

MachairWind Offshore Windfarm

Chapter 4 Site Selection and Alternatives



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GLOSSARY OF ACRONYMS

Term	Definition
ABC	Argyll and Bute Council
ABRA	Argyll and Bute Renewable Alliance
AoS	Area of Search
AtoNs	Aids to Navigation
CCC	Colonsay Community Council
CCDC	Colonsay Community Development Company
CES	Crown Estate Scotland
CFA	Clyde Fishermen's Association
CIFA	Communities Inshore Fisheries Alliance
CO ₂ e	Carbon dioxide emissions
DAS	Digital Aerial Surveys
ECC	Export Cable Corridor
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
GBS	Gravity Base Foundations
HAL	Highland and Islands Airports Limited
HND	Holistic Network Design
HRA	Habitats Regulations Assessment
HVAC	High Voltage Alternating Current
HVDC	High Voltage Direct Current
IAC	Inter Array Cable
IALA	International Association of Marine Aids to Navigation and Lighthouse Authorities
ICC	Islay Community Council
IET	Islay Energy Trust
IPCC	Intergovernmental Panel on Climate Change
MCA	Maritime and Coastguard Agency
MD-LOT	Marine Directorate Licensing and Operations Team
MICT	Mull and Iona Community Trust
MoD	Ministry of Defence
NESO	National Energy System Operator
NLB	Northern Lighthouse Board
NSA	National Scenic Area



Term	Definition
OAA	Option Agreement Area
OnTDA	Onshore Transmission Development Area
OSP	Offshore Substation Platform
PEXA	Practice and Exercise Area
POA	Plan Option Area
RYA	Royal Yachting Association
SAC	Special Area of Conservation
SCDS	Supply Chain Development Statement
SEA	Strategic Environmental Assessment
SEIA	Social and Economic Impact Assessment
SFF	Scottish Fishermen's Federation
SLQ	Special Landscape Quality
SLVIA	Seascape, Landscape and Visual Qualities Impact Assessment
SMP	Sectoral Marine Plan
SPA	Special Protection Area
SPR	ScottishPower Renewables
SWFPA	Scottish White Fish Producers Association
SWRIFG	Southwest Coast Regional Inshore Fisheries Group
UXO	Unexploded Ordnance
WDA	Windfarm Development Area
WTG	Wind Turbine Generator



GLOSSARY OF TERMS

Term	Definition
Bathymetry	Topography of the seabed.
Development Area	Application boundary for consenting purposes which, for the Project, consists of a Windfarm Development Area, Offshore Export Cable Corridor, and Onshore Transmission Development Area. Separate consent and marine licence applications will be submitted for each Development Area where applicable.
Embedded mitigation measure	Mitigation measures, including industry good practice measures, that are directly incorporated into the design for the MachairWind Windfarm Development Area to avoid or reduce environmental effects.
Environmental Impact Assessment (EIA)	The process of evaluating the likely significant environmental effects of a proposed development over and above the existing circumstances (or 'baseline').
Landfall	The area from Mean Low Water Springs to a transition bay(s), where the offshore export cable(s) come ashore.
MachairWind Offshore Windfarm	An offshore windfarm capable of exporting around 2 GW of renewable energy to the National Electricity Transmission System. MachairWind Offshore Windfarm comprises three Development Areas: <ul style="list-style-type: none"> • The Windfarm Development Area (WDA) – located on the west coast of Scotland to the northwest of Islay and west of Colonsay; • The Offshore Export Cable Corridor – a preliminary boundary extending from the WDA to mean high water springs at a landfall location near Girvan, South Ayrshire; and • The Onshore Transmission Development Area – a preliminary boundary which extends landward from mean low water springs and includes the land required for the landfall of the offshore export cables and their route up to but not including the proposed high voltage direct current switching station which will be developed and constructed by Transmission Owner, ScottishPower Transmission. Separate consent and licence applications will be submitted for each Development Area.
Offshore export cable	Armoured cable containing electrical cores between the offshore substation platform(s) and landfall. Offshore export cables will include bundled fibre optic cables. The offshore export cables are subject to Marine Licence applications under the Marine (Scotland) Act 2010. The portion of the offshore export cable(s) located within the WDA is assessed as part of this MachairWind WDA EIA and a marine licence application to construct, alter or improve this portion has been submitted alongside the WDA application. A separate marine licence application will be submitted for the portion of the offshore export cable(s) from the WDA boundary to mean high water Mean High Water Springs.
Offshore Export Cable Corridor (ECC)	The preliminary boundary extending from the WDA to mean high water springs near Girvan, South Ayrshire and within which the offshore export cable(s) will be located. A separate marine licence application will be submitted for the offshore export cable(s) located within the Offshore ECC.
Offshore Substation Platform (OSP)	An offshore platform with a fixed foundation located within the WDA which houses electrical equipment such as transformers, switchgear, protection and control systems, and enables the windfarm's renewable electricity to be collected via inter-array cables and exported to the National Electricity Transmission System via offshore export cables.
Offshore Substation Platform (OSP) link cables	Electrical cables which link OSPs (if more than one OSP is required). These cables will include fibre optic cores or bundled fibre optic cables. OSP link cables will be wholly located within the WDA.



Term	Definition
Onshore Transmission Development Area (OnTDA)	The preliminary boundary which extends landward from mean low water springs and includes the land required for the landfall of the offshore export cables and their route up to but not including the proposed high voltage direct current switching station which will be developed and constructed by Transmission Owner, ScottishPower Transmission. This Transmission Owner is responsible for consenting the high voltage direct current switching station. Onward connections to the National Electricity Transmission System will be consented by National Grid Electricity Transmission and ScottishPower Transmission. Where relevant, these are considered as part of cumulative effects assessment in the EIA.
Operational life	The operational life is the expected length of time from final commissioning of the WDA until the cessation of commercial operations. This is anticipated to be 35 years.
Option Agreement Area (OAA)	The seabed area awarded to ScottishPower Renewables in January 2022 through the Scotwind leasing round.
Plan Option	A spatial plan area proposed through the Sectoral Marine Plan for offshore wind energy (as adopted in 2020). As part of the ScotWind leasing round, offshore wind developers submitted bids for Plan Options which, following a successful bid, become OAAs.
Scottish Marine Area	The area of Scotland's territorial sea limit (up to 12 nautical miles from baseline) as defined in the Marine (Scotland) Act 2010.
ScotWind	A Crown Estate Scotland seabed leasing round which enabled developers to propose offshore wind projects and apply for seabed rights to plan and build windfarms in Scottish waters.
The Applicant	The legal entity submitting consent applications for the MachairWind Offshore Windfarm, namely MachairWind Limited.
The Project	MachairWind Offshore Windfarm including all its Development Areas and associated infrastructure.
WDA infrastructure	The offshore generation and transmission infrastructure located within the WDA including but not limited to: WTGs, WTG fixed foundations (and associated scour protection), OSP(s), OSP fixed foundations (and associated scour protection), Inter Array Cables (IACs), OSP link and offshore export cable(s) and their associated external cable protection (insofar as these are located within the WDA) and fibre optic cables.
WDA restricted build area	Refers to the area within the WDA which is considered unsuitable for the installation of WTG and OSP foundations for engineering and environmental reasons.
Wind Turbine Generator (WTG)	A wind turbine generator which converts wind energy into electrical energy. Each wind turbine generator is a complex system composed of a high number of components. Typically, the main components include the rotor assembly (composed of three blades and a hub); the nacelle (containing a generator, shaft and gearbox, power electronic converter and transformer); and the tower (containing lifting equipment and the switchgear).
Windfarm Development Area (WDA)	The application boundary within the OAA where consent will be sought for the proposed WDA infrastructure. The WDA infrastructure is subject to Section 36 consent and marine licence applications (generation and transmission) which are being applied for separately from the Offshore ECC infrastructure and OnTDA infrastructure.



4 CHAPTER 4 SITE SELECTION AND ALTERNATIVES

4.1 INTRODUCTION

1. This chapter provides a description of the site selection process undertaken by the Applicant to date, including the alternatives that have been considered, and the main reasons that have led to the selection of the Windfarm Development Area (WDA) for MachairWind Offshore Windfarm (hereafter referred to as 'the Project').
2. The grid connection location for the Project was only confirmed in August 2025 following long delays stemming from the National Electricity System Operator's 2022 Holistic Network Design (HND) process. Consequently, consent and marine licence applications for the Offshore Export Cable Corridor (ECC) and Onshore Transmission Development Area (OnTDA) could not be progressed to the same timeframe as the WDA and will be sought separately. The site selection processes for the Offshore ECC and OnTDA will therefore be presented in the individual Environmental Impact Assessment (EIA) Reports (EIARs) and Environmental Reports for the respective Development Areas.
3. To date, the site selection process for the WDA has been predominantly influenced by the marine planning exercise led by the Scottish Government which resulted in the publication of the Sectoral Marine Plan for Offshore Wind Energy in October 2020 (the SMP), paving the way for Crown Estate Scotland's ScotWind leasing process. The WDA is located wholly within one of the final 15 Plan Option Areas (POAs), PAO W1, identified within the adopted SMP.
4. The Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017 and Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (the 'EIA Regulations') make legislative provisions for the consideration of alternatives. Schedule 4, paragraph 2, of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 states that the following information is required to be included within the EIAR:

'A description of the reasonable alternatives (for example in terms of project design, technology, location, size and scale) studied by the developer, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects.'
5. Schedule 4 of The Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017 makes similar provision. This chapter considers this requirement and sets out the reasonable alternatives considered by the Applicant, and the process followed in defining the chosen option for the Project. Further detail on relevant legislation is detailed in **Chapter 2 Policy and Legislative Context**.

4.2 PROJECT OBJECTIVES

6. The site selection and consideration of alternatives process has been influenced by the Project's underlying Project Objectives, detailed in **Table 4.1** below. These are designed to ensure that the Project will increase energy security, deliver clean, green energy sufficient to power up to 2 million homes, and reduce greenhouse gas emissions by an estimated 2,851,685 tonnes, thereby making a crucial contribution to delivering Net Zero targets in Scotland and the UK. Furthermore, the Project will deliver benefits to local, regional and national communities throughout its lifetime and have a positive effect on biodiversity.



Table 4.1 Project objectives

No.	Project Objective	Underlying Basis
1	Reduction of Greenhouse Gas Emissions – To support the Scottish Government’s world-leading targets to reduce greenhouse gas emissions and achieve net zero by 2045.	<p>The net zero target is secured under The Climate Change (Scotland) Act 2009. The Climate Change (Emissions Reduction Targets) (Scotland) Act 2024 introduced a carbon budget-based framework for the reduction of greenhouse gas emissions, which replaced the system of interim targets set out in the previous Climate Change (Scotland) Act 2009 (Scottish Parliament, 2024).</p> <p>Development of the Project and its estimated 2 GW operating capacity (which would generate enough power to supply up to 2 million homes) would make a substantial and crucial contribution to Scotland and the wider UK’s decarbonisation and net zero targets through the estimated reduction in greenhouse gas emissions of 2,851,685 tonnes through displacement of non-renewable electricity.</p> <p>Due to the Project being one of the few applications within the SMP process based on fixed-bottom foundation technology (already proven at commercial scale throughout the UK), the Project has fewer technological barriers to overcome prior to its operation when compared to other SMP wind farm applications based on floating substructure technology.</p>
2	Delivery of Offshore Wind – To support the Scottish Government’s ambition in development of offshore wind in Scottish waters.	<p>Delivery of Offshore Wind in Scotland - to contribute to the Scottish Government’s updated ambition of deploying up to 40 GW of new offshore wind capacity by 2040 (Scottish Government, 2026).</p> <p>Development of the Project and its estimated 2 GW operating capacity (which would generate enough power for up to 2 million homes) would make a substantial and crucial contribution to Scotland and the wider UK’s targets for offshore wind capacity.</p>
3	Energy Security – Secure Scottish and UK energy supply through increasing the share of energy produced domestically rather than importing from increasingly volatile international sources.	<p>Reducing dependence on international energy sources such as natural gas will provide greater energy security for consumers in Scotland and wider UK, while also helping to improve the affordability of electricity supply by reducing exposure to volatile global fuel markets. This aligns the Project with the primary objectives of the UK Government’s Clean Power 2030 Action Plan to achieve 43 to 50 GW of installed/consented offshore wind capacity in UK waters by 2030 (UK Government, 2024).</p>
4	Nature Positive Development – The Project is committed to ensuring negative effects on biodiversity are minimised and mitigated, where possible, and that the Project has an overall positive benefit on biodiversity.	<p>Scottish Government Policy, including the Scottish Biodiversity Strategy to 2045 (Scottish Government, 2024), SNMP and NPF4 (Scottish Government, 2023), emphasise the need to tackle the nature crisis through developments that contribute towards halting biodiversity loss and supporting biodiversity enhancement. The Nature Positive Plan sets out how the Project as a whole has considered impacts on biodiversity and how it will seek to implement measures to quantify and restore affected habitats.</p>
5	Delivering Social and Economic Performance – The Project will aim to maximise its net economic effect and contribution to community wealth building. This includes supporting relevant local and regional economic priorities, where feasible, of host communities in Argyll and Bute, and	<p>Development of the Project would result in significant socio-economic benefits for Scotland, including the approximately £2.1 billion the Applicant has committed to invest in the Scottish supply chain under the Supply Chain Development Statement (SCDS) process</p> <p>A Socio-economic Action Plan has been informed by engagement with local communities, businesses and other key stakeholders and</p>



No.	Project Objective	Underlying Basis
	<p>the wider West of Scotland region. The Applicant will undertake actions and direct financial investment in stimulus activities in Scotland to help build renewable energy skills and supply chain capabilities within the region, which will have benefits beyond the Project.</p>	<p>draws on expert insights from the MachairWind Development Economic and Social Scenarios: Opportunities and Impacts report (BiGGAR Economics, 2024).</p> <p>Implementation of this objective would support national, regional and local economic goals with regards to development of the renewable energy industry. This includes:</p> <ul style="list-style-type: none"> • Scotland’s National Strategy for Economic Transformation, which highlights the need to build out Scotland’s offshore wind supply chain to maximise the economic benefits of the industry (Scottish Government, 2022); • The Highlands and Islands Regional Economic Partnership’s goal to ‘Maximise the economic and community benefits from renewable energy investments and drive the region’s move to net zero and climate resilience/adaptation’ (Highlands and Islands Regional Economic Partnership, 2025); and • The Argyll and Bute Local Area Plan 2, which states that ‘The Council will seek to ensure that the renewable energy industry plays an important role in developing our local economy and will encourage initiatives that promote local procurement, recruitment and training opportunities associated with all proposed new renewable energy projects.’ (Argyll and Bute Council, 2024); and • National Planning Framework 4 (NPF4), Policy 11c, which states that “Development proposals will only be supported where they maximise net economic impact, including local and community socio-economic benefits such as employment, associated business and supply chain opportunities.”.
6	<p>Optimise Use of Available Site – The Project will optimise the W1 ScotWind Plan Option Area to reduce conflict with other users whilst maximising generation capacity of available Scottish seabed.</p>	<p>The Project has reduced the WDA boundary by 40% relative to the original Option Agreement Area (OAA), while ensuring the full 2 GW of operating capacity is possible to achieve within the WDA in line with the realistic development scenario for POA W1 defined within and assessed through both the adopted SMP (2020) and the Draft Updated SMP (2025).</p>

4.3 DO NOTHING SCENARIO

7. This section considers the scenario where the Project did not go ahead, i.e. the ‘do nothing’ scenario. As per the EIA Regulations, each technical topic included within this EIAR has undertaken an assessment of the future baseline under the ‘do nothing’ scenario.
8. As stated in the Sixth Intergovernmental Panel on Climate Change (IPCC) Synthesis Report (IPCC, 2023):

Without urgent, effective and equitable adaptation and mitigation actions, climate change increasingly threatens the health and livelihoods of people around the globe, ecosystem health, and biodiversity, with severe adverse consequences for current and future generations.
9. The report also notes that global temperatures are now set to exceed 1.5°C by 2030, with it becoming more likely that they will exceed 2°C after 2030 (IPCC, 2023). As such there is a pressing need to reduce carbon emissions now, so that the challenges faced by future generations may be avoided/mitigated.
10. As detailed in **Table 4.1**, the Scottish Government has legally binding targets to achieve net-zero by 2045, with the Climate Change (Emissions Reduction Targets) (Scotland) Act 2024 introducing a carbon budget system wherein each year between 2026 and 2045 (the net-zero emission target year) is assigned a set carbon budget that the Scottish Government is under legal duty to keep within



(Scottish Parliament, 2024). This requires the urgent development of renewable energy in Scottish waters to achieve these targets. The WDA infrastructure is estimated, through displacement of non-renewable electricity, to avoid 2,851,685 tonnes of carbon dioxide emissions (CO₂e) (see **Chapter 19 Greenhouse Gas Assessment** for further information). If the Project does not go ahead, Scotland would not be expected to meet its offshore wind capacity targets. In addition, the ‘do nothing’ scenario would significantly hinder Scotland and the UK’s efforts to secure domestic production of electricity and increase energy security for consumers.

11. The ‘do nothing’ scenario would result in no offshore windfarm being developed in the ScotWind W1 POA and a loss of up to 2 GW of offshore wind capacity. The W1 POA was identified as being a suitable location for the development of an offshore windfarm through the Scottish Government’s SMP (see **Section 4.5.1** for further information). The W1 POA is also one of the few ScotWind POAs that is suitable for fixed-bottom turbine foundation technology. Such foundation technology has been proven to be technically viable at scale in the UK and worldwide, with all major commercial offshore windfarms in UK waters (including East Anglia ONE, TWO and THREE which were developed by ScottishPower Renewables (SPR)) using such technology. This is in comparison to the majority of other ScotWind POAs, which are located in deeper waters than the W1 POA and therefore depend on floating turbine foundation technology, which has yet to be deployed at the same commercial scale as fixed-bottom offshore wind farms. Given the Scottish Government’s latest ambitions for up to 40 GW of deployed capacity by 2040, development of the Project (and all ScotWind projects in general) is critical to achieving this target.
12. Failure to construct the windfarm would also result in the loss of significant economic value, including the circa £2.1bn of expenditure the Applicant has committed to spend within the Scottish supply chain as part of the Supply Chain Development Statement (SCDS) process. It would also represent a loss of investment in Scottish offshore wind skills, innovation and supply chain capability building, intended to support the development of a sustainable Scottish offshore wind capable of delivering the Project and Scotland’s offshore wind pipeline more broadly. The loss of this value would be particularly deleterious at a local and regional level, given the Project’s status as the only large-scale offshore wind farm located off the coast of Argyll and Bute and one of very few projects located off Scotland’s West Coast. This makes the Project particularly important for ensuring that the social and economic value of Scotland’s offshore wind resource is experienced across the country and not concentrated solely in the East and North. See **Chapter 18 Socio-economics** for more information.
13. Failure to construct an offshore windfarm within this site already identified for its suitability would result in the loss of development opportunity and lead to potential wider ramifications for existing and future ScotWind applications, such as a decrease in investor confidence in the Scottish offshore wind industry and introducing uncertainty for developers in potential future offshore wind farm applications.
14. **Table 4.2** details the outcomes of the ‘do nothing’ scenario with regards to the Project’s Objectives previously outlined in **Table 4.1**.

Table 4.2 Consideration of the do nothing scenario in the context of the project objectives

No.	Project Objective	Summary of Outcomes from ‘Do Nothing’
1	Reduction of Greenhouse Gas Emissions	Loss of 2,851,685 tonnes CO ₂ e in avoided emissions, through displacement of non-renewable electricity, should the Project not be constructed, resulting in a high likelihood of Scotland’s 2045 Net Zero target being missed and subsequent associated climate change impacts including on human and environmental health.
2	Delivery of Offshore Wind	Loss of up to 2 GW of Scottish offshore wind capacity, resulting in a high likelihood of the Scottish Government’s 40 GW target for 2040 being missed.



No.	Project Objective	Summary of Outcomes from 'Do Nothing'
3	Energy Security	Loss of up to 2 GW of generating capacity from the UK's energy supply should the Project not be constructed.
4	Nature Positive Development	Loss of funding and fulfilment of plans proposed in the Nature Positive Plan , included within this application, should the Project not be constructed.
5	Optimising Social and Economic Performance	Complete loss of the estimated £2.4 billion gross value added to the UK economy should the Project not be constructed.
6	Optimise Use of Available Site	Loss of development by the Applicant of a site previously identified by the Scottish Government as being suitable for the deployment of offshore wind.

15. For the reasons detailed in this section, the 'do nothing' option has been discounted as a reasonable alternative.

4.4 CONSULTATION

16. The site selection process to date has been informed by engagement with stakeholders, including (but not limited to) those listed below:

- Argyll and Bute Council;
- Argyll and Bute Renewables Alliance (ABRA);
- Clyde Fishermen's Association (CFA);
- Chamber of Shipping;
- Communities Inshore Fisheries Alliance (CIFA);
- Community Members;
- Community Organisations;
- Cruising Association;
- DFDS;
- Elected members – various;
- Holcim Aggregates Glensanda;
- Maritime and Coastguard Agency (MCA);
- Marine Directorate Licensing and Operations Team (MD-LOT);
- Ministry of Defence (MoD);
- NatureScot;
- Northern Lighthouse Board (NLB);
- Scottish Fishermen's Federation (SFF);
- South West Coast Regional Inshore Fisheries Group (SWCRIFG); and
- The Royal Yachting Association (RYA).

17. The Applicant has also engaged throughout the pre-application process with the local communities of Islay, Jura, Colonsay, Ross of Mull and Iona (see **Chapter 6 Consultation and Stakeholder Engagement** for further information).

18. As part of the consultation process, the Applicant has presented the proposed WDA and associated infrastructure at various points in the Project lifespan to incorporate stakeholder feedback into refinements to the Project design. A summary of the approach to stakeholder communication and consultation is outlined in **Chapter 6 Consultation and Stakeholder Engagement**.




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19. Consultation undertaken by the Scottish Government regarding the initial site selection of the W1 OAA (where the Project is located) is detailed in **Section 4.5.1** below.
 20. The consultation outcomes in relation to **Chapter 4 Site Selection and Alternatives** are outlined in **Table 4.3**, which summarises stakeholder feedback, outlines how the Applicant has responded to the feedback received, and details how it has been considered within this chapter. In addition, **Table 4.4** summarises meetings held with stakeholders relevant to site selection and alternatives for the Project.
 21. In addition to the consultation described in **Table 4.3**, communication with shipping and navigation stakeholders was also undertaken throughout the pre-application phase to seek feedback regarding planned survey activities within the WDA. See **Chapter 6 Consultation and Stakeholder Engagement** for more information.
 22. As detailed in **Table 4.3** and **Table 4.4**, the following points of agreement with stakeholders are noted:
 - The MCA and DFDS are content with the refined EIAR WDA boundary in relation to the available searoom to the east of the WDA; and
 - NLB are content with the refined EIAR WDA boundary in relation to the increased set-back distance from the WDA to Dubh Artach lighthouse.
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Table 4.3 Stakeholder comments relevant to Chapter 4 Site Selection and Alternatives and Applicants response

I.D.	Consultee	Date/Engagement Activity	Stakeholder Comment	Applicant Response
Scoping Opinion				
1.	ABC	03 December 2024	<p>The EIAR should include a statement which outlines the main development alternatives studied by the applicant and an indication of the main reasons for the final project choice. It is noted that the site selection process has been determined through the Scottish Government Sectoral Marine Plan (SMP) for Offshore Wind (Oct 2020) and is located within one of the 15 Plan Option Areas identified in the SMP.</p> <p>This is expected to highlight the following: the range of technologies that may have been considered; locational criteria and economic parameters used in the initial site selection; options for access; design and locational options for all elements of the proposed development (including grid connection); and the environmental effects of the different options examined. Such assessment should also highlight sustainable development attributes including for example assessment of carbon emissions/carbon savings.</p>	<p>As identified in this response, any spatial alternatives considered by the Applicant have been made within the OAA.</p> <p>The potential technologies proposed to be used for the Project are detailed in Chapter 3 Project Description.</p> <p>The refinements to the WDA within the OAA from the date of award to this application, and the locational/economic reasoning as to why these changes have been made are presented in Section 4.5 and 4.7.1 of this chapter.</p> <p>A thorough site-selection and consideration of alternatives process will be undertaken for the Offshore ECC and OnTDA and detailed in the separate consent applications to be made for these elements of the Project.</p> <p>The potential environmental effects of the Project based on the final WDA and Project Design Envelope for application are presented in Chapters 7 – 22. Chapter 19 Greenhouse Gas Assessment presents an assessment of the potential carbon emissions and carbon savings that could result from the Project. A comparison of the environmental effects of the alternatives considered for the Project is provided in Table 4.8.</p>
2.	MD-LOT	09 January 2025	<p>The EIA Regulations require that the EIA Report include ‘a description of the reasonable alternatives (for example in terms of project design, technology, location, size and scale) studied by the Developer, which are relevant to the proposed works and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects’. The Scottish Ministers acknowledge section 3.6 of</p>	<p>Consideration of alternatives for the WDA and WDA infrastructure is presented in Section 4.7 of this chapter.</p> <p>The anticipated techniques to be used for decommissioning of the Project are detailed in Section 3.6.15 of Chapter 3 Project Description. The decommissioning sequence will generally be the reverse of construction and will involve similar types and numbers of vessels and equipment. An assessment of the potential impacts of decommissioning based on the</p>

I.D.	Consultee	Date/Engagement Activity	Stakeholder Comment	Applicant Response
			<p>the Developer's Scoping Report setting out the consideration of alternatives to date together with the planned activities that are proposed to inform the EIA Report further. The Scottish Ministers advise however that these considerations must include how decommissioning has been taken into account within the design options. The Scottish Ministers advise that this must be based on the presumption of as close to full removal as possible of all infrastructure and assets and should consider the methods and processes of doing so.</p>	<p>information currently available is provided in Chapters 7 – 22 of this EIAR.</p> <p>At the end of the WDA's operational life, it is expected that all structures above the seabed (except for scour protection and cable protection) will be fully removed where feasible. It is expected that driven piles will be cut to a level below the seabed and left in situ. Removal of some or all of the offshore cables may be undertaken however static portions of these may remain in situ. Scour protection and cable protection are expected to remain in situ although the method of decommissioning is yet to be determined.</p>
3.	MD-LOT	09 January 2025	<p>For the avoidance of doubt, the Scottish Ministers advise that the EIA Report must include an up to date consideration of the reasonable alternatives studied as the parameters of the Proposed Development have been refined. This includes but is not limited to the identification of the potential wind turbine layouts within the array area, the parameters of the export cables, the cable corridor options and the landfall location or locations. The Scottish Ministers expect this to comprise a discrete section in the EIA Report that provides details of the reasonable alternatives studied across all aspects of the Proposed Development and the reasoning for the selection of the chosen option(s), including a comparison of the environmental effects.</p>	<p>Consideration of alternatives for the WDA and WDA infrastructure is presented in Section 4.7 of this chapter.</p> <p>As noted in Section 3.6.3.1 of Chapter 3 Project Description, the WTG layout will not be finalised until completion of detailed pre-construction wind resource studies, site investigations and the selection of the preferred WTGs and their foundations. A layout will be selected from within the consented parameters to optimise energy output and the foundation installation process, accounting for water depths, ground conditions, internal wake effects between the Project's WTGs and any other constraints.</p> <p>Where a WTG layout within the WDA is required to assess specific impact pathways for topics (e.g. Seascape, Landscape and Visual Impacts, Shipping and Navigation), indicative worst-case scenario layouts have been developed. See Section 4.7.4 for further information.</p> <p>The site selection process for the Offshore ECC and OnTDA will be presented in the individual EIARs/Environmental Reports for the respective Development Areas.</p>

I.D.	Consultee	Date/Engagement Activity	Stakeholder Comment	Applicant Response
4.	Chamber of Shipping	22 November 2024	<p>The Chamber is particularly concerned about the potential impact on existing Aids to Navigation (AtoNs), including the Dubh Artach Lighthouse, which serves as a critical navigational aid for vessels in this region. The EIA must evaluate how the development, including wind turbines and associated infrastructure, might affect the visibility and operational functionality of these AtoNs. This should include an assessment of potential electromagnetic interference on electronic navigation systems and the visibility of lighthouses. Mitigation measures, such as enhanced marking and lighting of turbines, must align with the standards set by the Maritime and Coastguard Agency (MCA) and the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA). Additionally, isolated structures at the southern tip of the development area pose specific navigational risks. Their placement could obstruct vessel routes, create pinch points in constrained waters, and increase risks during adverse weather conditions. The EIA should examine the layout of turbines in this area, ensuring they do not interfere with key routes or emergency anchoring and refuge options.</p>	<p>Refinements to the WDA with regards to the Dubh Artach Lighthouse and the WDA's southern tip are detailed in Section 4.6.2.1 and 4.6.2.3 respectively.</p> <p>An assessment of potential electromagnetic interference on electronic navigation systems is presented in Chapter 13 Shipping and Navigation.</p> <p>The Applicant confirms that the proposed mitigation measures with regards to shipping and navigation (see Chapter 13 Shipping and Navigation for specific details) must align with the standards set by the Maritime and Agency (MCA) and the IALA.</p>
5.	SFF	22 November 2024	<p>SFF notes from sub-section 3.4.2 'Wind Turbine Generation Foundations; (p29) of the SR that the PDE presently incorporates options for fixed foundation, and it is possible that more than one type of foundation could be used across the wind farm development area (WDA). The following foundation design options are currently being considered for WTGs: Monopiles; Jackets on pin piles; Jackets on suction buckets; and Gravity Base Structures (GBS). Our primary concern is the spatial footprint of the WTGs foundation, therefore, SFF would propose to the</p>	<p>As detailed in Section 4.7.3, GBS foundations have been removed from the Project Design Envelope to reduce the worst-case spatial footprint of foundation structures within the WDA. See Section 1.6.2 of Chapter 3 Project Description for a detailed breakdown of the spatial footprint of the remaining WTG foundation structures under consideration, which are:</p> <ul style="list-style-type: none"> • Monopiles; • Pin-pile jackets; or • Suction bucket foundations.



I.D.	Consultee	Date/Engagement Activity	Stakeholder Comment	Applicant Response
			Applicant to use the monopile design (which has lesser spatial footprint).	
6.	NatureScot	22 November 2024	<p>We would like to take this opportunity to reiterate concerns raised in our advice dated 23 August 2023 and 23 May 2024 regarding design considerations as follows: <i>"In terms of the proposals' indicative form (entire W1 area), we offer the following comments, aware that these issues may reduce, subject to a reduction in the red line area, which could potentially enable greater setback distances from sensitive receptors. We would be happy to work with you and discuss these issues further once more certainty is available as to the design envelope. Our concern with the W1 area remains similar to our comments on the sectoral plan consultation namely: - 3 national scenic areas (NSA's) curve around the north and east sides of W1. Achieving moderate amounts of theoretical visibility, at similar distances c. 30km which while distant, given the large size of the proposed turbines and the nature of sea views with little screening, (height of turbines over topping Colonsay potentially?) causes us some concern;</i></p> <ul style="list-style-type: none"> - <i>The special qualities highlight the frontier character, open Atlantic views, vast natural world and outstanding views and distances over which these views can be obtained and strong maritime influence on these protected landscapes;</i> - <i>Distinctive, strong, and diverse coastal character; and</i> - <i>Proximity to Islay and Colonsay with sensitive visual and landscape receptors.</i> <p><i>Whilst there has been further development of the area boundary within the W1 DPO since the initial meeting last year, based on the information provided this has generally resulted in a similar pattern of visibility over the surrounding</i></p>	<p>The W1 POA was refined to the EIA Scoping WDA Boundary for scoping and refined again to the WDA presented within this EIAR, in part to reduce the potential seascape, landscape and visual impacts of the Project. See Sections 4.6.1 and 4.6.2 for further information.</p>

I.D.	Consultee	Date/Engagement Activity	Stakeholder Comment	Applicant Response
			<p><i>coastal landscape to include the Jura National Scenic Area (NSA), Loch na Keal NSA and Scarba, Lunga and the Garvellachs NSA. We would direct the Applicant to the NatureScot Sectoral Plan Seascape, Landscape and Visual Impact Assessment and Design Guidance¹⁷ which sets out general design principles for reducing effects on sensitive coastal landscapes. This may be of assistance for informing design considerations during the design development stage."</i></p>	
Post Scoping Opinion Engagement				
7.	Colonsay Community Development Company and Colonsay Community Council	03 December 2024: Project Update, MS Teams meeting	During this meeting it was requested for the Project to consider moving the WTGs further offshore to reduce potential visual effects.	Subsequent refinements to the WDA to slightly increase the distance between the WDA boundary (and therefore WTGs) and the islands are detailed in Section 4.6.2 .
8.	Northern Lighthouse Board (NLB)	30 April 2025, MS Teams Meeting	Meeting to discuss NLB's consultation feedback to the scoping report, with a particular focus on the helicopter and marine access requirements for Dubh Artach lighthouse and possible refinements to the EIA Scoping WDA Boundary.	The Applicant confirms that the WDA boundary has been amended to ensure a minimum 2 nm buffer distance from the Dubh Artach lighthouse, see Section 4.6.2.1.1 for further information. NLB have subsequently confirmed via email that they are approve of the refined WDA.
9.	Statutory Consultation 1	26 May 2025 to 6 July 2025, In-Person and Online Public Consultation Event	The first Statutory Public Consultation events sought feedback from local communities of Islay, Jura, Colonsay, Ross of Mull and Iona. The consultation materials comprised OS maps of the refined WDA (510km ²) relative to the OAA (754km ²), displayed in print and within the virtual consultation room, in addition to an information booklet outlining the WDA parameters and location. Community members queried the rationale for the selection of the W1 in its current location, with community feedback suggesting a consensus for a narrower spread of turbines	The Sectoral Marine Plan for Offshore Wind Energy (SMP-OWE) (Scottish Government 2020c) (currently subject to an Iterative Plan Review to reflect outcomes from other leasing rounds) identifies sustainable areas for the future development of commercial scale offshore wind energy in Scotland, including a spatial strategy to inform the seabed leasing process for the purposes of offshore wind energy (Scottish Government, 2020b). This built on the first SMP which was adopted in 2011, and the draft wind, wave and tidal plan in 2013, and was developed in accordance with the Scottish National Marine Plan (SNMP).

I.D.	Consultee	Date/Engagement Activity	Stakeholder Comment	Applicant Response
			<p>across the horizon and a refined redline boundary, further away from shore.</p>	<p>The WDA is located in Plan Option Area (POA) W1, as identified in the SMP-OWE. Plan Options including W1 were subject to testing, refinement and area reduction through Strategic Environmental Assessment (SEA), Habitats Regulations Appraisal (HRA) and plan development processes. The SMP-OWE and associated impact assessment identified relevant characteristics of POA W1 and key risks to be addressed in project level assessments and associated consenting applications. The Applicant has sought to address these key risks in the WDA application.</p> <p>Amendments made to the WDA and WDA Infrastructure following the Statutory Consultation 1 period are detailed in Section 4.6.2 of this chapter.</p>
10.	Hazard Workshops	11 June 2025 and 02 July 2025, MS Teams/In-Person Meeting	<p>Local and mainland Hazard Workshops were held for shipping and navigation and commercial fisheries stakeholders to provide updates on the Project and seek feedback on how the design of the Project could be revised to reduce impacts on shipping and navigation/commercial fisheries stakeholders.</p> <p>Key points raised during these workshops of relevance to site selection and alternatives included:</p> <ol style="list-style-type: none"> 1. The MCA highlighted that the searoom to the east may not be suitable for vessels to deviate, and it will therefore be useful to apply corridor guidance here to investigate further; 2. RYA Scotland highlighted that recreational vessels may find it more difficult to view the Dubh Artach lighthouse than other vessel types due to the relatively low height of recreational craft; 3. DFDS expressed a preference for the northeastern section of the WDA boundary to be refined so it is located further offshore from Colonsay. It would be preferable also for the northeastern section of the 	<ol style="list-style-type: none"> 1. The eastern boundary of the WDA has been refined thus increasing the available searoom, see Section 4.6.2.2.2 for further information. The MCA have subsequently confirmed they agree with the refined WDA in relation to this matter. 2. The Applicant confirms that the WDA boundary has been amended to ensure a minimum 2 nm buffer distance from the Dubh Artach lighthouse, thus increasing the distance between the Dubh Artach lighthouse and WTGs for the Project. See Section 4.6.2.1.1 for further information. 3. The north-eastern WDA boundary has been refined with straighter edges following DFDS feedback, see Section 4.6.2.2.2 for further information. DFDS have subsequently confirmed via email they are content with the WDA post refinement. 4. The WDA has been refined to reduce the potential for placement of isolated turbines, see Section 4.6.2.3.1 for further information.



I.D.	Consultee	Date/Engagement Activity	Stakeholder Comment	Applicant Response
			<p>WDA boundary to be adjusted in a southwestern direction which would result in fewer necessary turns</p> <p>4. NLB expressed a preference for defined project boundaries and reducing the presence of isolated WTGs.</p>	
11.	Chamber of Shipping, MCA, NLB	25 September 2025, MS Teams Meeting	Meeting to provide an update on the WDA refinement, including discussion of how the organisations' feedback informed this process following the hazard workshops that took place in Summer 2025. NLB requested a visualisation showing Dubh Artach lighthouse relative to the WTGs associated with the project.	The Applicant issued visualisations to NLB in December 2025. NLB responded in January 2026 noting ' <i>NLB are content that any impact on Dubh Artach as a significant Aid to Navigation in the area can be mitigated through discussions as part of the project LMP.</i> '

Table 4.4 Summary of relevant meetings held in relation to site selection and assessment of alternatives

I.D.	Consultee	Date/Engagement Activity	Summary of Meeting
Pre-Scoping Opinion (including Scoping Workshop and Expert Topic Groups) 2022-2024			
1.	Argyll and Bute Council (ABC)	16 June 2022 (MS Teams Meeting)	Meeting to provide an overview of the Project, including the key project characteristics, such as the WDA location, maximum generating capacity, the size of the OAA and the technologies being considered. During this meeting, the Project also presented on recent and upcoming development activities, broad project timescales and answered initial questions from attendees.
2.	Islay Community Council (ICC)	26 October 2022 (MS Teams Meeting)	Meeting to provide an overview of the Project, including the key project characteristics, such as the WDA location, maximum generating capacity, the size of the OAA and the technologies being considered. During this meeting, the Project also presented on recent and upcoming development activities, broad project timescales and answered initial questions from attendees.
3.	Colonsay Community Council (CCC) and Colonsay Community Development Company (CCDC)	26 October 2022 (MS Teams Meeting)	Meeting to provide an overview of the Project, including the key project characteristics, such as the WDA location, maximum generating capacity, the size of the OAA and the technologies being considered. During this meeting, the Project also presented on recent and upcoming development activities, including plans for engagement with the local community.

I.D.	Consultee	Date/Engagement Activity	Summary of Meeting
4.	Islay Energy Trust (IET), South Islay Development and Islay Development Initiative	27 October 2022 (MS Teams Meeting)	Meeting to provide an overview of the Project, including the key project characteristics, such as the WDA location, maximum generating capacity, the size of the OAA and the technologies being considered. During this meeting, the Project also presented on recent and upcoming development activities, broad project timescales and answered initial questions from attendees.
5.	SFF, Scottish White Fish Producers Association (SWFPA), Communities Inshore Fisheries Alliance (CIFA), Clyde Fishermen's Association (CFA)	26 January 2023 (MS Teams Meeting)	Meeting to introduce the Project and the Project team, including presenting the key project characteristics, such as the WDA location, maximum generating capacity, the size of the OAA and the technology. Discussion held on the Project's export cable route and potential alternatives for the Project to consider.
6.	CCC	19 April 2023 (MS Teams Meeting)	Meeting to present updates on the Project from the previous meeting, discuss previous and upcoming community engagement plans, discuss initial work on a Community Engagement Plan for Colonsay and how best for the community to influence the Project moving forward due to the location of the WDA relative to Colonsay.
7.	Argyll and Bute Renewable Alliance (ABRA)	17 May 2023 (MS Teams Meeting)	Meeting where the Applicant introduced the Project to ABRA members, providing an overview of the Project, including the key project characteristics, such as the WDA location, maximum generating capacity, the size of the OAA and the technologies being considered. During this meeting, the Project also presented on recent and upcoming development activities, broad project timescales and answered initial questions from attendees.
8.	NatureScot	23 August 2023 (MS Teams Meeting)	NatureScot provided feedback via email on potential viewpoints to photograph in the assessment of seascape, landscape and visual impacts of the W1 POA, noting that potential effects could be reduced should the POA boundary be reduced to enable greater setback distances from sensitive receptors.
9.	SFF, SWFPA, CIFA and CFA	25 September 2023 (MS Teams Meeting)	Meeting to introduce the Project and team, discussion primarily related to cable routing activities undertaken to date and future plans involving fisheries engagement; and discussion on how the fishing industry could influence the spatial footprint and turbine layout of the WDA moving forward.
10.	SFF, CIFA, CFA and Southwest Coast Regional Inshore Fisheries Group (SWRIFG)	12 March 2024 (MS Teams Meeting)	Meeting to provide an update on the Project, including reductions to the POA and potential landfall locations on west coast of Scotland.

I.D.	Consultee	Date/Engagement Activity	Summary of Meeting
11.	SWFPA	13 March 2024 (MS Teams Meeting)	Meeting to provide an update on the Project, including reductions to the POA and potential landfall locations on west coast of Scotland.
12.	Mull and Iona Community Trust (MICT)	12 March 2024 (MS Teams Meeting)	Meeting to introduce the Project to MICT, discussion held on the suitability of the POA for windfarm development with regards to basking sharks, sea conditions and Highly Protected Marine Areas.
13.	NatureScot, Marine Directorate Licensing and Operations Team (MD-LOT) and ABC	01 May 2024 (Scoping Workshop, MS Teams)	Meeting with NatureScot, Marine Directorate Licensing and Operations Team (MD-LOT) and ABC to discuss and seek agreement on the proposed viewpoints for the Seascape, Landscape and Visual Qualities Impact Assessment (SLVIA) in the Scoping Report.
14.	IET	09 May 2024 (MS Teams Meeting)	Meeting to provide a further Project update and seek feedback, including on the EIA Scoping WDA Boundary to be assessed in the Scoping Report, and discussions on existing infrastructure constraints and potential Project impacts (grid, roads and ferries).
15.	SFF, SWFPA, SPFA, CFA, CIFA	03 June 2024 (MS Teams Meeting)	Scoping workshop held dedicated to commercial fisheries, including presenting and discussing the local and regional study areas; agreement that for the cumulative effects assessment would be undertaken across the geographic scale of the SWCRIFG area. Queries raised around the requirements for cable burial and protection requirements, which had not been determined at that point in time.
16.	Public Drop-in, Members of Iona community	12 June 2024: public drop-in event, Iona Village Hall	Residents raised visual impact concerns in relation to the WDA boundary expanding closer to shore and negatively impacting views. Subsequent refinements to the WDA to slightly increase the distance between the WDA boundary and the islands are detailed in Section 4.6.2 .
17.	SFF, SPFA, SWFPA	07 August 2024 (MS Teams Meeting)	Follow-up meeting responding to feedback and queries raised in June 2024 meeting, including discussions on key project characteristics (including WTG technology, capacity, OAA size and WDA size), in addition to EIA Scoping study area.
18.	ABC Elected Members Seminar on Renewables	17 September 2024 (MS Teams Meeting)	The Application introduced the Project, including providing an overview of the Project, including the key project characteristics, such as the WDA location, maximum generating capacity, the size of the OAA relative to the refined WDA, and the fixed bottom technology. The Applicant answered questions from elected members, including the location of the site in relation to fishing grounds (and related impacts).
19.	ABRA	30 October 2024 (MS Teams Meeting)	The Project provided an update on the WDA redline boundary, which had been refined following the 2023 site investigation survey and an extensive programme of stakeholder engagement.



I.D.	Consultee	Date/Engagement Activity	Summary of Meeting
20.	Mull Community Council	06 November 2024 (MS Teams Meeting)	Introduction of the Project and team, including discussions on WDA average water depths, fishing grounds and nature positive designs.
Post-Scoping Opinion (2025-2026)			
21.	NatureScot	Multiple dates	The Applicant held Collaborative Design Workshops on 12 August 2025, 27 August 2025, and 12 February 2026, which informed the design objectives of the Project, the selection of Special Landscape Qualities (SLQs) of nearby NSA's to be assessed and the realistic worst-case scenario WTG layout assessed in Chapter 16 SLVIA. See Section 4.7.4 and Chapter 16 SLVIA for further information.
22.	Mull and Iona Fishermen's Association (MIFA)	02 February 2025 (MS Teams Meeting)	The Applicant met with the chair and secretary of MIFA to present an overview of the project activities from 2023-2024, the project key characteristics (technology, maximum generating capacity, site area, turbine range, and average water depth), and discuss plans for future survey works and engagement with fishers.
23.	Ministry of Defence (MoD)	09 March 2025 (MS Teams Meeting)	The Applicant held a meeting with the MoD to discuss what potential interactions may arise between the Project and MoD activities in the vicinity of the WDA. The results of this meeting are further detailed in Section 4.6.2.4 .
24.	Highland and Islands Airports Limited (HIAL)	16 April 2025 (MS Teams Meeting)	Meeting to discuss HIALs response to the scoping report, with discussion focused on Instrument Flight Procedure (IFP) assessment processes, how the EIA Scoping WDA Boundary may interact with the Islay and Tiree airport IFPs and IFP re-design timescales.
25.	Northern Lighthouse Board (NLB)	30 April 2025 (MS Teams Meeting)	Meeting to discuss NLB's consultation feedback to the scoping report, with a particular focus on the helicopter and marine access requirements for Dubh Artach lighthouse and possible refinements to the EIA Scoping WDA Boundary.
26.	NLB	07 July 2025 (MS Teams Meeting)	Meeting with NLB to follow up on feedback received during the Hazard Workshops, including discussion on the WDA red line boundary refinement process, and how the Project may mitigate impacts on Dubh Artach lighthouse.
27.	IET	11 June 2025 (MS Teams Meeting)	Project update meeting and discussion on constraints on Islay (energy and water). Discussion also on the interactive photomontage map, which formed part of the pre-application consultation materials, and the location of the nearest point of the WDA relative to Islay residences.
28.	Holcim Aggregates Glensanda	14 July 2025 (MS Teams Meeting)	Meeting to introduce the Project and discuss potential impacts on vessel traffic associated with Glensanda.



I.D.	Consultee	Date/Engagement Activity	Summary of Meeting
29.	DFDS	10 September 2025 (MS Teams Meeting)	Meeting to provide an update on the WDA refinement, including discussion of how DFDS feedback informed this process following the hazard workshops that took place in Summer 2025.
30.	NatureScot and ABC	09 October 2025 (MS Teams Meeting)	SLVIA Expert Topic Group held to provide an update on the Project following refinements to the WDA and Project parameters, agree present the worst-case scenarios proposed to be assessed in the final EIAR and detail the viewpoints to be assessed in the final EIAR.
31.	SWCRIFG	14 October 2025 (MS Teams Meeting)	Meeting to provide a project update on the WDA, including the refined redline boundary, and the range and maximum height of turbines, in addition to introducing the preliminary ECC, with a view to gather initial thoughts and feedback and ascertain how best to engagement with SWCRIFG members.
32.	CFA/CIFA	17 October 2025 (MS Teams Meeting)	Meeting to provide a project update on the WDA, including the refined redline boundary, and the range and maximum height of turbines, in addition to introducing the preliminary ECC, with a view to gather initial thoughts and feedback and ascertain how best to engagement with CFA and CIFA members.
33.	Statutory Consultation 2	20 October 2025 to 30 November 2025 (In-Person and Online Public Consultation Event)	The second Statutory Public Consultation events sought feedback from local communities of Islay, Jura, Colonsay, Ross of Mull and Iona. The consultation materials comprised OS maps of the EIA WDA boundary (488km ²) relative to the refined WDA (510km ²) and the OAA (754km ²), displayed in print and within the virtual consultation room, in addition to an information booklet, which included the EIA WDA parameters and a dedicated chapter on Sectoral Marine Plan – Offshore Wind (2020) Plan and the ScotWind leasing round.
34.	SFF, SWFPA, SPFA, CFA/CIFA, SWCRIFG	09 December 2025 (In-person meeting)	Meeting to provide an update on the Project and the refinements made to the WDA and Project parameters as a result of feedback received from the fishing industry and other stakeholders, in addition to presenting of regional and local study areas, which had not changed from scoping.
35.	Holcim Aggregates Glensanda	16 December 2025 (MS Teams Meeting)	Meeting to provide an update regarding the refined WDA and how this would aid in reducing impacts on vessel traffic associated with Glensanda.
36.	HIAL	19 February 2026 (MS Teams Meeting)	Meeting to discuss the Project's anticipated timescales and preliminary mitigation proposals.



4.5 SITE SELECTION PROCESS

4.5.1 Stage 1 - Sectoral Marine Plan for Offshore Wind and ScotWind Leasing

23. In November 2017, Crown Estate Scotland (CES) announced its intention to launch a leasing round for offshore wind projects in Scottish waters. To inform the spatial development of this leasing round, the Marine Directorate initiated a planning exercise in 2018 to identify Areas of Search for offshore wind development. This planning exercise considered both opportunities (such as average wind speed and likely suitable seabed geology) and constraints (such as fishing activity, shipping traffic and environmental sensitivities (e.g., potential impacts on seascape and offshore ornithology receptors)) within Scottish waters, beginning with Iteration 1 of the Opportunity and Constraint Analysis (Scottish Government, 2018b). The analysis sought to identify areas of opportunity for the future development of offshore wind, whilst also identifying areas that minimised potential negative impacts to the environment, other sectors and users of the sea. This analysis was completed using GIS and numerous spatial data resources.
24. From this analysis, six broad areas of search in Scottish waters were identified. These six areas were then subject to single-issue analysis in Iteration 2 of the Opportunity and Constraint Analysis (Scottish Government, 2018b) to allow for individual spatial constraints to further influence the boundaries of these areas, such as individual species fishing activity, combined shipping routes and marine nature protection designations. Specific sectoral workshops were also held at this time to gather initial feedback on this analysis. This process ultimately led to 24 distinct areas of search being identified that would be taken forward in the sectoral marine planning process and presented, through consultation, to relevant stakeholders for comment and review.
25. These 24 areas of search were subsequently consulted on at the screening and scoping stages of the SMP in June and July 2018 (Scottish Government, 2018a). Following this exercise, Iteration 3 of the Opportunity and Constraint Analysis was undertaken, which took the responses received from scoping into consideration for further refinements to the Areas of Search. Although several of the areas proposed by stakeholders overlapped with existing Area of Search (AoS), some overlapped with areas with higher levels of constraint and some areas proposed were completely new areas. Following the review of this information, several areas were identified to move forward in the plan process, including some additional areas where there was significant stakeholder interest but also increased constraint. As a result of this further Opportunity and Constraint Analysis, 22 revised Areas of Search were then presented to the SMP Project Board and two Project Steering Groups for consideration and comment (Scottish Government, 2020b). This included the W3 AoS, which would subsequently develop into the W1 POA, where the WDA for the Project is located.
26. The outcome of the Marine Scotland planning exercise informed the draft SMP for Offshore Wind Energy. This plan was published for a consultation period that extended from December 2019 to March 2020. The draft SMP identified the 17 draft Plan Options considered to be the most suitable areas where offshore wind projects could be developed. The draft SMP was subject to:
 - Strategic Environmental Assessment (SEA) (a report which provides a high-level assessment of potential environmental effects that are likely to result from the development of offshore wind Option Areas that comprise the draft updated Plan);
 - A Habitats Regulations Appraisal Appropriate Assessment Information Report (a report to determine the potential for adverse effect on site integrity on European Sites resulting from the development of offshore wind Option Areas that comprise the draft updated Plan); and
 - A Social and Economic Impact Assessment (SEIA) (which aims to identify and assess the potential economic and social effects of a proposed development or policy on the lives and

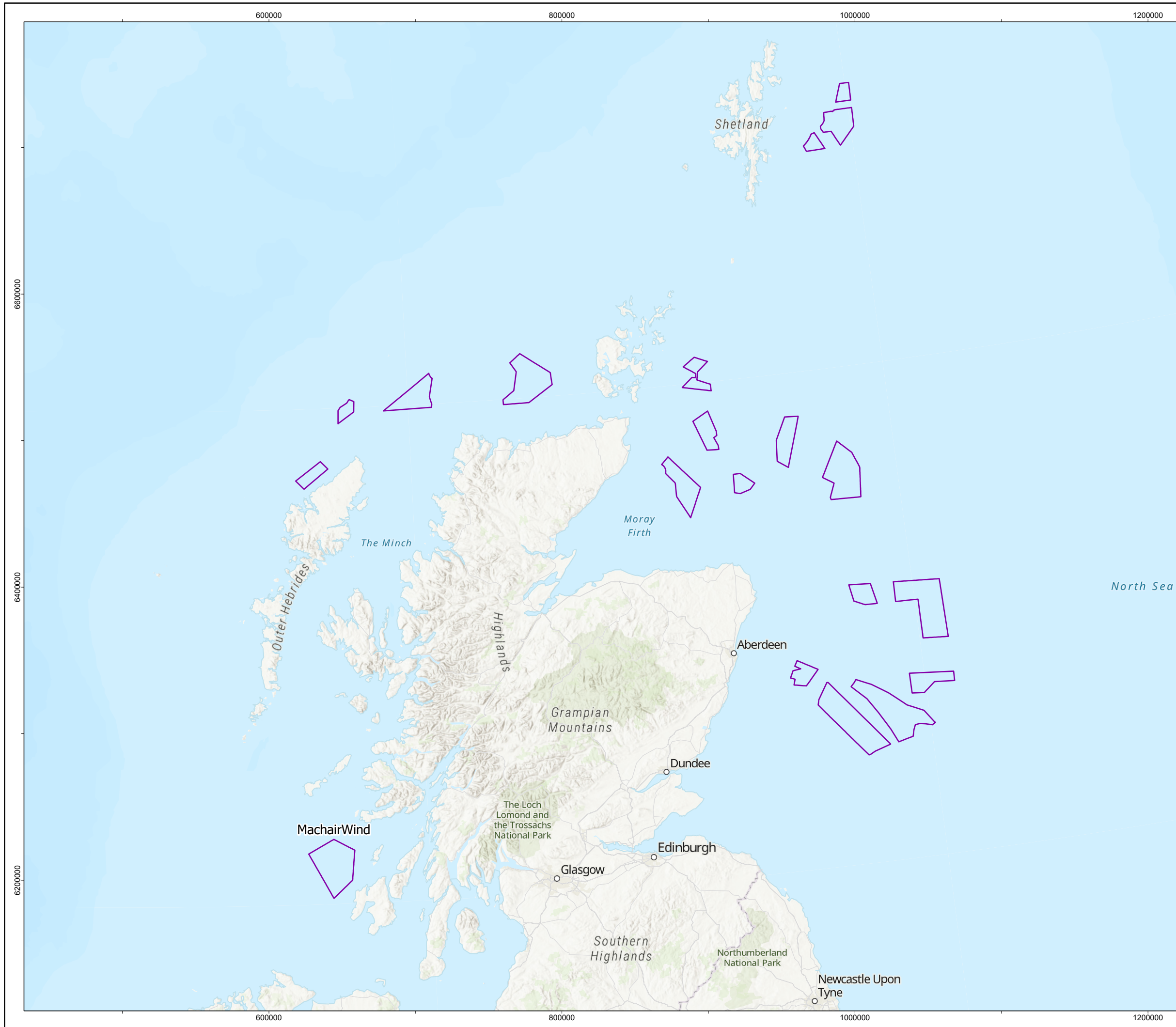


circumstances of people, their families and their communities, including the effects on other marine sectors).

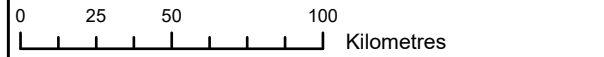
27. The SEA provided broad recommendations on the draft Plan Options from a strategic perspective and identified strategic environmental constraints to influence future development, with the SEIA considering the adverse and beneficial socio-economic impacts of the SMP on multiple sectors. Whilst the SEIA concluded that the draft Plan Options were likely to have an adverse impact on commercial fisheries, commercial shipping, tourism and recreation sectors, as well as other sectors such as defence and aviation, possible project level mitigation measures were identified. This included “*adherence to Maritime and Coastguard Agency guidance regarding shipping lanes, spatial planning within DPOs to avoid areas of higher fishing activity, maintaining access to recreational fishing grounds within arrays or reduction in turbine sizes to minimise landscape, seascape and visual impacts*” (Scottish Government, 2020a). The SMP also took into account the findings of draft partial Islands Communities Impact and Equalities Impact Assessments; however, no additional impacts for consideration were identified from the comments received on these draft partial assessments (Scottish Government, 2020c).
28. The HRA considered Special Areas of Conservation (SACs), candidate and possible SACs, Special Protection Areas (SPAs) and proposed SPAs, Sites of Community Importance and Ramsar sites (listed under the Ramsar Convention on Wetlands of International Importance), to identify sites where there is a potential for likely significant effects. For the W1 draft Plan Option (where MachairWind is located), no adverse effects on site integrity were identified.
29. Statutory consultation was then held between 18 December 2019 and 25 March 2020 to seek feedback on the draft Plan Options, with a Consultation Analysis Report being produced to inform the Scottish Ministers’ decision on which draft Plan Options to progress (Scottish Government, 2020a).
30. The ScotWind leasing process was subsequently launched by Crown Estate Scotland in June 2020, allowing developers to apply for the rights to develop and operate offshore windfarms in Scottish waters within 17 draft POAs.
31. Prior to the formal adoption of the final SMP by Scottish Ministers, the spatial extent of the W1 POA was reduced. The reasoning for this refinement, as stated in the SMP SEA Post Adoption Statement, is detailed below (Scottish Government, 2020d):

‘The modification of W1 has the potential to reduce the potential effects at the site, particularly where it has been modified to avoid the key shipping route at the westernmost extent, reducing potential risk to navigation and to increase the distance of the boundary from land potentially reducing impacts on visual amenity. Similarly, the increased distance from land may reduce the potential for impact on seal species which may haul-out on Islay and which have the potential to be disturbed by development. However, given that the potential maximum development is unlikely to have changed the overall scale of impacts is unlikely to significantly differ because of the modification.’
32. The SMP was formally adopted in October 2020, presenting 15 POAs across four broad regions (West, North, North East and East) as shown in **Figure 4.1** below (Scottish Government, 2020c). The refined W1 POA (shown in **Figure 4.2** below) presented in the SMP formally adopted in October 2020 represents the boundary for which the Applicant’s bid was based on (see **Section 4.6** for further details). It should be noted that the finalised W1 POA was retained with no amendments in the Draft Updated SMP that was released for consultation in 2025 (Scottish Government, 2025).





Marine Plan Option Areas



1	27/04/2026	FC	AB	CC	CM
REV	DATE	GIS CREATOR	GIS REVIEWER	TECHNICAL CHECKER	TECHNICAL APPROVER

DRAWING NUMBER: MCW-DWF-ENV-MAP-RHS-000208

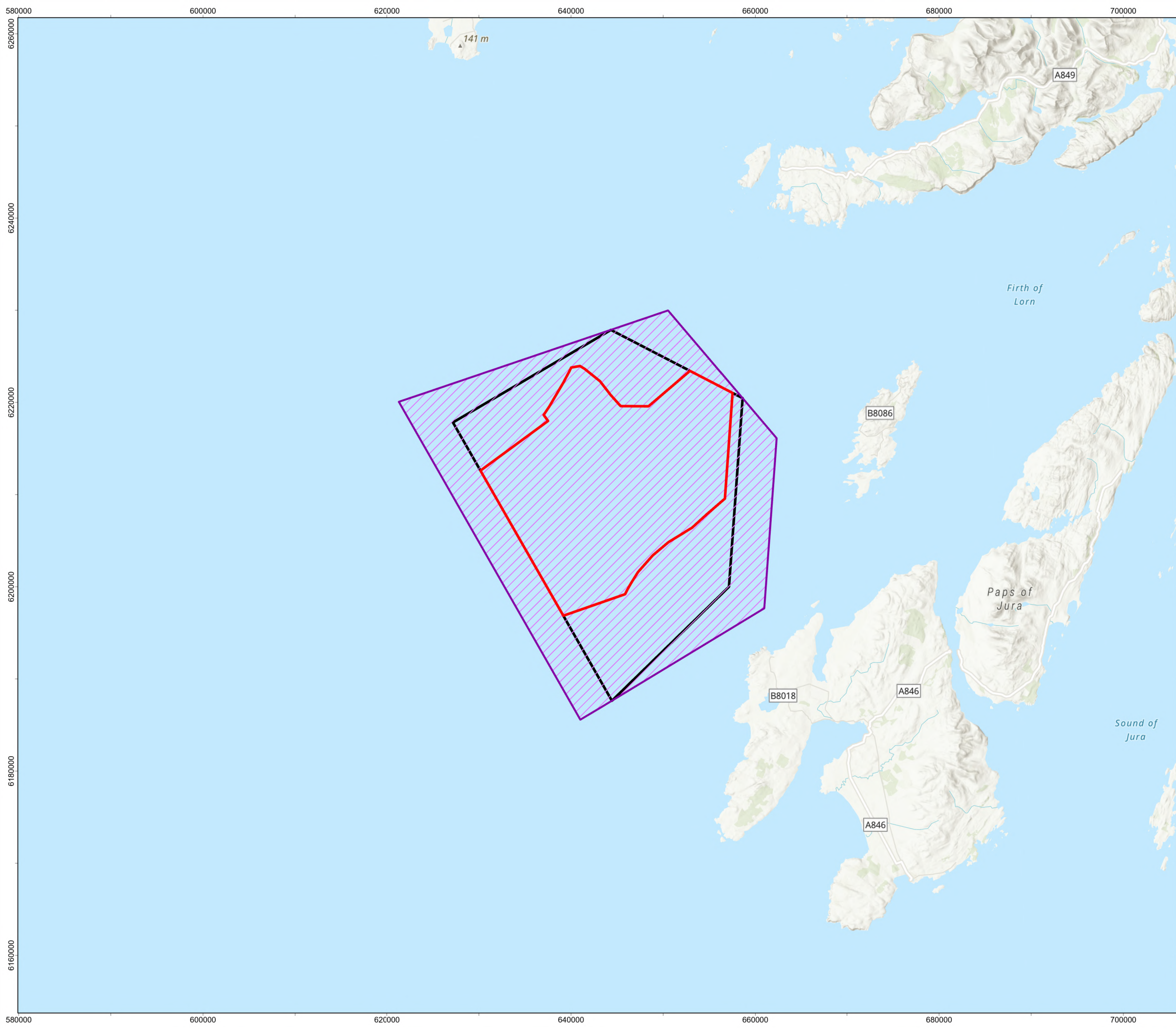
DATUM	ETRS89	PROJECTION	UTM Zone 29N
SCALE	1:2,500,000	PAGE SIZE	A3

PROJECT TITLE: MachairWind

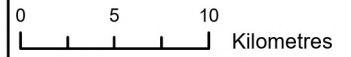
Figure 4.1: Sectoral Marine Plan Option Areas

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 World Ocean Base: Esri, GEBCO, Garmin, NaturalVue
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Final W1 Plan Option Area (754km²)
 Draft W1 Plan Option Area
 Windfarm Development Area (448km²)



2	23/02/2026	AB	GC	CC	PM
REV	REV DATE	GIS CREATOR	GIS REVIEWER	TECHNICAL CHECKER	TECHNICAL APPROVER

DRAWING NUMBER: MCW-DWF-ENV-MAP-RHS-000182

DATUM	ETRS89	PROJECTION	UTM Zone 29N
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PROJECT TITLE: MachairWind

Figure 4.2: Refinement of the W1 Plan Option Area for the final Sectoral Marine Plan

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4.6 STAGE 2 - APPLICANT BID

33. The Applicant submitted a bid to Crown Estate Scotland in July 2021 to secure the rights to develop the entirety of the W1 POA. The Applicant elected to bid for the whole POA to maximise the opportunity to develop a 2 GW project and to provide flexibility that could help avoid any key constraints identified during future site surveys and studies.
34. In preparation for the submission of a bid for the W1 POA, the Applicant undertook extensive preliminary desktop studies to analyse information it had acquired relating to the W1 POA and also commissioned a specialist contractor, APEM, to commence Digital Aerial Surveys (DAS) to collect marine mammal and ornithology data across the entirety of the W1 POA.
35. On 17 January 2022, the Applicant was announced as the successful bidder for W1 POA and entered an Option Agreement with CES in April 2022. W1, referred to as the OAA following the Applicant's confirmation as the successful bidder, comprised an area of 754 km².

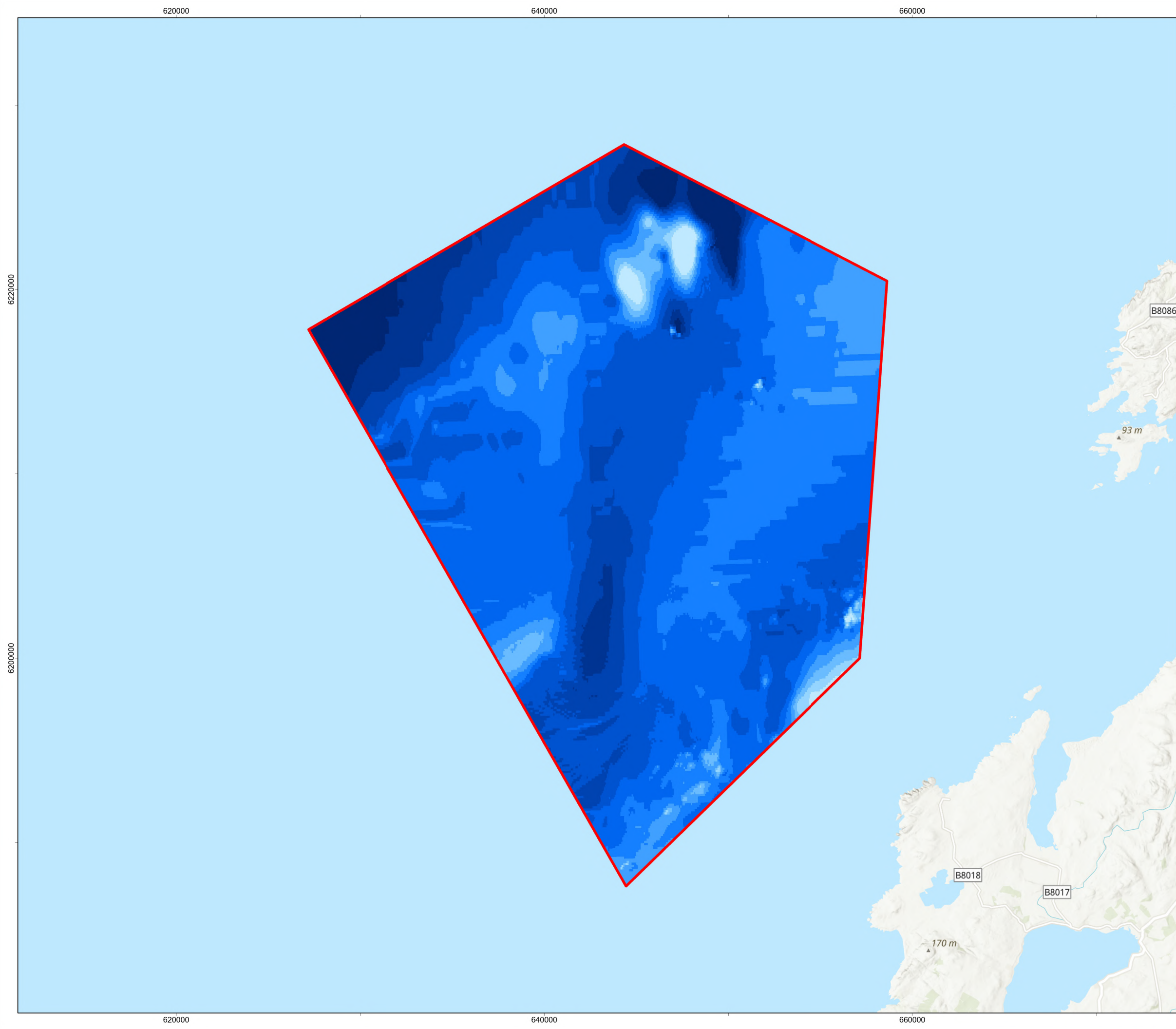
4.6.1 Stage 3 - Windfarm Development Area Presented at EIA Scoping

36. Following the ScotWind award in January 2022, the Applicant undertook a further review of potential constraints within the OAA which resulted in an initial reduction of the OAA from 754 km², to the 510 km² EIA Scoping WDA boundary.
37. The key factors which informed the selection of the EIA Scoping WDA boundary included, but were not limited to:
- Engineering constraints identified from data gathered during the 2023 site investigation campaign;
 - Seascape, landscape and visual impacts; and
 - The presence of Dubh Artach lighthouse.
38. A site investigation survey campaign was undertaken across the OAA from August to November 2023, comprising geophysical and environmental survey techniques. The purpose of this survey campaign was to collect data on seabed geology, ground conditions, bathymetry, water depth, eDNA, contaminants and benthic habitats. This survey data was used to assess technical feasibility, inform early definition of the WDA and collect additional environmental information.
39. It was found that areas in the north and north-western extents of the OAA featured water depths which were likely to be beyond those economically feasible for WTGs installed on fixed foundations. In addition, consultation with commercial fisheries stakeholders at this stage identified known fishing grounds within the site, including in the north, north-western and south-east extent of the OAA. This was a factor which contributed to the Applicants decision to discount these areas. A key engineering constraint identified at this early stage related to the presence of surface and shallow bedrock along a significant portion of the southern border of the OAA, which was identified by the geophysical survey undertaken in 2023 (see Section 7.8.1.2 of **Chapter 7 Marine Physical Environment**). The presence of shallow bedrock would greatly limit foundation options, resulting in designs that are less economical, and have a higher installation risk. With respect to seascape, landscape and visual constraints, a minimum buffer of 12 km from Colonsay and 15 km from Islay was implemented to define the eastern and southern extents of the WDA and reduce potential visual impacts of the Project from these islands. As such, areas within the southern portion of the OAA were discounted when defining the EIA Scoping WDA boundary.



-
40. In 2024, site-specific bathymetric data obtained from the preliminary geophysical campaign completed in late 2023 were assessed to further refine the WDA. The data verified the significant spatial variability of the water depths encountered throughout the site as shown in **Figure 4.3**.





Option Agreement Area
(745km²)

Bathymetry (m)

- <math><-70</math>
- 70 - -65
- 65 - -60
- 60 - -55
- 55 - -50
- 50 - -45
- 45 - -40
- 40 - -35
- 35 - -30
- >30

0 5 10 Kilometres



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DATUM: ETRS89 PROJECTION: UTM Zone 29N

SCALE: 1:200,000 PAGE SIZE: A3

PROJECT TITLE: MachairWind

Figure 4.3: MachairWind Bathymetric Interpolation 2023

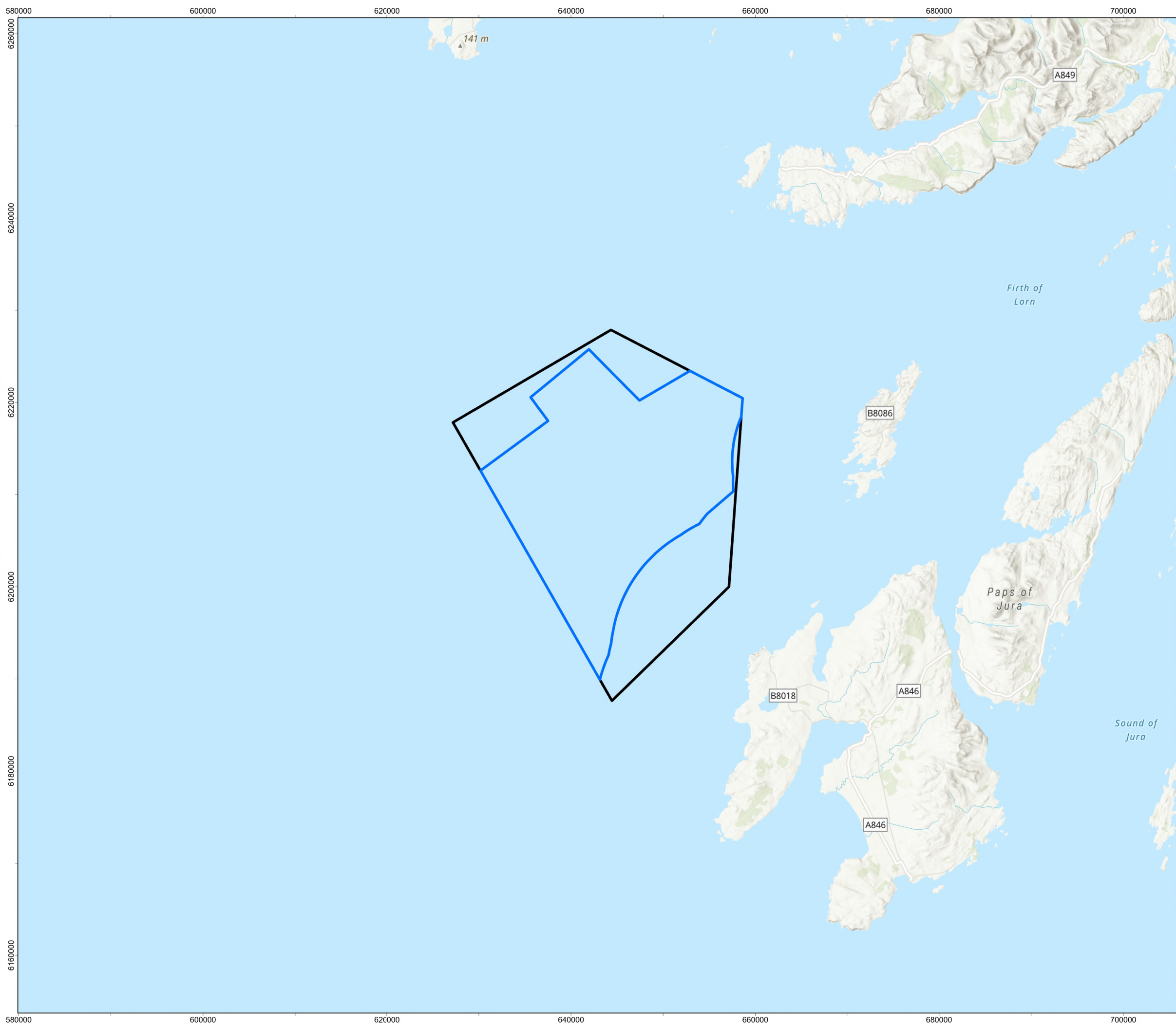
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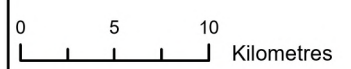
41. As part of the initial site boundary refinement that took place in 2024, areas of deep water were excluded within the north and northwest of the site, and east of the lighthouse to a limit of 60 m water depth. Although fixed foundations can, from a technical perspective, be installed in waters up to 70 m, this was considered unviable from an economic perspective for the Project due to additional steel requirements and their associated costs, in addition to the challenging metocean conditions across the site. The windfarm boundary did not follow the water depth contour lines exactly but was instead composed of straight lines, excluding these deep-water zones, to ensure the simplicity of the final WDA shapefile and area co-ordinates for uploading to MD-LOT.
42. Finally, the Dubh Artach lighthouse (a listed heritage asset) was noted as being located within the northeast boundary of the OAA. Due to the presence of the lighthouse, shallow water in the immediate vicinity and deep-water areas to its north and east, this area was avoided when defining the WDA at scoping.
43. The WDA presented at scoping is detailed in **Figure 4.4**.





Option Agreement Area (745km²)

EIA Scoping Windfarm Development Area (510km²)



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DATUM	ETRS89	PROJECTION	UTM Zone 29N
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PROJECT TITLE: MachairWind

Figure 4.4: Windfarm Development Area Presented at Scoping

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4.6.2 Stage 4 - Windfarm Development Area Refinement for EIA

44. Following the Applicant's review of the Scoping Opinion feedback, a series of project engineering and environmental constraint workshops were held to assess the remaining key constraints and limitations associated with the WDA and its associated infrastructure, and to consider how these could be mitigated. These hard and soft constraints are summarised in **Table 4.5** below.
45. These constraints were also considered in recognition of the minimum requirements of the Project which inherently limit the extent to which the WDA can be refined, which are:
- **Grid Connection Restraints** - Due to the Project's long distance to its point of connection in South Ayrshire (over 150 km) the Project will need to deploy High Voltage Direct Current (HVDC) bipole technology which is reflected in the connection agreement in place between the Project and National Energy System Operator (NESO). As the initial cost of an HVDC system is higher than that of a High Voltage Alternating Current (HVAC) system, the Project must maximise its generating capacity to ensure its economic viability; and
 - **Wind Turbine Generator (WTG) Parameters** - Following the trend of rapid growth of WTG sizes and power ratings in the last 20 years, it is expected that turbines available in the years 2025-2035 will be in the range of 15 to 24 MW. By the time construction can start, the models currently on the market will most likely have been superseded by newer technology. This assumption has been confirmed by the Applicant's experience in the offshore wind sector to date, and the suppliers with whom the Applicant has engaged during the Project's early development stage.
46. Notable instances of stakeholder consultation that has informed the site refinement process include, but are not limited to:
- Hazard Workshops held with Shipping and Navigation and Commercial Fisheries stakeholders (see **Section 4.6.2.2** and **Section 4.6.2.3** of this chapter, and **Chapter 12 Commercial Fisheries** and **Chapter 13 Shipping and Navigation** for further information);
 - A meeting with the NLB to discuss potential impacts on Dubh Artach lighthouse (see **Section 4.6.2.1** and **Appendix 15.2 Dubh Artach Lighthouse Technical Note** for further information); and
 - The Statutory Consultation events and webinars held on the islands of Colonsay, Islay, Jura, Ross of Mull and Iona held in summer 2025 and the ongoing community stakeholder engagement that has taken place throughout the pre-application period (see **Chapter 6 Consultation and Stakeholder Engagement** for further information).
47. Following these project constraints workshops and public and stakeholder consultations, the Applicant undertook further refinements to the WDA and associated infrastructure presented at scoping. This refinement resulted in a WDA reduction from 510 km² to 448 km², representing a reduction in total area of just over 12% (see **Figure 4.8**).
48. The key refinements underpinning this reduction are presented by topic in **Table 4.5** and **Section 4.6.2.1** to **4.6.2.3**.



Table 4.5 Constraints identified for WDA and WDA infrastructure refinement

Topic	Constraint ¹	Rationale	Available Mitigation	Status of Mitigation	Section/Document Where Addressed
General	Windfarm Capacity: Need to maximise grid connection capacity	Requirement to ensure a maximum generating capacity from the Project to ensure its economic viability.	Ensure sufficient space within the WDA exists for the maximum number of the smallest and largest turbines.	Refined WDA for EIAR provides sufficient space.	Section 4.7.1
	Boundary Edge Constraint	No part of the spinning blades can be located outside of the WDA.	Ensure WTG locations are at least the maximum rotor diameter from the WDA boundary.	Refined WDA for EIAR provides sufficient space.	N/A
	Maximum Water Depth	The maximum water depth considered suitable for the Project is 60 m, due to the challenging metocean conditions within the WDA and associated economic costs.	Exclude areas within the WDA >60 m in depth.	Refined WDA avoids water depths >60 m with a WDA restricted build area identified where foundation installation is not deemed to be possible (Figure 4.8).	Section 4.6.1
	WTG spacing	To optimise the efficiency of the windfarm, WTG spacing must be ideally 6 and 8 times the rotor diameter. This limits turbulence and ensures optimal airflow, and results in higher electricity production. As a result, larger WTGs require larger spacing. There are therefore limitations as to how much flexibility the Applicant has in the layout of the	Ensure sufficient space within the WDA exists for the spacing of the largest WTGs to meet the maximum operating capacity.	Refined WDA for EIAR provides sufficient space.	Section 4.7.1

¹ Red denotes hard constraints, green denotes soft constraints



Topic	Constraint1	Rationale	Available Mitigation	Status of Mitigation	Section/Document Where Addressed
		windfarm. In terms of efficiency, the winds are stronger and more consistent on the west than the east.			
Infrastructure and other marine users	Ministry of Defence Maritime Navigational Interests	WDA located within MoD Maritime Navigational Interests.	Reduction in WDA to reduce overlap with Maritime Navigational Interests.	WDA has been reduced from scoping to EIA.	Section 4.6.2.4
Military and civil aviation	Impacts on Tiree radar	Potential for interference with Tiree radar.	Agreement with NATS on mitigation options for impacts on Tiree radar.	Agreement has been reached with NATS prior to application.	Chapter 15 Military and Civil Aviation, Section 15.11.1.3
	Impacts on IFPs for Islay and Tiree airports	WTG presence could affect existing instrument flight procedures at Islay and Tiree airports.	Re-design of Islay and Tiree IFPs.	Positive ongoing discussions with Highland and Islands Airports Limited (HIAL) regarding potential mitigation options.	Chapter 15 Military and Civil Aviation
Shipping and navigation	Search and Rescue (SAR) routes	MGN 654 has requirements relating to search and rescue that must be met e.g. single lines of orientation.	Allow safe navigable routes for SAR vessels/helicopters.	SAR routes to be explored further in post-application phase of the Project.	Chapter 13 Shipping and Navigation, Section 13.11.1.4
	Lighthouse access	Vessel and helicopter access to Dubh Artach lighthouse needs to be maintained for maintenance and refurbishment purposes.	As per NLB requirement, implementation of a 2 nautical mile buffer (centred on the helideck) around Dubh Artach, within which no surface piercing infrastructure will be installed. Would be secured through a final Development Specification and Layout Plan prior to construction commencing.	Mitigation has been accepted by the NLB and implemented by the Applicant in the WDA for EIAR.	Section 4.6.2.1

Topic	Constraint1	Rationale	Available Mitigation	Status of Mitigation	Section/Document Where Addressed
	DFDS ferry route	DFDS ferry route transits through the eastern portion of the WDA.	Reduce WDA on eastern boundary to minimise route deviation for DFDS ferries.	Eastern boundary has been refined in the WDA for taken forward to application. DFDS confirmed via email that they were content with the WDA post-refinement.	Section 4.6.2.2.2
Cultural Heritage	Wrecks and seabed archaeology features	Wrecks and other seabed archaeological features should be avoided. Known wreck locations may have an impact on the northern and southern boundaries.	Identify any historical shipwrecks, planes etc. within the WDA, include buffer around all wrecks identified and microsite.	Geophysical surveys conducted in 2023 determined probable presence of wrecks within the WDA. Wrecks will be avoided in the final WTG layout through the use of micro-siting.	Appendix 14.1 Archaeological Assessment of Geophysical Data
	Impacts on setting of heritage assets	The siting of WTGs within the WDA will influence the setting of heritage assets	As per NLB requirement, implementation of 2 nm buffer (from the helideck) around Dubh Artach, within which no surface piercing infrastructure will be installed. WTGs being placed to fit the shape of the WDA itself, WDA refinement in North, East and South to mitigate SLVIA effects where possible.	Mitigation has been accepted by the NLB and implemented by the Applicant in the WDA taken forward to application. Northern, eastern and southern boundaries have been refined in the WDA taken forward to application.	Section 4.6.2.1 - 4.6.2.3
Geotechnical	Ground Conditions	Ground conditions influence the buildability of the WDA infrastructure with some areas potentially being unsuitable.	Avoid areas of shallow bedrock where possible and identify soil profiles more suitable across the site for the proposed WTG foundations.	Initial geophysical surveys have identified a general overview of seabed conditions within the WDA and areas of more challenging ground conditions to be avoided.	Section 4.6.1



Topic	Constraint1	Rationale	Available Mitigation	Status of Mitigation	Section/Document Where Addressed
	Seabed features	Seabed features e.g. shifting sandwaves may influence the boundary and areas where infrastructure can be installed	Identification of ripples, sandwaves, sand dunes etc. Microsite where practicable due to installation issues.	Pre-construction geophysical and geotechnical surveys will inform final placement of WDA Infrastructure.	Appendix 5 WDA Mitigation and Commitments Register
	Seabed Mobility	This will have an impact on WTG locations and cable burial so micro-siting may be required to avoid exposure of cables.	Detailed assessment seabed mobility following completion of second geophysical campaign across the site.	Second geophysical survey campaign complete, seabed mobility considered within Chapter 7 Marine Physical Environment .	Chapter 7 Marine Physical Environment
Seascape, Landscape and Visual Impacts	Visual impact of WTGs in designated areas and from key views	Ensuring a boundary which reduces effects on nationally designated landscapes is an important factor for the Project.	Implementation of buffer distances to eastern, northern and southern boundaries. Consolidation of WTGs to reduce horizontal spread.	Northern, eastern and southern boundaries have been refined in the WDA taken forward to application, which has also reduced the horizontal spread of WTGs.	Section 4.6.2.1 - 4.6.2.3
Commercial Fisheries	Impacts upon fishing locations	Commercial fishing activities could be displaced during construction and operation of the WDA.	Reduction in WDA to reduce overlap with fishing activities.	WDA has been reduced from scoping to EIA. This has also increased the available sea room between the WDA and the islands of Islay and Colonsay.	Section 4.7
Offshore Ornithology	Impacts on bird species due to shoreline proximity	Locating WTGs closer to shorelines of Colonsay could have a greater adverse impact on wading and terrestrial ornithological receptors.	Reducing WDA area and increasing distance from shorelines.	Eastern WDA boundary has been refined in the WDA taken forward to application.	Section 4.6.2.2
Unexploded Ordnance (UXO)	Potential presence of UXO within the WDA	Any known UXO locations could be avoided but this is largely a post-consent consideration.	Pre-construction UXO surveys will be undertaken to locate all UXO within the WDA, with UXO clearance then being undertaken with regard to the	The Applicant has committed to UXO identification and clearance as embedded mitigation for the Project.	Appendix 5 WDA Mitigation and Commitments Register



Topic	Constraint1	Rationale	Available Mitigation	Status of Mitigation	Section/Document Where Addressed
			hierarchy of UXO clearance methods.		

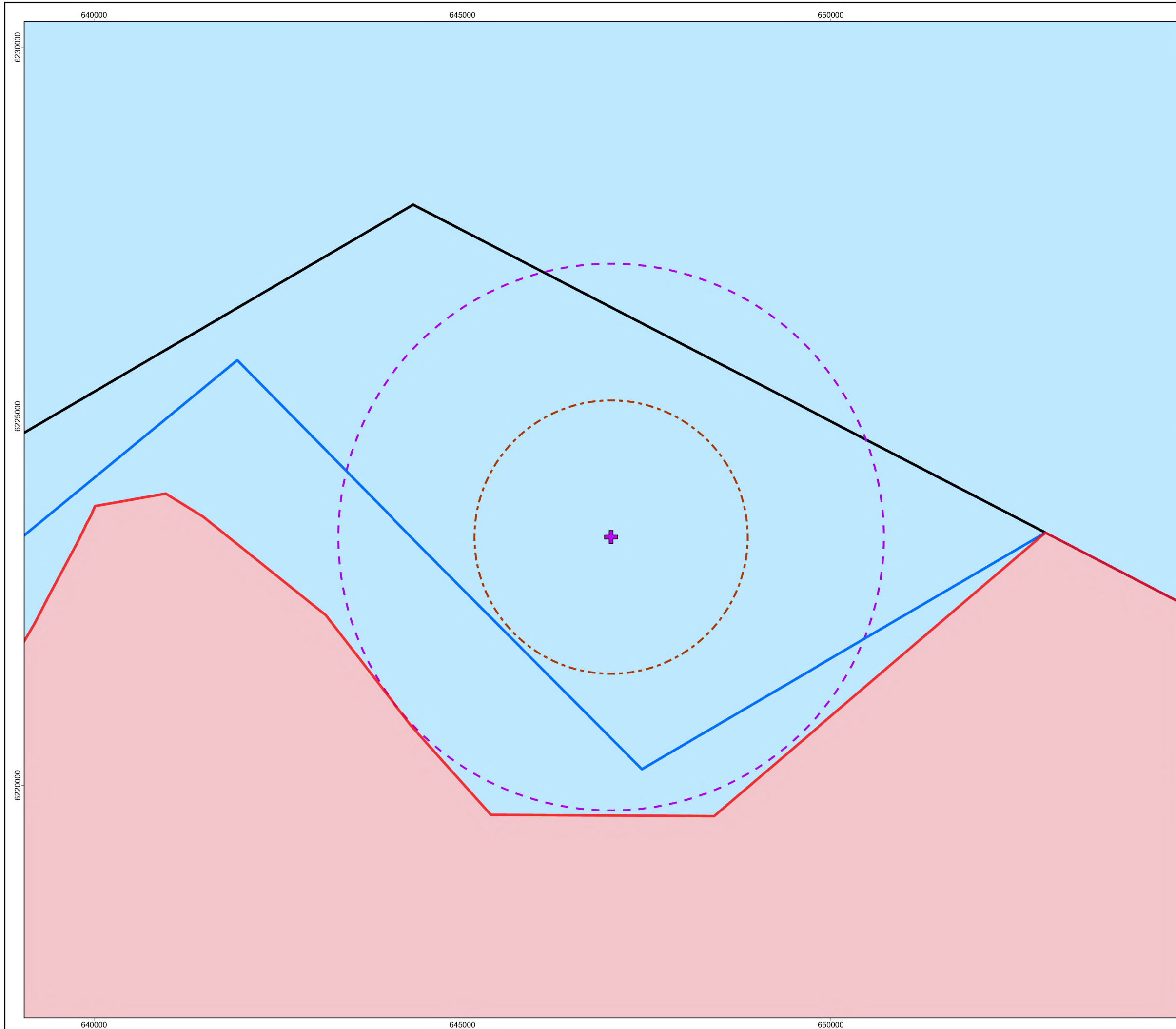








4.6.2.1 Refinements to the Northern WDA boundary

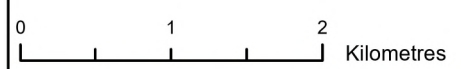
4.6.2.1.1 Shipping and Navigation and Cultural Heritage

49. Following the publication of the Scoping Opinion in January 2025, the Applicant met with the Northern Lighthouse Board (NLB) on 30 April 2025 to discuss the NLB's response to the Scoping Report. During this meeting, NLB requested a buffer distance of 2 nautical miles (nm) between the helipad at Dubh Artach (a Class A Cultural Heritage Asset) and the WDA, allowing for 1 nm of space for the helicopter operations and an additional 1 nm for their maintenance vessel *Pharos* (see Section 3 of **Appendix 15.2 Dubh Artach Lighthouse Technical Note** for further information).
50. As detailed in Section 15.7.5 of the Scoping Report, the EIA Scoping WDA boundary was located approximately 1.5 km (equivalent to 1.3 nm) from the Dubh Artach lighthouse.
51. Following the meeting on 30 April 2025, the Applicant committed to amending the WDA boundary to ensure a minimum 2 nm buffer distance from the Dubh Artach helicopter pad. **Figure 4.5** illustrates this amendment.





-  Option Agreement Area (745km²)
-  EIA Scoping Windfarm Development Area (510km²)
-  Windfarm Development Area (448km²)
-  Dubh Artach Lighthouse
-  Dubh Artach Lighthouse (1nm EIA Scoping Buffer)
-  Dubh Artach Lighthouse (2nm EIA Buffer)



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Figure 4.5: Refinement to WDA boundary around Dubh Artach lighthouse

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52. Additionally, the southern tip of the EIA Scoping WDA boundary was removed due to concerns raised by the Chamber of Shipping in relation to isolated structures presenting a hazard to shipping and to reduce the horizontal spread of WTGs to mitigate seascape, landscape and visual impacts – see **Section 4.6.2.3.2**.

4.6.2.1.2 Commercial Fisheries

53. Low levels of scallop dredging activity were recorded in discrete areas within the northern WDA EIA Scoping boundary (see Section 12.8.1.3 of **Chapter 12 Commercial Fisheries**). As a result of the refinement to the boundary of the WDA, these areas have mostly been avoided.

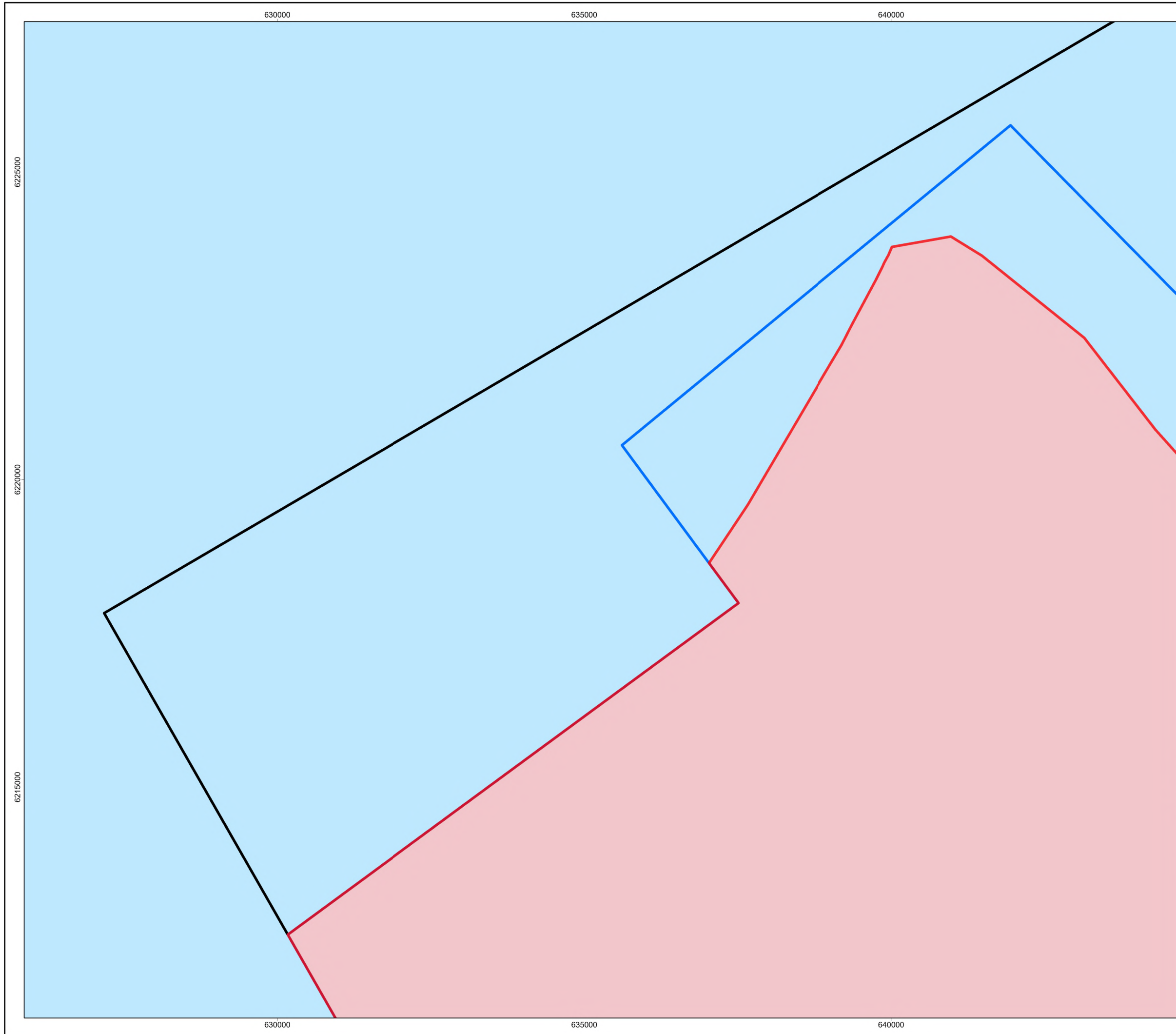
4.6.2.1.3 Seascape, Landscape and Visual Impacts

54. Refinements to the northern boundary have reduced the potential horizontal spread of WTGs lessening the extent of the windfarm and therefore its impact on sensitive views, such as those of Dubh Artach lighthouse as viewed from specific viewpoints on the islands of Mull and Iona.

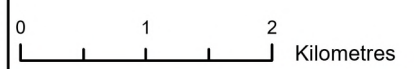
4.6.2.1.4 Other Amendments

55. The north-western boundary of the WDA has been reduced to avoid areas of water deeper than 60 m as such depths are economically less feasible for installation of fixed-bottom foundation structures when compared to the shallower areas of seabed in the remaining WDA. This change is illustrated in **Figure 4.6**.





Option Agreement Area (754km²)
 EIA Scoping Windfarm Development Area (510km²)
 Windfarm Development Area (448km²)



2	12/01/2026	AB	GC	CC	CM
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DATUM	ETRS89	PROJECTION	UTM Zone 29N
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PROJECT TITLE: MachairWind

Figure 4.6: Refinement to north-western WDA boundary

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4.6.2.2 Refinements to the Eastern Boundary of the WDA

4.6.2.2.1 Seascape, Landscape and Visual Impacts

56. The EIA Scoping WDA boundary was located at a minimum distance of 12 km from land. As a result of in-person public consultation and accompanying online webinars, there was feedback on potential seascape, landscape and visual impacts on the islands (see **Chapter 6 Consultation and Stakeholder Engagement** for further information). The eastern boundary was therefore reduced by a minimum of 0.4 km. This refinement achieves a slight reduction in impact on host communities, cultural heritage assets and nearby National Scenic Areas. It should be noted that at this stage of the Projects development, no further increase in distance of the eastern WDA boundary to potentially reduce impacts can be confirmed, owing to the need to first complete detailed surveys and design work which can only be carried out in the post consent phase of the Project.

4.6.2.2.2 Shipping and Navigation

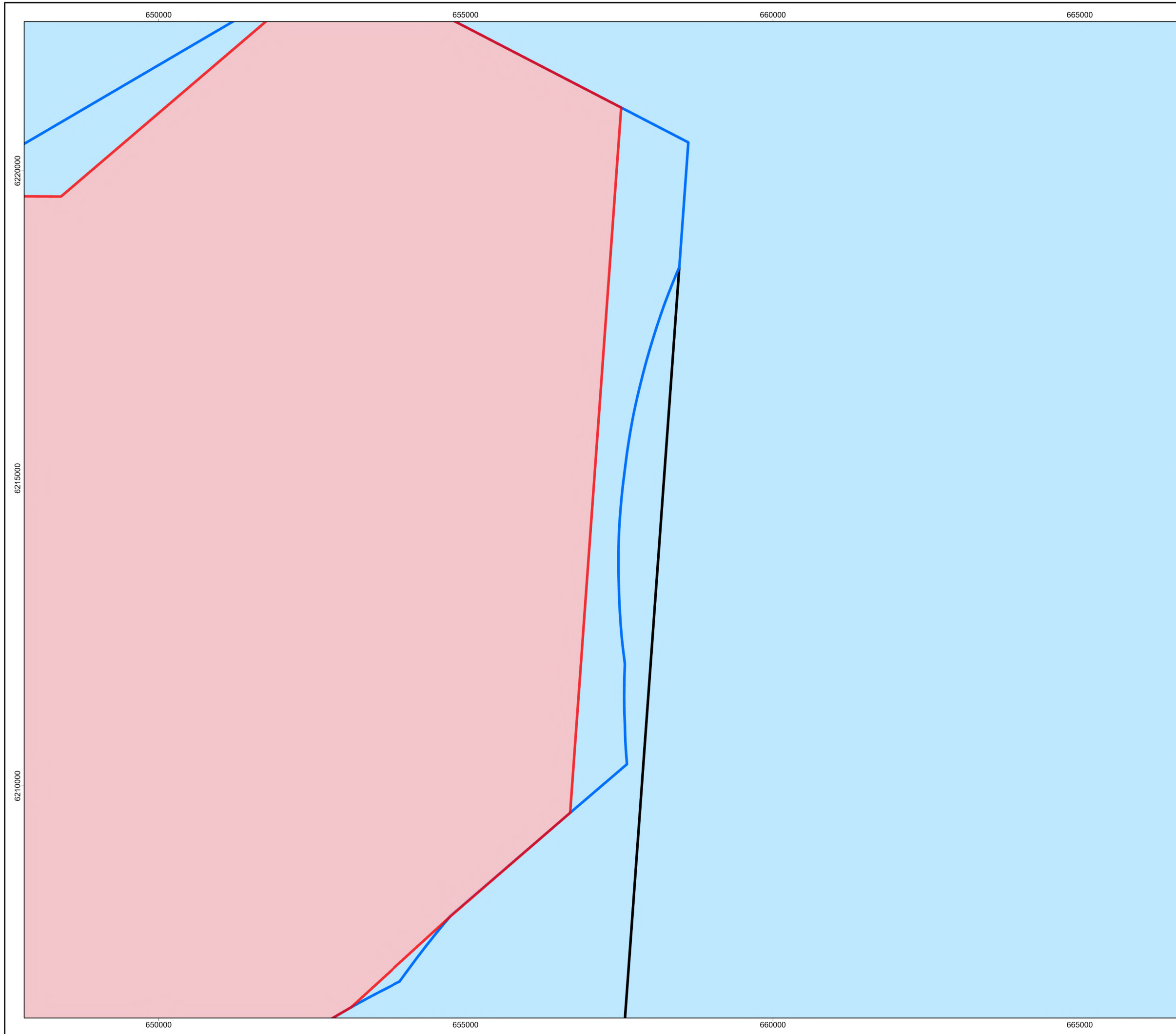
57. Two Hazard Workshop meetings for the Project were held on 11 June and 02 July 2025, with shipping and navigation and commercial fisheries stakeholders in attendance across the two meetings (see **Chapter 6 Consultation and Stakeholder Engagement** for further information). During these meetings, stakeholders noted that some vessels may choose not to transit to the east of the WDA due to proximity to shallow areas of seabed and a potential increase in fishing activity within this area due to displacement from the WDA, and requested adjustments be made to the eastern WDA boundary to mitigate this.

58. In addition, the area of sea between the EIA Scoping WDA boundary and Colonsay was observed to be used by vessels accessing or departing local ports including Glensanda. Additional vessels intersecting the eastern edge of the EIA Scoping WDA boundary, including vessels using a route operated by DFDS, may be displaced into this inshore area potentially leading to increases in vessel density and longer transit distances. Further details on this consultation are provided in **Chapter 6 Consultation and Stakeholder Engagement** and **Chapter 13 Shipping and Navigation**.

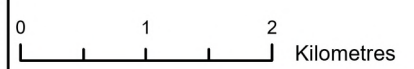
59. As a result of this consultation feedback, the Applicant committed to reducing the eastern boundary of the EIA Scoping WDA by up to 1.1 km at its widest point, as presented in **Figure 4.7** below. This is despite the ground conditions in the eastern boundary of the WDA representing some of the most suitable conditions for foundation installation within the WDA.

60. The refinement to the eastern boundary is detailed in **Figure 4.7**.





- Option Agreement Area (754km²)
- EIA Scoping Windfarm Development Area (510km²)
- Windfarm Development Area (448km²)



2	12/01/2026	AB	GC	CC	CM
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PROJECT TITLE MachairWind

Figure 4.7: Refinement to eastern WDA boundary

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4.6.2.3 Refinements to the Southern Boundary of the WDA

4.6.2.3.1 Shipping and Navigation

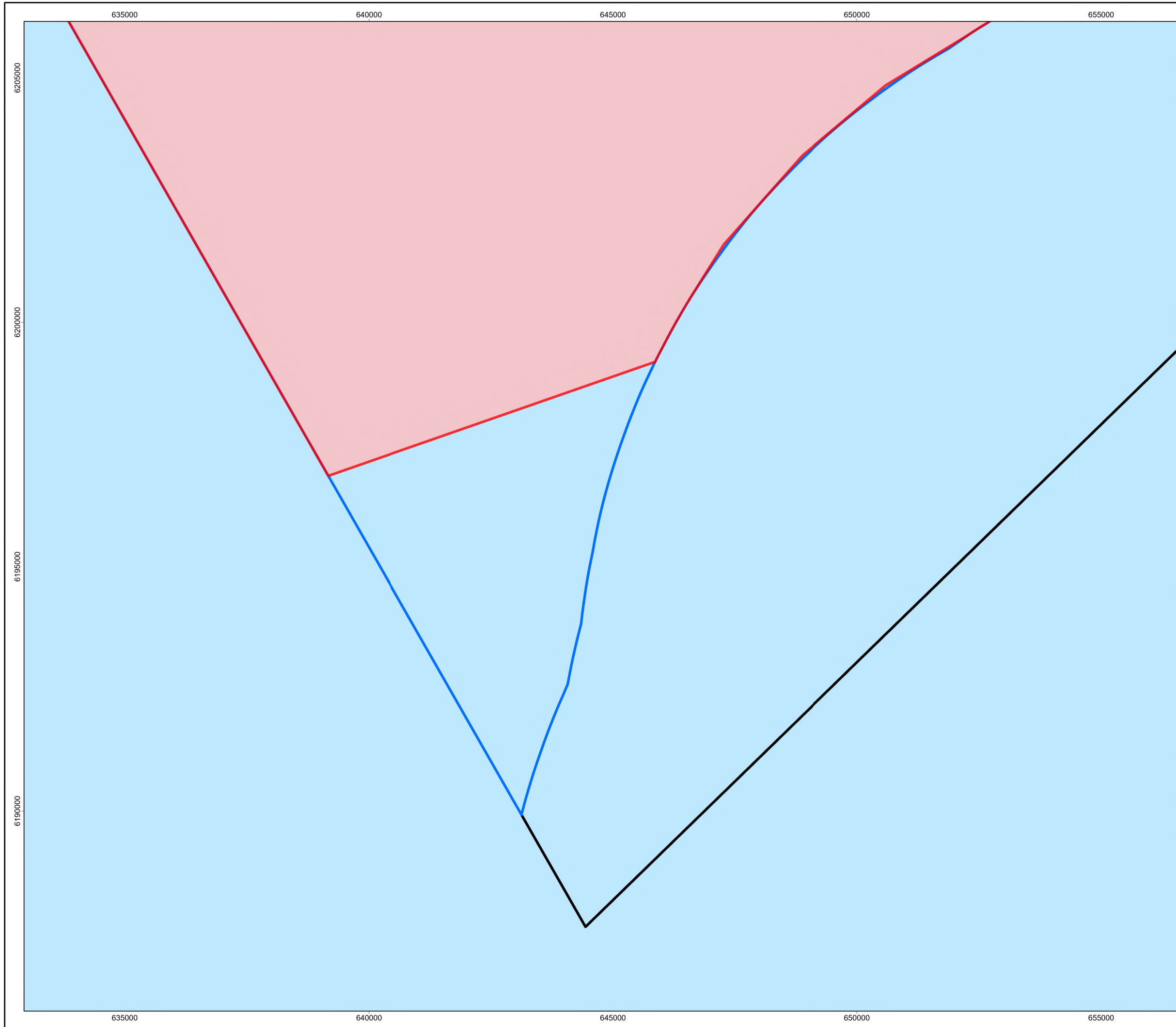
61. In the Chamber of Shipping's Scoping Opinion, the potential for isolated WTGs located to the south of the WDA to present specific navigational risks was highlighted, noting '*Their placement could obstruct vessel routes, create pinch points in constrained waters, and increase [allision] risks during adverse weather conditions.* In light of this feedback, the Applicant amended the EIA Scoping WDA boundary to clip its southern extent to mitigate these potential impacts on shipping receptors.

4.6.2.3.2 Seascape, Landscape and Visual Impacts

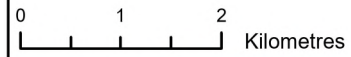
62. The southern boundary refinement described in **Section 4.6.2.3.1** was also carried out to reduce potential seascape, landscape and visual impacts by limiting the horizontal spread of WTGs across the WDA, thereby reducing potential visual impacts on the Islay, Colonsay, Jura and nearby National Scenic Areas. It should be noted that at this stage of the Projects development, no further increase in distance of the southern WDA boundary to potentially reduce impacts can be confirmed, owing to the need to first complete detailed surveys and design work which can only be carried out in the post consent phase of the Project.

63. The refinement to the southern boundary is illustrated in **Figure 4.8**.





Option Agreement Area (754km²)
 EIA Scoping Windfarm Development Area (510km²)
 Windfarm Development Area (448km²)



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Figure 4.8: Refinement to southern WDA boundary

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 World Ocean Reference: Sources: Esri, TomTom, Garmin, GEBCO, National Geographic, NOAA,
 and the GIS User Community
 World Hillshade: Esri, Intermap, NASA, NGA, USGS
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4.6.2.4 Ministry of Defence

64. Consultation with the MOD following issue of the Scoping Report identified a potential interaction between the WDA and Highly Surveyed Routes used by the Navy. As such, the WDA was refined to reduce the potential risk of interaction with Highly Surveyed Routes. In addition, the EIA Scoping WDA Boundary overlapped with three MOD Practice and Exercise Areas (PEXAs) (X5626: Mackenzie, X5543: Colonsay and X5539: Orsay). Following the refinements to the southern boundary of the WDA, the WDA no longer overlaps with the X5539: Orsay PEXA.

4.6.2.5 WDA Restricted Build Area

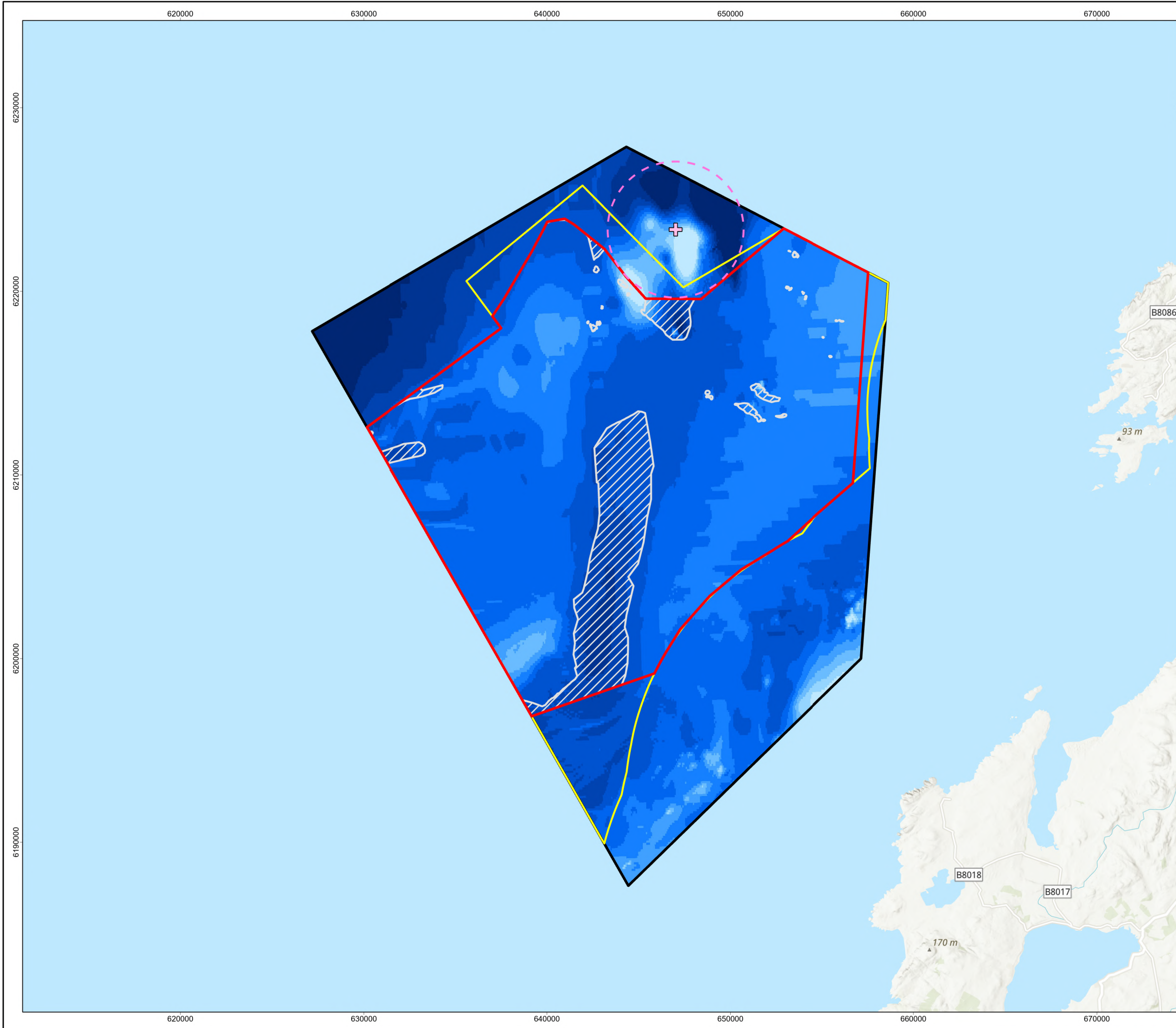
65. Further examination of the geophysical survey collected for the Project (previously detailed in Section 4.6.1) identified areas within the WDA that would not be suitable for the installation of WTG and OSP foundations. This included a deep-water trench that is located within the middle of the WDA and additional areas of seabed in water depths greater than 60m. In addition, areas of shallow bedrock within the eastern section of the WDA were also identified. These areas cumulatively add up to an area of approximately 51 km² and are collectively referred to as the 'WDA Restricted Build Area' (presented in Figure 4.8 below).

4.6.2.6 Summary of Windfarm Development Area Refinement for EIA

66. Applying the key criteria outlined in **Section 4.6.2** and combining their cumulative constraints to the WDA refinement made in 2024 prior to scoping, the WDA presented in **Figure 4.9** (totalling 448 km²) becomes the area for which consent to construct, alter and improve the WDA infrastructure is being sought.

67. **Figure 4.9** shows the original OAA (delineated in black), EIA Scoping WDA boundary (in yellow) and WDA (in red), in addition to the WDA restricted build area and 2 nm buffer around Dubh Artach lighthouse.

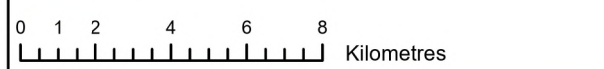




- Option Agreement Area (754km²)
- EIA Scoping Windfarm Development Area (510km²)
- Windfarm Development Area (448km²)
- Windfarm Development Area Restricted Build Area
- Dubh Artach Lighthouse
- Dubh Artach Lighthouse (2nm Buffer)

Bathymetry (m)

- <-70
- 70 - -65
- 65 - -60
- 60 - -55
- 55 - -50
- 50 - -45
- 45 - -40
- 40 - -35
- 35 - -30
- >-30



2	12/01/2026	AB	GC	CC	CM
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Figure 4.9: Refinement to Windfarm Development Area

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-
68. The WDA mitigates a number of technical, environmental and consenting constraints, whilst still maintaining sufficient flexibility allowing the Project to select suitable locations for the WDA infrastructure following further data collection, analysis and detailed design.
69. A preliminary integrated Ground Model has been developed for the site however this is still in the very early stages due to limited site-specific information. An additional geophysical survey was undertaken in summer 2025, although this did not encompass the entirety of the WDA. This geophysical data will be interpreted and incorporated into the revised MachairWind Ground Model, to provide better understanding of the underlying ground conditions across the surveyed areas. Currently, no intrusive geotechnical surveys have been undertaken within the WDA and these will not be undertaken until the post-consent stage. Further site characterisation surveys (e.g. geotechnical and environmental) could identify regions in the WDA that are unsuitable for WTG and OSP foundation installation and therefore the Applicant has sought to balance the need to ensure there is sufficient flexibility within the WDA to avoid potential unknown engineering and environmental constraints against the need to avoid and mitigate potential environmental effects during WDA boundary refinement which is vital for ensuring a viable project.
70. It is noted that the WDA may be refined further following layout optimisation, continued collaboration with NatureScot on the Projects Design Objectives to minimise the Projects likely significant effects on SLQs (see **Appendix 15 Design Strategy Document** for further information) and identification of any additional constraints from consenting requirements in the post-consent period.
71. A summary of the evolution of the WDA is detailed in **Table 4.6** below.
- 

Table 4.6 Evolution of WDA parameters

Parameter	ScotWind Bid and Pre-consultation	Scoping and Statutory Consultation 1	Statutory Consultation 2 and EIAR
Site Area	Entire W1 Plan OAA 754 km ² .	<p>510 km² (68% of W1)</p> <p>Excluded the deep-water area to the north-west of the site and to the north of the lighthouse to limit water depth to 60 m.</p>	<p>WDA: 448 km² (59% of W1)</p> <p>The northern boundary was refined to follow more closely the 60 m water depth contour line.</p> <p>Buffer around Dubh Artach lighthouse increased to 2 nm around the helipad for navigational safety of maintenance vessels and helicopter access to the lighthouse, after engagement with the NLB.</p> <p>Excludes the southern tip of the site to reduce the horizontal spread of the WTGs as viewed from locations to the east, as well as reducing the possibility of isolated structure which could be of concern for shipping and navigation.</p> <p>Reduces the north-east corner of the site to reduce the detour that DFDS would have to undertake when transiting inshore of the WDA.</p> <p>Reduces the eastern corner of the site to increase the searoom between the WDA and the shallows near Colonsay for commercial vessels and attempts to accommodate for what is understood to be the MOD concerns.</p> <p>Pushed the entire eastern boundary in by at least 400 m to reduce the visual impact of the Project.</p> <p>Straightened most edges to make sharing of coordinates and assessment easier.</p> <p>WDA restricted build area: 51 km² (11% of the WDA)</p> <p>Portion of the site that is not suitable for installation of WTG and OSP foundations.</p> <p>Excludes deep water trench in the middle of the site and other areas deeper than 60 m.</p> <p>Excludes shallow bedrock confirmed by the 2023 geophysical survey.</p> <p>Reduces potential overlap with some existing fishing grounds within the WDA.</p>



4.7 CONSIDERATION OF PROJECT DESIGN ALTERNATIVES

4.7.1 Operating Capacity

72. The ScotWind leasing process proceeded on the basis of the maximum development scenario and development limits permitted per Plan Option written into the adopted SMP. Based on the SMP appraisals and assessments, this identified the W1 POA as having capacity for 2 GW. Both to ensure the efficient use of available seabed within W1 POA and to maintain competitiveness with other bidders, the project assumed an estimated 2 GW capacity for the purposes of MachairWind's ScotWind bid, with the potential for a reduced operating capacity not being considered further.

4.7.2 WDA Boundary

73. As detailed in **Section 4.6**, the WDA is located wholly within the W1 POA identified within the SMP as part of a strategic plan-led process undertaken by the Scottish Government. As such, any spatial alternatives considered by the Applicant have been constrained to this defined boundary.

74. The Applicant examined the potential to reduce the eastern boundary of the WDA to a greater extent than that detailed in **Section 4.6.2.2**. However, current geophysical data identified the potential ground conditions towards the eastern boundary as being more favourable for foundation installation. Further reductions at this stage may have precluded the Applicant from achieving a project capacity of 2 GW. Post consent geophysical and geotechnical surveys to inform detailed design, will provide more clarity on final Project layout and the Project's capability to further reduce the eastern boundary.

75. In relation to seascape, landscape and visual impacts, the Project considered the NatureScot guidance provided in response to the Draft SMP for Offshore Wind Energy in March 2020 (and which was referred to in NatureScot's response to the Scoping Report). This recommended a 35 km offset from coastal edges, and a 50 km offset from the Paps of Jura within the Jura National Scenic Area (NSA). Strict application of these offsets would only allow for a small number of WTGs in the far north-west corner of the site, where the water depth is over 60m and therefore would not represent an economically or technically viable project due to the challenging metocean conditions within the WDA. Changes made by the Applicant with regard to seascape, landscape and visual impacts are detailed in **Sections 4.6.2.1.3, 4.6.2.2.1 and 4.6.2.3.2**.

4.7.3 WDA Infrastructure

4.7.3.1 Foundation Structures

76. In line with the Scoping Report, MachairWind will be a fixed bottom project. WTGs on floating foundations are not under consideration for the Project. The following sections describe the foundation types under consideration for the Project.

77. At the point of scoping, the Applicant had retained several WTG foundation options to retain flexibility in the Project Design Envelope. These included:

- Monopiles;
- Pin-pile jackets;
- Suction bucket jackets; and
- Gravity-base structures (GBS).

78. In their Scoping Opinion, the SFF noted their primary concern was regarding the spatial footprint of the WTG foundations in the WDA. Upon review of the potential foundation options, it was identified that GBS would have the greatest spatial footprint of any of the potential foundation options on the seabed within the WDA. Moreover, concrete production is carbon intensive and so production of up



to 144 GBS foundations would significantly increase the embedded emissions were GBS to be taken forward. As such, the Applicant removed the WTG GBS foundation option from the Project Design Envelope. However, GBS remain a foundation option for OSPs given that the maximum number of these is two and so the Project would not be faced with the same level of constraint as for the WTG foundations.

4.7.3.2 *Wind Turbine Generator Parameters*

- 79. The range and number of WTG were refined from scoping. This resulted from continued engagement with WTG suppliers indicating the most likely WTG models to be available in the early to mid-2030s when the earliest construction of the Project is assumed to take place.
- 80. The change from a maximum assumed WTG capacity of 25 MW to 24 MW led to a reduction in the maximum blade tip height and rotor diameter for the WTGs. The minimum blade clearance between the lowest point of the rotating blade and the sea surface ('air gap') was increased from 22.45 m above HAT to 28.4 m above Highest Astronomical Tide (HAT) to reduce the potential collision risk on offshore ornithology receptors and reduce the potential for WTG blades coming in contact with the water in extreme weather conditions.
- 81. A summary of the worst-case WTG parameters developed further between scoping and this EIAR, is detailed in **Table 4.7**.

4.7.4 **Indicative WTG Layouts for the EIAR**

- 82. As noted in **Table 4.3**, while the WTG layout would not be finalised until the pre-construction stage of the Project, to assess specific impact pathways for the topics of SLVIA, Shipping and Navigation and Military and Civil Aviation, realistic worst-case scenario layouts required to be developed are detailed in Table 4.7.
- 83. A 'dense' perimeter layout whereby the maximum number of turbines have been located around the perimeter of the WDA has been used to as a realistic worst case scenario for the topics of SLVIA and offshore archaeology and cultural heritage (with regards to potential impacts on setting).
- 84. Assessments for the topics of shipping and navigation and military and civil aviation have been undertaken assuming an 'even' spread of WTGs within and around the perimeter of the WDA based on the minimum WTG spacing of 944 m.
- 85. With regards to Seascape, Landscape and Visual Impacts specifically, there was also a requirement for the WTG layout assessed in the EIAR to be sensitive to the SLQs of nearby NSAs. The key SLQs of the NSA's potentially affected by the Project (Jura, Loch na Keal, and Scarba, Lunga and the Garvellachs) were reviewed and agreed in collaboration with NatureScot (detailed in Table 16.2 of **Chapter 16 SLVIA**). With respect to the SLQs identified for assessment, the Applicant and NatureScot collaboratively developed a set of Design Objectives to minimise the Projects likely significant effects on the SLQs (see **Appendix 15 Design Strategy Document** for further information).
- 86. Following consideration of these various options, realistic worst-case scenario layouts were selected for Seascape, Landscape and Visual Impacts, Offshore Archaeology and Cultural Heritage (regarding potential effects on setting), Shipping and Navigation and Military and Civil Aviation, which are detailed in **Table 4.7** below.



Table 4.7 Realistic worst-case scenario WTG layouts

Technical Topic	Realistic Worst-Case Scenario
Seascape, Landscape and Visual Impacts Offshore Archaeology and Cultural Heritage	'Dense' perimeter layout with even spread within the WDA
Shipping and Navigation Military and Civil Aviation	'Even' spread of WTG throughout the WDA and perimeter.

87. It must be noted that these are indicative layouts developed for assessment purposes only. Detailed design in the pre-construction phase will inform the final WTG layout using a set of design objectives and principles, with all parameters being within those consented in this application.

4.8 OFFSHORE EXPORT CABLE CORRIDOR, LANDFALL AND ONSHORE TRANSMISSION DEVELOPMENT AREA

88. Consent and marine license applications for the Offshore ECC and OnTDA do not form part of this Application due to the ongoing coordination of the offshore grid network and landfall points through the Holistic Network Design process.

89. The Applicant is progressing separate consenting applications for these elements of the Project which will be submitted separately in accordance with the relevant EIA Regulations.

90. This approach was presented within the WDA EIA Scoping Report and agreed with MD-LOT via the WDA Scoping Opinion. As noted in Section 4.1, the site selection process for the Offshore ECC and OnTDA will be presented in the individual EIARs/Environmental Reports for the respective Development Areas.

91. However, this WDA EIAR assesses likely significant effects in two steps by considering the source, pathway and receptors for:

- The WDA alone; and,
- The WDA, Offshore ECC and OnTDA combined assessment.

92. This approach enables potential interactions between each Development Area to be identified and assessed, ensuring a whole Project assessment is undertaken in a manner that is meaningful and proportionate. A set of assumptions have been developed to inform the combined assessment and within the upcoming Offshore ECC and OnTDA consenting applications, their respective scoping and EIARs will present updated combined assessments using the latest available information covering all aspects of the Project.

4.9 SUMMARY

93. The site selection process undertaken for the Project has resulted in the final WDA for this application, as presented in **Figure 4.10** below. As detailed in this chapter, wherever practicable, the Applicant has sought to accommodate preferences and concerns raised by stakeholders through the site refinement process regarding the design of the Project.

94. The primary reasons for the refinement of the WDA and WDA infrastructure for assessment in this EIAR are as follows:

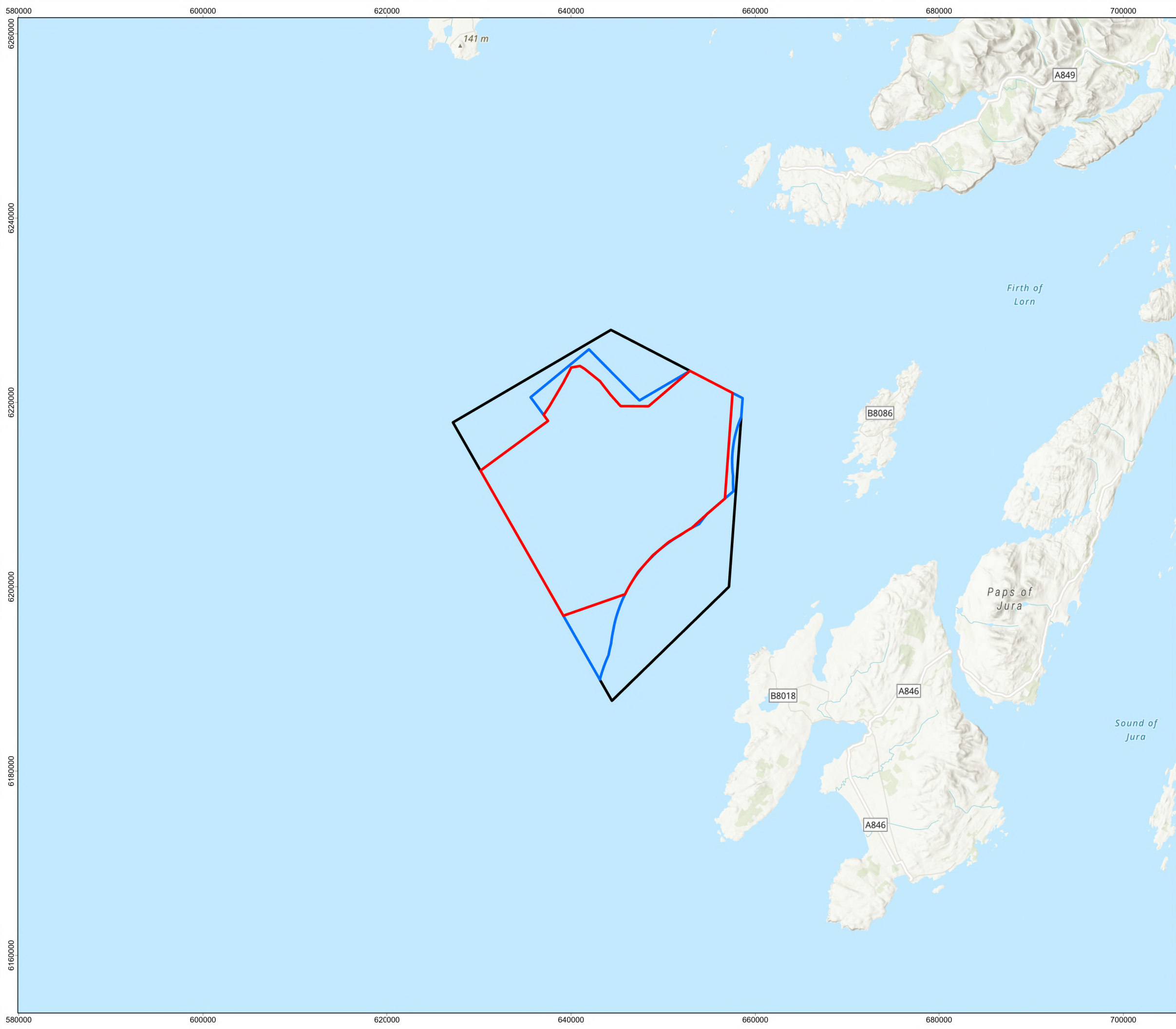
- Areas of water depth >60 m and the geophysical condition of the seabed within the WDA represent hard constraints where WTG and OSP foundations can be installed within the WDA;



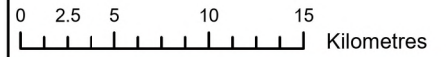
- Reduce the potential for seascape, landscape and visual impacts as far as reasonably practicable through the refinement to the northern, eastern and southern WDA boundaries;
- Adhere to the 2 nm buffer distance from the Dubh Artach lighthouse helipad as requested by NLB; and
- Reduce potential impacts on shipping and navigation stakeholders through refinement of the eastern and southern boundaries to increase the available area of sea between the WDA and Colonsay and remove the risk of isolated WTGs located to the south of the WDA presenting navigational risks.

95. A summary of the alternatives considered, and a comparison of potential environmental effects is detailed in **Table 4.8**.
96. The Applicant has utilised a Project Design Envelope approach which considers a realistic range of project design parameters, as described in **Chapter 3 Project Description**. All impacts resulting from the WDA infrastructure have been assessed in this EIAR using the worst-case scenario approach.
97. Although the final design of the WDA infrastructure has yet to be defined, the Project Design Envelope approach presented in this EIAR and the parameters that will be set in the Section 36 consent will ensure that the constructed WDA infrastructure complies with the assessment set out in this application.





-  Option Agreement Area (754km²)
-  EIA Scoping Windfarm Development Area (510km²)
-  Windfarm Development Area (448km²)



2	12/01/2026	AB	GC	CC	CM
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PROJECT TITLE: MachairWind

Figure 4.10: Windfarm Development Area for this application

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 World Ocean Reference: Sources: Esri, TomTom, Garmin, GEBCO, National Geographic, NOAA, and the GIS User Community
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Table 4.8 Project alternatives considered and comparison of environmental effects

Parameter	ScotWind Bid and Pre-consultation	Scoping and Statutory Consultation 1	EIAR and Statutory Consultation 2	Environmental Effects Comparison
WDA	754 km ²	510 km ²	448 km ²	Refined WDA reduces the potential for adverse seascape, landscape and visual impacts and displacement impacts on ecological receptors. A reduced overlap between the WDA and other sea users, when compared to the ScotWind bid and scoping stages of the Project, is also achieved.
Power Generation (at onshore connection point)	2 GW	2 GW	2 GW	N/A – No change in capacity from original bid.
WTG capacity range	15 to 20 MW	14 to 25 MW	15 to 24 MW	<p>Increase in maximum generating power per WTG from the ScotWind bid stage has led to a subsequent change in maximum design parameters (further detailed in following rows).</p> <p>Refinements and embedded mitigation measures (e.g. increased air gap) ensure that the potential environmental effects would be no worse than alternatives previously considered for the Project.</p>
Number of WTG	100 to 133	88 to 147	91 to 144	The maximum number of WTGs for the Project has expanded from the ScotWind bid stage whilst the minimum number has reduced to accommodate the refinements to the WTG generating power range.

Parameter	ScotWind Bid and Pre-consultation	Scoping and Statutory Consultation 1	EIAR and Statutory Consultation 2	Environmental Effects Comparison
Maximum blade tip height	264 to 309 m MSL	260 to 340 m Lowest Astronomical Tide (LAT)	280 to 335 m LAT	Increase in blade tip height has resulted from changes to WTG generating power range. This increase in blade tip height would potentially result in an increased magnitude of effect for seascape and heritage setting receptors. However, this has been offset by the increase in distance from these receptors achieved by the refinement of the WDA within the OAA considered within the ScotWind bid.
Minimum blade clearance (Air Gap)	24 m MSL	22.45 m HAT	28.40 m HAT (which is 29m MHWS)	The increased air gap will reduce the potential for seabird collisions from the previous air gap proposed at the ScotWind bid and scoping stages of the Project.
Rotor Diameter	203 – 240 m	236 – 316 m	236 – 290 m	The increase in rotor diameter from the ScotWind bid stage to the EIAR has resulted from the increase in maximum generating power of individual WTGs. Increasing the maximum rotor diameter allows for the same overall project capacity to be achieved with WTGs. This reduces the total rotor-swept area and hence provides an overall reduction in collision risk. Additionally, through other embedded mitigation measures committed to by the Applicant (i.e. increase in air gap), further reductions in collision risk



Parameter	ScotWind Bid and Pre-consultation	Scoping and Statutory Consultation 1	EIAR and Statutory Consultation 2	Environmental Effects Comparison
				between the ScotWind bid and EIAR parameters will have been achieved.
Foundation Type (WTGs and OSPs)	Monopiles, pin-pile jackets, suction bucket jackets, and GBS.	Monopiles, pin-pile jackets, suction bucket jackets, and GBS.	Monopiles, pin-pile jackets, suction bucket jackets, and GBS (OSP only).	The Project will occupy a reduced spatial footprint due to the removal of GBS foundations as an option for the WTGs when compared to the foundation types proposed at the ScotWind bid and scoping stages of the Project.
Distance to Islay from the WDA	6.8 km	15 km	15 km	Potential seascape, landscape and visual impacts have been reduced at the scoping and EIAR stage when compared to the Project's initial distance to Islay at the ScotWind bid stage.
Distance to Colonsay from the WDA	11.3 km	12 km	12.4 km at the closest point.	Potential seascape, landscape and visual impacts have been marginally reduced at the EIAR stage when compared to the Project's initial distance to Colonsay at the ScotWind bid and scoping stage.



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