

# Appendix 7.3 Storm Petrel Report

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# Appendix 7.3 Storm Petrel Report

## Overview

ITPEnergised (ITPE) was appointed by Orkney Islands Council to undertake a series of ornithological surveys in support of a proposed wind farm development on the island of Faray, Orkney (hereafter referred to as the 'Site'). The Site centres on Ordnance Survey Grid Reference HY 53112 036752 and its location is shown on Figure TA7.3.1 in Technical Appendix 7.1 Avian Baseline Conditions.

## Site Description

The Site is an uninhabited island located 830m to the west of Eday (north-west of Fersness Bay) and south-east of Westray, lying between the Sound of Faray to the east and Rapness Sound to the west. Several drainage ditches run across the island in addition to a few small, unmodified burn channels fed from slightly higher and wetter areas. The shoreline comprises primarily rocky exposures and cliffs with some sandy beaches also present (south-eastern side of the southern tip; and in several locations along the western coast line). A number of abandoned dwellings are also present on the island, the majority of which have lost their roofing.

## Background and Consultation

During initial discussions with Scottish Natural heritage (SNH) in February 2019 (since renamed to NatureScot (NS)) for the pre-scoping for ornithological surveys at the Site, information was provided which outlined the potential presence of breeding storm petrels (*Hydrobates pelagicus*) on the island (JNCC, 2018).

During their breeding season storm petrels breed in small colonies in boulders, walls and buildings only returning to nest sites after dark. Owing to the fact that the birds fly in the hours of darkness, storm petrel require very specific survey methodology (as per Gilbert et al., 1998), involving call-back surveys undertaken when adult birds are incubating (June to late August) while remaining in the breeding burrows during daylight hours. Call-back surveys involve playing the storm petrel call and listening for return calls from adult birds within breeding areas: in this case walls, areas of boulders and structures on the island.

The results of the call-back survey undertaken in July 2019 identified a total of 91 adults on sites (AOS) on Faray, for locations see Confidential Figure TA7.3.2. In order to establish whether or not storm petrels were flying over the island and therefore into the potential collision zones, and following further discussions with NS on 23rd July 2019, additional survey work in the form of nocturnal 'celiometry' surveys were completed over three nights in July and August 2019.

During ongoing consultation with between November 2019 and February 2020 further work and methodologies were discussed, NS outlined their concerns about the resulting total (AOS) of the initial callback survey and the need to use a calibration methodology which calculates the percentage of birds responding to the callback (as not all birds present respond to each callback on a given day). This means the final resulting total of confirmed AOS can be adjusted to give a more robust estimate of the actual number of breeding pairs. In addition, NS outlined the requirement for further celometry surveys using the most up to date site layout, meaning surveys would be completed at the proposed turbine locations. NS approved the proposed scope of works (by email dated February 19th 2020).

## Aims

This report presents the storm petrel-specific ornithological survey work undertaken in support of the Proposed Development by ITPE in July-August 2019 and July 2020.

The overall objectives of the storm petrel surveys were to:

- map the distribution of storm petrel burrows on the Site; and
- quantify the level of flight activity by storm petrels at night to/from burrows in proximity to proposed turbine locations.

## Legislation and Biodiversity

### *Legislation*

All relevant legislation and guidance documents have been reviewed and taken into account as part of this assessment, as referenced in this report. A brief summary of pertinent nature conservation legislation is presented below.

Of particular relevance are:

- Council Directive 2009/147/EC on the conservation of wild birds (i.e. the “Birds Directive”);
- The Ramsar Convention 1976;
- Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (i.e. the “Habitats Directive”);
- The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended);
- The Wildlife and Countryside Act 1981 (as amended);
- The Wildlife and Natural Environment (Scotland) Act 2011 (as amended); and
- The Nature Conservation (Scotland) Act 2004 (as amended), which places a statutory duty on all public bodies to further the conservation of biodiversity through the Scottish Biodiversity Strategy, with Scottish priority species and habitats listed on the Scottish Biodiversity List (SBL), itself based on the former UK Biodiversity Action Plan (UKBAP), and regional biodiversity targets defined through a Local Biodiversity Action Plan (LBAP). The LBAP of relevance to this report is the Orkney LBAP.

Storm petrel is listed on the Amber List of Birds of Conservation Concern (BoCC) (Eaton et al., 2015), is a Scottish Biodiversity List (SBL) priority species (Scottish Government, 2013) and an Orkney LBAP priority species (Orkney’s Biodiversity Steering Group, 2018) and is also listed on Annex 1 of the Birds Directive that includes the 193 most endangered species in Europe.

For reasons of brevity, please refer to the Technical Appendices 7.1 Avian Baseline for a detailed summary of relevant international and national legislation which is of relevance for storm petrel as well as the remaining avian interest at the Site.

## Methods

### *Field Surveys*

#### **Full island callback survey, including calibration**

A full island storm petrel call-back survey was initially undertaken on 24th, 27th and 28th June 2019 and repeated between 18th-20th July 2020. Due to the fact that birds are not visible to surveyors throughout daytime hours storm petrel require very specific monitoring methodology (outlined in Gilbert *et al.* (1998)) and involves playing the storm petrel call and listening for return calls from adult birds within breeding areas: in this case walls and other structures on the island. Surveys are completed when petrels are incubating and thus present in nest burrows during daylight hours (at other times adults are absent feeding throughout daylight hours only returning to nest sites and leaving again during darkness) which is between early June and late July/early August.

During the 2019 callback survey the recording used for the survey playback was a recording of a bird from a wall in the cemetery on west of Faray. In order to standardise the methodology between all storm petrel breeding sites on Orkney and the Northern Isles a standardised playback call was used which was taken from a storm petrel breeding ground on Mousa, Shetland. This call is the standard used by the RSPB to monitor all their sites in Orkney, thus allowing for standardised and direct comparison between Faray and other storm petrel breeding sites.

In conjunction with the callback survey a ‘calibration’ was undertaken in order to calculate the callback ratio for the island population with the chosen playback call. The calibration followed the methodology as outlined in Gilbert *et al.* (1998) and was completed on the seven days between 18 - 24th July. The calibration zone was selected along the stone dyke and associated boulders on the northern edge of the island (see plates in Annex B). This location was selected as being the highest number of AOS’s recorded in 2019 and the habitat chosen for the calibration was seen as representative of all the storm petrel habitat on the island as they are only known to breed in structures (walls) and boulder piles. There are no other known petrel breeding sites on the island, most notably burrows, as there are no rabbits or other burrowing mammals (or birds such as puffin) present on the island. Calibration involves undertaking playback calls at fixed points over the same transect on seven consecutive days with all callbacks recorded each day. The calibration aimed to account for up to 20% of the island AOSs, i.e. approximately 20 locations.

To calculate the callback ratio each response is carefully marked each day and totalled and the (%) callback ratio is then calculated using the sum totals of callback and dividing by the number of different callback locations.

In order to calculate the island total of AOSs the total number of callbacks (AOS’s) away from the calibration zone is adjusted using the callback ratio and added to the total of AOSs in the calibration zone.

### Celiometry

The survey methodology suggested by NS to assess storm petrel nocturnal flight activity was to use “ceiometry”, a technique that records bird movements through a beam of a strong torch light. This approach was first outlined by Gauthreaux (1969). The proposed methodology for Faray was to survey, initially in 2019 at two locations roughly at the island centre within the likely turbine array. This approach was then repeated in 2020 at each of the six proposed turbine locations, using a 500 lumens strength spot light. The spotlight chosen had a stand which will be placed on the ground and used to maintain the torch as a constant beam facing directly upwards. The surveyor stands in close proximity to the beam and records all storm petrels which fly through the beam, noting the number of birds and the height they are noted at as well as time, date and weather conditions for each survey. The surveys lasted up to 2 hours covering as much ‘darkness’ as possible at this northerly location mid-summer. Surveys in 2020 commenced with a red light filter on the spotlight but it was considered to reduce the beam strength too much and was not used following the first survey.

In order to assist in identifying the height bands it was first essential to use surveyors experienced in windfarm work and used to accurately establishing bird flight heights and also for the surveyor to carefully note their distance from light beam. Using the distance from the height an estimation of the angle (e.g. 45 or 60 degrees) to the beam it could assist in calculating the height of any birds. All surveyors used for the survey work had previous experience of working on storm petrel breeding grounds and/or several years’ work on windfarm projects elsewhere in Scotland.

The survey locations are shown on Figure TA7.3.1 and detailed in Tables 1 and 2 below.

**Table 1 - Survey Locations 2019**

Survey Point	Grid Reference
N	HY 52976 37391
S	HY 53125 36562

**Table 2 - Survey Locations 2020**

Survey Point	Grid Reference
T1	HY 52884 37440
T2	HY 52354 37075
T3	HY 52836 36575
T4	HY 53379 36631
T5	HY 53333 36155
T6	HY 52973 35840

All the survey locations are shown in Figure TA 7.3.1.

Celiometry surveys were undertaken on:

- 24th - 26th July 2019;
- 26th - 28th August 2019;
- 7th - 10th July 2020; and
- 20th – 24th July 2020.

A total of 78 hours of survey were completed over the two breeding seasons. A total of 24 hours were completed in 2019, consisting of four nights completed at each of the two locations. A total of 54 hours were completed in 2020 with two nights surveying at all six locations and a third night completed at both T1 and T6. The survey hours completed at each location are presented in Table 3 below and the timings and associated weather conditions shown in Table A1 (Annex A).

**Table 3 - Survey Hours**

Survey Point	Total Hours
N	12
S	12
T1	12
T2	8
T3	7
T4	8
T5	8
T6	11

### Survey Limitations

There were no significant limitations to the island callback survey, although due to the Covid-19 lockdown the surveys commenced slightly later than initially planned.

The ceilometry surveys were completed at night and provided the observers with a number of challenges with recording bird species in the dark. Brief views of birds flying through or close to the beam meant 100% identification of the bird species was extremely difficult, all instances of probable petrel sightings were included in the results.

Celiometry surveys were planned for June 2020 meaning a wider spread of survey dates but due to the Covid-19 lockdown these were postponed into July. Due to the late nature of the storm petrel breeding season this is not deemed to have any significant impact on the results.

Surveys undertaken in the first week of July were completed when the nights in Orkney are short and the night sky does not go completely dark when there was not complete cloud cover. Due to the challenging nature of accessing the island meant it was not possible to plan survey visits around the weather (although very wet and windy nights were avoided) and a number of surveys were completed on clear nights. The light beam on clear

nights was much less effective meaning that observations through the beam at heights of 50m and above may potentially have been under recorded.

The shape of the light beam (conical) meant that in the lower sections is very narrow meaning it is unlikely that any birds recorded flying low would pass through the beam itself. Any petrels (or other species) seen outside the beam were also recorded during the survey.

## Baseline

### Survey Results

Full island callback survey including calibration

The calibration sessions took place over seven days and the results are displayed in Table 4 below.

**Table 4 – Calibration Results**

AOS reference.	18th July	19th July	20th July	21st July	22nd July	23rd July	24th July	Habitat	Grid Ref		
									HY		
1	1	0	1	0	1	0	0	tumbledown wall	HY	52790	37992
2	1	1	0	0	1	1	1	tumbledown wall	HY	52793	38014
3	1	0	1	0	1	0	0	tumbledown wall	HY	52771	37982
4	1	0	0	1	0	0	0	tumbledown wall	HY	52718	37946
5	1	0	0	1	1	0	0	tumbledown wall	HY	52716	37943
6	1	0	0	1	0	1	0	tumbledown wall	HY	52715	37941
7	1	1	1	1	0	0	1	tumbledown wall	HY	52715	37943
8	1	1	0	0	0	0	0	tumbledown wall	HY	52711	37936
9	1	1	0	0	1	0	0	tumbledown wall	HY	52710	37937
10	1	1	0	0	1	0	0	tumbledown wall	HY	52710	37936
11	1	1	0	0	1	1	1	standing wall	HY	52705	37924
12	1	1	1	1	1	1	1	tumbledown wall	HY	52701	37908
13	1	0	0	0	0	0	0	tumbledown wall	HY	52698	37900
14	1	1	0	0	0	0	1	tumbledown wall	HY	52697	37899
15	1	1	0	1	1	1	0	tumbledown wall	HY	52696	37873
16		1	0	1	0	0	0	tumbledown wall	HY	52711	37938
17		1	1	0	0	1	1	standing wall	HY	52769	37981
18		1	0	0	0	0	0	tumbledown wall	HY	52788	37989
19			1	1	1	1	0	tumbledown wall	HY	52772	37981
20			1	1	1	0	0	tumbledown wall	HY	52716	37943
21				1	1	1	0	tumbledown wall	HY	52696	37876
22				1	1	0	1	tumbledown wall	HY	52697	37898
23				1	0	0	0	standing wall	HY	52775	37982
24					1	0	0	tumbledown wall	HY	52702	37909
25						1	0	tumbledown wall	HY	52789	37991
Total	15	12	7	12	14	9	7				

The results of the calibration clearly show how storm petrel vary in their response to the play back call. A single bird (AOS 12) responded on each of the seven days while the average number of responses is approximately three. Five of the calibration AOS birds responded on only a single occasion.

The calibration ratio is therefore calculated using:

Actual number of responses / total number of possible callbacks = (76 / 175) x 100 = 43 (43%).

Therefore the number of birds responding is 43% so to adjust to the estimated total you need to use an adjustment ratio of 2.3 (100/43).

Therefore, to calculate the total AOS for the whole site it is necessary to multiply the total number of callbacks recorded away from the calibration zone by the adjustment ratio of 2.3 (100/43). This value compares to those found on Mousa, Shetland, where typically responses are obtained from fewer than half the occupied sites on any single occasions (Bolton et al., 2010), although slightly lower than at Auskery, Orkney (0.59 boulder beach and 0.56 boulder ruins) Mitchell & Williams (unpubli.). Mitchell et al. (2004) outline mean response rates of between 25-59% among 16 storm petrel sites and so the calibration analysis for Site fits within these parameters.

The callback survey identified a further 27 AOS's in areas of the island away from the calibration zone which leads to a full island count of AOSs to be 25 (in the calibration zone) + (27 \* callback ratio [2.3]) = 87 AOS's. The location of all the known AOSs and the location of the calibration zone from the 2020 survey is shown in Confidential Figure TA 7.3.3.

The results of the callback are as expected and are similar in number and locations to the 2019 survey with the majority of AOS's (over 50%) being located in the northern fringes of the island within the stone dyke and associated boulders.

A total of 87 AOS comprises 4.65% of the estimated Orkney total (1,870) and 0.4% of the estimated Scottish total AOS (21,730) as of survey 1999-2002 (Mitchel et al, 2004).

### Celiometry

The ceilometry undertaken in 2019 and 2020 identified a total of 15 probable storm petrel records, a number of records were recorded low to the ground where the beam is very narrow and eight of these records did not fly through the beam. Only 3 records were noted above 10m, all in 2019, and at potential risk height (14-150m) and none were recorded at the proposed turbine locations.

**Table 5: Celiometry Survey Results - Storm Petrel Flight Registrations**

Date	Flight time	Survey Point	Height Band	Through Beam
24/07/2019	22:55	N	10-20m	Y
25/07/2019	02:30	N	20m	Y
26/08/2019	22:09	S	10-20m	Y
26/08/2019	22:15	N	Below 10m	Y
21/07/2020	00:10	T3	Below 10m	N
21/07/2020	01:00	T6	Below 5m	N
21/07/2020	01:05	T6	Below 5m	N
21/07/2020	02:15	T6	Below 2m	N
22/07/2020	00:48	T2	Below 5m	N
22/07/2020	00:53	T2	Below 5m	N
22/07/2020	02:13	T2	Below 2m	N
23/07/2020	00:43	T4	5m	N
23/07/2020	00:30	T5	5m	Y
23/07/2020	01:30	T5	5m	Y
23/07/2020	03:00	T5	Below 5m	Y

A number of other species were recorded flying through or at the fringes of the beam most notably herring gull (*Larus argentatus*) and snipe (*Gallinago gallinago*), as well as short-eared owl (*Asio flammeus*) and redshank (*Tringa totanus*).

Observers also noted storm petrel flying in the hours of darkness (23:20 – 01:30 on July 10th) in the area of the dyke on the north of the island. There were a number of storm petrel noted flying low to the beach and along the dyke (i.e. below 2m).



## Discussion and Recommendations

Storm petrel is an Annex 1 species and is legally protected accordingly. Storm petrel is also an SBL and Orkney LBAP species, as well as being BoCC Amber listed.

Storm petrels were recorded as breeding across much of the island where suitable breeding habitat was available. A total of 87 AOS's were estimated following the survey work completed in 2020, which is slightly lower than the 91 (uncalibrated) AOS's recorded during the 2019 surveys (See Confidential Figure TA7.3.3). During both surveys the majority (over 50%) were located in the dyke and associated boulders in the north of the island.

The lower figure recorded in 2020 may be due to the slight variations in survey timings (24-28 June 2019 and July 18-20 2020), annual variance in breeding success as well the request for using the different playback call. Despite the different methodologies the two final counts are considered to be similar in terms of results and reflect a good estimate of the breeding storm population on the Island of Faray.

With such low levels of flight activity recorded during the surveys and no records at collision height recorded at the turbine locations it is not deemed pragmatic to complete any collision risk modelling. The turbine locations have been modified over multiple layout iterations at the Site with the aim to be kept away from storm petrel breeding locations and over 50% are between 300m-500m away from the most northerly turbine located in and around the dyke to the north of the island.

The surveys outline that storm petrel do occasionally fly over the island top but that they fly low and likely direct to and from their breeding locations. This behaviour is thought to be attributed to the presence of potential predators to this species on the island. There are an estimated 96 and 32 breeding pairs of herring and great black-backed gull (*Larus marinus*), respectively, as well as a breeding pair of great skua (*Stercorarius skua*) on Faray. These species could all potentially prey on storm petrel adults and the ceilometry surveys identified that herring gull and also short-eared owl were active on the island at night during the times that petrel return and leave their nest burrows. It therefore follows that petrel will return as quickly as possible to their nests to both avoid predation themselves and also to minimise the chances of revealing their breeding locations.

## Conclusions

The results of the two consecutive years of targeted breeding storm petrel surveys indicates that there is a healthy population of breeding storm petrel on Faray, with around 90 AOS's recorded in both 2019 and 2020. Nocturnal flight activity surveys (celemetry) outline there is unlikely to be any collision risk presented by the introduction of turbines as petrels only occasionally fly over the island top and usually flying at low heights (i.e. below 5m) and direct to and from breeding sites.

## References

- Bedolla-Guzman, Y., Masello, J.F., Aguirre-munoz, A. & Quillfeldy, P. 2016. A wood-concrete nest box to study burrow-nesting petrels. *Marine Ornithology* 44: 249–252 (2016).
- Bolton, M., Medeiros, R., Hothersall, B. & Campos, A. (2004) The use of artificial breeding chambers as a conservation measure for cavity-nesting procellariiform seabirds: a case study of the Madeiran storm petrel (*Oceanodroma castro*). *Biological Conservation* 116 (2004) 73–80.
- Bolton, M., Brown, J. G., Moncrieff, H., Ratcliffe, N. and Okill, J.D. 2010. Playback re-survey and demographic modelling indicate a substantial increase in breeding European Storm-petrels *Hydrobates pelagicus* at the largest UK colony, Mousa, Shetland
- de Leon, A., Minguez, E., Harvey, P., Meek, E., Crane, J, & Furness, R.W. (2006). factors affecting breeding distribution of Storm-petrels *Hydrobates pelagicus* in Orkney and Shetland, *bird study*, 53:1, 64-72. Available online at: <https://www.tandfonline.com/doi/abs/10.1080/00063650609461417>
- Eaton, M.A., Brown, A.F., Noble, D.G., Musgrove, A.J., Hearn, R., Aebischer, N.J., Gibbons, D.W., Evans, A. and Gregory, R.D. (2015). Birds of Conservation Concern 4: the Population Status of Birds in the United Kingdom, Channel Islands and the Isle of Man. *British Birds* 102, 296-341.
- Gilbert, G, Gibbons D W & Evans J, 2012. Bird Monitoring Methods: A Manual of Techniques for Key UK Species.
- Mitchell, I. P., Newton, S. F., Ratcliffe, N. & Dunn, T. E. (eds.) 2004. Seabird Populations of Britain and Ireland. Poyser, London.
- Orkney Islands Council (2013). Orkney Local Biodiversity Action Plan 2013-2016. Available online at: [http://www.orkney.gov.uk/Files/Planning/Development-and-Marine-Planning/DM\\_Guidance/The\\_Orkney\\_Local\\_Biodiversity\\_Action\\_Plan\\_2013-2016.pdf](http://www.orkney.gov.uk/Files/Planning/Development-and-Marine-Planning/DM_Guidance/The_Orkney_Local_Biodiversity_Action_Plan_2013-2016.pdf) (accessed August 2020).
- Scottish Government (2013). Scottish Biodiversity List. Version 1.5. Available online at: <http://www.gov.scot/Topics/Environment/Wildlife-Habitats/16118/Biodiversitylist/SBL> (accessed April 2019).
- The Wildlife Trust of South and West Wales (2017). The New Petrel Station on Skokholm Island has the Team all Fueled Up. Available at: <https://www.welshwildlife.org/conservation/new-petrel-station-skokholm-island-team-fueled/> (accessed August 2020).
- Thomas, S., Varnham, K. (2016) Seabird Island Restoration Project, RSPB - Island Biosecurity Manual. Available online at: [https://ww2.rspb.org.uk/our-work/conservation/shiantisles/work/downloads/links/RSPB\\_Shiantis%20LIFE\\_Biosecurity%20Manual.pdf](https://ww2.rspb.org.uk/our-work/conservation/shiantisles/work/downloads/links/RSPB_Shiantis%20LIFE_Biosecurity%20Manual.pdf) (accessed August 2020).

## Annex A

Table A1 - Survey timings and weather

Date	Vantage Point	Start time	Stop Time	Time (Hrs)	Wind Direction	Wind speed	Cloud cover	Rain	Snow	Frost
24/07/2019	N	22:27	00:27	2	SE	1	1	0	0	0
25/07/2019	N	02:09	04:09	2	SE	1	2	0	0	0
25/07/2019	S	22:25	00:25	2	W	4	0	0	0	0
26/07/2019	S	02:15	04:15	2	W	4	1	0	0	0
26/08/2019	N	21:05	23:05	2	E	0	3	0	0	0
26/08/2019	S	21:05	23:05	2	E	0	3	0	0	0
27/08/2019	N	03:28	05:28	2	SE	2	6	0	0	0
27/08/2019	S	03:28	05:28	2	SE	2	6	0	0	0
27/08/2019	N	21:00	23:00	2	SE	3	8	0	0	0
27/08/2019	S	21:00	23:00	2	SE	3	8	0	0	0
28/08/2019	N	03:30	05:30	2	SSE	3	5	0	0	0
28/08/2019	S	03:30	05:30	2	SSE	3	5	0	0	0
07/07/2020	T4	23:05	01:05	2	NW	2	7	0	0	0
08/07/2020	T4	01:25	03:25	2	NW	2	7	0	0	0
07/07/2020	T6	23:05	01:05	2	NW	2	7	0	0	0
08/07/2020	T6	01:25	03:25	2	NW	2	7	0	0	0
08/07/2020	T1	23:05	01:05	2	SW	2	3	0	0	0
09/07/2020	T1	01:20	03:20	2	SE	2	7	0	0	0
08/07/2020	T5	23:05	01:05	2	SW	2	3	0	0	0
09/07/2020	T5	01:25	03:25	2	SE	2	7	0	0	0
09/07/2020	T2	23:05	01:05	2	NW	1	7	0	0	0
10/07/2020	T2	01:50	03:50	2	W	1	4	0	0	0
09/07/2020	T3	23:05	01:05	2	NW	1	7	0	0	0
10/07/2020	T3	01:50	03:50	2	W	1	4	0	0	0
20/07/2020	T3	23:45	02:45	3	-	0	5	0	0	0
20/07/2020	T6	23:45	02:45	3	-	0	5	0	0	0
21/07/2020	T1	23:00	00:00	1	W	2	4	0	0	0
21/07/2020	T2	23:00	00:00	1	W	2	4	0	0	0
22/07/2020	T1	00:15	02:15	2	WSW	1	7	0	0	0
22/07/2020	T2	00:15	02:15	2	WSW	1	7	0	0	0
22/07/2020	T1	02:30	03:30	1	WSW	2	7	0	0	0
22/07/2020	T2	02:30	03:30	1	WSW	2	7	0	0	0
22/07/2020	T4	23:00	00:00	1	SE	2	8	0	0	0
23/07/2020	T4	00:15	02:15	2	E	3	8	0	0	0
23/07/2020	T4	02:30	03:30	1	E	3	8	0	0	0
22/07/2020	T5	23:00	00:00	1	SE	2	8	0	0	0
23/07/2020	T5	00:15	02:15	2	E	3	8	0	0	0
23/07/2020	T5	02:30	03:30	1	E	3	8	0	0	0
23/07/2020	T1	23:00	00:00	1	NE	1	7	0	0	0
24/07/2020	T1	00:15	02:15	2	NE	1	7	0	0	0
24/07/2020	T1	02:30	03:30	1	-	0	7	0	0	0
23/07/2020	T6	23:00	00:00	1	NE	1	7	0	0	0
24/07/2020	T6	00:15	02:15	2	NE	1	7	0	0	0

Date	Vantage Point	Start time	Stop Time	Time (Hrs)	Wind Direction	Wind speed	Cloud cover	Rain	Snow	Frost
24/07/2020	T6	02:30	03:30	1	-	0	7	0	0	0
Meteorological Key:										
Wind speed	Cloud cover	Rain	Snow	Frost						
calm = 0 light air = 1 Light breeze = 2 Gentle Breeze = 3 Mod. Breeze = 4 fresh breeze = 5 strong breeze = 6 mod. gale = 7 fresh gale = 8 strong gale = 9	In eighths e.g 0/8 = no cloud 8/8 = full cloud cover	None = 0 Occasional=1 Drizzle / mist = 2 Light shower = 3 Heavy shower = 4 Heavy rain = 5	None = 0 On Site = 1 Snowing = 2	None = 0 Ground = 1 All day = 2						

## Annex B – Calibration Site Photographs



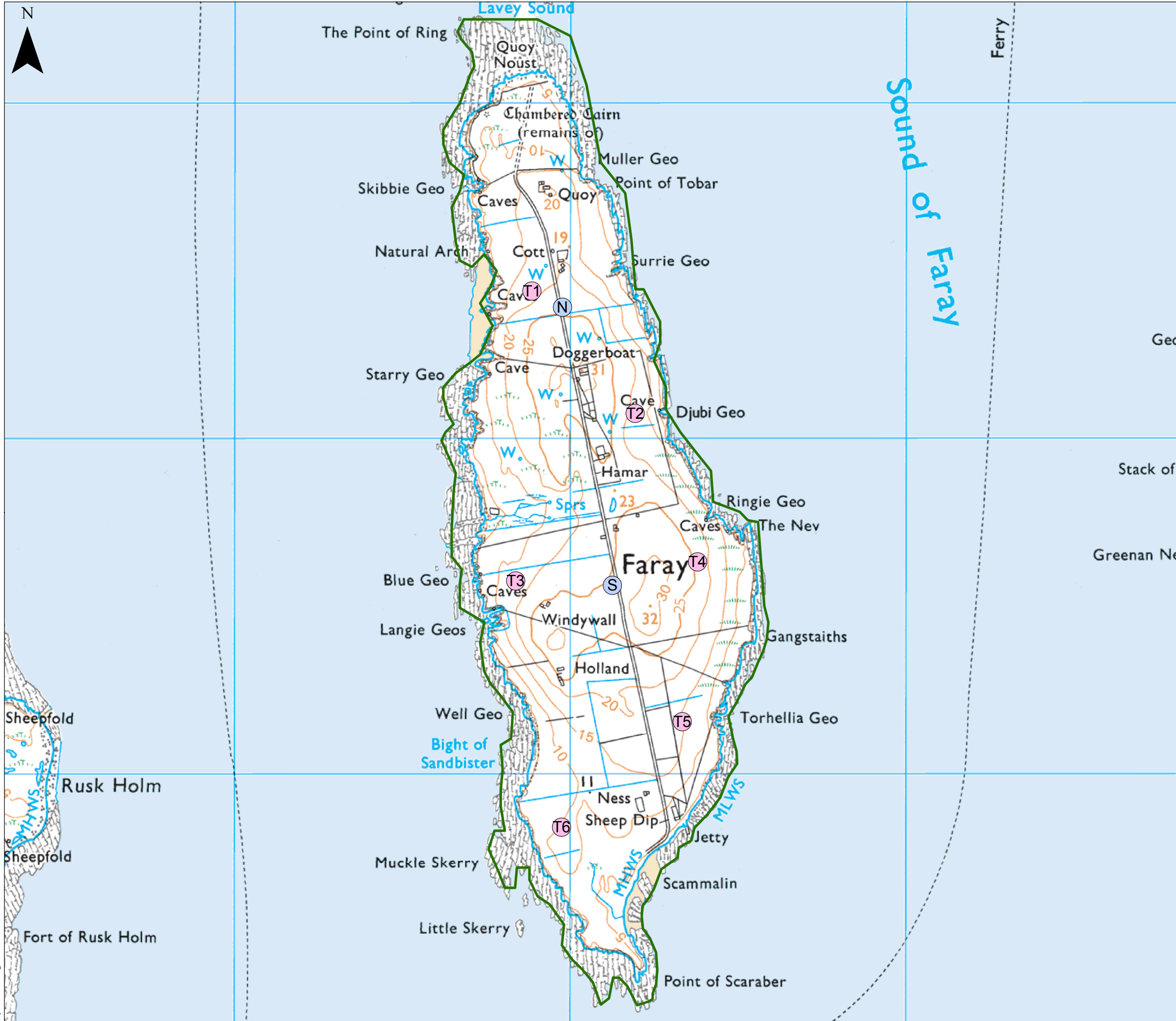
Calibration zone – from boulder beach towards broch



Calibration zone from West – Stone Dyke

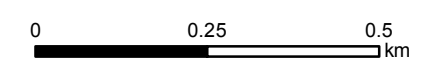


**Boulder beach and dyke – North of calibration zone**



**KEY**

- Study Area
- 2019 Survey Points
- 2020 Survey Points



Scale 1:11,000 @ A3



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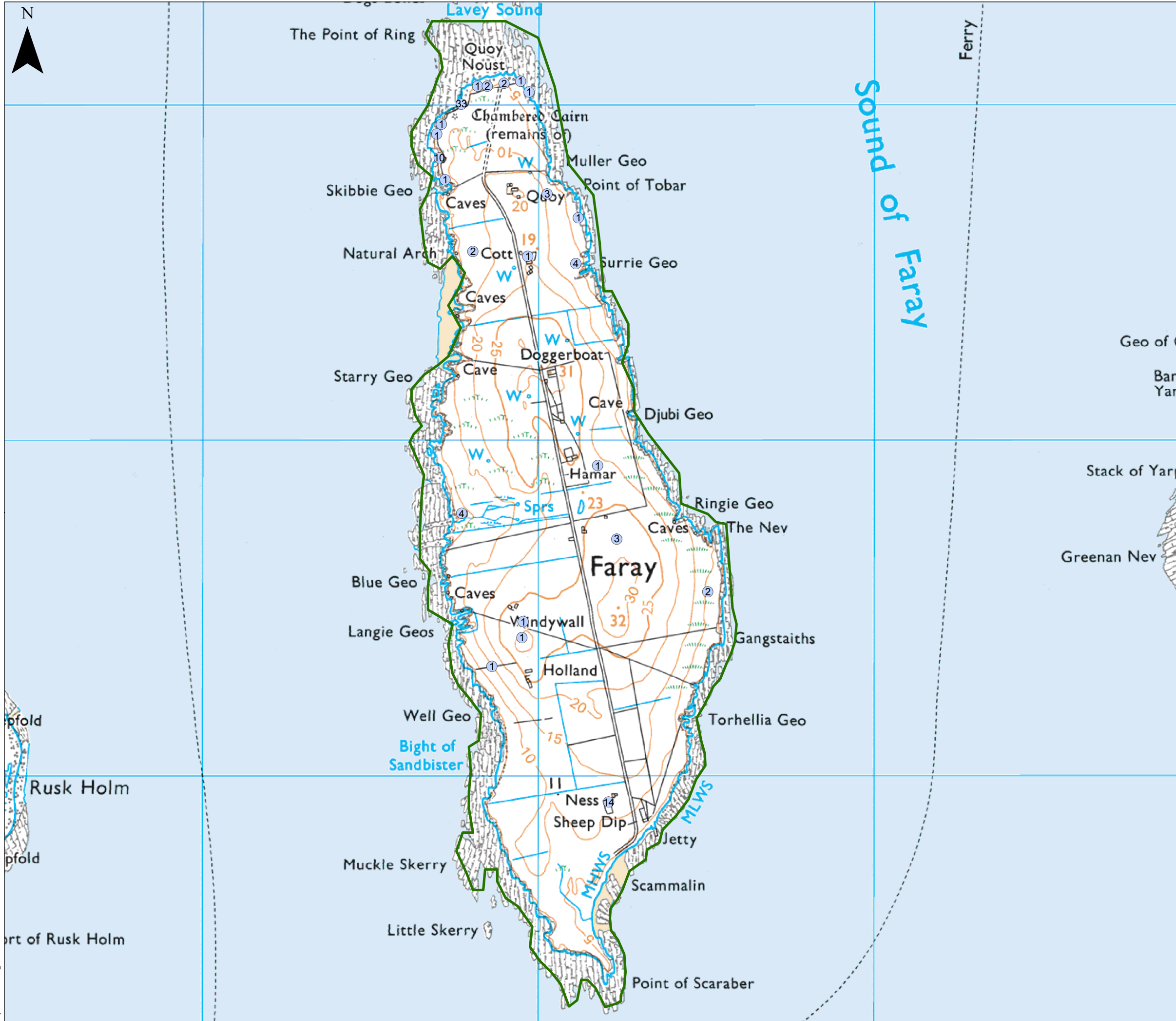
**Figure TA 7.3.1**

**Storm Petrel Survey Locations**

Date: 07/12/2020	Drawn by: AT	Checked by: XX	Version: V1
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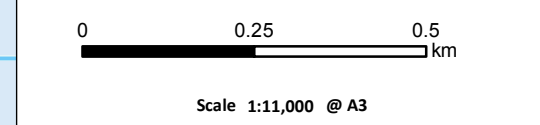
Project Number: ED\_1677





**KEY**

- Study Area
- Storm Petrel AON 2019



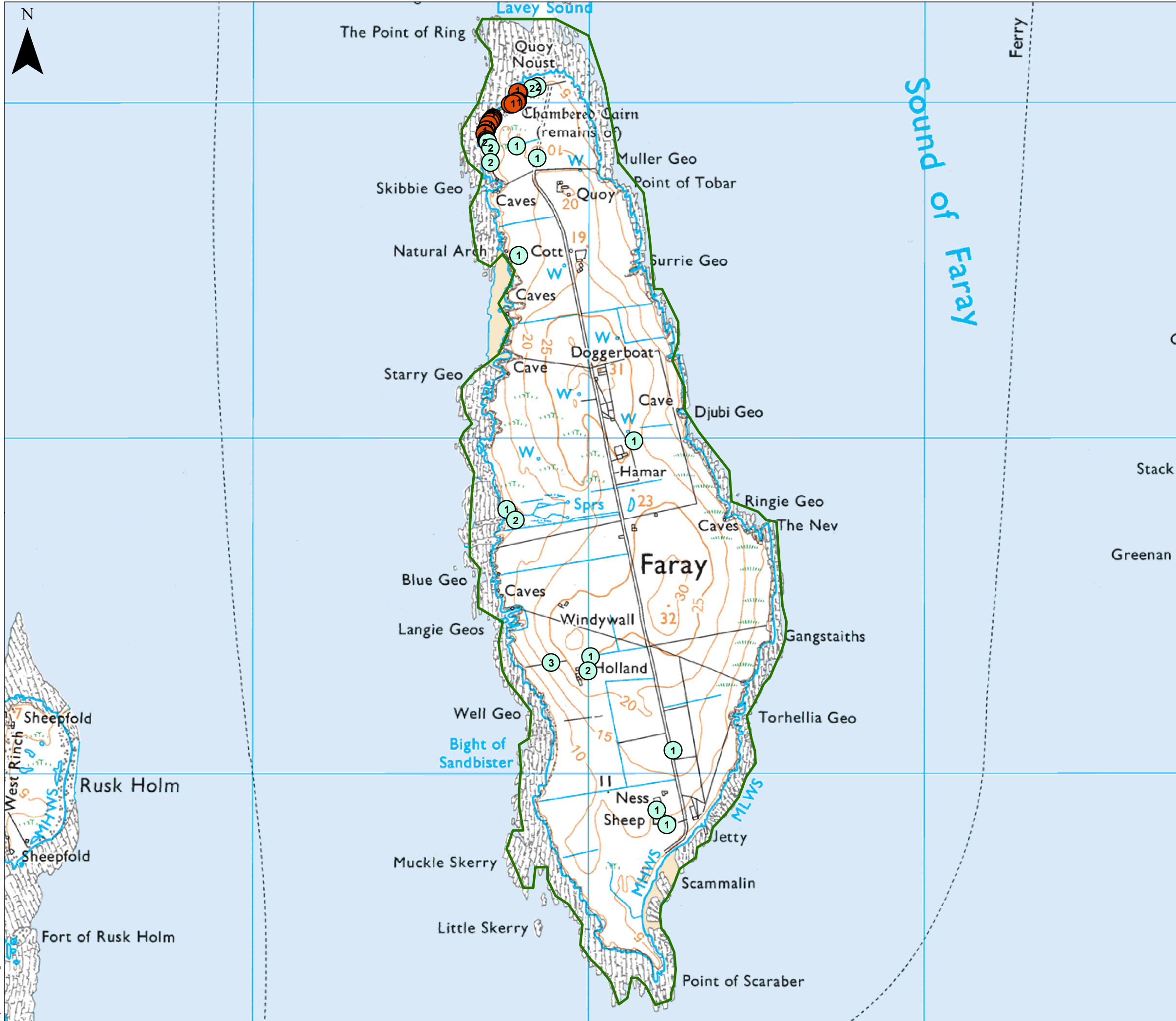
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**Confidential Figure TA7.3.2**

**Storm Petrel AON's 2019**

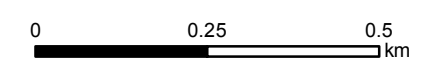
Date: 07/12/2020	Drawn by: AT	Checked by: XX	Version: V1
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Project Number: ED\_1677



**KEY**

- Study Area
- Storm Petrel AON 2020
- Storm Petrel AON 2020 in calibration



Scale 1:11,000 @ A3



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**Confidential Figure TA7.3.3**

**Storm Petrel AON's and Calibration Zone 2020**

Date: 17/03/2021	Drawn by: AT	Checked by: XX	Version: V1
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Project Number: EDU\_1677