Neart na Gaoithe

Construction/Operations/Decommissioning Phase Emergency Response Cooperation Plan between Neart na Gaoithe Offshore Wind Farm and HM Coastguard

July 2020

Rev 3.0

DOCUMENT REFERENCE: NNG-NNG-ECF-PLN-0015

Neart na Gaoithe Offshore Wind Farm

Emergency Response Cooperation Plan

Pursuant to Section 36 Consent Condition 18 and the Marine Licence (Offshore Transmission Works) Condition 3.2.2.7

For the approval of the Scottish Ministers

Document Control

SIGN OFF		
Name (Role)	Signature	Date
Jed Mawson HSE Manager	[Redacted]	28/07/20
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DOCUMENT CONTROL					
Document Number	NNG-NNG-ECF-PLN-0015				
Document Title	Emergency Response Cooperation Plan				
Rev.	Date [dd mmm yyyy]	Description	Prepared	Checked	Approved
1.0	24 OCT 2019	Revision issued for Consultation	SMC	CGI	JMA
2.0	07 JAN 2020	Revision issued for MS-LOT Approval	SMC	CGI	JMA
3.0	28 JUL 2020	Revision issued to reflect Project updates	CBI	CGI	JMA

The Emergency Action Card is contained within Section 7.

Details specific to the Neart na Gaoithe project are primarily contained in Section 6.

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Acronyms and Abbreviations

TERM	DESCRIPTION
ALB	All Weather Lifeboat
BTA	British Tug-owners Association
CAA	Civil Aviation Authority
CGOC	Coastguard Operations Centre
DSC	Digital Selective Calling
EOD	Explosives Ordnance Disposal
ERCoP	Emergency Response Cooperation Plan
ERP	Emergency Response Plan
ETV	Emergency Towing Vehicle
ft	Feet
HAT	Highest Astronomical Tide
HMCG	Her Majesty's Coastguard
HR	Human Resources
IALA	International Association of Lighthouse Authorities
IAMSAR	International Aeronautical Maritime Search and Rescue
IERCP	Integrated Emergency Response Cooperation Plan
IMO	International Maritime Organization
kHz	kilohertz
LMP	Lighting and Marking Plan
MC	Marine Coordinator
MCC	Marine Coordination Centre
MCA	Maritime and Coastguard Agency
MF	Medium Frequency
MGN	Marine Guidance Note
MIRG	Maritime Incident Response Group

TERM	DESCRIPTION
MSI	Maritime Safety Information
MW	Mega Watts
NnGOWL	Neart Na Gaoithe Offshore Wind Ltd.
nm	Nautical Mile
OFTO	Offshore Transmission Owner
OFTW	Offshore Transmission Works
OREI	Offshore Renewable Energy Installation
OSC	On-Scene Co-ordinator
PLB	Personal Locator Beacon
RNLI	Royal National Lifeboat Institution
SAR	Search and Rescue
SITREPs	Situation Reports
SMC	SAR Mission Co-ordinator
SOLAS	Safety of Life at Sea
SPS	Significant Peripheral Structure
SRU	Search and Rescue Unit
UK	United Kingdom
UKSRR	UK Search and Rescue Region
UXO	Unexploded Ordnance
VHF	Very High Frequency
WTG	Wind Turbine Generator
WVC	Works Vessel Control

Defined Terms

TERM	DESCRIPTION
Application	The Environmental Impact Assessment Report, Habitats Regulations Appraisal Report submitted to the Scottish Ministers by NnGOWL on 16 March 2018; the Addendum of Additional Information submitted to the Scottish Ministers by NnGOWL on 26 July 2018 and the Section 36 Consent Variation Report dated 08 January 2019.
Company	Neart na Gaoithe Offshore Wind Limited (NnGOWL) (Company Number SC356223).
Consent Conditions	The terms that are imposed on the Company under the Offshore Consents that must be complied with.
Contractors	Any Contractor/Supplier (individual or firm) working on the Project.
Inter-array Cables	The offshore cables connecting the wind turbines to one another and to the OSPs.
Interconnector Cables	The offshore cables connecting the OSPs to one another.
Marine Licences	The written consents granted by the Scottish Ministers under the Marine (Scotland) Act 2010, for construction works and deposits of substances or objects in the Scottish Marine Area in relation to the Wind Farm (Licence Number 06677/19/0) and the Offshore Transmission Works (OfTW) (Licence Number 06678/19/1), dated 4 June 2019 and 5 June 2019 respectively.
Offshore Consents	The Section 36 Consent and the Marine Licences.
Offshore Export Cables	The offshore export cables connecting the OSPs to the landfall site.
OfTW	The Offshore Transmission Works comprising the OSPs, offshore interconnector cables and offshore export cables required to connect the Wind Farm to the Onshore Transmission Works at the landfall.
Project	The Wind Farm and the OfTW.
Section 36 Consent	The written consent granted on 3 December 2018 by the Scottish Ministers under Section 36 of The Electricity Act 1989 to construct and operate the Wind Farm, as varied by the Scottish Ministers under section 36C of the Electricity Act 1989 on 4 June 2019.
Section 36 Consent Variation Report	The Section 36 Consent Variation Report submitted to the Scottish Ministers by NnGOWL as part of the Application as defined above on 08 January 2019.
Wind Farm	The offshore array as assessed in the Application including wind turbines, their foundations and inter-array cabling.
Wind Farm Area	The area outlined in black in Figure 1 attached to the Section 36 Consent Annex 1, and the area outlined in red in Figure 1 attached to Part 4 of the Wind Farm Marine Licence.

Referenced Plans

PLAN	DOCUMENT REFERENCE NUMBER
Environmental Management Plan	NNG-NNG-ECF-PLN-0006
Emergency Response Cooperation Plan	NNG-NNG-ECF-PLN-0015
Cable Plan	NNG-NNG-ECF-PLN-0007
Lighting and Marking Plan	NNG-NNG-ECF-PLN-0009
Project Emergency Response Plan	NNG-NNG-PMG-PLN-0014
Offshore Construction Phase Plan	NNG-NNG-PMG-PLN-0021

1 Purpose of this Document

1. This Emergency Response Cooperation Plan (ERCoP) details emergency response planning for the Neart na Gaoithe Offshore Wind Farm and associated Offshore Transmission Works (OfTW), jointly referred to as the 'Project'. The ERCoP has been prepared in response to the specific requirements of the relevant conditions attached to the Offshore Consents issued to Neart na Gaoithe Offshore Wind Limited (NnGOWL). It is intended to ensure cooperation with the Maritime and Coastguard Agency (MCA) in the event of an emergency by detailing the design of the Project, describing the actions to be taken in an emergency and the resources available to support those actions, and providing emergency contact details. Note that this ERCoP follows the template determined by the MCA and is considered a live document that will be regularly updated in liaison with the MCA.

2 Organisation Information

2.1 Neart na Gaoithe Offshore Wind Farm Ltd (NnGOWL)

2.1.1 Role and Responsibilities of NnGOWL in an Emergency

2. In the event of an emergency at the Neart na Gaoithe Offshore Wind Farm (NnG) or at sea involving its personnel and/or vessels, NnGOWL is responsible for providing immediate rescue and first aid medical response to an appropriate level. NnGOWL is also responsible for immediately alerting HM Coastguard of an emergency and for liaising and cooperating with the relevant Coastguard Operations Centre (CGOC) to resolve the emergency.
3. NnGOWL is obliged, under international maritime agreements and practices e.g. Safety of Life at Sea (SOLAS) convention, to provide assistance, where it is possible to do so, to other vessels or persons in danger at sea nearby or within the Wind Farm Area and/or when requested to assist by the relevant CGOC.
4. NnGOWL may also need to provide its own vessel(s) and other assets to respond or react to other maritime emergencies e.g. pollution or a drifting vessel which presents a threat to the safety of life or property in the Wind Farm Area.
5. Further information is contained in 'Offshore Renewable Energy Installations: Guidance on Requirements and Operational Considerations for Search and Rescue and Emergency Response' available on the Maritime and Coastguard Agency (MCA) website:

   https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/578859/OREI_SAR_Requirments_v1.pdf

2.2 NnGOWL Contact information

6. Any contact information contained in the Emergency Response Cooperation Plan (ERCoP) and provided to the Maritime and Coastguard Agency (MCA) will be used solely for the purposes of emergency response as part of the Agency's functions. The information will be kept secure and will not be used for any other purpose without their permission. The information will be stored by the MCA until the Company provides updated information or the Project ceases to exist, at which point the information will be deleted.
7. The following subsections summarise the key NnGOWL contact details considered relevant to this ERCoP.

2.2.1.1 Key Emergency Response Personnel

Table 2-1: Key Emergency Response Personnel (24 hours)

FUNCTION	NAME	MOBILE
Marine Coordination Centre	Duty Coordinator	Telephone Land: +44 (0) 1890 751 415 Telephone Mob: +44 (0) 7508 421 406

2.2.1.2 Office Responsible for the Project

Table 2-2: Office Responsible for Operation Contact Details (during office hours only)

Address:	NnGOWL, Atria One, 144 Morrison Street, Edinburgh, EH3 8EX
Phone:	0800 056 6650
Email:	info@nngoffshorewind.com
Fax:	n/a

2.2.1.3 National Office and Licence Address of NnGOWL

Table 2-3: National Office and Licensee Address Contact Details

Address:	NnGOWL, Atria One, 144 Morrison Street, Edinburgh, EH3 8EX
Phone:	0800 056 6650
Email:	info@nngoffshorewind.com
Fax:	n/a

2.2.1.4 NnGOWL Health & Safety Personnel

Table 2-4: Health and Safety Personnel

FUNCTION	NAME	TELEPHONE
Health and Safety Manager	Jed Mawson	+44 (0) 7939 378 788
Offshore Health and Safety Professional	Kevin Tyrens	+44 (0) 7875 110 353

2.2.1.5 24 Hour Contacts

Table 2-5: 24 Hour Contacts

FUNCTION	PRIMARY CONTACT			SECONDARY CONTACT		
	NAME	DAYTIME	MOBILE	NAME	DAYTIME	MOBILE
Marine Coordination	Duty Marine Coordinator	+44 (0) 7508 421 406 / nng.mc@smchse.com		Reception desk	+ 44 (0) 1890 751 415	

FUNCTION	PRIMARY CONTACT			SECONDARY CONTACT		
	NAME	DAYTIME	MOBILE	NAME	DAYTIME	MOBILE
Media Relations	N/A	+44 (0) 1452 652 233				

(*) primary contact in the event of an emergency

2.2.1.6 Marine Operations Co-ordinator

Table 2-6: Marine Operations Co-Ordinator

FUNCTION	NAME	DAYTIME	MOBILE
Marine Coordination Centre	Duty Coordinator	As per mobile.	+44 (0) 7508 421 406

2.2.1.7 Offshore Transmission Owner (OFTO)

8. The OFTO will be identified following completion of construction and will be included in a future revision of the ERCoP. Transfer of ownership of the OfTW assets will likely be completed 1 – 2 years following full commissioning.

2.2.1.8 Owner of ERCoP

Table 2-7: Owner of ERCoP

Name:	Jed Mawson / Mick Hoyle
Address:	Atria 1, 144 Morrison Street, Edinburgh, EH38EX
Phone:	0800 056 6650
Mobile	+44 (0) 7939 378 788 / +44 (0) 7881 102 695
Email:	Jed.Mawson@nngoffshorewind.com / mick.hoyle@nngoffshorewind.com

2.2.1.9 Routine Contacts

Table 2-8: Other Routine Contacts

FUNCTION	NAME	TELEPHONE
Construction Manager	Mick Hoyle	+44 (0) 7881 102 695
Project Director	Matthias Haag	+44 (0) 7521 010 490
Site Manager	Martin Malone	+44 (0) 7880 439 480

2.2.1.10 Cascading Communication Contact List

9. Contact the Marine Coordination Centre who will follow the agreed internal process.

2.2.1.11 Additional Emergency Communications

10. During construction means of emergency communication between the field and the Marine Coordination Centre will be via the "Zello App" supported by satellite communications that will provide internet and phone access and VHF Radio. DMR will be available at the onshore and offshore substations and at repeater stations on turbines as they are commissioned. VHF marine communications will also be available at the onshore and offshore substation and the Operation and Maintenance (O&M) base during construction.

11. During O&M communication will be available via DMR repeater stations at turbines and at the offshore substation and O&M base. WIFI will also be installed at each individual wind turbine and at the offshore substation to support communication.

2.2.1.12 Construction Phase Contractors

12. NnGOWL have appointed six main Contractors to install the main components of the works. The relevant Scope of Works in relation to each package is detailed in Table 2-9.

Table 2-9: Key contractor roles and responsibilities

SCOPE OF WORKS	CONTRACTOR(S)	INDICATIVE PROGRAMME
Installation of piles and jackets for turbines and OSPs	Saipem	2020-2022
Transport and installation of OSP topsides	Saipem	2021
Supply and installation of export cables	Prysmian Group	2021
Supply and commissioning of OSP topsides	GE Renewable Energy and consortium partner HSM Offshore BV	2021
Supply and installation of inter-array and interconnector cables	DEME Offshore	2022
Transport and installation of turbines	Fred Olsen Windcarrier	2022
Supply and commissioning of turbines	Siemens Gamesa Renewable Energy	2022

2.3 Liaison arrangements between NnGOWL and HM Coastguard

13. As it is a vital part of the incident response process, the position of any incident shall be reported as part of the initial incident details to Aberdeen CGOC. If the incident occurs on a turbine, the precise co-ordinates (in Latitude and Longitude) shall be passed to the CGOC so that any responding rescue unit may use the position for precision navigation purposes.

14. The Marine Coordinator has been designated as the liaison officer to assist with emergency response in the event of an incident in the Wind Farm Area during construction and O&M. During construction and up until the point of transfer of ownership of the OfTW assets to an OFTO, the Marine Coordinator will be the designated Liaison Officer for incidents involving Project vessels along the Offshore Export Cable corridor. During O&M and following transfer of ownership, the OFTO (see Section 2.2.1.7) will liaise on

incidents associated with the Offshore Export Cable corridor, with input from the Marine Coordinator where appropriate.

15. The Liaison Officer will provide support to the Aberdeen CGOC including documentation and further details about the company/installation. In certain circumstances and where appropriate, the CGOC may elect to send a local Coastguard Officer to the Marine Coordination Centre to act as a liaison representative.

16. The following chain of events shall be followed upon discovery of an incident:

- Operative will raise alarm with either crew vessels or WVC;
- Crew vessel or WVC will contact emergency services and the Marine Coordinator; and
- CGOC will provide next and further instructions.

17. Table 2-10 summarises the alternative channels which operatives should use to raise the alarm. If the operative is unable to make contact with the crew, vessel or WVC, the alarm should be raised directly with Aberdeen CGOC using a satellite or (depending on coverage) mobile phone.

Table 2-10: Emergency Response Channels

CHANNEL	FREQUENCY
VHF/Digital Selective Calling (DSC) Channel 16	VHF 156.8 MHz
International Maritime Distress, Calling and Safety	MF 2182 kHz
International Maritime Medium Frequency DSC	MF 2187.5 kHz

18. A continuous communications watch is maintained on VHF, VHF Digital Selective Calling (DSC) and MF DSC. In addition to radio and satellite communications, CGOC's keep a constant emergency 999 telephone watch and have VHF direction finding capability.

19. NnGOWL will fully comply with Marine Guidance Note (MGN) 543 requirements regarding shut-down (partial or complete) of the wind farm during search and rescue (SAR) operations conducted within or passing through the wind farm. Further details are provided in Section 6.4.4.

3 Search and Rescue Information

3.1 The Coastguard Operations Centre

3.1.1 Role and Responsibility of the CGOC

20. As the United Kingdom (UK) maritime emergency service, HM Coastguard's CGOCs are responsible for the co-ordination of all civil maritime emergency response and search and rescue (SAR) operations within the UK Search and Rescue Region (UKSRR). This includes the mobilisation and tasking of adequate resources to respond to persons at risk of death or injury at sea or on the cliffs or shoreline of the UK.

21. The CGOC is also the first point of contact for any reports of vessels in difficulties e.g. engine failures, or pollution or maritime security incidents or concerns.

3.1.2 Communicating with HM Coastguard

22. Her Majesty's Coastguard (HMCG) uses a network of remote aerials to ensure VHF coverage from the coast to nominally up to 30nm offshore. HMCG maintains a radio distress watch on VHF and MF DSC. The primary means of distress alerting on VHF is by DSC channel 70 but a listening watch is also kept on VHF channel 16.

3.1.3 Radio Communications

23. All CGOCs can operate on channels 6, 10, 16, 23, 67, 70 DSC, 62, 63, 64, and on two private SAR coordination channels, 0 and 99. Channels 62, 63 and 64 are duplex and are mainly used for medical link calls and Maritime Safety Information (MSI) broadcasts, but can also be used for SAR. HMCG is not formally licensed to use other VHF Marine Band channels, but may use them in extremis.

24. Medium Frequency (MF) frequencies used by HMCG include 2187.5kHz (DSC), 2182kHz (MF distress urgency and safety working frequency) and 2596kHz (HMCG's primary MF working frequency although a range of other frequencies used by individual CGOCs for SAR and general communications). In the event that HMCG requires any wind farm work or service craft to use MF radio (where that is required or fitted), the relevant frequency will be informed to the craft at the time.

3.1.4 CGOC Contact Information

25. Please see Section 6.16 for specific contact details for the most appropriate CGOC for the Project.

3.1.5 Reporting Incident Position/Location

26. It should be noted that the position of any incident (within the Wind Farm Area or other location) is a vital part of the incident response process and should be reported as part of initial incident details. If the incident is on a turbine, the precise coordinates (in Latitude and Longitude) should be passed to HMCG so that any responding rescue unit may use the position for precision navigation purposes.

3.2 SAR Facility Summary

27. Note that Section 6.17 provides full details of the available SAR facilities deemed relevant to the Project.

28. HMCG commits to providing national SAR resources (lifeboats and rescue helicopters) if:

- The incident exceeds the capability of NnGOWL resources;
- If in the opinion of the work/safety boat skipper or work supervisor or other person, urgent and immediate assistance is required; or
- It is an event which has occurred to persons or vessels not connected with the wind farm or its operations. In this event, and where safe and feasible to do so, wind farm work and safety craft should respond and provide assistance in accordance with Internal Marine Organisations (IMO) Safety of Life at Sea (SOLAS) regulations, Chapter V.

29. Note: Royal National Lifeboat Institution and other volunteer lifeboat and rescue boat services provide craft to rescue persons in danger at sea. Their personnel are not trained to climb turbines or enter an Offshore Renewable Energy Installations (OREI) and should not be requested to do so. Their role is limited to rescuing or assisting persons from the water or accessible areas of the wind farm, or providing support to vessels in the area.

30. All national SAR resources are tasked and coordinated by HMCG and therefore any request for assistance should be made via HMCG and not directly to any available resources (e.g., RNLI).

31. Please see Section 6.5 for relevant surface rescue craft available for the Project.

3.2.1 NnGOWL Self Help Facilities

32. In the event of an emergency at sea involving personnel and/or vessels, NnGOWL shall provide immediate rescue and first aid medical response to a level appropriate to the circumstances and location of the wind farm.

33. Details of NnGOWL self-help facilities which would be available in the event of such an emergency are included in the project Emergency Response Plan (NNG-NNG-PMG-PLN-0014) and the Offshore Construction Phase Plan (NNG-NNG-PMG-PLN-0021). Indicatively, equipment on the Construction vessels and OREIs will include:

- Medical care facilities;
- Portable first aid kits;
- Stretchers;
- Shipboard Oil Pollution Emergency Plan (SOPEP) equipment
- Emergency evacuation equipment;
- Eye wash;
- Fire extinguishers;
- Cold weather clothing; and
- Sleeping bags.

3.2.2 Airborne SAR Capabilities

34. Provision of SAR helicopters is undertaken by Bristow Helicopters which has been awarded the contract to operate civilian SAR helicopter service for the UK on behalf of HMCG. These aircraft must not be factored in to the operator's own provisions for Emergency Response and are to be looked at as a resource of last resort.

35. It has been assumed throughout the following section that The Bristow Group are wholly responsible for the provision of helicopter SAR operations. The Bristow Group was awarded the contract by the Department for Transport in March 2013 and took over service on behalf of the MCA from April 2015 onwards.

36. The Bristow Group currently employs two models of SAR helicopters: The Sikorsky S-92 and the Agusta Westland AW189, with the latter considered as being the most likely to respond to an incident at the Project.

37. The Agusta Westland AW189 is the only new generation helicopter in its category and is designed to meet the latest and future long range, high endurance requirement for SAR missions in the most demanding operational and environmental conditions. Figure 3.1 presents an image of the AW189 aircraft. Following this, Figure 3.2 presents an overview of the seating plan (dual stretcher configuration)

of the aircraft. The SAR capability, first aid provisions and communications equipment of the Agusta Westland AW189 are summarised in Table 3-1.

Figure 3.1: Bristow Agusta Westland AW189 SAR Helicopter

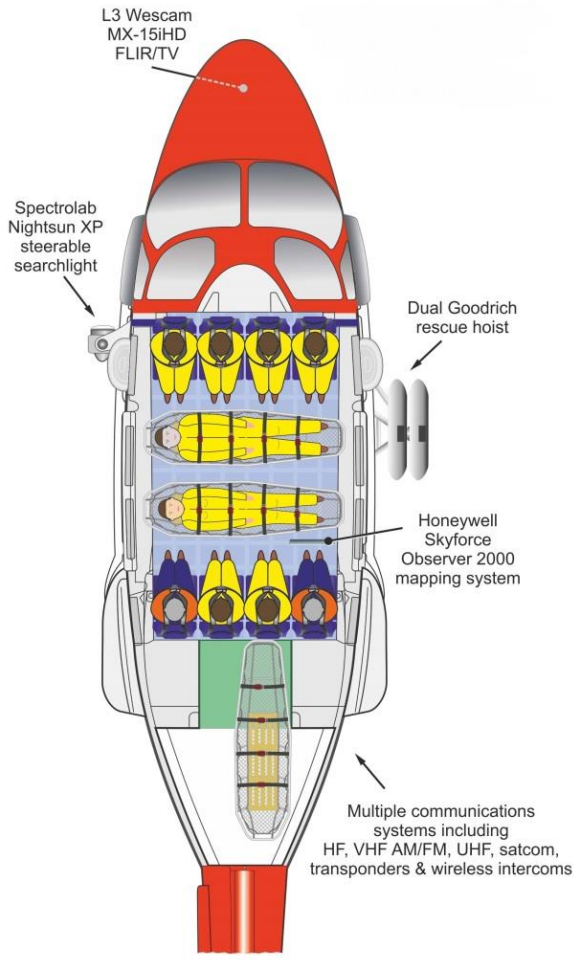


Figure 3.2: Overview of Agusta Westland AW189 Seating Plan (Dual Stretcher Configuration)

Table 3-1: SAR Helicopter SAR Capability

AIRCRAFT	AGUSTA WESTLAND AW189
Date Introduced	2015
Crew	4
Max Speed (knots)	145
Endurance (nm)	200 (over four hours)
Survivor Capacity	16 persons as required – 2 stretchers, 6 seated and additional standing
Additional Features	Honeywell Skyforce Observer 2000 mapping system; HF / HF DSC; VHF/ VHF DSC; UHF / UHF DSC; Forward looking infrared and thermal imaging camera; Searchlight; Rescue Hoist; De-icing Equipment; and Comprehensive Medical Suite.

3.2.3 Preparation for SAR helicopters

38. Should SAR aircraft be required to enter a wind farm, the Marine Coordinator will be required to ascertain the specific requirements either from the CGOC or SAR helicopter crew.

39. Considerations may include:

- Turbines to be shut down (individual turbines, a row or rows of turbines or part or whole field);
- The rotation of a nacelle to a specific 'nose cone heading'; and
- In the case of a SAR aircraft approaching a turbine, the rotation of the blades to the desired orientation. The preferred orientation is retreating blade horizontal but one of the following may be accepted.

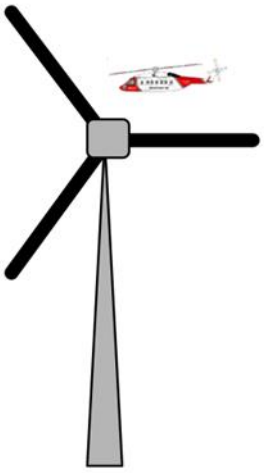


Figure 3.3: Turbine blades set to Retreating Blade Horizontal position for winching

Retreating Blade Horizontal Position:

The retreating blade horizontal position provides good references with the blade in the pilot and winch operators 2 o'clock position whilst maintaining a clear area for the tail rotor should the crew wish to offset the aircraft for wind or to improve visual references or escape headings.

This is the preferred option for winch transfers to the turbine.

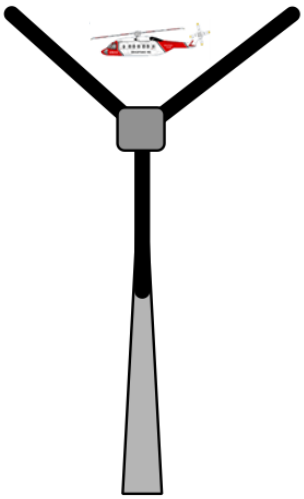
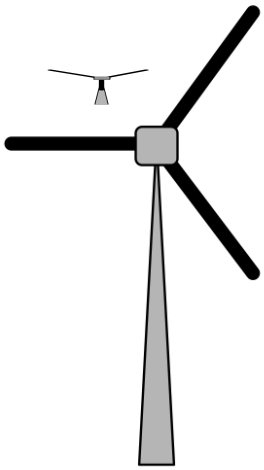


Figure 3.4: Turbine blades set to the Bunny Ears or 'Y' position for winching

Bunny Ears (Y Blade) Position:

The Y blade position also offers good references with the blade in the pilot and winch operator's 2 o'clock position. The retreating turbine blade aft of the helicopter in the winching position slightly compromises the tail rotor area.

This position is commonly referred to as "Bunny Ears" or possibly the "SAR Position".



Advancing Blade Horizontal Position:

The advancing blade horizontal position is the poorest option for references with the retreating blade occupying the area closest to the tail rotor.

This position is also known as "Orientation Stop", "Heli-Stop" or "Lazy Y". This is the position usually selected for delivery/recovery of turbine technicians by wind farm helicopters.

Figure 3.5: Turbine blades in Advancing Blade Horizontal position for winching

3.3 Medical advice / assistance

40. Evacuation of injured or ill persons can be arranged with HMCG if the operators own resources (work and/or safety boat) are considered inappropriate or if speed is of the essence. If in doubt, Aberdeen CGOC should be contacted.

41. Medical advice by radio or telephone link call is available via Aberdeen CGOC. However, on-site medical facilities shall be used in the first instance unless the situation is considered urgent.

42. Each vessel utilised will have a proportionate level of first aid and immediate emergency support on-board. This will vary and is dependent on the size of vessel and number of people on-board.

43. Details of medical facilities and resources available on the offshore structures will be added to a later revision of the ERCoP.

3.4 Exercises

44. NnGOWL will undertake emergency response and management exercises on a period basis during the lifetime of the Project. The frequency of these exercises will be agreed with the MCA, and the format and content of the exercises will be planned in consultation with the MCA. Further details will be added to a future version of the ERCoP.

45. The exercises will consider the advice found in the Regulators Expectations for Emergency Response document and will be planned in consultation with the MCA Offshore Energy Liaison Officer.

46. It is recognised as good practice for an initial table-top exercise to be held shortly after commencement of operations. This serves as a 'get to know you' and educational process for all the operator's staff and the emergency services who might be expected to respond to any emergency in or around the installation.

3.5 Unexploded Ordnance and Wreck Materials Located on or Near to OREIs

47. NnGOWL have completed an Unexploded Ordnance (UXO) survey and clearance campaign to remove any UXO from within the footprint of Project infrastructure and associated construction activities. However, it is possible that additional UXO or materials from wrecks could be located, exposed, disturbed

or inadvertently lifted from the seabed. If this occurs, the procedures detailed in Sections 3.5.1 and 3.5.2 should be followed.

3.5.1 Unexploded Ordnance (UXO)

48. The object should not be moved (or removed if it is lodged in dredging buckets, pipes or conveyor systems etc.). The situation should be immediately reported to HMCG (via Aberdeen CGOC) who will alert the relevant military ordnance disposal organisation. All personnel should be evacuated as far as practicable away from the UXO.

49. Further information and advice to mariners on the handling of UXO can be found in UK MGN 323 (M+F).

50. It is probable that an Explosives Ordnance Disposal (EOD) team will be sent and will take the lead in advising the contractors on response to the UXO. If necessary, telephone advice can be given directly from the EOD team either via mobile phone or by radio to telephone link-call via Aberdeen CGOC.

3.5.2 Wreck or Wreck Materials

51. Uncharted wrecks (aircraft or vessels) or materials from wrecks which have been located, disturbed or inadvertently lifted from the seabed during subsea operations must be reported by law to the UK Receiver of Wreck. This should be done by contacting the Receiver of Wreck on:

- 020 381 72575;
- row@mcga.gov.uk; or
- Contact HMCG who will then inform the Receiver of Wreck Officers.

52. Information on reporting wreck or wreck materials can be found at: https://www.gov.uk/government/groups/receiver-of-wreck

3.6 Counter Pollution

53. As per the Bonn Agreement, NnGOWL shall take appropriate measures to avoid leakage of hazardous and noxious substances, including oil, from all structures within the Wind Farm and from wind farm operative vessels. In the event of leakage from a structure within the Wind Farm/a wind farm affiliated vessel, NnGOWL shall provide the necessary response to counter the pollution incident.

54. Details of NnGOWL's counter pollution arrangements and procedures are included in full in Annex 2 of the project Environmental Management Plan (NNG-NNG-ECF-PLN-0006[1]) and will be reflected in Contractor Emergency Response Plans (ERPs).

55. If pollution enters the Wind Farm which has not originated from the Wind Farm structures/wind farm affiliated vessels, NnGOWL may hold the owner of the external source of pollution liable, thus requiring the external owner to initiate the appropriate response. If this is not carried out, NnGOWL may seek reimbursement of costs associated with pollution response.

56. Assuming pollution from an unidentifiable source is drifting towards the Wind Farm, NnGOWL shall comply fully in order to facilitate appropriate pollution response. This may include shutdown of the Wind Farm to allow mechanical recovery of the pollution or dispersant application. If it is deemed that shutdown of the Wind Farm is required, the liaison agreement between Aberdeen CGOC and NnGOWL (as per Section 2.2.1.12) should be followed.

[1] http://marine.gov.scot/data/environmental-management-plan-neart-na-gaoithe-offshore-wind-farm-revised-design

4 Support Arrangements

4.1 Shore reception arrangements

57. In the event of an accident, survivors may need to be delivered to a location other than the normal embarkation/disembarkation point depending on:

- the location of the Wind Farm;
- the origin point of the rescue units;
- the weather and/or incident conditions and situation; and
- the scale of the incident and its consequences.

58. Full information on the site-specific plans can be found in Section 6.15.

4.2 Informing Next-of-Kin

59. Procedures will be as per NnGOWL's internal Human Resources (HR) policy and similar policies of Contractors.

4.3 Criminal Actions and Accidents to Persons

60. Dial 999 if there is threat to life or a crime is in progress, call 101 for all non-emergencies. Aberdeen CGOC should always be informed of any such activity, suspected or otherwise.

61. The Police must always be informed of any deaths on OREIs.

4.4 Media relations

62. In the event of an incident, media response should be as per the Crisis Management Plan. The MCA duty process officer should be contacted as soon as possible to coordinate a joint response using the following contact details for the MCA Public Relations Department, which are given in Table 4-1. The media contact for NnGOWL is given in Section 2.2.1.5.

Table 4-1: MCA Public Relations Department Contact Details

Address:	MCA Public Relations Department Spring Place 105 Commercial Road Southampton, S015 1EG
Phone:	02389 329414*

*Not 24 hours, contact Aberdeen CGOC directly during out of office hours.

5 Additional Information

63. The information contained in this section describes the duties and functions of various participants in SAR and explains any areas or information requirements of particular importance to SAR and other emergency response within the Project site.

5.1 The SAR Mission Co-ordinator (SMC)

64. Each SAR operation is carried out under the direction of an SMC at the CGOC. This function exists only for the duration of the specific SAR incident.

65. The responsibility of the SMC will vary depending on the nature and severity of the incident. The SMC is essentially in overall charge of coordinating and directing the response to an incident until it is successfully concluded or a decision has been agreed to terminate operations.

5.2 The On-Scene Coordinator - (OSC)

5.2.1 Consideration in Selecting the On-Scene Co-ordinator

66. The SMC may, according to the severity of an incident, wish to appoint a wind farm work/safety boat as OSC. The information below is the guidance of persons in charge of such boats:

- According to International Aeronautical and Maritime Search and Rescue (IAMSAR), when two or more SAR facilities are working together on the same mission, it is sometimes advantageous if one person or vessel is assigned to co-ordinate the activities of all participating units.
- The SMC (at the CGOC) designates the OSC, who may be in charge of a Search and Rescue Unit (SRU), ship or aircraft participating in a search, or someone at another nearby facility able to handle OSC duties.

67. The OSC should be the most capable person or vessel available, and the following considerations should be taken into account when selecting:

- The amount of SAR training and experience the person may have had;
- Communications capabilities; and
- The length of time that the facility on which the OSC is aboard can stay in the search area.

5.2.2 Duties and Responsibilities of the OSC

68. Duties which the SMC may assign to the OSC, depending on needs and qualification include any of the following:

- Assume operational co-ordination of all SAR facilities on scene;
- Receive and implement the search action plan from the SMC;
- Modify the search action plan based on prevailing environmental conditions, SRUs/SAR facilities availability and capability, new target information and new developments on scene, keeping the SMC advised of any changes to the plan;
- Establish and maintain communications with all SRUs using the designated on scene channels;
- Provide relevant information to other SAR facilities;
- Monitor the performance of other units participating in the search. Co-ordinate and divert surface units or helicopters to evaluate sightings;
- Develop and implement the rescue plan (when needed);

- Co-ordinate safety of flight issues for SAR aircraft (where no Aircraft Co-ordinator is appointed); and
- Make consolidated situation reports (SITREPs) back to the SMC.

69. Information that the SMC needs from the OSC includes:

- On scene weather, wind and sea conditions when significant changes occur, and at least every four hours if the SMC has not stipulated a shorter time interval;
- SRU on scene arrival and departure information, including actual and estimated time;
- Pertinent new developments or sightings;
- Major modifications made to the SMC's SAR action plans, either already taken or recommended;
- Requests for additional assistance;
- Summary of search areas completed with an assessment of the search effectiveness; and
- Obtain results of search as facility departs the scene.

5.3 Search planning

70. In the event that persons or craft are in danger and drifting on or in the sea, and they are unable to provide locating signals or a precise position, SRUs will have to be deployed to physically look for them. This requires that search area calculations are made based on the movements of the tide, local currents and wind (leeway) as they might act on the object drifting, e.g. life raft, life boat, drifting vessel, persons in water, etc. Any information that the wind farm operator has or records on tide and wind speed and direction could be helpful in the accurate calculation of search areas. Such useful information could be:

- Information about tides and water currents;
- Wind data and details of how the CGOC can obtain this.
- Explanation of the procedures to be carried out by the CGOC, and any information or actions required from the operator, in the event of search planning action being required.

5.4 Suspension / Termination of SAR action

71. The SMC (see Section 5.15.1) is responsible for deciding when to terminate attempts to rescue and/or search operations for incidents but will do so in conjunction with:

- SAR resources;
- On-scene Coordinator (OSC) (see Section 5.2);
- OREI Operators, personnel or contractors;
- Third parties;
- Other emergency services; and
- Any other relevant party engaged in the incident.

5.5 Liaison

72. It is recognised as good practice that wind farm operators and the emergency services should conduct periodic visits to each other's operations rooms, control centres, etc. to maintain close liaison and understanding between all parties.

6 Development Specific Information

6.1 NnG Offshore Wind Farm information

73. The Neart na Gaoithe Offshore Wind Farm (Revised Design) received consent under Section 36 of the Electricity Act 1989 from the Scottish Ministers on 03 December 2018 and was granted two Marine Licences by the Scottish Ministers, for the Wind Farm and the associated Offshore Transmission Works (OfTW), on 03 December 2018 (reference: [06677/18/0]/[06678/18/0]). The S36 consent and Wind Farm Marine Licence were revised by issue of a variation to the S36 Consent and Marine Licence 06677/19/0 on 4 June 2019, and the OfTW Marine Licence by the issue of Marine Licence 06678/19/1 on the 5 June 2019. The revised S36 Consent and associated Marine Licences are collectively referred to as 'the Offshore Consents'.

74. Figure 6.1 illustrates the location (relative to the UK coastline) and site boundary for which the Project has received the appropriate marine licences.

75. Following this, the coordinates referenced within Figure 6.1 are detailed in Table 6-1.

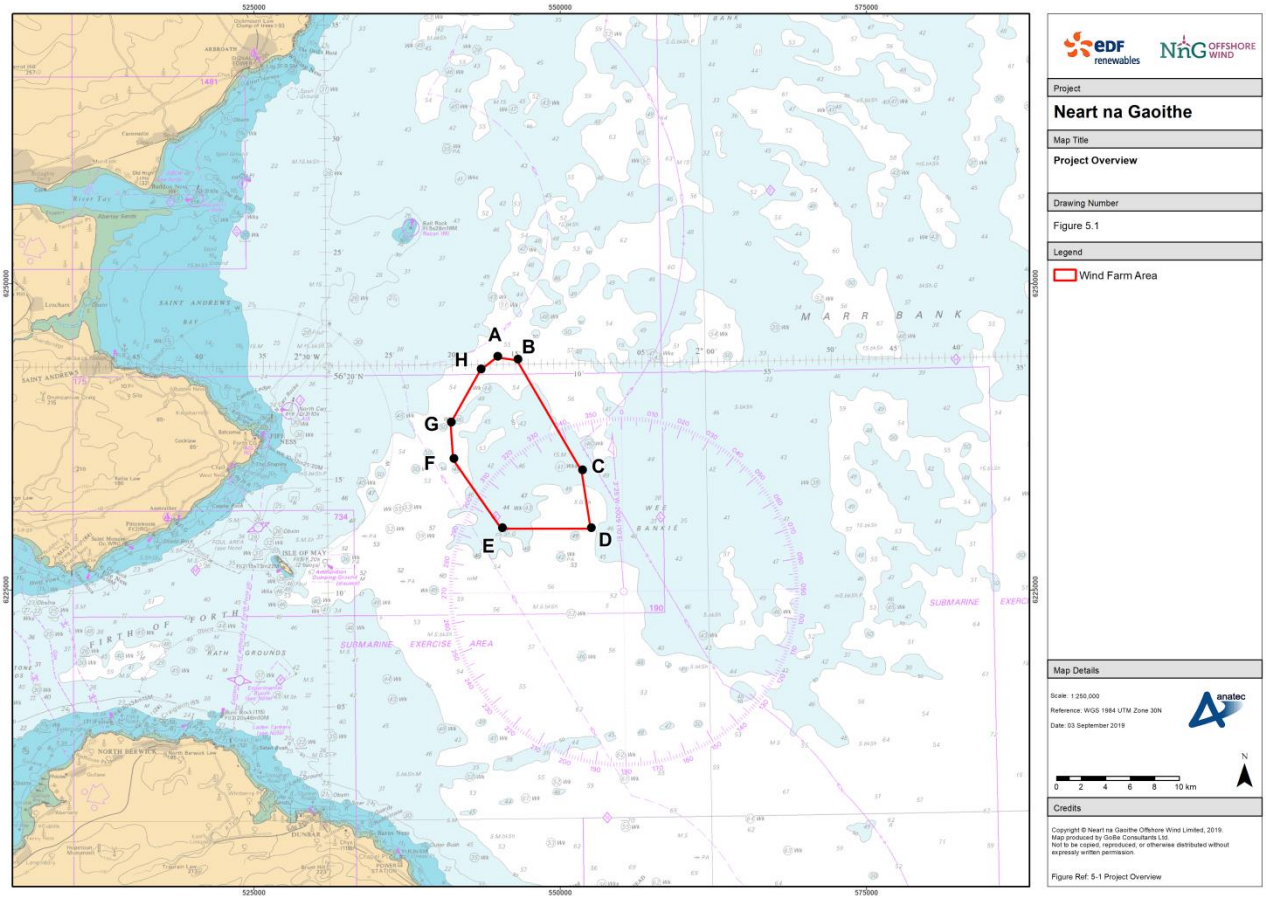


Figure 6.1: Project Overview

Table 6-1: Corner Coordinates (WGS 84, 30N)

CORNER	LONGITUDE	LATITUDE
A	002° 16' 31.06" W	056° 20' 18.53" N
B	002° 14' 54.54" W	056° 20' 10.10" N
C	002° 09' 53.84" W	056° 15' 16.08" N
D	002° 09' 15.25" W	056° 12' 43.11" N
E	002° 16' 17.53" W	056° 12' 45.79" N
F	002° 20' 03.25" W	056° 15' 49.42" N
G	002° 20' 13.90" W	056° 17' 25.66" N
H	002° 17' 49.49" W	056° 19' 44.93" N

6.1.1 Export Cable Layout

76. One export cable runs from each OSP, with both making landfall at Thorntonloch beach to the south of Torness Power Station in East Lothian. The inter-array cables run from the turbines to the OSPs, and an interconnector cable connects the two OSPs. Figure 6.2 illustrates the indicative location of the export, inter-array, and interconnector cables associated with the Project subject to micro-siting.

77. Details of proposed cable burial and protection methods are detailed in the project Cable Plan (NNG-NNG-ECF-PLN-0007[2]).

[2] http://marine.gov.scot/data/cable-plan-neart-na-gaoithe-offshore-wind-farm-revised-design

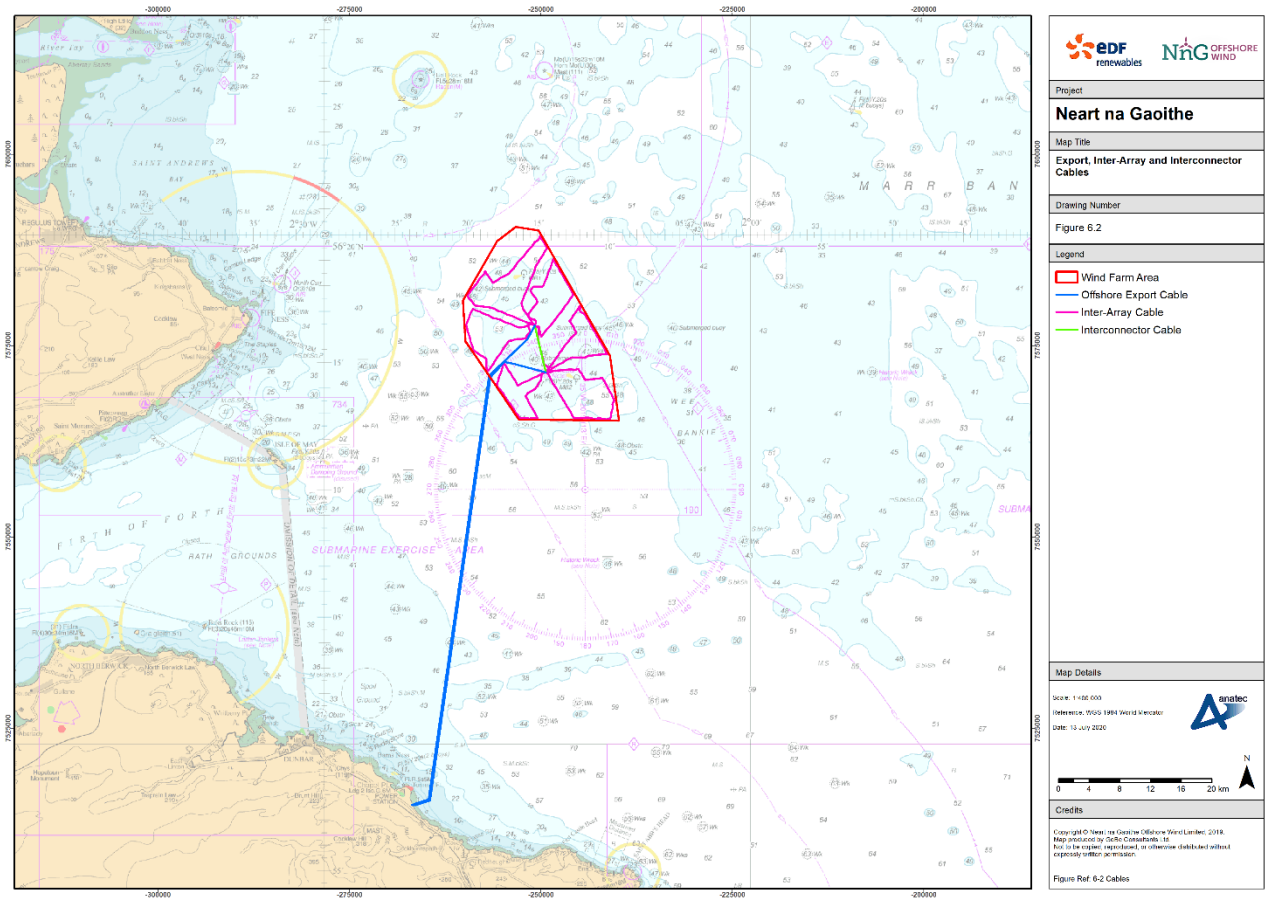


Figure 6.2: Export, Inter-Array, and Interconnector Cables

6.1.2 Site Layout and Coordinate Program

78. Figure 6.3 illustrates the final layout of the wind farm with all structures labelled with a unique structure ID.

79. Following this, Table 6-2 provides the co-ordinates of all structures within the wind farm. The unique structure ID corresponds to the individual ID number painted on both the tower and nacelle of each structure within the wind farm.

80. Note that the ERCoP will be updated with as-built coordinates following installation of structures.

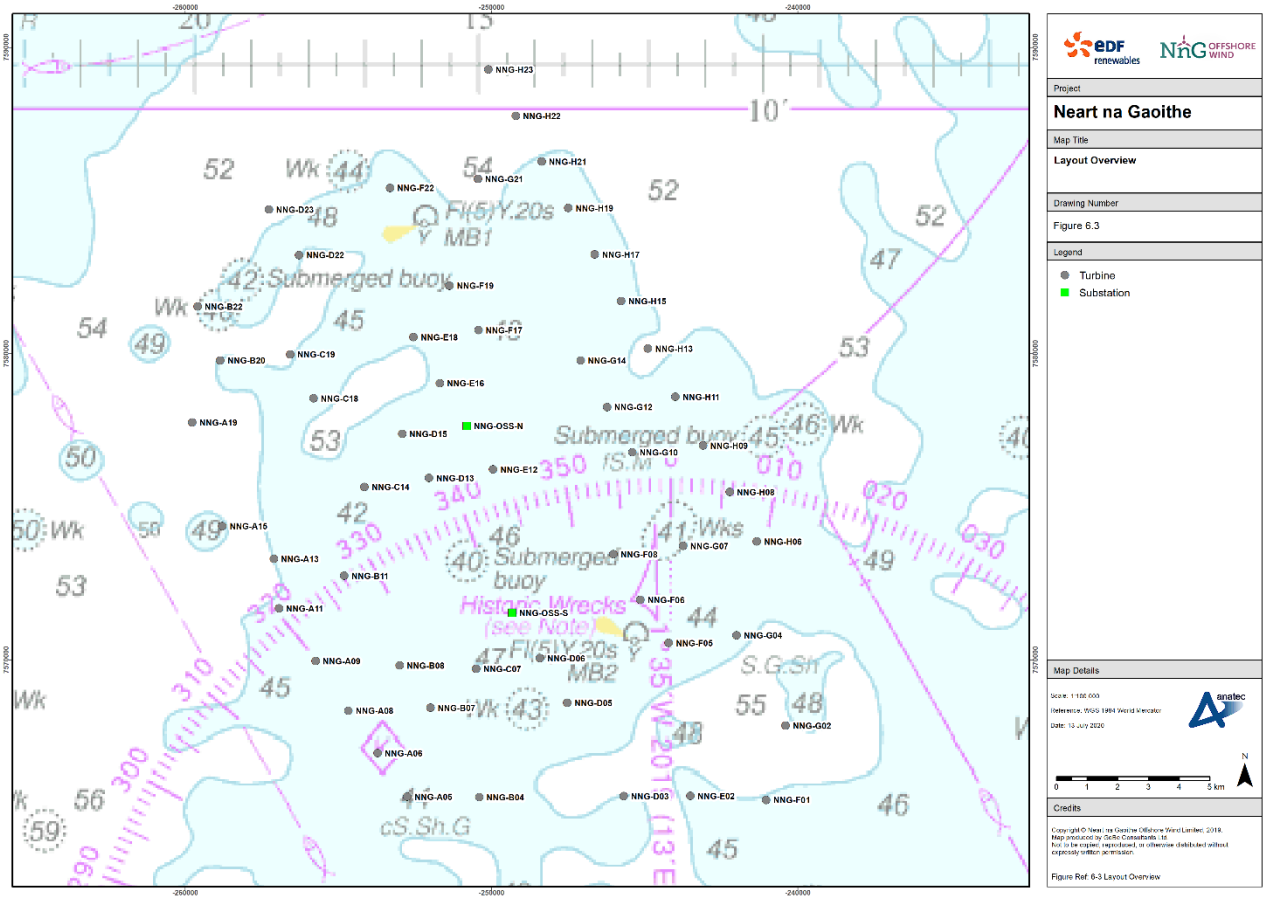


Figure 6.3: Layout Overview

Table 6-2: Co-ordinates of Structures within Layout (WGS84, 30N)

STRUCTURE ID	STRUCTURE TYPE	LONGITUDE	LATITUDE
NNG-A05	Turbine	002° 16.231' W	56° 12.822' N
NNG-A06	Turbine	002° 16.755' W	56° 13.248' N
NNG-A08	Turbine	002° 17.267' W	56° 13.665' N
NNG-A09	Turbine	002° 17.849' W	56° 14.153' N
NNG-A11	Turbine	002° 18.489' W	56° 14.668' N
NNG-A13	Turbine	002° 18.580' W	56° 15.153' N
NNG-A15	Turbine	002° 19.484' W	56° 15.474' N
NNG-A19	Turbine	002° 20.015' W	56° 16.490' N
NNG-B04	Turbine	002° 14.964' W	56° 12.817' N

STRUCTURE ID	STRUCTURE TYPE	LONGITUDE	LATITUDE
NNG-B07	Turbine	002° 15.822' W	56° 13.695' N
NNG-B08	Turbine	002° 16.365' W	56° 14.109' N
NNG-B11	Turbine	002° 17.341' W	56° 14.989' N
NNG-B20	Turbine	002° 19.521' W	56° 17.097' N
NNG-B22	Turbine	002° 19.921' W	56° 17.623' N
NNG-C07	Turbine	002° 15.017' W	56° 14.076' N
NNG-C14	Turbine	002° 16.984' W	56° 15.858' N
NNG-C18	Turbine	002° 17.882' W	56° 16.725' N
NNG-C19	Turbine	002° 18.293' W	56° 17.155' N
NNG-D03	Turbine	002° 12.421' W	56° 12.828' N
NNG-D05	Turbine	002° 13.417' W	56° 13.744' N
NNG-D06	Turbine	002° 13.894' W	56° 14.179' N
NNG-D13	Turbine	002° 15.848' W	56° 15.946' N
NNG-D15	Turbine	002° 16.321' W	56° 16.376' N
NNG-D22	Turbine	002° 18.135' W	56° 18.127' N
NNG-D23	Turbine	002° 18.666' W	56° 18.572' N
NNG-E02	Turbine	002° 11.251' W	56° 12.829' N
NNG-E12	Turbine	002° 14.720' W	56° 16.029' N
NNG-E16	Turbine	002° 15.658' W	56° 16.874' N
NNG-E18	Turbine	002° 16.122' W	56° 17.324' N
NNG-E20	Spare	002° 16.634' W	56° 17.760’ N
NNG-E21	Spare	002° 17.142' W	56° 18.192' N
NNG-F01	Turbine	002° 09.915' W	56° 12.790' N
NNG-F05	Turbine	002° 11.632' W	56° 14.330' N
NNG-F06	Turbine	002° 12.129' W	56° 14.751' N
NNG-F08	Turbine	002° 12.603' W	56° 15.198' N

STRUCTURE ID	STRUCTURE TYPE	LONGITUDE	LATITUDE
NNG-F11	Spare	002° 13.565' W	56° 16.092' N
NNG-F13	Spare	002° 14.032' W	56° 16.498' N
NNG-F15	Spare	002° 14.512' W	56° 16.956' N
NNG-F17	Turbine	002° 14.978' W	56° 17.394' N
NNG-F19	Turbine	002° 15.487' W	56° 17.826' N
NNG-F22	Turbine	002° 16.536' W	56° 18.785' N
NNG-G02	Turbine	002° 09.572' W	56° 13.520' N
NNG-G04	Turbine	002° 10.435' W	56° 14.405' N
NNG-G07	Turbine	002° 11.379' W	56° 15.279' N
NNG-G10	Turbine	002° 12.270' W	56° 16.197' N
NNG-G12	Turbine	002° 12.715' W	56° 16.640' N
NNG-G14	Turbine	002° 13.181' W	56° 17.095' N
NNG-G21	Turbine	002° 14.988' W	56° 18.873' N
NNG-H06	Turbine	002° 10.079' W	56° 15.324' N
NNG-H08	Turbine	002° 10.555' W	56° 15.808' N
NNG-H09	Turbine	002° 11.027' W	56° 16.263' N
NNG-H11	Turbine	002° 11.513' W	56° 16.740' N
NNG-H13	Turbine	002° 11.997' W	56° 17.214' N
NNG-H15	Turbine	002° 12.466' W	56° 17.677' N
NNG-H17	Turbine	002° 12.932' W	56° 18.134' N
NNG-H19	Turbine	002° 13.397' W	56° 18.588' N
NNG-H21	Turbine	002° 13.865' W	56° 19.043' N
NNG-H22	Turbine	002° 14.322' W	56° 19.488' N
NNG-H23	Turbine	002° 14.806' W	56° 19.943' N
NNG-OSS-N	OSP	002° 15.193' W	56° 16.446' N
NNG-OSS-S	OSP	002° 14.395' W	56° 14.615' N

6.1.3 Site Control

81. The Marine Coordination Centre (MCC) base at NnGOWL will always be manned 24/7 with a minimum of one Marine Coordinator on duty. The NnGOWL MCC contact details are presented in Table 6-3.

Table 6-3: NnGOWL Marine Coordination Centre Contact Details

Address:	Specialist Marine Consultants (SMC) NnG Offshore Wind Farm Gunsgreen Quay Eyemouth TD14 5SD
Phone:	Primary number: 07508421406 Secondary/Land line number: 01890 751415
Email:	nng.mc@smchse.com

82.

83. Marine coordination plans during operation will be confirmed within a future revision of the ERCoP once known.

6.2 Construction Activities

84. As the information on planned work activities associated with the Project is dynamic and subject to change, NnGOWL will upload weekly activity updates via a third party service provider, which Aberdeen CGOC will have access to.

85. The details uploaded will include:

- Status of works activity;
- All planned operations for the upcoming week;
- Vessels currently on site (see Section 6.5) for the list of associated details which will be provided);
- Additional vessels anticipated to arrive on site (if applicable);
- Details of any planned heavy lift operations; and
- A summary of all relevant procedures.

86. In the event of work being required that is not planned, e.g. emergency work between weekly updates, NnGOWL will make specific contact with Aberdeen CGOC and provide details on the nature of the work. Aberdeen CGOC can be contacted by fax or email. Contact details for Aberdeen CGOC are presented in Section 6.16. It is noted that it is considered good practice to hold regular liaison meetings (the timing of which shall be agreed) between NnGOWL and Aberdeen CGOC.

87. All works vessels will be fitted with AIS which will assist Aberdeen CGOC in monitoring vessel activity associated with the Project.

6.3 OREI Information

88. A summary of the key parameters of the turbines to be installed at the Project are summarised in Table 6-4.

Table 6-4: Summary of Turbine Type

Manufacturer	Siemens Gamesa Renewable Energy
Wind Turbine Generator (WTG) Type	Siemens Gamesa 8.0 MW-167m rotor diameter Direct Drive wind turbine generator
Rated Capacity	8.0 MW
Total number of WTGs installed	54

6.3.1 Technical Specifications of the Turbines

89. The key technical specifications of the turbines are summarised in Table 6-5.

Table 6-5: Technical Specifications of Turbines

Rated Capacity (MW)	8.0
Hub Height	125m / 410ft
Maximum Tip Height	208m / 682ft
Maximum Tip Height when blade tips in upright 'Y' position	169.53m / 556ft
Nacelle Dimensions (l x w x h) (ft)	21 x 9.2 x 9.1 (m) / 69 x 30 x 30
Rotor Diameter	167m / 548ft
Blade Length	81.4m / 267ft
Blade Width	5.45m / 18ft
Cut-in Wind Speed	3-5ms^{-1} / 5.8-9.7kts
Cut-out Wind Speed	Cut out if speed exceeds 28ms^{-1} (54.4kts) for at least 600s
Operating Speed Range (rpm)	3 – 10.8
Swept Area per WTG (m^2)	21,904
Foundation Type	Steel jackets on piles

6.3.2 Spacing between Turbines

90. Minimum spacing between the structures (including the substations) is 890m (2,920 ft), however it is noted that actual spacing between structures varies, with average spacing between a structure and the nearest neighbouring structure being approximately 1,050m (3,445 ft).

6.3.3 Lighting and Marking

91. Full details of the lighting and markings scheme implemented for the Project is provided in the Lighting and Marking Plan (LMP) (NNG-NNG-ECF-PLN-0009[3]). As per the LMP, all structures within the wind farm will be lit and marked in accordance with the following marine and aviation guidance:

- International Association of Lighthouse Authorities (IALA) O-139: Recommendation on the Marking of Man-Made Offshore Structures;
- MCA MGN 543: Offshore Renewable Energy Installations – Guidance on Navigational Practice, Safety and Emergency Response;
- Civil Aviation Authority (CAA) CAP 393: The Air Navigation Order 2009. Statutory Instrument No. 3015 (with deviation to Article 221 at NLB's request);
- CAA Civil Aviation Publication (CAP) 437 – Standards for offshore helicopter landing areas; and
- CAA CAP 764 – Policy and Guidelines on Wind Turbines.

6.3.4 Marine Lighting and Marking

6.3.4.1 Construction

92. All structures will be marked via temporary lighting (Fl Y 2.5s light, visible through 360° and with 2nm range) until the operational scheme (see Section 6.3.4.2) is commissioned to the satisfaction of the NLB. These lights are not a requirement under the guidance, however it is considered good practise to display temporary navigational lighting on incomplete structures.

93. The Wind Farm Area will also be marked via construction buoyage during the entirety of the construction phase. These buoys will remain in place until the NLB are satisfied that the operational lighting and marking scheme has commissioned. The construction buoyage used is presented in Figure 6.4.

[3] http://marine.gov.scot/data/lighting-and-marking-plan-neart-na-gaoithe

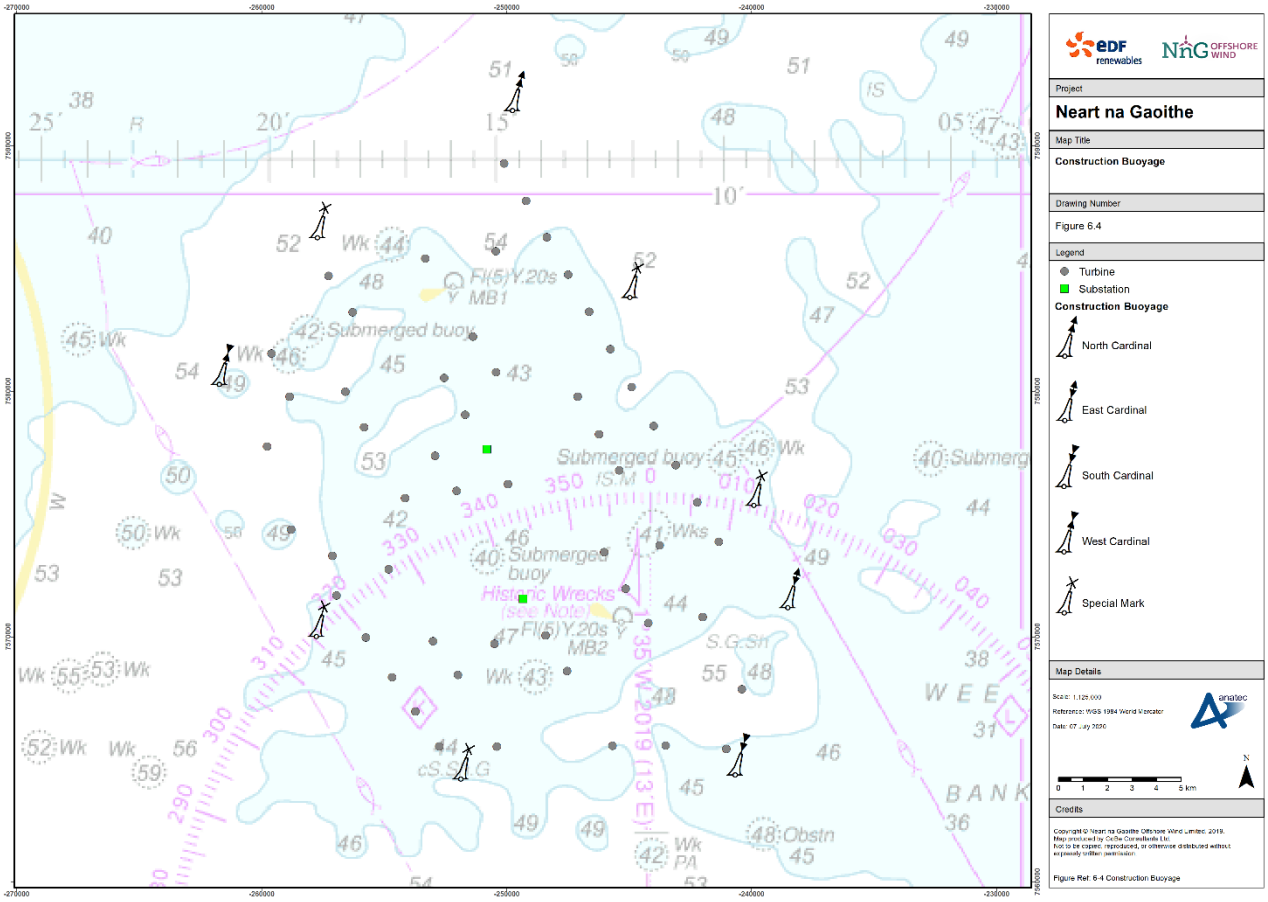


Figure 6.4: Construction Buoyage

6.3.4.2 Operation

94. Significant Peripheral Structures (SPS) (a 'corner' or other significant periphery point) will be fitted with a flashing yellow light (FL. Y 5s) with a nominal range of 5nm, and 360° visibility. All SPS will also be fitted with fog horns which emit sound 360 degrees over a 2nm radius. Lights and fog signals will be located between 6m and 30m above Highest Astronomical Tide (HAT). The use of working lights, such as down lighting on ladders and access platforms, will be designed and used so as to avoid causing confusion with the marine lights.

95. Figure 6.5 illustrates the navigational lighting scheme for the Project to be implemented during the operational phase.

96. Each wind farm structure will display identification panels with black letters / numbers on a yellow background visible in all directions. The identification characters will be illuminated by a low-intensity light visible from a vessel thus enabling the structure to be detected at a suitable distance to avoid a collision with it. For offshore wind farms, the size of the identification characters in combination with the lighting will be such that, under normal conditions of visibility and all known tidal conditions, they are clearly readable by an observer stationed 3m above sea level, and at a distance of not less than 150m from the structure. The ID marking system is included in Figure 6.5.

97. During the operational phase, four of the SPS (NNG-A05, NNG-B22, NNG-F01, and NNG-H23) and the two OSPs (NNG-OSS-N and NNG-OSS-S) will transmit via AIS. The AIS transmitters will be required to have an availability of not less than 97.0% (IALA Category 3). NnGOWL or an appointed contractor will procure the relevant AIS licences via applications to Ofcom as required.

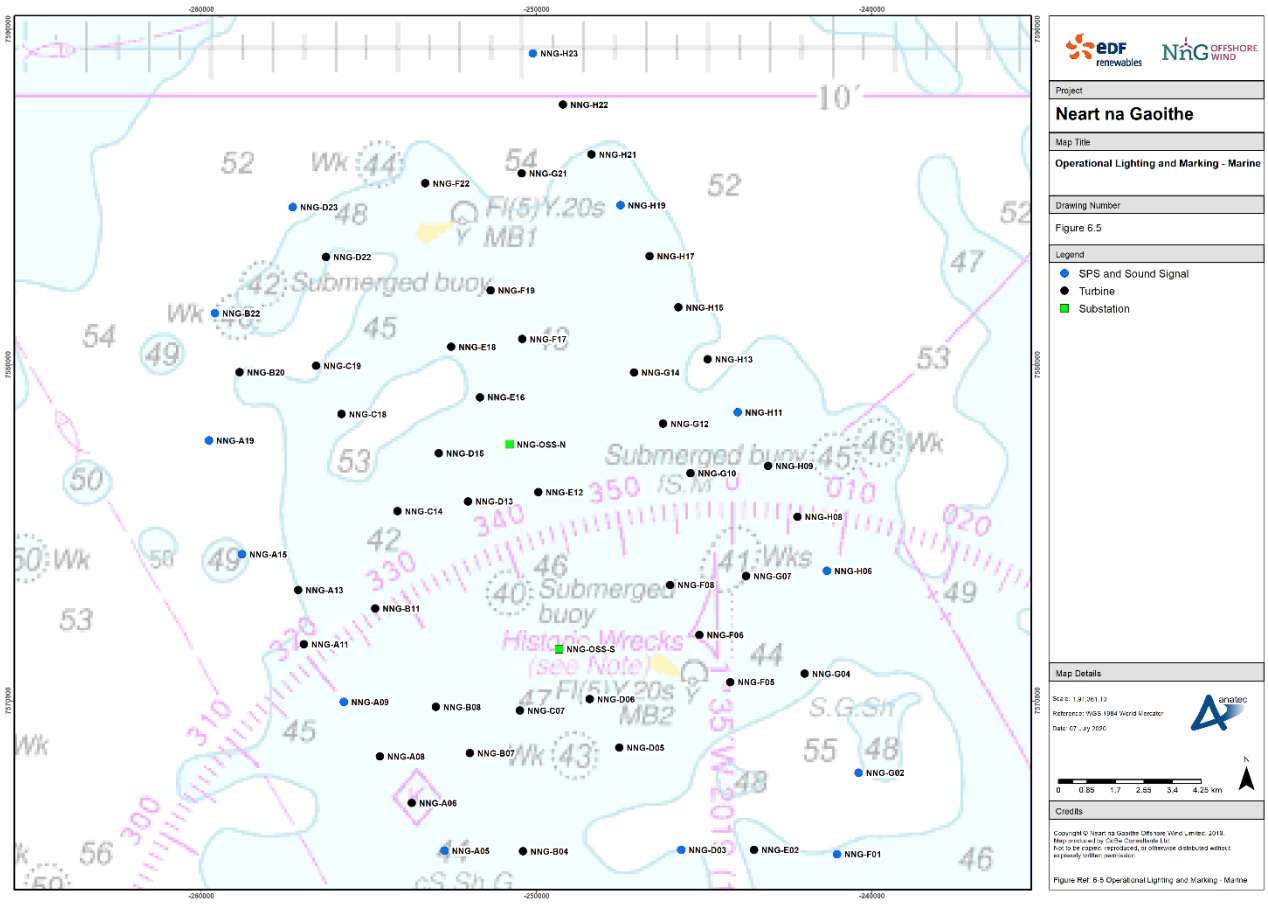


Figure 6.5: Operational Lighting and Marking - Marine

6.3.5 Aviation Lighting and Marking

98. By night, boundary turbines will be lit with 2000 candela red aviation hazard lights (visible through 360°), which are automatically adjusted to 200 candela when visibility is greater than 5km or where SAR coordinating authority and/or the SAR helicopter or aircraft requests it. The lights will be off during the day unless requested otherwise by the SAR coordinating authority and/or the SAR helicopter. These lights will be fixed as close to the top of the structure as possible, with flashing Morse 'W' to avoid confusion with marine lighting. Flashing lights will be synchronised to flash simultaneously for a 5 second long sequence. The downward spread of the lights will be restricted to avoid confusion with maritime lighting. They will also be compatible with Night Vision Imaging Systems.

99. All other internal WTGs will be fitted with a single 200 candela red aviation hazard light with fixed illumination (no flashing), which will also be compatible with Night Vision Imaging Systems and visible through 360°. During routine operations (i.e. no SAR operations are underway in or around the wind farm) these lights shall be switched off.

100. Low intensity green lighting will be fitted to each turbine and turned on (capable of being in either steady or flashing mode) to indicate it is in a safe configuration to conduct hoist operations. These lights can be switched on at the request of the SAR coordination authority and/or a SAR helicopter or aircraft. In agreement with the CAA and Helideck Certification Agency, these lights are visible in azimuth through 225°, noting that the obscured area is head on to the turbines (and hence the lights will be visible to helicopters on standard approaches).

101. All lights and turbines will be under the control of the Marine Coordination Centre so that they can be switched on / off via the central control system if required during an emergency situation and at the request of the MCA.

102. Blade hover reference marks will be provided on the turbine blades to provide a SAR helicopter pilot with a reference mark when hovering over a turbine nacelle during a rescue. Three marks will be added, one each at the 10, 20 and 30 metre interval (measured from the hub) and placed on the trailing edge of the blades so that the marks lie upwards in view of the helicopter pilot when the blades are parked in the 'Y' position or offset 'Y' (i.e. one blade angled forward into the wind).

103. All hover reference marks will be painted in a contrasting red colour on both sides of the blades. The diameter of the marks (which will be dots / stripes) will be at least 600mm but can be larger depending on the overall size of the blade. The blade tip will also be marked in red.

104. Individual ID numbers will be marked on the turbine nacelle roofs so that SAR helicopters and/or other low flying aircraft can locate and/or reference a particular turbine visually. ID numbers will be recognisable from an aircraft flying 500 feet (150 m) above the highest part of the fixed structure. The ID number will be as large as practicable but not less than 1.5 metres in height and of proportionate width.

6.4 Emergency Response

6.4.1 Equipment on OREIs

105. Details of NnGOWL self-help facilities which would be available in the event of such an emergency on the turbines will be added to a future version of the ERCoP

106. Indicatively, equipment on the turbines will include:

- First aid kit;
- Stretchers;
- Emergency evacuation equipment;
- Eye wash;
- Fire extinguishers;
- Survival barrel including overnight provisions;
- Cold weather clothing; and
- Sleeping bags.

6.4.2 Emergency Communications

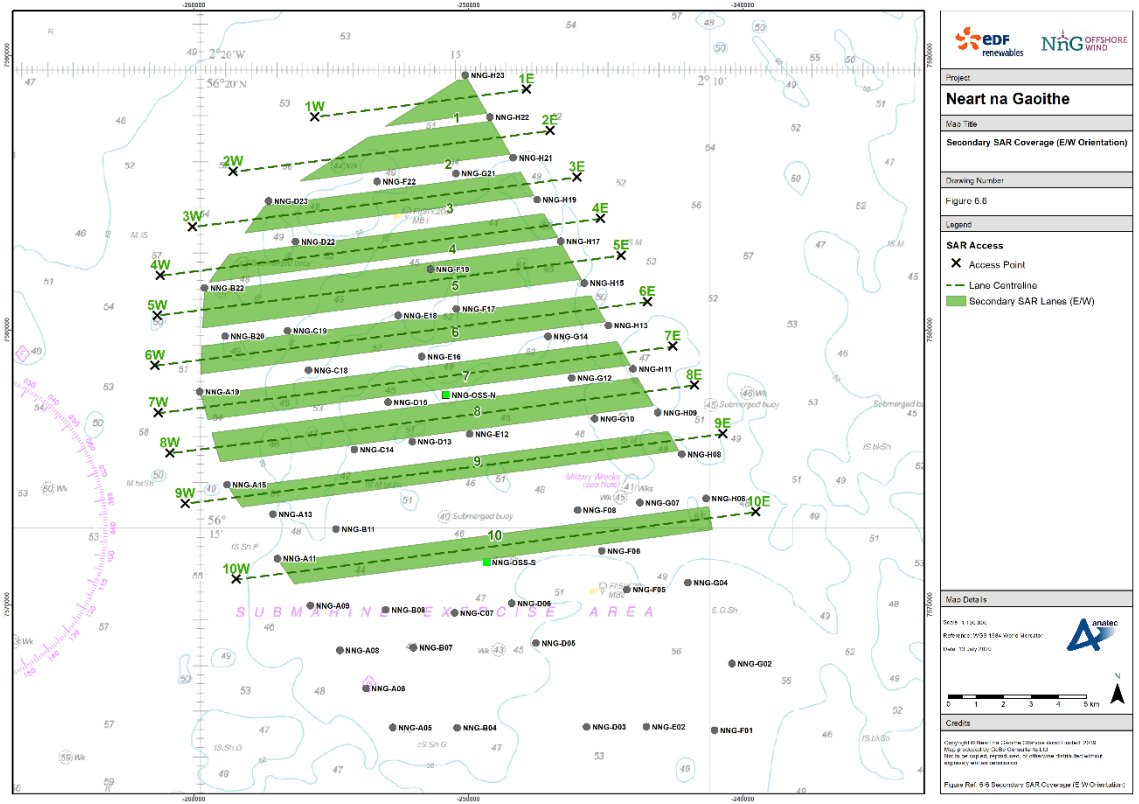
107. Details of NnGOWL self-help facilities on each OREI which would be available in the event of such an emergency will be added to a future version of the ERCoP.

6.4.3 Secondary SAR Coverage

108. Primary SAR coverage is presented within the Emergency Action Card (see Section 7). This section provides additional secondary SAR lane coverage which may be used in the event of a SAR operation. Given that these are secondary SAR lanes, any lane of width greater than 300m has been included to ensure that potential SAR options available to the MCA are maximised in an emergency situation.

109. Secondary SAR Lanes have been labelled via numbering for the purpose of reference within this ERCoP, however it should be considered that given the nature of the layout they do not align with the Turbine ID system.

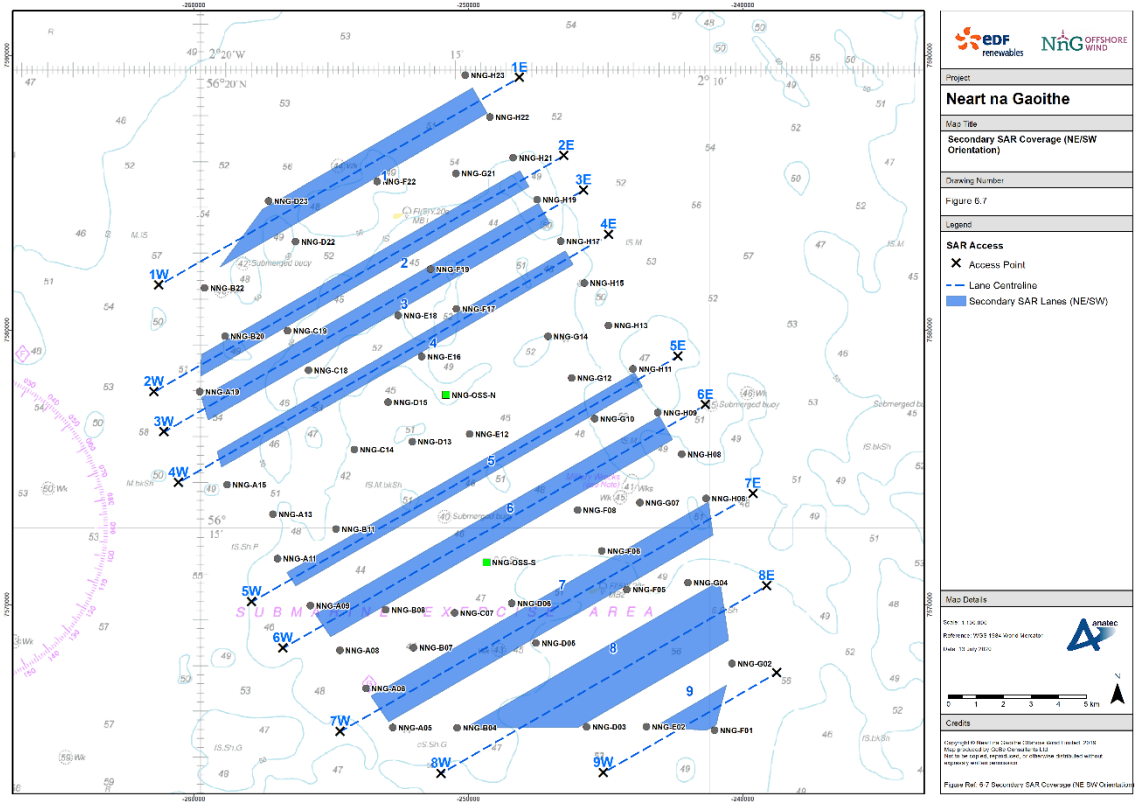
110. It is noted that the SAR coverage shown is indicative only at this stage. Precise SAR lanes, centrelines and access points will depend on final positions (accounting for micrositing and use of spares), and will therefore be confirmed in a future version of the ERCoP following installation of the structures.



LANE	EASTERN ACCESS	WESTERN ACCESS	WIDTH (M)	LENGTH (NM)
1	002° 13.6' W 56° 19.79' N	002° 17.76' W 56° 19.49' N	730	2.3
2	002° 13.14' W 56° 19.34' N	002° 19.36' W 56° 18.89' N	700	3.5
3	002° 12.61' W 56° 18.83' N	002° 20.16' W 56° 18.29' N	500	4.2
4	002° 12.15' W 56° 18.38' N	002° 20.79' W 56° 17.76' N	500	4.8
5	002° 11.75' W 56° 17.98' N	002° 20.85' W 56° 17.32' N	710	5.1
6	002° 11.23' W 56° 17.47' N	002° 20.89' W 56° 16.78' N	550	5.4
7	002° 10.73' W 56° 16.99' N	002° 20.83' W 56° 16.25' N	490	5.7
8	002° 10.31' W 56° 16.56' N	002° 20.6' W 56° 15.82' N	600	5.8
9	002° 9.75' W 56° 16.03' N	002° 20.3' W 56° 15.26' N	400	5.9
10	002° 9.1' W 56° 15.17' N	002° 19.3' W 56° 14.44' N	470	5.7

Figure 6.6: Secondary SAR Coverage (E/W Orientation)

SAR Lane Bearing: 082.6° / 262.6°



LANE	EASTERN ACCESS	WESTERN ACCESS	WIDTH (M)	LENGTH (NM)
1	002° 13.74' W 56° 19.92' N	002° 20.82' W 56° 17.65' N	580	4.5
2	002° 12.87' W 56° 19.07' N	002° 20.91' W 56° 16.49' N	360	5.2
3	002° 12.48' W 56° 18.69' N	002° 20.72' W 56° 16.05' N	460	5.3
4	002° 11.99' W 56° 18.2' N	002° 20.43' W 56° 15.5' N	310	5.4
5	002° 10.63' W 56° 16.88' N	002° 19' W 56° 14.2' N	310	5.4
6	002° 10.09' W 56° 16.35' N	002° 18.38' W 56° 13.69' N	530	5.3
7	002° 9.15' W 56° 15.38' N	002° 17.26' W 56° 12.77' N	620	5.2
8	002° 8.89' W 56° 14.37' N	002° 15.28' W 56° 12.32' N	1,120	4.1
9	002° 8.69' W 56° 13.42' N	002° 12.09' W 56° 12.33' N	570	2.2

Figure 6.7: Secondary SAR Coverage (NE/SW Orientation)

SAR Lane Bearing: 060.0° / 240.0°

6.4.4 Emergency Shutdown Procedures and Processes

111. In the event that the turbine control system detects a serious error or if the manual emergency stop is activated, either at one of the emergency stop buttons within the turbine or at the remote monitoring location, the turbine will immediately activate emergency blade pitching and activate the mechanical brakes. The turbine will stop within a few seconds.

112. NnGOWL will fully comply with Marine Guidance Note (MGN) 543 requirements regarding shut-down (partial or complete) of the wind farm during search and rescue (SAR) operations conducted within or passing through the wind farm.

113. Throughout winching operations from a turbine, the turbine blades shall be feathered, the rotor brakes applied with the blades parked in whichever position the MCA Have requested (see Section 3.2.3) and where possible, the blades shall be pinned. The nacelle shall be rotated so that the blades are 90 degrees off the wind with the wind blowing on the left side of the nacelle. Throughout winching operations the nacelle will be held in this position and as such automatic yaw control shall be disabled.

114. Following completion of the preparatory steps, the SAR helicopter pilot shall be fully informed of the status of the turbine from which the winching operation shall take place. At MCA request, the following preparatory steps must be completed prior to a winching operation from a turbine taking place:

- Turbine blades shifted to position requested by MCA (see Section 3.2.3);
- Rotor brakes applied;
- Turbine blades pinned;
- Nacelle orientated correctly (90 degrees off wind with wind blowing on left side);
- Automatic yaw control disabled; and
- SAR helicopter pilot informed.

115.

6.5 Vessels/Installations on Site

116. Onsite vessels will be the primary means of dealing with local emergencies such as man overboard or evacuation of a casualty from a turbine. Emergency services will engage where NnGOWL capability is not adequate to sufficiently resolve the incident. National SAR resources are available under the circumstances detailed in Section 3.2.

117. Throughout an external event, where safe to do so, wind farm work and safety craft should respond and provide assistance in accordance with IMO SOLAS regulations, chapter V.

118. As per Section 6.2, NnGOWL will upload details of vessels which will be on site on a weekly basis during the construction phase. The MCA will have access to these uploads. This will include the following information (where available):

- Vessel Name;
- Vessel callsign and Maritime Mobile Service Identity (MMSI) number;
- Type of vessel;
- Speed and endurance;
- Personnel capacity;
- Normal number of crew carried;
- Weather and/or other operational limitations including turbine transfer limits;

- Medical and/or other ER capabilities including relevant equipment and /or medication;
- Telephone contact numbers (mobile and/or satellite);
- Communications equipment fitted e.g. VHF, MF and HF Marine band radios, satellite systems, fitted, etc.;
- Communications channels/frequencies monitored during normal and abnormal operations e.g. when at sea proceeding to and working in the wind farm;
- Date due to arrive on site (construction only);
- Date arrived on site (construction only);
- Date estimated to leave site (construction only); and
- Pictures and (if available) drawings of the craft.

6.5.1 Guard Vessels

119. NnGOWL will utilise guard vessels during certain sensitive operations during construction. There may be instances during operation where a temporary guard vessel is also necessary (e.g., in the event of a cable becoming exposed, or a significant lighting and marking failure). Whenever a guard vessel is to be mobilised, details would be promulgated in advance to the relevant stakeholders including through the NtM system and via Kingfisher bulletins.

6.5.2 Rescue Boat Capabilities

120. Details of any dedicated rescue boat facilities are contained in the Contractors ERPs. It is also noted that on site guard vessels may be responsible for rescue boat duties.

121. Where safe and feasible to do so, vessels working on wind farm construction activities should respond and provide assistance in accordance with the International Maritime Organisation SOLAS regulations, chapter v. In the event that the requirement for a search and rescue operation arises on the project, it will be the responsibility of HMCG to coordinate this response. This includes the mobilisation and tasking of adequate resources to respond to persons at risk of death or injury at sea.

6.6 Maintenance and Work Operations

6.6.1 Planned Work Activities

122. Details of all planned work activities will be provided to the HMCG via the weekly updates described in Section 6.2. During the operations phase, updates would only be provided where there is a change from the previous upload.

6.6.2 Safety Zones

123. NnGOWL intends to apply for the following safety zones:

- 500m safety zones around any structure where a construction vessel is present;
- 50m safety zones around any partially completed structure, or around any structure that is constructed but not yet commissioned; and
- 500m safety zones around any structure where major maintenance is ongoing (as denoted by the presence of a major maintenance[4] vessel).

[4] Under the Electricity Regulations 2007: "*works relating to any renewable energy installation which has become operational, requiring the attachment to, or anchoring next to, such an installation of a self-elevating platform, jack up barge, crane barge, or other maintenance vessel*".

124. Full details of the safety zones being applied for are available within the Safety Zone application which was submitted to Marine Scotland prior to commencement of construction. This ERCoP will be updated to detail any safety zones that are subsequently granted to NnGOWL by Marine Scotland.

6.7 Airborne Activities

125. Currently, it is anticipated that helicopters will be used for crew transfer during the pile and casing installation phase, commencing in late Summer 2020. As per Section 6.2, details of any planned activities would be provided to HMCG on a weekly basis.

6.8 Locating Aids Used by Personnel or Vessels Working at the Site

126. Personal Locator Beacons or other types of satellite or radio locating devices will be used by personnel working on the site and/or on vessels at work on the site.

6.9 Electronic Surveillance and Monitoring Systems

127. The site will be monitored via AIS from the Marine Coordination Centre. Any guard vessels on site will also monitor via AIS and Radar.

128. The Supervisory Control and Data Acquisition system (SCADA) will send alarms in the case of faults and malfunctions on the OREIs during the operational phase.

6.10 Radio Communication Aerials

129. NnGOWL do not intend to install a dedicated MCA VHF aerial, given the site is entirely within existing VHF coverage (GDMSS Sea Area 1).

6.11 Diving Operations

130. It is not currently anticipated that dive operations would be required during the construction phase.

131. Should diving operations take place, vessels equipped will be equipped with the appropriate equipment as set out in relevant regulations.

132. Aberdeen CGOC will be informed of the availability, location and status of recompression chambers available for the use of diving operations that are taking place. Details of specific arrangements will be added to a future revision of the ERCoP, if required.

6.12 Integrated Emergency Response Cooperation Plan (IERCP)

133. Companies operating offshore have considerable resources of vessels, helicopters and equipment available for normal day to day operations and to deal with emergencies. Offshore operators' emergency plans are drawn up in conjunction with the MCA. The resources are at the disposal of offshore operators and are generally available to assist in other SAR emergencies.

134. On this basis, the key developments within the vicinity of the Project in terms of cumulative SAR resources are considered to be the Inch Cape and Seagreen wind farms, which have been successfully consented. The lease area boundaries of these projects are shown in Figure 6.8.

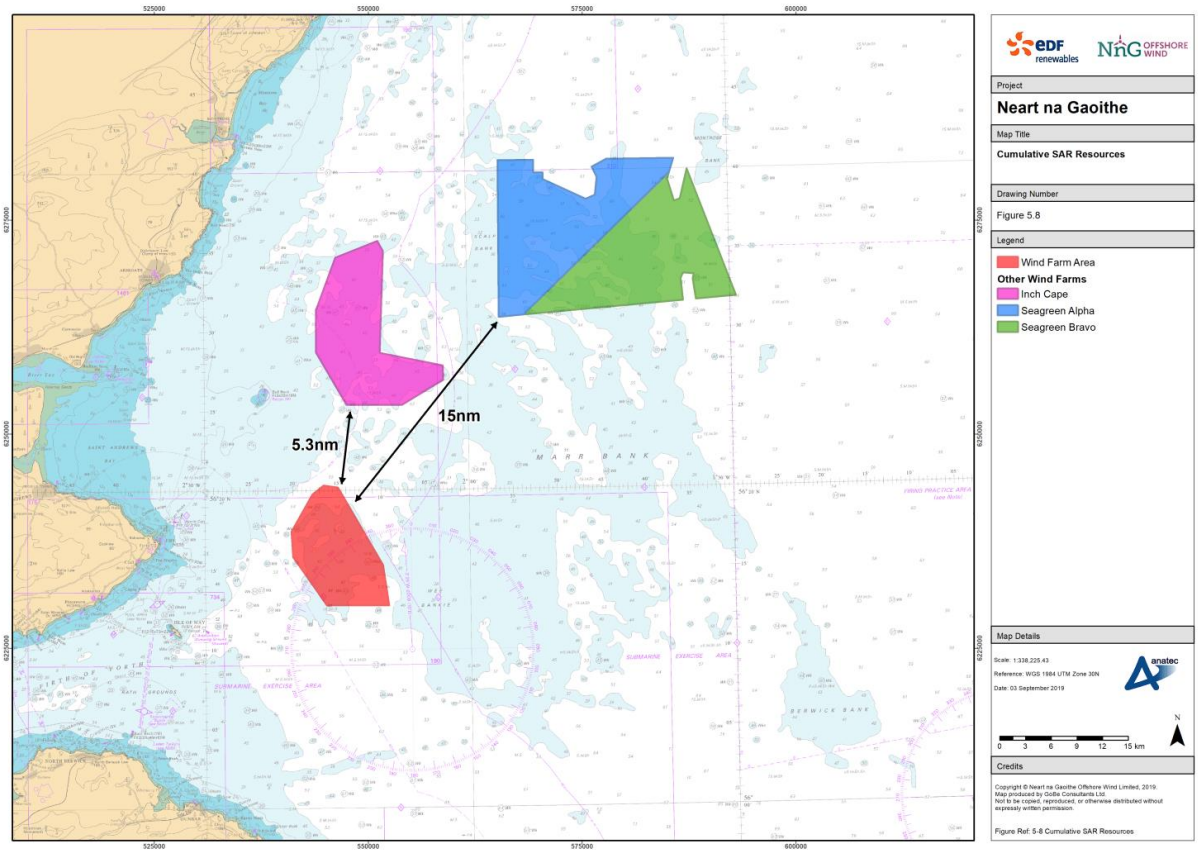


Figure 6.8: Cumulative SAR Resources

135. It should also be noted that traffic is relatively busy in the vicinity of NnG, particularly to the south of the Wind Farm Area. Such traffic may be able to assist in an emergency situation, noting obligations under IMO SOLAS regulations, chapter v.

136. The Inch Cape and Seagreen wind farms have not yet started construction and the status of these projects will be updated within this ERCoP as appropriate. Details of any agreements with the associated developers with regards to emergency response will also be added.

6.13 Offshore Transmission Owner (OFTO)

137. Agreed emergency response procedures between NnGOWL and the future OFTO will be added to a future version of the ERCoP. Contact details for the OFTO will be added to a future revision of the ERCoP as set out in Section 2.2.1.7.

6.14 Firefighting, Chemical hazards, Trapped Persons, etc

138. The wind turbines will be equipped with a fire detection and an audible and visible warning system. Smoke detectors are placed in electrical panels which are monitored through the control and SCADA system. Fire extinguishers are placed in both the nacelle and tower to ensure that a fire which has accidently started during work in the wind turbine can be extinguished immediately.

139. A combination of fire detection systems, firefighting systems and fire extinguishers are present in each room of the OSPs.

140. Vessels at sea in UK waters can receive firefighting, chemical incident or trapped person rescue assistance from the Fire Services Maritime Incident Response Group (MIRG). The MIRG consist of strategically located teams of Category 1 responders with declared assets available to the MCA. These teams are

deployed by CGOC using SAR assets (both airborne and seaborne) to assist with incidents of fire and chemical release.

141. Structures at sea e.g. oil and gas platforms and wind energy developments are not currently within MIRG remit. The standing instruction to all operatives in the event of a turbine fire is to evacuate and allow the installation to burn out. Therefore all personnel should be effectively trained in advanced firefighting techniques to allow evacuation from turbines.

142. Figure 6.9 shows a protocol which should be followed should a fire be discovered on an offshore structure with personnel present. Following this, Figure 6.10 shows a protocol which should be followed should a fire be discovered on an offshore structure with no personnel present. These procedures may be updated in a future revision of the ERCoP.

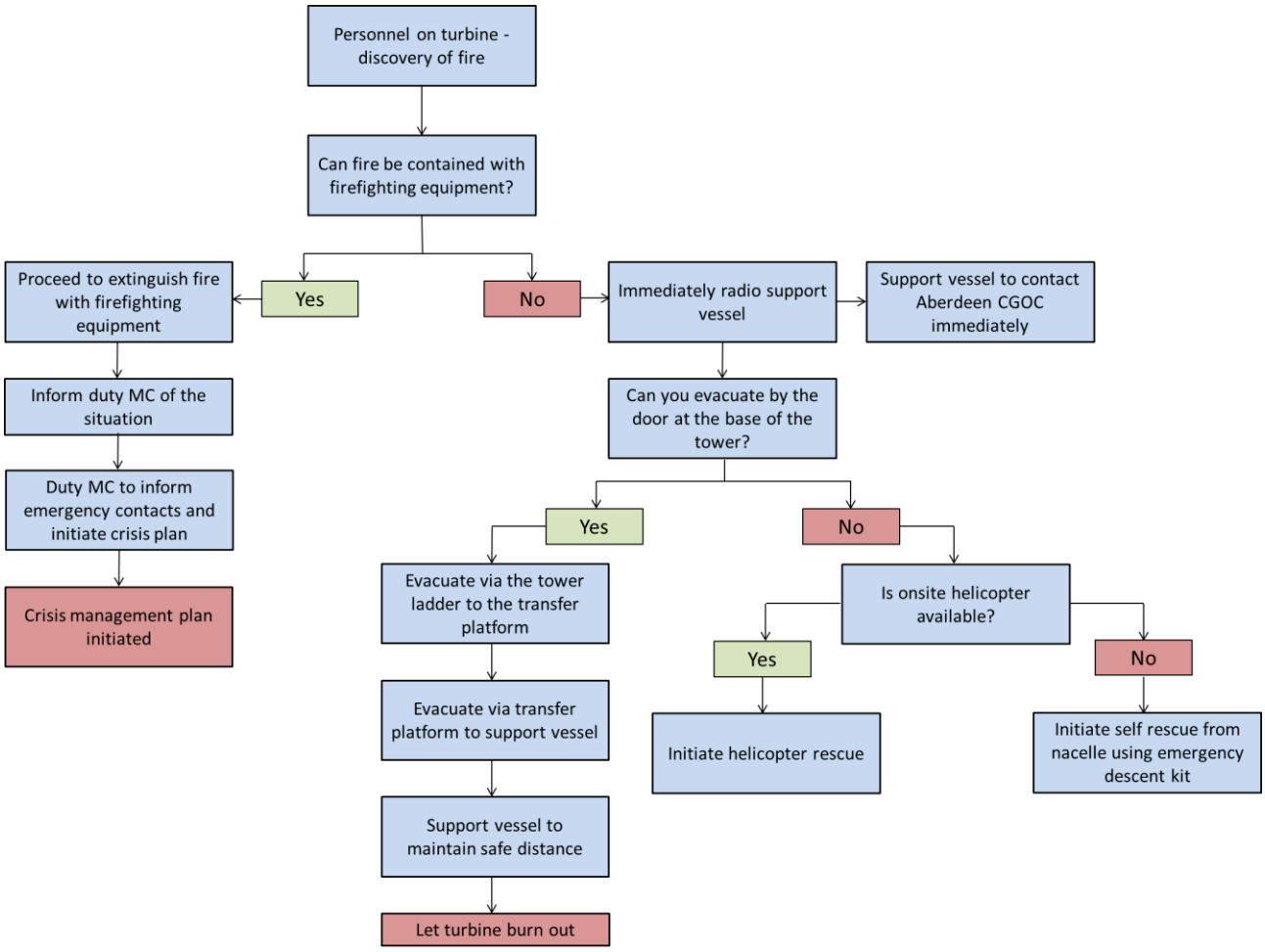


Figure 6.9: Fire (Personnel on Offshore Structure)

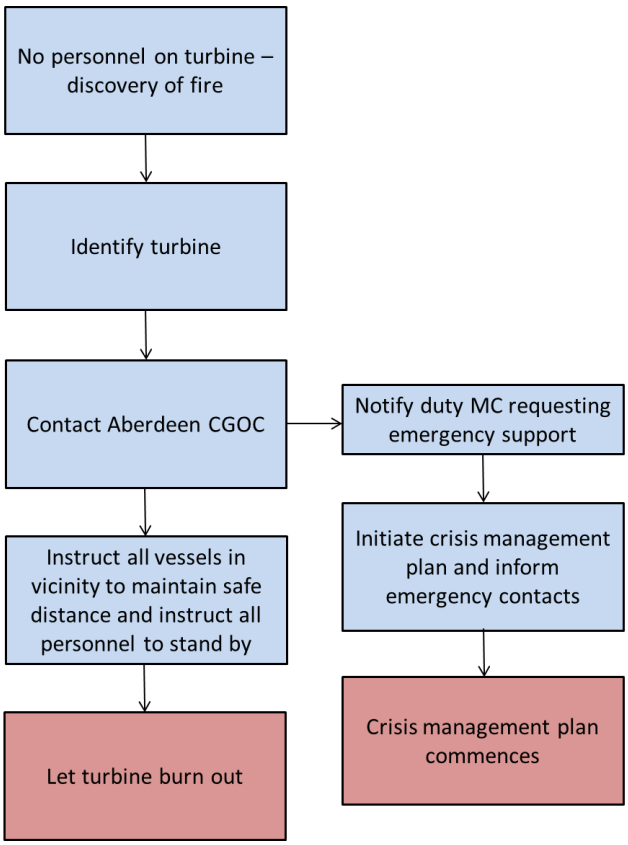


Figure 6.10: Fire (No Personnel on Offshore Structure)

6.15 Survivors Shore Reception Arrangements

143. Post-incident medical or social support may be required following an incident, whether or not those involved are working for the operator or third parties. Company Human Resources (HR) advisors should take steps to contact survivors and provide reasonable assistance as per standard HR guidelines.

144. It is noted that survivors may need to be delivered to a location other than the normal embarkation/disembarkation point depending on

- The location of the wind farm;
- The origin point of the rescue units;
- The weather and/or incident conditions and situation; and
- The scale of the incident and its consequences.

6.16 CGOC Contact Information

145. Contact information for the most appropriate CGOC for routine purposes in relation to the Project are given in Table 6-6. In an emergency, the CGOC responsible for the area containing the development will respond and this may not be the nearest CGOC or the one detailed below.

Table 6-6: Aberdeen CGOC Contact Details

ABERDEEN CGOC	
Address:	HM Coastguard 4th Floor, Marine House Blaikies Quay Aberdeen AB11 5PB
Phone:	Renewables telephone number for zone 4 which is 0344 382 0724 01224 592 334
Email:	zone4@hmcg.gov.uk

6.17 SAR Facilities and their Response Capability

146. Her Majesty's Coastguard (HMCG) commits to providing national SAR resources (lifeboats and rescue helicopters) if:

- The incident exceeds the capability of NnGOWL resources;
- If in the opinion of the work/safety boat skipper, work supervisor or other person, urgent and immediate assistance is required; or
- It is an event which has occurred to persons or vessels not connected with the wind farm or its operations. In this event, and where safe and feasible to do so, wind farm work and safety craft should respond and provide assistance in accordance with International Maritime Organization (IMO) SOLAS regulations, chapter v.

6.17.1 Airborne SAR Capabilities

147. Figure 6.11 illustrates the location of the closest SAR helibases to the Project. These are Prestwick and Inverness, with both utilising Augusta Westland helicopters.

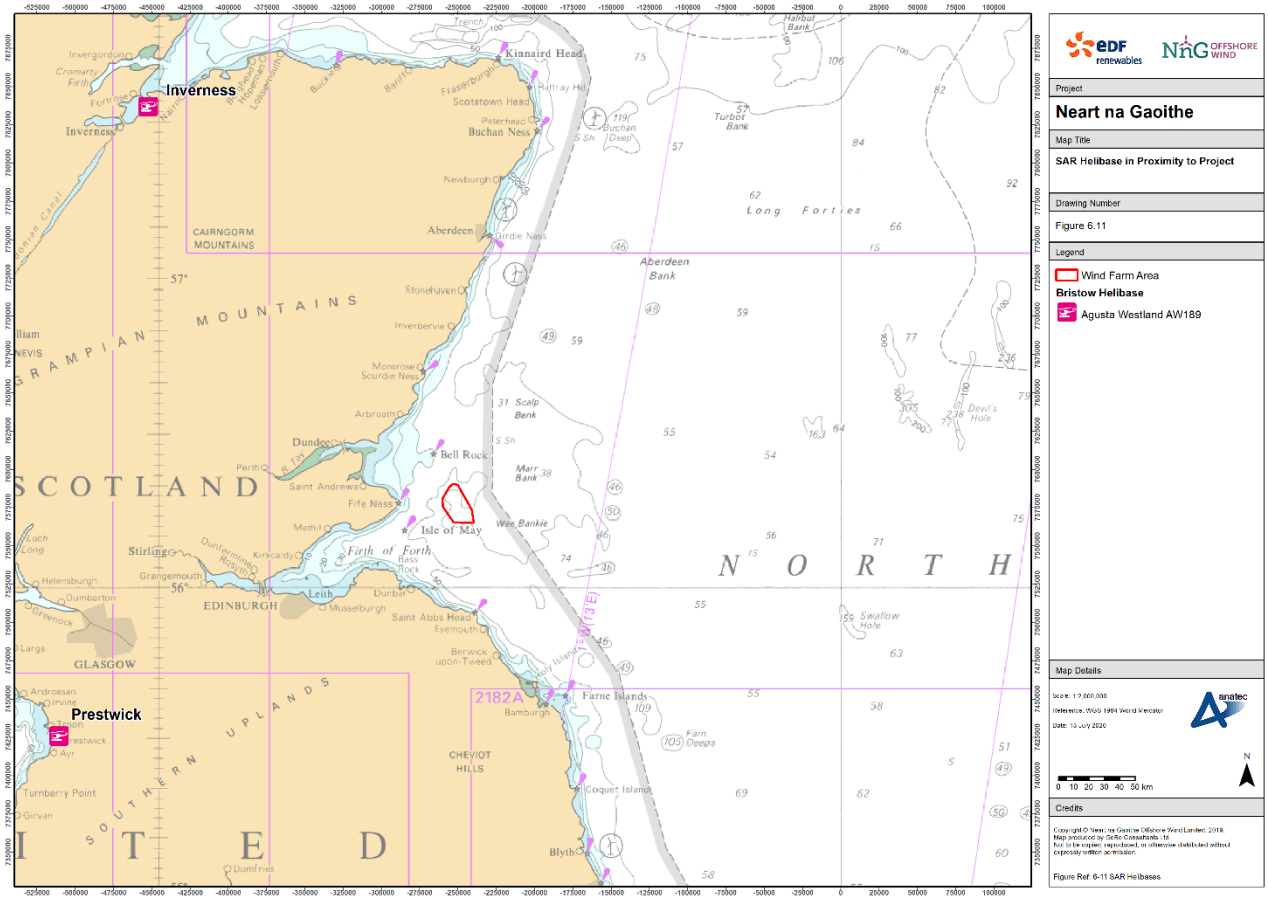


Figure 6.11: SAR Helibases in Proximity to Project

6.17.2 Royal National Lifeboat Institute Lifeboat Stations

148. The Royal National Lifeboat Institute (RNLI) 24-hour SAR service operates from 238 lifeboat stations around the UK and Republic of Ireland. Figure 6.12 illustrates the RNLI lifeboat stations in proximity to the Project.

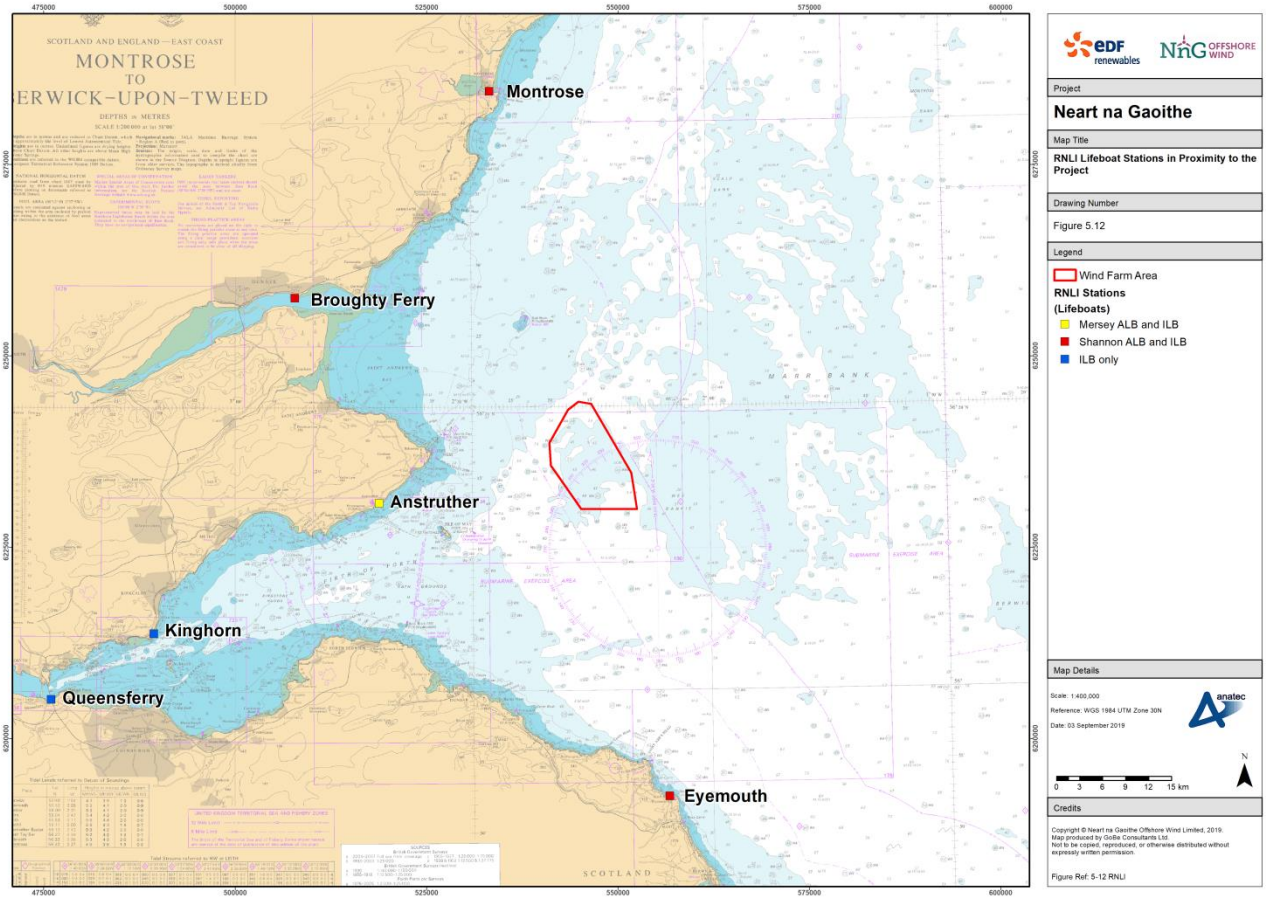


Figure 6.12: RNLI Lifeboat Stations in Proximity to the Project

149. Due to the distance offshore and from analysis of historical incident statistics, it is most likely that All-Weather Lifeboats (ALBs) located at Anstruther would respond to an incident in the vicinity of the Project, however this would depend on circumstances at the time of the incident.

150. It should be noted that RNLI personnel are not trained, nor will they normally be trained, to access turbines or other wind farm structures. Their role is limited to rescuing or assisting persons from the landing stages or decks of such installations, or persons in the surrounding water.

151. The SAR capability, first aid provisions and communications equipment of the RNLI ALBs, which are most likely to respond to an incident at the Project is summarised in Table 6.2. Following this, Figure 6.2 to Figure 6.4 presents photographs of the ALBs and summarises key characteristics of each class.

Table 6-7: Summary of RNLI All-Weather Lifeboat SAR Capability

CLASS	SHANNON	MERSEY
Date Introduced	2013	1988
Crew	6	6
Length (m)	13.6	11.6
Beam (m)	4.5	4.0
Draught (m)	1.0	1.02

CLASS	SHANNON	MERSEY
Maximum Speed (knots)	25	17
Fuel Capacity (litres)	2,400	1,110
Endurance (nm)	250	240
Survivor Capacity (Self-Righting)	23	43
Survivor Capacity (Non Self-Righting)	79	43
All Weather Capability	✓	✓
Systems and Information Management System	✓	×
MF / MF DSC	✓	✓
VHF/ VHF DSC	✓	✓
VHF Direction Finding	✓	✓
DGPS	✓	✓
Radar	✓	✓
Life Raft	✓	✓
Salvage Pump	✓	✓
Secondary Daughter Craft	×	✓**
Comprehensive First Aid Equipment (including stretchers, oxygen and Entonox).	✓	✓

(* XP-Boat, ** X-Boat)

The Shannon class lifeboat is the newest ALB and the first to be propelled by water jets facilitating greater agility and manoeuvrability. The vessel can also operate in shallow waters and be intentionally beached if required. The unique hull has been designed to minimise slamming of the boat in heavy seas. An improved Systems and Information Management System (SIMS) allows the crew to operate and monitor many of the lifeboat's functions remotely from a seated position. A new tractor-borne carriage allows a faster launch and recovery time than the present Mersey system.

Figure 6.13: Shannon Class ALB

The Mersey class lifeboat, introduced in 1988, is designed to primarily operate from a carriage on a beach. The wheelhouse is set well aft and the sheerline is flattened towards the bow. The mast and aerials can be collapsed when working with helicopters. The propellers and rudders lie in partial tunnels set into the hull that, along with the bilge keels, provide excellent protection from damage in shallow water. A small X-Boat, an inflatable (un-powered) daughter craft can be manually launched to access areas where the lifeboat cannot. The Mersey will gradually be replaced by the Shannon.

Figure 6.14: Mersey Class ALB

6.17.3 MCA Emergency Towing Vessel

152. The MCA appointed the Ievoli Black as the Scottish Emergency Towing Vessel (ETV), with a five year contract awarded as of the 31st December 2016. The ETV is understood to have been primarily contracted due to concerns over shipping off the north and north-west of Scotland, and on this basis it is unlikely that it would be in close proximity to the Project in the event of an emergency. However, it has been included for reference.

6.17.4 CAST Agreement (Coastguard Agreement on Salvage and Towage)

153. The MCA has a framework agreement with the British Tug-owners Association (BTA) for emergency chartering arrangements for harbour tugs. The agreement covers activation, contractual arrangements, liabilities and operational procedures, should the MCA request assistance from any local harbour tug as part of the response to an incident. Modern harbour tugs are often capable of providing an effective emergency service in all but the worst weather conditions, and to the largest vessels. The UK towage industry has invested heavily over recent years in powerful omni-directional tugs typically of over 50 tonnes bollard pull and with fire-fighting capability. Where weather conditions or size of casualty restrict their use, such tugs can also perform a useful task in providing first response prior to the arrival of other more suitable vessels.

6.17.5 Cospas-Sarsat

154. The Cospas-Sarsat system detects and locates distress beacons operating at 406.0 – 406.1 MHz. Those relevant to the Project are:

- EPIRBs (Emergency Position-Indicating Radio Beacons), which signal maritime distress; and
- PLBs (Personal Locator Beacons) - for personal use and are intended to indicate a person in distress who is away from normal emergency services.

155. Cospas-Sarsat maritime distress alerts are forwarded to HMCG by the Cospas-Sarsat mission control centre at the National Maritime Operations Centre in Fareham.

6.18 Police Contact information

156. Contact details for the police force relevant to the Project are given in Table 6-8.

Table 6-8: Police Scotland Contact Details

FORCE:	POLICE SCOTLAND
Emergency Telephone:	999
Non-Emergency Telephone:	101
Postal Address	PO Box 2460 Dalmarnock Glasgow G40 9BA

157. The local police force for the Marine Coordination Centre is East Berwickshire Police force, which covers Eyemouth and nearby villages. Eyemouth Police Station details are given in Table 6-9.

Table 6-9: East Berwickshire Police force Contact Details

FORCE:	EAST BERWICKSHIRE
Emergency Telephone:	999
Non-Emergency Telephone:	101
Postal Address	28 Coldingham Road Eyemouth TD14 5AW

7 Emergency Action Card

EMERGENCY ACTION CARD

For the Neart na Gaoithe Offshore Wind Farm

Please see Section 6 for further information.

Communications with the marine coordinator should be via HM Coastguard whenever possible.

Emergency Contact	
Marine Coordinator (primary number – 24 hour availability)	+44 (0) 7508 421 406
Secondary Number	+44 (0) 1723 892 861
Duty Holder Name	Mick Hoyle +44 (0) 7881 102 695
Media Relations	+44 (0) 1452 652 233
Coastguard	+44 (0) 344 382 0724
Police	999

Wind Farm Summary	
Phase	Construction
Range and Bearing from Land*	8.6nm / 86.7°
Number of Turbines	54
No of Substations	2

*Closest distance between Wind Farm Area and shore

Turbine Specific Information					
Heights (above LAT)		**Lights**		**Helicopter Winch**	
Total Height to Blade Tip	208 m 682 ft	Aviation Lights	Red 2000cd light Fl Morse W IR compatible, 360° visibility	Suitable for winching?	All structures can accommodate heli-hoist operations
Height of Nacelle	125 m 410 ft	SAR Lights	Red 200cd, steady when in use IR compatible, 360° visibility		
Height of Transition Piece	29 - 36 m 112 ft	Other Lights	Green heli hoist light All structures marked with flashing yellow lights during construction phase Certain periphery structures marked with SPS lighting during operation		

Communications		
VHF	**Aviation**	**Additional Comms**
DETAILS TBC IN FUTURE ERCOP VERSION	DETAILS TBC IN FUTURE ERCOP VERSION	Marine Coordination Centre – Duty phone: + 44 (0) 1890 751 415 Marine Coordination Centre – Emergency phone:+44 (0) 7508 421 406
Electronic Monitoring		
AIS	**Radar**	**CCTV**
During the Construction phase, the site will be monitored via AIS from the Marine Coordination Centre, and by any guard vessels on site.	During the Construction phase, the site will be monitored via Radar by any guard vessels on site.	During the Operational Phase, CCTV will be installed on both Offshore Substation Platforms.

Site Rescue Teams

DETAILS TBC IN FUTURE ERCOP VERSION

Shutdown procedure

In the event that the turbine control system detects a serious error or if the manual emergency stop is activated, either at one of the emergency stop buttons within the turbine or at the remote monitoring location, the turbine will immediately activate emergency blade pitching and activate the mechanical brakes. The turbine will stop within a few seconds.

Personal SAR Locating Device Make & Model				
Functions: (yes / no)	**COSPAS-SARSAT**	**AIS**	**DSC**	**121.5MHz**
	TBC	TBC	TBC	TBC

Mass Evacuation Places of Safety (to indicate if mass evacuation is required where persons could be taken to, whether it be accommodation vessel, landfall or near Offshore Installation for temporary relief).		
Place Name	**Range and bearing from centre of wind farm**	**Location in Latitude and longitude**
TBC	TBC	TBC

Any contact information contained in the EAC and provided to the Maritime and Coastguard Agency (MCA) will be used solely for the purposes of emergency response as part of the Agency's functions and by the MCAs SAR helicopter provider. The information will be kept secure and will not be used for any other purpose without their permission. The information will be stored by the MCA

and the SAR helicopter provider until the company provides updated information or the development ceases to exist, at which point the information will be deleted.

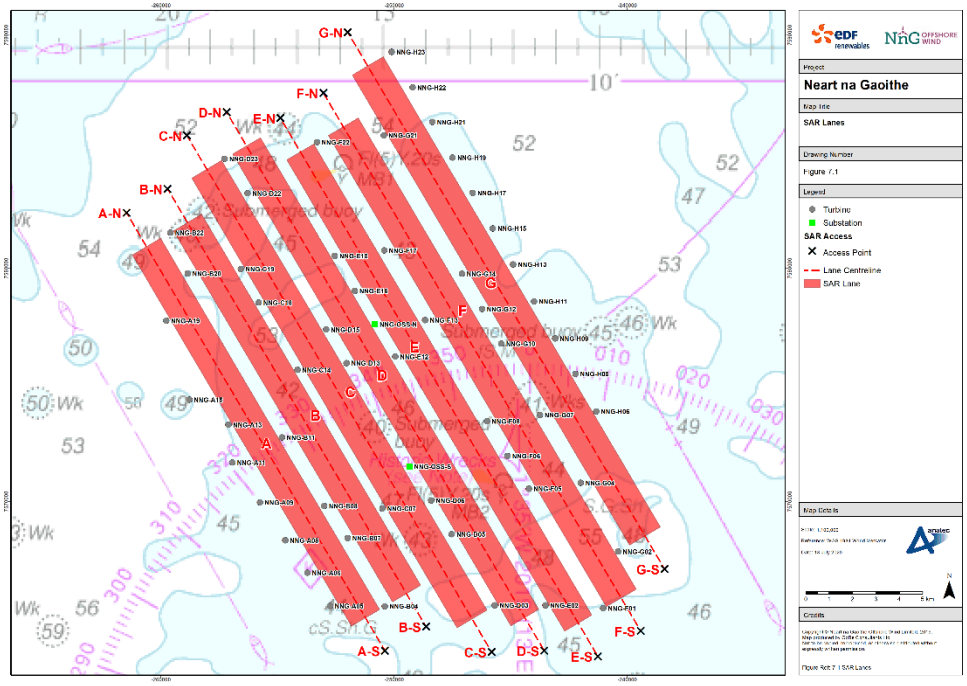


Figure 7.1: Primary SAR Lanes

LANE	NORTHERN ACCESS	SOUTHERN ACCESS	WIDTH (M)	LENGTH (NM)
A	002° 20.93" W 56° 17.87" N	002° 14.96" W 56° 12.24" N	770	6.5
B	002° 19.98" W 56° 18.18" N	002° 14.01" W 56° 12.55" N	770	6.5
C	002° 19.54" W 56° 18.87" N	002° 12.49" W 56° 12.22" N	820	7.7
D	002° 18.62" W 56° 19.17" N	002° 11.27" W 56° 12.24" N	760	8.0
E	002° 17.37" W 56° 19.09" N	002° 10.04" W 56° 12.17" N	740	8.0
F	002° 16.38" W 56° 19.42" N	002° 09.05" W 56° 12.50" N	810	8.0
G	002° 15.82" W 56° 20.20" N	002° 08.49" W 56° 13.29" N	840	8.0

SAR Lane Bearing: 149.5° / 329.5.0°

Additional secondary SAR lane orientations are provided in Section 6.4.3.