

# MWP

## **Chapter 13 Cultural Heritage**

### **Ballycar Wind Farm**

**Ballycar Green Energy**

**January 2024**

## **13. Cultural Heritage**

### **13.1 Introduction**

This cultural heritage Chapter was undertaken with regard to the proposed development. A full description of the proposed development and its components has been provided in **Chapter 2 Description of the Proposed Development** of this **EIAR**. This chapter assesses the effects on archaeology and wider cultural heritage in relation to:

- Twelve (12 No.) proposed turbines with a maximum overall tip height of up to 158m;
- Proposed 110kV substation;
- Proposed temporary construction compound;
- Proposed borrow pit and deposition areas;
- Proposed internal access tracks / grid connection between the turbines and proposed substation; and
- Proposed grid connection from the proposed 110kV substation to the existing 110 kV overhead line.

#### **13.1.1 Competency of Assessor**

This chapter was prepared and written by Laurence Dunne of Laurence Dunne Archaeology (LDA). Laurence is the principal and senior archaeologist of LDA and has been a licensed archaeologist for over 25 years. In that time, he has completed an extensive and diverse range of projects, the vast majority of which are development driven. Projects range from small scale single house constructions to large scale residential and major commercial developments, wind and solar farms, roadways, water and sewerage schemes, pipelines, inter-connector telecom and electrical cabling both terrestrial and undersea, coastal defence and channel deepening projects, dive surveys and shipwreck excavations. His keen interest and expertise in underwater archaeology and wider coastal cultural heritage have led to a number of high-profile projects including the recovery and conservation of artefacts from the RMS Lusitania as part of an international expedition to make a documentary movie financed by National Geographic. Laurence has completed over forty archaeological/cultural sections for Environmental Impact Statements (EIS) and Archaeological Impact Assessments (AIA), along with excavations and monitoring in Ireland relating to renewable energy developments. Since 1999, Laurence Dunne has completed twenty-seven wind farm projects. The wind farm projects involved all facets of the planning process: EIA, AIA, test excavations in advance of planning as well as subsequent monitoring of construction works. LDA has also undertaken assessments with regard to linear grid cable trenching for planning purposes as well as targeted test trenching and follow-up monitoring at several sites in North and East Kerry.

### **13.2 Methodology**

The assessment was completed using a combination of the following:

- 1) Desk-based assessment of all available archaeological, historical, cultural and cartographic sources;
- 2) Inspection of the limits of the proposed development site in May 2021; and February 2023 (deposition areas and borrow pit location);
- 3) Licenced archaeological testing (licence no. 22E0744) at Glennagross townland in October 2022.

The desk-based assessment is defined as a programme of study of the historic environment within a specified area or site that addresses agreed research and / or conservation objectives. The following sources were examined during the desk-based assessment:

- Sites and Monuments Records / Record of Monuments and Places:
  - The Sites and Monuments Records (SMR) / Record of Monuments and Places (RMP) compiled by the Archaeological Survey of Ireland of the National Monuments Service (NMS) comprises lists, classifications of monuments and maps of all recorded monuments with known locations and zones of archaeological notification. All sites recorded on the Record of Monuments and Places receive statutory protection under the National Monuments Act 1994. The monument records are searchable online from the NMS ([www.archaeology.ie](http://www.archaeology.ie)) and were assessed in June 2022.
- National Monuments in State Care Database:
  - This is a list of all the National Monuments in the State guardianship or ownership where each monument is assigned a National Monument number whether in guardianship or ownership and has a brief description. A National Monument receives statutory protection and 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’ (National Monuments Act, 1930, Section 2). Once the site is in ownership or guardianship of the state, it may not be interfered with, without the written consent of the Minister.
- Topographic Files of the National Museum of Ireland:
  - The National Museum of Ireland (NMI) Topographic Files of artefacts found in Ireland by townland, were examined as well as the online searchable browser database of artefacts on the Heritage Maps produced by the Heritage Council ([www.heritagemaps.ie](http://www.heritagemaps.ie)).
- National Inventory of Architectural Heritage (NIAH) Database (Architectural & Garden Survey):
  - NIAH was established under the provisions of the Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act 1999. It is a government-based organisation tasked with making a nationwide record of locally, regionally, nationally and internationally significant structures dating to post-1700 AD, which in turn provides county councils with a guide as to what structures to list within the Record of Protected Structures (RPS). Only those structures of regional importance or above are included in the Minister’s recommendations for inclusion in the RPS. The NIAH have also carried out a nationwide desk-based survey of historic gardens, including demesnes that surround large houses.
- The Development Plan:
  - The Development Plan for County Clare (2023 - 2029) and the Development Plan for County Limerick (2022-2028) which contains a catalogue of all the Recorded Protected Structures, archaeological sites and Architectural Conservation Areas within the counties were also examined.
- Excavations Bulletin:
  - The Excavations Bulletin and its online database which contains summaries of all archaeological excavations carried out in Ireland since 1970 up to present, was also examined to establish if any archaeological investigations had been carried out within or near to the area of the proposed development ([www.excavations.ie](http://www.excavations.ie)).
- Placename Studies:
  - Placenames (logainmneacha) are an important aspect of understanding the history and topography of a location particularly when used in association with the Ordnance Survey Name Books (OSNB). The general or baseline placename research source is an online GIS portal which was accessed in June 2022 ([www.logainm.ie](http://www.logainm.ie)).

- Cartographic sources:
  - Several historic maps were examined including Down Survey (c. 1655) and the Ordnance Survey 6" (1840-42) and 25" (1893) maps of Co. Clare.
- Analysis of aerial imagery:
  - Aerial photographic coverage provides initial information on the terrain and its likely archaeological potential and is an important source of information regarding the precise location of sites and their extent. A variety of aerial photography was examined including aerial orthoimages from the National Monuments Service, Ordnance Survey (1995-2013), Google Earth (2004-2021), and Bing Maps websites. Also, an unmanned aerial vehicle (UAV) survey of the proposed development site was undertaken during the field inspection in May 2021 and June 2022.
- Field inspection:
  - Field inspection is necessary to determine the extent and nature of archaeological, architectural, and cultural heritage remains and can also lead to the identification of previously unrecorded sites or artefacts. The field inspection for the proposed development site was carried out in May 2021 and June 2022 and involved:
    - Noting and recording the terrain type and land usage.
    - Noting and recording the presence of known and previously unknown features of archaeological, architectural or cultural heritage significance.
    - Noting the extent and condition of recorded sites and structures (RMPs/ RPS/ NIAH).
- Pre-development archaeological testing:
  - Pre-development archaeological testing under licence from the National Monument Service (licence no. 22E074) took place in October 2022 at the location of turbine T2 and its access track at Glennagross townland. Thirteen test trenches were excavated, all with negative results (see **Appendix 13A**).

### 13.2.1 Guidelines and Best Practice

This report was undertaken in compliance with:

- National Monuments Act, 1930 to 2014;
- Heritage Acts, 1995 and 2018;
- European Convention on the Protection of the Archaeological Heritage (the '*Valletta Convention*') ratified by Ireland in 1997;
- Council of Europe Convention on the Protection of the Architectural Heritage of Europe (the '*Granada Convention*') ratified by Ireland in 1997;
- Framework and Principles for the Protection of the Archaeological Heritage, 1999, Department of Arts, Heritage, Gaeltacht and the Islands;
- The Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous) Provisions Act, 1999, as amended;
- The conservation principles as set out by International Council on Monuments and Sites (ICOMOS) in the Venice and Burra Charters;
- Planning and Development Act, 2000, as amended;
- Architectural Heritage Protection-Guidelines for Planners by the Department of the Environment Heritage and Local Government 2011 (DoEHLG);
- The Architectural and Archaeological Heritage Objectives as detailed in the County Clare Development Plan 2023-2029 CDP;
- The Architectural and Archaeological Heritage Objectives as detailed in the Limerick Development Plan 2022-2028;

- The Advice Series-A Guide to the Care of Older Buildings published by the Architectural Heritage Advisory Unit of the DoEHLG, 2007-2011; and
- The Handbook of the National Inventory of Architectural Heritage (NIAH) of March 2021.

### 13.2.2 Assessment Criteria

Determination of the significance of an effect is made, where practicable, in accordance with the terminology outlined in EPA *Guidelines on the Information to be contained in environmental impact assessment reports* (2022) as set out in **Table 13-1**. The application of the assessment methodology identifies the key aspects of any potential impact source, namely its character, magnitude, duration, likelihood and whether it is of a direct or indirect effect.

**Table 13-1: Assessment criteria**

<b>Quality of Effects</b>	<b>Positive</b>	<b>A change which improves the quality of the environment.</b>
	<b>Neutral</b>	No effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error.
	<b>Negative/ adverse</b>	A change which reduces the quality of the environment.
<b>Significance of Effects</b>	<b>Imperceptible</b>	An effect on an archaeological site capable of measurement but without noticeable consequences.
	<b>Not significant</b>	An effect which causes noticeable changes in the character of the environment but without significant consequences.
	<b>Slight</b>	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities (no direct impact on an archaeological site / feature).
	<b>Moderate</b>	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends (change is noticeable but reversible – site / feature can be integrated into development). This arises where an archaeological site can be incorporated into a modern-day development without damage and that all the changes are reversible.
	<b>Significant</b>	An effect which, by its character, magnitude duration or intensity alters a sensitive aspect of the environment (part of an archaeological site / feature would be permanently impacted upon, leading to a loss character, integrity and data of the site).
	<b>Very Significant</b>	An effect which, by its character, magnitude duration or intensity alters most of a sensitive aspect of the environment.
	<b>Profound</b>	An impact which obliterates sensitive characteristics (an archaeological site is irreversibly destroyed by proposed development). Mitigation would be unlikely to remove adverse effects.
	<b>Extent</b>	Describe the size of the area, the number of sites and the proportion of a population affected by an effect.

<b>Extent and Context of Effects</b>	<b>Context</b>	Describe whether the extent, duration or frequency will conform or contrast with established (baseline) conditions (is it the biggest, longest effect ever?)
	<b>Likely Effects</b>	The effects that can reasonably be expected to occur because of the planned project if all mitigation measures are properly implemented.
<b>Probability of Effects</b>	<b>Unlikely Effects</b>	The effects that can reasonably be expected not to occur because of the planned project if all mitigation measures are properly implemented.
	<b>Momentary</b>	Effects lasting from seconds to minutes.
<b>Duration and frequency of Effects</b>	<b>Brief</b>	Effects lasting less than a day.
	<b>Temporary</b>	Effects lasting less than a year.
	<b>Short-term</b>	Effects lasting one to seven years.
	<b>Medium-term</b>	Effects lasting seven to fifteen years.
	<b>Long-term</b>	Effects lasting fifteen to sixty years.
	<b>Permanent</b>	Effects lasting over sixty years.
	<b>Reversible</b>	Effects that can be undone e.g. through remediation or restoration
	<b>Frequency</b>	How often the effect will occur. (once, rarely, occasionally, frequently, constantly – or hourly, daily, weekly, monthly, annually).
	<b>Types of Effects</b>	<b>Indirect (a.k.a. Secondary or Off-site Effects)</b>
<b>Direct</b>		Where an archaeological / heritage feature / site is physically located within the footprint of the Proposed Development whereby the removal of part or all of the feature or site is thus required.
<b>Cumulative</b>		The addition of many minor or significant effects, including effects of other projects, to create a larger, more significant effect.
<b>'Do-Nothing'</b>		The environment as it would be in the future should the subject project not be carried out.
<b>'Worst-case'</b>		The effects arising from a project in the case where mitigation measures substantially fail.
<b>Indeterminable</b>		When the full consequences of a change in the environment cannot be described.
<b>Irreversible</b>		When the character, distinctiveness, diversity or reproductive capacity of an environment is permanently lost.

<b>Residual</b>	The degree of environmental change that will occur after the proposed mitigation measures have been implemented.
<b>Synergistic</b>	Where the resultant effect is of greater significance than the sum of its constituents, (e.g. combination of SOx and NOx to produce smog).

Source: EPA Guidelines on Information to be contained in environmental impact assessment reports (2022)

### 13.2.3 Statement on Limitations and Difficulties Encountered

No significant limitations were encountered during field work, however two of the proposed turbine locations (T5 & T6), the borrow pit/deposition areas and the substation site were only partially inspected due to the dense forestry and consequently these locations were not fully assessed. An Unmanned Aerial Vehicle (UAV) survey at these locations returned negative results. It is considered that the assessment contained in this chapter is representative of the proposed development.

## 13.3 Existing Receiving Environment of Proposed Development

### 13.3.1 Archaeology

The proposed development occupies parts of six townlands in Co. Clare: Ballycar South, Ballycar North (both in Tulla Lower Barony), Ballycannan East, Ballycannan West, Cappateemore East and Glennagross (all four in Bunratty Lower Barony). There are six National Monuments located within 10km of the proposed development, 177 Recorded Monuments within a 5km radius of the study area and five Recorded Monuments in close proximity to the proposed development, with one feature within the planning boundary.

The assessment of effects on setting can be subjective and as such is a matter of qualitative, professional judgement and experience. Established 10km and 5km study zones mentioned above are based on several similar projects undertaken by the author in the past as well as site visits and desk based study of archaeological monuments in the area. Based on professional judgement and experience, these study zones are deemed appropriate for the current assessment.

#### 13.3.1.1 National Monuments in State Care

A *Circa* 10 km radius zone was established to National Monuments due to importance and sensitivity of these sites and potential cultural visual effects on the settings of the monuments.

There are no National Monuments in State Care / Guardianship within the planning boundary of the proposed development. There are six National Monuments in State Care / Guardianship situated within the 10km wider study area of the proposed development *viz*: one in Co. Clare and five in Co. Limerick (**Figure 13-1, Table 13-2**). The assessment of these monuments was undertaken to establish potential cultural visual effects.

**Table 13-2: National Monuments in State Care / Guardianship within 10km study zone**

<b>SMR No.</b>	<b>Class</b>	<b>Status</b>	<b>Nat. Mon. No.</b>	<b>Townland</b>	<b>ITM (E)</b>	<b>ITM (N)</b>	<b>Distance from proposed Wind Farm</b>
CL062-001004	Castle - hall-house (Bunratty Castle)	Guardianship	478	Bunratty East	545111	660925	9.8km to the E
LI013-009001	Church x2 (Mungret Churches)	Ownership	85	Baunacloka	554342	653972	8.4km to the S
LI013-009002					554318	653867	8.5km to the S
LI005-009	Church, graveyard, Children's burial ground	Guardianship	366	Limerick City, Kilrush	555686	656832	5.4km to the S
LI005-017014	Castle (King John's)	Guardianship	288	Englishtown, Limerick City	557689	657804	4.7km to the S
LI005-017004	Castle – tower house (Fanning's Castle)	Ownership	383	Englishtown, Limerick City	557932	657533	5km to the S





Figure 13-1: National Monuments in State Care in 10km study area.

### 13.3.1.2 Recorded monuments within 5km study area

A *Circa* 5km radius study zone of the proposed development was established to assess potential visual effects on the settings of recorded monuments. The zone was created on professional experience as well as analysis of the landscape and site inspection supported by drone survey.

Examination of the Sites and Monuments Records (SMR) / Record of Monuments and Places (RMP) revealed 177 recorded monuments within a 5km radius zone from the outer limits of the proposed development boundary. (Figure 13-2 and Appendix 13B). Of the 177 recorded monuments in the 5km radius study zone of the development boundary, four are located in proximity of the development and one within the planning boundary. These are:

- Ring barrow CL052-064003;
- Standing stone CL052-064002;
- Cairn CL052-064001;
- Enclosure CL053-040; and
- Earthwork CL053-049.

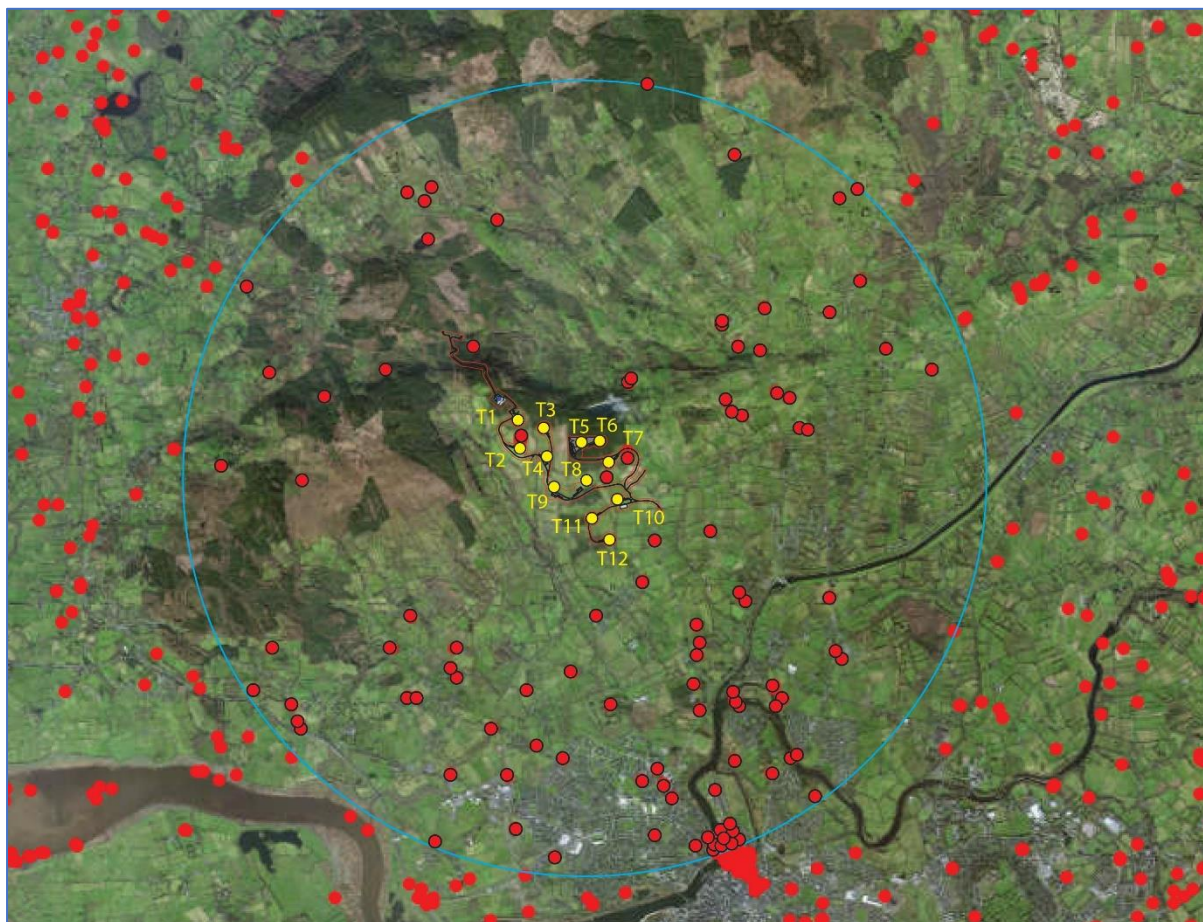


Figure 13-2: Recorded monuments within 5km radius of the proposed development

### Cultural Context

#### *Mesolithic Period (6000-4000BC)*

Up to the recent past, the earliest evidence of human occupation in Ireland has been at Mount Sandel in Co. Derry which has been radiocarbon dated to the Mesolithic or Middle Stone Age period c.8,000 BC (Woodman, Anderson & Finlay 1999, 131-151). However, recent research by Dr. Marion Dowd in collaboration with Dr. Ruth Carden has undertaken analysis of cut marks on the patella or kneecap of a bear in the National Museum of Ireland originally found in Alice and Gwendoline Cave in 1903, located c. 25km NW of the proposed development that has established that the marks were made by humans who were present in Ireland 2,500 years earlier than had previously been thought, i.e. at the end of the Palaeolithic or Old Stone age period some 12,500 years ago. *'The adult bear bone was one of thousands of bones originally discovered in Alice and Gwendoline Cave, Co. Clare in 1903 by a team of early scientists. They published a report on their investigations and noted that the bear bone had knife marks'* (Dowd & Carden 2016). Palaeolithic and Mesolithic people were hunter-gatherer-fisher transient nomadic groups whose imprint on the landscape was ephemeral at best. Often the only trace of Mesolithic activity is scatters of stone tools and the by-products of their manufacture, debitage. Occasionally, shell middens are also found to date to the Mesolithic period.

There are no Mesolithic sites recorded within the 5km study area of the proposed development.

### ***Neolithic Period (4000-2500 BC)***

The Neolithic period is marked by the introduction of agriculture to Ireland which was accompanied by more permanent settlement, forest clearance and construction of rectangular timber houses. The Neolithic period is also associated with the tradition of megalithic tomb construction of which there are four main types: court tombs, portal tombs, passage tombs and wedge tombs whose floruit extends into the Bronze Age. These monumental structures required a high level of cooperation and planning which is suggestive of existing complexity in Neolithic societies.

The earliest monuments within the 5km study area are represented by two wedge tombs. This type of monument has their origin in the late Neolithic period, but they were more common in the Bronze Age and thus they are discussed below.

### ***Bronze Age (2500-500 BC)***

The Irish Bronze Age (2400–500 BC) is associated with the arrival of metal-working techniques to the island and this technological advancement resulted in the introduction of a new artefactual assemblage into the Irish archaeological record. This period was also associated with the construction of several new monument types including standing stones, stone rows, stone circles, cairns and *fulachta fiadh*, otherwise known as burnt mounds.

Wedge tombs represent the final phase of megalithic tomb construction in Ireland, and generally date to the early phase of the Bronze Age. The name ‘*wedge tomb*’ derives from their shape as they are generally broader and higher at the front, narrowing towards the rear. There are two wedge tombs located within the 5km study area of the proposed development. Wedge tomb, CL044-068, is situated at Knockshanvo townland c.5km to the N of the proposed turbines. The tomb was described in the Survey of The Megalithic Tombs of Ireland (de Valera & Ó Nulláin 1961, 81). A second wedge tomb (CL052-039) at Cloghoolia is described in the Megalithic Survey as ‘*very ruined*’ (ibid, 88).

Barrows are low profile earthen monuments and have a long currency of use with examples known from the Bronze and Iron Ages and extending to the arrival of Christianity in the 5<sup>th</sup> century and possibly as late as the 7<sup>th</sup> century AD (Toal 1995, 69). They are essentially regarded as burial sites although several sites have produced no burials at all (Daly & Grogan 1992, 12). One cairn (CL052-064001) is situated within the planning boundary of the proposed development at Glennagross (see below, **Section 13.3.1.3**).

The evidence of other Bronze Age activity occurs principally in the form of burnt mounds, more commonly referred to as ‘*fulachta fiadh*’ in the archaeological literature. These are the most prolific Bronze Age monument type present in the Irish landscape and date, by and large, to the Middle Bronze Age (1600-1200 BC). *Fulachta fiadh* have often been seen as reflecting temporary hunting camps where meals were expediently prepared in prehistoric times. The early work of M.J. O’Kelly, particularly his experiments relating to excavations of burnt mounds at Ballyvourney, Co. Cork, have often been cited as concrete evidence that cooking was the primary purpose of these monuments (O’Kelly 1954). They are usually recognized by the presence of mounds of heat shattered stone and charcoal enriched soil.

These burnt mounds are usually associated with a large trough, which was used to boil water. Apart from the traditionally suggested activities of cooking, more recent excavations have revealed possible connections with other types of activity include brewing, (Quinn and Moore, 2009), tanning (Waddell, 1998), bathing and partaking in saunas (Eogan and Shee Twohig, 2012). *Fulachta fiadh* require a water source to fill the trough and are usually located in boggy, marshy land or beside a river or stream. Three *fulachta fiadh* are recorded within the 5km study area of the proposed development. CL052-076 is situated at Oatfield townland in a very boggy area on a small headland jutting S into Coolmeen Lake, c.3km to the NW of the proposed turbines. The second *fulacht fiadh*

(CL053-036) is located at Coolderry c.4.5km NE of the proposed development on a slight SE-facing slope in a large wet field in pasture. According to National Monuments Service (NMS) database: *'during an inspection on 18 September 2017 there were no visible remains at ground level. There is no evidence of ground disturbance in the area on aerial photographs as early as 26/5/2004 (Google Earth) and so the monument is likely to have been levelled before that time. Sub-surface deposits may survive'* ([www.archaeology.ie](http://www.archaeology.ie)). The third recorded *fulacht fiadh* (LI005-108) was situated c.5km SE from the proposed development at Corbally townland, Co. Limerick. It was excavated under licence no. 02E1177 during the Limerick Main Drainage Scheme ([www.excavtion.ie](http://www.excavtion.ie)).

In an orthostatic context, Bronze Age activity in the area is represented by standing stones. Standing stones are sometimes difficult to date; however, it is generally accepted that they belong to the Bronze Age and / or Iron Age. They appear to have served a variety of functions. Many were used as burial markers to designate the location of a cist grave, which was a simple slab-lined grave containing, cremated remains or single flexed articulated burials, usually accompanied by grave-goods. Certainly, standing stones appear to have been largely of ritual significance. Other standing stones are believed to have served as territorial markers to denote the extent of tribal or familial land boundaries. The NMS define them as *'A stone which has been deliberately set upright in the ground, usually orientated on a north-east-south-west axis, although other orientations do occur, and varying in height from 0.5m up to 6m. They functioned as prehistoric burial markers, commemorative monuments, indicators of routeways or boundaries and date from the Bronze and Iron Ages (c.2400 BC - AD 500), with some associated with early medieval ecclesiastical and burial contexts'* ([www.archaeology.ie](http://www.archaeology.ie)). There are three standing stones within the 5km study area. The nearest is CL052-064002 at Glennagross townland situated outside of the proposed development boundary (see below **Section 13.3.1.3**). The second standing stone (CL063-006) is located at Quinspool South c.2.8km to the S of the proposed turbines. The stone is depicted on the 1<sup>st</sup> Ed. 6" 1840-1842 OS map but does not appear on the subsequent 25" 1893 OS edition. It is possible that the stone was moved or destroyed during the second half of the 19<sup>th</sup> century. Currently there is small forestry plantation at the location. The third standing stone (CL062-037) is situated c.3km SW of the proposed turbines at Bullsfarm. It is not depicted on any of the historic OS maps. The site was not inspected in the course of this study; however examination of Google Maps does show the possible standing stone at the location.

The final type of prehistoric monument within the 5km study area comprises of two cairns. The first example is an unclassified cairn, CL052-064001, located at Glennagross within the proposed development boundary (see below **Section 13.3.1.3**). The second cairn (LI005-005) is situated at Clondrinagh c.4km to the S of the proposed turbines and is an example of a burial cairn. It was partially excavated under Licence No. 03E1144, during which fragments of cremated human bone were found in a discrete deposit on the old ground surface beneath the cairn ([www.excavations.ie](http://www.excavations.ie)).

### ***Iron Age (500BC-AD 400)***

As elsewhere in Munster, monumental evidence dating to the Iron Age in Co. Clare is not plentiful. There are no recorded sites of this date within the 5km study area.

### ***Early Medieval Period (AD 400-1169)***

The Early Medieval period is more or less coeval with the arrival of Christianity and continued up to the arrival of the Anglo-Normans in the late 12<sup>th</sup> century, between c.400–1169 AD. Settlement in this period (often referred to as the Early Christian or Early Historic periods) is best exemplified monumentally in a secular context by ringforts and are one of the most numerous archaeological monuments found in Ireland.

Ringforts are subdivided into those of earthen construction known as a *rath* or *lios* or those of dry-stone construction that are referred to as a *caiseal*, *caher*, *cathair* and *dún*. Ringforts are also referred to as *raths* derived

from the Old Irish word *ráth*, meaning ‘earthen rampart’ while others are known as *lios* or *liss* which refers to the ringfort’s interior space. The morphology of ringforts generally comprises of an earthen enclosing bank that was constructed by the casting up of material by the excavation of an outer circular or sub-circular ditch otherwise known as a fosse. In more prestigious examples there can be two (bi-vallate) or three (tri-vallate) enclosing banks and ditches. According to Stout (1997, 24), the majority of ringforts were constructed over a three-hundred-year period between the start of the 7<sup>th</sup> century and end of the 9<sup>th</sup> century AD. They represent enclosed farmsteads probably occupied by extended family units and are likely to have been largely self-sufficient. Domestic dwellings, outhouses, animal pens, food processing structures, craft areas, hearths and souterrains would have been located within the enclosing circular bank and ditch while other activity including corn drying kilns and iron working / smelting activity was often undertaken nearby outside for fire safety considerations. Farming included a mixed economy involving cereal growing and animal husbandry, in particular, dairying. Evidence of corn grinding, iron working, glass manufacture, spinning and weaving and food preparation have been recorded in association with domestic and animal timber dwellings and structures.

There are seven recorded ringforts within the 5km study area. The nearest is CL053-041 located at Ballycannon townland on a slight W-facing slope in very wet rough pasture, c.700m to the E of proposed Turbine 12. It is a subcircular in shape (c.50m x 45m) with a maximum bank height c.2.5-3m and a partially surviving fosse ([www.archaeology.ie](http://www.archaeology.ie)). The second ringfort (CL052-042) is situated at Glennagross on the edge of forestry plantation c.1.4km to the NW of the proposed turbines. This large circular ringfort is clearly depicted on the 1<sup>st</sup> Ed. 1840 OS map but changed to a more sub-oval shape on the later 25” 1893 OS map. No above surface remains of the monument are denoted on the current OS maps or on recent aerial images. Ringfort (CL052-063) is located within the forestry plantation at Reaskcamoge c.3km to the W of proposed turbines. It is depicted only on the 25” 1893 OS map as a sub-oval single hachured feature. Ringfort CL062-025 at Meelick is situated c.3km to the SW of the proposed turbines. It is clearly visible on a suite of aerial imagery as a large sub-oval feature overgrown with trees. Three other ringforts are located c.5km from proposed turbines viz:

- LI005-006 at Knock townland to the SSW of the proposed turbines and visible as a partially tree-lined sub-oval monument on Digital Globe orthophotos taken 2011-13 and on Google Earth orthoimage taken 05/04/2006. The ringfort is depicted only on the revised 1938 Ed. OS 25” map ([www.archaeology.ie](http://www.archaeology.ie));
- CL062-016 in Cratloe townland located to the SW of the proposed turbines. It is denoted on all historic OS maps and is clearly visible on aerial imagery; and
- LI005-002 at Coonagh East townland on gently undulating pasture, overlooking the River Shannon to the SW of the proposed turbines. It is depicted on all historic OS maps and visible on aerial imagery as a tree-lined sub-circular feature.

A total of thirty (30) enclosures are recorded within the 5km study area (**Table 13-3**). Some of these monuments are likely to represent denuded / levelled ringforts. If only a portion of these enclosures are dated to Early Medieval Period, then this, when added to the known ringforts in the area, may suggest quite a dense population settlement of the area at this time. Most of the recorded enclosures within the 5km study area are disposed around the proposed development to the N, NE and S. There are none west of the proposed development, and only five to the northwest.

**Table 13-3: Recorded enclosures in the 5km radius study area**

SMR No.	Description	Townland	Distance from proposed development
CL044-069	On poor quality pasture at the edge of small forestry. Denoted on all historic OS maps.	Drumsillagh or Sallyban	c. 4.6 km to the NE
CL052-037	No over-surface evidence of an enclosure. Not on OS historic maps.	Ballyroe, Corlea	c. 4.6 km to the NW
CL052-040	On rough pasture within close distance to each.	Oatfield	c. 4.3 km to the NW
CL052-041	On flat pasture and abutting farmhouse.	Oatfield	c. 3km to the NE
CL053-004	On flat pasture.	Aharinaghbeg	c. 3.8m to the NE
CL053-005 & CL053-006	Both enclosures situated on flat pastures near to each other.	Kilmore	c. 5km to the NE
CL053-007	Highly overgrown enclosure situated on the pasture	Aharinaghbeg	c. 4.5km to the NE
CL053-027, CL053-028 & CL053-030.	Three enclosures situated close to each other.	Trough & Glenlon North	between 1.8-1.9km to the E
CL053-031	On pasture.	Trough	c. 2.6km to the NE
CL053-033 & CL053-034.	On rough pasture.	Trough	c. 2.8km E
CL053-040	Situated c.300m to the ENE of proposed Turbine 7, outside of the planning boundary For full description refer to <b>Section 13.3.1.3</b>	Refer to <b>Section 13.3.1.3</b>	Refer to <b>Section 13.3.1.3</b>
CL062-017	Large enclosure located on rough pasture. Depicted on all historic OS maps but its location was modified in recent times.	Cratloekeel	c. 5km to the SW
CL062-022	Examination of Google Earth images showed no clear evidence of the enclosure at this location.	Woodcockhill	c. 3.7km to the SW

SMR No.	Description	Townland	Distance from proposed development
CL062-023.	Flat pasture	Meelick	c. 3.7 km to the SW
CL062-026	Flat pasture	Meelick	c. 3.3 km to the SW
CL063-001	Flat pasture	Pass	c. 2.6 km to the SW
CL063-002	Flat pasture	Gortgarraun	c. 2.2 km to the S
CL063-005	Flat pasture	Castlebank	c.2 km to the SE
CL063-009	On pasture at the edge of the forestry.	Castlebank	c. 2 km to the SE
CL063-013	Depicted on 1 <sup>st</sup> Ed. OS map but in present day it is situated within the housing estate and there is no trace of it above ground.	Gortatogher	c. 3.5 km to the SE
CL063-014	On pasture abutting house estate.	Gortatogher	c. 4km SE
CL063-016	On pasture abutting private house	Derryfadda	c. 5km SE
CL063-029 & CL063-031	Both monuments are situated on a small rise in gently undulating pasture	Parteen	c. 2.2km to the SE
LI005-012	Investigations of this monument were undertaken in 1956 prior to its demolition as part of the works associated with the construction of surrounding housing scheme ( <a href="http://www.archaeology.i.e.">www.archaeology.i.e.</a> )	Ballynanty Beg	c. 4km to S
LI005-053	On low-lying pasture, c. 1km to N of the River Shannon. Identified as a possible enclosure during examination of OS aerial survey (1995) and carried out in advance of the development of the Limerick South Ring Road ( <a href="http://www.archaeology.ie">www.archaeology.ie</a> ). Monument is not visible on Digital Globe orthophoto (2011-13) or Google Earth images.	Clonmacken	c. 5km to the S

More or less coeval with the development of ringforts is the arrival of Christianity in Ireland. Monasticism was the principal characteristic of the Irish Christian Church whose origins lay in the Eastern Mediterranean inspired by Saints like Paul and Anthony who had retreated into the deserts of Egypt to live as hermit monks. Through time, this monastic concept migrated into Ireland most likely through Gaul where its arrival had a profound impact on the existing spirituality of the Irish and witnessed the development of the '*Celtic Church*'- a term that fell out of favour with more modern scholars but appears to be winning back somewhat today. Irish placenames with the word *dísert* (disert) is a memory of this.

Some of Early Christian sites contain holy wells, many of whose origins can be pushed back to the prehistoric period associated with pre-Christian elder faiths ([www.archeology.ie](http://www.archeology.ie)). There are three recorded holy wells within the 5km study area. The nearest one is CL063-004 situated in pasture at Ballycannan c.1km to the S of the proposed development. The monument is depicted on all editions of the historic OS maps. The second holy well (CL053-001) is located at Cloonsheerea on hilly terrain c.2.4 km to the NE. It is depicted on all historic OS maps as *Tobermochulla*. The third holy well (CL062-019) is situated at Cratloemoyle in rough ground c.5km to the SW. It is denoted on all historic OS maps as '*St. John's well*' and is associated with John the Baptist.

The final possible early medieval monument within the 5km radius study area is a house, CL052-079. Some local accounts equate this monument as the burial place of Crimthann mac Fidach, a reputed High King of Ireland in the 4<sup>th</sup> century AD ([www.archeology.ie](http://www.archeology.ie)). The house site is located on a prominent location on top of a natural mound set into a steep N-facing slope with extensive clear views from W through N to E and c.2.2 km to the W of the proposed turbines.

#### ***High Medieval Period (AD 1169-1600)***

The high medieval period began with the arrival of the Anglo-Normans in Ireland in AD 1169 when Diarmait MacMurchadha, deposed King of Leinster, sought the support of mercenaries to regain his kingdom. Two years later Richard de Clare (Strongbow) inherited the Kingdom of Leinster through marriage and by the end of the 12<sup>th</sup> century the Normans had succeeded in conquering much of the country (Stout and Stout 1997, 53).

One of the most common and the paradigm example of monuments during this period are castles built by the Normans during the 12<sup>th</sup>-14<sup>th</sup> centuries, which were mainly structures of prestige meant to impress more than defend. These castles were large enough to house lords and their families, as well as the small armies they hired to defend them. The late 14<sup>th</sup> century saw the recovery of much of the territory taken by the Normans and is represented by the construction of tower-houses by both the Anglo-Normans and Gaelic-Irish during the period c.1400-1650. There was a dramatic reduction in scale of these towers when compared to the Norman castles and although the tower houses were considerably smaller in scale, they were still an indication of status as well as defensive structure. A tower house CL062-021 is situated on the north side of the N18 c.5km SW of the proposed turbines. This five-storey tower house known as Cratloemoyle Castle is said to have been built by the MacNamara Clan and stands on a small rocky outcrop. The tower may be a later modification of the typical late 15<sup>th</sup> century tower house and probably dates from 1480 to 1550 ([www.archaeology.ie](http://www.archaeology.ie)). It was last occupied by John MacNamara up to 1780. Ecclesiastically, Cratloe Church CL062-020 is located at the same field as the castle.

A recorded castle, LI005-050001 (c.3.6km to the S), is depicted as a tower house type structure surrounded by a cluster of dwellings on the Down Survey map (c.1556 - 58) but no surface trace of this monument can be noted in the present day.

Castle CL053-042 is situated c.1.6km to the E of the proposed development. It is also known as the castle of Drummin and was built about 1579 by Fineen MacNamara. Nothing of the original structure exists today apart from a small c.20m section of masonry wall on the road boundary beside a two-storey farmhouse



([www.archaeology.ie](http://www.archaeology.ie)). Another castle (CL063-008) together with a fish weir CL063-008001 is situated at Parteen townland on a small island in the River Shannon. It is known as *Caislean na Corran* ('the castle on the weirs') and was an outpost for the Irish garrison during the 1651 siege of Limerick. From its design and detail, it would appear that it was constructed between the mid-15<sup>th</sup> and late 16<sup>th</sup> century ([www.archaeology.ie](http://www.archaeology.ie)). The castle is located c.3.2 to the SE of the proposed development and is concealed by a line of trees.

A cluster of three monuments (castle CL063-025001, earthwork CL063-025002 and mound CL063-025003) are situated c.3.4km to the SE of the proposed turbines. There are no obvious above ground remains of the castle today.

### **Post Medieval Period (AD 1600-1900)**

In the mid-17<sup>th</sup> century Ireland was in ruins, over 20% of the population was dead after twelve terrible years of war starting in 1641 at the outbreak of the Catholic Confederation Wars, ultimately resulting in victory for the English armies under Oliver Cromwell in 1652. After the introduction of the Penal Laws (in effect from 1695-1829), there were extensive restrictions on Irish Catholics.

There are a number of recorded castles or houses possible from this period within the 5km study area. One of the earliest is LI005-010. The castle was built and occupied in 1620 by the O'Brien's of Thomond. It is situated on the Clare / Limerick border c.2.5km to the south of the proposed development. The castle is surrounded by trees.

Another 16<sup>th</sup>-17<sup>th</sup> century tower house CL062-027 is located c.2.9km SW of the proposed turbines. Castle CL063-010 and burial ground CL063-028 are situated c.2.3km to the SE. It is likely that Castlebank House, which is a late 19<sup>th</sup> century remodelling of an earlier 18<sup>th</sup> century farmhouse, stands on the site of this castle. A keystone from a mantelpiece decorated with the O'Brian coat of arms and dated 1578 (CL063-010001) is built into the gable of the two-storey structure outside the main entrance gate to the yard ([www.archaeology.ie](http://www.archaeology.ie)).

Castle CL053-029 is situated on an elevated site c.20m above surrounding fields and c. 2.5km to the NE of the proposed development. There is no evidence of any buildings above ground level at the present day. *Circa* 1.1km SE of the castle is a 19<sup>th</sup> c. house (CL053-051) which takes its name from the castle. It is depicted on 6" OS maps as 'Trough Castle (in Ruins)' ([www.archaeology.ie](http://www.archaeology.ie)).

Three Children's Burial Grounds (CBG's) are situated within the 5km radius study area. These sites are often referred to as *killeens*, *cealluraghs* or *ceallúnaigh*. The practice of burying children and infants in separate set aside places appear to have occurred in Ireland since at least the late medieval period. It reflects the refusal by church authorities to allow the burial of unbaptised children on consecrated grounds. Some studies have shown that the burial of infants was often carried out shortly after death, at night, usually by male members of the family. In many instances burials are marked by low uninscribed upright slabs.

CBG, CL053-002, is located at Cloonsheera townland on rough pasture c.2.4km to the NE of the proposed development.

CBG, (LI005-007), known locally as 'Crag Grave Yard' is situated c.3.4km to the S, at Clonconane.

A church CL053-026001 and third CBG, CL053-026 of unknown date are located c.700m to the NE of the proposed development at Kilmoculla. There are no visible traces of these monuments on Google Earth aerial imagery.

CBG, CL063-003, is located beside a housing estate (Elton Court) c.1.3km to the S of the proposed development. It is depicted on 1<sup>st</sup> and 2<sup>nd</sup> Ed OS maps.

In an ecclesiastic context, a church CL053-032001 and existing graveyard CL053-032002 are situated c.2.6km to the E of the proposed turbines in the townland of Trough. Large (2011) records that no trace of the church survives at the site, while the graveyard appears to be largely utilised in the 19<sup>th</sup> and 20<sup>th</sup> centuries.

Another church CL063-011001 and graveyard CL063-011002 are located at Kilquane on level pasture by the River Shannon c.3.6 km to the SE of the proposed turbines.

A post 1840 church, CL052-043, in good condition and still in use is situated c.3.6km NW of the proposed turbines.

Burial ground CL062-024 is situated at Moneennagliggin townland in rough pasture c.3.2km to the SE of the proposed development. The site is depicted on the 1<sup>st</sup> and 2<sup>nd</sup> Ed. OS maps.

Two other recorded burial grounds are situated within the 5km radius study area, LI005-014 & LI005-022. The first one Ballynanty Beg is not depicted on the 1840-42 OS map but it is recorded in the 1938 edition and denoted as '*St Bridget's*'. It is no longer in use as a graveyard. The final graveyard at Corbally is barely visible in outline as an irregular-shaped earthwork and is situated c.4.5km to the SE of the proposed development.

In a wider cultural context, there are three recorded bridges within the 5km radius study area. The nearest bridge, CL063-007, is located at Quinspool and was built by the Mayor of Limerick in 1635 over a stream flowing W to E into the River Shannon c.3.1km to the SE of proposed turbines. Examination of Google Street shows that bridge it is well hidden by a line of trees.

The second bridge (CL062-049) known as Meelick Bridge, traverses the Crompaun River or Meelick Creek connecting the townlands of Clonconane to Meelick. It may have been built on the site of the medieval bridge that is depicted on the 17<sup>th</sup> century Down Survey map. The bridge is situated c.3.5km to the SW of proposed turbines.

The third bridge (CL063-026) and nearby fish weir LI005-023 are situated c.4.4km to the SE of the proposed development. This fine granite five arched bridge known as '*Athlunkard Bridge*' was completed in 1830.

Other recorded monument types within the study area include:

- A fish weir LI005-020 ('Lax Weir') which is denoted as a 'Salmon Weir' on the 1840-42 OS 6" map spanning the River Shannon from the townland of Corbally, Co. Limerick to the townland of Parteen, Co. Clare. This c.300m long line of the Lax Weir can still be seen today on Digital Globe orthoimages taken between 2011-13 ([www.archaeology.ie](http://www.archaeology.ie));
- A bastioned fort, LI005-114, erected in June 1651 by Cromwellian forces at Farranshone Beg ([www.archaeology.ie](http://www.archaeology.ie)). There is no surface trace of the monument visible today;
- Fortification CL063-030 at Athlunkard. No above ground trace of the monument in the present day;
- Brickworks LI005-003 at Clondrinagh. No visible above ground trace of the monument in the present day; and
- A gallows, CL052-069, located at Gallows Hill is depicted on all historic OS maps and situated c.4.5km to the W of the proposed development. No above ground trace of the gallow is visible, however Gallows Hill is untouched and open to the public.

### ***Limerick City/Limerick Historic Town LI005-017***

Field inspection, combined with drone survey revealed that the northern limits of Limerick City, including the recorded Limerick Historic Town (LI005-017), are visible from the proposed development site. Examination of the Sites and Monuments Records (SMR) / Record of Monuments and Places (RMP) identified seventy-five (75) differing monuments within the 5km radius study area that overlaps the northern limits of Limerick City.

### 13.3.1.3 Recorded monuments within the planning boundary and close proximity to the proposed development

Examination of the Sites and Monuments Records (SMR) / Record of Monuments and Places (RMP) listed five monuments within close proximity to the proposed development boundary (**Figure 13-3, Table 13-4**), with only one of these within the planning boundary. This study zone was created to enclose recorded monuments and cultural heritage structures in the vicinity of the proposed development to establish potential physical effect and visual effects on the setting of the closest located monuments.

**Table 13-4: Recorded monuments within proposed development and close proximity (www.archaeology.ie).**

SMR No.	Class	Townland	ITM (E)	ITM (N)	Distance
CL052-064001	Cairn - unclassified	GLENNAGROSS	554582	663910	c. 90m to N of T2, c. 320m S of T1 & c. 430m E of T3
CL052-064002	Standing stone	GLENNAGROSS	554590	663953	c.120m to N of T2, c.270m to S of T1 & c. 400m W of T3.
CL052-064003	Barrow - ring-barrow	GLENNAGROSS	554601	663947	c. 110 S of T2. c.270m S of T1 & c. 390m W of T3
CL053-040	Enclosure	BALLYCAR SOUTH	556211	663738	c. 300m to ENE of T7
CL053-049	Earthwork	BALLYCANNAN EAST	555910	663362	c.240m to the S of T7 & c. 300m to N of T10



**Figure 13-3: Recorded monument within the planning (red line) boundary and close proximity to proposed development**

***Cairn CL052-064001 (Glennagross Townland)***

This sub-oval cairn (mound of stones and earth) is situated in close proximity to two other recorded monuments (barrow CL052-064003 and standing stone CL052-064002), and in that context can be viewed as a prehistoric complex (**Plate 13-1**). There are several different types of cairns, however, the precise nature of this one is unclear and therefore it is recorded as ‘unclassified’ by the National Monuments Service ([www.archaeology.ie](http://www.archaeology.ie)). The close location to the ring-barrow and the standing stone suggests a prehistoric origin for the cairn which is not depicted on any of the historic OS maps. The cairn is located c. 90m to N of proposed Turbine 2; c. 320m S of Turbine 1 and c. 430m to the E of Turbine 3. In general, the monument is in a good state of preservation.

Ultimately, the cairn, ring-barrow and standing stone appear to conform as a prehistoric ritual complex (**Plate 13-1**).



**Plate 13-1: Cluster of three recorded monuments located c.90m – 120m to the N of proposed Turbine 2**

***Standing Stone CL052-064002 (Glennagross townland)***

This small, amorphous, somewhat squat standing stone is located in close proximity to and part of a prehistoric complex that includes ring-barrow CL052-064003 and cairn CL052-064001 (**Plate 13-1**). The standing stone is situated c.120m to the N of proposed Turbine 2; c.270m to the S of Turbine 1 and c.400m to the W of Turbine 3 and outside the planning boundary. The standing stone is not depicted on any of historic OS maps. It is in very good state, and no damage was noted during the field inspection in the course of this study (**Plate 13-2**).



**Plate 13-2: Standing stone CL052-064002 (from W)**

***Ring barrow CL052-064003 (Glennagross townland)***

This ring-barrow forms part of a prehistoric complex that includes cairn CL052-064001 and standing stone CL052-064002 (see above). The ring-barrow is situated c.110m to the N of proposed Turbine 2; c.270m to the S of Turbine 1 and c.390m W of Turbine 3, outside the planning boundary. The ring-barrow at Glennagross could be regarded as a paradigm example of the monument type as its extant morphological features includes a bank with an external and internal fosse / ditch and flat platform in the centre. There is a small depression approximately in the middle of the barrow which may represent a grave or cremation (**Plate 13-3**). The monument itself is in good state with one small tree/bush growing on the northern part of the bank and is depicted on all historic OS maps.



**Plate 13-3: Ring barrow CL052-064003 (from S)**

Licensed test excavations (22E0744) were undertaken in October 2022 in proximity to this prehistoric complex on the footprint of the proposed access track to Turbine 2 and base of Turbine 2, with negative results and no features discovered.

***Enclosure CL053-040 (Ballycar South townland)***

A recorded enclosure, CL053-040, is situated c.300m to the ENE of proposed Turbine 7, outside of the planning boundary. The enclosure is located on gently sloping southern pasture with the panoramic view of surrounding areas. The bank of the sub-oval enclosure is clearly visible from the air and from the ground also (**Plate 13-4**). A possible entrance is located in the NW quadrant of the monument. No outer ditch was noted during the field inspection. The enclosure bank is in good order and no obvious damage was noted during the field inspection. It is not denoted on the 1<sup>st</sup> Ed. 1840 6" OS map but it is marked 25" 1893 map.



**Plate 13-4: Oblique view of enclosure CL053-040 (from W)**

***Earthwork CL053-049 (Ballycannan East townland)***

The recorded earthwork is situated c.240m to the S of the proposed turbine T7, outside of the planning boundary. Generally, the term ‘*earthwork*’ is used to describe artificial changes in land, typically made from stone and soil, but with no diagnostic features. The location of the monument was highly overgrown during the field inspection, however the drone survey revealed possible changes in the surface that may reflect its footprint (**Plate 13-5**). Closer investigation of the location was not possible due to dense vegetation and proximity to mature and immature forestry.





Plate 13-5: Location of earthwork CL053-049 (from S)

### 13.3.2 Aerial Photography

A suite of aerial imagery was examined including ortho imagery available from the OSi ([www.osi.ie](http://www.osi.ie)) which includes black and white imagery from 1995 and colour imagery from 2000 and 2005. Higher resolution aerial imagery from the OSi via the NMS portal ([www.archaeology.ie](http://www.archaeology.ie)) was also examined as well as sequential aerial imagery from Google Earth (taken between 2006 and 2021) and Bing Maps from 2018. Examination of the aerial imagery failed to reveal any previously unknown features of archaeological potential within the proposed development site or the immediate environs. Targeted UAV imagery of the area was undertaken during the field inspection in May 2021, with additional imagery in June and October 2022. All yielded negative results, with no previously unknown features identified.

#### Excavations Ireland Database

A review of the Excavations Bulletin (1970 – 2021) has revealed that no previous archaeological excavations have taken place within the six townlands of the proposed development ([www.excavations.ie](http://www.excavations.ie)).

### 13.3.3 Topographical Files

Information on stray artefact finds from the receiving environment in County Clare has been recorded by the National Museum of Ireland since the late 18<sup>th</sup> century. There are no records of finds recorded in any of the townlands within which the proposed development is situated. The nearest recorded find is a polished stone axe (NMI Ref: IA/L/1978:1) found in Ardnacrusha SE of the proposed WF ([www.heritagemaps.ie](http://www.heritagemaps.ie)).

### 13.3.4 National Inventory of Architectural Heritage (NIAH)

There are no Recorded Protected Structures (RPS) or structures recorded in the NIAH within the proposed development site. There are 83 RPS in the 5km study zone (Table 13-5).

Table 13-5: Recorded Protected Structures in 5km study zone.

RPS. Ref.	NIAH Ref.	Description	Location
092	20406303	Early 20 <sup>th</sup> century house	Garraun townland, Clare
093	20406302	18 <sup>th</sup> -19 <sup>th</sup> century house	Parteen townland, Clare
102	20405305	Church of the Mother of God (1841-1845)	Cloghera townland, Clare
166	20406304	St. Patrick's Church (1820-1860)	Garraun townland, Clare
168	20406301	St. Patrick's Church (1840-1860)	Parteen townland, Clare
311	20405308	Ardnacrusha Power Station (1924-1930)	Ardnacrusha townland, Clare
3001	21508009	c. 1825 house	Dominick Street/ Old Verdant Place, Limerick
3033	21511008	Our Lady of the Rosary Roman Catholic Church (1951)	Ennis Road/ North Circular Road, Limerick
3259	21511015	c. 1837 house	North Circular Road, Limerick
3281	21511001	c. 1865 house, former Limerick Ryan Hotel	Ennis Road, Limerick
3307	21900502	c. 1750 house	Ballygrennan
3308	21900501	c. 1800 bridge	Clonconane, over River Crompaun
3339	21506001	Saint Camillus's Hospital - Former workhouse	Shelbourne Road, Limerick
3340	21506002	Saint Camillus's Hospital - Chapel	Shelbourne Road, Limerick
3341	21506003	Saint Camillus's Hospital Rehabilitation Centre	Shelbourne Road, Limerick
3342	21506004	Saint Camillus's Hospital- Chimneystack	Shelbourne, Road, Limerick
3383 - 3386	21501001, 21501002	Late 18 <sup>th</sup> to 19 <sup>th</sup> century houses	Mill Road, Limerick

RPS. Ref.	NIAH Ref.	Description	Location
3387 - 3392	21505002, 21505005, 21505006, 21509001, 21509002	19 <sup>th</sup> century houses	Corbally Road, Limerick
3393	21509003	c. 1830 gate lodge	Corbally Road
3394 - 3401	21511009, 21511016, 21511020, 21511004, 21511006, 21511007, 21511017	19 <sup>th</sup> to early 20 <sup>th</sup> century houses	North Circular Road, Limerick
3404 - 3414	21511012 - 21511013, 21511021 - 21511025, 21512022-21512023, 21512052	Late 19 <sup>th</sup> to early 20 <sup>th</sup> Century houses	Ennis Road, Limerick
3417 - 3418	21510001, 21510002	19 <sup>th</sup> century houses	North Circular Road, Limerick
3420	21511010	Early 20 <sup>th</sup> Century house	Lower Shelbourne Road, Limerick
3424 - 3425	21512041 - 21512042	Early 20 <sup>th</sup> Century houses	Ennis Road, Limerick
3427 - 3433	21512044 - 21512045, 21512048 - 21512051, 21512055	Early 20 <sup>th</sup> Century house	Ennis Road, Limerick
3434 - 3448	21512024, 21512026 - 21512030, 21512035 -21512039, 21512031 - 21512033	Late 19 <sup>th</sup> to Early 20 <sup>th</sup> century houses	Ennis Road, Limerick
3457	21512034	c.1890 house	Ennis Road, Limerick
3505 - 3507	21512040, 21512046, 21512047	c. 1900 houses	Ennis Road, Limerick
4323	21503001	Thomond Primary School (1955-1957)	Moylish Road/ Ballynanty Road, Limerick
5047	21501003	c. 1890 house	Mill Road, Limerick
5078	21512025	c. 1900 house	Ennis Road, Limerick
6019	21505003	c. 1915 Post Box	Corbally Road, Limerick
6055	21502002	Bridge	From Corbally Road, Limerick into County Clare.
6056	21505007	Railway Bridge (c. 1860)	Corbally Road on a north-south axis over the Limerick to Sligo Great Southern and Western Railway line.
7000	21505004	c. 1840 house	Corbally Road, Limerick
7002	21512043	c. 1900 house	Ennis Road, Limerick

### 13.3.5 Archaeological Landscapes

Examination of the Clare County Council Development Plan (2023-2029) revealed that the proposed development site is not situated within a designated archaeological landscape.

### 13.3.6 Cultural Heritage Sites

Cultural heritage assets can incorporate both archaeological and built heritage remains which are not subject to statutory protection, or which have not been previously recorded as heritage assets in any known datasets. To identify cultural heritage sites within the study boundary, historic Ordnance Survey mapping, aerial photographs and field inspections were assessed.

A characteristic of the post-medieval rural landscape are vernacular buildings, the majority of which represent dispersed domestic dwellings or farm complexes. ‘*Vernacular*’ is a term used to describe traditional buildings constructed using locally available materials and according to local styles. Vernacular structures were usually built of local rubble stonework using lime mortar or more rarely clay. Depending on the region and county, vernacular buildings were constructed with red brick, limestone, sandstone or a combination of those two together. Examples of other structures that may fall into this category include shops, outbuildings, mills, limekilns, farmsteads, forges, gates and gate piers.

Limekilns are the most widely distributed and common industrial sites in the Irish landscape. They generally date to the 18<sup>th</sup>, 19<sup>th</sup> and 20<sup>th</sup> centuries but origins of these features in Ireland may extend back to the medieval period. Lime kilns were generally constructed of stone and built into rock faces or earthen banks, which allowed easy access to the upper opening for filling with limestone and turf.

Examination of the pre-famine 1<sup>st</sup> Edition OS 6” map of 1840-42 (**Figure 13-4**) revealed a number of structures within the proposed planning boundary (**Table 13-6**). A c.100m corridor encompassing the proposed access tracks/internal grid connection between the turbines was assessed. This corridor was established due to potential features or sites associated with the vernacular structures depicted on historical mapping. Within this 100m wide corridor a total of four pre-famine structures or settlements were noted. Examination of the historic 1893 OS 25” map (**Figure 13-5**) revealed that three of the four structures had survived by that time (**Table 13-6**).

In a wider cultural context, the northernmost limits of the proposed development extend across baronies (in boundary between Tulla Lower to the north and Bunratty Lower to the south). These ancient territorial boundaries are depicted in yellow on the 1<sup>st</sup> Ed. OS historic maps. This ancient barony boundary is also the parish boundary between St. Munchins and O’Briensbridge, depicted in green on the OS map (**Figure 13-4**). The easternmost limits of the proposed development also extend across the parish boundary of St. Patrick, known locally as the parish of Kilquain.

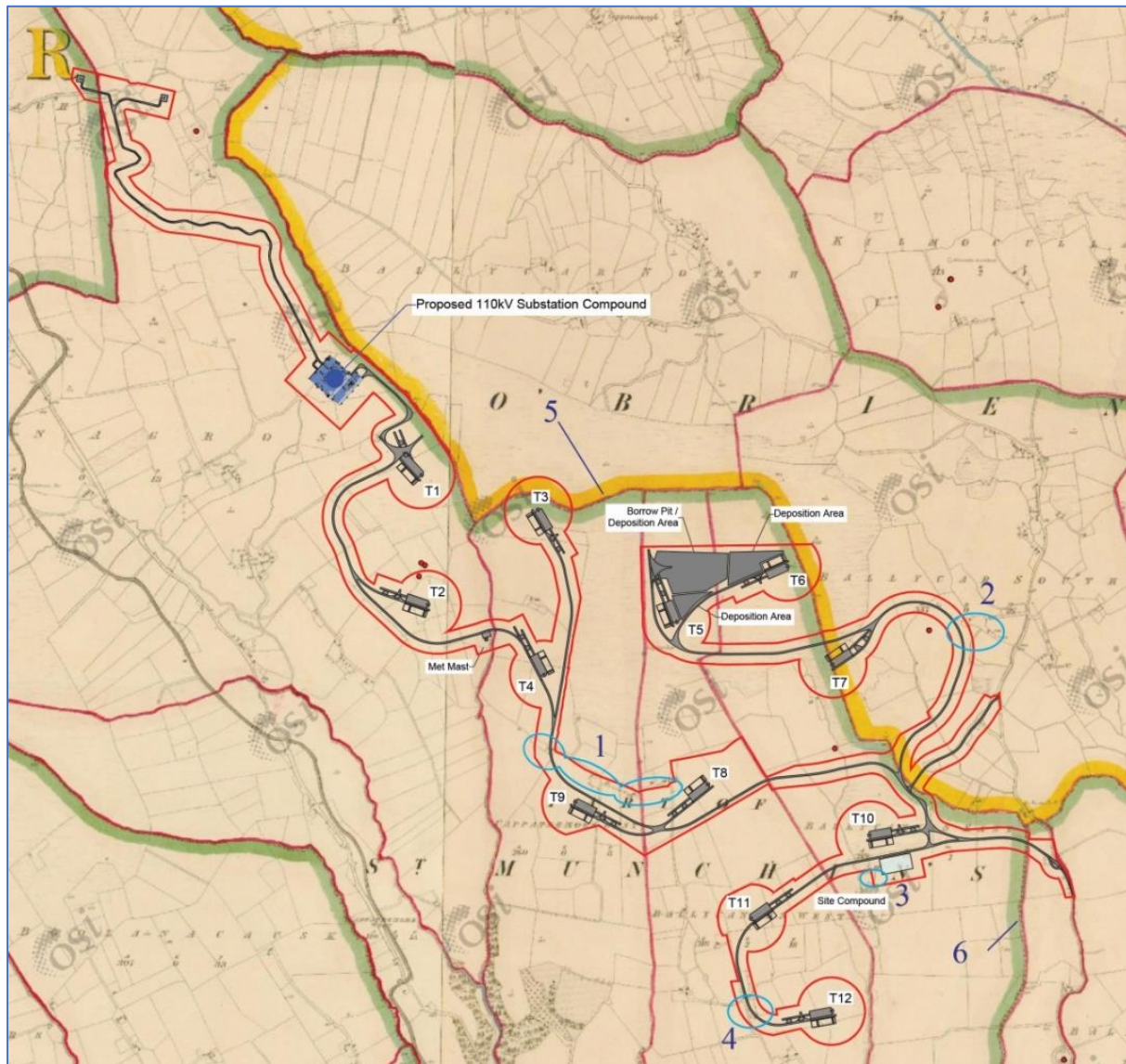
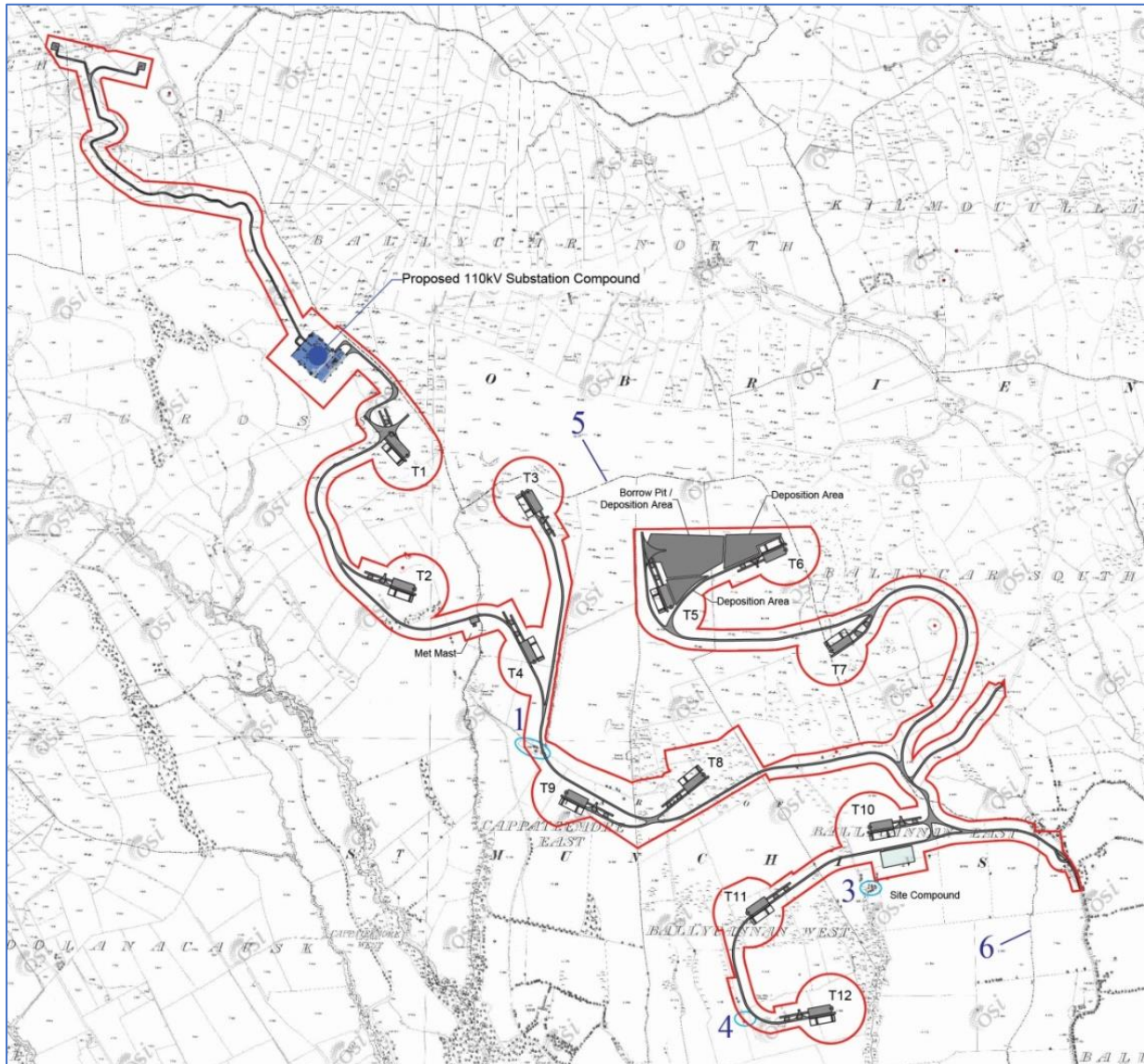


Figure 13-4: Extract from 1<sup>st</sup> Ed. OS 6" map with proposed internal access track /grid connection overlain. Note location of pre-famine structures circled in blue



**Figure 13-5: Extract from 2<sup>nd</sup> Ed. OS 25'' 1893 map with proposed access track / grid connection overlain. Note location of vernacular structures circled in blue**

**Table 13-6: Cultural heritage sites within the 100m wide corridor of proposed tracks/internal grid connection**

Map ID	Description	Depicted on 1 <sup>st</sup> Edition OS 6'' map of 1840-42	Depicted 1893 OS 25'' map	Distance from proposed grid connection / turbines	Field inspection results
1	Dwellings	Yes	Only three buildings depicted	Western limits of settlement adjacent to access track	No trace on the surface
2	Dwellings/lime kiln	Yes	No	Dwellings located c.40 m to the E of access track	No trace on the surface

Map ID	Description	Depicted on 1 <sup>st</sup> Edition OS 6" map of 1840-42	Depicted 1893 OS 25" map	Distance from proposed grid connection / turbines	Field inspection results
				and lime kiln adjacent to track	
3	Dwelling	Yes	Yes	Almost adjacent to proposed site compound to the W	No trace on the surface
4	Dwelling	Yes	Yes	Adjacent to access track	Possible location visible, no above-surface remains
5	Barony/parish boundary	Yes	Yes	Adjacent to access track	Visible
6	Parish boundary	Yes	Yes	Adjacent to access track	Visible

### 13.3.7 Cartographic Research

#### 13.3.7.1 Down Survey (1656-1658)

In the mid-17<sup>th</sup> century, Ireland was in ruins, over 20% of the population was dead after twelve terrible years of war starting in 1641 at the outbreak of the Catholic Confederation Wars, ultimately resulting in victory for the English armies under Oliver Cromwell in 1652. Cromwell immediately set about an immense project of social engineering underpinned by a massive transfer of landownership from the native Catholics to English Protestants. For this to happen, the land had to be accurately mapped and surveyed and this enormous undertaking was given to Wm Petty who was surgeon-general in the English army. This was the largest land survey of its kind anywhere in the world at the time and was undertaken between 1656-1658 and was known as the Down Survey. The survey to measure all the forfeited land was necessary in order to facilitate its re-distribution to the ownership of the English Protestant. For this to happen an act known as the Act of Settlement of Ireland was passed on the 12<sup>th</sup> August 1652 that divided the defeated Catholic Royalists into eight different classes. The leaders of the first six classes not only forfeited their lands but were also sentenced to death. The seventh class represented swordsmen under the rank of gentlemen who forfeited two-thirds of their land while the eighth class were those who remained neutral and if Catholic, lost one third and if Protestant lost one twentieth. The forfeiting landowners were commanded to appear at Loughrea immediately after Christmas 1653 and to bring with them their Certificates of Transplantation issued by the Cromwellians.

The proposed development occupies parts of six townlands in Co. Clare: Ballycar South, Ballycar North, Ballycannon East, Ballycannon West, Cappateemore East and Glennagross. The Down Survey ([www.downsurvey.tcd.ie](http://www.downsurvey.tcd.ie)) was examined for all six the townlands of the proposed development (**Table 13-7**). No post medieval features were noted for the six townlands. Three of the six townlands of the proposed development are denoted at Down Survey map (**Figure 13-6**). Also, the 1659 Census for the Glennagross townland shows that in total, 95 people were living at the townland, 87 of which were English.

**Table 13-7: Townlands of the proposed development study boundary in Down Survey Map as per original spelling**

Townland	Down Survey Name	1641 Owner(s):	1670 Owner(s):	Parish	Profitable land (plantation acres)	Unprofitable land (plantation acres)	Forfeited
BALLYCAR SOUTH	Ballycarnegillog	Sir Barnaby Brian, Catholic	Barnabas earl of Thomond, Protestant	Killalow	108	108	108
BALLYCAR NORTH	Ballycarneerum	Sir Barnaby Brian, Catholic	Barnabas earl of Thomond, Protestant	Killalow	157	44	157
BALLYCANNAN EAST	Ballyhanon	Barnabas earl of Thomond, Protestant	Barnabas earl of Thomond, Protestant	St Muntions	N/A	N/A	N/A
BALLYCANNAN WEST	Ballyhanon	Barnabas earl of Thomond, Protestant	Barnabas earl of Thomond, Protestant	St Muntions	N/A	N/A	N/A
CAPPATEEMORE EAST	Capintemore	Barnabas earl of Thomond, Protestant	Barnabas earl of Thomond, Protestant	St Muntions	91	45	N/A
GLENNAGROSS	Cloaneregosse	David oge White, Catholic	Dame Ellinor Gallway, Catholic	St Muntions	371	186	371





Figure 13-6: Extract from Down Survey Map with three of the six townlands of the proposed development denoted

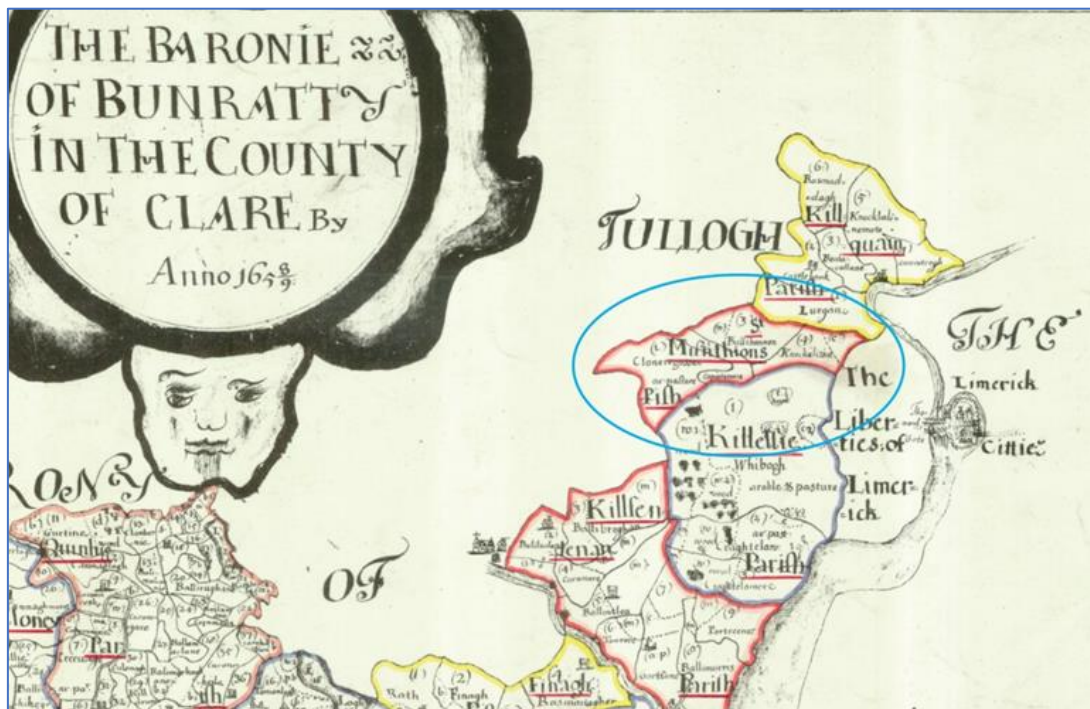


Figure 13-7: Extract from Down Survey Maps with parishes Killaloe & St Muntions marked

### 13.3.8 Placename

Townlands comprise 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 layout and nomenclature of the Irish townlands were recorded and standardised by the work of the Ordnance Survey in the 19<sup>th</sup> century. The Irish roots of 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. For instance, placename elements such as *lis*, *dun* and *rath* indicate the presence of a ringfort; while *kill* and *temple* suggest an association with a church site. Of relevance here is the placename Ballycar which translates as the townland of the cairn (see below).

The proposed development, traverses six townlands in Co. Clare. With the exception of Ballycar North and Ballycar South, which are located in the Parish of O'Briensbridge and in the ancient Barony of Tulla Lower (*An Tulach Íochtarach*), all other townlands within the proposed development are situated in the Parish of Saint Munchins, within the ancient Barony of Bunratty Lower (*Bun Raite Íochtarach*). A description and possible explanation of each townland name within the proposed development are provided in the table below (Table 13-8).

**Table 13-8: Townland names and meaning**

Townland	Irish Name	Translation
Ballycar South	<i>Baile an Chairn Theas</i>	Baile- <i>townland, town, homestead</i> Carn- <i>cairn, pile of rocks</i> Homestead of Cairn The place of the pillar stone (Frost 1978)
Ballycar North	<i>Baile an Chairn Thuaidh</i>	Baile- <i>townland, town, homestead</i> Carn- <i>cairn, pile of rocks</i> Homestead of Cairn
Ballycannan East	<i>Baile Uí Chanáin Thoir</i>	Baile- <i>townland, town, homestead</i> Ó (also: Uí) Homestead of Uí Chanáin
Ballycannan West	<i>Baile Uí Chanáin Thiar</i>	Baile- <i>townland, town, homestead</i> Ó (also: Uí) Homestead of Uí Chanáin
Cappateemore East	<i>Ceapach an Tí Móir Thoir</i>	ceapach(also: ceapaigh)- <i>plot of land, tillage plot</i> mór- <i>great, big</i> teach (also: steach, stigh, tigh)- <i>house</i> Land of the great house
Glennagross	<i>Gleann na gCros</i>	crois(also: cros)- <i>cross; crossroads</i> glean- <i>glen</i> (the valley of the crosses erected there to mark the boundary of the Diocese of Limerick (Frost 1978))

### 13.3.9 Site Location and Description

#### General

An initial field inspection for the proposed development was undertaken in ideal weather conditions at the end of May 2021. Field walking consisted of: (1) inspection of the location of the proposed turbines and surrounding areas; (2) inspection of the recorded archaeological monuments within the study boundary of the proposed development and (3) drone survey of the area. Furthermore, the vast majority of the proposed internal grid connection / access tracks were surveyed on the ground and included in the drone survey. Some sections,

however, were completed as part of the desk-based research and complemented by a UAV survey due to dense forestry and limited access. The site is located on the hills of southeast Clare with views to the north, south and east with a nearby view of Woodcock Hill, the highest summit to the west.

### Turbine 1

Proposed turbine 1 (T1) will be situated on rough, unimproved land covered with high grass and rushes (**Plate 13-6**). The ground is very uneven and was wet during the field inspection. Turbine 1 (T1) will be located c.270m to the N of recorded monuments: ring-barrow CL052-064003; standing stone CL052-064002 and c.320m of cairn CL052-064001 (refer **13.3.4.3**). There is also a barony boundary located c.120 to the E of proposed T1. No previously unknown archaeological features or monuments were found during field inspection.



**Plate 13-6: Location of proposed Turbine 1 (from N)**

### Turbine 2

Proposed turbine 2 (T2) will be situated on generally flat, grassy pasture situated c.110m to the S of the recorded complex of monuments: ring-barrow CL052-064003; standing stone CL052-064002 and c.90m to the S of cairn CL052-064001 (**Plate 13-7**). No previously unknown archaeological features or monuments were found. Archaeological test trenches were opened on the footprints of the access track and hard standing area, with negative results. No previously unknown archaeological features or monuments were found at the location of T2.



**Plate 13-7: Barrow CL052-064003 situated c. 110m to the N of proposed Turbine 2 (from N)**

### Turbine 3

Proposed turbine 3 (T3) will be located on unimproved, rough, hilly terrain. Several large boulders and stones were noted in the area; however no potential standing stones or rock art was noted during the field walk. The field is covered with grass and marsh plants (reed) and was dry during the field walk (**Plate 13-8**). T3 will be situated c.100m to the S of barony boundary. There is a small vernacular settlement denoted on the 1<sup>st</sup> Ed. 1840-42 OS maps, located c.200m to the south of the proposed turbine. Field inspection revealed no above ground remains of these buildings. No previously unknown archaeological features or monuments were found.



**Plate 13-8: Location of proposed Turbine 3 (from S)**

#### **Turbine 4**

Proposed turbine 4 (T4) will be located on very uneven and hilly terrain similar to the location of T3. The field consists of pasture covered with marsh and furze in places (**Plate 13-9**). Frequent large stones and boulders were noted in the field, but no potential standing stones or rock art was noted. No previously unknown archaeological features or monuments were found.



**Plate 13-9: Location of proposed Turbine 4 (from E)**

#### **Turbine 5**

Proposed turbine 5 (T5) will be located within the existing forestry area. No field walking was done at this location due to dense forestry and no access. A drone survey was completed with negative results. No archaeology was found (**Plate 13-10**).

#### **Turbine 6**

Proposed turbine 6 (T6) will be located in the existing forestry land. No field walk was done at this location due to dense forestry and no access. A drone survey was completed with negative results, however, the location of the proposed T6 is almost abutting barony boundary to the W (**Plate 13-10**).



**Plate 13-10: Location of proposed Turbines 5 and 6 within existing forestry (view from SE)**

### **Turbine 7**

Proposed turbine 7 (T7) will be located on an undulating, unimproved, field covered with high grass, marsh and furze in places (**Plate 13-11**). Some large stones or boulders were noted during field inspection. No potential standing stones were noted. Turbine T7 will be situated c.300m to the W of the recorded enclosure CL053-040 and c.240m to the N of the recorded earthwork CL053-049. No previously unknown archaeological features or monuments were found during field walking.



**Plate 13-11: Location of proposed Turbine 7 (from E)**

### **Turbine 8**

Proposed turbine 8 (T8) will be situated on SE sloping pasture with some marshy patches. The field seems to be reclaimed land as it is better quality and appears cleared of boulders (**Plate 13-12**). Nothing of archaeological interest was noted during the field inspection.





**Plate 13-12: Location of proposed Turbine 8 (from E)**

### **Turbine 9**

Proposed turbine 9 (T9) will be situated on good quality, south sloping pasture (**Plate 13-13**). There is a settlement denoted on 1<sup>st</sup> Ed. OSI maps consisting of at least twelve buildings and some of them are located within the planning boundary. Field inspections however, revealed no trace of these structures on the surface. Nothing of archaeological interest was found.



**Plate 13-13: Location of proposed Turbine 9 (from NE)**

#### **Turbine 10 and Proposed Temporary Compound**

Proposed turbine 10 (T10) will be located on improved, gently sloping south pasture (**Plate 13-14**), c.300m to the S of the recorded earthwork CL053-049. The proposed temporary compound will be situated in the adjacent field south of the turbine in a flat slightly marshy field. Based on the 1st Ed OSi map, a small single house was present almost abutting the compound to the west. Drone survey and field inspection revealed no trace of the vernacular structure and no previously unknown archaeological features at the location.



**Plate 13-14: Location of proposed Turbine 10 and temporary compound (from NW)**

### **Turbine 11**

Proposed turbine 11 (T11) will be situated on rough, unimproved pasture. The field is covered with grass and marsh in places (**Plate 13-15**). Nothing of archaeological interest was noted during the field inspection.



**Plate 13-15: Location of proposed Turbine 11 (from SE)**

### **Turbine 12**

Proposed turbine 12 (T12) will be situated on the south sloping improved pasture (**Plate 13-16**). There is a small settlement and limekiln situated c.200m to the W of the proposed turbine location denoted on 1<sup>st</sup> Ed. 6" OS map. The settlement was not clearly visible during field inspection, but its location was noted on aerial photography. Nothing of archaeological interest was noted.



**Plate 13-16: Location of proposed Turbine 12 (from N)**

**Proposed Borrow Pit and Deposition Areas**

The proposed borrow pit and deposition areas will be located within the existing forestry, between Turbines 5 and 6. The field walk at this location was undertaken in February 2023. Desk based research combined with field inspection results revealed the existing townland boundary of Ballycannan West and Ballycannan East expands N-S across the proposed borrow pit/deposition area. The boundary is covered with forestry and consists of a ditch and two banks on the sides of the ditch (**Plate 13-17**).



**Plate 13-17: Ballycannon West and Ballycannon East townland boundary at the location of proposed borrow pit/deposition area**

#### **Proposed Substation**

The proposed substation will be situated c.350m NW of proposed T1 within existing forestry. No field inspection was undertaken there due to dense forestry and limited access. Drone survey was completed with negative results, and no archaeological features were found.

#### **Internal access tracks/internal grid connection**

Sections of the internal access track/internal grid connection within the proposed development boundary will traverse along existing farm access tracks, with additional internal access tracks situated on previously unexcavated or undisturbed ground. The northernmost section of the internal access track/internal grid connection will traverse through mature forestry to connect the turbines. Some sections also will traverse through or in close proximity to the sites of the pre-famine structures (see **Section 13.4.6**). Field inspection revealed that there is no visible trace of these buildings on the surface, however their remains could survive below ground and in that context, archaeological monitoring will be required and carried out.

The proposed internal access track/internal grid connection will extend through the boundary of the Parish of O'Briensbridge in the ancient Barony of Tulla Lower and the Parish of Saint Munchins, within the ancient Barony of Bunratty Lower at the E and NE limits of the proposed development (see **Section 13.4**).

## 13.4 Existing Receiving Environment of the Proposed Grid Cable Connection

### 13.4.1 General

The proposed underground connection between T1 and the proposed 110kV substation is routed along existing forestry tracks and through conifer forestry to the north west of the wind farm site and connects to the proposed 110kV substation. From the proposed 110kV substation, an underground cable is routed in a north west direction where it connects to the existing 110 kV overhead line. The proposed 110kV grid route is approximately 1.5km in length. 1.0km of the 110kV grid route is proposed within existing tracks, with the remaining 0.5km routed through conifer forestry. It also crosses a 3m wide local public road. A new unbound stone access track will be constructed over the 110kV grid route on private lands to allow access for future maintenance (Figure 13-8).

### 13.4.2 Recorded Monuments along Proposed External Grid Connection

A c.150m corridor encompassing the proposed grid connection was assessed. This is based on a 60m radius Zone Of Notification of the monuments in the area as well as the usually larger Records of Monuments and Places (RMP) zones of the monuments. There are no Recorded Monuments in the c.150 m wide corridor. The closest located monument is an unclassified ringfort CL052-042 situated c.120m to the SE from the connection to the overhead line (Figure 13-8) and consequently there will be no effect on the site of the fort.

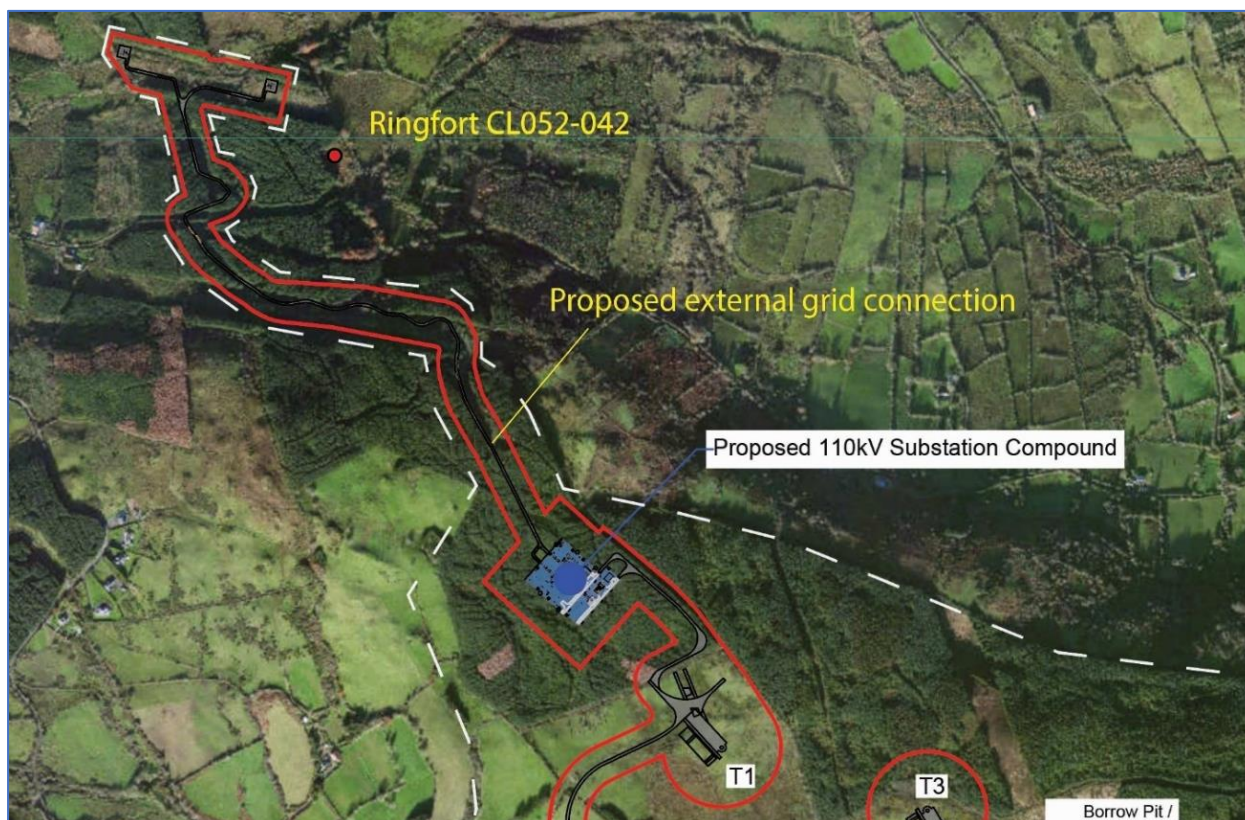


Figure 13-8: Proposed underground grid connection route

### 13.4.3 Excavations Ireland Database

A review of the Excavations Bulletin (1970 – 2021) has revealed that no previous archaeological excavations have taken place within the townland of Glennagross ([www.excavations.ie](http://www.excavations.ie)).

### 13.4.4 Topographic Files

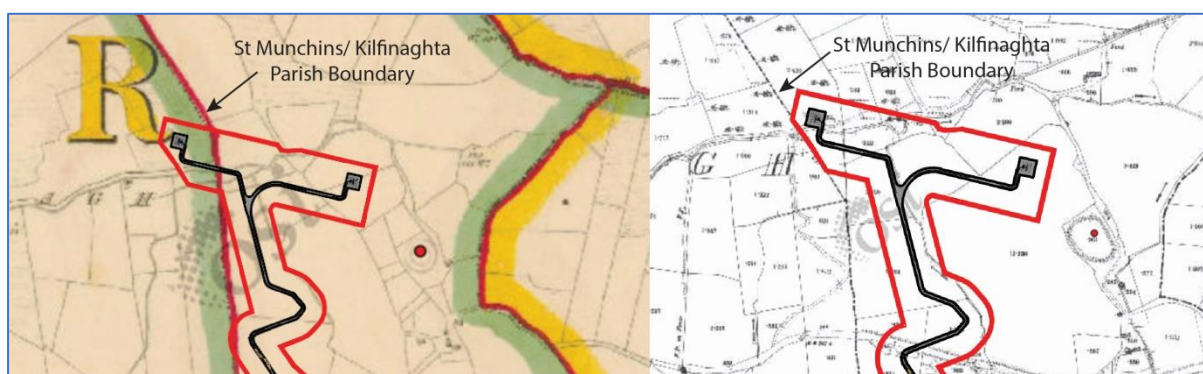
National Museum of Ireland recorded no archaeological artefacts found in close proximity to the proposed cabling route.

### 13.4.5 National Inventory of Architectural Heritage (NIAH)

There are no Protected Structures or structures recorded in the NIAH within the proposed grid connection route.

### 13.4.6 Cultural Heritage Sites

Examination of the pre-famine 1<sup>st</sup> Edition OS 6" map of 1840-42, and 2<sup>nd</sup> Ed. OS 25" 1893 map revealed no vernacular or any post medieval features depicted on the route of proposed grid connection. According to the 1<sup>st</sup> Ed OS map, the most north-western end of proposed grid connection will cross the Parish boundary of St Munchins and Kilfinaghta. The section of the boundary was however relocated since on the 2nd Ed. OS 25" and now is expanding outside of proposed grid connection route (**Figure 13-9**).



**Figure 13-9: Extract from 1<sup>st</sup> Edition OS 6" map of 1840-42 (to the left) and 2nd Ed. OS 25" 1893 map (to the right) showing relocated Parish boundary of St Munchins and Kilfinaghta**

### 13.4.7 Cartographic Research

#### 13.4.7.1 The Down Survey

The Down Survey for the Glennagross townland was examined in a previous section (see **Section 13.3.7.1**) and no post medieval features were noted.

### 13.4.8 Placename

The Placename for the Glennagross townland was examined in a previous section (see **Section 13.3.8**).



### 13.4.9 Sufficiency of Baseline Information

The baseline information gathered and researched over the course of this Archaeological Impact Assessment is sufficient to allow a determination of the significance of effect of the proposed development on the existing archaeological environment.

## 13.5 Likely Significant Effects

### 13.5.1 Proposed Turbines

#### 13.5.1.1 Previously Unrecorded Features and Monuments

There is potential for effects to occur to unknown archaeological features or monuments during the construction phase of the proposed development. This is based on the following:

- The existing recorded monuments within the limits of the proposed development and their proximity to proposed turbines (especially T2); and
- The large number of recorded monuments within the 5km radius study area.

The potential effects are classified as '*moderate*'. The results of recent targeted test excavations in proximity to Turbine 2, in proximity to the prehistoric complex at Glennagross, were negative. In that context, the possibility of discovering previously unknown features in the vicinity of T2 decreases. Archaeological monitoring of all ground works will be carried out during the construction phase.

#### 13.5.1.2 National Monuments

##### General

There will be no direct physical effects by the construction of the proposed turbines and substation to any National Monument. Due to the upland location of the proposed wind farm, an indirect visual effect to the National Monuments in state care within the 10 km radius from the limits of the site has the potential to occur (**Figure 13-10**). However, based on site visits to these National Monuments, there will be a '*not-significant*' to '*slight*' visual effect during the operation stage of the proposed development. The visual effects are discussed further below.

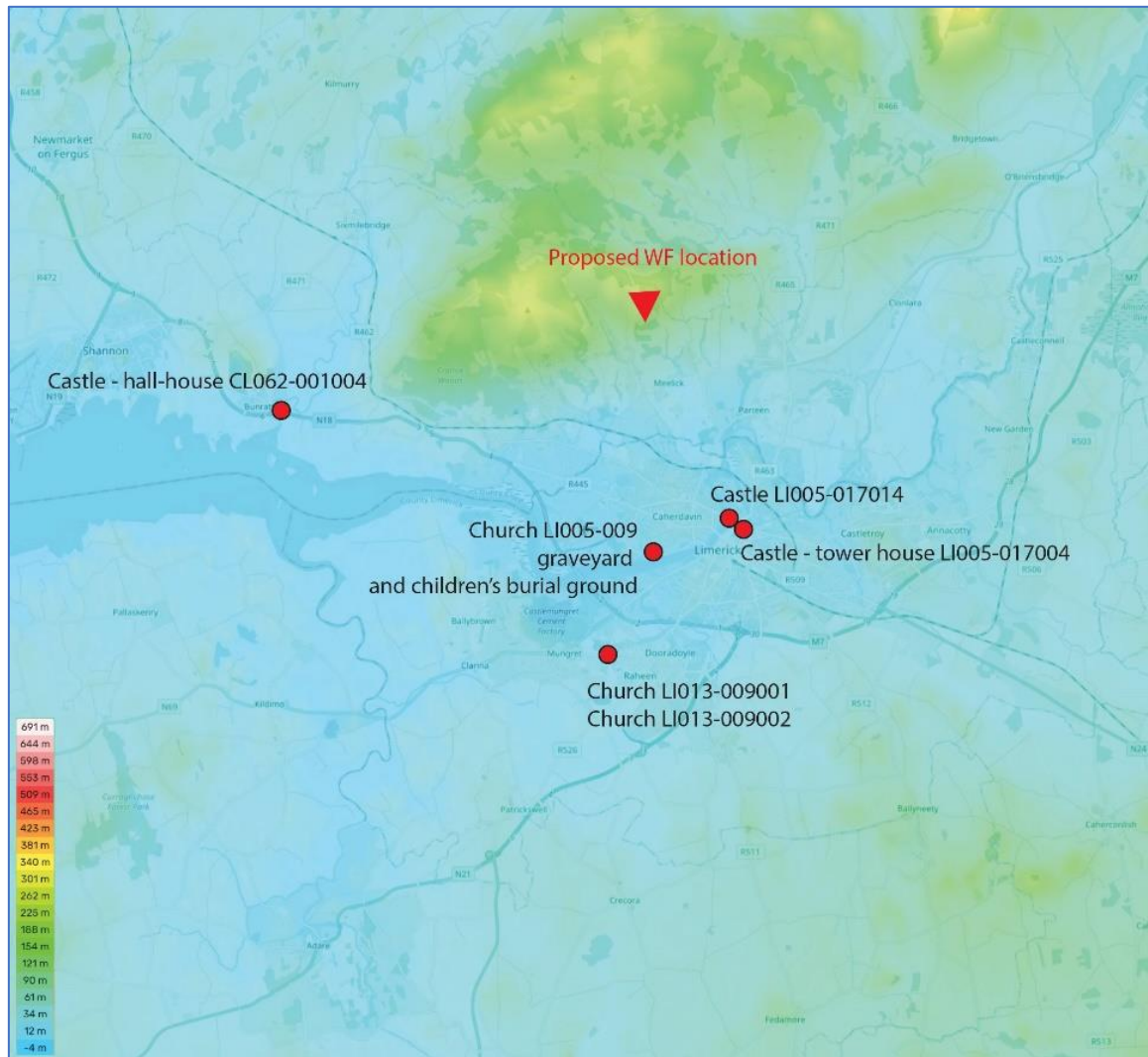


Figure 13-10: Location of the proposed development (red triangle) with National Monuments in 10km radius overlain on topographic map (ie.topographic.map.com)

**Castle hall house CL062-001004(townland of Bunratty East)**

This National Monument is located within the historic town of Bunratty (CL061-011/CL062-001000) on low ground immediately W of the Owenagarney River, c.9.8km to the west of the proposed development. The castle is surrounded by hills from the east. A targeted low altitude drone survey revealed no visible sign of the monument from the proposed development. Ultimately, the site inspection, drone survey (**Plate 13-18**) and topographical assessment revealed that the visual effect to the monument will be *'not significant'*, as turbines will be not visible from the Castle location.



**Plate 13-18: View from the centre of the proposed development towards Bunratty Castle (from E)**

***Churches LI013-009001 and LI013-009002 (townland of Baunacloka)***

These two monuments are situated in close proximity to each other on level ground at the western limits of Dooradoyle (Limerick City suburbs) and c.8.5km from the proposed development. Topographic analysis indicated that the proposed turbines will be visible from the location of these monuments. However, given the distance, and the fact that the location of the site is partially blocked by vegetation, the visual effect on the two churches is classified as *'slight.'*

***Church LI005-009 (Limerick City, Kilrush)***

The well-preserved ruins of the small pre-Norman Kilrush Church (known locally as *'Old Church'* and /or *'St Munchin's Church'*) are today situated in the centre of a small housing estate accessed off the Old Church Road. The church is located c.5.4km to the east of the southern limits of the proposed development. The topographic analysis and field inspection showed that the proposed turbines will theoretically be visible from the location of the monument. However, given the location of the church within a modern housing estate and other surrounding buildings, the visual effect is classified as *'not significant.'*

***Castle Anglo-Norman masonry castle LI005-017014 (Limerick City)***

The royal castle of Limerick is known as King John's Castle (1199-1216). The Anglo-Normans first established a presence in Limerick in 1171 when Donal O'Brien, King of Limerick and Thomond, paid homage to King Henry II. The castle is situated on the wester perimeter of English Town overlooking the Shannon and Thomond Bridge c.4.7km to the south of the proposed development boundary. Examination of topography and desk-based research indicates that the proposed turbines will be visible from the monument especially from the upper levels, ramparts etc. many of which are locations for tourist viewpoints (**Plate 13-19**). The visual effect to the monument

may be classified as *'slight'*. A viewpoint from King Johns Castle has been included in the Landscape and Visual Impact Assessment (**Chapter 12 Landscape and Visual** of the **EIAR**) and **Volume IV** photomontages. Refer to this chapter for a detailed discussion on this viewpoint.



**Plate 13-19: King John's Castle, Limerick. Note the uphill location of the proposed development (online drone image from S, [www.youtube.com](http://www.youtube.com).)**

***Castle- tower house LI005-017004 (Englishtown, Limerick City)***

A late medieval tower house, known locally as Fanning's Castle stands at the S end of King's Island, E of Creagh Lane and S of Mary Street, 55m N of Abbey River and 130m SSE of St Mary's Cathedral (LI005-017015). The castle is located c.5km to the south of the proposed development. Topographical analysis of the monument location revealed theoretical visual effect to the castle. However, given the location of the tower house in the centre of Limerick City, where the monument is well captured by other buildings and no viewing platform is provided from the upper levels of the Castle, the visual effect may be classified as **'not significant'**, as the proposed wind turbines will not be visible.

**13.5.1.3 Recorded Monuments within 5km study zone**

Recorded monuments located within 5km are situated outside of the proposed development footprint and consequently there will be no direct effect to any of them during the construction of the turbines.

Site inspection and drone survey revealed that the proposed wind turbines may be visible from the monuments to differing degrees. Visible effects are based on the distances to the monuments from the proposed development. The class, significance and state of the monuments are also examined. Desk-based research including topographic and examination of Google Earth and Google Street, assists in identifying whether vegetation/buildings in the vicinity of the monuments results in the wind turbines not being visible.

The visual effect on all recorded monuments situated between 3km to 5km from the proposed turbines was classified as *'not significant'* even in the case that turbines may be visible from their location. This is based on the fact that there are no upstanding monuments of high importance within this zone. Monuments within a 3km zone were classified from *'not significant'* to *'slight'*. In this case, class and type of the monument was analysed (as for example: castle, church or ringfort may be more visually impacted than a more low-profile monument with little above ground remains) (Table 13-9).

Visual effect on recorded monuments within the development boundary of the proposed wind farm and in its immediate proximity, were classified from *'moderate'* to *'significant'* (Figure 13-11). This assessment was based on the class and cultural importance of the monuments located within the direct vicinity to the development. These monuments however are located on private land and unauthorised access to these sites is prohibited, which decreases the effect.

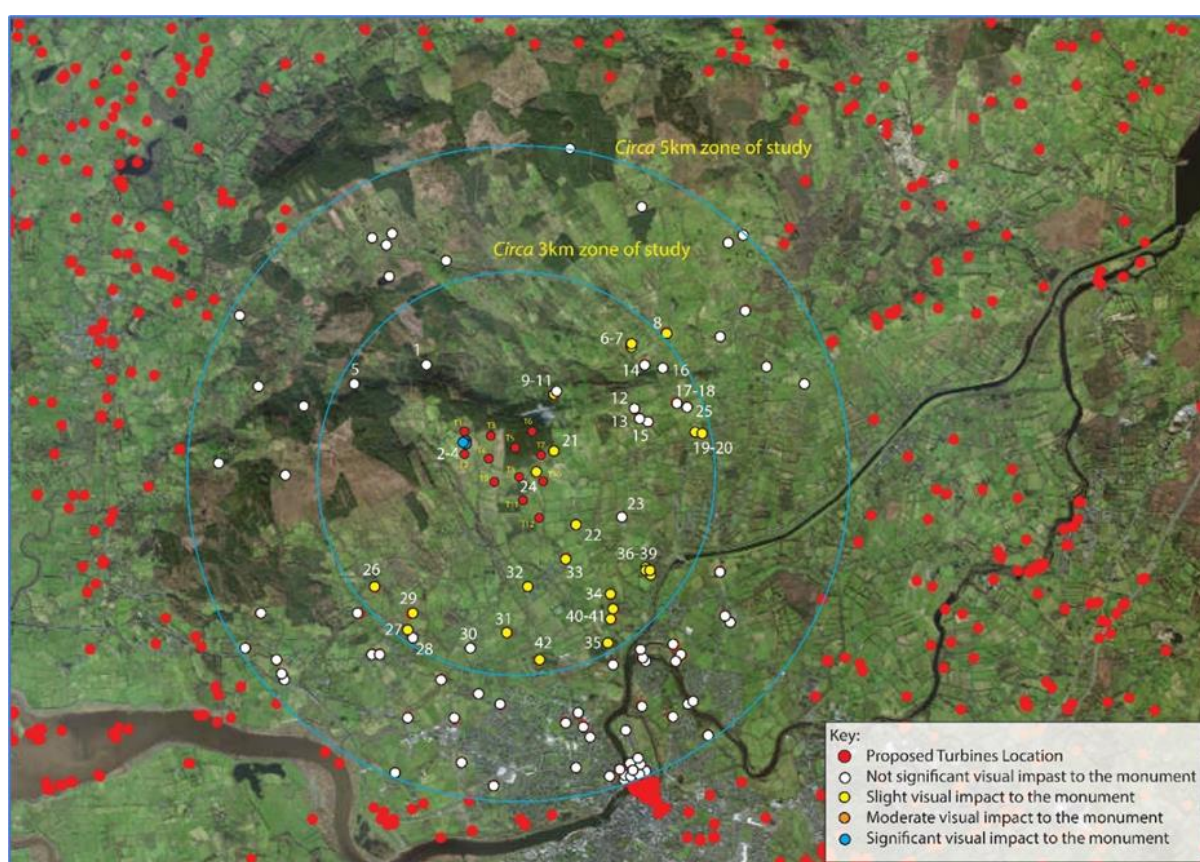


Figure 13-11: Visual effect on recorded monuments in the study area

Table 13-9: Monuments within a 3km radius from the proposed development – visual effect.

Map ID	RMP NO	Monument Type	ITM (E)	ITM (N)	Visual Effect
1	CL052-042	Ringfort - unclassified	553870	665335	Not significant

Map ID	RMP NO	Monument Type	ITM (E)	ITM (N)	Visual Effect
2	CL052-064001-	Cairn - unclassified	554582	663910	Significant
3	CL052-06400	Standing stone	554590	663953	Significant
4	CL052-064003	Barrow - ring-barrow	554601	663947	Significant
5	CL052-079	House - indeterminate date	552516	665001	Not significant
6	CL053-001	Ritual site - holy well	557648	665681	Slight effect
7	CL053-002	Children's burial ground	557669	665721	Slight effect
8	CL053-003	Enclosure	558303	665958	Slight effect
9	CL053-025	Enclosure	556240	664774	Slight effect
10	CL053-026	Children's burial ground	556278	664862	Not significant
11	CL053-026001	Church	556279	664862	Not significant
12	CL053-027	Enclosure	557728	664513	Not significant
13	CL053-028	Enclosure	557805	664362	Not significant
14	CL053-029	Castle - unclassified	557916	665354	Not significant
15	CL053-030	Enclosure	557984	664281	Not significant
16	CL053-031	Enclosure	558246	665271	Not significant
17	CL053-032001	Church	558504	664660	Not significant
18	CL053-032002	Graveyard	558490	664652	Not significant
19	CL053-033	Enclosure	558874	664100	Slight effect
20	CL053-034	Enclosure	558975	664055	Slight effect
21	CL053-040	Enclosure	556211	663738	Slight effect

Map ID	RMP NO	Monument Type	ITM (E)	ITM (N)	Visual Effect
22	CL053-041	Ringfort - rath	556641	662368	Slight effect
23	CL053-042	Castle - tower house	557491	662526	Not significant
24	CL053-049	Earthwork	555910	663362	Slight effect
25	CL053-051	House - 18th/19th century	558693	664571	Not significant
26	CL062-024	Burial ground	552911	661208	Slight effect
27	CL062-025	Ringfort - unclassified	553527	660435	Slight effect
28	CL062-026	Enclosure	553601	660293	Not significant
29	CL062-02	House - 16th/17th century	553581	660721	Slight effect
30	CL063-001	Enclosure	554694	660102	Not significant
31	CL063-002	Enclosure	555364	660352	Slight effect
32	CL063-003	Burial ground	555751	661234	Slight effect
33	CL063-004	Ritual site - holy well	556460	661763	Slight effect
34	CL063-005	Enclosure	557284	661083	Slight effect
35	CL063-006	Standing stone	557262	660189	Slight effect
36	CL063-009	Enclosure	557944	661586	Slight effect
37	CL063-010	Castle - unclassified	558025	661442	Slight effect
38	CL063-010001-	Architectural fragment	558025	661461	Slight effect
39	CL063-028	Burial ground	557970	661540	Slight effect
40	CL063-029	Enclosure	557333	660814	Slight effect
41	CL063-031	Enclosure	557305	660618	Slight effect

Map ID	RMP NO	Monument Type	ITM (E)	ITM (N)	Visual Effect
42	LI005-010	Castle - unclassified	555963	659858	Slight effect

#### 13.5.1.4 Effects on the recorded monuments within the boundary and immediate vicinity of the proposed development

Five monuments are located in the immediate vicinity of the proposed development (**Figure 13-3**) but only one of the five, Cairn CL052-064001, is located within the planning boundary (c.90m to the N of proposed T2). Archaeological testing on the footprints of T2 revealed no previously unknown features in this location and consequently decreases the possibility of the discovery of new features during the construction phase at this location.

Visual effect to the monuments in proximity to the proposed development is classified from '*slight*' (earthwork CL053-049) and '*moderate*' (enclosure CL053-040) to '*significant*' (ring-barrow CL052-064003, standing stone CL052-064002, cairn CL052-064001).

The small prehistoric complex comprising of ring-barrow CL052-064003, standing stone CL052-064002 and cairn CL052-064001 are situated c.110m to the N of proposed T2; c.270m to the S of proposed T1, and c.400m to the SW of proposed T3 and c.500m NW of proposed T4. These monuments will be visually and possibly auditory impacted on by T2 and, to a lesser diminishing extent, by T1, T3 and T4. However, the prehistoric complex is not open to the public as is located on private land. Consequently, unauthorised access to the site is prohibited.

Enclosure CL053-040 is situated c.300m to the E/NE of the closest proposed turbine T7. Field inspection has shown that the enclosure is visible at ground level. However, the enclosure is a very discreet low-profile monument whose relict remains are such that it cannot be classified by visual inspection as to its precise nature. Ultimately, the visual effect to the enclosure is classified as '*slight*'.

Earthwork CL053-049 is located in a highly overgrown area that constrained field inspection and access. The monument is situated c.240m to the S of proposed T7. Drone survey revealed that the monument is difficult to identify on the ground. The visual effect is classified as '*not significant*'.

#### 13.5.1.5 Recorded Protected Structures (RPS) or structures recorded in the NIAH

There are no recorded protected structures or NIAH structures within the boundary of proposed development and consequently there will be no physical effect to any. Similar to the recorded monuments, a c.5km radius zone was established to assess potential visual effect to the recorded structures which was based on: (1) the distances of the structure to the proposed turbines; (2) type of the structure (where for example mail box has less importance than a church); and the setting of the structure (many protected buildings are located within Limerick City and consequently are well hidden by other structures). The assessment was also supported by desk-based research including topographic assessment and examination of Google Earth and Google Street. This assists in identifying whether vegetation/buildings in the vicinity of the structures results in the wind turbines not being visible.



Based on the above, there will be a '*not-significant*' cultural visual effect to the protected structures or structures listed in the NIAH. The closest located structures are Catholic Church of Saint John the Baptist Reg. No: 20406208 (c.2.3km to the SW) and Ardnacrusha Power Station Reg. No: 20405308 (c.2.7km to the SE). The other protected structures are located more than 3km from the proposed development, with the vast majority within the northern limits of Limerick City and significantly screened beyond other buildings (**Table 13-2**).

### **13.5.2 Proposed Substation, Compound, Deposition Areas, Borrow Pit**

Potential unknown archaeological subsurface features may be impacted during the construction phase of the proposed substation, compound, deposition areas and borrow pit. The effects are classified as '*slight*' due to location within an existing forestry area and the fact that potential features may already have been impacted by the forestry. Archaeological monitoring of all ground works will be implemented at these locations.

There will be physical effect to the Ballycannon West and Ballycannon East townland boundary during the construction of the borrow pit/deposition area. Physical effect at this location is classified as '*moderate*'. Archaeological monitoring will be carried out during the construction stage. Any effects by construction to the boundary will be reverted to pre-construction status as part of the restoration of the borrow pit/deposition area.

### **13.5.3 Internal Grid Connection/Access Route**

The proposed internal access track/grid connection route within the boundary of the proposed development will traverse a number of fields that may effect previously unknown archaeological features. Considering the large number of monuments in the area, the effect by the proposed internal access track/grid connection is classified as '*moderate*'.

#### **13.5.3.1 Cultural Heritage Sites**

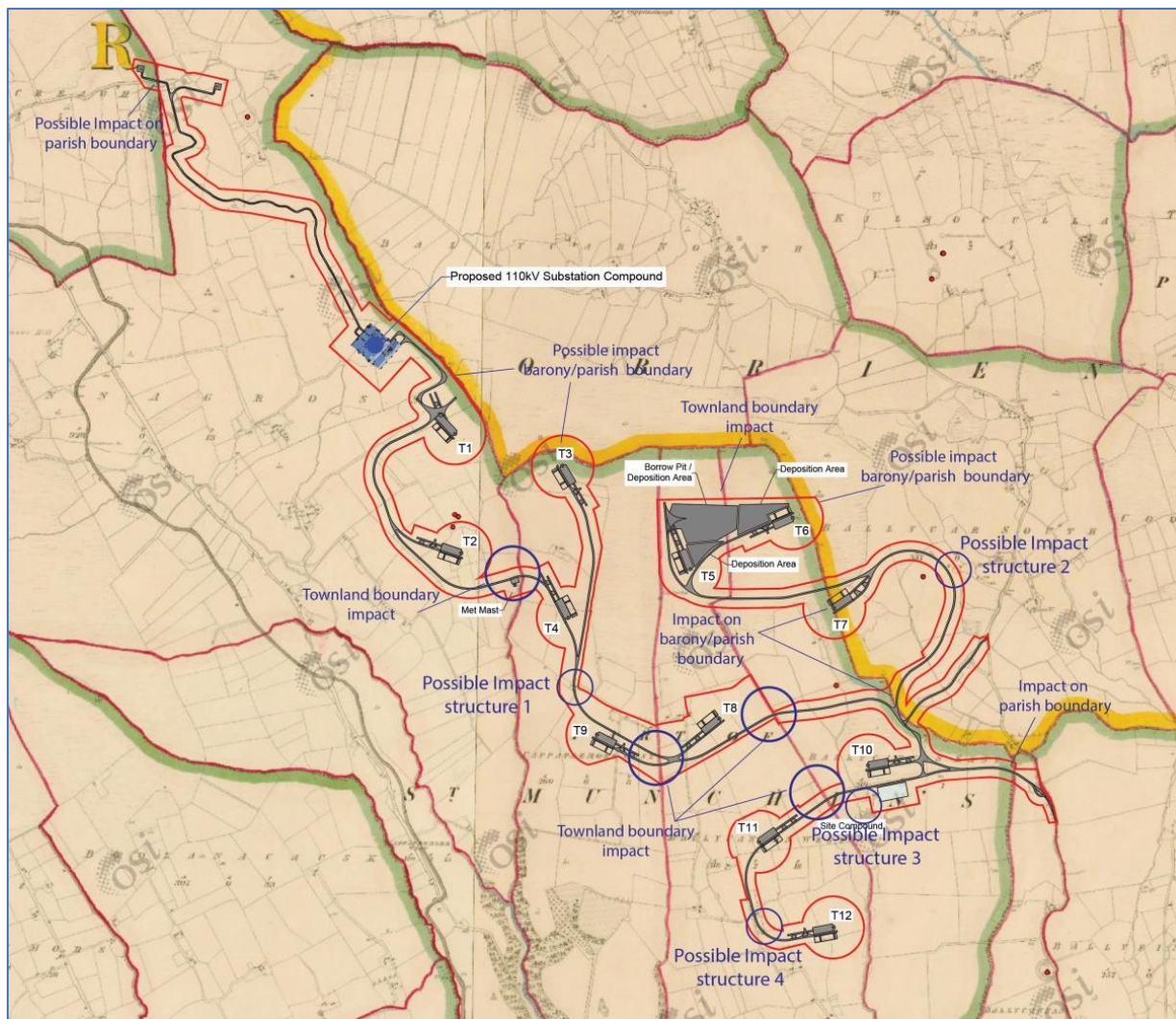
The study of the historic OS maps revealed that the internal access track/grid connection route will cross barony / parish and townland boundaries several times. Therefore, these historic boundaries will be physically impacted during the construction phase and will require archaeological record and monitoring. Physical effect to the boundaries during the construction phase is classified as '*moderate*' (**Figure 13-12**). Proposed mitigation measures (**Section 13.6.1**) and reverting the boundaries to pre-construction phase status (**Section 13.5.7**) will reduce the effect. More detail is provided in the '*Residual Effect*' section.

The field inspection revealed no trace of the pre-famine settlements depicted on 1<sup>st</sup> Ed. OS maps, however, there may be impact to the sub-surface remains of these buildings. Four locations were found on the 1<sup>st</sup> Ed. OSI map. The first one (possible impact on structure 1 on map below: **Figure: 13-12**) was located on the access track route between Turbine 4 and Turbine 9. Based on historic mapping, the route will traverse the small farmyard or dwellings there (**Figure 13-12**).

The second one (possible impact on structure 2) is between Turbine 7 and Turbine 10. Following the OSI map, there was a lime kiln and small dwelling present and the proposed access track will be traversing the kiln or may impact possible remains of the house.

The third southernmost settlement (possible impact on structure 3 on map below) was situated c.5-10m to the W of proposed site compound. It was a single building or possible small farmyard.

The last structure (possible impact to structure 4 on map) was located on the access track in proximity to Turbine 12 (**Figure 13-12**). Following the 1<sup>st</sup> Ed. Map, there was a small cluster of three buildings present and the proposed route may traverse some of them. This impact is classified as *'slight'* due to the lack of any visible remains of any of these structures on the surface, however archaeological monitoring will be implemented at these locations during the construction phase.



**Figure 13-12: Possible direct effect on cultural heritage sites within the proposed development overlain on 1<sup>st</sup> Ed. OS Map**

## 13.5.4 Proposed Grid Cable Connection

### 13.5.4.1 Previously Unrecorded Features and Monuments

The c.1.5km in length external grid route is mainly situated within existing forestry tracks and through conifer forestry. Given the fact that potential archaeological features may have been already impacted by the forestry, then, the effect to previously unrecorded features during the construction phase is classified as *'slight'*.

### 13.5.4.2 Cultural Heritage Sites

Based on the 1<sup>st</sup> Ed OS map, there will be a physical impact to the Parish boundary of St Munchins and Kilfinaghta at the most north-western end of proposed grid connection. Comparing the historical maps (the 1<sup>st</sup> Ed OS map and the 2<sup>nd</sup> Ed. OS 25") the boundary was relocated; however remains of the original boundary may still survive. This effect is classified as '*slight*' and archaeological monitoring on this section will be carried out.

## 13.5.5 Construction Phase

### 13.5.5.1 Summary of Effects

#### Indirect

No indirect effects were identified which would occur at the construction stage.

#### Direct

- No direct effect will occur at the construction phase of the proposed development on any known archaeological monuments or sites;
- Given the scale of the proposed construction works, there is a possibility that construction of the proposed development will effect on potential unknown subsurface archaeological features, deposits or artefacts. This effect is assessed as '*moderate*' based on (1) location of the five recorded monuments in vicinity, (2) the large number of recorded sites within the wider (c.3km radius) study area;
- In the cultural heritage context, there is a possibility that construction works could accidentally impact pre-famine structures. This effect is classified as '*slight*' to '*moderate*' given the scale of the proposed works and the scale and number of pre-famine structures within the proposed development; and
- In the cultural heritage context, the internal access track/internal cables route will cross Barony / parish / townland boundaries several times. In this context the effect is classified from '*slight*' (where the external underground cabling will cross Parish boundary) to '*moderate*' (elsewhere).

## 13.5.6 Operation Phase

### 13.5.6.1 Summary of Effects

#### Indirect

- Visual effect of the proposed turbines on all recorded monuments situated between 3km to 5km from proposed turbines is classified from '*not significant*' to '*slight effect*'. The proposed turbines may not be visible from all monuments due to surrounding vegetation/buildings;
- As for the recorded monuments located within the proposed development site and it's vicinity, the effect is classified from '*slight*' to '*significant*': '*slight*' (earthwork CL053-049), '*moderate*' (enclosure CL053-040), '*significant*' (ring-barrow CL052-064003, standing stone CL052-064002, cairn CL052-064001); and
- Lower visibility infrastructure such as access tracks, grid connection, sub-station etc., are not included in the visual impact analysis.

#### Direct

- No direct effects will occur during the operational phase of the proposed development. Any likely direct effects will occur at the construction phase of the proposed development.

### **13.5.7 Demolition or Decommissioning Phase (If Relevant)**

There are no archaeological effects anticipated in the course of the de-commissioning of the proposed turbines. Potential subsurface archaeological issues will have been adequately resolved by the mitigation measures in advance of the construction phase of the project, i.e. pre-development testing and archaeological monitoring of ground works associated with the construction phase of the wind farm development. The decommissioning process will utilise all existing internal site tracks and public roads and will not involve any further ground disturbance. The removal of turbines will erase visual effect on recorded monuments. All townland / parish / barony boundaries impacted by the construction of proposed development will be revert to pre-construction phase.

### **13.5.8 Likely Receiving Environment Should the Development not go Ahead (Do Nothing)**

If the proposed development were not to proceed, then potential effects on archaeological and cultural heritage assets would not apply. Therefore, there would be no requirement for mitigation.

### **13.5.9 Cumulative Effects**

Cumulative impact is defined as *'The addition of many small impacts to create one larger, more significant, impact'* (EPA 2017). The addition of other projects to the proposed development was considered in order to assess cumulative Impacts. This included all other wind farms within 25km of the development. Indirect impacts on setting occur at the operational stage of the development and encompass the combined effects of multiple wind turbines on a range of receptors. In this case, the receptors are the archaeological monuments and architectural / cultural heritage sites in the immediate vicinity of the as built development.

An assessment of cumulative impacts taking into consideration projects within 25km of the proposed development, including all permitted and existing turbines has been undertaken. Considering the small number of existing, proposed or permitted turbines within the 25km radius zone, cumulative effects on the wider setting of cultural heritage assets is deemed to be *'not significant'*.

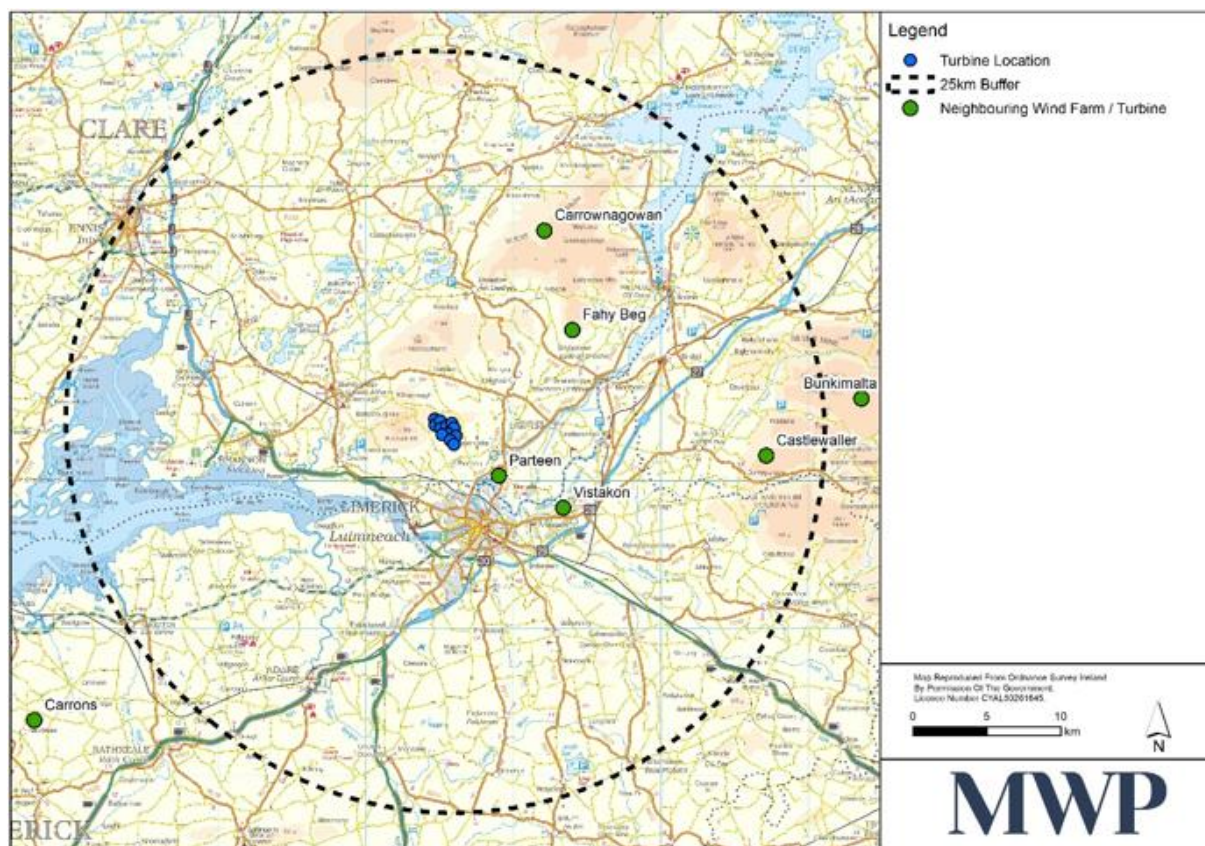
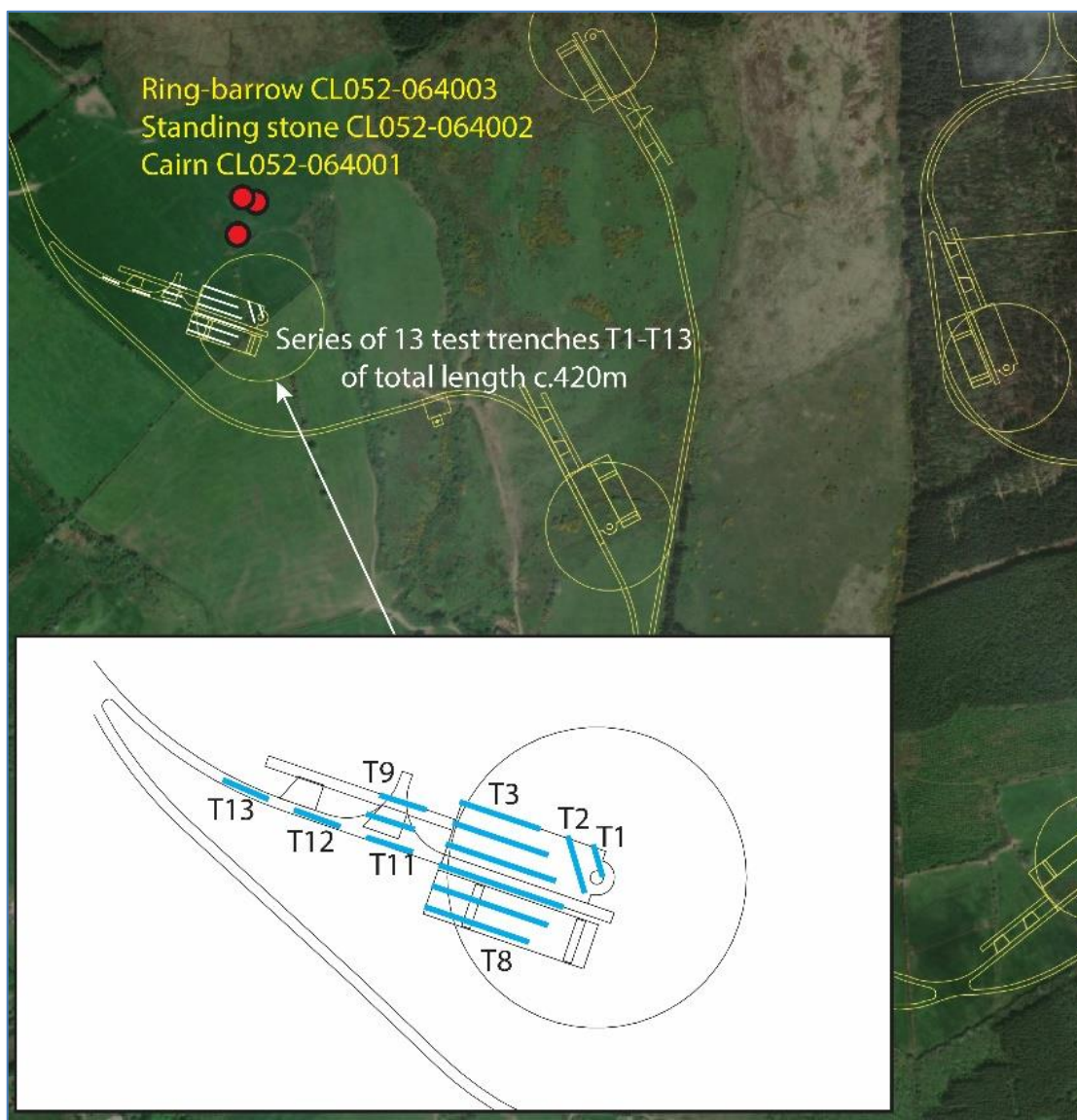


Figure 13-13: Location of existing and permitted WF within 25km radius zone of the proposed development

## 13.6 Mitigation

### 13.6.1 Construction Phase

- Pre-construction targeted archaeological testing under license from the NMS (22E0744) was proposed and undertaken in October 2022 on the footprint of the proposed groundworks in proximity to the prehistoric complex comprising of the three recorded monuments (Figure 13-14). The objective was to proactively determine the presence / absence of potential archaeological remains near these recorded sites to develop an informed mitigation strategy. Nothing of archaeological interest was recorded during the testing and consequently, the possibility of discovering previously unrecorded features on the footprints of T2 is decreased;



**Figure 13-14: Test trenching strategy overlain on proposed development layout.**

- Exclusion zones (reflecting RMP's zones) will be physically established on the ground by archaeologists before the construction phase, around all five monuments: CL052-064001, CL052-064002, CL052-064003, CL053-040, CL053-049. No ground disturbance will be undertaken within the zones. The ground works in the vicinity of all monuments will be archaeologically monitored during construction;
- Groundworks associated with cuttings through townland / barony/ county boundaries will be kept to a minimum. Cutting locations will be archaeologically recorded and all boundary cuttings will be monitored with photographs and written descriptions;
- All ground disturbance associated with the construction of the proposed development will be monitored by a suitably qualified archaeologist working under licence issued by the Minister under Section 26 of the National Monuments Act (Amended) 1930 to 2014. Should archaeological material be found during the course of monitoring, the archaeologist may have work on site stopped, pending a decision as to how best to deal with the find (e.g. preservation in situ or excavation). Advice will also be sought from the National Monument Service (NMS). Having completed the work, the archaeologist will submit the report to the NMS; and

- If during archaeological monitoring and testing, previously unrecorded sites/features are discovered, then preservation 'in situ' or preservation by record will be carried out. In that context preservation 'in situ' reduces the effect to '*not significant*'. When preservation 'in situ' is not an option, then preservation by archaeological excavation and record will reduce the effect on unrecorded sites to '*slight*'. Proposed archaeological monitoring and the full recording of potential remains of vernacular structures, will reduce the effect to '*not significant*'. Proposed mitigations to the townland boundaries consisting of archaeological monitoring and reverting the boundaries to pre-construction phase status will reduce the effect to 'slight'.

### **13.6.2 Operational Phase**

There is no mitigation proposed for the operational phase of the project.

### **13.6.3 Decommissioning Phase**

There is no mitigation proposed for the decommissioning phase of the project. Any potential direct effects have been mitigated against through the implementation of appropriate mitigation measures during the pre-construction and construction phase of the project. The decommissioning process will utilise all existing internal access tracks and public roads and will not involve any further ground disturbance. The turbines removal will erase visual effect on recorded monuments. All townland / parish / barony boundaries impacted by the construction of proposed development will revert to the pre-construction phase status as part of decommissioning.

Indirect effect during the operation phase which may cause change to the surroundings of the archaeological or architectural heritage resource will be reversed following the decommissioning phase.

### **13.6.4 Cumulative**

There is no mitigation proposed for the cumulative effects of the project.

## **13.7 Residual Effects**

Residual effects are the final or intended effects which occur after the proposed mitigation measures have been implemented. They refer to the degree of change that will occur after the proposed mitigation measures have taken effect.

After mitigation, there will be no residual likely significant effect on cultural heritage as a result of the proposed development.

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### Cartographic Sources

- Down Survey Map c. 1655 ([www.downsurvey.tcd.ie](http://www.downsurvey.tcd.ie)).
- 1<sup>st</sup> Edition 6” OS 1840-42 map.
- 2<sup>nd</sup> Edition 25” OS 1893 map.

### Electronic sources

- [www.archaeology.ie](http://www.archaeology.ie) – National Monuments Service online sites and monuments records database
- [www.excavations.ie](http://www.excavations.ie) – Summary of archaeological excavation from 1970–2021.
- [www.bing.com](http://www.bing.com)- BING Aerial imagery.
- [www.osiemaps.ie](http://www.osiemaps.ie) – Ordnance Survey of Ireland Ortho-imagery from 2005, 2000 & 1995 [www.googleearth.com](http://www.googleearth.com) – Satellite imagery of the proposed development area.
- [www.heritagemaps.ie](http://www.heritagemaps.ie) – The Heritage Council web-based spatial data viewer which focuses on the built, cultural and natural heritage.
- [www.logainm.ie](http://www.logainm.ie) –Placenames Database of Ireland launched by Fiontar agus Scoil na Gaelige and the DoCHG.
- [www.youtube.com](http://www.youtube.com)

### Photographic sources

- All on site photos including drone images by Laurence Dunne Archaeology.