2. INTRODUCTION

2.1 Outline of Works

This paper presents the results of archaeological investigations undertaken between 2007 and 2015 as part of the Clyde Wind Farm and Clyde Wind Farm Extension construction project (Illus 2.1). Teams of archaeologists undertaking evaluations, site excavations, and the monitoring of groundworks uncovered a wide variety of archaeological features from discrete pits to roundhouses and retrieved artefacts from Mesolithic worked flint to medieval pottery sherds. The excavations revealed evidence of human activity spanning over eight millennia located across a varied landscape from the valley floors to the ridgelines of the hills. The results of the site works together with the results of specialist studies and scientific analyses have produced a body of evidence that tells the story of human occupation and settlement in the Upper Clyde Valley and makes a significant contribution to the corpus of archaeological knowledge for the region.

2.2 Project Background

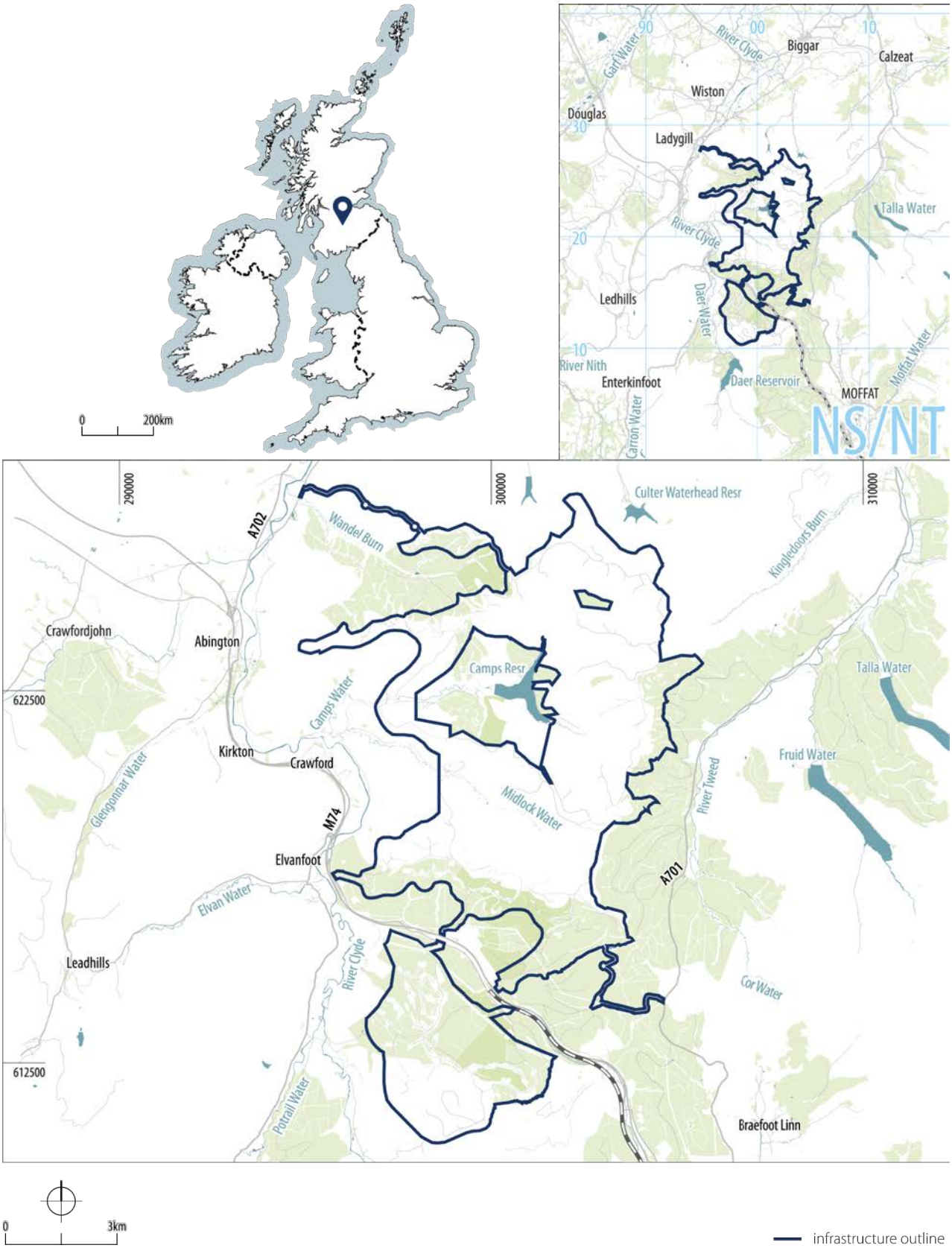
Clyde Wind Farm was given planning permission in 2008 and is one of the largest consented terrestrial wind farms in Europe with a total generation capacity of 350MW. The project was approved by the Scottish Government and formed an important part of its aim to produce 50% of the country's total energy from renewable sources by 2020. The site comprises 206 turbines (152 turbines on Clyde Wind Farm and 54 on Clyde Extension) and covers an area of 47.5 sq km, encompassing the northern fringes of the Southern Uplands either side of the Clyde Valley within South Lanarkshire and the Scottish Borders Council regions (Illus 2.2).

Following production of an Environmental Impact Assessment (EIA), Headland Archaeology (UK) Ltd undertook a programme of archaeological survey, evaluations, excavations, monitoring, and avoidance through design at Clyde Wind Farm prior to and during construction between 2007 and 2012. The construction of the wind farm was divided into three sections: North, Central, and South. The contracts for construction of each section were awarded to a different civil engineering contractor, with each contractor engaging sub-contractors to carry out various aspects of the project, resulting in a considerable degree of communication between stakeholders. These aspects included the construction of substations and turbine platforms; access tracks (Illus 2.3) and site compounds (some of which were permanent, some temporary); the stripping of peat and topsoil; the installation and realignment of service trenches; the laying of subterranean power cables and the construction of drainage ditches. All the groundworks associated with these activities carried the risk of disturbance to archaeological remains. Consent for an extension to the Clyde Wind Farm was given in July 2014 and a further programme of similar works took place between 2015 and 2016 prior to and during construction.

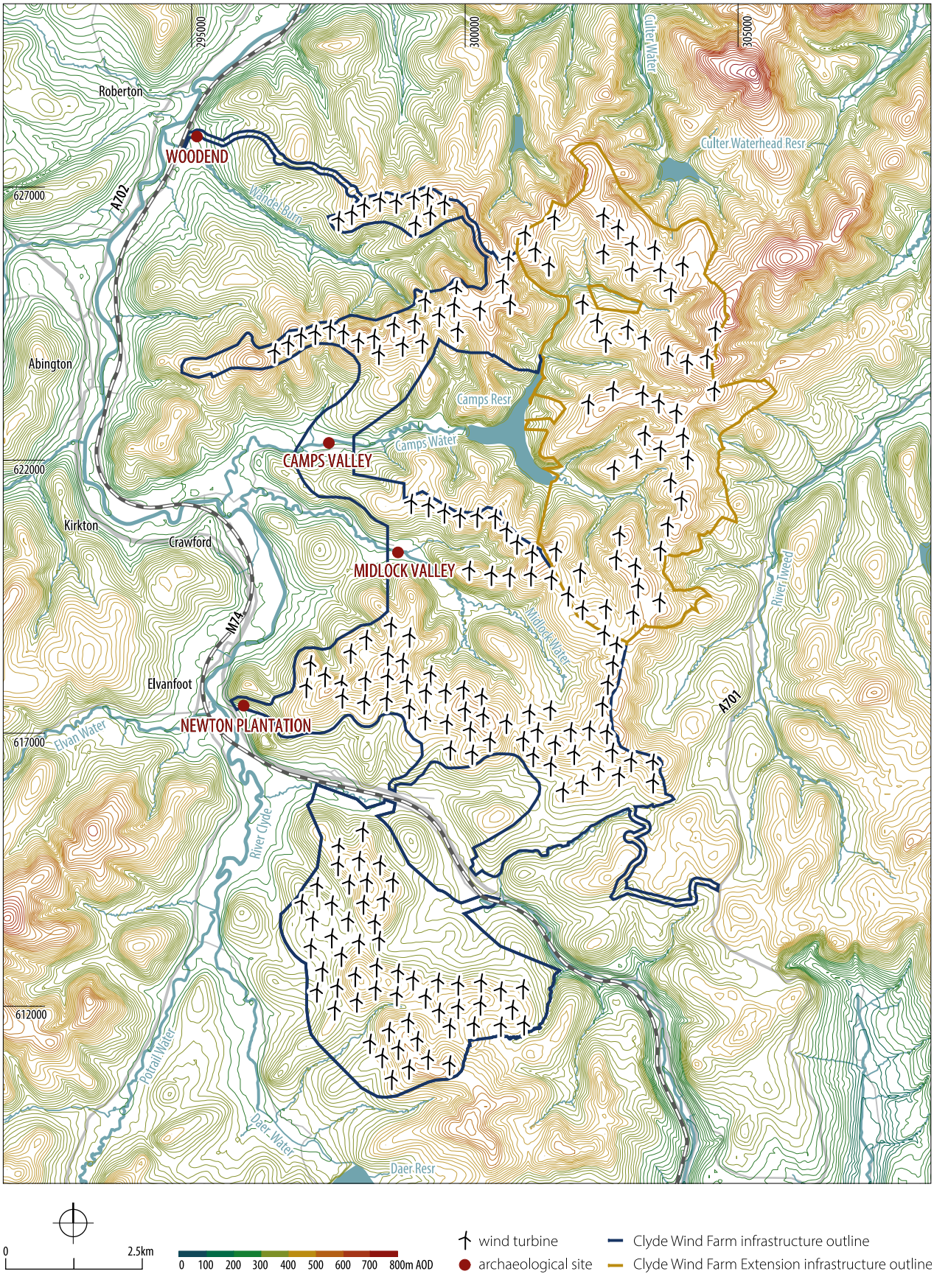
The overarching aims of all archaeological works within the wind farm were tied to two planning conditions attached to the consent for the original wind farm, and a single condition for the extension. The planning conditions aimed to minimise adverse impacts on archaeology on the site and to preserve by record any archaeology identified. Putting the conditions into practice on a project of this nature with the challenges of the size of the scheme, the nature of the topography, the inclement Scottish weather, and constraints of logistics, was not straightforward. One of the conditions specified the role of an Archaeological Clerk of Works (ACoW), one of the first times such a role had been employed on a construction project in Scotland. This job involved co-ordinating a variety of archaeological works from monitoring the stripping of topsoil and peat, to excavations, to providing input into ongoing design decisions with respect to archaeological site avoidance and protection. The ACoW had to ensure that the developer met their obligations towards the archaeological resource, as well as liaise with various stakeholders on the project, from contractors to Planning Authority advisors.

2.3 Physical and Environmental Context

The Southern Uplands form one of the three major geographic areas of Scotland (the others being the Central Lowlands and the Highlands). They are characterised by rolling hills and valleys with fertile haughs, and extensive river systems that include both the third and fourth longest rivers in Scotland



Illus 2.1 Site location. (© Headland Archaeology (UK) Ltd)



Illus 2.2 Clyde Wind Farm and extension. (© Headland Archaeology (UK) Ltd)

Illus 2.3 View south of topsoil stripping for access road on southern side of Midlock Valley. (© Headland Archaeology (UK) Ltd)

– the River Tweed and the River Clyde. The sources of these two rivers are only 10km apart, separated by hills on which the southern part of the wind farm sits. These river basins and catchment areas are the result of the Pleistocene glaciations whose erosive actions are responsible for the smooth rounded steep-sided hills that we see today. The periglacial conditions led to freeze-thaw activity on the relatively soft rock which produced loamy and sandy material covering the hill summits and upper slopes, while the valley floors and lower hill slopes in general comprised thick clay deposits formed initially through the release of meltwater after deglaciation and modified by the actions of the rivers and streams into flood plains. The wet conditions immediately following the retreat of the glaciers stimulated the build-up of peat deposits which, as the climate changed and anthropogenic effects of drainage and overgrazing took hold, have widely dried out and eroded away (Stone et al 2012).

The lower slopes and valley floors have seen much alteration over thousands of years of human occupation. Power generation is the most recent example of commercial exploitation of the land, which has also included forestry plantation and reservoirs, quarrying and mining, rough grazing, stock rearing, and cultivation. The good agricultural land in Upper Clydesdale is limited to the valley floors which within the project area vary from 220m above ordnance datum (AOD) in the northern part of the Clyde Valley to 300m AOD at the Camps, Midlock, and Daer Waters. The latter represents the limits of improved fields with the quality of the land changing on the upper slopes of the valleys to unimproved rush-infested pastures which continue to the ridgelines and hilltops.

The hills of the Southern Uplands have formed a major obstacle to passage between the central belt of Scotland to the north and England to the south ever since humans first began making their way across the landscape. Since prehistory the valleys of Upper Clydesdale have been an important routeway and historically they have provided access for Roman and medieval armies, as well as more recent railways and motorways.

The project area of the wind farm and the wind farm extension was located on a range of hills between the upper reaches of the River Clyde to the west and River Tweed to the east with almost all construction taking place within the watershed of the Clyde. The steep-sided valleys contained tributaries of the Clyde such as Wandel Burn, Camps Water, Midlock Water, and Daer Water.

An advantage of the scale of the project was that the linear elements of the works (for example cable-laying and road construction) provided an opportunity to examine large transects across the landscape. In the case of the Midlock and Camps Valleys these transects ran from the top ridge of the valley down the slope, across the valley floor and up the other slope to the opposite ridge. This permitted an examination of the distribution, typology, and date of archaeology found within a slice of the entire valley system. Each valley itself from ridgeline to ridgeline comprises a landscape unit, a space defined not only by its physical topography but also by the human interactions with the land between the ridgelines. The study of the evidence of human engagement with the land reveals a cultural environment, as well as a physical one.

2.4 Strategy

A systematic approach to the groundworks within the project area was required given the magnitude of the construction project and the expanse of the landscape in which it was set. A strategy of dividing the landscape into zones of archaeological potential was devised in which different archaeological responses were provided to each zone. The zones were differentiated based partly on altitude and

partly on the specific archaeological potential of certain areas.

Zone 1 comprised the valley floors and was the area with the highest potential for sub-surface archaeological remains to be uncovered. Zone 2 comprised the lower slopes of the valleys where most known archaeological sites consisted of upstanding remains and fewer previously unknown sites were expected to survive below the ground. Zone 3 comprised the hilltops and ridgelines where, in general, the archaeological remains have substantial physical elements to them which have not been disturbed in later periods. It was considered unlikely that unknown archaeological remains would exist sub-surface in Zone 3 so during construction an archaeologist visited the zones regularly to check if any remains were present (Illus 2.4). In Zone 2 all topsoil stripping for construction was undertaken by mechanical excavators under the direct control of an archaeologist, while a more proactive approach was adopted in Zone 1 with archaeological trial trenching identifying major remains prior to construction, and monitored topsoil stripping during groundworks followed by excavation where appropriate. The total area of archaeological excavation amounted to 11.76 hectares.

2.5 Archaeology of Upper Clydesdale

2.5.1 Summary of Archaeological Background

The Upper Clyde Valley and its environs are at the heart of southern Scotland and have been a focal point throughout history for settlement and migration. This is an area rich in archaeological remains spanning millennia from the Mesolithic through to the post medieval periods. The density of recorded heritage in this area is due in no small part to the archaeological surveys conducted by the RCAHMS and the Biggar Archaeology Group, in particular the survey carried out in advance of the M74 construction project (Ward 1992).

Early prehistoric human activity leaves few traces but evidence of the Mesolithic is attested at Daer Valley just south of the project area where investigations by the Biggar Archaeology Group between 1990 and 2012 recorded the presence of Mesolithic camps in the form of lithic scatters, charcoal spreads, and pits (Ward 2017). These surveys and excavations have provided valuable insights into the nature of Mesolithic activity particularly in upland locations (that is above 300m AOD; ibid: 47). The transition from the Mesolithic to the Neolithic is highly debated (see Thomas 2013, Rowly-Conwy et al 2020) with only a limited number of sites in the region, such as Biggar Common, Daer Valley, and Blackshouse Burn, dating to this period. More substantial remains were left by Late Neolithic people in the form of ritual monuments such as the Class II henge (Normangill Henge – Canmore ID 47386) located on the floor of Camps Valley, which is one of the best upstanding monuments of this type in Scotland, but evidence of Neolithic settlement is often scarce and difficult to identify with pits being a key resource.

In the Bronze Age the remains of domestic settlements begin to appear in the landscape along with evidence of ceremonial activities. The latter comprises for the most part upstanding remains such as barrows, burnt mounds, and burial cairns and includes the two enclosed cremation cemeteries (Canmore IDs 47394 and 74516) located in Camps Valley. Visible evidence of domestic settlement within the project area and the immediate surrounds comprises a large number of artificial platforms excavated into the hillsides. The act of excavating a scarp into a slope and casting the material into an apron to create a platform for a roundhouse is known from south-west England to Sutherland in northern Scotland and for the most part can be interpreted as a reaction to local topography. The densest concentration of artificial platforms lies in the borders of Scotland and particularly the Clyde and Tweed Valleys where they are thought to be Bronze Age in date. Here the platforms are grouped together in lines and clusters to form settlements that represent clear entities – a characteristic not seen elsewhere in Britain. Some appear to be found in association with clearance cairns that are indicative of agriculture, otherwise very little in the way of upstanding evidence for field systems is known. Nearly 60 individual platforms are recorded on the northern and southern slopes of Midlock Valley alone, demonstrating extensive settlement overlooking the river there in the 2nd millennium BC.

Late prehistoric evidence abounds in the Clyde Valley with a number of Iron Age enclosures and hillforts lining the slopes above the river (Lock

Illus 2.4 View of compound area by White Gill Wood, above Whelphill taken during ACoW check. (© Headland Archaeology (UK) Ltd)

& Ralston 2017). These include the hillforts at Bodsberry Hill (Canmore ID 47288) and Devonshaw Hill (Canmore ID 47343) and the enclosures at Woodend (Canmore ID 47355) and Hillend (Canmore ID 47370). Following their arrival in the late 1st century AD, Roman armies would have marched past these hillforts as they advanced north and they left behind evidence of their occupation in the form of forts and camps, such as Wandel (Canmore ID 47371), and roads (such as Canmore ID 71654), which are today overlain in places by modern roads and farm tracks.

The remains of agricultural activity dating back to the medieval period are still visible in the landscape; across much of the sloping ground in the Clyde and Midlock Valleys extensive areas of rig and furrow cultivation are known from aerial photos and LiDAR (National Library of Scotland 2022). The varied alignment of the rigs, along with other agricultural elements such as field dykes, would suggest more than one phase of farming is represented.

2.5.2 Summary of Archaeology Uncovered During Construction

The archaeological remains uncovered during the wind farm project revealed evidence of human activity from the Mesolithic through to the mid-2nd millennium AD. For the purposes of this publication, they are divided into four loci (named in bold below) based on the landscape in which they were uncovered (Illus 2.2). The most northerly excavated area, **Woodend**, was located on a gravel terrace 300m east of the River Clyde north of Wandel Burn – a minor tributary of the Clyde. Here the development clipped the perimeter of a double ditched cropmark known from aerial photographs. The field team excavated both ditches and uncovered a probable concentric palisade trench. The broadest ditch appeared to have had a bank on its inner edge and several features including post-holes forming a structure were excavated within the interior. Finds of industrial waste and lithics were recovered from the fills of the features and the site is interpreted as an Iron Age enclosure.

Forty-eight features were excavated within **Camps Valley**. The features comprised charcoal rich pits, all around 1m metre in diameter, from which samples of charcoal provided radiocarbon dates from the Mesolithic to the Iron Age. Shallow spreads and arcs of post-holes were also recorded, which hint at longer and more substantial occupation.

A greater density of features was uncovered within **Midlock Valley** immediately south of Camps Valley. On the northern side of the valley four Bronze Age roundhouses forming part of an extensive unenclosed platform settlement (UPS) were excavated along with several features that date to earlier and later phases. The southern slope contained a scatter of features including a pit containing fragments of a Bronze Age Cordoned Urn. An Iron Age roundhouse and two long enclosures were excavated south of the river at the base of the southern slope. The valley floor had a concentration of pits some of which contained significant quantities of iron slag and were dated to the early historic period. The remains of a medieval structure were found immediately to the south of the UPS. Further up the slopes a scatter of features was uncovered.

The most southerly excavated area, **Newton Plantation**, was located on the banks of the Clyde south of the Camps and Midlock Valleys and comprised an insubstantial collection of features. They are interpreted as the remains of a post fence of Iron Age date with associated pits that provided evidence of non-ferrous metalworking.

In addition to the excavations, a single environmental core sample was taken at a small wetland area in Camps Valley (the location is shown in Illus 4.2). Twenty pollen samples were taken from the core and two charcoal samples were sent for

radiocarbon dating. The aims were to reconstruct the former regional woodland; to identify evidence of human-environmental interaction (such as cereal and/or pastoral farming and woodland clearance); and to establish the chronology of any disturbance events and peat accretion. One of the key aims was to identify what arboreal taxa would have been around in the prehistoric and later periods which could have been used for wood fuel, and to see whether the dearth in oak charcoal in the environmental samples collected from the excavations was a true reflection of a lack of oak in the landscape or a product of other trees being favoured over oak to provide wood fuel. Unfortunately, the sequence recovered did not provide information from earlier than the Late Bronze Age.

The results of the analysis are detailed in the specialist report (Timpany 2015) but in summary the interpretation of the pollen core showed that during the Late Bronze Age the landscape comprised largely open wet grassland with some heath cover. Scrub woodland was present consisting mainly of birch and hazel with scattered pockets of alder, ash, and willow in wetter areas and oak, pine, elm, and rowan elsewhere in the landscape. There was a two-stage loss of woodland, firstly in the early historic period, and secondly in the medieval period. Areas of heathland were present at the beginning of the peat accumulation in the Late Bronze Age. These areas expanded during the Iron Age then declined in modern times. Three main phases of cereal cultivation were recorded; first barley cultivation was identified in the Late Bronze Age along with mire burning, which may have been to encourage the presence of browse for grazing animals. It appears that there was a possible abandonment of farming activity in the area around the Late Iron Age. The second phase dates to the early historic period with the sporadic occurrence of barley pollen coinciding with the loss of woodland. The early historic period was also shown to have experienced a period of increased wetness which may signify a more wide-scale climatic change. The third phase dates to the medieval period and sees a switch from barley to oats along with evidence for arable farming, coinciding with the second loss of woodland. The results of the pollen work have been woven through the following chapters.

2.6 Research Questions

Potential research objectives were identified following the excavation phases of works and were tied into period-specific research agendas as laid out in the Scottish Archaeological Research Framework (ScARF 2012a, 2012b, 2012c, 2012d, 2012e). These are summarised below by landscape unit:

Woodend – How does the site sit in the landscape and how does it relate to the Roman road to the west and Iron Age hillfort to the north? How does the site add to the corpus of known enclosed settlements? Are there domestic and/or metalworking activities on site?

Camps Valley – What activities are represented by the features? Can these activities be classed as domestic or ritual or both? Is the use of the features temporary, seasonal, or permanent? How do they relate to the Normangill Henge? Given the presence of features above 350m OD does this change current thinking on where Neolithic activity was located?

Midlock Valley (Neolithic and Bronze Age) – How do the earlier features compare with the discoveries from Camps Valley? Are the platform structures in use at the same time, or is there a sequence of development? Can specific activities at different platforms be identified? What is the relationship between this site and sites south of the river? What is the importance and relevance of the earlier and later features?

Midlock Valley (Iron Age) – What is the relationship between the roundhouse and the enclosure? How do they relate to the features further up the hill? Does Midlock Water represent a dividing line between a space for domestic activity and a space for ceremony?

Midlock Valley (early historic) – At what scale is the activity taking place?

Newton Plantation –What can the results of the excavation say about the nature of Iron Age settlement in the area? How does it compare with nearby Iron Age evidence?

Considering the landscape as a whole in general – What different landscape units are present? How do they fit within the broader landscape of the Upper Clyde Valley? Is the landscape divided by specific periods or certain types of site? What are the advantages and disadvantages of the strategy for this type of development programme?

2.7 Organisation of Report

This publication comprises a synthesis of the assessment reports and incorporates the results of the specialist finds and environmental analysis (the assessment reports and analysis are contained in the site archive which will be deposited with NHRE and the specialist contributors are acknowledged in section 8). It is organised by landscape starting with the northernmost discoveries and moving south; as already noted, four distinct landscape units are identified, comprising Clyde Valley North (Woodend), Camps Valley, Midlock Valley, and Clyde Valley South (Newton Plantation). The contrast between each unit is not just topographical but archaeological. Camps and Midlock Valleys both appear to be enclosed with steep sides forming almost a bowl shape whereas the valley of the Clyde near Wandel Burn is more open with gently sloping sides. Camps and Midlock Valleys are on either side of one ridgeline but contain contrasting archaeological remains.

Each chapter is devoted to a landscape unit. Following a section introducing the landscape unit and the excavation areas, the text details the material used for dating including radiocarbon dating. The state of knowledge regarding the relevant archaeology of each landscape unit prior to the investigations is summarised. The chapter then describes the archaeological remains uncovered, provides a synthesis of the environmental and finds analysis, and pulls together a discussion of the results. Tables showing the details of the radiocarbon dates for the excavated areas are included in each chapter, although an overview of the dating is provided below. The final chapter discusses the results in the context of the landscape and also offers some thoughts on the approaches used during the project for managing the archaeological resource.

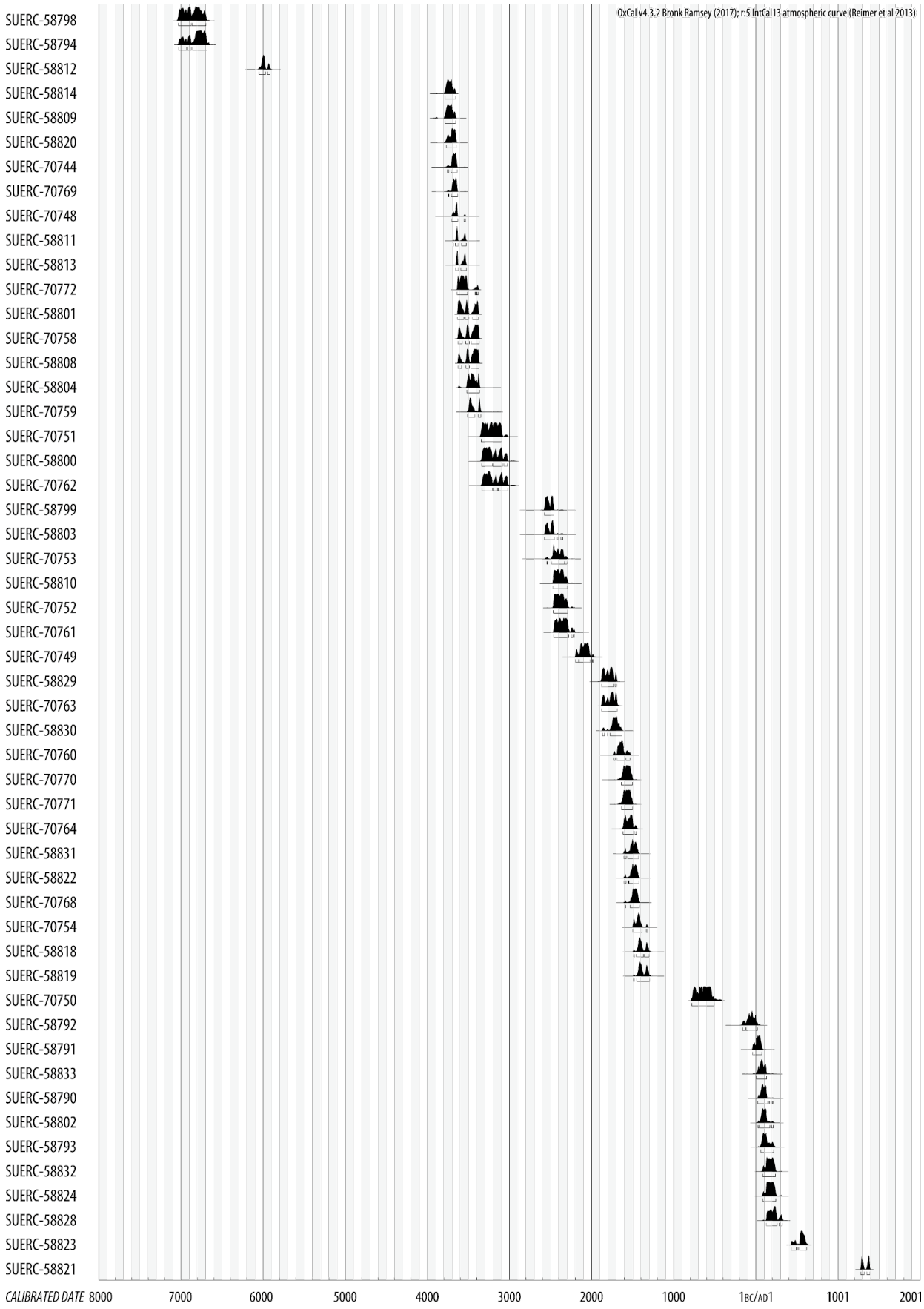
The ACoW role was undertaken by six different archaeologists over the eight-year period of construction and the principles used for numbering the sites and features went through an evolutionary process that made sense at the time. In general, the first digits of a context number reflect the internal job code assigned to the phase of the project (for example 13) followed by a hyphen and the number assigned to the context (thus C13-0008).

2.8 Dating

Dating of features was based on the analysis of artefacts recovered from the fills of the features combined with a programme of radiocarbon dating. Almost 1,500 contexts were recorded during the project and 638 environmental bulk samples were taken. The main objective of the radiocarbon dating programme was to obtain dates for the majority of the structures and significant features in order to produce a chronological framework for the different sites. Environmental material such as charcoal fragments, burnt bone, and in one case residue from a pottery fragment was selected for radiocarbon dating with primary deposits, for example hearths, areas of in situ burning, and deliberately deposited contexts being prioritised for analysis. In some instances, samples containing suitable material but with less contextual security were selected for radiocarbon dating in order to allow a broad range of features to be potentially dated and chronologically compared. The material dated and the contextual security of the dates is explored within the feature descriptions. A total of 52 radiocarbon dates were obtained, each providing a single date for the feature selected. The relevant results are presented in tables within each chapter and Illus 2.5 shows the calibrated dates in a timeline produced from the collation of those results. All dates were calibrated using OxCal v4.3.2 (Bronk Ramsey 2017); r5; IntCal 13 atmospheric curve (Reimer et al 2013) with endpoints rounded outwards by 5 for those presented in text (following Mook 1986).

The timeline covers the periods from *c* 7000 BC to AD 1400 with apparent breaks between *c* 6000 and 4000 BC and *c* 1200 and 200 BC (only one date falls between the latter pairing). This wide span of activity is a result of the scale of the project area and reflects the most likely prehistoric and historic periods to be uncovered during archaeological investigations of a substantial swathe of the Scottish landscape. It also results from the random (from an archaeological perspective) nature of the construction process in that the excavation areas were not selected by archaeologists but were the result of decisions made by the design of the scheme. The dating shows that at most sites (except Newton Plantation – Chapter 6) there was a sequence of repeated returns to the same location.

This publication uses the following breakdown and terminology of chronological periods: Mesolithic (12700 – 4100 BC), Early Neolithic (4100 – 3500 BC), Middle Neolithic (3500 – 3000 BC), Late Neolithic (3000 – 2500 BC), Chalcolithic (2500 – 2200 BC), Early Bronze Age (2200 – 1550 BC), Middle Bronze Age (1550 – 1150 BC), Late Bronze Age (1150 – 800 BC), Early Iron Age (800 – 100 BC), Late Iron Age (100 BC – AD 400), early historic (AD 400 – 1100), medieval (AD 1100 – 1500), and post medieval (AD 1500 – 1750).



Illus 2.5 Plot of radiocarbon determinations in the form of an AMS timeline for Clyde Wind Farm. (© Headland Archaeology (UK) Ltd)