with wider aspects (more extensive sightlines) which are likely to provide birds with better food resources and lower predation risk.

4.2 Very small numbers of oystercatcher, turnstone, teal, mallard and little grebe were recorded roosting and/or feeding in the survey area when the mudflats and saltmarsh creeks were inundated by the tide.

4.3 Disturbance has been identified as the only potentially significant mechanism in which this proposal may affect the intertidal bird resource. There have been a number of studies which have investigated the effects of human disturbance on intertidal birds (e.g. Madsen 1998). Whilst the results vary, it appears that effects are species and situation specific, such that quarry species (those that are hunted) are affected at a greater distance. All the wader species recorded in this study and brent geese are not quarry species, and there is very little wildfowling along this stretch of the Crouch Estuary. Fox and Madsen (1997) suggest that disturbance distances for non-quarry species is approximately 150m and therefore this distance is applied to this situation.

4.4 All sectors are subject to existing human disturbance sources: the southern sectors which are subject to narrow/short sightlines and general shoreline disturbance from the existing housing and pontoons; the northern sectors adjacent to the busier north seawall footpath; and sector eight which is subject to frequent potential disturbance from the cockle-dredging boat.

4.5 Number of birds using the southern sectors which are more likely to be affected by the proposed development, are considered insignificant and are already subject to greater potential human disturbance than that posed by the proposed development, as discussed above, and it is unlikely that birds using the area at any tidal state will be affected by the proposed development.

4.6 In summary it is considered unlikely that there will be a significant increase in direct disturbance to intertidal habitats from the proposed units for the following reasons:

4.6.1 The proposed accommodation units will be 5.95m high and set-back from the seawall such that people in the units will only be visible from the adjacent intertidal habitats approximately 150m from the shoreline in sector ten, and much further (due to the lower intertidal habitats and hence higher angle of incidence) in other sectors, and therefore beyond the disturbance distance quoted above.

4.6.2 There is existing regular use of the Clubhouse veranda, which is more prominent and closer to the shore than the proposed units.

4.6.3 The intertidal habitats close to the proposed development site are suboptimal for birds with very low numbers of waterfowl using the closest sectors (sectors one, nine and ten) probably due to the existing lack of muddy substrate and grazed saltmarsh vegetation, lack of sightlines and existing disturbance levels.

4.7 The proposed development may increase the number of pedestrians using the seawall footpath along the southern shore of the River Crouch. There is already regular pedestrian traffic along this section of footpath so birds using the adjacent habitats will already be habituated to walkers. The fact that sectors adjacent to the more intensively used northern seawall path support higher numbers of birds shows that birds using the survey area are already habituated to higher pedestrian use and it is considered unlikely that increasing use of the southern footpath from this development will result in a significant increase in bird disturbance.

4.8 In conclusion, it is considered highly unlikely that there will be a significant direct or indirect disturbance effects of the proposed development on birds using the adjacent intertidal habitats, and specifically those species which are special features of the Crouch and Roach Estuary SPA and SSSI.

References

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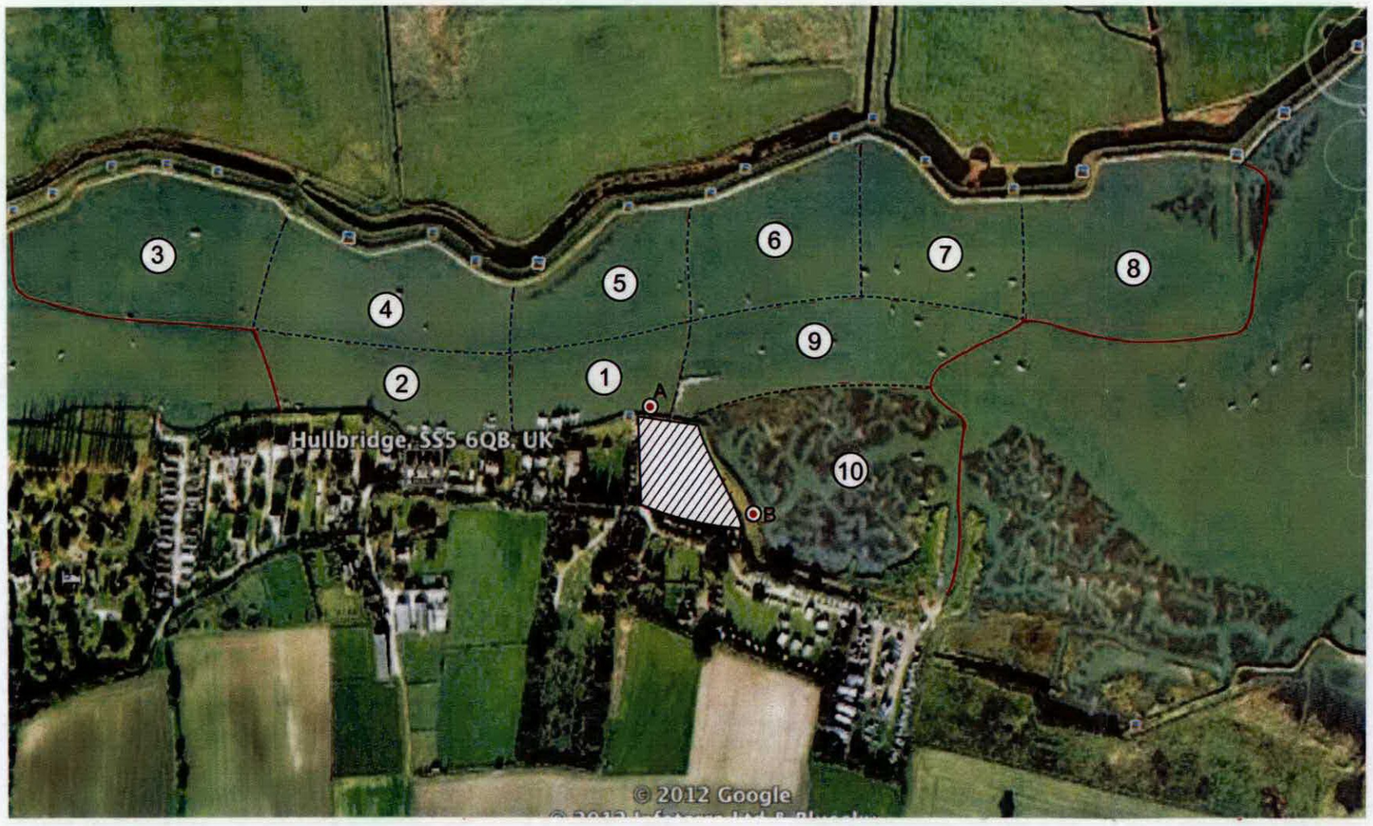
Appendix 1

Table of bird recorded during the intertidal survey at Brandy Hole with respective species codes used in Tables 3 and 4.

Species	Code
Lesser black-backed gull	LB
Lapwing	L
Black-headed gull	BH
Little grebe	LG
Redshank	RK
Mallard	MA
Oystercatcher	OC
Dunlin	DN
Cormorant	CA
Ringed plover	RP
Herring gull	HG
Teal	TL
Mute swan	MS
Wigon	WN
Little egret	ET
Shelduck	SU
Curlew	CU
Grey plover	GV
Grey heron	H
Turnstone	TN
Brent goose	BG
Black-tailed godwit	BW
Common gull	CM
Avocet	AV

Figure 1



KEY

N

- Proposed development site
- Survey area boundary
- Count sector boundary
- Count sector number
- Count sector points

Site: Brandy Hole			
Drawn by: N Pankhurst	Date: 16/04/2013	Scale: NA	Rev: NA
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