

Riverside Energy Park

Environmental Statement Technical Appendices

APPENDIX:

G.5

PLANNING INSPECTORATE REFERENCE NUMBER:

EN010093

DOCUMENT REFERENCE:

WINTERING BIRD SURVEY REPORT 2018

November 2018 | Revision 0 | APFP Regulation 5(2)(a)

Planning Act 2008 | Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

Document Control Sheet

Project Name: Riverside Energy Park
Project Ref: 42166
Report Title: Wintering Bird Survey Report 2018
Doc Ref: 42166/wintering birds
Date: November 2018

	Name	Position	Signature	Date
Prepared by:	Ed Austin MCIEEM	Ecologist	Ed Austin	April 2018
Reviewed by:	Duncan McLaughlin	Associate Ecologist	Duncan McLaughlin	26/09/18
Approved by:	Dermot Scanlon	Director	Dermot Scanlon	01/10/18
For and on behalf of Peter Brett Associates LLP				

Revision	Date	Description	Prepared	Reviewed	Approved

This report has been prepared by Peter Brett Associates LLP ('PBA') on behalf of its client to whom this report is addressed ('Client') in connection with the project described in this report and takes into account the Client's particular instructions and requirements. This report was prepared in accordance with the professional services appointment under which PBA was appointed by its Client. This report is not intended for and should not be relied on by any third party (i.e. parties other than the Client). PBA accepts no duty or responsibility (including in negligence) to any party other than the Client and disclaims all liability of any nature whatsoever to any such party in respect of this report.

Contents

Executive Summary 4

1 Introduction 5

 1.1 Overview..... 5

 1.2 Ecological Background 5

 1.3 Report Objectives/Aims 6

2 Methods..... 7

 2.1 Overview..... 7

 2.2 Desk Study 7

 2.3 Survey Methods..... 7

 2.4 Survey Dates and Weather Conditions 8

 2.5 Evaluation and Assessment 8

 2.6 Survey Personnel 9

 2.7 Limitations 9

 2.8 Method and Report Qualification 10

3 Results and Interpretation..... 11

 3.1 Overview..... 11

 3.2 Overall Bird Assemblage and Distribution..... 11

 3.3 Comparison with 1% Threshold Values 12

 3.4 Waterbird Distribution Patterns and General Observations 14

 3.5 Selected Species Accounts with Reference to Desk Study 17

 3.6 Summary of Results 20

4 Conclusions 21

5 References 22

Figures

Figure 1. Total waterbird numbers recorded during survey period. 12

Tables

Table 1: Survey Dates and Weather Conditions 8

Table 2: Summary of Waterbird Species Recorded..... 11

Table 3: Comparison of Peak Counts Derived from Survey Data with Published 1% Threshold Values. 12

Appendices

Appendix A Raw Survey Data

Appendix B Photographs

Executive Summary

Peter Brett Associates (PBA) was commissioned to undertake a survey of wintering waterbirds within and adjacent to the Riverside Energy Park (REP) site in Belvedere, London Borough of Bexley. The overall aim of the study was to provide baseline information on the numbers and distribution of wintering waterbird species within the REP site and surrounding area.

To gather baseline information on the use of intertidal areas within the REP site and along the nearby southern bank of the River Thames by waterbirds, a field survey was undertaken between October 2017 and March 2018. This recorded the numbers of waterbird species within a series of counting compartments covering the shoreline within and adjacent to the REP site, as well as further west and east (shoreline compartments). Waterbirds using the open water toward the centre of the River Thames itself (offshore compartments) were also recorded for context and additional information. Existing recent data on bird numbers and broad distribution patterns was sourced from the British Trust for Ornithology (BTO) and analysed to provide context to the survey results.

The field survey found that a range of waterbird species (e.g. ducks and waders) use this section of the River Thames. However, overall numbers and species diversity within and immediately adjacent to the REP site were unexceptional compared to other areas nearby. Features found to be of increased value to waterbirds (within the context of the survey area) included a sewage outfall channel located approximately 300m to the west of the REP site, a retaining wall of the River Thames used as a high-tide roost by mixed species located approximately 680m to the west of the REP site and mudflats immediately adjacent to this wall.

This Executive Summary contains an overview of the key findings and conclusions. However, no reliance should be placed on any part of the executive summary until the whole of the report has been read.

1 Introduction

1.1 Overview

- 1.1.1 Peter Brett Associates (PBA) was commissioned by Cory Riverside Energy (Cory) ('the Applicant') to undertake a wintering bird study within and adjacent to the Riverside Energy Park (REP) site situated adjacent to the southern bank of the River Thames in Belvedere, London Borough of Bexley. The overall aim of the study was to provide baseline information on the numbers and distribution of wintering birds within the site and local area. This information will help to provide baseline information required to inform an Environmental Impact Assessment for REP.
- 1.1.2 A full description of REP can be found in **Chapter 3** of the Environmental Statement (**Document Reference 6.1**), and in **Schedule 1** to the draft Development Consent Order (**Document Reference 3.1**).
- 1.1.3 A full description of habitats within REP can be found in **Chapter 11** of the Environmental Statement.

1.2 Ecological Background

- 1.2.1 The REP site does not fall within proximity (10km or less) of any areas holding an international designation on account of their ornithological interest; i.e. there are no Special Protection Areas (SPAs) or Ramsar sites within 10km of the REP site. However, three areas with statutory designation (e.g. Sites of Special Scientific Interest (SSSI) or Local Nature Reserves (LNR)) that includes overwintering or passage bird interest do occur within 10km of the REP site, with two of these being within 2km or less. These are summarised below. Note that other statutory designated areas are known to occur within proximity of the REP site, but these do not have specifically cited passage or overwintering bird interest.
- Crossness LNR – a 25.52ha area located immediately adjacent to the REP site to the west/south-west and south. One of the last remaining areas of grazing marsh in Greater London and the largest reedbed in Bexley. This area contains a network of pools and scrapes known to be used by a variety of wildfowl in winter including duck and wader species.
 - Inner Thames Marshes SSSI – a 479.3ha area located 1.9km to the east of the REP site at its closest point. This is an area of wetland and grazing marsh bordering the upper reaches of the Thames Estuary. The SSSI is of note for its diverse ornithological interest including a variety of breeding birds and numbers of wintering wildfowl, waders, finches and birds of prey, with wintering teal populations reaching levels of international importance.
 - West Thurrock Lagoon and Marshes SSSI – a 66.08ha area of land located 8.8km to the south-east of the REP site at its closest point. This area includes a lagoon, marshes and intertidal mudflats known to be of importance to wintering waders and wildfowl. This SSSI is known to contain a high-tide roost attracting nationally important numbers of waders and large numbers of other species.
- 1.2.2 A variety of Sites of Importance for Nature Conservation (SINCs) also occur within the local area. Again, these include some areas with cited value to passage or overwintering waterfowl; these are summarised below (limited to areas within 2km of the REP site). As above, it should be noted that other SINCs are present in the local area that do not have cited waterfowl interest, so these are not summarised here.
- River Thames and tidal tributaries – this is a large (2304.92ha) section of the River Thames partly falling adjacent to the REP site to the north. It should be noted that the

survey area used for the study that is the subject of this report falls entirely within the SINC boundary. This part of the River Thames is cited as being of particular importance for wildfowl and wading birds.

- Erith Marshes – a 104.99ha area of grazing marsh situated immediately adjacent to the REP site to the west, south-west and south. Part of the SINC contains the Crossness LNR. Dunlin (*Calidris alpina*), pintail (*Anas acuta*), snipe (*Gallinago gallinago*), redshank (*Tringa totanus*), black-tailed godwit (*Limosa limosa*) and green sandpiper (*Tringa ochropus*) are all cited as regular winter visitors.
- Crossness Sewage Treatment Works Pond - a 2.93ha angling lake supporting populations of common waterfowl located 0.87km to the west of the REP site.
- Crossways Lake Nature Reserve – a 5.11ha reed-fringed lake valuable for water birds located 1.6km to the west of the REP site.
- Wennington, Aveley and Rainham Marshes - a large (413.98ha) area located 1.8km to the east of the REP site. This is a large area of wetland and grassland alongside the Thames, and the only RSPB (Royal Society for the Protection of Birds) reserve in the capital. It is cited as one of the most important sites in London for birds.

1.3 Report Objectives/Aims

1.3.1 The aim of this report are to:

- Provide details of the methods used for the study;
- Provide the results of the bird survey undertaken in winter 2017-18;
- Interpret the results of the survey in relation to the proposed development of the site and existing bird data, including information on population sizes and distribution patterns; and,
- Provide an evaluation of the bird populations recorded in the context of national and international trends and local records.

1.3.2 It should be noted that the survey method used was designed to gather information on the use of intertidal areas within the REP site and in the surrounding area by waterbird species during the passage and over-winter periods (i.e. autumn through winter into early spring). Breeding species are therefore not discussed.

2 Methods

2.1 Overview

- 2.1.1 The section below provides details of the methods used to gather baseline information on the use of intertidal areas within and adjacent to the REP site and along the nearby stretch of the River Thames by waterbird species during the passage (spring/autumn) and over-winter periods. This included both field surveys and the sourcing/interpretation of existing bird data via a desk study.

2.2 Desk Study

- 2.2.1 Existing data on waterbird species recorded in the local area was sourced from the British Trust for Ornithology (BTO). Information sourced included Wetland Bird Survey (WeBS) data for the defined WeBS compartment known as River Thames – Barking (site code 24903) covering the period 2006 to 2010 (i.e. a five-year period).

2.3 Survey Methods

Compartment Count Surveys

- 2.3.1 As set-out in Section 1 of this report, the aim of the wintering bird survey was to gather baseline data on the use of the intertidal areas within and adjacent to the REP site as well as nearby areas along the River Thames by passage and over-wintering waterbird species. For the purposes of this survey, waterbirds were defined as divers, grebes, cormorants, herons, spoonbill, swans, geese, ducks, rails, cranes, waders, gulls, terns and kingfisher. In addition, grey wagtail (*Motacilla cinerea*) and rock pipit (*Anthus petrosus*) were also recorded if present on the shoreline, as these species can be associated with wetland/intertidal habitats.
- 2.3.2 The survey was primarily designed to gather information from intertidal areas within and immediately adjacent to the REP site to the north. However, areas of shoreline further to the west and east (along the southern bank of the River Thames) were also included. The open water (i.e. non-intertidal) area of the River Thames further north were also included to give further contextual information on bird numbers and distribution.
- 2.3.3 To facilitate counts, the survey area was divided into a series of counting compartments. A total of fourteen compartments were defined based on landmarks and local geography. This included seven compartments distributed along the shoreline immediately north of the REP site as well as to the west and east (shoreline compartments) plus seven open water compartments located immediately adjacent to each of the shoreline compartments to the north (offshore compartments). The locations of each of these compartments is shown in **Figure 11.4**. Note compartment 4 is situated immediately adjacent to the REP site in the approximate centre of the survey area.
- 2.3.4 A full 'snap-shot' count of all wetland birds using each compartment was made twice per month between October 2017 and March 2018 (i.e. 12 visits in total). Each visit was completed in daylight hours and included a full count completed within 2hrs either side of both high tide and low tide (i.e. each count was completed within this 4-hour window, with actual count duration typically being around 2 hours depending on bird numbers and activity). Locations and numbers of bird species were marked on a map of the survey area, with registrations allocated to the relevant compartments. Only birds actively using the survey area were counted; i.e. birds flying over were not included unless they were known to or likely to have originated within the compartment, or if they were engaged in behaviour clearly associated with the survey area (e.g. foraging). Counts of each compartment were made from a variety of suitable vantage points with the aid of binoculars and telescope as required. As many vantage points as necessary were used to ensure all parts of the survey area could be

adequately scanned. Care was taken to avoid disturbance of birds originating from the presence of the surveyors as far as was practicable.

2.4 Survey Dates and Weather Conditions

2.4.1 Dates of each survey visit, tide cycle and weather conditions are summarised in Table 1 below.

Table 1: Survey Dates and Weather Conditions

Visit No.	Date	Tide Cycle and Time	Weather Conditions
1a	12/10/17	Low 11:52	14°C, BF4 (SW), dry with 3/8 cloud cover
1b		High 18:02	16°C, BF3 (SW), dry with 6/8 cloud cover
2a	23/10/17	Low 09:38	14°C, BF3 (SW), dry with 8/8 cloud cover
2b		High 15:27	16°C, BF4 (SW), dry with 8/8 cloud cover
3a	07/11/17	Low 09:51	10°C, BF4 (SW), dry with 8/8 cloud cover
3b		High 15:28	12°C, BF4 (SW), occasional rain with 8/8 cloud cover
4a	21/11/17	Low 09:10	13°C, BF4 (SW), dry with 7/8 cloud cover
4b		High 15:02	14°C, BF4 (SW), dry with 8/8 cloud cover
5a	05/12/17	Low 08:54	9°C, BF3 (NW), dry with 8/8 cloud cover
5b		High 14:28	10°C, BF4 (NW), dry with 8/8 cloud cover
6a	19/12/17	Low 08:17	3°C, BF1 (W), dry with 4/8 cloud cover
6b		High 14:09	8°C, BF3 (W), dry with 3/8 cloud cover
7a	10/01/18	High 07:38	9°C, BF3 (W), dry with 5/8 cloud cover
7b		Low 13:49	9°C, BF3 (SW), dry with 4/8 cloud cover
8a	19/01/18	Low 09:08	4°C, BF3 (SW), dry with 1/8 cloud cover
8b		High 15:02	7°C, BF5 (SW), dry with 3/8 cloud cover
9a	09/02/18	High 07:35	7°C, BF3 (W), occasional rain with 8/8 cloud cover
9b		Low 13:43	6°C, BF4 (W), dry with 7/8 cloud cover
10a	20/02/18	Low 10:30	10°C, BF4 (W), dry with 8/8 cloud cover
10b		High 16:25	9°C, BF5 (W), dry with 7/8 cloud cover
11a	06/03/18	Low 10:45	10°C, BF2 (W), dry with 7/8 cloud cover
11b		High 16:36	11°C, BF2 (W), dry with 6/8 cloud cover
12a	20/03/18	Low 09:41	7°C, BF4 (NE), dry with 6/8 cloud cover
12b		High 15:28	10°C, BF4 (NE), dry with 5/8 cloud cover

2.5 Evaluation and Assessment

Bird Species and Peak Counts

2.5.1 Information collected during the field survey was used to generate a peak count for each species. This is the highest number recorded on any one survey visit (at either low or high tide) during the whole survey period.

The 1% Threshold

2.5.2 The BTO publish annual data known as the 1% threshold for bird species on their website (www.bto.org/volunteer-surveys/webs/data/species-threshold-levels). Criteria for assessing the international importance of wetlands have been agreed under the Ramsar Convention on Wetlands of International Importance. Under criterion 6, a wetland is considered internationally important if it regularly holds at least 1% of the population of a waterbird species or subspecies. Wetlands in Britain are considered nationally important if they regularly hold 1% or more of the estimated British population. The 1% thresholds for British and international waterbird populations, where known, are published by the BTO. It should be noted that, where

1% of the national population is less than 50 birds, 50 is normally used as a minimum qualifying threshold for the designation of sites of national or international importance.

- 2.5.3 For this report, the published 2015/16 values have been used as downloaded from the BTO website (accessed 11th April 2018).

2.6 Survey Personnel

- 2.6.1 All field surveys were completed by Ed Austin MCIEEM. Ed is an experienced ornithologist who has been continuously employed as a professional ecologist since 2004, with a background in environmental consultancy since 2002. He has completed numerous bird surveys and assessments in the UK using or based on established methods such as the Common Bird Census (CBC), Breeding Bird Survey (BBS) and Wetland Bird Survey (WeBS). Ed has also designed and completed ornithological surveys using bespoke methods to gather data suitable for specific requirements. This has included long-term distribution mapping of waterbirds across large wetland sites and monitoring across SSSI woodland sites to inform mitigation management requirements. He also completes surveys targeted at gathering data on specific species such as black redstarts, barn owls and peregrine falcons.
- 2.6.2 In addition to professional project experience, Ed has a long-term interest in birds and ornithology and regularly submits species records to national databases. He has been awarded the bird identification qualification (IDQ) assessed by the Natural History Museum in London.
- 2.6.3 Ed was assisted in all visits by Stephen Foot MCIEEM. Stephen has been in continuous employment as a professional ecologist since 2005 and is an experienced field ecologist, having completed baseline surveys and assessments for a range of protected species and habitats. He is also experienced in assisting with bird survey and assessments using established methods.

2.7 Limitations

- 2.7.1 All survey visits were undertaken at an appropriate time of year and in suitable weather conditions. There were therefore no significant limitations to the methods described above.
- 2.7.2 The surveys did not commence until October 2017 and will have not recorded any passage birds during September. Although this has resulted in a small gap in the information collected, the significance of this was reduced by the overall survey programme (including the majority of the autumn period) and sourcing and interpretation of recent past data on bird numbers (e.g. the WeBS data for this stretch of the River Thames). It is also recognised that a survey undertaken over one winter period may only be representative of that individual season, with bird numbers potentially differing in other years due to a range of ecological and environmental factors. However, again the significance of this limitation was reduced via the sourcing and interpretation of past data for the local area.
- 2.7.3 In the case of dunlin, a small wader which usually feeds in loose, very mobile flocks and roosts in tight flocks, completely accurate counts (i.e. every bird) were not always possible due to the difficulties of separating individual birds at distance and due to large flock sizes. This was particularly the case when counting roosting flocks using the retaining wall in part of the survey area (more details in results section) as views were only available from an acute angle further along the bank. However, this limitation was reduced by using counting methods such as counting a portion of the flock and then scaling this up to estimate overall flock size. Combined with surveyor experience this is deemed to have resulted in good estimates of numbers that are representative of overall numbers present.

2.8 Method and Report Qualification

- 2.8.1 In order to gather suitable survey data for an assessment of this type, it was necessary to design a bespoke survey method (as described above). However, many elements of the approach, particularly the timing of each visit (within 2 hours either side of both high and low tide) were based on established methods such as the Wetland Bird Survey (WeBS) core counts (see Gilbert *et al*, 1998). All survey work and reporting was undertaken by experienced and qualified ecologists (see above), in accordance with the Code of Professional Conduct of the Chartered Institute of Ecology and Environmental Management (CIEEM).
- 2.8.2 All ecological surveys have an expected validity period owing to the tendency of the natural environment to change over time. This validity period varies from receptor to receptor and is also dependent on the degree of change in a site's management and overall landscape ecology. Where the potential for change is considered to be relevant to the site, this is highlighted in the appropriate section.
- 2.8.3 This report does not purport to provide detailed, specialist legal advice. Where legislation is referenced, the reader should consult the original legal text, and/or the advice of a qualified environmental lawyer.

3 Results and Interpretation

3.1 Overview

- 3.1.1 This section presents the results of the field surveys together with an interpretation of the survey data. Reference is made to existing information derived from the desk study. Photographs referred to in the text are provided in Appendix B of this report.

3.2 Overall Bird Assemblage and Distribution

- 3.2.1 A total of 34 waterbird species (as defined in Section 2 of this report) were recorded using the survey area across all survey visits combined. These, together with the peak count recorded, are summarised in Table 2 below. Note the peak count is the highest total number of each species recorded on any one visit from the survey area as a whole (i.e. all compartments combined). The date of the peak count for each species is also indicated.

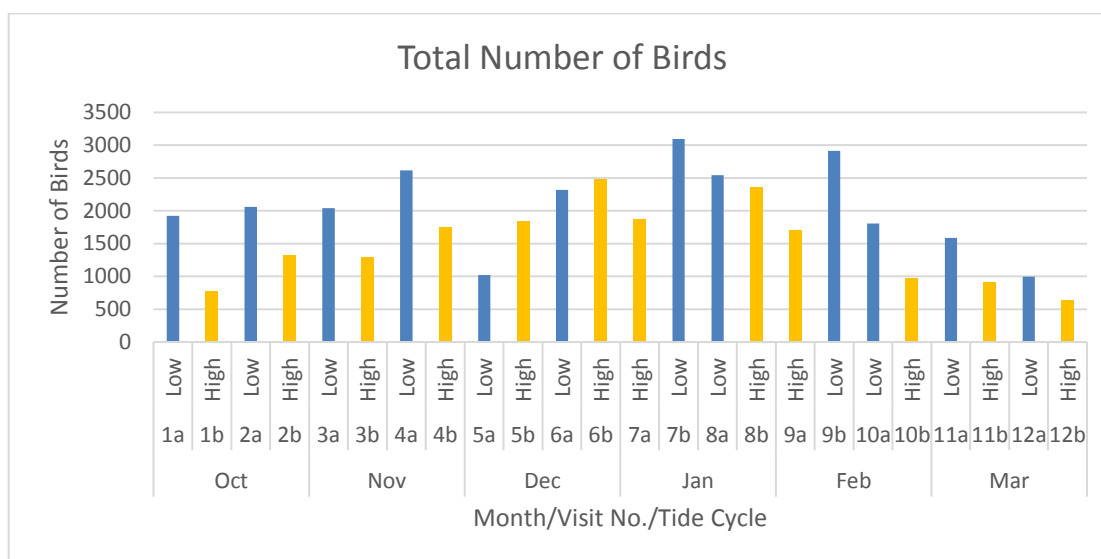
Table 2: Summary of Waterbird Species Recorded

Common Name	Species Name	Peak Count	Date of Peak Count
Avocet	<i>Recurvirostra avosetta</i>	18	19/12/17
Brent goose	<i>Branta bernicla</i>	4	12/10/17
Black-headed gull	<i>Chroicocephalus ridibundus</i>	878	19/01/18
Black-tailed godwit	<i>Limosa lapponica</i>	237	23/10/17
Cormorant	<i>Phalacrocorax carbo</i>	26	09/02/18
Canada goose	<i>Branta canadensis</i>	11	05/12/17
Common gull	<i>Larus canus</i>	3	07/11/17
Common sandpiper	<i>Actitis hypoleucos</i>	2	19/01/18 and 09/02/18
Curlew	<i>Numenius arquata</i>	4	05/12/17
Dunlin	<i>Calidris alpina</i>	1054	10/01/18
Little egret	<i>Egretta garzetta</i>	4	12/10/17
Gadwall	<i>Anas strepera</i>	82	09/02/18 and 20/02/18
Great black-backed gull	<i>Larus marinus</i>	23	19/12/17
Great crested grebe	<i>Podiceps cristatus</i>	1	19/12/17 and 19/01/18
Grey wagtail	<i>Motacilla cinerea</i>	1	12/10/17
Grey heron	<i>Ardea cinerea</i>	6	05/12/17
Herring gull	<i>Larus argentatus</i>	8	05/12/17
Kingfisher	<i>Alcedo atthis</i>	1	12/10/17
Lapwing	<i>Vanellus vanellus</i>	250	19/01/18
Lesser black-backed gull	<i>Larus fuscus</i>	23	05/12/17
Little grebe	<i>Tachybaptus ruficollis</i>	1	05/12/17
Mallard	<i>Anas platyrhynchos</i>	35	23/10/17
Moorhen	<i>Gallinula chloropus</i>	17	05/12/17 and 09/02/18
Oystercatcher	<i>Haematopus ostralegus</i>	5	20/03/18
Rock pipit	<i>Anthus petrosus</i>	1	19/12/17
Redshank	<i>Tringa totanus</i>	285	12/10/17
Ringed plover	<i>Charadrius hiaticula</i>	18	21/11/17
Snipe	<i>Gallinago gallinago</i>	2	20/03/18
Shelduck	<i>Tadorna tadorna</i>	155	10/01/18
Shoveler	<i>Anas clypeata</i>	334	19/12/17
Teal	<i>Anas crecca</i>	747	23/10/17

Common Name	Species Name	Peak Count	Date of Peak Count
Tufted duck	<i>Aythya fuligula</i>	1	07/11/17
Water rail	<i>Rallus aquaticus</i>	1	07/11/17
Wigeon	<i>Anas penelope</i>	37	20/03/18

3.2.2 Figure 1 below illustrates the total number of waterbirds recorded across the survey area as a whole during each survey visit (and by tide cycle). In general, numbers climbed from October reaching a peak in December/January, then declined into March.

Figure 1. Total waterbird numbers recorded during survey period.



3.3 Comparison with 1% Threshold Values

3.3.1 Table 3 below shows the comparison of the peak count for each species recorded during the field survey with current 1% threshold values published by the BTO.

Table 3: Comparison of Peak Counts Derived from Survey Data with Published 1% Threshold Values

Common Name	Species Name	Peak Count	1% Threshold ¹	
			International	Great Britain
Avocet	<i>Recurvirostra avosetta</i>	18	730	75
Brent goose	<i>Branta bernicla</i>	4	2,400	910
Black-headed gull	<i>Chroicocephalus ridibundus</i>	878	20,000	22,000
Black-tailed godwit	<i>Limosa lapponica</i>	237	610	430
Cormorant	<i>Phalacrocorax carbo</i>	26	1,200	350
Canada goose	<i>Branta canadensis</i>	11	N/A (naturalised escape)	
Common gull	<i>Larus canus</i>	3	16,400	7,000
Common sandpiper	<i>Actitis hypoleucos</i>	2	17,500	1
Curlew	<i>Numenius arquata</i>	4	8,400	1,400
Dunlin	<i>Calidris alpina</i>	1054	13,300	3,500

¹ Based on 2015/16 values published by the British Trust for Ornithology at <https://www.bto.org/volunteer-surveys/webs/data/species-threshold-levels> (accessed 11/04/18)

Common Name	Species Name	Peak Count	1% Threshold ¹	
			International	Great Britain
Little egret	<i>Egretta garzetta</i>	4	1,300	45
Gadwall	<i>Anas strepera</i>	82	600	250
Great black-backed gull	<i>Larus marinus</i>	23	4,200	760
Great crested grebe	<i>Podiceps cristatus</i>	1	3,500	190
Grey wagtail	<i>Motacilla cinerea</i>	1	N/A	350 ²
Grey heron	<i>Ardea cinerea</i>	6	2,700	610
Herring gull	<i>Larus argentatus</i>	8	10,200	7,300
Kingfisher	<i>Alcedo atthis</i>	1	2,000	Not stated
Lapwing	<i>Vanellus vanellus</i>	250	20,000	6,200
Lesser black-backed gull	<i>Larus fuscus</i>	23	5,500	1,200
Little grebe	<i>Tachybaptus ruficollis</i>	1	3,900	160
Mallard	<i>Anas platyrhynchos</i>	35	45,000	6,800
Moorhen	<i>Gallinula chloropus</i>	17	20,000	3,200
Oystercatcher	<i>Haematopus ostralegus</i>	5	8,200	3,200
Rock pipit	<i>Anthus petrosus</i>	1	N/A	340
Redshank	<i>Tringa totanus</i>	285	2,400	1,200
Ringed plover	<i>Charadrius hiaticula</i>	18	730	340
Snipe	<i>Gallinago gallinago</i>	2	20,000	10,000
Shelduck	<i>Tadorna tadorna</i>	155	3,000	610
Shoveler	<i>Anas clypeata</i>	334	400	180
Teal	<i>Anas crecca</i>	747	5,000	2,100
Tufted duck	<i>Aythya fuligula</i>	1	12,000	1,100
Water rail	<i>Rallus aquaticus</i>	1	10,000	Not stated
Wigeon	<i>Anas penelope</i>	29	15,000	4,400

- 3.3.2 As shown in Table 3, numbers of shoveler recorded within the survey area (peak count of 334 individuals) exceeded the 1% threshold for Great Britain. This indicates that the population of shoveler using the survey area (at least on occasion) can be of at least national value. It is noted also that the peak count of 334 is not far below the international threshold of 400 individuals. Numbers of shoveler exceeding the national threshold were only recorded in late December 2017 (on both low and high tide counts), with the next highest count (of 115 individuals) recorded in late January. Other counts were lower (67 birds or less). Shoveler were almost exclusively recorded in association with a sewage outfall located in compartment 3, although some birds (a count of 217) were also recorded in compartment 4 (in areas adjacent to compartment 3) and (to a lesser extent) in compartments 10 and 11 (again in areas adjacent to compartment 3); counts of 19 and 16 respectively. Distribution patterns are explored in more detail under the 'Waterbird Distribution Patterns and General Observations' section that follows.
- 3.3.3 In the case of common sandpiper (with a peak count of 2 individuals compared to the published national 1% threshold of 1 individual), numbers are well below the stated minimum of 50 individuals used as a minimum qualifying threshold for the designation of sites of national importance.
- 3.3.4 Although the peak counts of no other species met or exceeded the 1% international or national threshold values, it is noted that counts of a few species approached the published national values. This included black-tailed godwit (peak count of 237 individuals compared to national threshold of 430) and dunlin (peak count of 1,054 individuals compared to national threshold of 3,500). High numbers (200+) of black-tailed godwit were only recorded on visit 2

² For non-wetland bird species the 1% values have been derived based on the national population estimates published by the BTO at <https://app.bto.org/birdfacts> (accessed 11/04/18)

(October) with numbers on other visits being significantly lower (next highest count being 94 individuals in January). However, regular use of the survey area was recorded by this species (individuals being present on all survey visits) with the high numbers in October possibly being a result of feeding flocks visiting the area during autumn passage. Dunlin were also regular within the survey area, but with numbers building during autumn to the peak in January, with a decline in late winter/early spring, with no dunlin present in late March. However, numbers fluctuated during winter, with large flocks present in late November (927 individuals) and early February (1004 individuals) with varying total flock sizes in between (105 to 700 individuals). The results indicate regular use of the survey area by dunlin.

- 3.3.5 Other species for which large flock sizes were sometimes recorded (but falling well below national or international thresholds) included gadwall (peak count of 82), lapwing (peak count of 250), redshank (peak count of 285), shelduck (peak count of 155) and teal (peak count of 747).

3.4 Waterbird Distribution Patterns and General Observations

- 3.4.1 Table 4 below shows the total number of waterbirds recorded within each compartment during each visit. Low and high tide counts are displayed separately.

Table 4: Total Bird Counts per Compartment

Visit No.	Tide Cycle	Compartment Number													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
		Total Number of Birds													
1	Low	377	373	806	153	64	42	81	1	0	6	0	0	17	6
	High	63	5	541	0	9	12	45	28	7	51	0	4	3	3
2	Low	502	473	769	120	76	20	95	1	0	0	0	3	0	0
	High	3	447	740	25	23	4	56	8	0	1	4	0	0	1
3	Low	261	609	780	65	73	71	86	0	69	6	18	0	1	0
	High	1	443	688	24	20	26	63	0	0	30	0	0	0	0
4	Low	235	973	1106	26	21	29	223	3	0	1	0	0	0	0
	High	9	885	670	40	22	19	53	3	1	34	7	0	0	0
5	Low	68	207	370	47	25	16	138	1	0	146	0	0	1	0
	High	12	926	641	60	20	28	85	1	2	62	3	0	0	0
6	Low	159	435	1404	56	23	21	202	1	5	0	0	0	4	8
	High	20	1148	845	302	13	40	21	8	11	51	13	2	2	3
7	High	177	161	1344	73	0	41	39	0	0	11	0	14	1	0
	Low	255	1056	792	157	46	48	69	7	39	620	6	0	0	0
8	Low	65	643	1453	43	12	8	101	0	9	195	0	3	0	10
	High	81	910	940	37	4	34	77	121	121	16	0	3	5	0
9	High	36	242	1298	69	1	14	41	0	1	0	0	0	0	1
	Low	81	457	2041	71	59	72	44	0	28	57	0	5	0	1
10	Low	43	308	1083	161	34	39	28	0	16	94	0	0	1	0
	High	21	371	468	18	5	23	47	5	0	0	0	0	5	0
11	Low	170	439	437	46	14	44	144	7	26	261	0	0	0	0
	High	87	426	238	56	9	28	26	24	5	5	6	0	0	1
12	Low	26	174	630	38	25	35	23	0	0	43	0	0	0	0
	High	25	130	328	51	8	20	5	0	0	63	0	0	1	0
Total		2777	12241	20412	1738	606	734	1792	219	340	1753	57	34	41	34

- 3.4.2 As shown in Table 4, compartment 3 had by far the greatest number of waterbirds, with counts being consistently high (compared to most other compartments) during all visits. Only compartment 2 had higher total counts during some visits, but overall totals here were lower than in compartment 3 (total across all visits combined of 20412 birds in compartment 3 compared to 12241 in compartment 2).
- 3.4.3 Compartment 3 contains an outfall from the Crossness Sewage Treatment Works situated approximately 300m to the west of the REP site (at its closest point); see Photograph 1. This outfall channel was regularly used by foraging flocks of waterbirds, in particular black-headed gull and duck species including large flocks of teal and groups of shoveler, gadwall and wigeon (e.g. Photograph 1 and 2). Wader flocks including lapwing, dunlin, black-tailed godwit and redshank were also often present on the adjacent banks and mudflats with other species such as cormorant, mallard, moorhen, shelduck and other gull species being regular but typically less numerous. The greatest numbers were usually present at low tide, although counts at high tide were also high (compared to other compartments) and sometimes exceeded the low tide counts. The black-headed gull and mixed duck flocks (particularly teal and gadwall) were usually the most abundant at high tide. Overall the survey results indicate this feature is a regularly used foraging and loafing area by a range of waterbirds with compartment 3 holding a large proportion of the waterbirds using this stretch of the River Thames on most visits.
- 3.4.4 Compartment 2 (with the second highest total numbers of waterbirds recorded) was found to be used at both low and high tide by variable, but often high counts (compared to other compartments). At low tide, this compartment contained a large area of open mudflat observed to be used by a range of species, particularly redshank, shelduck and teal with occasional flocks of black-tailed godwit and (sometimes numerous) dunlin plus other species including gulls and lapwing. Notably, this compartment was also found to contain a regular high-tide roost site used by mixed species; most typically redshank, teal, dunlin, black-tailed godwit and lapwing with other species such as black-headed gull also sometimes present (see Photograph 3). The roost was located on the retaining wall along the bank on the southern edge of the compartment; this area is approximately 680m from the REP site at its closest point. From the landward side (Thames Path) this wall is a high concrete barrier (c.2m to 3m high) effectively screening the river itself from the path. On the river side, a ledge is present toward the base of the wall providing a secure roosting location above the high-water mark. This ledge extends for much of the length of compartment 2 and was where the birds were often observed roosting at high tide, although either side of the tide (when some intertidal habitat was exposed) the roost was often not present, suggesting it is only used when foraging areas are not available. The birds were usually spread along a stretch of the wall in this location, although groups were often concentrated toward the eastern and central areas of compartment 2 (along its southern edge). Another notable record from compartment 2 was a flock of 17 avocets on visit 6 (foraging at low tide). This species was only recorded on two visits; visit 6 (with another individual using compartment 3 on the same visit) and visit 11 (again a single bird, this time within compartment 7).
- 3.4.5 Compartment 1 held the third highest total numbers of waterbirds within the context of the survey area as a whole, but with significantly lower numbers than compartments 3 and 2, with a maximum count (across all visits) of 2777 birds (compared to 20412 birds in compartment 3 and 12241 in compartment 2). This compartment contains an extensive, but relatively narrow (compared to compartments further east) area of exposed mudflat at low tide, with fringing scrub and unmanaged grassland between the shore and the Thames Path (which veers away from the water's edge at the eastern end of compartment 1). Teal were regularly recorded here along with black-headed gulls, plus occasional foraging or loafing flocks of lapwing and dunlin and scattered redshank (among other species).
- 3.4.6 Total waterbird numbers in compartments 4 and 5 which are situated adjacent to the REP site were unexceptional in the context of the overall survey area, with numbers significantly lower than in compartments 2 and 3. Compartment 4 held the fifth lowest total number of waterbirds

(out of the seven shoreline compartments) with compartment 5 holding the lowest total number of waterbirds from all the shoreline compartments.

- 3.4.7 A range of species were recorded using compartment 4, with regularly occurring species including shelduck, black-headed gull and teal. Shelduck in particular were usually found in this compartment (all visits except visit 1) either foraging across the exposed mud at low tide or roosting on the end of a disused jetty situated adjacent to the REP site at high tide. Some larger counts of shoveler (e.g. 217 on visit 6) were made as well as lapwing (e.g. 67 on visit 7). However, these species were concentrated toward the western end of the compartment at the interface with compartment 3. It was noted that birds evidently attracted to the outfall from the sewage plant within compartment 3 sometimes used the exposed mud on the western edge of compartment 4 for general roosting/loafing. A single record of a water rail was made within compartment 4 on visit 4; the only record of this species from the survey area. This bird was calling from within a small area of reedbed on the south-western edge of the compartment (adjacent to the Thames Path).
- 3.4.8 As noted above, compartment 5 had the lowest total numbers of waterbirds compared to other parts of the survey area. The most abundant species here was black-headed gull with regular use by small groups of teal also recorded. Other species such as redshank were also recorded fairly regularly but in typically low numbers (1 to 6 birds) with the exception of 11 on visit 3. Black-tailed godwit were recorded, but only on 4 occasions, with a peak count of 15 on visit 1. The majority of use of this compartment (based on numbers of species and total counts) was at low tide, although at high tide foraging cormorant were sometimes noted, with duck species (mainly teal and occasionally mallard) sometimes roosting on the supports of the disused jetty within compartment 5. A single grey wagtail was recorded foraging on the shoreline on visit 1.
- 3.4.9 Compartment 6 showed a similar pattern of use (by a similar range of species) as for compartment 5, with again duck species (teal and mallard) sometimes roosting on the disused jetty (the eastern side of the same structure within compartment 5) and scattered teal and black-headed gulls being the most regularly recorded. A single rock pipit as recorded on the foreshore here on visit 6.
- 3.4.10 Compartment 7 again supported a similar range of species to compartments 5 and 6 (with black-headed gull being most regular). However, a notable feature of this compartment was an area of rocky shore exposed at low tide and between low and high tide used as a roosting/loafing area by small waders; particularly dunlin and ringed plover. Ringed plovers were only recorded within compartment 7 (i.e. not in any other part of the survey area) suggesting only this part of the shore was attractive to this species. Individual ringed plovers were also seen foraging along the adjacent shoreline at low tide or between the tides, with individuals or flocks of black-tailed godwit also being regularly noted (maximum flock size of 69 birds on visit 5 at close to high tide). Small numbers of oystercatchers (maximum 3) were recorded here on two occasions as well as within compartment 6 adjacent.
- 3.4.11 The offshore compartments typically contained much lower total numbers of birds than the shoreline compartments. The exception to this was compartment 10 which included the offshore section of the outfall from the sewage works. Large flocks of black-headed gulls were sometimes present within this area where the outfall channel joined the main body of the River Thames. Foraging or loafing teal, dunlin, black-tailed godwit and lapwing (among other species) were also present on some visits using the edges of the intertidal habitat between compartment 10 and 3. Across the remainder of the offshore compartments, scattered flocks or individual gull species (including black-headed, greater black-backed, lesser black-backed and herring plus, more rarely, common gull) were the most frequently encountered species with foraging cormorants also being regularly recorded along with occasional groups of teal and mallard.

3.5 Selected Species Accounts with Reference to Desk Study

Overview

- 3.5.1 This section explores patterns in numbers and distribution (within the survey area) of selected species with reference to past counts supplied by the BTO (WeBS data) for the larger local area of the River Thames. Selected species are those that are deemed most relevant to the study, e.g. due to their cited or potential use of local statutory or non-statutory areas designated for their passage or overwintering bird interest (see Section 1 of this report), those that were found to be numerous or characteristic within the survey area (in the context of the survey data only) or those otherwise of note; e.g. scarcer species such as avocet.
- 3.5.2 Taking into consideration counts at both high and low tide on each survey date, a total of 24 individual counts were made within the survey area.

Black-tailed Godwit

- 3.5.3 Based on the WeBS data for the River Thames – Barking area (site code 24903) covering the period 2006 to 2010, a peak count of 228 black-tailed godwits was recorded in November 2009. The highest counts from other overwintering periods (defined as September to March) within the 5-years covered were in January 2007, 65 in February 2008 (noting an absence of count data between October 2007 and January 2008 inclusive), 16 in September 2008 (noting an absence of February 2009 data) and 160 in November 2010. This suggests regular use of this stretch of the Thames by this species, although numbers evidently vary from year to year. The peak count of 237 black-tailed godwit recorded in late October 2017 during the field survey is higher than the peak count of 228 from the WeBS period. As no WeBS data for this stretch of the Thames as a whole is yet available from 2017, it is not possible to determine whether the birds using the survey area were a component of a larger flock present in 2017. However, based on previous data, it appears that the survey area can (at least at times) support a large proportion of the black-tailed godwits present along this section of the River Thames.
- 3.5.4 Within the survey area, black-tailed godwits were most regularly recorded in compartment 3 (16 of 24 counts), compartment 2 (13 of 24 counts) and compartment 7 (12 of 24 counts). The largest numbers of this species were recorded within compartment 2 using open mudflats or roosting on the retaining wall at high tide.

Dunlin

- 3.5.5 The peak count of dunlin within the WeBS data was 800 in November 2008. Other winter peak counts included 180 in November 2006, 350 in February 2008, 290 in January 2010 and 670 in February 2011. These counts are all noticeably lower than the peak of 1054 dunlin recorded during the field survey in January 2018. Again, with no 2017/18 WeBS data to provide a comparison, it is not known whether dunlin numbers were higher than usual in winter 2017/18. However, based on past data it appears that numbers within the survey area can be (at least) a significant proportion of the overall numbers using this section of the Thames. However, although not counted (as they were outside the survey area) flocks of dunlin were observed on some visits elsewhere along this section of the Thames, such as mudflats along the northern shore. This indicates that overall numbers using the Thames in the general location were higher than those within the survey area alone.
- 3.5.6 Dunlin were most regularly recorded in compartment 2 (14 of 24 counts) where they were also typically most numerous (in the context of the survey area) as foraging flocks on the exposed mudflats at low tide or roosting on the retaining wall at high tide. However, large flocks were sometimes recorded foraging or loafing within compartment 3 on the margins of the sewage outfall or compartment 10 at low tide (the outer edges of mudflats adjacent to the outfall). Roosting flocks were sometimes recorded amongst the rocky shore on compartment 7.

Gadwall

- 3.5.7 The WeBS peak count of gadwall was 276 birds in December 2009. Other winter peak counts from the data period were 121 in December 2006, 39 in March 2008, 86 in January 2009 and 86 in February 2011. The peak count from the survey period of 82 birds in both early and late February 2018 falls within the range of the WeBS data but is much lower than the highest count recorded. However, this suggests that survey area can support a significant proportion of the overall numbers of gadwall using this part of the Thames.
- 3.5.8 Gadwall were most strongly associated with the sewage outfall in compartment 3, with birds recorded here on 20 of 24 counts. Numbers in this compartment were also noticeably higher than elsewhere within the survey area, with only small numbers recorded elsewhere.

Lapwing

- 3.5.9 The peak count of lapwing recorded in the WeBS data was 400 birds in December 2008. Peak counts from other winter periods included 192 in December 2006, 230 in February 2008, 340 in January 2010 and 300 in January 2011. The survey peak count of 250 lapwing in late January 2018 is similar to the past counts reported from this section of the Thames, suggesting lapwing present locally are likely to utilise parts of the survey area on a regular basis.
- 3.5.10 Lapwing were most regularly recorded in compartment 2 (20 of 24 counts) where they were also typically most numerous, foraging or loafing on the mudflats or roosting on the retaining wall at high tide. Lapwing were also often recorded roosting or loafing in flocks on the edges of the sewage outfall in compartment 3 (15 of 24 counts). Other areas where this species was also regularly recorded (albeit usually in lower numbers) included compartment 7 (13 of 24 counts) using the rocky shore for roosting or foraging, and compartment 1 (9 of 24 counts) as loose foraging flocks across the mudflats at low tide.

Redshank

- 3.5.11 The reported peak count of redshank from the WeBS period was 290 birds in January 2009. Peak counts from other winter periods covered were 262 in February 2007, 110 in February 2008, 230 in January 2010 and 206 in October 2010. The peak count of 285 redshank recorded during the field survey in October 2017 is in the same overall range as the WeBS counts. However, this suggests that the survey area can support at least a significant proportion of the overall redshank numbers reported from this section of the Thames as a whole.
- 3.5.12 Redshank were recorded in all of the shoreline compartments, often regularly. However, compartment 2 was most favoured with birds recorded here on 22 of the 24 counts. Redshank were often observed feeding on the mudflats here at low tide or roosting on the retaining wall at high tide, with overall numbers being higher (on average) than any other compartment. Redshank were also recorded in compartment 3 on 16 of the 24 counts, generally foraging or loafing adjacent to the sewage outfall, albeit in typically lower numbers than recorded in compartment 2. Redshank were also recorded in compartment 4 and 5 adjacent to the REP site on 12 and 10 of the 24 counts respectively. However, total numbers were typically in the region of 4 or 5 birds (on average).

Ringed Plover

- 3.5.13 The WeBS data contains only a few records of ringed plover from the overall section of the Thames, with a peak count of 4 in March 2007 and a peak of 3 in September 2010. No birds are recorded from other winter periods covered. This contrasts with the peak count of 18 ringed plover recorded in late November 2017 during the field survey. As WeBS data for the 2017/18 winter is not available, it is unclear whether numbers generally were higher than usual, or if this species may be under-recorded. However, the field data (compared to past

years) suggests that parts of the survey area can be used by greater numbers of ringed plover (albeit still well below national thresholds).

- 3.5.14 Ringed plover were exclusively recorded in compartment 7, with birds either using the shoreline for foraging at low tide or between the tides or loafing/roosting amongst an area of rocky shore at the south-eastern end of the compartment (often with flocks of dunlin and other species).

Shelduck

- 3.5.15 The reported peak count of shelduck from the WeBS period was 219 birds in February 2008. Peak counts from other winter periods covered were 191 in February 2007, 174 in March 2009, 201 in March 2010 and 190 in March 2011. The peak count of 155 shelduck in early January 2018 is lower than past totals for the wider section of the Thames, but still indicates the survey area can support a high proportion of the overall numbers present locally.
- 3.5.16 Shelduck were most regularly recorded in the westernmost shoreline compartments (compartments 1 to 4), with compartment 4 in particular being most regularly used (17 of 24 counts compared to 12 of 24 for compartments 1 to 3). In compartment 4, shelduck were often recorded foraging across the mudflats at low tide, with a high tide roost (used almost exclusively by this species) on the end of a disused jetty in the centre of the compartment. In compartments 1 to 3, shelduck were most often recorded foraging across the exposed mudflats at low tide or between the tides.

Shoveler

- 3.5.17 Counts of shoveler from the WeBS data are variable, with a peak of 115 birds in January 2007. Peak counts from other winter periods covered were typically lower, with 30 in February 2008, 9 in January 2009, 93 in December 2009 and 10 in December 2010. All these peak counts are noticeably lower than the peak of 334 recorded during the field survey in late December 2017, although the total of 115 in late January 2018 is the same as the past peak count in 2007, with totals on other survey visits being noticeably lower (0 to 67 birds). In the absence of 2017/18 WeBS data, it is not known whether greater numbers of shoveler were present locally. However, with reference to past data, it is likely that parts of the survey area are particularly attractive to shoveler in the context of this section of the Thames.
- 3.5.18 Shoveler were only recorded in the shoreline compartments 3 and 4 as well as the adjacent offshore compartments 10 and 11. Compartment 3 was most regularly used (21 of 24 counts) with numbers being variable but sometimes high. Use of compartment 4 was less regular (only 3 of 24 counts) but a flock of 217 was recorded here on one occasion. Shoveler using the outer compartments was irregular (1 of 24 counts each), but shoveler present here were likely part of the same overall flocks using the adjacent shoreline areas. The sewage outfall channel in compartment 3 and adjacent reed-fringed shoreline (extending into compartment 4) were the specific locations where shoveler tended to congregate.

Teal

- 3.5.19 The reported peak count of teal from the WeBS period was 1020 birds in January 2010. Peak counts from other winter periods covered were 810 in January 2007, 800 in February 2008, 700 in January 2009 and 730 in February 2011. The peak count of 747 teal from the field survey in late October 2017 is in a similar range to past counts from the section of the Thames as a whole, suggesting the survey area can be used by a large proportion of the teal present locally.
- 3.5.20 Teal were regularly recorded across the entire survey area using the shoreline compartments, although biased toward the western compartments (1 to 4) with compartment 3 holding teal on 22 of the 24 counts. Total flock sizes were also greatest in compartment 3 compared to other

compartments, with the highest count here being 591 teal on one occasion. These larger flocks involved teal foraging in the sewage outfall channel.

Wigeon

- 3.5.21 The reported peak count of wigeon from the WeBS period was 12 birds in March 2010. Low peak counts were reported from other winter periods; 1 in December 2006, 2 in March 2008, 1 in November 2008/March 2009 and 7 in March 2011. The peak count of 37 wigeon in late March 2018 recorded during the field survey is evidently much higher than past WeBS counts (albeit well below national thresholds). It is not known whether numbers have increased since the last WeBS count supplied. However, parts of the survey area appear to be able to support greater numbers of wigeon than past data suggest.
- 3.5.22 Wigeon were only recorded in compartments 3 and 4, with compartment 3 in particular being most regularly used by this species (21 of 24 counts). As for other duck species, wigeon were strongly associated with the sewage outfall channel in this compartment, with birds recorded foraging in the channel around both high and low tides.

3.6 Summary of Results

- 3.6.1 Based on the field survey data, the parts of the survey area contained within compartments 3 and 2 were found to be of the greatest apparent importance to birds within the context of this section of the River Thames (south bank). Within these compartments, the channel associated with the sewage outfall and adjacent intertidal areas (compartment 3) and the base of the retaining wall/river bank defence and adjacent mudflats (compartment 2) were features of particular significance in the context of the survey area in terms of their regular recorded use by a range of waterbird species.
- 3.6.2 Compartments 4 and 5 adjacent to the REP site were used by waterbird species, but numbers and diversity were unexceptional compared to other areas nearby. This indicates these compartments are not of particular value to waterbirds in the context of this section of the Thames.
- 3.6.3 In terms of species, numbers of shoveler exceeding the national threshold were recorded on one occasion, confirming important numbers of this species can make use of this stretch of the Thames on occasion. Numbers of common sandpiper also exceeded the national threshold (of 1 bird), but this is well below the minimum qualifying threshold of 50 individuals (with this species also being numerous and widespread on passage). Other species with both regular occurrence and sometimes large flock sizes (albeit below national or international thresholds) included black-tailed godwit, dunlin, gadwall, lapwing, redshank, shelduck and teal. With reference to past WeBS data, patterns of peak counts suggest that the survey area can support (at least) a significant proportion of the total numbers of some species (e.g. black-tailed godwit, dunlin, gadwall, lapwing, redshank, ringed plover, shelduck, shoveler, teal and wigeon) using this section of the Thames. However, it is noted that no WeBS data for the 2017/18 season is yet available to enable a direct comparison.

4 Conclusions

- 4.1.1 Based on the results of the 2017/18 overwintering bird survey, the riparian and intertidal areas immediately adjacent to the proposed Riverside Energy Park site are unexceptional in terms of their patterns of use by waterbird species, with numbers and diversity of birds utilising these areas being low in comparison to other areas nearby.
- 4.1.2 Within the survey area, compartments 2 and 3 in particular were found to be of increased value to waterbirds, based on observed patterns of regular use by a range of species, with overall numbers being higher than in other surveyed areas. The sewage outfall channel in compartment 3 and retaining wall and nearby mudflats within compartment 2 have been highlighted as features of particular value to waterbirds within this part of the Thames. These areas supported a variety of species, with numbers of shoveler reaching national importance (with this species also using the western parts of compartment 4).

5 References

Gilbert G, Gibbons D. W. and Evans J. (1998) *Bird Monitoring Methods*. RSPB Sandy, Bedfordshire

Websites

www.bto.org/volunteer-surveys/webs/data/species-threshold-levels

Appendix A Raw Survey Data

Table 5: Raw Survey Data (Species Count per Compartment for each Visit)

Visit No.	Tide	Compartment No	Species	Count
1a	Low	1	L.	2
1a	Low	1	BW	14
1a	Low	1	BH	77
1a	Low	1	GB	1
1a	Low	1	T.	243
1a	Low	1	RK	40
1a	Low	8	HG	1
1a	Low	2	T.	2
1a	Low	2	BW	63
1a	Low	2	BH	163
1a	Low	2	GB	6
1a	Low	2	RK	122
1a	Low	2	MA	3
1a	Low	2	L.	12
1a	Low	2	DN	2
1a	Low	10	CA	2
1a	Low	10	BH	4
1a	Low	3	H.	1
1a	Low	3	BH	226
1a	Low	3	T.	377
1a	Low	3	RK	122
1a	Low	3	L.	16
1a	Low	3	CA	23
1a	Low	3	MA	18
1a	Low	3	ET	4
1a	Low	3	MH	12
1a	Low	3	WN	3
1a	Low	3	SV	1
1a	Low	3	HG	1
1a	Low	3	GB	1
1a	Low	3	KF	1
1a	Low	4	CA	2
1a	Low	4	BH	128
1a	Low	4	RK	1
1a	Low	4	GB	1
1a	Low	4	BW	3
1a	Low	4	T.	18
1a	Low	5	BW	15

Wintering Bird Survey Report
Riverside Energy Park

Visit No.	Tide	Compartment No	Species	Count
1a	Low	5	BH	45
1a	Low	5	T.	2
1a	Low	5	H.	1
1a	Low	5	CA	1
1a	Low	6	BH	42
1a	Low	13	BH	2
1a	Low	13	CA	15
1a	Low	14	CA	6
1a	Low	7	CA	1
1a	Low	7	BH	77
1a	Low	7	GB	1
1a	Low	7	CM	2
1b	High	5	T.	8
1b	High	5	GW	1
1b	High	12	HG	4
1b	High	10	BH	51
1b	High	3	RK	1
1b	High	3	MA	14
1b	High	3	T.	158
1b	High	3	MH	2
1b	High	3	BH	356
1b	High	3	GB	2
1b	High	3	BW	6
1b	High	3	WN	1
1b	High	3	CA	1
1b	High	2	MA	5
1b	High	9	BH	7
1b	High	1	T.	60
1b	High	1	MA	2
1b	High	1	CA	1
1b	High	8	BH	7
1b	High	8	LB	17
1b	High	8	BG	4
1b	High	13	BH	3
1b	High	6	T.	9
1b	High	6	MA	3
1b	High	7	BH	40
1b	High	7	GB	4
1b	High	7	RK	1
1b	High	14	GB	3
2a	Low	6	BH	20
2a	Low	7	BH	68

Wintering Bird Survey Report
Riverside Energy Park

Visit No.	Tide	Compartment No	Species	Count
2a	Low	7	RK	2
2a	Low	7	RP	16
2a	Low	7	LB	1
2a	Low	7	MA	8
2a	Low	5	BH	64
2a	Low	5	HG	1
2a	Low	5	T.	6
2a	Low	5	BW	5
2a	Low	12	HG	1
2a	Low	12	BH	1
2a	Low	12	CA	1
2a	Low	4	BH	70
2a	Low	4	BW	12
2a	Low	4	RK	7
2a	Low	4	T.	15
2a	Low	4	H.	1
2a	Low	4	SU	14
2a	Low	4	GB	1
2a	Low	3	BH	287
2a	Low	3	T.	398
2a	Low	3	GB	1
2a	Low	3	CA	14
2a	Low	3	CG	7
2a	Low	3	MH	4
2a	Low	3	L.	8
2a	Low	3	RK	33
2a	Low	3	WN	3
2a	Low	3	H.	1
2a	Low	3	MA	11
2a	Low	3	LB	2
2a	Low	2	BH	92
2a	Low	2	LB	2
2a	Low	2	HG	1
2a	Low	2	GB	1
2a	Low	2	RK	176
2a	Low	2	L.	24
2a	Low	2	BW	176
2a	Low	2	DN	1
2a	Low	1	BH	81
2a	Low	1	T.	328
2a	Low	1	RK	55
2a	Low	1	SU	21

Wintering Bird Survey Report
Riverside Energy Park

Visit No.	Tide	Compartment No	Species	Count
2a	Low	1	BW	14
2a	Low	1	H.	1
2a	Low	1	LB	2
2a	Low	8	CA	1
2b	High	7	GB	1
2b	High	7	BW	1
2b	High	7	MA	5
2b	High	7	BH	49
2b	High	14	LB	1
2b	High	6	MA	4
2b	High	5	MA	6
2b	High	5	T.	15
2b	High	5	CA	2
2b	High	4	T.	21
2b	High	4	CA	1
2b	High	4	MA	2
2b	High	4	WN	1
2b	High	11	MH	1
2b	High	11	BH	2
2b	High	11	CA	1
2b	High	10	GA	1
2b	High	3	BH	434
2b	High	3	T.	274
2b	High	3	CA	3
2b	High	3	BW	5
2b	High	3	L.	2
2b	High	3	MA	18
2b	High	3	WN	4
2b	High	2	BW	231
2b	High	2	T.	189
2b	High	2	H.	5
2b	High	2	BH	2
2b	High	2	RK	6
2b	High	2	L.	14
2b	High	1	T.	1
2b	High	1	CA	2
2b	High	8	CM	2
2b	High	8	BH	3
2b	High	8	LB	3
3a	Low	13	BH	1
3a	Low	6	BH	52
3a	Low	6	CA	2

Wintering Bird Survey Report
Riverside Energy Park

Visit No.	Tide	Compartment No	Species	Count
3a	Low	6	BW	11
3a	Low	6	RK	6
3a	Low	7	MA	3
3a	Low	7	CA	1
3a	Low	7	BH	56
3a	Low	7	LB	2
3a	Low	7	RP	12
3a	Low	7	RK	2
3a	Low	7	L.	9
3a	Low	7	GB	1
3a	Low	5	BH	48
3a	Low	5	BW	8
3a	Low	5	RK	11
3a	Low	5	CA	1
3a	Low	5	T.	5
3a	Low	4	SU	15
3a	Low	4	CA	2
3a	Low	4	BH	40
3a	Low	4	RK	6
3a	Low	4	T.	1
3a	Low	11	SV	16
3a	Low	11	CA	2
3a	Low	4	WA	1
3a	Low	3	T.	459
3a	Low	3	MA	6
3a	Low	3	BH	269
3a	Low	3	RK	1
3a	Low	3	SU	7
3a	Low	3	HG	1
3a	Low	3	BW	19
3a	Low	3	WN	4
3a	Low	3	GA	1
3a	Low	3	MH	4
3a	Low	3	CA	2
3a	Low	3	SV	7
3a	Low	10	CA	1
3a	Low	10	T.	4
3a	Low	10	GB	1
3a	Low	2	SU	35
3a	Low	2	RK	111
3a	Low	2	H.	2
3a	Low	2	BW	20

Wintering Bird Survey Report
Riverside Energy Park

Visit No.	Tide	Compartment No	Species	Count
3a	Low	2	DN	157
3a	Low	2	T.	98
3a	Low	2	CA	5
3a	Low	2	GB	2
3a	Low	2	L.	53
3a	Low	2	BH	126
3a	Low	9	CA	1
3a	Low	9	BH	67
3a	Low	9	LB	1
3a	Low	1	BH	76
3a	Low	1	L.	44
3a	Low	1	SU	33
3a	Low	1	RK	10
3a	Low	1	CA	0
3a	Low	1	DN	8
3a	Low	1	CM	3
3a	Low	1	BW	1
3a	Low	1	T.	81
3a	Low	1	LB	4
3a	Low	1	HG	1
3b	High	6	T.	20
3b	High	6	MA	2
3b	High	6	CA	2
3b	High	6	CS	1
3b	High	6	RK	1
3b	High	7	RK	2
3b	High	7	L.	2
3b	High	7	BW	40
3b	High	7	BH	11
3b	High	7	MA	8
3b	High	5	T.	19
3b	High	5	CA	1
3b	High	4	WN	1
3b	High	4	T.	11
3b	High	4	SU	12
3b	High	3	T.	272
3b	High	3	BH	382
3b	High	3	MA	9
3b	High	3	SV	12
3b	High	3	GA	2
3b	High	3	CA	1
3b	High	3	TU	1

Wintering Bird Survey Report
Riverside Energy Park

Visit No.	Tide	Compartment No	Species	Count
3b	High	3	MH	9
3b	High	10	BH	16
3b	High	10	SU	14
3b	High	2	L.	24
3b	High	2	T.	88
3b	High	2	BW	28
3b	High	2	RK	100
3b	High	2	DN	200
3b	High	2	BH	3
3b	High	1	T.	1
4a	Low	6	BH	1
4a	Low	6	RK	10
4a	Low	6	BW	17
4a	Low	6	H.	1
4a	Low	7	BH	21
4a	Low	7	RK	6
4a	Low	7	L.	6
4a	Low	7	MA	3
4a	Low	7	HG	2
4a	Low	7	RP	18
4a	Low	7	GB	1
4a	Low	7	DN	166
4a	Low	5	BH	18
4a	Low	5	RK	1
4a	Low	5	SU	2
4a	Low	4	BH	10
4a	Low	4	CA	3
4a	Low	4	SU	8
4a	Low	4	RK	2
4a	Low	4	SV	1
4a	Low	4	GB	1
4a	Low	4	BW	1
4a	Low	3	T.	591
4a	Low	3	MA	21
4a	Low	3	BH	277
4a	Low	3	L.	52
4a	Low	3	MH	9
4a	Low	3	CA	8
4a	Low	3	WN	10
4a	Low	3	SV	21
4a	Low	3	GB	2
4a	Low	3	HG	1

Wintering Bird Survey Report
Riverside Energy Park

Visit No.	Tide	Compartment No	Species	Count
4a	Low	3	BW	27
4a	Low	3	DN	0
4a	Low	3	SU	51
4a	Low	3	GA	20
4a	Low	3	RK	16
4a	Low	10	CA	1
4a	Low	2	DN	682
4a	Low	2	SU	1
4a	Low	2	BW	1
4a	Low	2	CU	2
4a	Low	2	RK	53
4a	Low	2	GB	1
4a	Low	2	BH	154
4a	Low	2	MA	7
4a	Low	2	H.	1
4a	Low	2	T.	6
4a	Low	2	L.	57
4a	Low	2	LB	6
4a	Low	2	HG	1
4a	Low	2	CM	1
4a	Low	1	SU	27
4a	Low	1	BH	71
4a	Low	1	CA	1
4a	Low	1	GB	1
4a	Low	1	T.	17
4a	Low	1	DN	79
4a	Low	1	RK	23
4a	Low	1	L.	1
4a	Low	1	CU	1
4a	Low	1	LB	11
4a	Low	1	HG	3
4a	Low	8	GB	1
4a	Low	8	CA	2
4b	High	6	T.	18
4b	High	6	RK	1
4b	High	7	LB	2
4b	High	7	BH	4
4b	High	7	L.	1
4b	High	7	BW	43
4b	High	7	CS	1
4b	High	7	MA	2
4b	High	5	T.	18

Wintering Bird Survey Report
Riverside Energy Park

Visit No.	Tide	Compartment No	Species	Count
4b	High	5	MA	2
4b	High	5	CA	2
4b	High	4	CA	3
4b	High	4	T.	29
4b	High	4	BH	8
4b	High	11	BH	7
4b	High	3	T.	198
4b	High	3	SV	28
4b	High	3	WN	20
4b	High	3	BH	412
4b	High	3	SU	1
4b	High	3	MA	3
4b	High	3	GA	8
4b	High	10	BH	33
4b	High	10	CA	1
4b	High	2	H.	3
4b	High	2	L.	59
4b	High	2	T.	33
4b	High	2	BH	12
4b	High	2	CU	1
4b	High	2	DN	500
4b	High	2	RK	244
4b	High	2	CA	1
4b	High	2	BW	32
4b	High	9	CA	1
4b	High	1	T.	8
4b	High	1	CA	1
4b	High	8	CA	3
5a	Low	6	RK	6
5a	Low	6	BH	3
5a	Low	6	SU	3
5a	Low	6	GB	1
5a	Low	6	CU	1
5a	Low	6	CA	1
5a	Low	6	LG	1
5a	Low	13	GB	1
5a	Low	7	RK	4
5a	Low	7	MA	4
5a	Low	7	BH	7
5a	Low	7	GB	3
5a	Low	7	LB	4
5a	Low	7	RP	11

Wintering Bird Survey Report
Riverside Energy Park

Visit No.	Tide	Compartment No	Species	Count
5a	Low	7	DN	105
5a	Low	5	BH	14
5a	Low	5	RK	6
5a	Low	5	ET	1
5a	Low	5	MA	2
5a	Low	5	T.	2
5a	Low	4	BW	5
5a	Low	4	RK	7
5a	Low	4	BH	5
5a	Low	4	SU	22
5a	Low	4	CA	1
5a	Low	4	H.	1
5a	Low	4	L.	6
5a	Low	3	T.	45
5a	Low	3	RK	3
5a	Low	3	BH	98
5a	Low	3	SU	57
5a	Low	3	BW	0
5a	Low	3	CA	3
5a	Low	3	MH	13
5a	Low	3	WN	1
5a	Low	3	L.	50
5a	Low	3	SV	67
5a	Low	3	GA	14
5a	Low	3	MA	17
5a	Low	3	H.	1
5a	Low	3	CU	1
5a	Low	10	H.	2
5a	Low	10	BH	51
5a	Low	10	BW	8
5a	Low	10	T.	81
5a	Low	10	MH	4
5a	Low	10	SV	
5a	Low	10	GB	
5a	Low	10	LB	
5a	Low	2	BH	59
5a	Low	2	RK	43
5a	Low	2	SU	13
5a	Low	2	H.	2
5a	Low	2	CA	4
5a	Low	2	LB	11
5a	Low	2	MA	9

Wintering Bird Survey Report
Riverside Energy Park

Visit No.	Tide	Compartment No	Species	Count
5a	Low	2	GB	9
5a	Low	2	T.	32
5a	Low	2	L.	23
5a	Low	2	HG	2
5a	Low	1	T.	6
5a	Low	1	SU	33
5a	Low	1	BH	13
5a	Low	1	LB	8
5a	Low	1	CU	2
5a	Low	1	HG	6
5a	Low	8	GB	1
5b	High	6	T.	24
5b	High	6	MA	4
5b	High	7	T.	2
5b	High	7	CS	1
5b	High	7	BW	69
5b	High	7	MA	9
5b	High	7	HG	2
5b	High	7	GB	2
5b	High	5	T.	14
5b	High	5	MA	4
5b	High	5	CA	2
5b	High	4	T.	29
5b	High	4	SU	23
5b	High	4	CA	3
5b	High	4	WN	5
5b	High	11	BH	3
5b	High	3	SV	59
5b	High	3	T.	180
5b	High	3	CA	6
5b	High	3	MA	2
5b	High	3	WN	16
5b	High	3	GA	29
5b	High	3	MH	1
5b	High	3	BH	336
5b	High	3	LG	1
5b	High	3	CG	11
5b	High	10	BH	61
5b	High	10	HG	1
5b	High	2	DN	545
5b	High	2	H.	1
5b	High	2	L.	113

Wintering Bird Survey Report
Riverside Energy Park

Visit No.	Tide	Compartment No	Species	Count
5b	High	2	BW	21
5b	High	2	BH	13
5b	High	2	T.	102
5b	High	2	RK	131
5b	High	9	GB	1
5b	High	9	CA	1
5b	High	1	T.	12
5b	High	8	GB	1
6a	Low	6	T.	4
6a	Low	6	RK	10
6a	Low	6	SN	1
6a	Low	6	CU	1
6a	Low	6	BH	3
6a	Low	6	CA	1
6a	Low	6	RC	1
6a	Low	13	GB	2
6a	Low	13	CA	2
6a	Low	7	RK	7
6a	Low	7	T.	6
6a	Low	7	BH	28
6a	Low	7	CA	2
6a	Low	7	MA	11
6a	Low	7	L.	3
6a	Low	7	GB	3
6a	Low	7	RP	9
6a	Low	7	DN	133
6a	Low	14	GB	1
6a	Low	14	CA	7
6a	Low	5	RK	3
6a	Low	5	BH	2
6a	Low	5	MA	6
6a	Low	5	SU	2
6a	Low	5	T.	10
6a	Low	4	T.	9
6a	Low	4	SU	34
6a	Low	4	RK	8
6a	Low	4	BW	1
6a	Low	4	BH	4
6a	Low	3	BH	228
6a	Low	3	SU	48
6a	Low	3	RK	5
6a	Low	3	SV	208

Wintering Bird Survey Report
Riverside Energy Park

Visit No.	Tide	Compartment No	Species	Count
6a	Low	3	GA	23
6a	Low	3	WN	26
6a	Low	3	MH	9
6a	Low	3	CA	3
6a	Low	3	T.	352
6a	Low	3	L.	42
6a	Low	3	H.	2
6a	Low	3	MA	10
6a	Low	3	AV	1
6a	Low	3	GB	2
6a	Low	3	LB	3
6a	Low	3	ET	
6a	Low	3	DN	441
6a	Low	3	CU	1
6a	Low	2	SU	47
6a	Low	2	RK	52
6a	Low	2	AV	17
6a	Low	2	GB	14
6a	Low	2	LB	3
6a	Low	2	L.	114
6a	Low	2	H.	1
6a	Low	2	CA	1
6a	Low	2	DN	89
6a	Low	2	T.	55
6a	Low	2	BH	42
6a	Low	9	BH	5
6a	Low	1	T.	0
6a	Low	1	SU	23
6a	Low	1	L.	43
6a	Low	1	BH	79
6a	Low	1	CU	1
6a	Low	1	MH	1
6a	Low	1	DN	4
6a	Low	1	RK	5
6a	Low	1	LB	2
6a	Low	1	GB	1
6a	Low	8	CA	1
6b	High	6	T.	23
6b	High	6	GB	1
6b	High	6	MA	13
6b	High	6	CA	3
6b	High	13	BH	2

Wintering Bird Survey Report
Riverside Energy Park

Visit No.	Tide	Compartment No	Species	Count
6b	High	7	GB	1
6b	High	7	T.	11
6b	High	7	GA	1
6b	High	7	MA	2
6b	High	7	BW	6
6b	High	14	HG	3
6b	High	5	T.	9
6b	High	5	MA	2
6b	High	5	CA	2
6b	High	12	HG	1
6b	High	12	BH	1
6b	High	4	SU	10
6b	High	4	T.	48
6b	High	4	CA	2
6b	High	4	SV	217
6b	High	4	GA	12
6b	High	4	WN	9
6b	High	4	BH	4
6b	High	11	BH	13
6b	High	3	BH	418
6b	High	3	SV	98
6b	High	3	T.	247
6b	High	3	MA	16
6b	High	3	GA	30
6b	High	3	WN	10
6b	High	3	HG	1
6b	High	3	CA	23
6b	High	3	MH	2
6b	High	10	BH	21
6b	High	10	GB	1
6b	High	10	T.	10
6b	High	10	SV	19
6b	High	2	CA	31
6b	High	2	BH	19
6b	High	2	L.	98
6b	High	2	DN	700
6b	High	2	RK	182
6b	High	2	T.	113
6b	High	2	SU	1
6b	High	2	GG	1
6b	High	2	H.	1
6b	High	2	BW	1

Wintering Bird Survey Report
Riverside Energy Park

Visit No.	Tide	Compartment No	Species	Count
6b	High	2	CU	1
6b	High	9	BH	10
6b	High	9	LB	1
6b	High	1	MA	4
6b	High	1	T.	16
6b	High	8	SU	8
7a	High	6	SU	2
7a	High	6	GB	1
7a	High	6	T.	27
7a	High	6	MA	5
7a	High	6	CA	3
7a	High	6	BH	3
7a	High	13	GB	1
7a	High	7	T.	29
7a	High	7	L.	1
7a	High	7	SN	1
7a	High	7	CA	2
7a	High	7	CS	1
7a	High	7	MA	4
7a	High	7	GB	1
7a	High	12	BH	14
7a	High	4	SU	59
7a	High	4	T.	11
7a	High	4	GB	1
7a	High	4	CA	2
7a	High	3	CA	51
7a	High	3	T.	266
7a	High	3	BH	270
7a	High	3	SV	26
7a	High	3	WN	24
7a	High	3	GA	57
7a	High	3	MA	7
7a	High	3	L.	187
7a	High	3	DN	183
7a	High	3	SU	55
7a	High	3	BW	94
7a	High	3	RK	121
7a	High	3	MH	2
7a	High	3	CU	1
7a	High	10	T.	6
7a	High	10	GA	5
7a	High	2	SU	32

Wintering Bird Survey Report
Riverside Energy Park

Visit No.	Tide	Compartment No	Species	Count
7a	High	2	T.	77
7a	High	2	RK	5
7a	High	2	LB	2
7a	High	2	GB	1
7a	High	2	BH	22
7a	High	2	L.	16
7a	High	2	MA	6
7a	High	1	T.	28
7a	High	1	SU	7
7a	High	1	L.	11
7a	High	1	BH	129
7a	High	1	GB	1
7a	High	1	LB	1
7b	Low	6	BH	44
7b	Low	6	GB	1
7b	Low	6	T.	3
7b	Low	7	BH	47
7b	Low	7	MA	2
7b	Low	7	L.	5
7b	Low	7	T.	14
7b	Low	7	GA	1
7b	Low	5	BH	42
7b	Low	5	RK	1
7b	Low	5	SU	3
7b	Low	4	SU	26
7b	Low	4	RK	11
7b	Low	4	BH	42
7b	Low	4	L.	67
7b	Low	4	GB	3
7b	Low	4	T.	0
7b	Low	4	BW	7
7b	Low	4	CA	1
7b	Low	11	BH	6
7b	Low	3	BH	249
7b	Low	3	T.	345
7b	Low	3	SV	41
7b	Low	3	RK	4
7b	Low	3	SU	40
7b	Low	3	GA	51
7b	Low	3	MH	6
7b	Low	3	CA	6
7b	Low	3	WN	24

Wintering Bird Survey Report
Riverside Energy Park

Visit No.	Tide	Compartment No	Species	Count
7b	Low	3	MA	8
7b	Low	3	L.	4
7b	Low	3	BW	13
7b	Low	3	CU	1
7b	Low	10	GB	1
7b	Low	10	BH	75
7b	Low	10	T.	29
7b	Low	10	BW	15
7b	Low	10	DN	500
7b	Low	2	BH	197
7b	Low	2	RK	71
7b	Low	2	SU	15
7b	Low	2	DN	554
7b	Low	2	GB	2
7b	Low	2	BW	8
7b	Low	2	L.	147
7b	Low	2	T.	53
7b	Low	2	HG	1
7b	Low	2	CM	1
7b	Low	2	LB	7
7b	Low	9	BH	34
7b	Low	9	GB	2
7b	Low	9	CA	3
7b	Low	1	SU	40
7b	Low	1	BH	120
7b	Low	1	L.	22
7b	Low	1	T.	61
7b	Low	1	CU	1
7b	Low	1	RK	7
7b	Low	1	LB	3
7b	Low	1	CM	1
7b	Low	8	BH	4
7b	Low	8	CA	1
7b	Low	8	T.	2
8a	Low	6	GB	1
8a	Low	6	RK	2
8a	Low	6	SU	2
8a	Low	6	CU	1
8a	Low	6	CA	2
8a	Low	7	RK	4
8a	Low	7	T.	12
8a	Low	7	CS	1

Wintering Bird Survey Report
Riverside Energy Park

Visit No.	Tide	Compartment No	Species	Count
8a	Low	7	L.	2
8a	Low	7	BH	70
8a	Low	7	H.	1
8a	Low	7	RP	5
8a	Low	7	BW	1
8a	Low	7	GB	1
8a	Low	7	DN	4
8a	Low	14	BH	10
8a	Low	5	RK	5
8a	Low	5	CU	1
8a	Low	5	LB	1
8a	Low	5	SU	4
8a	Low	5	BH	1
8a	Low	12	MA	3
8a	Low	4	SU	25
8a	Low	4	RK	7
8a	Low	4	MA	2
8a	Low	4	LB	1
8a	Low	4	GB	1
8a	Low	4	BW	2
8a	Low	4	T.	3
8a	Low	4	CA	1
8a	Low	4	BH	1
8a	Low	3	BH	162
8a	Low	3	T.	406
8a	Low	3	GA	58
8a	Low	3	MA	9
8a	Low	3	WN	17
8a	Low	3	SU	6
8a	Low	3	SV	115
8a	Low	3	CA	1
8a	Low	3	MH	8
8a	Low	3	DN	600
8a	Low	3	BW	0
8a	Low	3	RK	11
8a	Low	3	L.	58
8a	Low	3	H.	1
8a	Low	3	CS	1
8a	Low	10	BH	152
8a	Low	10	SU	22
8a	Low	10	BW	1
8a	Low	10	L.	20

Wintering Bird Survey Report
Riverside Energy Park

Visit No.	Tide	Compartment No	Species	Count
8a	Low	2	SU	17
8a	Low	2	BH	319
8a	Low	2	BW	2
8a	Low	2	RK	37
8a	Low	2	CA	6
8a	Low	2	CU	1
8a	Low	2	L.	168
8a	Low	2	GB	8
8a	Low	2	T.	85
8a	Low	9	BH	9
8a	Low	1	BH	24
8a	Low	1	SU	22
8a	Low	1	CA	6
8a	Low	1	GB	1
8a	Low	1	L.	2
8a	Low	1	LB	1
8a	Low	1	RK	9
8b	High	6	T.	16
8b	High	6	MA	7
8b	High	6	GB	2
8b	High	6	CA	4
8b	High	6	BH	5
8b	High	13	GB	2
8b	High	13	CA	3
8b	High	7	BW	45
8b	High	7	BH	24
8b	High	7	T.	2
8b	High	7	L.	2
8b	High	7	MA	4
8b	High	5	T.	2
8b	High	5	BH	1
8b	High	5	CA	1
8b	High	12	BH	3
8b	High	4	BH	23
8b	High	4	T.	4
8b	High	4	CA	1
8b	High	4	SU	6
8b	High	4	GA	2
8b	High	4	GG	1
8b	High	3	T.	312
8b	High	3	GA	45
8b	High	3	WN	24

Wintering Bird Survey Report
Riverside Energy Park

Visit No.	Tide	Compartment No	Species	Count
8b	High	3	MA	6
8b	High	3	SV	43
8b	High	3	BH	507
8b	High	3	CA	1
8b	High	3	L.	1
8b	High	3	H.	1
8b	High	10	BH	16
8b	High	2	CA	13
8b	High	2	BH	27
8b	High	2	L.	114
8b	High	2	DN	600
8b	High	2	T.	27
8b	High	2	RK	127
8b	High	2	LB	2
8b	High	9	CM	1
8b	High	9	BH	119
8b	High	9	GB	1
8b	High	1	T.	46
8b	High	1	BH	32
8b	High	1	LB	3
8b	High	8	BH	121
9a	High	6	T.	9
9a	High	6	GB	1
9a	High	6	CA	1
9a	High	6	CS	1
9a	High	6	GA	2
9a	High	7	T.	16
9a	High	7	GA	8
9a	High	7	GB	1
9a	High	7	RK	2
9a	High	7	MA	5
9a	High	7	BW	9
9a	High	14	CA	1
9a	High	5	BH	1
9a	High	4	SU	18
9a	High	4	T.	4
9a	High	4	BH	13
9a	High	4	MA	2
9a	High	4	L.	32
9a	High	3	T.	410
9a	High	3	WN	29
9a	High	3	GA	62

Wintering Bird Survey Report
Riverside Energy Park

Visit No.	Tide	Compartment No	Species	Count
9a	High	3	MA	6
9a	High	3	L.	112
9a	High	3	BH	187
9a	High	3	SU	12
9a	High	3	SV	27
9a	High	3	CA	24
9a	High	3	RK	9
9a	High	3	H.	1
9a	High	3	MH	7
9a	High	3	CG	5
9a	High	3	BW	4
9a	High	3	DN	399
9a	High	3	GB	3
9a	High	3	CS	1
9a	High	2	T.	70
9a	High	2	RK	19
9a	High	2	SU	35
9a	High	2	BH	83
9a	High	2	GB	1
9a	High	2	CU	1
9a	High	9	HG	1
9a	High	2	L.	33
9a	High	1	GB	3
9a	High	1	BH	21
9a	High	1	SU	8
9a	High	1	RK	1
9a	High	1	CM	1
9a	High	1	L.	1
9a	High	1	LB	1
9b	Low	6	T.	2
9b	Low	6	BH	64
9b	Low	6	MA	2
9b	Low	6	OC	1
9b	Low	6	SU	2
9b	Low	6	H.	1
9b	Low	7	MA	1
9b	Low	7	RP	7
9b	Low	7	L.	1
9b	Low	7	RK	1
9b	Low	7	BH	22
9b	Low	7	DN	12
9b	Low	14	CA	1

Wintering Bird Survey Report
Riverside Energy Park

Visit No.	Tide	Compartment No	Species	Count
9b	Low	5	BH	56
9b	Low	5	SU	2
9b	Low	5	RK	1
9b	Low	12	MA	3
9b	Low	12	BH	2
9b	Low	4	BH	43
9b	Low	4	SU	20
9b	Low	4	RK	6
9b	Low	4	T.	2
9b	Low	3	L.	148
9b	Low	3	BH	138
9b	Low	3	CA	15
9b	Low	3	SU	31
9b	Low	3	WN	14
9b	Low	3	GA	82
9b	Low	3	T.	529
9b	Low	3	MA	6
9b	Low	3	DN	992
9b	Low	3	RK	30
9b	Low	3	SV	36
9b	Low	3	ET	1
9b	Low	3	MH	17
9b	Low	3	BW	1
9b	Low	3	H.	1
9b	Low	10	CM	1
9b	Low	10	BH	56
9b	Low	2	SU	43
9b	Low	2	CU	1
9b	Low	2	GB	16
9b	Low	2	RK	20
9b	Low	2	LB	11
9b	Low	2	BH	287
9b	Low	2	T.	53
9b	Low	2	L.	25
9b	Low	2	CA	1
9b	Low	9	BH	28
9b	Low	1	BH	62
9b	Low	1	SU	17
9b	Low	1	LB	2
10a	Low	6	BH	29
10a	Low	6	OC	1
10a	Low	6	CA	1

Wintering Bird Survey Report
Riverside Energy Park

Visit No.	Tide	Compartment No	Species	Count
10a	Low	6	RK	2
10a	Low	6	T.	5
10a	Low	6	GA	1
10a	Low	13	CA	1
10a	Low	7	BH	3
10a	Low	7	OC	2
10a	Low	7	RK	5
10a	Low	7	MA	2
10a	Low	7	GB	4
10a	Low	7	T.	4
10a	Low	7	RP	2
10a	Low	7	BW	1
10a	Low	7	L.	1
10a	Low	7	GA	4
10a	Low	5	BH	22
10a	Low	5	T.	2
10a	Low	5	RK	4
10a	Low	5	SU	2
10a	Low	5	SN	1
10a	Low	5	MA	3
10a	Low	4	SU	27
10a	Low	4	T.	1
10a	Low	4	BW	13
10a	Low	4	L.	20
10a	Low	4	BH	98
10a	Low	4	RK	2
10a	Low	3	L.	45
10a	Low	3	BH	4
10a	Low	3	T.	444
10a	Low	3	GA	77
10a	Low	3	MA	8
10a	Low	3	BW	3
10a	Low	3	RK	1
10a	Low	3	SV	22
10a	Low	3	MH	9
10a	Low	3	WN	18
10a	Low	3	SU	22
10a	Low	3	DN	429
10a	Low	3	CU	1
10a	Low	10	BW	64
10a	Low	10	BH	26
10a	Low	10	SU	4

Wintering Bird Survey Report
Riverside Energy Park

Visit No.	Tide	Compartment No	Species	Count
10a	Low	2	SU	37
10a	Low	2	GB	5
10a	Low	2	BH	176
10a	Low	2	RK	39
10a	Low	2	LB	13
10a	Low	2	T.	38
10a	Low	9	BH	16
10a	Low	1	SU	36
10a	Low	1	BH	4
10a	Low	1	CM	2
10a	Low	1	LB	1
10b	High	6	BH	1
10b	High	6	T.	14
10b	High	6	CA	2
10b	High	6	MA	5
10b	High	6	L.	1
10b	High	13	GB	1
10b	High	13	LB	4
10b	High	7	GA	8
10b	High	7	T.	13
10b	High	7	L.	1
10b	High	7	LB	1
10b	High	7	BW	1
10b	High	7	BH	22
10b	High	7	MA	1
10b	High	5	T.	3
10b	High	5	MA	2
10b	High	4	T.	15
10b	High	4	GB	1
10b	High	4	MA	2
10b	High	3	GA	24
10b	High	3	WN	29
10b	High	3	SV	24
10b	High	3	MA	10
10b	High	3	L.	49
10b	High	3	BW	17
10b	High	3	MH	2
10b	High	3	BH	101
10b	High	3	LB	1
10b	High	3	RK	1
10b	High	3	T.	210
10b	High	2	T.	72

Wintering Bird Survey Report
Riverside Energy Park

Visit No.	Tide	Compartment No	Species	Count
10b	High	2	L.	65
10b	High	2	BH	17
10b	High	2	DN	93
10b	High	2	RK	121
10b	High	2	GB	3
10b	High	1	T.	21
10b	High	8	BH	4
10b	High	8	CA	1
11a	Low	6	T.	2
11a	Low	6	BH	37
11a	Low	6	GA	2
11a	Low	6	RK	3
11a	Low	7	GA	2
11a	Low	7	BH	55
11a	Low	7	RK	5
11a	Low	7	L.	1
11a	Low	7	MA	6
11a	Low	7	DN	56
11a	Low	7	RP	5
11a	Low	7	BW	3
11a	Low	7	T.	11
11a	Low	5	T.	0
11a	Low	5	RK	4
11a	Low	5	BH	5
11a	Low	5	BW	3
11a	Low	5	SU	2
11a	Low	4	BH	17
11a	Low	4	RK	5
11a	Low	4	SU	22
11a	Low	4	T.	2
11a	Low	3	GA	27
11a	Low	3	WN	24
11a	Low	3	MA	2
11a	Low	3	T.	289
11a	Low	3	SV	22
11a	Low	3	MH	6
11a	Low	3	RK	3
11a	Low	3	BH	0
11a	Low	3	H.	1
11a	Low	3	SU	35
11a	Low	3	L.	18
11a	Low	3	CA	6

Wintering Bird Survey Report
Riverside Energy Park

Visit No.	Tide	Compartment No	Species	Count
11a	Low	3	DN	2
11a	Low	3	BW	2
11a	Low	10	BW	11
11a	Low	10	BH	40
11a	Low	10	GB	5
11a	Low	10	T.	205
11a	Low	2	SU	14
11a	Low	2	RK	6
11a	Low	2	BH	107
11a	Low	2	L.	80
11a	Low	2	DN	192
11a	Low	2	T.	32
11a	Low	2	GB	2
11a	Low	2	HG	1
11a	Low	2	LB	5
11a	Low	9	CA	1
11a	Low	9	BH	22
11a	Low	9	T.	3
11a	Low	1	BH	44
11a	Low	1	RK	3
11a	Low	1	SU	42
11a	Low	1	CU	1
11a	Low	1	T.	21
11a	Low	1	L.	20
11a	Low	1	DN	35
11a	Low	1	BW	1
11a	Low	1	LB	2
11a	Low	1	HG	1
11a	Low	8	BH	1
11a	Low	8	T.	5
11a	Low	8	CA	1
11b	High	6	RK	2
11b	High	6	T.	11
11b	High	6	GA	9
11b	High	6	GB	2
11b	High	6	MA	4
11b	High	5	GA	3
11b	High	7	T.	9
11b	High	7	BW	9
11b	High	7	RK	0
11b	High	7	AV	1
11b	High	7	BH	7

Wintering Bird Survey Report
Riverside Energy Park

Visit No.	Tide	Compartment No	Species	Count
11b	High	14	BH	1
11b	High	5	T.	2
11b	High	5	SU	2
11b	High	5	GB	1
11b	High	5	CA	1
11b	High	4	T.	35
11b	High	4	SU	2
11b	High	4	MA	2
11b	High	4	BH	2
11b	High	4	WN	11
11b	High	4	SV	1
11b	High	4	GA	2
11b	High	4	MH	1
11b	High	11	BH	6
11b	High	3	MH	6
11b	High	3	WN	14
11b	High	3	GA	11
11b	High	3	T.	100
11b	High	3	MA	3
11b	High	3	BH	68
11b	High	3	CA	1
11b	High	3	DN	1
11b	High	3	SV	30
11b	High	3	BW	4
11b	High	10	BH	5
11b	High	2	T.	80
11b	High	2	BH	44
11b	High	2	RK	8
11b	High	2	BW	33
11b	High	2	L.	61
11b	High	2	DN	200
11b	High	9	BH	5
11b	High	1	T.	80
11b	High	1	MA	7
11b	High	8	BH	23
11b	High	8	LB	1
12a	Low	6	BH	29
12a	Low	6	OC	2
12a	Low	6	CA	1
12a	Low	6	GA	3
12a	Low	7	BH	11
12a	Low	7	RP	7

Wintering Bird Survey Report
Riverside Energy Park

Visit No.	Tide	Compartment No	Species	Count
12a	Low	7	OC	3
12a	Low	7	HG	1
12a	Low	7	CU	1
12a	Low	5	SU	2
12a	Low	5	T.	8
12a	Low	5	RK	2
12a	Low	5	BH	13
12a	Low	4	SU	13
12a	Low	4	BH	22
12a	Low	4	RK	1
12a	Low	4	MH	2
12a	Low	3	BH	18
12a	Low	3	SU	29
12a	Low	3	T.	461
12a	Low	3	SV	11
12a	Low	3	GA	69
12a	Low	3	MH	9
12a	Low	3	MA	8
12a	Low	3	WN	15
12a	Low	3	RK	2
12a	Low	3	CA	1
12a	Low	3	SN	2
12a	Low	3	BW	4
12a	Low	3	CU	1
12a	Low	10	BH	36
12a	Low	10	GB	2
12a	Low	10	LB	1
12a	Low	10	SU	4
12a	Low	2	SU	35
12a	Low	2	BH	123
12a	Low	2	CU	1
12a	Low	2	MA	2
12a	Low	2	LB	5
12a	Low	2	HG	2
12a	Low	2	GB	6
12a	Low	1	SU	22
12a	Low	1	BH	4
12b	High	6	T.	14
12b	High	6	GA	4
12b	High	6	CA	2
12b	High	13	CA	1
12b	High	7	T.	2

Wintering Bird Survey Report
Riverside Energy Park

Visit No.	Tide	Compartment No	Species	Count
12b	High	7	BH	3
12b	High	5	T.	5
12b	High	5	CA	1
12b	High	5	SU	2
12b	High	4	T.	22
12b	High	4	MA	2
12b	High	4	SU	2
12b	High	4	GB	1
12b	High	4	WN	19
12b	High	4	GA	5
12b	High	3	WN	18
12b	High	3	T.	206
12b	High	3	GA	53
12b	High	3	MA	2
12b	High	3	SV	3
12b	High	3	BH	32
12b	High	3	MH	2
12b	High	3	BW	10
12b	High	3	CA	2
12b	High	10	BH	63
12b	High	2	T.	109
12b	High	2	RK	9
12b	High	2	BW	11
12b	High	2	BH	1
12b	High	1	T.	23
12b	High	1	MA	2

Appendix B Photographs

Photograph 1: Sewage outfall channel in Compartment 3 close to low tide



Photograph 2: Sewage outfall channel in Compartment 3 – note flocks in water and on adjacent banks



Photograph 3: High tide roosting by mixed waterbird species on the retaining wall in Compartment 2



Photograph 4: Central part of Survey Area at high tide (Compartment 4 and 5) with existing Riverside ERF jetty in distance

