# Orkney's Community Wind Farm Project - Faray

# Design and Access Statement

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# 1 Introduction and Background

## 1.1 Background

1.1.1 This Design and Access Statement (DAS) describes the design process and the resultant development proposals for Orkney's Community Wind Farm Project – Faray (the Proposed Development), located approximately 17 km north-east of the Orkney Mainland, and approximately 25 km from Kirkwall. The DAS accompanies the planning application submitted to Orkney Islands Council (OIC) seeking permission to construct and operate the Proposed Development.

1.1.2 The purpose of this DAS is to provide information on the principles and approach that have guided the design process. This DAS demonstrates how the site and its surroundings have been fully assessed to ensure that the final design solution is the most suitable for the site. It describes the starting point for the Proposed Development design, and subsequent alterations to the layout that were made in response to the issues that were identified through the consultation and appraisal process. Details are also provided on the access arrangements to the site.

1.1.3 This DAS should be read in conjunction with the Environmental Impact Assessment Report (EIA Report), which also contains information on the design strategy (Chapter 2), the Proposed Development (Chapter 3), predicted landscape and visual effects (Chapter 6), traffic and access related effects (Chapter 12), and includes a Transport Assessment (Appendix 12.1).

1.1.4 *The Town and Country Planning (Development Management Procedure) (Scotland) Regulations 2013* requires a DAS to be prepared in support of all 'national' and 'major' developments. As the Proposed Development is expected to have a total installed capacity of approximately 28.8 megawatts (MW), it will be considered a 'major' development. Planning guidance notes on Design and Access Statements have been taken into consideration when preparing this DAS, notably Planning Advice Note (PAN) 68. PAN 68 states that a DAS should include:

- background information;
- site details;
- site and area appraisals;
- design principles;
- public involvement;
- programme; and
- design solution.

# 2 Background Information

## 2.1 Name of the Scheme

2.1.1 The Proposed Development is called Orkney's Community Wind Farm Project – Faray.

## 2.2 The Applicant

2.2.1 The Applicant is Orkney Islands Council who are looking to develop three wind farms within the Orkney Islands, of which the Proposed Development is one. 'Orkney's Community Wind Farm Project' would generate significant income and community benefit for Orkney. All profit would stay in the islands, enabling the Applicant to preserve and enhance key services that local people value and depend upon and providing a foundation for communities to drive transformational projects of their own.

2.2.2 A Local Authority taking the decision to become a developer of wind energy projects is unusual, but it is felt vital that the Applicant now takes an active 'developer approach' to energy projects in

Orkney. Not only does this allow the Applicant to maximise the resources available to them in the islands to support services and projects for local people at a time of significant central funding reductions, but it also allows them to contribute significantly and in a meaningful way to allow Orkney's world-renowned local energy industry to survive and thrive through a new grid connection.

2.2.3 Orkney Islands Council (OIC) has therefore taken a number of decisions leading to the decision to become a developer of onshore wind farms in Orkney:

- As early as September 2013 OIC endorsed the principle of establishing, developing or investing in an onshore wind farm project.
- At the OIC Policy and Resources committee meeting of 21st June 2016 OIC approved the principle of OIC assuming the role of a project developer of onshore wind farm projects in Orkney.
- At general meeting of the OIC on 4th July 2017, OIC resolved that a process should be undertaken to identify property owners in Orkney with large sites able to accommodate scale wind generation who would wish to sell or lease land for the purpose of a wind development.
- At the OIC Policy and Resources committee meeting of 28th November 2017 it was recommended that OIC proceed to planning consent stage with development of a project on Hoy, at a maximum scale of approximately 108 MW. However, following further assessment, it was considered that a single development of that scale was unlikely to be achievable in Orkney.
- At the general meeting of the OIC of 5th March 2019 it was agreed that OIC should focus on developing all projects which have a realistic chance of contributing to the Needs Case for a new grid connection to Orkney, namely Hoy, Faray, and Quanterness.

## 2.3 Advisors

2.3.1 The Applicant appointed ITPEnergised (ITPE) to undertake the environmental impact assessment and advise on the design of the Proposed Development. ITPE have been supported by the following technical teams:

- Jones Lang Lassalle (JLL) (planning policy);
- OPEN (landscape and visual);
- AOC Archaeology (cultural heritage and archaeology);
- Pell Frishmann (transport, traffic and engineering);
- BiGGAR Economics (socio-economics and tourism);
- Wind Business Support (aviation and radar);
- HR Wallingford (underwater noise and marine water and sediment quality);
- Oldbaum (wind resource measurement and analysis); and
- TNEI (independent technical advice).

# 3 Site Details

## 3.1 Location and Site Plan

3.1.1 The Proposed Development site is located on the Island of Faray approximately 17 km north-east of the Orkney Mainland, and approximately 25 km from Kirkwall (refer to Figure 1).

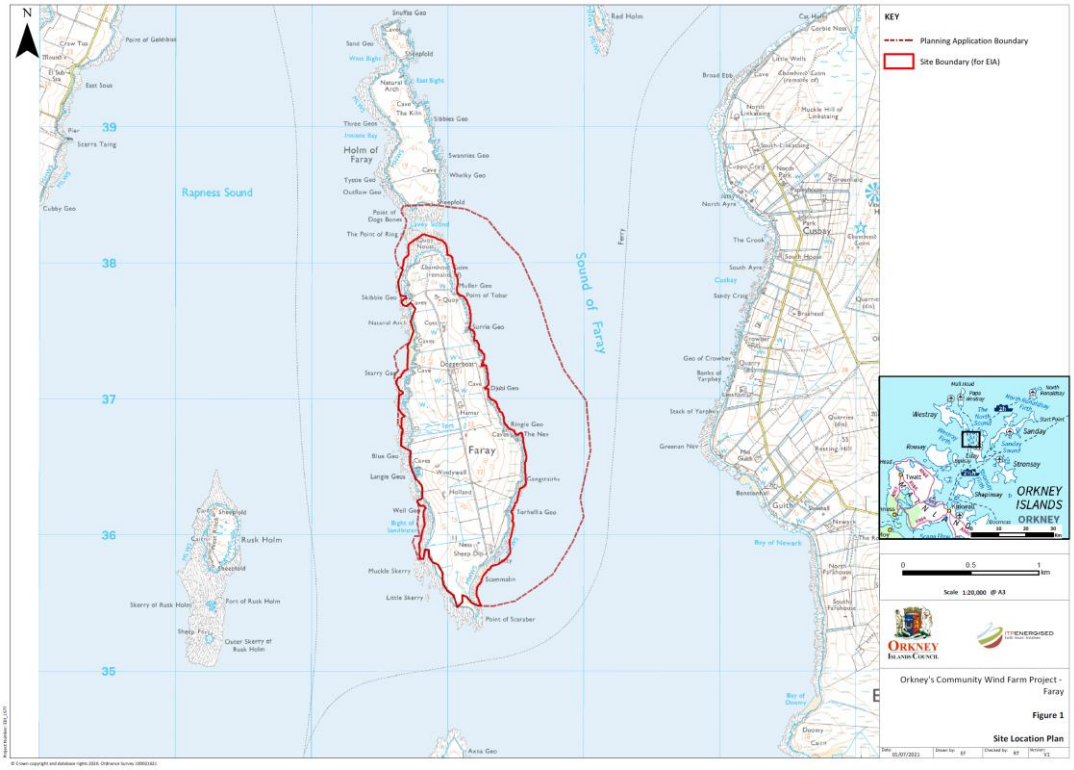


**Figure 1 - Site Location**

## 3.2 Description

3.2.1 The site comprises the island of Faray, an uninhabited island to the north and west of Eday and south-east of Westray in the Orkney Islands. A smaller island Holm of Faray is immediately to the north. Faray is approximately 17 km north-east of the Orkney Mainland, and approximately 25 km from Kirkwall. The island extends to approximately 168 hectares (ha) and is centred on British National Grid (BNG) 353112, 1036752.

3.2.2 The topography of the island comprises two low hills. The southern of the two forms approximately the central point of the island, rising to 32 m Above Ordnance Datum (AOD). Approximately 700 m to the north a second hill rises to 31 m AOD. The ground level falls away fairly gently from the two hills, the steepest slope being near the coast to the west of the southern hill. The coastline is generally defined by rocky cliffs with geos and caves, except on the west coast near the north of the island and on the far south-east coast, where there are stretches of beach.

3.2.3 The island comprises open fields of improved pasture, a number of abandoned buildings and a slipway.

3.2.4 There are no major surface watercourses on the island. There are however, two springs located near the centre of the island from which a small stream flows west towards the sea.

3.2.5 There are no residential properties within the site boundary. The closest dwelling is North Guith c.1.6 km east of the nearest proposed turbine.

## 3.3 History

3.3.1 The site has been historically used for farming and is currently used for sheep farming.

3.3.2 The island is occupied by grassland and is subdivided by rectilinear drainage ditches. The upstanding remains of nine farm complexes, a former school, a boathouse, and slipway are located on the island.

3.3.3 The site is outwith the Heart of Neolithic Orkney World Heritage Site Sensitive Area and Buffer Zone.

3.3.4 There are no listed buildings, battlefields or Conservation Areas within the Proposed Development site boundary. There are however listed buildings on the neighbouring islands of Westray, Eday and Rusk Holm. The closest Garden and Designed Landscape is Balfour Castle on the island of Shapinsay.

3.3.5 Comparison between modern and historical maps of Faray show subtle changes and reduction in the coastline with land evidently lost to the sea since the 19th century. This loss is also apparent in comparison between survey photographs taken by the Royal Commission on the Ancient and Historical Monuments of Scotland (RCAHMS) from 1981 and photographs taken to inform the assessment (Chapter 10) in 2020. Cultural heritage assets located on the coastal edge of Faray are highly vulnerable to erosion due to their proximity to coastal processes.

3.3.6 The NRHE[1] records four prehistoric sites within the site, one of which is a Scheduled Monument.

3.3.7 No known early historic or medieval remains or artefacts are recorded on the site. However, the potential "pictish house" and several nausts or boat moorings may be early history.

3.3.8 There were only six occupied houses by the end of the Second World War. The last inhabitants left over a short period of time, with the Orcadian (11th of April 1947) noting, with respect to the evacuation, that "*extensive advertising of the island holdings has failed to attract new inhabitants"* and that "*the troubles arising out of bad weather conditions and indicates the drop in manpower has made the hauling up of boats a serious handicap".* Further details on Faray's post-medieval and modern history are provided in Chapter 10 of the EIA Report.

## 3.4 Ownership

3.4.1 The Proposed Development site is owned by the Applicant and currently used for sheep farming by a tenant farmer. The loss of land to the Proposed Development footprint would not impact upon the agricultural requirements of the landowner or tenant and the new extended slipway and landing jetty would provide improved access.

# 4 Site and Area Appraisals

## 4.1 Site Search

### *Broad Site Identification and Selection*

4.1.1 In response to the OIC decision to seek landowners with an interest in selling or renting land for wind farm development an Expressions of Interest (EoI) process was undertaken in August and September 2017 inviting landowners to get in touch with OIC. A number of responses were received, and each was assessed against defined criteria and compared against other sites received, and sites within OIC ownership.

4.1.2 The outcome of this process was the decision to focus on development of a project of up to 108 MW on Hoy.

4.1.3 Initial baseline survey work at a potential large-scale site which would potentially deliver the entire 108 MW capacity was undertaken in 2018 however based on preliminary findings it was considered that a single development of that scale was unlikely to be achievable in Orkney. A process was therefore undertaken in late 2018 to assess the whole of Orkney for the potential for onshore wind

[1] National Record of the Historic Environment (HES)

farm development at a smaller scale, which could, in combination, provide the required capacity to support the Needs Case.

4.1.4 This was done by buffering address point data and plotting international designated sites on a map and identifying those areas which were of sufficient size to host a wind farm and were not constrained by either of those limitations. Each site was then investigated in further detail to identify any additional potential constraints. A shortlist of sites was drawn up and a full assessment of suitability was undertaken, the results of which were used to inform a report to OIC.

### *Faray Specific Site Identification*

4.1.5 The island of Faray (refer to Figure 1) was identified as a potentially suitable development site, and further work was undertaken to establish feasibility of development and the potential scale and capacity of wind energy generation at the site.

4.1.6 The Faray site was therefore considered alongside responses from the 2017 EoI process (refer to paragraph 2.4.1) and subsequent wider work was undertaken in 2018 to identify suitable sites for development.

4.1.7 In conjunction with the OIC decision on 5th March 2019, to focus on developing all projects which have a realistic chance of contributing to the Needs Case for a new grid connection to Orkney, Faray was selected for progression towards an application for planning permission, alongside sites at Quanterness and Hoy.

4.1.8 Numerous surveys were undertaken on-site which have contributed to the various design iterations presented below culminating in the design detailed in Chapter 3 (Proposed Development).

## 4.2 Area Appraisal

### *Residential Receptors*

4.2.1 There are no residential properties within the site boundary, or indeed on the island of Faray. The closest dwelling is North Guith, located on Eday c.1.6 km east of the nearest proposed turbine.

4.2.2 All residential properties are outwith the standard study area for shadow flicker of ten times the turbine rotor diameter.

### *Landscape Context*

4.2.3 The site is located on the island of Faray, a small island set to the west of the island of Eday and south-east of the island of Westray. Faray is a narrow whale-back island, with a distinct north to south alignment. It measures only 3 km in length and less than 1 km at its widest section. Holm of Faray lies to the immediate north, separated by the narrow Lavey Sound and measuring only 1.5 km in length. The landform of the island gently rounds to a high point of 32 m, south of the centre and a high point of 31 m, north of the centre, with a gentle dip between. Holm of Faray rises only to 19 m.

4.2.4 The coastline of Faray is mostly rocky with small bays of white sandy shores occurring only in the north-east and south-west. The low cliffs and skerries form a distinctive edge around the island. While the coastline is relatively low, there are many small caves and geos cutting into the cliff edge, and a small arch on the north-west coast. A similarly rocky coastline outlines Holm of Faray, albeit without any sandy bays.

4.2.5 Despite the island being uninhabited by people since 1947, it continues to be inhabited by sheep. Fields of semi-improved pasture cover the island, with sheep grazing ensuring a low and homogenous landcover. The remnants of human occupation are evident in the single road extending down the spine of the island, and the ruined cottages and abandoned crofts which sit either side. These ruins and the old stone walls, although small and low, afford some enclosure and shelter to the livestock on this open and exposed island.

4.2.6 Faray is one of the Northern Isles, set to the north of the Mainland of Orkney. While Faray sits to the east of the Westray Firth, the closer waters are named Rapness Sound to the west and Sound

of Faray to the east. While the western side of the island is largely open to the Westray Firth, the small Rusk Holm lies approximately 1.3 km to the south-west and the southern peninsula of Westray lies approximately 2.7 km to the north-west. The island of Eday lies on the close-range, opposing shore to the east of Faray, at a minimum distance of approximately 1.4 km. These surrounding islands present a sense of containment and a strong contextual character.

4.2.7 There is an existing influence on landscape character from operational wind farms located on Westray, Sanday and Stronsay, as well as operational single turbines on Eday, Westray and Rousay and many more small scale domestic turbines across most of the islands, although not Faray.

### *Transport and Access*

4.2.8 The Proposed Development will be accessed from new marine access points that will need to be constructed on the south-east of the island.

4.2.9 The greatest traffic impact will be associated with the assembly of materials on the Mainland of Orkney, as Faray is an uninhabited island with no current vehicular traffic or metaled public road network. The Applicant will ensure that the vehicles will be routed as agreed with OIC, to minimise disruption and disturbance to local residents.

4.2.10 The new extended slipway and landing jetty will improve access to the island of Faray.

# 5 Design Principles

## 5.1 Introduction

5.1.1 As part of the EIA process design iterations were prepared and considered for the turbine locations and on-site ancillary infrastructure. In order to propose a development layout which is considered to represent the most appropriate design; potential environmental impacts and their effects, physical constraints and project economics were taken into account. Information was collated from desktop information, field surveys, scoping opinions, local planning policy, planning conditions and recent case law. This information provided the baseline from which site issues and sensitivities could be identified and highlighted for further detailed assessment and given priority in influencing the layout iterations of the Proposed Development. The design evolution process is described in detail below.

## 5.2 Environmental Constraints and Opportunities

5.2.1 The design of the Proposed Development took into consideration the following environmental constraints and opportunities.

### *Opportunities*

#### Planning Policy

5.2.2 The majority of the Proposed Development site falls within Group 3, an 'Area with Potential for Wind Farm Development' as defined by the Orkney Local Development Plan 2017 (OIC, 2017). Small parts of the site lie within Group 2 'Area of Significant Protection' which relates to the Faray and Holm Special Area of Conservation (SAC) and Site of Special Scientific Interest (SSSI). Group 2 areas "*may be appropriate in some circumstances. Further consideration will be required to demonstrate that any significant effects on the qualities of these areas can be substantially overcome by siting, design or other mitigation*."

5.2.3 The Applicant has undertaken a number of surveys and design iterations to demonstrate that the Proposed Development site is appropriate. The reasons for the allocation of the site in Group 2 and 3 can be substantially overcome by siting, design and mitigation.

5.2.4 The Proposed Development is **not** within any areas that have been defined within the Spatial Strategy Framework as *"Areas where wind farms are not acceptable"*.

**Wind Resource and Topography**

5.2.5 The Orkney Islands are one of the windiest places in the United Kingdom (Met Office, 2019). The average wind speed across the development footprint is c.8.5 m/s[2] at 45 m elevation (DECC, undated). This is substantially above the UK average of 6.8 m/s (DECC, undated).

5.2.6 The site is flat, raising gradually from 0 m Above Ordinance Datum (AOD) on the shore to two small summits of 31 m AOD and 32 m AOD respectively.

**Geological Designations**

5.2.7 There are no geological designations within the development footprint.

5.2.8 The closest designations are as follows:

5.2.9 Greenan Nev Coast site of Geological Conservation Review (GCR) (approximately 1.4 km east of the development footprint); and

5.2.10 South Fersness Bay site of GCR (approximately 1.2 km south of the development footprint).

**Ecological and Ornithological Statutory Designations (including Marine)**

5.2.11 The Proposed Development access points overlap with the Faray and Holm of Faray Special Area of Conservation (SAC) and Site of Special Scientific Interest (SSSI). The Proposed Development infrastructure, with the exception of the access points, have been positioned out with these areas of designation. The Sanday SAC is located 10.7 km to the east of the Proposed Development

5.2.12 The closest ornithological designation is the Calf of Eday Special Protection Area (SPA), approximately 2.7 km to the north-east and designated for breeding seabirds. The closest Marine Protection Area (MPA) is Wyre and Rousay Sounds MPA approximately 6.3 km to the south-west. This MPA is designated for seaweed communities and marine geomorphology.

**Cultural Heritage**

5.2.13 The site is outwith the Heart of Neolithic Orkney World Heritage Site Sensitive Area and Buffer Zone.

5.2.14 There are no listed buildings, battlefields or Conservation Areas within the Proposed Development site boundary. There are however listed buildings on the neighbouring islands of Westray, Eday and Rusk Holm.

5.2.15 The closest Garden and Designed Landscape is Balfour Castle on the island of Shapinsay.

**Residential Receptors**

5.2.16 There are no residential properties within the site boundary, or indeed on the island of Faray. The closest dwelling is North Guith c.1.6 km east of the nearest proposed turbine on the island of Eday.

5.2.17 All residential properties are outwith the standard study area for shadow flicker of ten times the turbine rotor diameter.

**Landscape Sensitivity**

5.2.18 There are no landscape designations within the Proposed Development site boundary. The closest designations are the Hoy and West Mainland National Scenic Area (NSA) (c.29 km) and the Hoy Wild Land Area (WLA) (c.44 km).

**Land Ownership and Use**

5.2.19 The Proposed Development site is owned by the Applicant and currently used for sheep farming by a tenant farmer. The loss of land to the Proposed Development footprint would not impact upon the agricultural requirements of the landowner or tenant and the new extended slipway would provide improved access.

[2] The DECC dataset has been used for ease of comparison. The average mean wind speed onsite based on 6 months of monitoring is 9.7 m/s at 79 m.

**Peat, Private Water Supplies and Watercourses**

5.2.20 The Proposed Development site contains no areas of peat.

5.2.21 Although there are a number of private water supplies marked on the Ordnance Survey (OS) mapping within the site boundary none of these are operational.

5.2.22 There are no major surface watercourses within the site boundary (as classified by SEPA).

## *Constraints*

5.2.23 It is important to note that the identification of a constraint does not necessarily result in the exclusion of that area from the potential development envelope; rather it means that careful thought and attention was paid to the constraint and the design altered appropriately.

**Cultural Heritage**

5.2.24 The setting of a number of Scheduled Monuments and Listed Buildings on Eday and Westray may be impacted by the Proposed Development.

5.2.25 There is one scheduled monument within the site boundary at the northern end of Faray, a Chambered Cairn, 280 m NW of Quoy (hereafter 'Quoy Chambered Cairn'). There are also numerous non-designated archaeological sites across the island of Faray.

5.2.26 The Proposed Development has been designed where possible to avoid direct impacts upon known heritage assets through careful siting of infrastructure. Where possible, impacts upon the setting of heritage assets have been avoided or minimised during the iterative design process.

5.2.27 A full assessment of cultural heritage effects is presented in Chapter 10 of the EIA Report.

**Landscape and Visual**

5.2.28 Due to the open nature of the Proposed Development site there is potential for landscape and visual effects on a number of landscape and visual receptors on the surrounding islands and intervening seascape.

5.2.29 The incremental measure of the movements to the turbines during the iterative design process has meant that changes in the appearance of the Proposed Development from the key landscape and visual receptors surrounding the site, have also been incremental. In the development of each layout, consideration has been given to keeping the proposed turbines sufficiently inset so as not to encroach on the coastal edge and appear contained on the island. The iterative design process has ensured that the proposed turbines have been set at consistent elevations and spaced evenly, to produce a compact and legible layout from the key viewpoints on the surrounding islands. A full assessment of landscape and visual effects is presented in Chapter 6 of the EIA Report.

**Marine Ecology**

5.2.30 The coastline of Faray is designated as both an SAC and SSSI for grey seals, known as the Faray and Holm of Faray SAC and SSSI. The Proposed Development infrastructure, with the exception of the access points, have been positioned out with these areas of designation.

5.2.31 The access points will require construction works below mean high water springs (MHWS). These works are subject to marine licensing and their potential impacts are assessed in Chapters 16, 17 and 18 of the EIA Report.

**Ornithology**

5.2.32 The island of Faray is home to a number of ground-nesting seabirds. The layout has been optimised as far as possible to minimise potential effects and provide appropriate separation and mitigation.

5.2.33 A full assessment of effects on ornithology is presented in Chapter 7 of the EIA Report.

**Noise and Residential Amenity**

5.2.34 The remote location of the Proposed Development site means that the number of residential receptors that would potentially be subject to impacts is limited. There are no residential properties on Faray however the noise impacts on neighbouring islands has been considered in the design of the Proposed Development.

5.2.35 A full assessment of noise is presented in Chapter 9 of the EIA Report.

**Transport**

5.2.36 The current slipway on Faray is significantly deteriorated and a new extended slipway and landing jetty will be required to access the Proposed Development site.

5.2.37 The potential impacts of the new extended slipway and landing jetty have been factored into the design and are assessed in the technical chapters (Chapters 6-18 of the EIA Report) where relevant.

**Hydrology**

5.2.38 A number of drainage ditches cross the Proposed Development site, these will be buffered and avoided where possible. There are also two springs located on site (although it should be noted that these do not provide private water supplies).

5.2.39 A full assessment of hydrology is provided in Chapter 11 of the EIA Report.

## 5.3 Design Principles

5.3.1 Taking into consideration the above constraints and opportunities, the following principles were adopted where possible during the design iterations undertaken by the Applicant to ensure that the final design of the Proposed Development was the most suitable for the site:

- maximising wind yield and maintaining adequate spacing between turbines;
- avoiding inconsistent turbine spacing, such as relatively large gaps, outliers or excessive overlapping of turbines to minimise visual confusion and ensure a balance / compact array from key views;
- keeping the proposed turbines sufficiently inset so as not to encroach on the coastal edge and to ensure turbines appear contained on the island;
- minimising works within the SAC and SSSI and minimising potential effects;
- maintaining a suitable distance from the Scheduled Monument;
- maintaining a suitable distance from the seabird nest buffers;
- minimising impacts in respect of noise and the visual amenity of residential properties;
- minimising impacts on the non-designated cultural heritage assets; and
- maintaining a suitable distance from the drainage ditches and springs.

## 5.4 Proposed Development Layout Iterations

5.4.1 The Applicant has undertaken multiple design iterations of all aspects of the Proposed Development including the turbine layout and the infrastructure layout. This section describes the principal design iterations that have been undertaken as the Applicant has sought to maximise the number of turbines on the site, whilst minimising the environmental effects as identified above.

## *Turbine Layout Iterations*

### Layout A (EIA Scoping Report)

5.4.2 Layout A aimed to maximise the number of turbines on site. The layout aimed to ensure that all turbines were located outwith the SAC and SSSI boundaries and identified potential for eight turbines (refer to Figure 2).

### Layout B

5.4.3 Layout B followed from Layout A, maintaining a tip height of 149.9 m, but considered a greater spacing between turbines following initial wind monitoring results. It moved turbines T1 and T2 slightly south and T3 slightly north. This meant that T4 moved from the east of the island to the west near Langie Geos. As T4 had moved this allowed T5 and T7 to also move further north. There was no longer space for T6 of Layout A and therefore T8 of Layout A became T6 of Layout B, and the total number of turbines reduced from eight to seven (refer to Figure 2).

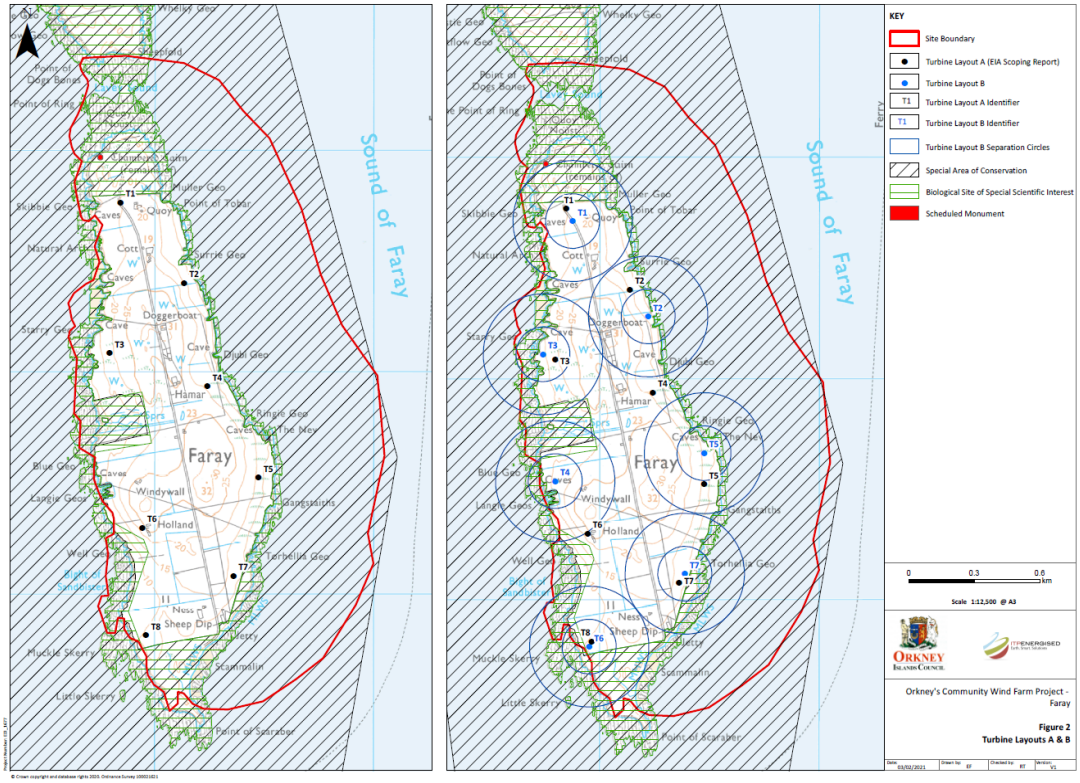


**Figure 2 - Layout A (EIA Scoping) and Layout B**

### Layout C

5.4.4 To ensure that the turbine blades did not oversail the SAC and SSSI a 68 m buffer was placed around the SAC boundary and turbines moved outwith this[3]. A 100 m buffer was also placed around the known locations of ground-nesting protected seabirds. Details relating to protected species are provided in Confidential Appendix 7.3 and Confidential Figure 7.11 of the EIA Report.

5.4.5 The addition of these constraints meant that T2 and T3 were moved south-east and south respectively to position them outwith the SAC buffer and T1 was moved south into the space that this created.

5.4.6 T4, T6 and T7 were moved slightly to ensure that they are outwith of the SAC buffer. Their movement, and that of T2 meant that T5 was required to move to the centre of the island to ensure appropriate spacing between the turbines (refer to Figure 3).

[3] It should be noted that the boundary of the SSSI and SAC, although designated for the same receptor are not identical.

**Layout D**

5.4.7 In advance of detailed wind monitoring an assumption was made that the pre-dominant wind direction would be south-westerly, this resulted in the removal of an additional turbine in Layout D, decreasing the number of turbines from seven to six (refer to Figure 3).

5.4.8 In order to achieve this spacing turbine T1 moved north again, to where it had been located in Layout B, allowing T2 and T3 to move northwards (whilst still respecting the constraints outlined for Layout C). Turbine T4 moved to the centre of the island, while T5 moved to south-east coast. Turbine T6 remained in almost the same position as Layout C and T7 was removed entirely (refer to Figure 3).

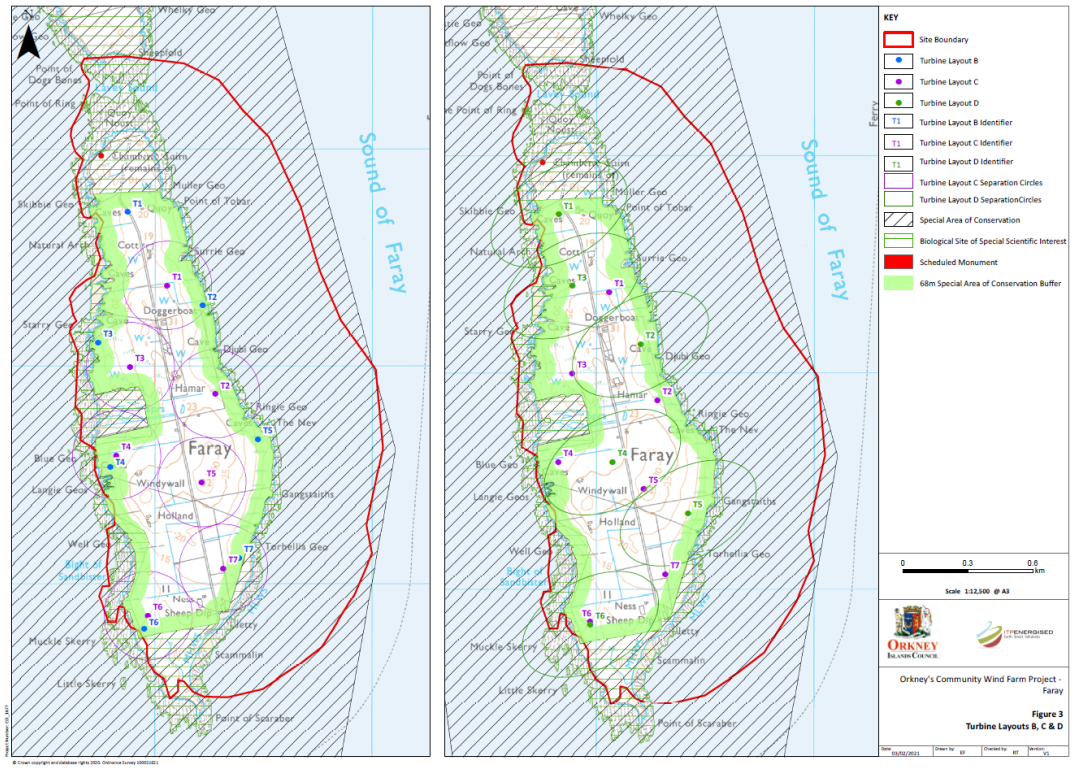


**Figure 3 - Layout B, C & D**

**Layout E**

5.4.9 Following advice from the project archaeologist the Applicant placed a 500 m buffer around the Scheduled Quoy Chambered Cairn in the north of the island. This buffer meant that turbine T1 of Layout D was no longer feasible. It therefore moved south and replaced turbine T3 of Layout D. Turbine T3 moved to the central-western boundary of the site near Blue Geo, which pushed turbine T4 eastwards towards Ringie Geo. Turbine T5 moved slightly south to both increase the separation distance between it and a non-designated archaeological site and to accommodate appropriate separation distance between T5 and T4. Turbine T6 did not alter position (refer to Figure 4).

**Layout F**

5.4.10 Following the further analysis of wind data from the monitoring it was determined that the island of Faray does not have a pre-dominant wind direction and therefore the spacing between turbines is required to be circular rather than elliptical.

5.4.11 This led to minor adjustments in the layout to accommodate the correct spacing, with the movement of turbines T2, T4 and T5 to the south (refer to Figure 4).

5.4.12 This final Layout F is the turbine layout which is described in Chapter 3 of this EIA Report and for which the Applicant is applying for consent.

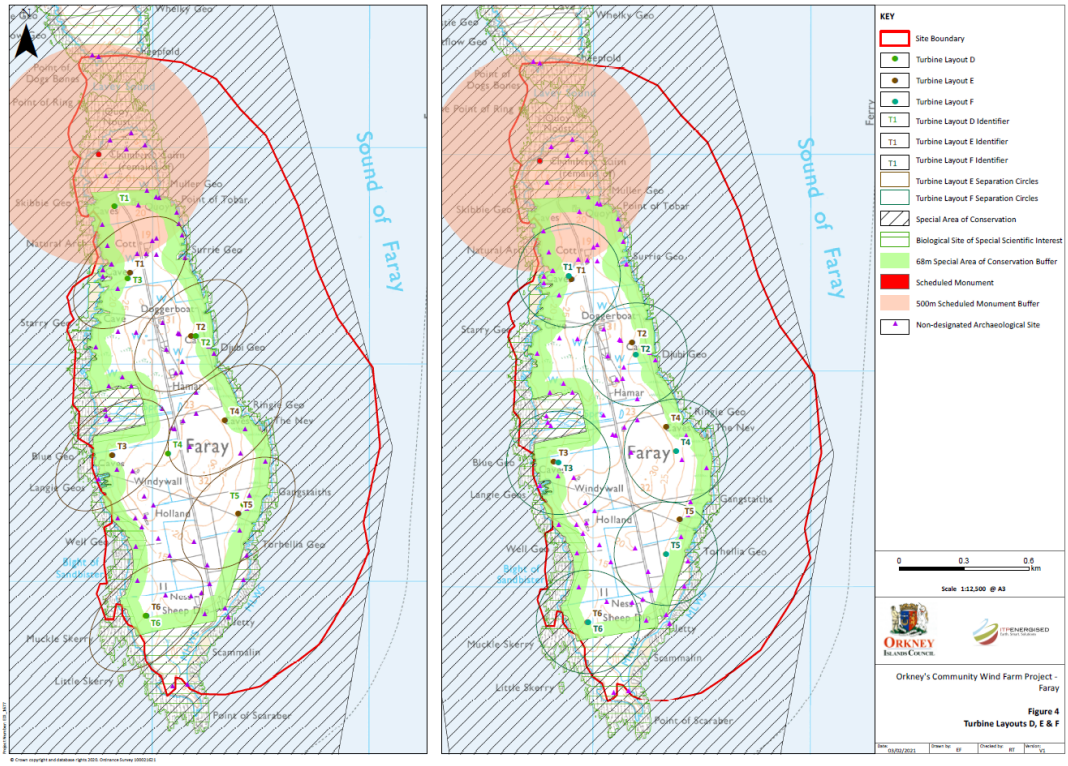


**Figure 4 - Layout D, E & F**

### *Terrestrial Infrastructure Layout*

5.4.13 Following confirmation of the turbine locations in Layout F, the design of the accompanying infrastructure was considered. This included hardstandings, substation, borrow pit search areas, temporary construction compounds and access tracks.

**Layout 1**

5.4.14 The principal access track for the site was developed to follow the existing track down the centre of the island. This then had spurs leading to the existing slipway, turbines, T3, T4, T5 and T6 and then terminated in a loop connecting turbines T1 and T2.

5.4.15 The construction compound was placed in the centre of the site to the north of the access track spur leading to turbine T3, with the substation adjacent (refer to Figure 5).

**Layout 2**

5.4.16 Following advice from the project ornithologists the loop connecting T2 to the principal access track was removed. A turning head was therefore added to the hardstanding of turbine T2 to allow vehicles to return to the construction compound via turbine T1.

5.4.17 The access track leading to, and the orientation of the hardstanding of turbine T6 were altered to minimise impacts to ornithology and the non-designated archaeological assets at this location.

5.4.18 The temporary construction compound was moved south closer to the location of the new extended slipway and landing jetty, while the substation was moved to the land adjacent to the new extended slipway and landing jetty to improve access to the expected position of the sub-sea cable.

5.4.19 In order to minimise the volume of aggregate required to be transported to the island a borrow pit search area was identified to the west of Hamar on the access track leading to turbine T1 (refer to Figure 5).

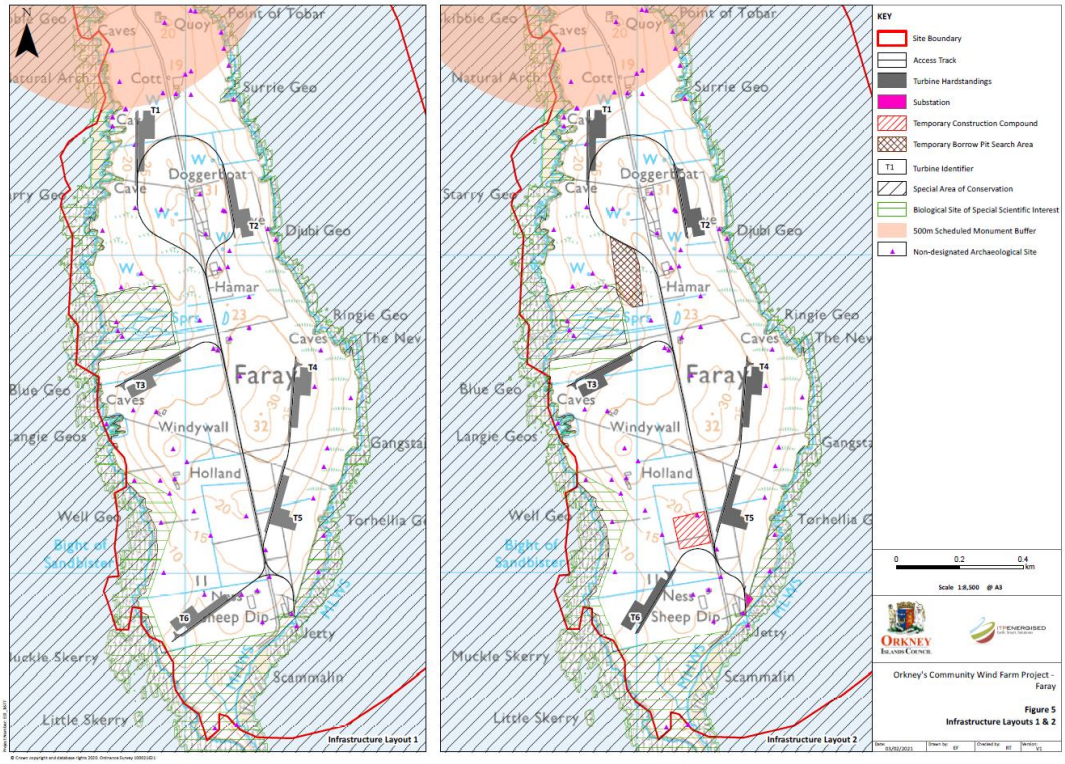


**Figure 5 - Infrastructure Layouts 1 & 2**

**Layout 3**

5.4.20 Following Layout 2 it was identified that the boundary of the borrow pit search area and the hardstanding and access track of turbine T3 entered the boundary of the SSSI. These two pieces of infrastructure were therefore slightly moved east and south respectively to avoid the SSSI (refer to Figure 6).

5.4.21 The substation was similarly moved to locate it outwith the SAC and SSSI boundary.

5.4.22 A second construction compound was added adjacent to the access track leading from the new extended slipway and landing jetty to the principal construction compound, to facilitate the construction of the new extended slipway and landing jetty (refer to Figure 6).

**Layout 4**

5.4.23 The northern borrow pit search area boundary was reduced to avoid some areas identified as groundwater dependent terrestrial ecosystems. While a southern borrow pit search area was added to the east of turbine T5 at the site of a previous borrow pit.

5.4.24 The construction compound for the new extended slipway and landing jetty was moved outwith the SAC and SSSI boundary to the location of the substation which would be built following the completion of the new extended slipway and landing jetty (and therefore no longer in use as a construction compound).

5.4.25 Due to changes in the design of the marine infrastructure the access track from the new extended slipway and landing jetty to both the principal construction compound and the principal access track was altered, which increased the distances between this section of track and ornithological and non-designated archaeological assets (refer to Figure 6).

5.4.26 A permanent met mast was located near Holland at the centre of the island (although it should be noted that this location is indicative). Areas of hardstanding which could be removed and restored post-construction were identified.

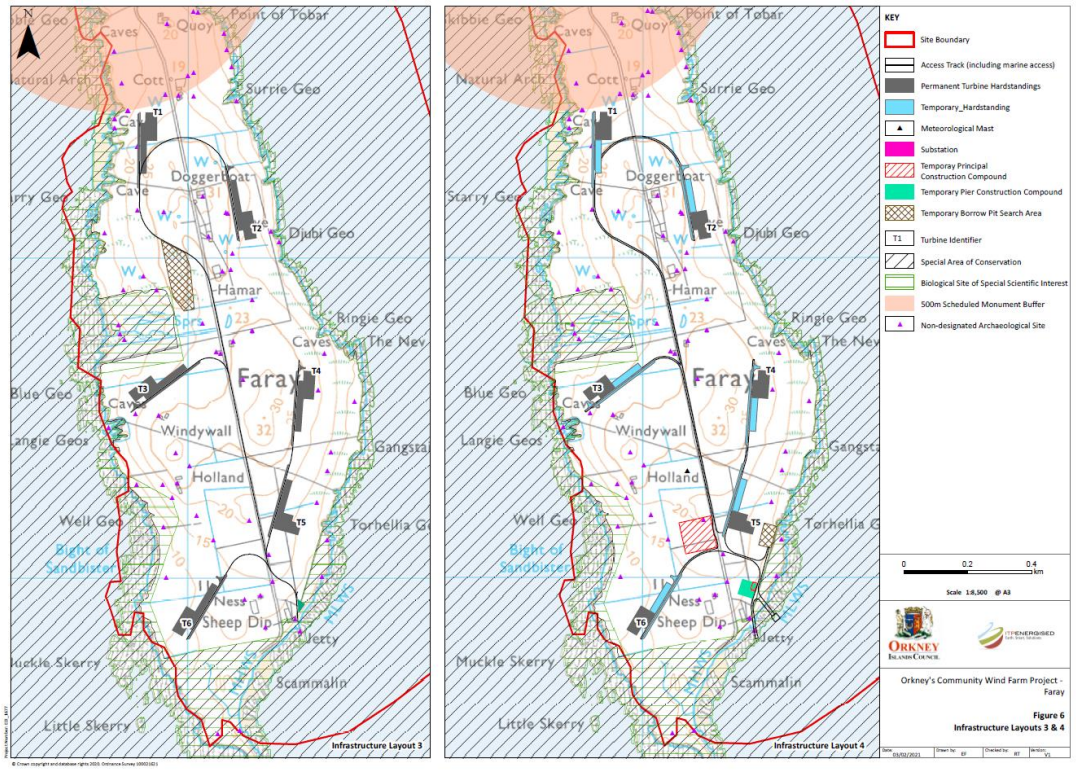


**Figure 6 - Infrastructure Layouts 3 & 4**

### *Marine Infrastructure*

5.4.27 The marine infrastructure consists of the new extended slipway and landing jetty and the tracks that connect to the onshore infrastructure. The layout has been optimised as far as possible to minimise works within the SAC/SSSI and to minimise potential effects. The key factors that fed into the design evolution were:

- the new extended slipway has been positioned on the footprint of the existing slipway in a location identified as preferable under typical sea conditions;
- the landing jetty was moved north (from initial design location) so as to reduce the amount of infill between the marine elements and the shore (in turn reducing the infrastructure footprint on the existing beach); and
- the orientation of the marine infrastructure was optimised to:
  - ensure the shortest practical route to deep water (in turn minimising the extent of the marine infrastructure);
  - minimise the amount of infrastructure beyond Mean Low Water (MLW) (in turn ensuring the bulk of construction works can be undertaken outwith the water); and
  - minimise the extent of onshore infrastructure and avoid direct impacts on a non-designated archaeological site (Ness boat shed).

# 6 Public/Community Involvement

6.1.1 The Applicant has engaged with local communities throughout the development of the Proposed Development. This engagement has been undertaken through a variety of approaches:

- Public information days in May, June and August 2019.
- Virtual public information day in October 2020.
- Availability of project team members for one-to-one Microsoft Teams presentations.
- Availability of project team members by telephone for question and answer sessions.
- Availability of project team members by email to answer queries.
- Webpages with information on the Proposed Development, including a video presentation of the exhibition material.
- Wireless Westray podcast, published 13th November 2020.
- Postal packs distributed to all households In Eday on the request of Eday Community Council.
- Online presentations to senior pupils at Westray Junior High School.
- Pre-application consultation for the marine licensable activities (i.e. construction works below MHWS associated with the new extended slipway and landing jetty) in March 2021.

6.1.2 The Applicant submitted a Proposal of Application Notice (PAN) in June 2020. In line with good practice for the consenting stage of major development projects as set out within the Planning Circular 3/2013 'Development Management Procedures', a programme of pre-application community engagement has been undertaken by the Applicant.

6.1.3 This consultation allowed local residents to provide their opinions on the principle and design of the Proposed Development, while also raising concerns. Full details are provided in the Pre-Application Consultation Report.

# 7 Programme

## 7.1 Construction

7.1.1 The estimated construction period for the Proposed Development is approximately two years and includes a programme to reinstate all temporary working areas. It is anticipated that once ecological and weather constraints have been applied, that activity will largely be focused on 17 months of the two-year period. Given the remote location of the Proposed Development, it is proposed that construction hours will be 07:00 – 20:00, seven days a week. The Environmental Health Officer (EHO) stated the following when consulted on working hours *"Given the unique location and probability that weather could have a major impact on scheduling deliveries to site I have no objection in principle to an application for 7 day a week working."*

7.1.2 The construction period of the Proposed Development will occur outwith the breeding season for grey seals. i.e. unless otherwise agreed with OIC and NatureScot, construction will not take place between the 15th of September and 31st of December inclusive.

7.1.3 Table 1 below shows the indicative construction programme.

**Table 1 – Indicative Construction Programme**

| Activity | Mar | Apr | May | Jun | Jul | Aug | | Mar | Apr | May | Jun | Jul | Aug |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Site Establishment | | | | | | | | | | | | | |
| Emergency Access Works | | | | | | | | | | | | | |
| Slipway Fill Materials | | | | | | | | | | | | | |
| Slipway Concrete Material Imports | | | | | | | | | | | | | |
| Landing Jetty Sheet Piles | | | | | | | | | | | | | |
| Landing Jetty Fill Materials | | | | | | | | | | | | | |
| Landing Jetty Concrete Materials | | | | | | | | | | | | | |
| General Site Deliveries | | | | | | | | | | | | | |
| Access Track & Compound Material Imports | | | | | | | | | | | | | |
| Reinforcement | | | | | | | | | | | | | |
| Concrete Aggregate & Cement Deliveries | | | | | | | | | | | | | |
| Cable Deliveries | | | | | | | | | | | | | |
| Cabling Sand | | | | | | | | | | | | | |
| Geotextile / Duct Deliveries | | | | | | | | | | | | | |
| Substation Deliveries | | | | | | | | | | | | | |
| Cranage | | | | | | | | | | | | | |
| AIL Deliveries | | | | | | | | | | | | | |
| Commissioning | | | | | | | | | | | | | |
| Reinstatement Works | | | | | | | | | | | | | |

## 7.2 Operation

7.2.1 The Applicant is applying for consent in perpetuity.

# 8 Design Solution

8.1.1 The Proposed Development comprises of six wind turbines of up to a maximum 149.9 m height from ground to blade tip when vertical. The indicative capacity of the Proposed Development will be c.28.8 MW. The actual installed capacity may be greater or less dependent on turbine model selection but will not be greater than 50 MW. A number of ancillary elements are also proposed, including access tracks, crane hardstandings, underground cabling, possible external transformers, on-site substation and maintenance building, a temporary construction compound, borrow pits, a permanent meteorological mast, and marine access infrastructure (refer to Figure 7). Further details of the site infrastructure are provided within Chapter 3 (Proposed Development) of the EIA Report.

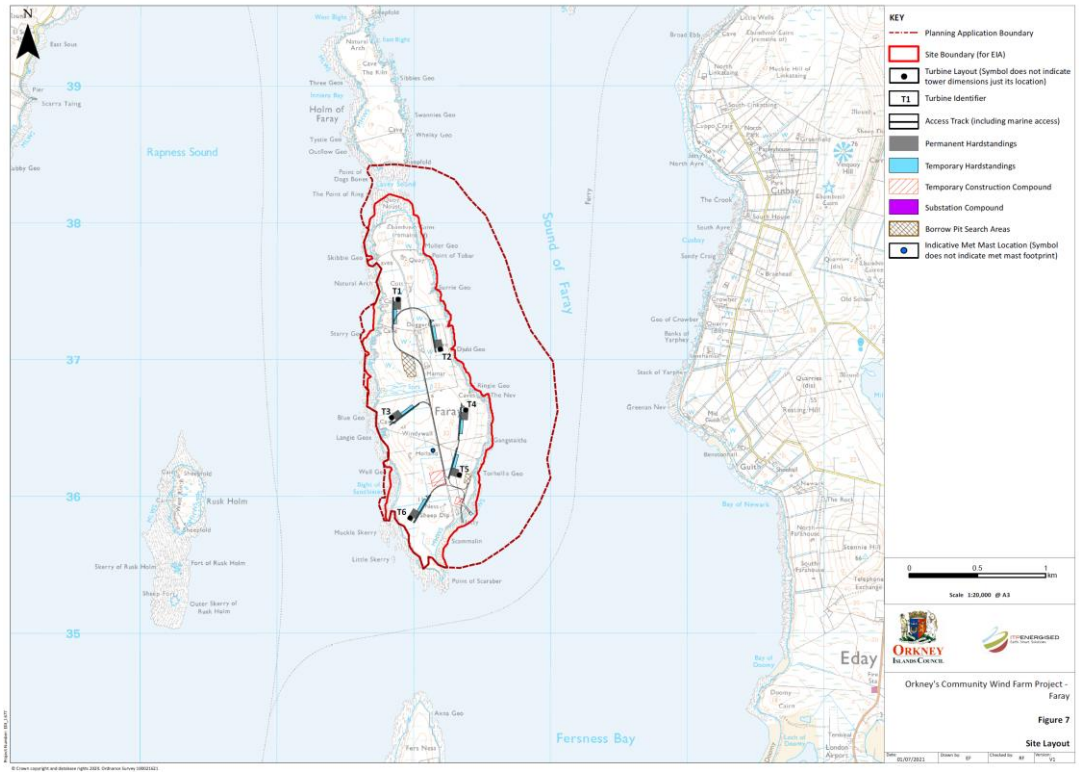


**Figure 7 - Site Layout**

# 9 Conclusion

9.1.1 The final layout has been informed by a robust environmental assessment and design iteration process, taking into account physical constraints, potential environmental, landscape and visual impacts and their effects. The information used to inform the design iteration process included consultation responses received, baseline data and the impact assessment undertaken.

9.1.2 The final layout comprises six turbines of up to 149.9 m tip height, and their associated infrastructure, including hardstanding, access tracks, substation, met mast, temporary construction compounds, borrow pits, new extended slipway and landing jetty as shown in Figure 7.

9.1.3 The Proposed Development layout is considered to represent the most appropriate design, taking into account potential environmental impacts and physical constraints, while maximising the renewable energy generating capability of the site.

9.1.4 Overall, the Proposed Development is an appropriately designed, sensibly located, and completely sustainable development which is in line with policies in the local and strategic development plans and conforms to national policy. It will provide valuable contribution towards economic growth in Orkney and in Scotland as a whole.