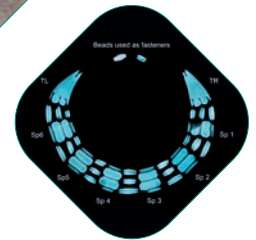
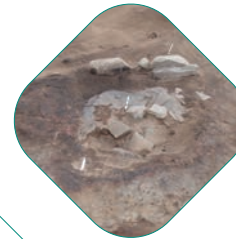


Dunragit

The Prehistoric Heart of Galloway

by Warren Bailie



The project is funded by



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Foreword

This illustrated book, ‘Dunragit: The Prehistoric Heart of Galloway’ is the culmination of eight years’ work (2012–2020) on the archaeological remains discovered along the route of the A75 Dunragit Bypass.

This publication presents the findings of both the archaeological excavations and the subsequent post-excavation analysis. Written in an accessible format, the book presents the results of these extraordinary archaeological investigations to a wide-ranging audience. A monograph presenting more detailed results of these archaeological investigations will follow.

The £17.1 million bypass project opened in March 2014. This involved the construction of a new 5.3 kilometre stretch of the A75 and delivers a number of benefits for the economy and road users, including improved journey time reliability, safety and connectivity.

Transport Scotland place great importance on meeting our environmental obligations as we plan and construct essential new infrastructure. In advance of the construction of the bypass, several

archaeological mitigation measures as identified in the Environmental Statement were incorporated into the works. Extensive archaeological surveys were undertaken prior to and during the construction works and significant finds dating back over 9,000 years were recorded. These included archaeological remains from the Mesolithic, Neolithic, Bronze Age and Iron Age periods. These discoveries are documented within this publication and provide a fascinating glimpse into the past.

This publication also represents the work of many dedicated archaeologists. I would like to take this opportunity to thank all those at Guard Archaeology, in particular Warren Bailie and John Atkinson, for undertaking the necessary investigations and producing this detailed account of the lives of our prehistoric ancestors in Galloway.

I hope you enjoy this informative account of the Prehistoric Heart of Galloway.

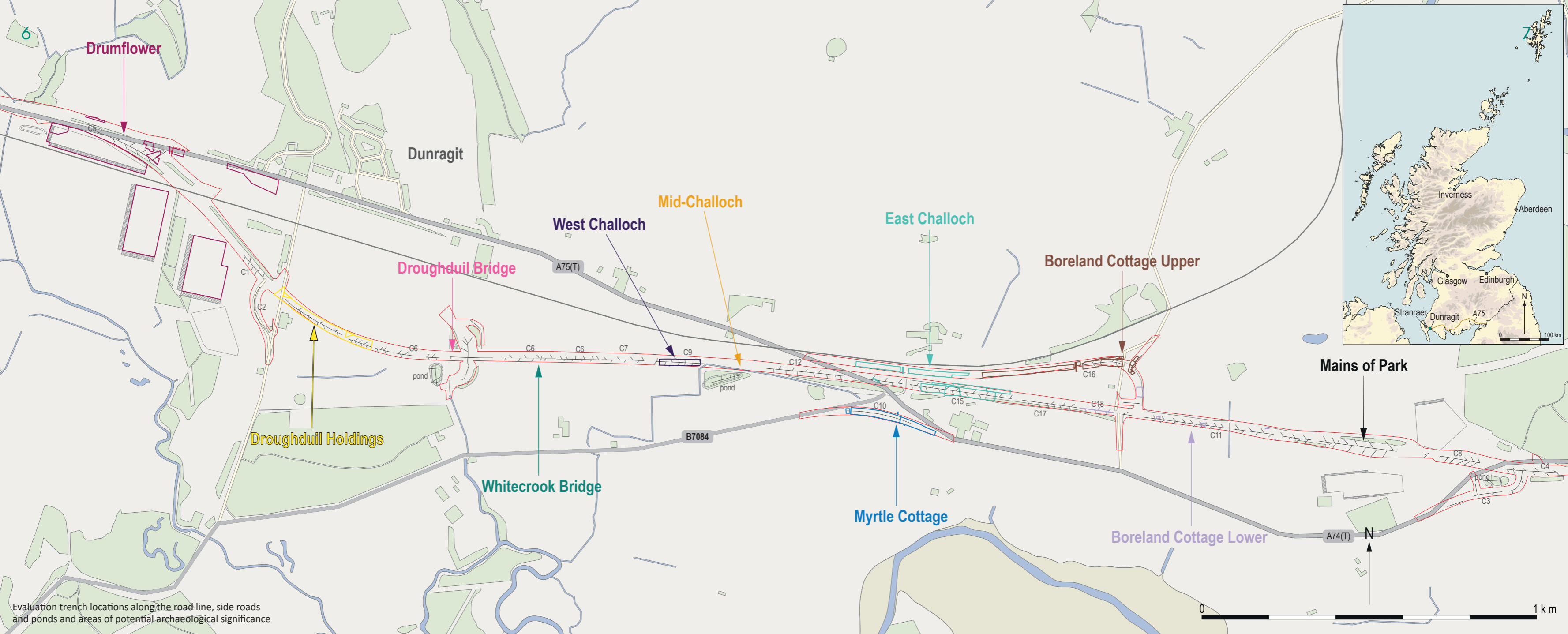
Roy Brannen
Chief Executive
Transport Scotland

Acknowledgements

GUARD Archaeology Ltd would like to thank Transport Scotland for commissioning us to undertake the post-excavation works. Particular thanks go to Ed Danaher, their Archaeological Adviser for reviewing earlier drafts. Special thanks go to archaeologist Declan Hurl (Amey plc) for his support and guidance throughout the advance works, and to Andy Gillan of R. J. McLeod during the construction phase of the project. We are also indebted to Sally Hales of Mouchel, Rod McCullagh (formerly Historic Environment Scotland) and the late Jane Brann, Dumfries & Galloway Council Archaeologist for their support throughout the fieldwork phases of the project. The excavations were directed by Warren Bailie and Kevin Mooney with assistance from Iraia Arabaolaza, Alan Hunter Blair, Maureen Kilpatrick, Christine Rennie and Beth Spence. Technical support was from Aileen Maule and John Kiely.

We would also like to thank the many specialists who contributed to the post-excavation works; Diane Alldritt, Torben Ballin, Beverley Ballin Smith, Gemma Cruickshanks, Derek Hamilton, Fraser Hunter, Carol Lang, George McLeod, Susan Ramsay, Rick Schulting, Alison Sheridan, Christophe Snoeke, Catherine Smith, Richard Tipping and Clare Wilson. Radiocarbon dates were produced by Paula Reimer and Stephen Hoper of Queen’s University Belfast (CHRONO Lab) and SUERC.

The desk top publishing was carried out by Gillian Sneddon, and graphics were produced by Gillian Sneddon with assistance from Jennifer Simonson, Jordan Barbour and Nieves Ruiz Nieto. The academic editor for the work was Dr Kenny Brophy of Glasgow University. The project was managed for GUARD Archaeology Ltd by Dr John Atkinson.



Evaluation trench locations along the road line, side roads and ponds and areas of potential archaeological significance

Summary

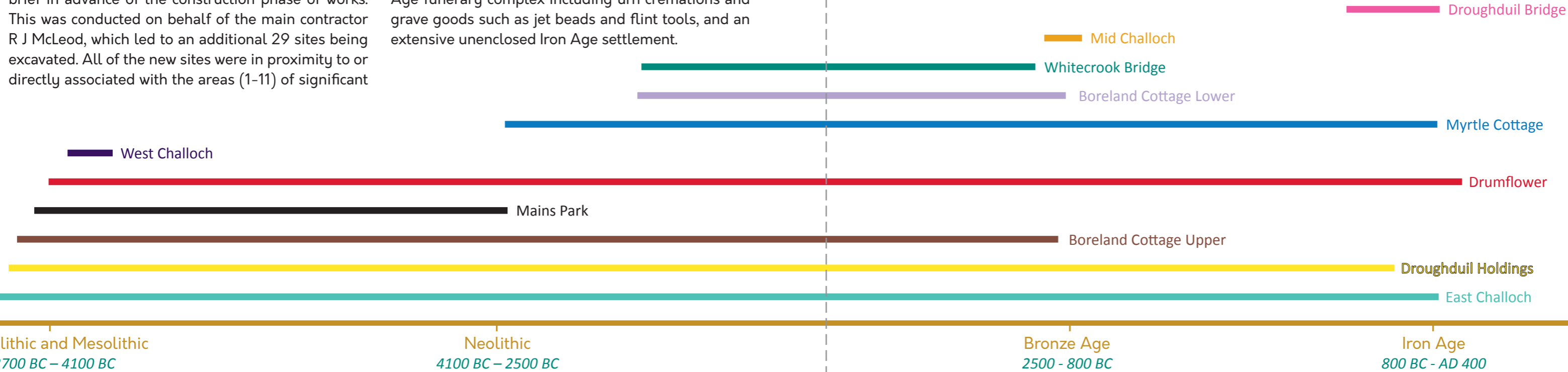
An archaeological evaluation was carried out by GUARD Archaeology Ltd in collaboration with Amey plc along the line proposed for the A75 Dunragit Bypass. The trial trench evaluation of 10% of the 7.4 km development route (including 5.3 km bypass and new side roads) identified eleven main areas of potential archaeological significance. Ten of these eleven sites were investigated further by a watching brief in advance of the construction phase of works. This was conducted on behalf of the main contractor R J McLeod, which led to an additional 29 sites being excavated. All of the new sites were in proximity to or directly associated with the areas (1-11) of significant

archaeology established during the evaluation. The various sites have been grouped and named using local landmarks (see overview of route with site locations). The archaeological sites discovered during these works represents the rich prehistoric past of this area of the Dumfries and Galloway coastline over some eight millennia. Among the main findings were Mesolithic and Neolithic structures, a Bronze Age funerary complex including urn cremations and grave goods such as jet beads and flint tools, and an extensive unenclosed Iron Age settlement.

Periods and Dating

Although there is continued debate on where periods in prehistory begin and end, influenced by new research and excavations, it is important to set out the current approximate date ranges for each period discussed here. This will enable the reader to understand the framework in which the

archaeological discoveries are described. These date ranges are sourced from the Scottish Archaeological Research Framework which draws on the expertise, knowledge and debate from leading specialists and academics in their relevant period (<https://www.socantscot.org/research-projects/scarf/>).



Palaeolithic and Mesolithic
12700 BC – 4100 BC

Neolithic
4100 BC – 2500 BC

Bronze Age
2500 - 800 BC

Iron Age
800 BC - AD 400

Introduction

In August 2012, GUARD Archaeology Ltd began to investigate the route of the A75 Bypass around Dunragit by an archaeological evaluation. From the outset it was known that the area around Dunragit was rich in prehistoric archaeology, but no one could have expected the wealth of sites that lay undiscovered, finds spanning some eight millennia, making it worthy of the title 'The Prehistoric Heart of Galloway.'

Archaeological evaluations are often required for planning developments where there is potential for unknown archaeology to be encountered, which would otherwise be destroyed by the proposed development before being investigated and recorded.

On reviewing the record of known sites in the Historic Environment Record for the area, it was clear that there was high potential for previously unknown prehistoric archaeology to survive along the route. The main aim of the evaluation was therefore to establish whether any significant archaeological remains survived below the surface along the proposed route of the bypass road.

The initial trial trenches encountered some pits and linear features, some containing lithics, stone tools, prehistoric pottery and other material culture.

The archaeological fieldwork progressed over the following 19 months into the excavation of hundreds of archaeological features, occupation layers and structures, distributed over much of the length of the bypass route.

The excavations, and subsequent analyses of the finds and samples, revealed some of the most significant archaeological discoveries in Scotland in recent decades. A series of archaeological sites spanning eight millennia included rare Mesolithic settlement activity, Neolithic ritual activity, Beaker period burials, Bronze Age ritual and funerary evidence, a series of burnt mounds and an Iron Age settlement.

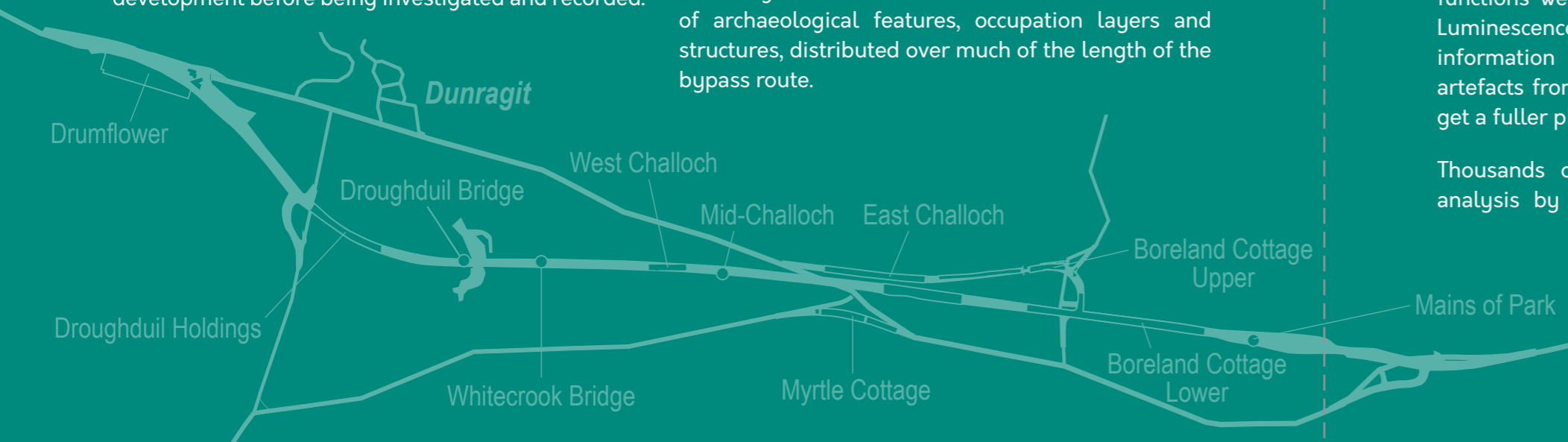
Each archaeological feature was painstakingly excavated and recorded. All of the artefacts, which mainly comprised stone tools and pottery sherds, were recovered for examination by specialists to identify what periods they dated to and what their functions were. Together with Optically Stimulated Luminescence (OSL) and radiocarbon dating, this information was compared with assemblages of artefacts from across Scotland and further afield, to get a fuller picture of the significance of the sites.

Thousands of soil samples were also taken for analysis by an archaeobotanist to determine the

species of plants and wood present to build up a picture of the environment and economy of prehistoric Dunragit over the past eight thousand years.

The presentation of this information ensures that the archaeological remains of prehistoric Dunragit are not forgotten and that the picture of life thousands of years ago is better understood.

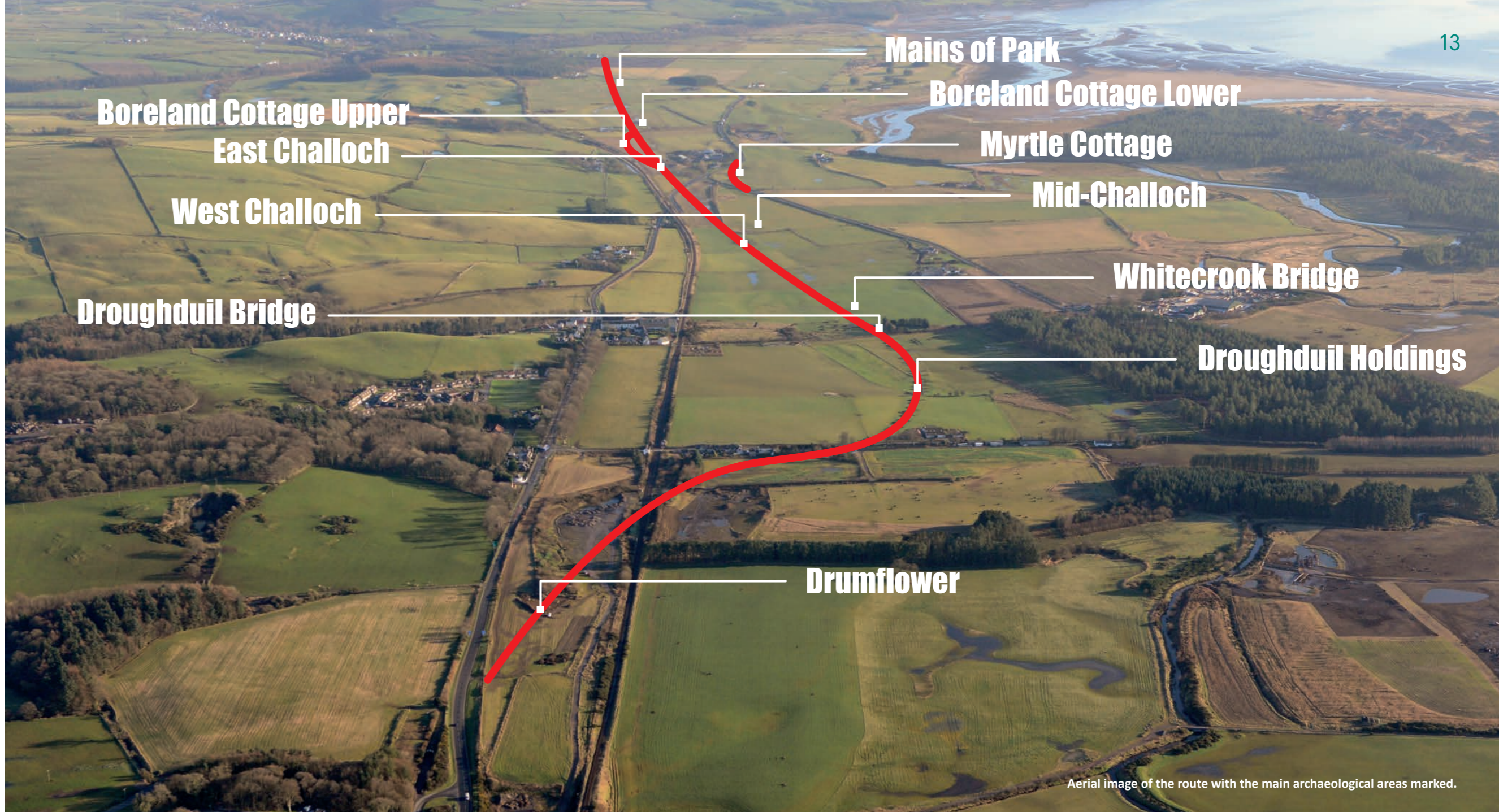
This publication describes the results of archaeological fieldwork undertaken in 2012-2013 by GUARD Archaeology Ltd, having been commissioned by Amey plc and RJ McLeod on behalf of Transport Scotland. Following the archaeological fieldwork GUARD Archaeology Ltd were commissioned by Transport Scotland in 2018 to undertake the necessary post-excavation analyses and dating to bring the results of the work to publication. These results form the basis of the interpretation and discussion for the archaeological sites encountered.



A75 Bypass Route showing various archaeological sites.

The settlement of Dunragit is located at NGR: NX 14911 57544, 10 kilometres east of Stranraer and 2.5 kilometres north of the Irish Sea shoreline. The topography of the area is varied with agricultural land used for both pasture and arable crops. The new A75 Bypass traverses the low lying expanses of a former estuarine landscape and glacial deposits, forming slightly higher ridges northwards from the current shoreline.

The underlying superficial geology varies between glaciofluvial and alluvial deposits of silt, sand and gravel, while the bedrock varies between Loch Ryan Formation - sandstone formed approximately 251 to 299 million years ago in the Permian Period and Shinnel Formation - wacke formed approximately 444 to 461 million years ago in the Ordovician Period (www.bgs.co.uk).



Boreland Cottage Upper
East Challoch

West Challoch

Droughduil Bridge

Mains of Park

Boreland Cottage Lower

Myrtle Cottage

Mid-Challoch

Whitecrook Bridge

Droughduil Holdings

Drumflower

Aerial image of the route with the main archaeological areas marked.

Brief outline of the project

The archaeological excavations along the Dunragit Bypass were undertaken to fully investigate the archaeological remains and recover all artefacts and take relevant samples before the construction of the road could go ahead.

Once the evaluation trenches had revealed the presence of prehistoric archaeological features along the route, the removal of topsoil around them was monitored by archaeologists. It quickly became apparent that prehistoric features (pits, postholes structures and other deposits) were present along much of the route, and the stripping of the topsoil took place in line with the construction programme

over several months. As the archaeological features were uncovered and investigated, a series of major prehistoric sites was discovered.

The fertility and wealth of this coastal area around Dunragit is reflected in the construction of at least two major timber enclosures and their associated timber avenues at Dunragit and Drumflower. The archaeology discovered along the bypass route represented other contemporary activity peripheral to the communal focal points of Dunragit and Drumflower, but also revealed was evidence for extensive exploitation of the landscape long before, and after, the use of the two timber complexes.

part 1: Landscape past to present

Richard Tipping¹, David Smith² and Jason Jordan³

¹: University of Stirling; ²: University of Oxford; ³: University of Coventry

Introduction

It is hard to find anywhere else in the British Isles with such a dramatic and instructive story of recent climatic, landscape and environmental change within easy reach of such a short and seemingly innocuous stretch of new road as the Dunragit bypass. This section explores what changed, where, when and why. Some parts of the story remain unclear, as we'll see, whilst others have come into sharp focus only very recently.

Imagine standing on the by-passed road through the village of Dunragit. You are standing on stony clay left by the last ice-sheet some 17,000 years ago which is geologically very recent. Look south and almost everything you see is much younger in age, a landscape created by the raw power of the sea, though not only ceaseless effects of tidal power. The

forces that drove landscape change have their roots in the last ice age. When ice-sheets several kilometres thick grew globally 25,000 years ago, they had two major effects on the planet. First, they stored as ice, water that should have been in the oceans, and lowered global sea level by 120 metres: you could walk across the continental shelf to St. Kilda, though not to Ireland. Second, the weight of the ice-sheets forced down the Earth's crust. At the end of the last ice age some 12,000 years ago these changes were set in reverse but at different rates. Ice-sheet melting elevated global sea levels very rapidly so that by 7000 years ago they were as high as they naturally could be. The rate the land rose, released from the weight of the ice-sheets, was much slower. Standing for a long time in Dunragit, sea level would appear to rise before 7000 years ago and fall after this.

Sea level rise and flooding

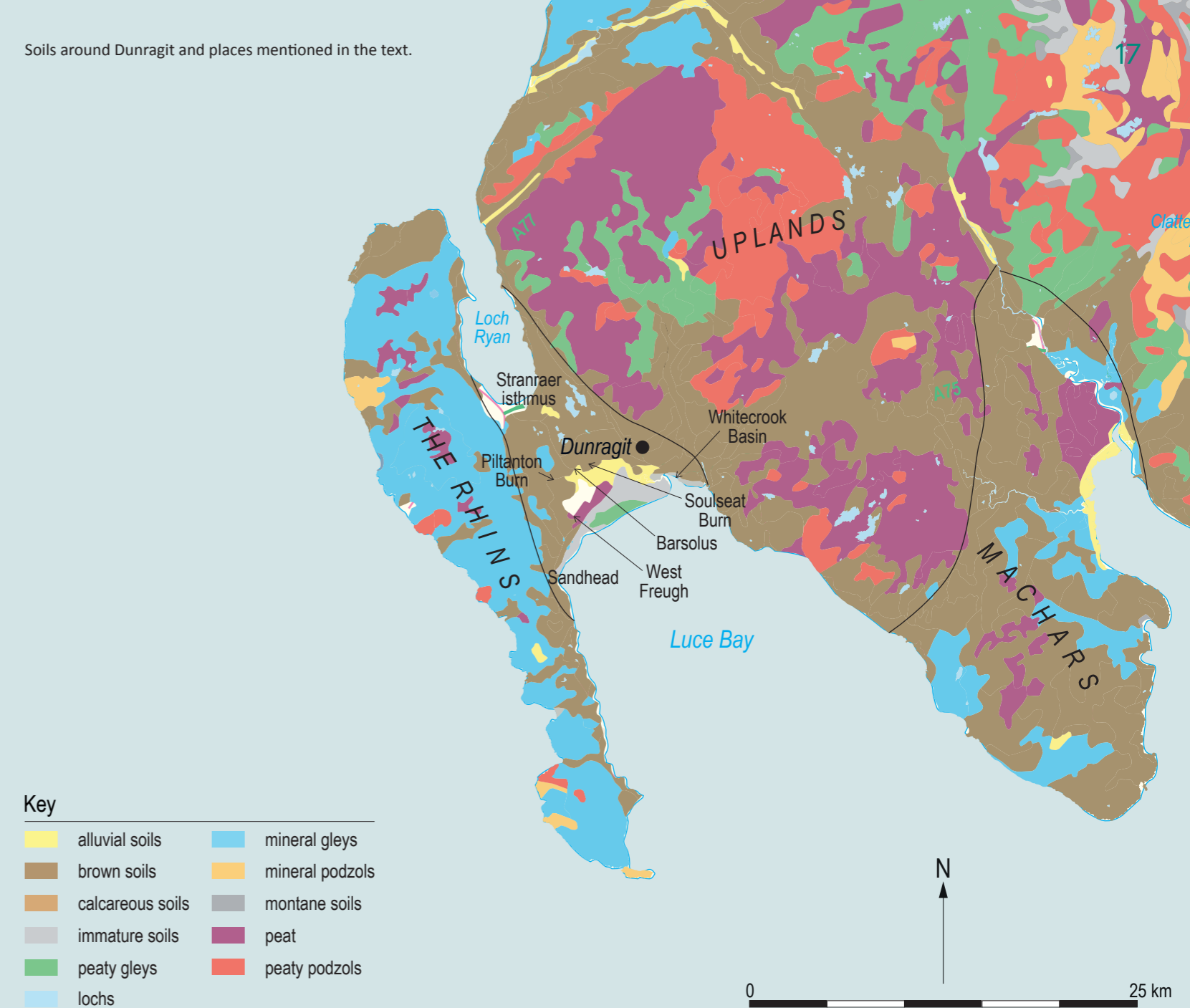
Looking west from Dunragit 12,000 years ago, when sea level was around 12 m below where it is now, you would see the broad surfaces of gravel terraces filling the isthmus between Dunragit and The Rhins, formed by high-energy fresh water rivers from the melting ice-sheet. By 12,000 years ago, they were stable and vegetated, pierced by long, narrow and straight NW/SE trending river valleys flowing from Loch Ryan, the last escape-routes of meltwater, and studded with lakes formed by melting ice, filling with sediment and peat.

Scotland was rising, but sea level was rising faster flooding what had been dry land and it pushed into the narrow meltwater channels first with mud replacing peat. Microscopic animals in the mud, called diatoms, reveal how salty the water was. The earliest estuarine mud, 1.5 m higher than the present sea level in Luce Bay (4.9 m OD), pushed into the Soulseat Burn at Barsolus in the west around 8500 years ago, dated by radiocarbon.

Over the next 2000 years the sea continued to remorselessly flood the Piltanton Burn, accelerating at times in response to the collapse of ice sheets across the Atlantic Ocean. It pushed up all the valleys, culminating by 6350 years ago in a sea level almost seven metres higher than at present in Luce Bay (c. 10 m OD), and creating an almost land-locked lagoon west of Dunragit. The slender ridge of high ground between Sandhead and West Freugh is partly made by meltwater gravel, but also by beach-like gravel ridges that grew as sea level rose and pushed eastward through longshore drift. The Piltanton Burn was not an open bay, though the ridges may have been overtopped by storms.

South-east of Dunragit, water in the Whitecrook Basin, closed at the west and east ends, drained south through a narrow gap next to The Old Schoolhouse, now a drainage ditch. East of The Old Schoolhouse to Whitecrook, a cliff was cut into older gravels by the highest seas around 6350 years ago. Before that, the sea broke into the Whitecrook Basin, 8200 years ago, and filled it to 7-7.4 m OD, 6.5-7 m above present sea level in Luce Bay.

Soils around Dunragit and places mentioned in the text.



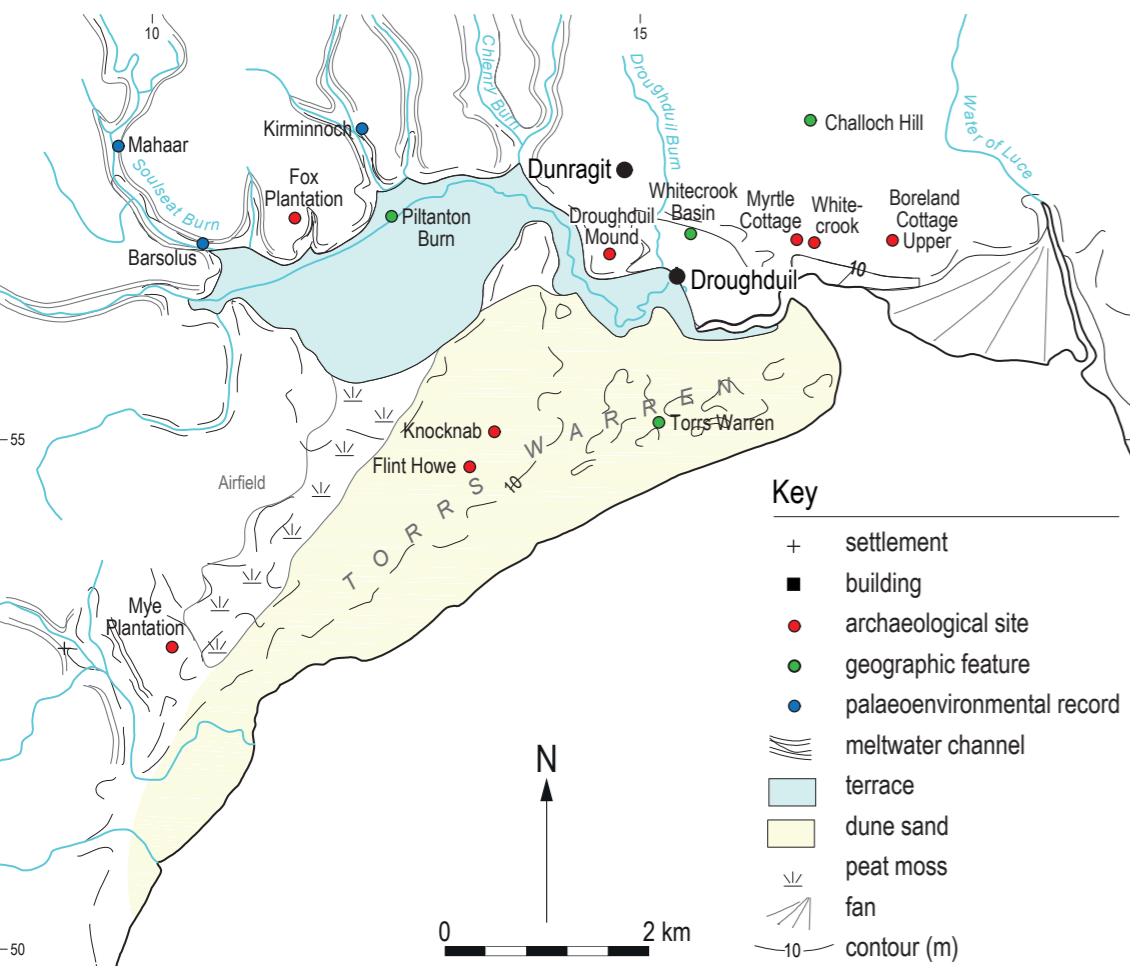
Dune formation on Torrs Warren

Sand dunes began to accumulate on top of the beach ridges at Clayshant, pushed onshore by rising sea levels and probably drifting northward over time. We don't know when the dunes were first formed but Mesolithic flints have been reported. The earliest radiocarbon- or pottery-dated archaeological sites in them are 6000-5700 years old. Sand blew across the Piltanton Burn and piled up on the southern side of the Whitecrook Basin, perhaps from c. 4650 years ago where they are found under the Droughduil Mound.

Sea level, the Dunragit ritual complex and the Droughduil Mound

When sea level then fell, in relative terms, estuarine mud was replaced by freshwater peat, which can be radiocarbon dated. Sea level fall is detected earliest furthest from the sea, at Mahaar where it began around 5400 years ago. Around the rim of the Whitecrook Basin, higher than the highest sea level, is the Neolithic ritual complex at Dunragit (Thomas 2015), the earliest feature constructed around 5650 years ago when sea water still filled the basin at high tides. Indeed, given the c. 5 m tidal range, the Whitecrook Basin will have dramatically filled and emptied every day, attracting the interest of early settlers. The Droughduil Mound lies across the basin from the ritual complex, and is probably later at c. 4600 years old. By then the sea level had fallen by, maybe, a metre but during the highest tides it may still have appeared almost island-like across the bay.





Landscape context for key sites of archaeological interest around the Piltanton Burn river terrace.

Falling sea level finally vacated the Whitecrook Basin 4450 years ago. Much of the Piltanton Burn lowland to the west may have been tidal long after this, as late as 2250 years ago, which may explain the very limited amount of prehistoric archaeology on the floor of the burn. With a falling sea level, already deposited blown sand could have been re-exposed and blown around but there is little evidence for this around the Droughduil Mound or in later prehistoric peat in the foredunes of Torr's Warren (Newell in Cowie 1996).

Land use change from pollen analyses

In the local environment of the Dunragit bypass, substantial areas of lowland were made unavailable for farming by sea level rise and its delayed fall until the late Iron Age. The Torr's Warren dunefield, though rich in archaeological findspots, could never have formed a focus for agriculture given its nutrient poor soil and inherent instability. Workable land in abundance near Dunragit is restricted to a wedge between Whitecrook and the Water of Luce and to the gravel terraces to and beyond Kirminnoch. Dunragit is very much on the eastern edge of the good land. To the north are the steep slopes of Challoch Hill and Craig Fell, with broken ground, skeletal acidic soils and expanses of blanket peat. The nearest pollen record is from nearby Cults Loch (Cavers and Crone 2012) but it is beset by severe dating problems and cannot be interpreted. Human activities in the dunes are hard to define from pollen analyses because natural processes can mimic those of people, but an

increased presence in and after the Roman Iron Age is likely (Newell in Cowie 1996). However, detailed work by Catherine Flitcroft (2005) at Lagafater, northeast of Cairnryan, characterises land use in the uplands directly north of Dunragit. Here an open, possibly wind-pruned alder-birch-hazel scrub was partly cleared, including crops, in the early to middle Neolithic, followed by woodland regeneration on higher ground after c. 5250 years ago. On lower ground around 200–250 m OD, farming was sustained, and it may have triggered blanket peat growth c. 4700 years ago. By 3800 years ago most of the hillside at Lagafater was effectively covered by Calluna heath on thin blanket peat. Human activities persisted, however, in 'islands' of grass between the heath, and after c. 2500 years ago may have become concentrated on lower ground below 250 m OD, and they were given over to pasture only in the last 1500 years.



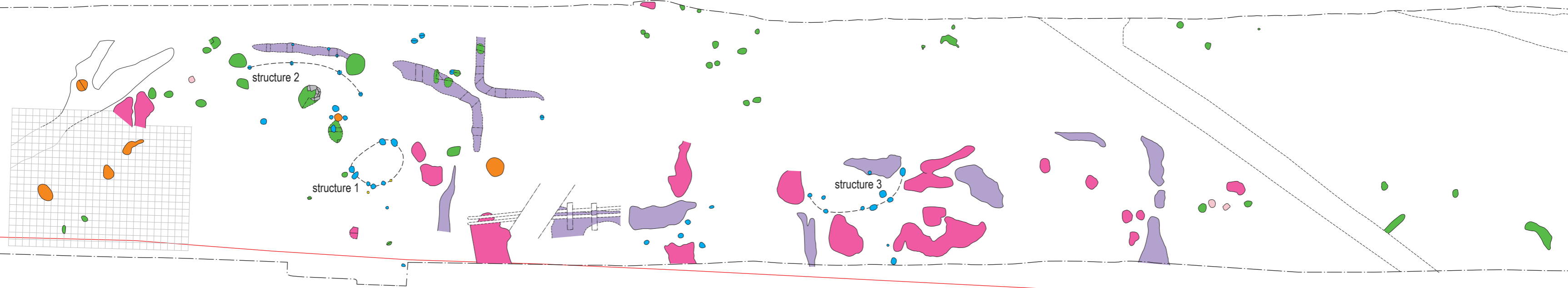
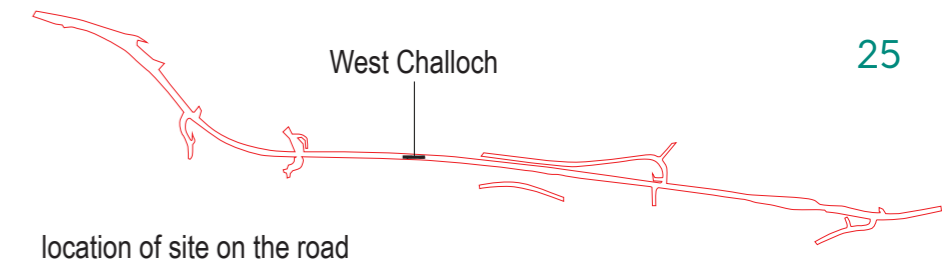
Mesolithic structure at West Challoch.

part 2: The Mesolithic

The coastal area around Luce Sands, to the south of Dunragit, is well known for its concentration of Mesolithic activity, with a number of flint scatters/findspots uncovered in close proximity to both the western Kirkmabreck (Canmore: 61114), and Balgowan (Canmore: 61122) and eastern shoreline Kilfillan (Canmore: 62253) and Gillespie (Canmore: 62254). However, only two sites, Low Clone and Barsalloch, both of which lie on the eastern shoreline of Luce Bay c. 22 km to the southeast of the Dunragit sites, have so far been excavated.

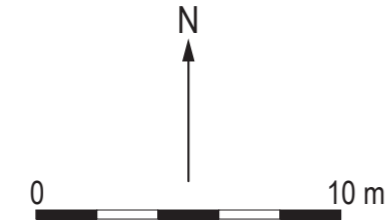
The evaluation in the West Challoch area revealed three features that on first inspection appeared to be postholes. The environmental investigation had suggested that this area was inundated by water until sometime in the Bronze Age, so why was there a possible structure here and how long ago did it exist? On excavating the postholes, lithic artefacts consistent with a Mesolithic date were recovered.

Around the area further postholes were revealed forming a 4 m diameter horseshoe-shaped structure (1). This was not a transient lean-to or brushwood shelter but was a substantially constructed timber hut. Outside the structure were a hearth and pits, some lined with flat stones, and containing hazel nutshells and other decomposed organic material. Around the structure and pits were gullies perhaps used to manage the water and maintain a dry area for the dwelling. Artefacts included pitchstone blade fragments, the earliest secure and dated contextual finding of pitchstone outside of the Isle of Arran in Scotland. Four deposits were used initially to confirm the date for the structure and related features placing it around the beginning of the late Mesolithic period, around 6640 to 7060 BC, the earliest Mesolithic structure in south-west Scotland. Other features including two hearths just west of this structure were dated to around 7810 to 7530 BC showing that the activity extends back into the early Mesolithic.



Key

pit	ditch/gully	hearth
posthole	deposit	edge of road take
pit or posthole	stakehole	structure



Plan of West Challoch, showing the main structures and other features, the gridded excavation at the west end was for the recovery of lithics.

Following this initial discovery, the full extent of the Mesolithic activity at this location was revealed by removing the remaining topsoil. There was more activity immediately west of the first structure, with at least two other structures and a large knapping area with thousands of flint tools discovered. The lithic artefacts were recovered using a grid system, sieving the soil on site and retaining 50% for sieving in the lab afterwards. In total, almost 15,000 lithics were recovered from the grid. The mapping of the lithics across the grid tells us how the area was used, and it even shows us where individuals were sitting/kneeling while knapping flint. It provides a remarkable insight into the lives of those people occupying this estuarine area over 8000 years ago.



West Challoch Mesolithic artefact recovery showing excavation of the gridded area, Image by Hawkeye.



Grid excavation in progress (left) and detail of lithics in situ (top left).



The lithic analysis shows that the assemblage was predominantly of flint and this would have come from the beach edge along the Solway Firth. The technology of the knapping, and resulting tools, is typical of the middle Mesolithic although there was one item that stood out from the crowd. A very rare Late Upper Palaeolithic 'zinken' (a curved piercer) was discovered. This was likely to be residual, meaning left behind from previous activity, but it shows that this part of the coastline was being utilised up to 14,000 years ago, at the end of the last ice age.

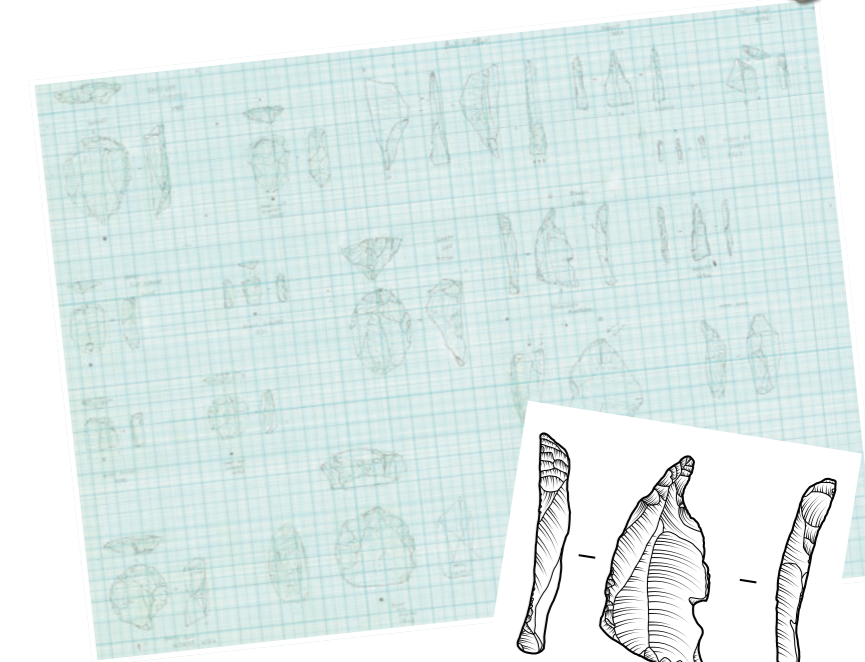


Image showing lithic analysis in progress (left) and detail image and drawings of Late Upper Palaeolithic 'zinken' (right).



Aerial photograph of Dunragit showing locations of Droughduil Mound, Dunragit Complex and Drumflower Bridge.

part 3: The Neolithic activity

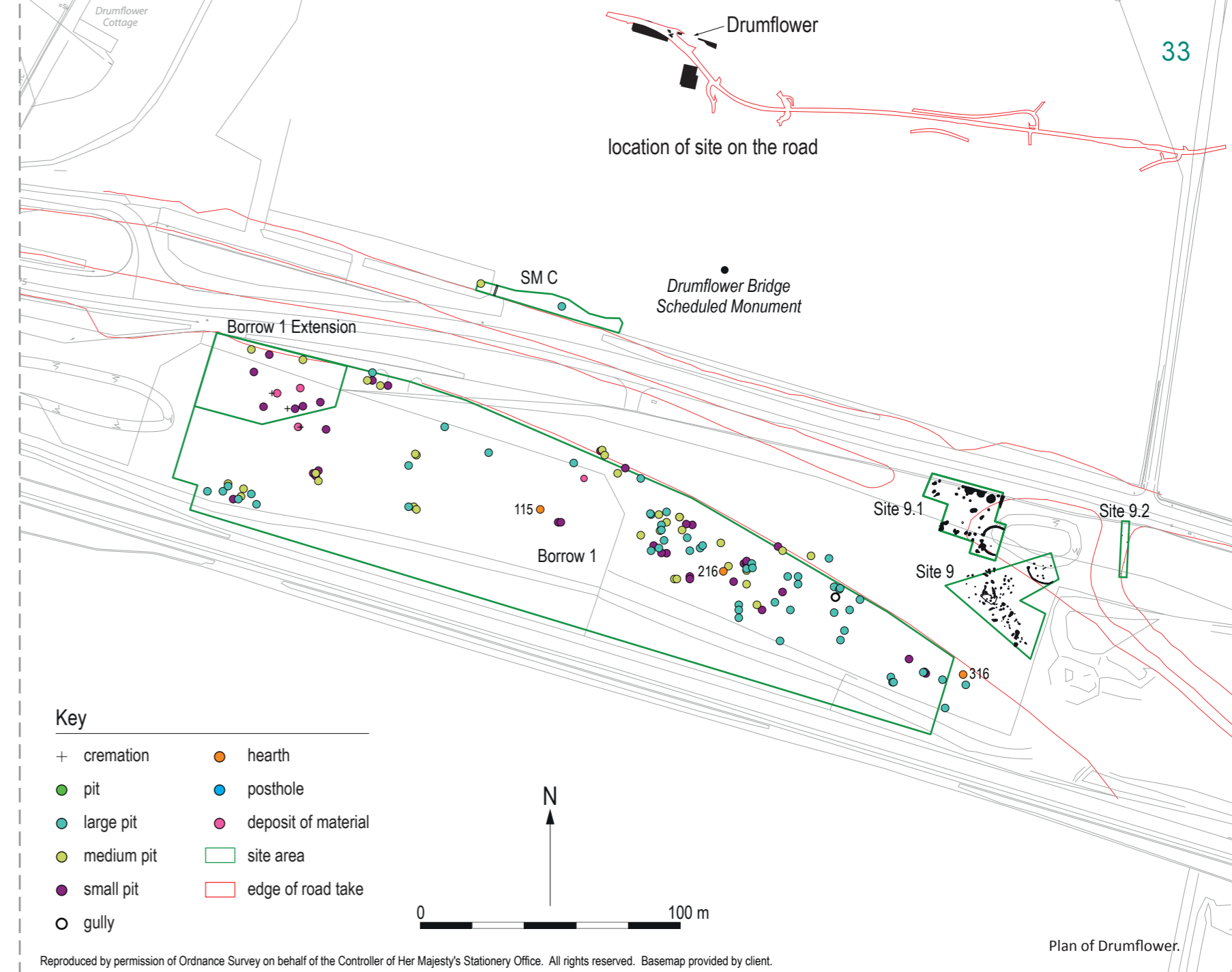
As mentioned previously, even before the archaeological fieldwork began, significant Neolithic cropmark complexes including enclosures and pit alignments were noted by Historic Environment Scotland as Scheduled Monuments south of Dunragit (SM5852) and around Drumflower Bridge (SM5790). Excavations conducted by Julian Thomas (2015) in 1999–2002 at Dunragit's Scheduled Monument, revealed parts of an early Neolithic timber cursus monument and a large late Neolithic timber palisaded enclosure encircled by three rows of pits. Both these Neolithic monuments, were potentially associated with Droughduil Mote (another Scheduled Monument SM2016), as a possible entrance to the timber palisaded enclosure was aligned toward this mound (originally thought to be a medieval motte). Thomas confirmed the association of the mound with the Dunragit complex through excavation and dating, dispelling the mound's interpretation as a mote or motte. Latterly this site is referred to as Droughduil Mound, adopting the nearby farmland name (Thomas 2015).

Not surprisingly, Neolithic features were identified in proximity to the Drumflower, Dunragit and Droughduil Scheduled Monuments. At Drumflower, the most westerly site of the route, most of the features were recorded as Neolithic, based on either radiocarbon dating or datable artefacts found within the features. In general, Neolithic artefacts found across the site were identified as residual Late Neolithic finds along with one possible Early Neolithic pitchstone chip. Moreover, botanical analysis of some of the features presented remains of hazel nutshells, which suggests that they were used for processing hazel nuts prior to storage or consumption. The use of these local resources is often associated with Neolithic or even earlier prehistoric periods (Mesolithic). Fragments of an All-Over-Corded (AOC) Beaker recovered from one of the three pits forming an alignment parallel to the

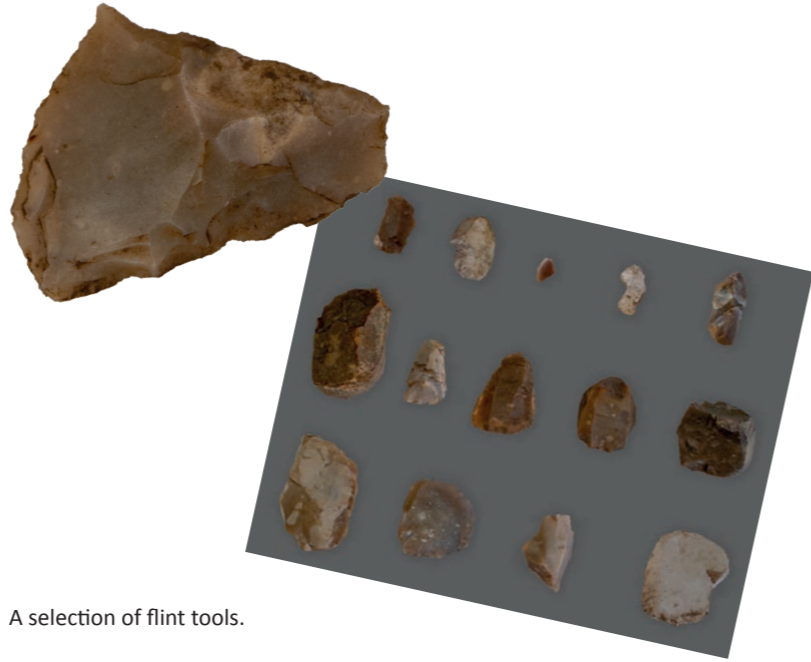


Fragment of the base of an All-Over-Corded (AOC) Beaker.

old A75 road suggests that they were Late Neolithic/ Early Bronze Age in date. Similar pit alignments considered to be Roman quarry pits had also shown up as cropmarks at Dunragit. Thomas excavated two of them during his 1999-2002 season of excavations, but as no material culture was recovered from any of them, they were considered to be gravel quarries. However, the discovery of the AOC Beaker, the comparable alignment and similarities in construction of the pits, implies that these features are part of the monumental Neolithic landscape of the area, and are therefore not related to an elusive Roman Road leading west from Glenluce Roman Camp, currently the most westerly in Galloway (Jones 2013, 118). Two partial ring-groove roundhouses, one of which was dated to the Iron Age, were also uncovered at Drumflower.



Droughduil Holdings was located further east, between the Scheduled Monument of Dunragit and the Droughduil Mound, and leading further east along the route. Samples obtained from features across the site provided Early Neolithic dates (about 5,800 years ago) and Late Neolithic dates (about 4,600 years ago). Although, most of these features were isolated with no apparent structure or form, some of the possible northwest/southeast aligned postholes identified could be related to the Dunragit complex located to its north. Although most of the

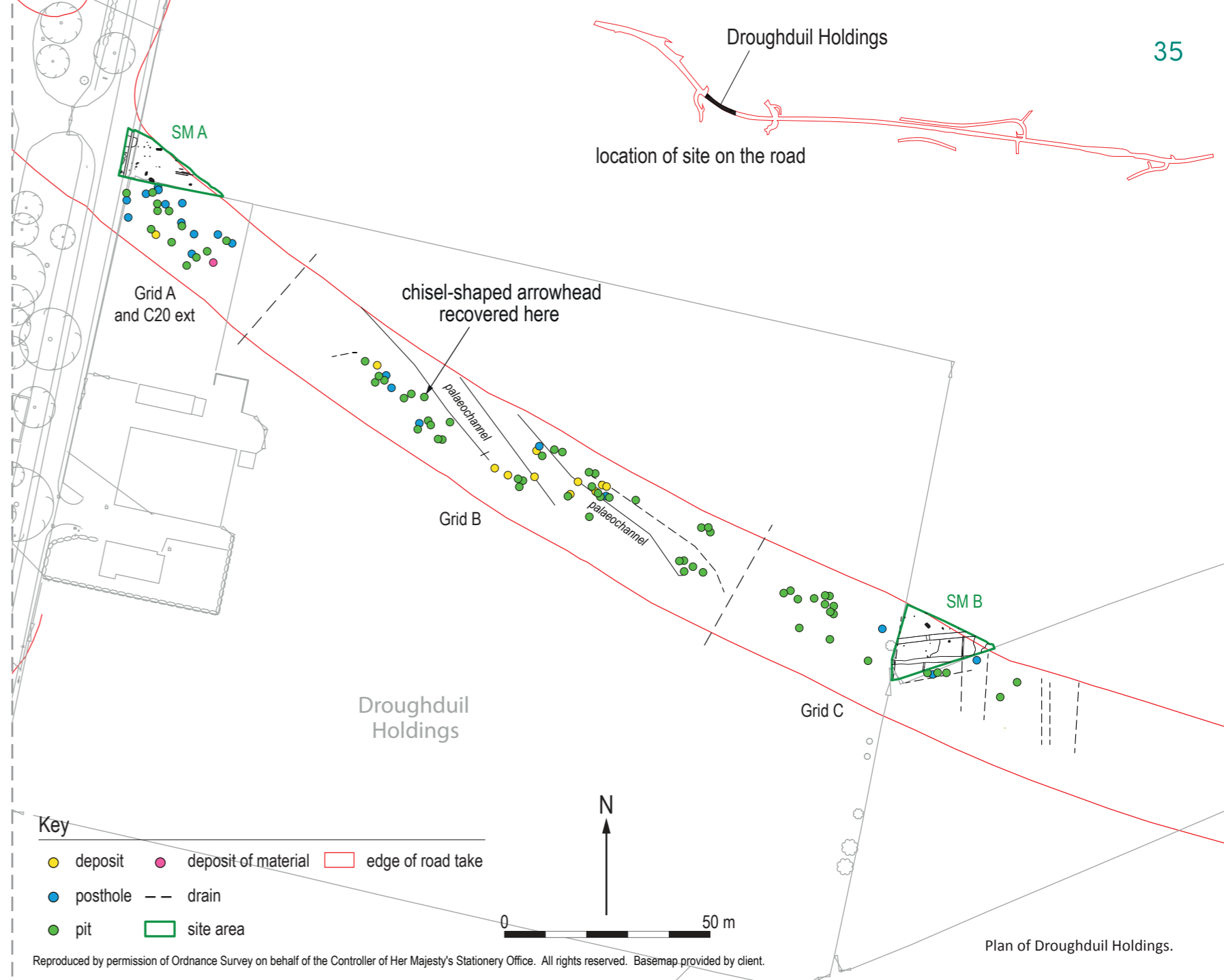


A selection of flint tools.

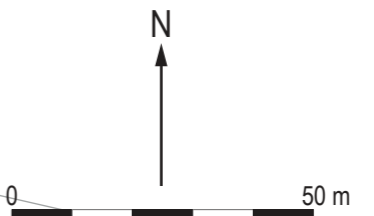


Image showing sorting of environmental samples.

lithic artefacts recovered from site were not datable, a few diagnostic pieces including a chisel-shaped arrowhead (Middle Neolithic) and two flint cores and a piercer indicated dates from the Middle Neolithic to the Late Neolithic. A small thumbnail scraper was also datable to the later Neolithic or Early Bronze Age period. Sherds of Carinated Bowl pottery, dating to the Early Neolithic and made locally were also found within a later dated pit suggesting that it might have been purposely deposited there.



- Key
- deposit
 - deposit of material
 - edge of road take
 - posthole
 - drain
 - pit
 - site area





At East Challoch, only a leaf-shaped arrowhead is diagnostic of the Early Neolithic. It was encountered in an occupation layer west of a rectangular later prehistoric structure. The fairly broad and thin blades recovered from this site were also identified probably Middle or Late Neolithic in date. Mains of Park, situated at the east end of the bypass, revealed a small lithic assemblage attributable to the Middle/Late Neolithic periods based on their typology and their manufacturing techniques. The presence of a large volume of hazel nutshell fragments indicated the processing of this woodland resource for food. However, as most of the lithics recovered from this site were from the earlier Mesolithic period, it seems likely that the Neolithic activity in this area was sporadic, and possibly associated with domestic activities such as the seasonal gathering of hazel nuts or/and knapping of tools.

Leaf-shaped arrowhead.

The most significant Neolithic features encountered during the excavation were concentrated at Boreland Cottage Upper. These features reveal part of a monumental/ritual landscape similar to the previously mentioned Drumflower and Dunragit complexes. The two parallel posthole alignments encountered on this site were potentially aligned towards and linking with the Droughduil Mound, and may therefore also relate to the Dunragit Complex. Only one of the postholes contained sufficient oak charcoal to suggest that a post was burnt in situ. The rest of the carbonised remains recovered from the postholes were derived from scattered hearth or midden waste. Radiocarbon dates obtained from these postholes suggested their timbers were burnt around 3,800 BC. The radiocarbon dates are comparable to those from the Early Neolithic timber cursus investigated by Thomas at the Dunragit Complex.

A linear arrangement of postholes after their excavation.



Boreland Cottage Upper

location of site on the road



Key

● features

□ edge of road take

N

0 50 m

Plan of archaeological features discovered at Boreland Cottage Upper.

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Other Early Neolithic features, providing similar dates to the main posthole alignment, were located to its north and included two large pits and other isolated ones. One of these large pits, was cut through by a shorter, secondary line of postholes, and indicated its earlier date. The other large pit contained boulders that were used as packing stones around a large post. Radiocarbon dates obtained from this feature provided a date range of around 3930 to 3665 BC

for the use of the pit. A possible contemporary arc of four large stone-lined postholes recorded to the south of the main posthole alignment. Two of them presented evidence of an oak post burnt in situ, as well as scorched soils and burnt stones. Evidence of deliberate burning of the posts within the postholes forming the timber cursus was also recorded by Thomas during his excavations on the Dunragit Complex.



Partly excavated stone-lined posthole showing scorched (orange) soils.

Later Neolithic activity was also identified at the west end of Boreland Cottage Upper. The large quantity of artefacts recovered from a cluster of pits (90% of them were lithic artefacts) indicate a clear shift of the use of the site during this period. Most of the lithics were possibly residual remains of domestic waste. Middle Neolithic to Early Bronze Age pottery sherds, including a possible Beaker, as well as fragments of decorated Impressed Ware, dated to the Middle Neolithic, were retrieved from some of the pits.

Radiocarbon dating of three of the pits arranged in an oval pattern provided comparable dates ranging from 2895 – 2621 BC (Late Neolithic). Analysis of the botanical remains, revealed large amount of oak charcoal with alder, hazel and willow, representing the remains of scattered hearth waste. None of these features had a clear function; but the high quantity of possible domestic artefacts suggests that it may have been an area of habitation.



A group of postholes and pits after excavation.

From one of the gullies in the Mesolithic site of West Challoch, a rare late Neolithic shaft-hole stone adze was recovered. It was manufactured from greywacke, a local stone, and was perforated and later polished. The shaping and finishing also required the grinding of its sharp cutting edge at one end. Making a tool such as this from a hard stone would have taken a considerable amount of time. An axe manufactured from similar stone was discovered within a posthole in the Dunragit Complex during Thomas's excavations (2015).

Stone tools, pottery fragments and lithics, together with radiocarbon dates represented Neolithic activity along the entire Dunragit bypass spanning the Early Neolithic to the Late Neolithic. The pottery assemblage included Carinated Bowls, middle to late Neolithic Impressed Ware Bowls and late Neolithic/Early Bronze Age Beakers, two of them All-Over-Corded (AOC). The pottery is typical of the Neolithic cultures of the time and therefore evidence that the Neolithic population at Dunragit experienced a wide network of cultural influences.



Shaft-hole adze.

The intensive and mixed use of the area over more than 8,000 years, made the identification of possible Neolithic structures, either ritual or domestic, very complicated. Radiocarbon dates are not always straightforward. They can indicate later disturbance of features earlier in date, and the backfilling of later features can include earlier environmental evidence making interpretation difficult. However, it is clear that major landscape changes were taking place during the Neolithic.

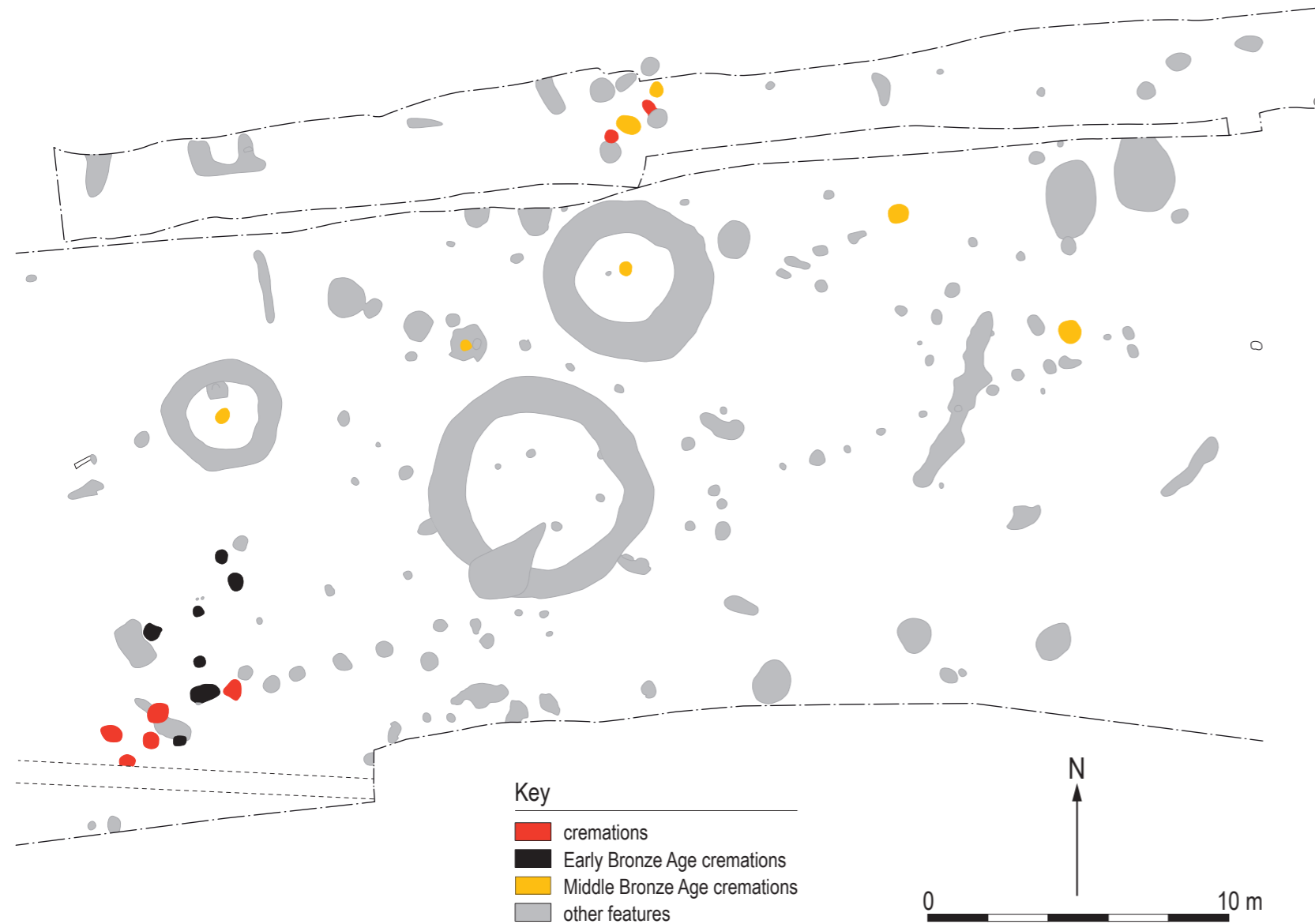
These changes are a reflection of the Neolithization of society. While some changes reflect practical changes as the result of the introduction of agricultural and pastoral economies, others reflect new ideas and beliefs. It is likely that the monumental complex at Dunragit would have acted as a visual marker on the landscape, possibly confirming the occupation or ownership of the land. The creation of these structures, would have required a considerable



Fragments of Impressed Ware pottery.

amount of local natural resources, human power and planning. Furthermore, the creation of the monuments would have reduced the amount of fertile land that otherwise would have been used for agricultural or pastoral purposes.

The importance of certain areas of land for specific uses during different prehistoric periods, is highlighted by the density of archaeological features encountered. The complexes at Drumflower Bridge, Dunragit and the newly found concentrations of perhistoric activity particularly around Boreland Cottage Upper indicate a much larger and complex landscape: a landscape that these investigations provide a glimpse of. Even though the use of the monuments would have been intermittent, it is certain that these locations were favoured, either because they represented an area of collective ancestral memory, or because their location was simply ideal in terms of topography and resources.



Detail plan of the main funerary area at Boreland Cottage Upper.

part 4: The Bronze Age – ritual monuments and settlement

The Bronze Age archaeology along the A75 Dunragit Bypass was mainly characterised by diverse ritual and funeral activities. These discoveries are of national significance, and included a cremation cemetery complex and four stone-lined graves. Two of the graves contained jet necklaces, one of them with an associated bracelet, along with other grave goods. During the Bronze Age, around 4,000 years ago, there were dramatic changes in the economy and society, changes associated with use of metal and the emergence of elite groups. These changes were reflected in the diversity of burial rites and ‘rich’ grave goods.

Based on the dating evidence, it is apparent that there were two distinct phases of activity in the Bronze Age represented at the sites at Dunragit; the Early Bronze Age (between c. 1954 – 1691 cal BC) and the Middle Bronze Age (c. 1449 – 1231 BC). This is evidence that two populations used this part of the landscape to bury their dead, c. 500 years apart. This is further evidence of a collective ancestral memory whereby this part of the landscape was reused by successive populations for a similar ritual purpose.

On analysing strontium isotopes in the cremations it was concluded that there was a different pattern of use of the surrounding landscape for subsistence between the two populations represented, with the Middle Bronze Age community making greater use of land, either immediately around the site and/or on the peninsula to the south. In contrast, the preceding Early Bronze Age community either made greater use of the lands to the west of the site and/or of coastal fields to the south. This suggests a clear change in how the landscape was used by the two populations. This could relate to increased local population density in the Middle Bronze Age affecting access to lands and resources in the west, or it may have been related to changing local environmental factors.

The main funerary area was discovered between East Challoch and Boreland Cottage Upper. However, burial activity was also identified on the western extent of the bypass at Drumflower, adjacent to the identified Drumflower cropmark of a pit circle and pit alignments. The burial activity at Drumflower was actually the latest found across the bypass route, dating to between the Middle and beginning of the Late Bronze Age (c. 1250 – 1000 BC).

Located on a raised beach and overlooking the Piltanton Burn estuary and Luce Bay, the main centre of funeral activity was focussed around three small ring ditches. These three structures, situated at Boreland Cottage Upper, were limited to their south by an earlier line of postholes, 2,000 years earlier than the ring ditches. To the south-west of the largest ring ditch and cutting some of this line of postholes was a cremation burial cluster, composed of twelve pits. A smaller cluster of three cremation burials placed in two pits and a posthole were recorded approximately 10 m to the northwest of the main group. Dated samples of cremated bone or charcoal from these cremations revealed that they were all Early Bronze Age in date.

While earlier cremations appeared to be composed of small deposits of burnt bone within pits mainly grouped in clusters, later cremations seemed to be more dispersed. They were mostly concentrated around and to the north of the ring ditches, with two of them placed at the centres of the smallest and medium size ring ditches. There was variation in burial custom as seen in these later cremations, as some were found in urns while others had none.



Urn SF92 during excavation.



Pit 531 during excavation with a cremation burial but no urn.

Analysis of the bone revealed that all the cremated remains, regardless of their date, were fully calcified, as they were white in colour. This indicates that the bones were subjected to a high temperature between 645 -<940°C. Furthermore, the surface and texture of the bones, with cracks and warping, suggests that most bodies were placed on the pyre not long after death. Although there were no pyre remains encountered during the investigations, charcoal recovered from the cremation deposits indicated that mainly oak and alder were used during the cremation rite.

Although there were some exceptions, the earliest cremations dated to around around 2000 BC and used oak as a fuel, while the Middle Bronze Age cremations used alder and other species, including oak, as fuel for their pyres. The small quantities of charcoal within the cremation deposits suggests that any human remains were carefully separated from the residue of the pyre before deposition.

Although the distinction between human and animal bone in graves was difficult to make, due to the changes created by the cremation process, some animal bones were identified together with some human remains at Dunragit. Most of these cremations were dated to the Middle Bronze Age, although one of the earlier cremations also had animal bone within it.



Detail of the cremated remains inside urn SF61.

Most of the earlier cremation burials were small in weight and rather fragmented. This together with the lack, or under representation, of certain skeletal elements (i.e. shoulder, pelvis, ribs) suggests that the remains were possibly deposited only as tokens in pits and did not represent a complete burial. However, it is also possible that a cremation could have been split and deposited in different pits across the site. Analysis of the relative size of the bones indicated that most of these early cremation deposits included the remains of at least one adult human. Grave goods in the form of two rare accessory or miniature Early Bronze Age vessels were discovered within



Close up of SF95 a miniature vessel during excavation.

the largest pit in the main cremation cluster. Most of the bones were recovered from the upper fills of the grave with some fragments retrieved within one heavily burnt miniature vessel. The degree of burning on this vessel suggests that it could have been put in the pyre together with the corpse during the cremation process. The second vessel, represented by a single sherd, was also recovered from the upper fill.



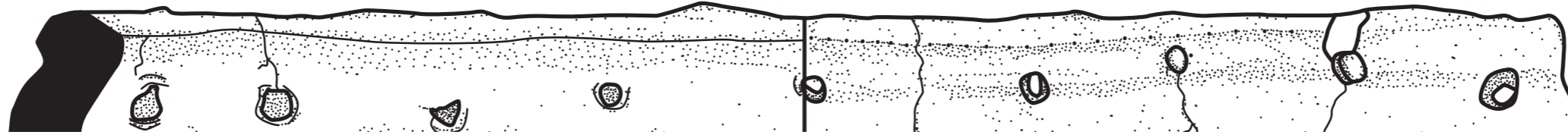
Detail of the Early Bronze Age miniature vessel SF95.

A clear change was noted in the burial rituals in the Middle Bronze Age cremations with most burial deposits, some contained in urns, gravitating towards the three ring ditches. There was also an increase in the weight of the cremations, and the level of preservation, especially within cremation urns. This, together with the larger size of the bone fragments, allowed for more skeletal elements to be identified which aided the analysis of the remains. In contrast to the earlier cremations, multiple individuals were identified in some of the cremation deposits during this period. One inverted urn with a cremation contained the burnt remains of two adults. It was possible to identify the age of some of the bones to a person between 40–44 years old; other bones from this assemblage were identified as female. However, it is not certain whether the diagnostic bones were from one or both of the individuals. Individuals younger than 18 years old were identified buried together with an adult in three other burials. This is quite common in prehistory and could suggest they had died, and been cremated, at the same time (McKinley 1997).

The analysis of the human remains revealed conditions of the health of some of the individuals including an unidentified healed infection/trauma and small bony growth, spinal osteoarthritis, Schmorl's nodes and a possible sharp trauma/dismembering cut-mark. Most of these pathologies are relatively easy to diagnose even on small fragments of archaeological bone, and are common within the archaeological record. However, the cause of the possible infection/healed trauma remains unknown, as its causes can be varied and are difficult to interpret without assessing the full skeleton. The possible cut-marked bone is slightly more unusual, although not unheard of; another example of where skull cut-marks were recorded in a Bronze Age cemetery, is Seafeld West near Inverness (Cressey and Sheridan 2003).



Detail of the cremated human remains within their urn, during excavation.



As mentioned above, several urns containing cremations were found on the site. They were either placed inverted or upright in the grave and all of them were similar in style and manufacture. They all had perforations in a horizontal line just below the rim. These perforations are not thought to be decorative, instead they could have been used to bind a leather or cloth lid to secure their contents, especially useful if inverting the urn.



Urn SF92 found during excavation inverted in its pit. Its base is missing.



Detail image of cremation urn SF61 with drawing showing the detail of the perforations below its rim.

A skull fragment recovered from one urned cremation showed green/blue staining which usually indicates that the bone was in contact with a grave good such as a copper alloy object. However, no metal object was found within the urn which indicates that the object may have been part of the burial ritual, but was not then deposited with the cremation, or it had decomposed over time. Several lithics were retrieved within cremation pits, but all were thought to be residual, having entered the features during backfilling and therefore having no direct association with the cremations.



Urn SF61, inverted in its pit, during its excavation.

Although it is evident that cremation was the favoured form of burial in Dunragit, four stone-lined graves which may have at one time contained inhumations were also recorded on site, and one was capped with a cairn. These were situated further west, but still on the same raised beach area as the cremations. No human remains survived within these pits, however, one of them had the remains of a possible plank coffin. Three of the pits contained rich grave goods dating to the Early Bronze Age. One had a spacer-plate jet necklace and bracelet and a well-

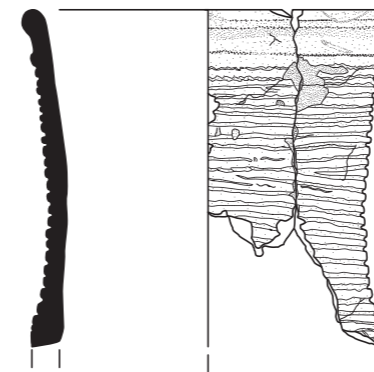
executed scale-flaked flint knife, all resting on the stones lining the base of the pit, with an additional seven lithics recovered from the grave fills. A second spacer-plate jet necklace was discovered in another of the graves, again laid on top of the stones lining the base of the grave. This necklace was discovered following the removal of an intact decorated Food Vessel. In the third grave, an



Stone-lined grave 177 with jet jewellery and scale-flaked flint knife in situ.

Early Bronze Age Beaker and a short endscraper of flint were discovered against the stone-lining of the burial pit. Jet is formed from fossilised wood of the Araucaria tree, the modern descendant of which is the Monkey Puzzle tree. It is formed under extreme geological pressure and is not unlike coal. The nearest source of jet is in North Yorkshire, at

Whitby Bay where the jewellery found at Dunragit would be sourced and manufactured. Jet has some distinctive properties that may have made it an attractive commodity in the early Bronze Age period. It is relatively light in weight and has a glossy shine both of which makes it ideal for jewellery. Also, when rubbed in the hand jet picks up a static charge which attracts dust and other small particles; this may have been part of its allure as a material. The material used for the Dunragit jewellery was confirmed to be jet using X-ray fluorescence spectrometry.



Stone-lined grave 009 with early Bronze Age Beaker in situ.

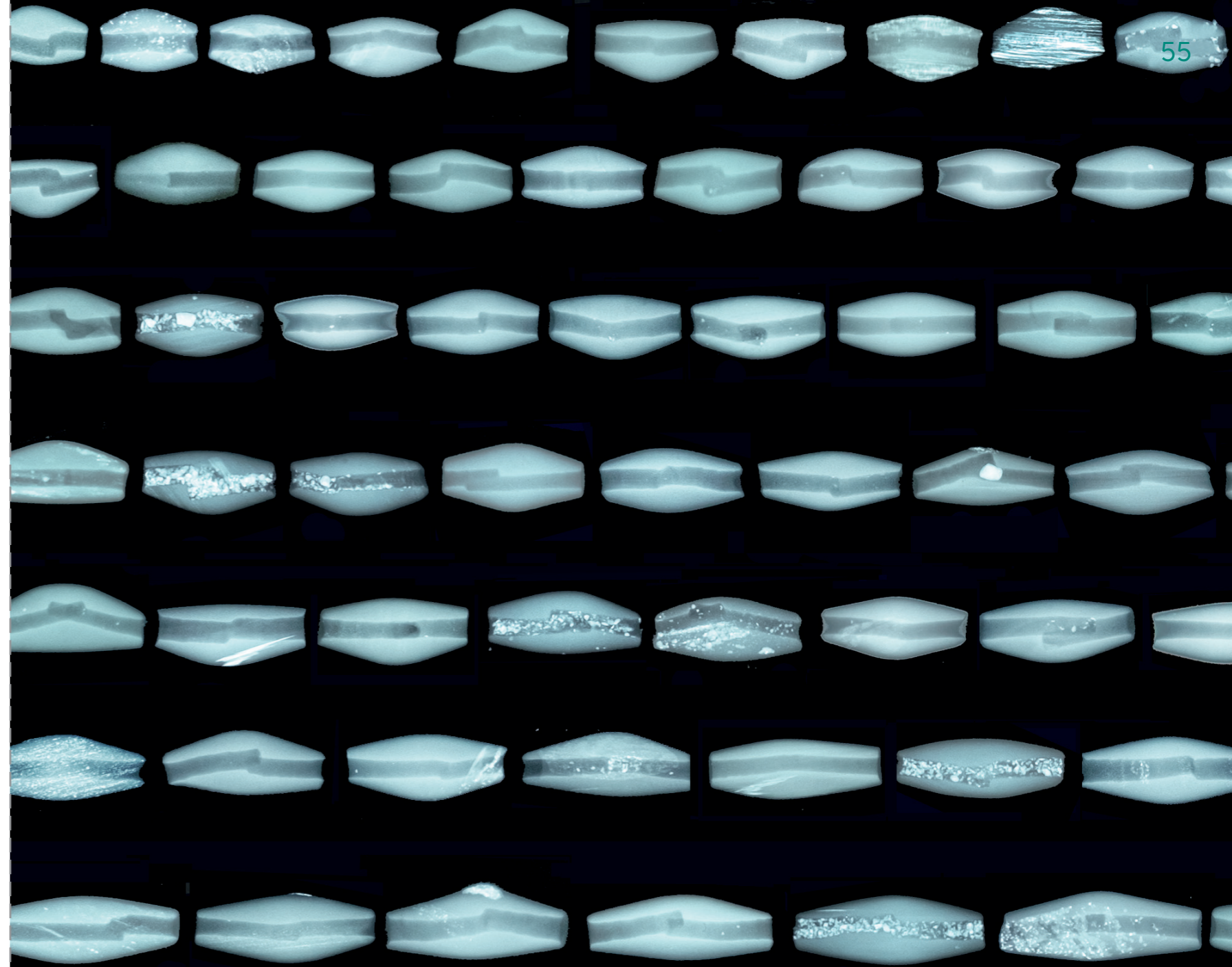
Analysis of both jet jewellery sets confirmed that the necklaces and bracelet were complete, all being made of jet from the Whitby area. The analysis also confirmed that the jewellery had been worn for some time prior to deposition due to diagnostic wear patterns on the beads and spacers. The position of the single necklace suggested that it was not on the corpse but instead it was deliberately placed in the grave. In contrast, the position of the jewellery in the other grave indicated that it had adorned the corpse as the components of both the necklace and bracelet were found mixed together. Furthermore, their position indicates that the corpse would have been placed in a crouched (foetal) position in the grave with the wrist close to the chest, allowing the beads and spacers to accumulate in one place as the corpse and thread joining the beads decomposed. Elsewhere, where human remains have survived in

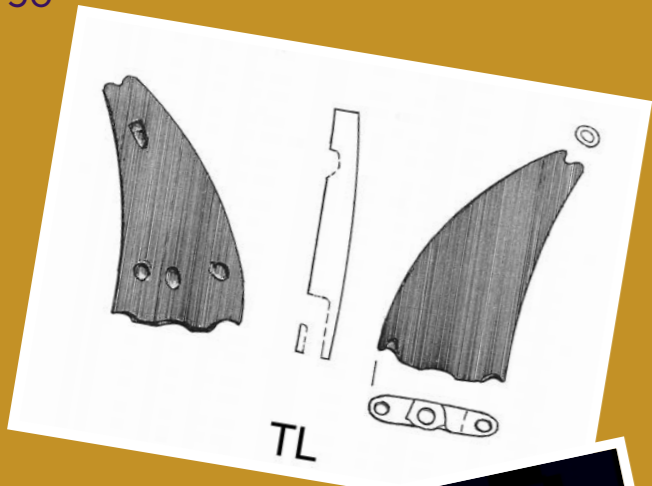


context with jet jewellery, the individuals have been identified as female. This jewellery would have been owned and worn by high status women. According to our jet expert Dr Alison Sheridan, the source of their elite status may be linked to the control of Irish metal trading up the Great Glen to north-east Scotland, and eastwards to northern England.

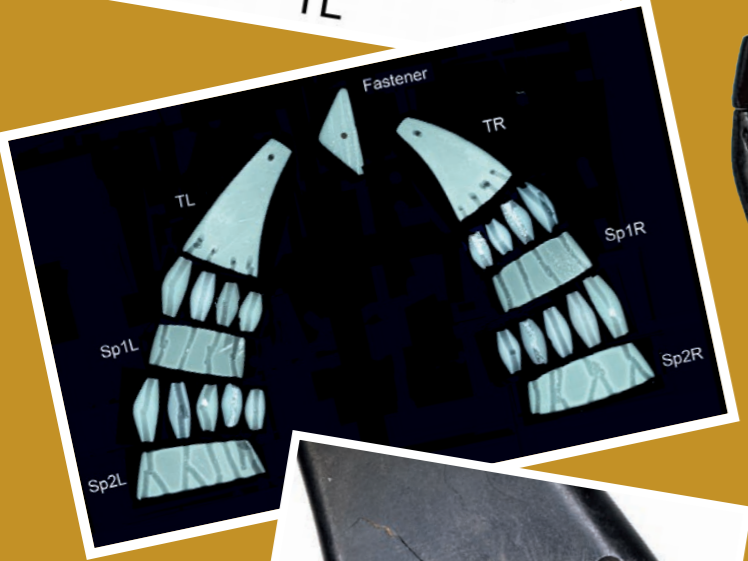
The method of manufacture of the jet jewellery was revealed through x-ray imagery as part of the analysis process. Around 4000 years ago, each spacer and bead had 2 mm to 2.5 mm holes bored through them, probably with a thin metal implement. The x-rays reveal the deviations in the holes bored and in some cases the errors where the maker overshot during drilling. The bored holes created the paths for the thread/cordage used to string the jet into the desired necklace or bracelet form. The re-stringing process was undertaken by Alison Sheridan, who painstakingly analysed each bead and spacer, and based on the plans of the beads in situ and their wear patterns, restrung the two necklaces and bracelet. In some ways this re-stringing was much more difficult than the original stringing, which would have just involved threading the components in the correct order, rather than reconstructing the position of, what are now very fragile components, using diagnostic wear and the archaeological record alone.

Close up images of one of the spacers (left) and x-ray imagery of the beads (right).

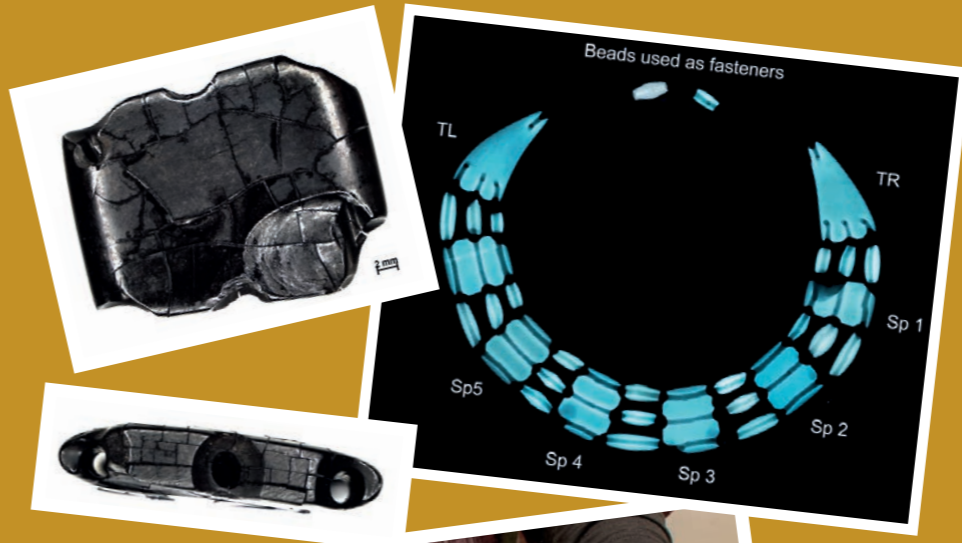




Re-strung jet necklace from grave 023.



Close up of terminal plates.



Re-strung jet necklace and jet bracelet from grave 177.



Although the Bronze Age archaeology at Dunragit was dominated by funerary activities, other contemporary features with a possible domestic function were also recorded. Based on the material culture, a Bronze Age rectangular structure composed of 18 pits and postholes was discovered between the main cremation cemetery complex and the stone lined graves. Other features recorded in the vicinity were also dated to the Bronze Age period, but they did not form any pattern to suggest

further structures. The possible association or close relation between domestic (i.e. settlements) and ritual (i.e. cemetery) has been noted in other recent excavations at Milltimber, Aberdeen (Dingwall et. al 2019). The palimpsest nature of the sites indicates the importance of the higher ground during different prehistoric periods. The presence of posthole alignments, cairns and ring-ditches evidence of the human need to create a visual impact on the landscape. There seems to have been a collective



Possible Middle Bronze Age structure outlined by postholes in the centre of the image.

memory, linking their ancestors with landmarks, and both domestic and ritual places.

There is also variation in the material culture discovered on the burial sites. Does this indicate different genders, ethnicity, age, or social status or was it simply fashion? The three ring ditches, probably represent the remains of small barrows or mounds. Two of them had cremations placed in their centres suggesting that changes in belief systems

were emerging, moving from simple cremation deposits surrounding a stone pit at Boreland Cottage Upper, to those defined within and around barrows. It is evident that cremation, with its burial rites, was the favoured form of burial. However, the discovery of four burial pits with no human remains, two of which contained the Jet Jewellery, suggests that inhumation as a burial rite was also practiced here, at least in the early Bronze Age period.



The ring ditches, darker areas of soil, during their excavation.



Site 3, three pits of dark earth and stones on the periphery of the burnt deposit 012.

part 5: The burnt mounds

A series of 10 burnt mounds (six at Boreland Cottage Lower, with two possible sites at Droughduil Bridge and one at Whitecrook and Mid-Challoch) were discovered during the investigations, each being distinct but displaying similar characteristics and elements common to this monument type (Buckley 1990). Burnt mounds are one of the most common prehistoric monuments and are found across much of Europe's western seaboard, Scandinavia, Britain and Ireland. Their use remains uncertain but cooking and bathing are among the possible interpretations. It is often the case that burnt mounds are considered mundane, and seldomly do they provide artefactual evidence. However, the importance of these sites to prehistoric societies should not be underestimated, the cooking of food aids digestion and therefore

increases the ability for people to absorb nutrients, gaining greater benefit from food and from the energy expended in preparing it (Ó Neill 2005). Burnt mounds represent a step forward in the use of heat technology, beyond crude open flame cooking and roasting. This technology has been around since the Upper Palaeolithic in France, with evidence for its use in the Mesolithic in Ireland (Ferriter's Cove) and with the use of burnt mounds becoming more prolific in Ireland and Britain particularly during the Bronze Age (Ó Neill 2005). Although they appear to be a ubiquitous archaeological site, this should not detract from the importance of burnt mounds. They must have been commonly used and so may have featured in every day prehistoric life.

Burnt mounds are generally found close to a water source, although there are exceptions to this. In the case of those found along the Dunragit bypass route, they were located on the low lying former estuarine areas, and in the case of those at Boreland Cottage Lower, some were located immediately adjacent to an old river channel which extended along the lower edge of the raised beach. We know from the investigations carried out at Boreland Cottage Upper,

situated on the raised beach, that Bronze Age groups were utilising this area for funerary practices and for settlement. It is likely that these same populations were creating and using the burnt mounds. Aside from Boreland Cottage Lower where a series of five burnt mounds were present, the remains of burnt mounds were also found along the western half of the bypass route at Droughduil Bridge, Whitecrook Bridge and Mid Challoch.



Image of possible burnt mound trough 004 in section.



Site 4 Investigations across burnt material 005 from the south.

Boreland Cottage

Boreland Cottage lower

Site 1

location of site on the road

C18

Site 3

Site 4

Site 15

Site 13

N

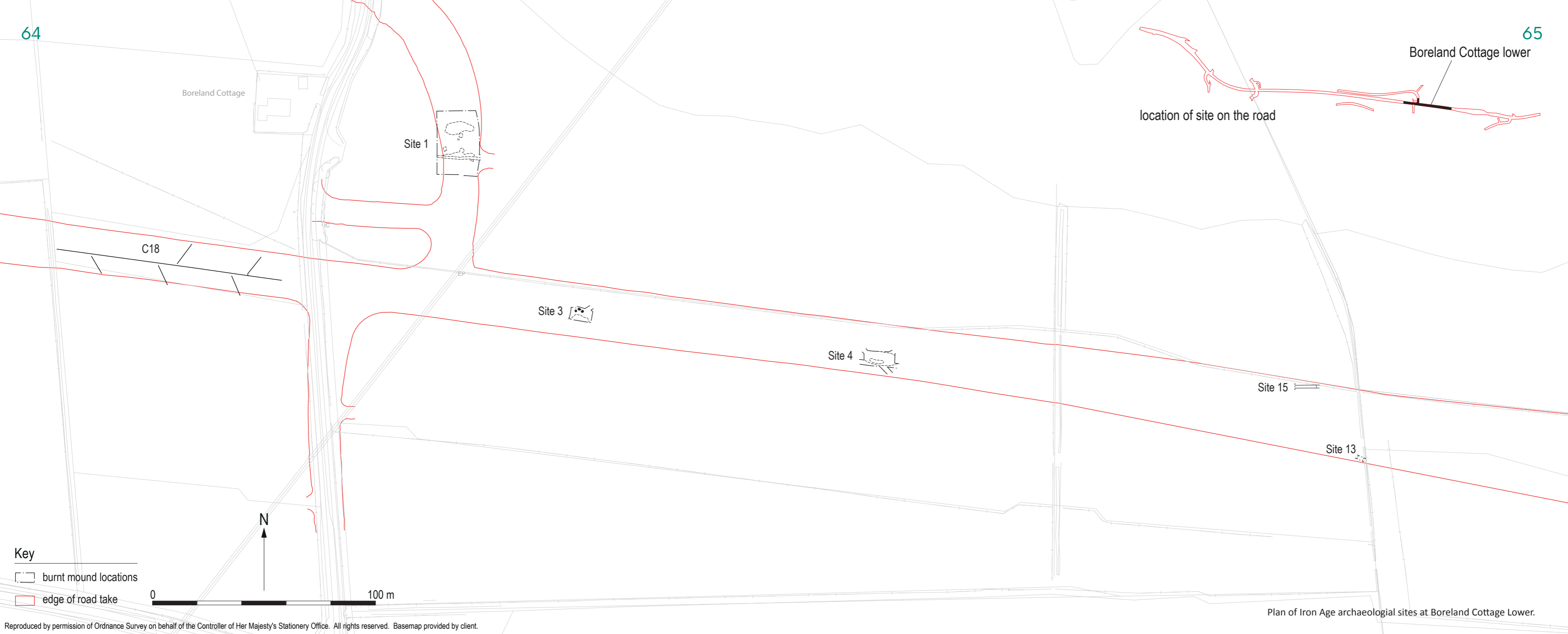
Key

burnt mound locations

edge of road take

0 100 m

Plan of Iron Age archaeological sites at Boreland Cottage Lower.



The Boreland Cottage Lower burnt mounds consisted of deposits of burnt stone and charcoal, most with an associated pit or trough. The dates for these sites were 1888 – 1693 BC (Site 1), 1609 – 1441 BC (Site 3), 1660 – 1505 BC (Site 4) and 2135 – 1949 BC (Site 15) giving a date range of between 2135 BC and 1441 BC, spanning the early to middle Bronze Age periods, and showing that burnt mounds were being used here for around six centuries. Some of the burnt mounds would therefore have been in use at the same time as the funerary complex in the middle and later Bronze Age at Boreland Cottage Upper, which lay just upslope from Sites 1, 3, 4, 15 and possibly another undated burnt mound at C18. The trough at Droughduil Bridge was dated using one of the basal fills giving a date of 353 – 94 BC (Iron Age). The waterlogged birch wood from this feature, considered a sluice gate, was dated between 518 – 384 BC. Silt from the channel that fed the trough was dated to 974 – 834 BC (later Bronze Age), although it may not necessarily be in situ and is likely to have been disturbed in this dynamic estuarine environment. The lithic assemblage aside from being a rare occurrence in the context of a burnt mound, is suggestive of a

middle to late Neolithic date which suggests that the burnt mound disturbed an earlier flint working site. The burnt mound at Whitecrook Bridge is dated to the early Bronze Age (2464 – 2210 BC).

Charcoal from fuel waste recovered from the burnt mounds at Boreland Cottage Lower was identified mainly as oak, with particularly large quantities recovered from Sites 1, 4 and C18 indicating this was the main source of fuel for the burning activity taking place. Hazel, alder and Prunoideae (cherry) types were also found in the burnt mounds at Boreland Cottage Lower indicating kindling being used on large oak fires. Whatever the origin and uses of burnt mounds these samples suggested a large volume of woodland resources were utilised to fuel the activity here. At Droughduil Bridge there was a generally low recovery of mixed charcoal types from all fills with a mixture of alder and hazel charcoal, and a small amount of oak. The charcoal from Whitecrook Bridge was identified as oak mixed with hazel and alder, and the charcoal from the Mid-Challoch burnt mound was even more diverse, consisting primarily of oak and alder with smaller quantities of hazel and birch.





Location of areas investigated at Myrtle Cottage.

part 6: The Iron Age settlement

Myrtle Cottage

Evidence for Iron Age settlement was discovered in three main locations along the bypass route during the investigative works. The initial discovery of stone-packed roundhouse foundations at Myrtle Cottage highlighted this presence, with accompanying artefacts typical of the period providing the dating evidence. The unenclosed nature of the Iron Age settlement at Myrtle Cottage is unusual in comparison with other potential multiple household settlements in the Rhins such as Cairn Pat hillfort and Kemp's Walk promontory fort, or further afield at Black Loch of Myrton in the Machars of Galloway (Cavers & Crone 2016, 47). Further Iron Age structures and activity were latterly discovered at both Drumflower and East Challoch. Previously

known Iron Age structures were excavated closeby at Fox Plantation, excavated in advance of the Scottish Northern Irish Pipeline development (MacGregor 1996) to the west of the bypass. Another example is an early Iron Age structure which was excavated in advance of the Whitecrook Quarry to the east (Gordon 2009), while a later prehistoric ring-groove structure was encountered at South Boreland, also to the east, in advance of quarrying (Engl & Wilson 2015). Ring-groove structures consist of a groove or wall-slot around the perimeter of a building for the insertion of lengths of probably wattle panels or other wall components around a central, generally circular posthole structure.



Plan of Myrtle Cottage Iron Age structures.

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Just east of the estuarine area that accommodated the Mesolithic site at West Challoch, and to the south of the raised beach area accommodating the Neolithic and Bronze Age funerary and settlement sites of East Challoch and Boreland Cottage Upper, lay an area of extensive wind-blown sand. The archaeology at Myrtle Cottage was located on two slight rises to the west and east of an undulation which may be the remnants of palaeochannel that extended from the raised beach area to the north at East Challoch and towards the shoreline to the south where Piltanton Burn flows into the Irish Sea. On stripping the topsoil from the western area a number of structures were discovered, each consolidated by stone packing for postholes and curving wall foundations. Some of the structures were well preserved with the entirety of their wall foundations and posts surviving, whereas other structures were represented by the remains of deeper postholes and slight ring-grooves where their outer walls once stood. Aside from the structures there were pits and accumulations of burnt stone and a key-hole shaped kiln. Early indications of the date of the structures from both the typology and



Site 6 A and B overview, Structure 1 is in the lower centre of the image.



scale of the construction, and the artefacts, suggested an Iron Age date for the settlement. The artefacts were dominated by simple coarse stone tools used for pounding and grinding, along with quern fragments, remnants of the tools of everyday life on the settlement where plants and cereals would have been processed for consumption. At Myrtle Cottage the Iron Age roundhouses produced a thin scattering of cereal grains through various deposits, but with a range of types of cereals being cultivated. Small quantities of oat, barley, spelt and emmer wheat were recorded showing a mixed arable agricultural economy being practiced at the site. A single right cattle humerus from a young adult, and 3-4 cattle molar fragments were also recovered during the investigations at Myrtle Cottage.

Coarse stone tools grinders and pounders (top), quern (right).

The best-preserved structure (Structure 1) consisted of an 8 m diameter outer wall and an eccentric inner wall defining the sunken floor of the living space. Within this inner area was a series of occupation layers and a hearth. The walls were further supported by internal posts. Dates for the underlying sand layers, postholes, hearth layers and wall slots suggest a date range of around 200 BC to 100 AD for the use of this structure. The occupation was not necessarily continuous as the dates may represent phasing and repair of the building. Other earlier dates were obtained for features underlying Structure 1, and one date from the outer wall slot was 1192 – 999 BC, although this may have been as

Romano British brooch.



a result of the Iron Age construction disturbing underlying layers. One pit below Structure 1, and long predating it was dated to 3307 – 2916 BC, placing it in the Early Neolithic and highlighting the mixing of earlier material with that at ground level. The entrance faced west and was defined by two large postholes. Within the upper layers inside the structure a Romano-British brooch was discovered suggesting a date of around 100 AD. Aside from this a number of stone tools were recovered from within the structure, each consistent with the Iron Age

Excavating floor/hearth levels of Structure 1 with the curved wall of the building seen just behind the archaeologists.



The outer wall of Structure 5 being recorded.

date suggested by the brooch. Immediately north of Structure 1 lay the edge of a similar stone packed foundation (Structure 2). Although only the edge of this structure was exposed within the stripped area it was possible to extrapolate the curve of the wall to confirm that the diameter of the building was similar to Structure 1. The wall slot for Structure 2 was more substantial and the outer wall would have been supported by large posts. Fragments of daub were recovered from within the wall of Structure 2 confirming that the walls were likely made up of posts and lengths of wattle and daub fencing. One of the posts forming Structure 2 was dated to 19 –

208 AD, overlapping with the occupation of Structure 1. A layer of sand, which was at first thought to be an occupation layer within Structure 2 in fact predated its construction. This layer was dated to 743 – 401 BC. An additional structure lay just to the west and although even less of it was revealed within the stripped area, Structure 5 was of a similar scale and construction to structures 1 and 2. One of the layers within Structure 5 was dated to 121 BC – 17 AD overlapping with the occupation of Structures 1 and 2, suggesting they may have been roughly contemporary.

While Structure 1 appeared to be domestic, another of the structures had an industrial purpose. Structure 3 was also around 8 m in diameter and was defined by a single ring-groove which may have supported posts and wattle, with internal roof support postholes. Along parts of the ring-groove there was evidence for individual posts which could have supported the wattle sections. During the investigation of this structure a small perforated disc of stone was recovered, a faint depression observed across one side of the object is thought to have been an indication of the tether that secured it as a pendant. Central to the structure was the base of former furnace with a heat-cracked stone and a flue extending towards the east

Perforated small stone disc.



-facing entrance. Charcoal from the flue provided a date of 168 – 19 BC with other dates for occupation layers and postholes providing a range of around 195 BC to 90 AD. Although not unlike Structure 1 this could indicate reuse and/or repair of the structure over time and does not necessarily suggest continual use. Fragments of glassy slag were recovered during the investigations with some hammer scale from iron working also present in the dark deposits present around the furnace and structure.



Close up of the central oven/furnace in Structure 3.

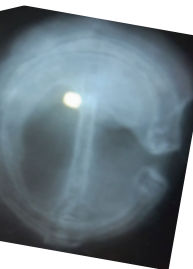


Structure 3 outlined by postholes and stone, with internal features marked as stone piles, during its excavation. Its large entrance postholes are to the bottom centre of the image.

The remains of another structure (Structure 4) lay immediately adjacent to the entrance of Structure 3, although only slight remains of any ring groove survived along with some postholes. An arc of posts to the north of the intersection of Structures 3 and 4 formed the only remains of Structure 6 within the investigation area, providing further evidence, alongside Structures 2 and 5, that the settlement extends northwards beyond the area investigated. To the east of Structure 4 an inconspicuous rounded piece of iron was recovered from the upper fill of a sub-rectangular, straight-sided pit. During its analysis

when this piece of iron was x-rayed it was discovered that it was a corroded iron penannular brooch. This style of brooch is more typically found in burial contexts in the Iron Age period, although no evidence for any burial in the feature was found and the brooch was recovered from the upper fill of the deep pit. A similar sub-rectangular, straight-sided pit was found just west of Structure 3.

The penannular brooch as a lump of metal, X-rayed and cleaned and conserved.



Other partial structures were uncovered and investigated during the works, this included Structure 9 which survived as an arch of stone-packed postholes between Structures 1 and 3. A deposit of heat-affected stone defined by a rough stone kerb formed Structure 7, although no postholes were present below these stones to suggest this was the remains of another dwelling. It was dated to 164 BC – 0 AD and was therefore contemporary with some of the other structures like 1, 2 and parts of 3 forming the settlement. It may have been an area where waste material from the various dwellings was deposited.

On stripping the area to the east of the palaeochannel there were a number of pits and linear features along with a stone platform and a keyhole shaped grain drying kiln. The kiln was constructed of dry stone built into the natural sand layers. The edge of the kiln bowl was defined by large unworked stones as was the linear flue. A number of layers of organic rich and charcoal flecked material was evident in the bowl and flue.

The kiln after excavation.



The charcoal was identified as burnt turf, peat and weeds, and the grain consisted of oats, rye and other indeterminate cereal. Although it was originally thought that this kiln could be contemporary with the Iron Age settlement, it was dated to the post-medieval period (1681 – 1938 AD).

part 7: Conclusions

The results of the investigations along the Dunragit bypass have not so much resolved the full complexity and extent of the archaeological remains present, but have shed more light on the rich prehistory of this landscape. A remarkable number of previously unknown archaeological sites have been discovered within what was a narrow 20 m road corridor. These investigations suggest that this part of the Galloway coastline was at the heart of successive prehistoric occupations over some eight millennia. Evidence was discovered of some of southwest Scotland's first settlers dating to the Mesolithic period, while a distinctive piece of worked flint at West Challoch suggests that people may have been present at this location even earlier than previously thought, in the Upper Palaeolithic around 14,000 years ago at the end of the last ice age. Despite the Mesolithic being typically characterised by temporary camps frequented by nomadic groups of hunter gatherers at Dunragit there was evidence of substantially built

structures and water management gully systems, not the type of effort that one might associate with a fleeting seasonal visit. The build-up of thousands of pieces of debitage and stone tools is testament to the sustained occupation there.

There is evidence of Neolithic settlers possibly associated with the construction of the major timber complexes at Dunragit and Drumflower, and later with the modification of an existing sand mound to create a 'Silbury Hill' style monument. The construction of these monuments would have required a concerted effort from a community, and represents a considerable investment of time, labour and resources. Dunragit and the landscape around it had great value to those who resided there and given the scale of the monuments, and the inherent conspicuous nature of the structures, it can be imagined that a much wider community congregated there for the ceremonial purpose they were built for.

A complex Bronze Age funerary site overlying an earlier Neolithic posthole alignment, probably linked to the Dunragit Complex, was constructed on the plateau formed by the raised beach. From this location, looking along the line of the Neolithic posthole alignment the Droughduil Mound is visible, and the large timber uprights of the complex at Dunragit may also have been visible from this viewpoint. The insertion of cremations in some of the earlier postholes suggest that something of the earlier alignment may well have been visible above ground when settlers decided to use this area as a cremation cemetery. Was this a conscious effort to respect the beliefs of those who came before them, or was it an assertion that the present occupiers were now in ownership of the landscape?

Multiple burnt mounds were excavated during the investigations, the function of which remain uncertain. However, these sites represent another facet of the human exploitation of this landscape through the burning of wood fuel to heat stones that would then heat water-filled troughs for cooking or bathing. The same populations that were settling and cremating and burying their dead on the raised beach area a little further inland, were at the same time utilising

the palaeochannels and braided estuarine area closer to the coast for burnt mounds, and probably also for gathering food and raw material resources.

In the Iron Age, an area of sand had stabilised enough to allow a settlement to be built upon it. The sand required the settlers to support their upright posts with large packing stones. Evidence of a palaeochannel extending to the east of the settlement area hints at one of the reasons for building there - the estuary to the west would have offered other resources in seafood and the nearby foreshore would have provided the many stones needed for construction and stone tools used on the site. This Iron Age settlement was diverse as both domestic buildings and industrial structures were discovered. The latter where metal working possibly took place, evidenced by hammer scale and a furnace base. A Romano-British brooch found within one of the structures may well have been made on site. The quern fragments show that the settlers were processing grain, and the keyhole kiln near the main settlement shows how they dried grain, although much later in date. The evidence from this site in particular paints a very vivid picture of Iron Age life.

The investigations undertaken ahead of the construction of the A75 Bypass around Dunragit have revealed the rich tapestry of archaeological remains that survives here. It is ironic that the bypass aimed to achieve safer and more expedient travel through this landscape, when for millennia populations embedded themselves within it, staking their claim on what must have been a resource-rich and hospitable area of the Galloway coastline. The area investigated traverses a gently undulating corridor that lies between uplands and the coastal fringe, and the investigations revealed that this corridor has been utilised through the ages with the earliest activity at the end of the last ice age. The earliest discoveries are of people settling here in the Mesolithic, right on the cusp of the intertidal estuary, no doubt exploiting the natural coastal and inland resources. This settlement was later followed by Neolithic and Bronze Age activities. In the Iron Age, people built a settlement of round houses on an area of sand just before the Romans were supposedly building roads across this landscape.

Far from the busy prehistoric settlement and other activities, present day Dunragit has become sparsely populated with a predominance of livestock farming. The strategic location and resources that once led to Dunragit being a favoured area of activity in prehistory, appears no longer important to a modern society.

What drew human populations to utilise the landscape around Dunragit to this extent throughout prehistory will never be known for certain. One thing that is certain though, is that from the coast islands such as Ireland and the Isle of Man are clearly in view, and the low lying land at the foot of the uplands on this coastal fringe would have been a natural passage for travel, ideas and trade from west to east. It could be considered that the bypass route at Dunragit was archaeologically fortuitous, just happening to cross a series of important discoveries but, in this case the route has merely skimmed the surface of a rich and profuse prehistoric landscape that is the prehistoric heart of Galloway.

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