ENVIRONMENTAL IMPACT ASSESSMENT REPORT

The Burrow CFERM scheme

Appendix 13C

Volume 3

ECOLOGICAL SURVEY FOR BIRDS

Burrow and Rush: CFERM Projects

NI2330 Burrow and Rush: CFERM Projects

Ecology

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SUMMARY

RPS was commissioned by Fingal County Council to undertake an Ecological Survey for Birds at the Rogerstown Estuary, County Dublin. The aim of this report is to provide a description of the bird survey methods used; to provide the detailed results of bird surveys; and to provide an interpretation of the results. The Ecological Survey Report has been used to supplement and inform EIAR Chapters on Biodiversity produced in association with proposed CFERM schemes at both Burrow and Rush. This report is included as an appendix to the EIARs for both schemes.

The proposed projects involve the construction of a range of coastal defence measures including earth embankments, sheet-piled flood walls, back drainage and fishtail groynes in addition to associated changes to ground levels, flood gates and other linked infrastructure.

The site of the proposed projects will, when considered together, occupy a working area comprised of areas of coastal and intertidal habitat, including mudflats and sandflats, saltmarsh, and a range of terrestrial habitats. The vast majority of the proposed working area lies within the boundary of the Rogerstown Estuary SPA.

The entirety of the proposed work areas and a large proportion of the Rogerstown Estuary SPA have been subject to twice-monthly wetland bird survey visits between March 2021 and February 2022 to assess the use of the various areas of the SPA, including those in proximity to the proposed working areas, by the relevant SCI bird populations.

Data was gathered during these surveys, in addition to data included within the Rogerstown Estuary SPA supporting documentation and data from surveys undertaken in prior years on behalf of Fingal County Council and in association with other proposed schemes in proximity to the proposed CFERM schemes.

The proposed development will take place within proximity to areas of the SPA which are used on a regular basis by significant numbers of SCI bird populations, in addition to populations of non-SCI bird species within the SPA boundary.

It is envisaged that the proposed development will have potential to give rise to some small-scale habitat loss within the boundary of the Rogerstown Estuary SPA, both permanent and temporary, in addition to effects associated with aerial noise and visual disturbance, the spread of invasive species, water quality and habitat deterioration effects and altered coastal processes.

Subject to the implementation of a range of measures including appropriate timing of the works, the implementation of an Invasive Species Management Plan and measures to safeguard water quality it is considered that the potential for such impacts can be effectively mitigated. Some residual effects are likely to remain and are assessed within the accompanying EIAR.

1 INTRODUCTION

RPS was commissioned by Fingal County Council to undertake a suite of ecological surveys for birds at Rogerstown Estuary, County Dublin.

1.1 Ecological Survey for Birds

The Ecological Survey Report has been written in accordance with the Chartered Institute of Ecological and Environmental Management (CIEEM) *Guidelines for Ecological Report Writing* (CIEEM 2017). The aim of the report is to provide a description of the bird survey methods used; to provide the detailed results of bird surveys; and to provide an interpretation of the results. The Ecological Survey for Birds is used to inform the Ecological Impact Assessment (EcIA).

1.2 Legislation

1.2.1 EU Birds Directive

Ireland is internationally important for its waterfowl and seabird populations. Swans, geese, ducks and waders occur in internationally important numbers in winter on coastal and freshwater wetlands. Breeding waders and wildfowl occur in globally significant numbers on wetlands and coastal areas and islands support breeding seabird colonies.

The EU Directive 2009/147/EC on the conservation of wild birds, often referred to as the 'Birds Directive', recognised that bird conservation needed to be addressed at an international scale. Member States are obliged to take special action for a range of rare or vulnerable species, which are listed in Annex 1 of the Directive, and for regularly occurring migratory species (Article 4.2). Article 3 requires Member States to preserve, maintain and re-establish sufficient diversity and area of habitats for all wild birds. This should primarily (but not exclusively) involve the creation of Special Protected Areas (SPAs) and recognising the historic losses of wildlife. Article 3 also calls for the appropriate management of habitats both inside and outside protected areas, the re-establishment of destroyed habitats, as well as the creation of new habitats (Williams *et al.,* 2005). The Birds directive also prohibits the pollution of and/ or destruction of habitats that birds depend on, as well as prohibiting disturbance to birds using those habitats.

1.2.2 Birds and Natural Habitats Regulations

The European Communities (Birds and Natural Habitats) Regulations 2011 (as amended) transpose the provisions of the EU Habitats and Birds Directives into Irish law.

The Birds and Habitats Directives had previously been transposed into Irish law through *inter alia* the Wildlife Act 1976 and the European Communities (Natural Habitats) Regulations, 1997. The Court of Justice of the EU (CJEU) found, however, that Ireland had not adequately transposed the two Directives. Therefore, the 2011 Regulations consolidate the European Communities (Natural Habitats) Regulations 1997 to 2005 and the European Communities (Birds and Natural Habitats; Control of Recreational Activities) Regulations 2010, as well as addressing transposition failures identified in CJEU judgments (NPWS 2021).

- Regulation 18 brings the SPA designation cycle into line with that of Special Areas of Conservation (SACs) to ensure that they are subject to the same legal form.
- Regulation 27 reflects an overarching obligation on all agencies of the State, including Local Authorities, to comply with and uphold the requirements of those Directives.
- Regulations 28 and 29 provide for the Minister to prohibit any operation or activity liable to damage a European site and provide for Ministerial Directions requiring a person to take such action or to refrain from taking such action as the Minister considers necessary to prevent damage to a site.

1.2.3 Wildlife Acts

The Wildlife Act of 1976 has been amended a number of times subsequently, as foillows -

- Wildlife Act 1976
- Wildlife (Amendment) Act 2000
- Wildlife (Amendment) Act 2010
- Wildlife (Amendment) Act 2012
- Heritage Act 2018
- Planning and Development, Heritage and Broadcasting (Amendment) Act 2021

All wild birds in the Republic of Ireland are afforded protected status under the Wildlife Act 1976 (as amended) which states that:

Wild birds and their nests and eggs, other than wild birds of the species mentioned in the Third Schedule to this Act, shall be protected.

1.3 Proposed Project

The proposed projects, the Burrow and Rush CFERM projects, are coastal defence schemes which build on the preferred options as identified in the CFERM study (RPS, 2020).

The Proposed Development for the Burrow is split into three areas, the northern extent of the spit at the end of Burrow Road, at Marsh Lane, and along Portrane beach. The Proposed Development consists of the following main elements:

- Construction of a *c.*190m long earth embankment at the end of Burrow Road,
- Construction of a *c.*130m long sheet piled flood wall and a *c.* 200m embankment along Marsh Lane,
- Installation of back drainage behind the proposed defences with associated outfalls,
- Installation of non-return valves to existing outfalls to prevent backflow of water from the estuary,
- The construction of c. seven fishtail (or 'Y' shaped) groynes structures in combination with a beach renourishment scheme at Portrane beach. These groyne structures will help control the longshore and cross-shore transport elements of the prevailing littoral drift along c.1.3km of the coastline of the Burrow.
    - Each groyne will extend seaward by approximately 70m at a spacing of c.175m to create seven sediment sub-cells along the Burrow;
    - The beach re-nourishment will involve transporting dredged material from a licenced marine aggregate extraction site (presently assumed to be Liverpool Bay) to the Burrow and pumping the material ashore to fill each of the seven sediment sub-cells created by the fishtail groyne structures.

The Proposed Development for the Rush is split into three areas: along Channel Road and South Shore Road and also within the Linkside area. The Proposed Development consists of the following main elements:

- Construction of a *c.*1,055m long flood wall between the western extent of Channel Road and along South Shore Road.
- A *c.*30m long blockwork wall to consolidate the flood protection between the western extent of Channel Road and the last residential property in this area.

- An alteration of existing ground levels at the western extent of Channel Road to consolidate flood protection and to facilitate the potential future development of a cycle path between Rush and Balleally.
- Provision for flood gates / vehicular / pedestrian access at *c.*8 locations; and
- Potential utility diversions.

The primary objectives of the Proposed Development at The Burrow are to:

- Provide effective coastal flood protection during a 0.5% Annual Exceedance Probability (AEP) event based on the Medium Range Future Scenario (MRFS) whereby sea levels are expected to rise by +0.50m by 2100,
- Mitigate the ongoing coastal retreat along the beach frontage,
- Restore and enhance the recreational value of the natural beach amenity which has significantly deteriorated over recent years due to an overall loss of sand material from the beach,
- Enhance and protect some of the qualifying features of the nearby environmentally designated sites which have been deteriorated by chronic and acute erosion over recent years.

The primary objective of the Proposed Development at Rush is to:

- Provide effective coastal flood protection during a 0.5% Annual Exceedance Probability (AEP) event based on the Medium Range Future Scenario (MRFS) whereby sea levels are expected to rise by +0.50m by 2100,

Further detail on the proposed development are set out within the accompanying EIAR documents for The Burrow and Rush to which this report is appended.

2 METHODOLOGY

2.1 Statement of Authority

The ornithological surveyor, Nick Veale, is a self-employed environmental consultant and holds a BSc (Hons) in Environmental Science and MSc in Environmental Management. Nick has over 19 years' experience in the field of ecology and environmental consultancy. Nick has a lifetime of experience in ornithology and extensive expertise in upland bird surveys, breeding bird surveys, vantage point surveys, wetland bird surveys and wintering bird surveys. Nick is also trained and accredited by the FSC as an ESAS Surveyor and has 8 years' professional experience on offshore energy projects.

The ornithological surveyor, Niall Keogh, is a self-employed environmental consultant with five years' experience conducting professional ornithological surveys across Ireland, including breeding bird surveys, vantage point surveys, wetland bird surveys and wintering bird surveys.

The report author, Samuel O'Hara, is an Associate Ecologist with RPS and holds a BSc (Hons) in Ecology and has over eight years of experience in the field of ecology consultancy. Samuel has extensive experience of ecological field survey including habitat, mammal and bird survey and is a protected species license holder. Samuel is a full member of the CIEEM.

The report reviewer, James McCrory, is a Technical Director of Ecology within RPS and holds a BA (Hons) in Natural Sciences (Mod) Botany and a MSc in Habitat Creation and Management. James is a Chartered Environmentalist (CEnv), a Chartered Ecologist (CEcol) and a Chartered Biologist (CBiol). James is part of the CIEEM Policy Review Group in Ireland.

The information prepared and provided is true and accurate at the time of issue of this report and has been prepared and provided in accordance with the CIEEM Code of Professional Conduct (CIEEM 2019). We confirm that the professional judgement expressed herein is the true and bona fide opinion of our professional ecologists.

2.2 Consultation

Prior to surveys commencing, the National Parks and Wildlife Service (NPWS) Map Viewer (NPWS 2023) was consulted in order to identify the existence of any Special Protection Areas (SPA) within 15km of the proposed project and to assess the conservation status of the various SCI bird species populations of the Rogerstown Estuary SPA.

2.3 Wetland Bird Survey

The methodology employed was based on the BTO's wetland bird survey (WeBS) Core Counts which use the so-called 'look-see' method (Bibby *et al*., 2000), whereby the observer, familiar with the species involved, surveys the whole of a predefined area. The study area is shown in Figure 2.1.

Counts were made across all wetland habitats within the survey area including intertidal habitats, dunes and terrestrial grasslands in proximity to the Rogerstown Estuary SPA. Numbers of all waterbird species, as defined by Wetlands International (Rose and Scott, 1997), in addition to any other bird species as relevant, were recorded. Target species for the purposes of this survey included the SCI species associated with the Rogerstown Estuary SPA including geese, ducks and waders.

All species encountered during the surveys were mapped and coded using standard BTO species codes (Appendix 1).

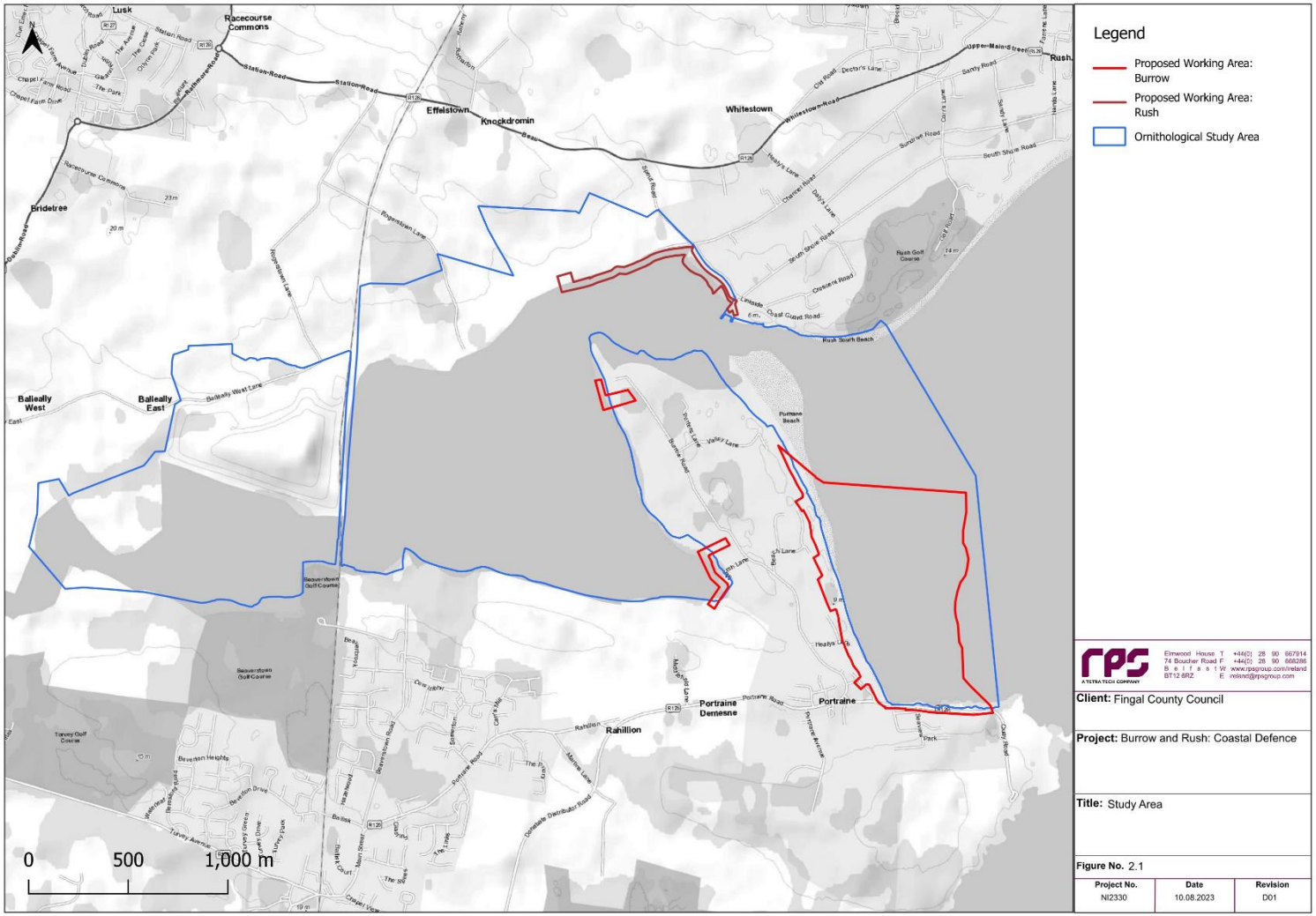

Figure 2.1: Bird Survey Study Area and Site Locations

3 RESULTS

3.1 Consultation and Desk Study

Nine SPAs were identified within 15km of the proposed project via the NPWS Map Viewer (see Table 3.1.1). The Qualifying Interest species for each site (NPWS 2013a, 2013b, 2013c, 2015, 2013d, 2022a, 2022b, 2022c, 2022d) are presented within a summary in Table 3.1.2 below.

Table 3.1.1: SPAs within 15km of proposed project

Site Code	SPA	Distance from project	Direction
IE004015	Rogerstown Estuary SPA	0km	
IE004025	Malahide Estuary SPA	c.3.1km	South-west
IE004069	Lambay Island SPA	c.4.2km	East
IE004122	Skerries Islands SPA	c.7.3km	North
IE004014	Rockabill SPA	c.7.6km	North-east
IE004014	Baldoyle Bay SPA	c.8.4km	South
IE004117	Irelands Eye SPA	c.9.1km	North
IE004006	North Bull Island SPA	c.11.2km	South
IE004113	Howth Head Coast SPA	c.11.8km	South

Table 3.1.2: Qualifying Interests of SPAs within 15km of proposed projects

Species	Rogerstown Estuary	North-west Irish Sea cSPA	Malahide Estuary	Lambay Island	Rockabill	Baldoyle Bay	Ireland's Eye	North Bull Island	Howth Head
Red-thoated Diver		✓							
Great Northern Diver		✓							
Great Crested Grebe			✓						
Greylag Goose	✓			✓					
Light-bellied Brent Goose	✓		✓			✓		✓	
Shelduck	✓		✓			✓		✓	
Teal								✓	
Pintail			✓					✓	
Shoveler	✓							✓	
Goldeneye			✓						
Red-breasted Merganser			✓						
Oystercatcher	✓		✓					✓	
Ringed Plover	✓					✓			
Golden Plover			✓			✓		✓	
Grey Plover	✓		✓			✓		✓	
Knot	✓		✓					✓	
Sanderling								✓	
Dunlin	✓		✓					✓	
Purple Sandpiper					✓				
Black-tailed Godwit	✓		✓					✓	

Species	Rogerstown Estuary	North-west Irish Sea cSPA	Malahide Estuary	Lambay Island	Rockabill	Baldoyle Bay	Ireland's Eye	North Bull Island	Howth Head
Bar-tailed Godwit			✓			✓		✓	
Curlew								✓	
Redshank	✓		✓						
Turnstone								✓	
Fulmar		✓		✓					
Manx Shearwater		✓							
Cormorant		✓		✓			✓		
Shag		✓		✓					
Common Scoter		✓							
Little Gull		✓							
Black-headed Gull		✓						✓	
Common Gull		✓							
Lesser Black-backed Gull		✓		✓					
Herring Gull		✓		✓			✓		
Great Black-backed Gull		✓							
Kittiwake		✓					✓		✓
Roseate Tern		✓			✓				
Common Tern		✓			✓				
Arctic Tern		✓			✓				
Little Tern		✓							
Guillemot		✓		✓			✓		
Razorbill		✓		✓			✓		
Puffin		✓		✓					

Blue – Overwintering population

Yellow – Breeding population

3.2 Wetland Bird Survey

Four visits each month were made across the calendar year April 2022 to March 2023 (see Table 3.2) to record waterbirds within the survey area as shown in Figure 1.2.

Table 3.2 – Wetland bird survey dates and weather conditions

Survey conditions							
Date	**Start**	**End**	**Cloud**	**Wind**	**Visibility**	**Precipitation**	**Tidal State**
16-Mar-21	10:00	15:20	2-4/8	NW2-3	>2km	Dry	Rising, High
17-Mar-21	10:35	14:45	6-7/8	NW2-3	>2km	Dry	Rising, High
26-Mar-21	13:45	16:40	3-5/8	SW4-5	>2km	Dry	Falling, Low
27-Mar-21	13:25	18:00	7-8/8	SW4-5	>2km	Dry	Falling, Low
10-Apr-21	09:15	13:15	1-3/8	N2-3	>2km	Dry	Rising, High
11-Apr-21	10:00	13:15	1-4/8	NW1-3	>2km	Dry	Rising, High
24-Apr-21	12:45	17:05	0-1/8	SE3	>2km	Dry	Falling, Low
25-Apr-21	15:20	17:45	3-5/8	NE3	>2km	Dry	Falling. Low
03-May-21	05:15	08:00	6-7/8	SE2-3	>2km	Light rain	High, Falling

Survey conditions							
Date	**Start**	**End**	**Cloud**	**Wind**	**Visibility**	**Precipitation**	**Tidal State**
05-May-21	06:45	12:10	0-2/8	SW2	>2km	Dry	High, Falling
28-May-21	07:55	11:30	8/8	S2-3	>2km	Light rain/Dry	Low, Rising
29-May-21	07:30	11:55	5-7/8	SE1-2	>2km	Dry	Low, Rising
02-Jun-21	11:15	15:30	2-3/8	E1-2	>2km	Dry	Low, Rising
03-Jun-21	06:05	09:40	3-4/8	SE1-2	>2km	Dry	High, Falling
19-Jun-21	06:30	09:50	7/8	SE0-3	>2km	Dry	High, Falling
21-Jun-21	08:45	12:00	1-2/8	NE4	>2km	Dry	High, Falling
02-Jul-21	04:55	07:20	3/8	W1	>2km	Dry	Rising, High
04-Jul-21	08:00	12:40	1-3/8	SE1-2	>2km	Dry	High, Falling
24-Jul-21	06:05	10:45	4-7/8	SE2-3	>2km	Dry	Low, Rising
31-Jul-21	09:05	14:25	8/8	W2	>2km	Dry	Falling. Low
03-Aug-21	05:30	09:50	3-4/8	W1-2	>2km	Dry	Rising, High
04-Aug-21	05:40	10:10	1-2/8	SE1	>2km	Dry	Rising, High
30-Aug-21	09:45	12:45	5-6/8	NE3-4	>2km	Dry	Falling, Low
31-Aug-21	09:15	13:30	8/8	NE3-4	>2km	Dry	Falling. Low
01-Sep-21	11:15	14:05	5-6/8	E2-3	>2km	Dry	Falling, Low
02-Sep-21	11:30	15:35	5-6/8	E2-3	>2km	Dry	Falling, Low
04-Sep-21	09:30	11:45	4-5/8	SE2-3	>2km	Dry	Rising, High
05-Sep-21	07:00	11:45	5-7/8	SE2-3	>2km	Dry	Rising, High
04-Oct-21	10:00	13:10	2-3/8	SW1-2	>2km	Dry	High, Falling
05-Oct-21	09:40	13:05	5/8	NW3-4	>2km	Light rain	Rising, High
30-Oct-21	09:30	14:20	1-3/8	SW2-3	>2km	Dry	Falling, Low
31-Oct-21	13:15	16:15	3-5/8	SW3	>2km	Dry	Low, Rising
01-Nov-21	07:25	11:30	5-6/8	W2-3	>2km	Light rain	High, Falling
18-Nov-21	09:15	12:35	3-5/8	SW3	>2km	Dry	Rising, High
27-Nov-21	07:50	12:50	3/8	N4-5	>2km	Dry	Falling, Low
30-Nov-21	09:45	14:15	6-8/8	W4	>1km	Dry	Falling, Low
11-Dec-21	09:00	13:30	8/8	S3	>2km	Dry, drizzle	Low, Rising
12-Dec-21	08:15	13:45	6-7/8	S2-4	>2km	Drizzle, Dry	Falling, Low
19-Dec-21	08:20	14:15	7-8/8	N1	>1km	Dry	Rising, High
20-Dec-21	10:15	13:45	8/8	SE3	>2km	Dry	Rising, High
07-Jan-22	08:10	11:00	8/8	S3	>2km	Light rain	Low, Rising
08-Jan-21	12:50	16:15	4-6/8	W4	>2km	Dry	Rising, High
09-Jan-22	08:30	13:50	2-6/8	SW3-4	>2km	Dry	Low, Rising
31-Jan-22	09:50	14:00	4-6/8	W4	>2km	Dry	High, Falling
02-Feb-22	08:05	12:05	6-7/8	W2	>2km	Dry	Rising, High
20-Feb-22	07:15	11:15	8/8	SW5	>2km	Drizzle	Low, Rising
27-Feb-22	07:45	11:30	2-4/8	SE4-5	>2km	Dry	High, Falling
28-Feb-22	08:30	12:00	6-7/8	SW2-3	>1km	Light rain	High, Falling

A total of thirty-four waterbird species were recorded during the study area at Rogerstown Estuary, including 10 of the 11 species which are listed as SCI species for the Rogerstown Estuary SPA (see Table 3.1.2 above).

Observations of SCI species were recorded across tidal states and were variable across locations and seasonal periods. Records of all species are summarised below at Table 3.3.

SCI bird species of the Rogerstown Estuary SPA, in addition to other Annex I bird species which represent SCIs of other nearby SPAs recorded during the surveys, are set out below with consideration of their distribution within the SPA across tidal states and seasons with cross referencing to existing data, as relevant, within:

- Figures 3.1-3.10 (SCI Species of the Rogerstown Estuary SPA);
- Figures 3.11-3.24 (additional SCI species of the North-west Irish Sea cSPA;
- Figures 3.25-3.30 (additional SCI species of the Malahide Estuary SPA);
- Figures 3.31-3.34 (additional SCI species of the North Bull Island SPA).

It is noted that no greylag goose, an SCI species of the Rogerstown Estuary SPA, were recorded within the study area across the survey period.

Table 3.3a: Results of Wetland Bird Surveys

SPECIES	March				April				May			
	High 16/03/21	High 17/03/21	Low 26/03/21	Low 27/03/21	High 10/04/21	High 11/04/21	Low 24/04/21	Low 25/04/21	High 03/05/21	High 05/05/21	Low 28/05/21	Low 29/05/21
Bar-tailed Godwit	26		2	32	8				25	23		
Black-headed Gull	47			18	1		2		6	4		4
Black-tailed Godwit	375		240	468	189		180	131	10	35	87	42
Brent Goose	500											
Common Gull	27		40	82	37	2	10	14	12	21	9	18
Cormorant	1	1		1	1	1	1	1	2	3	6	1
Curlew	229	1	32	137	135		63	3		7	12	16
Dunlin	625			14	31		16	20		14	269	10
Gadwall	2			2								
Gannet						24						
Goldeneye											8	
Golden Plover	10											
Great black-backed Gull	38		9	14			9	17	24	17	21	7
Great-crested Grebe									1			
Greenshank	2		1	1	2		2	1				
Grey Heron	2		1	1				1	1	9	2	5
Grey Plover	113				19					4	11	2
Herring Gull	200	11	130	119	67	8	132	135	45	68	112	76
Knot	335		100	169	107		40	40			14	
Lapwing							5					
Lesser black-backed Gull	6		1	48					12	2	7	
Light-bellied Brent Goose	1113	88	265	304	678	32	32					
Little Egret	5	3	1	26	5		9		1	9	2	15
Little Tern											8	2
Mallard	4			8			3			6		6
Meadow Pipit									1			
Moorhen							1					2
Mute Swan					1			1		1		1
Oystercatcher	114	147	135	232	66		38	66	55	92	59	65
Red-breasted Merganser	9		2	13	10	17	3					
Redshank	197	23	144	357	157	4	38	13	2	5		
Ringed Plover		20	41	30	1	39	21	17	16	14	12	7
Sanderling												15
Sandwich Tern			5	1	8	11	2	13	12			
Shag	1	2							1		1	
Shelduck	210	63	108	107	15	53	54	53	44	21	32	15
Shoveler											2	
Snipe						1						
Teal	157	7		269	100					2		
Turnstone	79		3	7					2			

SPECIES	March				April				May			
	High 16/03/21	High 17/03/21	Low 26/03/21	Low 27/03/21	High 10/04/21	High 11/04/21	Low 24/04/21	Low 25/04/21	High 03/05/21	High 05/05/21	Low 28/05/21	Low 29/05/21
Whimbrel							52	21	4			
Wigeon	20											

Key to Table 3.3

Yellow – Rogerstown Estuary SPA

Table 3.3b: Results of Wetland Bird Surveys continued.

SPECIES	June				July				August			
	Low 02/06/21	High 03/06/21	High 19/06/21	High 21/06/21	High 02/07/21	High 04/07/21	Low 24/07/21	Low 31/07/21	High 03/08/21	High 04/08/21	Low 30/08/21	Low 31/08/21
Arctic Tern		4										
Bar-tailed Godwit	18		26			29	6		30	2	5	2
Black Guillemot	12	2										
Black-headed Gull	18	26	49	18	46	57	653	130	29	27	144	494
Black-tailed Godwit	12					41	173	81	71	26	5	139
Common Gull	5	2					41	52	44	21	28	86
Common Tern	2	1	2		6		1	15	28		150	
Cormorant		5	1	1	4	2	1	5	5	4	1	3
Curlew	43	5	42	2	4	43	225	101	29	17	111	300
Dunlin							63	66	125		49	2
Gadwall												2
Gannet		2										
Goldeneye	2											
Golden Plover	27											
Great black-backed Gull	10	4			2		9	5	31	2	16	16
Great-crested Grebe										4		
Greenfinch		5										
Green Sandpiper												4
Greenshank						2	12	11	6		9	42
Grey Heron	6	3		2	5	3	6	1		7	1	7
Grey Plover	1		28				38	9	10			
Guillemot		2										
Herring Gull	45	4	1	21	42	2	67	115	154	30	125	211
Kingfisher												2
Knot	12		7				4				1	3
Lapwing									31	29		
Lesser black-backed Gull					2			9	7		4	
Little Egret	11	5	11	5	7	14	29	8	7	19	5	21
Little Tern	2	2	2	20	39			40	28		10	
Mallard	5				2	4	15			11		91
Meadow Pipit					2							
Mediterranean Gull	3		2			4	1			1		

SPECIES	June				July				August			
	Low 02/06/21	High 03/06/21	High 19/06/21	High 21/06/21	High 02/07/21	High 04/07/21	Low 24/07/21	Low 31/07/21	High 03/08/21	High 04/08/21	Low 30/08/21	Low 31/08/21
Mute Swan	2	4										
Oystercatcher	14	48	68	22	20	50	126	202	171	15	258	285
Redshank	6					6	76	148	12	23	21	209
Ringed Plover	6	11		6	6		4	2	8		74	
Roseate Tern								5				
Sanderling								4	12		9	
Sand Martin		10		10	14							
Sandwich Tern	1							6	18		6	130
Shag		2			1				1			
Shoveler												1
Shelduck	23	13	27	8	14	27	8		2	12	30	6
Snipe										3		1
Teal	6		1									97
Whimbrel	3		1			4	2	1	2		1	1
Wigeon												27

Key to Table 3.3

Yellow – Rogerstown Estuary SPA

Table 3.3c: Results of Wetland Bird Surveys continued.

SPECIES	September				October				November			
	Low 01/09/21	Low 02/09/21	High 04/09/21	High 05/09/21	High 04/10/21	High 05/10/21	Low 30/10/21	Low 31/10/21	High 01/11/21	High 18/11/21	Low 27/11/21	Low 30/11/21
Arctic Tern	3											
Bar-tailed Godwit	2	40	8	1	12		49	1	16	3	19	1
Black Grouse			5									
Black-headed Gull	19	143	16	151	57	3	263	42	38	9	59	5
Black-tailed Godwit		6		64			40	6	27	28	63	28
Brent Goose							258	21	24	365	401	379
Common Gull	16	20	15	104	31	5	19	3	18	35		4
Common Sandpiper		2				1			1			
Common Tern	16	15	15									
Cormorant	1	4	1	1	3	1	1	1	3	3	37	
Curlew	18	14	32	89	17	2	369	174		87	79	100
Dunlin	211	204	315	133	340		600	400		8	500	1360
Goldeneye		2										
Golden Plover							150				28	1500
Great black-backed Gull	3	15		2	12	10	5	2	26	1	4	4
Great-crested Grebe												1
Green Sandpiper				1								
Greenshank		6		4	2	2	10	3	5	1	8	3
Grey Heron	3	3	1	6	1	1	2	4	3	4	3	3

SPECIES	September				October				November			
	Low 01/09/21	Low 02/09/21	High 04/09/21	High 05/09/21	High 04/10/21	High 05/10/21	Low 30/10/21	Low 31/10/21	High 01/11/21	High 18/11/21	Low 27/11/21	Low 30/11/21
Grey Plover				1						3	33	49
Golden Plover								800				
Herring Gull	19		2	204	55	16	127	68	10	16	97	51
Knot		234					60	1			12	12
Lapwing		4		1			227		14		410	
Lesser black-backed Gull		4		1	2							
Little Egret	8	12	1	34	2	2	19	23	5	1	10	1
Little Grebe				1							14	
Little Tern	6		1									
Mallard	4	9	2	61	3	4	44	14	4	18	53	78
Oystercatcher	132	146	105	94	112	27	92	146	14	229	261	157
Red-breasted Merganser	1				4	4	22	10	2	17	21	3
Redshank	34	21		340	18	4	196	55		6	356	143
Ringed Plover	46	18	70	1	48		80	2		1	69	
Roseate Tern	2											
Sanderling	18		9		38							12
Sandwich Tern	7	27	3	42								
Shag					2		1	1		1		14
Shelduck	2	38	12	56	7	5	68	33	16	99	113	240
Shoveler		2		2				4			1	24
Skylark										5		
Snipe						4			2			
Song Thrush											5	
Teal	2	21		18		9	531	18	15	120	433	62
Tree Sparrow											6	
Turnstone		4			4	4	4	2		10		19
Wheatear												10
Whimbrel					1			1				
Whooper Swan							6					
Wigeon				4		2	116	166	20	98	486	98

Key to Table 3.3

Yellow – Rogerstown Estuary SPA

Table 3.3d: Results of Wetland Bird Surveys continued.

SPECIES	December				January				February			
	Low 11/12/21	Low 12/12/21	High 19/12/21	High 20/12/21	Low 07/01/22	High 08/01/22	Low 09/01/22	High 31/01/22	High 02/02/22	Low 20/02/22	High 27/02/22	High 28/02/22
Arctic Tern												
Bar-tailed Godwit	1	38	27	84	44	5	20	11	34		98	
Black-headed Gull	20	78	97	1	93	20	63	39	100	7	44	
Black-tailed Godwit	19	41	40		2	1	72	8	81	2		12

ECOLOGICAL SURVEY FOR BIRDS

SPECIES	December				January				February			
	Low 11/12/21	Low 12/12/21	High 19/12/21	High 20/12/21	Low 07/01/22	High 08/01/22	Low 09/01/22	High 31/01/22	High 02/02/22	Low 20/02/22	High 27/02/22	High 28/02/22
Brent Goose	130	604	379	176	59	11	291	71		609	447	185
Common Gull	22	80	15	8	29	36	8	16	57	2	2	
Common Scoter					4							
Cormorant	1		1	1	1			3	2			
Curlew	167	448	335	2	53	11	320	9	47	125	50	11
Dunlin	540	551	1135	585	341	770	300		330	275	17	50
Gadwall				1						1		
Gannet					1							
Great black-backed Gull	231	11	1		21		2	3	14	2	21	7
Great-crested Grebe				1								
Greenshank	3	4	4		2	1	6	6	10	3	7	
Grey Heron	3	8	8	1	1		5	11	13	1		
Grey Plover	52	14	32		2	12	29		2	33	5	2
Grey Wagtail							1					
Golden Plover		1600	250				750			100	1300	
Herring Gull	39	223	22	4	80	5	41	13	73	132	8	55
Knot	34	2	2		85					170	1	
Lapwing		550	120				192	41			24	
Lesser black-backed Gull					1					1		6
Light-bellied Brent Goose												
Little Egret	3	3	2		9		1	22	36		1	
Little Grebe		1	4				2					
Little Tern												
Mallard	68	24	58	56		42	91	16	31	8	4	8
Meadow Pipit			30				20					
Mute Swan					4				1			
Oystercatcher	181	222	125	305	248	216	184	99	143	95	48	25
Pied Wagtail							2					
Pintail			2					2	2			
Purple Sandpiper												1
Red-breasted Merganser	8	12	22	8		2	12	6	2	8	7	8
Redshank	158	166	55	14	21	81	202	33	171	102	25	9
Red-throated Diver					5							2
Ringed Plover					51		105	8	22			2
Scaup		1										
Scottish Crossbill					3							
Shag	5	1		3	3	2						
Shelduck	260	251	190	225	47	183	207	26	43	101	130	61
Shoveler	19	2		24		21	1	1		15		17
Skylark			62				40					
Snipe			3					4	4			25
Stock Dove							2					
Teal	94	513	128	203	19	90	722	39	38	153	53	78

SPECIES	December				January				February			
	Low 11/12/21	Low 12/12/21	High 19/12/21	High 20/12/21	Low 07/01/22	High 08/01/22	Low 09/01/22	High 31/01/22	High 02/02/22	Low 20/02/22	High 27/02/22	High 28/02/22
Tree Sparrow		2	1									
Turnstone	2	61	83	17	6	1	4	2		9		2
Whimbrel	1	1				309	1	1				
Wigeon	207	537	239	65			327			633	247	113
Yellowhammer			60									

Key to Table 3.3

Yellow – Rogerstown Estuary SPA

3.2.1 Additional Bird Survey Results

In addition to wetland birds representing qualifying interests of the nearby SPAs, the surveys also recorded a range of further species including:

- Variable numbers (up to 309) of wintering whimbrel *Numenius phaeopus;*
- Variable low numbers (peak count of 24) of gannet *Morus bassanus*, with a trend towards being present during high tide;
- Relatively high numbers of skylark *Alauda arvensis* (peak count 62) within areas of terrestrial farmland adjacent to the estuary;
- Relatively high numbers of yellowhammer *Emberiza citrinella* (peak count 60) within areas of terrestrial farmland adjacent to the estuary;
- Variable to large numbers of wigeon *Anas penelope* (peak count 633);
- Variable to large numbers of golden plover *Pluvialis apricaria* (peak count 1600);
- Variable numbers of lapwing *Vanellus vanellus* (peak count 550);
- Occasional kestrel *Falco tinnunculus* and peregrine *Falco peregrinus*;

The site supports a significant population of nesting little tern *Sterna albifrons,* with a peak count of 40 individuals recorded. This colony is of known conservation significance and during the nesting period is subject to continual monitoring by volunteers and associated reporting on fledging success and biometrics (Kavanagh and Lynch 2021). The report detailing the results of monitoring of the colony produced for 2021 included a peak count of 120 little tern at the site.

A colony of sand martin *Riparia riparia,* with a peak count of 60 birds, was recorded along an eroded sandbank along the south-eastern shoreline of the Burrow.

3.2.2 Summary of disturbance events

During the surveys any disturbance events arising through human activities or otherwise were recorded. It is noted however that given the nature of the proposals, which will give rise to temporary and relatively short-term disturbance effects at construction stage, the proposals will have little potential to act in-combination with existing levels of human disturbance of bird populations in the long term.

Disturbance events principally associated with the movement of recreational dog walkers, was recorded throughout much of the Estuary, with such events occurring at least once across the vast majority of survey visits.

Disturbance was recorded at particularly high levels along the shoreline to the east of the Burrow and along the beach to the south-east of Rush, lower levels were observed along the western shoreline of the Burrow and generally throughout the survey area at more diffuse levels.

4 DISCUSSION & ANALYSIS OF RESULTS

The Proposed Developments at the Burrow and Rush both lie within areas which are designated as an SPA under the EU Birds Directive (Rogerstown Estuary SPA) of international importance for waterbirds. The Rogerstown Estuary SPA overlaps the Rogerstown Estuary Special Area of Conservation (SAC).

The site also lies in relative proximity of other important waterbird sites (such as the North-west Irish Sea cSPA, Malahide Estuary SPA, Lambay Island SPA and Rockabill SPA.

4.1.1 Wetland Bird Surveys

The counts show that there is considerable variability in the numbers of birds present within the areas of the Rogerstown Estuary SPA at various points of the tidal cycle. Significant changes to supported numbers of wader species including redshank, oystercatcher, dunlin, black-tailed godwit, lapwing, knot, grey plover, golden plover, greenshank and curlew in addition to some waterfowl including teal and a number of gull species were recorded. All such species were record in much higher numbers (typically at least a 60% increase) outside of periods of high tide. This is explained by the birds moving out of their high-tide roosts to use intertidal areas for foraging. The consistency of the counts of large and medium sized waterbirds throughout the survey season suggest that a highly representative sample of the populations utilising this area were detected throughout the surveys.

Data gathered during the surveys recorded the use of the site by waterfowl broadly consistent with that recorded during other recent studies of the Rogerstown Estuary, including Roughan & O'Donovan (2017), Wilson (2020) and JBA Consulting (2021).

Areas within proximity to the proposed developments at Rush and the Burrow were recorded to support a range of wintering SCI wader and waterfowl species associated with the Rogerstown Estuary SPA including significant proportions of the SPA populations. For all SCI species observed this was true across tidal states, with areas within proximity to the works utilised both for foraging at falling, low and rising tide and for roosting at high tide. It is noted that for all SCI species observed the areas which were recorded to be utilised at the various tidal states were not focussed upon specific areas, including those in proximity to the works, but were fairly diffuse, with various locations utilised throughout the wider estuary. As such it is considered that no areas within proximity to the proposed works were relied upon by any of the SCI species exclusively during any tidal state, with other areas of suitable habitat available.

The vast majority of the wintering activity recorded for the SCI species associated with the Rogerstown Estuary SPA was within the estuary to the west of the Burrow. Relatively minimal use of the shoreline to the east of the Burrow, where the vast majority of proposed flood defence infrastructure is to be located within the proposals, was recorded. Activity in this area was limited to occasional use by relatively low numbers of light-bellied brent goose, oystercatcher, dunlin and ringed plover. Other SCI species were not recorded within these areas across the surveys.

In regard to the use of the site by SCI species of other SPAs, more distantly situated, the study area was recorded to support relatively low numbers of red-throated diver, cormorant, shag, relatively higher numbers of gull species including common gull, black-headed gull, herring gull and lower numbers of great black-backed gull and lesser black-backed gull. All such species represent breeding or wintering SCI species of the North-west Irish Sea cSPA. It is not considered that the proposed development would have potential to give rise to significant effects upon these populations which have access to significant areas of alternative marine habitat across the cSPA totalling some 2,333km^2.

Further SCI species of the North-west Irish Sea cSPA include a number of auks of which only common guillemot and razorbill were recorded within the study area, records of which were limited to two records

during a rising tide within the estuary. A number of tern species were observed utilising areas of marine habitat within the cSPA representing SCI species including roseate tern, common tern, arctic tern and little tern. The cSPA represents important supporting habitat for breeding populations of these species associated with the Rockabill SPA (in the case of roseate, common and arctic tern) and Boyne Estuary SPA (in the case of little tern). All of these tern species were recorded to utilise the marine parts of the study area, principally to the north-east of the Burrow, where the estuary discharges to the Irish Sea. Records of these species from within the proposed working area were fairly limited, with occasional records of low numbers, particularly of common tern.

As set out above, there is a supported colony of little tern present at the north-eastern tip of the Burrow. This colony, while not a definitional part of the Boyne Estuary SPA colony for which the species is included as an SCI of the cSPA, is likely to be associated with this colony through the exchange of individual adult breeding birds which are known to widely disperse across available nest sites along the east coast of Ireland. This colony of nesting little tern will not be directly affected by the proposed development, which will involve works at least 390m from the colony location. There may be potential for indirect effects associated with the movement of the dredge vessel to facilitate beach nourishment works and through effects associated with water quality and habitat deterioration at construction phase. The operational phase of the proposed development may also have potential to give rise to altered coastal processes through alteration of coastal erosion of the areas which currently support suitable nesting habitat for the species.

A range of further SCI bird species, associated with additional SPAs which are further distant from the site were also recorded within the study area including great crested grebe, pintail, goldeneye, red-breasted merganser, golden plover, bar-tailed godwit, teal, sanderling, curlew, turnstone. These are SCI species of the Malahide Estuary SPA, Baldoyle Bay SPA and North Bull Island SPA. These species were generally recorded in relatively low numbers (in the case of great crested grebe, pintail, goldeneye, red-breasted merganser, bar-tailed godwit, sanderling and turnstone) or higher numbers in the case of wintering golden plover, teal and curlew. While populations of these species recorded within the SPA may be associated with these more distant SPAs, it is also noted that populations of these species, not sufficiently large to qualify as separate selection criteria, were known to be supported within the Rogerstown Estuary SPA at the point of designation, as described in the site synopsis (NPWS 2014). As such it is considered that the proposed development is highly unlikely to give rise to any significant effects upon these more distantly situated SPAs.

Lewis *et al.,* (2019) define disturbance as “any activity that results in a waterbird being displaced from an area.” Response to disturbance can range from “subtle declines in intake rates to more serious changes such as avoidance of entire areas or sites” (Mitchell *et al.,* 1989). Within Dublin Bay, studies have found the activity which causes the highest levels of disturbance to waterbirds to be dogs both on and off lead and walkers, particularly within the intertidal areas (Phalan & Nairn, 2007; Adcock et al., 2018). Stigner *et al.,* (2016) found that, although some waterbirds in areas of high recreational activity become habituated to disturbance events, there was very few instances of habituation to dog activity due to dogs representing a predator threat (Lafferty 2001) and when dogs were restricted in these recreational areas, waterbird numbers increased (Stigner *et al.,* 2016).

The surveys have reported relatively regular levels of disturbance across a significant portion of the survey area largely associated with dog walkers. Such short-term disturbance can have a costly displacement effect upon wintering bird populations. Alternative habitats of a suitable quality may not be available in the vicinity of the disturbance event, or when there are ecological pressures such as cold weather, lack of food sources or increased competition for suitable foraging and roosting habitat (Gill 2007).

4.2 Conclusion and Recommendations

Human-related disturbances to foraging or resting waterbirds during the annual cycle can come from a range of sources, including industrial and recreational sources (Robinson and Pollitt, 2002). Although anthropogenic disturbances may cause birds to fly away short distances or to alternative areas, this is not the consequence of all disturbance events (Collop *et al.,* 2016). As set out above, the site of the proposed development is already subject to fairly consistent levels of recreational disturbance of waterbird populations. The proposed development, will involve works within and in proximity to wetland habitats of the Rogerstown Estuary SPA which are of importance for SCI bird populations over the winter period. These proposed works will have potential to give rise to significant disturbance effects upon wintering bird populations with potential to act in-combination with existing sources of disturbance and displacement.

Suggested management measures include the completion of all aspects of the work within intertidal and marine habitats outside of the wintering period (October to March inclusive).

The proposed developments at Rush and the Burrow will give rise to the loss of relatively small areas of habitat which were recorded to be of relatively low importance for foraging and loafing SCI bird populations. No areas which are proposed for permanent loss, within the footprint of the proposed flood defence infrastructure, were recorded as being of particular importance for any SCI species at any particular tidal state, with significant other areas of habitat used by any given SCI species throughout the study area and wider SPA. The loss of these areas is considered unlikely to give rise to a major detrimental effect upon the extent of available habitat for wintering SCI bird populations within the SPA or result in an adverse effect upon the structure and function of the wider wetland habitats within the SPA. Habitat loss will however give rise to adverse effects at a fairly small scale upon the extent of wetland habitat available within the SPA.

The proposed development also has potential to give rise to adverse effects upon areas of adjacent marine and estuarine habitats through water quality and habitat deterioration effects and through the spread of invasive cordgrass *Spartina sp.* which is likely to alter the suitability of areas of intertidal mud and saltmarsh and make them less favourable for foraging waders and waterbirds.

As set out in Section 1.2 above, all wild birds in the Republic of Ireland are afforded protected status under the Wildlife Act, 1976, which states that:

> *Wild birds and their nests and eggs, other than wild birds of the species mentioned in the Third Schedule to this Act, shall be protected.*

Mitigation should therefore be applied to ensure no breeding birds, their nests or eggs are disturbed or harmed as a result of the proposed works.

4.3 Mitigation and Enhancement

The following mitigation measures are recommended:

1. No pre-construction site clearance or removal of vegetation in terrestrial areas shall take place during the breeding season (i.e., 1st March – 31st August). Such works shall be undertaken outside the breeding season (i.e., work should take place during September – February) to ensure no disturbance to terrestrial breeding birds.
2. No construction works within marine or intertidal areas shall take place during the wintering season (i.e., 30th September to 31st March) to ensure no disturbance to wintering SCI populations associated with the Rogerstown Estuary SPA.

3. The proposed development will be undertaken in line with an appropriately worded Invasive Species Management Plan (ISMP) which will include measures to ensure that the proposed development does not give rise to the inadvertent spread of cordgrass *Spartina sp.*.
4. The existing Sand Martin along the south-eastern shore of the Burrow should be preserved. Any works proposed in the vicinity should be planned so as to minimise disturbance during the bird breeding season. If proposed works impact upon the nesting site, a Sand Martin bank should be constructed in consultation with NPWS / Birdwatch Ireland to allow the small colony currently nesting in this location to move.
5. The proposed developments at Rush and the Burrow should incorporate a range of mitigation measures to ensure that water quality of adjacent marine and intertidal habitat is safeguarded throughout to as great an extent as possible during construction.

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Figures

Figure 3.1-3.34: SCI Bird Species Survey Results

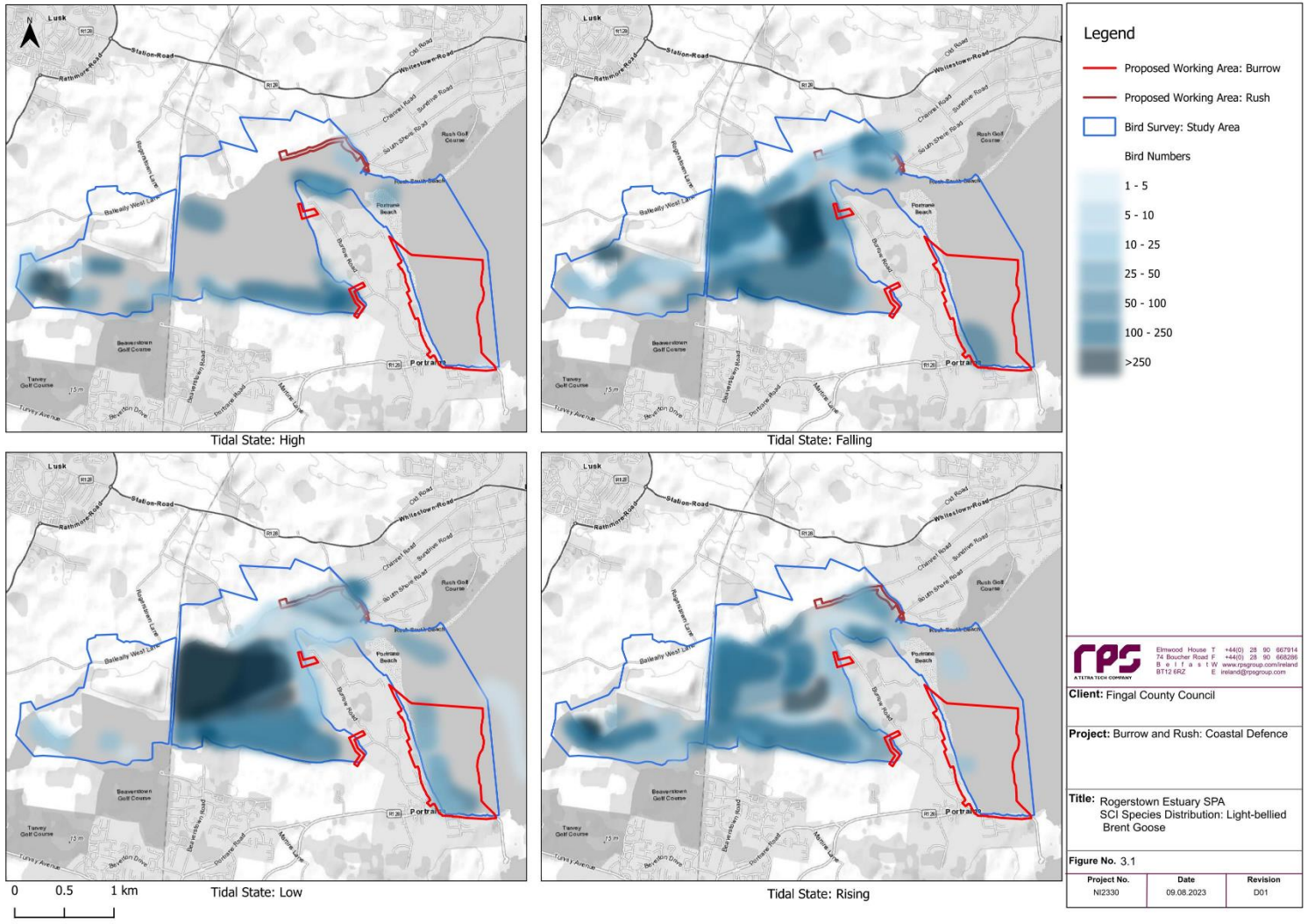

Figure 3.1 – Wetland Bird Survey Results: Brent Goose

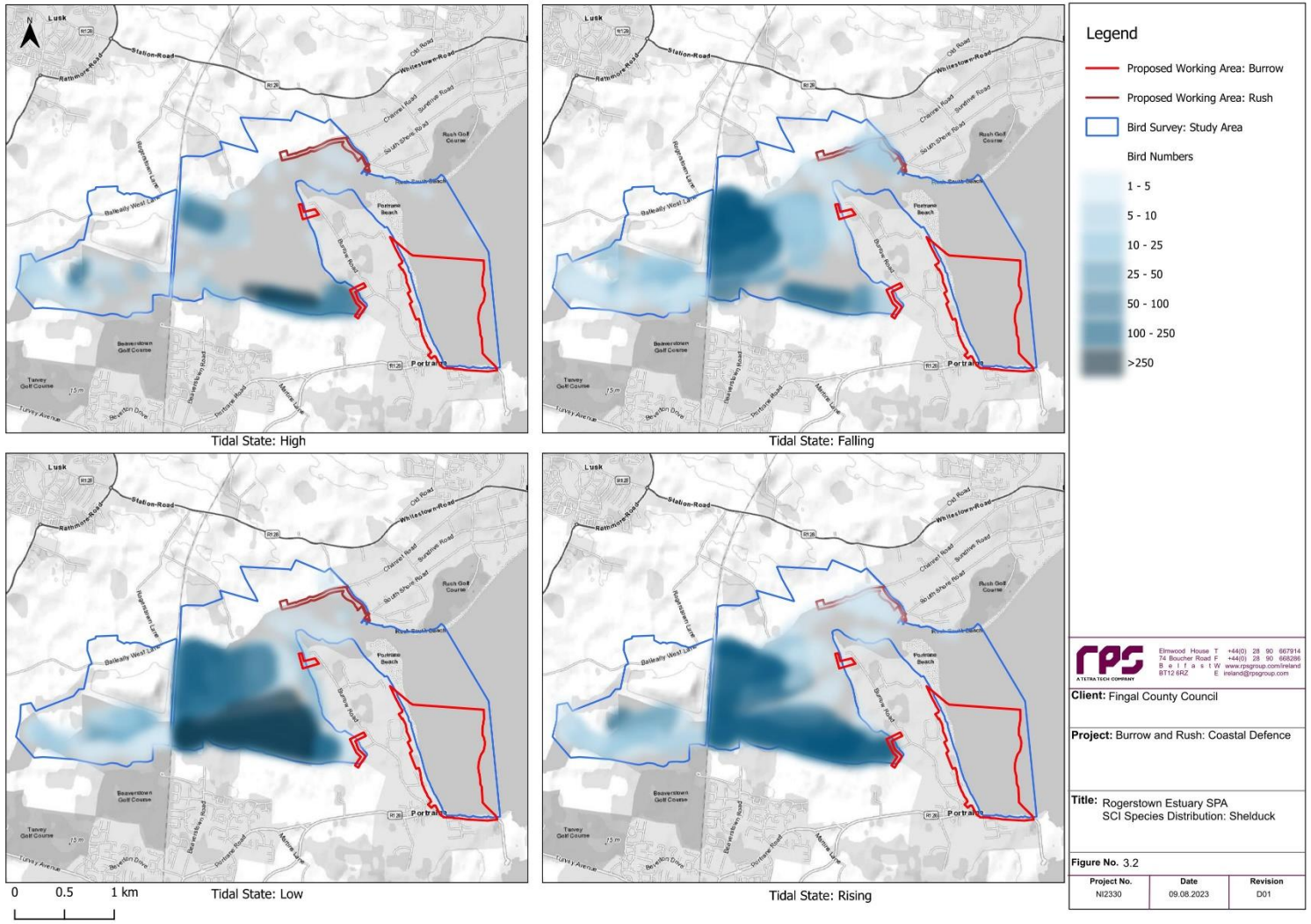

Figure 3.2 – Wetland Bird Survey Results: Shelduck

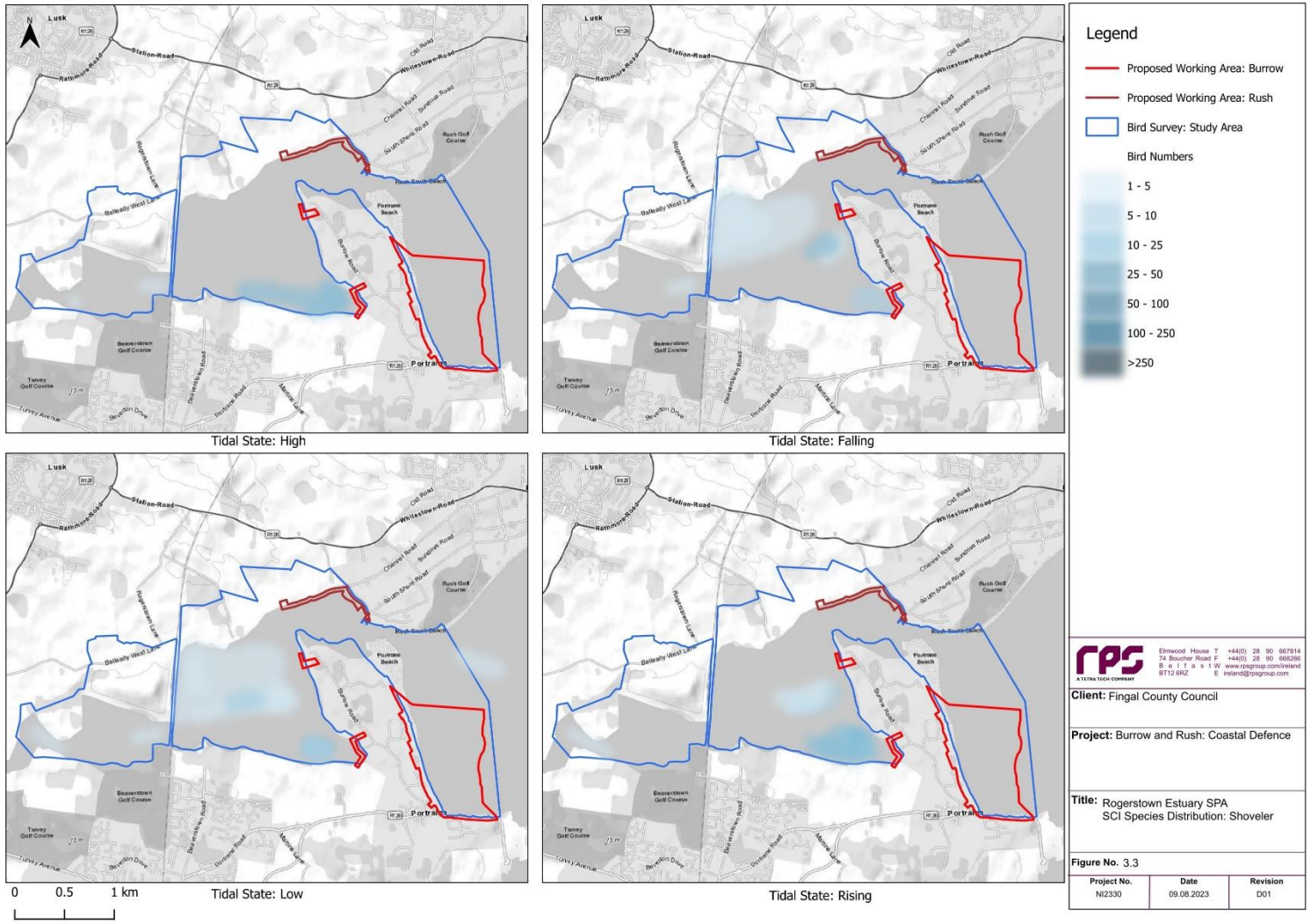

Figure 3.3 – Wetland Bird Survey Results: Shoveler

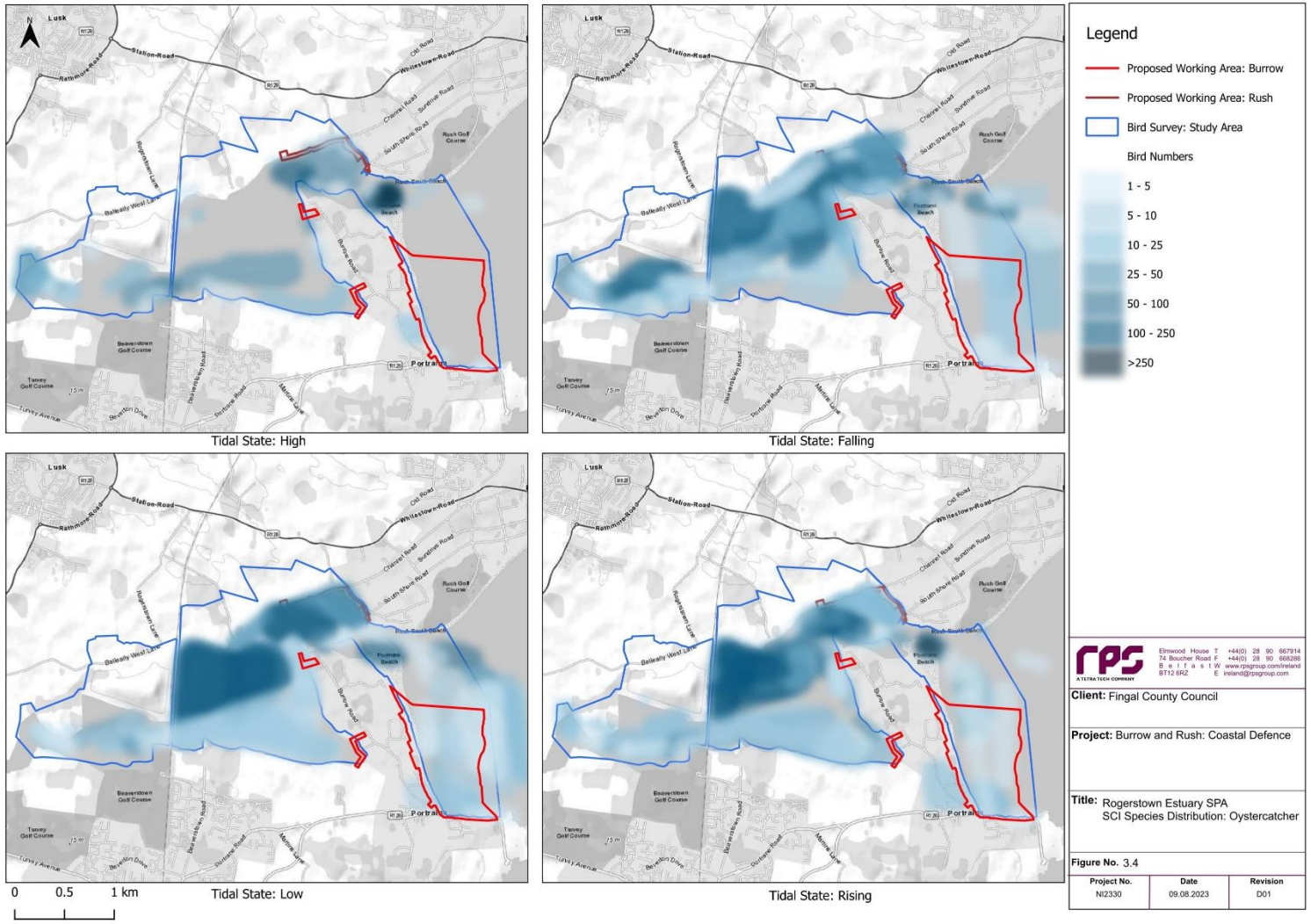

Figure 3.4 – Wetland Bird Survey Results: Oystercatcher

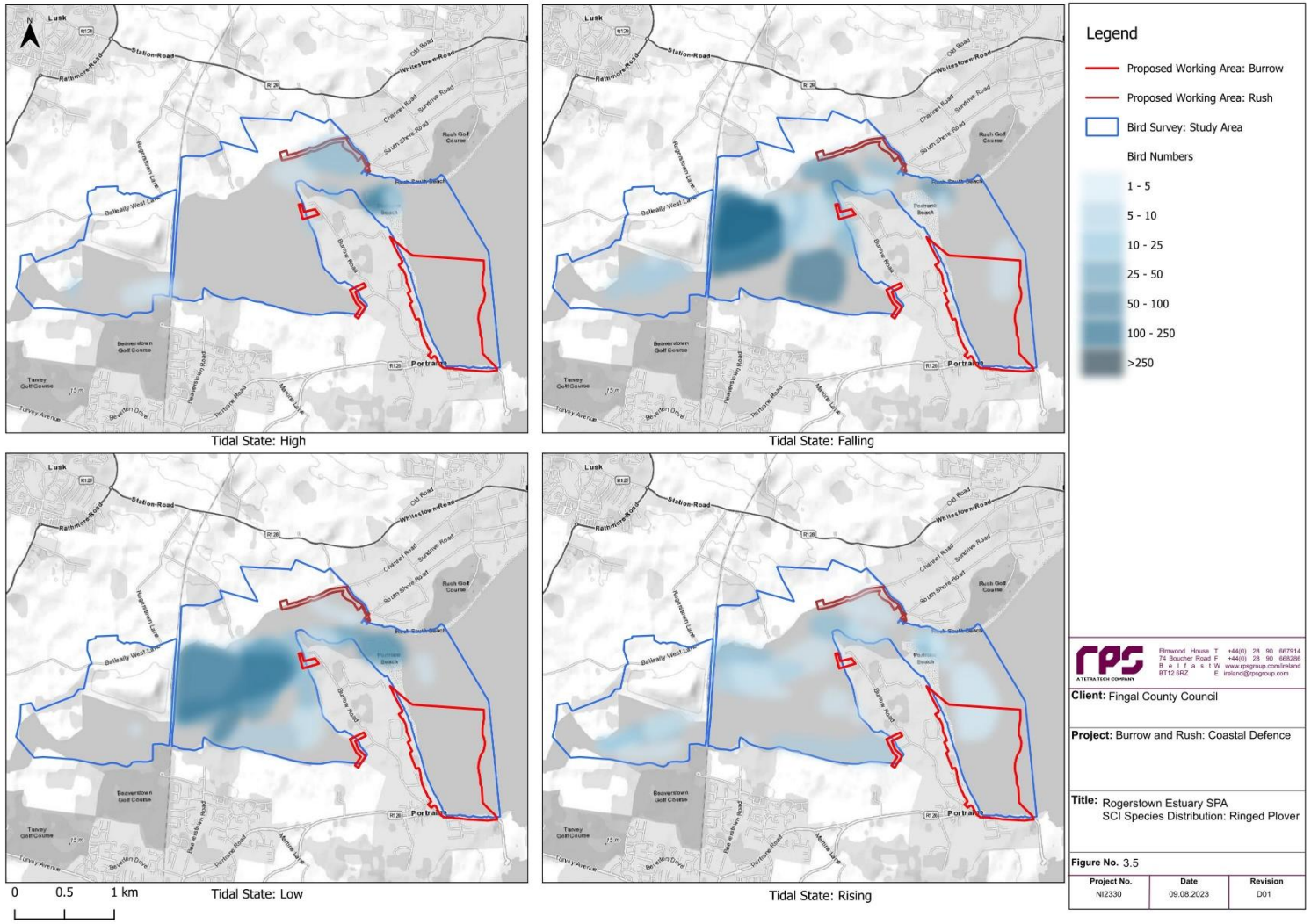

Figure 3.5 – Wetland Bird Survey Results: Ringed Plover

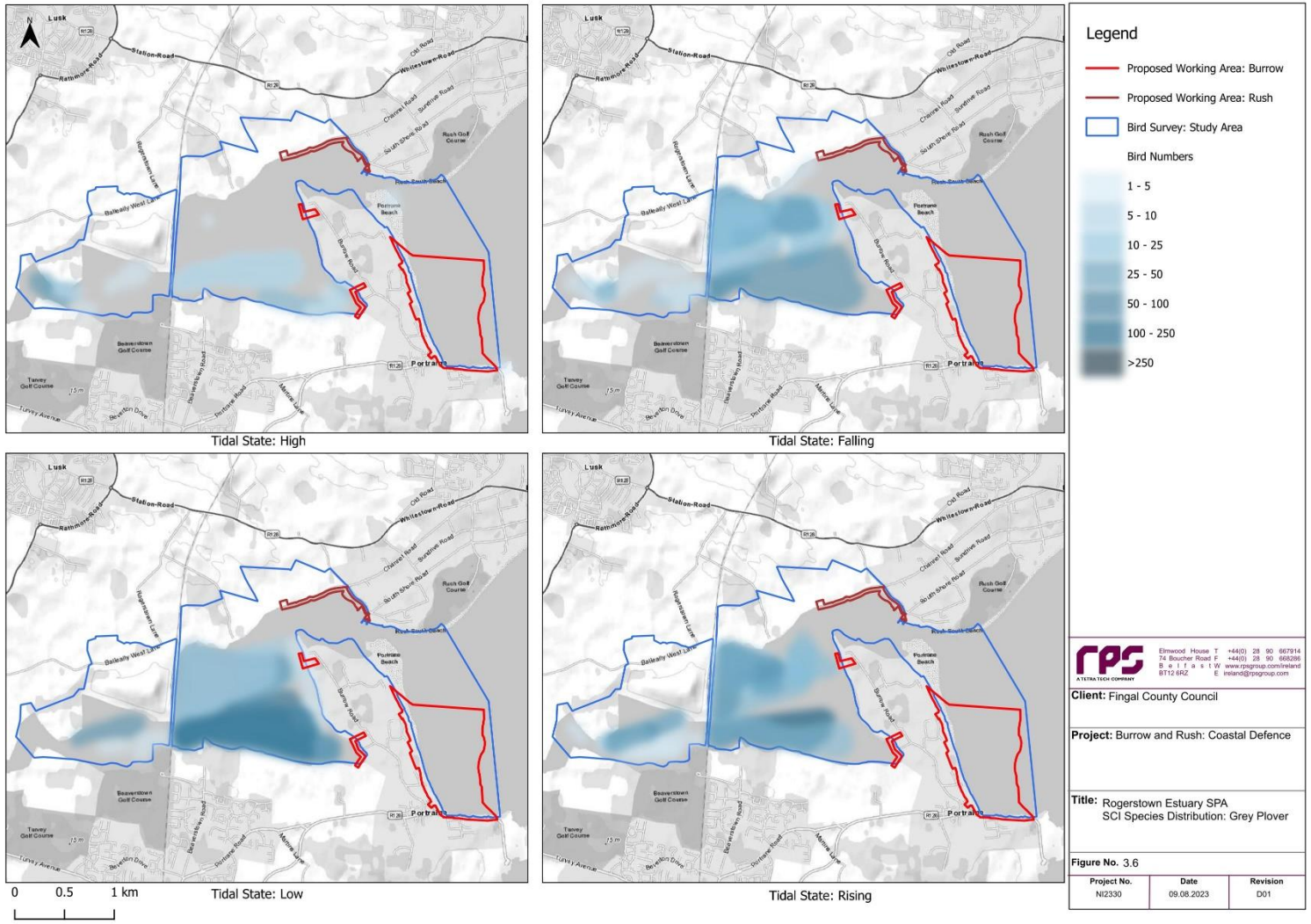

Figure 3.6 – Wetland Bird Survey Results: Grey Plover

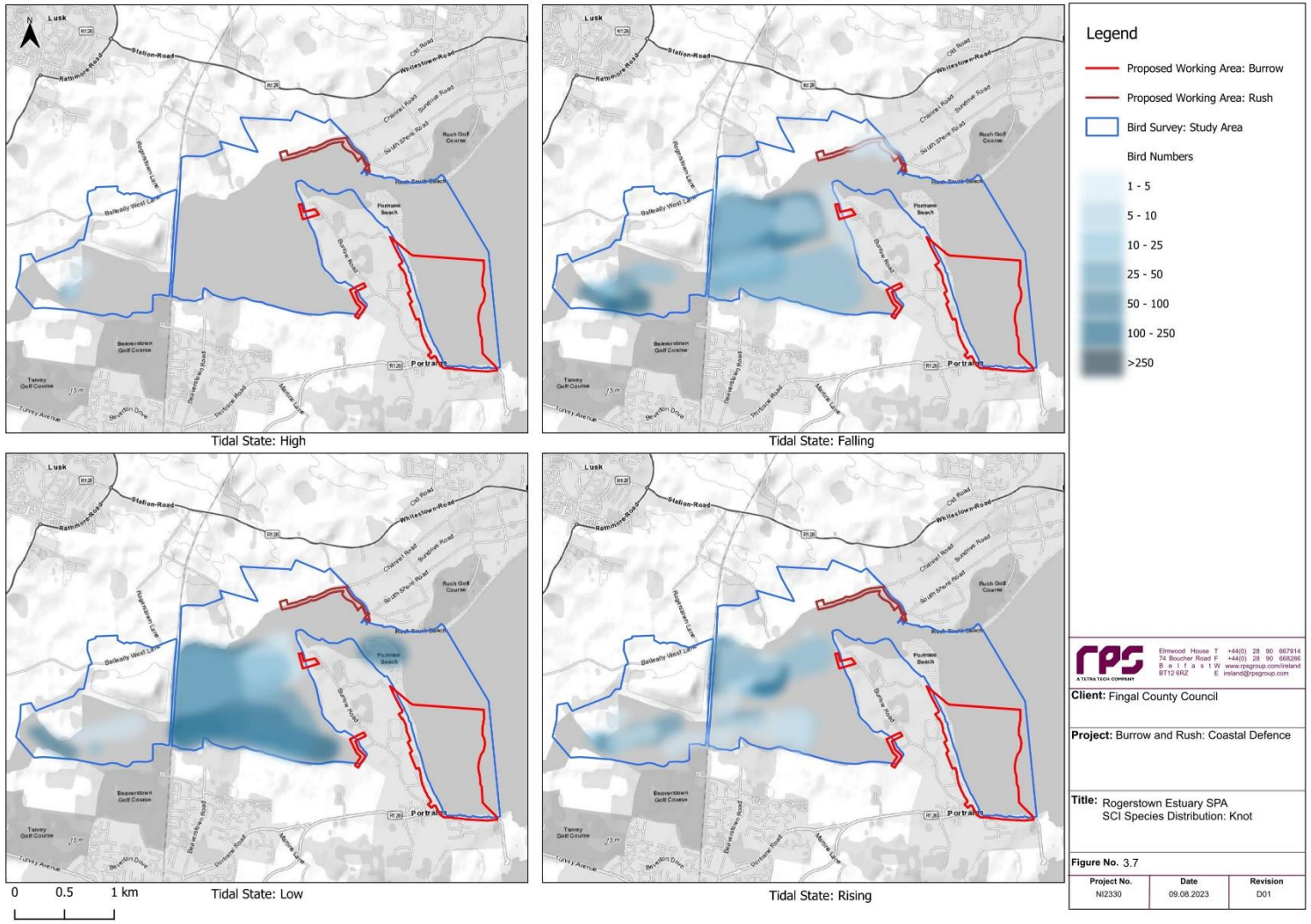

Figure 3.7 – Wetland Bird Survey Results: Knot

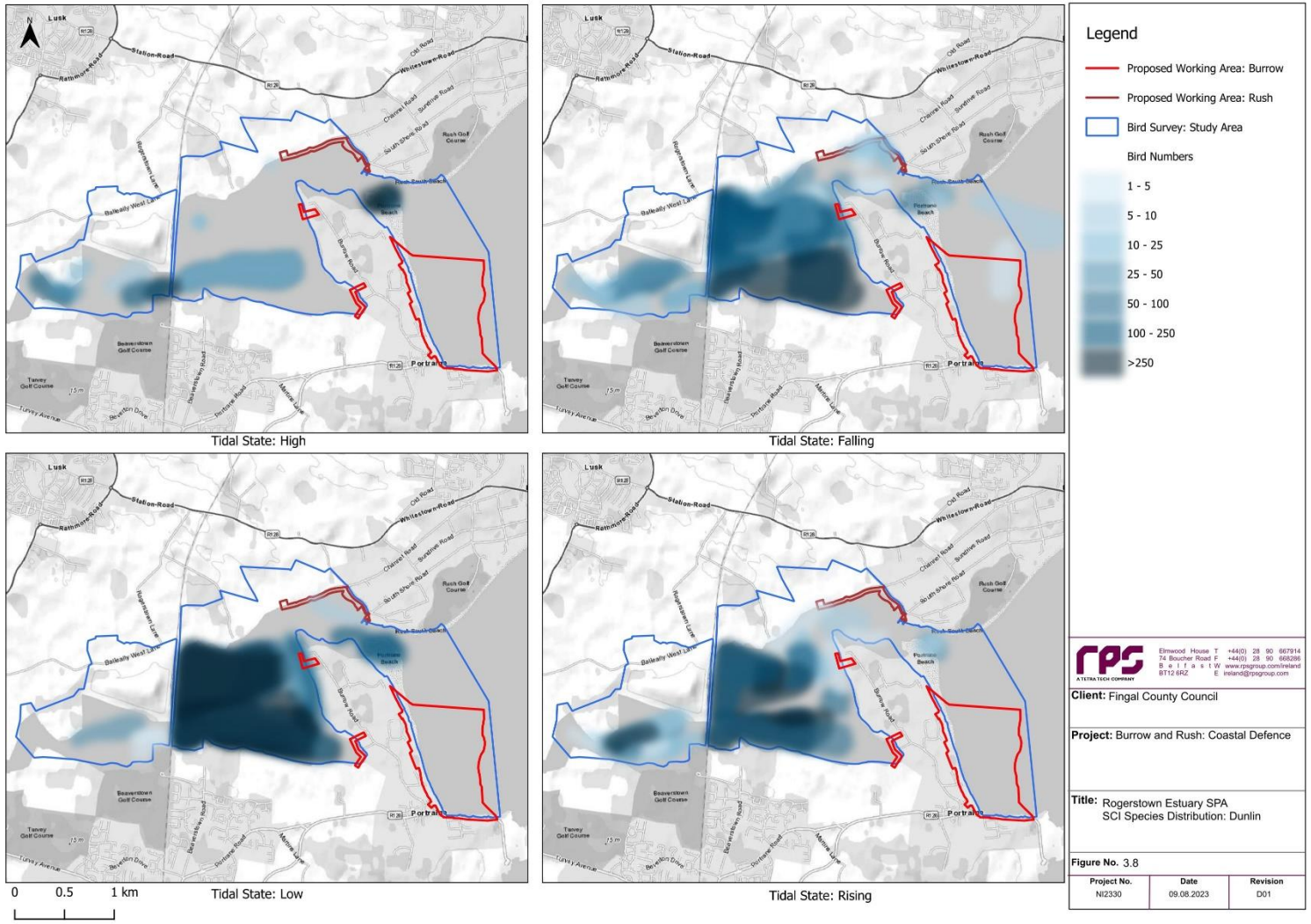

Figure 3.8 – Wetland Bird Survey Results: Dunlin

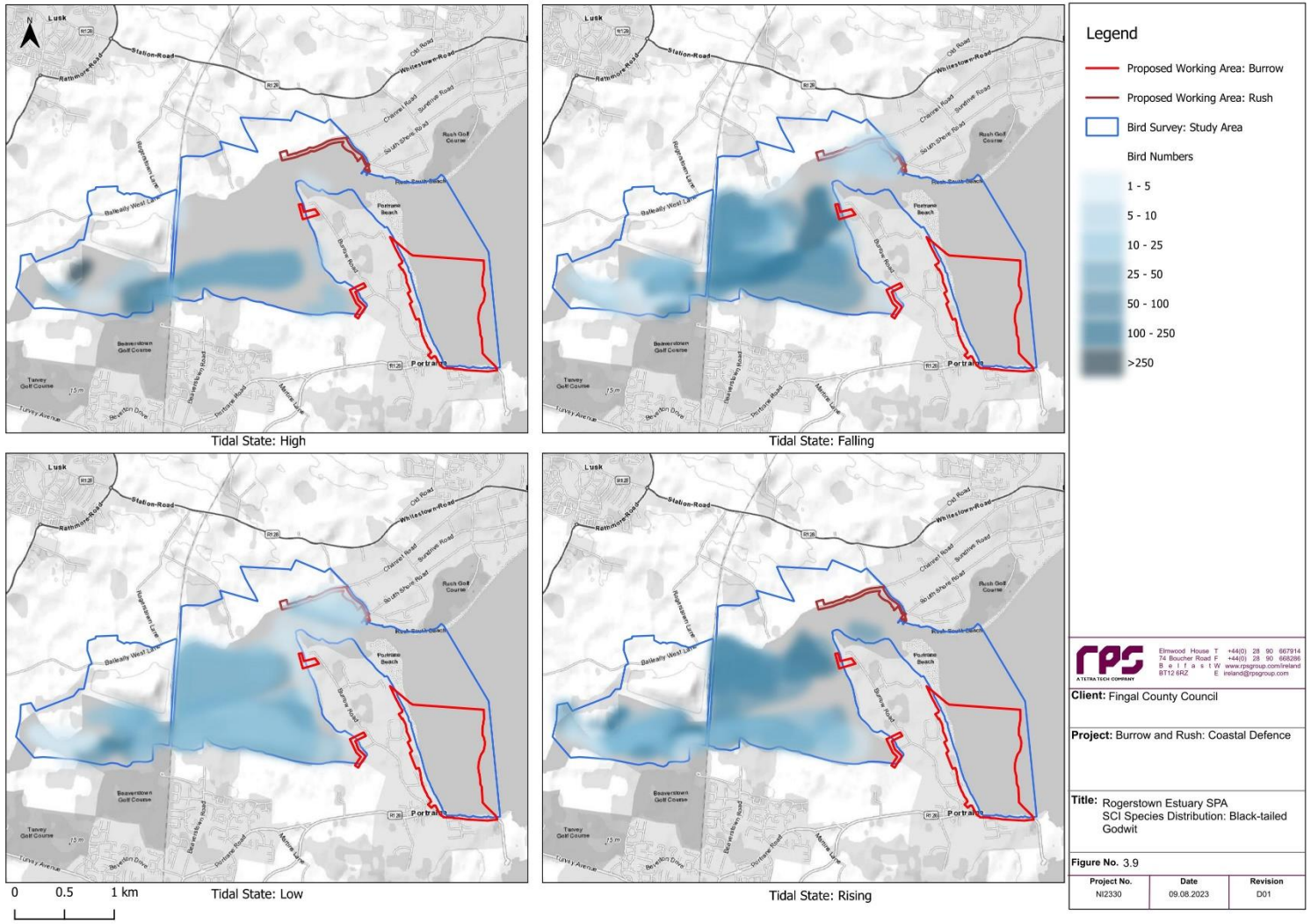

Figure 3.9 – Wetland Bird Survey Results: Black-tailed Godwit

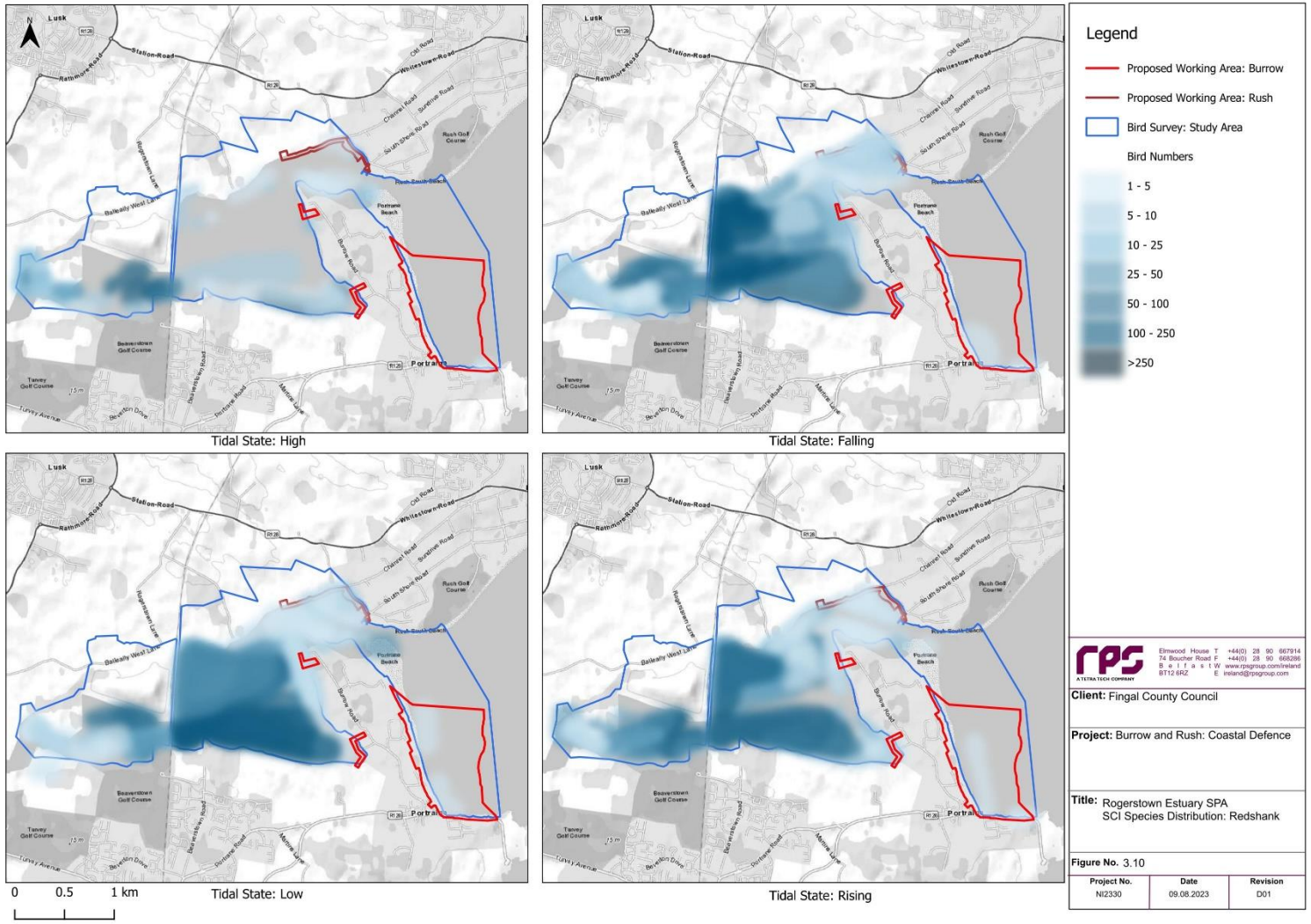

Figure 3.10 – Wetland Bird Survey Results: Redshank

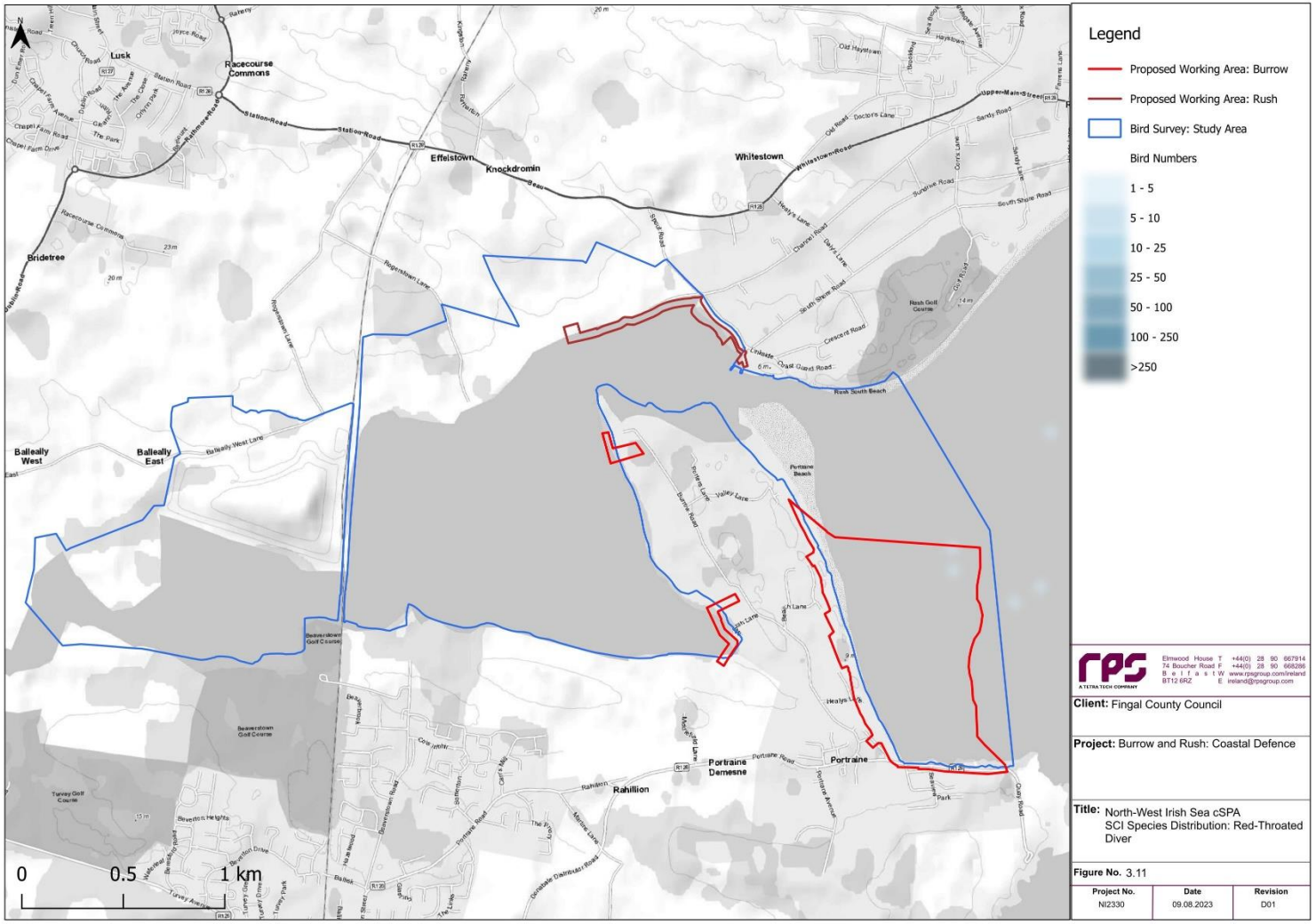

Figure 3.11 – Wetland Bird Survey Results: Red-throated Diver

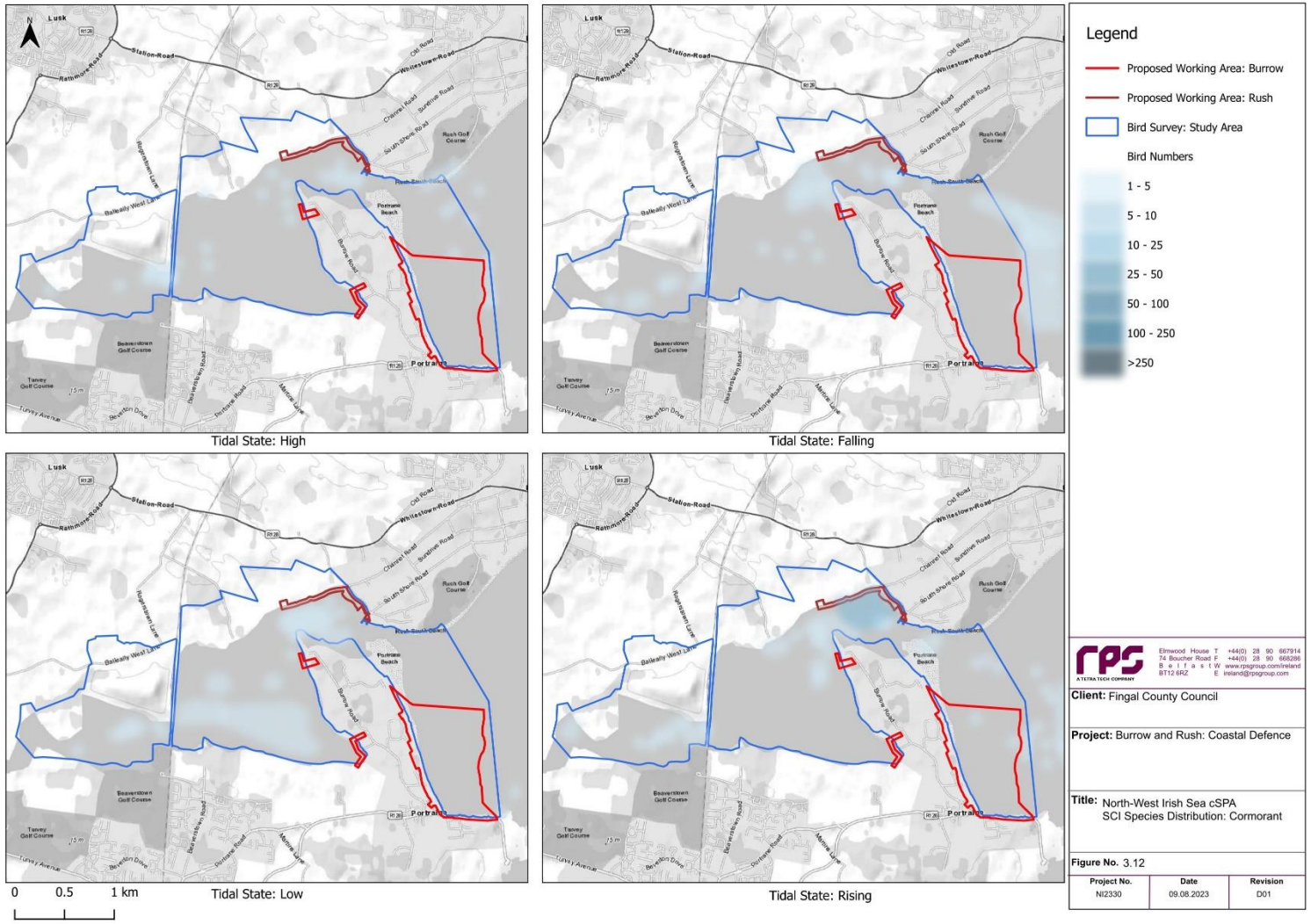

Figure 3.12 – Wetland Bird Survey Results: Cormorant

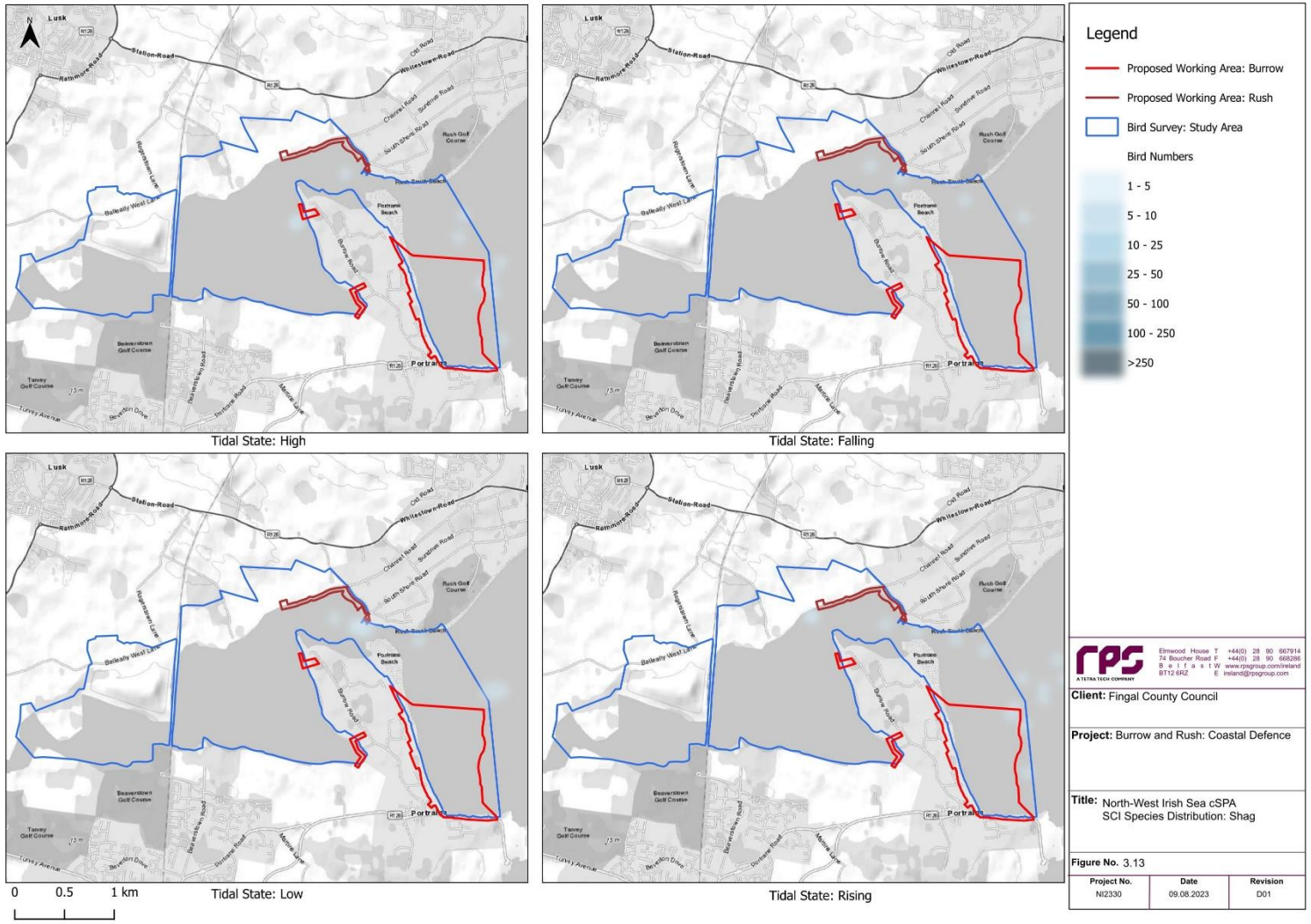

Figure 3.13 – Wetland Bird Survey Results: Shag

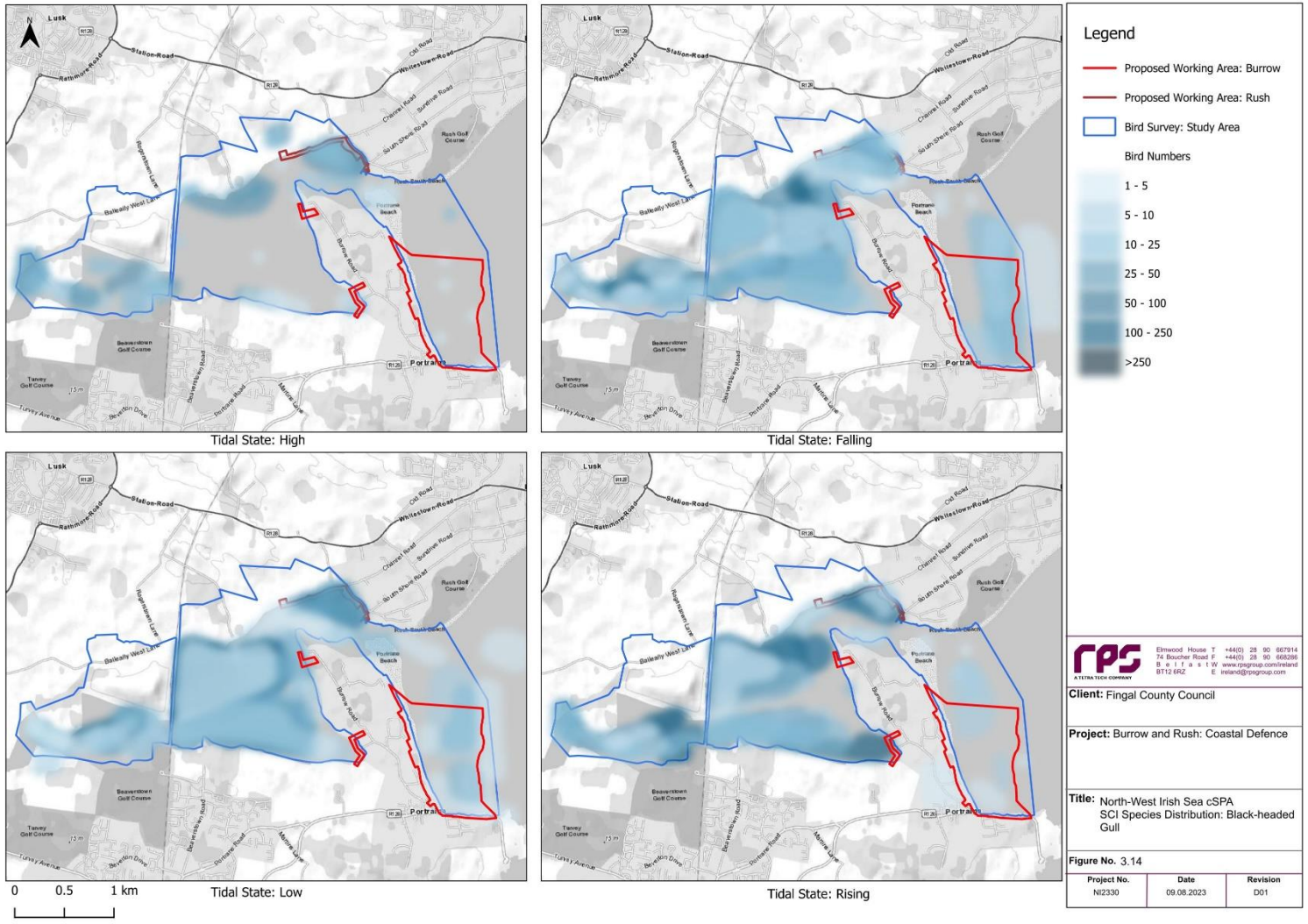

Figure 3.14 – Wetland Bird Survey Results: Black-headed Gull

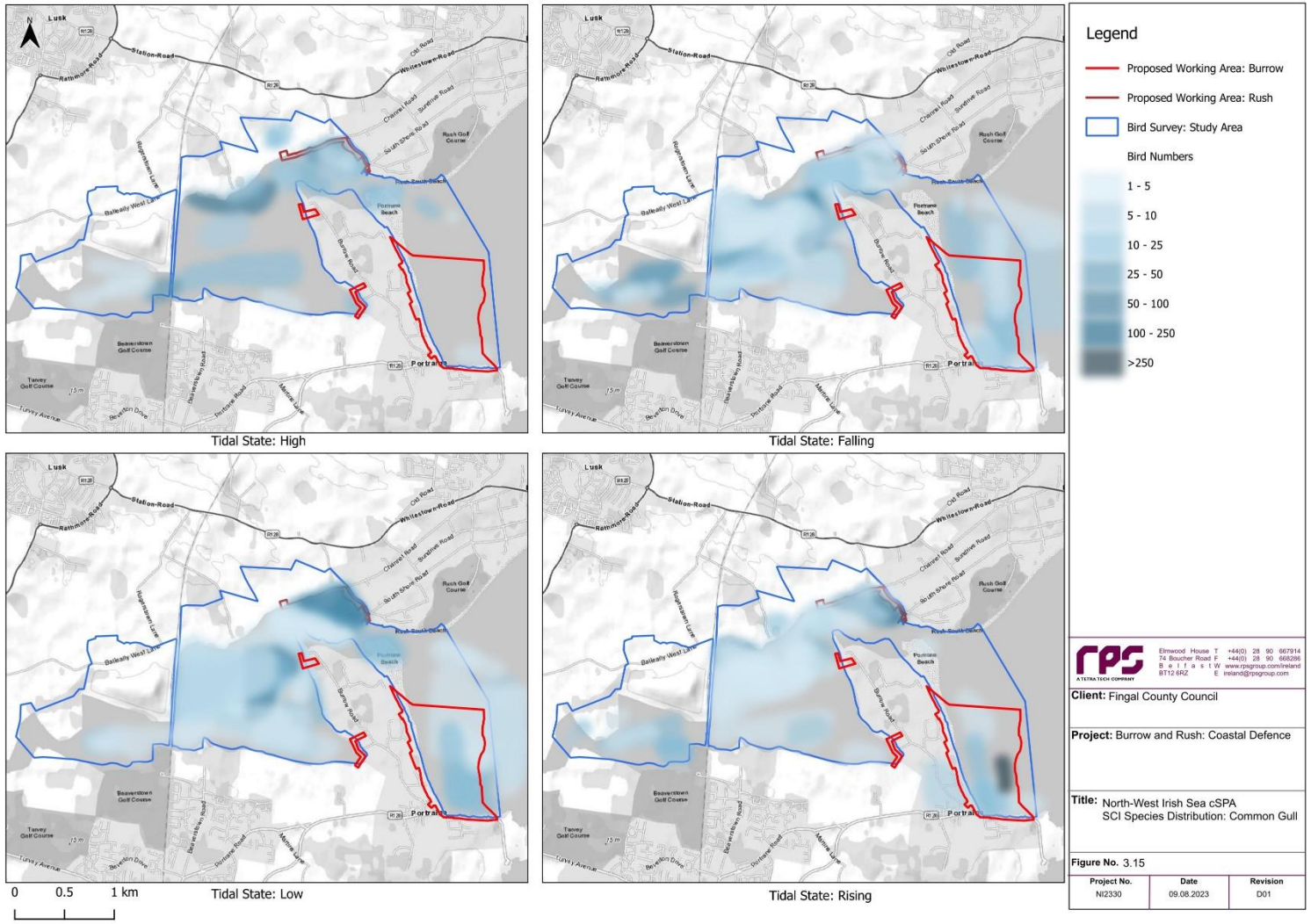

Figure 3.15 – Wetland Bird Survey Results: Common Gull

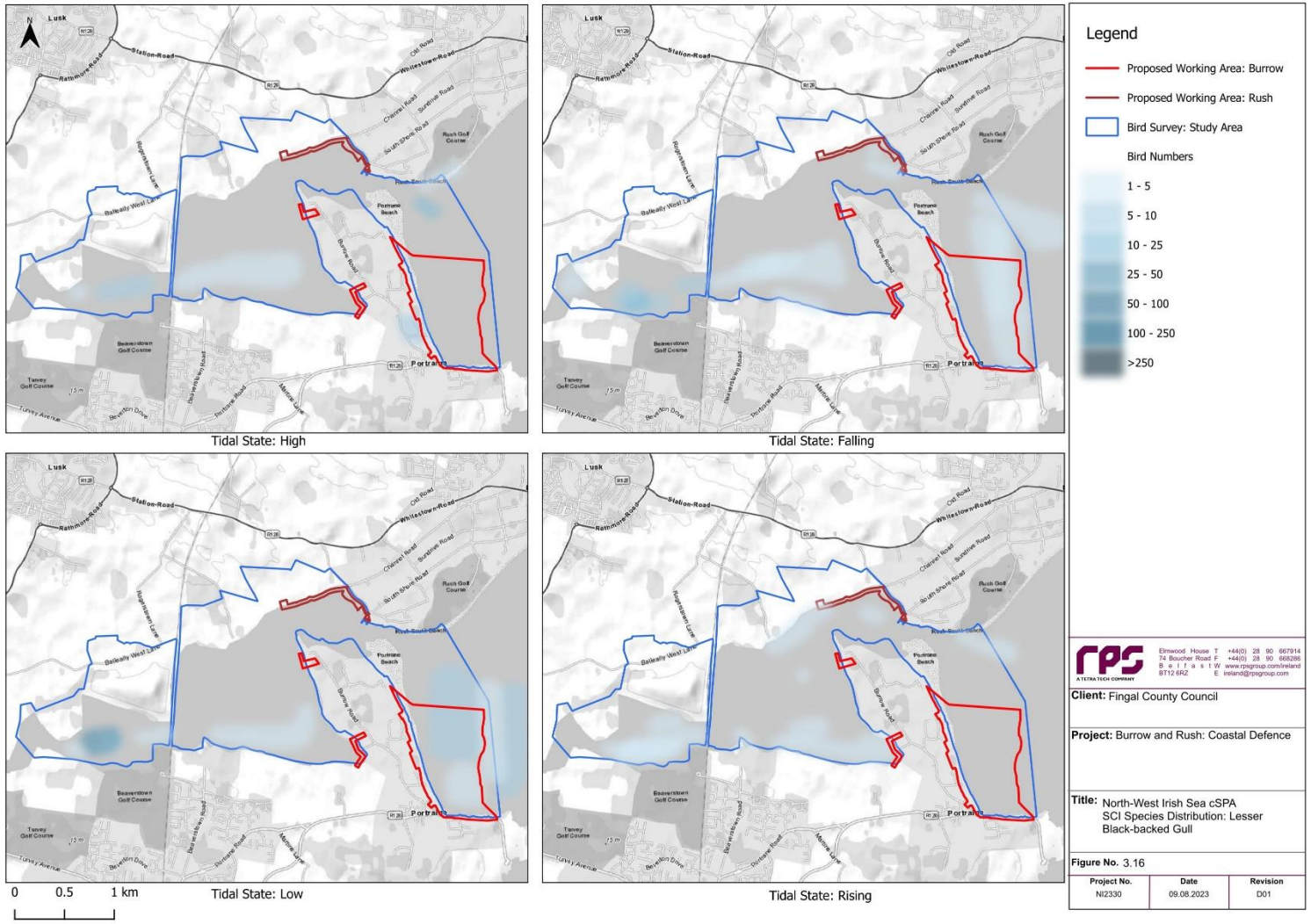

Figure 3.16 – Wetland Bird Survey Results: Lesser Black-backed Gull

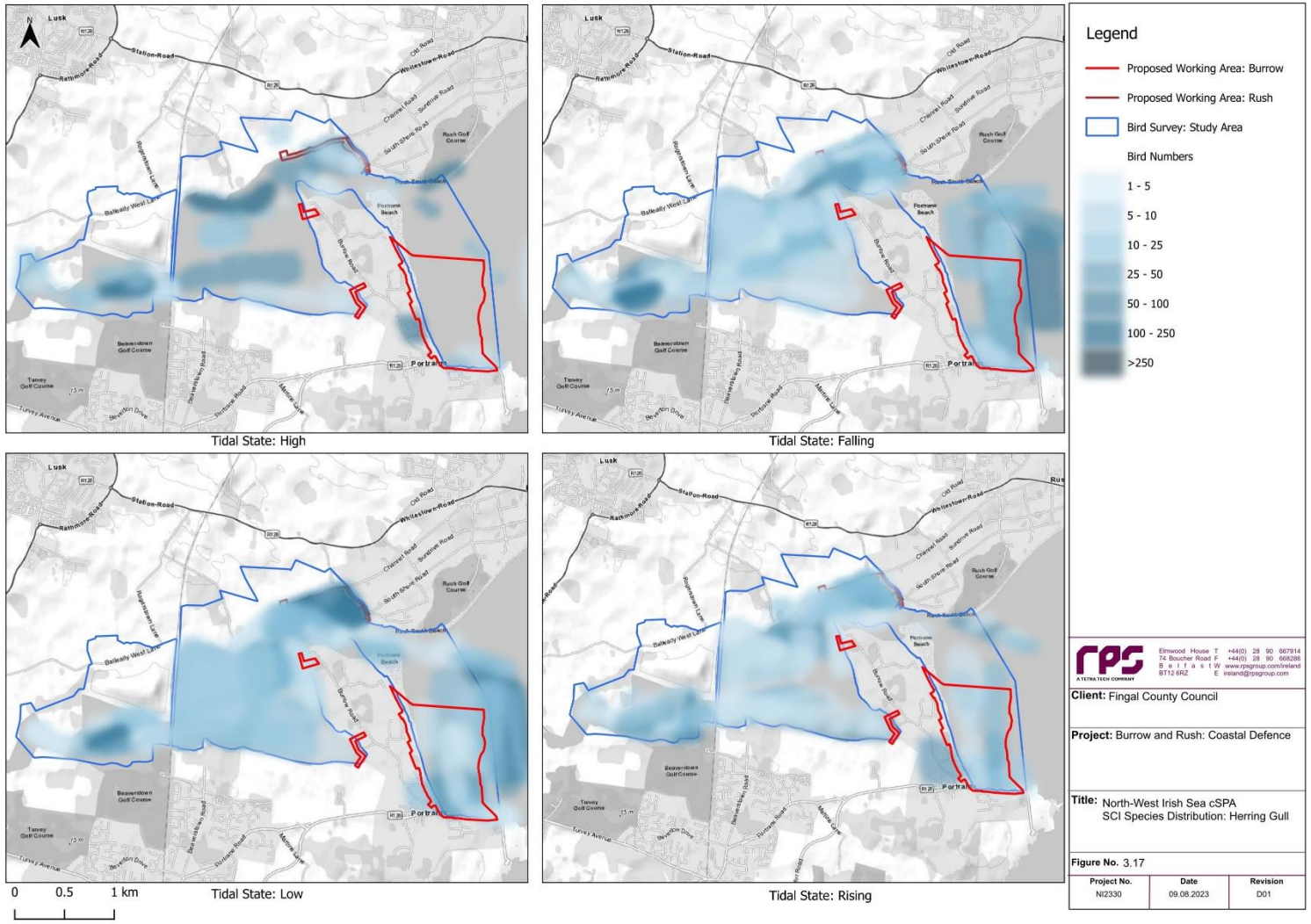

Figure 3.17 – Wetland Bird Survey Results: Herring Gull

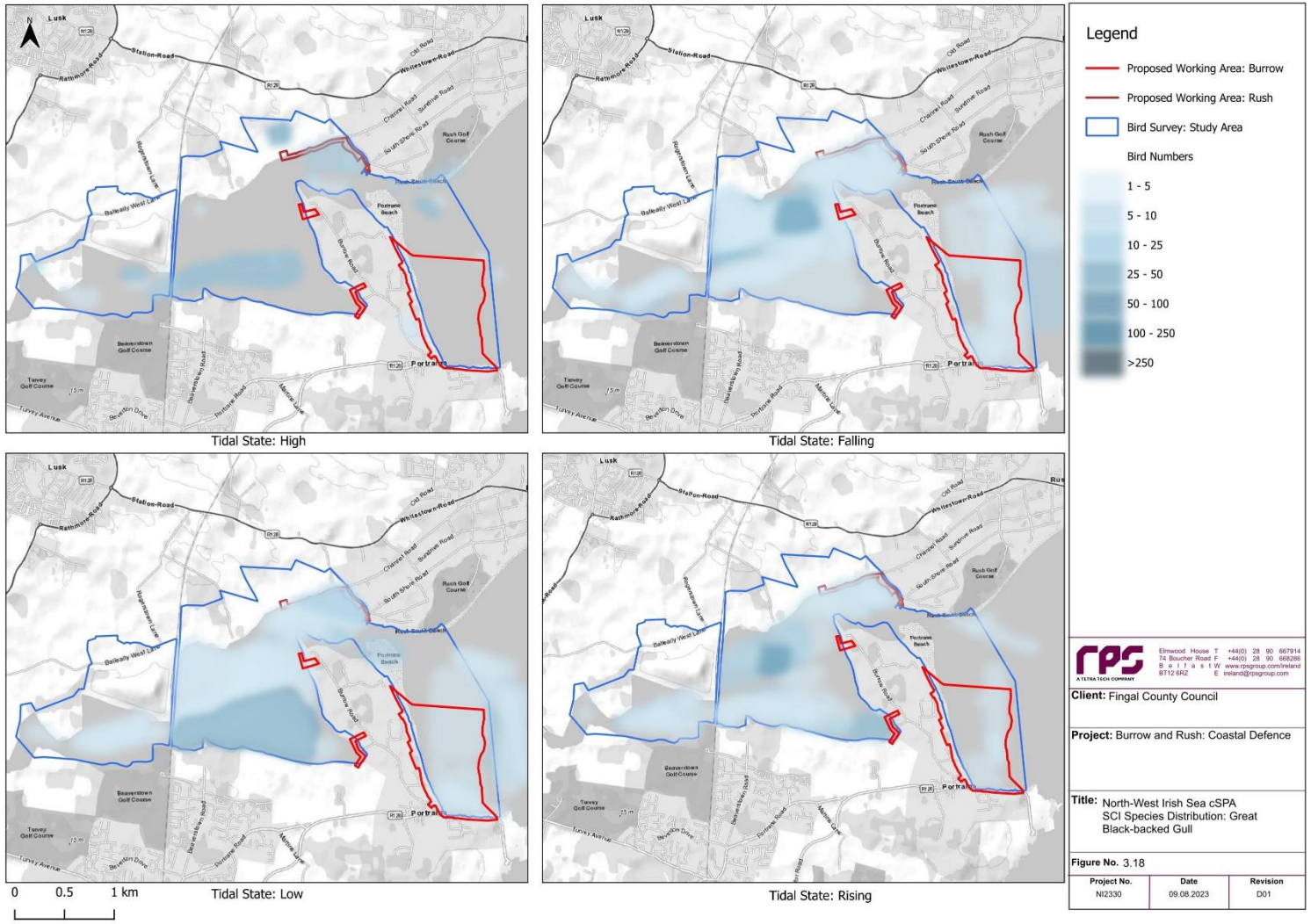

Figure 3.18 – Wetland Bird Survey Results: Great Black-backed Gull

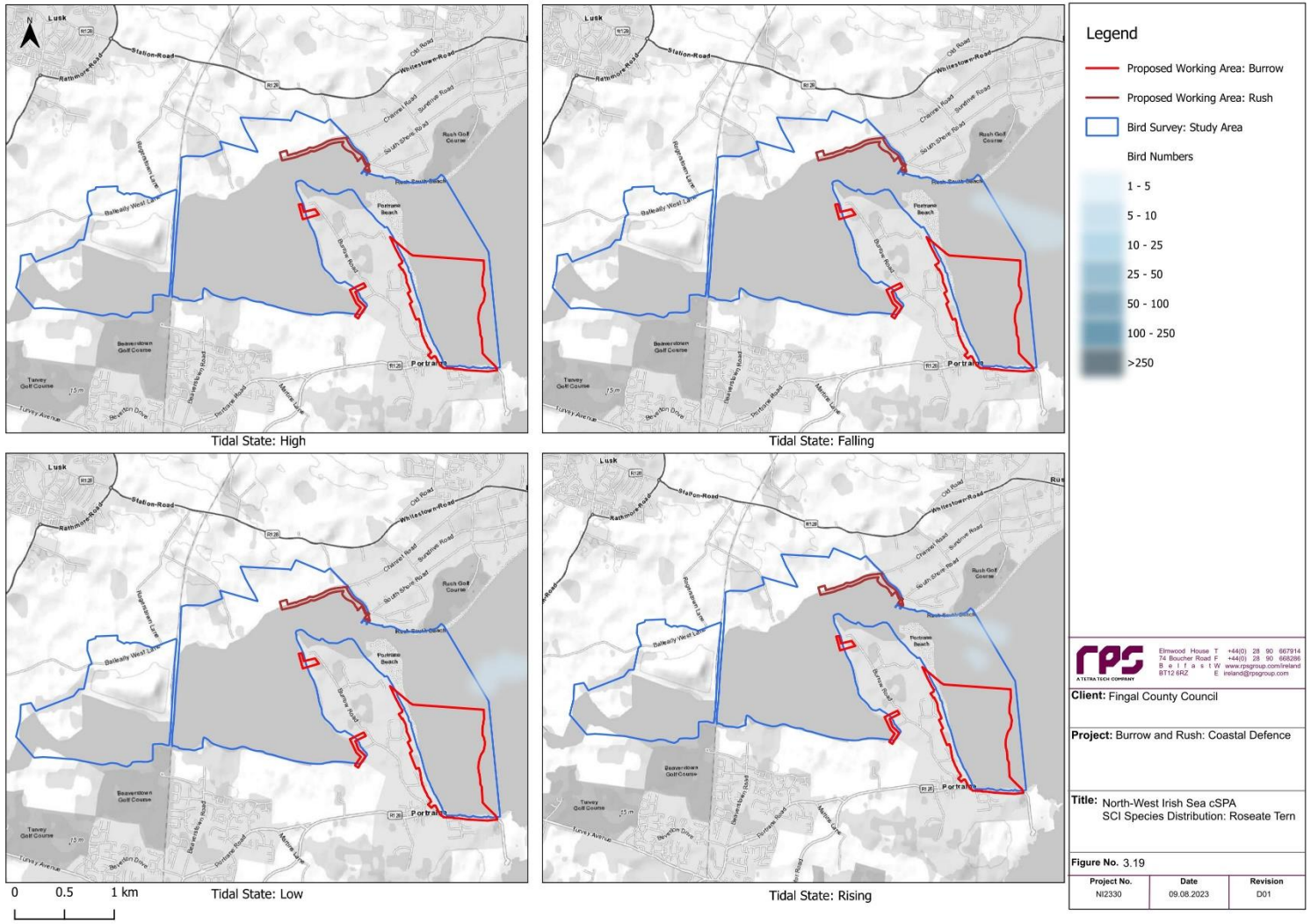

Figure 3.19 – Wetland Bird Survey Results: Roseate Tern

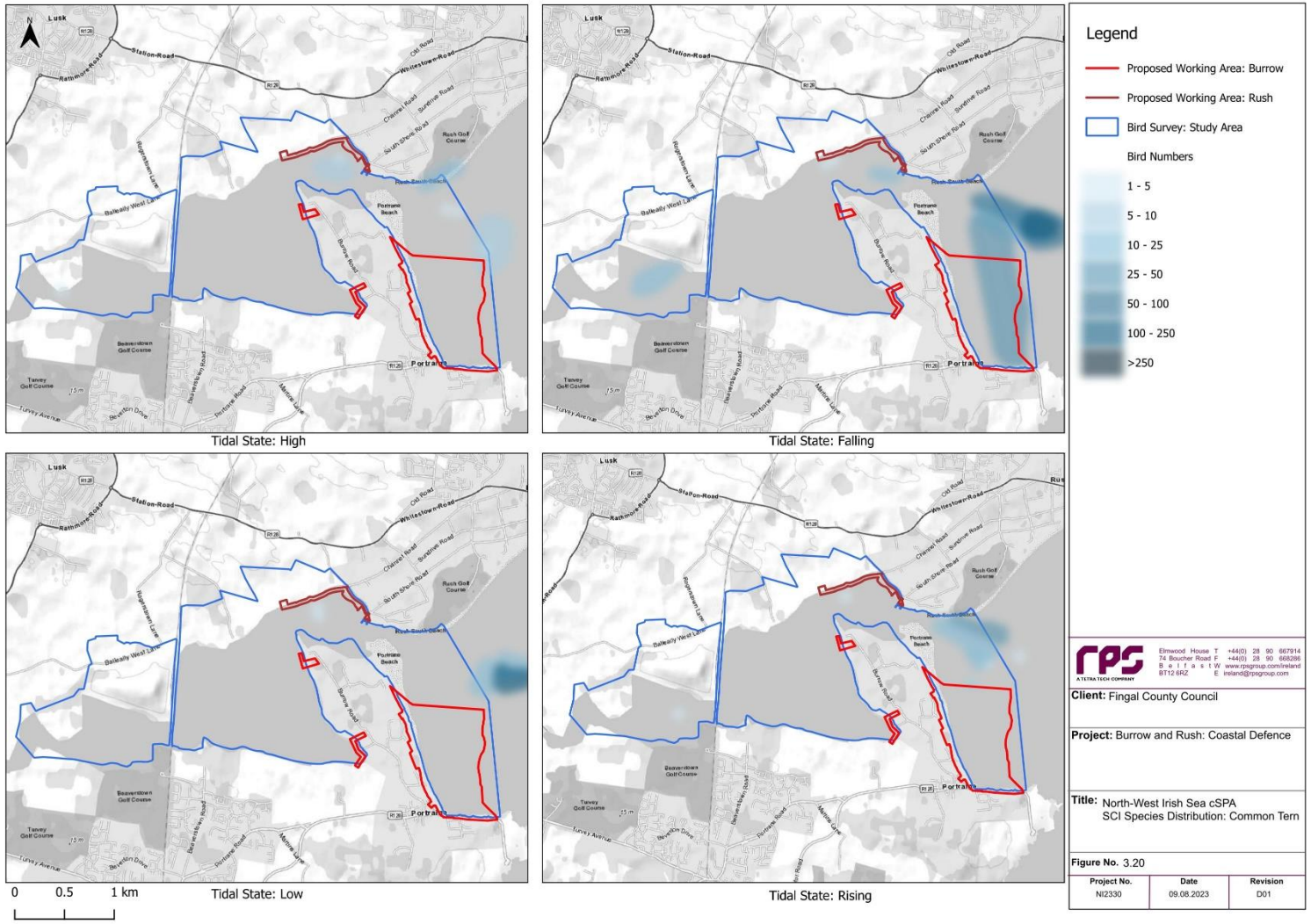

Figure 3.20 – Wetland Bird Survey Results: Common Tern

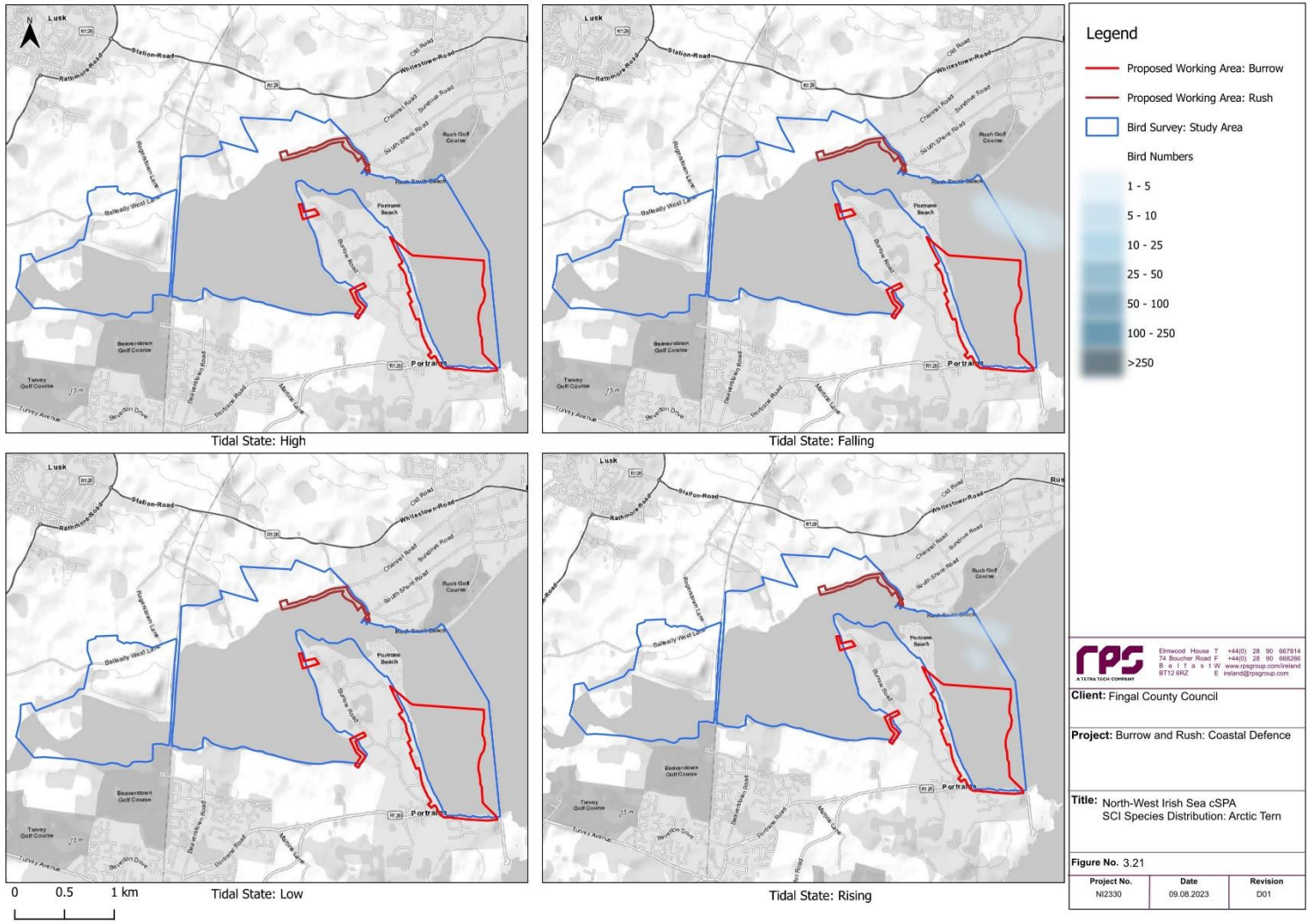

Figure 3.21 – Wetland Bird Survey Results: Arctic Tern

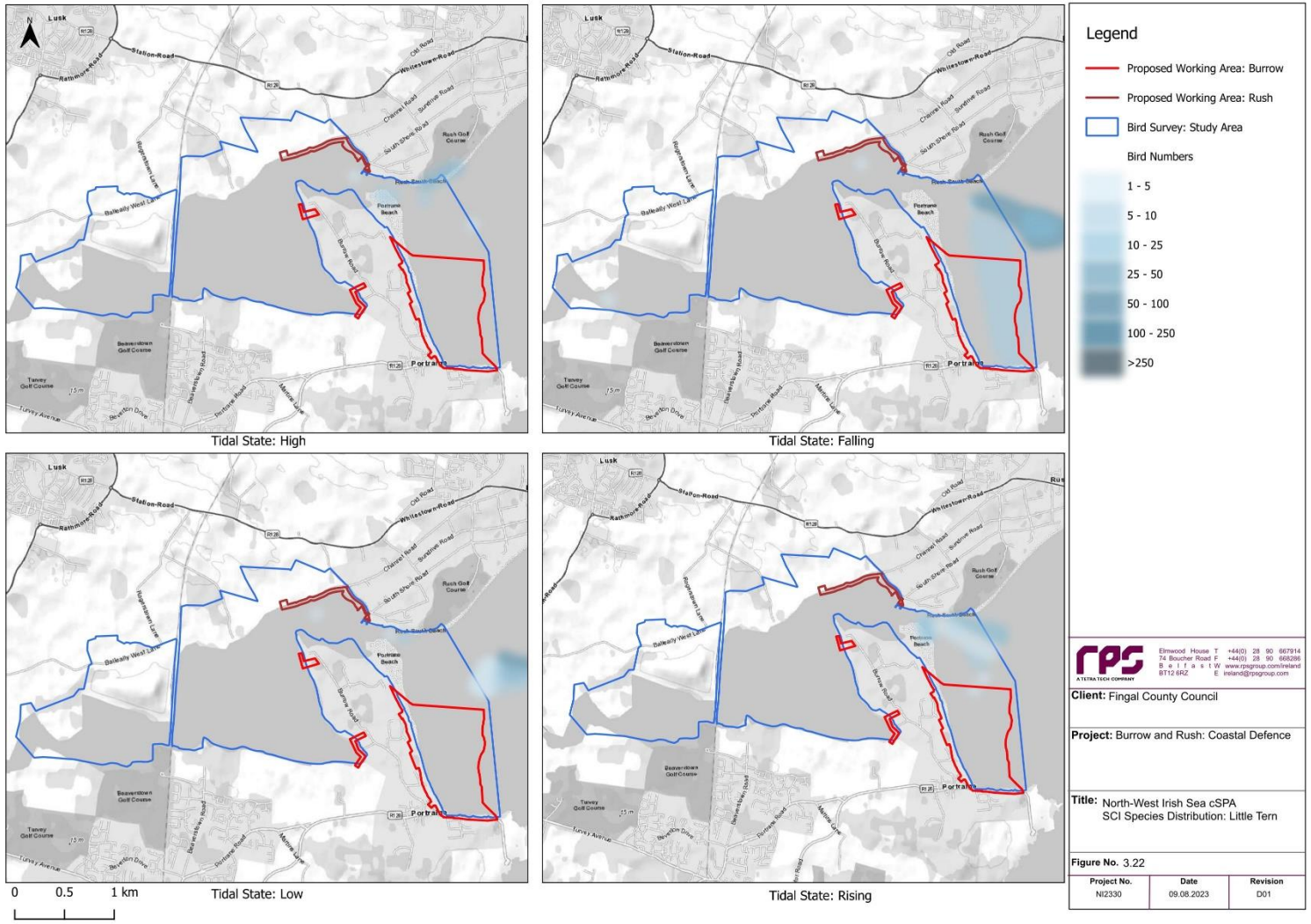

Figure 3.22 – Wetland Bird Survey Results: Little Tern

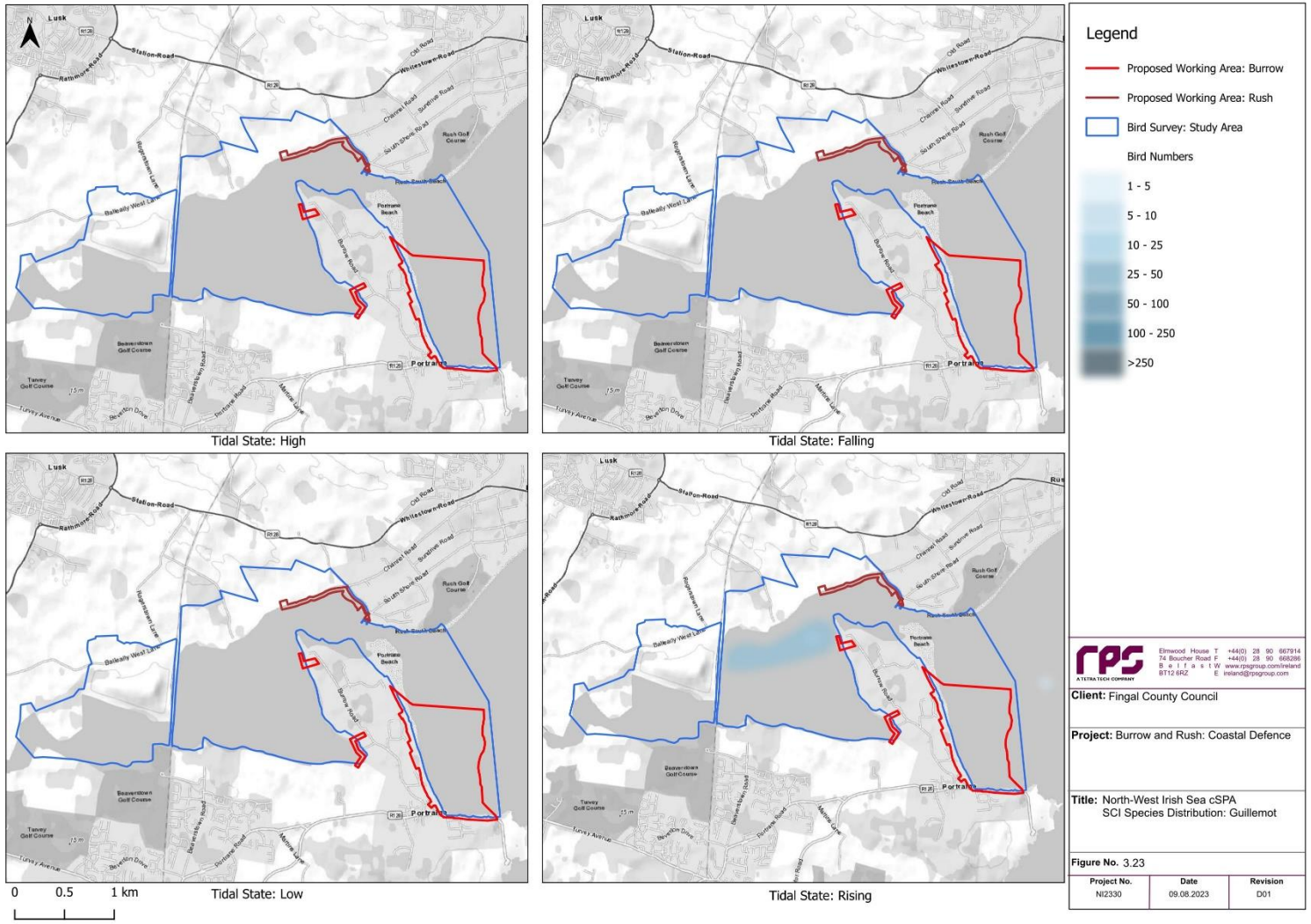

Figure 3.23 – Wetland Bird Survey Results: Guillemot

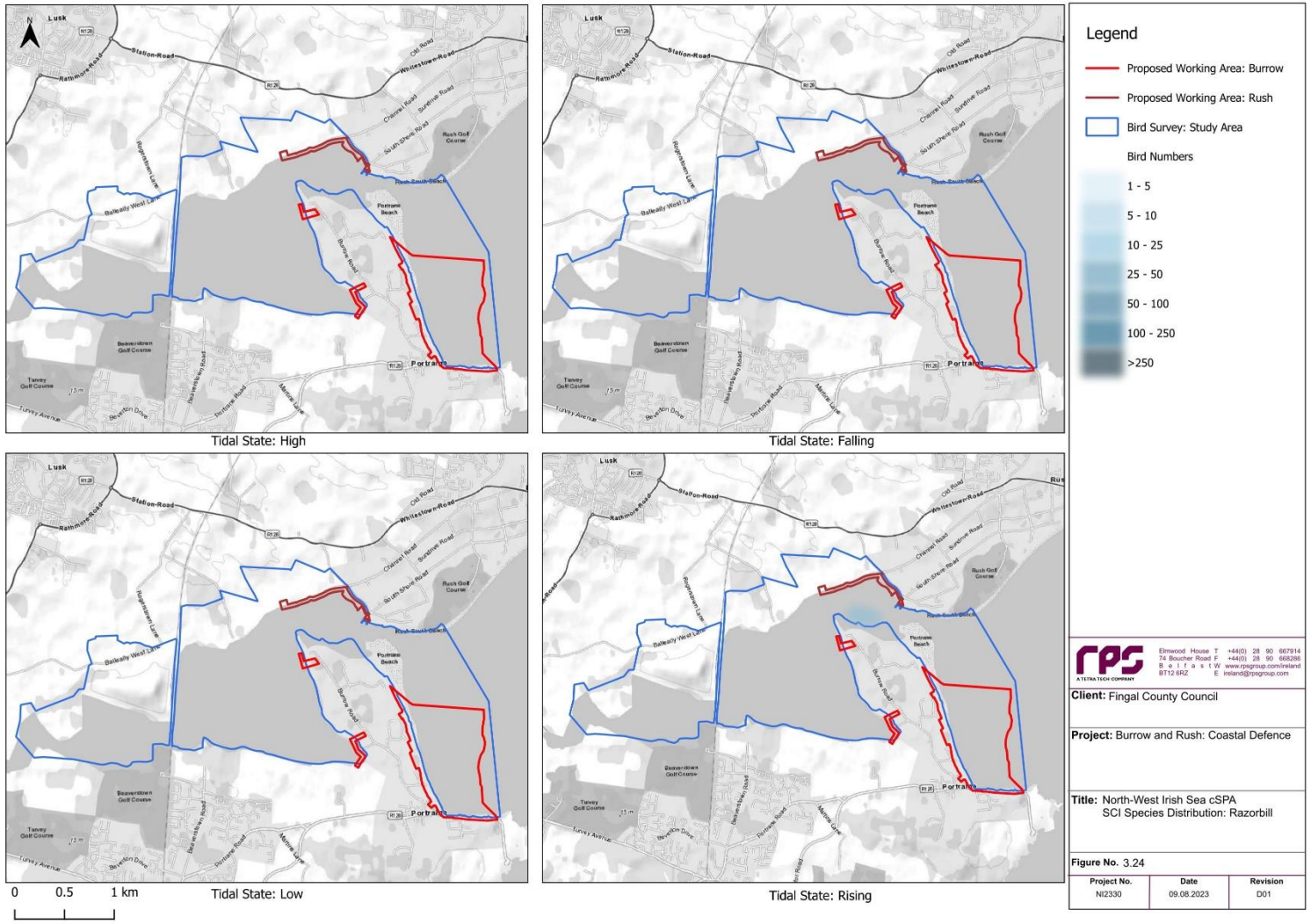

Figure 3.24 – Wetland Bird Survey Results: Razorbill

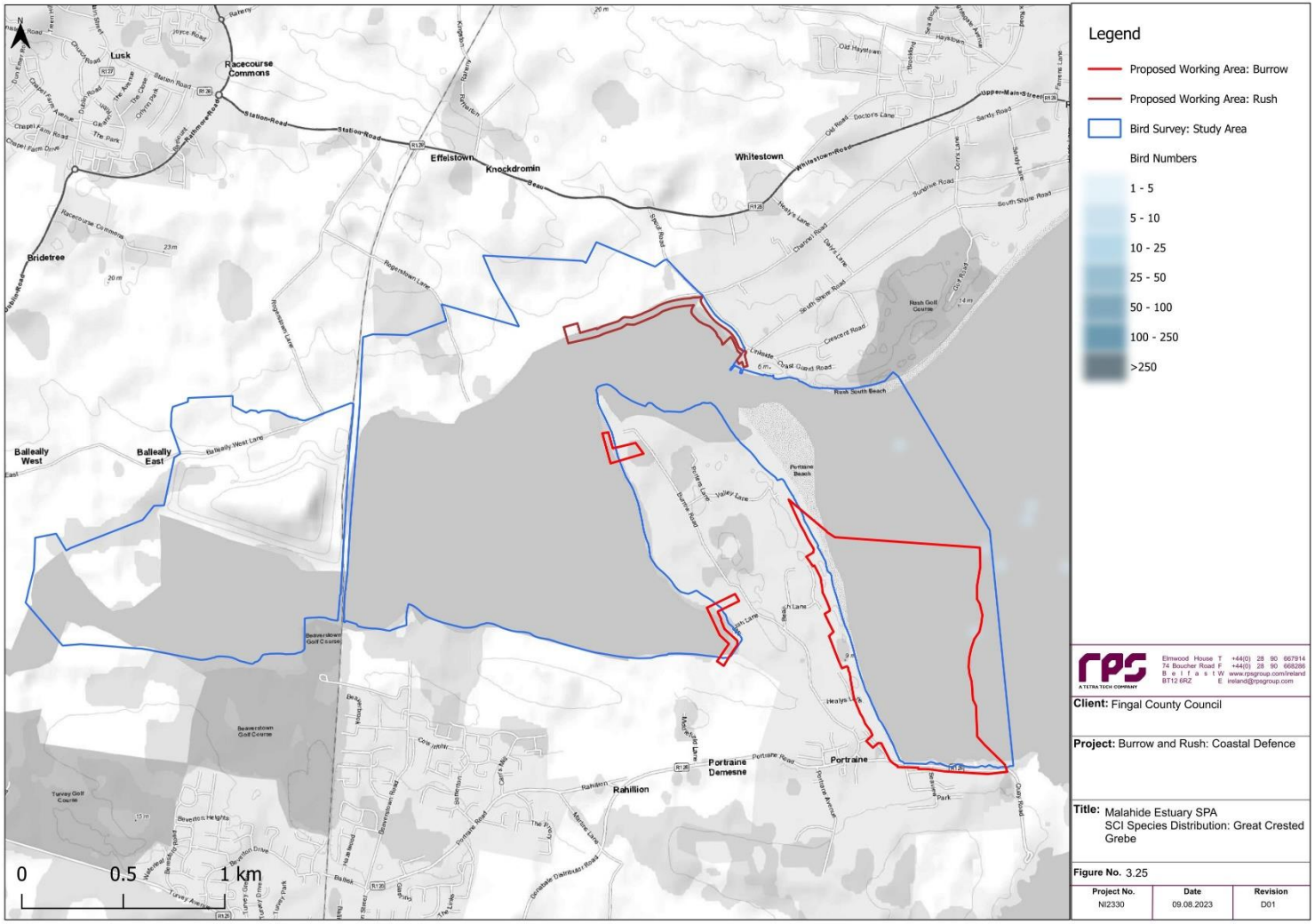

Figure 3.25 – Wetland Bird Survey Results: Great Crested Grebe

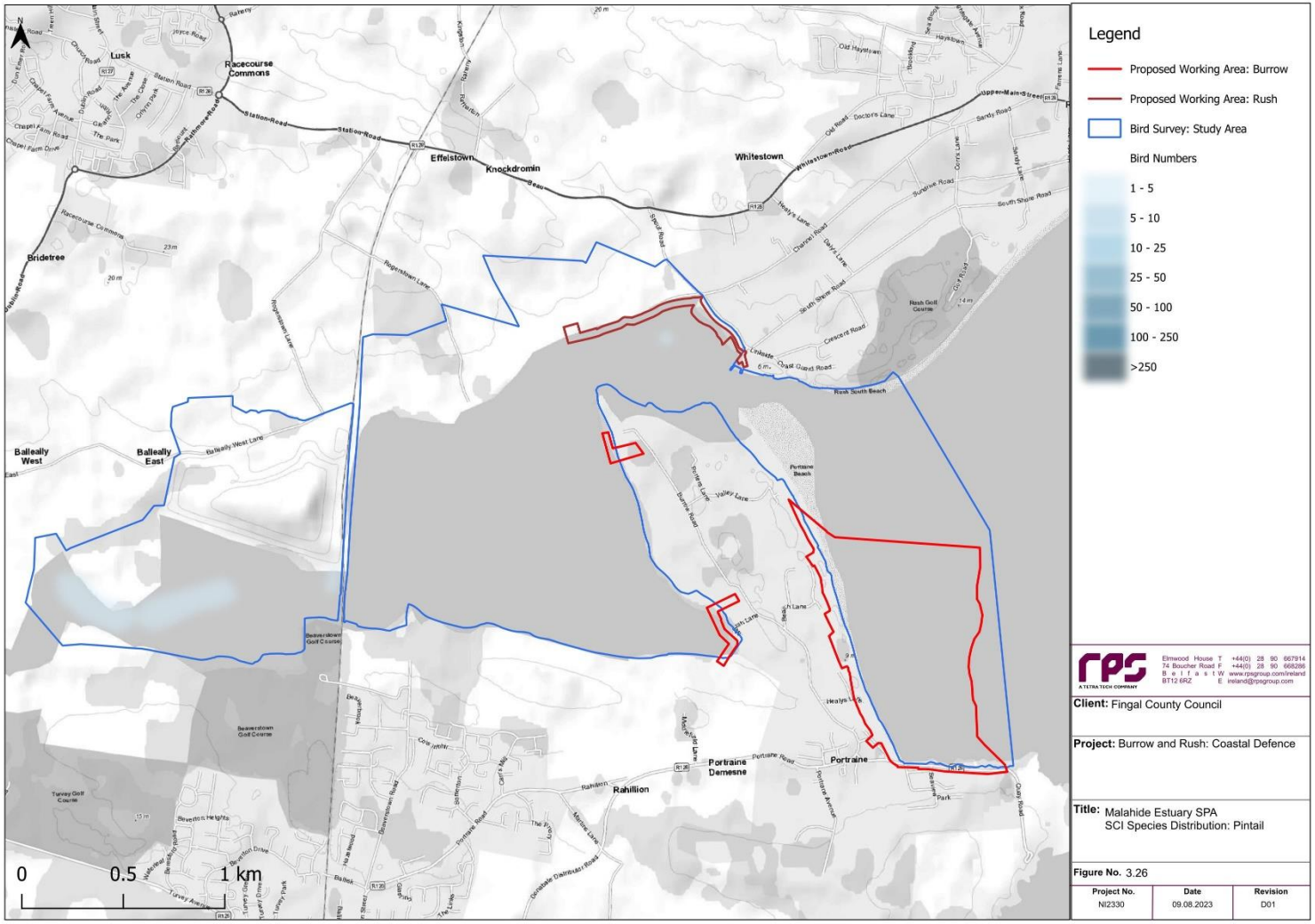

Figure 3.26 – Wetland Bird Survey Results: Pintail

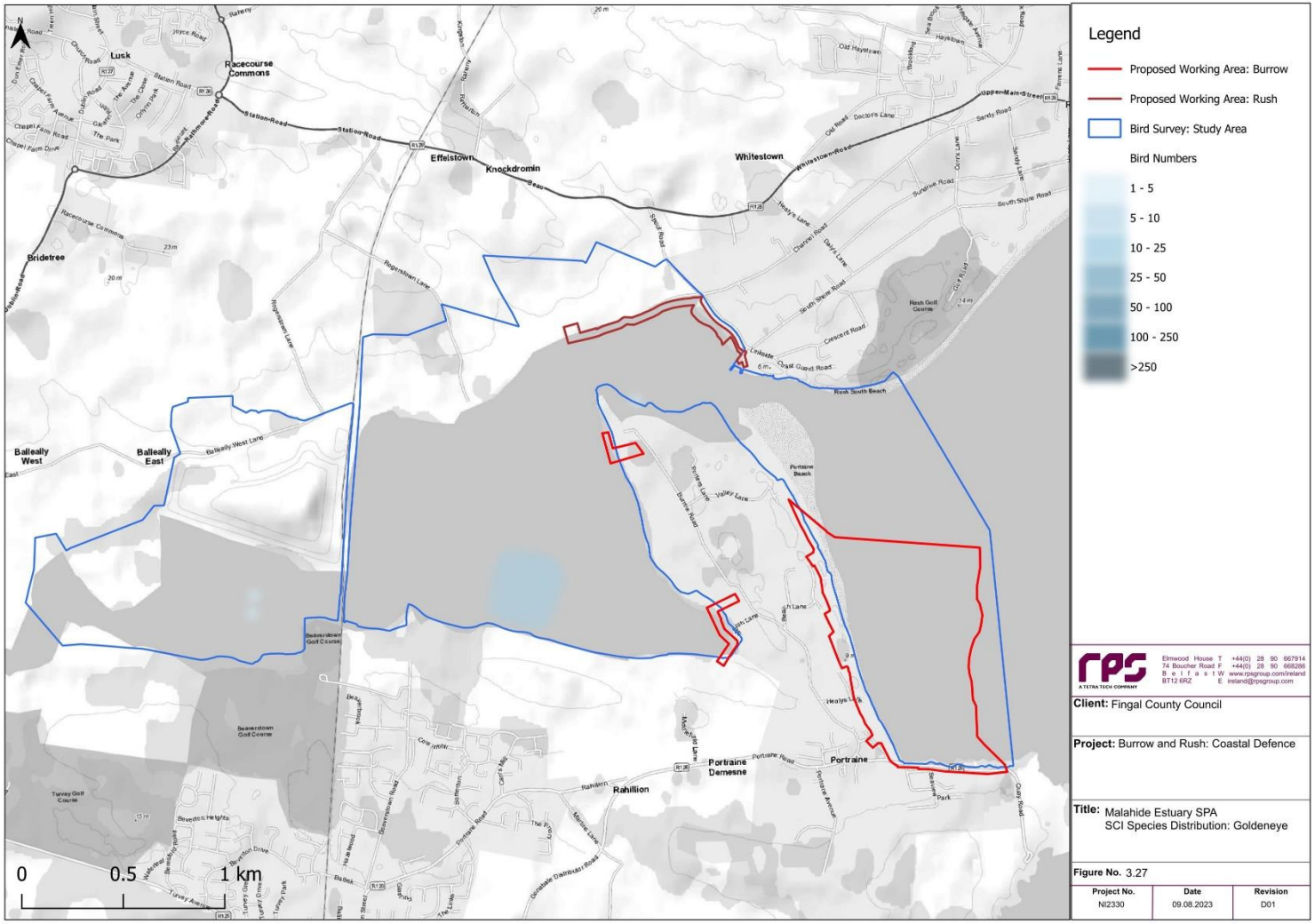

Figure 3.27 – Wetland Bird Survey Results: Goldeneye

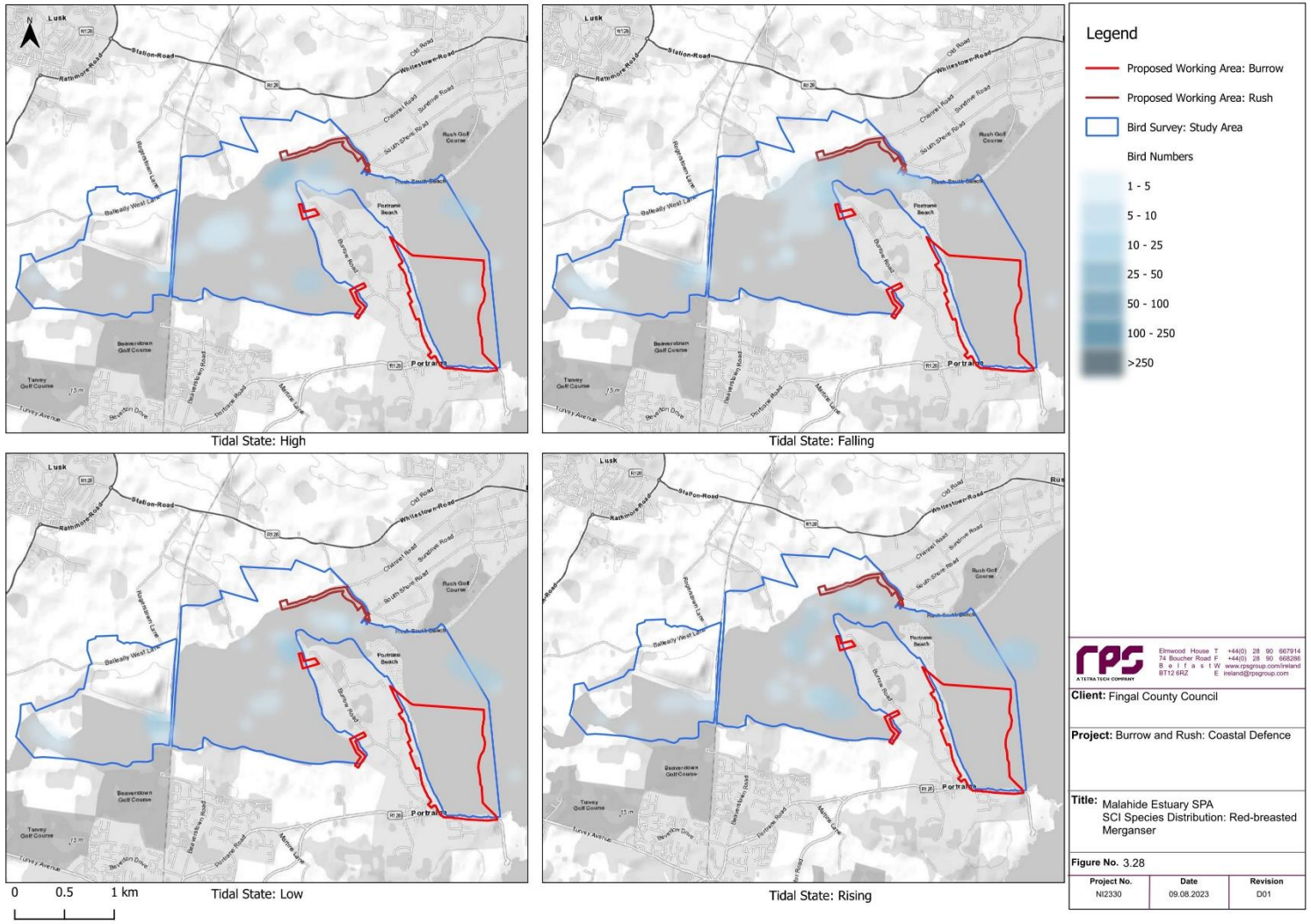

Figure 3.28 – Wetland Bird Survey Results: Red-breasted Merganser

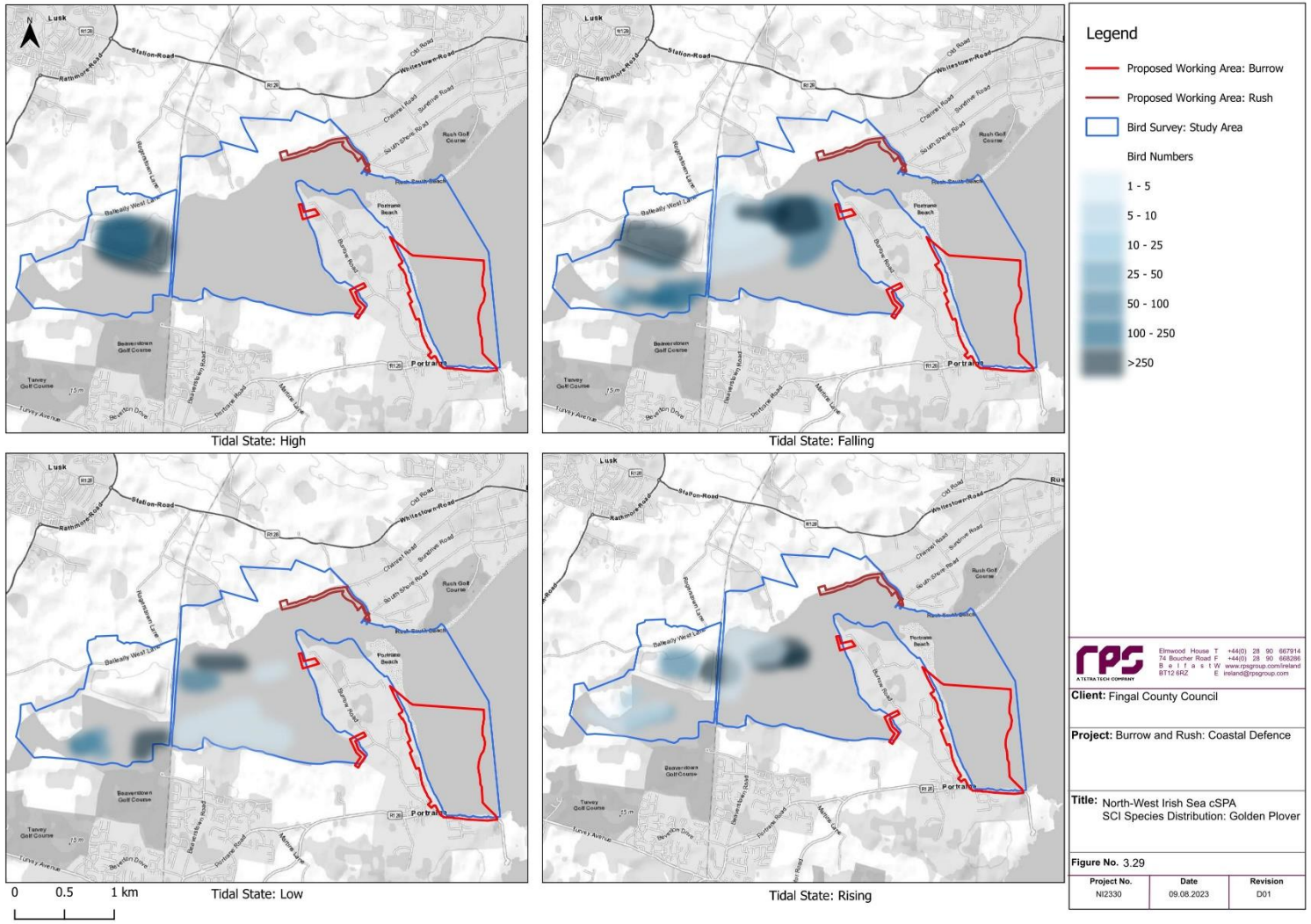

Figure 3.29 – Wetland Bird Survey Results: Golden Plover

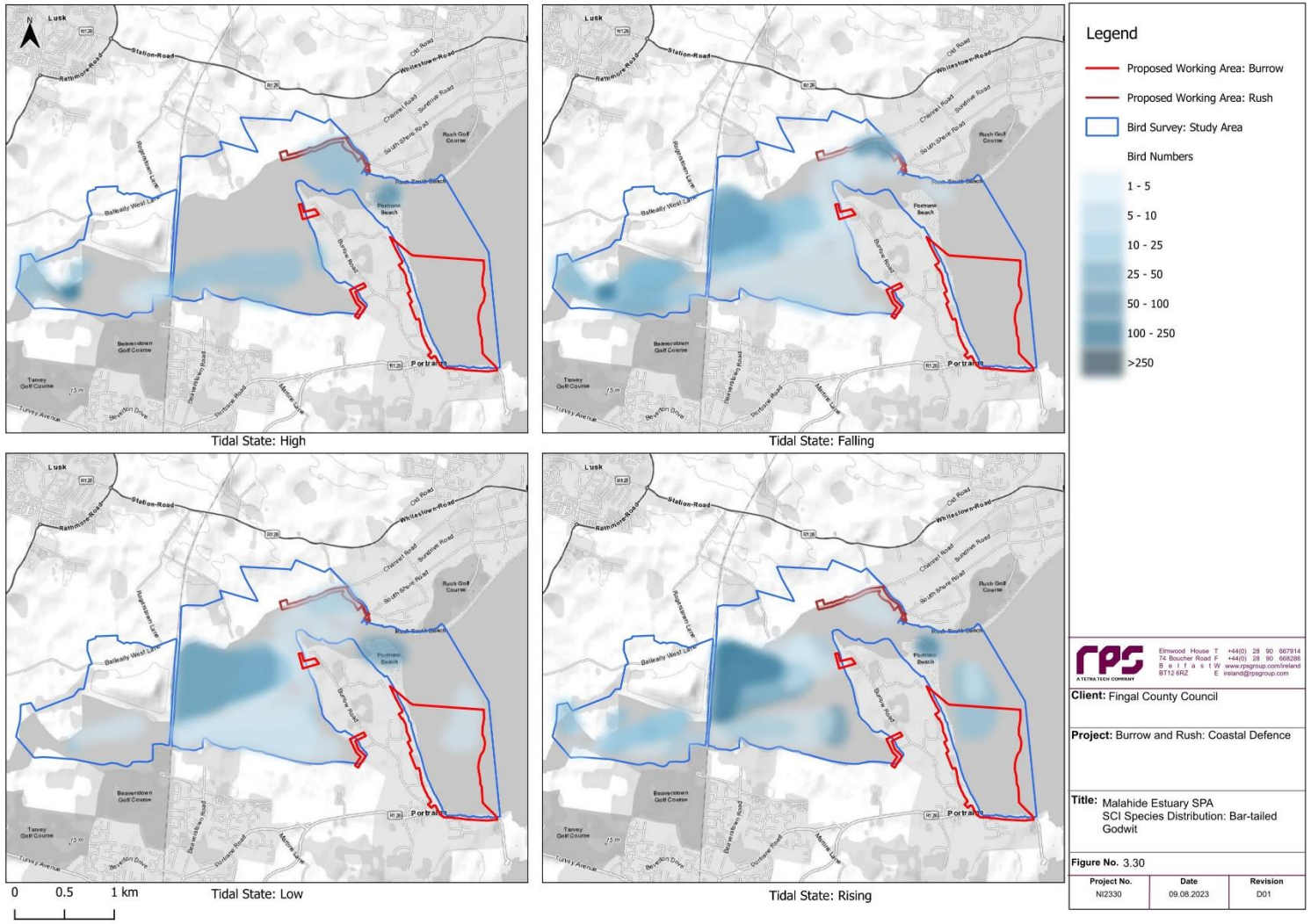

Figure 3.30 – Wetland Bird Survey Results: Bar-tailed Godwit

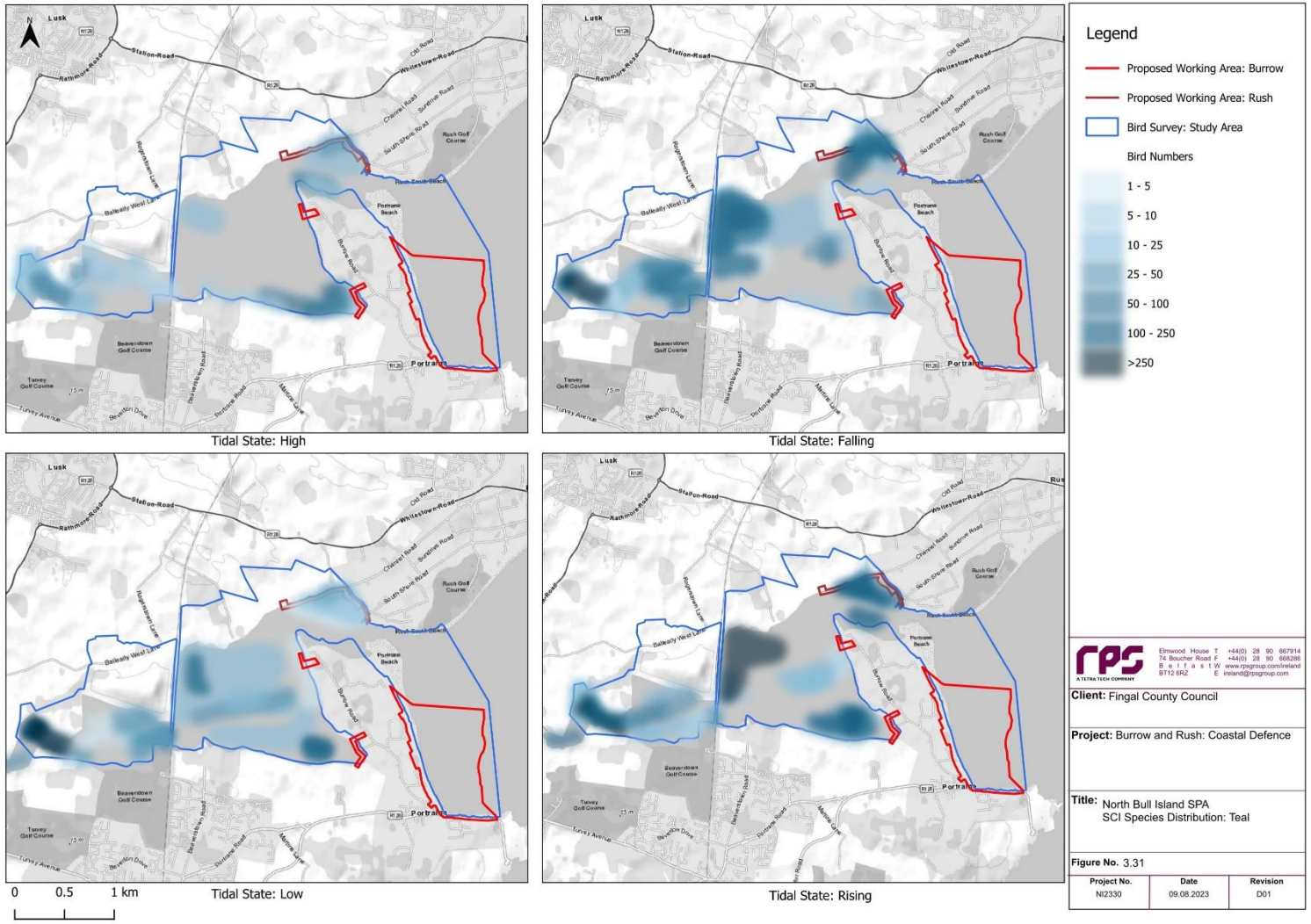

Figure 3.31 – Wetland Bird Survey Results: Teal

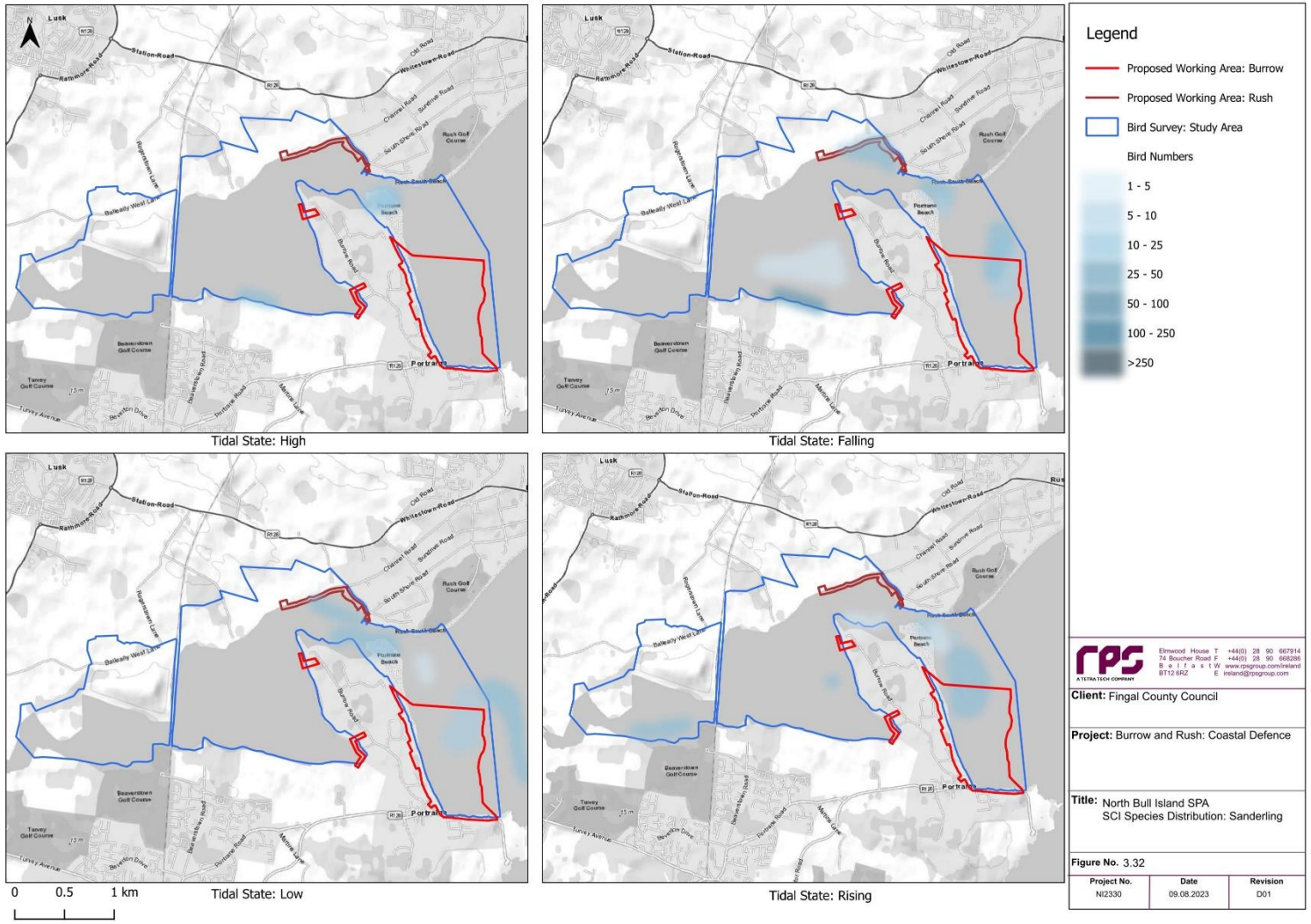

Figure 3.32– Wetland Bird Survey Results: Sanderling

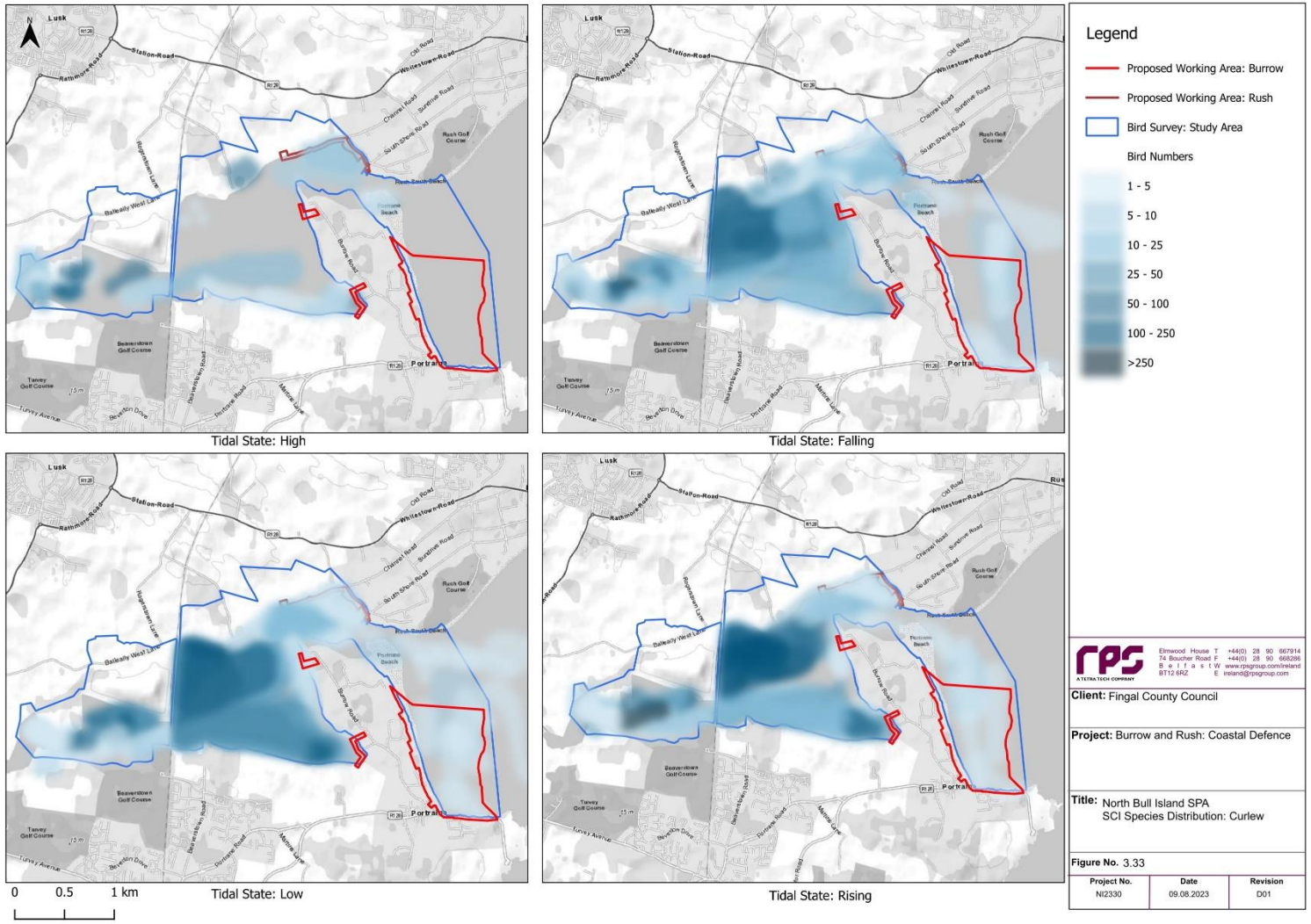

Figure 3.33 – Wetland Bird Survey Results: Curlew

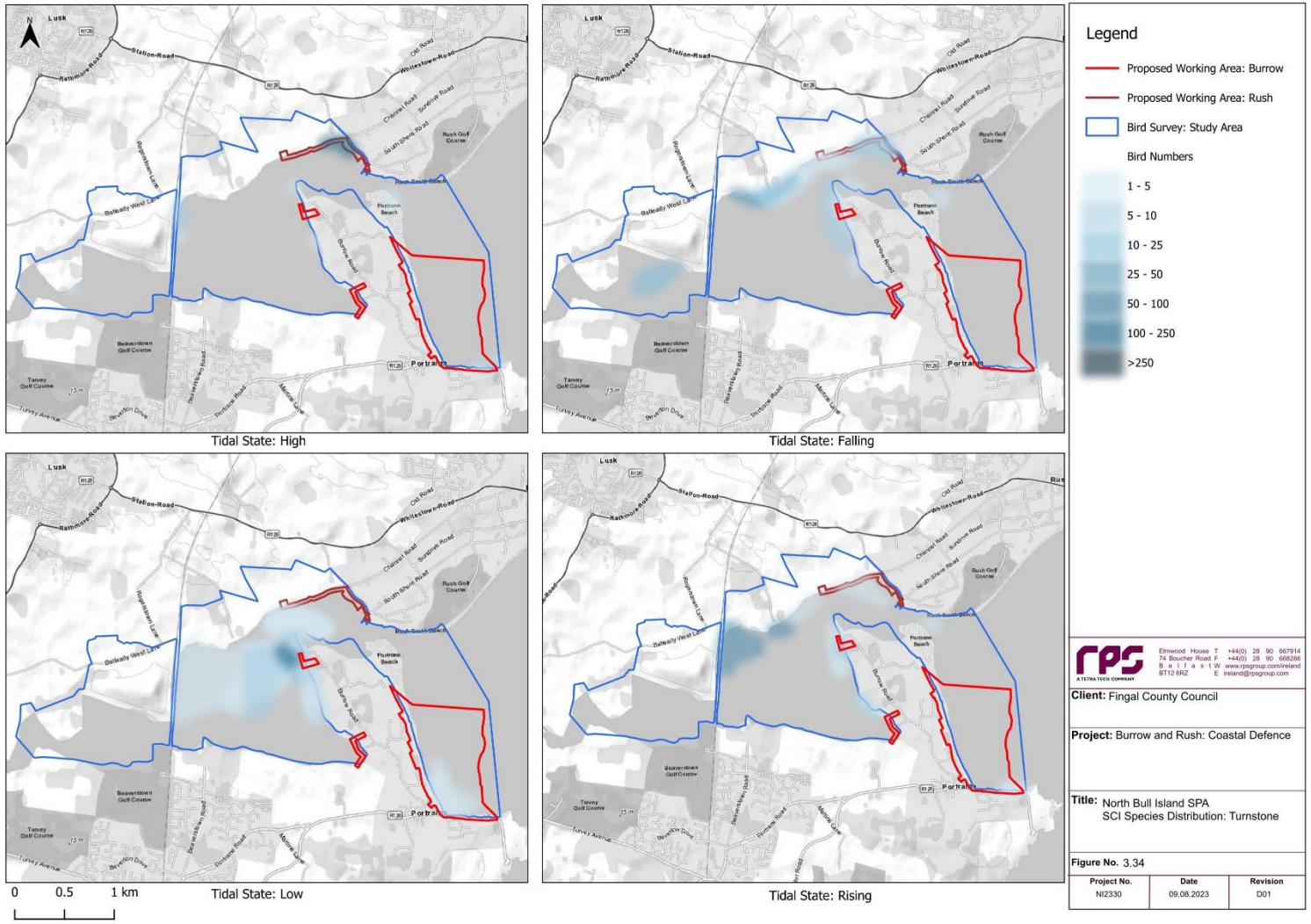

Figure 3.34 – Wetland Bird Survey Results: Turnstone

Appendices

Appendix 1 - BTO Species Codes

BTO SPECIES CODES

AC	Arctic Skua	GA	Gadwall	LE	Long-eared Owl	SM	Sand Martin
AE	Arctic Tern	GX	Gannet	LT	Long-tailed Tit	SS	Sanderling
AV	Avocet	GW	Garden Warbler	MG	Magpie	TE	Sandwich Tern
BO	Barn Owl	GY	Garganey	MA	Mallard	VI	Savi's Warbler
BY	Barnacle Goose	GC	Goldcrest	MN	Mandarin Duck	SQ	Scarlet Rosefinch
BA	Bar-tailed Godwit	EA	Golden Eagle	MX	Manx Shearwater	SP	Scaup
BR	Bearded Tit	OL	Golden Oriole	MR	Marsh Harrier	CY	Scottish Crossbill
BS	Berwick's Swan	GF	Golden Pheasant	MT	Marsh Tit	SW	Sedge Warbler
BI	Bittern	GP	Golden Plover	MW	Marsh Warbler	NS	Serin
BK	Black Grouse	GN	Goldeneye	MP	Meadow Pipit	SA	Shag
TY	Black Guillemot	GO	Goldfinch	MU	Mediterranean Gull	SU	Shelduck
BX	Black Redstart	GD	Goosander	ML	Merlin	SX	Shorelark
BJ	Black Tern	GI	Goshawk	M.	Mistle Thrush	SE	Short-eared Owl
B.	Blackbird	GH	Grasshopper Warbler	MO	Montagu's Harrier	SV	Shoveler
BC	Blackcap	GB	Great Black-backed Gull	MH	Moorhen	SK	Siskin
BH	Black-headed Gull	GG	Great Crested Grebe	MS	Mute Swan	S.	Skylark
BN	Black-necked Grebe	ND	Great Northern Diver	N.	Nightingale	SZ	Slavonian Grebe
BW	Black-tailed Godwit	NX	Great Skua	NJ	Nightjar	SN	Snipe
BV	Black-throated Diver	GS	Great Spotted Woodpecker	NH	Nuthatch	SB	Snow Bunting
BT	Blue Tit	GT	Great Tit	OP	Osprey	ST	Song Thrush
BU	Bluethroat	GE	Green Sandpiper	OC	Oystercatcher	SH	Sparrowhawk
BL	Brambling	G.	Green Woodpecker	PX	Peafowl/Peacock	AK	Spotted Crake
BG	Brent Goose	GR	Greenfinch	PE	Peregrine	SF	Spotted Flycatcher
BF	Bullfinch	GK	Greenshank	PH	Pheasant	DR	Spotted Redshank
BZ	Buzzard	H.	Grey Heron	PF	Pied Flycatcher	SG	Starling
CG	Canada Goose	P.	Grey Partridge	PW	Pied Wagtail	SD	Stock Dove
CP	Capercaillie	GV	Grey Plover	PG	Pink-footed Goose	SC	Stonechat
C.	Carrion Crow	GL	Grey Wagtail	PT	Pintail	TN	Stone-curlew
CW	Cetti's Warbler	GJ	Greylag Goose	PO	Pochard	TM	Storm Petrel
CH	Chaffinch	GU	Guillemot	PM	Ptarmigan	SL	Swallow
CC	Chiffchaff	FW	Guineafowl (Helmeted)	PU	Puffin	SI	Swift
CF	Chough	HF	Hawfinch	PS	Purple Sandpiper	TO	Tawny Owl
CL	Cirl Bunting	HH	Hen Harrier	Q.	Quail	T.	Teal
CT	Coal Tit	HG	Herring Gull	RN	Raven	TK	Temminck's Stint
CD	Collared Dove	HY	Hobby	RA	Razorbill	TP	Tree Pipit
CM	Common Gull	HZ	Honey Buzzard	RG	Red Grouse	TS	Tree Sparrow
CS	Common Sandpiper	HC	Hooded Crow	KT	Red Kite	TC	Treecreeper
CX	Common Scoter	HP	Hoopoe	ED	Red-backed Shrike	TU	Tufted Duck
CN	Common Tern	HM	House Martin	RM	Red-breasted Merganser	TT	Turnstone
CO	Coot	HS	House Sparrow	RQ	Red-crested Pochard	TD	Turtle Dove
CA	Cormorant	JD	Jackdaw	FV	Red-footed Falcon	TW	Twite
CB	Corn Bunting	J.	Jay	RL	Red-legged Partridge	WA	Water Rail
CE	Corncrake	K.	Kestrel	NK	Red-necked Phalarope	W.	Wheatear
CI	Crested Tit	KF	Kingfisher	LR	Redpoll (Lesser)	WM	Whimbrel
CR	Crossbill (Common)	KI	Kittiwake	RK	Redshank	WC	Whinchat
CK	Cuckoo	KN	Knot	RT	Redstart	WG	White-fronted Goose
CU	Curlew	LM	Lady Amherst's Pheasant	RH	Red-throated Diver	WH	Whitethroat
DW	Dartford Warbler	LA	Lapland Bunting	RE	Redwing	WS	Whooper Swan
DI	Dipper	L.	Lapwing	RB	Reed Bunting	WN	Wigeon
DO	Dotterel	TL	Leach's Petrel	RW	Reed Warbler	WT	Willow Tit
DN	Dunlin	LB	Lesser Black-backed Gull	RZ	Ring Ouzel	WW	Willow Warbler
D.	Dunnock	LS	Lesser Spotted Woodpecker	RP	Ringed Plover	OD	Wood Sandpiper
EG	Egyptian Goose	LW	Lesser Whitethroat	RI	Ring-necked Parakeet	WO	Wood Warbler
E.	Eider	LI	Linnet	R.	Robin	WK	Woodcock
FP	Feral Pigeon	ET	Little Egret	DV	Rock Dove (not feral)	WL	Woodlark
ZL	Feral/hybrid goose	LG	Little Grebe	RC	Rock Pipit	WP	Woodpigeon
ZF	Feral/hybrid mallard type	LU	Little Gull	RO	Rook	WR	Wren
FF	Fieldfare	LO	Little Owl	RS	Roseate Tern	WY	Wryneck
FC	Firecrest	LP	Little Ringed Plover	RY	Ruddy Duck	YW	Yellow Wagtail
F.	Fulmar	AF	Little Tern	RU	Ruff	Y.	Yellowhammer