13. ARCHAEOLOGY AND CULTURAL HERITAGE

13.1 Introduction

This archaeological, architectural, and cultural heritage chapter was prepared by Tobar Archaeological Services. It presents the results of an archaeological, architectural and cultural heritage impact assessment for a proposed wind farm at Derrinlough, near Birr, Co. Offaly. The development area predominantly comprises a worked peat bog.

The purpose of this chapter is to assess the potential direct and indirect effects of the proposed development on the surrounding archaeological, architectural and cultural heritage landscape. The assessment is based on both a desktop review of the available cultural heritage and archaeological data and a comprehensive programme of field walking of the study area. The report amalgamates desk-based research and the results of field walking to identify areas of archaeological/architectural/ cultural significance or potential, likely to be impacted either directly or indirectly by the proposed development. An assessment of potential effects, including cumulative effects, is presented, and a number of mitigation measures are recommended where appropriate. The visual effect of the proposed development on any newly discovered monuments/sites of significance as well as known recorded monuments is also assessed.

13.1.1 Proposed Development

The proposed development will include 21 No. wind turbines, a 110kV substation and all associated infrastructure and site works as described in Chapter 4: Description of the Proposed development. All elements of the proposed development are assessed in this chapter.

13.1.2 Statement of Authority

This chapter of the EIAR has been prepared by Miriam Carroll and Annette Quinn of Tobar Archaeological Services. Miriam and Annette both graduated from University College Cork in 1998 with a Masters degree in Methods and Techniques in Irish Archaeology. Both are licensed by the Department of Culture, Heritage and the Gaeltacht to carry out excavations and are members of the Institute of Archaeologists of Ireland. Annette Quinn and Miriam Carroll have been working in the field of archaeology since 1994 and have undertaken numerous projects for both the private and public sectors including excavations, site assessments (EIAR) and surveys. Miriam Carroll and Annette Quinn are directors of Tobar Archaeological Services which has been in operation for 16 years.

13.1.3 Legislation and Guidelines

The chapter has been prepared in compliance with all relevant EIA legislation and guidance (see Chapter 1: Introduction for relevant guidance and legislation).

13.1.3.1 Current Legislation

Archaeological monuments are safeguarded through national and international policy, which is designed to secure the protection of the cultural heritage resource. This is undertaken in accordance with the provisions of the European Convention on the Protection of the Archaeological Heritage (Valletta Convention). This was ratified by Ireland in 1997.

Both the National Monuments Acts 1930 to 2004 and relevant provisions of the Cultural Institutions Act 1997 are the primary means of ensuring protection of archaeological monuments, the latter of which includes all man-made structures of whatever form or date. There are a number of provisions under the National Monuments Acts which ensure protection of the archaeological resource. These include the Register of Historic Monuments (1997 Act) which means that any interference to a monument is illegal under that Act. All registered monuments are included on the Record of Monuments and Places (RMP).

The Record of Monuments and Places (RMP) was established under Section 12 (1) of the National Monuments (Amendment) Act 1994 and consists of a list of known archaeological monuments and accompanying maps. The Record of Monuments and Places affords some protection to the monuments entered therein. Section 12 (3) of the 1994 Amendment Act states that any person proposing to carry out work at or in relation to a recorded monument must give notice in writing to the Minister (Environment, Heritage and Local Government) and shall not commence the work for a period of two months after having given the notice. All proposed works, therefore, within or around any archaeological monument are subject to statutory protection and legislation (National Monuments Acts 1930-2004).

The term 'national monument' as defined in Section 2 of the National Monuments Act 1930 means 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 in State care include those which are in the ownership or guardianship of the Minister for Arts, Heritage and the Gaeltacht. Section 5 of the National Monuments Act (1930) allows owners of other national monuments to appoint the Minister for the Arts, Heritage and the Gaeltacht or the relevant local authority as guardian of such monuments, subject to their consent. This means in effect that while the property of such a monument remains vested in the owner, its maintenance and upkeep are the responsibility of the State. Some monuments are also protected by Preservation Orders and are also regarded as National Monuments. National Monuments also includes (but not so as to limit, extend or otherwise influence the construction of the foregoing general definition) every monument in Saorstát Éireann to which the Ancient Monuments Protection Act, 1882, applied immediately before the passing of this Act, and the said expression shall be construed as including, in addition to the monument itself, the site of the monument and the means of access thereto and also such portion of land adjoining such site as may be required to fence, cover in, or otherwise preserve from injury the monument or to preserve the amenities thereof.

Under the Heritage Act (1995) architectural heritage is defined to include *'all structures, buildings, traditional and designed, and groups of buildings including street-scapes and urban vistas, which are of historical, archaeological, artistic, engineering, scientific, social or technical interest, together with their setting, attendant grounds, fixtures, fittings and contents...'*. A heritage building is also defined to include *'any building, or part thereof, which is of significance because of its intrinsic architectural or artistic quality or its setting or because of its association with the commercial, cultural, economic, industrial, military, political, social or religious history of the place where it is situated or of the country or generally'*.

13.1.3.1.1 Granada Convention

The Council of Europe, in Article 2 of the 1985 Convention for the Protection of the Architectural Heritage of Europe (Granada Convention), states that *'for the purpose of precise identification of the monuments, groups of structures and sites to be protected, each member State will undertake to maintain inventories of that architectural heritage'*. The Granada Convention emphasises the importance of inventories in underpinning conservation policies.

The NIAH was established in 1990 to fulfill Ireland's obligations under the Granada Convention, through the establishment and maintenance of a central record, documenting and evaluating the architectural heritage of Ireland. Article 1 of the Granada Convention establishes the parameters of this

work by defining 'architectural heritage' under three broad categories of Monument, Groups of Buildings, and Sites:

- Monument: all buildings and structures of conspicuous historical, archaeological, artistic, scientific, social or technical interest, including their fixtures and fittings;
- Group of buildings: homogeneous groups of urban or rural buildings conspicuous for their historical, archaeological, artistic, scientific, social or technical interest, which are sufficiently coherent to form topographically definable units;
- Sites: the combined works of man and nature, being areas which are partially built upon and sufficiently distinctive and homogenous to be topographically definable, and are of conspicuous historical, archaeological, artistic, scientific, social or technical interest.

The Council of Europe's definition of architectural heritage allows for the inclusion of structures, groups of structures and sites which are considered to be of significance in their own right, or which are of significance in their local context and environment. The NIAH believes it is important to consider the architectural heritage as encompassing a wide variety of structures and sites as diverse as post boxes, grand country houses, mill complexes and vernacular farmhouses.

13.1.3.2 Offaly County Development Plan 2014-2020

Offaly County Development Plan (CDP) 2014-2020 outlines a number of policies and objectives relating to archaeology and built heritage as follows:

13.1.3.2.1 *Areas of High Amenity Policies:*

AHAP-01

It is Council policy to protect and preserve the county's primary areas of high amenity namely the Slieve Bloom Mountains, Clonmacnoise Heritage Zone, Durrow High Cross, Abbey and surrounding area, the River Shannon, Lough Boora Parklands, Grand Canal, Croghan Hill, Raheenmore Bog, Pallas Lake, Clara Bog and Eskers, Eiscir Riada and other eskers. These areas are indicated on Map 7.17 of the County Development plan.

Notwithstanding the location of certain settlements, or parts of, for which there are settlement plans (towns, villages, 'sráids'), within the Areas of High Amenity, it is not the intention of this policy to hinder appropriate sustainable levels of development (as set out in the plans and subject to proper planning). Further, it is policy to facilitate the sustainable extension and expansion of existing visitor, tourist related or other rural enterprises within the Areas of High Amenity, where such development is appropriate and where it can be demonstrated that it gives 'added value' to the extending activity and to the immediate area which is the subject of the 'Area of High Amenity' designation.

AHAP-02

It is Council policy, in both cases above, to ensure that issues of scale, siting, design and overall compatibility (including particular regard to environmental sensitivities) with the site's location within an Area of High Amenity are of paramount importance when assessing any application for planning permission. The merits of each proposal will be examined on a case-by case basis.

13.1.3.2.2 Areas of High Amenity Objectives:

AHAO-01

It is an objective of the Council to protect and preserve the county's primary areas of high amenity namely the Slieve Bloom Mountains, Clonmacnoise Heritage Zone, Durrow High Cross, Abbey & surrounding area, the River Shannon, Lough Boora Parklands, Grand Canal, Croghan Hill, Raheenmore Bog, Pallas Lake, Clara Bog and Eskers, Eiscir Riada and other eskers.

13.1.3.2.3 Landscape Sensitivity

Archaeological and Historical Landscapes are identified as High Sensitivity Areas in the Offaly County Development Plan. The landscape characteristics and sensitivities of archaeological and historical landscapes are outlined in Section H of Table 7.11.4 of the CDP and are summarised below.

Characteristics:

- County Offaly is rich in landscapes of archaeological and historic interests as is shown in Map 7.16. This ranges from large ecclesiastical sites such as Clonmacnoise and Durrow Abbey to archaeological features such as the Durrow High Cross.
- Section 7.18, Built Heritage of this plan provides further policies and objectives concerning the county's archaeological and historical landscapes. These primarily include Clonmacnoise, Durrow, Killeigh, Leamonaghan and Rahan.

Sensitivities:

- These landscapes are highly sensitive to new developments, which could potentially damage the historical character and the cultural and social importance of the area.
- The Council shall endeavour to ensure that planning applications for development, refurbishment and restoration works etc. within close proximity to these areas are sympathetic to the sensitive nature of the landscape.

13.1.3.2.4 Architectural and Archaeological Heritage Policies:

AAHP-01

It is Council policy to ensure that the alteration or extensions to protected buildings and structures will only be permitted if the proposals are in keeping with the character of the building and preserve the architectural and historic features of the buildings or structures.

AAHP-02

It is Council policy to encourage the retention, sympathetic maintenance, and appropriate re-use of the vernacular buildings, in both the towns and rural areas of the county, including the retention of the original fabric, such as windows, renders, shop fronts, gates, yards, boundary walls and other significant features where possible, to discourage the replacement of good quality vernacular buildings with modern structures;

AAHP-03

It is Council policy to ensure that new build adjoining, and extensions to, vernacular buildings are of an appropriate design and do not detract from the building's character.

AAHP-04

It is Council policy to apply the following principles to the archaeological heritage:

- To facilitate appropriate guidance in relation to the protection of the county's archaeological heritage.
- To promote public awareness of the rich archaeological heritage in this area.
- To protect and enhance archaeological monuments and their settings and Zones of Archaeological Potential.

AAHP–05

It is Council policy that the area comprising the National Monument at Clonmacnoise, enclosing Eskers, Mongans Bog, Clonmacnoise Callows, Fin Lough and the limestone pavement at Clorhane shall retain its nominated status as the "Clonmacnoise Heritage Zone", in accordance with the recommendations of the study of the area carried out by the Environmental Sciences Unit of Trinity College, Dublin and as indicated on Map 7.21.

AAHP-06

It is Council policy that, in the primary control zone around the National Monument, development will be strictly curtailed, so as to preserve and protect the unique character and distinctive quality of this area. The boundaries of the secondary control area correspond with that of the Shannon Area of High Amenity. Within this secondary area the controls applicable to Areas of Special Control will apply together with a further requirement that the Planning Authority must be satisfied that the particular purpose of the proposal justifies the location proposed.

AAHP-07

It is policy of the Council to promote awareness of, and access to, the archaeological inheritance of Offaly.

AAHP-08

It is Council policy to ensure that development in the immediate vicinity of a recorded monument is sensitively sited and designed so that it does not significantly detract from the monument. Where upstanding remains exist, a visual impact assessment may be required.

AAHP-09

It is Council policy to inform and seek guidance from the National Museum of Ireland if an unrecorded archaeological object is discovered, or the National Monuments Service of the Department of Arts, Heritage and the Gaeltacht in the case of the discovery of an unrecorded archaeological site, in accordance with National Monuments legislation.

AAHP-10

It is Council policy to ensure that full consideration is given to the protection of archaeological heritage when undertaking, approving or authorising development in order to avoid unnecessary conflict between development and the protection of the archaeological heritage.

AAHP-11

It is Council policy to ensure that all development proposals affecting sites specified in the Record of Monuments and Places or Zones of Archaeological Potential are referred to the prescribed bodies (as set out in the Planning and Development Act 2000, as amended) and to have regard to the advice and recommendations of the prescribed bodies in relation to undertaking, approving or authorising development.

AAHP-12

It is Council policy to ensure that when an unrecorded archaeological object or site is discovered, any works that threaten the object or site are immediately suspended and that the appropriate Government agency is informed.

AAHP-13

It is Council policy to protect historical burial grounds within Offaly and encourage their maintenance in accordance with conservation principles.

AAHP-14

It is Council policy to facilitate appropriate guidance in relation to the protection of the archaeological heritage in the area covered by the plan.

AAHP-15

It is Council policy that developments, which require vehicular access from public roads that were formerly towpaths or from existing towpaths along the Grand Canal, are very strictly controlled. This is in addition to restrictions relevant to the Canal's designation as a Natural Heritage Area and consequently as an Area of Special Control. It is policy to consider housing applications for established families* only along roads that were formerly towpaths along the Grand Canal and that such developments will be strictly controlled.

*Families for the purpose of this policy are defined as husband, wife and their children, siblings of the husband and wife and their sons and daughters.

AAHP-16

It is Council policy to encourage the protection, promotion and enhancement of heritage gardens and parks in the county and support public awareness, enjoyment of and access to these sites.

AAHP-17

It is Council policy to protect archaeological sites and monuments, underwater archaeology, and archaeological objects, which are listed in the Record of Monuments and Places, and to seek their preservation in situ (or at a minimum, preservation by record) through the planning process. It is Council policy to seek to protect important archaeological landscapes from inappropriate development.

AAHP-18

It is Council policy to encourage and promote the appropriate management and maintenance of the County's archaeological heritage, including historical burial grounds, in accordance with conservation principles and best practice guidelines.

AAHP-19

It is Council policy to continue to develop the Council's advisory/educational role with regard to heritage matters and to promote awareness, understanding, and appreciation of the architectural heritage of Offaly.

AAHP-20

It is Council policy to encourage, where appropriate, the adaptive re-use of existing buildings and sites in a manner compatible with their character and significance.

AAHP-21

It is Council policy to identify places of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest and where appropriate to define them as Architectural Conservation Areas.

AAHP-22

It is Council policy to require that all development proposals within an ACA should be appropriate to the character of the area, inclusive of its general scale and materials, and are appropriately sited and sensitively designed having regard to the advice given in the Statements of Character for each area.

13.1.3.2.5 *Architectural and Archaeological Heritage Objectives:*

AAHO-01

It is an objective of the Council to examine the feasibility of designating Architectural Conservation Areas in the county over the plan period.

AAHO-02

It is an objective of the Council to protect all structures listed in the Record of Protected Structures, that are of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest throughout the county.

AAHO-03

It is an objective of the Council to protect the Slí Mór and Slí Dála routes and sign post them where appropriate.

AAHO-04

It is an objective of the Council to secure the protection (i.e. preservation in situ or at a minimum protection by record) of all archaeological monuments included in the Record of Monuments and Places as established under Section 12 of the National Monuments (Amendment) Act 1994, and their setting.

AAHO-05

It is an objective of the Council to protect and preserve archaeological sites and their settings discovered since the publication of the Record of Monuments and Places and the publication of the Urban Archaeology Survey.

AAHO-06

It is an objective of the Council to protect the Zones of Archaeological Potential identified in the Record of Monuments and Places.

AAHO-07

It is an objective of the Council to prohibit the demolition of a structure that positively contributes to the character of an ACA, except in exceptional circumstances. The Council will require such applications to be accompanied by a measured and photographic survey, condition report and architectural heritage assessment of the structure. Where permission for demolition is granted within an ACA, an assessment of the impact of the replacement building on the character of the ACA will be required.

AAHO-08

It is an objective of the Council to ensure that any new development within or contiguous to an ACA is sympathetic to the character of the area and that the design is appropriate in terms of scale, height, plot density, layout, materials and finishes.

AAHO-09

The council acknowledges the nomination by the Government of Ireland, of two Monastic sites, Clonmacnoise and Durrow, on the tentative list for inclusion to the UNESCO World Heritage sites list. It is an objective of the Council to explore potential of further designating the Monastic Sites at Clonmacnoise and Durrow as prospective UNESCO World Heritage Sites.

13.1.3.3 Statutory Consultations

The Development Applications Unit provided a response, to a scoping consultation by MKO, on Archaeology (Ref G Pre00165/2018). The observations were as follows:

'***Archaeology***

An Archaeological assessment should be carried out by a suitably qualified archaeologist.

The following should be included in the Archaeological survey methodology and guidelines outlined in the EIA scoping document.

Archaeological assessment should be carried out as follows:

- *All previous surveys of the bog should be examined.*
- *A new survey of the bog should be carried out. This survey should include cleaning the drains and walking the bog. It might be necessary to have drains re-cut to facilitate examination.*
- *Survey work should be carried out by an archaeologist working under the terms of an excavation licence granted by this Department. This will facilitate sampling for species identification and dating.*
- *The proposed site layout should be considered in the light of the surveys.*
- *Having identified areas of archaeological importance, buffer areas where no ground disturbance will take place should be established, in order to facilitate preservation in situ of archaeological features.*
- *Archaeological mitigation should be suggested, to take place in advance of and/or during groundworks.*

- *It is likely, that where material is to be preserved in situ, empirical measurement into the future of hydrology of the site will be required e.g. by means of the use of dipwells (piezometers).'*

The issues raised in the consultation response were considered, where possible as part of this assessment as outlined in the following paragraphs.

All available bog surveys were consulted as part of the assessment. Clongawny Bog was archaeologically surveyed in 1997 by the (Irish Archaeological Wetland Unit) IAWU as part of the Archaeological Survey of Ireland Peatland Survey. Drinagh Bog was also archaeologically surveyed in 1997 by the IAWU as part of the Archaeological Survey of Ireland Peatland Survey.

A re-assessment survey was carried out by Archaeological Development Services Ltd on behalf of Bord na Móna in 2009 (Rohan 2009). A summary of the previous surveys is presented in Section 13.3.1.6.1.

An archaeological assessment by way of a detailed and extensive walkover survey of the proposed development site was undertaken by Tobar Archaeological Services in 2019 and 2020. Licensed archaeological monitoring of Engineering site investigations was also undertaken in 2019 and a report is presented as Appendix 13.2 of the EIAR.

The site in general was largely covered in dense vegetation during the 2019/2020 assessment conducted as part of the EIAR. Many areas were also flooded with some drains water-filled.

Inspection of all drains was carried out aside from those that were flooded or overgrown. To alleviate potential impacts and to address the limitations with the assessment (due to vegetation, overgrowth and flooding) a series of detailed mitigation measures have been proposed.

The proposed site layout has taken the known archaeological constraints (RMPs) into consideration taking the 'mitigation by avoidance' approach.

A number of mitigation measures will be implemented both at the pre-construction and construction stage of the proposed development.

13.1.4 Location and Topography

The site of the proposed development is situated c. 74km north of Birr in west county Offaly and at its nearest point c. 2km south of Cloghan (See Chapter 1, Figure 1.1). It is located in cut-over peat bog which is centred around an existing peat briquette factory at Derrinlough. The eastern portion of the proposed development site comprises Drinagh Bog which is 75% cutaway bog. It is separated from the western portion of the proposed development site by the N62. The west side of the site comprises Clongawny bog which is located at the south-western extent of the Boora Group. The site has a total area of 2360ha. The cutaway areas are densely vegetated. Many areas of the Clongawny and Drinagh bogs are tree covered and overgrown and Drinagh bog is flooded in many areas. The proposed development site is almost entirely comprised of raised peat bog which has been commercially worked by Bord na Móna since circa 1960.

13.2 Assessment Methodology

The assessment of the archaeology, architecture and cultural heritage of the proposed development area included GIS mapping and desk-based research followed by field inspection. A desk-based study of the proposed development site was initially undertaken in order to assess the archaeological, architectural and cultural heritage potential of the area and to identify constraints or features of archaeological/cultural heritage significance within or near to the proposed development site.

13.2.1 Geographical Information Systems

GIS is a computer database which captures, stores, analyses, manages and presents data that is linked to location. GIS is geographic information systems which includes mapping software and its application with remote sensing, land surveying, aerial photography, mathematics, photogrammetry, geography and tools that can be implemented with GIS software. A geographic information system (GIS) was used to manage the datasets relevant to the archaeological and architectural heritage assessment and for the creation of all the maps in this section of the report. This involved the overlaying of the relevant archaeological and architectural datasets on georeferenced aerial photographs and road maps (ESRI), where available. The integration of this spatial information allows for the accurate measurement of distances of a proposed development from archaeological and cultural heritage sites and the extraction of information on 'monument types' from the datasets. Areas of archaeological or architectural sensitivity may then be highlighted in order to mitigate the potential negative effects of a development on archaeological, architectural and cultural heritage.

ArcGIS online viewshed analysis was also used to assess effects on setting of archaeological monuments. The Viewshed tool uses the ESRI Elevation Analysis service to determine which areas are visible from specified observer points (the observer points being the monuments). Visibility settings are used to set the height of the observer (1.75m standard), the height, for example of the observed features (e.g. turbines), and the maximum viewing distance of the observer. This tool was utilised to ascertain the potential/theoretical visual effects on Cultural Heritage Assets. The results show the worst-case scenario since the model does not take trees or vegetation into consideration. The results are outlined in Section 13.3.

13.2.2 Desktop Assessment

The following sources were consulted as part of the desktop assessment for the proposed development:

- The Record of Monuments and Places (RMP)
- The Sites and Monuments Record (SMR)
- National Monuments in State Care County Offaly
- The Topographical Files of the National Museum of Ireland
- First edition Ordnance Survey maps (OSI)
- Second edition Ordnance Survey maps (OSI)
- Third edition Ordnance Survey Map (Record of Monuments and Places)
- Down Survey maps (www.downsurvey.tcd.ie)
- Aerial photographs (copyright of Ordnance Survey Ireland (OSI)
- Excavations Database
- National Inventory of Architectural Heritage (NIAH)
- Record of Protected Structures (Offaly County Development Plan)
- Previous archaeological surveys and assessments carried out on or near to the proposed development site (various)
- Archaeological inventory of County Offaly (1997)

Each of these are discussed in the following sections.

13.2.2.1 Record of Monuments and Places, Sites and Monuments Record and National Monuments

A primary cartographic source and base-line data for the assessment was the consultation of the Sites and Monuments Record (SMR) and Record of Monuments and Places (RMP) for County Offaly. All known recorded archaeological monuments are indicated on 6-inch Ordnance Survey (OS) maps and are listed in these records. The SMR/RMP is not a complete record of all monuments as newly discovered sites may not appear in the list or accompanying maps. In conjunction with the consultation of the SMR and RMP the electronic database of recorded monuments and SMRs which may be accessed at www.webgis.archaeology.ie/historicenvironment.

A review of all National Monuments in State Care and those subject to Preservation Orders was undertaken as part of the assessment in order to ascertain any potential impacts on their setting as a result of the proposed development.

13.2.2.2 Cartographic Sources and Aerial Photography

The 1st (1840s) and 2nd (1900s) edition OS maps for the area were consulted, where available, as was OSI aerial photography.

13.2.2.3 Topographical Files - National Museum of Ireland

Details relating to finds of archaeological material and monuments in numerous townlands in the country are contained in the topographical files held in the National Museum of Ireland. In order to establish if any new or previously unrecorded finds had been recovered from the study area these files were consulted for every townland within and adjacent to the same. The bogs database, also held in the National Museum of Ireland was also consulted for finds or items recovered from the proposed development site.

13.2.2.4 Archaeological Inventory Series

Further information on archaeological sites may be obtained in the published County Archaeological Inventory series prepared by the Department of Culture, Heritage and the Gaeltacht. The archaeological inventories present summarised information on sites listed in the SMR/RMP and include detail such as the size and location of particular monuments as well as any associated folklore or local information pertaining to each site. The inventories, however, do not account for all sites or items of cultural heritage interest which are undiscovered at the time of their publication. Many sites have been discovered since the publication of the Inventory Series which have now been added to the Sites and Monuments Record.

13.2.2.5 Record of Protected Structures

The Record of Protected Structures for County Offaly was consulted for the schedule of buildings and items of cultural, historical or archaeological interest which may be affected by the Proposed Development. The development plan also outlines policies and objectives relating to the protection of the archaeological, historical and architectural heritage landscape of Offaly. The digital dataset for Protected Structures was downloaded from ArcGIS online and added to the project GIS mapping (Section 13.2.1 above) used for the creation of Figures in this chapter.

13.2.2.6 Excavations Database

The Excavations Database is an annual account of all excavations carried out under license. The database is available on line at www.excavations.ie and includes excavations from 1985 to 2019. This

database was consulted as part of the desktop research for this assessment to establish if any archaeological excavations had been carried out within or near to the proposed development area.

13.2.2.7 National Inventory of Architectural Heritage (NIAH)

This source lists some of the architecturally significant buildings and items of cultural heritage and is compiled on a county by county basis by the Department of Culture, Heritage and the Gaeltacht. The NIAH database was consulted for all townlands within and adjacent to the study area. The NIAH survey for Offaly has been published and was downloaded on to the base mapping for the proposed development (www.buildingsofireland.ie). The National Inventory of Architectural Heritage (NIAH) is a state initiative under the administration of the Department of Culture, Heritage and the Gaeltacht and established on a statutory basis under the provisions of the Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act 1999.

The purpose of the NIAH is to identify, record, and evaluate the post-1700 architectural heritage of Ireland, uniformly and consistently as an aid in the protection and conservation of the built heritage. NIAH surveys provide the basis for the recommendations of the Minister for the Environment, Heritage and Local Government to the planning authorities for the inclusion of particular structures in their Record of Protected Structures (RPS). The published surveys are a source of information on the selected structures for relevant planning authorities. They are also a research and educational resource. It is hoped that the work of the NIAH will increase public awareness and appreciation of Ireland's architectural heritage.

13.2.2.8 Previous Surveys and Assessments

A number of archaeological surveys were previously carried out within these bogs during the lifetime of production works by Bord na Móna. A summary of the available results of such surveys and/or any reassessment surveys is presented below. These are discussed in Section 13.3.1.6 below.

13.2.3 Field Inspection

An intensive programme of field inspection was undertaken over a number of days in November and December 2019 and January 2020 in good, clear weather conditions. The proposed development site and its surrounds were inspected by Annette Quinn and Miriam Carroll of Tobar Archaeological Services in November and December 2019 and January 2020. The inspection consisted of a walk-over examination of the proposed development site, an assessment of any recorded monuments, architectural, built or cultural heritage items within the site and the potential direct and indirect impacts on those monuments. Any newly discovered archaeological monuments, items of built heritage or cultural heritage value within the study area were also recorded during the field inspection. A full photographic record of the site was made and is attached in Appendix 13.1.

13.2.3.1 Limitations Associated with Fieldwork

The site in general was largely covered in dense vegetation during the 2019/2020 assessment conducted as part of the EIAR. Many areas were also flooded with some drains water-filled.

Inspection of all drains was carried out aside from those that were flooded or overgrown. To alleviate potential impacts and to address the limitations with the assessment (due to vegetation, overgrowth and flooding) a series of detailed mitigation measures have been proposed.

This limitation is dealt with by the implementation of appropriate mitigation measures (Pre-construction and construction stage).

13.2.4 Assessment of Likely Significant Effects

The likely effects on the existing archaeological, architectural and cultural heritage environment are assessed using the criteria as set out in the draft *Guidelines on the Information to be contained in Environmental Impact Assessment Reports* (EPA, 2017) and as outlined in Section 1.8.1 of Chapter 1. The following terminology is used when describing the likely effects of the proposed development from a Cultural Heritage perspective.

13.2.4.1 Types of Impact

- Direct impacts arise where an archaeological heritage feature or site is physically located within the footprint of the development whereby the removal of part, or all of the feature or site is thus required.
- Indirect impacts may arise as a result of subsurface works undertaken outside the footprint of the development, secondary environmental change such as a reduction in water levels and visual impacts.
- Cumulative Impacts arise when the addition of many impacts create a larger, more significant impact.
- Residual Impacts are the degree of environmental changes that will occur after the proposed mitigation measures have been implemented.

13.2.4.1.1 *Magnitude of Effects (Significance)*

- Profound: Applies where mitigation would be unlikely to remove adverse effects. Reserved for adverse, negative effects only. These effects arise where an archaeological site is completely and irreversibly destroyed.
- Very Significant: An effect which by its character, magnitude, duration or intensity significantly alters most of the sensitive aspect of the environment.
- Significant: An effect which by its character, magnitude, duration or intensity alters a sensitive aspect of the environment. An effect like this would be where part of a site would be permanently impacted upon, leading to a loss of character, integrity and data about an archaeological site.
- Moderate: A moderate effect arises where a change to an archaeological site is proposed which though noticeable, is not such that the integrity of the site is compromised and which is reversible. This arises where an archaeological site can be incorporated into a modern day development without damage and that all procedures used to facilitate this are reversible.
- Slight: An effect which causes changes in the character of the environment which are not high or very high and do not directly impact or affect an archaeological site.
- Not Significant: An effect which causes noticeable changes in the character of the environment but without significant consequences.
- Imperceptible: An effect on an archaeological site capable of measurement but without noticeable consequences.

13.2.5 Methodology for the assessment of impacts on visual setting (indirect effects)

A standardised approach was utilised for the assessment of impacts of visual setting (indirect effects) according to types of monuments and cultural heritage assets which may have varying degrees of sensitivity. This assessment does not include visits to each and every site as this is considered to be beyond the scope of the EIAR as they are mainly located on private lands. The assessment of impacts on visual setting was undertaken using both the Zone of Theoretical Visibility (ZTV) map in the Landscape and Visual Impact Assessment (LVIA), as presented in Chapter 11 of this EIAR, and also viewshed analysis from specific cultural heritage assets (viewshed analysis is described in Section 13.2.1 above). The viewshed analysis used in the assessment of potential impacts on the visual setting of cultural heritage assets in the wider landscape of 10km and 20km considers the effects of the proposed turbines only. Other lower visibility infrastructure such as roads, grid connection, sub-station etc. are not included in the viewshed analysis. All other infrastructure (proposed roads, grid connection, sub-station, compounds etc) are assessed without the use of viewshed analysis.

While direct physical impacts to a site or monument can easily be assessed in quantitative terms, the assessment of impacts on setting can be subjective and as such is a matter of qualitative, professional judgement and experience. The distances below used in the assessment of impacts on setting are regarded as appropriate and are based on professional judgement.

Table 13.1: Cultural Heritage Assets considered according to sensitivity

Cultural Heritage Asset	Distance Considered
UNESCO World Heritage Sites (including tentative sites)	20km
National Monuments (State Ownership and Preservation Order Sites)	10km
Recorded Monuments, RPS	5km
NIAH structures	5km
Undesignated sites, if relevant	500m from proposed development

13.3 Existing Environment

13.3.1 Archaeological Heritage

Archaeological Heritage includes World Heritage Sites, National Monuments, sites which are subject to a preservation order, sites listed in the RMP/SMR and newly discovered archaeological sites. Each of these are addressed in the following sections.

13.3.1.1 UNESCO World Heritage Sites (and those on tentative List)

Offaly County Council have acknowledged the nomination by the Government of Ireland, of two Monastic sites, Clonmacnoise and Durrow Abbey, on the tentative list for inclusion to the UNESCO World Heritage sites list. It is an objective of the Council to explore the potential of further designating the Monastic Sites at Clonmacnoise and Durrow as prospective UNESCO World Heritage Sites.

All UNESCO sites (including those on the Tentative list) within 20km of the proposed development were assessed.

Clonmacnoise is situated c. 15km to the north-west. Durrow Abbey is located outside the 20km visual assessment study zone at 23km to the north-east of the proposed development site (**Error! Reference source not found.**). Given the intervening distance, the immediate visual setting of these archaeological sites will not be impacted by the proposed development.

13.3.1.1.1 Clonmacnoise

The Zone of Theoretical Visibility (ZTV) (Figure 11.1 of the Landscape and Visual Assessment Chapter 11) was utilised as part of the assessment of impacts on visual setting and this shows that Clonmacnoise has limited to no visibility in the direction of the proposed development. A viewshed analysis was also undertaken in ArcGIS from the south side of Clonmacnoise graveyard enclosure. The viewshed included the 20km visual assessment study zone. The results (Figure 13.2) show that there are potentially no instances where any component of the proposed turbines would be visible from the monument (See Section 13.2.5 for ZTV and Viewshed methodology).

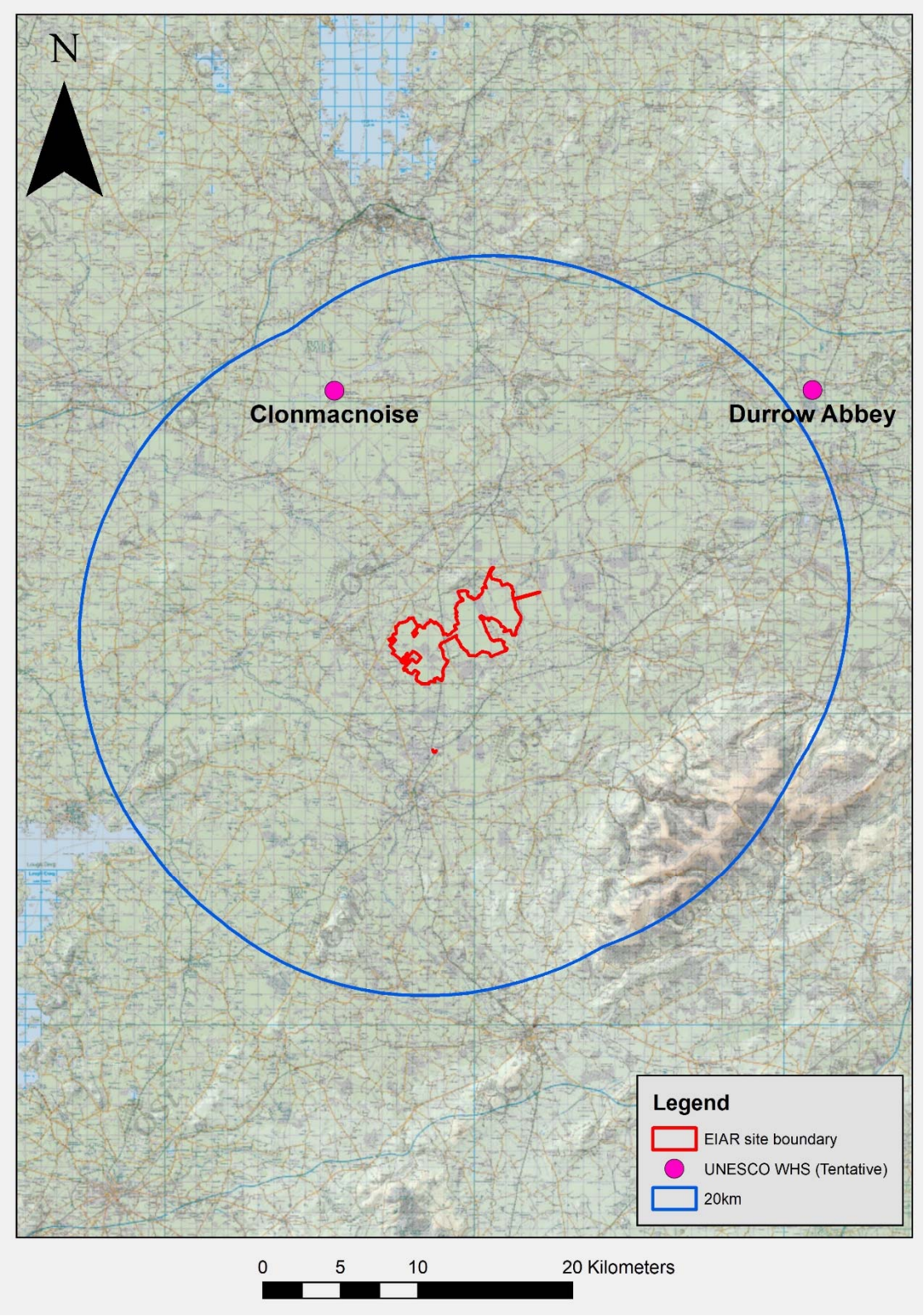

Figure 13.1: UNESCO WHS Tentative list sites at Clonmacnoise and Durrow in relation to the proposed development site.

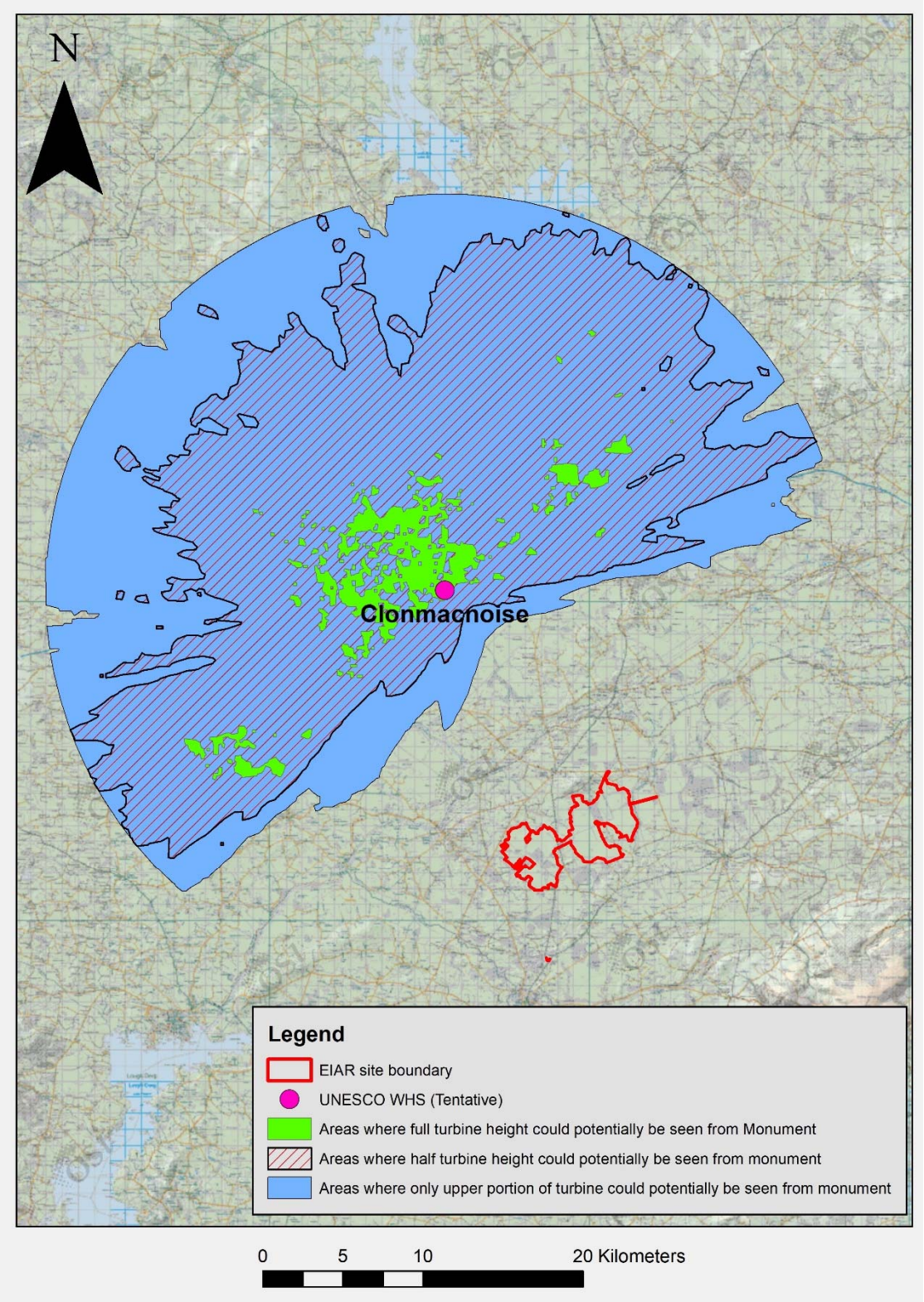

Figure 13.2: Viewshed analysis from Clonmacnoise WH tentative site.

13.3.1.2 National Monuments

National Monuments are those recorded monuments which are in the ownership / guardianship of the Minister for Culture, Heritage and the Gaeltacht (DCHG). They are frequently referred to as being in 'State Care'.

An assessment of all National Monuments in State Care and those subject to Preservation Orders within 10km of the proposed turbines was undertaken to ascertain any potential impacts on their visual setting (See Section 13.2.5 for methodology of assessment). No National Monuments or those subject to a Preservation Order are located within the proposed development site and none are located within close proximity to same.

The nearest National Monument, Gallen Abbey (NM No. 504) is located c. 6.8km to the north-east of the nearest turbine. Three monuments subject to Preservation Orders are located within 10km of the proposed turbines (

Table 13.2 and Figure 13.3).

Table 13.2: National Monuments and those subject to Preservation Orders within 10km of nearest proposed turbine

Nm No.	Rmp No.	Name	Description	ITM E	ITM N	Townland	Wtg Id	Distance (M)
49	OF015-017	Coole Castle	Coole Castle	613367	722763	Kilcolgan	21	6725
86	OF022-008001	Clonony Castle	Clonony Castle	605154	720611	Clonony More	8	5052
Jun-56	OF023-010	Ringfort	Ringfort	616681	715671	Broughal	15	6013
504	OF014-029001	Gallen Abbey	Church & Slabs	611790	723591	Gallen	21	6814

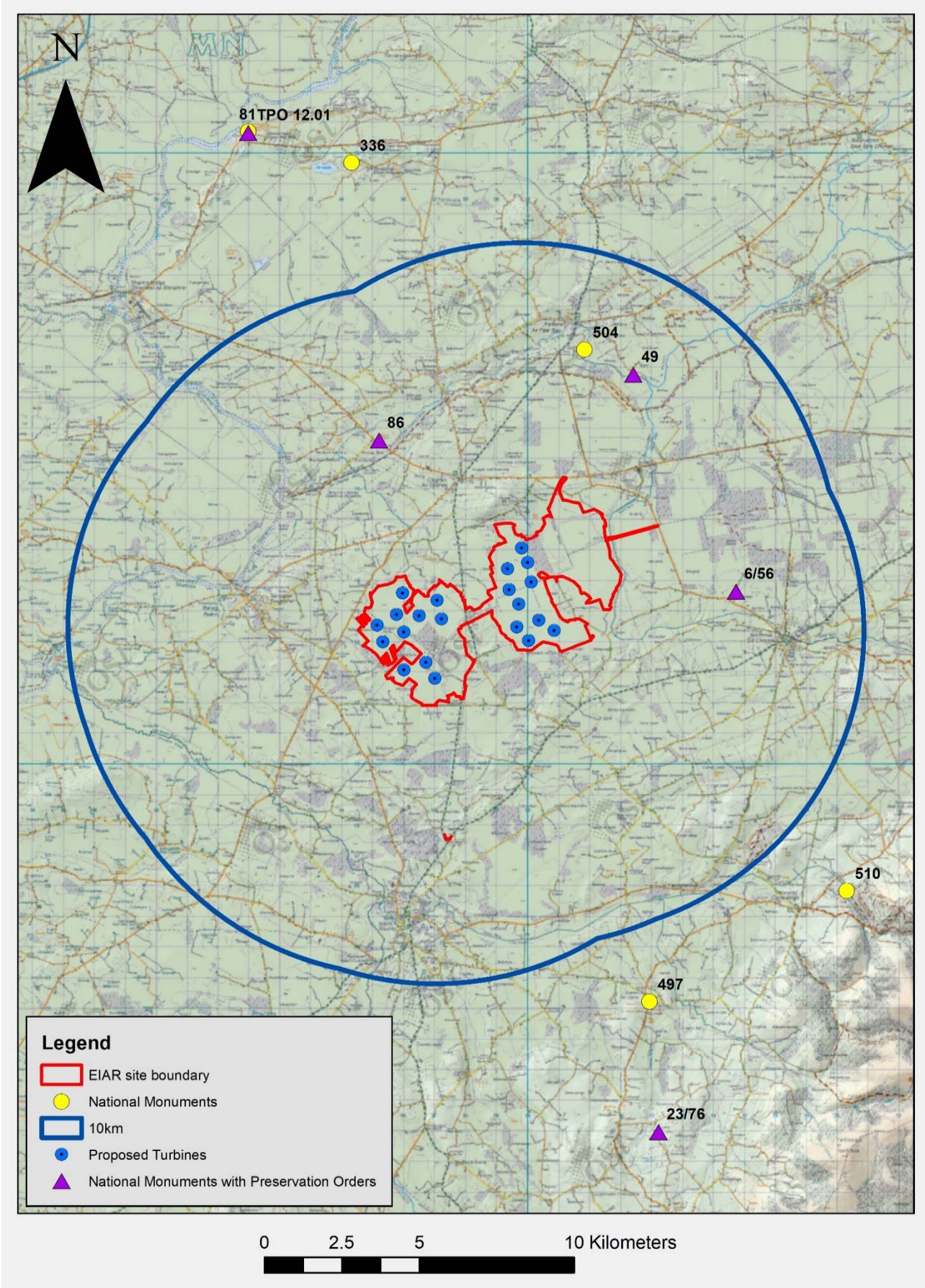

Figure 13.3: National Monuments within 10km of the nearest proposed turbine

Visibility from National Monuments

National Monument Preservation Order 49 (OF015-017, Coole Castle)

Viewshed analysis results are a worst case scenario since the model does not take natural screening such as vegetation, boundaries or buildings into consideration. Figure 13.4 shows that there are no instances (green areas) where the full length of the turbines would be visible (i.e. from ground level (0m). It shows that potentially, 15 of the 21 turbines could be seen from mid-shaft upwards (red hatched areas) and it shows that the upper portion of all of the turbines (blue areas) could potentially be seen from the monument.

Description of Coole Castle:

Situated on flat well drained land with river Brosna to the S. Well-preserved rectangular four storey tower house (ext. dims. 8.7m N-S; 10.4m E-W; wall T 2m) built with roughly coursed limestone rubble with slight base batter evident. Access is through a flat headed doorway in E wall with murder hole above, guard room in the NE angle and spiral stairs in the SE angle. Lobby area has a series of small rooms orientated N-S directly above murder hole which are accessed from the corresponding main chamber at each level except the room at attic level which is accessed from the spiral stairs and from the small room the barrel vaulted attic is accessed. The main ground floor chamber is accessed from the lobby area and is lit by three ogee headed windows set in widely splayed embrasures with wicker centring. Off the spiral stairs at first floor level there is a mural passage running E-W along the S wall leading to a garderobe in the SW angle which has a triple leaf ventilator. Mural passage in the W end of the N wall at first floor level gives access to a garderobe in the NW angle. Access to the murder-hole over the lobby area from the NE angle which has a twin light transomed angle loop and triple ogee headed ventilator. There is a large flat headed fireplace at the W end of the N wall at second floor level with datestone of 1575 directly above mantelpiece. Also at this level there is a mural passage in the S wall at W end leading to a possible garderobe in the SW angle. Barrel vaulted attic over the second floor which is accessed from the barrel vaulted chamber over the lobby area. Above the vaulted attic at wall walk level there is a destroyed third floor with destroyed fireplace with rectangular chimney stack at the NE angle, also visible at this level is the other chimney stack of the second floor fireplace. All of the doorways area of the two centred type with punch dressed jambs and drafted margins with one doorway possessing chamfer stops at the base of its jambs. The windows are mainly of the ogee headed type with decorated spandrels and punch dressing forming decorative patterns similar to the mint in Carlingford, Co. Louth. Flat and round headed windows light the stairs and the mural passages with two of these windows possessing slop stones under their sills. Two musket loops are visible one being circular in shape the other cruciform. Blocked up external opening of garderobe chute at S end of W wall. This monument is subject to a preservation order made under the National Monuments Acts 1930 to 2014 (PO no. 49/1937).

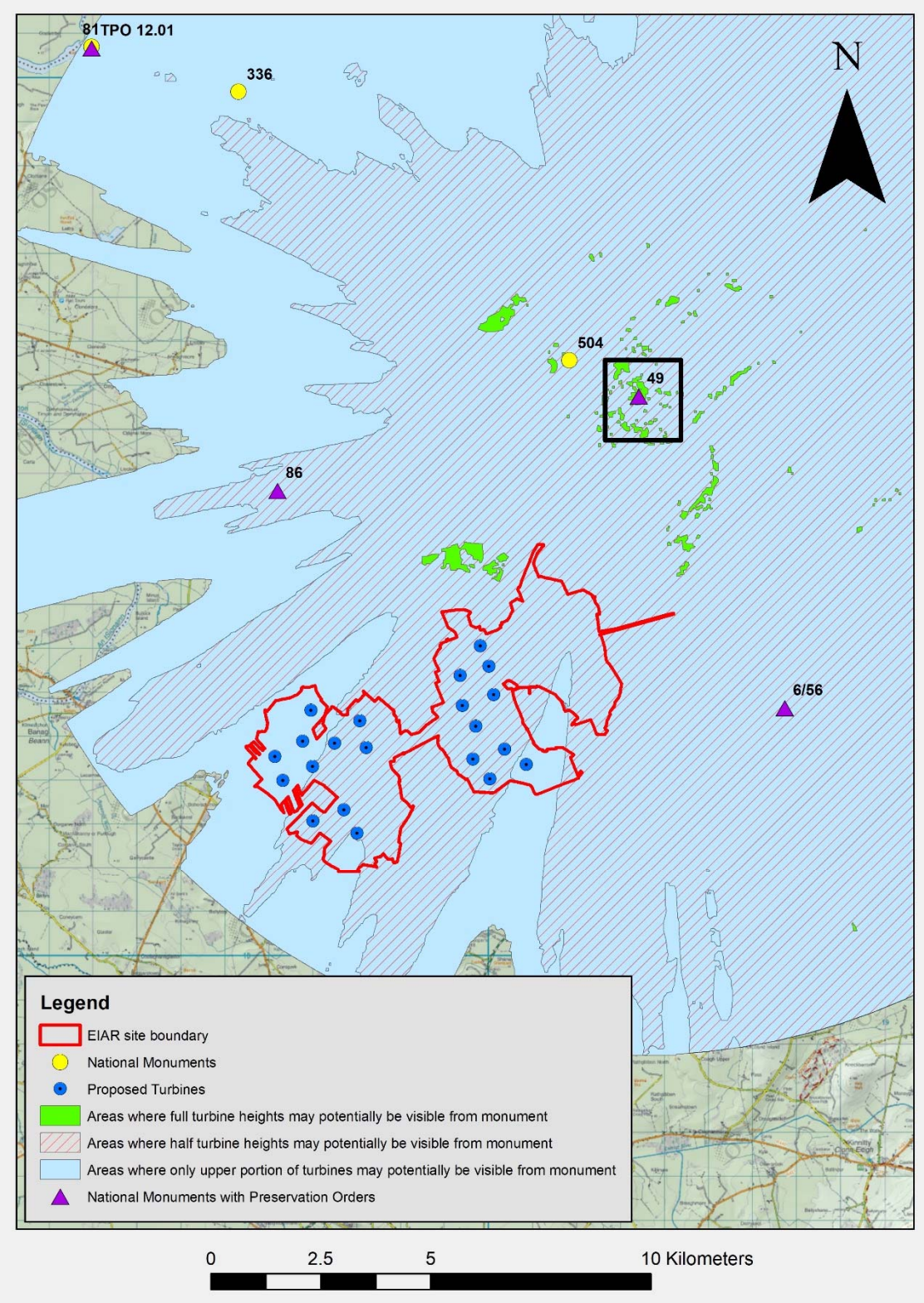

Figure 13.4: Viewshed analysis results from monument OF015-017 NM49 Coole Castle showing varying degrees of visibility depending on height of structures in the landscape (such as turbines).

National Monument Preservation Order 86 (OF022-008001, Clonony Castle)

Viewshed analysis results are a worst case scenario since the model does not take natural screening such as vegetation, boundaries or buildings into consideration. The results as shown on Figure 13.5 show that there are no instances (green areas) where the full length of the turbines would be visible (i.e. from ground level (0m). The results also show that potentially, 12 of the 21 turbines could be seen from mid-shaft upwards (red hatched areas) and it shows that the upper portion of 20 of the 21 turbines (blue areas) could potentially be seen from the monument. One turbine (T14) has no visibility from the monument.

Description of Clonony Caslte:

Situated on top of natural rock outcrop in undulating countryside. Three storey tower (10.75m E-W; 8.2m N-S; wall T 2.1m) built with roughly coursed limestone rubble entered through a rebuilt door in the W wall which is protected by a machicolation now destroyed at wall-walk level with a later inserted window directly below. Inside door there is a murder-hole above with an intramural chamber which is accessed from the first floor. Spiral stairs in the SW angle from which all main chambers are accessed. The main chamber at ground floor level is accessed from the lobby area via a two centred pointed door with finely punch dressed jambs. The vaulted first floor gives access to a garderobe chamber in the NE angle and the intramural chamber in the W wall. Access to third floor via the spiral stairs which is now destroyed. Windows mainly consist of ogee heads with some simple flat and round headed windows. The windows at ground floor have been altered considerably as has the rest of the tower especially the inner bawn wall which appears to be a late 18th/19th-century addition. The bawn wall (OF022-008003-) is attached to the NE corner where it blocks the garderobe chute opening, smaller inner bawn structure in front of the main W door which has crenellations with brick infill and a pointed entrance with steps leading up to it. The round arched main entrance with its crenellated wall appear to be a later construction possibly 19th-century. The main entrance on the W wall of the bawn is constructed from worked stones of another structure possibly an earlier entrance. Two square towers at either end of the W wall with original coat of arms plaque over entrance now removed. Bawn is not depicted on Petries 19th-century drawing of Clonony Castle. Inner bawn of probable mid-19th-century date, while the outer bawn has been rebuilt in places during the 19th century. Mac Coghlan castle mentioned in the A.F.M in 1519 (ITA Survey 1942). (Anon 1868-69, 85-7; Cooke 1875, 330-32; O' Flanagan 1933, vol. 1, 85; Harbison 1970, 205)

Archaeological testing under licence no. 03E1292 in advance of the development of a programme of conservation and renovation of Clonony Castle, Clonony More, Co. Offaly, was carried out. The early 16th-century three-storey tower-house, with later 18th/19th-century inner and outer bawn areas, has been acquired by a new owner, who intends to renovate the structure as a private residence. Clonony Castle was one of several tower-houses in the possession of the MacCoughlan family, whose power base was in West Offaly during the 16th century. In the 17th century it came into the possession of Matthew De Renzi as part of the plantation of Delvin MacCoughlan. By the early to mid-19th century the castle had come into the possession of Edmond Maloney, who set about converting it to a more ornate residence. This included the enlarging of many of the original narrow opes of the tower-house and possibly the construction of the inner and outer bawn walls and the ancillary buildings that currently surround the structure on the west, south and east sides. Four trenches were manually excavated at different locations within the structure, to establish the nature and extent of original fabric beneath later adhesions. Trench 1 was located in the south-east corner of the parapeted walkway and measured 1.5m north-south by 1.3m. The trench revealed the presence of a slate cladding applied to the wall-walk, above the original wall fabric, protecting it and the modified wall plate from weathering. This work probably took place as part of the early 19th-century works to the castle and may represent a repeat of the earlier water management of the walkway. Trench 2 was located in the north-eastern corner of the second floor of the castle and measured 1m by 1m. It revealed that the original medieval fill of the vault is largely intact beneath the modern silty sediment, at a depth of 0.2m below the present floor level. The upper part of the vault fill has been partially quarried out with shallow, linear shafts, which acted as bedding for later 19th-century floor joists. Trench 3 was located in the western corner of the ground floor and measured 1.6m north-west/south-east by 1.2m. The earliest surviving clay floor surface of the castle was uncovered

at a depth of 0.35m below the present floor level. It was covered with a thick layer of stony rubble, laid down as a make-up layer for the higher 19th-century floor level. Trench 4 was located in the doorway in the south wall of the ground floor, within an enlarged former window embrasure. The trench measured 2m north-south by 1.5m and was excavated to a depth of 0.24m below present ground level. The compacted upper metalled surface of the 19th-century floor was revealed in this trench; it was not removed (Excavations Bulletin 2003).

Test-trenching was carried out under licence no. 04E1042 as part of the planning schedule for a single-house development adjacent to a tower-house (SMR 22:8) at Clonony More, Shannon Harbour. A series of trenches were excavated by mechanical digger at the house site, entrance and percolation area. No features or finds of archaeological significance were revealed (Excavations Bulletin 2004). This monument is subject to a preservation order made under the National Monuments Acts 1930 to 2014 (PO no. 86/1940).

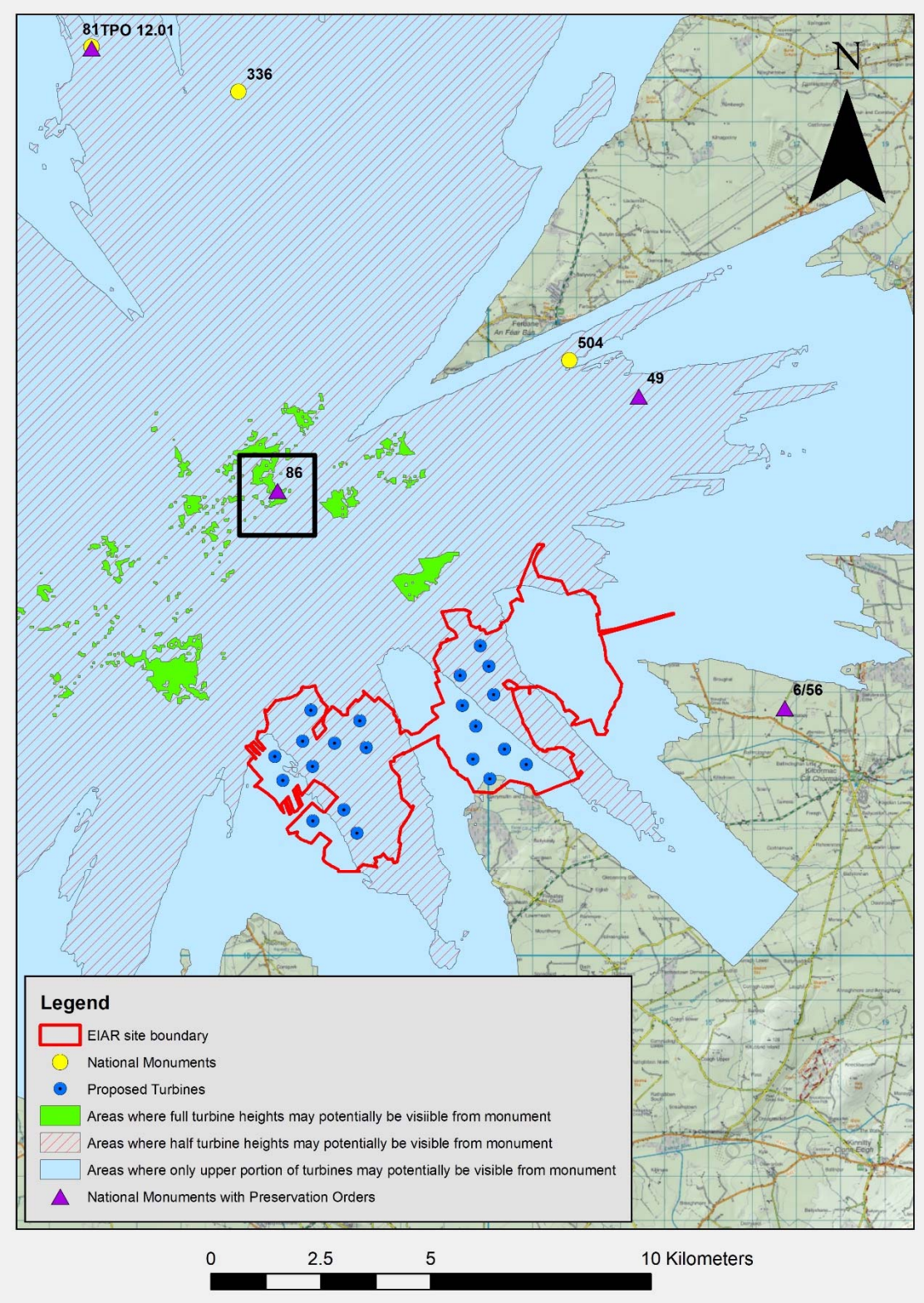

Figure 13.5: Viewshed analysis results from monument OF022-008/001 NM86 showing varying degrees of visibility depending on height of structures in the landscape (such as turbines).

National Monument Preservation Order Jun-56 (OF023-010, Ringfort)

Viewshed analysis results are a worst case scenario since it does not take natural screening such as vegetation, boundaries or buildings into consideration. The results on Figure 13.6 show that there are no instances (green areas) where the full leAngth of the turbines would be visible (i.e. from ground level). The results show that potentially, 11 of the 21 turbines could be seen from mid-shaft upwards (red hatched areas) and that all of the upper portions of the turbines (blue areas) could potentially be seen from the monument.

Description of Ringfort:

Roughly oval shaped area (diam 36m N-S) enclosed by two earthen banks with intervening and external fosse. Inner bank (Wth 6m at base; int. H 1m; ext. H 2m), external bank (Wth 7m at base; int. H 1.8m; ext. H 2m). Intervening fosse (Wth 1.6m) and external fosse (Wth 2.2m; ext. D 1.4m). Possible entrance gap (Wth 3m) at SE. This monument is subject to a preservation order made under the National Monuments Acts 1930 to 2014 (PO no. 9/1956).

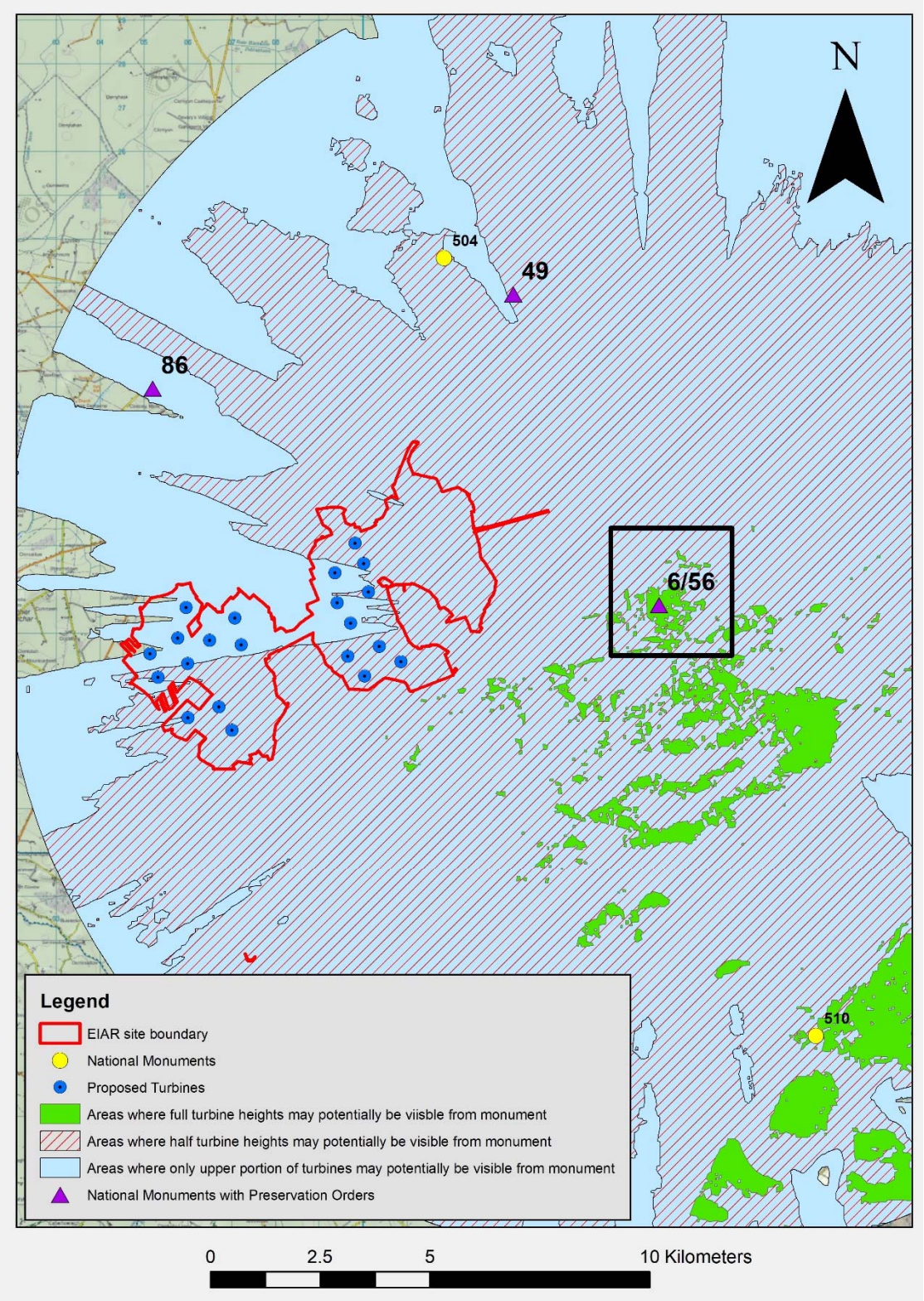

Figure 13.6: Viewshed analysis results from monument 6/56 – OF023-010 showing varying degrees of visibility depending on height of structures in the landscape (such as turbines).

National Monument State Care No 504 (OF014-029001, Gallen Abbey)

Viewshed analysis results are a worst case scenario since it does not take natural screening such as vegetation, boundaries or buildings into consideration. The results on (Figure 13.7) show that there are no instances (green areas) where the full length of the turbines would be visible (i.e. from ground level (0m)). There are also no instances where the turbines would be visible from mid-shaft (red hatched areas). The results show that potentially, the upper portion of 10 of the 21 turbines may be seen from the monument. The remaining turbines at the western portion of the site have no visibility from the monument.

Description of Gallen Abbey:

Situated on a slight rise with river to the E. The ecclesiastical remains consist of a medieval church (OF014-029008-), early Christian cross-slabs (OF014-029003-), graveyard (OF014-029002-) and a bullaun stone (OF014-029005-). The Abbey which was built near the site of an Early Christian monastery founded by St. Canoc in 492 is now in a ruinous condition consisting of a long rectangular church (ext. dims. 23.9m E-W; 8.4m N-S; wall T 0.8m) built with roughly coursed limestone rubble with no architectural features evident. There is a N transept now blocked at the E end of the N wall (int. 7.5m N-S; 4.4m E-W; wall T 0.8m) with a destroyed window in the N gable. The interior of the abbey and sacristy are used as burial plots with a burial vault added to the W end of the S wall. There were several architectural fragments lying in the collapsed rubble along the walls of the church. The date of this church probably belongs to the 15th-century as mentioned by Armstrong (1908) who assigned such a date via the flamboyant E window which was recently destroyed by workers during recent graveyard clean up. The Early Christian cross-slabs are described by Lionard (1961 Vol. 61, 95-169) and are on display in a field to the N of the abbey on the site of a small 11th/13th-century church discovered during excavations by Kendrick in 1934-35. A small graveyard (OF014-029002-) was associated with the long rectangular church (ext. 71ft E-W; 24ft N-S) which had a small rectangular sacristy (int. 7.5ft N-S; 16ft E-W) attached to its NE corner. Most of the cross-slabs (OF014-029003-) which date from the 8th/11th-centuries (Harbison 1970, 206) came from this excavated area. 200 decorated slabs were discovered during this excavation and are described by Kendrick (1939 Vol. 69, 1-20). (Cooke 1875, 340-43; Macalister 1908, 323-27; Crawford 1913, 262-5; Crawford 1918, 178; Fanning and O hEailidhe 1980, 17-19).

Archaeological testing was carried out under licence no. 03E0202 on a proposed development site in the grounds of Gallen Priory Nursing Home, Ferbane, Co. Offaly, on 24-25 February 2003. The north edge of the site is within the area of constraint around ecclesiastical remains. Testing comprised the mechanical excavation of four trenches, varying from 30 to 100m in length. The stratigraphy comprised grey/brown sandy silt topsoil (0.4m deep) overlying yellow/brown and grey/white silty sand subsoil. Areas of grey fine to medium sand and grey coarse sand, gravel and cobbles were encountered across the tested area. A number of relatively modern features, including two sand pits and an old track/road, marked on OS 6-inch maps, were uncovered. Five further shallow features were found to be of probable post-medieval or early modern date. One of these yielded several small red-brick fragments and a potsherd, suggesting a 19th-century date. All are cut into sand, and gravel deposits may be broadly contemporary (Excavations Bulletin 2003).

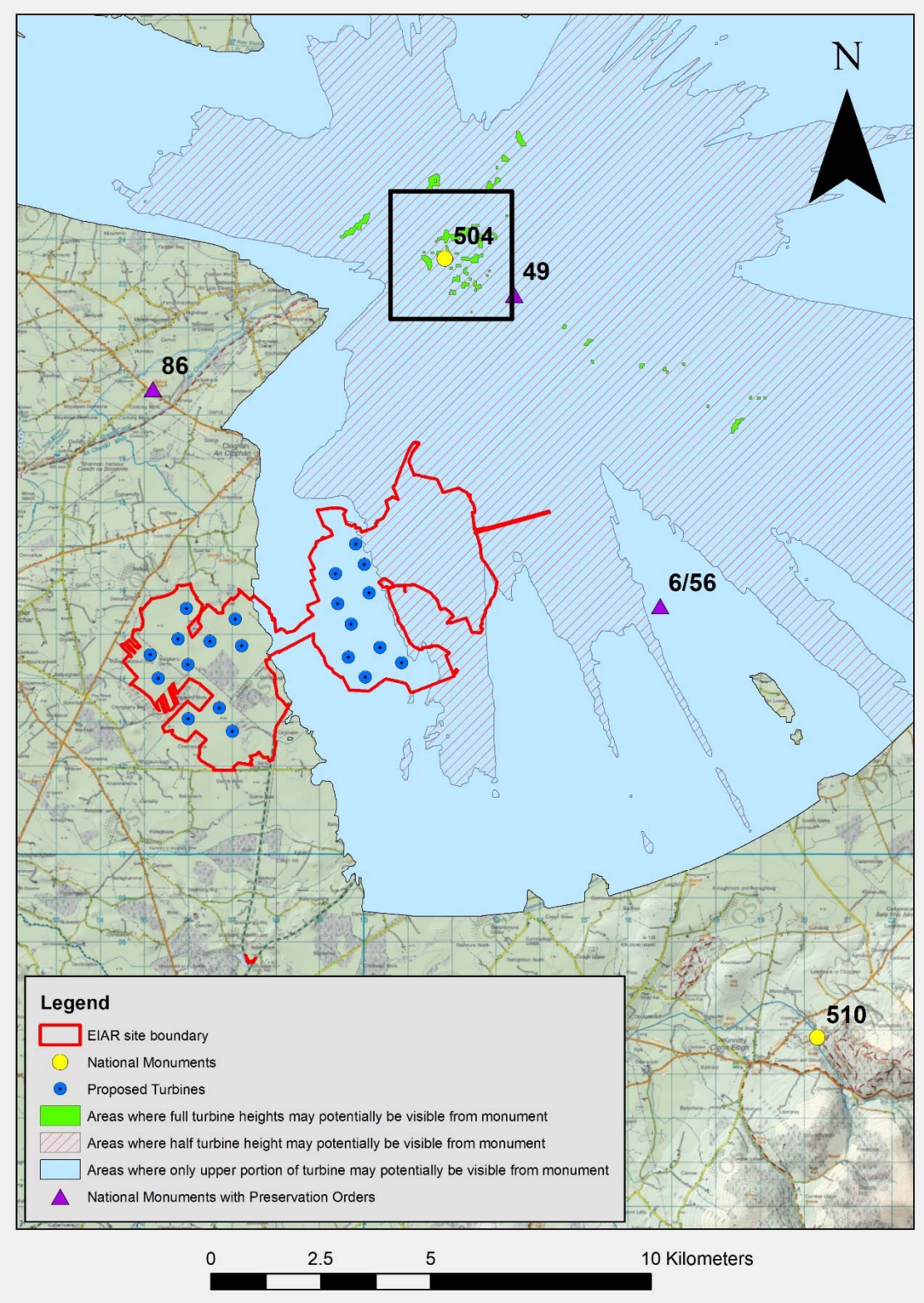

Figure 13.7: Viewshed analysis results from monument NM504, OF014-029/001 showing varying degrees of visibility depending on height of structures in the landscape (such as turbines).

13.3.1.3 Recorded Monuments within the site boundary including grid connection

Twenty-eight monuments subject to statutory protection as defined in the Record of Monuments and Places or Sites and Monument Record are located within the site boundary for the proposed development including the area of the proposed grid connection (also within the proposed development site boundary). The monuments are listed in

Table 13.3 below and described thereafter. Fourteen of the monuments are classified as Redundant Records. Such monuments are classified for one of the following reasons as detailed on the Historic Environment Viewer (www.webgis.archaeology.ie/historicenvironment). 'Records classed as 'Redundant record' are those that fulfil one or more of the following criteria: (1) a record identifying a location where, according to documentary sources (e.g., published reference, cartographic sources) or personal communication, a monument might have existed, but which, on inspection, was found not to be an archaeological monument (e.g. a natural feature); (2) a record classified using a term which is now obsolete (e.g. ecclesiastical remains); (3) a record created in error, a duplicate record or one which has no supporting evidence recorded on file or in the database; (4) an archaeological object (i.e. an artefact), e.g. a quernstone; (5) a record entered as a 'Shipwreck'. Shipwrecks are recorded in a separate database.' The redundant records within the proposed development site are not scheduled for inclusion in the next revision of the RMP.

The remaining monuments within the proposed development site boundary are classified as toghers - Class 1 (1), Class 2 (1) and Class 3 (12) and are depicted on Figure 13.9 to Figure 13.12. None of the proposed turbines or associated infrastructure are proposed to be located on or within close proximity to the Recorded Monument described above. The overgrown nature of the areas around the monuments, whilst a limitation in assessing the presence or otherwise of the monument, has no implications for the proposed development since no impacts to the RMPS will occur as a result of the proposed turbines and other associated infrastructure.

Table 13.3: Recorded monuments within the proposed development site boundary.

RMP NO.	ITM E	ITM N	CLASS	TOWNLAND
OF030-050—	611664	714342	Redundant record	DERRYAD (Eglish By.)
OF030-051—	611672	714347	Redundant record	DERRYAD (Eglish By.)
OF030-052—	611683	714485	Redundant record	DERRYAD (Eglish By.)
OF030-053—	611686	714486	Road - class 3 togher	DERRYAD (Eglish By.)
OF030-054—	611668	714468	Redundant record	DERRYAD (Eglish By.)
OF030-055—	611668	714457	Redundant record	DERRYAD (Eglish By.)
OF030-056—	611622	714427	Redundant record	DERRYAD (Eglish By.)
OF030-057—	611665	714381	Redundant record	DERRYAD (Eglish By.)

RMP NO.	ITM E	ITM N	CLASS	TOWNLAND
OF030-060—	611655	714440	Road - class 1 togher	DERRYAD (Eglish By.),DRINAGH
OF030-061—	611655	714628	Road - class 3 togher	DRINAGH
OF030-062—	611670	714580	Road - class 3 togher	DRINAGH
OF030-063—	611674	714526	Road - class 3 togher	DRINAGH
OF030-064—	611653	714476	Redundant record	DRINAGH
OF030-065—	611667	714631	Redundant record	DRINAGH
OF030-066—	611082	714738	Redundant record	DRINAGH
OF030-067—	611198	714455	Redundant record	DRINAGH
OF030-068—	611653	714486	Redundant record	DRINAGH
OF030-069—	611704	714531	Road - class 3 togher	DRINAGH
OF030-070—	605270	713860	Road - class 3 togher	CLONGAWNY
OF030-071—	605239	713824	Road - class 3 togher	CLONGAWNY
OF030-072—	605158	713674	Redundant record	CLONGAWNY
OF030-073—	605210	713623	Road - class 3 togher	CLONGAWNY
OF030-074—	605322	713663	Road - class 3 togher	CLONGAWNY
OF030-075—	605332	713816	Road - class 3 togher	CLONGAWNY
OF030-076—	605292	713889	Road - class 3 togher	CLONGAWNY

RMP NO.	ITM E	ITM N	CLASS	TOWNLAND
OF030-077—	605310	713900	Road - class 2 togher	CLONGAWNY
OF030-078—	605426	713978	Redundant record	CLONGAWNY
OF030-079—	605329	713674	Road - class 3 togher	CLONGAWNY

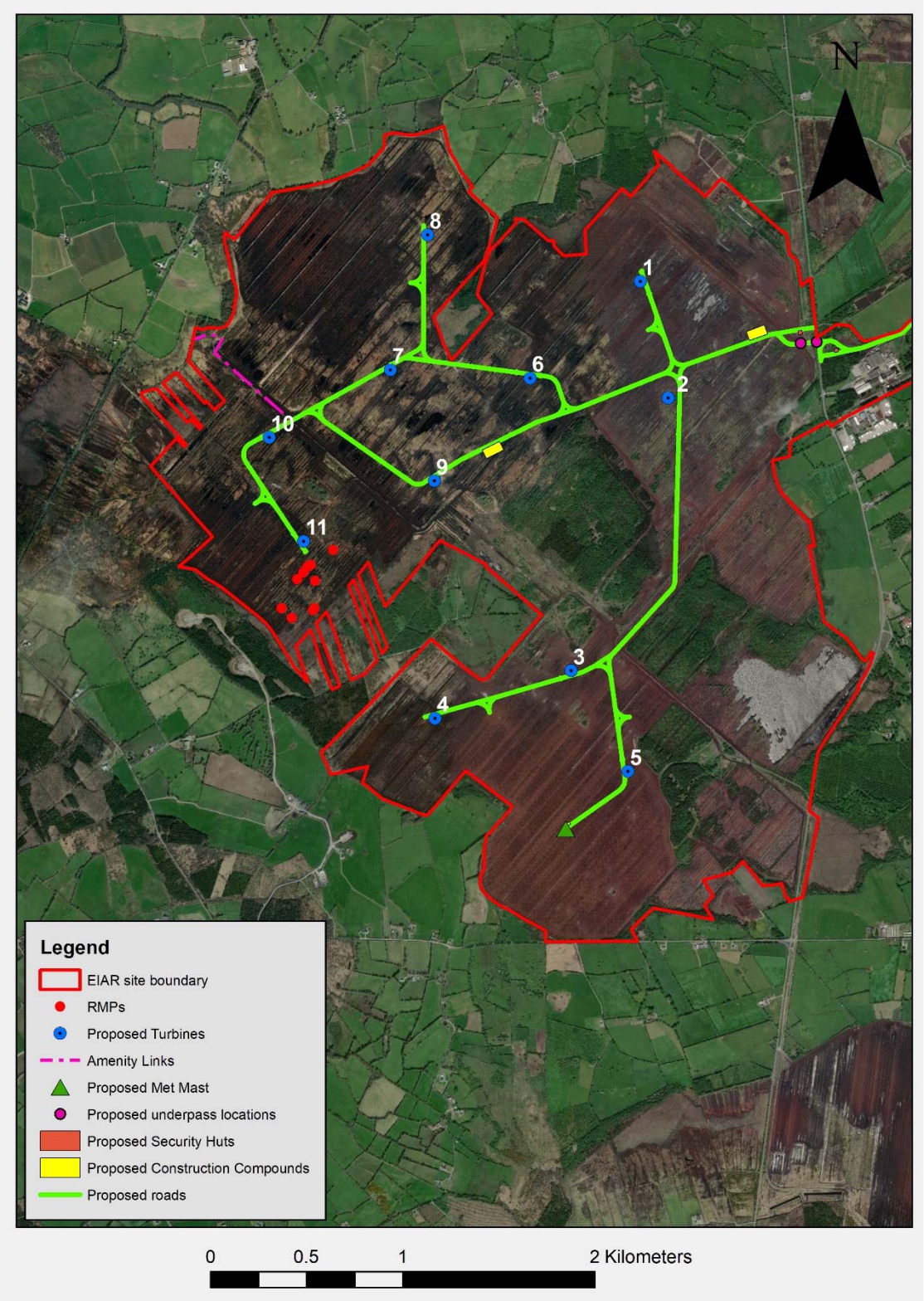

Figure 13.8: West side of proposed development site showing RMPs (some redundant) in south-west corner.

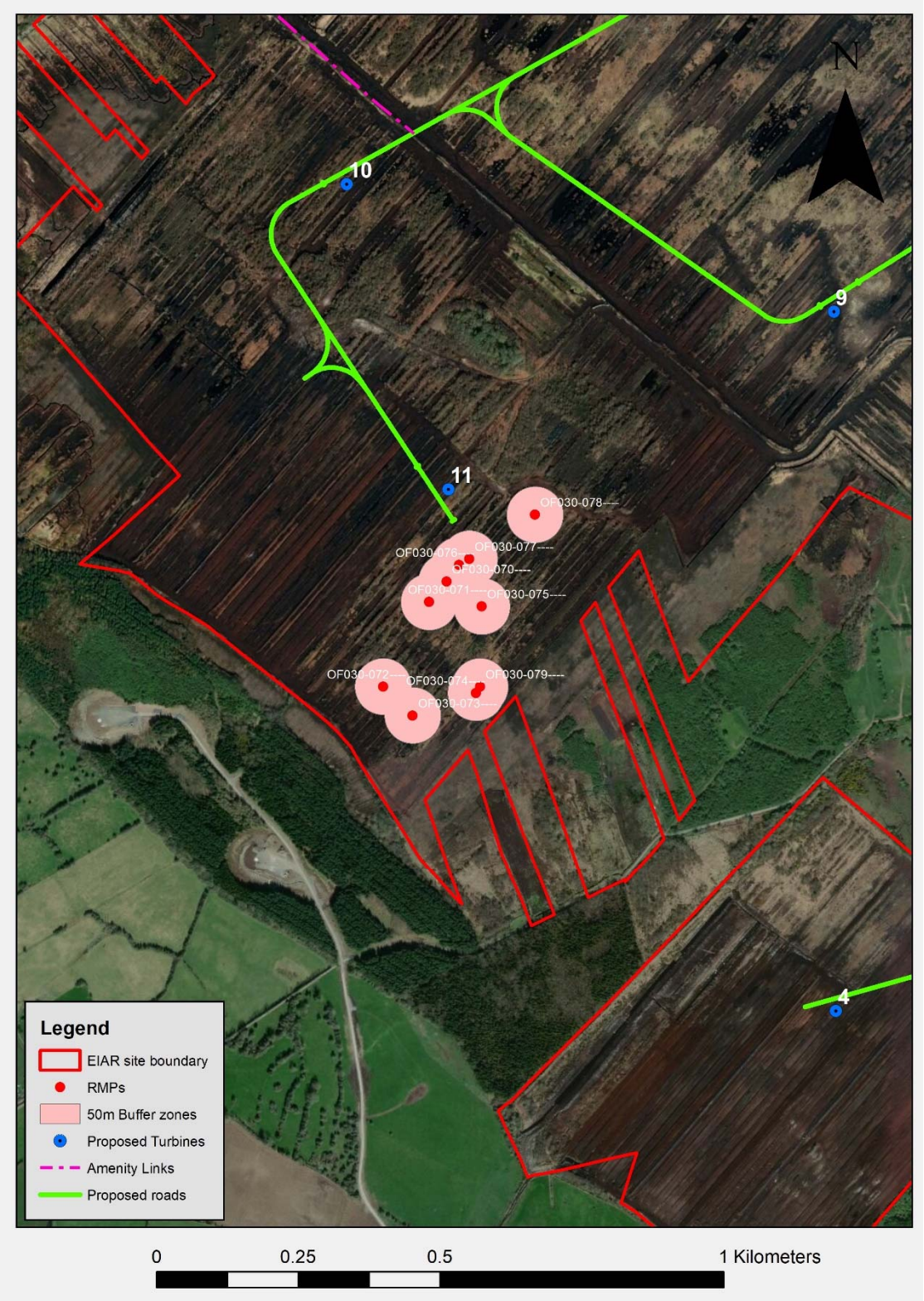

Figure 13.9: RMPs within the site boundary (West side showing detail) with 50m buffer zones around all recorded monuments.

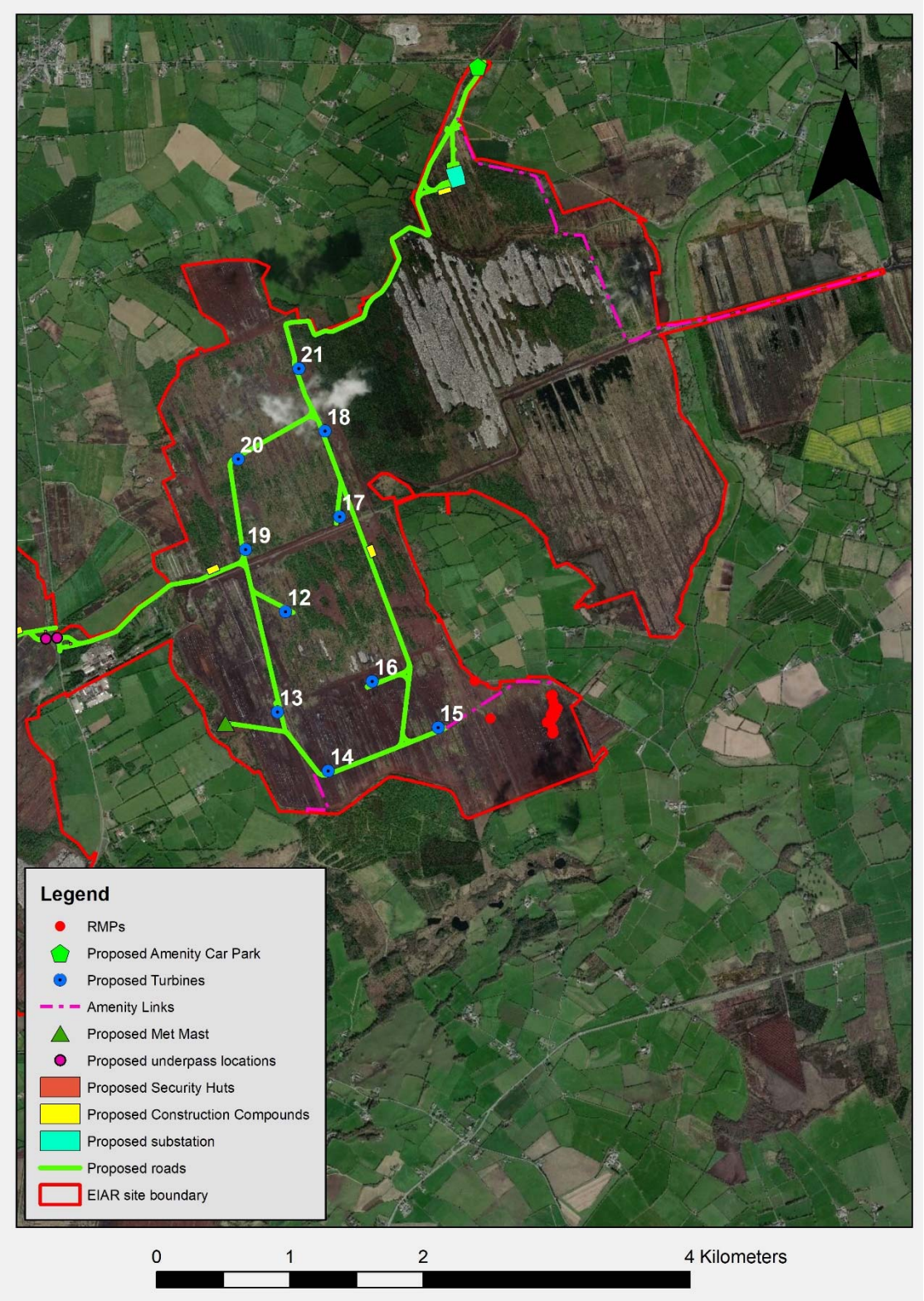

Figure 13.10: East side of proposed development in relation to RMPs in south-east corner.

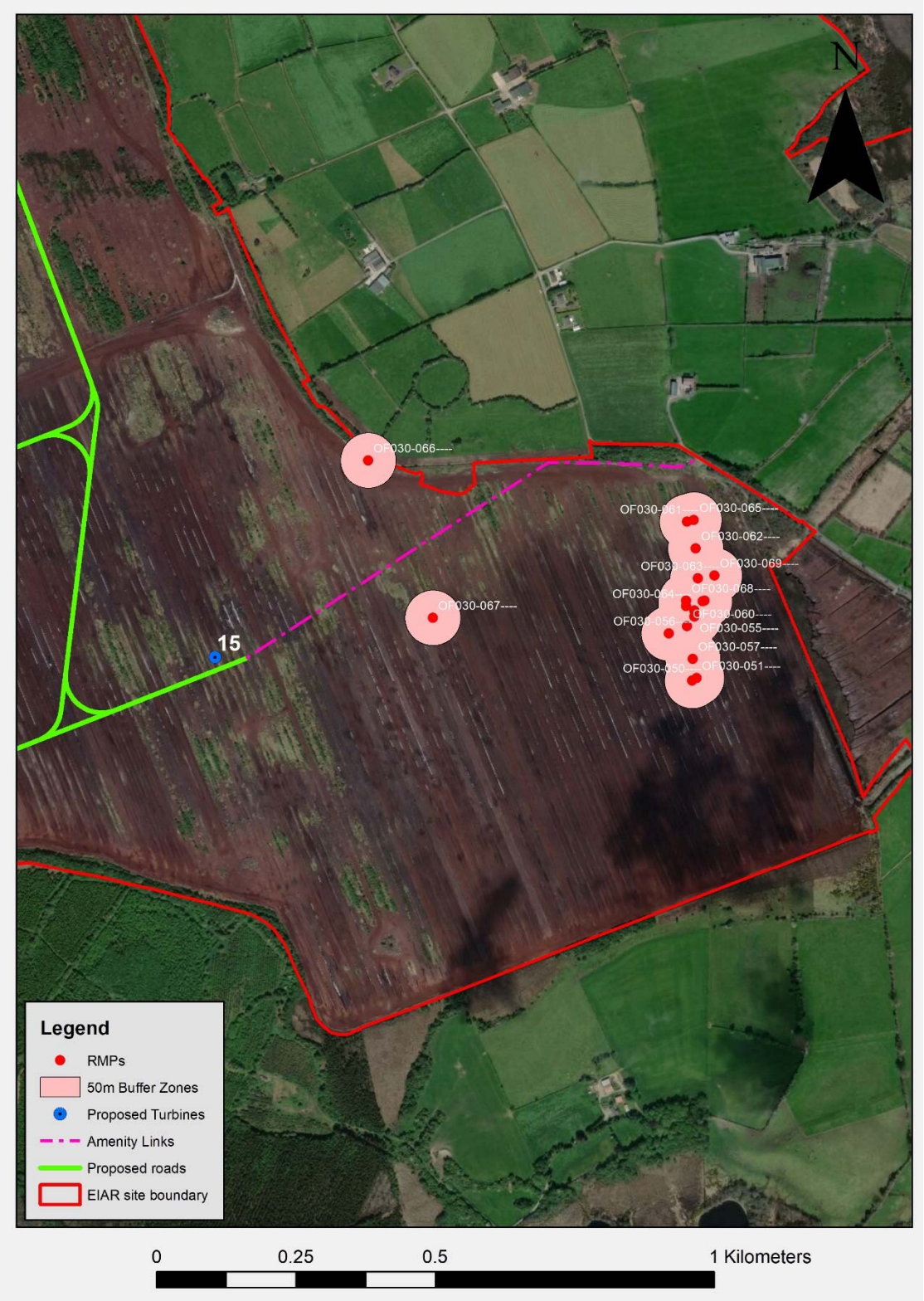

Figure 13.11: Detail of RMPs in southeast corner of East side of site showing 50m buffer zones around RMPs.

13.3.1.3.1 National Monument Service of the Department of Culture, Heritage and the Gaeltacht Classification of Toghers

Road - class 1 togher

A peatland trackway/causeway constructed of wood and intended to traverse a bog which have a known orientation. In most instances, they comprise substantial timber planks and have good structural definition. They may have several phases of construction indicative of long-term use and reuse. These may date from the Neolithic (c. 4000-2400 BC) to the medieval period (5th-16th centuries AD).

Road - class 2 togher

A length of peatland trackway, constructed of wood, believed to be over 15m in length. They have a clear orientation and good structural definition. Class 2 Toghers may date from the Neolithic (c. 4000-2400 BC) to the medieval period (5th-16th centuries AD).

Road - class 3 togher

A short stretch of peatland trackway, constructed of wood, up to 15m in length with a discernible orientation. It may not be possible to trace them beyond a single sighting. They have evidence of deliberate structure and are interpreted as laid down to cross a small area of bog. Such sites may date from the Neolithic (c. 4000-2400 BC) to the medieval period (5th-16th centuries AD).

13.3.1.3.2 Descriptions of the Toghers within the proposed development site boundary

The descriptions in italics are extracts from the Sites and Monuments Record files on the National Monuments Service public Historic Environment viewer.

OF030-053 Class 3 Togher: '*A deposit of three distinct layers of roundwoods, brushwood and twigs (Wth 1.28m; D 0.34m) in opposing drain faces. The substructure consists of five roundwoods and some brushwood orientated WSW-ENE. The superstructure is composed of two layers. The upper layer consists of densely packed brushwood and beds of twigs orientated WSW-ENE. The lower layer is primarily composed of widely spaced brushwood and beds of twigs orientated NNW-SSE. The site is deepest at its centre, tapering towards the edges, with a number of possible outlying elements above and below the main concentration. The majority of these outliers may constitute separate sites as their association to the site is unclear. A small number of metal-cut toolmarks are present but these are quite degraded. Wood species include birch, hazel, ash and Pyrus/Malus. The site is in poorly humified Sphagnum peat with Eriophorum, Phragmites and ericaceous remains*'.

This site was examined and on the day of survey in January 2020 no surface trace was apparent. Track machines had been utilising the field and this was evident on the surface. A railway had been laid here in the past but had been lifted in recent times (Plate 13.1).

Plate 13.1: Site of OF030-053 Class 3 Togher looking north.

OF030-060 Class 1 Togher: '*The site (L 278.91m; Wth 0.7m; D 0.2m) is orientated N-S on the field and contains two structural layers. The substructure is composed of split timbers, roundwoods and brushwood, laid both longitudinally and transversely. The superstructure is composed of longitudinal planks and roundwoods. Planks (L 6m max.) are the predominant component of the superstructure. Pegs are utilised in places to secure the planks. The planks are both radially and tangentially split with flat and pointed ends. One of the planks has a broken or incomplete mortice. The site is in Sphagnum peat with Eriophorum and ericaceous remains. The site was dendrochronologically dated to 1411-1410 BC (Q9791). At one sighting SMR OF030-064— is 0.3m below the site. Compiled by: Irish Archaeological Wetland Unit (University College Dublin)*'.

This area was examined on the day of survey in January 2020 and no surface trace was apparent either on the surface or within drains (Plate 13.2).

Plate 13.2: OF030-060 Class 1 Togher looking north/northwest along field on which togher was recorded.

OF030-061 Class 3 Togher: '*A deposit of roundwoods, brushwood, occasional twigs and a peg (L 1.1m; Wth 1.07m; D 0.26m) on the field surface. The majority of the elements are closely spaced, orientated NNW-SSE and are longitudinally laid. There is no discernible substructure, the different elements being interspersed to form a layer approximately four pieces deep with the heaviest pieces concentrated towards the centre. Some pieces have been broken and displaced as a result of milling. Metal-cut toolmarks are evident on one piece of brushwood and on one roundwood. The site is in moderately humified Sphagnum peat with Phragmites and many Menyanthes seeds*'.

The area was examined on the day of survey in January 2020 and no surface trace of the togher was apparent. The field surface and drains were overgrown in this area and peat had been reduced significantly (Plate 13.3).

Plate 13.3: Site of OF030-061 Class 3 Togher looking west.

OF030-062 Class 3 Togher: '*A deposit of brushwood, laid 3-4 pieces deep, and occasional twigs (L 1.7m; Wth 1.15m; D 0.11m) which has suffered extensive milling damage. The site may represent two phases of construction or two separate sites. Heavy brushwood dominates the upper layers, with lighter, more uniform brushwood beneath. Some of these lighter elements may have been interwoven. The majority of the pieces are orientated E-W while others are perpendicular. A single metal-cut chisel point was noted. Wood species include hazel, birch, holly and yew. The site is in moderately humified Sphagnum peat with Eriophorum and ericaceous remains*'.

The area was examined on the day of survey in January 2020 and no surface trace of the togher was apparent (Plate 13.4).

Plate 13.4: Site of OF030-062 Class 3 Togher looking east

OF030-063 Class 3 Togher: '*The site (L 9.47m; Wth 1.72m; D 0.19m) is orientated E-W consisting of roundwoods and brushwood with two structural layers evident. The substructure consists of roundwoods and brushwood, longitudinally and transversely laid, three pieces deep. The superstructure consists of roundwoods, two pieces deep, and brushwood (diam. 0.027-0.06m), three pieces deep. The elements are longitudinally laid. The heel of a coppiced piece of brushwood has toolmarks. Wood species include hazel, ash, alder and birch. The site is in poorly to moderately humified Sphagnum peat with Eriophorum. The site was radiocarbon dated to 341 BC-AD 48 (UCD-9943)*'.

The area was examined on the day of survey in January 2020 and no surface trace of the togher was apparent (Plate 13.5).

Plate 13.5: Site of OF030-063 Class 3 Togher in location of decommissioned railway looking north.

OF030-069 Class 4 Togher: '*A deposit of light brushwood, laid five pieces deep, two roundwoods and occasional twigs (Wth 1.4m; D 0.27m). The roundwoods (diam. 0.07m-0.09m) and pieces of brushwood are irregularly laid. Two pieces of brushwood have toolmarks*'.

The area was examined on the day of survey in January 2020 and no surface trace of the togher was apparent (Plate 13.6).

Plate 13.6: View of site of OF030-069 Class 4 Togher looking south along peat field.

OF030-070 Class 3 Togher: '*The site (L 14.21m; Wth 1.25m; D 0.2m) is orientated NNE-SSW and consists of a compact structure of longitudinally laid pieces of brushwood and roundwoods set below a single plank and roundwood. This created a central walking surface (Wth 0.4m). The oak plank was irregularly split. It appears to dive under the central roundwoods to the W. The woodworking is degraded but suggests metal tools. This material is set in poorly-humified fen peat which contained Phragmites, bark fragments and occasional Menyanthes seeds*'.

No trace of this monument was visible during the walk-over survey in December 2019 and the bog has been reduced and milled since its interception by the IAWU in 1997. The peat fields have been reduced to the level of the base of the drains some of which are grown over (Plate 13.7 13.7).

Plate 13.7: Site of OF030-070 looking NNE.

OF030-071 Class 3 Togher '*The site (L 2.94m; Wth 0.44m; D 0.12m), in opposing drain faces, composed predominantly of two parallel roundwoods and a plank. Within a small area examined, the two roundwoods and the plank are orientated NNE-SSW, with two pieces of light brushwood set roughly at right angles. The pieces of light roundwood (and plank are loosely set 0.04-0.19m apart. The plank (L 2.3m; Wth 0.11m) was a tangential outer quarter split and was poorly preserved. The site is located on the field surface within moderately-humified peat which contains Phragmites, Menyanthes seeds and some ericaceous remains'.*

This was originally recorded within the drain faces according to the above description. The peat fields are now reduced to almost the same level as the drain bases which are overgrown. No surface trace of the monument was detected during the recent site walk-over survey in December 2019 (Plate 13.8).

Plate 13.8: Site of OF030-071 looking NNE.

OF030-073 Class 3 Togher: '*Broken pieces of interspersed brushwood and roundwood (L 12m; Wth 0.94m; D 0.07m) traced across the field in a NE-SW direction. Where examined, the site consists of longitudinally laid irregular pieces of brushwood and roundwood (diam. 0.02-0.055m). Two small pegs (diam. 0.02-0.03m), mark the limit of the site to the N. The wood is in poor condition with no wood working evident. The site is located within poorly humified Sphagnum peat, with some traces of Eriophorum, ericaceous remains and Menyanthes seeds, 8.46m N of a deposit of bog iron*'.

No surface trace of this togher was detected during the walkover survey in December 2019 and the area is also vegetated (Plate 13.9Plate 13.9).

Plate 13.9: Site of OF030-073 looking North.

OF030-074 Class 3 Togher: '*The site (L 0.4m min.; Wth 2.11m; D 0.1m) is formed of pieces of brushwood with some twigs and roundwoods orientated roughly E-W, immediately below the field surface. Within the area examined it consists of two deposits of brushwood, twigs and a roundwood set 0.2-0.3m apart. The N deposit is denser and the S side more dispersed and fragmented. A single tool marked roundwood had been worked to a pencil point with a metal tool. This material was located within moderately humified Sphagnum peat with frequent Phragmites and occasional ericaceous remains*'.

This togher was noted on the surface by the IAWU in 1997. No trace of the monument was visible on the day of the walk-over survey in December 2019 (Plate 13.10).

Plate 13.10: Site of OF030-074 togher looking NE.

OF030-075 Class 3 Togher: '*The site (L 10.9m min.; Wth 0.74m; D 0.07m) is orientated NNE-SSW evident at two sightings. At the NE extent the site consists of compactly set, longitudinally laid roundwoods (diam. 0.6m) with some pieces of brushwood (diam. 0.01-0.042m) and twigs used to fill the voids in the structure. Only one degraded tool mark was recorded. The site is within poorly humified Sphagnum with Eriophorum and ericaceous remains and occasional Menyanthes seeds. To the SSW the site was similarly constructed but in poorer condition and disappears toward an area of high bog, located in the centre of this bog*'.

The peat field and the shallow remains of the drains in the area of this monument are re-colonised and overgrown, and no visible remains of the monument were apparent on the day of the walkover survey in December 2019 (Plate 13.11).

Plate 13.11: Site of OF030-075 togher looking NW.

OF030-076 Class 3 Togher: '*Two parallel planks, roundwoods and pieces of brushwood with occasional twigs (L 8.2m; Wth 0.96m; D 0.1m), orientated NE-SW evident at two separate sightings. The site was examined near the NE extent where the components are longitudinally laid and secured in place with two pegs. This material was overlain by a small deposit of branch wood and roundwoods on the SW side of the site. The planks (L 3.5m min.; Wth 10.1-19.7m) are an irregular inner split and an outer tangential split and the pieces of brushwood and roundwoods are mixed. The site is located within poorly humified and laminated peat that contained Phragmites and Menyanthes seeds. This site has been radiocarbon dated to 1734-1440 cal. BC (UCD-9956)*'.

Given the extent of vegetation it was not possible to assess the presence or otherwise of the monument on the day of the walkover survey in December 2019 (Plate 13.12).

Plate 13.12: Site of OF030-076, looking NNE.

OF030-077 Class 2 Togher: '*The site (L 25.24m; Wth 0.63m; D 0.04m) is orientated E-W across the field surface and consists of longitudinally laid brushwood. The wood (diam. 0.02-0.055m) is in fragmented condition has been badly disturbed by machine milling. Some root-like elements are also present in the deposit. Only a single end showed evidence of having been worked to a chisel point. The site is located in moderately humified Sphagnum peat with frequent Eriophorum and occasional ericaceous remains, Menyanthes seeds and a hazelnut shell*'.

No surface trace of the togher was detected during the walkover survey in December 2019 (Plate 13.13).

Plate 13.13: Site of OF030-077 togher looking SE.

OF030-079 Class 3 Togher: '*A concentrated deposit of longitudinally placed pieces of brushwood, twigs and a roundwood (L 6.5m; Wth 0.56m; D 0.12m), orientated in a NE-SW on the field surface. Twigs infilled the small voids between the pieces of roundwood. No evidence of woodworking was recorded as the ends of the pieces were broken and part of the structure may have been removed by peat milling. The site is in moderately-humified Sphagnum peat which contained ericaceous remains and some Menyanthes seeds. The site has been radiocarbon dated to 1734-1449 cal. BC (UCD-9932)*'.

This is now colonised with trees and bushes so an assessment of the field surface was not possible on the day of the walkover survey in December 2019. Such limitations have been addressed by way of mitigation measures.

13.3.1.4 Recorded monuments in the vicinity of new temporary junction bypass at Kennedy's Cross

It is proposed that the turbine components will be delivered via the M6 before turning south onto the N52 at Kilbeggan. The route follows the N52 south, bypassing Tullamore to the east and passing through the settlements of Blue Ball, Kilcormac and Five Alley. Deliveries will turn right onto the N52 (at the junction known as Kennedy's Cross) and will proceed northwards towards Cloghan to the proposed site entrances, immediately north of Derrinlough Briquette Factory. A new section of haul road will be required at Kennedy's cross to allow the turbine delivery vehicles to negotiate this junction. This is the only location where groundworks will be required along the haul route.

The proposed new section of road traverses a green field. The nearest Recorded Monuments are located 150m to the west on the west side of the public road and in a forested area. The monuments are described in the Archaeological Inventory of County Offaly as outlined in the following sections and are depicted in Table 13.4 and on Figure 13.12.

Table 13.4: RMPs within close proximity to proposed new temporary junction bypass at Kennedy's Cross

RMP NO.	DESCRIPTION	ITM E	ITM N	TOWNLAND	DISTANCE to haul road (M)
OF035-002002	Castle – Unclassified	607126	707625	Ballindown	150m
OF035-002001	Deserted Medieval Settlement	607124	707620	Ballindown	150m

13.3.1.4.1 Castle – Unclassified OF035-002002-

Situated on wet marshy land on the W side of a small lake or turlough. Isolated fragments of upstanding walls survive in places which may be the remains of Ballindown Castle, no ground plan or any idea of the shape or size of the castle could be ascertained from the remains. Site of an O' Carroll castle (Cooke 1875, 25-6; O'Flanagan 1933, vol. 1, 98, 101; vol. 2, 9-10).) ('Archaeological Inventory of County Offaly, 1997).

13.3.1.4.2 Deserted Medieval Settlement OF035-002001

Unlocated possible deserted medieval settlement associated with the castle (OF035-002002-) at Ballindown as mentioned in the OS Letters (O'Flanagan 1927, vol. 1, 98, 101; Vol. 2, 9-10).).) ('Archaeological Inventory of County Offaly, 1997).

Direct and Indirect effects are addressed below in Section 13.4 below.

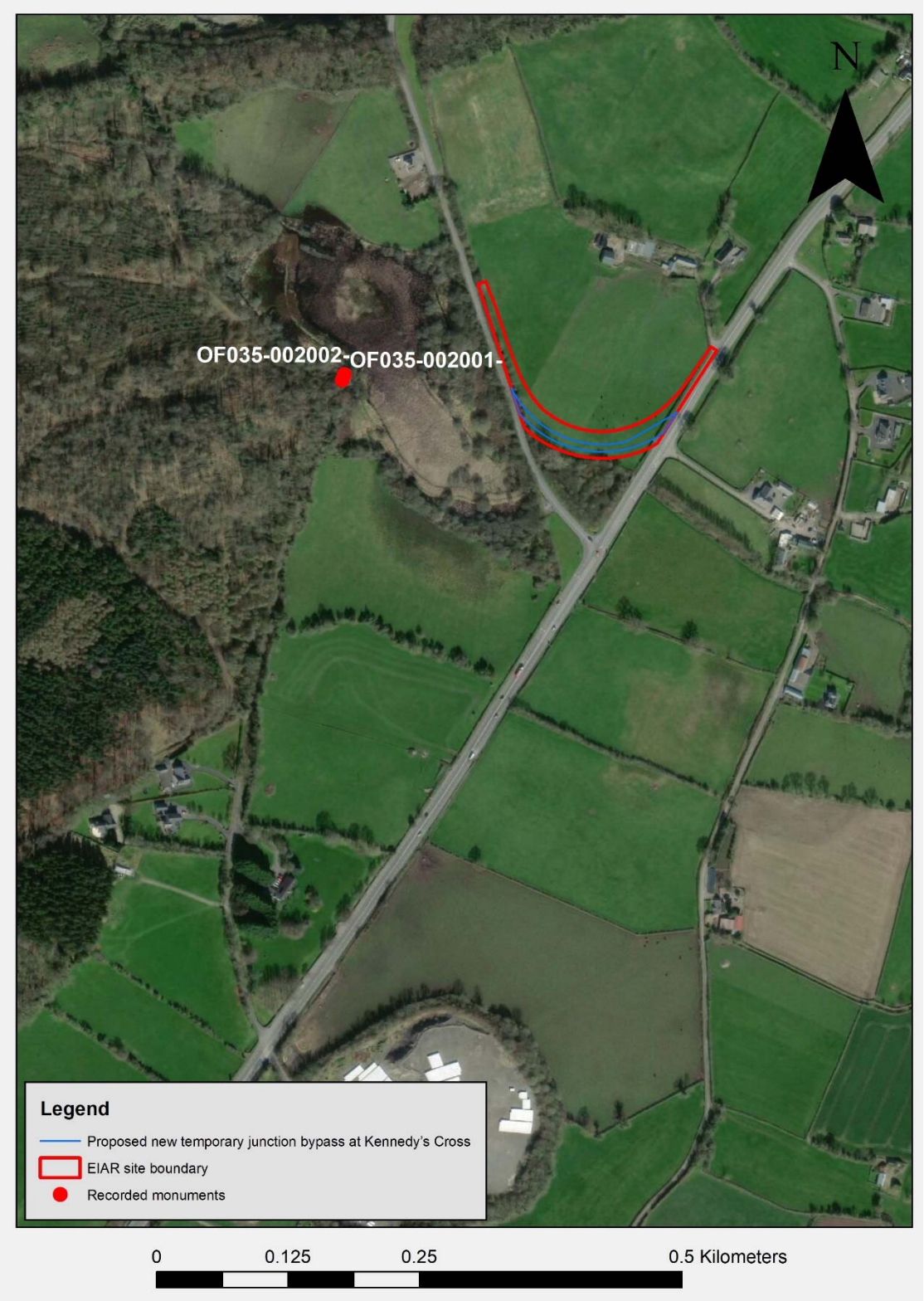

Figure 13.12: Proposed new temporary junction bypass at Kennedy's Cross to facilitate turbine delivery.

13.3.1.5 Recorded Monuments within 5km of the proposed Turbines

One hundred and sixteen (116) monuments are located within 5km of the nearest proposed turbine and these are detailed below in Table 13.5. The distance (5km) criteria methodology is described in Section 13.2.5. The monuments are labelled from 1-116 (Map ID) for ease of reference on Figure 13.13. Monuments within 5 kilometres of the proposed turbines are included here for purposes of assessing potential visual impacts in the wider landscape setting. Seven monuments are located within 1km of the nearest proposed turbines. Thirty-seven monuments are located between 1 and 2km of the nearest proposed turbine. Seven monuments are located between 2 and 3km with 29 monuments located between 3 and 4km. Thirty-six (36) monuments are located between 4 and 5km. A breakdown of the monuments by type is depicted on Figure 13.14. Direct and Indirect effects are addressed below in Section 13.4 below.

Table 13.5: RMPs within 5km of the nearest proposed turbines

Map ID	Rmp No.	ITM E	ITM N	Description	Townland	WTG ID	Distance (m)
1	OF022-015	607207	717274	Enclosure	Stonestown	1	1907
2	OF022-021	606853	716803	Graveyard	Kilcamin	1	1438
3	OF022-022	606866	716652	Ritual site - holy well	Carrick (Garrycastle By.),Kilcamin	1	1287
4	OF030-003	605729	712062	Enclosure	Cloonacullina	4	1063
5	OF030-012	602974	709646	Barrow - ring-barrow	Coolaghansglaster	4	4564
6	OF030-014	603959	709239	Mound	Clondallow	4	4348
7	OF035-001	604694	708291	Ringfort - rath	Clondallow	4	4973
8	OF030-006	608729	712272	Enclosure	Whigsborough	5	1852
9	OF030-013	609699	708932	Enclosure	Cloncarban	5	4758
10	OF030-015	609834	709843	Castle - tower house	Eglish	5	4140
11	OF030-016	609895	709823	Church	Eglish	5	4197
12	OF030-017	608539	709385	Ritual site - holy well	Eglish	5	3783
13	OF030-018	609579	708912	Enclosure	Ballynaguilsha	5	4707
14	OF030-019	609884	709119	Enclosure	Cloncarban	5	4719
15	OF030-023	608544	709425	Mass-rock	Ballycollin (Eglish By.)	5	3749
16	OF035-003	607595	708095	Ringfort - rath	Ballindown	5	4771

Map ID	Rmp No.	ITM E	ITM N	Description	Townland	WTG ID	Distance (m)
17	OF030-016001	609891	709826	Graveyard	Eglish	5	4192
18	OF030-080	609308	711213	Road - class 3 togher	Coologe	5	2846
19	OF030-081	608065	711085	Redundant record	Galros East	5	2060
20	OF030-082	609095	711627	Redundant record	Whigsborough	5	2446
21	OF030-083	608676	711194	Redundant record	Ballycollin (Eglish By.)	5	2366
22	OF030-015001	609824	709843	Bawn	Eglish	5	4133
23	OF022-014	605267	717328	Ringfort - rath	Attinkee	8	1830
24	OF022-020001	606727	716813	Church	Guernal	8	1443
25	OF022-020002	606709	716811	Bullaun stone	Guernal	8	1431
26	OF021-002	600258	715570	Battery	Kylebeg Or Banagher	10	4940
27	OF021-003	600683	715700	Historic town	Curraghavarna And Portavrolla,Kylebeg Or Banagher	10	4555
28	OF021-001001	602616	716277	Ringfort - rath	Mullaghakaraun	10	3013
29	OF021-001002	602600	716271	Hut site	Mullaghakaraun	10	3023
30	OF021-006	601840	715291	Redundant record	Cuba	10	3335
31	OF021-008	601815	715358	House - 18th/19th century	Cuba	10	3374
32	OF022-019	602926	716287	Castle - tower house	Streamstown (Garrycastle By.)	10	2770
33	OF029-006001	602008	713761	Castle - tower house	Garrycastle	10	3188
34	OF029-006002	602014	713751	Bawn	Garrycastle	10	3185
35	OF029-006003	602003	713742	House - fortified house	Garrycastle	10	3198
36	OF029-006004	602040	713757	Sheela-na-gig	Garrycastle	10	3158

Map ID	Rmp No.	ITM E	ITM N	Description	Townland	WTG ID	Distance (m)
37	OF021-003002	600864	715391	Graveyard	Kylebeg Or Banagher	10	4310
38	OF021-003001	600873	715405	Church	Kylebeg Or Banagher	10	4304
39	OF021-003003	600872	715401	Graveslab	Kylebeg Or Banagher	10	4304
40	OF021-003004	600884	715398	Cross - High cross	Kylebeg Or Banagher	10	4292
41	OF021-003005	600925	715384	Ritual site - holy well	Kylebeg Or Banagher	10	4249
42	OF021-003006	600901	715377	Kiln - pottery	Kylebeg Or Banagher	10	4271
43	OF021-003007	600543	715733	Bastioned fort	Kylebeg Or Banagher	10	4699
44	OF021-003008	600602	715664	Town defences	Curraghavarna And Portavrolla,Kylebeg Or Banagher	10	4625
45	OF021-003009	600463	715879	Bridge	Curraghavarna And Portavrolla,Kylebeg Or Banagher	10	4814
46	OF021-001003	602521	716310	Enclosure	Mullaghakaraun	10	3110
47	OF029-027	600680	714950	Burnt mound	Kylebeg Or Banagher	10	4431
48	OF021-009	600258	715562	Architectural fragment	Kylebeg Or Banagher	10	4938
49	OF021-003010	600543	715733	Castle - unclassified	Kylebeg Or Banagher	10	4699
50	OF029-015001	602672	711721	Church	Garrycastle	11	3473
51	OF029-015002	602650	711722	Graveyard	Garrycastle	11	3489
52	OF029-015003	602677	711728	Ritual site - holy tree/bush	Garrycastle	11	3465
53	OF029-015004	602589	711774	Ritual site - holy well	Garrycastle	11	3502
54	OF029-015005	602622	711691	Redundant record	Garrycastle	11	3531

Map ID	Rmp No.	ITM E	ITM N	Description	Townland	WTG ID	Distance (m)
55	OF030-002	604690	713301	Enclosure	Clongawny Beg	11	928
56	OF029-015006	602676	711780	Ritual site - holy well	Garrycastle	11	3431
57	OF029-015007	602667	711785	Ritual site - holy well	Garrycastle	11	3435
58	OF029-015008	602592	711765	Ritual site - holy well	Garrycastle	11	3505
59	OF030-004	609645	713541	Enclosure	Derrinlough	14	617
60	OF030-005001	609784	713348	Castle - tower house	Whigsborough	14	737
61	OF030-005002	609762	713349	Mound	Whigsborough	14	742
62	OF030-005003	609769	713331	Bawn	Whigsborough	14	758
63	OF030-007	609911	712865	Ringfort - rath	Whigsborough	14	1195
64	OF030-010	609988	710512	Enclosure	Ballycollin (Eglish By.),Eglish	14	3546
65	OF030-011	610196	710810	Enclosure	Coologe	14	3255
66	OF030-020	610783	709148	Enclosure	Cloncarban	14	4975
67	OF023-007	613587	715482	Ringfort - rath	Broughal	15	2989
68	OF030-001	611208	714871	Enclosure	Drinagh	15	631
69	OF030-008	610933	713599	Redundant record	Derrymullin And Loughderry	15	795
70	OF030-009	611704	712668	Ringfort - rath	Ballykealy	15	1936
71	OF030-021001	612322	709671	Church	Tinnacross	15	4951
72	OF030-021002	612329	709660	Graveyard	Tinnacross	15	4963
73	OF031-001	613538	714711	Enclosure	Broughal	15	2750
74	OF031-002	614639	714075	Enclosure	Clontaglass	15	3844
75	OF031-003	614917	715192	Enclosure	Broughal	15	4189
76	OF031-004	615107	715271	Enclosure	Broughal	15	4390

Map ID	Rmp No.	ITM E	ITM N	Description	Townland	WTG ID	Distance (m)
77	OF031-049	614940	714040	Castle - unclassified	Killadrown	15	4147
78	OF030-029	611961	714749	Redundant record	Aghagoogy	15	1210
79	OF030-030	611959	714697	Road - class 3 togher	Aghagoogy	15	1194
80	OF030-031	611958	714405	Redundant record	Aghagoogy	15	1151
81	OF030-032	612000	714352	Redundant record	Aghagoogy	15	1193
82	OF030-033	612009	714336	Redundant record	Aghagoogy	15	1203
83	OF030-034	612014	714336	Road - class 3 togher	Aghagoogy	15	1208
84	OF030-035	612016	714331	Redundant record	Aghagoogy	15	1210
85	OF030-036	612039	714341	Road - class 3 togher	Aghagoogy	15	1233
86	OF030-037	612025	714325	Redundant record	Aghagoogy	15	1219
87	OF030-038	612033	714317	Redundant record	Aghagoogy	15	1228
88	OF030-039	612031	714316	Redundant record	Aghagoogy	15	1226
89	OF030-040	612028	714315	Redundant record	Aghagoogy	15	1223
90	OF030-041	612009	714278	Redundant record	Aghagoogy	15	1207
91	OF030-042	612016	714259	Redundant record	Aghagoogy	15	1215
92	OF030-043	612023	714241	Road - class 3 togher	Aghagoogy	15	1224
93	OF030-044	611942	714419	Redundant record	Aghagoogy	15	1135

Map ID	Rmp No.	ITM E	ITM N	Description	Townland	WTG ID	Distance (m)
94	OF030-045	611968	714431	Redundant record	Aghagoogy	15	1162
95	OF030-046	611978	714691	Road - class 3 togher	Aghagoogy	15	1210
96	OF030-047	611918	714591	Road - class 3 togher	Aghagoogy	15	1130
97	OF030-048	612078	714631	Road - class 3 togher	Aghagoogy	15	1295
98	OF030-049	611948	714681	Redundant record	Aghagoogy	15	1179
99	OF030-058	611842	714545	Redundant record	Derryad (Eglish By.)	15	1047
100	OF030-059	611865	714535	Road - class 3 togher	Derryad (Eglish By.)	15	1069
101	OF030-084	611101	712681	Castle - unclassified	Ballykealy	15	1728
102	OF014-047	607989	721690	Kiln - lime	Smithstown	21	4933
103	OF022-009	607179	720350	Enclosure	Ballyloughan	21	4161
104	OF022-010001	608569	721510	Ritual site - holy well	Cush East	21	4581
105	OF022-010002	608569	721520	Redundant record	Cush East	21	4591
106	OF022-011	608579	721390	Graveslab	Smithstown	21	4463
107	OF022-012001	608597	720647	Church	Killowney Beg	21	3746
108	OF022-012002	608591	720624	Graveyard	Killowney Beg	21	3726
109	OF022-012004	608529	720643	Redundant record	Killowney Beg	21	3764
110	OF022-013	607686	719439	Castle - tower house	Cloghan (Garrycastle By.)	21	3137
111	OF022-016	609241	718356	Enclosure	Stonestown	21	1372
112	OF022-017	610023	718159	Ritual site - holy well	Stonestown	21	1104

Map ID	Rmp No.	ITM E	ITM N	Description	Townland	WTG ID	Distance (m)
113	OF022-025	608206	717734	Castle - unclassified	Stonestown	21	1685
114	OF022-012005	608620	720650	Ecclesiastical enclosure	Killowney Beg	21	3742
115	OF022-012006	608623	720543	Fulacht fia	Killowney Beg	21	3639
116	OF022-012007	608675	720542	Fulacht fia	Killowney Beg	21	3622

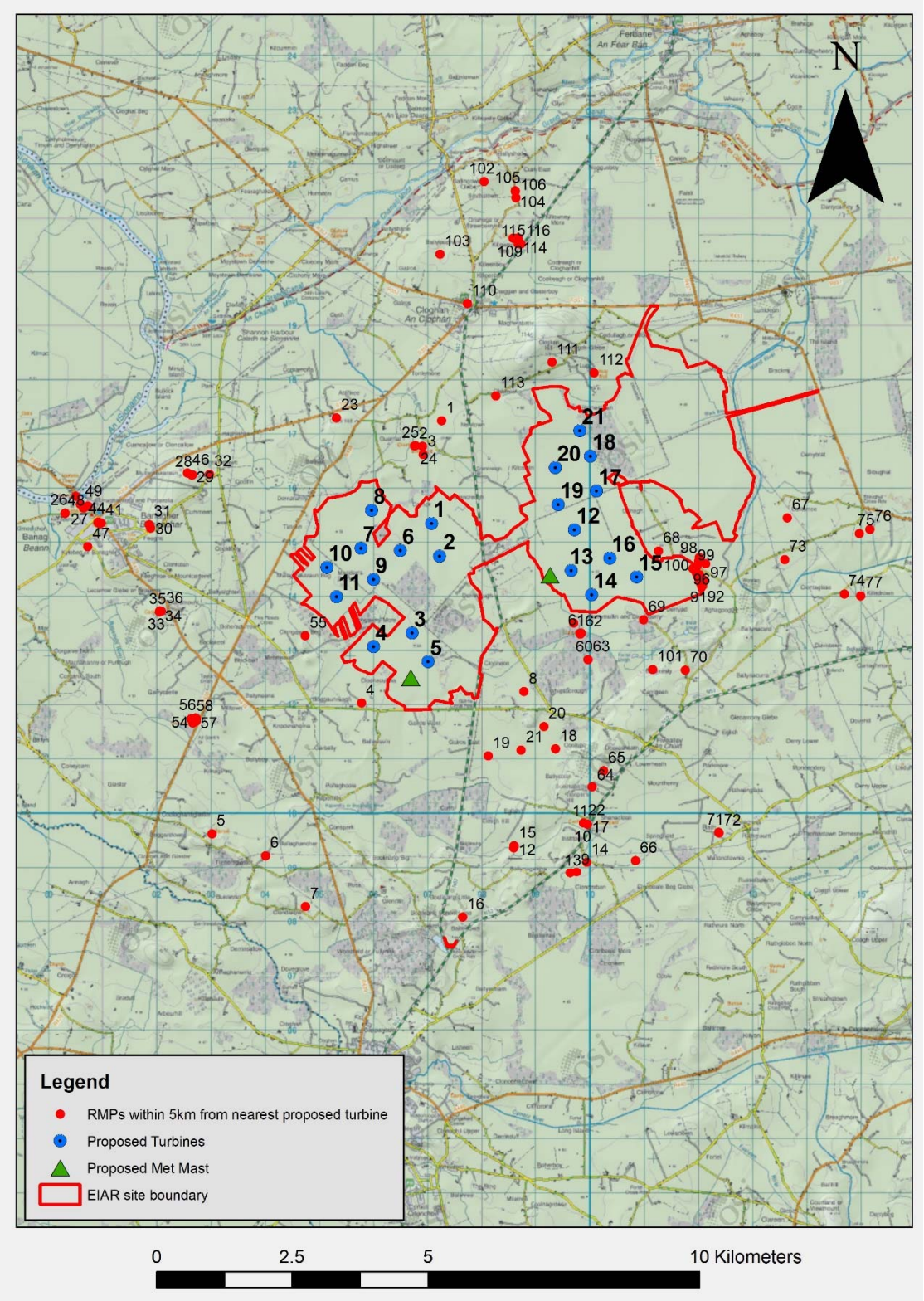

Figure 13.13: RMPs within 5km of the nearest proposed turbine.

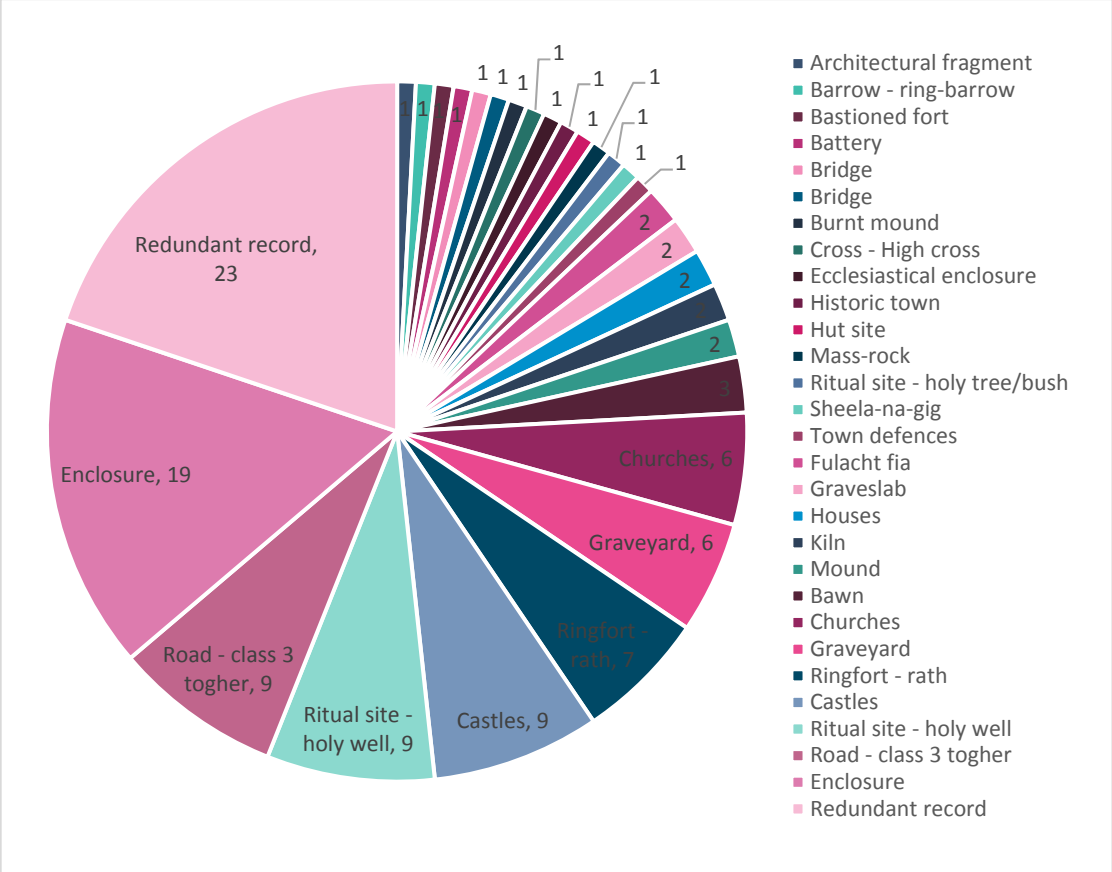

Figure 13.14: Monuments numbers within 5km of the nearest proposed turbine

13.3.1.5.1 The Prehistoric Period

The prehistoric period is strongly represented within the proposed development site boundary itself containing a number of toghers typically found in raised bogs. These are likely to be prehistoric in date and are described above in Section 13.3.1.3. The prehistoric period, however, within the wider landscape is represented by burnt mounds, fulachta fia, a hut site, a ring barrow as well as a number of class 3 toghers (trackways).

A number of other monuments may date to the prehistoric period but their dates can span from prehistory through to the Medieval period (Table 13.5, Figure 13.13 and Figure 13.14). One such site type is hut sites one of which is located within 5km of the proposed turbines. The primary function and date of hut sites is slightly ambiguous. Examples of hut sites are known throughout the country, particularly in upland regions, and are frequently associated with the practice of transhumance or booleying. Transhumance refers to the practice of the seasonal movement of people and their livestock typically to higher pastures in the summer and lower valleys in the winter. In Ireland this practice is known as booleying and is believed to date to the early medieval period, although it continued well into the nineteenth and early twentieth century.

Other uses for hillside huts has been noted at Mount Brandon, County Kerry, where it is suggested that they functioned as temporary habitations for seabourne pilgrims. It is also thought that they were used as habitation sites such as booleying huts during the year when pilgrimage was not taking place. An extensive series of pre-bog walls was also noted on the southern slopes of Mount Brandon. It is noted in that instance that although pre-dating the bog, the peat may still have been growing well into the medieval period. In this regard, such walls could be early medieval in date rather than prehistoric (Archaeology Ireland Heritage Guide No. 29). Furthermore, the potentially lengthy chronology of hut sites means that while some may be prehistoric others may date to the early or later medieval period or indeed to more modern times (ibid.).

Burnt mounds and fulachta fia at Kylebeg/Banagher and Killowney Beg also represent the Bronze Age period in general. Again, this monument type may span from the Bronze Age (c. 2400-500 BC) to the early medieval period (5th - 12th century AD. They consist of a circular or irregularly shaped mound of material consisting of burnt stones, ash and charcoal with no surface evidence of a trough or depression. Levelled examples can appear as a spread containing burnt stones.

Toghers in Aghagoogy townland may also date to the prehistoric period although may also span as far as the Medieval period. Toghers consist of a peatland trackway/causeway constructed of wood and intended to traverse a bog. Some have known orientations and some have substantial timber planks and have good structural definition. They may have several phases of construction indicative of long-term use and reuse. These may date from the Neolithic (c. 4000-2400 BC) to the medieval period (5th-16th centuries AD).

Of note, also, although in excess of 5km from the proposed turbines is the Lough Boora Mesolithic habitation site (OF023-005). This is located 3.7km from the proposed development site boundary and in excess of 6.4km from the nearest turbines. Lough Boora (RMP OF023- 005) is the only Early Mesolithic site identified to date from Ireland's midlands. The site dates from a period before the formation of the raised bog in this area. At that time the site was located on the shores of a large post-glacial lake and evidence from excavations suggests that hunter-gatherers were using fireplaces, working chert, shale and limestone and trapping pig, hare, birds, eels and trout in the area around the site (O'Sullivan 2007, 159). The area was subsequently covered by peat which masked the post-glacial topography and archaeological remains. Given that the extensive peatlands in Offaly were in the process of forming in the early prehistoric period it can be argued that sites of a similar nature remain to be identified (McDermot 1998, 11).

It is described in the Archaeological Inventory as follows:

'*Mesolithic habitation site discovered on the bed of Lough Boora in 1977 and excavated by the National Museum under the direction of Dr. Michael Ryan (Ryan 1978). The site appears to have been located on a fossil lake shore formerly sealed by peat and subsequently inundated by the modern lake. The excavation revealed a number of hearths which were rich in charcoal, which included the burnt bones of mammal, bird and fish. Other evidence included the waste debris associated with the manufacture of bone tools. Over 400 objects were recovered including three polished stone axe heads, almost 200 microliths along with blades and scrapers of chert. Radiocarbon dating provided a range of dates from 7000-6500 BC*'.

13.3.1.5.2 The Early Medieval Period

The majority of monuments consist of those which may be definitively attributed to the Early Medieval period and ringforts and enclosures dominate the archaeological landscape within the 5km study area. Ringforts comprise earthen monuments while cashels take a similar form to the latter but are constructed using stone. Enclosures may represent the remains of ringforts or cashels but may not retain enough features to classify them as such or fall outside the acceptable size range for these monuments. Ringforts consist of a circular or roughly circular area enclosed by an earthen bank formed by material thrown up from the digging of a concentric ditch on its outside. Ringforts are usually enclosed by a single bank (univallate) while bivallate or trivallate ringforts i.e. those enclosed by double or triple rings of banks are less common. The number of banks and ditches enclosing these monuments are considered to reflect the status of the site, rather than the strengthening of its defences. Archaeological excavation has shown that the majority of ringforts functioned as enclosed farmsteads, built during the Early Christian period (5th – 9th century A.D.). Excavation within the interior of the monuments has traced the remains of circular and rectangular dwelling houses as well as smaller huts probably used to stall animals. The enclosing earthworks would also have protected domestic livestock from natural predators such as wolves and foxes. Souterrains are frequently associated with ringforts, cashels and enclosures. Souterrains derive their name from the French sous terrain meaning 'underground' and

comprise an underground structure consisting of one or more chambers connected by narrow passages or creepways, usually constructed of drystone-walling with a lintelled roof over the passages and a corbelled roof over the chambers. Most souterrains appear to have been built in the early medieval period by ringfort inhabitants (c. 500 - 1000 AD) as a defensive feature and/or for storage.

Within 5km of the proposed development a number of enclosures are located at Derrinlough, Drinagh, Clongawny Beg, Cloonacullina, Stonestown, Whigsborough, Stonestown, Broughal, Mullaghakaraun, Coologe Ballycollin (Eglish By.), Eglish, Clontaglass, Ballyloughan, Ballynaguilsha and Cloncarban townlands. Ringforts are located in numerous townlands including Whigsborough, Attinkee, Ballykealy, Broughal, Mullaghakaraun, Ballindown and Clondallow thus also representing a wide geographic area for settlement.

13.3.1.5.3 Sites with religious or ritual association

Numerous holy wells are located in the vicinity at Garrycastle, Stonestown, Carrick (Garrycastle By.), Kilcamin, Eglish, Kylebeg/Banagher and Cush East. Holy wells may have their origins in prehistory but are associated with devotions from the medieval period (5th-16th centuries AD) onwards.

A bullaun stone OF022-020002 is located at Guernal. It is situated on the floodplains of the Little river in undulating countryside with graveyard (OF022-021) to the E and holy well (OF022-022) to the S. Only the grass covered wall footings of a small church survive (OF022-020001-) with evidence of large limestone boulders used in the wall construction. Unable to locate any traces of a bullaun stone in the vicinity of the church that was shown to the SMR office fieldworkers by a local landowner in 1988. The term 'bullaun' (from the Irish word 'bullán', which means a round hollow in a stone, or a bowl) is applied to boulders of stone or bedrock with hemispherical hollows or basin-like depressions, which may have functioned as mortars. They are frequently associated with ecclesiastical sites and holy wells and so may have been used for religious purposes. Other examples which do not appear to have ecclesiastical associations can be found in bedrock or outcrop in upland contexts, often under blanket bog, and are known as bedrock mortars. They date from the prehistoric period to the early medieval period (5th-12th centuries AD).

An Ecclesiastical Enclosure is located at Killowney Beg and consists of a curving arc of townland boundary c. 100m to N and NE of church (OF022-012001-) and graveyard (OF022-012002-) along with curving arc of field boundaries to SW of graveyard may indicate possible remains of an ecclesiastical enclosure of Early Christian date (Fitzpatrick 1998, 121). The partial remains of an enclosing bank which may have formed part of an inner enclosure visible on aerial photographs (GSI June 1973 N. 521/520) was levelled in the early 1990s. This enclosing bank was located in the field to the E of Killowney church (OF022-012001-) and graveyard (OF022-012002-) and was levelled by a machine driver when the graveyard was being extended c. 1990 (SMR file 1997). The circular curving field banks indicated on the current edition of the OS 6-inch maps 150m to the SSW of the church (OF022-012001-) may be the remains of the original ecclesiastical enclosure (int. diam. c. 290m) associated with an Early Christian monastery at Killowney. This field boundary no longer survives but a portion of an upstanding curving field boundary located 100m to the N of the church (OF022-012001-) may be the only surviving surface remains of the possible ecclesiastical enclosure. This upstanding section of the ecclesiastical enclosure acts as the townland boundary between Killowney Beg and Killowney More. The curving shape of the 19th century graveyard wall may suggest the presence of an inner enclosure with the graveyard wall following the curve of the earlier inner enclosure.

13.3.1.5.4 Miscellaneous Monuments

A number of other site types within various periods are also represented and seem to occur in isolation with only one of each monument type represented (see Figure 13.14).

13.3.1.6 Archaeological Investigations undertaken within the proposed development site and adjacent to same

As outlined above, the proposed development site incorporates both Drinagh and Clongawny bogs. A number of archaeological surveys were previously carried out within these bogs during the lifetime of production works within same by Bord na Móna. A summary of the available results of such surveys and/or any reassessment surveys is presented below.

13.3.1.6.1 *Irish Archaeological Wetland Unit Peatland Surveys*

Clongawny Bog was archaeologically surveyed in 1997 by the (Irish Archaeological Wetland Unit) IAWU as part of the Archaeological Survey of Ireland Peatland Survey. At that time ten sites were recorded, which consisted of a Road-Class 2 Togher (OF030-077), seven Road-Class 3 Toghers (OF030-070, 071, 073, 074, 075, 076 & 079) and two now 'redundant' records (OF030-072 & 078). Two of the Road-Class 3 Toghers were subsequently dated (OF030-076 and OF030-079) and returned middle Bronze Age dates. In 2009 ADS Ltd carried out a re-assessment survey of the bog, which at that time was 75% cutaway. All areas of Clongawny Bog that were in production at the time of survey were subject to fieldwalking. This area included the north-east extent of the bog, in proximity to the Briquette Factory at Derrinlough, part of the north-west extent of the bog and the southern extent of the bog. The area in which the previously recorded sites were identified was re-walked and a handheld GPS was used to locate the find spots. This area was covered with scrub and trees and the drains were also overgrown with reeds, however, where the central portion of the field surface remained visible these areas were subject to inspection. The previously recorded archaeological sites were no longer visible. Two small, previously unrecorded sites, including a possible platform and a deposit of archaeological wood, were identified in an area to the west which remained in production in 2009 (Whitaker, 2018).

Drinagh Bog was archaeologically surveyed in 1997 by the IAWU as part of the Archaeological Survey of Ireland Peatland Survey. A total of 41 sites were submitted to the records of the Archaeological Survey of Ireland. Of these sites, 18 were concentrated in Derryad and Drinagh townlands along the western extent of Drinagh dryland island. The remainder were located in private turbury plots to the east of the limit of the BnM boundary in Aghagoogy and Derryad townlands.

A re-assessment survey was carried out by ADS Ltd on behalf of BnM in 2009 (Rohan 2009). As noted above, over 75% of the bog is now cutaway with large areas of the bog milled out, overgrown or flooded. The northern and the central sections of the bog were largely covered with dense vegetation and some areas were underwater. It was not possible therefore to field walk these areas. The drains in the south-eastern extent of the bog did not have much vegetation. Fourteen previously unrecorded sites including 13 sightings of archaeological wood and a possible togher and were recorded during the re-assessment survey. One of the sightings of archaeological wood was located in isolation, at the southern end of the bog while the remaining sites were recorded in proximity to the south-eastern limit of the bog. A previously recorded plank trackway (OF030-060) and a platform (OF030-063) were reidentified. The private turbury plots where the IAWU identified several sites was not re-inspected (Whitaker 2018).

13.3.1.6.2 *Licensed archaeological Monitoring of Derrinlough Windfarm Engineering Site Investigations (19E0095)*

Archaeological monitoring of site investigation trial pits within the proposed development site was carried out by Tobar Archaeological Services over a number of months in 2019 under excavation licence 19E0095 (See Appendix 13.2 for Archaeological Report). No timbers or potentially archaeological wood was observed in the majority of the trial pits excavated. Timbers were noted within three trial pits excavated at Compound 2, 3 and 6, respectively. Compounds 2 and 3 were located in Clongawny Bog, while Compound 6 was located in Drinagh Bog (proposed compound in Drinagh has now been moved further east).

At Compound 3 (now proposed security hut in Clongawny) a single isolated timber was identified within the trial pit, however, no other potentially associated timbers or structure were noted. No definitive archaeological structure was noted at Compound 3.

At Compound 2 (TP CC2, Archaeological Monitoring Report, Appendix 13.2) two east-west running timbers were identified at a depth of 0.38m below the present ground level. A definitive archaeological structure was not identified within the limits of the trench and no other potentially associated timbers or structure were identified. Mitigation measures are required, and are outlined in Section 13.4, as further investigation is warranted in this location.

At what was previously referred to as Compound 6 during site investigations (now TPCC4) four horizontal timbers were observed within the trial pit at a depth of 0.65m. Two of the longer timbers were exposed for a distance of 2.4m and 1.2m (NE/SW) and had widths of 0.31m and 0.25m respectively and were 0.80m apart. Between the aforementioned timbers two shorter pieces of wood were noted and measured 0.5m and 0.7m in length NW/SE. While it was not possible to discern a definitive archaeological structure from the timbers observed within the limits of the trial pit, it is possible that they have some archaeological potential. The proposed compound and adjacent site road are now located c. 60m to the east of where the trial pit containing the timbers was excavated. No direct impact to the timbers is therefore anticipated. It does, however, highlight the potential for uncovering potential sub-surface archaeological sites and features during the construction stage of the development (see section 13.4.2 below).

13.3.1.7 Excavations Database

This database contains details regarding licensed excavations undertaken both within and adjacent to the proposed development. The first two examples are summaries of the Peatland Surveys described above in Section 13.3.1.6. Of significance in terms of overall archaeological potential of peatland sites is the discovery, in 2017, of early Bronze Age activity and a Neolithic Stone axe in the Meenwaun windfarm just to the south-west of the proposed Derrinlough windfarm site (see **2017:299** below). Furthermore, monitoring of site investigations associated with the permitted Cloghan windfarm (within Derrinlough townland) did not reveal any archaeological features (See **2018:543** below).

1998:App1 - IRISH ARCHAEOLOGICAL WETLAND UNIT (IAWU) FIELDWORK 1998–COUNTIES OFFALY
County: Offaly Site name: IRISH ARCHAEOLOGICAL WETLAND UNIT (IAWU) FIELDWORK 1998–COUNTIES OFFALY
Sites and Monuments Record No.: N/A
Licence number: –
Author: Conor McDermott, Nóra Bermingham, Ellen O'Carroll and Jane Whitaker, Irish Archaeological Wetland Unit, Department of Archaeology, UCD.
Site type: –
ITM: E 511244m, N 799206m
During the summer of 1998 the Irish Archaeological Wetland Unit (IAWU) spent eight weeks completing the survey of the Boora group of bogs in County Offaly. Boora Works comprises a series of bogs north and south of the road between Tullamore and Cloghan in County Offaly. The survey of the Boora Works began in 1997, when over 31 sites had been recorded. The 1998 survey concentrated on ten Bord na Móna bogs in the Boora region (over 6849ha in area). Clowngawney More, Drinagh West, Drinagh East, Tumduff, Boora East, Boora West, Derrybrat and Monettia are bogs that produce milled peat. Derrinboy and Killaun bogs had only recently been ditched, and there had been no milling in these bogs. One of the main objectives of this survey was to complete all the bogs west of Tullamore in County Offaly so that all the sites could be included in the Sites and Monuments Record. This work led to the completion of the Boora Group of bogs in West Offaly. In addition to these projects a week was spent reinstating a crannog in Frenchgrove, Co. Mayo (No. 488 above), and a preliminary field survey was undertaken in Oweninny, Co. Mayo.

In working in these bogs a standard IAWU survey strategy was used. This involved walking every second of the parallel drainage ditches, which gives an interval of c. 30m. On the first walk sites are identified, and then these are revisited and recorded on a standard IAWU record sheet. Sixty-one sites were recorded in six of the Bord na Móna-owned bogs, and seventeen other sites were recorded in a privately owned bog near Drinagh. Although no sites were recorded in four of the bogs, this does not preclude the finding of sites in the future as peat extraction continues. This brings the total of archaeological sites surveyed and recorded by the IAWU in Boora to over 92. The locations of all the archaeological sites were recorded and transferred onto appropriate maps. A record was also compiled of the threats facing each bog surveyed by the IAWU in 1998. The locational information of each site, the accompanying maps and the bog threats have been submitted to the NMHPS for inclusion in its Sites and Monuments Record.

Clowngawney More: This is the most westerly of the bogs in the Boora area. It lies west of the road from Birr to Cloghan, and its total area is 1018ha. Much of the central axis of the bog has been planted in coniferous forestry. Ten archaeological sites were identified. They lie to the south of Madden's Derry bog island, on the eastern side of Clowngawney bog. Most of the sites are brushwood toghers situated close to the surface of the bog.

Drinagh West: Drinagh bog lies east of the road from Birr to Cloghan and has been divided into east and west for production purposes. The total area of the two bogs is 1568ha. The survey of Drinagh West revealed nineteen sites in the spur off the south-eastern side of the bog. Sites included a large, single-plank walkway, roundwood and brushwood toghers, worked wood in situ and some puddle toghers. A single-piece vessel and a woven basket with associated leather were also recorded. A further seventeen sites were recorded in an area of private peat cutting to the east of the main concentration of archaeology.

Drinagh East: There were no archaeological sites recorded during the 1998 IAWU survey in this bog.

2009:673 - BALLIVER/CARRICK/CLONGAWNY MORE/CLOONACULLINA/CLOONEEN/ CRANCREAGH/DERNAFANNY/DERRINLOUGH/ GALROS EAST/GALROS WEST/GUERNAL/TIMOLIN, CLONGAWNY BOG, Offaly
County: Offaly
Site name: BALLIVER/CARRICK/CLONGAWNY MORE/CLOONACULLINA/CLOONEEN/ CRANCREAGH/DERNAFANNY/DERRINLOUGH/ GALROS EAST/GALROS WEST/GUERNAL/TIMOLIN, CLONGAWNY BOG
Sites and Monuments Record No.: N/A
Licence number: 09E0411
Author: Nicola Rohan, Archaeological Development Services Ltd, Unit D, Kells Business Park, Cavan Road, Kells, Co. Meath.
Site type: Peatland survey
ITM: E 619212m, N 720628m
The Re-assessment Survey 2009 included Bellair North and South, Killaranny, East Boora, Clongawny, Oughter (Roscore), West Drinagh and Galros Bogs, which are part of the Bord na Móna (BnM) Boora group of bogs. The Boora group of bogs was initially surveyed by the IAWU in 1994, 1997 and 1998. The objective of the Re-assessment Survey was to re-identify any surviving previously recorded sites, identify new sites and subsequently record all archaeological sites identified during the course of survey. Clongawny Bog is located 3.3km south of Cloghan, Co. Offaly. It is located at the south-west edge of the BnM Boora group of bogs directly northwest of Galros Bog. It has a total area of 901ha, 75% of which is cutaway.
A total of ten archaeological sites, which were identified during the first-round survey of Clongawny Bog in 1994, were lodged in the records of the Archaeological Survey of Ireland. The sites were located within a cluster in the south-west corner of the bog.
As outlined above, c. 75% of Clongawny Bog is cutaway, with much of these areas covered in dense vegetation, forestry, dense scrub and open water. The location of the previously recorded sites was overgrown and as a result the sites were no longer visible but some may survive below the vegetation.

Immediately west of this area remained in production and two previously unrecorded sites, including a possible platform and a deposit of archaeological wood, were noted.

2009:670 - AGHAGOOGY/CRANCREAGH/DERRINLOUGH/ DERRYAD/DERRYMULLIN AND LOUGHDERRY/DRINAGH/KILCAMIN/STONESTOWN, WEST DRINAGH BOG, Offaly
County: Offaly Site name: AGHAGOOGY/CRANCREAGH/DERRINLOUGH/ DERRYAD/DERRYMULLIN AND LOUGHDERRY/DRINAGH/KILCAMIN/STONESTOWN, WEST DRINAGH BOG
Sites and Monuments Record No.: OF030–060, OF030–063
Licence number: 09E0413
Author: Nicola Rohan, Archaeological Development Services Ltd, Unit D, Kells Business Park, Cavan Road, Kells, Co. Meath.
Site type: Peatland survey
ITM: E 619212m, N 720628m
The Re-assessment Survey 2009 included Bellair North and South, Killaranny, East Boora, Clongawny, Oughter (Roscore), West Drinagh and Galros Bogs, which are part of the Bord na Móna Boora group of bogs. The Boora group of bogs was initially surveyed by the IAWU in 1994, 1997 and 1998. The objective of the Re-assessment Survey was to re-identify any surviving previously recorded sites, identify new sites and subsequently record all archaeological sites identified during the course of survey. West Drinagh Bog is located to the rear of Derrinlough Briquette Factory, c. 2.2km south-east of Cloghan, Co. Offaly. Drinagh Bog has a total area of 1923ha, of which c. 75% is now cutaway, with the remaining 25% in production at the time of survey.

A total of 41 sites, previously recorded during the first-round survey of West Drinagh Bog in 1998, were lodged in the records of the Archaeological Survey of Ireland.

At the time of the Re-assessment Survey much of the bog was cutaway, with large areas of the bog milled out, overgrown or underwater. Fourteen previously unrecorded sites, including thirteen sightings of archaeological wood and a possible togher, were recorded during the Re-assessment Survey. A previously recorded plank trackway (OF030–060) and a platform (OF030–063) were reidentified during survey. One of the sightings of archaeological wood was located in isolation, at the southern end of the bog, while the remaining sites were recorded in proximity to the south-eastern limit of the bog.

2011:510 - DERRINLOUGH, Offaly
County: Offaly Site name: DERRINLOUGH
Sites and Monuments Record No.: N/A Licence number: 11E322
Author: Orlaith Egan
Site type: Post-medieval limekiln
ITM: E 608285m, N 713555m
Testing was undertaken across two areas along the N62 Birr to Athlone Realignment Scheme at Derrinlough. The works were carried out between 7 and 9 September 2011 on behalf of Offaly County Council. Approximately 948 linear metres of test trenches were excavated. A single clamp limekiln was identified and fully excavated.
The limekiln consisted of an oval pit/bowl measuring 1.8m north–south x 1.18m x 0.45m deep and was partially encircled by a shallow trench with possible flues in the east-south-east and the west. The pit/bowl of the kiln was mainly filled with a mid-grey-brown, gritty mortar limestone deposit with a compact gritty grey residue on the base and sides. The shallow trench encircling the pit/bowl measured 0.22–0.26m in width x 0.05m in depth and had evidence of in situ burning. It was filled with charcoal-rich silty clay with a high fibrous humic content likely to be the remnants of a sod wall of the kiln.
The limekiln cut an irregular-shaped pit measuring 1.79m x 1.67m x 0.5m. It appears that the earlier irregular-shaped pit was backfilled in the eastern side of the pit, while the western side of the pit was remodelled and reused for the bowl of the limekiln.
Post-medieval pottery was found at the surface of the kiln.
National Roads Authority, Westmeath NRDO, Culleenbeg, Mullingar, Co. Westmeath

The archaeological potential of the surrounding landscape is evident by the discovery of Early Bronze Age pits and a Neolithic Stone Axe in the now existing Meenwaun Windfarm, just to the south-west of the proposed development site boundary.

2017:299 - Meenwaun windfarm, Offaly
County: Offaly Site name: Meenwaun windfarm
Sites and Monuments Record No.: N/A Licence number: 17E0023
Author: Ros Ó Maoldúin
Site type: Early Bronze Age pits and a stone axe
ITM: E 712955m, N 605120m
Monitoring and testing work was carried out in advance of construction works related to Meenwaun Windfarm near Banagher, Co. Offaly. Archaeological evidence was uncovered at one location. The remains included a Neolithic stone axe, two oval pits filled by burnt mound-like material, several stake-holes and spreads of burnt material, located along the banks of a probable palaeostream (Fig 1). A radiocarbon date from one of the pits returned an Early Bronze Age date of 2040–1890 cal BC (2 Sigma). The remains were fully excavated and were the subject of an Archaeology Ireland article (Ó Maoldúin & Danaher 2018). Reference: Ó Maoldúin, R. & Danaher, E. 2018. The Biography of an Axe. Archaeology Ireland. 31 (1), 17-20. Laghtagoona House, Gort Road, Corofin.

2018:543 - Derrinlough, Offaly
County: Offaly Site name: Derrinlough
Sites and Monuments Record No.: N/A Licence number: Unlicensed monitoring
Author: Dermot Nelis
Site type: No archaeology found
ITM: E 608115m, N 715290m
The development site is located approximately 10km south-west of Ferbane and 4km south of Cloghan, and involved the mechanical excavation of two site investigation test pits to facilitate construction of a wind farm.
A 12 tonne machine fitted with a toothless grading bucket was used to excavate the test pits, which on average measured 3m long x 0.5m wide x 1.5m deep. Excavation of both test pits revealed topsoil sealing a peat layer which directly sealed undisturbed natural geology.

No archaeological features or artefacts were revealed as a result of carrying out the monitoring.

13.3.1.8 Townlands and administrative boundaries

Townlands and administrative boundaries may indicate the presence of archaeological features within a development site. Administrative counties are subdivisions of pre-established counties which were formed for administrative purposes in the nineteenth and twentieth centuries. Baronies are administrative units larger than civil parishes and originally established as the primary subdivision of counties by the British administration in Ireland. Irish baronies which were formed at the time of the Norman conquest were usually named either after Irish territories, or from places which had been of importance in pre-Norman times. Irish baronies came into existence at different periods. The division of Ireland into counties and baronies was a process which continued down to the reign of James I. The original baronies in Ireland were the domains of the Norman barons; in the final stage of development they were divisions of counties created merely for greater convenience of administration. The word barony is of feudal origin, and was applied to a tenure of a baron, that is, of one who held his land by military service, either directly from the king, or from a superior feudal lord who exercised royal privileges. The origin of the Irish barony (a division of land corresponding to the English hundred) is to be found in the grants of lands which were made to the barons of Leinster and the barons of Meath (Liam Price, 'Ráith Oinn', Éigse VII, lch. 186-7). Civil parishes are administrative units larger than townlands and based on medieval ecclesiastical parishes. Civil parishes, modern Catholic parishes and Church of Ireland parishes may differ in extent and in nomenclature. Counties are administrative units larger than baronies and originally established by the British administration in Ireland between the

twelfth and the seventeenth centuries. Some of these were subsequently subdivided into smaller administrative county units.

Townlands are the smallest land units which were determined and established in the Irish administrative system in the first half of the nineteenth century. Many of the townlands were in existence prior to that. Townland names are a valuable source of information, not only on the topography, land ownership and land use within the landscape, but also on its history, archaeological monuments and folklore. Logainm.ie was utilised to ascertain the origin of the townland names.

Table 13.6: Townlands in the vicinity and within the proposed development

Townland Name	Meaning
Balliver (Baile Íomhair) -	The town of Íomhar
Ballyeighter (An Baile Íochtarach	The lower town
Carrick (An Charraig)	The rock
Clongawny Beg (Cluain Gamhna Beag)	Small calf meadow
Clongawny More (Cluain Gamhna Mór)	Big calf meadow
Cloonacullina – (Cluain Cuillionn)	Meadow of Holly
Clooneen (An Cluainín)	Little meadow
Coolderry (Cúldoire)	Black derry or oak wood
Crancreagh (Crann Critheach)	Trembling Tree
Dernafanny (Doire Fuaran) -	Oak Spring
Derrinlough (Doirín an Locha)	Little oak wood lake
Galros East/ West (Gall Ros)	Wood of Foreigners
Guernal (Guairnéal)	Whirlpool
Timolin (Tuaim Eolaing)	tomb/burial place
Aghagoogy (Ard Guaige)	High Guaige
Cortullagh or Grove (Cor Thulach)	Round Hill
Derryad (Doire Fhada)	Long oak grove
Derrymullin and Loughderry Doire an Mhuilinn agus Loch an Doire	Mill oakwood and oakwood lake
Drinagh (Droighneach)	A place producing blackthorns
Stonestown (Baile na Cloiche)	

13.3.1.9 Topographical Museum Files

Some of the locational information for stray finds can be gleaned from Heritage Maps (heritage maps.ie) where the National Museum have provided such data. Some more recent finds, however, are not marked on this resource. In general, however the following is a summary of the stray finds from both bogs:

Clongawny Bog

There are nine stray finds that may be attributable to Clongawny Bog. Five of these are from Carrick townland and consist of an oval stone macehead (1937:2953) with a central perforation; a large upper stone of a rotary quern (1966:151); a roughout for a wooden goblet (1980:32); a notched wooden timber (1980:33) and a 'cut log' (1980:34).

Drinagh Bog

There are 19 records of finds recorded as having been found in Drinagh townland. These are a wooden jug (1954:71); a wooden vessel (1954:72); a socketed bronze dagger or knife (1960:647); several lumps of bog butter with traces of bark wrapping (1977:2176); six fragments of a wooden tray (1977:2178 & 2179); half of a circular base of a wooden vessel (1977:2180); a possible wooden paddle (1977:2181); a stone D-shaped saddle quern (1979:107); the right femur of a human skeleton (1982:71);a D-shaped wooden object (1988:127) with axe marks that may have been the seat of a chair or stool; a portion of a wooden beetle (1988:128), two wooden board with toolmarks (1988:129 & 130); a thick oak plank with a mortice (2013:323); a wooden beetle (2013:324) and a bog butter in two pieces (2001:71 & 72) with traces of hazel rods from a possible wicker container.

Derrinlough

Four finds are recorded as having been found in Derrinlough townland. These are a Lucas Type 3 leather shoe (1960:607) found 2- 3tf deep in the bog; a Lucas Type 5 leather shoe (2002:54) found on the bog surface and an unfinished wooden bow (2014:152) carved from yew and a hurdle panel with wicker lashing (2014:230). Some of these finds are shown on Figure 13.15 and Figure 13.16.

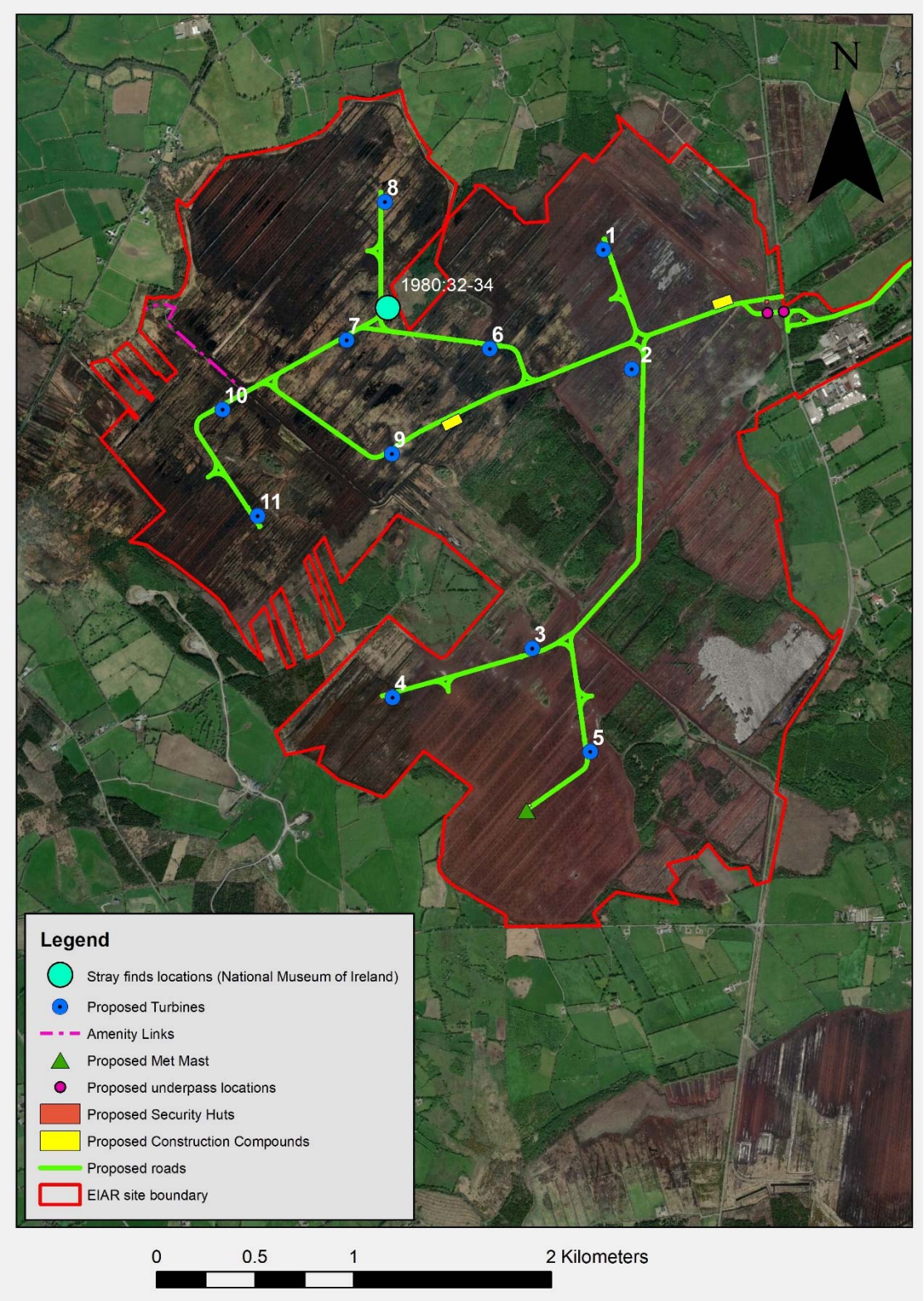

Figure 13.15: Stray finds from Clongawny Bog

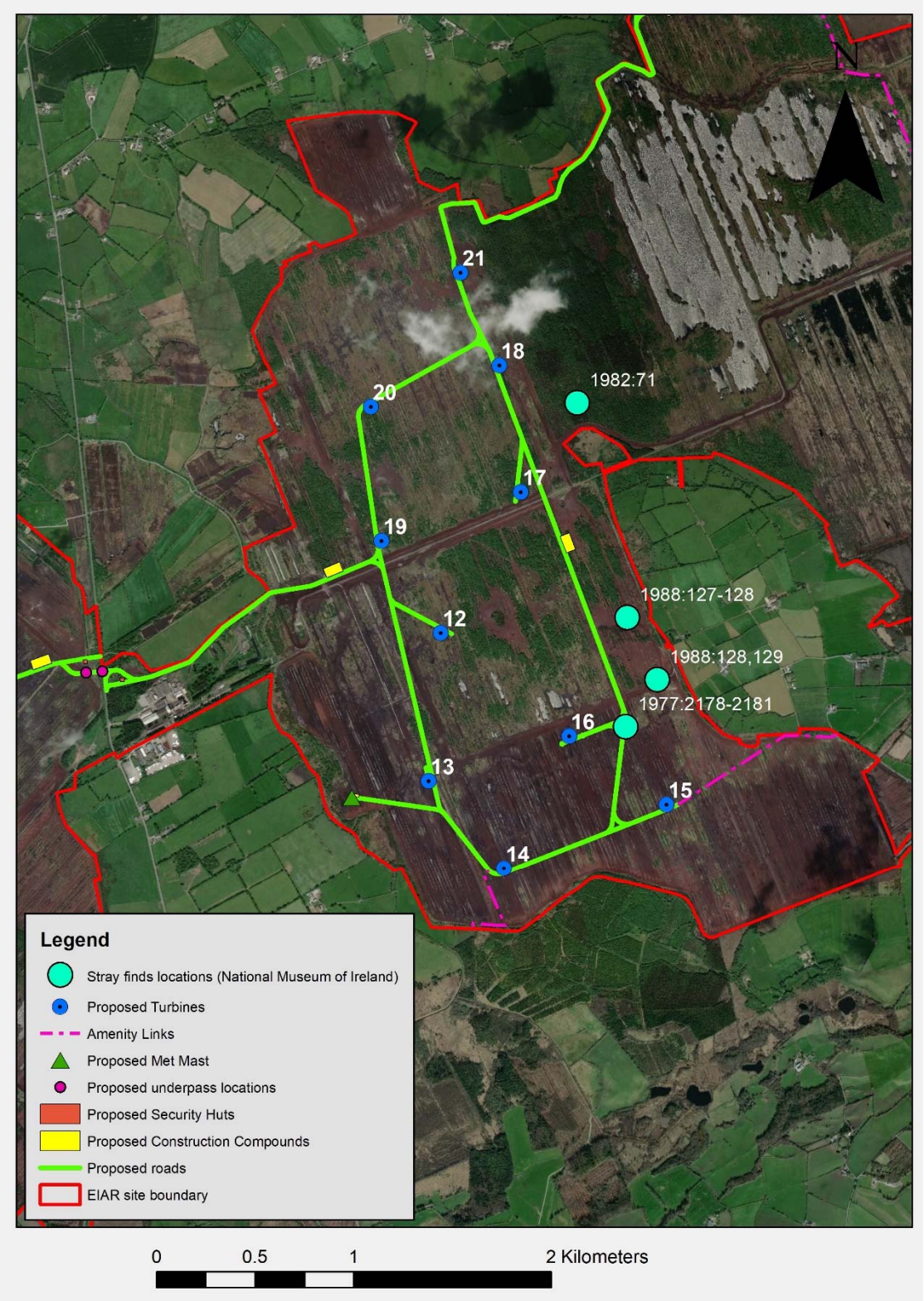

Figure 13.16: Stray finds from Drinagh and Derrinlough townlands

13.3.1.10 Cartographic Evidence

13.3.1.10.1 *Down Survey maps*

The Down Survey is a mapped survey undertaken in the mid-17th century. Using the Civil Survey as a guide, teams of surveyors, mainly former soldiers, were sent out under Petty's direction to measure every townland to be forfeited to soldiers and adventurers. The resulting maps, made at a scale of 40 perches to one inch (the modern equivalent being 1:50,000), were the first systematic mapping of a large area on such a scale attempted anywhere. The primary purpose of these maps was to record the boundaries of each townland and to calculate their areas with great precision. The maps are also rich in other detail showing churches, roads, rivers, castles, houses and fortifications. Most towns are represented pictorially and the cartouches, the decorative titles, of each map in many cases reflect a specific characteristic of each barony.

The Down Survey map for 'Dryan' and 'Derrinloghan' describes the area as a wood and bog belonging to the Earle of Kildare (Figure 13.17).

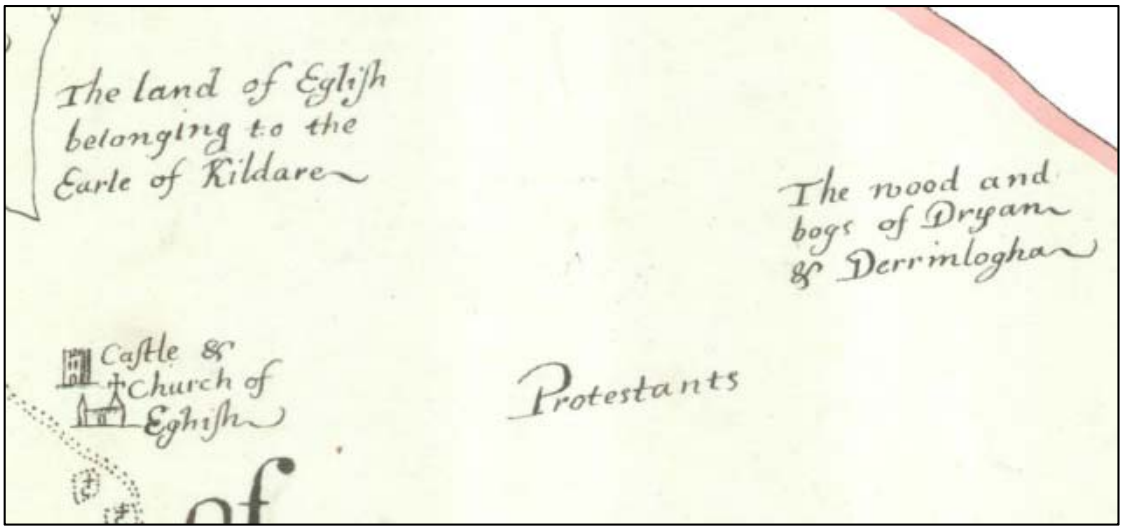

Figure 13.17: Down Survey map (http://downsurvey.tcd.ie/down-survey-maps.php#bm=Eglish&c=Offaly+(Kings))

13.3.1.10.2 *1st and 2nd Edition OS maps*

The Ordnance Survey came to Ireland in 1824 in order to carry-out a precise admeasurement of the country's 60,000 or so townlands as a preliminary to the larger task of reforming Ireland's local taxation system. The townland boundaries were demarcated by a Boundary Commission, and the Ordnance Survey had the task of measuring them. In addition to boundaries the maps are truly topographical in content. Drawn at the large scale of six inches-to-one-mile (1:10,560) it was important to mark all buildings, roads, streams, placenames, etc, that were required for valuation purposes. Ultimately the maps were used as a basis for the rateable valuation of land and buildings in what became known as Griffith's Valuation. Working from north to south, the survey began in Antrim and Derry in 1829 and was completed in Kerry in 1842. It was published as thirty-two county maps between 1832 and 1846, the number of sheets per county varied from 153 for County Cork to 28 for Dublin, each of the 1,994 sheets in the series depicting an area 21,000 by 32,000 feet on the ground. Each county was projected on a different central meridian and so the maps of adjacent counties do not fit neatly together at the edges. Map content stops at the county lines.

The First Edition

The early Ordnance Survey maps are an unrivalled source for the period immediately before the Great Irish Famine (1847-50) when the population was at the highest level ever recorded. The maps depict an

open landscape in the area of the proposed turbines and infrastructure. No features of note are depicted.

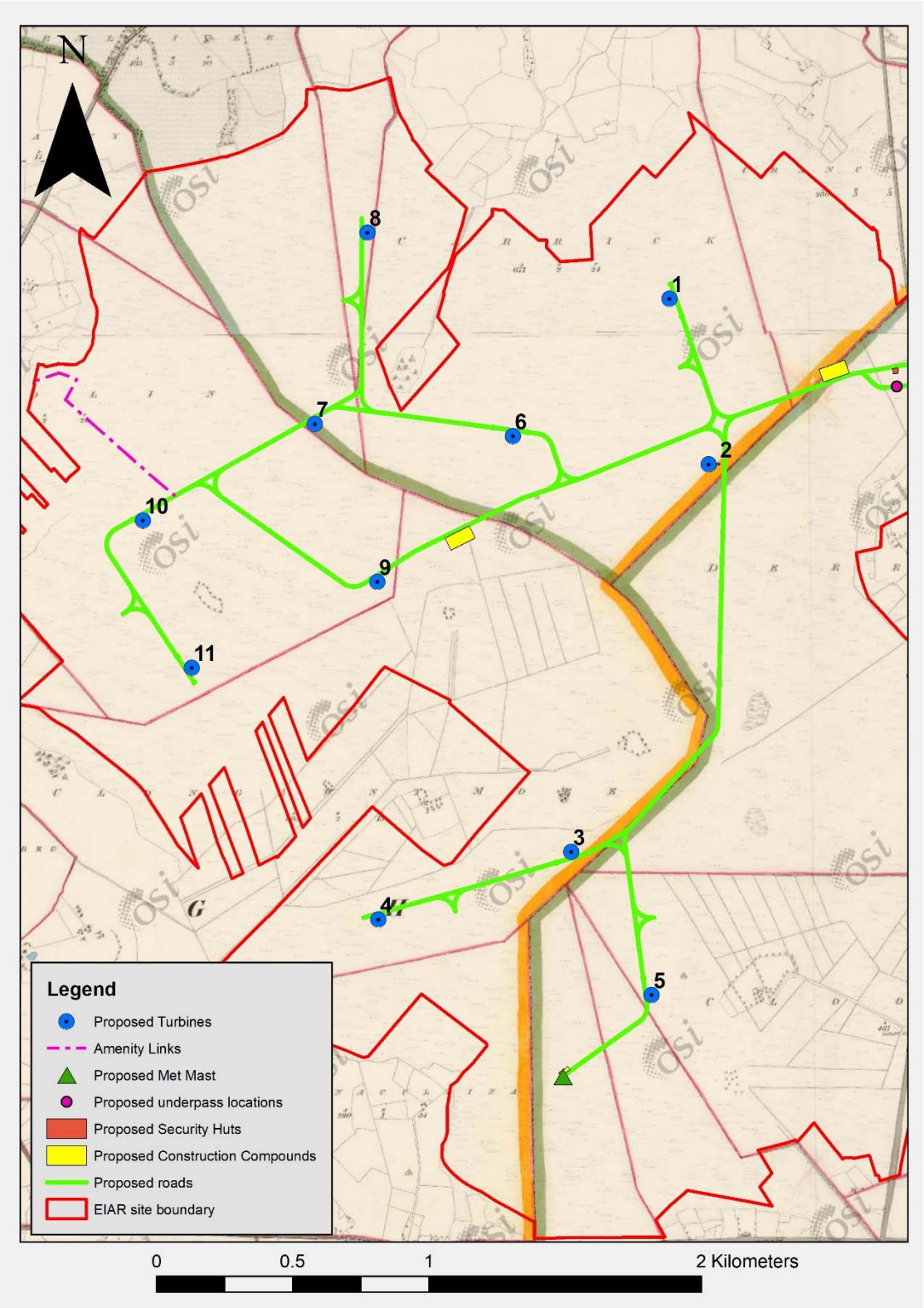

Figure 13.18: Clongawny bog with proposed infrastructure shown on 1st edition OS background.

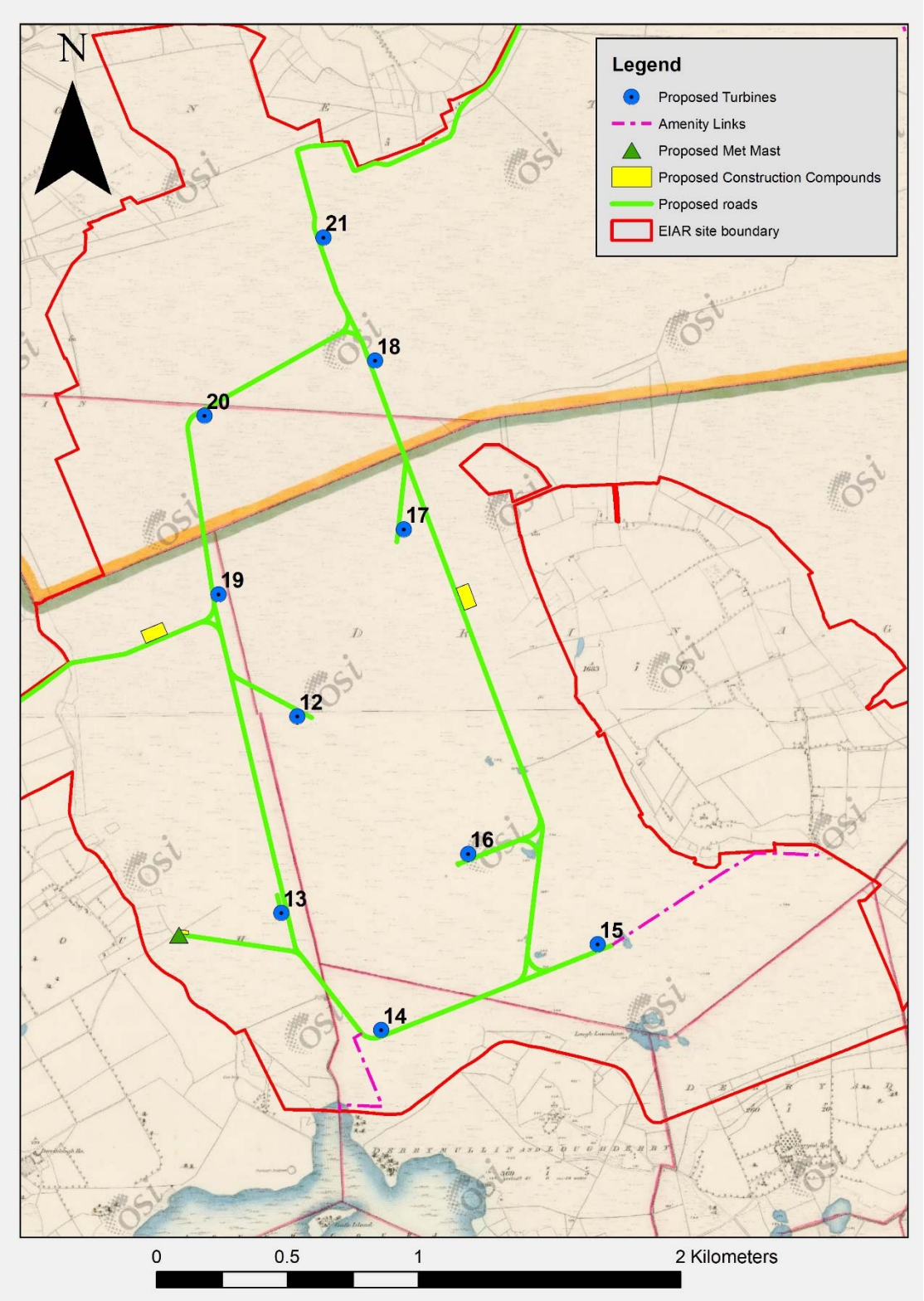

Figure 13.19: Proposed development shown on 1st edition OS map (Drinagh).

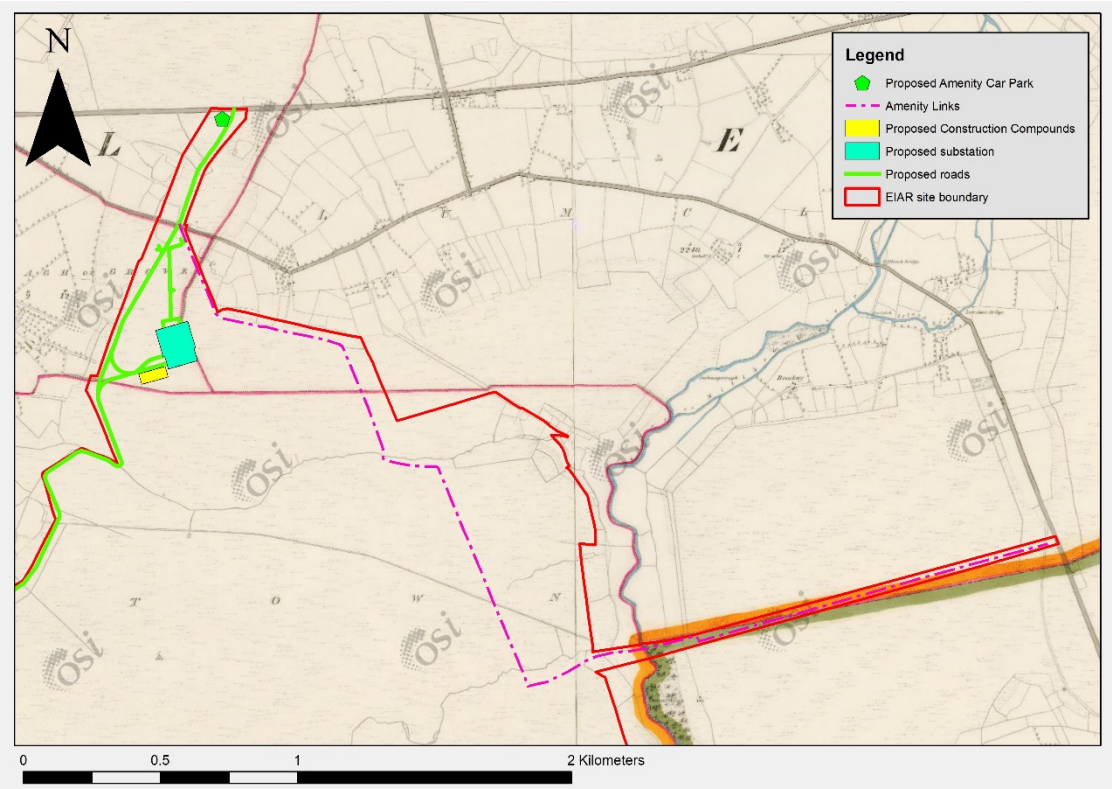

Figure 13.20: North-eastern section of Drinagh bog on 1st Edition OS map.

13.3.1.11 Description of the proposed Development Area

The description of the proposed development area and photographic record is presented in Appendix 13.1.

13.3.2 Architectural and Cultural Heritage

13.3.2.1 Protected Structures within the proposed development site boundary

No built heritage structures which are subject to statutory protection or otherwise are located within the proposed development boundary.

13.3.2.2 Protected Structures within 5km of the nearest proposed turbines

The RPS for County Offaly, as well as any additions was obtained as a dataset on ArcGIS online (from Offaly County Council) and added to the project base mapping. Structures within 5km are included here (See Section 13.2.5 above for distance criteria). The RPS is largely based on the NIAH and therefore some repetition/overlap occurs between both datasets. All RPS structures within 5km of the nearest proposed turbine are detailed in

Table 13.7 and are also represented on Figure 13.21. The distances to the relevant turbines are also detailed.

The majority of structures are located within 'urban' settings of Banagher and Cloghan and therefore their visual settings do not extend beyond the limits of those settlements. The ZTV shows that there will be limited to no visibility in the direction of the turbines from within Cloghan or Banagher. The majority of other outlying structures in the landscape may have some visibility in the direction of the proposed turbines as the ZTV suggests. Direct and Indirect Impacts are discussed in Section 13.4 below.

Table 13.7: RPS structures within 5km of the nearest proposed turbines

RPS ID	NAME / STRUCTURE	LOCATION 1	LOCATION 2	ITM E	ITM N	WTG ID	DISTANCE (M)
49-4	Thatched house	See Map	See Map	605013	709569	4	3655
49-2	Eglish Castle	Eglish	Birr	609813	709846	5	4123
49-3	Eglish Church of Ireland Church	Eglish	Birr	609856	709845	5	4154
30-27	L'Estrange Bridge	Clonony More	Shannonharbour	605572	720263	8	4658
29-Jan	Canal Bar	See Map	Shannon Harbour	603301	719035	8	4305
29-Feb	Griffith Bridge	See Map	Shannon Harbour	603265	719079	8	4361
29-Mar	Cast iron water pump	See Map	Shannon Harbour	603222	719056	8	4370
29-Apr	The Grand Hotel	See Map	Shannon Harbour	603207	719017	8	4348
29-May	House	See Map	Shannon Harbour	603164	718941	8	4316
29-Jun	2 Houses	See Map	Shannon Harbour	603017	718935	8	4407
30-28	Post box	See Map	See Map	604582	717262	8	2119
40-1	Balliver House	See Map	See Map	605179	716472	8	1130
29-Jul	Pair of dry docks	See Map	Shannon Harbour	603081	719004	8	4418
30-29	Gaybrook Mill	See Map	See Map	606717	717376	8	1931
RPS13_017	Clonony Bridge 34th lock	Clonony More	Ferbane	604533	719653	8	4267
RPS13_018	Park Brick Jack Arch Bridge	See Map	Ferbane	603100	717819	8	3576
39-14	Hunts Shop/House	Main Street	Banagher	600855	715452	10	4331
39-16	J.J. Houghs	Main Street	Banagher	600838	715548	10	4369
39-17	3 bay 2 storey house	Main Street	Banagher	600821	715569	10	4390
39-19	Cast iron post box	Main Street	Banagher	600796	715584	10	4418

RPS ID	NAME / STRUCTURE	LOCATION 1	LOCATION 2	ITM E	ITM N	WTG ID	DISTANCE (M)
39-25	The Royal Shannon	Main Street	Banagher	600696	715729	10	4550
39-26	K.P. Egan	Main Street	Banagher	600673	715698	10	4564
39-28	Banagher Billiard Hall	Main Street	Banagher	600685	715731	10	4561
39-29	Bridge Malt house	See Map	Banagher	600474	715769	10	4775
39-30	Quay	See Map	Banagher	600507	715812	10	4754
39-32	Banagher Bridge	See Map	Banagher	600492	715880	10	4787
39-22	Quigley	Main Street	Banagher	600722	715663	10	4508
39-18	Crank House Visitor Centre	Main Street	Banagher	600775	715595	10	4441
39-24	The Royal Shannon	Main Street	Banagher	600705	715719	10	4539
39-27	Detached 3 bay 2 storey house	Main Street	Banagher	600659	715703	10	4579
39-23	The Railway Bar	Main Street	Banagher	600701	715683	10	4534
39-4	Saint Rynagh's Roman Catholic Church	See Map	Banagher	601245	715095	10	3886
39-10	St. Helens	Main Street	Banagher	600950	715322	10	4213
39-13	S. Lyons Bar/House	Main Streeet	Banagher	600923	715444	10	4263
39-5	Saint Rynagh's Parochial House	See Map	Banagher	601289	715073	10	3839
39-6	Carved limestone monument	The Cresent	Banagher	601167	715069	10	3959
39-9	Bank of Ireland	Main Street	Banagher	600985	715299	10	4174
39-1	Saint Paul's Church of Ireland Church	See Map	Banagher	601384	714796	10	3717
39-31	Barracks	Main Street	Banagher	600543	715754	10	4704
39-3	Charlotte's Way B & B	Hill House, Main Street	Banagher	601312	714846	10	3793

RPS ID	NAME / STRUCTURE	LOCATION 1	LOCATION 2	ITM E	ITM N	WTG ID	DISTANCE (M)
39-33	Cuba Court	See Map	Banagher	601849	715367	10	3343
39-15	Flynn	Main Street	Banagher	600846	715488	10	4348
39-12	Wrapped Up	Main Street	Banagher	600917	715411	10	4262
39-2	Banagher Rectory	See Map	Banagher	601120	714532	10	3974
39-34	Detached 3 bay 2 storey house	See Map	Banagher	600734	715696	10	4505
39-36	Cummeen Lodge	Cummeen	Banagher	602595	715859	10	2815
39-37	Coolfin House	Coolfin	Banagher	602791	715864	10	2645
39-39	Claremount House	See Map	See Map	602409	713752	10	2805
39-40	Castle Garden House	See Map	See Map	601650	714081	10	3477
39-35	Fort Eliza	See Map	Banagher	600251	715575	10	4948
39-45	Garry Castle	See Map	Banagher	602075	713747	10	3127
39-44	Horans House	The Square, Banagher	See Map	600943	715364	10	4228
39-46	House & Shop	Kylebeg or Banagher	Banagher	600813	715539	10	4391
40-2	Whigsborough House	See Map	See Map	609960	711784	14	2274
40-3	Whigsborough Tower	See Map	See Map	610074	711980	14	2080
49-1	Saint James's Roman Catholic Church	See Map	See Map	610382	710660	14	3422
49-5	Eglish Cottage	See Map	See Map	610074	710449	14	3610
41-18	Ballynacard House	See Map	See Map	613563	713105	15	3038
41-15	Detached 5 bay thatched framhouse	See Map	See Map	613993	715905	15	3530

RPS ID	NAME / STRUCTURE	LOCATION 1	LOCATION 2	ITM E	ITM N	WTG ID	DISTANCE (M)
41-16	Detached 4 bay thatched farmhouse	See Map	See Map	613981	715849	15	3496
50-17	Tinnacross House	See Map	See Map	612294	709670	15	4943
RPS13_031	Tithe Barn	Glenamony Glebe	Birr	612358	711959	15	2879
30-Mar	House	Market Square	Cloghan	607840	719397	21	3005
30-May	Saint Mary's Roman Catholic Church	Banagher Street	Cloghan	607825	719272	21	2920
30-Jul	Weighbridge	Castle Street	Cloghan	607767	719376	21	3036
30-Aug	Thatched House	See Map	Cloghan	606748	719685	21	3979
30-Jun	Saint Mary's Parochial Hall	Ferbane Street	Cloghan	607914	719492	21	3033
30-Apr	House	Market Square	Cloghan	607794	719423	21	3054
30-2	House	Hill Street	Cloghan	607801	719362	21	3003
30-Jan	House	Hill Street	Cloghan	607874	719365	21	2958
30-31	Strawberry Hill House	See Map	See Map	607605	721059	21	4520
30-30	Strawberry Hill House	Drishoge or Strawberryhil		607466	720954	21	4497
30-34	House	Castle Street	Cloghan	607726	719382	21	3068
30-33	House	Hill Street	Cloghan	607837	719362	21	2980

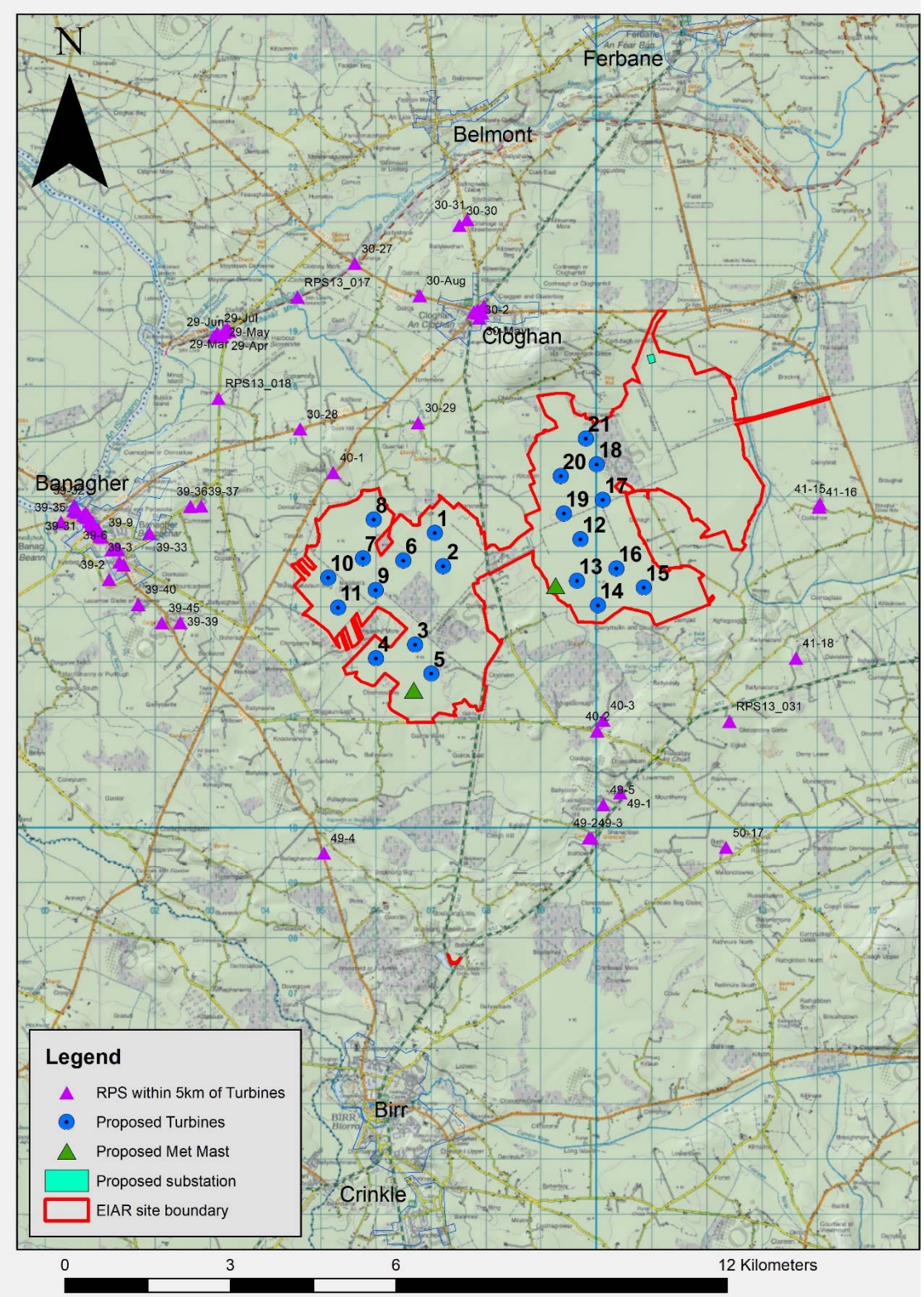

Figure 13.21: Record of Protected structures within 5km of the nearest proposed turbine.

13.3.2.3 NIAH within 5km of the nearest proposed turbine

The National Inventory of Architectural Heritage (thereafter NIAH) for County Offaly was downloaded from the Historic Environment Viewer on to the project GIS base mapping. All NIAH structures within 5km of the nearest proposed turbines are included here for purposes as assessing potential visual effects in the wider landscape setting of the architectural resource (See Section 13.2.5 above for distance criteria). The RPS is largely based on the NIAH and therefore some repetition/overlap occurs between both datasets. All NIAH structures within 5km of the nearest proposed turbine are detailed in

Table 13.8 and are also represented on Figure 13.21. The distances to the relevant turbines are also detailed.

As with the RPS, the majority of structures are located within the 'urban' settings of Banagher and Cloghan and therefore their visual settings do not extend beyond the limits of those settlements. The ZTV shows that there will be limited to no visibility in the direction of the turbines from within Cloghan or Banagher. The majority of other outlying structures in the landscape may have some visibility in the direction of the proposed turbines as the ZTV suggests.

Table 13.8: NIAH structures within 5km of the nearest proposed turbines

NIAH Ref	NAME	TD.	STRUCTURE	ITM E	ITM N	WTG ID	DISTANCE (M)
14930006	N/A	Ballaghanoher	house	605013	709569	4	3655
14930004	Eglish Castle	Eglish	country house	609813	709846	5	4123
14930005	Eglish Church of Ireland Church	Eglish	church/chapel	609855	709845	5	4153
14922001	L'Estrange Bridge	Clonony More	bridge	605572	720263	8	4658
14922002	Canal Bar	Clonony Beg	house	603301	719035	8	4305
14922003	Griffith Bridge	Clonony Beg	bridge	603265	719079	8	4361
14922004	N/A	Clonony Beg	water pump	603222	719056	8	4370
14922005	The Grand Hotel	Clonony Beg	hotel	603207	719017	8	4348
14922006	Harbour Master's House	Clonony Beg	worker's house	603164	718941	8	4316
14922007	N/A	Clonony Beg	house	603017	718935	8	4407
14922008	N/A	Balliver	post box	604581	717262	8	2120
14922009	Balliver House	Balliver	country house	604547	717242	8	2126
14922011	Gaybrook Mill	Tonlemone	store/warehouse	606717	717375	8	1930

NIAH Ref	NAME	TD.	STRUCTURE	ITM E	ITM N	WTG ID	DISTANCE (M)
14922014	N/A	Clonony Beg	dry dock	603081	719004	8	4418
14929002	Claremount House	Claremount	country house	602410	713752	10	2804
14929003	Castle Garden House	Garrycastle	house	601651	714081	10	3476
14929004	Garrycastle	Garrycastle	house	602042	713753	10	3157
14810032	N/A	Kylebeg Or Banagher	quay/wharf	600506	715812	10	4755
14810033	N/A	Kylebeg Or Banagher	barracks	600530	715734	10	4712
14810034	Banagher Bridge	Curraghavarna And Portavolla,Kylebeg Or Banagher	bridge	600491	715880	10	4788
14810037	Fort Eliza	Kylebeg Or Banagher	battery	600250	715575	10	4949
14810035	Cuba Court	Curraghavarna And Portavolla	school	601850	715367	10	3342
14810036	N/A	Curraghavarna And Portavolla	house	600734	715696	10	4505
14921001	Cummeen Lodge	Cummeen	gate lodge	602595	715858	10	2815
14921002	Cummeen Cemetery	Mullaghakaraun	graveyard/cemetery	602410	715834	10	2970
14922010	Coolfin House	Coolfin	hunting/fishing lodge	602791	715864	10	2645
14810001	N/A	Curraghavarna And Portavolla	water tower	601453	714955	10	3662
14810002	Saint Paul's Church of Ireland Church	Feeghs	church/chapel	601380	714797	10	3721

NIAH Ref	NAME	TD.	STRUCTURE	ITM E	ITM N	WTG ID	DISTANCE (M)
14810003	Banagher Rectory	Lecarrow Glebe Or Britannia	rectory/glebe/vicarage/curate's house	601119	714532	10	3975
14810004	Charlotte's Way B & B	Kylebeg Or Banagher	house	601279	714853	10	3826
14810005	Saint Rynagh's Roman Catholic Church	Curraghavarna And Portavolla	church/chapel	601245	715095	10	3886
14810006	Saint Rynagh's Parochial House	Curraghavarna And Portavolla	presbytery/parochial/curate's house	601288	715073	10	3840
14810007	N/A	Kylebeg Or Banagher	monument	601167	715069	10	3959
14810008	La Sainte Union Chapel	Kylebeg Or Banagher	church/chapel	601035	715247	10	4116
14810009	La Sainte Union Boarding and Day School	Kylebeg Or Banagher	convent/nunnery	601016	715269	10	4139
14810010	Bank of Ireland	Kylebeg Or Banagher	bank/financial institution	600985	715299	10	4174
14810011	N/A	Kylebeg Or Banagher	house	600950	715322	10	4213
14810012	Clonamona Cottage	Curraghavarna And Portavolla	house	600968	715376	10	4205
14810013	Wrapped Up	Kylebeg Or Banagher	house	600917	715411	10	4262
14810014	S. Lyons	Curraghavarna And Portavolla	house	600922	715443	10	4264
14810015	Hunt	Kylebeg Or Banagher	house	600856	715475	10	4335

NIAH Ref	NAME	TD.	STRUCTURE	ITM E	ITM N	WTG ID	DISTANCE (M)
14810016	Flynn	Kylebeg Or Banagher	house	600846	715488	10	4348
14810017	J.J. Houghs	Curraghavarna And Portavolla	house	600838	715548	10	4369
14810018	N/A	Curraghavarna And Portavolla	house	600819	715571	10	4392
14810019	J.J. Nallen	Kylebeg Or Banagher	house	600823	715518	10	4377
14810020	Crank House Visitor Centre	Kylebeg Or Banagher	house	600775	715595	10	4441
14810021	N/A	Curraghavarna And Portavolla	post box	600804	715587	10	4411
14810022	Crank Malt House	Kylebeg Or Banagher	granary	600707	715510	10	4488
14810023	N/A	Kylebeg Or Banagher	house	600732	715633	10	4491
14810024	Quigley	Kylebeg Or Banagher	house	600722	715663	10	4508
14810025	The Railway Bar	Kylebeg Or Banagher	house	600701	715683	10	4534
14810026	The Royal Shannon	Curraghavarna And Portavolla	house	600704	715719	10	4540
14810027	The Royal Shannon	Curraghavarna And Portavolla	outbuilding	600696	715729	10	4550
14810029	N/A	Kylebeg Or Banagher	house	600658	715702	10	4580
14810028	K.P. Egan	Kylebeg Or Banagher	house	600672	715698	10	4565
14810030	Banagher Billiard Hall	Curraghavarna And Portavolla	building misc	600685	715731	10	4561

NIAH Ref	NAME	TD.	STRUCTURE	ITM E	ITM N	WTG ID	DISTANCE (M)
14810031	Bridge Malt house	Kylebeg Or Banagher	malt house	600473	715769	10	4776
14930010	Milltown House	Milltown (Ga. By.)	house	603139	712106	11	2868
14930001	Whigsborough House	Whigsborough	country house	610082	711941	14	2120
14930002	Whigsborough Tower	Whigsborough	folly	610066	711962	14	2098
14930003	Saint James's Roman Catholic Church	Ballycollin Lower	church/chapel	610381	710660	14	3422
14930009	Eglish Cottage	Eglish	house	610073	710449	14	3610
14930008	Eglish Lodge	Eglish	house	610376	710378	14	3701
14923003	N/A	Broughal	house	613992	715905	15	3529
14923004		Broughal	house	613980	715849	15	3495
14930007	Tinnacross House	Tinnacross	house	612294	709670	15	4943
14931004	Ballynacard House	Ballynacard	country house	613563	713106	15	3038
14811001	N/A	Magherabane (Ga. By.)	house	607874	719365	21	2958
14811002	N/A	Cloghan (Ga. By.)	house	607802	719362	21	3003
14811003	N/A	Creggan And Glosterboy	house	607849	719399	21	3001
14811004	N/A	Cloghan (Ga. By.)	house	607794	719423	21	3054
14811005	Saint Mary's Roman Catholic Church	Cloghan (Ga. By.)	church/chapel	607825	719273	21	2920
14811006	Saint Mary's Parochial Hall	Creggan And Glosterboy		607914	719492	21	3033

NIAH Ref	NAME	TD.	STRUCTURE	ITM E	ITM N	WTG ID	DISTANCE (M)
14811007	N/A	Creggan And Glosterboy	vent pipe	607946	719553	21	3062
14811008	N/A	Cloghan (Ga. By.)	weighbridge/weighhouse	607767	719376	21	3036
14811009	N/A	Galros	house	606749	719685	21	3978
14922012	Strawberry Hill House	Drishoge Or Strawberryhill	country house	607466	720954	21	4497
14922013	Strawberry Hill House	Drishoge Or Strawberryhill	farmyard complex	607605	721059	21	4520
14923001	Millbrook Bridge	Lumcloon	bridge	613491	718823	21	4114

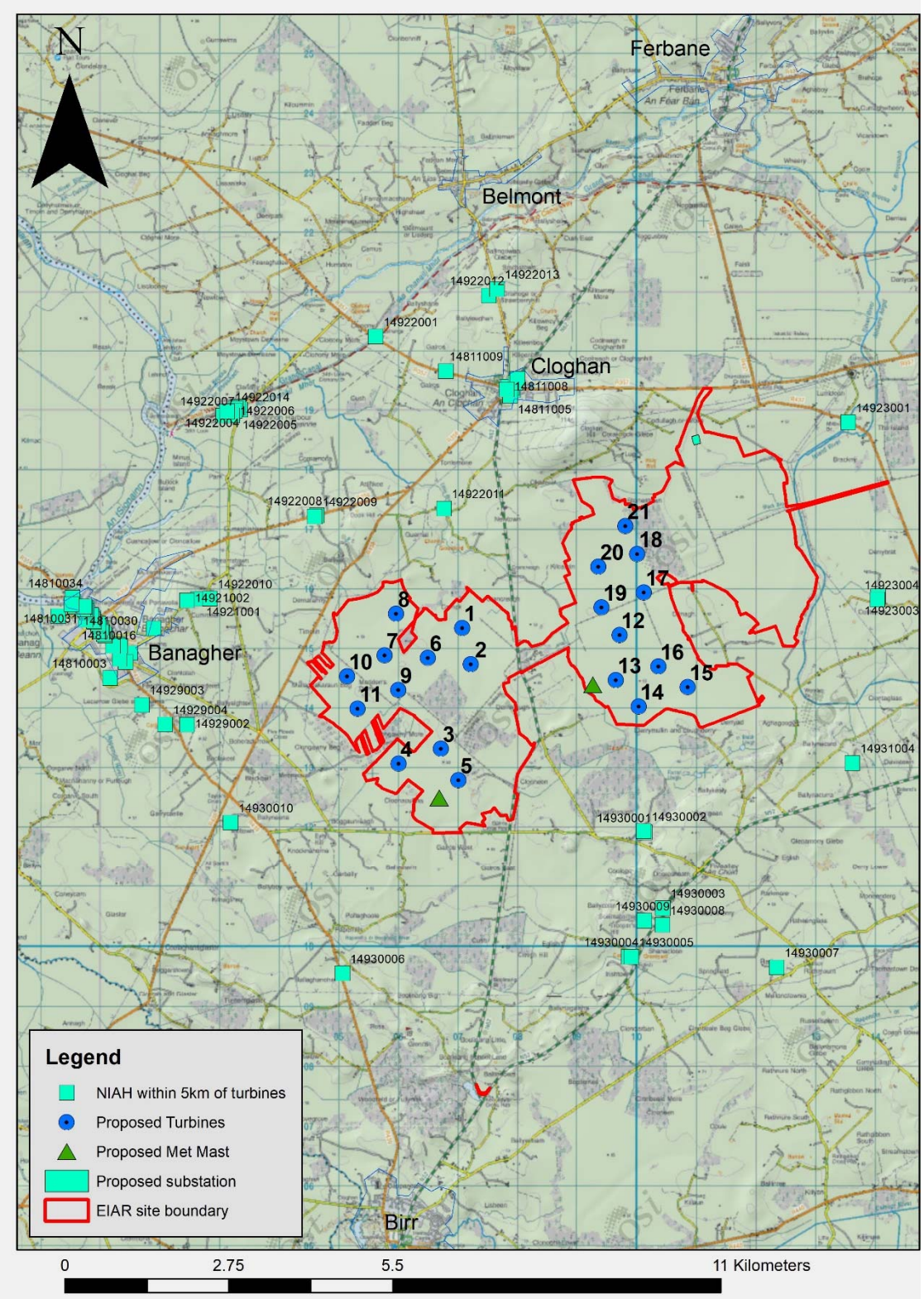

Figure 13.22: NIAH structures within 5km of the nearest proposed turbine.

13.3.3 Cultural Heritage

No new sites of cultural heritage significance either of regional or national importance were recorded during the walkover survey.

A memorial plaque was recorded along the proposed internal road which extends from T21 as far as the substation. It is proposed that this road will be used as an amenity pathway. The memorial is described in full in Appendix 13.1 (Description and Photographic Record of the Proposed Development Site). The memorial plaque is located within Drinagh bog in memory of a former employee of Bord na Móna Joseph Flanagan. He died in a tragic accident in Drinagh bog in 1956. The memorial is considered of local cultural heritage significance and the area should be preserved in situ. Protective measures are prescribed in Section 13.4 for the construction stage to prevent accidental loss or damage to the monument given its proximity to the proposed internal road. Overall, it is considered that the ultimate use of this road (post-construction) as part of the amenity trail may serve to highlight the memorial and allow formal access to same thus having a positive impact on the cultural heritage.

Plate 13.14: Memorial to Joseph Flanagan.

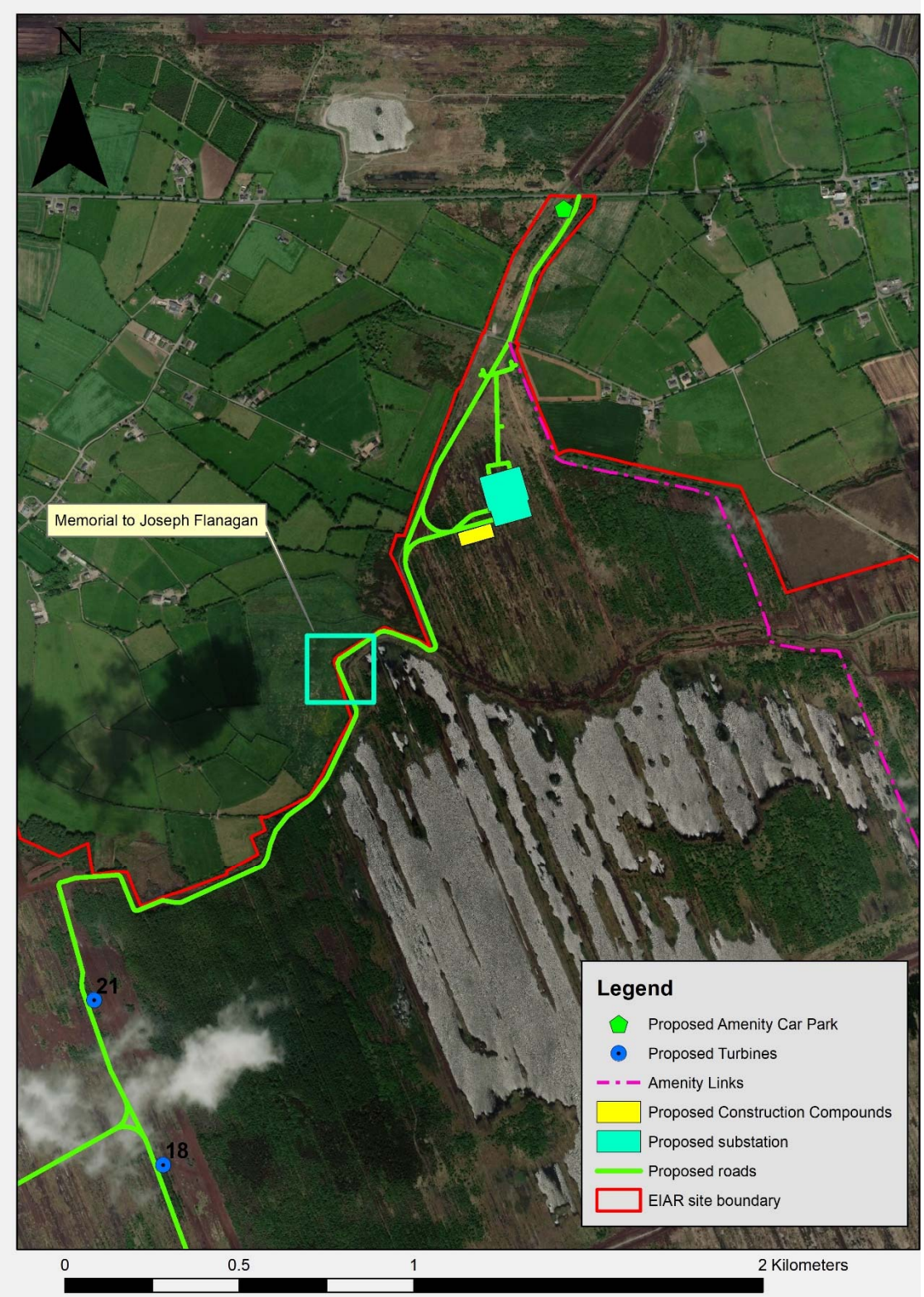

Figure 13.23: Location of Memorial plaque within Drinagh bog.

13.4 Likely Significant Effects and Associated Mitigation Measures

13.4.1 Do Nothing Scenario

The do-nothing scenario seeks to describe the consequences that are reasonably likely to occur without the proposed project.

If the proposed development were not to proceed, the site would continue to be managed under the requirements of the relevant IPC licence, and existing commercial forestry, telecommunications and wind measurement would continue. This land-use will also continue if the proposed development does proceed.

Works within the bog could result in potential direct impacts to any sub-surface archaeological features that are present. Indirect effects to Cultural Heritage, in particular, in the wider landscape setting would not occur.

13.4.2 Construction Phase Potential Impacts – Indirect

Indirect effects, in terms of archaeology, architectural and cultural heritage are considered to be those effects which happen away from 'the site'. This includes impacts on visual setting of any cultural heritage asset in the wider landscape. Since these effects are only possible once the proposed turbines are constructed, they are considered operational effects and are therefore discussed in Section 13.4.4 below. No indirect effects were identified which would occur at the construction stage.

13.4.3 Construction Phase Potential Impacts (Direct)

Direct impact refers to a 'physical impact' on a monument or site. The construction phase of the development consists largely of earthmoving activities such as peat and topsoil removal. The potential impacts on the known and potential archaeological, architectural and cultural heritage of the area are outlined below with the suggested mitigation measures. The impacts are described according to each element of the Proposed Development, turbines, grid connection, delivery routes etc. Where any potential direct impacts do occur they are negated through the use of suitable mitigation measures such as exclusions zones (buffer zones), testing, monitoring, etc.

13.4.3.1 Turbines Bases, Hardstands and Met Masts (Direct Effects)

13.4.3.1.1 *Impact of proposed turbines on National Monuments, Recorded Monuments, Protected Structures, NIAH*

No National Monuments in State Ownership/Guardianship are located within the proposed development site boundary therefore no direct impacts on these aspects of the archaeological resource are identified.

Although a number of recorded monuments are located within the proposed development site boundary, they have been mitigated by avoidance. No recorded monuments are located within the footprint of any proposed turbine bases, hardstands or met masts and therefore no construction effects will occur in this regard.

Documented built heritage was assessed and included structures listed on the RPS and NIAH. No Protected Structures or NIAH structures are located within the footprint of any proposed turbine bases,

hardstands or met masts therefore no direct impacts on these aspects of the architectural and cultural heritage resource will occur.

Pre-Mitigation Impact

There will be no direct effects to the known cultural heritage resource as a result of the construction of the turbine bases, hardstands and met masts.

Proposed Mitigation Measures

No mitigation measures are required

Residual Impact

No residual Impacts will occur.

Significance of Impacts

The construction of the turbine bases, hardstands and met masts will have no significant effects on national monuments, recorded monuments or built heritage.

13.4.3.1.2 *Impact of proposed turbine bases, hardstands and met masts on unrecorded potential sub-surface sites*

The presence of the recorded monuments within the bog (to the south-east within the Drinagh bog and southwest within the Clongawny bog), regardless of their survival, is an indication that the bog is an area of high archaeological potential. The stray finds within the bog (documented in the Topographical Files of the National Museum of Ireland) is also an indication of high archaeological potential for material culture. Peat depth data was examined and varies somewhat through the site. The southern side of Clongawny Bog, has peat depths measuring 2.5 – 3.5m in particular in the area of T5 and T3. The northern side of this site has peat depths of up to 2m with many areas measuring 0.5m in depth. The Drinagh Bog to the east has shallower peats depths with the majority of the proposed roads in areas of 0.5-1m peat depths. Some areas are reduced to natural (light grey clay) evident from the walkover survey.

The potential exists for the development area to contain as yet unrecorded sub-surface sites and artefacts. It is possible that such sites may be uncovered either within the peat/topsoil and/or at the level of the underlying natural subsoil. The excavation of topsoil /peat for the turbine bases and hardstands may impact on any new sites, if present. Mitigation measures will include pre-development archaeological testing and construction stage monitoring.

Pre-Mitigation Impact

Should new sites or features be present within the site (currently not visible on the surface) the impact is likely to be significant negative and permanent (i.e. the excavation by machinery would permanently remove the sites resulting in a significant negative impact).

Proposed Mitigation Measures

- Archaeological monitoring (under licence from the National Monuments Service) of any further geotechnical / engineering trial pits or investigations and a report detailing the results of same.

- Pre-development Licensed testing in areas where peat depths allow a meaningful investigation. Testing should only be undertaken in areas where ground disturbance will take place as part of the development. Where peat depths become a limitation to testing, monitoring at the construction stage should be undertaken. The areas to be tested will be chosen by the appointed archaeologist and the number of test trenches agreed between the archaeologist and the National Monuments Service (NMS) through the licensing system. Peat depth data and local ground conditions may dictate the number and location of test trenches to be undertaken.
- Archaeological monitoring of ground works during construction. The National Monuments Service will be informed of such findings to discuss how best to proceed. If archaeological finds, features or deposits are uncovered during archaeological monitoring, the developer will be prepared to provide resources for the resolution of such features whether by preservation by record (excavation) or preservation in situ (avoidance).Once the project is completed, a report on the results of the monitoring will be compiled and submitted to the relevant authorities.

Residual Impact

The sites/features, if detected, during testing and/or monitoring will be preserved by record (archaeologically excavated) or preserved in-situ (avoidance) and therefore a full record made of same. In this regard, the potential impact after the mitigation measures is likely to be slight.

Significance of Impacts

The construction of the proposed turbine bases, hardstands and met masts will have no significant effects on unrecorded potential sub-surface sites. The impacts, after the implementation of mitigation, is likely to be slight.

13.4.3.2 Proposed New Roads, internal cable route, passing bays and site entrances (direct effects)

13.4.3.2.1 *Impact on National Monuments, Recorded Monuments, Protected Structures, NIAH*

No National Monuments in State Ownership/Guardianship, Recorded Monuments or Built Heritage structures (RPS/NIAH) are located within the proposed development site boundary therefore no direct impacts on the known documented cultural heritage resource will occur.

Pre-Mitigation Impact

There will be no direct effects to the known cultural heritage resource as a result of the proposed new roads, internal cable route, passing bay or site entrances.

Proposed Mitigation Measures

No mitigation measures are required.

Residual Impact

No residual Impacts.

Significance of Impacts

The construction of the proposed new roads, internal cable route, passing bay or site entrances will have no significant effects on national monuments, recorded monuments or built heritage.

13.4.3.2.2 *Impact on Local Cultural Heritage*

A memorial plaque is located along the proposed road within Drinagh bog which extends from T21 as far as the proposed substation. This is within close proximity to the proposed road construction and therefore may be accidentally damaged by excavators causing a direct negative effect to the local cultural heritage. The memorial should be fenced off prior to construction by the appointed contractor under the direction of the appointed archaeologist.

Pre Mitigation Impact

A potential direct effect to the known cultural heritage resource as a result of the proposed new roads has been identified in Section 13.3.3. The potential direct effect is likely to be slight.

Proposed Mitigation Measures

The memorial will be fenced off prior to construction works in this location. Fencing will be maintained for the duration of the construction works.

Residual Impact

Following the implementation of the mitigation measures the residual impact will be imperceptible.

Significance of Impacts

The construction of the proposed new roads will have no significant effects on local cultural heritage and the overall impact (after mitigation) will be imperceptible.

13.4.3.2.3 *Impact on unrecorded potential sub-surface sites*

The potential effects as a result of proposed roads is the same as those resulting from turbine bases, hardstands etc (See Section 13.4.3.1.2 above). The potential exists for the development area to contain as yet unrecorded sub-surface sites and artefacts. It is possible that such sites may be uncovered either within the peat/topsoil and/or at the level of the underlying natural subsoil (See mitigation measures below). The excavation of topsoil /peat for new road, passing bays, entrances and internal cable route may impact on any new sites, if present. There will be a combination of both excavate and replace and floating roads used throughout the site depending on local ground conditions.

Pre-Mitigation Impact

Should new sites or features be present within the site (currently not visible on the surface) the impact is likely to be significant negative and permanent (i.e. the excavation by machinery would permanently remove the sites resulting in a significant negative impact).

Proposed Mitigation Measures

- Licensed archaeological monitoring of any further geotechnical / engineering trial pits or investigations and a report detailing the results of same.
- Pre-development testing (licensed by the National Monuments Service - NMS) in areas where peat depths allow a meaningful investigation. Testing should only be undertaken in areas where ground disturbance will take place as part of the development. For example, if roads are proposed to be floated, testing would not be required. Where peat depths become a limitation to testing, monitoring at the construction stage should be undertaken. The areas to be tested will be chosen by the appointed archaeologist and the number of test trenches agreed between the archaeologist and the National Monuments Service (NMS) through the licensing system. Peat depth data and local ground conditions may dictate the number and location of test trenches to be undertaken.
- Licensed archaeological monitoring of the proposed roads, internal cable, passing bays and entrances during construction. . If archaeological finds, features or deposits are uncovered during archaeological monitoring, the NMS will be informed of such findings and a method statement for the resolution of the archaeology will be provided. The developer will be prepared to provide resources for the resolution of such features whether by preservation by record (excavation) or preservation in situ (avoidance). A report on the results of the monitoring will be compiled and submitted to the relevant authorities on completion of the project

Residual Impact

The sites/features, if detected, during monitoring will be preserved by record (archaeologically excavated) or preserved in-situ (avoidance) and therefore a full record made of same. In this regard, the potential impact after the mitigation measures is likely to be slight.

Significance of Impacts

The construction of the proposed new roads, internal cable route, passing bay or site entrances will have no significant effects on unrecorded potential sub-surface sites and the overall impact (after mitigation) will be slight.

13.4.3.3 Electricity Substation

The electricity substation area measures 145 N/S by 121m E/W and is located in the north-eastern corner of the proposed development site.

13.4.3.3.1 *Impact of Substation on National Monuments, Recorded Monuments, Protected Structures, NIAH*

No National Monuments in State Ownership/Guardianship, Recorded Monuments or Built Heritage structures (RPS/NIAH) are located within the footprint of the proposed substation site therefore no direct impacts on the known documented aspects of the cultural heritage resource will occur.

Pre-Mitigation Impact

The proposed substation works will have no direct effects on the known cultural heritage resource.

Proposed Mitigation Measures

There is no mitigation required.

Residual Impact

No residual Impacts will occur.

Significance of Impacts

The construction of the proposed substation will have no significant effects on national monuments, recorded monuments or built heritage.

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13.4.3.3.2 *Impact of Substation on unrecorded potential sub-surface sites*

Similar to any other aspect of the proposed development which involves ground disturbance and peat removal, the potential exists for the development area to contain as yet unrecorded sub-surface sites and artefacts. It is possible that such sites may be uncovered either within the peat/topsoil and/or at the level of the underlying natural subsoil. The excavation of topsoil /peat for the proposed substation site may impact on any new sites, if present (see mitigation below).

Pre-Mitigation Impact

Should new sites or features be present within the site (currently not visible on the surface) the impact is likely to be significant negative and permanent (i.e. the excavation by machinery would permanently remove the sites resulting in a significant negative impact).

Proposed Mitigation Measures

- Licensed archaeological monitoring of any further geotechnical / engineering trial pits or investigations in the area of the proposed substation and a report detailing the results of same.
- Pre-development licensed testing of the area of the substation (where peat depths allow a meaningful investigation). Where peat depths become a limitation to testing, monitoring at the construction stage should be undertaken. The areas to be tested will be chosen by the appointed archaeologist and the number of test trenches agreed between the archaeologist and the National Monuments Service (NMS) through the licensing system. Peat depth data and local ground conditions may dictate the number and location of test trenches to be undertaken.
- Licensed archaeological monitoring of the proposed substation ground works during construction. If archaeological finds, features or deposits are uncovered during archaeological monitoring, the NMS will be informed of such findings and a method statement for the resolution of the archaeology will be provided. The developer will be prepared to provide resources for the resolution of such features whether by preservation by record (excavation) or preservation in situ (avoidance). A report on the results of the monitoring will be compiled and submitted to the relevant authorities on completion of the project.

Residual Impact

The sites/features, if detected, during testing and/or monitoring will be preserved by record (archaeologically excavated) or preserved in-situ (avoidance) and therefore a full record made of same. In this regard, the potential impact after the mitigation measures is likely to be slight.

Significance of Impacts

The construction of the proposed substation will have no significant effects on unrecorded potential sub-surface sites and the overall impact (after mitigation) will be slight.

Proposed Compounds

Five temporary construction compounds are proposed within the site of the proposed development. Two are located within the western Clongawny bog and three in the Drinagh bog. All are located in areas where peat depths do not measure more than 2 metres with some areas measuring between 0.5 and 1m.

13.4.3.3.3 Impact of Compounds on National Monuments, Recorded Monuments, Protected Structures, NIAH

No National Monuments in State Ownership/Guardianship, Recorded Monuments or Built Heritage structures (RPS/NIAH) are located within the footprint of the proposed compounds therefore no direct impacts on these aspects of the cultural heritage resource will occur.

Pre-Mitigation Impact

There will be no direct effects to the known cultural heritage resource as a result of the proposed compounds.

Proposed Mitigation Measures

Mitigation measures are not required.

Residual Impact

No residual Impacts.

Significance of Impacts

The construction of the proposed compounds will have no significant effects on national monuments, recorded monuments or built heritage.

13.4.3.3.4 Impact of Compounds on unrecorded potential sub-surface sites

Similar to any other aspect of the proposed development which involves ground disturbance and peat removal, the potential exists for the development area to contain as yet unrecorded sub-surface sites and artefacts. It is possible that such sites may be uncovered either within the peat/topsoil and/or at the level of the underlying natural subsoil. The excavation of topsoil /peat for the proposed compounds may impact on any new sites, if present. Archaeological monitoring of Engineering Site Investigations was undertaken in 2019 under licence by Tobar Archaeological Services. The results of the monitoring are detailed in Appendix 13.2.

Pieces of wood were noted within three trial pits excavated at what were then named Compound 2, 3 and 6, respectively. Compound 2 and 3 (now proposed security hut) were located in Clongawny Bog, while Compound 6 (now Construction Compound 4) was located in Drinagh Bog (the proposed compound in Drinagh has now been moved further to the east).

Compound 3 (now proposed security hut in Clongawny) is dealt with below in Section 13.4.3.7.2.

At Compound 2 (TPCC2, now proposed Construction Compound 2) two east-west running pieces of wood were identified at a depth of 0.38m below the present ground level. A definitive archaeological structure was not identified here, and no other potentially associated wood or structure were identified within the limits of the trial pit.

At Compound 6 (TPCC4, now Construction Compound 4) four horizontal pieces of wood were observed within the trial pit at a depth of 0.65m. Two of the longer pieces were exposed for a distance of 2.4m and 1.2m (NE/SW) and had widths of 0.31m and 0.25m respectively and were 0.80m apart. Between the aforementioned pieces of wood two shorter pieces of wood were noted and measured 0.5m and 0.7m in length NW/SE. While it was not possible to discern a definitive archaeological structure from the wood observed within the limits of the trial pit, it is possible that they have some archaeological potential. The timbers were preserved in situ. The proposed compound and adjacent site road are now located c. 60m to the east of where the trial pit containing the wood was excavated. No direct impact to the wood is therefore anticipated. It does, however, highlight the potential for uncovering potential sub-surface archaeological sites and features during the construction stage of the wind farm development should it proceed.

Pre-Mitigation Impact

Should new sites or features be present within the site (currently not visible on the surface) the impact is likely to be significant negative and permanent (i.e. the excavation by machinery would permanently remove the sites resulting in a significant negative impact).

Proposed Mitigation Measures

- Licensed archaeological monitoring of any further geotechnical / engineering trial pits or investigations in the area of the proposed compounds and a report detailing the results of same.
- Pre-development Licensed archaeological testing of the area of the compounds (in particular Compound 2 in Clongawny) (where peat depths allow a meaningful investigation). Investigation of any potential features is to be undertaken prior to construction. Where peat depths become a limitation to testing, monitoring at the construction stage should be undertaken. The areas to be tested will be chosen by the appointed archaeologist and the number of test trenches agreed between the archaeologist and the National Monuments Service (NMS) through the licensing system. Peat depth data and local ground conditions may dictate the number and location of test trenches to be undertaken.
- Licensed archaeological monitoring of the proposed compounds ground works during construction. If archaeological finds, features or deposits are uncovered during archaeological monitoring, the NMS will be informed of such findings and a method statement for the resolution of the archaeology will be provided. The developer will be prepared to provide resources for the resolution of such features whether by preservation by record (excavation) or preservation in situ (avoidance). A report on the results of the monitoring will be compiled and submitted to the relevant authorities on completion of the project.

Residual Impact

The sites/features, if detected, during testing and/or monitoring will be preserved by record (archaeologically excavated) or preserved in-situ (avoidance) and therefore a full record made of same. In this regard, the potential impact after the mitigation measures is likely to be slight.

Significance of Impacts

The construction of the proposed compounds will have no significant effects on unrecorded potential sub-surface sites and the overall impact (after mitigation) is slight.

13.4.3.4 Grid Connection

The grid connection route is located within the proposed development boundary in the north-eastern corner of Drinagh bog. The proposed substation will be connected to the national grid via either an underground grid connection cable or overhead cable which will connect into the existing 110kV transmission line located approximately 300m north of the substation.

13.4.3.4.1 *Impact of grid connection on National Monuments, Recorded Monuments, Protected Structures, NIAH*

No known documented constraints such as National Monuments in State Ownership/Guardianship, Recorded Monuments or Built Heritage structures (RPS/NIAH) are located within the footprint of the proposed grid connection. No direct impacts on these aspects of the cultural heritage resource will occur therefore.

Pre-Mitigation Impact

There will be no direct effects to the known cultural heritage resource as a result of the construction of the proposed grid connection route.

Proposed Mitigation Measures

There will be no mitigation required.

Residual Impact

No residual Impacts.

Significance of Impacts

The construction of the grid connection will have no significant effects on national monuments, recorded monuments or built heritage.

13.4.3.4.2 *Impact of grid connection on unrecorded potential sub-surface sites*

Similar to any other aspect of the proposed development which involves ground disturbance and peat removal, the potential exists for the development area to contain as yet unrecorded sub-surface sites and artefacts. It is possible that such sites may be uncovered either within the peat/topsoil and/or at the level of the underlying natural subsoil. The excavation of topsoil /peat for the proposed grid connection may impact on any new sites, if present (see mitigation measures below).

Pre-Mitigation Impact

Should new sites or features be present within the site (currently not visible on the surface) the impact is likely to be significant negative and permanent (i.e. the excavation by machinery would permanently remove the sites resulting in a significant negative impact).

Proposed Mitigation Measures

- Licensed archaeological monitoring of any further geotechnical / engineering trial pits or investigations in the area of the proposed grid connection route and a report detailing the results of same.
- Licensed archaeological monitoring of ground works associated with the grid connection during construction. If archaeological finds, features or deposits are uncovered during archaeological monitoring, the NMS will be informed of such findings and a method statement for the resolution of the archaeology will be provided. The developer will be prepared to provide resources for the resolution of such features whether by preservation by record (excavation) or preservation in situ (avoidance). A report on the results of the monitoring will be compiled and submitted to the relevant authorities on completion of the project.

Residual Impact

The sites/features, if detected, during monitoring will be preserved by record (archaeologically excavated) or preserved in-situ (avoidance) and therefore a full record made of same. In this regard, the potential impact after the mitigation measures is likely to be slight.

Significance of Impacts

The construction of the proposed grid connection will have no significant effects on unrecorded potential sub-surface sites and the overall impact (after mitigation measures) will be slight.

13.4.3.5 Proposed Junction Bypass at Kennedy's Cross

A new section of road (bypass) will be required at Kennedy's Cross to allow the turbine delivery vehicles to negotiate this junction. The new road is proposed to be located in a greenfield location north east of the existing at the junction.

13.4.3.5.1 *Impact of Junction by-pass on National Monuments, Recorded Monuments, Protected Structures, NIAH*

Two Recorded Monuments are located 150m to the west on the west side of the public road and in a forested area. The monuments consist of a Castle OF035-002002 and a deserted Medieval settlement OF035-002001 (Unlocated). No direct impacts on the monuments will occur given their distance from the proposed works.

Pre-Mitigation Impact

There will be no direct effects to the known cultural heritage resource described above as a result of the construction of the proposed junction bypass works.

Proposed Mitigation Measures

There are no mitigation measures required.

Residual Impact

No residual Impacts.

Significance of Impacts

The construction of the proposed new junction bypass will have no significant effects on national monuments, recorded monuments or built heritage.

13.4.3.5.2 *Impact of junction by-pass on unrecorded potential sub-surface sites*

Similar to any other aspect of the proposed development which involves ground disturbance and peat removal, the potential exists for the development area to contain as yet unrecorded sub-surface sites and artefacts. It is possible that such sites may be uncovered either within the peat/topsoil and/or at the level of the underlying natural subsoil (see mitigation measures below). Groundworks associated with the road may impact on as yet unidentified sub-surface archaeological finds, features or deposits (if present within the road take). For example, fulachta fia are often located near to water sources such as rivers and streams. Archaeological monitoring should take place at the construction stage of the development however to alleviate any impacts.

Pre Mitigation Impact

Should new sites or features be present within the site (currently not visible on the surface) the impact is likely to be significant negative and permanent (i.e. the excavation by machinery would permanently remove the sites resulting in a significant negative impact).

Proposed Mitigation Measures

- Licensed archaeological monitoring of any further geotechnical / engineering trial pits or investigations in the area of the proposed new road and a report detailing the results of same.
- Licensed archaeological monitoring of ground works associated with the excavation for the construction of the road. If archaeological finds, features or deposits are uncovered during archaeological monitoring, the NMS will be informed of such findings and a method statement for the resolution of the archaeology will be provided. The developer will be prepared to provide resources for the resolution of such features whether by preservation by record (excavation) or preservation in situ (avoidance). A report on the results of the monitoring will be compiled and submitted to the relevant authorities on completion of the project.

Residual Impact

The sites/features, if detected, during monitoring will be preserved by record (archaeologically excavated) or preserved in-situ (avoidance) and therefore a full record made of same. In this regard, the potential impact after the mitigation measures is likely to be slight.

Significance of Impacts

The construction of the proposed new junction bypass will have no significant effects on unrecorded potential sub-surface sites and the overall impact (after mitigation) will be slight.

13.4.3.6 Amenity links and Amenity Car Park

An amenity carpark is proposed to be located just to the west of the Drinagh North construction access road. A total of approximately 18 km of amenity pathways (including walkways and cycleways) will be

provided as part of the construction of the proposed development. The amenity pathways will be mainly located on the proposed internal road network. Where this is the case, roads will either be floated or excavated depending on local conditions and peat depths. In general roads located on peat in excess of 1m will be floated and those less than 1m will be excavated. The pathways will have a gravel/crushed stone finish surface.

In addition, approximately 6.5 km (TBC) of dedicated amenity pathways are proposed to provide access points/links into and out of the site. These will be constructed using a geotextile and stone (i.e. floated) and therefore no excavation is required. These dedicated paths will measure 3m in width.

13.4.3.6.1 *Impact of amenity facilities on National Monuments, Recorded Monuments, Protected Structures, NIAH*

One section of dedicated amenity pathway is proposed to be located in the south-east corner of the Drinagh bog which joins the public road to the east. A large cluster of recorded monuments is located to the south of the amenity trail. The nearest monuments are redundant records however. Since the dedicated pathways will be floated on the peat, no impacts to the known archaeological resource are likely to occur.

Pre Mitigation Impact

There will be no direct effects to the known documented cultural heritage resource as a result of the proposed amenity pathways and carpark. .

Proposed Mitigation Measures

Mitigation measures are not required.

Residual Impact

No residual Impacts.

Significance of Impacts

The construction of the proposed amenity pathways and carpark will have no significant effects on national monuments, recorded monuments or built heritage.

13.4.3.6.2 *Impact of amenity paths on unrecorded potential sub-surface sites*

It is proposed to float all dedicated amenity pathways (amenity links) using geotextile and stone thus avoiding the requirement for excavation. If sub-surface features such as toghers are present just below the surface, machinery may negatively impact on such sites, if present. Furthermore, some areas along the proposed amenity trails may require levelling in order to lay the geotextile and stone. Such groundworks may impact on sub-surface sites if present in these locations (especially if close to the surface). An archaeologist will be present during the placement of the geotextile and stone during construction as well as any required excavation and/or levelling of the ground.

Pre-Mitigation Impact

Should new sites or features be present within the site (currently not visible on the surface) the impact is likely to be significant negative and permanent (i.e. the excavation by machinery would permanently remove the sites resulting in a significant negative impact).

Proposed Mitigation Measures

- Licensed archaeological monitoring of the construction of the amenity paths should take place. If archaeological finds, features or deposits are uncovered during archaeological monitoring, the NMS will be informed of such findings and a method statement for the resolution of the archaeology will be provided. The developer will be prepared to provide resources for the resolution of such features whether by preservation by record (excavation) or preservation in situ (avoidance). A report on the results of the monitoring will be compiled and submitted to the relevant authorities on completion of the project.

Residual Impact

The sites/features, if detected, during monitoring will be preserved by record (archaeologically excavated) or preserved in-situ (avoidance) and therefore a full record made of same. In this regard, the potential impact after the mitigation measures is likely to be slight.

Significance of Impacts

The construction of the proposed amenity pathways and carpark will have no significant effects on unrecorded potential sub-surface sites and the overall impact (after mitigation measures) will be slight.

13.4.3.7 Security Huts

Two temporary security cabins will be installed within the site for the duration of the construction phase of the proposed development. The security cabins will be located close to the eastern and western construction site entrances off the N62 National Route.

13.4.3.7.1 *Impact on National Monuments, Recorded Monuments, Protected Structures, NIAH*

No National Monuments in State Ownership/Guardianship, Recorded Monuments or Built Heritage structures (RPS/NIAH) are located within the proposed development site boundary therefore no direct impacts on the known documented cultural heritage resource will occur.

Pre-Mitigation Impact

There will be no direct effects to the known cultural heritage resource as a result of the proposed security huts.

Proposed Mitigation Measures

No mitigation measures are required.

Residual Impact

No residual Impacts.

Significance of Impacts

The construction of the proposed new security huts will have no significant effects on national monuments, recorded monuments or built heritage.

13.4.3.7.2 *Impact of security huts on unrecorded potential sub-surface sites*

The walkover survey carried out between 28th November 2019 and the 12th January 2020 did not result in the discovery of any new sites such as toghers either within drain sections or indeed on the surface of the peat in the area of the security huts. Overgrowth in some areas limits the chances of recording such features, however, if present. These limitations are dealt with by way of mitigation measures. Archaeological monitoring of Site investigations took place in the vicinity of the security hut (TPCSH1, previously named Compound 3) as part of the engineering site investigation phase. The method statement agreed with the National Monuments Service was that any potential features would be recorded and that the features would remain in situ. A loose piece of wood was noted at the base of the trench in the trial pit associated with Security Hut 1 and this is detailed in the Archaeological Monitoring Report (Appendix 13.2). The wood did not extend beyond the extent of the trial pit however and no tool marks were apparent.

In this regard, archaeological monitoring should take place at the construction stage of the development however to alleviate any such impacts. If sub-surface features such as toghers are present machinery may negatively impact on such sites, if present.

Pre-Mitigation Impact

Should new sites or features be present within the site (currently not visible on the surface) the impact is likely to be significant negative and permanent (i.e. the excavation by machinery would permanently remove the sites resulting in a significant negative impact).

Proposed Mitigation Measures

- Archaeological monitoring of the construction of the security huts should take place. If archaeological finds, features or deposits are uncovered during archaeological monitoring, the NMS will be informed of such findings and a method statement for the resolution of the archaeology will be provided. The developer will be prepared to provide resources for the resolution of such features whether by preservation by record (excavation) or preservation in situ (avoidance). A report on the results of the monitoring will be compiled and submitted to the relevant authorities on completion of the project.

Residual Impact

The sites/features, if detected, during monitoring will be preserved by record (archaeologically excavated) or preserved in-situ (avoidance) and therefore a full record made of same. In this regard, the potential impact after the mitigation measures is likely to be slight.

Significance of Impacts

The construction of the proposed security huts will have no significant effects on unrecorded potential sub-surface sites and the overall impact (after mitigation measures) will be slight.

13.4.3.8 Underpasses

Two new permanent underpasses are proposed as part of the proposed development. The first underpass will traverse beneath the N62, immediately north of Derrinlough Briquette Factory. This underpass will provide amenity connectivity between Clongawny and Drinagh Bogs and will also be used during the operational phase for wind farm maintenance. A second underpass is proposed in Clongawny bog beneath an existing Bord na Móna railway line. This underpass will also be used for amenity purposes and for wind farm maintenance during the operational phase

13.4.3.8.1 *Impact on National Monuments, Recorded Monuments, Protected Structures, NIAH*

No National Monuments in State Ownership/Guardianship, Recorded Monuments or Built Heritage structures (RPS/NIAH) are located within the proposed development site boundary therefore no direct impacts on the known documented cultural heritage resource will occur.

Pre-Mitigation Impact

There will be no direct effects to the known cultural heritage resource as a result of the proposed new underpasses.

Proposed Mitigation Measures

No mitigation measures are required.

Residual Impact

No residual Impacts.

Significance of Impacts

The construction of the proposed new underpasses will have no significant effects on national monuments, recorded monuments or built heritage.

13.4.3.8.2 *Impact on unrecorded potential sub-surface sites*

The walkover survey carried out between 28th November 2019 and the 12th January 2020 did not result in the discovery of any new sites such as toghers either within drain sections or indeed on the surface of the peat in the area of the proposed underpasses. Overgrowth in some areas limits the chances of recording such features, however, if present. In this regard, archaeological monitoring should take place at the construction stage of the development however to alleviate any such impacts. If sub-surface features such as toghers are present machinery may negatively impact on such sites, if present.

Pre-Mitigation Impact

Should new sites or features be present within the site (currently not visible on the surface) the impact is likely to be significant negative and permanent (i.e. the excavation by machinery would permanently remove the sites resulting in a significant negative impact).

Proposed Mitigation Measures

- Archaeological monitoring of the construction of peat removal associated with the underpasses should take place. A report on the results of the monitoring will be compiled and submitted to the relevant authorities on completion of the project. If archaeological finds, features or deposits are uncovered during archaeological monitoring, the developer will be prepared to provide resources for the resolution of such features whether by preservation by record (excavation) or preservation in situ (avoidance).

Residual Impact

The sites/features, if detected, during monitoring will be preserved by record (archaeologically excavated) or preserved in-situ (avoidance) and therefore a full record made of same. In this regard, the potential impact after the mitigation measures is likely to be slight.

Significance of Impacts

The construction of the proposed new underpasses will have no significant effects on unrecorded potential sub-surface sites and the overall impact (after mitigation measures) will be slight.

13.4.4 Operational Phase Potential Impacts (Direct)

In terms of archaeology, architecture and cultural heritage, since peat removal and groundworks would be complete, it is considered that no direct effects would occur at the operational stage.

13.4.5 Operational Phase Potential Impacts (Indirect)

Indirect impacts are where a feature or site of archaeological, architectural heritage merit or their setting is located in close proximity to a proposed development. Indirect impacts here are mainly concerned with impacts on setting. Impacts on settings of sites may arise when a development is proposed immediately adjacent to a recorded monument or cluster of monuments or any cultural heritage asset. While the proposed development may not physically impact on a site, it may alter the setting of a monument or group of monuments. There is no standardised Irish industry-wide approach in for assessing the degree of impact to the setting of a monument. The assessment is based on previous experience, Geographical Information Systems (in particular Viewshed Analysis) and the '*Guidance on Setting and the Historical Environment*' (Historic Environment Division Northern Ireland) was utilised. The methodology through which indirect impact is assessed is presented in Section 13.2.5 above. According to the aforementioned document '*A range of tools may be employed in defining and assessing changes to setting, for example historic landscape analysis using Geographical Information Systems (GIS), which may include viewshed analysis*'.

Potential impact to the visual amenity of a site or area and the significance of same is dependent on a number of factors regarding the sensitivity of the location or 'receptor' and the scale or magnitude of the proposed development.

Potential operational impacts are discussed below according to each element of the proposed development. Those elements of the proposed development which are not capable of impacting on the visual setting of monuments (such as proposed roads, amenity trails, underground cables etc.) are scoped out of this section of the EIAR. Those elements which are deemed to be more likely to impact on visual setting such as turbines and substation buildings are discussed below.

13.4.5.1 Turbines

13.4.5.1.1 *Impact of proposed turbines on setting of Clonmacnoise (World Heritage – tentative list)*

Clonmacnoise is situated c. 15km to the north-west of the proposed development site (**Error! Reference source not found.** above). Given the intervening distance, the immediate visual setting of these archaeological sites will not be impacted by the proposed development. The ZTV (Figure 11.1 of the Landscape and Visual Impact Assessment section of the EIAR) shows that Clonmacnoise has limited to no visibility in the direction of the turbines within the proposed development. A viewshed analysis was also undertaken in ArcGIS from the south side of Clonmacnoise graveyard enclosure in the direction of the proposed development up to a 20km radius from the monument (i.e. visual assessment study zone). The results show there are potentially no instances where any component of the proposed turbines would be visible from the monument.

Pre-Mitigation Impact

There will be no indirect effect on the visual setting of Clonmacnoise as a result of the proposed turbines.

Proposed Mitigation Measures

Mitigation measures are not required since no negative effects were identified.

Residual Impact

No residual impacts will arise since no impacts were identified.

Significance of Impacts

The operation of the proposed turbines will have no significant effect on the setting of Clonmacnoise.

13.4.5.1.2 *Impact of proposed turbines on setting of National Monuments in State Care*

A review of all National Monuments in State Care was undertaken as part of the assessment in order to ascertain any potential impacts on their setting as a result of the proposed development. No National Monuments are located within the proposed development site boundary. These are detailed in

Table 13.2 above.

National Monument Preservation Order 49 (OF015-017, Coole Castle)

Viewshed analysis results are a worst case scenario since the model does not take natural screening such as vegetation, boundaries or buildings into consideration. Figure 13.4 shows that there are no instances (green areas) where the full length of the turbines would be visible (i.e. from ground level (0m). It shows that potentially, 15 of the 21 turbines could be seen from mid shaft upwards (red areas)

and it shows that the upper portion of all of the turbines (blue areas) could potentially be seen from the monument. This impact will be slight (an effect which causes changes in the character of the environment which are not high or very high and do not directly impact or affect an archaeological site).

National Monument Preservation Order 86 (OF022-008001, Clonony Castle)

Viewshed analysis results are a worst case scenario since the model does not take natural screening such as vegetation, boundaries or buildings into consideration. The results as shown on Figure 13.5 show that there are no instances (green areas) where the full length of the turbines would be visible (i.e. from ground level (0m). The results also show that potentially, 12 of the 21 turbines could be seen from mid shaft upwards (red areas) and it shows that the upper portion of 20 of the 21 turbines (blue areas) could potentially be seen from the monument. One turbine (T14) has no visibility from the monument. This impact will be slight.

National Monument Preservation Order Jun-56 (OF023-010, Ringfort)

Viewshed analysis results are a worst case scenario since the model does not take natural screening such as vegetation, boundaries or buildings into consideration. The results on Figure 13.6 show that there are no instances (green areas) where the full length of the turbines would be visible (i.e. from ground level). The results show that potentially, 11 of the 21 turbines could be seen from mid shaft upwards (red areas) and that all of the upper portions of the turbines (blue areas) could potentially be seen from the monument. The impacts on this monument are likely to be slight.

National Monument State Care No 504 (OF014-029001, Gallen Abbey)

Viewshed analysis results are a worst case scenario since the model does not take natural screening such as vegetation, boundaries or buildings into consideration. The results on (Figure 13.7) show that there are no instances (green areas) where the full length of the turbines would be visible (i.e. from ground level (0m)). There are also no instances where the turbines would be visible from mid shaft (red areas). The results show that potentially, the upper portion of 10 of the 21 turbines may be seen from the monument. The remaining turbines at the western portion of the site have no visibility from the monument.

This impact is likely to be 'Not Significant' (An effect which causes noticeable changes in the character of the environment but without significant consequences).

Pre-Mitigation Impacts

Pre-mitigation indirect impacts on National Monuments in State Care vary from Slight to Not Significant (see above). In cases where there may be some noticeable changes in the wider landscape setting of some of the monuments, the impacts are considered to be 'Not Significant'. Some impacts are considered to be slight as the proposed turbines in the wider landscape setting may cause changes in the character of the environment (not deemed to be high or very high and do not directly impact or affect an archaeological site).

Proposed Mitigation Measures

As it is not possible to mitigate the indirect effects of the turbines in the wider landscape setting there are no mitigation measures for this potential impact.

Residual Impact

The residual impacts are considered to range from 'Not Significant' to 'slight' (see above).

Significance of Impacts

The operation of the proposed turbines will have no significant effect on the setting of National Monuments in State Care. Overall impacts after mitigation are considered to range from 'slight' to 'not significant'.

13.4.5.1.3 Impact of proposed turbines on setting of Recorded Monuments within the proposed development site boundary

Twenty-eight RMPs are located within the proposed development site boundary, 14 of which are now redundant records. The site inspection of the monuments did not reveal any visible trace of the monuments since their original and re-assessment survey. The reduction of the peat fields due to milling and the peat production process is such that any monuments recorded on the surface or near to the surface in the original 1997 assessment survey would not have survived. The below ground nature of the monuments is such that impacts on visual setting is not anticipated as the monuments themselves do not have any visible extent in the landscape.

Pre Mitigation Impact

Sub-surface sites which do not have any visible surface trace are not capable of having their setting impacted and therefore no impacts will occur in this regard.

Proposed Mitigation Measures

Since no indirect impacts will occur, no mitigation is necessary.

Residual Impact

Since no indirect impacts were identified and no mitigation was required, no residual impacts will occur.

Significance of Impacts

The operation of the proposed turbines will have no significant effect on Recorded Monuments within the proposed development site boundary.

13.4.5.1.4 Impact of proposed turbines on Recorded Monuments within 5km

Seven monuments are located within 1km of the nearest proposed turbines. Thirty-seven monuments are located between 1 and 2km of the nearest proposed turbine. Seven monuments are located between 2 and 3km with 29 monuments located between 3 and 4km. Thirty-six monuments (36) are located between 4 and 5km. The immediate setting of the recorded monuments within 5km will not be negatively impacted although it is likely that there will be some visibility in the direction of the proposed turbines given the flat topography of the surrounding landscape. The Zone of Theoretical Visibility (ZTV) shows that potentially all turbines (half-blade) may be visible from areas within the 5km zone (Figure 11.1, LVIA chapter 11). It is not possible to ascertain exactly what may be seen from various monuments within 5km as the majority are inaccessible to the public being located on private land. The potential to view turbines from various monuments depends on season (full vegetative growth

in summer), buildings, forestry etc. The ZTV does not take natural screening, buildings or boundaries into consideration and therefore is a worst case scenario. Potential impacts on RMPs within 5km is likely to vary from slight to moderate.

Pre Mitigation Impacts

Potential impact on visual setting of the RMPs within 5km of the proposed development is considered to be slight to moderate.

Proposed Mitigation Measures

As it is not possible to mitigate the indirect effects of the turbines on monuments within 5km there are no mitigation measures for this potential impact.

Residual Impacts

Since mitigation measures are not possible, the residual impact will remain the same as the pre-mitigation impacts which are Slight to Moderate.

Significance of Impacts

The operation of the proposed turbines will have no significant effect on Recorded Monuments within 5 km of the proposed development. The effects are considered to be slight to moderate.

13.4.5.1.5 *Impact of proposed turbines on setting of NIAH/RPS structures within 5km of the nearest proposed turbine*

The majority of structures within the Record of Protected Structures (RPS) and the NIAH are located within the 'urban' settings of Banagher and Cloghan and therefore their visual settings do not extend beyond the limits of those settlements. The ZTV shows that there will be limited to no visibility in the direction of the turbines from within Cloghan or Banagher. The majority of other outlying structures in the landscape may have some visibility in the direction of the proposed turbines as the ZTV suggests. While no direct effects will take place and no curtilages or attendant ground will be affected, some indirect effects on visual setting are likely in the wider setting. The significance of effects is likely to be slight to moderate.

Pre Mitigation Impact

Slight to Moderate effects in the wider landscape setting may occur since some turbines may be visible from some locations. Factors such as distance, screening, buildings, boundaries in the landscape may vary from summer to winter and the impact may vary accordingly.

Proposed Mitigation Measures

As it is not possible to mitigate the indirect effects of turbines on NIAH/RPS structures within 5 km there are no mitigation measures for this potential impact.

Residual Impact

Since no mitigation measures can be implemented, the residual impact will remain the same as the per-mitigation impact which is Slight to Moderate.

Significance of Impacts

The operation of the proposed turbines will have no significant effect on NIAH/RPS structures within 5 km of the proposed development.

13.4.5.2 Electricity Substation and Grid Connection (over-ground)

13.4.5.2.1 *Impacts on setting of National Monuments, Recorded monuments.*

The electricity substation area and proposed overhead grid connection are located in the north-eastern corner of the proposed development site boundary within Drinagh bog. The substation is relatively small in scale (145 N/S by 121m E/W) from a wider landscape perspective and is likely to have localised effects rather than effects on the wider cultural heritage landscape setting. The nearest monument consists of a Holy Well (OF022-017, MAP ID 112) c. 1.1km from Turbine 21. It is situated on flat well drained land with bog on all sides. Circular well (D. 3.5m deep; Diam. 1.5m) with dry-stone lined shaft, water filled at time of visit. Holy well appears to have been filled in or covered over in recent times. Well shaft no longer visible above ground (pers. comm. Offaly Heritage Officer 17/08/2015). Since no above ground extent of this monument survives, no impacts on setting are likely. Similarly, the grid connection may consist of timber polesets and steel anglemasts and in this regard potential effects on setting are likely to be localised rather than extending to the wider landscape setting.

A second monument, some 1.6km to the west consists of an enclosure (OF022-016). It is not visible at ground level and was levelled in the 1960's during land improvement schemes.

Since none of the monuments in the immediate setting of the substation and overhead grid connection have any visible surface trace, no impacts on setting will occur.

Pre Mitigation Impact

No Impacts will occur since the nearest recorded monuments do not have any visible surface trace.

Proposed Mitigation Measures

No mitigation measures are required since no impacts were identified.

Residual Impact

Since no mitigation measures are required, residual impacts will not occur.

Significance of Impacts

The operation of the proposed substation and overhead grid connection will have no significant effect on the setting of National Monuments or Recorded Monuments.

13.4.5.2.2 *Impacts on setting of NIAH/RPS*

A cluster of protected structures and NIAH structures are located within Cloghan village some 3km to the north-west of the proposed substation building. Since the visual setting of those structures does not extend beyond the village limits no impacts on those assets are anticipated. A bridge (NIAH Ref 14923001 consisting of a single-arch masonry road bridge, built c.1800, carrying the Cloghan to Kilcormac road over the River Silver is situated 2.4km to the east of the proposed substation. Single-span in form, the bridge's stone elevations enhance the local landscape, bringing character to the rural setting. Impacts on setting of the bridge are not anticipated given its low landscape profile and distance from the proposed substation.

Pre-Mitigation Impact

No Impacts on the architectural resource in the immediate setting of the proposed substation and overhead grid connection will occur.

Proposed Mitigation Measures

No impacts were identified therefore no mitigation measures are required.

Residual Impact

Since no pre-mitigation impacts were identified and therefore no required mitigation measures, residual impacts will not occur.

Significance of Impacts

The operation of the proposed substation and overhead grid connection will have no significant effect on the setting of NIAH/RPS structures.

13.5 Cumulative Impacts

Cumulative impact is defined as 'The addition of many small impacts to create one larger, more significant, impact' (EPA 2017). Cumulative impacts encompass the combined effects of multiple developments or activities 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 Proposed development. Cumulative Impacts at the Construction and Operational Stages are considered.

13.5.1 Cumulative Impacts (Direct Impacts – Construction stage)

The addition of other projects to the proposed development project was considered in order to assess Cumulative Impacts. These included all other windfarms within 20km of the proposed development. Cumulative impacts are also considered in terms of the extraction of stone from nearby quarries since no borrow pits are being proposed as part of the proposed development.

13.5.1.1 Cumulative impacts (direct) considering other windfarms within 20km

The majority of projects (including existing, permitted and proposed developments) are located adjacent or within close proximity to the proposed Derrinlough windfarm, with the exception of the Skehanagh and Carrig turbines c. 15km to the southwest.

13.5.1.1.1 *Cumulative impacts to Recorded Monuments, National Monuments, NIAH or RPS*

There are no National Monuments, Recorded Monuments or any architectural heritage structures (such as RPS or NIAH) located within the footprint of the proposed development or within the footprint of other projects (including Proposed, Permitted or Existing developments within 20km). In this regard no cumulative direct impacts to the known documented cultural heritage sites will not occur.

13.5.1.1.2 *Cumulative impact to potential unknown sub-surface sites*

Direct effects to sub-surface archaeological features/sites can occur as a result of peat removal and groundworks. The proposed development in combination with other developments, could result in potential increased negative effects to sub-surface archaeological features ((i.e. cumulative impacts). Since all projects have been assessed from a cultural heritage perspective through the EIAR process, all potential negative effects are deemed to have been dealt with through the use of effective mitigation measures and planning conditions issued through the Planning Authorities.

If the mitigation measures prescribed in this EIAR are implemented then cumulative direct effects to unknown sub-surface archaeology will not occur, regardless of the other projects within 20km of the proposed development. For example, archaeological testing and monitoring at the construction stage of the nearby Meenwaun windfarm to the west of the Clongawny bog resulted in the discovery of early Bronze Age activity and a Neolithic stone axe. This material was preserved by record thus avoiding negative impacts. This demonstrates the effectiveness of suitable mitigation measures which if implemented should ameliorate cumulative direct impacts. Furthermore, archaeological monitoring of site investigations associated with the permitted Cloghan windfarm (within Derrinlough townland) did not reveal any archaeological features (See **2018:543** above) (See Section 13.3.1.7 above).

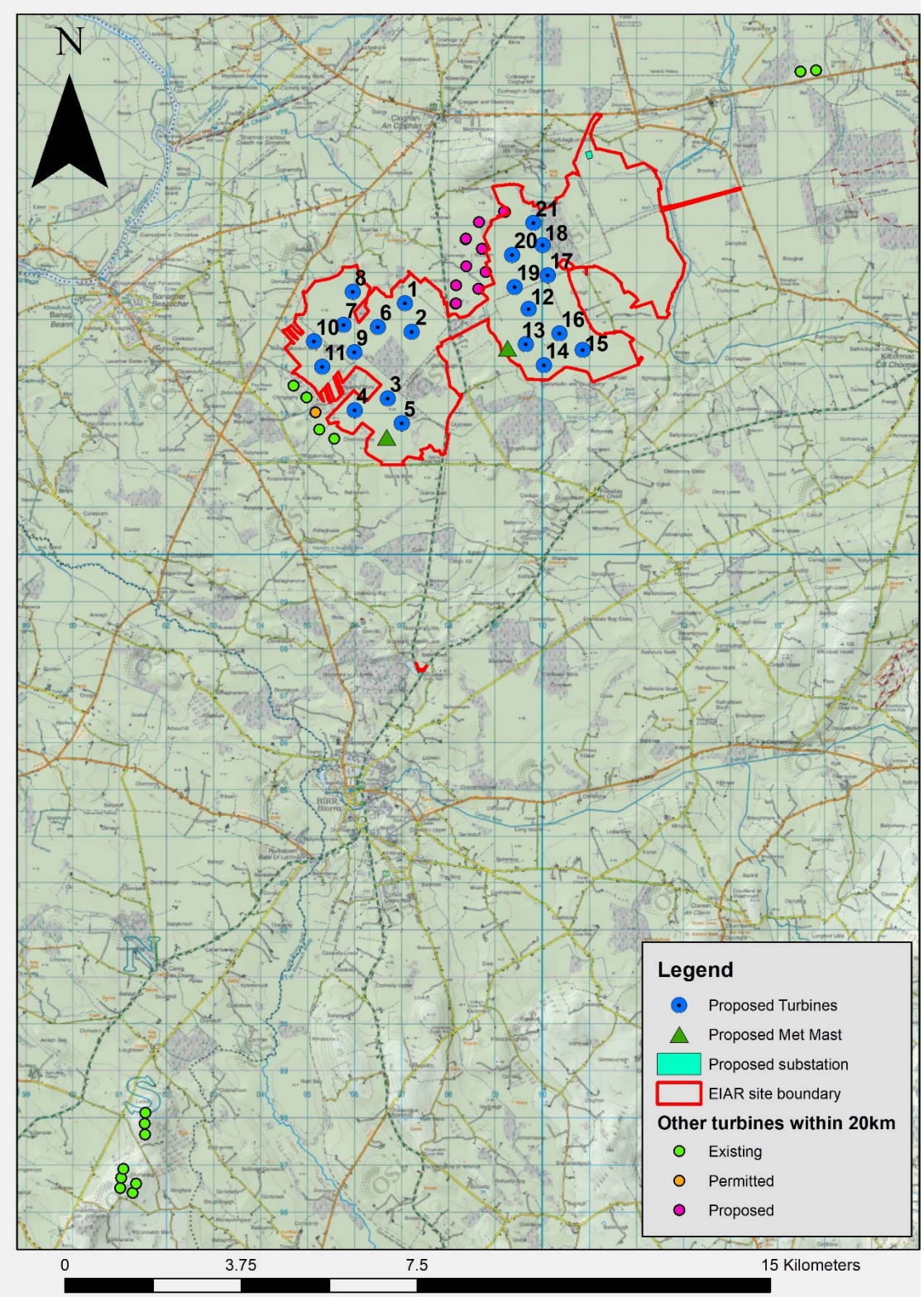

Figure 13.24: Other projects (wind farms) within 20km of the proposed development to assist in assessing cumulative impacts.

13.5.1.2 Cumulative direct impacts of Quarries to be utilised to provide stone for the Derrinlough Windfarm

Nine existing quarries in the vicinity of the proposed development have been considered to provide stone for the Derrinlough wind farm project since no borrow pits are proposed within the proposed development boundary itself. With this in mind, these quarries are considered cumulatively in terms of archaeological and cultural heritage potential.

As the quarries are existing and operational, the archaeological and cultural heritage potential of the continuation of quarrying activities is likely to be low. Cumulative direct impacts are not anticipated.

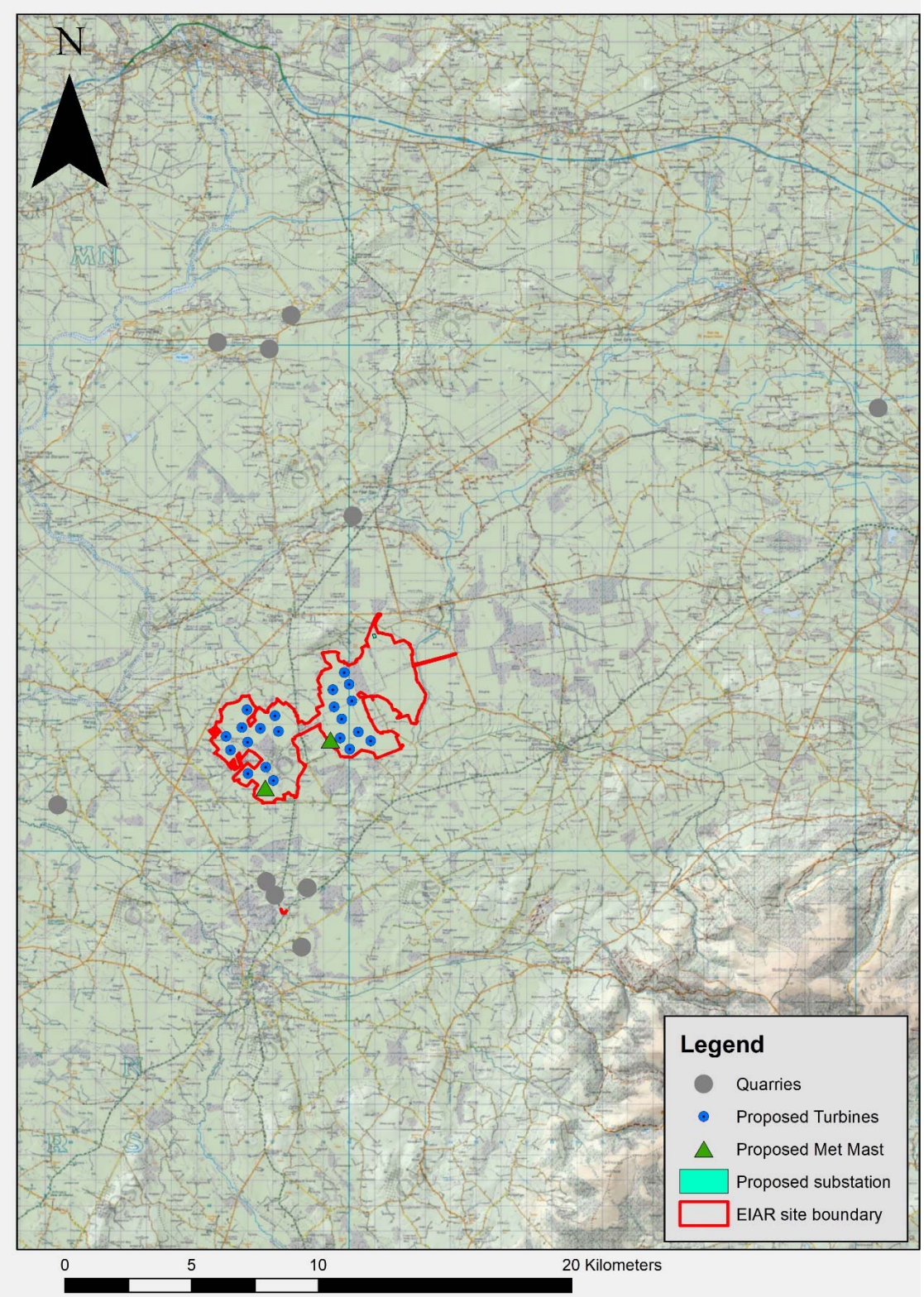

Figure 13.25: Quarries to be considered for use for stone for the proposed development.

13.5.2 Cumulative Impacts (Indirect Impact on Setting)

Indirect impacts on setting occur at the operational stage of the development (when turbines are operational). In this regard in order to assess overall cumulative effects on archaeology and cultural heritage, the proposed project is considered in the context of other developments, in particular other permitted and proposed wind farms as shown in Figure 13.24 above. This map shows the location of existing, permitted and proposed turbines within 20km of the proposed development.

13.5.2.1 National Monuments

When considered cumulatively, the proposed Derrinlough turbines along with the permitted, existing and proposed turbines within 20km could result in an increase in effects on the visual setting of the cultural heritage resource. If all of the turbines were constructed, it may result in more turbines being seen from various locations in the wider landscape setting.

In terms of cumulative visual impacts on Clonmacnoise World Heritage site (tentative list), however, viewshed analysis shows that no additional turbines would be seen from this location. No cumulative impacts on Clonmacnoise will occur since none of the Derrinlough turbines are potentially visible from this location.

The viewshed analysis model run for National Monuments within 10km of Derrinlough also shows other turbines within 20km and so it can be ascertained what level of visibility of turbines from the monuments is possible. As the viewsheds are based on a bare landscape with no vegetation boundaries or buildings, these cumulative impacts are a worst case scenario since screening is likely to alleviate some effects on setting.

National Monument Preservation Order 49 (OF015-017, Coole Castle)

The likely impacts on this monument arising from the proposed Derrinlough turbines was considered to be slight. The Cloghan (permitted) and existing and proposed Meenwaun turbines are also within the viewshed from this monument therefore the effects on setting will increase from slight to slight/moderate.

National Monument Preservation Order 86 (OF022-008001, Clonony Castle)

The likely impacts on this monument arising from the proposed Derrinlough turbines alone was considered to be slight. The Cloghan (permitted) and existing and proposed Meenwaun turbines as well as the Leabeg existing turbines are also within the viewshed from this monument therefore the effects on setting will increase from slight to slight/moderate.

National Monument Preservation Order Jun-56 (OF023-010, Ringfort)

The likely impacts on this monument arising from the proposed Derrinlough turbines alone was considered to be. The Cloghan (permitted) and existing and proposed Meenwaun turbines as well as the Leabeg existing turbines are also within the viewshed generated from this monument therefore the likely effects on setting will increase from slight to slight/moderate.

National Monument State Care No 504 (OF014-029001, Gallen Abbey)

The likely impacts on this monument arising from the proposed Derrinlough turbines alone was considered to be 'Not Significant'. The viewshed analysis from this monument shows potential visibility in the direction of the Leabeg and Cloghan turbines in addition to the Drinagh side of the proposed development. There is no visibility of the Meenwaun turbines or turbines from the Clongawny part of

the proposed Derrinlough windfarm. The impact will increase from Not significant to Slight when considering all projects cumulatively.

13.5.2.2 Cumulative (Indirect) Impacts to Recorded Monuments, RPS and NIAH structures

The likely indirect impacts to recorded monuments within the proposed development has been considered in this assessment. Impacts on visual setting to such monuments is not anticipated as they do not have any visible extent in the landscape. Considered cumulatively with other projects within 20km this impact is not likely to change given the low-visibility nature of these monuments.

The immediate setting of the recorded monuments within 5km of the proposed development will not be negatively impacted although it is likely that there will be some visibility in the direction of the proposed turbines given the flat topography of the surrounding landscape. In this regard, a slight-moderate impact to their wider setting has been identified. When considered cumulatively with other projects within 20km this impact may increase to moderate given that more turbines are likely to be visible from such monuments.

A similar scenario is identified for RPS and NIAH structures within 5km of the proposed development, in particular turbines, for which a slight-moderate impact to their wider setting had been identified. This may increase to moderate when considered with permitted, existing and proposed turbines within 20km.

13.6 Decommissioning Phase

There will be no significant potential impacts on the archaeological, architectural and cultural heritage environment during the decommissioning of the proposed development. Any potential direct impacts will already have been resolved through mitigation measures during the construction phase.