Kinneil Lagoons

Management Plan 2014-2018
Maintenance Plan 2018-2028

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APPENDIX 1: SSSI/ASSI, SPA, pSAC, Ramsar, NNR citations

1. SITE INFORMATION

1.1 Site location and relevant authorities

Site name	Kinneil Lagoons
Area (ha)	38.6ha
Grid ref (centre of reserve)	NS 9666 8116
District	Falkirk
Local Authority	Falkirk Council
Community Council	Grangemouth Community Council
SNH Office	Stirling or Edinburgh
Local SEPA Office	Stirling

1.2 Statutory, planning and other designations

Details of statutory, planning and other designations are given in the following table and shown in Map 2.

Designation	**All or part of site?**	**Name and other details**
SSSI/ASSI	Part	Firth of Forth SSSI (Ref: NS 9s/3) Area 542.6ha
SPA	Part	Firth of Forth SPA (UK9004411) Area 6313.72ha
RAMSAR	Part	Firth of Forth RAMSAR (UK9004411) Area 6313.72ha

1.3 Statutory site condition assessment

Land Owner Responsible			
SSSI/ASSI name	**Unit or feature**	**Assessment**	**Date**
Firth of Forth SSSI	Vascular plant assemblage	Unfavourable Declining	26/08/04
Firth of Forth SSSI	Saltmarsh	Unfavourable Declining	08/07/03
Firth of Forth SSSI	Pink-footed Goose (Anser brachyrhynchus) non-breeding	Favourable Maintained	27/10/10
Firth of Forth SSSI	Redshank (Tringa lpine) non-breeding	Favourable Maintained	27/10/10
Firth of Forth SSSI	Ringed plover (Charadrius hiaticula) non-breeding	Favourable Maintained	27/10/10
Firth of Forth SSSI	Shelduck (Tadorna tadorna) non-breeding	Favourable declining	01/11/10
Firth of Forth SSSI	Ringed plover (Charadrius hiaticula), breeding	Unfavourable Declining	30/06/07
Firth of Forth SSSI	Shelduck (Tadorna tadorna), breeding	Favourable Maintained	27/06/03
Land Owner not responsible			
SSSI/ASSI name	**Unit or feature**	**Assessment**	**Date**
Firth of Forth SSSI	Bar-tailed godwit (Limosa lapponica)	Unfavourable Declining	19/10/10
Firth of Forth SSSI	Cormorant (Phalacrocorax carbo) non-breeding	Favourable Maintained	19/10/10
Firth of Forth SSSI	Common scoter (Melanitta nigra)	Favourable Declining	19/10/10
Firth of Forth SSSI	Curlew (Numenius arquata)	Favourable Maintained	20/10/10

Firth of Forth SSSI	Dunlin (Calidris lpine)	Favourable Declining	26/10/10
Firth of Forth SSSI	Eider (Somateria mollissima) non-breeding	Favourable Declining	26/10/10
Firth of Forth SSSI	Great Crested Grebe (Podiceps cristatus) non-breeding	Unfavourable declining	26/10/10
Firth of Forth SSSI	Goldeneye (Bucephala clangula)	Unfavourable declining	26/10/10
Firth of Forth SSSI	Oystercatcher (Haematopus ostralegus) non-breeding	Favourable Maintained	27/10/10
Firth of Forth SSSI	Long-tailed duck (Clangula hyemalis) non-breeding	Unfavourable declining	27/10/10
Firth of Forth SSSI	Knot (Calidris canutus) non-breeding	Unfavourable declining	27/10/10
Firth of Forth SSSI	Red-breasted merganser (Mergus serrator) non-breeding	Favourable Declining	27/10/10
Firth of Forth SSSI	Grey plover (Pluvialis squatarola) non-breeding	Favourable Declining	27/10/10
Firth of Forth SSSI	Scaup (Aythya marila) non-breeding	Unfavourable declining	01/11/10
Firth of Forth SSSI	Velvet scoter (Melanitta fusca)	Favourable Maintained	01/11/10
Firth of Forth SSSI	Turnstone (Arenaria interpres)	Favourable Maintained	01/11/10
Firth of Forth SSSI	Palaeontology Arthropoda (excluding insects and trilobites)	Unfavourable no change	16/01/09
Firth of Forth SSSI	Red-throated diver (non breeding)	Favourable Maintained	29/03/09
Firth of Forth SSSI	Slavonian grebe (Podiceps auritus), non-breeding	Favourable Maintained	29/03/09
Firth of Forth SSSI	Golden plover (Pluvialis apricaria), non-breeding	Favourable Maintained	29/03/09
Firth of Forth SSSI	Lowland neutral grassland	Unfavourable Declining	17/08/09
Firth of Forth SSSI	Lower Carboniferous [Dinantian-Namurian (part)]	Unfavourable No change	26/03/08
Firth of Forth SSSI	Permian/Carboniferous Fish/Amphibia	Favourable Maintained	26/03/08
Firth of Forth SSSI	Carboniferous-Permian Igneous	Unfavourable No change	17/11/08
Firth of Forth SSSI	Palaeozoic Palaeobotany	Favourable Maintained	18/11/08
Firth of Forth SSSI	Northern brown Argus (Aricia artaxerxes)	Favourable Maintained	27/10/07
Firth of Forth SSSI	Eider (Somateria mollissima), breeding	Unfavourable no change	22/05/06
Firth of Forth SSSI	Transition grassland	Favourable Maintained	21-Sep-04
Firth of Forth SSSI	Coastal Geomorphology of Scotland	Favourable Maintained	15-Aug-02
Firth of Forth SSSI	Maritime cliff	Unfavourable Declining	09-Oct-02
Firth of Forth SSSI	Upper Carboniferous [Namurian (part)-Westphalian]	Favourable Maintained	11-Oct-02
Firth of Forth SSSI	Quaternary of Scotland	Favourable Maintained	28-Oct-02
Firth of Forth SSSI	Mineralogy of Scotland	Favourable Maintained	29-Oct-02
Firth of Forth SSSI	Beetles assemblage	Unfavourable Declining	09-Oct-00
Firth of Forth SSSI	Sand dune	Unfavourable Declining	09-Oct-00
Firth of Forth SSSI	Saline lagoon	Favourable Declining	Sept – 08
Firth of Forth SPA (excluding features listed above)			
Firth of Forth SPA (8499)	Mallard (non-breeding)	Unfavourable declining	26/10/10
Firth of Forth SPA (8499)	Lapwing (non-breeding)	Favourable maintained	27/10/10
Firth of Forth SPA (8499)	Sandwich tern (passage)	Favourable declining	1/11/10
Firth of Forth SPA (8499)	Waterfowl assemblage (non-breeding)	Favourable declining	1/11/10
Firth of Forth SPA (8499)	Wigeon (non-breeding)	Favourable recovered	1/11/10

2. EVALUATION and RATIONALE FOR MANAGEMENT

2.1 Current issues and constraints

- The site lies within a bigger area with SSSI and SPA designations. All proposed work will require consents for operations.
- Financial resources are limited to funding which has already been secured
- There are access issues for large machinery, which will be required to carry out habitat management work
- Antisocial behaviour (including fly tipping on and adjacent to site) is an issue within the area.
- Visitor perception/expectations will need to be managed very carefully to ensure people realise we are not creating a new reserve and that we are just carrying out some management work on behalf of Falkirk Council.
- Access to the site is via a single track road with limited passing places and regularly used by heavy goods vehicles
- Vehicular access is limited to the site to assist with management work due to parking restrictions.
- There are limited parking areas.
- There is a lack of biodiversity info (limited wintering bird info, no breeding bird info and no non avian info)

2.2 Identification of the Features Influencing Management of the site

The following tables list all the important features identified in Section 1.2-1.4 and identifies which of these are the **Features Influencing Management**.

These include:

** = Features which are the prime reason for maintaining the site and which will drive its management.

✓✓ = SSSI interest features which will influence the management undertaken at the site.

✓= SSSI interest features but which will not influence the management undertaken at the site.

* = other important conservation features whose requirements need to be taken into account when deciding upon management of the site.

Important feature	Influencing management?	Why?
Mudflats	**✓✓	SSSI, SPA and RAMSAR designation feature
Assemblage of wintering and passage waterfowl	**✓✓	SSSI, SPA and RAMSAR designation feature
Wintering and passage dunlin	✓	SSSI, SPA may reach National importance threshold
Wintering and passage redshank	✓	SSSI, SPA may reach National importance threshold
Passage and wintering ringed plover	✓	SSSI/SPA feature
Wintering cormorant	✓✓	SSSI/SPA feature
Wintering golden plover	✓✓	SSSI/SPA feature
Wintering grey plover	✓✓	SSSI/SPA feature
Wintering oystercatcher	✓✓	SSSI/SPA feature
Wintering knot	✓✓	SSSI/SPA feature
Wintering lapwing	✓✓	SSSI/SPA feature
Wintering bar tailed godwit	✓✓	SSSI/SPA feature
Passage black tailed godwit	**	
Reedbed	*	

2.3 Condition of the Features Influencing Management and the Main Factors affecting them

The following tables identify the target condition of the Features Influencing Management and the Main Factors influencing whether these target conditions are attained.

Feature	Attribute(s)	Current	Target(s) for attribute	Main factor(s)	Target for main factor(s)	Comments
Mud	Area	Approx 12ha	Maintain	Encroachment of scrub	Scrub control	
				Pollution	Monitor for pollution events	
	Wintering bird assemblage	Species diversity and numbers	Maintain	Weather	Not within our control.	
				Disturbance	Using signage to reduce disturbance	
Woodland/Scrub	Area	Approx 3.5ha	Maximum of 3.5ha	Lack of scrub control		
	Breeding bird assemblage	Unknown	Establish			
Wet grassland habitat	Area	Approx 11ha	Maintain			
	Breeding bird assemblage	Unknown	Establish			
	Wintering bird assemblage	Unknown	Establish			
Reedbed	Area	Unknown	Establish	Encroachment of scrub	Scrub control	
	Breeding bird assemblage	Unknown	Establish	Area drying out		
	Invertebrate assemblage	Unknown	Establish			

Assemblage of wintering and passage waterfowl	Number of species recorded over the course of a winter Maximum count from September to March			Weather Disturbance	Not within our control. Using signage to reduce disturbance	
Wintering Wildfowl	Maximum count from September to March			Food availability Disturbance	Area of muddy edges available Sept-March Using signage to reduce disturbance	
Wintering and passage waders	Number of species recorded over the course of a winter Maximum count from September to March			Food availability Disturbance	Area of muddy edges available Sept-March Using signage to reduce disturbance	
Wintering and post breeding shelduck	Maximum count from September to March Post breeding and moulting flock numbers			Food availability Disturbance	Maintain pools and muddy edges Sept-March Using signage to reduce disturbance	
Passage black tailed godwit	Maximum count from September to March			Food availability Disturbance	Area of muddy edges available Sept-March Using signage to reduce disturbance	

3. MANAGEMENT OBJECTIVES

3.1. Conservation Objectives

To maintain 36ha of intertidal habitats in favourable SSSI/SPA/RAMSAR condition

Species targets

- Maintain rich and diverse range of bird species using the mudflats for feeding/roosting
- Establish the presence of any RSPB's Saving Nature priority species (avian)
- Establish the presence of any RSPB's Saving Nature priority species (non avian)
- Establish the presence of any LBAP priority species

Habitat conditions

- Maintain approx 12 ha of mud/intertidal habitat
- Maintain approx 3.5ha of woodland/scrub habitat
- Maintain approx 11ha open grassland habitat
- Establish extent of current reedbed and maintain

Summary management

- Eradicate Japanese knotweed present on site
- Carry out annual scrub control
- Carry out initial woodland management
- Control rhododendron present on site
- Create wader scrape of up to 1 ha
- Enhance spit to increase available habitat
- Maintain site free of fly tipped rubbish
- Initial site clear up

Summary monitoring

- Establish breeding bird survey and carry out annually
- Monitor wintering birds monthly in conjunction with WeBS counts.
- Establish a butterfly transect
- Establish a dragon/damselfly transect
- Carry out small mammal trapping at least once during 2 year work plan
- Carry out annual monitoring of invasive non native species
- Monitor for pollution events

3.2 Objectives for People

To provide current visitors with a high value visitor experience while not promoting the site beyond current levels.

People targets

- Maintain current usage levels
- Provide interpretation material at appropriate locations on site
- Maintain a good level of pedestrian access across the site
- Ensure a safe environment for visitors

Summary management

- Install bus stop style hide/interpretation
- Maintain approx 2km of pedestrian access routes
- Remove remains of SWT hide
- Establish clearly marked boundaries of managed area
- Provide signage/interpretation at appropriate locations
- Maintain signage/interpretation in good condition
- Maintain steps and fencing at pedestrian entrance
- Maintain site free of fly tipped rubbish

4. WORK PROGRAMME

4.1 Delivery of Objectives

To maintain 36ha of intertidal habitats in favourable SSSI/SPA/RAMSAR condition

- Maintain rich and diverse range of species using the mudflats for feeding/roosting
    - Undertake monthly webs counts of the lagoons (September to March)
    - Provide signage at appropriate locations to educate about disturbance
- Establish the presence of any RSPB Saving Nature and LBAP priority species
    - Establish breeding bird survey and carry out annually
      (Undertake breeding bird survey biannually across the whole reserve following a modified O'Brien and Smith method for censusing lowland breeding wader populations)
    - Undertake monthly webs counts of the lagoons (September to March)
    - Establish a butterfly transect
      (Establish weekly butterfly transect to be carried out from April 1st to September 31st.)
    - Establish a dragonfly/damselfly transect
      (Undertake a monthly dragonfly/damselfly transect following standard methodology)
    - Carry out small mammal trapping at least once during 2 year work plan
      (Following a standard methodology, carry out small mammal trapping using longworth traps/trip traps to establish which small mammals occur o n the reserve)
- Maintain approx 12 ha of mud/intertidal habitat; approx 3.5ha of woodland/scrub habitat and approx 11ha of open grassland habitat
    - Carry out annual scrub control and at subsequent 3 yearly intervals
      (Using a chainsaw and bow saws as required remove any scrub encroaching on the open habitats during the month of September. Burn all brash on site but outside of the SSSI area.)
    - Cary out woodland management
      (Manage woodland move woodland edge back away from reed edge to prevent encroachment onto open habitat using chainsaws during the month of September and with a valid felling licence in place)
    - Obtain felling licence for woodland management
    - Carry out Rhododendron control within woodland
      (Carry out control of rhododendron by felling large bushes using a chainsaw and immediately applying glyphosphate to the cut stump and pulling small seedlings by hand during the month of March)
    - Monitor for pollution events
    - Create wader scrape of up to 1ha
    - Carry out spit maintenance
    - Eradicate Japanese knotweed present on site
      (Treat each Japanese Knotweed stem with 20% solution of glyphosphate by stem injection each August/September, cut dead stems in December to provide access for following year and burn all stems on site)
- Establish extent of current reedbed and maintain
    - Carry out survey to establish current extent of reedbed

To provide current visitors with a high value visitor experience while not promoting the site beyond current levels.

- Maintain site usage at current levels and do not promote it

- Provide interpretation material at appropriate locations on site
    - Install bus stop style hide/interpretation
    - Provide signage/interpretation at appropriate locations
    - Maintain signage/interpretation in good condition

- Maintain a good level of pedestrian access across the site
    - Maintain approx 2km of pedestrian access routes
    - Maintain steps and fencing at pedestrian entrance

- Ensure a safe environment for visitors
    - Remove remains of SWT hide
    - Maintain site free of fly tipped rubbish

4.2 RSPB TWO-YEAR WORK PROGRAMME

Red = high priority, orange = medium priority, green = low priority

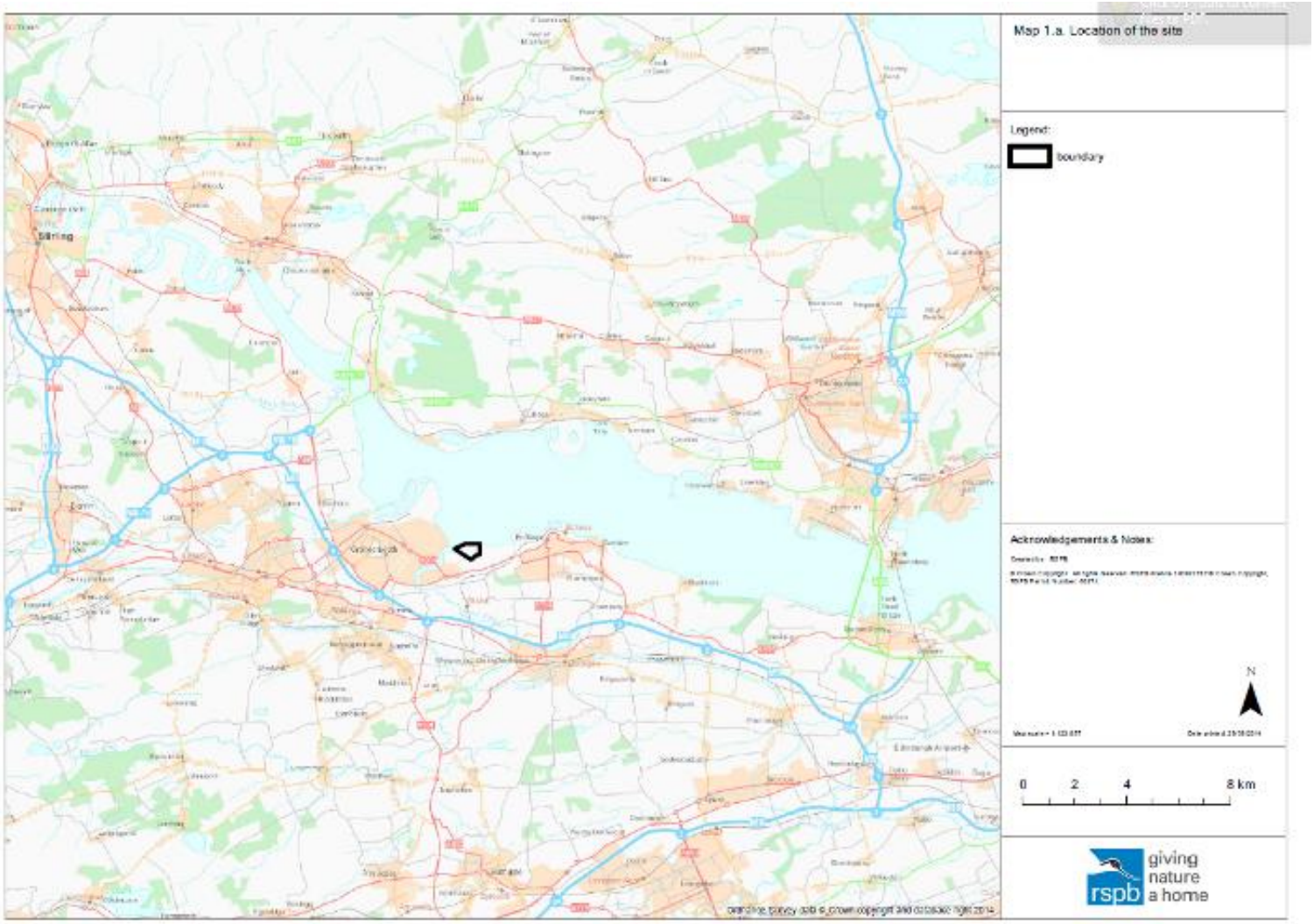
Activity	2014-15	2015-16	2016-17	2017-18
	Year 1	Year 2	Year 3	Year 4
Create wader scrape of up to 1 ha including islands	/	August	/	/
Maintain islands free of vegetation	/	/	August	August
Provide signage at appropriate locations	/	/	April	/
Control Japanese Knotweed	August	August	August	August
Control scrub	August/September	August/September	August/September	August/September
Woodland management	September	September	September	September
Rhododendron Control	March	March	March	March
Obtain felling Licence	/	June	/	/
Install bus stop style hide/interpretation	/	/	April	/
Remove remains of SWT hide	October	/	/	/
Undertake breeding bird survey across the whole site	/	April – June	/	April-June
Undertake monthly webs counts of the lagoons	September – March	September – March	September - March	September – March
Maintain site free of fly tipped rubbish	All year	All year	All year	All year
Maintain pedestrian access routes	All year	All year	All Year	All year
Initial site clear up	August-December	/	/	/
Maintain steps/fencing at site entrance	All year	All year	All year	All year
Establish clearly marked boundaries of managed area	/	/	April	/
Monitor for pollution events	All year	All year	All year	All year
Establish butterfly transect	/	April-September	April-September	April-September
Carry out butterfly transect	/	April-September	April-September	
Carry out small mammal trapping at least once during the four year work programme time period	All year	All year	All year	All year
Establish dragon/damselfly transect	/	May - September	May - September	May - September
Carry out dragon/damselfly transect	/	May - September	May - September	May - September

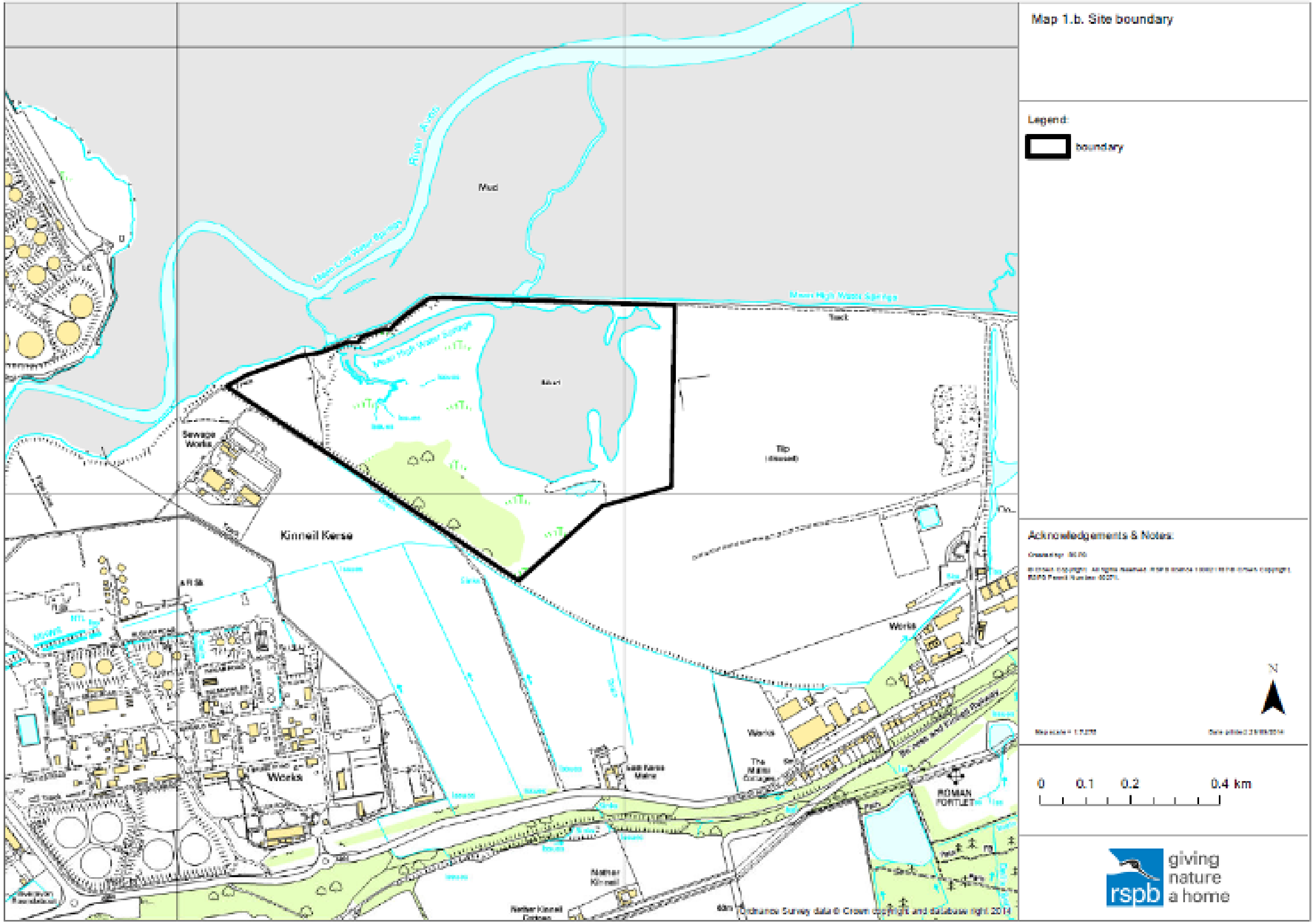
4.3 MAINTENANCE WORK PROGRAMME

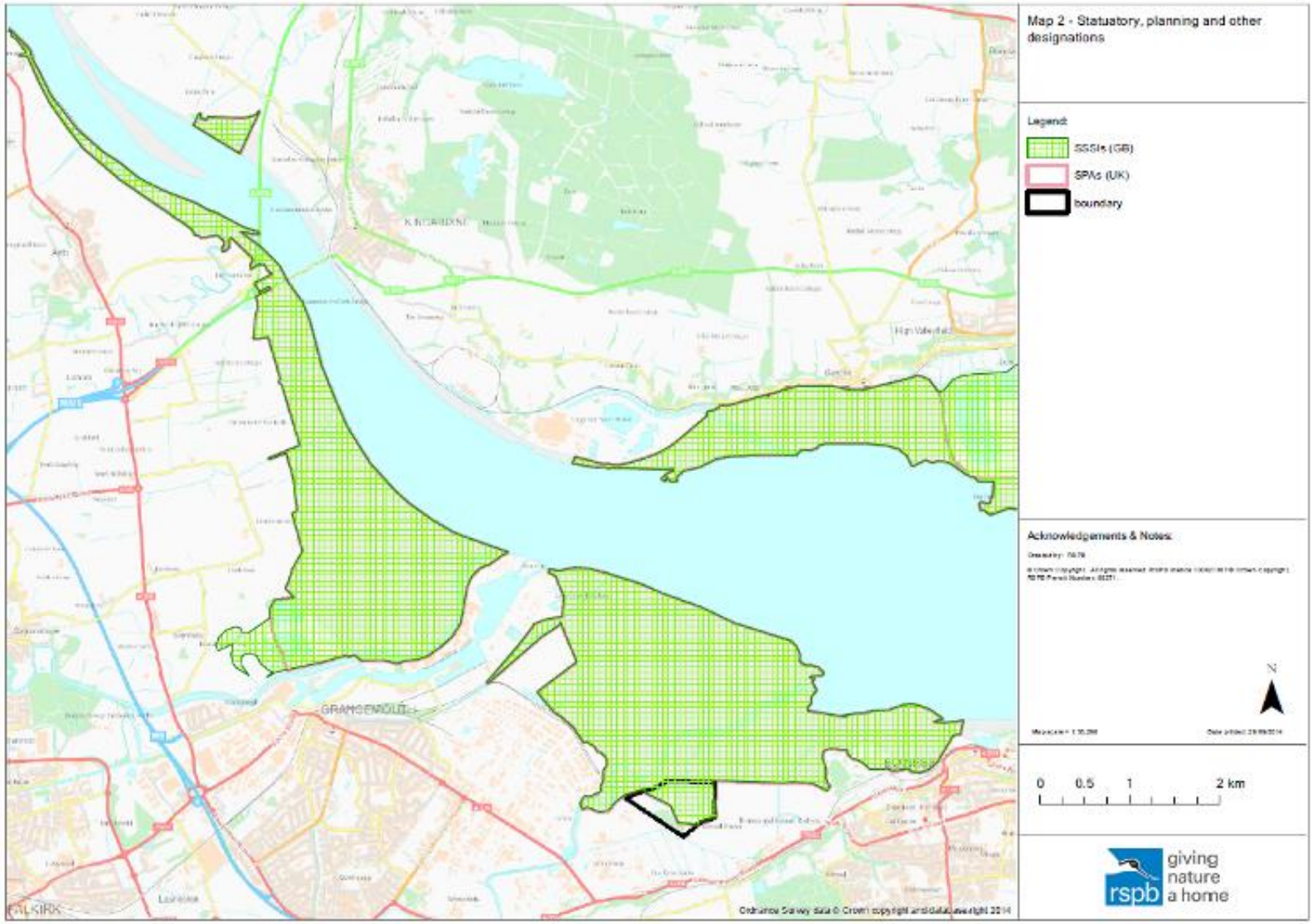
Red = high priority, orange = medium priority, green = low priority

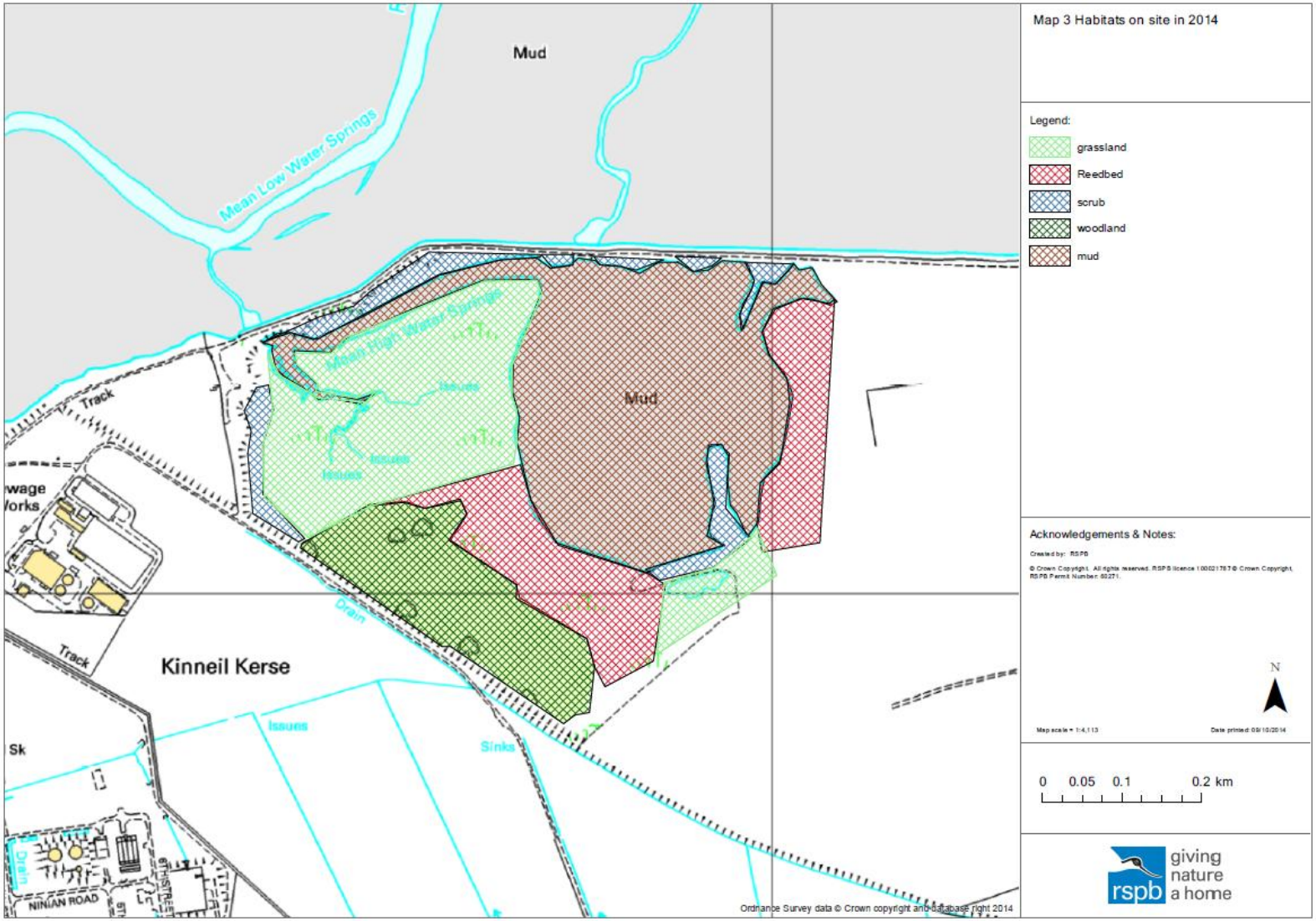
Activity	Lead Partner	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28
		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Manage scrub				August/ September			August/ September			August/ September	
Control Japanese knotweed		August	August	August	August	August	August	August	August	August	August
Undertake monthly webs counts of the lagoons		September - March	September - March	September - March	September - March	September - March	September - March	September - March	September - March	September - March	September - March
Undertake breeding bird survey across the whole site on alternate years		/	April – June	/	April – June	/	April – June	/	April – June	/	April – June
Monitor for Rhodendron regeneration and control if required		March	March	March	March	March	March	March	March	March	March
Maintain site free of fly tipped rubbish		All year	All year	All year	All year	All year	All year	All year	All year	All year	All year
Maintain pedestrian access routes		All year	All year	All year	All year	All year	All year	All year	All year	All year	All year
Maintain signage		All year	All year	All year	All year	All year	All year	All year	All year	All year	All year
Monitor for pollution events		All year	All year	All year	All year	All year	All year	All year	All year	All year	All year
Carry out butterfly transect		April-September	April-September	April-September	April-September	April-September	April-September	April-September	April-September	April-September	April-September
Carry out dragon/damselfly transect		May - September	May – September	May – September	May – September	May – September	May – September	May – September	May – September	May – September	May – September

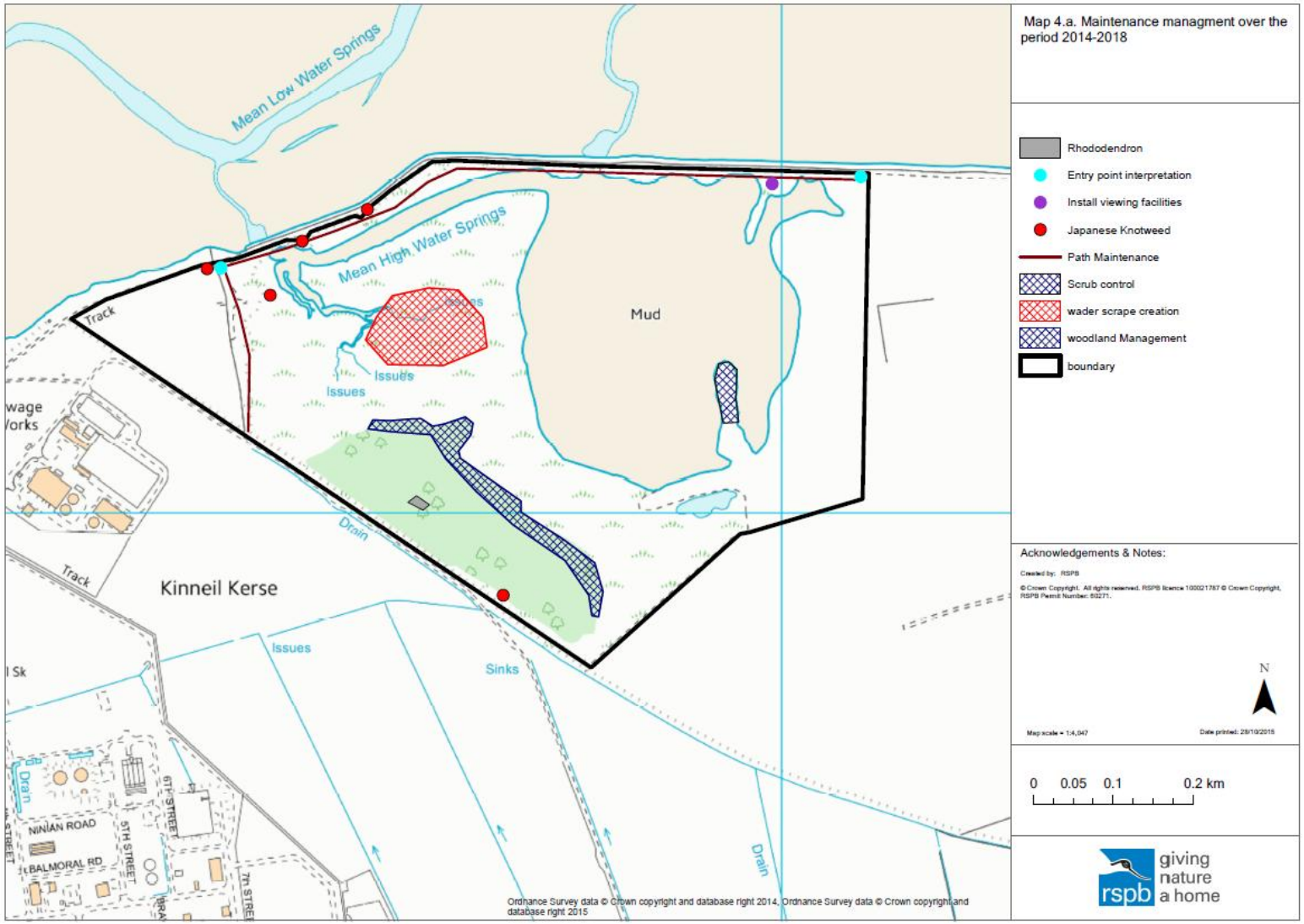
MAPS

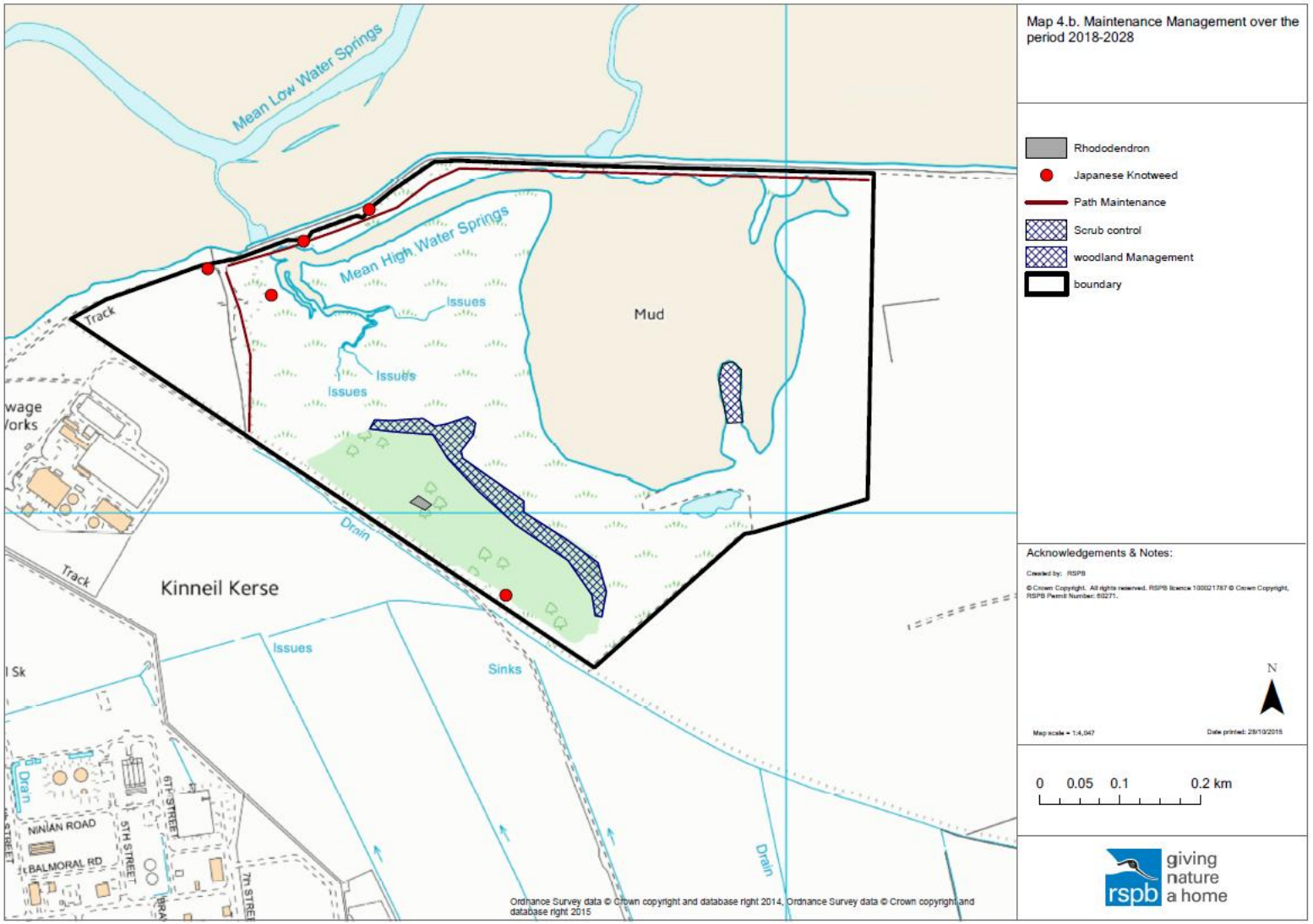

Map 1.a. Location of the site
Legend:
boundary
Acknowledgements & Notes:
N
0 2 4 8 km
rspb
giving nature a home


Map 1.b. Site boundary
Legend:
boundary
Acknowledgements & Notes:
N
0 0.1 0.2 0.4 km
giving nature a home
River Avon
Mud
Mean High Water Springs
Mean Low Water Springs
Track
Tip (disused)
Sewage Works
Kinneil Kerse
Works
ROMAN FORTLET
Ordnance Survey data © Crown copyright and database right 2014


Map 2 - Statuatory, planning and other designations
Legend:
SSSIs (GB)
SPAs (UK)
boundary
Acknowledgements & Notes:
N
0 0.5 1 2 km
giving nature a home
rspb
Ordnance Survey data © Crown copyright and database right 2014


Map 3 Habitats on site in 2014
Legend:
grassland
Reedbed
scrub
woodland
mud
Acknowledgements & Notes:
Created by: RSPB
© Crown Copyright. All rights reserved. RSPB licence 100021787© Crown Copyright, RSPB Permit Number: 60271.
N
Map scale = 1:4,113
Date printed: 09/10/2014
0 0.05 0.1 0.2 km
giving nature a home
rspb
Mud
Mean Low Water Springs
Mean High Water Springs
Issues
Track
Drain
Kinneil Kerse
Sinks
NINIAN ROAD
Ordnance Survey data © Crown copyright and database right 2014


Map 4.a. Maintenance managment over the period 2014-2018
Rhododendron
Entry point interpretation
Install viewing facilities
Japanese Knotweed
Path Maintenance
Scrub control
wader scrape creation
woodland Management
boundary
Acknowledgements & Notes:
Created by: RSPB
© Crown Copyright. All rights reserved. RSPB licence 100021787 © Crown Copyright, RSPB Permit Number: 80271.
N
Map scale = 1:4,047
Date printed: 28/10/2015
0 0.05 0.1 0.2 km
giving nature a home
Mean Low Water Springs
Mean High Water Springs
Mud
Track
Issues
Drain
Kinneil Kerse
Sinks
NINIAN ROAD
BALMORAL RD
6TH STREET
5TH STREET
7TH STREET
Ordnance Survey data © Crown copyright and database right 2014. Ordnance Survey data © Crown copyright and database right 2015


Mean Low Water Springs
Mean High Water Springs
Issues
Issues
Issues
Mud
Track
Track
Drain
Kinneil Kerse
Issues
Sinks
Drain
Drain
NINIAN ROAD
BALMORAL RD
5TH STREET
6TH STREET
7th STREET
Map 4.b. Maintenance Management over the period 2018-2028
Rhododendron
Japanese Knotweed
Path Maintenance
Scrub control
woodland Management
boundary
Acknowledgements & Notes:
Created by: RSPB
N
0 0.05 0.1 0.2 km
giving nature a home
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Appendix 1: SSSI/ASSI, SPA, pSAC, Ramsar, NNR citations

CITATION
FIRTH OF FORTH
SITE OF SPECIAL SCIENTIFIC INTEREST

Fife, Clackmannanshire, Stirling,
Falkirk, West Lothian, City of Edinburgh, East Lothian
Site code :8163

NATIONAL GRID REFERENCE : NS 851934 to NO 632087 & NT 678792
OS 1:50 000 Sheet NO : Landranger Series 58, 59, 65, 66, 67
1:25 000 Sheet NO : Explorer Series 349, 350, 351, 366, 367, 370, 371
AREA : 7423.19 hectares

NOTIFIED NATURAL FEATURES

Geological :

Stratigraphy : Lower Carboniferous [Dinantian – Namurian part)]
Upper Carboniferous [Namurian (part) - Westphalian]
Igneous petrology : Carboniferous – Permian Igneous
Mineralogy: Mineralogy of Scotland
Palaeontology: Arthropoda (excluding insects & trilobites)
Palaeozoic Palaeobotany
Permian - Carboniferous Fish/Amphibia
Quaternary geology and geomorphology : Quaternary of Scotland
Geomorphology : Coastal Geomorphology of Scotland

Biological :

Coastlands : Maritime cliff
Saltmarsh
Sand dunes
Intertidal marine habitats and saline lagoons: Mudflats
Saline lagoon
Lowland grassland: Lowland neutral grassland
Fens: Transition grassland
Vascular plants: Vascular plant assemblage
Invertebrates: Beetle assemblage
Butterflies: Northern brown argus (Aricia artaxerxes)
Birds: Red-throated diver (Gavia stellata), non-breeding
Great crested grebe (Podiceps cristatus), non-breeding
Slavonian grebe (Podiceps auritus), non-breeding
Cormorant (Phalacrocorax carbo), non-breeding
Pink-footed goose (Anser brachyrhynchus), non-breeding
Shelduck (Tadorna tadorna), non-breeding
Mallard (Anas platythynchos), non-breeding
Wigeon (Anas penelope), non-breeding
Scaup (Aythya marila), non-breeding
Eider (Somateria mollissima), non-breeding
Long-tailed duck (Clangula hyemalis), non-breeding
Common scoter (Melanitta nigra), non-breeding
Velvet scoter (Melanitta fusca), non-breeding
Goldeneye (Bucephala clangula), non-breeding
Red-breasted merganser (Mergus serrator), non-breeding
Oystercatcher (Haematopus ostralegus), non-breeding
Ringed plover (Charadrius hiaticula), non-breeding
Golden plover (Pluvialis apricaria), non-breeding
Grey plover (Pluvialis squatarola), non-breeding
Lapwing (Vanellus vanellus), non-breeding
Knot (Calidris canutus), non-breeding

Dunlin (Calidris alpina alpina), non-breeding
Bar-tailed godwit (Limosa lapponica), non-breeding
Curlew (Numenius arquata), non-breeding
Redshank (Tringa totanus), non-breeding
Turnstone (Arenaria interpres), non-breeding
Sandwich tern (Sterna sandvicensis), non-breeding
Eider (Somateria mollissima), breeding
Shelduck (Tadorna tadorna), breeding
Ringed plover (Charadrius hiaticula), breeding

The Firth of Forth Site of Special Scientific Interest (SSSI) is an extensive coastal area located on the east coast of Scotland. It stretches from Alloa to Crail on the north shore and to Dunbar on the south shore. It includes the estuary upriver from the Forth bridges and the firth east of the bridges. It is of importance for a variety of geological and geomorphological features, coastal and terrestrial habitats, vascular plants, invertebrates, breeding, passage and wintering birds.

GEOLOGY

Stratigraphy: Lower Carboniferous

The coastal margins of the Forth demonstrate an exceptional variety of rocks and fossils that have been crucial in understanding the palaeogeography and palaeoecology of Scotland during the Carboniferous geological period. At St Monans, between Elie and Anstruther on the Fife coast and on the southern margin of the Forth at South Queensferry, coastal exposures provide an insight into the Lower Carboniferous, or Dinantian sequences, beneath and surrounding the Forth. The Abden, Burdiehouse and Seafield Tower Limestones, the Pumpherston Shell Bed and Oil Shale, and the Dunnet Sandstones are all examples of names given to Lower Carboniferous rock layers, some of which (particularly the oil-shales, thicker limestones and coals) had economic significance.

Stratigraphy: Upper Carboniferous

Westphalian rock layer sequences on the coast at Buckhaven and at Joppa help illustrate the palaeogeography and palaeoenvironment of the area during the Upper Carboniferous, when the great coal forests flourished around 308 million years ago, and document the start of desert conditions over the area as a prelude to the Permian period.

Igneous Petrology

In intimate association with the Lower Carboniferous sedimentary rocks are various nationally significant volcanic rocks. Between East Wemyss and Anstruther and at North Berwick there are exceptional exposures of volcanic vents and igneous intrusions that document crustal instability and magmatic processes at the start of the Carboniferous. The vents at North Berwick are of particular note in that they contain blocks of rock that were derived from the lower levels of the crust. These have allowed an understanding of the structure of the lower crust in eastern Scotland. Burntisland, the east Fife coast, South Queensferry and Gullane all provide exposures illustrating a range of other nationally important volcanic features and structures.

Mineralogy

Elie Ness in Fife is of note mineralogically for the occurrence of xenocrysts of pyrope garnet, the famous ‘Elie Ruby’, found in a volcanic neck. The ‘rubies’, together with a range of other unusual minerals, provide an insight into the conditions under which the host rock, an alkali basalt, crystallised**.**

Palaeontology

Although of importance in understanding the Lower Carboniferous geology of the Forth area, and of Scotland as a whole, the sedimentary rock sequence has world-wide significance for fossil remains. At Burntisland in Fife, the Abden Bone Bed has yielded a rich and diverse fish fauna; other ‘fossil fish’ localities include Ardross Castle, also in Fife, Cheese Bay near Gullane, and Wardie Shore. Wardie is of international importance, yielding at least eighteen species of fish, including sharks, which are generally complete and in a fine state of preservation. Wardie and Cheese Bay have also yielded some of Europe’s earliest amphibian remains. Granton Shore yielded the first ever recognised body fossils of the conodont animal, an eel-like fish, the remains of which have been used worldwide in dating rock layer sequences. A rich and diverse fossil flora has been found at Pettycur in Fife, Oxroad Bay near North Berwick and at Weak Law near Gullane. The Pettycur locality yields one of the best preserved Lower Carboniferous plant petrifaction fossil floras known in the world.

Quaternary Geology & Geomorphology

Kincraig Point demonstrates an exceptionally well-displayed sequence of raised shorelines, eroded in the volcanic agglomerate bedrock following the retreat of the last ice sheet between about 16,000 and 13,000 radiocarbon years ago. The erosional character of the shorelines is unusual and, as

striking landforms, they complement the detailed sedimentary records of coastal change during the late glacial and postglacial periods that occur in more enclosed estuary situations in eastern Scotland.

At Dunbar, the coast is notable for a series of extensive shore platforms, including features that predate the last glaciation. Three of the platforms occur above present sea level, the highest with a crag and tail formation on its surface. These landforms are representative of the suite of erosional features found along the east coast of Scotland and demonstrate former sea-level changes and different phases of marine erosion. Dunbar is one of the best examples in eastern Scotland illustrating the development of multiple shore platforms, as well as highlighting the contribution of older elements to the form of the present coastal landscape.

Geomorphology

The coastline at Dunbar is also of note for the outstanding complexity of rocky coastal landforms which it exhibits. Of particular interest is a series of rock platforms representing different relative sea levels in the area but the associated cliffs, stacks, skerries and beaches are also of value. The exceptional diversity and intricacy of the landforms is related to the variety of sedimentary and volcanic rock types found here combined with structural weaknesses in these rocks and local variations in exposure and altitude.

HABITATS

The Firth of Forth SSSI comprises an extensive mosaic of intertidal and coastal habitats. Extensive mudflats make up much of the intertidal zone with areas of sand, shingle, rock and boulders. Associated coastal habitats include saltmarsh, grassland and sand dunes.

The site is considered to be of special interest for the following habitats and species:

Maritime cliff

Maritime cliff grassland is of limited occurrence, but between Burntisland and Kirkcaldy is the largest and most diverse coastal grassland in the SSSI, with abundant areas associated with the cliffs and rock outcrops. Thrift Armeria maritima, kidney vetch Anthyllis vulneraria and distant sedge Carex distans are typical species. Maritime cliff grassland also occurs along the East Wemyss to Anstruther coastline and on the Dunbar coast. In these grasslands, abundant rock rose Helianthemum nummularium is typical, with species such as thyme Thymus polytrichus, crested hair-grass Koeleria macrantha, burnet saxifrage Pimpinella saxifraga, agrimony Agrimonia eupatoria and purple milk-vetch Astragalus danicus.

Saltmarsh

Important areas of saltmarsh are supported at Skinflats, Tyninghame and Aberlady. Dumbarnie Links contains the largest area of saltmarsh on the north shore of the Firth of Forth. The largest area of pioneer saltmarsh in the Forth occurs on Alloa Inch. Saltmarsh communities in the Forth are characteristically zoned from low to high water mark and are dominated by sea aster Aster tripolium, common saltmarsh grass Puccinellia maritima, saltmarsh rush Juncus gerardii, and sea club-rush Bolboschoenus maritimus. Several of the saltmarsh plant communities are scarce on the east coast of Scotland.

Beach head saltmarsh occurs at scattered localities at Blackness Bay, Burntisland Bay, Torry Bay, and Ruddons Point. Here, greater sea-spurrey Spergularia media, sea plantain Plantago maritima, glasswort Salicornia europaea and sea arrowgrass Triglochin maritimum are common.

Sand dunes

The main areas of sand dune vegetation occur in the outer Firth. Between Gullane and Broad Sands is the largest and most complex sand dune system in the Lothian area, with its noteworthy lichen-rich dune slacks. Neighbouring Aberlady Bay contains the most extensive complex of sand dune, saltmarsh and mudflat in SE Scotland. The largest area of calcareous sand dunes in Fife, including representative areas of damp dune slack, herb-rich pasture, and intact foredune ridge occurs at Dumbarnie Links, which supports many local rarities and several ‘southern’ species which are rare in Scotland. Calcareous sand dunes are also found at Ruddons Point and its herb-rich dune pasture is of a type not found elsewhere in Fife.

Dune grassland has developed between East Wemyss and Anstruther, Aberlady, Tyninghame and the North Berwick coast, with characteristic species lyme-grass Leymus arenarius, marram grass Ammophila arenaria, cowslip Primula veris, lesser meadow-rue Thalictrum minus, bloody crane’s-bill Geranium sanguineum and restharrow Ononis repens. Mineral enriched grasslands are an unusual habitat in East Lothian.

Mudflats

The Firth of Forth contains large areas of mudflats which while not the of particular impotance for their invertebrate populations are important because of the large populations of birds which they support. Good examples can be found at Skinflats, Kinneil Kerse and Torry Bay.

Saline lagoon and Transition grassland
The intertidal bays of Skinflats and Kinneil Kerse support a range of other estuarine habitats and plant communities including brackish fen and coastal sluiced saline lagoons. The lagoons and brackish fen are characterised by transition zone species such as common reed Phragmites australis, sea club-rush Bolboschoenus maritimus, false fox-sedge Carex otrubae, common spike-rush Eleocharis palustris and abundant spiked water-milfoil Myriophyllum spicatum. Coastal lagoons are a rare habitat in SE Scotland and brackish fens are uncommon.
Extensive freshwater fen transition communities, uncommon elsewhere on the Forth, occur in the upper Forth estuary with reed sweet-grass Glyceria maxima, meadowsweet Filipendula ulmaria, yellow iris Iris pseudacorus and hemlock water-dropwort Oenanthe crocata.
Lowland neutral grassland
Extensive tall herb-rich neutral grassland occurs between Burntisland and Kirkcaldy where meadow crane's-bill Geranium pratense, false brome Brachypodium sylvaticum and the locally rare hemp agrimony Eupatorium cannabinum are common. Neutral grasslands also occur at Skinflats and Kinneil Kerse.
Species-rich coastal and semi-improved grassland is also found at Blackness Bay, where it forms the most diverse coastal grassland in West Lothian and Falkirk**.**

SPECIES
Vascular plant assemblage
The diversity of habitats within the Forth supports a high number of vascular plants, many of which are nationally or locally rare. Nationally scarce species include two eelgrasses – narrow-leaved eelgrass Zostera marina and dwarf eelgrass Z. noltei, which are supported on the extensive intertidal mudflats. The locally rare sea wormwood Seriphidium maritimum, wild cabbage Brassica oleracea, and purple ramping fumitory Fumaria purpurea are also found on drier coastal habitats.
The grasslands are particularly rich in flowering plant species and support many locally rare species such as shining crane's-bill Geranium lucidum, bulbous buttercup Ranunculus bulbosus, yellow horned-poppy Glaucium flavum, pyramidal orchid Anacamptis pyramidalis, viper's bugloss Echium vulgare and wild clary Salvia verbenaca. Nationally scarce thyme broomrape Orobanche alba and maiden pink Dianthus deltoides are also located in some grasslands.
Several sand dune areas hold the nationally scarce rush-leaved fescue Festuca arenaria and variegated horsetail Equisetum variegatum.
Beetle assemblage and Northern brown argus (Aricia artaxerxes)
Large numbers of insects occur throughout the site, reflecting the range of habitats encountered. Several nationally scarce species of invertebrates occur, including the sand dart moth Agrotis ripae, and the northern brown argus butterfly Aricia artaxerxes, scarce and declining in Britain, which has two Fife colonies, between Burntisland and Kirkcaldy, and East Wemyss and Anstruther. Several species of beetles are rare or very local in Scotland, including Cleonis pigra, Lebia (Lamprias**) chlorocephala, Microplontus rugulosus and Scymnus (Scymnus) schmidti.**
Birds: Wintering
The Firth of Forth supports abundant wildfowl and waders and is particularly important for its wintering bird species. The Firth of Forth is the second most important estuarine area for wintering birds in Scotland, and eleventh in the UK, and is significant both in terms of waterfowl density and abundance. Most of the wildfowl and waders in the Firth of Forth are found at internationally or nationally important levels.
The invertebrate-rich mudflats and sandflats are used for feeding at low tide whilst higher ground, including saltmarsh, is used for high tide roosts and feeding sites. The largest expanses of mud are in the inner Forth at Kinneil Kerse, Skinflats, Torry Bay and Alloa Inches while large sandflats are found in the outer Forth at Drum Sands, Tyninghame and Aberlady Bay. Rocky shorelines in the outer Forth are an important resource both for feeding and roosting birds. Lagoons at Kinneil Kerse, Torry Bay and Musselburgh are used by large numbers of birds for feeding and roosting.
The internationally important wintering species within the Forth are shelduck Tadorna tadorna, which includes an important post-breeding moult flock in the inner Forth; bar-tailed godwit Limosa lapponica; knot Calidris canutus; golden plover Pluvialis apricaria and redshank Tringa totanus, using the mud and sandflats; and turnstone Arenaria interpres, which are commonly found on shingle or rocky shorelines. Pink-footed geese Anser brachyrhynchus roost at Aberlady Bay while red-throated diver Gavia stellata and Slavonian grebe Podiceps auritus use offshore areas but also come close inshore at times.
The intertidal areas support nationally important numbers of grey plover Pluvialis squatarola, ringed plover Charadrius hiaticula, oystercatcher Haematopus ostralegus, dunlin Calidris alpina and curlew

Numenius arquata, while offshore, particularly in the outer Forth, there can be found large numbers of common scoter Melanitta nigra and velvet scoter Melanitta fusca, goldeneye Bucephala clangula, scaup Aythya marila, long-tailed duck Clangula hyemalis, red-breasted merganser Mergus serrator, eider Somateria mollissima, great crested grebe Podiceps cristatus and cormorant Phalacrocorax carbo.
An important post-breeding population of Sandwich terns Sterna sandvicensis uses the Forth whilst on passage. The coast just east of Edinburgh is a particularly important area for this species.
Wigeon Anas penelope, Mallard Anas platyrhynchos, and lapwing Vanellus vanellus are also found in important numbers in a variety of habitats.

Birds: Breeding

There are several breeding birds of importance in the Forth. Nationally important numbers of breeding eider occur at Aberlady Bay, on the North Berwick Coast, and between Gullane and Broad Sands where there are also important moulting eider flocks. Important breeding colonies of shelduck Tadorna tadorna occur at Aberlady Bay, Alloa Inch and Skinflats, with a large flock of post-breeding moulting shelduck, a rare feature in Britain, occurring at Kinneil Kerse. Nationally important breeding ringed plover occur at Gullane to Broad Sands, Tyninghame, Skinflats and Torry Bay.

NOTIFICATION HISTORY

The Firth of Forth SSSI includes 18 former SSSIs notified under the Wildlife and Countryside Act 1981, parts of which were previously notified under the National Parks and Access to the Countryside Act 1949. Dates of notification are listed below:
Aberlady Bay 1952, 1977 15 August 1983
Alloa Inches 1971 06 October 1988 1
Blackness Bay 24 August 1987
Burntisland - Kirkcaldy Coast 1955, 1971 16 November 1989 1
Dumbarnie Links 1955, 1971 11 October 1982 2
Dunbar Coast 30 April 1984
East Wemyss to Anstruther Coast 1953, 1971 07 May 1991 1
Forth Bridge - Granton Shore 1965, 1971, 1974 24 April 1986 1
Gosford Bay to Port Seton 1978 30 April 1984 1
Gullane to Broad Sands 1967, 1978 15 August 1983 1
Kinneil Kerse 1978 18 January 1988 1
Leith - Prestonpans 1972 24 April 1986 1
North Berwick Coast 1957, 1972, 1978 30 April 1984
Ruddons Point 21 February 1984
Skinflats 1973 10 March 1988 1
Torry Bay 1978 12 December 1991 2
Tyninghame Shore 1952, 1972, 1978 30 April 1984 2
Wardie Shore 30 November 1987
1 Site boundary amended with net increase in area
2 Site boundary amended with net decrease in area
Notified under the 1981 Act as Firth of Forth SSSI : 15 August 2000 with a 495 ha increase in area. (Notification confirmed on 10 May 2001 with a 90 ha reduction in area).
Notification reviewed under the 2004 Act: 29 March 2011

REMARKS

Measured area of site corrected (from 7420 ha).
Part of the Firth of Forth SSSI is designated as part of the Firth of Forth special protection area (SPA) for the birds listed below.

Birds:

Red-throated diver (Gavia stellata), non-breeding
Great crested grebe (Podiceps cristatus), non-breeding
Slavonian grebe (Podiceps auritus), non-breeding
Cormorant (Phalacrocorax carbo), non-breeding
Pink-footedgoose (Anser brachyrhynchus), non-breeding
Shelduck (Tadorna tadorna), non-breeding
Mallard (Anas platyrhynchos), non-breeding
Wigeon (Anas penelope), non-breeding
Scaup (Aythya marila), non-breeding
Eider (Somateria mollissima), non-breeding
Long-tailedduck (Clangula hyemalis), non-breeding
Common scoter (Melanitta nigra), non-breeding

Velvet scoter (Melanitta fusca), non-breeding
Goldeneye (Bucephala clangula), non-breeding
Red-breasted merganser (Mergus serrator), non-breeding
Oystercatcher (Haematopus ostralegus), non-breeding
Ringed plover (Charadrius hiaticula), non-breeding
Golden plover (Pluvialis apricaria), non-breeding
Grey plover (Pluvialis squatarola), non-breeding
Lapwing (Vanellus vanellus), non-breeding
Knot (Calidris canutus), non-breeding
Dunlin (Calidris alpina alpina), non-breeding
Bar-tailed godwit (Limosa lapponica), non-breeding
Curlew (Numenius arquata), non-breeding
Redshank (Tringa totanus), non-breeding
Turnstone (Arenaria interpres), non-breeding
Sandwich tern (Sterna sandvicensis), passage
Waterfowl assemblage, non-breeding

EC Directive 79/409 on the Conservation of Wild Birds: CITATION FOR SPECIAL PROTECTION AREA (SPA) FOR PUBLIC ISSUE FIRTH OF FORTH, STIRLING, CLACKMANNANSHIRE, FALKIRK, FIFE, WEST LOTHIAN, CITY OF EDINBURGH, EAST LOTHIAN (UK9004411)

Site description:

The Firth of Forth SPA is a complex of estuarine and coastal habitats in south east Scotland stretching east from Alloa to the coasts of Fife and East Lothian. The site includes extensive invertebrate-rich intertidal flats and rocky shores, areas of saltmarsh, lagoons and sand dune. The site is underpinned by the Firth of Forth SSSI.

Qualifying interest:

The Firth of Forth SPA qualifies under Article 4.1 by regularly supporting wintering populations (1993/94-97/98 winter peak means) of European importance of the Annex 1 species: red-throated diver Gavia stellata (90 individuals; 2% of GB), Slavonian grebe Podiceps auritus (84; 2% of NW Europe, 21% of GB), golden plover Pluvialis apricaria (2,949; 1% of GB) and bar-tailed godwit Limosa lapponica (1,974; 2% of Western Europe, 4% of GB).

The site further qualifies under Article 4.1 by regularly supporting a post-breeding (passage) population of European importance of the Annex 1 species sandwich tern Sterna sandvicensis (1,617, 6% of GB, 1% of East Atlantic).

The Firth of Forth SPA qualifies under Article 4.2 by regularly supporting wintering populations (1993/94-97/98 winter peak means) of both European and international importance of the migratory species pink-footed goose Anser brachyrhynchus (10,852; 6% of Icelandic/Greenlandic), shelduck Tadorna tadorna (moulting flock of 4,509; 2% of NW European), knot Calidris canutus (9,258; 3% of western European/Canadian), redshank Tringa totanus (4,341; 3% of European/West African) and turnstone Arenaria interpres (860 individuals; 1% of European).

The Firth of Forth SPA further qualifies under Article 4.2 by regularly supporting a wintering waterfowl assemblage of European importance: a 1992/93-96/97 winter peak mean of 95,000 waterfowl, comprising 45,000 wildfowl and 50,000 waders. This assemblage includes nationally important numbers of 15 migratory species: great crested grebe Podiceps cristatus (720; 7% of GB), cormorant Phalacrocorax carbo (682; 5% of GB), scaup Aythya marila (437; 4% of GB), eider Somateria mollissima (9,400; 13% of GB), long-tailed duck Clangula hyemalis (1,045; 4% of GB), common scoter Melanitta nigra (2,880; 8% of GB), velvet scoter M. fusca (635; 21% of GB), goldeneye Bucephala clangula (3,004; 18% of GB population), red-breasted merganser Mergus serrator (670; 7% of GB), oystercatcher Haematopus ostralegus (7,846; 2% of GB), ringed plover Charadrius hiaticula (328; 1% of GB), grey plover Pluvialis squatarola (724; 2% of GB), dunlin Calidris alpina (9,514; 2% of GB), and curlew Numenius arquata (1,928; 2% of GB). The assemblage also includes large numbers of the following species: wigeon Anas penelope (2,139 [1991/2-95/96]), mallard A. platyrhnchos (2,564 [1991/2-95/96]) and lapwing Vanellus vanellus (4,148 [1991/2-95/96]).

Area: 6,313.72 ha.

OS 1:50,000 sheets - 59, 65, 66 & 67
National Grid References: NS 865920 to NO 615075 and NT 678794
October 2001
Natura 2000 Scottish Natural Heritage

Bothkennar Pools

Site Management Proposal

RSPB Scotland
10 Park Quadrant
Glasgow
G3 6BS
Tel. 0141 331 0993

Summary

Vision

Bothkennar Pools would be a high quality wetland nature reserve incorporating a mosaic of habitats within a relatively small area, attracting a wide range and variety of biodiversity. It would be a key site for wildlife, particularly wildfowl and wading birds, within the Inner Forth. The features for which the site is designated as nationally and internationally important would be safeguarded and enhanced.

Visitor facilities at Bothkennar Pools would initially be low key and developed sensitively, consisting of unobtrusive viewing areas, limited car parking nearby, innovative and responsive interpretation. A network of trails linking with the nearby Helix project via the River Carron footpath and local communities in Grangemouth would enable access to an inspirational wildlife experience.

Plans for the site

There are no plans to breach the seawalls to create a managed realignment at this site.

The habitat management required would be relatively low key. The key steps would be the installation of a simple mechanism for water level management; some change to grazing levels; the restructuring of the forestry plantation and work on the reedbeds at the west of the site.

Visitors would be encouraged to the site with the creation of a small car park, upgrades to the footpaths and installation of some interpretation. Access would be managed so as to allow people the best views of the wildlife and habitat of the site, whilst limiting potential disturbance and anti-social behaviour.

RSPB Scotland would aim to work closely with Falkirk Council, the local community and groups in the area such as Communities Along the Carron.

The site would form a key part of RSPB Scotland's vision for the area and the Inner Forth Futurescape. Access would be improved through the Core Path network and links would be made to other initiatives such as the Helix.

Contents

1. About RSPB Scotland

2. Site description – see Map 1 and 2
3. Policy context

4. Conservation importance

5. Management proposals – see Map 3

6. Risks and liabilities

7. Key staff and contacts

8. Relevant experience

9. Long term management

10. References

Appendix 1 – Finances, health & safety, insurance, equal opportunities and Investor In People
Appendix 2 – RSPB's corporate strategy - summary

1. About RSPB Scotland

The Royal Society for the Protection of Birds (RSPB) works for a better world for birds and people, where biodiversity loss has halted and human actions ensure the sustainable management of the planet's natural resources. We acquire, establish, conserve and manage nature reserves for the benefit of wildlife. We often use our reserves to test and demonstrate land management techniques. Extensive research programmes ensure that sound scientific knowledge underpins our work.

We promote opportunities for people to enjoy and learn about the natural world, and for the public to access our 200 plus nature reserves. Volunteers are encouraged to become actively involved in our work and a fifth of our work programme is carried out by volunteers.

We aim to develop an understanding of environmental issues and natural heritage amongst young people. They are the decision makers of the future and our precious wildlife will be dependent upon them. We deliver active, hands on, curriculum-linked learning opportunities to over 20,000 children in Scotland each year.

In order to conserve biodiversity and secure the future of our most endangered species, we campaign to influence positive environmental change in policy, legislation, attitudes and behaviour.

We are a privately funded, voluntary organisation and registered charity. We rely on the generosity of others in order to carry out our work, with the majority of our funding being provided by individuals who believe that our efforts to protect our natural heritage is important. With over a million members, the RSPB is the largest nature conservation organisation in Europe.

We hold less than three months financial reserves as we believe that our funds should be spent on priority nature conservation now. In addition to financial support from individuals, we apply for grants from charitable trusts and organisations including SNH, HLF and the Landfill Communities Fund.

RSPB Scotland forms part of the RSPB. It has its headquarters in Edinburgh and has three regional offices (Glasgow, Aberdeen and Inverness). The most senior staff post (Director, Scotland) works with a senior management team of seven staff members, and reports to the Committee for Scotland (12 volunteers). The Director, Scotland also sits on the RSPB's UK Board of staff, which reports to the UK Council (of Trustee volunteers).Information on RSPB's finances, insurance, health and safety policy, equal opportunities policy and environmental policy are contained in Appendix 1.

More information on RSPB's strategy ***Future Directions IV: The RSPB's corporate strategy 2007-2011*** *is contained in Appendix 2.*

2. Site Description – See Map 1

Bothkennar Pools lie are located immediately north of the River Carron mouth and 1.5km east of the village of Skinflats. The area occupies the site of the former Island Farm and two meander loops of the River Carron before canalisation in the early 19th century. The site lies at a lower elevation than the surrounding land and is made up of a complex of pools, wet grassland, reedbed, woodland, scrub and agricultural fields bounded by 5m embankments to the south and west. Fields in agricultural production lie immediately to the north east and north west of the freshwater/ brackish pool.

The pools and wetland component at the site comprise of an 8ha shallow saline pool or lagoon at the south end of the site, an 8.5ha freshwater/brackish pool immediately north of the saline lagoon and a 12ha small freshwater brackish reedbed, fen and willow scrub. The saline lagoon is fed from an inlet flowing along a 145m ditch which lows direct from the River Carron via a drain which passes under the embankment at NS925827. The saline pool shows extensive mud visible at low tides and dries out frequently during spells of low tides and rainfall. The pool is almost bisected by the inlet ditch and fringed with *Phragmites* to the west.

The larger freshwater/ brackish pool is separated from the saline pool by a raised bank with remnants of a hedge line approximately 150m wide and connected to the saline pool via a narrow channel. The pool is fringed by *Phragmites* on the north west edge and redundant fence lines are visible in the pools, evidence that the area was previously drained. The area of reedbed and fen is drained via a ditch which empties into the Carron at NS921825 via a flap-valve. This area is drained by three ditches which run from north to south through the area.

To the east of the saline lagoon lies a 14ha irregular shaped arable field, currently in grass. This field is at a higher elevation between the pools and the embankment. A small 2ha area of pasture with a small amount of rush occupies the south end of the pools. A surfaced road accesses a redundant (?) effluent discharge installation running parallel to the River Carron as far as NS927827. This installation discharged effluent from chemical works in adjacent Grangemouth into the Forth.

To the east of the main pools a 1.5ha plantation comprising mainly Scots Pine with sycamore with an understory of elder stands on the site of the carse terrace which has been reclaimed with mining spoil to form a raised promontory extending toward the River Carron. The plantation is in relatively poor condition with trees at the east end of the plantation suffering extensive fire damage. Several footpaths cross the site with access from Brackenlees Road and Newton Road. A smaller 1 ha plantation lies 300m to the north of the southern plantation and is comprised mainly of Scot's pine and sycamore with an understory comprising mainly of elder plus a small amount of hawthorn and rowan. The plantation is fringed with hawthorn scrub to the east.

3. Policy Context

RSPB Scotland's proposals for the management of the site are supported by and help to deliver a range of national and local policies, plans and strategies. Examples of some of these are outlined below:

Central Scotland Green Network

The proposals fit well with the objectives of the Central Scotland Green Network, which is a 'National Development' within National Planning Framework 2 for Scotland.

Falkirk Local Biodiversity Action Plan 2010 – 2013

An aspirational project in the draft Falkirk BAP is to 'secure positive, long term management of the saline lagoons at Skinflats', which would also be a key aim of RSPB Scotland for the site. RSPB Scotland's proposals also fit well with the Estuary, Farmland & Grassland and Inland Water & Wetland Habitat Action Plans.

Falkirk Local Plan

The proposals fit well with policies: **EQ25 Biodiversity; EQ27 Watercourses; EQ28 The Coastal Zone; EQ29 Outdoor Access** and **EP15 Tourism Development.** In particular it helps deliver Falkirk's aspirations for safeguarding, enhancing and extending habitats and species of conservation concern identified in 'The Biodiversity of Falkirk' and by improving access to and interpretation of areas of nature conservation interest. As part of wider plans for the Inner Forth contained in the Futurescapes vision, it is likely to increase the tourism potential of the Falkirk area**.**

My Future's in Falkirk

The proposals would support the delivery of elements of this key economic initiative, in particular relating to engaging young people in their local environment, building a sense of pride in the area and enhancing the range of tourist attractions.

The Forth Integrated Management Strategy

The proposals would help to deliver elements of nearly all the themes in the Forth Integrated Management Strategy, a partnership document that provides a framework for the integrated management of the Forth.

Falkirk Outdoor Access Strategy 2005 – 2010

Whilst this Strategy is now out of date, it is still of relevance in guiding the area's aspirations for accessing the outdoors. RSPB Scotland's plans to improve the access infrastructure and interpretation of the site fits very well with the Vision of the *Falkirk Outdoor Access Strategy.*

Communities Along the Carron Study

'A Report on the Current Status, Issues and Aspirations of Sixteen River Carron Communities' (2009) demonstrates local support for many of the proposals.

4. Conservation Importance

The wetland component of this land is of national and international importance, being within the Firth of Forth Site of Special Scientific Interest and the Firth of Forth Special Protection Area (SPA) (see Map 1). This part of the SPA has developed as a significant area for passage and wintering birds due to the existing hydrological system providing an area of brackish and freshwater behind the sea wall. There are few such areas along the Inner Forth that act as high tide roosts for wintering wildfowl and waders and are relatively disturbance free.

Data from Wetland Bird Surveys for the Inner Forth suggest a steady decline in bird numbers over recent years and this may be the result of unregulated access and development pressure. The site would benefit from our ability to formalise the hydrological management and regulate/manage visitor access. RSPB Scotland would work with the local farmers to manage the vegetation and provide good conditions for both wintering and breeding wetland birds. There is a small, un-managed reedbed of around 10ha. Management here could improve this habitat and it may attract iconic species such as marsh harrier and even bearded tit in future.

This area has the potential to form a key part of the Inner Forth Futurescape project, which aims to deliver large-scale habitat management across the Inner Forth and of which Falkirk Council has been supportive both financially and in terms of staff time and expertise.

The area could form an extension to RSPB Scotland's Skinflats reserve and an addition to the network of sites within the Inner Forth, which are either already managed by the RSPB or are aspirational sites. It would also be part of the developing habitat network initiative being led by the Scottish Government.

The site has been under grazing management for several years, though not with a conservation objective and a relatively simple change to the grazing regime, together with targeted hydrological management would drastically improve the site for breeding and wintering waterfowl.

With positive management, the site has the potential to hold around 40+ pairs of wading birds including 20-25 pairs of lapwing, 5+ pairs of redshank, and snipe, common sandpiper, ringed plover, oystercatcher and curlew all likely in low numbers. Attracting the iconic avocet is also a distinct possibility. With the addition of islands, the site could also attract breeding terns. Wintering and passage waterfowl would increasingly use the site with pink footed geese in the low 1000's.

An aspirational project in the draft Falkirk BAP (2011-2016) states is to 'secure positive, long term management of the saline lagoons at Skinflats' .There is potential for enhancement and creation of saline, brackish and freshwater lagoons at Bothkennar Pools which would provide habitat for breeding, feeding and roosting birds, and opportunities for colonisation by specialised plants and invertebrates

The reedbed, fen and scrub to the west of the plantation is of local significance as this habitat is scare within the area (c5ha Falkirk BAP) and is likely to support specialised botanical and invertebrate interest. This area was surveyed in 1986 as part of a Nature Conservancy Council Phase 1 survey of the Skinflats SSSI and in 1995 for SNH. Conservation management of this area would provide a useful addition to the mosaic of habitats at the site and enhance its attractiveness to wildlife.

5. Management Proposals – See Map 3.

There are no plans to remove the sea walls to allow a managed retreat. Reports by GeoWise Ltd & Glasgow University (1999) and Babtie (2003) found that it would not be suitable due to the hydrological conditions. In particular, the land inside the seawall is considerably lower than the saltmarsh outside it, making the creation of intertidal habitat unlikely.

RSPB Scotland's plans for the site are based on regular site visits, previous studies and knowledge of the local area. However, additional detailed studies will be required for specific aspects of management, such as hydrological control.

5.1 Saline/brackish/freshwater lagoons

There is currently no active management of the saline/ brackish/ freshwater lagoons at Bothkennar. The lagoon has developed as the result of a faulty flap-valve allowing seawater into the lagoon and preventing it from draining fully at low tide. Repair of the valve would result in the loss of the lagoon, which would have an adverse impact on the SSSI and SPA features and would obviously not be desirable.

Development and expansion of saline lagoons is limited by topography but it would be advantageous to moderately expand the saline lagoon and create a transitional zone between saline and freshwater habitats.

The development of a water management system would provide suitable conditions throughout the year. In particular ephemeral shallow pools could be created using the inlet ditch and appropriate water control structures. Creation of a largely self-sustaining lagoon system (saline/ brackish/ fresh) fed by the existing inputs with two hydrologically linked lagoons with simple water control structures would maximise diversity of habitats and conditions in the lagoons (see plate 2. below).

The design of this would have to be carefully planned and variables such as local tidal conditions, evaporation and rainfall levels taken into account. The results of a benthic invertebrate survey of the lagoons will determine any course of remedial action to be taken if the biomass in the lagoons is lacking which may involve artificially boosting the nutrients in the substrate to encourage invertebrates this could be done by 'fallowing' an area ie allowing vegetation to develop then ploughing it in if conditions allow machinery access.

Plate 1. The existing inlet ditch at Bothkennar Pools.

Plate 2. An example of a simple drop board sluice, which could be installed at the inlet ditch to control water levels in the lagoons.

One or two islands could be created using locally won material and topped with shingle or gravel to provide loafing and nesting areas. A membrane beneath the shingle or gravel cap may be necessary to avoid the islands becoming overgrown. Alternatively, a floating island could be anchored in the larger brackish/ freshwater lagoon. Design of the islands would need to be carefully considered to take into account wave action, erosion and appropriate precautionary measures may be necessary eg plastic shuttering around the island to counter erosion. etc.

Depending on the level of predation and disturbance, appropriate predator proof fencing may be needed, although it is impractical for electric fencing to be used at this site.

5.2 Reedbed/ Fen

The reedbed at Bothkennar has developed in the last 10-15 years and emergent vegetation was noted as nearly closing up the ponds in 1995 (Babtie Group 2001). Freshwater reedbed is a scarce habitat in Scotland and especially on the Forth. Although small, the Bothkennar reedbed has potential for expansion and would benefit from specific reedbed management, subject to hydrological and ecological surveys.

A detailed ecological assessment would be required to determine the value of developing the existing reedbed habitat or whether restoring the former habitats eg open water, brackish swamp/ fen would be more ecologically advantageous – a mosaic of habitats could be considered although the small area favours a single habitat from a management perspective. Plans would be likely to include ditch clearance and re-profiling, creating open water, trial reed cutting in a small area and scrub clearance. Condition could be improved by targeted management based on the results of trials.

5.3 Wet grassland

The condition of wet grassland at Bothkennar Pools would have to be assessed but initial recommendations/ remedial work could involve vegetation control by topping, rush control, targeted grazing and the creation of shallow drains. Permanent grassland would be established with appropriate grazing levels to encourage breeding waders and wintering geese. The intention would be to work with existing or local graziers.

5.4 Re-profile ditches

The ditches are currently shallow and steep sided. Re-profiling would maximise feeding opportunities for waders and wildfowl in the grassland areas. The ditches through the reedbed would encourage rare and scarce species like water rail, bearded tit and over-wintering bittern.

Plate 3. Example of ditch reprofiling at RSPB Scotland's Reef reserve.

5.5 Island Farm raised ground

Currently trees and scrub with interspersed grassland. This area lends itself to establishing a community orchard, using cultivars from the local area. This would also become a focal point for visitors and would be a good location for a picnic area.

5.6 Dry grassland/arable

An assessment of the current conservation value of the area should determine the management of this area. It may be possible to continue cropping with an adjacent area of wild bird cover for winter passerines.

5.7 Plantation woodland

The scrub element of the current woodland structure provides all the interest for wildlife in this part of the site. Additionally, there is a safety burden with trees and people in close proximity and the consequences of the fire last year is that trees are failing. It is probably that the existing plantation area may need to removed to address safety concerns and improve the site for breeding and wintering waders and wildfowl, which favour open landscapes. A planting programme of native scrub species such as hawthorn, blackthorn and elder will be established.

5.8 Wildflower margins

The margin of the track leading to the foreshore will be re-seeded with invertebrate friendly wild flowers, providing both enhanced biodiversity interest as well as an exciting spectacle for visitors.

Plate 4. An example of seeded wildflowers at RSPB Scotland's Skinflats reserve, near Bothkennar Pools

5.9 New hedgerows

New hedges would be established to enhance the biodiversity interest and to allow a natural control over access. Species to be planted would include hawthorn, blackthorn and elder. The current existing hedges are very lanky and overgrown. These would be laid to provide a dense barrier, while allowing viewing over the top. Laying of all the hedges will become a routine management prescription every 15-20 years, with biannual cutting to ensure the height did not obscure views. All hedge lengths will require double stock fencing to protect new planting/layings from browsing.

5.10 Stock fencing

Stock fencing will be required to manage cattle grazing and ensure boundaries with neighbours are maintained.

5.11 Non native invasive plants

With both giant hogweed and Japanese knotweed on the site, there is a legal and safety requirement to control both of these and we would anticipate undertaking an eradication programme.

5.12 Visitors

Through our 206 nature reserves, and in particular our 33 major visitor sites, the RSPB has a long track record of designing and developing high quality visitor facilities appropriate to the nature of wetlands and the requirements of a wide range of visitor audiences.

In the short to medium term, this site would be a low-key visitor reserve, aiming to improve the facilities for existing users and attract people from the local area and visitors who may have a specific interest in birds.

5.13 Disabled Access

The area is well laid out for disabled visitors. Slopes are gentle and viewing can be designed appropriately. There is every opportunity to ensure it becomes a very inclusive site. Appropriate infrastructure (kissing gates etc) would be installed.

5.14 Paths

Path surfaces would be of a standard to ensure year round wheelchair access. The paths routes would require some rationalisation, which would be undertaken with full consultation with the Falkirk Access Officer. The two desire paths leading from the core path to the foreshore and between the pools may need to managed to reduce unacceptable disturbance to the pools. Access to the foreshore would be retained along the southern surfaced track.

It is proposed to put in place a path to a viewing facility within the reedbed which provides an exciting multi-sensory experience, with the rustling and texture of the reeds and the feeling of being deep in amongst the vegetation. The Core Path running through the site would link up with RSPB Scotland's Skinflats Reserve to the north of the site.

Plate 5. Example of a boardwalk through reedbeds at RSPB's Conwy Reserve.

5.15 Viewing

There are potentially four viewing points which could be established. Two could provide views over the existing pools. A new path leading to a viewing point could be established in the reedbed area. A final viewing point could be established at the point where the surfaced southern track reaches the foreshore. RSPB Scotland will examine a range of designs for hides and other viewing facilities but all would be low maintenance and appropriate for the location.

Plate 6. Example of a simple viewing screen at RSPB's Ham Wall Reserve.

Plate 7. Example of a vandal-proof hide at RSPB Scotland's Barons Haugh Reserve. The proposed facilities at Bothkennar may be more low-key than this.

5.16 Interpretation

Low key interpretation would be installed at entrance points and also at viewing areas. This would be developed in agreement with Falkirk Council.

Plate 8.

Plate 9.

Plate 10.

Plates 8- 10 Examples of interpretation at RSPB's reserves

5.17 Parking

A small parking area would be established along the southern access track, designed to blend in with the landscape. The presence of underground pipes may affect the exact location. The locked gate at the start of this track will be relocated to provide a vehicular barrier just after the parking area.

Plate 11. The access track to the site. The area to the left of the photo could be the site of a small parking area.

6. Risks and Liabilities

The RSPB has identified the following risks and liabilities associated with taking ownership of the site:-

- Maintenance of Sea Walls and Boundary Features;
- Mine Shafts and other Structures, Undermining and Subsidence;
- Over-ground Pipeline;
- Lack of Services;
- Trees;
- Invasive Species;
- Anti-social Behaviour;
- Inclusion of the site within a Hazard Consultation Zone;
- Tenure.

Each of these are detailed as follows:-

a) Maintenance of Sea Walls and Boundary Features

There are two sections of sea wall lying within the site: the first running along the eastern boundary with the Firth of Forth estuary, and the second running along the southern boundary with the River Carron.

Following an initial visual inspection by RSPB, the sea wall running along the Firth of Forth appears to be in reasonable condition, whilst the section running along the River Carron shows signs of erosion around the inlet and leakage at points along its route (see plates 12&13). However, a full condition survey by an independent structural engineer will be required before purchase in order to establish the actual current condition as well as the extent and costs of ongoing maintenance.

As the liability for the maintenance of sea walls in Scotland currently lies with the landowner, establishing the exact condition and extent of future works required to maintain them into the future is imperative and will also affect the Market Value of the site.

The condition of the boundary fences and hedges is unknown. It is assumed that the maintenance of all boundary features would be shared with the respective neighbours and the condition of such features should be established before purchase to quantify this.

b) Mine Shafts and other Structures, Undermining and Subsidence

A Coal Authority Report carried out in 2005 identified two mine shafts on the site and advised that any purchaser seek technical advice before carrying out any work on the site. In addition to this there are various other structures associated with the

mine shafts, and the site has been subject to subsidence caused by undermining, which it is understood is what formed the pools.

An independent Mineral Surveyors report will be required in the first instance to establish details of the mining under the site, and further specialist report may be required to establish the condition of the mine shafts and associated infrastructure and to provide advice on how to keep them safe.

A Hydrological Survey and intrusive Site Investigation should also be carried out to investigate the water and drainage position, as well as the subsidence, and to establish whether the ground conditions are suitable for any anticipated habitat works.

RSPB are not aware of any other buildings, structures or archaeological features within the site – further advice from the Council on these matters would be welcome.

c) Over-ground Pipeline

An over-ground pipeline runs across the site. It is understood that this was originally a water drainage pipe which now carries effluent. It is currently operated by a chemicals company, Cala KemFine, who have a factory in the neighbouring Grangemouth oil refinery and who reportedly hold a SEPA license for it and carry out daily inspections. It is not clear whether they, Scottish Water, or indeed a third party own the pipeline. Up to date paperwork and proof of its use and associated SEPA license(s) will be required in order to establish the legal position before any purchase.

RSPB are informed that there are no further wayleaves, servitudes or other party rights over the site, all of which rights would be checked as a matter of course in the missives process of any purchase.

d) Lack of Services

RSPB are not aware of any mains services to the site. Depending upon the future use of the site the impact of this will be variable, but the costs of connection could be considerable. A report establishing the closest mains water, electricity, gas and telephone lines will therefore be required before purchase in order to establish the potential costs to the RSPB in future should any of these services be required.
Details of the current arrangements for water for livestock are required.

e) Trees

There is a small section of woodland and scrub on the site and an assessment of the condition of, and risk posed by, the trees will be required before purchase.

In addition the danger aspect posed by the trees and scrub, RSPB are not aware of any outstanding forestry grants over the woodland area, however this should be confirmed.

f) Invasive Species

RSPB have established that there is a considerable amount of Giant Hogweed and Japanese Knotweed on the site. These are non-native invasive species' and must legally be controlled by the landowner. The costs of removal and control to prevent re-establishment of these plants must be established before purchase as they could be considerable.

g) Anti-social Behaviour

It understood that there is evidence of some anti-social behaviour on the site, mostly being litter and fly-tipping, occasional unauthorised off-road vehicle access and poaching. The full extent of any anti-social behaviour should be established before a purchase.

h) Inclusion of the site within a Hazard Consultation Zone

The site lies within the Hazard Consultation Zone for the Grangemouth Oil Refinery. Detail of what this means in practice for the owners of the site should be established before purchase in order to ensure that it does not materially affect the use of the site.

i) Tenure

RSPB would be looking to purchase the site with Vacant Possession, and as such will need to be satisfied that any current tenancies will be terminated before any purchase through the correct procedures for serving notice in accordance with tenancy type.

RSPB have not been made aware of any Single Farm Payment Entitlements that would be available with the site, although not a significant issue this should be clarified before a purchase.

RSPB would be looking to obtain Vacant Possession of all land, buildings and structures within the site, including the mineral and sporting rights thereon, along with a full servitude right of access for pedestrian and vehicular use to the site for the use of site as a Nature Reserve. RSPB would take on the maintenance responsibilities for such right of access subject to a per-user basis, but any maintenance responsibilities over and above this that may be required would have to be quantified before a purchase.

In addition to these main risks and liabilities listed above, there are numerous other issues that require to be considered and, where possible quantified before a purchase. The majority of these would be flagged up during the course of the missives process through Title and other searches, and the RSPB will require to take a view on them at that time. The more detail that can be provided and confirmed before this stage is reached the better as it can be used to inform the valuation and thus be reflected in the Market Value of the site.

For the avoidance of doubt, RSPB would expect both parties to be responsible for their own legal fees and other costs in relation to any change in ownership.

Plate 12. Erosion of the seawall dividing the River Carron and the site, around the inlet pipe.

Plate 13. Signs of leaks through the seawall.

7. Key staff and contacts

Anne McCall	Regional Director for South and West Scotland anne.mccall@rspb.org.uk 0141 3310993
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Emma Weinmann	Land Agent emma.weinmann@rspb.org.uk 0141 3310993
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Nicky Redpath	Reserves Ecologist nicola.redpath@rspb.org.uk 01313174139
Dawn McAra	Health and Safety Advisor dawn.mcara@rspb.org.uk 0131 3174131
Naila Akram	Public Affairs Manager naila.akram@rspb.org.uk 0141 3310993
Zoe Clelland	Senior Conservation Officer zoe.clelland@rspb.org.uk 0141 3310993
Scott Paterson	Inner Forth Futurescape Project Officer scott.paterson@rspb.org.uk 07748077031

The above staff will also be able to draw on expertise across the organisation. Should RSPB Scotland acquire Bothkennar Pools, the staffing levels would have to be developed and agreed internally.

8. Relevant experience

RSPB Scotland has long and extensive experience of managing large nature reserves for conservation and public engagement. The RSPB manages over 200 nature reserves across the UK, covering an area of nearly 150,000 ha. Of these, nearly all have public access and 34 have major visitor facilities. Our reserve network attracts 1.9 million visits per year. The average size of an RSPB Reserve is 687ha, and we manage 22 lowland wetlands which are greater than 500ha in size. The RSPB manages a total of 24,882ha of coastal and intertidal habitat.

Since the 1990s the RSPB has focussed increasing effort on the recreation of habitats on land of low nature conservation value. This work has spanned the UK, and has included the removal of conifer plantations to restore blanket bogs, removal of conifer plantations to re-create lowland heathland, creation of reedbeds on former peat workings and on ex-arable land, and the creation of calcareous grassland and acid grassland on ex-arable land, as well as creation of intertidal habitat. This work has involved considerable innovation and the development and application of best practice. This experience has been shared through face-to-face advice, training courses, and the production of habitat management handbooks. Our experience has informed site management internationally: since 2006 RSPB has advised on the development of nature reserves in Kazakhstan, Montserrat, Sierra Leone, Poland, Germany, Zimbabwe, Malta, Greece, Portugal, Sumatra and South Africa.

The **Wallasea Island Wild Coast Project** (744ha) is the RSPB's largest and most ambitious involvement in coastal habitat restoration to date. The design concept was informed by organised visits to projects of a similar size and nature in Denmark, Germany and The Netherlands. This has been a complex project that involved securing legal agreements with the current owners in acquisition, developing an acceptable design, management of protected species, obtaining planning and other consents, s106 planning agreement, access agreement with Defra, a delivery partner agreement with Crossrail Ltd, and agreement with Environment Agency (EA) over compensatory use and funding. This has required very thorough and ongoing community consultation, major hydrodynamic studies and iteration of design options. This project resulted in one of the largest planning applications to have been determined by Essex County Council and has been granted with 43 planning conditions.

The design of the Wallasea Island Wild Coast Project is planned to create 400ha of intertidal habitat behind currently unsustainable sea defences. The design also includes new recreational and educational resources, including 15km of new footpaths. The newly created coastal habitats will help offset historical and predicted future losses of coastal habitat, and address future flood protection risks. It will also have the potential to act as a carbon sink. Without this intervention, natural breaching of the existing flood defences during storms is predicted to lead to significant flooding of the island, and increased stress on coastal defences elsewhere on the adjacent estuary.

RSPB Scotland owns and leases its **Skinflats reserve**, 426ha of mudflats and saltmarsh, which borders the Bothkennar site. In 2009 RSPB Scotland undertook the first regulated tidal

exchange in Scotland at the reserve, which converted 11ha of low-grade agricultural land into valuable saline lagoons, saltmarsh and mudflat behind the existing sea wall.

Other examples include: **Newport Wetlands, Gwent**, where we contributed to the development of a 439ha wetland and visitor centre in partnership with CCW and Newport City Council, to compensate for habitat loss due to the Cardiff Bay barrage, as well as creation of a major visitor experience close to urban centres of Cardiff and Newport. The site has attracted 32,000 visitors in its first year, including 3,200 children who have used the site as an outdoor classroom; **Mershead on the Solway Firth,** where RSPB Scotland is a key partner in Sulwarth Connections, a landscape partnership project, which aims to conserve, enhance and promote the distinctive landscape, cultural heritage and biodiversity of the area and **Nigg Bay, Cromarty,** a 25ha managed realignment scheme.

Wetland design

The RSPB is a leading authority on sustainable wetland design including reedbeds, wet grassland, saltmarshes, coastal lagoons and mudflat habitats. In addition to the wetland projects referred to above, we have undertaken many innovative, often large-scale coastal and freshwater wetland creation projects. Our experience as land managers ensures that the needs for the long-term sustainable management of the site and access infrastructure are fully incorporated at the design stage.

The results of our monitoring show that our wetland creation and management has been extremely successful at providing suitable habitat for priority bird species (see Ausden & Hirons, 2002; Ausden & Fuller, 2009; Wotton *et al*., 2009).

Stock welfare management

The RSPB has extensive experience of stock welfare management throughout the UK. The majority of our nature reserves, comprising a range of habitats, from reedbeds, wet grassland and saltmarsh to lowland heathland and upland, are managed through some form of grazing. A total area of 25,200ha of land is grazed by RSPB, including 2,200ha of saltmarsh, for example at its reserves on Islay and on the Solway Firth. The RSPB regularly lets grazing on its reserves to local tenants, for example at its Fannyside Reserve, near Slamannan. In addition to fully trained staff and farm managers, we also employ people from the local farming community to assist with welfare and management.

Health and Safety

The RSPB takes a positive and proactive approach to managing its responsibilities and liabilities as landowner and manager of a large portfolio of sites that often include significant levels of public access and challenging working conditions. Health, Safety and Welfare is embedded in the culture at all levels of the organisation with a firm focus on personal responsibility, backed up by a methodical but practical approach to managing safety through risk assessment, safe systems of work and regular audit and review. Strategic management and policy review are managed at a regional and national level, whilst responsibility for implementation of RSPB policy on the ground lies with the site operational teams with the support of a full time Health & Safety Officer (based in Edinburgh) who fulfils an advisory, review and audit function.

Working with local authorities
RSPB Scotland develops close and effective working relationships with local authorities and has considerable experience of both leading its own applications and working with other organisations where they are the applicant. We understand planning policy, how to resolve planning issues, acceptable planning conditions and reasonable provisions within s75 agreements. We have regular contact and sound working relationships with Falkirk Council Development Services. Should RSPB Scotland acquire Bothkennar Pools, we would seek to support and collaborate with Falkirk Council's Ranger Service.

Community engagement
Our experience at Skinflats and elsewhere shows that early community engagement and habitat creation schemes are inextricably linked. An early understanding of the needs and aspirations of local communities and potential visitors is important not only to ensure project design proposals are acceptable and provide added benefits, but also to ensure that access and the provision of a high quality visitor experience are embedded early on into scheme design.

Working with local communities and partners
In developing our major projects we work closely with local people and interest groups and would organise / attend consultation meetings, presentations and hold site events. We have experience of both directly leading community consultation and playing a supportive role in situations where the RSPB Scotland is not taking the lead. We aim to be open and approachable in discussing and involving local people in project development. As projects are implemented, we have held community days and provide opportunities for public involvement. Our members often act as our champions within their communities and we have an active Forth RSPB Local Group, which covers the Falkirk area. In developing RSPB Scotland's Futurerscape's Vision for the Inner Forth, we have engaged with a range of partners including Communities Along the Carron, Friends of Kinneil and the Forth Estuary Forum.

9. Long Term Management

RSPB Scotland produces a five year Management Plan, sitting within a twenty five year vision, for each of its reserves. The Management Plans guide the day to day management of the reserves, from both a habitat and visitor perspective. The Management Plans are developed by a range of staff within RSPB Scotland, in consultation with SNH and are publicly available. An internal Annual Report is produced for each reserve. All the reserves are incorporated into the regional budget, in this case for South and West Scotland, which is managed by the Regional Director and Regional Reserves Manager.

10. References

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Appendix 1

Finances

The RSPB's total income was £121.9 million in 2009- 2010, £111.8 million in 2008-09 and £103.9 million in 2007-08. The proportion of spend against each activity in 2008/09 was: conservation on RSPB nature reserves (£27.6 million, 32%); conservation – research, policy & advisory services (£32m; 37%); education, publication and films (£13.3m; 15%); membership services and enquiries (£3.8m; 4%); acquisition of nature reserves and operating assets (£9.3; 11%); governance (£0.4m; 0.5%).

Insurance

The RSPB holds, through the NFU Mutual and Ace Europe, cover for Public Liability to £15m limit of indemnity and also Employers Liability, cover to £15m limit of indemnity, as required by the project. Cover for both policies expires on 31 March 2010, and is renewed annually.

Health and Safety

The RSPB is committed to ensuring its activities are carried out in such ways as to safeguard the health, safety and welfare of anyone affected by them. We will provide, so far as is reasonably practicable, safe and healthy work places and practices for all our workers (whether paid or voluntary). We will extend this provision to include anyone visiting our premises, reserves and events, and others who may be affected by our work activities.

The RSPB employs a Head of Safety Management, managed by the Director of Human Resources, who oversees a team of outposted Health & Safety Officers in all operational regions across the UK.

Equal Opportunities

Everyone has the right to be treated with consideration and respect. The Society is committed to achieving a truly inclusive environment for all, by developing better working relationships that release the full potential, creativity and productivity of each individual, and an atmosphere where everyone can learn, work and live free from prejudice, discrimination, harassment and violence. The Society aims to ensure that all staff, volunteers, partners, clients, contractors, members and the general public are treated fairly. Unless it can be shown to be justified, this will be regardless of sex, sexual orientation, gender re-assignment, marital or civil partnership status, race (including colour, nationality, ethnicity, or national origin), disability, medical status, age, religion or belief, political opinion, social or economic status, or ex-offender status.

The Society is an 'Investor in People'.

Environment Policy

We recognise that in delivering positive conservation benefits our work has some adverse impacts on the environment. With this in mind, we are committed to continual improvement in our own environmental performance, to meeting our statutory environmental obligations and to reducing our environmental impacts.

Our main environmental impacts arise from: greenhouse gas emissions from energy use and travel; waste generation; water use; and the use of non-renewable resources. To minimise our impacts on the environment, we have set ourselves the following objectives:

- Advocate sustainability and, through our example and achievements, inspire and encourage others
- Develop and implement environmental action plans to minimise our impacts, and set appropriate targets to achieve continuous improvement
- Annually review our environmental performance
- Raise awareness of environmental issues among staff and encourage them to observe best practice
- Incorporate environmental responsibilities into job descriptions, staff training and appraisals
- Select and work with corporate partners and suppliers towards achieving compliance with this policy
- Promote the value of sustainability to our members and supporters
- Manage RSPB investments in a manner that supports the principles of socially responsible investing (SRI)

This policy has been endorsed by the RSPB Management Board. Responsibility for its implementation lies with the management structure and every member of staff. The Green Management Team advise on implementation and monitor progress. The policy and supporting management systems will be subject to regular review.

Appendix 2

RSPB's Strategy

Our plans are set out in **Future Directions IV: The RSPB's corporate strategy 2007-2012**. A summary version is available on request.

Our vision is of a world where biodiversity loss has halted and human actions ensure the sustainable management of the planet's natural resources. Such a world would provide future generations with clean air and water, a stable climate, abundant and diverse wildlife populations and a robust, diversified and sustainable economy. An integral part of this vision is a network of protected areas which safeguard the world's most sensitive and important sites for biodiversity. Climate change is the biggest issue facing wildlife and humanity this century. We will continue to develop nature reserve management and countryside policies that adapt to the impacts of climate change on our wildlife. We are also taking action to reduce greenhouse gas pollution from homes, transport and industry and seek to reduce the RSPB's own, carbon footprint by 3% per employee per year.

The RSPB seeks to have improved and protected the overall status of habitat and species of birds and other biodiversity in the UK and internationally, concentrating our efforts on species whose populations are in trouble and which we can help. We will deliver conservation in the wider countryside by working with Governments, local authorities, and landowners, and will maintain and improve the conservation status of special animals and plants on RSPB nature reserves.

To help achieve our conservation objectives, our current strategy period aims to see an extra 16,000ha of land come under dedicated conservation management as RSPB nature reserves, and where designated, be classed as in good ecological condition. A key priority will be coastal management schemes to address the loss of salt marsh and inter-tidal habitats to sea-level rise and erosion. We also plan to create wildlife–rich nature reserves from land of low ecological value, particularly large-scale reserves set within wider landscapes, where conservation management can be achieved through a range of partnerships.

We will seek to ensure that there will have been no net loss of nationally or internationally important sites for birds and no weakening of site protection legislation and policy. We seek an improved marine environment where important populations of seabirds will be conserved around the UK through a coherent network of well-managed marine protected areas, including Natura 2000 sites. We will work internationally on a range of projects to help conserve and protect the most threatened species and habitats, such as albatross and tropical forest. We will have helped to build the capacity of our BirdLife Partners in countries in which we are working, so they have more dedicated staff working for conservation.

Our conservation work will only be achieved with popular assent and support, so we will seek to increase the membership base of the RSPB as a tangible indication of a shared mandate. Our communications will continue to reflect the enduring popular passion for birds, other wildlife and landscapes, linking to the big environmental issues that effect us all,

such as climate change. We will be actively engaging with more people, especially at a local community level and on our nature reserves. We regard it as particularly important to increase our youth and education programmes, growing the number of children visiting our sites each year on a formal learning basis. We also aim to grow the gift of time our wonderful volunteers give us to 750,000 hours a year through 15,000 volunteers.

None of the work programme of the RSPB can be achieved without the resources to deliver it and the RSPB will continue to need and seek more money for conservation, for us and for partner organisations.

A new strategy is currently in preparation to take the RSPB from 2012 until 2017.

Bothkennar Pools Relative to Firth of Forth SPA and SSSI and RSPB Scotland's Skinflats Reserve

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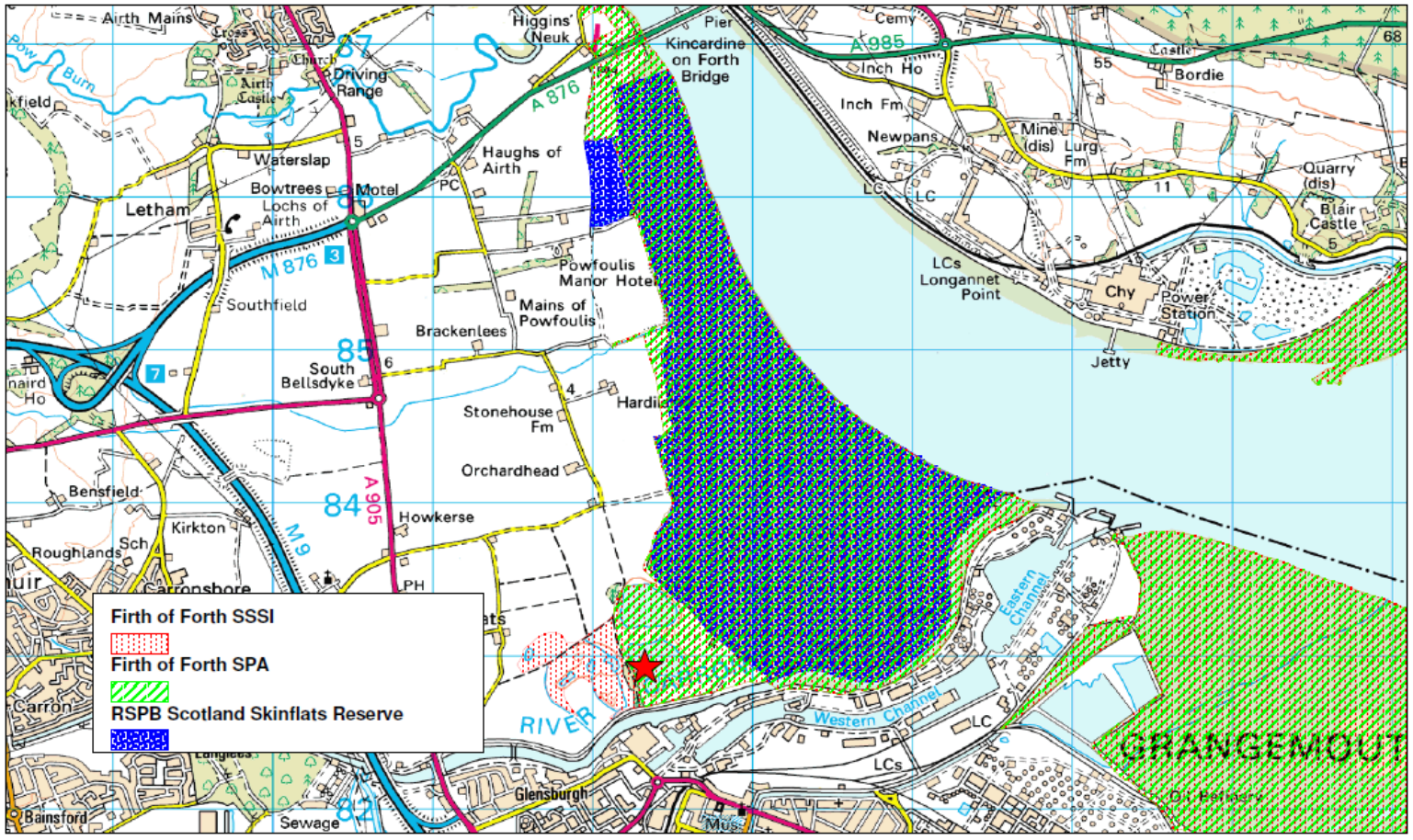
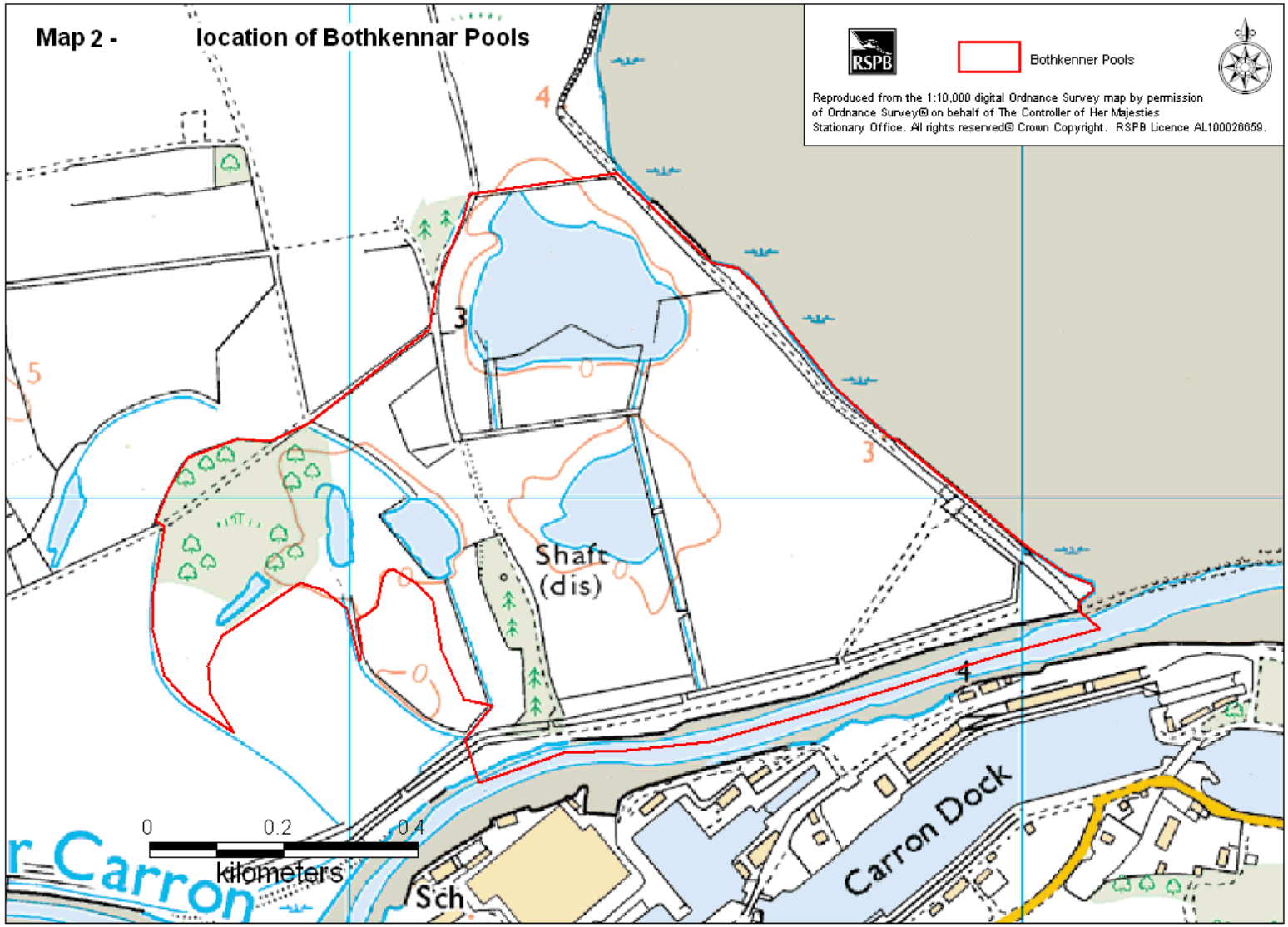


Map 1.


Map 2 - location of Bothkennar Pools
RSPB
Bothkenner Pools
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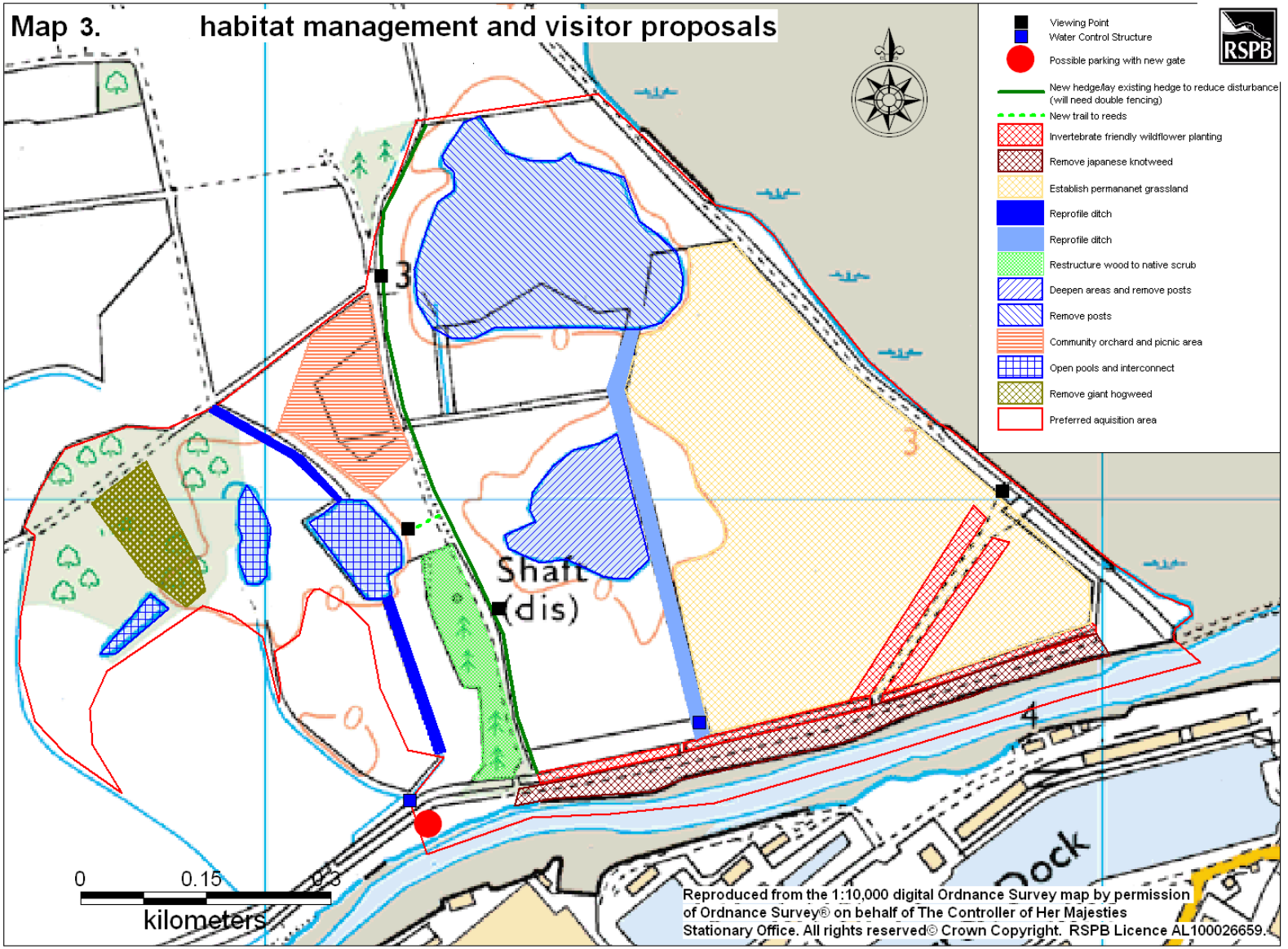
Map 3. habitat management and visitor proposals
Viewing Point
Water Control Structure
Possible parking with new gate
New hedge/lay existing hedge to reduce disturbance (will need double fencing)
New trail to reeds
Invertebrate friendly wildflower planting
Remove japanese knotweed
Establish permananet grassland
Reprofile ditch
Reprofile ditch
Restructure wood to native scrub
Deepen areas and remove posts
Remove posts
Community orchard and picnic area
Open pools and interconnect
Remove giant hogweed
Preferred aquisition area
RSPB
Shaft (dis)
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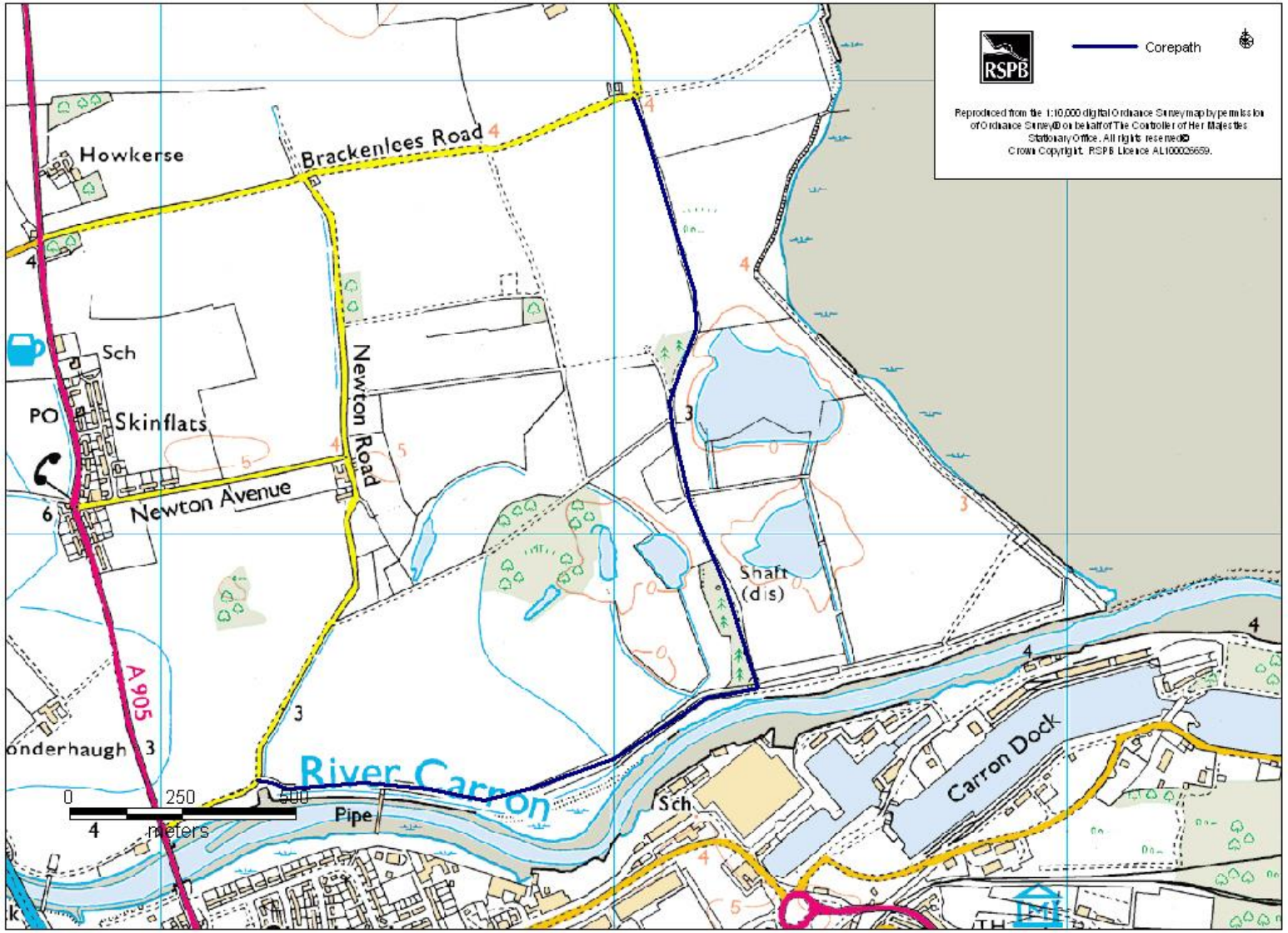
RSPB
Corepath
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PO
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Newton Road
Newton Avenue
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