

ENVIRONMENTAL IMPACT ASSESSMENT REPORT (EIAR) FOR THE PROPOSED BALLINAGREE WIND FARM

VOLUME 2 – MAIN EIAR

CHAPTER 14 – ARCHAEOLOGY, ARCHITECTURAL AND CULTURAL HERITAGE

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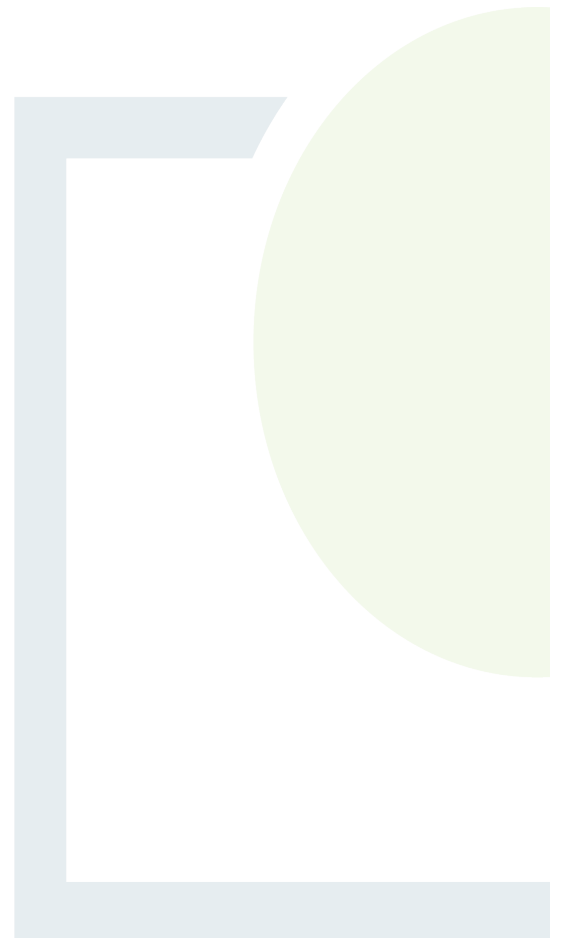


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14. ARCHAEOLOGY, ARCHITECTURE AND CULTURAL HERITAGE

14.1 Introduction

This chapter assesses the impacts of the proposed project as described in Chapter 3 on the known and potential cultural heritage resource which encompasses assets relevant to both the tangible resources (archaeology and architecture heritage); and non-tangible resources (history, folklore, tradition, language, placenames etc.). The recorded and potential cultural heritage resource within study areas described in Section 14.2, which encompass the various elements of the project and surrounding lands, was assessed in order to compile a comprehensive cultural heritage baseline and context.

The chapter was prepared by John Cronin, Tony Cummins and David Murphy of John Cronin Associates. Mr. Cronin holds qualifications in archaeology (BA (University College Cork (UCC), 1991), regional and urban planning (MRUP (University College Dublin (UCD) 1993) and post-graduate qualifications in urban and building conservation (MUBC (UCD), 1999), Mr. Cummins holds BA and MA degrees in archaeology (UCC 1992/1994) and Mr. Murphy holds a BA degree in archaeology (UCC 2003). Each of these individuals have extensive experience in preparing archaeological, architectural and cultural heritage assessments for wind farms and in recent years were responsible for the compilation of impact assessments and directed post grant of planning archaeological site investigations for projects including Grousemount, Co. Kerry and Ballyhoura, Co. Cork.

A detailed description of the project assessed in this EIAR is provided in Chapter 3 and is comprised of three main elements:

- The wind farm (hereinafter referred to as the ‘wind farm site’);
- Turbine delivery route (hereinafter referred to as the ‘turbine delivery route’ or ‘TDR’);
- Grid connection (hereinafter referred to as the ‘grid connection’);
- Biodiversity Enhancement Lands.

The wind farm site includes the wind turbines, internal access tracks, hard standings, meteorological masts, amenity trail and associated signage, onsite substation, internal electrical and communications cabling, temporary construction compound, drainage infrastructure and all associated works related to the construction of the wind farm. The grid connection will comprise a buried grid cable extending to the existing substation at Clashavoon, located approximately 6km to the south of the wind farm site, and the majority of the grid connection route extends along the public road network. The turbine delivery route will extend to the wind farm site from Foynes in Co. Limerick.

14.2 Assessment Methodology

The methodology used for this assessment is in accordance with Environmental Protection Agency (EPA 2003) *Advice Notes on Current Practice in the preparation of Environmental Impact Statements* and EPA (2002) *Guidelines on the Information to be contained in Environmental Impact Statements*; as well as more recent (draft) guidance methods have also been utilised per EPA (2015) *Draft Advice Notes for Preparing an EIS* and (2017) *Draft Guidelines for Information to be Contained in EIAR*. The chapter complies with the requirements of Directive 2011/92/EU as amended by Directive 2014/52/EU, the Planning and Development Act, 2000 (as amended) and the Planning and Development Regulations, 2001 (as amended).



The assessment has also been carried out in accordance with guidelines for the assessment of impacts on the cultural heritage resource as published by the International Council on Monuments and Sites (ICOMOS 2011).

The assessment was based on a programme of desk-based research combined with a number of site inspections and these studies were undertaken to identify any features of archaeological, architectural or cultural heritage significance likely to be impacted by the proposed development. The study area reviewed for the assessment of the wind farm site comprised the locations of development areas (i.e., the locations of the proposed footprint of the various elements requiring ground works). A desktop review of the locations and recorded orientations of prehistoric archaeological monuments with potential visual alignments located within private lands extending for 5km from the wind farm site boundary was also carried out to assess the potential for potential significant intrusions on their recorded alignments. A process of consultation with the design team was also undertaken during the design process in relation to the siting of turbines to avoid direct intrusions on the ritual alignment of a stone circle (CO049-008----) with noted visual sensitivity located within the environs of the project. The wider landscape extending for 10km from the wind farm site was reviewed to determine whether any National Monuments or World Heritage sites (including tentative sites nominated by Ireland for inclusion) were present and to assess any potential indirect impacts on their wider setting. The environs of the identified National Monuments, which are located within private lands were also inspected during the field surveys to assess their potential intervisibility with the proposed wind farm site. A review of the assessment of potential visual impacts on cultural heritage receptors within 20km of the wind farm site provided in the Landscape and Visual Impact Assessment chapter was also carried out (see Chapter 15). A 100m wide study area centred on the grid connection and proposed work areas on the road network which will form the turbine delivery route was also reviewed to assess if any known cultural heritage assets exist within the environs of these areas which may be susceptible to direct impacts.

14.2.1 Desktop Study

The assessment presents the results of a desktop study of relevant published sources and datasets undertaken in order to identify all recorded and potential archaeological, architectural and other cultural heritage sites/features/areas within the study areas. The principal sources reviewed for the assessment of the recorded archaeological resource were the Sites and Monuments Record (SMR) and the Record of Monuments and Places (RMP). The Record of Protected Structures (RPS) and the National Inventory of Architectural Heritage (NIAH) were consulted for assessing the designated architectural heritage resource. Details on the legal and planning frameworks designed to protect these elements of the cultural heritage resource are also provided. The Landscape and Visual Impact consultants also carried out a visual assessment of a number of heritage receptors within 20km of the wind farm and these were also reviewed as part of this assessment (Chapter 15).

Other sources consulted as part of the assessment included the following:

Development Plan

The *County Cork Development Plan 2014* was consulted as part of this assessment. This publication outlines the Council's policies for the conservation of the archaeological and architectural heritage resource within the county and includes a list of Record of Protected Structures (RPS) as well as designated Architectural Conservation Areas (ACA). The *Draft County Cork Development Plan 2022* was also consulted.

Archaeological Inventory of County Cork Vols. 3 and 5

These publications present summary descriptions of the recorded archaeological sites within this area of the county and the relevant entries are included within the chapter. In addition, the current national online database resources pertaining to same were reviewed on the National Monuments Service's Historical Environment Viewer (www.archaeology.ie) in November 2021.



Heritage Council of Ireland: Heritage Map Viewer

This online mapping source (www.heritagemaps.ie) collates various cultural heritage datasets provided by, among others, the National Monuments Service, the National Museum of Ireland, local authorities, the Royal Academy of Ireland and the Office of Public Works and was reviewed in November 2021.

Database of Irish Excavation Reports

The Database of Irish Excavation Reports contains summary accounts of all archaeological excavations carried out in Ireland (North and South) from 1969 to present. Current data was accessed via www.excavations.ie in November 2021.

National Museum of Ireland (NMI) Topographical Files

An inspection of the NMI topographical file archive held in the Museum premises in Kildare Street, Dublin was carried out in August 2021. These files contain information on the archaeological artefacts in the collections of the NMI and include any recorded information on their locations and the circumstances of their discovery.

Literary Sources

Various published sources were consulted in order to assess the archaeological, historical, architectural heritage and folklore record of the study area and these are listed in Section 14-8 of this chapter.

Historic Maps

A review of available historic cartographic sources was undertaken, and these included the 17th-century Down Survey and various map editions published by the Ordnance Survey from the mid-19th century onward. These sources can indicate the presence of past settlement patterns, including features of archaeological and architectural heritage significance that no longer have any surface expression. Extracts from the reviewed maps are presented in Appendix 14-1.

Aerial, Satellite and LiDAR imagery

A review of available imagery of the study area was undertaken in order to review the extent of modern interventions and to ascertain if any traces of undesignated cultural heritage features, including sub-surface archaeological sites, were visible.

Irish National Folklore Collection

Transcribed material from the National Folklore Collection archive has been digitised and published online at www.duchas.ie. This online archive was reviewed in November 2021.

UNESCO designated World Heritage Sites and Tentative List

There are two designated World Heritage sites in Ireland and a number of other significant examples have been included in a Tentative List (2010) that has been put forward by Ireland for inclusion. None of these designated or tentative sites are located within 20km of the wind farm site.

14.2.2 Field Surveys

The project areas were surveyed in on a number of occasions in 2020 and 2021 and included inspections of the wind farm site, grid connection and sections of the turbine delivery route where ground works are proposed. The inspected lands were assessed in terms of historic landscape, existing land use and the potential for the presence and survival of unrecorded archaeological and undesignated architectural heritage sites/features. The field surveys were supplemented by the use of a drone in order to compile aerial images of proposed development areas and recorded archaeological sites within the boundary of the wind farm site in order to assist in the identification of previously unrecorded archaeological sites and to review the settings of known sites.



The results of the field surveys are described within the chapter while annotated extracts from the photographic record are provided in Appendix 14-2.

14.2.3 Consultation

A process of written and verbal consultation was carried out with the Cork County Council Archaeologist (CCCA) during the design and assessment phase of the project. This included the submission of written summaries detailing the recorded archaeological resource within the environs of the project and details of proposed methodologies for the assessment of the cultural heritage resource. The consultation process also included an online meeting with the CCCA to discuss the nature of the known monuments in the area, the potential for the presence of hitherto unrecorded sites within the wind farm site and appropriate mitigation measures to be included in the EIAR chapter. Discussions were also held in relation for the potential of the development of an amenity trail within the wind farm site in order to facilitate public access to internal monuments.

A scoping report was also issued to the National Monuments Service through the Development Applications Unit. A receipt of this consultation information was acknowledged by the DAU. No observations or recommendations in relation to archaeology, architectural or cultural heritage were received from the DAU during the consultation process.

Further details of project scoping and consultation can be found in Chapter 5.

14.2.4 Assessment of Impacts

The following provides a summary of the criteria used to assess impacts in order to concisely outline the methodology specifically applied to the cultural heritage resource which complies with relevant EPA and ICOMOS guidelines (see Section 14.2 above).

Duration of Effect

The duration of effects is assessed based on the following criteria:

- Momentary (seconds to minutes)
- Brief < 1 day
- Temporary <1 year
- Short-term 1-7 years
- Medium Term 7-15 years
- Long Term 15-60 years
- Permanent > 60 years
- Reversible: Effects that can be undone, for example through remediation or restoration

Quality of Effect

The quality of an effect on the cultural heritage resource can be positive, neutral or negative:

- *Positive Effect* – a change which improves the quality of the cultural heritage environment (e.g., increasing amenity value of a site in terms of managed access, signage, presentation etc. or high-quality conservation/restoration and re-use of an otherwise vulnerable derelict structure).
- *Neutral Effect* – no change or effects that are imperceptible, within the normal bounds of variation for the cultural heritage environment.



- *Negative Effect* – a change which reduces the quality of the cultural heritage resource (e.g., visual intrusion on the setting of an asset, physical intrusion on features/setting of a site etc.)

Type of Effect

The type of effect on the cultural heritage resource can be direct, indirect or no predicted impact.

- *Direct Impact* – where a cultural heritage site is physically located within the footprint of the proposed development, which will result in its complete or partial removal.
- *Indirect Impact* – where the setting of a cultural heritage site located within the environs of proposed development is impacted.
- *No predicted impact* – where the proposed development will not adversely or positively affect a cultural heritage site.

Magnitude of Effect

This is based on the degree of change, incorporating any mitigation measures, on a cultural heritage asset and can be negative or positive. The magnitude is ranked without regard to the value of the asset according to the following scale: High; Medium; Low and Negligible and has been informed by criteria published in the International Council on Monuments and Sites *Guidance on Heritage Impact Assessments for Cultural World Heritage Properties* (ICOMOS 2011) (Table 14-1).

Table 14-1: Magnitudes of Effect on Cultural Heritage Assets (after ICOMOS Guidelines 2011)

Magnitude	Description
High	<ul style="list-style-type: none"> • Most or all key archaeological or architectural materials affected such that the resource is totally altered • Comprehensive changes to setting • Changes to most or all key historic landscape elements, parcels or components; extreme visual effects; fundamental changes to use or access; resulting in total change to historic landscape character unit • Major changes to area that affect Intangible Cultural Heritage activities or associations or visual links and cultural appreciation
Medium	<ul style="list-style-type: none"> • Changes to many key archaeological or historic building materials/elements such that the resource is clearly/significantly modified. • Considerable changes to setting that affect the character of the archaeological asset. • Changes to the setting of a historic building, such that it is significantly modified. • Change to many key historic landscape elements, parcels or components, visual change to many key aspects of the historic landscape, considerable changes to use or access, resulting in moderate changes to historic landscape character. • Considerable changes to area that affect the Intangible Cultural Heritage activities or associations or visual links and cultural appreciation.
Low	<ul style="list-style-type: none"> • Changes to key archaeological materials/historic building elements, such that the resource is slightly altered/slightly different. • Slight changes to setting of an archaeological monument. • Change to setting of a historic building, such that it is noticeably changed. • Change to few key historic landscape elements, parcels or components; slight visual changes to few key aspects of historic landscape; slight changes to use or access; resulting in limited change to historic landscape character.



Magnitude	Description
	<ul style="list-style-type: none"> Changes to area that affect the Intangible Cultural Heritage activities or associations or visual links and cultural appreciation.
Negligible	<ul style="list-style-type: none"> Very minor changes to key archaeological materials or setting. Slight changes to historic building elements or setting that hardly affect it. Very minor changes to key historic landscape elements, parcels or components; virtually unchanged visual effects; very slight changes to use or access; resulting in very small change to historic landscape character. Very minor changes to area that affect the Intangible Cultural Heritage activities or associations or visual links and cultural appreciation.

Value assessment criteria

There are no formal guidance or legal criteria for grading the values of Irish cultural heritage assets and the evaluations used in this assessment (Table 14-2) have been informed by criteria presented in the International Council on Monuments and Sites *Guidance on Heritage Impact Assessments for Cultural World Heritage Properties* (ICOMOS 2011, p. 14-17). The evaluation of the values of cultural heritage assets is, therefore, not intended as definitive but rather as an indicator which contributes to a wider judgment based the individual circumstances of each asset. The application of values included a consideration of the condition/preservation; documentary/historical significance, group value, rarity, visibility in the landscape, fragility/vulnerability and amenity value of the cultural heritage assets on a case-by-case basis. The value of all known or potential assets that may be affected by development are ranked according to the following scale: Very High; High; Medium; Low and Negligible. The values assigned to identified assets within the study areas were determined following the completion of the desktop research combined with subsequent site inspections and are presented in Section 14.4 of this chapter.

Table 14-2: Factors applied for assessing the Value of Cultural Heritage Assets

Indicative Value	Example of Asset Types
Very High	International Value which may potentially include: <ul style="list-style-type: none"> World Heritage Sites (including Tentative List properties) Assets of acknowledged international importance Assets that can contribute significantly to international research objectives
High	National Value which may potentially include: <ul style="list-style-type: none"> Designated <i>National Monuments</i> (archaeological) Assets of significant quality and importance, including well-preserved RMP sites Assets that can contribute significantly to acknowledged national research objectives Protected Structures/National Grade NIAH Structures Architectural Conservation Areas Archaeological Landscapes with significant inter-group value
Medium	Regional Value which may potentially include: <ul style="list-style-type: none"> Assets of good quality and importance Assets that can contribute significantly to regional research objectives, including levelled or partially levelled RMPs Regional Grade NIAH Structures



Indicative Value	Example of Asset Types
	<ul style="list-style-type: none"> • Other undesignated buildings that can be shown to have exceptional qualities in their fabric or historical associations • Undesignated structures of potential importance (archaeological, potential ‘new sites’) • Conservation Areas containing buildings that contribute significantly to its historic character • Historic townscape or built-up areas with important historic integrity in their buildings, or built settings
Low	Local Value which may potentially include: <ul style="list-style-type: none"> • Designated and undesignated assets of local importance • Assets compromised by poor preservation and/or poor survival of contextual associations • Assets of limited value, but with potential to contribute to local research objectives • Historic Townscape or built-up areas of limited historic integrity in their buildings, or built settings
Negligible	<ul style="list-style-type: none"> • Assets with very little or no surviving archaeological interest • Buildings of no architectural or historical note; buildings of an intrusive character

Significance of Effects

The significance of effect can be described as Profound, Very Significant, Significant, Moderate, Slight, Not Significant or Imperceptible (Table 14-3) and is assigned based on the combined evaluation of effect magnitude and asset values (Table 14-4).

Table 14-3: Significance of Effects (per EPA Draft EIAR Guidelines 2017)

Significance	Description
Imperceptible	An effect capable of measurement but without significant consequences
Not Significant	An effect which causes noticeable changes in the character of the environment but without significant consequences
Slight	An effect which causes noticeable changes in the character of the environment but without affecting its sensitivities
Moderate	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends
Significant	An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment
Very Significant	An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment
Profound	An effect which obliterates sensitive characteristics



Table 14-4: Significance of Effects Matrix (after EPA Draft EIAR Guidelines 2017)

Magnitude of Impact	High	Not Significant/ Slight	Moderate/ Significant	Significant/ Very Significant	Very Significant/ Profound
	Medium	Not Significant	Slight	Moderate/ Significant	Significant/ Very significant
	Low	Not Significant/ Imperceptible	Slight/ Not Significant	Slight	Moderate
	Negligible	Imperceptible	Not Significant/ Imperceptible	Not Significant/ Slight	Slight
		Negligible	Low	Medium	High/Very High
		Value/Sensitivity of the Asset			

14.3 Existing Environment

14.3.1 Introduction

The following sections present summaries of the legal and planning frameworks designed to protect the cultural heritage resource which are followed by details on the known and potential cultural heritage resource within the reviewed study areas based on information collated during the desktop studies and field inspections.

14.3.2 Legal and Planning Context

The tangible elements of the cultural heritage resource can be loosely divided into the archaeological resource comprising sites and monuments dating from the prehistoric period to the post-medieval period and the architectural heritage resource, encompassing standing structures and sites of cultural importance often dating to the post-medieval and modern periods. In addition, local place names, folklore and traditions are considered part of the intangible cultural heritage resource. The management and protection of the cultural heritage resource in Ireland is achieved through a framework of international conventions and national laws and policies. This framework was established in accordance with the provisions of the ‘European Convention on the Protection of the Archaeological Heritage’ (the Valletta Convention) and the ‘European Convention on the Protection of Architectural Heritage’ (Grenada Convention) which were ratified by Ireland in 1997. In addition, the UNESCO ‘Convention for the Safeguarding of the Intangible Cultural Heritage’, 2003, was ratified by Ireland in 2015. The relevant legislation and guidelines that are relevant to this assessment include the following:

- National Monuments Act 1930-2014;
- Heritage Act (1995);
- National Cultural Institutions Act (1997);
- Architectural Heritage (National Inventory) and Historic Monuments (Misc) Provisions Act (1999);
- Planning and Development Act (2000) as amended;
- Department of Arts, Heritage and Gaeltacht (2011) Architectural Heritage Protection: Guidelines for Planning Authorities
- Department of Arts, Heritage, Gaeltacht and the Islands (1999) Framework and Principles for the Protection of Archaeological Heritage



14.3.2.1 Relevant Archaeological Legislation and Planning Policies

The National Monuments Service (NMS), currently based in the Department of Housing, Local Government and Heritage, is responsible for the preservation, protection and promotion of Ireland's archaeological heritage¹. The National Monuments Acts 1930 (and amendments), the Heritage Act 1995 and relevant provisions of the National Cultural Institutions Act 1997 are the primary means of ensuring the satisfactory protection of archaeological remains. There are a number of mechanisms under the National Monuments Acts that are applied to secure the protection of archaeological monuments. These include the designation of National Monument status to significant sites as well as listing sites in the Register of Historic Monuments (RHM), the Record of Monuments and Places (RMP) and the Sites and Monuments Record (SMR). In addition, the Minister may also place Preservation Orders and Temporary Preservation Orders on endangered sites. The County Cork Development Plan 2014² includes a number of policies and objectives in relation to the protection of the archaeological resource within the county including the protection of recorded sites (Plan ref. HE 3-1) and their environs (Plan ref. HE 3-3) and also requires that appropriate mitigation measures are enacted for newly discovered archaeological remains (Plan ref. 12.3.6).

A National Monument is described as 'a monument or the remains of a monument, the preservation of which is a matter of national importance by reason of the historical, architectural, traditional, artistic or archaeological interest attaching thereto' (Section 2, National Monument Act, 1930). A review of a published dataset of National Monuments in State Care within County Cork³ revealed one National Monument in State Ownership located within the boundary of the wind farm site and this comprises a five stone circle located within a clearing in a forestry plantation in the eastern end of the site (RMP CO049-007---- / National Monument ref. 660). There are also four other examples located within 10km of the proposed wind farm site and the environs of each of these were inspected during field surveys to assess their potential intervisibility with the wind farm site. The locations of other accessible cultural heritage receptors within 20km of the wind farm site were assessed as part of the Landscape and Visual assessment and the results, which are presented in Chapter 15, were subject to archaeological review during the assessment process.

The Record of Monuments and Places (RMP) was established under Section 12 (1) of the National Monuments (Amendment) Act, 1994 and was based on the Register of Historic Monuments (RHM) and Sites and Monuments Record (SMR). These records comprise lists and maps of all known archaeological monuments and places for each county in the State. All archaeological sites listed in the RMP receive statutory protection under the National Monuments Act 1994 and no works can be undertaken at their locations, including their surrounding Zones of Notification, without providing two months advance notice to the NMS. The RMP lists 14 recorded archaeological sites within the boundary of the Site and none of these are included in a nationwide list of monuments which have been assigned Preservation Orders as published by the National Monuments Service⁴. The known archaeological monuments within the wind farm site boundary are identified within the chapter (Section 14.3.3), which includes their inventory entries published by the Archaeological Survey of Ireland (ASI) and details of field inspections of accessible examples within the Site. The monuments located within inaccessible areas, including those within surrounding private properties, were assessed based on a combination of reviews of their classifications and condition of preservation as described in published inventory descriptions, depictions on historic mapping and reviews of modern aerial/satellite imagery. None of these monuments, or other examples outside the site boundary, are located within 270m of any the proposed turbine locations or within 100m of associated infrastructure within the site.

¹<https://www.archaeology.ie/sites/default/files/media/publications/NMS%20-%20Managing%20and%20Protecting%20Ireland%27s%20Archaeological%20Heritage%202013.pdf>

² http://corkcocodevplan.com/wp-content/uploads/2017/10/CCDP_Volume_1.pdf

³ <https://www.archaeology.ie/sites/default/files/media/pdf/monuments-in-state-care-cork.pdf>

⁴ <https://www.archaeology.ie/sites/default/files/media/publications/po19v1-all-counties.pdf>



The chapter also considers the potential for the presence of hitherto unrecorded, sub-surface archaeological features within proposed construction areas.

14.3.2.2 Relevant Architectural Heritage Legislation and Planning Policies

Protection of architectural heritage is provided for through a range of legal instruments that include the Heritage Act 1995, the Architectural Heritage (National Inventory) and National Monuments (Misc. Provisions) Act 1999, and the Planning and Development Act 2000. Section 2(1) of the Heritage Act 1995, defines architectural heritage as including:

All structures, buildings, traditional and designed, and groups of buildings including streetscapes and urban vistas, which are of historical, archaeological, artistic, engineering, scientific, social or technical interest, together with their setting, attendant grounds, fixtures, fittings and contents, and, without prejudice to the generality of the foregoing, includes railways and related buildings and structures and any place comprising the remains or traces of any such railway, building or structure.

The Planning and Development Act 2000 requires Planning Authorities to keep a ‘Record of Protected Structures’ (RPS) of buildings and other structures that are of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest. All structures listed for protection in current Development Plans, have become Protected Structures and planning permission is required for any works to such structures that would affect their character. A protected structure also includes the land and other structures within its curtilage. While the notion of curtilage is not defined by legislation, the *Architectural Heritage Protection Guidelines for Local Authorities* (Dept. Arts, Heritage and the Gaeltacht 2011), describes it as the parcel of land immediately associated with a structure and which is (or was) in use for the purposes of the structure. The Planning and Development Act 2000 also provides for the inclusion of objectives for preserving the character of places, areas, groups of structures or townscapes of special interest designated as Architectural Conservation Areas (ACAs). There are no Protected Structures within the wind farm site and its surrounds or within the environs of the grid connection route. There are a number of Protected Structures, and an ACA (Drishane Castle), within the environs of a turbine staging area that forms part of the turbine delivery route.

The Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act, 1999 established the National Inventory of Architectural Heritage (NIAH), including the NIAH Historic Gardens and Designed Landscapes, to create a record of built heritage structures and associated lands within the State. While inclusion in a NIAH inventory does not provide statutory protection to a structure, the inventory is used to advise local authorities on compilation of their Records of Protected Structures. There are no NIAH listed structures within the wind farm site or its surrounds while there are a number of examples within the environs of the grid connection and turbine delivery routes.

The current RPS for County Cork is published in the *County Cork Development Plan 2014* which also presents the Council’s policies and objectives in relation to the protection of the architectural heritage resource within the county including the protection of designated structures (Plan refs. HE 4-1 and HE 4-2) and non-structural features such as gardens, masonry walls, railings, follies, gates, bridges and street furniture that are of built heritage significance (Plan ref. HE 4-3). The Development Plan also includes a number of policies and objectives in relation to the protection of the cultural heritage resource within the county, including aspects such as historical associations, place names, language and the arts (Plan refs. HE 5-1 and HE 5-2). A review of the *Draft County Cork Development Plan 2022* revealed that no additional Protected Structures are proposed within the study area.



The term ‘designated architectural heritage resource’ is hereafter used to describe structures listed in the NIAH and the County Cork RPS and examples located within the environs of the grid connection and turbine delivery routes are identified in Section 14.3.3, which also provides details on undesignated cultural heritage assets identified during the assessment.

14.3.3 Desktop Study

14.3.3.1 Introduction

The following sections presents summary details of the main periods within the Irish archaeological record with references to known archaeological sites, designated architectural heritage structures (RPS and NIAH) and identified undesignated cultural heritage assets located within the study areas around the wind farm site (Section 14.3.3.2), grid connection (Section 14.3.3.3) and turbine delivery route (Section 14.3.3.4). Datasets have been interrogated and retrieved from current state and local authority sources and are considered accurate at the time of writing in November 2021. The published inventory entries of all recorded archaeological sites and designated architectural heritage structures within the footprint and environs of the wind farm and the grid connection and turbine delivery route work areas are also presented. Summary details on the origins, nature and function of the various monument types are included along with references to relevant published material that will provide further information to the reader.

The dating framework used for each period of the archaeological record is based on the *Guidelines for Authors of Reports on Archaeological Excavations* as published by the National Monuments Service⁵.

14.3.3.2 Wind Farm Site

In summary, there are 14 known archaeological sites located within the wind farm site boundary of the wind farm site (Table 14-5 and Appendix 14-1; Figure 14-1). The SMR lists approximately 650 recorded archaeological sites within the lands extending for 5km in all directions from the wind farm. The majority of these date to the Bronze Age (including fulachta fia, wedge tombs, standing stones, stone circles and stone rows) and the early medieval period (including ringforts and ecclesiastical sites). There are 31 extant prehistoric monuments with potential visual alignments located within private lands in this area and a review of their locations and orientations, as recorded by the ASI, is presented in Table 14-6. In addition, a review of the lands extending for 10km from the wind farm site boundary revealed the presence of five National Monuments in State Ownership or Guardianship, including one example (CO049-007----/National Monument 660) located within the main wind farm site (Table 14-7).

Table 14-5: Known archaeological sites within the wind farm site

Monument Ref.	Class	Townland	ITM E	ITM N	Approx. distance from nearest turbine	Other construction areas
CO048-084----	Hut site	KNOCKNAGAPPUL	532866	585159	1,970m west of T1	660m west of borrow pit
CO048-085----	Holy Well	KNOCKNAGAPPUL	532977	584816	1,700m west of T1	430m west of borrow pit

⁵ <https://www.archaeology.ie/sites/default/files/media/publications/excavation-reports-guidelines-for-authors.pdf>



Monument Ref.	Class	Townland	ITM E	ITM N	Approx. distance from nearest turbine	Other construction areas
CO049-002----	Standing stone	BALLYNAGREE WEST	535115	585157	440m north of T12	100m north of construction compound
CO049-007---- National Monument 660	Five Stone Circle	CARRIGAGULLA	537206	583906	420m east of T9	None within 1km
CO049-008----	Multiple Stone Circle	CARRIGAGULLA	537080	583552	270m to southeast of T9	200m to southeast of T9 hardstand
CO049-019----	Stone Row	KNOCKNAGAPPUL	534556	583137	460m to south of T1	Grid route within public road 50m to east
CO049-020----	Stone Row	CARRIGAGULLA	537141	582991	430m to southeast of T8	350m to southeast of new access track
CO049-021----	Country House	CARRIGAGULLA	537406	582450	990m to south of T8	None within 1km
CO049-022----	Ringfort	CARRIGAGULLA	537282	582167	960m to southeast of T5	950m to southeast of new access track
CO049-057----	Fulacht Fiadh	BALLYNAGREE EAST	536265	582029	620m to south of T5	420m to south of new access track
CO049-058----	Fulacht Fiadh	BALLYNAGREE EAST	536321	582077	570m to south of T5	350m to south of new access track
CO049-059----	Fulacht Fiadh	BALLYNAGREE EAST	536259	582063	600m to south of T5	380m to south of new access track
CO049-064---	Cairn	BALLYNAGREE EAST, CARRIGDUFF	535945	586595	620m to north of T13	460m to north of new access track
CO049-068----	Burnt Mound	CARRIGAGULLA	537220	582422	790m to southeast of T5	800m to southeast of new access track

Table 14-6: Monuments with potential visual alignments within 5km of the wind farm site boundary

Monument no.	Classification	Extant	Distance from nearest turbine	Recorded Alignment (ASI)	Direct Alignment towards wind farm
CO040-064002-	Wedge tomb	partial	3.6km to north	Entrance faces SW	No



Monument no.	Classification	Extant	Distance from nearest turbine	Recorded Alignment (ASI)	Direct Alignment towards wind farm
CO049-046----	Wedge tomb	yes	5.6km to east	Entrance faces to SE	No
CO049-066----	Wedge tomb	yes	1.1km to south	Entrance faces to NW	No
CO049-067----	Wedge tomb	yes	1.2km to southwest	Entrance faces WNW	No
CO059-028001-	Wedge tomb	yes	5.3km to southwest	Entrance faces WSW	No
CO059-102001-	Wedge tomb	yes	5.7km to southwest	Entrance faces to W	No
CO059-187----	Wedge tomb	yes	5.9km to southwest	Entrance faces to NW	No
CO060-007----	Wedge tomb	partial	5.4km to southwest	Entrance faces WSW	No
CO060-079001-	Wedge tomb	partial	3.9km to south	E-W	No
CO060-079003-	Wedge tomb	yes	3.8km to south	NW-SE	No
CO039-101----	Standing stone - pair	yes	5.6km to northwest	NE-SW	No
CO048-095001-	Standing stone - pair	partial	4.8km to west	NNE-SSW	No
CO048-168----	Standing stone - pair	partial	4.5km to west	E-W	Yes
CO049-009----	Standing stone - pair	yes	2.3km to east	NE-SW	No
CO059-020----	Standing stone - pair	yes	5.1km to southwest	NNE-SSW	No
CO059-023001-	Standing stone - pair	yes	5.4km to southwest	NE-SW	Yes
CO059-023006-	Standing stone - pair	yes	5.3km to southwest	NE-SW	Yes
CO059-033----	Standing stone - pair	yes	4.4km to southwest	ENE-WSW	No
CO060-019----	Standing stone - pair	yes	0.72km to south	NE-SW	No
CO060-082----	Standing stone - pair	partial	4.4km to southeast	ENE-WSW	No
CO039-097----	Stone circle - five-stone	partial	4.6km to north	NE-SW	No
CO048-080002-	Stone circle - five-stone	yes	4.1km to northwest	NE-SW	No
CO048-095002-	Stone circle - five-stone	yes	4.8km to west	NNE-SSW	No
CO049-029----	Stone circle - five-stone	yes	2.5km to southeast	ENE-WSW	No
CO059-023002-	Stone circle - five-stone	yes	4.4km to southeast	NE-SW	No
CO060-042----	Stone circle - multiple-stone	yes	5.6km to southeast	ENE-WSW	No
CO048-047001-	Stone row	yes	4.1km to northwest	ENE-WSW	No
CO049-023----	Stone row	partial	2.3km to east	ENE-WSW	No
CO059-044----	Stone row	yes	5.2km to south	NNE-SSW	No
CO060-025002-	Stone row	partial	2.3km to southeast	NE-SW	No



Table 14-7: National Monuments within 10km of the wind farm site

Name	Nat. Mon./ RMP	Status	Approx. distance from nearest turbine
Carrigagulla Stone Circle	Nat. Mon. 660 RMP CO049-007----	Ownership	0.42km to northwest
Knocknakilla Stone Circle	Nat. Mon. 420 RMP CO048-095002-	Guardianship	4.8km to west
Drishane Castle	Nat. Mon. 296 RMP CO39-078001-	Ownership	10km to northwest
Carrigaphooca Castle and Stone Circle	Nat. Mon. 255 RMP CO070-034---- RMP CO070-035----	Ownership	10km to south
Lissacresig Ringfort and Stone Circle	Nat. Mon.571 RMP CO070-016---- RMP CO070-017----	Ownership	10km to southwest

Prehistoric Periods

Until the recent identification of Palaeolithic human butchery marks on a bear bone recovered from a cave site in County Clare, the earliest recorded evidence for human activity in Ireland dated to the Mesolithic period (7000–4000 BC) when groups of hunter-gatherers lived on the heavily wooded island. The archaeological record indicates that these mobile groups tended to favour coastal, lake and river shores locations which provided a transport resource and also provided elements of their varied diet. These groups did not construct any monuments that have left any above ground traces although their presence in an area can often be identified by scatters of worked flints in ploughed fields. The Neolithic period (4000-2400 BC) began with the arrival of agriculture and its establishment as the principal form of economic subsistence, which resulted in more permanent settlement patterns. As a consequence of the more settled nature of agrarian life, new site-types, such as substantial rectangular timber houses, field systems and various types of megalithic tombs, begin to appear in the archaeological record as well as new artefact types, including pottery. Metalworking arrived in Ireland with the advent of the Bronze Age period (c. 2400–500 BC). This new technology introduced a new artefactual assemblage into the Irish archaeological record and this period was also associated with the construction of new monument types such as standing stones, stone rows, stone circles and fulachta fia. The development of new burial practices meant that the construction of funerary monuments such as cairns, barrows, boulder burials and tumuli or cists was a common practice during this period. West Cork was an important mining area during this period, and this is reflected by the high amounts of Bronze Age monuments within the region. The arrival of iron-working technology in Ireland saw the advent of the Iron Age (600 BC – 400 AD). Relatively little has been known about settlement patterns during this period until recent decades when the corpus of evidence has been increased by the discovery of sub-surface remains of Iron Age sites during archaeological investigations undertaken as part of development projects. This has included the discovery of the foundations of Iron Age timber house sites during archaeological investigations in advance of a number of road schemes in County Cork. It is noted that while the vast majority of other prehistoric settlement sites also leave no above ground remains their foundations and occupation deposits, which may contain artefactual and environmental remains, can often survive below modern ground surfaces.

The following paragraphs present an overview of the types of prehistoric archaeological monuments, including their published inventory entries, located within the wind farm site and the general reader is directed to *Iverni: A Prehistory of Cork* (O’Brien 2012) which provides contextual information on archaeological record of the prehistory of the region as well as information on the various monument types identified below.



There are nine recorded prehistoric monuments within the boundary of the wind farm site, and these comprise two stone circles, three fulachta fia, one burnt mound, two stone rows and one standing stone. These monument types date to the Bronze Age and a number of other monuments from this period, including megalithic wedge tombs, are also located within the surrounding landscape and wider region. The presence of these monuments is indicative of a notable concentration of both ritual and domestic activities within, and in the environs of, the proposed wind farm site during this period. The following paragraphs present summary details on each of the Bronze Age monument types within the wind farm site and includes their individual inventory entries as well as references to publications that provide further information. A cairn site located within the north boundary of the wind farm site may potentially date to any period from prehistory onward and is also detailed within this section.

There are two main concentrations of stone circles monuments in Ireland (a Mid-Ulster group and a Cork/Kerry group) and of the c.250 known examples in Ireland c.100 are located in County Cork, mostly within the western half of the county. This group comprises examples containing either five or multiple upright stones of an uneven number symmetrically arranged so that one stone in the southwest end, the axial stone, is set directly opposite the two tallest stones which form the entrance while the other stones are often arranged to reduce in height from the entrance to the axial stone. The axis between the entrance and axial stones are typically aligned towards views to the west or southwest and may have potential visual alignments across the landscape towards solar events in these directions (e.g., solstices and equinoxes), potentially directly sighted on the locations of these events as they set on natural topographical features. It has been noted that some examples seem to possess no precise alignments on such events other than general views towards the southwest (Waddell 1998. 171). O' Brien (2012, 192-3) has noted that while a case has been made for associations with potential lunar alignments this is unlikely, and that monuments such as stone circles and wedge tombs were more probably set towards the general direction of the setting sun in the general southwest quadrant during darker months of the year. This alignment was likely an expression of ritual beliefs centred on themes of birth and rebirth based on an association between death and the setting/dying sun which formed an important focus of worship during prehistoric periods. The limited evidence from the small number of excavated examples in County Cork indicates that some circles contained cremated burials and includes examples constructed in the centuries between 1400-800 BC. This included a brief 1930s excavation of an example in Knocknakilla townland, located 4.8km to the west of the wind farm site, which did not reveal any burial evidence or artefacts but did demonstrate that the internal area was covered with flat stones and frequent inclusions of white quartz fragments (Gogan 1931). Stone circles are often found located within the proximity of other lithic monuments of potential similar date such as stone rows/pairs, standing stones and boulder burials. While they also often share similar general landscape settings with Early Bronze Age wedge tombs, their builders did not appear have incorporated these earlier tombs into their ritual architecture (*ibid.*). Both of the stone circles (CO049-007---- and CO049-008----) within the wind farm site are listed in the SMR/RMP and the former is also a National Monument in State Ownership (ref. 660). These two monuments have been described as follows by the ASI:

Five Stone Circle CO049-007---- (National Monument in State Ownership ref. 660)

In gentle sloping bogland, on W side of Laney River valley. Circle of irregular outline; one entrance stone angled inwards from circumference. Orthostats are 0.5m to 1.2m L, 0.4m to 0.5m T and 0.5m to 1.2m H. Stones decrease in height from entrance to axial stone. Internal measurement along main axis, aligned ENE-WSW, is c. 2.5m. Multiple-stone circle (CO049-008----) 400m to SSW. (O Nualláin 1984a, 32, no. 56)

Multiple-stone circle (CO049-008----)

On level patch in gently sloping pasture, on W side of Laney River basin. Circle incomplete; may have consisted of seventeen stones. Fifteen stones survive, including axial and radially-set entrance stones. Orthostats are 0.6m to 1.7m L, 0.25m to 0.4m T and 0.4m to 0.9m H. Internal measurement along main axis, aligned ENE-WSW, is 7.8m. Internal block (H 0.4m; 0.9m x 0.6m) stands on main axis of circle. Five-stone circle (CO049-007----) stands c. 380m to NNE. (O Nualláin 1984a, 12, no. 4)



A review of the locations of the setting sun during all equinox and solstice events on the ridgeline to the west of the multiple stone circle was carried out by the project Landscape and Visual specialists during the design phase of the project and demonstrated that the monument's alignment to the WSW (as confirmed on ground by compass) is not orientated directly on any of these events or on any discernible topographical features on the flat ridgeline. The closest setting events comprise the spring and autumn equinoxes when the sun sets on the top of the ridge at distances of c.200m-300m to the north of the monument's direct alignment. The winter solstice sets on the ridge at a distance of c.300m to the south of the alignment while the summer solstice does not set on the ridgeline and is further to the north. The layout of the turbines and blades that will be visible from the stone circle in this direction were designed to not directly impinge on the monument's set alignment on the ridge and the blades tips are set back from its location for distances of 100m in both directions. No views of the wider landscape or skyline can be gained from the location of the five stone circle within a forest clearing which is completely screened in all directions within a thick plantation of closely planted evergreen trees. While potential alignments or views towards the general southwest quadrant may form the primary focus of these monuments, it is also noted there are no turbines proposed within lands to the northeast of either stone circle.

The partial remains of two stone rows are located within the boundary of the wind farm site and these form part of a distinctive Cork and Kerry group that contain three or more upright stones set on a straight line, generally on a northeast-southwest alignment, with their heights often descending from a tallest stone at the southwest end. Only a small number of stone rows and similar stone pair monuments in Cork have been excavated, but this limited sample has produced evidence for cremated human remains dating to the Late Bronze Age. They are often found associated with stone circles and their shared dominant alignments towards the southwest quadrant indicates that they may have formed part of the same ritual tradition. The below inventory entries for the two examples within the wind farm site record that one (CO049-019----) had only a single remaining upright stone while the other (CO049-020----) had three uprights when inspected by the Cork Archaeological Survey in the 1980s. The locations of both examples were inspected as part of the current assessment and this confirmed that they both now only contain one remaining upright stone (Table 14-15). While their surviving extant remains do not now retain a visible expression of their original orientations to the southwest, the designed layout of the turbines will avoid impinging on views from their locations towards this direction. There is also one standing stone (CO049-002----) within the boundary of the wind farm site and this monument type comprises a single upright stone often with its long side aligned NE-SW indicating a possible association with stone row and stone circle traditions. As noted in the below inventory entry for this monument, there is a large fallen stone lying on the ground adjacent to the upright stone and the potential that it originally comprised a stone row or a stone pair cannot be discounted. While the functions of standing stones and stone rows within Bronze Age society can be difficult to discern, even following archaeological excavation, they are generally considered to be markers that had a ritual, commemorative, territorial or ceremonial role. The examples within the wind farm site have been described as follows by the ASI:

Stone Row CO049-019----

In cut-away bog, on narrow saddle below steeper slopes of Musheramore Mountain. Probable row of three stones, two of which are prostrate; estimated overall length of row is c. 8.8m. Erect stone standing to N, long axis NE-SW, is 1.4m L, 0.4m T and 2.5m H. Beside this lies slab, at least 2m by 0.8m; it may not be part of row. 3m SW of erect stone is prostrate slab; it measures 0.95m by 0.5m and is over 2m L. Third stone lies 3m further to SW; it measures 0.65m by 0.3m and is 4.1m L. (O Nualláin 1988, 252, no. 173)

Stone Row CO049-020----

On moorland saddle, to W of Carrigagulla Hill. Row of three stones, aligned NE-SW, 5.6m in overall length. NE stone is 0.7m L, 0.15m T and 0.75m H; top appears broken. Next stone, 2.4m to SW, is 1m L, 0.25m T and 1.85m H. SW stone, 0.9m from last, is 0.7m L, 0.25m T and 1.1m H; top appears broken. (O Nualláin 1988, 232, no. 10)

Standing Stone CO049-002----

On high boggy ground, at foot of Boggeragh Mountain range. Stone (H 2.5m; 1.04m x 0.54m) is leaning to E (long axis E-W) and resting against fallen stone (L 4.6m; 0.69m x 0.57m).



There are three recorded *fulachta fia* (approx. translation ‘cooking place of the deer’) and one burnt mound located within the wind farm site boundary. These sites comprise spreads of burnt stones within charcoal-rich deposits and are generally interpreted as the remains of cooking sites, although other interpretations have also been postulated. They functioned by placing fire-heated stones into a water-filled trough, which in some instances can be timber-lined, in order to raise the water to boiling point and the mounds gradually built up from material cleaned out from the trough after each use. They are one of the most numerous sites in the Irish archaeological record and are typically located near or adjacent to natural water sources, such as streams, springs or marshy areas. Archaeological evidence indicates that this process may have originated in the Neolithic period but did not become widespread until the Bronze Age (Hawkes 2018). While many examples have been levelled by ploughing or land improvement works, in their undisturbed form they can comprise horseshoe-shaped mounds built up around a sunken trough. The examples within the wind farm site have been described as follows by the ASI:

Fulacht fiadh CO049-057----

In forestry. Overgrown mound of burnt material (c. 20m E-W; c. 12m N-S) disturbed by tree planting. Burnt material (D 0.8m) visible in drain running E-W along edge of mound and piled around young trees.

Fulacht fiadh CO049-058----

In forestry. Roughly kidney-shaped mound of burnt material (8m E-W; 4m N-S; H 1m); drain cut through mound in E-W direction.

Fulacht fiadh CO049-059----

In forestry. Overgrown mound of burnt material (10m E-W; 4m N-S; H 0.7m); disturbed by tree planting and cut by drain.

Burnt Mound CO049-068----

In tillage. A spread of heat-shattered stones and charcoal-enriched soil (diam. c. 25m) was noted in 2004 following the discovery of a silver armlet in the same field (Cahill 2007, 46).

There is one recorded upland cairn located inside the north boundary of the wind farm site and this is a general term for a constructed mound of stones that may date to any period from prehistory onward. The presence of stone cairns on the summits and ridges of hills and mountains is a common feature in the Irish landscape and may have fulfilled various ritual functions, such as a covering over burial sites (including cists and megalithic tombs), ancient territorial boundaries, memorial features and pilgrimage routes. Cairns may also be associated with more prosaic functions such as modern upland shelters or features resulting from land clearance works. The example within the wind farm site has been described as follows by the ASI:

Cairn CO049-064---

In shallow peat and rough grass, on a gentle N-facing slope, on the summit Seefin Mountain. This cairn (9m N-S; 11m E-W) comprises a well-defined spread of small rubble stones which are largely masked by peat cover. The cairn appears to have been disturbed and three main areas of exposed stone are visible. The stones in two of the areas have been arranged so as to slightly resemble uncoursed walling. The function of these three internal features, if any, is unclear.

A review of the recorded archaeological monuments within 5km of the wind farm site revealed 31 prehistoric monuments with potential visual alignment attributes. These are identified in Table 14-6 which also provides their classifications and alignments as recorded by the ASI and are mapped in Appendix 14-1 (Figure 14-2). These include three stone rows within the wider landscape to the southwest which incorporate alignments to the northeast which may intersect with the location of the wind farm site. These monuments are located within private lands not accessible during the site surveys but it is probable that given their distance from the site, combined with the tree-lined field boundaries that dominate the farmlands in this area as well as natural topography that they currently do not have unobstructed views towards the site.



There is a gap in the distribution of the lithic monuments within the lands to the northeast of the wind farm and, this is notable given that many of these monuments are characterised by ritual orientations tending towards the southwest horizon. It is also noted that there are very few examples of these monument types located within the wider landscape further to the northwest beyond the Boggeragh Mountains in an area that would contain southwest alignments towards the Site.

Early Medieval Period

The early medieval period began with the introduction of Christianity to Ireland and continued until the arrival of the Anglo-Normans in the late 12th century (c. 400–1169 AD). While this period saw the emergence of the first phases of urbanisation around the larger monasteries and the Hiberno-Norse ports, the dominant settlement pattern continued to be rural-based and founded on a small-scale agricultural economy centred on enclosed farmsteads known as ringforts. The early medieval church sites were often morphologically similar to ringforts but are often differentiated by the presence of features such as church buildings, graves, stone crosses and shrines. There is one early medieval (c. 400–1169 AD) monument recorded within the wind farm site boundary and this comprises a ringfort (CO049-022----) within a pasture field in the southern end of the site. Ringforts comprise roughly circular farmstead enclosures delimited by earthen banks formed by upcast soil from a concentric external ditch. The original Gaelic names (rath/lis/dun) for these sites still form some of the most common placename elements in the country. These enclosures may form the visible element of wider agricultural holdings (known as *airlise*) that may contain unrecorded, sub-surface archaeological features such as associated field systems, stockades, barns, mills and drying kilns. The west end of the wind farm site also contains an upland holy well site (CO048-085----) located near the summit of Musheramore Mountain. While many of these wells continued to be venerated into modern times, they may have their origins in early medieval period or perhaps earlier prehistoric ritual practices. The example within the site had a tradition of ‘rounds’ being held on St John’s Day (24th of June) but this practice had largely stopped by the mid-20th century and a modernised holy well in the lowlands to the west now forms the main devotion centre in the area. The ringfort and holy well have been described as follows by the ASI:

Ringfort CO049-022----

In pasture, on SE-facing slope, overlooking Laney River valley. Circular area (42m N-S; 41.1m E-W) defined by earthen bank (max. int. H 1.55m), with external fosse (D 0.9m). Counterscarp bank survives NNW->NNE and ENE->SSE; heavily overgrown. External fosse filled in with field clearance stones SSE->WSW; shallow to W. Gaps in bank to NE (Wth 2.9m) and SE. Land drops sharply down to stream immediately outside enclosure to NE.

Holy Well CO048-085----

Near summit of Musheramore Mountain; second well on lower slopes to NW. Enclosed on three sides by wall of large stones; roofed with slabs upon which have been piled stones to form rough point; opening to S. Stone ledge inside partly covers well; some religious objects are placed on this. Now used infrequently. According to Broker (1937, 35), ‘Two holy wells in commonage of Muisire Mountain - one at top (for cattle) and one at foot (for christians). Rounds are made at them on St. John’s Day - 24th June. Not many now go to the top well....Both wells are called Tobairín na bhFaithni- warts being cured by washing in them’.

Further potential evidence for early medieval activity within the environs of the wind farm site is attested to in the SMR which records that an unlocated horizontal-wheeled water mill (CO049-061----), a site type often assigned dates in the early to late medieval periods, may exist in Ballynagree East townland and this site is briefly described as follows by the ASI:

Mill (CO049-061----)

Windele, in 1844, described remains of mill with two penstocks and undercroft surviving (Rynne 1992, 65). Exact location not known.



It is noted that Rynne's cited article on this site includes the below extract from Windele's account in the *Cork Constitution* of December 1st 1884 which generally refers to Ballinagree but does not appear to identify the townland of Ballinagree East, at least in the published extract. Rynne also notes that an earlier study (Fahy, 1956) determined that Windele's account of the site was ambiguous and that he merely referred to the mill's location as Muskerry. Windele's account was subjected to a re-appraisal by Rynne which suggested that the reference to the location as Muskerry may have instead referred to Musera. It is unclear if the inclusion of the placename Ballinagree in the below extract followed this reappraisal as it does not appear in the extract of the Windele's description which was published in Fahy's article.

At Ballinagree... one side of the watercourse at the head of the tank was formed of a wall of drystone masonry about 20 ft in length. The tank, the side of which consisted of square beams, placed on each other, with a superstructure of drystone work, was of 20 ft in length and of similar breadth in its upper part, but narrowed to 11ft at its lower. From this last, two shoots [penstocks], each 12 ft in length and 1 ft 9 in. in depth, extended in a slanting position and communicated with a second tank of nearly similar extent to the first.

It is noted that a section of the River Laney flows broadly east-west through within the wind farm site boundary. A review of this section the river as shown on the first edition 6-inch OS map compiled approximately a decade before Windele's account did not reveal any features correlating to the described drystone wall features but the possibility exists that the site was not surveyed at that time. Notwithstanding the uncertainty regarding the location of this mill site the potential that it existed at some unknown location within the boundary of the wind farm site cannot be discounted.

High and Late Medieval Periods

The arrival of the Anglo-Normans in the late 12th century broadly marks the advent of the Irish high medieval period which continued to c.1400 and was followed by the late medieval period which extended to c.1550. These periods saw the continuing expansion of Irish urbanisation as many of the port cities developed into international trading centres and numerous villages and towns began to develop throughout the country, often within the environs of Anglo-Norman manorial centres which were defended by masonry castles. By the 15th century the native Irish chieftains and lords began to construct tower-house castles within their own landholdings as centres of territorial control. There is little historical information on the settlement and land-use patterns within the environs of the wind farm site during these periods and there are no known archaeological sites dating to either period located within the surrounding study area. In 1207, King John granted Richard de Cogan rights to an area taking lands within the Muskerry region in west Cork much of which was still under Gaelic control at that time. The majority of the subsequently conquered lands within the region were concentrated along the Lee Valley while the mountainous area north of Macroom remained in Gaelic control (Butler 1910, 86). There are no recorded archaeological sites dating to the high and late medieval period located within the wind farm site. A review of the recorded archaeological monuments within 10km of the wind farm site revealed two late medieval castles designated as National Monuments. These comprise Drishane Castle, which is located on the outskirts of Millstreet c.8km to the northwest (Nat. Mon. ref 296; RMP C039-078001-) and Carrigaphooca Castle on the outskirts of Macroom c. 10km to the south (Nat. Mon. ref 255; RMP C0070-034-----). While both of these castles are located in private lands, their environs were visited as part of the site inspection to ascertain whether they have any potential intervisibility with the wind farm site. Blarney castle (CO062-177----) is located c. 24km to the southeast of the site and the visual impact on this monument is assessed in the Landscape and Visual chapter (Chapter 15).

Post-Medieval and Early Modern Periods

The centuries following 1550 AD comprise the post-medieval period which continued into the middle of the 19th century with the period thereafter often described as early modern. The following section provides a high-level overview of the period with references to associated archaeological sites within the wind farm site and further details on the layout of the area at that time are provided in the following cartographic review section.



The early decades of the post-medieval period were a turbulent time in Ireland history and saw a long phase of warfare between the 1560s and 1603 with a further period of conflict during the mid-17th century Cromwellian Wars which resulted in extensive dispossession of forfeited Gaelic lands. The 17th century Down Survey records compiled following the latter period of conflict note that Macroom parish formed part of the holdings of Lord Muskerry and provide a very a summary description of the general area containing the wind farm site as ‘coarse mountain pasture’ and also records the names and landlords of the townlands that contain the footprint of project infrastructure during that century (Table 14.8).

Table 14-8: Summary of Down Survey records for townlands within wind farm location

Townland	17th Century name	Owner 1641	Owner 1670
Annagannihy	Aghabollog	McCarthy, Donough Viscount Muskerry	MacCarthy, Callaghan Earl of Clancarthy
Ballynagree East	Ballywyranoughter	McCarthy, Donough Viscount Muskerry	MacCarthy, Callaghan Earl of Clancarthy
Ballynagree West	Ballywyrranighter	McCarthy, Donough Viscount Muskerry	MacCarthy, Callaghan Earl of Clancarthy
Carrigagulla	Ballyhenygry	McCarthy, Donough Viscount Muskerry	MacCarthy, Callaghan Earl of Clancarthy
Knocknagappul	Knocknegable	Reagh, Charles McCarthy	James Duke of York
Carrigduff	Glanneleigh	Carthy, Owen McDonagh	MacCarthy, Callaghan Earl of Clancarthy

A common agricultural activity during the post-medieval period, particularly in upland areas within western counties, was a system of transhumance farming which is known as booleying in the Irish context. This entailed herders moving grazing animals into more marginal upland areas, referred to as *buaille*, during the summer months thereby maintaining the grass pasture nearer to the better quality lands around the farmstead for use as winter grazing land. The herders remained with the animals during the summer months often residing in stone structures known as booley huts, the remains of which are a common feature in upland environments. While this system of land use is well-documented during the post-medieval period it has been noted that it may have a continuation of a farming tradition practiced for millennia (Feehan 2003, 397). The possibility, therefore, exists that the remains of some upland stone huts as well as associated boundary features may pre-date the post-medieval period and some may potentially have their origins during the late prehistoric or early medieval periods although this often cannot be confirmed without recourse to archaeological excavation. The remains of a stone hut site near the summit of Musheramore Mountain, in an area just inside the western side of the wind farm boundary, have been listed as an archaeological site and are described as follows by the ASI:

Hut Site CO048-084----
 On summit of Musheramore Mountain. Oval area (4m E-W; 2m N-S) enclosed by low wall (max. H 0.6m) of large loose stones c. 3 courses high.

As the post-medieval period progressed high and low status stone houses began to replace simpler cabins throughout the Irish countryside and many farmsteads at this time typically consisted of single-storey cottages with associated outbuildings while two-storey farmhouses became more common into the 19th century. An agricultural boom in the late 18th and early 19th centuries saw a rise in prices for both Irish tillage and dairy produce which resulted in landlords investing in extensive land improvement works within their holdings to increase productivity. This included widespread land drainage works, introduction of soil nutrients, grass planting and the enclosure of open lands into field systems that survive to the present-day.



The cultivation of potatoes became widespread and this high-yield crop, which required no processing, was particularly suited to small farm holdings within low-quality reclaimed lands with acidic soils (*ibid.*, 108). The popularity and success of this crop contributed to a population boom during the 18th and early 19th centuries and its failure in the middle of the latter century was to have devastating consequences. The settlement pattern throughout much of the rural landscape was greatly affected by the Famine period and its aftermath in the middle of the 19th century which saw the depopulation of many areas. The period after the Famine saw an increasing move away from small-scale subsistence farming towards more market-led pasture, assisted by the development of the Co-Op system, which also increased the extent of land reclamation of previously marginal lands.

The *Topographical Dictionary of Ireland* (Lewis 1837) provides descriptions of Irish parishes prior to the famine period and often provides information on contemporary land use patterns, historical events and the locations of archaeological sites and other built structures of note. The wind farm site extends into the civil parishes of Macroom and Aghabulloge and Lewis's description of these areas contains no references to any of the townlands within its boundary or surrounding lands. His description records that the majority of Macroom parish was occupied by tillage farmland but also contained areas of rough mountain pasture and bog. He also noted that the parish contained little waste land other than rocky mountain areas and that the system of agriculture was being progressively improved. The layout of the wind farm site during the 19th and 20th centuries is described in the below reviews of cartographic and aerial sources which demonstrate the reclamation and enclosure of the formerly open heathlands into pasture field within much of the boundary and the subsequent development of areas under commercial forestry plantations.

There is one recorded post-medieval archaeological site located within the boundary of the wind farm site and this comprises a roadside 18th-century country house, known as Carrigagulla House, near the southern boundary. While designated as an archaeological site (CO049-021----) this building, which remains in use as a residence, is not listed in the RPS or NIAH and has been described by the ASI as follows:

Country House CO049-021----

Two-storey late 18th-century house. Entrance front (S) of 3 bays; central door; Wyatt windows in side bays. Side elevation one bay deep, with attic windows. Half-hipped roof, two off-centre chimneys. Date stone in house, formerly on back wall, inscribed '1790'; second plaque not seen but owner says inscribed 'John Horgan Esq'. House linked to S end of E range of 2-storey farm building by a castellated curtain wall which rises up to hide S gable of farm building. Farmyard to rear enclosed by farm buildings; E range has pigeon niches under eaves.

Excavations Database

A review of the Excavation Database 1970-2021 (www.excavations.ie) revealed that no licensed archaeological excavations have taken place within the wind farm site although it does contain two entries for site investigations undertaken outside its boundary within Carrigagulla townland and monitoring of the construction of the Boggeragh wind farm in an upland area 2km to the northeast (Table 14-9). The National Museum of Ireland carried out an inspection of a field outside the northeast end of the site in 2004 following the discovery of a silver amulet in this area (Cahill 2004). While no additional artefacts were identified during a metal-detecting survey, surface traces of a burnt spread, which may potentially date to the Bronze Age, were noted within the ploughed field. The discovery of the artefact and the identification of the burnt spread both attest to the potential for the presence of hitherto unrecorded archaeological remains within the general area. An archaeological rescue excavation within the environs of a collapse upright that formed part of a stone row within an area of forestry outside the east end of the wind farm site did not identify any sub-surface trace of a stone socket or other archaeological features (O'Callaghan 2002). In addition, nothing of archaeological significance was uncovered during monitoring of the Boggeragh wind farm development to the northeast of the wind farm site (Quinn 2014).



Table 14-9: Excavation Database Entries within environs of wind farm site

Licence ref.	Townland	Excavation Database Entry
04E0598 04R0048	Carrigagulla	<p>The site of the discovery of a silver armlet at Carrigagulla, Co. Cork, was investigated between 13 and 15 April 2004. No further artefacts were discovered and no archaeological features which might relate to the armlet were noted. However, it was noted that evidence of a destroyed fulacht fiadh was visible in the field after it had been ploughed. Blackened soil and fragmented burnt stone covering an area of about 25m in diameter was noted. This site was not visible before ploughing and is not recorded in the inventory for this area.</p> <p>Mary Cahill, NMI Link: http://excavations.ie/report/2004/Cork/0011336/</p>
02E1801	Carrigagulla	<p>A limited rescue excavation (commissioned by Dúchas) was undertaken at the site of a stone row in the townland of Carrigagulla, Macroom, Co. Cork. The monument is located on a low rise east of Carrigagulla Hill in what is now a state-planted forest c. 1km west of Annagannihy crossroads. It is in a remote location of the Boggeragh Mountains c. 12km south-east of Millstreet and 11km north-west of Macroom.</p> <p>The stone row comprises three stones that range in increasing height and size from west to east and are thought to be composed of grey/green sandstones. The third and largest stone lies prostrate at an acute angle from the extant uprights c. 2m to the east. During recent forestry harvesting in the area, in an attempt to protect the fallen stone, it was moved by machine and, ironically, it was dropped and damaged in the process. The stone (4.2m long and c. 0.6m² in profile) fell on a tree stump causing a large section, 1.26m long by 0.62m wide and 0.06m thick, to shear off along a natural fissure. The objective of the excavation was to locate the original socket where the fallen stone had once stood, so that a strategy for its re-erection could be formulated. A full EDM survey was undertaken in the area of the monument. Two trenches were opened to the east of the two in situ stones, but no archaeological remains of the original socket were found; no ex situ stones – i.e. possible packing stones – were located either. Also, as the fallen stone is a massive regular block, a very large deep socket would have been required to keep it upright and no part of a socket was found. A brief study of stone rows in the mid-Cork region was carried out. Out of a total of 28 monuments, measurements were available for the distances between the first three stones for 24 of these recorded monuments. It was found that, on average, the distance between the first and second stone was 1.1m, while the distance between the second and third stone was 1.4m. With this in mind, and considering that an excavation of 4m was undertaken immediately east of the two remaining uprights, it is the author’s opinion that the fallen stone was not a component of the eastern limits of the stone row as originally thought.</p> <p>A number of hypotheses have been put forward as to why the socket was not located:</p> <ul style="list-style-type: none"> - The fallen stone may never have formed part of the extant monument and was positioned there in the recent past, possibly when the forest planting first commenced. - The fallen stone may have comprised a single outlying standing stone, chrono-logically and spatially related to the two extant stones that would themselves be classified as a stone pair. This is a distinct possibility and would essentially mean that the fallen stone comprised an element of a more complex Bronze Age monument.



Licence ref.	Townland	Excavation Database Entry
		<p>- The fallen stone was part of the stone row, but it was located immediately to the west of the current smallest stone of the monument. Subsequently, the stone would have been dragged to its current location. There is a possibility that the fallen stone once stood on the west side of the row. It was presumed that, because it has lain for some time on the east side, it actually fell there originally. As that scenario has now been proved negative, the possibility that the stone once stood on the west side must be considered.</p> <p>Niamh O’Callaghan Link: http://excavations.ie/report/2003/Cork/0009494/</p>
14E0103	Inchamay Inchamay South Nadanuller Beg Knockabrocka Kilcullen North Mossy Bed Glannaharee East	<p>Monitoring of topsoil removal associated with the construction of a wind farm in the Boggeragh Mountains was carried out between April 2014 and March 2015. The development consists of the construction of 26 turbines, ancillary structures, four borrow pits, one permanent meteorological mast, one substation, upgrading of existing roads/access tracks, underground cabling and provision of new access tracks and new entrances onto public roads and all associated infrastructure. It involved ground disturbance in the form of topsoil and peat removal in the areas of new proposed access roads, turbine bases and hard stands, which were all monitored. No archaeological finds, features or deposits were uncovered during the course of the monitoring.</p> <p>Annette Quinn Link: http://excavations.ie/report/2015/Cork/0023860/</p>

National Museum of Ireland Topographical Files

The topographical files held in the Museum premises in Dublin were inspected in order to ascertain if any archaeological artefacts have been discovered within the townlands that extend into the boundary of the wind farm site. The files contain a number of entries which record the discovery of four artefacts within the townlands and include a wooden deer trap found in bogland in Ballynagree East, a rare artefact type which has been dated to the Bronze Age and early medieval period in other Irish contexts. The discovery of a cross-inscribed stone from a field fence in Carrigagulla may attest to otherwise unrecorded early medieval ecclesiastical activity in this townland. A silver armllet was also found in a field fence at Carrigagulla in the same year and, although it is not referred to in the file, the potential may exist that it was associated with the cross-slab which was found in a similar context. The discovery of a stone axehead during ploughing works in the same townland may be a further indication of prehistoric activity in Carrigagulla, which also contains the locations of two stone circle monuments. The happenchance discovery of these artefacts during agricultural activities within the area illustrates the potential for the presence of both artefacts and associated sub-surface archaeological sites within the lands containing the wind farm site.

Table 14-10: Summary of NMI Topographical files for townlands that extend into wind farm site

Townland	NMI Ref.	Artefact type	Notes	Description
Ballynagree East	1971:957.1	Wooden deer trap	Found in bog	Complete wooden deer trap, frame in two pieces, valve, spring and three pegs
Carrigagulla	2003:20	Stone axehead	Found ploughing. OS west: 26.30 OS south: 6.10	Stone axehead, in poor condition, with much flaking on the surface. Three fragments have broken off.



Townland	NMI Ref.	Artefact type	Notes	Description
Carrigagulla	2003:21	Cross-inscribed slab, stone	Found in a field fence OS west: 25.60 OS south: 10.30	An irregularly shaped block of stone on the triangular face of which a simple cross potent has been incised. The block varies in section from triangular to quadrangular. The right-hand side of the cross is a little damaged. On the upper surface of the block there is another incised line running across the surface at an angle.
Carrigagulla	2003:86	Stamped silver arm ring	Found removing field fence, precise location not possible to establish	Penannular ring of broad-band type, rectangular in cross-section. The band narrows at the terminals to a width of 10.65mm at the terminals. The outer face is decorated with stamped circular impressions (c.4mm across) which form a cross at the centre. The remainder of the band is decorated with vertical rows of stamped circles alternated with a single stamped circle.

Designated Architectural Heritage Resource

There are no Protected Structures or NIAH buildings located within the wind farm site or within 1km of its boundary and it does not extend into an Architectural Conservation Area. A review of the potential for undesignated architectural heritage features located within the environs of proposed construction areas is included in the below cartographic review and site survey sections.

Cartographic Review

The following section presents an overview of the general layout of the wind farm site depicted on cartographic sources comprising the 17th-century Down Survey mapping, the 1st edition 6-inch Ordnance Survey (OS) (1830s-40s series) and the Cassini edition 6-inch OS map (1930s-40s series). The coverage of the 25-inch OS map edition (1888-1913) does not extend into the footprint of the proposed construction areas within the wind farm site. The relevant extracts from each of the reviewed maps are presented in Appendix 14.1 and further details on the OS map depictions of the areas on the footprint of various project elements within the wind farm site are also presented in Section 14.3.4 (Table 14-16). The parish and barony maps compiled during the 17th-century Down Survey were carried out following the Cromwellian wars in the middle of that century and they present high-level pictorial depictions of major fortifications, churches and houses, settlement centres, roads, bridges and topographical features as well as summary information on existing land use and/or potential agricultural capability. The mapping depicts the general location of Ballinagree as 'course mountain pasture' with bogs in the northern area and shows no major structures or settlements (Appendix 14-1; Figure 14-6). The 6-inch OS map depicts the majority of the wind farm site as open upland heathland with dispersed concentrations of fields with accompanying farm buildings encroaching into the lower lands in the south end of the wind farm site. There are no farm buildings or other structures shown on the direct footprint of proposed turbine locations, new access roads and other elements of the wind farm (Appendix 14-1; Figure 14-7). The only named building within the site comprises Carrigagulla House located adjacent to the roadside near the southern boundary of the wind farm.



The 1st edition 6-inch map shows a small area of planted trees and number of adjacent outbuildings within the immediate surrounds of the house, but no associated formal gardens or demesne lands are indicated within its environs or within the location of proposed construction works in the lands further to the north. The general layout of the area shown on the Cassini edition OS map (1930s-40s) has been much altered when compared to detail on the first 6-inch map edition by the expansion of reclaimed farmland in the southern area which is shown to have encroached into the former open marginal lands in the northern end of the wind farm site and this demonstrates the extent of land reclamation works in the late 19th and early 20th centuries. (Appendix 14-1; Figures 14-8 and 14-9). There are no potential unrecorded archaeological sites indicated within the wind farm site on the reviewed cartographic sources.

Aerial, Satellite and LiDAR imagery

The detail on the consulted aerial and satellite images published since the 1990s demonstrates that the majority of the wind farm site has been occupied by a combination of pasture farmland and commercial forestry plantation with remnant areas of upland heath in the north and west areas in recent decades. A study by the Heritage Council of Ireland on the impacts of forestry plantations on archaeological sites, including their surface and buried elements, has noted that the initial planting process involves a number of ground disturbance activities, such as ploughing, drainage, access roads and planting, that has the potential to destroy or severely impact any sites within the plantation (Johnson 1998). Further impacts are also likely to occur during the operational phase of the plantation through continued disturbance by extensive root systems, which will entwine with any sub-surface archaeological deposits or features with little or no potential for removal without causing further destruction (*ibid.*). Additional ground disturbance during subsequent harvesting and replanting processes were also noted. The study also concluded that given the impossibility of aerial reconnaissance and access constraints during field surveys, the potential for detecting unrecorded sites within forestry plantations is unlikely to be possible. However, the development and widespread use of LiDAR technology in recent years has allowed for the potential for reconnoitring forestry plantations through the use of imagery that can screen out the forestry canopy and allow an assessment of the presence of potential archaeological sites. To this end, available LiDAR imagery of the forestry plantations within the wind farm site was reviewed as part of this assessment. While the detail on this imagery is somewhat limited, the review clearly demonstrated that the ground surface within the plantations has been extensively disturbed by cultivation and no visible traces of any potential unrecorded archaeological sites or architectural heritage structures were observed (Appendix 14-1; Figures 14-10, 14-11, 14-12 and 14-13).

Undesignated Cultural Heritage Assets

While encompassing the protected archaeological and architectural heritage resources, cultural heritage also includes various undesignated assets such as historic settlements, demesne landscapes, vernacular structures, folklore, placenames, townland boundaries and historical events. There are no historic settlements, vernacular structures, demesne features or associations with historical events located within, on in close proximity to, the wind farm site. A number of townland boundaries extend through the forestry plantation on the hill and associated landscape features such as banks or ditches that demark their extent are typically considered to be features of local cultural heritage interest worthy of recording. The historic OS maps show a number of townland boundaries traversing the plantation and these are indicated as linear cartographic features that do not appear to have been associated with constructed land division features such as field banks and the majority are now occupied by modern forestry roads.

The wind farm site is within the civil parishes of Macroom and Aghabulloge and the project infrastructure footprint extends into six townlands: Ballynagree East, Ballynagree West, Carrigagulla, Annagannihy, Carrigduff and Knocknagappul (see Table 14-11). Townlands are the smallest unit of land division in the Irish landscape and many may preserve early Gaelic territorial boundaries that pre-date the Anglo-Norman conquest.



The boundaries and nomenclature of the Irish townlands were recorded and standardised by the Ordnance Survey during the 19th century. The Irish origins of many townland names often refer to natural topographical features, but some name elements may also give an indication of the presence of past human activity within the townland, e.g. *lios* or *rath* indicate the presence of a ringfort while names containing elements such as *kill* or *temple* are often indicative of ecclesiastical activity.

Table 14-11: Translation of townland names within wind farm site

Townland	Irish origin	Translation	Indicative potential
Annagannihiy	Áth na gCeannaithe	ford of the merchants	Historical water crossing (no streams/rivers within section of townland in wind farm site)
Ballynagree (East/West)	Baile na Graí	town of the cattle	Historical agricultural use
Carrigagulla	Carraig an Ghiolla	Rock of the gilly or servant	Topographical description and historical land use
Knocknagappul	Cnoc na gCapall	hill of the horses	Historical agricultural use
Carrigduff	An Charraig Dhubh	Black rock	Topographical description

The Irish National Folklore Collection (www.duchas.ie) contains a number of entries for the general Ballinagree area that include records of traditions associated with the holy well (CO048-085----) in the upland area along the west boundary of the wind farm site as well as an account that refers to stone circles in the area (Table 14-12).

Table 14-12: Summaries of local folklore traditions (source www.duchas.ie)

Source	Summary of transcript	Observations
Lena Twomey	Holy Well: If you went up to Musherá on St. John's Day with toothaches and if you drank some of the water in the well you would never again get toothaches (no date)	Local tradition associated with holy well (CO048-085----)
Tim Buckley	Holy Well: St. John's Well is called after St. John who is the patron saint of Aghinagh. It is situated on the top of Musherá mountain. Crowds visit it on St. John's day, the 24th June. It is believed that if a person performs "rounds" there, his cattle would be cured of any disease.	Local tradition associated with holy well (CO048-085----)
Nora Sullivan	Holy Well: Saint John is the patron saint of this district. There is a holy well on the top of Musherá which is dedicated to his honour. It is called Tobhair Naomh Shéain. it is a small well and there is a small wall around it. It is supposed to have sprung up one night while Saint John was praying on the mountain. Each year on the 24th June a pattern is held near the well and people attend this pattern and pay rounds at the well. Everyone who goes to this well leaves some relic such as buttons or thread. On the 24th June everyone say a few prayers in honour of our patron saint.	Local tradition associated with holy well (CO048-085----)
Denis McSweeney	Holy Well:	Local tradition associated with holy well (CO048-085----)



Source	Summary of transcript	Observations
	The Patron of this district is St John. He was a brother of St Lothern who lived at Cullen. He blessed two wells in Mushera mountain one at the foot and the other at the summit of the mountain. It is said that the one at the foot of the mountain would cure warts.	
Eugene Dineen	Holy Well: People pay rounds to Saint John's Well on the 24th of June. There is a wall around the well and a timber cross over it. It is a great well for curing warts. People leave money, rosary beads and other small articles near the well. About 60 years ago a pattern used be held near St. John's Well. They used have 2 or 3 porter and spirit tents and numerous cake and sweet tents. All they young men used be jumping and casting pretty heavy stones, something like the 16 lb. shot now.	Local tradition associated with holy well (CO048-085----
Michael O' Sullivan	Stone circles: There is a stone circle in Mrs Connors field Carrigagulla. Lights and people are supposed to be seen round this fort at night. Sometimes crying was heard there formerly. These is another stone convenient to it in Dennis Kelliher's Réidh. There are two stone circles in Sextons farm near Sheedy's house. There is another stone circle in Peter Ring's farm Dunneen's. One day when Bill Ring was digging stones out of this circle a hound came out of it and attacked him. When he went home his skin was black and he died the day after. It has been left untouched since. There is a ring in the field at Padeenens Cross and every time a sow went into this stone circle she became lame and unable to walk.	Griffith's Valuation (1852) records that an Ellen Connor was tenant of the land containing Stone Circle CO049-008---- and the 1901 Census records that a family of that name still lived in Carrigagulla. The 1901 Census records that a Denis Kelliher lived in Carrigagulla townland and the potential exists that the story refers to a recorded standing stone within this area (CO049-002----). The 1901 Census records that a Sexton family lived in Annagannihy and the story may refer a number of recorded anomalous stone groups within this townland, all of which are located outside of the wind farm site. The reference to the Ring's farm in Dunneens may refers to Dooneens townland located to the south of the wind farm site. There is no record stone circle within this townland, but it does contain a number of other lithic monuments A review of the historic OS maps did not reveal the location of Padeenens Cross and it is possible that this may refer to one of two stone circles within fields close to crossroads in Oughtihery townland to the south of the wind farm site
Michael Sullivan	Annagannihy Forge: This forge was built in Thady Kellehers yard and it is now a stall. To prove that this was a forge the grips for turning the band-iron are still to be seen. This forge was in existence about seventy years ago. The smiths name was Mr Jeremiah Kelleher known locally as Diarmuid a' Gabhan. He used make horse	Local tradition associated with undesignated structure within a farmyard area. While location is unknown, no construction works are proposed within any existing or former farmyard areas



Source	Summary of transcript	Observations
	shoes out of old spades. The coal he used was "móin a priseálaigh" that means coal made out of half burned turf which he got in Annagannihy mountain (account dated to 1938)	

14.3.3.3 Grid Connection

As described in Chapter 3, the proposed grid connection will extend southwards from the wind farm site to the existing Clashavoon substation located c.6km to the south and does not extend through any villages or towns. The majority of the route follows existing public roads apart from a localised option route in the north end which extends along an existing farm lane in Knocknagappul townland. The following section presents an overview of the recorded cultural heritage assets within the 100m study area centred on the grid connection route. The locations and inventory descriptions of these assets are provided in Table 14.13 and a location map is presented in Appendix 14-1 (Figures 14-14).

There is one recorded archaeological site located on the public road network that will form the grid connection route and this comprises a 19th century masonry bridge (CO060-002----) over a section of the River Laney in Bawnmore townland, which is known locally as Awboy Bridge. The required watercourse crossings along the route, including at this location, will be achieved by horizontal direction drilling within adjacent fields on the east side of the road and no interventions to the Awboy Bridge or the River Laney channel will be required. There are no recorded archaeological sites within these fields. There are two other extant recorded archaeological monuments within the 100m study area centred grid connection and these comprise a stone row (CO049-019----) and a wedge tomb (CO049-067----) both of which are located within private lands adjoining the public road in Knocknagappul townland. Neither of these monuments are located adjacent to the roadside or have recorded levelled elements that may extend within the environs of the grid route. The SMR also records the former location of a fulacht fia (CO060-209----) within the boundary of the Clashavoon substation which was discovered in 2002 during archaeological monitoring of its construction at that time. This site was subject to a full archaeological excavation in advance of the construction of the substation and is no longer present at its recorded location (Table 14-13).

There are no Protected Structures located within the grid connection study area while the NIAH lists a late 19th century house (NIAH 20906002) and a wall-mounted post box (NIAH 20906001) both of which are located adjacent to the public road that forms part of the route in Bawnmore townland. A masonry road bridge in the area located 180m to the east of the Bawnmore crossroads is not a designated architectural heritage structure but is deemed to be of cultural heritage interest. The proposed watercourse crossing at this location will entail horizontal directional drilling under the bridge, which will require no works to the bridge or channel. Additionally, a pair of modern Famine memorial stone features located adjacent to both sides of the roadside at a crossroads in Killberrihert townland, to the west of Clashavoon substation, are not of antiquity but do comprise features of local cultural heritage significance. The grid connection within the adjacent public road will not extend into the footprint of either of these features.

The memorial stone on the southern side of the road is dated to 1997 and notes that it is erected close to the site of a 'soup house' while the example on the north side of the road commemorates infants within unmarked graves in burial grounds in Derryroe and Killberrihert townlands. The latter example also refers to an unmarked burial ground in Carrigagulla townland, Ballynagree. This is a recorded archaeological site (CO060-021---) located 400m to the south of the boundary of the wind farm site and is 1.35km from the nearest construction location (T5). A review of the SMR/RMP and OS maps of the lands in the environs of the two memorial features did not reveal any record of burial grounds in lands adjacent to this section of the public road. The northern commemoration stone may refer to a known burial ground in Killberrihert townland (CO060-122----) which is



located c.240m to the east of Clashavoon substation and it not located within the environs of the grid connection. The SMR/RMP and OS maps do not record the presence of any known burial grounds in Derryroe townland. The potential exists that an unlabelled building shown on the 25-inch OS map (1888-1913 series) along the local road extending to the south of the southern memorial stone may be the 'soup house' referred to on this feature. This building is absent on the later Cassini map edition and no traces exist at its former location.



Table 14-13: Designated cultural heritage sites within environs of grid connection

Designation	Class	Townland	ITM E	ITM N	Approx. distance from route	Inventory Description
RMP CO049-019----	Stone Row	Knocknagappul (Muskerry West By.)	534556	583137	50m to west in field	In cut-away bog, on narrow saddle below steeper slopes of Museramore Mountain. Probable row of three stones, two of which are prostrate; estimated overall length of row is c. 8.8m. Erect stone standing to N, long axis NE-SW, is 1.4m L, 0.4m T and 2.5m H. Beside this lies slab, at least 2m by 0.8m; it may not be part of row. 3m SW of erect stone is prostrate slab; it measures 0.95m by 0.5m and is over 2m L. Third stone lies 3m further to SW; it measures 0.65m by 0.3m and is 4.1m L. (O Nualláin 1988, 252, no. 173)
RMP CO049-067----	Wedge Tomb	Knocknagappul (Muskerry West By.)	534484	582541	35m to west within garden of private house	On a S-facing slope of the SE spur of Museramore Mountain. This wedge tomb consists of a gallery (min. L 4m; Wth 1.3m at W, narrowing to 0.8m towards the centre) aligned WNW-ESE. The S side of the gallery is represented by four stones. Only two stones of the N side remain; the stones forming its E end and the backstone are missing. Two longitudinally set jamb stones stand inside the W end narrowing the gallery entrance width to 0.65m. The E section of the gallery is covered by a single roofstone (2.2m x 2.3m; T 0.4m at W, narrowing to 0.3m at E). The gallery is surrounded by seven outer-wall stones which curve around its E end. A prostrate slab (1.7m x 0.55m; T c. 0.2m) lies immediately SE of the outer-walling; this may be a displaced roofstone. The tomb is known locally as the 'mass-rock'. Another wedge tomb (CO049-066----) is located 300m to the E.
RMP CO060-002----	Bridge	Bawnmore, Rahalisk	534957	579209	Directional drilling located in fields to the east	Road bridge (Wth 7.5m) over Awboy River. Three segmental arches, roughly dressed voussoirs; low pointed breakwaters. String course over arches. Plaque over central arch reads 'Foundation stone.....Paul Horgan Esq. A.D. 1831. Designed by N.M. Fitzgerald'.



Designation	Class	Townland	ITM E	ITM N	Approx. distance from route	Inventory Description
NIAH 20906002	House	Bawnmore	534438	578324	Adjacent to roadside	Detached three-bay two-storey house, built c.1880. Lean-to extension to rear (north-east). Pitched slate roof with terracotta ridge cresting, red brick chimneystacks and cast-iron rainwater goods. Rendered walls with incised platband to first floor and rendered plinth. Square-headed window openings with render sills having one-over-one pane timber sliding sash windows with mock voussoirs incised in render. Square-headed door opening having timber panelled door with overlight. Concrete block outbuildings to rear of site, roofs now missing. Multiple-bay single-storey outbuilding to front of site having mono-pitched corrugated steel roof with rendered walls and remains of timber windows. A well-proportioned building that retains noteworthy historic features such as sash windows and ridge crestings which enliven the building's appearance. Set at the junction of two roads, it makes an eye-catching contribution to the surrounding area.
NIAH 20906001	Post box	Bawnmore	534439	578291	Mounted in wall adjacent to road	Cast-iron wall-mounted post box, installed c.1900. Raised lettering and panelling to front (south-east). This wall-mounted post box with its raised lettering and panel details is of a design that can be found throughout Ireland, but is becoming increasingly rare. Such items stand as testament to the high quality cast-iron work of the late nineteenth and early twentieth centuries.
SMR CO060-209----	Fulacht Fia	Aughinda	537214	576591	Former location within Clashavoon substation	This fulacht fia was discovered during topsoil stripping in advance of the construction of an ESB substation and was excavated in 2002. Prior to excavation it was described as a slightly raised grass-covered oval mound (c. 40m SE-NW; 10.4m NW-SE) with gorse bushes growing on it. Excavation revealed that the mound (max. H 0.5m) consisted of two main deposits of heat-shattered stones and charcoal-enriched soil. A stone-lined trough (1.8m N-S; 1.6m E-W; D 0.4m) was revealed at the W edge of the mound. An arc of stake-holes, open to the N, was



Designation	Class	Townland	ITM E	ITM N	Approx. distance from route	Inventory Description
						also found to the E of the trough. A circular pit (1.6m E-W; 1.2m N-S; D 0.45m) filled with clay with frequent inclusions of fire-cracked stones was found to the N of the mound. (Larsson 2004, 54)
Stone Bridge	Bridge	Bawnmore	534604	578283	Adjacent	None. Masonry bridge of potential 19 th century date
Famine Memorial	Famine memorial stones	Killberrihert	536269	577323	Adjacent	None. Modern Famine memorial markers



14.3.3.4 Turbine Delivery Route

The turbine delivery route will include the creation of a temporary staging area for the transfer of turbine blades within a green field area located in the southern end of the Drishane Castle estate lands. The temporary staging area will be located inside the southern boundary of the property and will measure approximately 200m northeast-southwest and 50m wide with two sections of 15m wide access tracks measuring 100m long on the southwest side and 60m long to the northeast. The topsoil layer on its footprint will be reduced to facilitate temporary aggregate hard standing material and will be reinstated upon completion of the staging works.

This property contains a number of Protected Structures and recorded archaeological monuments, including a 15th-century Castle which is also a National Monument in State Ownership (Nat. Mon. ref 296; RMP C039-078001-) (Table 14-14 and Appendix 14-1; Figure 14-16). Drishane House (17th-19th century) is the main Protected Structure within the property and its curtilage includes the lands and other structures within its walled boundary. In addition, the lands within the property are designated as an ACA in the current County Cork Development Plan 2014 (Appendix 14-1; Figure 15). All of the Protected Structures within the property are also listed in the NIAH and the estate lands are included in the NIAH Historic Gardens/Landscape survey (ref. 2855). The eastern access to the staging area will require a localised breach in a section of a modern boundary wall which has replaced the original random rubble estate wall in this area, which still survives along the public road further to the southwest. The exit from the location will be via an existing road adjacent to the southwest terminus of the original section of the boundary wall. The location of the staging area is c.15m to the north of the extant boundary wall and does not contain any structures. A review of historic OS maps shows the area occupied by vacant fields in lands to the south of the main demesne centre (Appendix 14-1; Figure 14-17). A treelined lane shown extending through the central section of the staging area on the historic OS maps is no longer present on modern aerial images which show the location as part of a large field which has been periodically tilled and under grassland in recent years. A review of historic OS maps indicates that this removed laneway likely facilitated access to attendant farmland within the estate. In addition, a former gate lodge structure shown close to the southwest exit from the staging area on the 1st edition 6-inch OS map is not present on later mapping. The existing internal road in this area forms a cul-de-sac leading to the graveyard to the north, which remains in use, and no longer forms an access to the main house. The main access avenue to the house is via a formal gateway located 330m to the southwest of the proposed staging area and the detail on the historic OS maps indicates that the road leading to the graveyard likely formed a secondary entrance. The access route to the graveyard will not be removed as part of the proposed development.

The TDR will require the removal of a small masonry road bridge structure within the site boundary and its replacement with a concrete bridge to facilitate transport loads (Project ref. WF-HF8). This structure is located on a local road within the townland of Ballinagree East (ITM 535358, 585631) and crosses a small unnamed stream that extends in a broadly north to south direction through this area. The bridge is not listed as a Protected Structure, and it is also not included in the NIAH. A review of historic OS maps demonstrated that the local road is not present on the 1st edition 6-inch map (1830-40s series), which also does not depict a ford in the area, but it is shown on later map editions indicating that the road and the bridge structure date to the post 1840s period.

A review of other localised ancillary work areas required to facilitate the turbines delivery did not reveal any known cultural heritage sites at their locations.



Table 14-14: Designated cultural heritage sites within Drishane Castle demesne

Structure/Area	Designations	Distance from staging area	Inventory Description
Drishane Castle	National Monument in State Ownership (No. 296) RMP CO039-078001- (Castle) RMP CO039-078003- (Bawn) RPS 00319	460m to NW	Now standing at S end of Drishane House; built directly on rock outcrop. Rectangular 5-storey tower with adjacent circular 2-storey tower. Structures were 'completely restored some time post 1879...' Rectangular tower (8.8m E-W; 7.7m N-S), with slightly rounded corners; entered at ground-floor level through door near N end of E wall, door surround has been re-set... Circular tower (int. diam. 2.9m; wall thickness c. 0.9m) just 0.9m S of SE corner of rectangular tower, and projecting 1.3m beyond its E wall; now free standing but originally linked to tower by straight wall. Entered on NW side through repaired ground-floor door... Mac Carthy castle; built, according to tradition, in 1450 (Lee 1914,64), a date not inconsistent with present tower. Circular turret is later, probably added in late 16th/early 17th century to allow for flanking fire by defenders. Adjacent house built by Wallis family in 18 th century but enlarged and castellated in mid-19 th century; later a convent school, now in private ownership (Extract from ASI description)
Drishane House	RPS 00320 NIAH 20903910	500m to NW	Detached former country house, built c. 1730, remodelled throughout nineteenth century. Now in use as accommodation for asylum seekers. This substantial country house has had many phases in its construction and retains the fabric of an eighteenth-century house at its core. The different construction phases, additions and extensions, add historical context to the structure. The castle revival form of the house dates from the mid- to late nineteenth century when this style was in vogue...The house is situated adjacent to a medieval towerhouse, restored by Lady Beaumont...The demesne remains relatively intact, with many of the related demesne structures, such as the gate lodges, reflecting the style of the main house. The house was sold to the Sisters of the Infant Jesus in the early twentieth century when it was used as a convent and school (Extract from NIAH description)
Graveyard	RMP CO039-077002-	70m to N	Within grounds of former Drishane Convent. Shown on 1842 and 1904 OS 6-inch maps as rectangular 'burial ground' (c. 45m NE-SW; c. 50m



Structure/Area	Designations	Distance from staging area	Inventory Description
			NW-SE); 1936 OS 6-inch map shows extension to SE, graveyard now measuring c. 60m NE-SW; c. 120m NW-SE. Oldest inscribed headstones at N end, the earliest noted dated 1725; nun's burial area to E. Remains of parish church of Drishane at N end (ASI description)
Church	RMP CO039-077001-	180m to N	Near N end of graveyard; fragmentary overgrown remains of NW corner of church (c. 2m E-W; c. 6m N-S; max. H 1.6m). Shown as rectangular structure 'in ruins' on 1842 OS 6-inch map (L c. 10m). Interior now covered by burials and bordered by overgrown rubble which may be debris of church walls. Remains of parish church of Drishane. (ASI description)
Chapel	RPS 01184 NIAH 20903915	500m to NW	This fine, substantial chapel and hall was built by the Sisters of the Infant Jesus and is a fine example of early twentieth century ecclesiastical architecture. It is an unusual example of a two-storey chapel building with hall below, a form that is not usually associated with Roman Catholic churches...The bellcote is particularly ornate with incised cross motifs. The chapel forms part of an ecclesiastical group within the demesne of Drishane Castle. (Extract from NIAH description)
Convent/nunnery	RPS 01185 NIAH 20903913	420m to NW	This substantial convent was built to accommodate the Sisters of the Infant Jesus who acquired Drishane Castle in the early to mid-twentieth century. The convent is enlivened by the projecting end bays which divide the planes of the otherwise regular façade...The convent building to the south is built in the style of the main convent. The convent and related building form a group of associated ecclesiastical structures. (Extract from NIAH description)
Outbuildings	RPS 01181 NIAH 20903912	400m to W	This farmyard complex is a fine example of planned farm buildings. The ranges are symmetrically arranged around well-proportioned courtyards, each with separate entrances....The entrance range to the north is distinguished from the side ranges, which housed the stables, animal houses and accommodation for farm workers...The ranges retain many interesting features and materials such as slate roofs and double lancet, quarry-glazed windows. The walled garden serves as a reminder of the range of demesne-related activities once associated with country houses in Ireland. The farmyard, together with the walled



Structure/Area	Designations	Distance from staging area	Inventory Description
			garden and gate lodges, forms an interesting group of demesne-related structures. (Extract from NIAH description)
Knitting school	RPS 01180 NIAH 20903914	560m to NW	This building, built during the tenure of the Sisters of the Infant Jesus, retains many interesting features and materials such as the sash windows and ornate timber truss...This former school forms part of a group of related structures in the Drishane Castle demesne.



14.3.3.5 Biodiversity Enhancement Lands

The biodiversity enhancement lands comprise areas where habitat will be managed to benefit Hen Harriers and other species of conservation importance. A target of the biodiversity management plan will be the de-intensification of areas of managed grassland to improve the overall biodiversity value of such lands over an extended period and will include measures such as reduction of grazing, rush cutting and hedgerow management. In addition, clear-felling of 18ha. of forestry will be carried out in order to facilitate the improvement of biodiversity value within forested areas. There are no designated architectural heritage buildings located within any of the biodiversity enhancement lands and, in addition, there are no recorded archaeological sites within the proposed clear-felling areas. There are three recorded archaeological sites located within open agricultural fields within the landholdings and these comprise two fulacht fiadh (CO060-183---- and CO060-184----) in Oughtihery townland and a stone row (CO049-019----) in Knocknagappul townland (Appendix 14.1; Figure 14-18). Details on the nature of these types of Bronze Age monuments are provided in Section 14.3.3.2 and the examples within the biodiversity enhancement lands have been described as follows by the ASI:

Fulacht Fiadh CO060-183----

Description: In boggy ground. Recently cut drain through field fence exposed burnt material in section in fence; burnt material extends c. 3m along S side of drain and c. 2m northwards from it.

Fulacht Fiadh CO060-184----

In boggy ground, on S bank of stream. Heavily overgrown mound of burnt material (L 12m; Wth 6.5m; H 0.75m).

Stone Row

In cut-away bog, on narrow saddle below steeper slopes of Musheramore Mountain. Probable row of three stones, two of which are prostrate; estimated overall length of row is c. 8.8m. Erect stone standing to N, long axis NE-SW, is 1.4m L, 0.4m T and 2.5m H. Beside this lies slab, at least 2m by 0.8m; it may not be part of row. 3m SW of erect stone is prostrate slab; it measures 0.95m by 0.5m and is over 2m L. Third stone lies 3m further to SW; it measures 0.65m by 0.3m and is 4.1m L. (O Nualláin 1988, 252, no. 173).

14.3.4 Field Survey

14.3.4.1 *Wind Farm Site*

The wind farm site was inspected on a number of occasions in February and March 2020 and February and November 2021 during clear weather conditions that afforded good landscape visibility. The following section commences with a general overview of the area which includes references to development proposals, and this is then followed by tables which provide more detail on the existing condition of the recorded archaeological sites within the wind farm boundary (Table 14-15) and the ground conditions at the locations of various elements of the wind farm (Table 14-16).

In general, the current use and layout of the lands within the wind farm site when compared to the detail shown on the historic OS maps demonstrates the extent of the 20th century interventions during the creation of the forestry plantations within a former area of open heath and bog lands as well as the northwards expansion of areas of improved pasture farmland following extensive modern land reclamation works in the second half of the 20th century. Mechanised land reclamation works were still in progress at the time of site inspections within localised areas along the southern margins of the remnant upland bog lands in the northern end of the wind farm site, which also have also been impacted by areas of modern turf-cutting.



The majority of the pasture fields and remnant open upland areas within the site were in use as sheep grazing lands at the time of the site inspections. In general, the creation of the extensive forestry plantations within the site have resulted in widespread disturbance of the underlying ground surface especially within low-lying areas that contain shallower topsoil layers. An inspection of exposed sections in the upland areas in the north end of the wind farm site indicates that areas of the plantations sit on deeper bog deposits and the tree root systems in such areas may not extend down into underlying natural subsoils. The internal area of the site is intersected by various forestry roads and stone hardcore farm lanes, many of which will be utilised as part of the development. The construction of these roads and lanes appears to have resulted in the removal of the peat topsoil and the reduction of the ground levels on their footprint down to natural subsoil including along the forest roads in the areas of deeper bog deposits in the northern end of the site.

The majority of the proposed wind farm construction locations are within sections of the forestry plantations this includes ten of the turbines (Turbines 1, 4, 6, 11, 12, 14, 15, 18, 19 and 20), the three borrow pit locations, the temporary construction compound, the substation compound and the two met mast locations. The exact locations of many of these elements within the forested areas were inaccessible due to thick tree growth as well as the presence of fallen or partially collapsed trees. The closest accessible locations were inspected in order to assess the general nature of the ground surface within the plantations and all of the forested areas were found to have been subject to extensive ground disturbance activities resulting from ground preparation works, cut drains and forest roads as well as the subsequent development of extensive root networks. A review of Coillte LiDAR imagery of all forested areas was also carried out in order to supplement the field survey (Appendix 14-1; Figures 14-10 to 14-13). An inspection of the stone-surfaced forest roads and their flanking drains indicated that their construction resulted in the removal of peat topsoil and the reduction of ground levels down into natural subsoils. No potential archaeological features were noted during an inspection of the exposed road and drain sections, including those located within areas of deeper bog deposits in the upland areas in the northern end of the site. All unplanted lands containing development locations were accessible and were subjected to systematic field walking as part of the survey.

There will be a total of three turbines (T13, 16 and 17) constructed within open upland areas in the northern area of the wind farm site (T13 in historic cutover bog with wet heath and T16 and T17 in wet heath). All of these areas were accessible and comprise vacant, uneven lands on the south-facing slopes of Seefin Mountain shown as unenclosed land on the historic OS maps, which depict no settlement or agricultural activity in this area. There are also no recorded archaeological sites along the southern slopes of the mountain. An inspection of ground sections within localised areas of cut-away bog revealed no traces of potential archaeological sites or deposits and no surface traces of features such as hut sites or drystone boundary walls were identified on the boggy slopes. The absence of any evidence for human activity along the steep, uneven, boggy slopes suggests that these lands were not deemed suitable for historic farming activities such as booley farming. The proposed access tracks to two turbines in this area (T.13 and T.17) will require ground excavations during their construction due to the sloping nature of the terrain. While no surface traces of potential unrecorded archaeological sites were identified in this area of the site, the potential exists for the survival of well-preserved archaeological sites and artefacts within the bog deposits and on the surface of the underlying natural subsoil.

There will be a total of five turbines (T.5, T7, T8, T9 and T10), constructed within improved pasture lands and two turbines (T.2 and T.3) within marginal pasture lands, located within the southern half of the wind farm and all of these areas were accessible during the site inspection. While no surface traces of potential unrecorded archaeological sites were identified at their locations, the potential exists for the survival of sub-surface archaeological sites and artefacts in these areas.

Table 14-15 (below) provides an inventory of the results of the inspection of all accessible archaeological sites located within the boundary of the wind farm site with references to the site descriptions compiled by the ASI during their inspections of the area in past decades, which are presented in Section 14.3.3.2.



A drone survey of these archaeological sites was also carried out in order to assist in the identification of any potential unrecorded elements.

Table 14-16 (below) provides descriptions of the existing environment at the locations and environs of each of the proposed turbines, including their associated hardstands and felling areas, as well as all access roads, temporary construction compound, substation, met masts and borrow pits. The table also provides a summary of the character of each development area as shown on the 1st edition (1830s-40s) and Cassini edition (1930-40s) 6-inch OS maps as well as distances to the nearest recorded archaeological site and the results of a review of aerial images (OSI, Bing and Google) dating from 1995 onward and Coillte LiDAR coverage of locations within forestry plantations. It also provides descriptions of any undesignated features of potential cultural heritage interest noted within the environs of construction areas during the site inspection.



Table 14-15: Field Survey of recorded monuments within wind farm site

Monument No.	ASI Inventory Description	Field Survey Notes
CO049-002---- Standing stone	On high boggy ground, at foot of Boggeragh Mountain range. Stone (H 2.5m; 1.04m x 0.54m) is leaning to E (long axis E-W) and resting against fallen stone (L 4.6m; 0.69m x 0.57m).	<p>Preservation: The upright stone is extant, aligned roughly east to west, and leans against a larger prostrate stone to its east. Four large boulders have been moved to this location from elsewhere within the field and have been placed to the immediate north of the monument. The upright stone measures 2.1m in height as opposed to the 2.5m height recorded by ASI. The field containing the monument now comprises well-drained pasture rather than boggy ground and the differing height and ground conditions suggest that land improvement works which have raised ground levels have occurred since the ASI inspection. The prostrate, fallen stone has three small depressions on its upper surface but these appear to have formed through natural processes.</p> <p>Setting: Located in improved pasture on a moderate southeast facing slope which commands moderate views in all directions apart from north where the terrain rises up the slopes of an upland area.</p> <p>Views: Expansive views to south and southeast, line of mature coniferous trees screens view to southwest. A large proportion of the proposed turbine locations will be visible from the monument location, however, the roughly east to west orientation of the long axis of the stone means none of the proposed turbine locations impinge on this alignment. (Appendix 14-2; Plate 14-6)</p>
CO049-007---- Five stone circle	In gentle sloping bogland, on W side of Laney River valley. Circle of irregular outline; one entrance stone angled inwards from circumference. Orthostats are 0.5m to 1.2m L, 0.4m to 0.5m T and 0.5m to 1.2m H. Stones decrease in height from entrance to axial stone. Internal measurement along main axis, aligned ENE-WSW, is c. 2.5m. Multiple-stone circle (CO049-008----) 400m to SSW. (O Nualláin 1984a, 32, no. 56)	<p>Preservation: All stones extant at the time of OSI inspection remain upright and none appear to be in danger of collapse. The tree line within the plantation is set back from location for approx. 10m in all directions and there is no obvious trace of forestry cultivation, drains or root networks impinging on monument footprint.</p> <p>Setting: Situated on valley floor in level area of undisturbed ground within a forestry clearing. Terrain further to the east and west rises up towards upland areas while there is a general gradual downslope to the south within the wider area. There is no setback in the plantation which forms an access route to the monument and no signage indicating its location is present on the nearby forest roads.</p> <p>Views: The ground and sky views in all directions are completely obscured by tall trees but the location likely originally commanded good foreground views in all directions within its immediate environs. The circle is aligned in a west-south-</p>



Monument No.	ASI Inventory Description	Field Survey Notes
		<p>west direction towards a north-south ridgeline located c.500m to the west. There are no recorded monuments located on the ridgeline and there are no ground level views of the landscape beyond this topographical feature, including the various prehistoric monuments within other areas of the wind farm site. Areas of upland located further to the east and north also restricted views of the wider landscape in those directions. The area between this monument and the multiple stone circle (CO049-008----) located c.370m to the south is heavily forested and there is no existing intervisibility between their locations. Neither circle is situated on prominences and given the low heights of their stones the pre-forestry views between their surface expressions may have been obscured by natural topography. (Appendix 14-2; Plates 14-3 and 14-4)</p>
<p>CO049-008---- Multiple stone circle</p>	<p>On level patch in gently sloping pasture, on W side of Laney River basin. Circle incomplete; may have consisted of seventeen stones. Fifteen stones survive, including axial and radially-set entrance stones. Orthostats are 0.6m to 1.7m L, 0.25m to 0.4m T and 0.4m to 0.9m H. Internal measurement along main axis, aligned ENE-WSW, is 7.8m. Internal block (H 0.4m; 0.9m x 0.6m) stands on main axis of circle. Five-stone circle (CO049-007----) stands c. 380m to NNE. (O Nualláin 1984a, 12, no. 4)</p>	<p>Preservation: The circle remains as described by the ASI with all remaining stones extant and none appear to be in danger of collapse. Ground excavations carried out during land improvement works within the surrounding lands are visible on aerial images published in recent decades but do not appear to have impacted on the monument</p> <p>Setting: Within an improved pasture field in an area of valley floor below a steep ridge that rises steeply upwards c.200m to the west. The immediate setting is generally level with a slight downslope towards the south. The tops of the low stones that form the circle are below the level of the field banks and the monument is not visible from outside the field. Recent land improvement works are evident within surrounding fields but there is no trace of disturbance within the environs of the circle although a post-1840s field boundary bank has been constructed c.5m to east. A modern deep flanking drain has been machine excavated on the opposite side of this boundary. No grazing was occurring within the field at time of inspection and there was no trace of significant trampling disturbance on the ground surface at the monument location.</p> <p>Views: This circle is aligned to the west-south-west on the steep ridgeline in the immediate foreground to the west which blocks views in that direction across the wider landscape. The wider landscape views to the east and north are also restricted by areas of rising uplands located further afield. While not set in an elevated position the monument location commands moderate-good views across the landscape to the south. There are no recorded archaeological sites or notable natural topographic features located on the ridgeline to the west and</p>



Monument No.	ASI Inventory Description	Field Survey Notes
		<p>none of the known archaeological sites within the surrounding landscape are visible from its location. (Appendix 14-2; Plates 14-1 and 14-2)</p>
<p>CO049-019---- Stone row</p>	<p>In cut-away bog, on narrow saddle below steeper slopes of Musheramore Mountain. Probable row of three stones, two of which are prostrate; estimated overall length of row is c. 8.8m. Erect stone standing to N, long axis NE-SW, is 1.4m L, 0.4m T and 2.5m H. Beside this lies slab, at least 2m by 0.8m; it may not be part of row. 3m SW of erect stone is prostrate slab; it measures 0.95m by 0.5m and is over 2m L. Third stone lies 3m further to SW; it measures 0.65m by 0.3m and is 4.1m L. (O Nualláin 1988, 252, no. 173)</p>	<p>Preservation: Remains as described by the ASI - an extant tall upright stone is positioned to northeast of two prostrate stones the position of which suggests an potential original alignment to the southwest. Given the presence of only one extant upright, the preservation of the monument is low.</p> <p>Setting: On level shoulder of rough pasture at the base of a steeply sloping section of ground which extends steeply upwards to the northwest. More gently downward sloping ground extends to the southeast. A potential poorly sorted deposit of field clearance stones is located c.40m to east of the monument and this may be associated with 19th or 20th century land reclamation works in this area as shown on historic OS maps.</p> <p>Views: Commands expansive views of the wider landscape to the southwest and also over the lands containing the wind farm site to the east. While the original alignment of this monument cannot be determined due to the absence of two of its uprights, it is noted that no turbines impinge on a potential northeast to southwest alignment projected from its location. (Appendix 14-2; Plates 14-7 and 14-8)</p>
<p>CO049-020---- Stone Row</p>	<p>On moorland saddle, to W of Carrigagulla Hill. Row of three stones, aligned NE-SW, 5.6m in overall length. NE stone is 0.7m L, 0.15m T and 0.75m H; top appears broken. Next stone, 2.4m to SW, is 1m L, 0.25m T and 1.85m H. SW stone, 0.9m from last, is 0.7m L, 0.25m T and 1.1m H; top appears broken. (O Nualláin 1988, 232, no. 10)</p>	<p>Preservation: Only one of the three stones recorded in 1988 remains upstanding, this appears to be the central stone which presently measures 1.8m in height. A further stone lies prostrate on the ground at the base (south-eastern side)of the upright stone and may be the original south-westernmost stone as it measures 1.5m in length (c.0.4m of this stone would presumably have originally been buried in the ground). Given the presence of only one extant upright, the preservation of the monument is low.</p> <p>Setting: Situated in an improved pasture field on a generally level terrace on the upper saddle of a hill. Beyond immediate area surrounding the monument the terrain falls away to southwest and northeast but rises moderately to the northwest. A number of large orthostats have been reused as fence posts in the area surrounding the monument.</p> <p>Views: Panoramic views to the southwest are partially obscured by a line of coniferous trees within a field boundary to the south. Similarly, the views to the northeast from the monument are partially obscured by further coniferous trees planted along a field boundary to the east and northeast, however, the majority of the distant ridgelines to the north and northeast are still visible. While the</p>



Monument No.	ASI Inventory Description	Field Survey Notes
		original alignment of this monument cannot be accurately determined due to the absence of two of the uprights, it is noted that no turbines impinge on a potential northeast to southwest alignment projected from its location. (Appendix 14-2; Plates 14-9, 14-10 and 14-11)
CO049-021---- Country house	Two-storey late 18th-century house. Entrance front (S) of 3 bays; central door; Wyatt windows in side bays. Side elevation one bay deep, with attic windows. Half-hipped roof, two off-centre chimneys. Date stone in house, formerly on back wall, inscribed '1790'; second plaque not seen but owner says inscribed 'John Horgan Esq'. House linked to S end of E range of 2-storey farm building by a castellated curtain wall which rises up to hide S gable of farm building. Farmyard to rear enclosed by farm buildings; E range has pigeon niches under eaves.	Preservation: House is occupied and in excellent condition Setting: Manicured garden lawn to south of front façade, copse of mature deciduous trees to southeast. Operational farmyard to rear of house, with an attached range of farm buildings to northeast and additional sheds to northwest. Wider surroundings predominantly comprise improved pastureland. Views: No expansive views in any direction. (Appendix 14-2; Plate 14-14)
CO049-022---- Ringfort	In pasture, on SE-facing slope, overlooking Laney River valley. Circular area (42m N-S; 41.1m E-W) defined by earthen bank (max. int. H 1.55m), with external fosse (D 0.9m). Counterscarp bank survives NNW->NNE and ENE->SSE; heavily overgrown. External fosse filled in with field clearance stones SSE->WSW; shallow to W. Gaps in bank to NE (Wth 2.9m) and SE. Land drops sharply down to stream immediately outside enclosure to NE.	Preservation: The ringfort bank and its interior are well preserved; however, it appears that the field surface around the outer perimeter of the extant bank has been significantly truncated during past and recent field improvement works. The bank has an external height of c.3m in places (more generally over 2m) and there is no longer any evidence of the counterscarp bank recorded by the ASI. The lower portions of the bank have been recently disturbed around much of its perimeter, with exposed soil evident, as have more substantial portions where gaps have been created on its northern and eastern sides. Additional recent surface disturbance is evident within the interior of the ringfort, which slopes gently downwards to the northeast. Where disturbance has not occurred scrub, gorse and some large trees grow from the ringfort bank, the interior remains clear. The surface level of the interior of the ringfort is generally over 2m higher than the surrounding field surface. Setting: The ringfort is located within the eastern portion of an improved pasture field covered with recently sowed grass which was in the early stages of growth at the time of survey Views: The location commands moderate views towards the location of the wind farm site to the north from the ringfort and more expansive views to the south. (Appendix 14-2; Plate 14-12)
CO049-057----	In forestry. Overgrown mound of burnt material (c. 20m E-W; c. 12m N-S) disturbed by tree planting. Burnt	Preservation: Patchy traces of burnt material were visible in a forest drain section but as noted by the ASI, this site appears to have been disturbed by planting with



Monument No.	ASI Inventory Description	Field Survey Notes
Fulacht fia	material (D 0.8m) visible in drain running E-W along edge of mound and piled around young trees.	mature coniferous tree growth on its footprint. Dimensions correspond to ASI Inventory description. Up to 0.5m depth of burnt material is evident within the drain. Setting: Within dense coniferous forestry plantation. Views: Obscured by tree growth but likely expansive views to south (Appendix 14-2; Plates 14-13 and 14-14)
CO049-058---- Fulacht fia	In forestry. Roughly kidney-shaped mound of burnt material (8m E-W; 4m N-S; H 1m); drain cut through mound in E-W direction.	Preservation: Surface traces of a horseshoe shaped mound, up to 1m in height, are evident within area of mature coniferous tree growth. Large trees protrude from the mound and root action is likely to have disturbed underlying stratigraphy. Disturbed burnt material is also evident within the cut section of an east to west aligned drainage channel which extends across the southern portion of the site. Setting: Within dense coniferous forestry plantation. A relict field boundary, largely comprised loose boulders, extends in a roughly north to south direction within the forestry to the immediate west of the monument. This continues relatively continuously upslope to the north and more sporadically downslope to the south. Likely corresponds with a N-S aligned field boundary depicted in this general area on the historic OS maps. Views: Obscured by tree growth but likely expansive views to south (Appendix 14-2; Plates 14-15, 14-16 and 14-17)
CO049-059---- Fulacht fia	In forestry. Overgrown mound of burnt material (10m E-W; 4m N-S; H 0.7m); disturbed by tree planting and cut by drain.	Preservation: Fallen trees prevented the recorded area of this monument from being surveyed. Setting: Within dense coniferous forestry plantation. Views: Obscured by tree growth but likely expansive views to south (Appendix 14-2; Plates 14-18)
CO049-064--- Cairn	In shallow peat and rough grass, on a gentle N-facing slope, on the summit Seefin Mountain. This cairn (9m N-S; 11m E-W) comprises a well-defined spread of small rubble stones which are largely masked by peat cover. The cairn appears to have been disturbed and three main areas of exposed stone are visible. The stones in two of the areas have been arranged so as to slightly resemble uncoursed walling. The function of these three internal features, if any, is unclear.	Preservation: While the monument is still extant, it has now effectively been separated into three individual mounds of stone of staggered height, tallest to east, lowest to west, surrounded by a dispersed scatter of loose drystone. Each mound of stones has been interfered with and appear to have been rearranged into shelter-like forms. Setting: In rough pasture on the summit of Seefin Mountain. Modern communications array is located c.20m to the south Views: Panoramic views in all directions, however, views to the south are screened by the communications array. There are no other recorded cairns on



Monument No.	ASI Inventory Description	Field Survey Notes
		surrounding upland areas and this example does not appear to form part of cluster of intervisible cairns. (Appendix 14-2; Plates 14-19 and 14-20)
CO049-068---- Burnt Mound	In tillage. A spread of heat-shattered stones and charcoal-enriched soil (diam. c. 25m) was noted in 2004 following the discovery of a silver armlet in the same field (Cahill 2007, 46).	Preservation: Not evident at surface level. Setting: In eastern portion of improved pasture field. Views: Views from this location are impeded by natural topography to the north and commands good views in other directions (Appendix 14-2; Plates 14-21)
CO060-020---- Redundant	Listed as a 'potential site - documentation' in the SMR (1988) and the RMP (1998). The evidence is not sufficient to warrant accepting this as the location of an archaeological monument.	Preservation: No evidence of any archaeological monument at this location. Setting: The location is at the apex of two dry-stone field boundaries which are located within an area of overgrowth and coniferous trees to the south of an east to west orientated watercourse. The dry-stone boundaries are depicted on the historic OS map editions. Views: n/a (Appendix 14-2; Plate 14-22)
CO048-085---- Holy Well	Near summit of Musheramore Mountain; second well on lower slopes to NW. Enclosed on three sides by wall of large stones; roofed with slabs upon which have been piled stones to form rough point; opening to S. Stone ledge inside partly covers well; some religious objects are placed on this. Now used infrequently. According to Broker (1937, 35), 'Two holy wells in commonage of Muisire Mountain - one at top (for cattle) and one at foot (for christians). Rounds are made at them on St. John's Day - 24th June. Not many now go to the top well....Both wells are called Tobairín na bhFaithni- warts being cured by washing in them'.	The location of this site was inaccessible from the lands within the site boundary due to the presence of thick forestry on lower slopes. A modern cross structure erected at its location is visible in all directions from the surrounding landscape. An assessment of views from the east-facing slope below its location indicates that the well commands expansive views in all directions
CO048-084---- Hut site	On summit of Musheramore Mountain. Oval area (4m E-W; 2m N-S) enclosed by low wall (max. H 0.6m) of large loose stones c. 3 courses high.	The location of this site was inaccessible from the lands within the site boundary due to the presence of thick forestry on lower slopes.



Table 14-16: Description of field survey of main wind farm elements with references to consulted desktop sources
 (other construction areas are detailed in Table 14-17)

Project Element	Townland	Description	Distance to nearest archaeological site	OS Map Detail	Aerial and LiDAR images
Turbine 1	Knocknagappul	Within level area in a commercial forestry plantation at the east base of Musheramore. Long axis of hardstand is aligned roughly north to south. The low-lying location commands limited views in all directions, and these are further restricted by forestry. Proposed access road extends southwards through forestry for c.75m from an existing east to west aligned forestry track to the north. The turbine location was inaccessible due to thick forestry growth but the ground surface within the general area was heavily disturbed by planting works	Partially levelled Stone Row is located c. 900m to south (CO049-019)	1 st edition 6-inch OS map depicts the location as enclosed farmland associated with a dwelling located c.120m to the west. The farm building to the west is absent on the 20 th century Cassini edition map which shows an amended more regular field system in the area. No potential features of interest are shown within the environs of the access road	Shown within forestry on all aerial images. No potential archaeological sites or built structures are visible on LiDAR which shows extensive east to west orientated forestry ground disturbance.
Turbine 2	Knocknagappul	Within a level, low-lying area of marginal, poorly drained, semi-improved pasture with moderate views in all directions. Long axis of hardstand is aligned northwest to southeast and the north-western end extends into adjacent forestry. The proposed new access road will measure c.270m long and will extend through forestry from T1 to the north. No surface traces of any potential unrecorded archaeological or architectural heritage features were noted.	Partially levelled Stone Row is located c. 460m to south (CO049-019)	1 st edition 6-inch OS map depicts the turbine location within a vacant field associated with a dwelling further to the southwest. The dwelling is absent on the Cassini edition map which also shows the turbine location as a vacant marginal field. No features of interest	Shown as an area of marginal land on all aerial images with localised land improvement visible. No potential archaeological sites or built structures are visible. Located outside LiDAR coverage.



Project Element	Townland	Description	Distance to nearest archaeological site	OS Map Detail	Aerial and LiDAR images
				are shown within the environs of the access road	
Turbine 3	Knocknagappul & Ballynagree West	The hardstand location is located within a forestry plantation with an area extending into rocky unenclosed heathland on the west side. It is located near the crest of ridgeline and commands good views to the west and north. The ground surface slopes steeply down to the north and no surface traces of any potential unrecorded archaeological or architectural heritage features were noted within the accessible area of heathland. The proposed access road will extend for c. 560m through the inaccessible forestry plantation from an existing forest road to the northeast.	Partially levelled Stone Row is located c. 670m to the west (CO049-019)	Turbine and access route shown as unenclosed, vacant heathland on both editions.	The forestry plantation and heathland are shown on all aerial images and no potential archaeological sites or built structures are visible. The majority of the hardstand extends into the LiDAR coverage in the forested area which shows extensive north to south orientated forestry ground disturbance.
Turbine 4	Ballynagree East	Located within a level section of inaccessible forestry in an area which commands moderate views in all directions. An examination of the environs of the proposed location indicates that tree planting has resulted in extensive ground disturbance. The proposed access road extends in a general southward direction through forestry for a distance of c.1150m and then continues towards T5 to the east.	Levelled fulacht fia located within forestry c.800m to south (C0049-059----)	Turbine and access route shown as unenclosed, vacant heathland on both editions.	Shown as unplanted heathland on 1995 OSI aerial image and within forestry on later images. No potential archaeological sites or built structures visible on LiDAR which shows extensive northwest to southeast orientated forestry ground disturbance.
Turbine 5	Ballynagree East & Carrigagulla	Located within a level area with moderate views in all directions, the majority of the hardstand is within inaccessible forestry with a section of the north end extending into poor-quality pastureland. The north end of the hardstand will impact on the south-easternmost corner of a poor-quality pasture field and the south-	Levelled fulacht fia located within forestry c.780m to south (C0049-058----)	Locations of turbine and access routes are shown as enclosed farmland on both editions. There are a number of isolated small outbuildings	Section within forestry shown as a pasture field on aerial images until 2011-13 OSI image. No potential archaeological sites or built structures are visible on earlier aerials or on LiDAR



Project Element	Townland	Description	Distance to nearest archaeological site	OS Map Detail	Aerial and LiDAR images
		westernmost corner of an improved pasture field. The western field is higher than the eastern field which appeared to be due to modern land reclamation works. The fields are divided by a drystone wall (up to 1.5m high) which forms the boundary between Ballynagree East and Carrigagulla as indicated on the OS maps. A c. 30m long section of the south end of this boundary will be impacted by construction works (centre point = ITM 536461, 582756). The proposed access route to T5 from the north extends through improved pastureland from T8 for a distance of c.615m. The southern route extends to the location through forestry and continues along an existing farm lane towards T4. A concentration of partially obscured, loose stones noted along the margins of the improved fields is most likely associated with field clearance activity. No surface traces of other features of archaeological or architectural heritage potential were noted within the accessible unforested area.		shown in the area, but the main farmyard appears to be in an area c.400m to the south of T5. No surface trace of a small structure visible on the hardstand footprint on both maps was identified during the field survey	imagery which shows uneven ground terrain within the forestry.
Turbine 6	Ballynagree West	Located within inaccessible forestry plantation in an area that slopes gradually down to south. An inspection of the forest floor within environs of location indicates that planting has resulted in extensive ground surface disturbance. The access route to the location extends through the section of the forest plantation to the east	Partially levelled stone row located c. 950m to west (CO049-019)	Location of turbine and access roads shown as unenclosed vacant heathland on both editions.	Shown within forestry on all aerial images. No potential archaeological sites or built structures are visible on LiDAR which shows extensive east to west orientated forestry ground disturbance in the area.
Turbine 7	Ballynagree East	Hardstand area straddles an inaccessible area of forestry on the west side and extends into an improved pasture field at east with the turbine located in the pasture area. The access road from the east will extend along the north end of the	Partially levelled stone row located c. 1,080m to southeast (CO049-020)	Both editions depict the hardstand and access road locations as vacant, unenclosed heathland.	The forestry plantation on the west side is present on all aerial images. While the area of pasture on the east side is also shown on all



Project Element	Townland	Description	Distance to nearest archaeological site	OS Map Detail	Aerial and LiDAR images
		pasture field from an existing farm lane located c.360m to the east. The road will then continue through forestry towards T6 to the west. No surface traces of features of archaeological or architectural heritage potential were noted within the accessible unforested area.			images it is intermittingly under gorse and appears to have undergone phases of clearance in recent decades. No potential archaeological features are evident on any of the aerial images. The forested area is within the LiDAR coverage which shows no potential archaeological sites or built structures.
Turbine 8	Carrigagulla	<p>The hardstand straddles a mix of improved and marginal pasture in an area that commands moderate views from northwest to east with more limited views in other directions. The south-eastern portion of the proposed hardstand extends across good quality improved pasture sub-divided into paddocks by electric fencing. The access road to the location from the south also extends across this improved land and a short section then extends to an existing forest road 50m to the north. No surface traces of features of archaeological or architectural heritage potential were noted along the access roads.</p> <p>The northern and north-western section of the hardstand extend into an area of unimproved, marginal land which slopes moderately downwards to the north. A number of field clearance stones associated with relatively recent land reclamation works, as well as natural rock outcroppings are evident within this area. The low remains of a relict drystone boundary were noted</p>	Partially levelled stone row located c. 430m to southeast (CO049-020)	Both editions depict the hardstand and access road locations as vacant, unenclosed heathland.	The existing field is shown on all aerial images and no potential archaeological sites or built structures are visible. Location is outside the LiDAR coverage



Project Element	Townland	Description	Distance to nearest archaeological site	OS Map Detail	Aerial and LiDAR images
		within the south end of this area. It was formed by large stones and boulders, generally one course in width and height, that extended across the southern portion of the marginal area in the vicinity of the north-western end of the proposed hardstand in an ENE to WSW direction (ITM 536682, 583267). The surface traces of this boundary were traced sporadically for a distance of c.30m and probing of the sod layer along other sections of its projected route indicated possibly related sub-surface stones. While its date is unknown this boundary feature is not marked on the OS maps and the potential that it is of some antiquity is noted.			
Turbine 9	Carrigagulla	<p>The hardstand area is within a level area that straddles an inaccessible forestry plantation at west and an improved pasture field at east. The turbine location will be within the improved pasture area. An existing forest road which extends north to south through the handstand area will form the access route. No surface traces of potential unrecorded archaeological or architectural heritage features were noted within the improved pasture area on the east side. The grassland in the field is of notable better quality than adjoining fields to the south and evidence of modern reclamation works at this location is also indicated by the presence of large field clearance boulders placed along the field bank.</p> <p>There is no intervisibility at ground level between this location and a multiple stone circle (CO049-008) located in poor quality pasture c.200m to the southwest of the hardstand and c.270m from the turbine location. A five stone circle (CO049-007),</p>	Multiple stone circle located c.270m to the southeast (CO049-008)	The 1 st edition map shows the location as a vacant area with an isolated irregular field to the east. This has been replaced by the existing rectangular field on the Cassini edition.	The forestry plantation and pasture field are present on all aerial images. The pasture area is outside the LiDAR coverage but no potential archaeological features were noted in this area on the aerial images. The LiDAR detail indicates that the ground surface within the forested area has been subject to extensive ground disturbance.



Project Element	Townland	Description	Distance to nearest archaeological site	OS Map Detail	Aerial and LiDAR images
		which is a National Monument (ref. 660), is located within a small forest clearing c.430m to the northwest and its location is completely screened by trees.			
Turbine 10	Ballynagree East	<p>The hardstand extends into three level improved pasture fields which are enclosed with earthen banks and contain no built structures or surface traces of any potential archaeological features. The access road from the west extends for 100m to the turbine through the pastureland from an existing forest road. The road will continue to a farm lane located 70m to the east and follows this south towards T9. The crossing of an unnamed stream within the forestry to the west of T10 will be via an existing forest road which spans this narrow watercourse.</p> <p>A crossing of a narrow section of the River Laney between T9 and T 10 will be achieved by a clear span bridge which will not require any in-channel works. The existing channel at this location measures c.3m in width and is partially occupied by a gravel spit the surface of which extends above the waterline on the east side. A farm track extends to both banks and a narrow concrete slab above the waterline has been inserted to accommodate foot traffic. These tracks are not present on the 1st edition OS 6-inch map. It is probable that this shallow, narrow section of the channel was used as a livestock crossing point following the expansion of reclaimed farmland into the area during the period after the 1840s. The clear, shallow waters (c. 30cm deep) were in moderate flow at the time of the inspection and afforded good visibility of the riverbed gravels.</p>	Five stone circle located 1,100m to southeast (CO049-007; Nat. Mon. ref. 660)	<p>Location is shown as vacant heathland on the 1st edition map while the existing fields are present on the Cassini edition. No structures or potential archaeological features are indicated in the area on either edition.</p> <p>The existing farm tracks extending to the proposed watercourse crossing are not present on the 1st edition OS map but are shown on the Cassini edition which labels the location as a ford. While the latter map indicates the presence of stepping-stones in other river crossings within the wider area, none are indicated at this location.</p>	The existing fields are shown on all aerial images and no potential archaeological sites are evident. Located outside LiDAR coverage



Project Element	Townland	Description	Distance to nearest archaeological site	OS Map Detail	Aerial and LiDAR images
		The channel and banks within the environs of the proposed crossing area was inspected from dryland and no traces of stepping-stones or other in-channel cultural features or inclusions were observed. The bank sections comprise water eroded natural soils and no revetment features are present. The footings of the proposed clear span bridge are located in areas which have been previously disturbed by the existing farm tracks.			
Turbine 11	Ballynagree West	<p>Located within accessible area of a forestry plantation and an adjacent forest road on the east side will form the access road to the location. The ground surface at the T11 hardstand location has been disturbed by planting and drainage works. The ruined remains of a late 19th/early 20th century house shown on the Cassini edition OS map are within an area of the forestry plantation located c.200m to the southwest of the hardstand.</p> <p>An access road will also extend from T11 through an area of inaccessible forestry to the west towards T1. This will entail a crossing of a north-south section of the River Laney which flows through this area of the plantation. The location of this proposed crossing, which will entail a clear span bridge requiring no in-channel works, could not be accessed due to thick forestry but a review of historic OS maps did not reveal the presence of an indicated ford, stepping-stones, access routes or any other riverine features within its environs.</p>	Standing stone located c.920m to north (CO049-002)	Location is shown as vacant heathland on 1 st edition OS map. It is still unenclosed on the Cassini edition but fields are present to the north and a farmhouse is shown c. 200m to the southeast	The forestry is present on all aerial images. No potential features are shown on the LiDAR imagery which shows the ground disturbance noted during the site inspection
Turbine 12	Ballynagree West	The majority of the hardstand is within inaccessible forestry plantation with a section at east extending into a poorly drained marginal field. An adjacent forest road on the east side will	Standing stone located c.440m to north (CO049-002)	Location is shown as vacant heathland on 1st edition OS map. It is enclosed by regular	The forestry is present on all aerial images apart from an area in the northwest which appears to have been



Project Element	Townland	Description	Distance to nearest archaeological site	OS Map Detail	Aerial and LiDAR images
		form the access road to the location. A cleared area for an overhead line extends through the forested area. No surface traces of any potential archaeological sites or structures of architectural heritage interest were noted at this location.		fields on the Cassini edition associated with a farmhouse shown c. 50m to the south in an area now forested. No surface traces of this building were noted.	planted post-1995. No potential features are shown on the LiDAR imagery which shows ground disturbance within the forestry
Turbine 13		Located within an accessible area of upland bog, which is covered with Molinia grass and rush growth, on the uneven southern slopes of Seefin Mountain with extensive views in all directions apart from north. The proposed hardstand area is positioned within a natural hollow beneath the crest of the hill and contains localised areas of peat cutting activity. A face-bank at the north-western corner of the hardstand location had a localised peat depth of 1.4m. Where peat had been removed the overgrown, rocky subsoil was evident. The access road to the location will extend in a southeast direction down moderately sloping ground for c. 430m from an existing stone road located to the north. There were no traces of potential unrecorded upland features, such as hut sites or pre-bog walls, noted during inspections of the ground surface and peat-cutting sections at the locations of the hardstand and access road or within the wider hillside.	Partially levelled cairn located c. 620m to north (CO049-064)	Shown as vacant upland area on both editions with no farm buildings or field enclosures within wider environs	No potential built structures or archaeological features were noted on aerial images. Located outside LiDAR coverage.
Turbine 14	Carrigduff	Located within an accessible upland area of felled forestry that slopes gradually down to an adjacent forest road to the south which will form the access to the turbine. The thick tree stumps and forestry cultivation works have resulted in extensive disturbance of the area. No surface traces of any potential archaeological sites or	Partially levelled cairn located c. 750m to west (CO049-064)	Shown as vacant upland area on both editions with no farm buildings or field enclosures within wider environs	The forestry is present on all aerial images. No potential features were noted on the LiDAR imagery which shows ground disturbance within the forestry



Project Element	Townland	Description	Distance to nearest archaeological site	OS Map Detail	Aerial and LiDAR images
		structures of architectural heritage interest were noted within accessible areas at this location.			
Turbine 15	Carrigagulla	Located within inaccessible forestry on west side of a prominence to the east of Seefin Mountain. The access road will extend through forest from an existing forest road located c.550m to the east. An inspection of the ground surface within the environs of the turbine and access road indicated that the area has been extensively disturbed by planting works.	Partially levelled cairn located c. 1,310m to west (CO049-064)	Shown as vacant upland area on both editions with no farm buildings or field enclosures within wider environs	The forestry is present on all aerial images and no potential features were noted on the LiDAR imagery
Turbine 16	Carrigagulla	Hardstand straddles an area of uneven heathland which is bounded to the north and east by coniferous forestry plantation. The easternmost portion of the proposed hardstand extends into the forestry. Hardstand location comprises sloping heathland dominated by Molinia grass growth. A portion of the northernmost margin extends into standing forestry, while the eastern portion extends into a felled area. A rudimentary farm track extending along a post and wire fence-line separates the heathland from the forestry. The location possesses expansive views of the wider landscape to the south, east and west. No surface traces of potential archaeological or cultural heritage features were noted within the heathland area.	Partially levelled cairn located c. 1,500m to west (CO049-064)	Shown as vacant upland area on both editions with no farm buildings or field enclosures within wider environs	No potential built structures or archaeological features were noted on aerial images. Located outside LiDAR coverage.
Turbine 17	Carrigagulla	Located within a level upland area of heathland which commands extensive views to the south, east and west. The access road will extend southwards through the heath from forestry located c.300m to the north. The uneven ground surface within the area is covered with Molinia grass growth and no surface traces of potential	Partially levelled cairn located c. 1,500m to northwest (CO049-064)	Shown as vacant upland area on both editions with no farm buildings or field enclosures within wider environs	No potential built structures or archaeological features were noted on aerial images. Located outside LiDAR coverage.



Project Element	Townland	Description	Distance to nearest archaeological site	OS Map Detail	Aerial and LiDAR images
		archaeological or architectural heritage features were observed.			
Turbine 18	Annagannihy	Located within inaccessible forestry in an extensive upland plateau with a large number of wind turbines in surrounding open heathlands. The access route will extend through forestry from a recently constructed forest road and will entail a floating road which will not require ground excavations.	Anomalous stone group located c. 1,600m to south (CO049-00301-)	Shown as vacant upland area on both editions with no farm buildings or field enclosures within wider environs	The forest plantation is present on all aerial images. No potential features were noted on the LiDAR imagery which shows east-west orientated ground disturbance within the forestry
Turbine 19	Annagannihy	Located within inaccessible forestry in an extensive upland plateau with a large number of wind turbines in surrounding open heathlands. The ground surface within the environs of the location were extensively disturbed by the forestry plantation. The access route will extend through forestry from a recently constructed forest road and will entail a floating road which will not require ground excavations.	Anomalous stone group located c. 1,400m to south (CO049-00301-)	Shown as vacant upland area on both editions with no farm buildings or field enclosures within wider environs	The forest plantation is present on all aerial images. No potential features were noted on the LiDAR imagery which shows east-west orientated ground disturbance within the forestry
Turbine 20	Annagannihy	Located within inaccessible forestry in an extensive upland plateau with a large number of wind turbines in surrounding open heathlands. The ground surface within the environs of the location were extensively disturbed by the forestry plantation. The access route will extend through forestry from a recently constructed forest road and will entail a floating road which will not require ground excavations.	Anomalous stone group located c. 2,010m to southwest (CO049-00301-)	Shown as vacant upland area on both editions with no farm buildings or field enclosures within wider environs	The forest plantation is present on all aerial images. No potential features were noted on the LiDAR imagery which shows east-west orientated ground disturbance within the forestry
Temporary Construction Compound	Ballynagree West	Located within an inaccessible area of a forestry plantation to the south of a public road. The terrain within the area is broadly level with extensive ground surface disturbance created by forestry planting. The location will be accessed	Standing stone located c.100m to north (CO049-002)	Shown within a vacant area of unenclosed land on both editions	Location is forested on all aerial images. No potential archaeological sites or built structures noted on LiDAR which shows extensive



Project Element	Townland	Description	Distance to nearest archaeological site	OS Map Detail	Aerial and LiDAR images
		from an existing forest road on the west side. The location is screened by trees and field banks from the location of a standing stone located in a pasture field on the opposite side of the public road to the north.			forestry ground disturbance.
Borrow Pit	Carrigagulla	Located within forest plantation to east of T15 and will be accessed by an adjacent forest road on its east side. The ground surface within the environs of the location were extensively disturbed by the forestry plantation.	Anomalous stone group located c. 1,270m to south (CO049-00301-)	Shown as vacant upland area on both editions with no farm buildings or field enclosures within wider environs.	The forest plantation is present on all aerial images. No potential features were noted on the LiDAR imagery which shows east-west orientated ground disturbance within the forestry
Borrow Pits (3 no.)	Knocknagappul	These three borrow pits will be located within areas of inaccessible forestry on the steep lower eastern slopes of Musheramore in an area that commands extensive views to the east. They will be accessed by short access roads that will extend from the forest road to the south. The forestry within the environs of the northern pit has been felled and an inspection of the exposed ground surface demonstrated that it has been extensively disturbed. No intervisibility between the borrow pits and the holy well, which is screened by natural topography on the summit of the mountain, was noted during the inspection.	Holy well is located c.430m to the west of the nearest borrow pit (central pit)	Shown as vacant upland area on both map editions	The forest plantation is present on all aerial images. No potential features were noted on the LiDAR imagery which shows ground disturbance within the three forested locations
Met Mast	Ballynagree West	Located within forestry within environs of T04 (see above description)	Fulacht fiadh located within forestry c.480m to southwest (CO049-056)	Location shown as unenclosed vacant heathland on 1 st edition OS map and within reclaimed field on Cassini edition.	Shown within forestry on all aerial images. No potential archaeological sites or built structures are visible on LiDAR which shows extensive east to west



Project Element	Townland	Description	Distance to nearest archaeological site	OS Map Detail	Aerial and LiDAR images
					orientated forestry ground disturbance in the area.
Met Mast	Carrigagulla	Located in forestry within environs of T15 (see above description)	Partially levelled cairn located c. 1,170m to west (CO049-064)	Shown as vacant upland area on both editions with no farm buildings or field enclosures within wider environs	Shown within forestry on all aerial images. No potential features were noted on the LiDAR imagery which shows ground disturbance within the forestry
Substation	Ballynagree East	Located in an area of inaccessible forestry adjacent to the north side of an existing forest road. The ground surface within the environs of the location were extensively disturbed by the forestry plantation.	Multiple stone circle located c.990m to the southeast (CO049-008)	Shown as unenclosed, marginal vacant land on both editions	Shown within forestry on all aerial images. No potential archaeological sites or built structures visible on LiDAR which shows extensive forest ground disturbance
Amenity trail	Various	This trail will extend along existing forest and farm roads and will not require the construction of any new sections within undisturbed lands. The location of signage providing information on archaeological monuments within adjacent lands will be confined to the locations of existing roads and no interventions at the locations of these monuments will be carried out. The sign bases will be excavated within the corridor of the existing roads.	Various	Various examples are within adjacent fields, but none are located on footprint of (or immediately adjacent to) the trail.	The existing forest roads are shown within the plantation on the reviewed aerial images. No potential unrecorded archaeological sites or built structures are visible on LiDAR coverage of areas adjacent to the roads.



14.3.4.2 Grid Connection

The grid connection will extend along the public road network between Clashavoon substation and the wind farm site which extends through an undulating landscape dominated by pasture farmland. The modern tarmac road surfaces are generally level with the ground surfaces in adjacent fields indicating that their construction involved ground excavation works rather than the introduction of embankment fills on existing ground surfaces. The majority of the road margins are delimited by overgrown stone/earth field banks with localised narrow grass verges and the dispersed roadside housing stock along the route is dominated by modern detached residences. The route extends across the locations of 3 No. bridge watercourse crossings, one of which is a recorded archaeological monument (CO060-002---), and one large culvert crossing. The crossings at these locations will be achieved by horizontal directional drilling (HDD) which will result in the avoidance of works to the masonry bridges and culvert structures or within the watercourse channels. A visual appraisal of these locations was undertaken during the site inspection.

The locations of the extant archaeological monuments within private lands adjacent to the route were inspected from the roadsides (Appendix 14-1; Figure 14-14). The stone row (CO049-019----) located within the section of the main wind farm in Knocknagappul townland is described in Table 14-15. It is located c. 50m from the roadside and no potential unrecorded archaeological features were noted within the margins of the road. A wedge tomb further to the south (CO049-067----) is located within a garden of a private house is not visible from the roadside to the east but its recorded position is not close to the road margin. No surface traces of any potential unrecorded archaeological sites or architectural heritage structures were noted in the vacant fields that will form the location of the proposed HDD crossing to the east of bridge (CO060-002----). The NIAH-listed house (NIAH ref. 20906002) and wall-mounted post box (NIAH ref. 20906001) in Bawnmore are adjacent to the roadside and are not on the direct footprint of the grid connection route with the road boundary. Two modern famine memorial markers were observed close to the roadside in Kilberriherth townland. While not designated features, they are deemed to be of local cultural heritage significance. Neither have any elements that extend into the road boundary.

14.3.4.3 Turbine Delivery Route

The turbine delivery route will entail the use of the existing road network between Foynes and the wind farm site. An inspection of the location of a hardstand area within a pasture field in the Drishane Castle demesne, which will accommodate the creation of a staging area for the transfer of turbine blades, was undertaken as part of the assessment (Appendix 14-1; Figures 14-15, 14-16 and 14-17). The location of the staging area comprises a large, level, grass field which was in use as sheep grazing land at the time of survey. It is bounded at south by a section of the random rubble estate wall which borders the public road. A c.120m long section of the northeast end of this wall has been replaced by a modern concrete wall and the proposed entrance to the staging area will be formed by a 15m wide breach in the northwest end of this modern section. The southeast exit from the staging area will be via an existing cul-de-sac road that extends to Drishane cemetery to the north. This burial ground includes a modern southern extension to the earlier graveyard that forms recorded archaeological site (RMP CO039-077002-) with the partially levelled remains of a ruinous church on its north side (RMP CO039-077002-). The location of Drishane Castle (National Monument 296) is located within a low-lying area located c.460m to the northwest of the staging area and is also screened by tall tree lines. There was no ground level view of the castle noted from the staging area due to the combination of natural topography and tree lines. An assessment of predicted visual impacts on the location of Drishane cemetery is presented in the Landscape and Visual Chapter (Chapter 15).

No visible surface traces of a tree lined laneway or a levelled gate lodge shown on the 1st edition OS map within the environs of the staging area were noted during the field inspection. In addition, no surface traces of any potential unrecorded archaeological sites were observed during fieldwalking of its location.



An inspection of the location of a small post-1840s road bridge feature in Ballynagree East townland, which is to be removed and replaced with a concrete structure as part of the TDR, revealed that it does not comprise an arched bridge structure and from an architectural heritage perspective can be described as a pair of parallel, squared, stone culverts (each c. 50cm wide by 60cm high) extending under the roadway surface with a sharp slope on the edge of the southern side of the road protected by a low, cement capped, parapet wall (30cms high) and stone revetment. No discernible traces of a parapet wall exists on the northern side of the road. The eastern culvert was dry at the time of inspection and the stream on the northern side appears to have been redirected to channel all flow through the western example. While sections of the southern side of the structure are obscured by overgrowth, it appears to be entirely of mortar-bonded, random rubble construction with no evident traces of cut stonework. The structure is not visible from the road approaches from the east and west and it does not form a prominent feature within the landscape. An inspection of the narrow stream on both sides of the road was carried out from the adjacent banks in wet weather conditions during November 2021 and water flow along an area of terrain that slopes gradually down to south was moderate at this time. The stream ranges between 20cm to 60cm in width by 10cm-30cm depth in this area and the stony bed had low silt content which allowed a clear visual appraisal of the watercourse. The vegetation growth along both banks at the time of inspection comprised low grass which also facilitated clear appraisal of these areas. No potential in-channel or bank features were observed during an inspection of the stream.

14.4 Potential Impacts

The following sections present assessments of potential impacts on identified cultural heritage assets within the environs of the various elements of the proposed development and these are then collated in table format (Tables 14-17 to 14-20).

There is a notable concentration of Bronze Age lithic monuments within the boundary of the wind farm site and within private farmlands extending for 5km in all directions. While the terrain within the site and surrounding landscape contains a number of natural prominences such as ridgelines and mountain/hill summits, few of these monuments are sited at such locations and the natural topography in many instances obscures views from their locations in lower slopes or lowland areas across the wider landscape. This is particularly true of the two stone circles in Carrigagulla townland which are both located within a low-lying area with wider landscape views constrained in most directions by nearby upland slopes. Neither of these stone circles are signposted or are easily accessible to the public. The multiple stone circle (CO049-008----) is located within a pasture field in a private farm and according to the landowner it is rarely visited. In addition, its location cannot be seen from outside the field as the tops of the low upright stones are below the level of the surrounding field banks. The stone circle (CO049-007----) within the Coillte forestry plantation to the north is difficult to access without a GPS due to the absence of a forest track leading to its close environs and the presence of surrounding thick tree growth. The low stones forming monument are also not visible from outside the small forest clearing that now occupies its location. While these stone circles have no existing significant amenity value, they are both extant examples of a relatively rare monument on a national scale and have been determined as being 'High' in value. The two stone rows, one stone circle and three fulachta fia, as well as potentially one cairn, within the site boundary also form part of the Bronze Age landscape of the area (see Tables 14-5 and 14-15). Apart from the standing stone, all of these monuments have been partially levelled with the fulachta fia impacted by a forestry plantation and both of the stone rows in private farmland now only retain a single upright stone which has resulted in their original alignments no longer having an existing surface expression. As with the stone circles, these other Bronze Age monuments are located within private lands and have no access routes or signposts to facilitate public visitors although the one extant upright of the stone row (CO049-019----) in the west end of the site and the standing stone (CO049-002----) in the central area are both visible from nearby public roads. There was no existing intervisibility between the locations of the various extant or partially extant Bronze Age monuments within the wind farm boundary and surrounding lands observed during the site inspection.



While the creation of existing improved farmland, including associated tree-lined field banks, during the second half of the 19th century and the subsequent 20th century forestry plantations has restricted ground level views within much of the wind farm site none of the monuments detailed above are located on the summits of prominent topographical features or have surface expressions that extend into skyline views.

While the holy well on Musheramore is situated on prominent upland area the structure itself is scarcely perceptible from surrounding lands and the most noticeable feature is a relatively small modern cross feature which has been inserted at its location. While the well is feature of recognised local significance, visits to its location have diminished in modern times and it has largely been replaced as a veneration site by another roadside holy well located in lowlands to the west of the mountain. The feature is nonetheless a recorded archaeological site and its setting on a prominent summit location forms a notable, if barely perceptible and rarely visited, landscape feature and it has, therefore, been assigned a 'Medium' value. The location of Carrigagulla House, which comprises a well-built farmhouse rather than a high-status country house with a known demesne, and a nearby partially extant ringfort are both within the same private property which is not accessible to the public and are assessed as Medium value monument types that exist frequently within the wider region. It should be noted that all monuments assigned 'Medium' values have the potential to possess potential sub-surface features, artefacts, human burials or other archaeological remains, that may be of High value, but this cannot be discerned without recourse to archaeological excavation and are attributes unlikely to be affected in the absence of direct impacts.

14.4.1 Do Nothing Scenario

A 'Do Nothing Scenario' will see to the continued preservation of recorded and potential cultural heritage features within the study areas.

14.4.2 Construction Phase

Wind Farm Construction Phase Direct Impacts

While there are 14 recorded archaeological sites within the wind farm site, as well as one site classified as 'redundant' by the ASI, none are located within 270m of the locations of any proposed turbines or within 100m of associated hardstands (see Table 14-17). Given the absence of any known archaeological sites within the footprint or close environs of the proposed wind farm turbines or associated infrastructure it is concluded that the construction phase will, therefore, have no predicted direct impacts on the known archaeological resource (Table 14-17).

In addition, no potential unrecorded archaeological sites were identified within the footprint or close environs of any of the construction areas during the desktop study and field inspections undertaken as part of this assessment. Two drystone boundary walls of unknown date were noted during the site inspections at the locations of the southern end of the T8 hardstand and the northern end of the T5 hardstand, the latter of which forms the boundary between Ballynagree East and Carrigagulla (see Table 14-16 for locations). These undesignated features are of local (low) cultural heritage value and will be subject to direct, permanent, negative impacts of slight significance and will require recording during the implementation of the mitigation measures presented in Section 14.5. Other than these two drystone boundary walls, there were no designated or undesignated architectural heritage structures or other features of potential cultural heritage significance identified within the footprint of other proposed construction areas, which are generally depicted as unenclosed, vacant heathland on the consulted historic OS map sources. The construction phase of the wind farm site will, therefore, have no other predicted direct impacts on the undesignated architectural or cultural heritage resources.



The proposed amenity trail within the wind farm will utilise existing forestry roads and farm tracks and will not involve the construction of new sections of access tracks. This element of the wind farm will, therefore, have no predicted direct construction phase impacts on the known archaeological resource.

The forestry plantation that occupies areas of the wind farm site has resulted in extensive ground disturbance which has a high potential to remove or severely degrade archaeological sites and associated sub-surface deposits (Johnson 1998). While there is a low potential for the presence of unrecorded, archaeological sites within the forested areas, the survival of elements of unrecorded archaeological remains cannot be completely discounted. As the existence, nature and extent of any such unrecorded archaeological remains are unknown; the level of potential impacts is deemed indeterminable but ground works during the construction phase will have a potential to result in permanent, direct, negative effects on any unrecorded archaeological sites that may survive within the footprint of the development.

The potential for the survival of sub-surface archaeological sites and artefacts exists within the unplanted areas of improved pasture and upland boglands at the location of proposed construction areas. Given the high amount of known archaeological sites within this region as well as the discovery of a number of artefacts within the area, these lands are adjudged to have a high archaeological potential. While the existence as well as location, extent and nature of such unrecorded, sub-surface archaeological remains are indeterminable the potential exists for direct negative impacts on any examples that may exist within proposed construction areas.

Wind Farm Construction Phase Indirect Impacts

Given that there are no recorded archaeological sites located within 270m of the wind farm turbines or within 100m of associated infrastructure (see Table 14-17), no indirect impacts on the immediate setting of the known archaeological resource are predicted during the construction phase. There are no known architectural heritage structures or undesignated cultural heritage assets within the environs of the wind farm site and no indirect impacts on the setting or associates with these elements of the cultural heritage resource are predicted during the construction phase.

Grid Connection Construction Phase Direct Impacts

There are no recorded archaeological sites or designated architectural heritage structures located on the direct footprint of the grid connection and it does not extend into any historical villages or towns. The proposed grid connection will, therefore, result in no direct impacts to the known elements of these resources. There are a number of recorded archaeological sites and NIAH-listed features within the 100m wide study area centred on the proposed grid connection and none are located on the footprint of the route. None of these sites have any recorded elements that may potentially extend into the areas now occupied by the nearby sections of roads. While the ground excavation works undertaken during the construction of these roads likely resulted in the removal of topsoil and the reduction of ground levels down to natural subsoils, the potential for the survival of hitherto unrecorded, sub-surface archaeological features within their footprint is low but cannot be entirely discounted. The grid connection methodology will involve the use of horizontal directional drilling (HDD) at the locations of three road bridges over watercourses and will not require any interventions to these structures, including a masonry bridge which is a recorded archaeological site (CO060-002----). This methodology will also avoid impacting on these watercourses which may contain potential unrecorded underwater archaeological features or artefacts.

Grid Connection Construction Phase Indirect Impacts

The excavation and subsequent backfilling of the cable trench will result in no likely indirect impacts on the known cultural heritage resource as there are no recorded cultural heritage assets on the footprint of the trench within the public roads or green field areas and the existing ground surface will be reinstated following the installation of the cable.



Turbine Delivery Route Construction Phase Direct Impacts

The delivery of the turbines to the wind farm site will require the creation of a staging area within the Drishane Castle property on the outskirts of Millstreet town. As detailed in Table 14-14 this property comprises an ACA and also forms the curtilage of a Protected Structure and National Monument which are located within lands to the northwest. There are no known cultural heritage structures located within the footprint of the proposed staging area and no surface traces of any unrecorded features were noted at the location during the site inspection, although the potential for the presence of sub-surface archaeological remains does exist in the area. The construction of the staging area within the green field location will require topsoil stripping which has the potential to result in negative direct impacts of unknown magnitude on any such unrecorded remains that may exist within its footprint. The removal and subsequent replacement of a 15m wide long portion of a modern section of a rebuilt boundary wall, which is of concrete construction unsympathetic to the original random rubble estate wall further to the south, in order to create a road entrance to the north of the staging area will result in a short-term, direct, slight, negative impact on a later boundary feature delimiting the original property boundary line. The creation of the staging area in an area of farmland within the demesne will result in a direct, negative, moderate impact on the curtilage but will have no direct impacts on any buildings or archaeological sites within the property or their close environs.

The unnamed bridge feature to be removed as part of turbine delivery works in Ballynagree East townland is not listed in the Record of Protected Structure or the NIAH and is of likely post-1840s date. It also contains no features of architectural heritage significance and is a type of road culvert feature commonly found within the rural Irish landscape. The structure is nonetheless a well-preserved example of a stone-built feature associated expansion of the public road network in the area during the second half of the 19th century and it is assessed as being of local (low) cultural heritage significance which warrants recording prior to its removal. A desktop study and visual inspection of the narrow stream at the location revealed no potential features of archaeological or cultural heritage significance. The removal of the structure will result in a permanent, direct, negative impact of moderate significance.

There are no recorded archaeological sites or architectural heritage structures within other localised works areas required to facilitate the turbine delivery.

Turbine Delivery Route Construction Phase Indirect Impacts

The use of public roads to transport the turbines and the localised works along the route will not result in any predicted indirect impacts on the cultural heritage resource as no interventions to the settings of known cultural heritage assets will arise from the temporary nature of the transportation of turbines and localised works. The ground works and operation of the staging area within an area of farmland in the Drishane Castle property as part of the turbine delivery process will have an indirect, short-term, moderate, negative impact on the designated archaeological and architectural heritage structures within the wider property during the construction phase.

BEMP Lands Construction Direct/Indirect Impacts

The proposed biodiversity enhancement measures for these lands will not result in any predicted direct or indirect construction phase impacts on the known archaeological sites within these areas.

14.4.3 Operational Impacts

Wind Farm Operational Phase Direct Impacts

The operational phase of the proposed development will result in no predicted direct impacts on the known archaeological, architectural and cultural heritage resources.



In addition, the successful implementation of the construction phase mitigation measures outlined in Section 14.5 will result in the preservation in situ (by avoidance) or the preservation in record (by archaeological excavation) of any unrecorded, sub-surface archaeological sites or features that may exist within proposed construction areas. There will, therefore, be no predicted direct impacts on any such potential unrecorded archaeological sites during the operational phase.

Wind Farm Operational Phase Indirect Impacts

There are 14 recorded archaeological sites located within the boundary of the wind farm site and none of these are located within the immediate environs of proposed turbine locations or other construction areas. There will, therefore, be no potential construction works that will result in likely indirect impacts arising from ground excavations at their locations or immediate environs. As detailed in Table 14-18, the development will, however, result in a range of indirect impacts of a visual nature on the wider setting of the majority of these archaeological sites and these will range from not significant to significant. In general, a significant impact has been assigned when siting of proposed turbines will result in an overbearing effect on the setting or alignment attribute of a well-preserved monument while moderate impacts have been applied when turbines will have a noticeable effect on the wider environs of monuments that have either been partially levelled or contain no identifiable visual alignment attributes. While the turbine layout has been specifically designed to avoid impinging on the direct alignment of the multiple stone circle (CO49-008----) located within an open pasture field in Carrigagulla townland, five turbines will be visible above the ridgeline to the southwest and west of this monument (Appendix 14-1; Figures 14-19 and 14-20). The towers and blades of two of these turbines, T8 and T7, will be visible from general views towards the west and southwest from the stone circle and these are located at distances of 490m and 960m, respectively from the monument. The blades of T6, T4 and T5 will also be visible in these directions, and these are located at distances of 1,630m, 1,300m and 1,120m respectively from the monument. In addition, a turbine (T9) located c.270m to the northwest of this monument, while outside the environs of its alignment, will also result in an indirect impact on its general setting. The combined effect of these indirect visual impacts on the setting and environs of the alignment of this monument have been determined to be significant. A second stone circle (CO049-007----) within this townland, which is a National Monument in State Ownership (ref. 660), is located within a forest clearing to the north and no views of the surrounding lands can be seen from its location due to the tall trees which completely screen its foreground views at ground and skyline levels. The forestry plantation containing this monument will be in place for the duration of the operation of the wind farm project and its environs will only be subject to localised thinning and replanting as required during this period. All future forestry works within the environs of this monument will be undertaken to comply with the guidelines outlined in the *Code of Practice between Coillte and the Minister for the Environment and Local Government*⁶ and forestry licence applications for this area will be subject to review and approval by the Forestry Service Archaeologist. Due to the likely ongoing screening effect of thick forestry there will, therefore, be a slight indirect visual impact on the stone circle (CO049-007----) within the forestry plantation during the operational phase of the proposed development.

The proposed amenity trail within the wind farm will facilitate public access to the stone circles and other monuments within the site boundary and will include trail markers and information signs relating to these archaeological sites. No new access tracks or other elements of the trail will be constructed or erected at the locations of archaeological sites in order to avoid indirect impacts on their settings. These monuments are currently not accessible to the public and local landowner information indicates that they are rarely visited. This element of the proposed development will result in a moderate positive impact on the cultural heritage resource within the wind farm site.

The recorded archaeological resource within an area extending for 5km from the wind farm site was assessed to determine the presence of monuments that may have potential visual alignments across the wider landscape.

⁶ <https://www.archaeology.ie/sites/default/files/media/publications/cop-coillte-en.pdf>



This revealed combined total of 31 extant wedge tombs, stone circles, stone rows and stone pairs, all of probable Bronze Age date within this area indicating a well-established settlement pattern in these lands during this period of prehistory. These monuments are located within private lands not accessible during the site surveys. There is a noticeable gap in their distribution in the lands to the northeast of the wind farm and given that the majority of these monument types have set alignments towards the southwest quadrant, this means that none of the recorded examples are located in this heightened area of visual sensitivity. A review of each of their orientations as recorded by the ASI indicate that the majority do not possess potential direct ritual alignments towards the main wind farm site and no likely significant, indirect impacts are, therefore, predicted. The proposed development will, nonetheless, likely result in indirect slight-moderate visual impacts on the setting of monuments within the wider landscape during the operational phase.

In addition, the accessible close environs of the National Monuments in State Care located in private lands within 10km of the wind farm site (see Table 14-7) were inspected during field surveys and the potential for intervisibility with the wind farm were assessed by using Musheramore and other wind farms in surrounding lands as visual markers. The immediate foreground views of these monuments were found to be screened by tree lined field boundaries with wider views towards the Ballinagree area obscured by natural topography. No potential indirect visual impacts on the locations of these National Monuments were identified.

While recorded local folklore sources contain references to various aspects of the cultural heritage resource within the general area, these tend to be related to known archaeological sites and former agricultural practices within the locality rather than intangible aspects of this resource. The operational phase of the wind farm will, therefore, not result in significant impacts on any identified intangible cultural heritage assets.

Grid Connection Operational Phase

As the grid connection will comprise a buried cable within existing roads and a farm lane it will, therefore, result in no predicted direct or indirect impacts on the cultural heritage resource during the operational phase.

Turbine Delivery Route Operational Phase

The ground surface and modern section of boundary wall at the staging area in Drishane Castle will be reinstated at the completion of the construction phase. No direct or indirect impacts relating to the turbine delivery route will arise during the operational phase as the use of the existing public road network to transport turbines will not occur during this phase. An archaeological record of the small post-1840s road bridge in Ballynagree East townland will be carried out prior to its removal during the construction phase and no operational phase impacts on this undesignated feature are predicted.

BEMP Lands

The proposed biodiversity enhancement measures will result in a reduction of grazing activity within lands containing the three known archaeological monuments within these areas (Fulachta Fiadh CO060-183---- & CO060-184---- and Stone Row CO040-019----). This will create a lower potential for disturbance by livestock trampling activity at the locations of these monuments as well as potential livestock scratching activity at the location of the remnant stone upright at the Stone Row monument (CO040-019----) which will result in a likely direct, slight, positive, long-term impact on these monuments. Other biodiversity measures such as rush cutting and hedgerow management will result in no predicted impacts on the known or potential cultural heritage resource.

14.4.4 Decommissioning Phase

No direct impacts on known elements of the cultural heritage resource are predicted during the decommissioning phase as there are no recorded cultural heritage assets located within the footprint, or close environs, of the various elements of the wind farm that will be subject to decommissioning.



The decommissioning phase will reverse the indirect, visual impacts on cultural heritage receptors identified in Section 14.4.3 and Table 14-18 (below).

14.4.5 Cumulative Impacts

A review of a number of completed, permitted and proposed developments was undertaken in order to assess the potential for cumulative impacts on the cultural heritage resource. These comprise forestry operations and other existing and approved developments within lands in the wider environs of the project. The locations of constructed or approved wind and solar farm developments within 10km of the project were reviewed on the Cork County Council online planning enquiry system and these locations were then cross-referenced with SMR mapping as well as relevant reports included in the planning files and, where relevant, the descriptions of archaeological site investigations published in the Excavations Database.

Forestry Works

As described in Section 14.3.3.2, three fulachta fia sites within lands in the southern end of the wind farm site have been impacted by forestry works in this area. An inspection of this location indicated that while traces of these sites are visible, they have been likely impacted by ground preparation works and root action. In addition, the location of a stone row (CO049-023----) in lands outside the east boundary of the wind farm has also been incorporated into a forestry plantation that extends directly adjacent to the monument. Only one upright stone now exists at the location, but it is unclear if the two adjacent prostrate stones collapsed prior to or during planting works. The location of the stone circle (CO49-007----) within the forest plantation in the east end of the wind farm site remains undisturbed within a small clearing. While no direct impacts to this monument appear to have resulted from planting works, its views in all directions have been completely screened by the surrounding forestry. The creation of the forestry plantations within the general area may have also resulted in direct impacts on any potential unrecorded archaeological sites that may have existed within their footprint.

Boggeragh Wind Farm 1

There are a number of recorded Bronze Age archaeological monuments within the environs of the Boggeragh Wind Farm 1 development which is located c. 2km to the north of the wind farm. A review of the locations of these monuments in relation to the constructed elements of this development indicates that it resulted in no direct impacts on any of their locations.

Boggeragh Wind Farm 2

The construction of the Boggeragh Wind Farm 2 in lands located 1km to the east of the wind farm site was subject to constant archaeological monitoring during topsoil and peat removal in the areas of new proposed access roads, turbine bases and hard stands. No archaeological finds, features or deposits were uncovered within the site during this project⁷.

Esk Wind Farm

There are a number of recorded archaeological monuments within the environs of the approved Esk Wind Farm development which is located c. 6km to the north of the wind farm. A review of the locations of these monuments in relation to the layout of this development indicates that its construction will result in no direct impacts on any known archaeological sites.

Carriganimmy Wind Farm

A number of recorded archaeological monuments, including a stone circle, are located within the environs of the Carriganimmy Wind Farm development which is located c. 5km to the west of the wind farm.

⁷ <https://excavations.ie/report/2015/Cork/0023860/>



A review of the locations of these monuments in relation to the layout of this development indicates that its construction did not result any direct impacts on any known archaeological sites.

Bawnmore Wind Farm

There are number of recorded archaeological monuments, including two wedge tombs, located within the environs of the Bawnmore Wind Farm development which is located c. 5km to the south of the wind farm. A review of the locations of these monuments in relation to the layout of this completed development indicates that its construction did not result any direct impacts on any known archaeological sites.

Carragraigue Solar Farm

There are no recorded archaeological sites on the footprint of an approved solar farm in the townland of Carragraigue located 5km to the north of the wind farm site. The planning file for this development includes a reference to a geophysical survey which identified three weak anomalies within the site of archaeological origin. A programme of pre-development test trenching was included as a planning condition and this subsequently demonstrated that the geophysical features were not of archaeological origin.⁸

Knockglass/Kilberriherth Solar Farm

A review of the archaeological section of an assessment report compiled for an approved solar farm in Knockglass and Kilberriherth townlands, located 1.9km to the north of Clashavoon substation, was carried out and this notes that there are no recorded archaeological sites located within the development area.

Conclusion

Given the absence of known significant direct impacts on the recorded cultural heritage resource arising from the Ballinagree project in combination with the results of the above review of nearby developments, the proposed project is not predicted to not result in any significant direct cumulative impacts on the cultural heritage resource of the wider area.

Given the distances of the reviewed developments from the Ballinagree project, it is concluded that they will not combine with this project to result in significant indirect cumulative impacts on the setting of the known archaeological resource within its environs. It is noted that while the Ballinagree project will result in slight to significant indirect impacts of the setting of two stone circles (CO049-007---- and CO049-008----) within its environs, none of the developments reviewed above are located within close proximity to these monuments or are located within the direction of their alignments to the southwest. Both of the stone circles are located within a low-lying area within a valley which screens extensive views across the wider landscape from their locations and one example (CO049-007---), which is a National Monument in State Ownership (NM ref. 660), is located within a forestry plantation that will further screen views to and from its location for the duration of the operational phase of the Ballinagree project. It is, therefore, concluded that the reviewed developments will not combine with the Ballinagree project to result in any significant cumulative impacts on the settings of these two monuments.

In addition, and as described in Section 14.3.3.2, a review of other archaeological monuments with ritual visual alignments within the surrounding landscape revealed that the proposed Ballinagree project is located to the north and east of the majority of recorded examples in this area. Given that the majority of the monuments within the wider landscape have set alignments to the southwest, it is concluded that the Ballinagree project will not act in combination with the reviewed developments to result in likely significant indirect cumulative impacts on their immediate settings or ritual alignments.

⁸ <https://excavations.ie/report/2019/Cork/0027438/>



Table 14-17: Summary of construction phase impacts on cultural heritage sites within wind farm study area

Monument No.	Class	Value of Asset	Distance from nearest turbine	Other construction areas	Type of impact	Quality of impact	Magnitude of impact	Duration	Significance of Impact
CO048-084----	Partially levelled Hut site	Medium	1,970m west of T1	660m west of borrow pit	None predicted	Neutral	n/a	n/a	None
CO048-085----	Holy Well	Medium	1,700m west of T1	430m west of borrow pit	None predicted	Neutral	n/a	n/a	None
CO049-002----	Extant Standing stone	Medium	440m north of T12	100m north of construction compound	None predicted	Neutral	n/a	n/a	None
CO049-007---- National Monument 660	Extant five Stone Circle within forestry	High	420m east of T9	395m east of T9 hardstand	None predicted	Neutral	n/a	n/a	None
CO049-008----	Extant Multiple Stone Circle	High	270m to southeast of T9	200m to southeast of T9 hardstand	Indirect	Negative	n/a	n/a	None
CO049-019----	Partially levelled Stone Row	Medium	460m to south of T1	Grid route within public road 50m to east	None predicted	Neutral	n/a	n/a	None
CO049-020----	Partially levelled Stone Row	Medium	430m to southeast of T8	350m to southeast of new access track	None predicted	Neutral	n/a	n/a	None
CO049-021----	House still in use as residence	Medium	990m to south of T8	None within 1km	None predicted	Neutral	n/a	n/a	None



Monument No.	Class	Value of Asset	Distance from nearest turbine	Other construction areas	Type of impact	Quality of impact	Magnitude of impact	Duration	Significance of Impact
CO049-022----	Extant Ringfort	Medium	960m to southeast of T5	950m to southeast of new access track	None predicted	Neutral	n/a	n/a	None
CO049-057----	Levelled Fulacht Fiadh in forestry	Medium	620m to south of T5	420m to south of new access track	None predicted	Neutral	n/a	n/a	None
CO049-058----	Levelled Fulacht Fiadh in forestry	Medium	570m to south of T5	350m to south of new access track	None predicted	Neutral	n/a	n/a	None
CO049-059----	Levelled Fulacht Fiadh in forestry	Medium	600m to south of T5	380m to south of new access track	None predicted	Neutral	n/a	n/a	None
CO049-064---	Partially levelled Cairn	Medium	620m to north of T13	460m to north of new access track	None predicted	Neutral	n/a	n/a	None
CO049-068----	Levelled Burnt Mound	Medium	790m to southeast of T5	800m to southeast of new access track	None predicted	Neutral	n/a	n/a	None



Table 14-18: Summary of operation phase impacts on cultural heritage sites within wind farm study area

Monument No.	Class	Value of Asset	Distance from nearest turbine	Other construction areas	Type of impact	Quality of impact	Magnitude of impact	Duration	Significance of Impact
CO048-084----	Partially levelled Hut site	Medium	1,970m west of T1	660m west of borrow pit	Indirect	Negative	Low	Long term (reversible)	Moderate
CO048-085----	Holy Well	Medium	1,700m west of T1	430m west of borrow pit	Indirect	Negative	Medium	Long term (reversible)	Moderate
CO049-002----	Extant Standing stone	Medium	440m north of T12	100m north of construction compound	Indirect	Negative	Medium	Long term (reversible)	Moderate
CO049-007---- National Monument 660	Extant five Stone Circle within forestry	High	420m east of T9	None within 1km	Indirect	Negative	Negligible	Long term (reversible)	Slight
CO049-008----	Extant Multiple Stone Circle	High	270m to southeast of T9	200m to southeast of T9 hardstand	Indirect	Negative	High	Long term (reversible)	Significant
CO049-019----	Partially levelled Stone Row	Medium	460m to south of T1	Grid route within public road 50m to east	Indirect	Negative	Medium	Long term (reversible)	Moderate
CO049-020----	Partially levelled Stone Row	Medium	430m to southeast of T8	350m to southeast of new access track	Indirect	Negative	Medium	Long term (reversible)	Moderate
CO049-021----	House still in use as residence	Medium	990m to south of T8	None within 1km	Indirect	Negative	Low	Long term	Moderate



Monument No.	Class	Value of Asset	Distance from nearest turbine	Other construction areas	Type of impact	Quality of impact	Magnitude of impact	Duration	Significance of Impact
								(reversible)	
CO049-022----	Extant Ringfort	Medium	960m to southeast of T5	950m to southeast of new access track	Indirect	Negative	Medium	Long term (reversible)	Moderate
CO049-057----	Levelled Fulacht Fiadh in forestry	Medium	620m to south of T5	420m to south of new access track	None predicted	Neutral	Negligible	Long term (reversible)	Not significant
CO049-058----	Levelled Fulacht Fiadh in forestry	Medium	570m to south of T5	350m to south of new access track	None predicted	Neutral	Negligible	Long term (reversible)	Not significant
CO049-059----	Levelled Fulacht Fiadh in forestry	Medium	600m to south of T5	380m to south of new access track	None predicted	Neutral	Negligible	Long term (reversible)	Not significant
CO049-064---	Partially levelled Cairn	Medium	620m to north of T13	460m to north of new access track	Indirect	Negative	Low	Long term (reversible)	Slight
CO049-068----	Levelled Burnt Mound	Medium	790m to southeast of T5	800m to southeast of new access track	Indirect	Negative	Negligible	Long term (reversible)	Not significant



Table 14-19: Summary of construction phase impacts within grid route connection study area

Monument No.	Class	Distance from route	Value of Asset	Type of Impact	Quality of impact	Magnitude of impact	Duration of impact	Significance of Impact
RMP CO049-019----	Stone Row	50m to west in field	Medium	None predicted	Neutral	n/a	n/a	None
RMP CO049-067----	Wedge Tomb	35m to west within garden of private house	High	None predicted	Neutral	n/a	n/a	None
RMP CO060-002----	Bridge	Directional drilling located in fields to the east	Medium	None predicted	Neutral	n/a	n/a	None
NIAH 20906002	House	Adjacent to roadside	Medium	None predicted	Neutral	n/a	n/a	None
NIAH 20906001	Post box	Mounted in wall adjacent to road	Medium	None predicted	Neutral	n/a	n/a	None
SMR CO060-209----	Fulacht Fia	Former location within Clashavoon substation	Medium	None predicted	Neutral	n/a	n/a	None
None	Famine memorial markers	Adjacent to road	Low	None predicted	Neutral	n/a	n/a	None
None	Masonry Bridge	Adjacent to road	Low	None predicted	Neutral	n/a	n/a	None



Table 14-20: Summary of turbine delivery route construction phase impacts

Designation	Class	Distance from route	Value of Asset	Type of Impact	Quality of impact	Magnitude of impact	Duration of impact	Significance of Impact
National Monument 296 RPS 00320 Drishane ACA NIAH Garden Survey No. 2855	Drishane Castle demesne lands	0m	High	Direct	Negative	Low	Short term	Moderate
None	Ballynagree East Road Bridge (Project ref. WF-HF8)	0m	Low	Direct	Negative	High	Permanent	Moderate



14.5 Mitigation Measures

The wind farm layout was informed by the archaeological desktop studies and fieldwork undertaken during the design and assessment phases and was adapted to avoid or minimise impacts on the known archaeological monuments in the area. The mitigation measures presented in this section include a range of archaeological site investigations to identify any potential unknown, subsurface archaeological remains and these were formulated based on the results of the assessment and have been informed by the nature of existing conditions within the study area. These site investigations have also been formulated in accordance with guidelines for archaeological planning conditions published in the *2006 Wind Energy Development Guidelines* (Section 7.4) and the *2019 Draft Revised Wind Energy Development Guidelines* (Section 7.6). In addition, the consultations with the Cork County Council Archaeologist (CCCA) during the assessment process included discussions on the nature and scope of the archaeological mitigation measures detailed below to be presented in the EIAR. The CCCA did not request that site investigation measures, such as geophysical survey or test trenching, be carried out as part of the EIAR process. In addition, the scoping response from the Development Applications Unit did not contain any recommendations in relation to undertaking archaeological site investigations as part of the EIAR.

Wind Farm Site

The extensive forestry plantations, including tree stumps and root systems within recently felled areas, within planted sections of the wind farm site will preclude advanced archaeological site investigations such as geophysical survey and test trenching and these areas have a less likely archaeological potential as a result of planting activity. A systematic advance programme of archaeological field-walking surveys will be undertaken within these areas following pre-construction tree felling to confirm that they do not contain any visible surface traces of potential unrecorded archaeological or architectural heritage sites. Archaeological monitoring of ground excavation works during the construction phase will then be carried out in these areas under license by the National Monument Service.

The turbines, hardstands and associated new access tracks located within improved green field areas will be subject to a pre-construction geophysical survey followed by targeted archaeological test trenching. This will include the investigation of a potential section of a relict field boundary noted in the interface between an area of marginal land and an improved section of pastureland located within the southern end of the T8 hardstand area. The programme of advance investigations will also include the completion of a boundary survey, to include a detailed photographic record, of the section of the drystone wall, which forms part of the Ballinagree East and Carrigagulla townland boundary, located within the northern end of the T5 hardstand.

The uneven and overgrown ground conditions within the upland open bog/heath areas in the northern end of the site are likely not suitable for pre-construction geophysical surveys. A pre-construction programme of linear archaeological test trenching will be carried out on the footprint of the three turbines (T13, 16 and 17) in these areas and along the routes of any associated new access tracks which will require ground excavation works during the construction phase.

In the event that any sub-surface archaeological features are identified during these site investigations they will be recorded and then securely cordoned off while the National Monuments Service are consulted to determine further appropriate mitigation measures, which may include preservation in situ (by avoidance) or preservation by record (archaeological excavation).

Grid Connection

All ground works within undisturbed green field locations, including HDD areas, required as part of the grid connection will be subject to constant archaeological monitoring as will works within the environs of the Famine memorials at the crossroads in Killberrihert townland.



An archaeological watching brief of other grid connection trench excavations within the public road will be carried out as part of the programme of licensed archaeological monitoring of the project. In the event that any sub-surface archaeological features are identified they will be recorded and cordoned off while the National Monuments Service are consulted to determine further appropriate mitigation measures, which may include preservation *in situ* (by avoidance) or preservation by record (archaeological excavation).

Turbine Delivery Route

The delivery of turbines to the wind farm site will require topsoil stripping within a green field area in the southern end of the Drishane Castle demesne lands in order to create a hardstand staging area. A pre-works geophysical survey followed by targeted archaeological test trenching will be carried out in advance of these ground works.

Prior to the removal of the road bridge (WF-HF8) in Ballynagree East townland to facilitate the TDR, the vegetation overgrowth will be removed and an archaeological record of the structure, in written, drawn and photographic formats, will be carried out. All ground works at this location will then be subject to archaeological monitoring.

All ground works within other green field areas required to accommodate the turbine delivery route will be subject to archaeological monitoring.

In the event that any sub-surface archaeological features are identified during these site investigations they will be recorded and cordoned off while the National Monuments Service are consulted to determine further appropriate mitigation measures, which may include preservation *in situ* (by avoidance) or preservation by record (archaeological excavation).

BEMP Lands

The proposals for biodiversity enhancement measures will not result in any predicted impacts on the cultural heritage resource and, therefore, no mitigation measures are required.

Monitoring of mitigation measures

There are a number of obligatory processes to be undertaken as part of archaeological licence applications which will allow for monitoring of the successful implementation of the archaeological mitigation measures. These include the submission of method statements detailing the proposed strategy for all site investigations for the approval of the National Monuments Service as part of the licence application. These documents will clearly outline the proposed extent of works and outline the onsite and consultation processes to be enacted in the event that any unrecorded archaeological sites or features are identified. A report will be compiled on all site investigations to comply with the licensing process which will clearly present the results in written, drawn and photographic formats and copies will be submitted to the National Monuments Service, the Planning Authority and the National Museum of Ireland.

14.6 Residual Impacts

The mitigation measures presented in Section 14.5 will provide for either the preservation *in situ* of the potential unrecorded, sub-surface archaeological resource identified within the project area or the proper and adequate recording of this resource by full archaeological excavation. The project will result in a number of indirect, not significant to significant, negative, visual impacts on archaeological monuments located within the environs of the wind farm site which will be reversed during the decommissioning phase of the wind farm site.



The removal of a post-1840s road bridge (WF-HF8) in Ballinagree East townland to facilitate the TDR, following the compilation of a detailed pre-works archaeological record of the structure, will result in a permanent, direct, negative residual impact of slight-moderate significance on the local, undesignated cultural heritage resource.

14.7 Conclusion

The proposed development will not result in any direct negative impacts to any known archaeological monuments or designated architectural heritage structures. The location of the turbine staging area within a vacant field in the Drishane Castle demesne will result in a short-term, moderate, direct, negative impact on a green field area within this historic property and pre-construction archaeological investigations will be carried out at this location (geophysical survey and test trenching). No direct impacts on the Protected Structures and archaeological sites within this property are predicted to arise during the ground works to facilitate creation of the staging area and a section of replacement boundary wall to be impacted by the creation of an entranceway on the northern side is of modern date. The staging area will be reinstated at the completion of turbine deliveries and no operational impacts are predicted.

The potential exists for the presence of unrecorded, sub-surface archaeological features within green field locations at proposed construction areas in the wind farm site and a programme of archaeological investigations (geophysical survey and test trenching) licensed by the NMS will be carried out by a suitably qualified archaeologist prior to the construction phase of the project. As previously noted in Section 14.5, the Cork County Council Archaeologist and the Development Applications Unit were consulted during the assessment process and did not recommend that these site investigation measures be carried out as part of the EIAR. While the forested areas within the wind farm site have a lower potential for the survival of unrecorded archaeological sites the potential for the survival of their remains within these areas cannot be discounted. As the planted trees and their associated root systems within the plantations will act as a constraint on pre-development investigations, a programme of systematic field walking following felling and subsequent monitoring of construction phase ground works will be undertaken in these areas to confirm the conditions predicted in this assessment.

In the event that any sub-surface archaeological remains are identified during the above site investigations, they will be cleaned, recorded and left to remain *in situ* within cordoned off areas while the NMS are notified and consulted in relation to appropriate future mitigation strategies, which may include preservation in situ (by avoidance) or preservation by record (archaeological excavation).

The proposed development will result in a range of slight to significant indirect visual impacts on the archaeological monuments located within the environs of the wind farm during the operational phase which will be reversible during the decommissioning phase.



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