

Hartlepool Borough Council

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# Estuarine Bird Monitoring

## TERRC Facility

February 2009



Prepared for:

## Revision Schedule

### Estuarine Bird Monitoring (05 Dec 2008-19 Jan 2009) - TERRC Facility

Rev	Date	Details	Prepared by	Reviewed by	Approved by
0	12 Dec 2008	Interim Report	<b>David Broughton</b> Ecologist	<b>Adrian Milton</b> Principal Environmental Scientist	<b>Neil Stephenson</b> Technical Director
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1	15 Dec 2008	Interim Report	<b>Adrian Milton</b> Principal Environmental Scientist	<b>Matthew Smedley</b> Principal Planner	<b>Neil Stephenson</b> Technical Director
2	22 Dec 2008	Second Interim Report	<b>Adrian Milton</b> Principal Environmental Scientist	<b>Matthew Smedley</b> Principal Planner	<b>Neil Stephenson</b> Technical Director
3	17 Feb 2009	Final Report	<b>Colin Bonnington</b> Ecologist	<b>Adrian Milton</b> Principal Environmental Scientist	<b>Neil Stephenson</b> Technical Director
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# 1 Introduction

## 1.1 Background

Scott Wilson has been appointed by Hartlepool Borough Council to provide planning and environmental advice with respect to the Able UK Ltd (Able UK) Teeside Environmental Reclamation and Recycling Centre ("TERRC site") development and operation.

As part of this contract Scott Wilson was commissioned to undertake monitoring of disturbance to estuarine bird populations during dredging and piling works at the TERRC site in December 2008 and January 2009. The monitoring works were being undertaken to determine if dredging and piling works were disturbing populations of estuarine birds and to stop works in the event of a disturbance. The monitoring was a requirement of a derogation from Condition 13a of planning permission H/2007/0543.

Condition 13 states:

13. *Unless otherwise agreed in writing with the Local Planning Authority, and subject to any further restrictions in the following conditions, no dredging adjacent to quays 10 and 11, to the footprint of the cofferdam or within the dock (unless the cofferdam excluding access through the channel is in place), piling, rock bund formation or disassembly, or works to infill, open, close or disassemble the cofferdam shall be undertaken in the period 2 hours either side of low tide during; -*

(a) *the months of November, December, January and February and*

(b) *from 15 June to 31 August inclusive*

*All piling operations shall adopt "soft start procedures" whereby the increase in noise is progressive.*

*In order to avoid disturbance to feeding/roosting birds using the Teesmouth and Cleveland Coast SPA and Seal Sands SSSI mudflats, and to avoid disturbance to seals rearing pups.*

The derogation from planning condition 13a specifically allows:

- piling in all areas of the development between the hours of 7am and 7pm; and
- dredging by backhoe and filling hoppers in the vicinity of Quays 10 and 11 and the dry dock.

The above activities could take place singly or in combination. The area in which activities covered by this derogation could take place is shown in Figure 1. The derogation initially permitted activities described in the Appropriate Assessment (Appendix 1) to take place during the low tide period from 5<sup>th</sup> to the 20<sup>th</sup> December 2008. This was then extended to the 18<sup>th</sup> January 2009. The works were subject to immediate cessation should the trigger levels described in Section 2.1 (and Appendix 1) be breached.

## 1.2 Report Content

This report presents the results of the bird monitoring undertaken at the TERRC site within WeBS sectors DT017, DT018 and DT019 (extending to DT013 in the case of shelduck (*Tadorna tadorna*)) undertaken as part of the derogation.

The report provides information relating to observations and counts made in the specified WeBS sectors made during the monitoring (5<sup>th</sup> December 2008 to 19<sup>th</sup> January 2009) and any remedial actions imposed, together with an assessment of any residual impacts of Able UK activities on the bird populations. Interim reports have been issued on 16 December 2008 and 24 December 2008, but all relevant information is reproduced in this final report for clarity and ease of reference.

Throughout the report the term 'survey period' refers to a four-hour observation/ monitoring window covering the period two hours either side of low tide.

This report contains details of the:

- estuarine bird species recorded;
- numbers of birds involved;
- use of the Wetland Bird Survey (WeBS) sectors by birds;
- types and levels of disturbance during the counts, including anthropogenic and natural disturbances; and
- effects of this disturbance on birds in the WeBS sectors using the agreed disturbance criteria.

A summary of the survey data is provided in Section 3 while the raw data and mapped results are provided as Appendix 2. In addition, daily updates of the bird monitoring were provided to Hartlepool Borough Council during the derogation period and these are reproduced as Appendix 3.

A discussion of the findings of the survey is provided in Section 4, from which conclusions are drawn.

## 2 Methodology

### 2.1 Technical Brief

Hartlepool Borough Council provided the technical brief for the bird monitoring works. This is reproduced below, and includes minor amendments incorporated by Hartlepool Borough Council (including addressing comments from Natural England) during the initial stage of the derogation.

When: Monitoring is to occur on a daily basis, over the period two hours either side of low tide, for the full period for which the derogation applies.

Where: Monitoring is to cover the study area, defined as WeBS sectors DT017, DT018 and DT019 (extending to DT013 in the case of shelduck). The location of the WeBS sectors is illustrated on Figure 2.1.

What (potential disturbance events):

- 1) Able UK activities undertaken under the derogation (start and finish times to be noted, or noted as continuing throughout the monitored period).
- 2) Consented activities by Able UK (start and finish times to be noted, or noted as continuing throughout the monitored period).
- 3) Any other activities that have the potential to impact on the visible WeBS sectors in Seaton Channel e.g. bait digging.

What (bird activity):

- 1) Number of birds of which species present on each sector or part of sector.
- 2) Number and species of birds moving in response to disturbance (distance over which disturbed birds fly; time taken to return to activity indicating normal levels of alertness; time taken to return to original area (or noted that they do not return)).
- 3) Number of birds showing non-flight reactions to disturbance e.g. ceasing to feed, walking away from disturbance, alarm calling.
- 4) Number of birds moving other than in response to disturbance (distance over which disturbed birds fly; time taken to return to activity indicating normal levels of alertness; time taken to return to original area (or noted that they do not return)).
- 5) The above is to be recorded in relation to sectors and part-sectors.
- 6) Categorisation of disturbance events according to the scale appended below.
- 7) At night, these activities are to be monitored as practical, given the constraints of reasonably available equipment. Nonetheless, the ability to record level 2 and 3 disturbance (bird activity) must be assured, as well as the ability to attribute causality to any disturbance.

Report: The report (of which this methodology is now presented) is to describe each of the above elements of monitoring; include field data as annotated maps; and, be produced to a file size such that it can be emailed.

Cessation of activity: The trigger for immediate daily cessation of any activity-carried out under the derogation would be disturbance such that 20 birds, or 50% of the population of one species within a particular sector whichever is lower fly 200 m or more in response to the disturbance (i.e. bird activity categories 2 and 3).

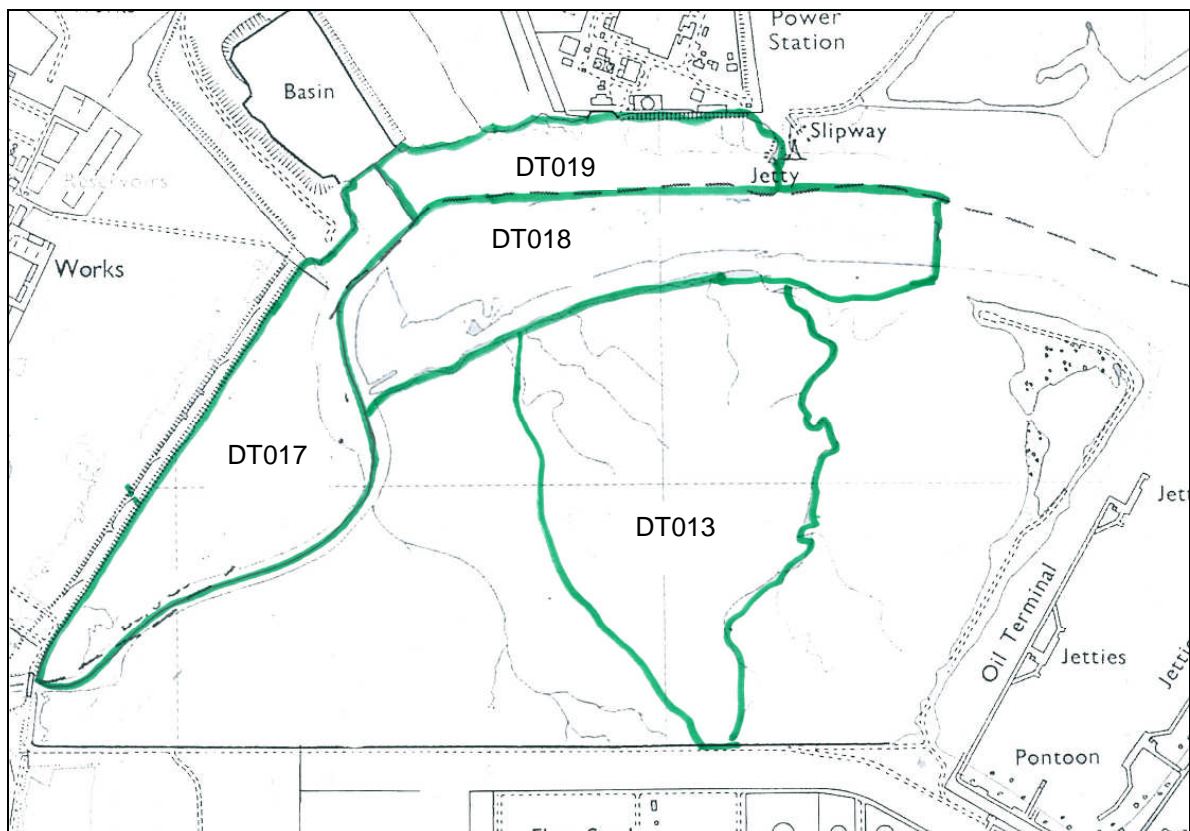
Should three separate category 2 or 3 disturbance events attributable to the same activity occur during the derogation, that activity will cease for the remainder of the derogation period.

Categorisation of potential and actual disturbance events (based on Ravenscroft *et al.* 2007):  
The following scale is to be used to categorise the scale of any disturbance events observed:

- 0 No disturbance to birds recorded.
- 1 Minor disruption; birds walk or fly but return to the study area within 200 m of the previous position.
- 2 Local displacement; birds take flight and return to a different position over 200 m away but within the study area.
- 3 Major displacement: birds take flight and abandon the study area.

The study area is defined as sectors DT017, DT018 and DT019, extending to DT013 in the case of shelduck (see Figure 2.1).

**Figure 2.1: Locations of the Specified WeBS Sectors**



## 2.2 Survey Methodology

The survey methodology was agreed with Natural England and the county ecologist during the first monitoring periods. The methodology follows the brief given in Section 2.1.

Daytime monitoring included detailed recording and counting of species present as well as the recording of disturbance.

During night monitoring, detailed counts were not possible due to the intermediate levels of illumination. This hindered observation with optical aids and, in addition, the use of infra-red or light intensification equipment was rendered ineffectual due to the large distances involved. It was agreed that monitoring of disturbance would be the main focus of the night-time monitoring periods and this was achieved.

For all monitoring periods, weather conditions (including rain, wind and visibility) were classified based on the British Trust for Ornithology (BTO) guidelines ([www.bto.org/bbs](http://www.bto.org/bbs)). The percentage area of mudflats exposed during each monitoring periods was also estimated and recorded.

All bird flights were recorded on annotated maps as 'bird movement plots', which are presented as Appendix 2. The plots include both natural movement of the birds and those attributable to a specific disturbance/activity.

## 3 Survey Results

This section presents the summarised survey results. The full survey data (including the bird movement plots) are provided as Appendix 2.

### 3.1 Relevant Site Activities

Able UK provided details of piling and dredging related activities undertaken over the derogation period during each of the survey periods. The information provided has been compared to the observations of the bird monitoring team and are considered accurate. These activities are given below in Table 3.1, along with the date and low tide time for each survey period. For the majority of the monitoring period Able UK was piling and /or dredging at both daily low tides, however they ceased night-time dredging and piling on 11<sup>th</sup> January 2009 and therefore only daytime monitoring was undertaken thereafter.

**Table 3.1: Activities undertaken by Able UK**

Date	Time of low tide (all times GMT)	Activities undertaken incorporating those documented by Able UK
5/12/2008	14:23	13:23 permission to dredge and pile received. Berth dredged.
6/12/2009	15:31	Berth dredged. Hopper barge full 15:00. All stopped until 17:30 then hopper barge movements. Piling continued throughout period.
7/12/2008	04:10	Berth dredged. Hopper barge full 04:00. All dredging stopped until 06:00 then hopper barge movement. No piling.
	16:41	14:30 hopper barge full. Weather bad so hopper barge could not leave, therefore stationary for 4 hours. Continuous piling.
8/12/2008	05:15	Dredger broken-down and no activity. No piling.
	17:45	Berth dredged. Piling until 19:00.
9/12/2008	06:15	Berth dredged. Piling from 07:00.
	18:43	No dredging. New dredging system was fitted for deeper dredging. Piling until 19:00.
10/12/2008	07:11	No dredging, hopper barge full. Barge could not move due to inclement weather. Piling from 07:00.
	19:38	No dredging, hopper barge full. Barge could not move due to inclement weather. Piling until 19:00.
11/12/2008	08:05	Berth dredged. Piling from 07:00.
	20:32	Dredging from 18:37. No Piling.
12/12/2008	08:56	No piling works until 09:30. Dredging at berth. Dredger and small boats associated with dredger moved from 07:45.
	21:24	Dredging from 19:40 until 22:58. No piling.

Date	Time of low tide (all times GMT)	Activities undertaken incorporating those documented by Able UK
13/12/2008	09:46	Piling works during monitoring period. Intermittent dredging after 08:00.
13/12/2008	22:17	Dredging from berth until 21:30. Works including welding/ cutting ongoing.
14/12/2008	10:36	Dredging off berth in channel. Piling intermittent. Welding/ cutting above water.
14/12/2008	23:08	Dredging until 23:00. Piling intermittent. Able UK service launch in area.
15/12/2008	11:25	Dredging from 09:40 until 11:00. Dredger moored to the bank. Piling from 13:05. The MV Cork Sands sailed into Seaton Channel at end of survey period.
15/12/2008	23:59	Dredging in mid channel. No piling. Able UK service launch moved to dredger and back.
16/12/2008	12:13	Dredging from 10:12 until 11:35 and again from 11:55 until duration of survey. Welding/ cutting on beam near waters edge.
17/12/2008	00:49	Dredging at berth. Cutting and welding at berth. No piling.
17/12/2008	13:02	Dredging from 11:01 until 12:05 and again from 13:05 until 14:40. Small vessel near dredger. Excavator moving rubble.
18/12/2008	01:41	The MV Cork Sands sailed into Seaton channel at 23:20 and moored off the dredger. Dredging from 23:20.
18/12/2008	13:52	Piling activity from 11:55 for limited periods. Dredging from 12:07. Welding/ cutting near water's edge.
19/12/2008	02:35	No piling. Dredger moored off basin. Tug boat moored at berth.
19/12/2008	14:48	No dredging or piling. Able Tees off berth 13:20. Tees port vessel 14:00.
20/12/2008	03:33	No dredging or piling. Welding/ cutting on berth.
20/12/2008	15:50	No piling or dredging. Welding/ cutting on berth. Steel structure lowered onto berth.
21/12/2008	04:36	No piling undertaken. Dredging intermittent throughout survey period.
21/12/2008	16:59	No piling undertaken. Dredging near entrance to the dock.
22/12/2008	05:43	Dredging ongoing throughout survey with break c. 05:00 – 07:15. No piling.
22/12/2008	18:09	Dredging 16:09-17:09 and then 19:20- end of the survey. No piling.
23/12/2008	06:45	No piling or dredging activity.
23/12/2008	19:11	No piling undertaken. Dredging carried-out from 19:40 until the end of survey.

Date	Time of low tide (all times GMT)	Activities undertaken incorporating those documented by Able UK
24/12/2008	07:36	Dredging from 06:18 for the duration of the survey. No piling.
	20:01	Dredging from 18:01 until the end of the survey. No piling.
25/12/2008	08:18	Dredging from 06:18 until the end. No piling.
	20:43	No piling undertaken. Dredging from 18:43 onwards.
26/12/2008	08:55	No piling activity. Dredging undertaken from 07:30.
	21:22	No piling, dredging from 19:30.
27/12/2008	09:32	Dredging activity off berth. 09:30 Cork Sands and dredging platform manoeuvred around quay until 09:50. No piling.
	22:00	No piling. Dredging undertaken from the start of the survey for a period of one hour.
28/12/2008	10:05	Dredging from 08:14. No piling.
	22:35	No piling. Dredging continuous throughout survey.
29/12/2008	10:39	Dredging undertaken. MV Cork Sands and dredging platform in channel. Ceased operations at 08:30 and moved into berth and commenced dredging off the berth. No piling. Small Able UK boat sailing in east-west transects off the berth between 10:00 and 10:30.
	23:09	No piling undertaken. Dredging platform in channel adjacent to berth from start of survey. 21:10 MV Cork Sands sailed into channel and joined dredging platform. Dredging began 21:30.
30/12/2008	11:14	Dredging activity off berth from start of survey. 09:14 – 10:45 small Able UK boat sailing east- west transects in mid channel. No piling.
	23:44	No piling. Dredging from start-22:04 and 23:32-end of the survey.
31/12/2008	11:49	Piling undertaken throughout the survey. Dredging from 10:44 onwards.
1/01/2009	12:25	No piling undertaken. Dredging carried out throughout the survey.
2/01/2009	00:54	No piling undertaken. Dredging carried out throughout the survey.
	13:03	Dredging undertaken in channel towards eastern end of berth. Between 14:30 – end of survey the RV Marlin was moored at its berth. Small Able UK launch present between berth and dredger. No piling.
3/01/2009	01:34	No piling undertaken. Dredging continuous throughout the survey.
	13:46	Dredging off berth from start of survey. 14:30 dredger moved position. No piling.
4/01/2009	02:20	No piling undertaken. Dredging continuous throughout the survey.
	14:37	Dredging from the start of the survey – end of the survey. No piling. Prior to survey the RV Marlin left the berth and the MV Cork Sands arrived at the berth.

Date	Time of low tide (all times GMT)	Activities undertaken incorporating those documented by Able UK
5/01/2009	03:15	No piling undertaken. Dredging continuous throughout the survey.
	15:41	Piling, dredging, welding/ cutting on land near waters edge. Movement of small survey vessel.
6/01/2009	04:21	Dredging undertaken for last 10 minutes of the survey. No piling.
	16:54	Dredging activity off berth plus welding/ cutting operations. Limited period of piling undertaken from 18:00 – 18:09. The RV Marlin sailed into channel as survey finished.
7/01/2009	05:32	Dredging undertaken between 03:32-05:40 and 04:00-04:20. No piling activity.
	18:08	Dredging activity off the berth. Piling activity at the west end of the berth. Cutting and welding operations on the quay. Small Able UK boat sailing transects in channel. The RV Marlin sailed into channel at end of survey.
8/01/2009	06:43	Piling between 04:50-05:15 and 05:40-06:15 and 07:45-08:43. No dredging carried out.
	19:17	Dredging. Intermittent piling until 18:30. Cutting and welding on berth.
9/01/2009	07:49	Dredging. Limited piling activities, and welding/ cutting on the berth.
	20:22	No piling undertaken. Dredging between 19:30-19:50 after Cork Sands changed position. Able UK boat also active off berth.
10/01/2009	08:48	No piling. Dredging from 07:30.
	21:20	No piling activities. Dredging commenced just after survey start and stopped at 22:55. The MV Cork Sands left berth and moved out into the channel at end of survey period.
11/01/2009	09:41	Piling undertaken intermittently from 08:45. Dredging undertaken throughout survey off berth. Welding and cutting also carried-out.
12/01/2009	10:30	Piling undertaken intermittently from 08:40. No dredging undertaken. Welding and cutting on berth. Vessel also moved from berth into basin carrying metal tubes for piling.
13/01/2009	11:16	Piling undertaken intermittently from 09:16. No dredging. Cutting and welding on berth. Small Able UK boat active around basin entrance. Survey vessel also present measuring water depths.
14/01/2009	12:00	Piling undertaken intermittently from 11:15 to 14:00, with movement of piling vessels in the basin. No dredging. Small Able UK vessel active around basin entrance.
15/01/2009	12:41	No piling or dredging undertaken. Small Able UK vessel active near basin entrance.
16/01/2009	13:21	Piling from 14:00 to 14:15 at quay and from 14:40 to 14:50 at basin entrance. No dredging.
17/01/2009	14:01	Piling between from 12:55 to 13:20 and from 14:20 to 14:40. No dredging.

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Date	Time of low tide (all times GMT)	Activities undertaken incorporating those documented by Able UK
18/01/2009	14:52	Dredging undertaken. Piling activity between 13:05 and 13:20, 14:00 and 14:10, 15:50 and 16:00, and 16:25 and 16:52.
19/01/2009	15:57	No dredging or piling. Welding and cutting carried out.

## 3.2 Birds Recorded

In total, 35 estuarine bird species were recorded during the derogation monitoring in the specified survey area (either loafing/ feeding/ roosting or flying overhead); these species are listed in Table 3.2 (BTO codes are included).

**Table 3.2: Estuarine bird species recorded in the specified survey area**

Wildfowl	Waders	Others
Eider ( <i>Somateria mollissima</i> ) (E)	Bar-tailed godwit ( <i>Limosa lapponica</i> ) (BA)	Black-headed gull ( <i>Chroicocephalus ridibundus</i> ) (BH)
Gadwall ( <i>Anas strepera</i> ) (GA)	Black-tailed godwit ( <i>Limosa limosa</i> ) (BW)	Common gull ( <i>Larus canus</i> ) (CM)
Goldeneye ( <i>Bucephala clangula</i> ) (GN)	Curlew ( <i>Numenius arquata</i> ) (CU)	Cormorant ( <i>Phalacrocorax carbo</i> ) (CA)
Great crested grebe ( <i>Podiceps cristatus</i> ) (GG)	Dunlin ( <i>Calidris alpina</i> ) (DN)	Glaucous gull ( <i>Larus hyperboreus</i> ) (GZ)
Greylag goose ( <i>Anser anser</i> ) (GJ)	Grey plover ( <i>Pluvialis squatarola</i> ) (GV)	Great black-backed gull ( <i>Larus marinus</i> ) (GB)
Little grebe ( <i>Tachybaptus ruficollis</i> ) (LG)	Knot ( <i>Calidris canutus</i> ) (KN)	Grey heron ( <i>Ardea cinerea</i> ) (H)
Mallard ( <i>Anas platyrhynchos</i> ) (MA)	Lapwing ( <i>Vanellus vanellus</i> ) (L)	Herring gull ( <i>Larus argentatus</i> ) (HG)
Mute swan ( <i>Cygnus olor</i> ) (MS)	Oystercatcher ( <i>Haematopus ostralegus</i> ) (OC)	Kingfisher ( <i>Alcedo atthis</i> ) (KF)
Red-breasted merganser ( <i>Mergus serrator</i> ) (RM)	Redshank ( <i>Tringa totanus</i> ) (RK)	Lesser black-backed gull ( <i>Larus fuscus</i> ) (LB)
Shelduck ( <i>Tadorna tadorna</i> ) (SU)	Ringed plover ( <i>Charadrius hiaticula</i> ) (RP)	Yellow-legged gull ( <i>Larus cachinnans</i> ) (YG)
Shoveler ( <i>Anas clypeata</i> ) (SV)	Snipe ( <i>Gallinago gallinago</i> ) (SN)	
Teal ( <i>Anas crecca</i> ) (T)	Turnstone ( <i>Arenaria interpres</i> ) (TT)	
Wigeon ( <i>Anas penelope</i> ) (WN)		

## 3.3 Bird Distribution and Movements

Bird movements and estimated population numbers for estuarine birds are recorded on the monitoring sheets presented as Appendix 2.

## 3.4 Disturbance Events

### 3.4.1 Disturbance attributable to Able UK activities

During the monitoring period there have been three recorded incidences of major disturbance (local and major displacement) to bird populations within the study area that were attributable to Able UK related activities. These are presented in Table 3.3.

**Table 3.3: Summary of all disturbance events recorded that were attributable to Able UK activities**

Date	Time	Disturbance category	Piling/Dredging related	Description
11/12/2008	20:32	1	Yes	Dredger starting/stopping/starting flushed c. 70 gulls, landing 80 m away.
14/12/2008	23:08	2/3	No	Able UK sailing activity flushed a large flock of roosting black-headed gulls from mud in DT018 and feeding waders including curlew, oystercatcher and flock of large gulls from sand bank in DT018. Birds moved west (some into DT017 and some left the survey area) and did not return to DT018.
17/12/2008	13:02	1	No	Two cormorants flushed approx. 180 m by a small Able UK vessel. Returned close to original position.
30/12/2008	09:18	2	No	Small Able UK vessel sailing in east to west transects in the channel flushed three red-breasted merganser west onto DT017.
	23:32	1	Yes	Approximately 20 gulls were disturbed by dredging activity and took flight but re-settled within 200 m.
09/01/2009	08:25	3	Yes	Piling began on the cofferdam next to the east bank of the basin entrance. The noise was more acute than previous surveys, possibly as a result of driving sheet piles rather than tubular piles. The resulting noise flushed approximately 500 gulls (herring and great black-backed) from DT018. The majority of the gulls left the survey area. Able UK were immediately contacted and the piling was terminated for the remainder of the survey period. Able UK were reminded that this disturbance constituted the first major disturbance event as a result of piling/dredging activities and that if more than three major disturbance events are recorded then the derogation could cease.

Date	Time	Disturbance category	Piling/ Dredging related	Description
		2	Yes	The same piling activity also caused 12 red-breasted merganser and a single eider to fly from DT018. The birds flew >200 m away but remained in the survey area.

### 3.4.2 Disturbance not attributable to Able UK activities

Table 3.4 presents disturbance to birds caused by non-Able UK related activities.

**Table 3.4: Summary of all disturbance events recorded that are not attributable to Able UK activities**

Date	Time	Disturbance category	Description
06/12/2008	14:10	2	Two peregrine falcons attacked flock of c. 200 knot in DT013. Knot flew around and then returned to point of origin.
07/12/2008	02:15	2	One grey heron flushed three redshank from DT017.
08/12/2008	06:59	2	One grey heron flushed five redshank from DT017 and these birds moved into DT013.
11/12/2008	09:45	2	PD Ports survey boat surveying holding basin disturbed red-breasted merganser from channel, which flew to the west mudflats from DT018 to DT017.
	20:32	2	One grey heron flushed one oystercatcher.
12/12/2008	08:56	1	Bait digger flushed >50 wigeon from DT018.
		2	Bait digger flushed around ten oystercatcher, six redshank, four curlew and <60 gulls from DT018.
15/12/2008	23:59	1	Local displacement in DT017 caused by otter ( <i>Lutra lutra</i> ).
		2	Minor disruption of feeding curlew by fox ( <i>Vulpes vulpes</i> ) in DT017.
16/12/2008	12:13	1	Oystercatcher chased by herring gull for food.
		1	Curlew chased another curlew away.
18/12/2008	01:41	1	Otter in DT018 caused minor disruption to gulls. Birds returned.
	12:20	2	Jogger running in DT017 flushed one curlew and three herring gulls >200 m.
19/12/2008	02:35	1	Fox flushed ringed plover 50 m. No return.
	13:52	1	Fox flushed ringed plover 200 m. No return.
22/12/2008	17:39	1	Large number of birds flushed by low flying plane then resettled.
27/12/2008		1	Surfacing grey seal ( <i>Halichoerus grypus</i> ) flushed two red-breasted merganser <100 m.
29/12/2008	11:15	3	Peregrine falcon caused 150 + wigeon to be flushed west from DT013 and DT018 and leave site.
	11:15	2	Peregrine falcon displaced feeding waders and gulls in DT013 and DT018 c. 200 m.
		1	Fourteen birds flushed from DT018 by bait digger.

Date	Time	Disturbance category	Description
02/01/2009	11:04	1	Female peregrine falcon flew east and flushed small numbers of waders on DT018. Birds returned.
	12:22	3	Large group of waders flushed eastwards by herring gull chasing curlew for food over DT018.
	13:24	1	Male peregrine falcon flew east to power station over DT018 and flushed knot, dunlin, oystercatcher and redshank. Birds returned.
03/01/2009	13:00	2	Bait digger flushed two curlews and one herring gull >200 m to DT018.
04/01/2009		2	Five people on far bank flushed flock of 110+ curlews roosting on mudflats onto DT018.
08/01/2009		2	Disturbance to 50 gulls caused by grey seal.
		1	One curlew chased another curlew from sector DT017 to DT018.
		2	Two curlew chased by great black-backed gull from DT018 to DT017 (>200 m).
		2	Approximately 150 gulls flushed by two carrion crows ( <i>Corvus corone</i> ). Majority left survey area.
12/01/2009	10:00	2	Walker on bank of DT017 flushed several birds including 32 redshank, four curlew and two oystercatcher >200 m.
16/01/2009		2	Flock of gulls in DT018 disturbed >200 m to DT013 by MV Wilton stopping and starting engines and sailing close to them.

## 4 Discussion

Monitoring of bird activity over the derogation period has indicated that disturbances to bird populations using the estuarine habitat have occurred, as result of Able UK and non Able UK related activities. Non-Able UK related activities that have resulted in bird disturbances have included dog walkers, other bird and seal activities, bait diggers and general ship/boat movements.

On one occasion Able UK piling activity has caused a major disturbance in the estuarine bird population. This occurred on the 9<sup>th</sup> January 2009 when the piling of sheet piles on the cofferdam by the east bank of the basin entrance caused approximately 500 gulls (herring and black-headed), one eider and twelve red-breasted mergansers in sector DT018 to fly away. The majority of the gulls left the survey area (major displacement disturbance), while the eider and red-breasted mergansers flew >200 m but remained in the survey area (local displacement disturbance).

Able UK was contacted immediately and piling activities were terminated. The noise associated with this piling event was noted to be more audible than usual by the bird monitor. Discussions with Able UK has indicated a number of possible reasons for this apparent increase in volume. These include the fact that:

- sheet piles were being driven rather than tubular steel piles, which have a different acoustic signature;
- the piling activities were closer than usual to the birds in sector DT018; and/or
- noise from the piling activity represented the first major noise in the survey area during that particular survey period.

This was the first major displacement event (Category 3) associated with Able UK piling/dredging activities. If three such events had been recorded during the derogation period then the derogation would have ceased. Since only one such event occurred, piling continued during the remainder of the derogation period.

There were two occasions when Able UK activities unrelated to piling / dredging (and therefore not covered by Condition 13 or the associated derogation) caused a major disturbance in the estuarine bird population. On 14<sup>th</sup> December 2008, movement of the small Able UK vessel moving around the quays disturbed a number of birds, including gulls (various), curlew and oystercatcher in sector DT018. Some of these birds flew into sector DT017, while some left the survey area, and did not return to sector DT018 during the survey period (constituting local displacement and major displacement disturbance). Similarly on 30<sup>th</sup> December 2008, the same boat sailing in the channel caused disturbance to three red-breasted merganser, which flew into sector DT017 from the channel in front of the vantage point (constituting local displacement disturbance).

There were 14 instances of major disturbance (local and major displacement) to the estuarine bird population attributable to non-Able UK related events. These included activity of peregrine falcons in the survey area, such as attacks on a flock of knot on 6<sup>th</sup> December 2008 (local displacement), human recreational activities, such as walkers who disturbed a number of waders

on 12<sup>th</sup> January 2009 (local displacement) and other human activities, such as bait diggers who disturbed waders and gulls on 3<sup>rd</sup> January 2009 (local displacement).

In summary, the majority of Able UK dredging and piling activities did not cause a disturbance to the estuarine bird population in the survey area. On one occasion a major disturbance was recorded and Able UK immediately ceased all piling activities for the remainder of the remainder of the derogation period. Subsequent piling operations for the remainder of the monitoring period recorded no major disturbance events to bird populations.

## 5 References

British Trust for Ornithology (BTO) (2008) BBS Survey Instructions. [www.bto.org/bbs](http://www.bto.org/bbs) Website accessed 12 December 2008

Ravenscroft, N., Parker, B., Vonk, R. & Wright, M. (2007) *Disturbance to waterbirds wintering in the Stour-Orwell Estuaries SPA*. A report from Wildside Ecology to the Suffolk Coast and Heaths Unit, Woodbridge.

# Figures

