

Proposed development at Port of Dundee

Wintering bird survey

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Approved for issue to client	Hannah Norman	Senior Ecologist	27 March 2020
Issued to client	Hannah Norman	Senior Ecologist	27 March 2020

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1 Introduction

Background to commission

- 1.1 BSG Ecology was commissioned in October 2019 by Fairhurst, acting on behalf of Port of Dundee, to complete wintering bird surveys of land at Port of Dundee (the Site), City of Dundee, Scotland. The Site has been identified for future development.
- 1.2 This report sets out the survey methods that have been used, and presents the results of the surveys that have been undertaken.

Site description

- 1.3 The Site is situated to the east of the City of Dundee (see Figure 1, Section 6). The central Ordnance Survey (OS) grid reference for the Site is NO 43493085.
- 1.4 The Site is located on land at the Port of Dundee, which is operated by Port of Dundee Ltd. To the north of the application site is Stannergate Road, to the east is a rocky foreshore fronting the Firth of Tay, to the south is the Firth of Tay and operational berths associated with the use of Prince Charles Wharf and the Prince Charles Wharf Extension. To the west of the application site is further land owned and operated by the Port of Dundee. The application boundary and existing uses on-site are shown on Drawing Number 130143/8002. Vehicular access is from Stannergate Road.
- 1.5 The Port of Dundee provides services for the North Sea oil and gas industry, construction industry, paper pulp and forest products sectors, and also a wide range of general and bulk cargoes. The Port of Dundee comprises 1,600 m of quayside and currently has 6 working berths. Recently, there has been £10 million invested into various redevelopments, which have included a new quayside to support the decommissioning and offshore wind farm industry, which the Port of Dundee has a strong presence in due to its strategic location.
- 1.6 As shown on Drawing Number 130143/8002, the application site currently contains a range of buildings and land uses common to an operational port. There is an existing dredge pocket to the front of the existing quay. The existing Prince Charles Wharf and Prince Charles Wharf Extension also lie within the site.

Description of project

- 1.7 The proposed development is shown on Drawing Number 134380/8002 and consists of the following main elements:
- The widening of the existing dredged berth associated with the Prince Charles Wharf Extension from 200m x 40m to 200m x 60m. The depth of the berth will increase to -10.0mCD;
 - Slab thickening / strengthening to the existing Prince Charles Wharf, to increase quayside capacity;
 - The creation of a new suspended quay on land to the west of Prince Charles Wharf; and
 - The creation of a new 170m x 30m berth pocket to the south of the proposed suspended quay. Dredging works will be to a depth of -9.0mCD.
- 1.8 A location plan is provided in Section 6 (Figure 1).

Surveyor Experience

- 1.9 Surveys have been undertaken by Neil Beamsley MCIEEM CEcol, Dr Ailsa McKenzie and Steven Betts CEnv MCIEEM, all of whom are experienced ornithological surveys with over 40 years combined ecological experience in the north of England and Scotland. Details of their experience and qualifications can be found at <http://www.bsg-ecology.com>.
- 1.10 Reporting has been completed by Hannah Norman ACIEEM who is an experienced ecologist with over 6 years' experience working on a range of sites within the north of England and Scotland. Details of her experience and qualifications can be found at <http://www.bsg-ecology.com/project/hannah-norman/>. The report has been technically reviewed by Steven Betts.

2 Methods

Desk study

- 2.1 Consultation was undertaken with the British Trust for Ornithology (BTO) to obtain Wetland Bird Survey (WeBS) core count data for the Firth of Tay count sector 'Dundee to Broughty Ferry (Stannergate)' (reference 87411), which encompasses the Site. Data was received on the 3 February 2020.

Field survey

- 2.2 The Site location and its accessibility were reviewed to select a location from which wintering bird vantage point (VP) surveys could be undertaken. Consideration was given to locations which would allow good visibility over the section of estuary adjacent to the Site, whilst not resulting in disturbance or likely alteration to bird behaviour from the surveyor presence. It was also necessary to select a VP location that took into account health and safety considerations at the operation Port facility.
- 2.3 A single VP location was selected that was located on the shore adjacent to Broughty Ferry Road at approximate OS grid reference NO 43740 30979 (see Figures 2-5, Section 5). Whilst the majority of each survey was spent making observations from this VP location, occasional short transects were walked along the shore to the west and east to record birds that may have been hidden from view.
- 2.4 Where possible the surveys were timed to cover high tide as well as low tide as an objective was to identify roosting sites as well as feeding areas. Each survey lasted six hours and aimed to cover the period from high tide to low tide or vice versa. Weather conditions were recorded at the beginning of each survey and at hourly intervals thereafter.
- 2.5 During each survey a record was made of occasions where disturbance of birds took place, for example as a result of boat movement or in response to activity within the operation Port area. Methods used to log disturbance are based on Ravenscroft *et al.* (2007). Surveys recorded the number and location of key wader and wildfowl species¹, as well as actual disturbance events. Actual disturbance includes any disturbance event, natural or human related, that causes an observed reaction from any birds that are present within the survey area.
- 2.6 During each survey the location of each disturbance event was marked as accurately as possible onto a large-scale map using a unique identification number which was cross-referenced to a disturbance log sheet. Information recorded included the time and type of disturbance and, where applicable, the reaction, number and species of birds present and their behaviour at the time of the event.
- 2.7 The reaction of any birds in the vicinity of the disturbance event was recorded using the following codes:
- N: No response;
 - A: Alert (bird raises head and resumes activity);
 - B: Alert (bird moves by foot from disturbance and then resumes activity);
 - C: High Alertness (bird stops feeding/roosting and shows agitation);
 - D1: Short-flight (<50 m);

¹ Key species were those that are qualifying features of the Firth of Tay and Eden Estuary SPA and Ramsar site, and the Outer Firth of Forth and St Andrews Bay Complex proposed SPA.

- D2: Long-flight (>50 m); and
- D3: Birds leave the survey area.

2.8 When birds move away by foot (code B above), the surveyor estimated the distance moved by the bird.

2.9 Wintering bird surveys have been completed in October, November and December 2019 and January 2020. The dates and weather conditions of surveys are summarised in Table 1.

Table 1: Wintering bird survey details

Date	Surveyor	Low / High Tide Time	Start	Finish	Weather
30/10/19	S. Betts	LT 10.01, HT 16.10	09.00	16.00	Cloud 100%, dry, still, 4°C. Conditions consistent throughout survey.
22/11/19	N. Beamsley	HT 11.03, LT 17.01	08.00	14.00	Cloud 100%, dry with intermittent light drizzle, wind F0 rising to F3, 5°C rising to 7°C.
20/12/19	N. Beamsley	HT 09.19, LT 15.06	09.15	15.15	Cloud 100%, dry, wind F2 rising to F3, 6°C falling to 5°C
31/01/20	N. Beamsley	LT 12.24, HT 18.47	11.34	17.34	Cloud 100% falling to 80%, 12-13°C, dry, wind F4.
23/02/20	A. McKenzie	LT 08.46, HT 15.04	08.45	14.45	Cloud 5-30%, 3-9°C, dry, wind F3-4.

Limitations to methods

2.10 No significant limitations to the survey were encountered. The selected vantage point provides good visibility along the shore and across the estuary adjacent to the Port. Surveys were carried out in weather conditions where visibility was good.

3 Results

Desk Study

- 3.1 Consultation with the BTO provided records from 6 WeBS core count surveys of the Firth of Tay count sector 'Dundee to Broughty Ferry (Stannergate)' (reference 87411). These surveys were undertaken in November and December 2013, January, April and May 2014, and February 2018. No other data were provided.
- 3.2 During these surveys eleven species of waterfowl were recorded within the count sector. The data are summarised below in Table 2.

Table 2: Summary of WeBS data provided by BTO (count sector 'Dundee to Broughty Ferry (Stannergate)' (reference 87411))

Species	Survey Data					
	November 2013	December 2013	January 2014	April 2014	May 2014	February 2018
Black-headed gull	0	12	0	3	0	60
Cormorant	0	0	2	7	0	7
Eider	0	0	0	6	0	4
Goosander	0	0	0	0	3	0
Great black-backed gull	0	0	0	0	1	0
Grey heron	0	0	0	0	0	1
Herring gull	0	6	14	20	8	260
Mute swan	0	0	2	2	0	0
Oystercatcher	0	0	8	0	1	0
Red-breasted merganser	0	0	0	0	1	0
Turnstone	0	0	4	0	0	0

Field Survey

- 3.3 Survey work carried out by BSG Ecology during the period October 2019 to January 2020 recorded small numbers of birds using the Firth of Tay near the Site (i.e. within 1 km), including the intertidal habitats. During the survey on 30 October 2019 cormorant *Phalacrocorax carbo* (peak count 1) and eider duck *Somateria mollissima* (peak count 1) were recorded on open water within 1 km of the Site, whilst oystercatcher *Haematopus ostralegus* (peak count 3), redshank *Tringa totanus* (peak count 3), curlew *Numenius arquata* (peak count 2), common gull *Larus canus* (peak count 14), black headed gull *Chroicocephalus ridibundus* (peak count 2), grey heron *Ardea cinerea* (peak count 1), and turnstone *Arenaria interpres* (peak count 11), were all recorded foraging along the rocky shore to the east of the Port.
- 3.4 During the survey on 22 November 2019 species recorded using open water near the Site included red-breasted merganser *Mergus serrator* (peak count 1), goosander *Mergus merganser* (peak count 2), cormorant (peak count 5), black headed gull (peak count 13), and herring gull (peak count 19). Larger numbers of red-breasted merganser (peak count 8), eider (peak count 3) and 2 common scoter *Melanitta nigra* were recorded more than 1 km from the application site in the outer Firth. Within 1 km of the Port peak count of 32 turnstone, a single little grebe *Tachybaptus ruficollis* and redshank were recorded along the shore to the east. Additional numbers of these species were recorded further along the shore, beyond 1km.

- 3.5 During the survey on 20 December 2019 species recorded using the open water near the Site were goosander (peak count 4), cormorant (peak count 6 in flight) and eider duck (peak count 4). Additional eider and cormorant were recorded more than 1 km from the Site. A single little grebe was also recorded. As with previous survey grey heron (peak count 1), turnstone (peak count 22), oystercatcher (peak count 1), redshank (peak count 1), and black headed gull (peak count 16) were recorded along the shore within 1 km of the Site. A single kestrel *Falco tinnunculus* was also recorded hunting along this area.
- 3.6 Survey carried out on 31 January 2020 recorded the following species using the open water near the application site: oystercatcher (peak count of 1), cormorant (peak count of 9 in flight) eider duck (peak count of 3), a single common scoter, and single goosander. Additional oystercatchers, turnstone, grey heron, and eider were present close to the shore and along the rocky habitats within 1 km of the Site.
- 3.7 Survey carried out on 23 February 2020 recorded the following species using the open water near the application site: oystercatcher (peak count of 4 flying across the Firth of Tay), cormorant (peak count of 2 in flight), and red-breasted merganser (peak count of 2). Birds located along the shore included oystercatcher (peak count of 41 distributed along the shore) and curlew (peak count of 2): black-headed gull (peak count of 81) and herring gull (peak count of 14 in flight) were present close to the shore.
- 3.8 Table 3 below provides a summary of the species and counts recorded during each wintering bird survey. The survey results are illustrated within Figures 2-6 in Section 5.

Table 3: Summary of species and counts recorded during winter VP surveys

Species	October		November		December		January		February	
	< 1km	>1 km	< 1km	>1 km	< 1km	>1 km	< 1km	>1 km	< 1km	>1 km
Cormorant	-	-	5	2	7	4	9	-	2	-
Goosander	-	-	-	1	4		1	-	-	-
Eider	1	-	-	2	5	4	5	-	-	-
Oystercatcher	3	-	-	1	1		11	-	45	-
Little grebe	-	-	1	-	1	1	-	-	-	-
Redshank	3	-	1	-	1	-	-	-	-	-
Curlew	3	-	1	-	-	-	-	-	2	-
Common gull	14	-	-	-	-	-	-	-	-	-
Black headed gull	2	-	13	-	16	-	-	-	81	6
Grey heron	1	-	-	-	1	-	2	-	14	11
Turnstone	11	-	32	46	22	4	7	-	-	-
Common scoter	-	-	-	2	-	-	1	-	-	-
Herring gull	-	-	19	-	-	-	-	-	-	-
Kestrel	-	-	-	-	1	-	-	-	-	-
Red breasted merganser	-	-	1	8	-	-	-	-	2	-

- 3.9 The numbers of actual disturbance events, as described in section 2.4, that were recorded during each survey are summarised in Table 4 below. All disturbance events that were recorded were associated with cyclists, anglers, walkers and dogs using the shore and adjacent public footpath for recreational activities. No disturbance events associated with the operational Port were recorded during any of the surveys. Actual disturbance events were typically low, occurring between 1 and 6 times per survey. Only one actual disturbance event caused birds to leave the area.

Table 4: Summary of actual disturbance events recorded during the VP surveys (cause of disturbance is presented in brackets)

	October	November	December	January	February
Number of actual disturbance events	1 (dog off lead)	1 (jogger)	3 (2 jogger; 1 dog walker)	2 (2 unknown)	6 (walkers; dog walkers; angler)

4 References

Ravencroft N, Park B, Vonk R, and Wright M, 2007, Disturbance to Water birds wintering in the Stour-Orwell estuaries SPA

British Trust for Ornithology Wetland Bird Survey (WeBS). <https://www.bto.org/our-science/projects/wetland-bird-survey>, accessed 7 February 2020.

5 Figures

Figure 1: Site Boundary

Figure 2: October Survey Results

Figure 3: November Survey Results

Figure 4: December Survey Results

Figure 5: January Survey Results

Figure 6: February Survey Results



Legend

 Site Boundary



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PROJECT TITLE
Port of Dundee

DRAWING TITLE
Location Plan

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Legend

- ★ VP Location
- 500m Site Buffer
- 1km Site Buffer
- Site Boundary

Cu= Curlew
E= Eider duck
TT= Turnstone
H= Grey Heron
RK= Redshank
BH= Black headed gull
CM= Common gull
OC= Oystercatcher



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PROJECT TITLE
Dundee East Redevelopment

DRAWING TITLE
October VP Results

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Legend

- ★ VP Location
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Cu= Curlew
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H= Grey heron
RK= Redshank
CM= Common gull
BH= Black headed gull
CA= Cormorant
OC= Oystercatcher
GD= Goosander
CX= Common scoter
RM= Red breasted merganser
HG=Herring Gull
LG=Little grebe



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PROJECT TITLE
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November VP Results

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- ★ VP Location
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OC= Oystercatcher
K=Kestrel
LG=Little grebe



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PROJECT TITLE
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Legend

- ★ VP Location
- 500m Site Buffer
- 1km Site Buffer
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E= Eider duck
TT= Turnstone
H= Grey heron
CA= Cormorant
OC= Oystercatcher
GD= Goosander
CX= Common scoter



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January VP Results

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Legend

- ★ VP Location
- 500m Site Buffer
- 1km Site Buffer
- Site Boundary

Cu= Curlew
BH= Black headed gull
CA= Cormorant
OC= Oystercatcher
RM= Red breasted merganser
HG=Herring Gull

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Figure 6:February VP Results

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