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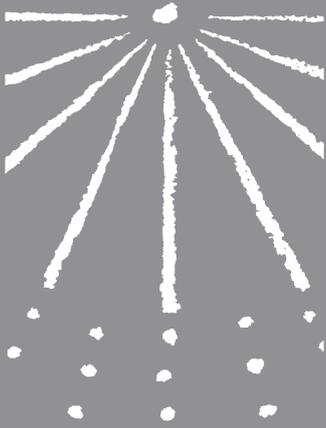
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## Archaeological Excavation Report E3884 - Moyveela 2, Co. Galway

Burnt mound



**EACHTRA**  
Archaeological Projects



Final Archaeological Excavation Report

# **Moyveela 2**

Co. Galway

Burnt Mound

Date: **October 2010**

Client: **Galway County Council and National  
Roads Authority**

Project: **N18 Oranmore - Gort**

E No: **E3884**

Excavation Director: **Gerry Mullins**

Written by: **Gerry Mullins & Finn Delaney**



# Final Archaeological Excavation Report

## Moyveela 2

### Co. Galway

Excavation Director

Gerry Mullins

Written By

Gerry Mullins & Finn Delaney

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Archaeological Projects



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## Summary

The excavation revealed the presence of a burnt mound with associated pits and troughs. The two troughs both had internal stakeholes suggesting in one case some form of lining and in the other some form of suspension rack. The remains of a H-frame suspension frame was situated north-west of the largest trough. A number of external pits and stakeholes hinted at related structures or activities. Two Late Bronze Age dates were returned for the site cal BC 1010–909. A cow horn and a shed red-deer antler were found in the abandonment fills of a pair of boiling pits.

|                          |               |
|--------------------------|---------------|
| Townland                 | Moyveela      |
| Parish                   | Athenry       |
| Barony                   | Dunkellin     |
| County                   | Galway        |
| Ministerial Order Number | A045          |
| E Number                 | E3884         |
| OS Map Sheet             | GA095         |
| National Grid Reference  | 144919/223257 |
| Elevation                | 10m O.D.      |
| Site Type                | Burnt mound   |

Table 1: Site Location Details

## Acknowledgements

The excavation director was Gerry Mullins and the site supervisors were Tom Joyce and Tomaz Wasowski. The field crew included Noel Gill, Ray Kennedy, Lukasz Miciak, Cristina Neira Fuentes, Rebecca Wills and Ignacio Gomez Lastrez. The senior archaeologist was Finn Delaney and the post-excavation manager was Jacinta Kiely. Choryna Kiely, Phillip Debniak and Fiona Greene were involved with the administration of the project. Illustrations are by Ben Blakeman and Maurizio Toscano. Specialist analysis of the animal bone was undertaken by Margaret McCarthy. Joseph O'Brien was the resident engineer for consultant engineers Hyder Tobins. The project was commissioned by Galway County Council and was funded by the National Roads Authority. The project Archaeologist was Jerry O'Sullivan.

## 1 Introduction

This report constitutes the final excavation report for a burnt mound in the townland of Moyveela, Co. Galway (Fig 1). The site was excavated as part of the archaeological excavation programme in advance of construction for N18 Gort to Oranmore Road scheme. The site was found within the Compulsory Purchase Order (CPO) area for the scheme during Phase 1 archaeological testing. The site consisted of a burnt mound with associated troughs and pits.

## 2 Background to the scheme

The N18 Oranmore to Gort (Glenbrack to Rathmorrissey) national road scheme was approved by An Bórd Pleanála on 7 June 2007. The development will consist of approximately 27.2 km of dual carriageway, and all associated works. The area of archaeological investigations lies within the footprint of the proposed scheme as defined by the Compulsory Purchase Order (CPO) published by Galway County Council on 1 August 2006. Eachtra Archaeological Projects was commissioned by Galway County Council and the National Roads Authority to undertake Phase 1 archaeological testing and Phase 2 excavation of sites directly impacted by the proposed development.

## 3 Topography, geology and hydrology

The underlying geology in the surrounding area is Carboniferous limestone of the Burren and Tubber formations bordered by Namurian shales and sandstones to the west, in Co. Clare and Devonian old red sandstone to the east, in the Slieve Aughty uplands. Glacial till overlies the bedrock to varying depths (0–5 m) and the soils derived from the till are generally deep, well-drained brown earths. The topsoils are characteristically deep and dry and, enriched by the limestone parent material, support moderately good grass pastures. There are boulder fields and expanses of bedrock exposure typical of karst limestone country.

Although a degree of soil variability higher than expected has been recorded on the landscape near the burnt mounds examined, Moyveela 2, and the nearby Moyveela 1, is located in a region of relative low soil variability (Fig 6). In an approximately 1 sq. km area around these sites there is a prevalence of deep well drained mineral soil, with just 12% of shallow well drained soil.

Turloughs and swallow holes are features of areas with an underlying limestone bedrock which enables the ground water and water table to produce sometimes perplexing drainage systems. A large turlough is shown on the Ordnance Survey first edition map in the south western portion of Coldwood townland and encompasses parts of the townlands of Moyveela and Ballinillaun (Fig 3). Two small lakes are also shown namely Pollnakirka and Pollawarla respectively. The turlough and lakes were fed by the Lavally river

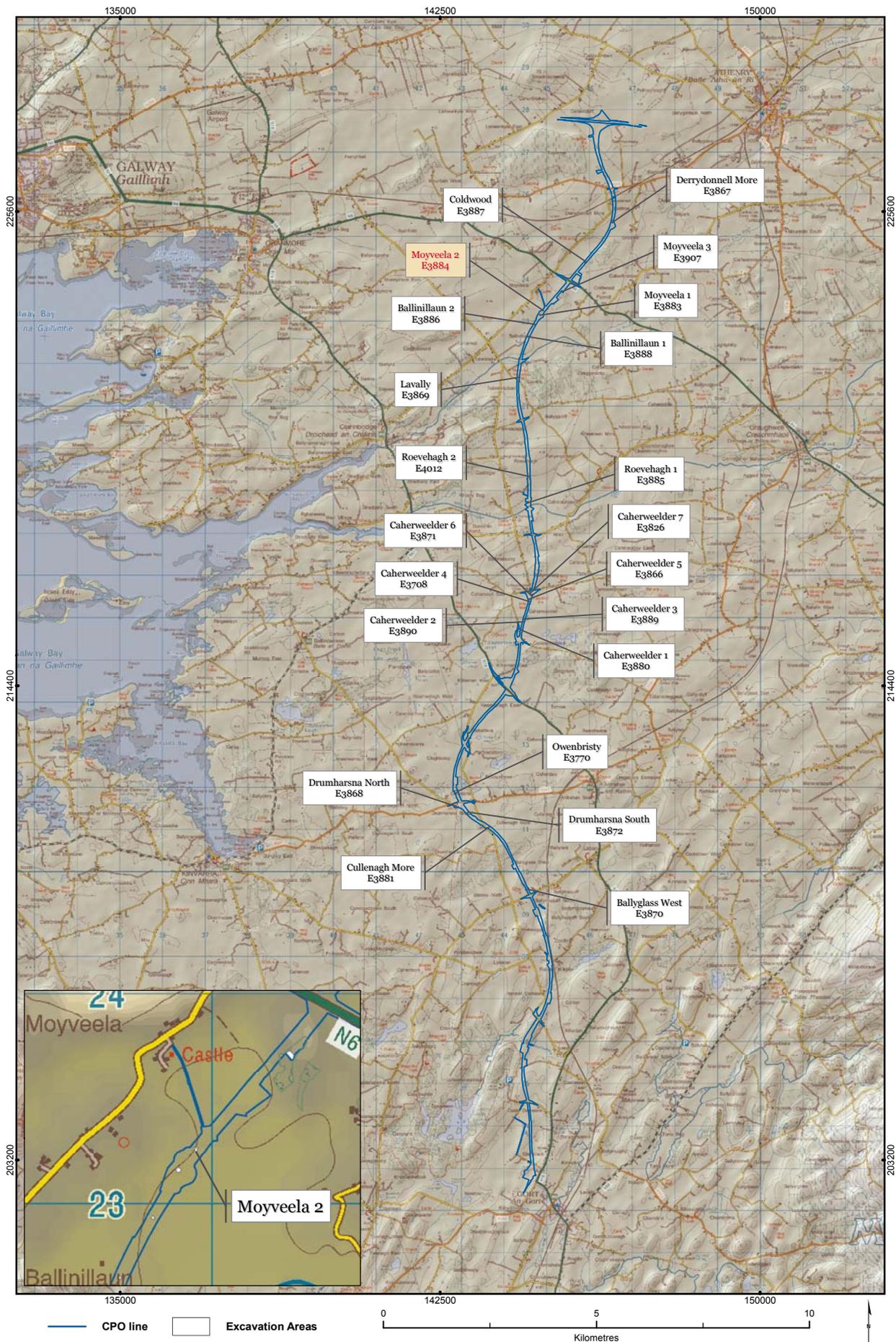


Figure 1: Discovery series Ordnance Survey map showing the route of the new N18 Oranmore to Gort road and the location of all the excavation sites. The excavation site at Moyveela 2 is highlighted.

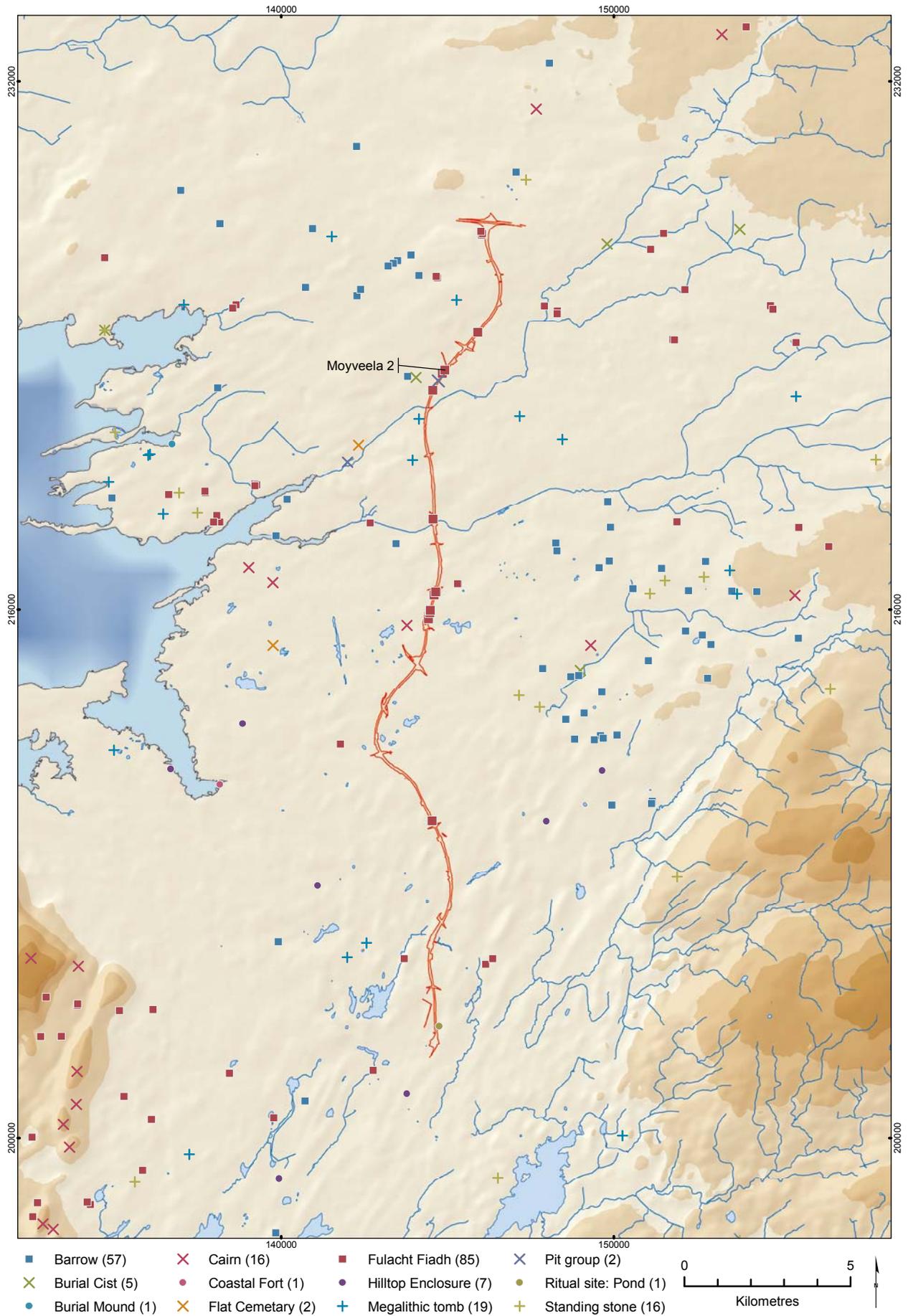


Figure 2: A distribution map showing the location of prehistoric sites at Moyveela 2. It is based on the RMP/SMR (Sheet no GA095) data-set which has been overlaid on the Ordnance Survey discovery series mapping.

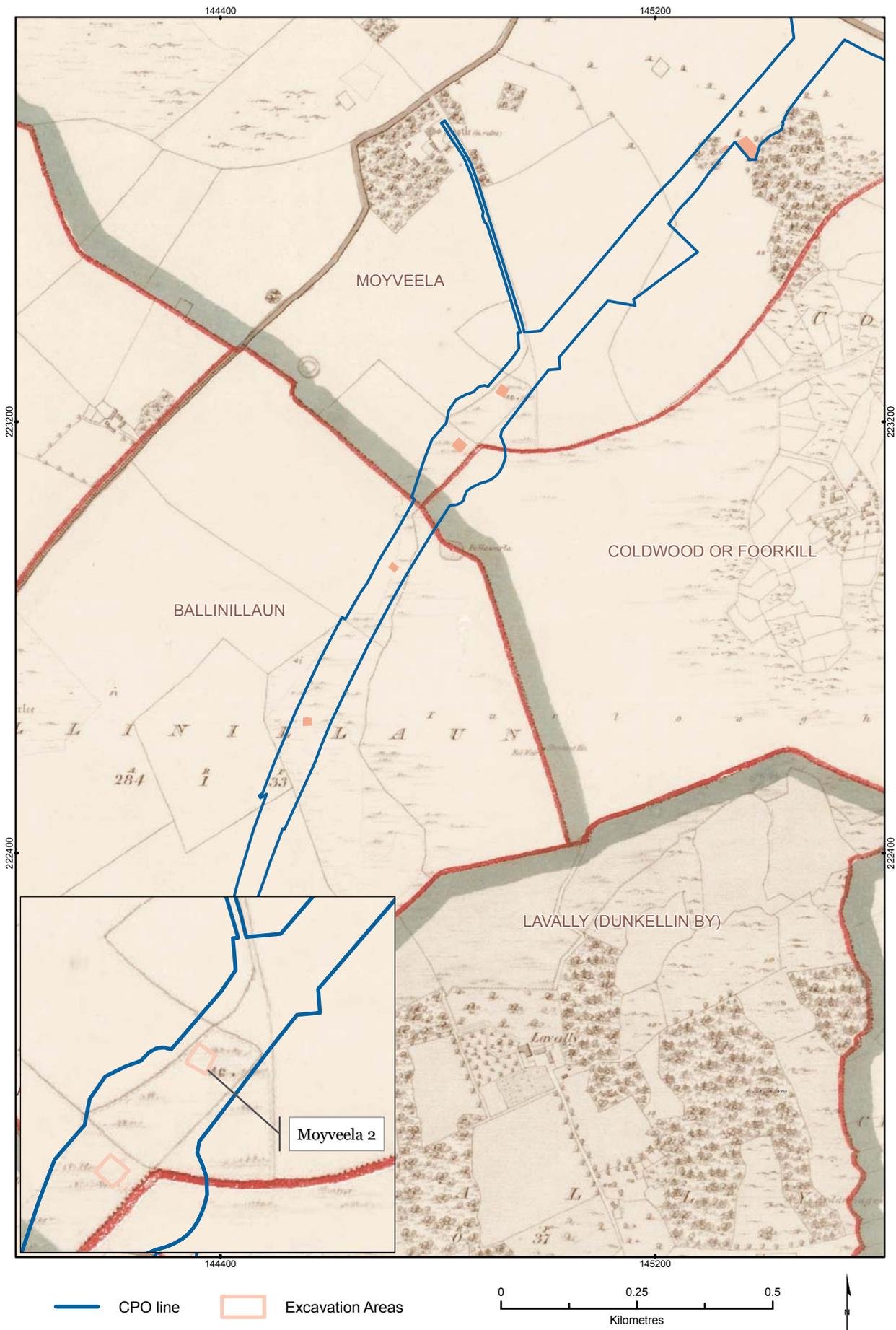


Figure 3: The route of the new N18 Oranmore to Gort road overlaid on the first edition Ordnance Survey map (Sheet GA095). The excavation site at Moyveela 2 is also highlighted.

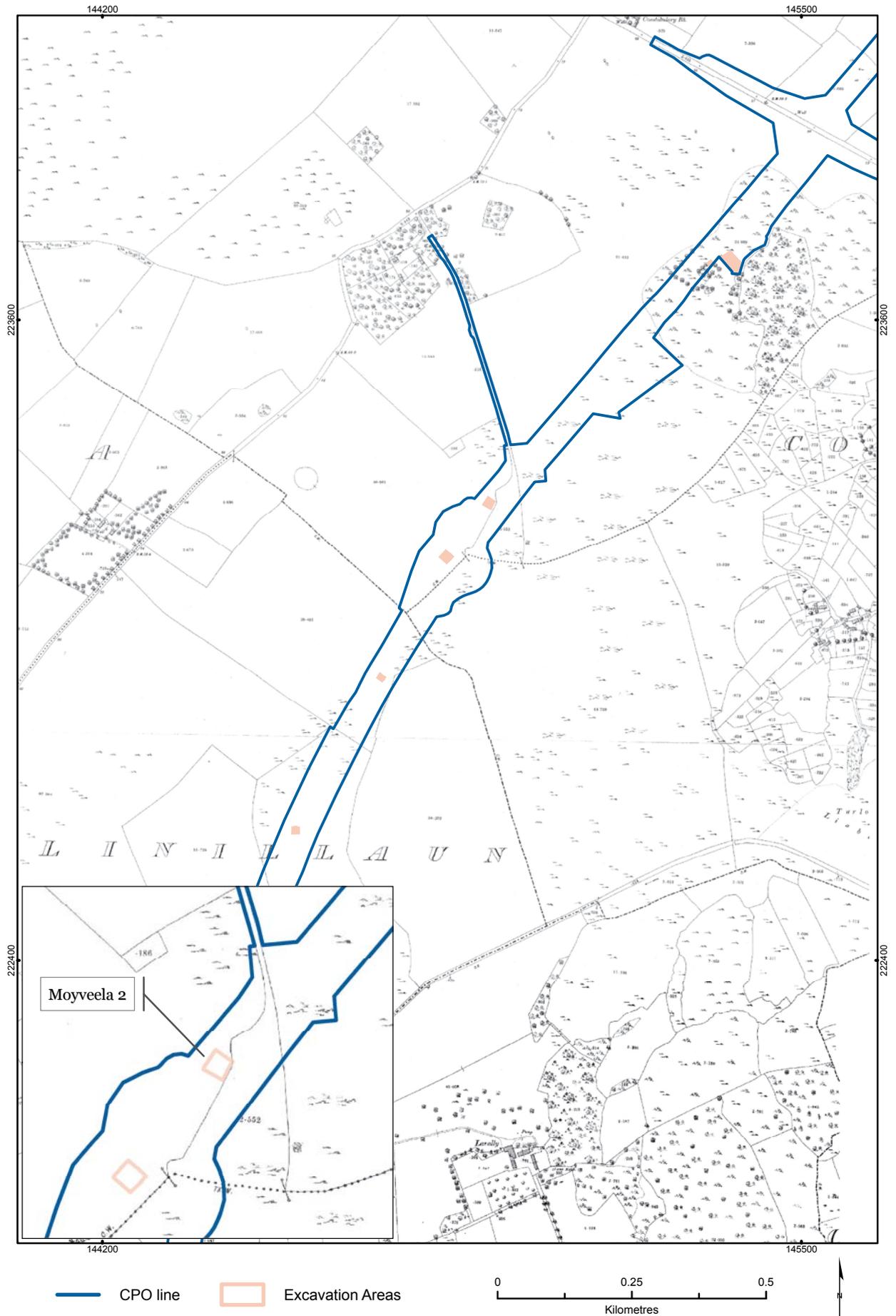


Figure 4: The route of the new N18 Oranmore to Gort road overlaid on the 25 inch Ordnance Survey map (Sheet GA095). The excavation site at Moyveela 2 is also highlighted.

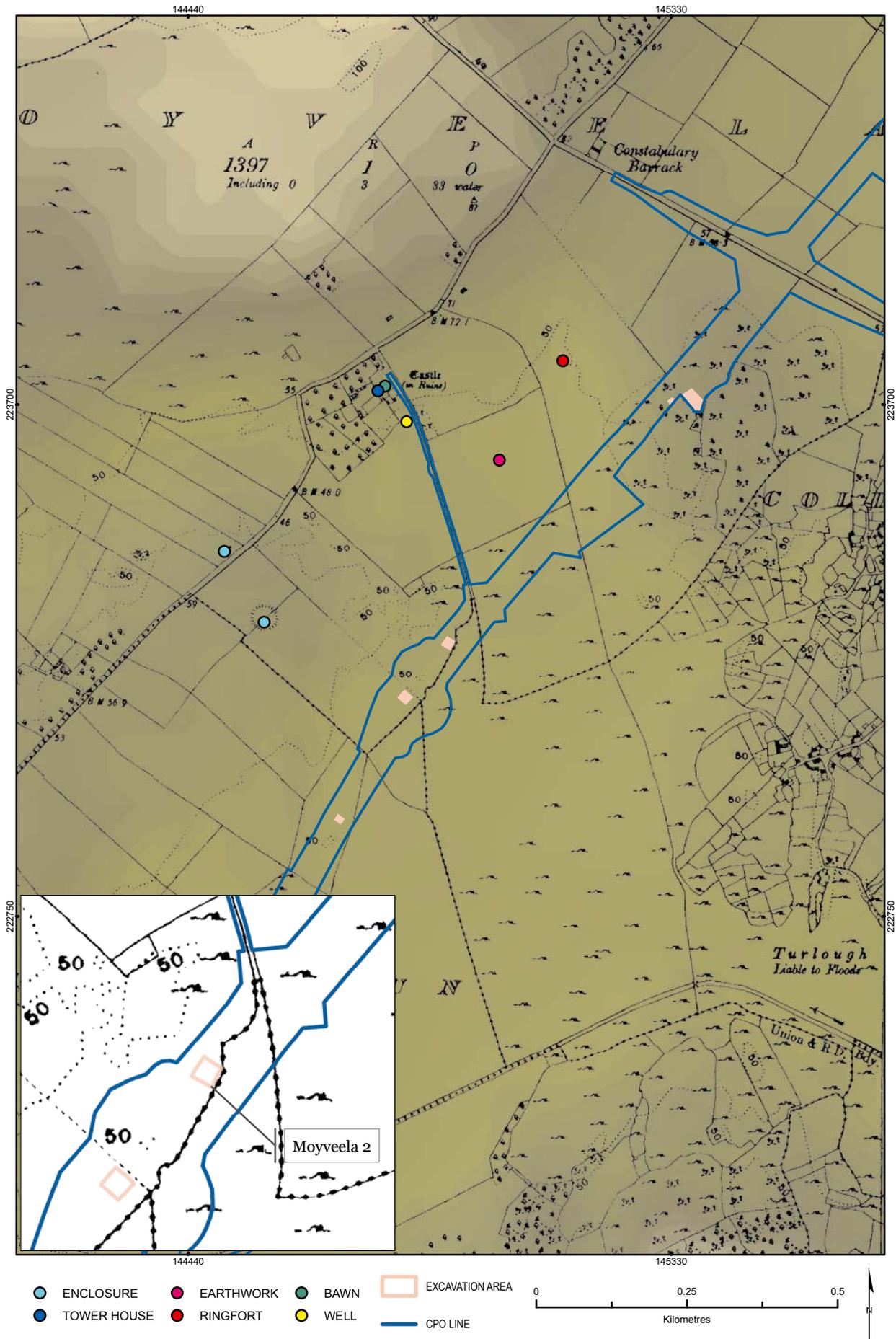


Figure 5: The route of the new N18 Oranmore to Gort road overlaid on the RMP/SMR map which is based on second edition Ordnance Survey map (Sheet GA095). The excavation site at Moyveela 2 is also highlighted.

from the north-east. A river exits towards the sea at Clarinbridge from the south-west side of the turlough and is marked as the Clarin river. The river was later dredged and canalised and the turlough was divided into large regular fields.

The availability of water at Moyveela 2 was assured by the turlough which, as shown on the 1<sup>st</sup> edition map, extended to the site (Fig 6). The small lake of Pollnakirka and the River Clarin 1.2 km and 770 m away respectively, complete the water resources in the vicinity of the site.

## 4 Archaeological and historical background

The townland name Moyveela derives from the Irish *Mhaigh Mhaola* which in direct translation could mean 'Moyla's plain' or 'Maigh bhile' the plain of the sacred tree. The latter interpretation may connect the name to the adjacent townland of Roevehagh, the 'red birch', possibly the sacred birch tree.

There seems to have been an expansion of settlement from hill slopes and uplands into lower lying areas during the Bronze Age. There also seems to have been a trend way from communal funerary monuments to individual burial monument with associated grave goods. This would explain the relatively high concentration of barrows in lowland east Galway.

Barrows are burial monuments of the Bronze Age and Iron Age, which usually consist of a circular central area, which may be flat or slightly dished (a ring ditch), or domed (a ring barrow), and which is enclosed by a ditch and occasionally by an external bank). Bronze Age burials that have been excavated, either in recent times or during the last century, include some found in cists, pits lined with stone flags, and some in simple pits, some of which were accompanied by pottery or other grave goods. These can be placed in tumuli, cairns or barrows, but can also be set within 'natural' monuments, such as sand ridges, or can appear in so-called flat cemeteries, with no above ground marker at all.

These trends are also reflected in south Galway, in the environs of the road, where stray finds of Bronze Age objects have been found in Toberbrackan and Lavalley and a Bronze Age cist and 'food vessel urn' was found in Moyveela (O'Sullivan 2006).

There are no known house sites or settlements of the period in the area, but there are numerous examples of burnt mounds or *fulachta fiadh*. These mounds of burnt and shattered stone were the by-products of a favoured technique of immersing heated stones in pits filled with water, to boil it. Recorded examples occur on or near the proposed road scheme in Rathmorrissey, Toberroe and Caherweelder and the present programme of excavation in advance of construction on the N18 Oranmore to Gort road scheme has added further to the numbers of burnt mound sites in the area.

The distribution map of prehistoric recorded monuments shows a concentration of ring barrows centered around Derrydonnell North (Fig 2). A Bronze Age cist burial and a barrow are also recorded to the south-west in the townland of Moyveela. The distribution

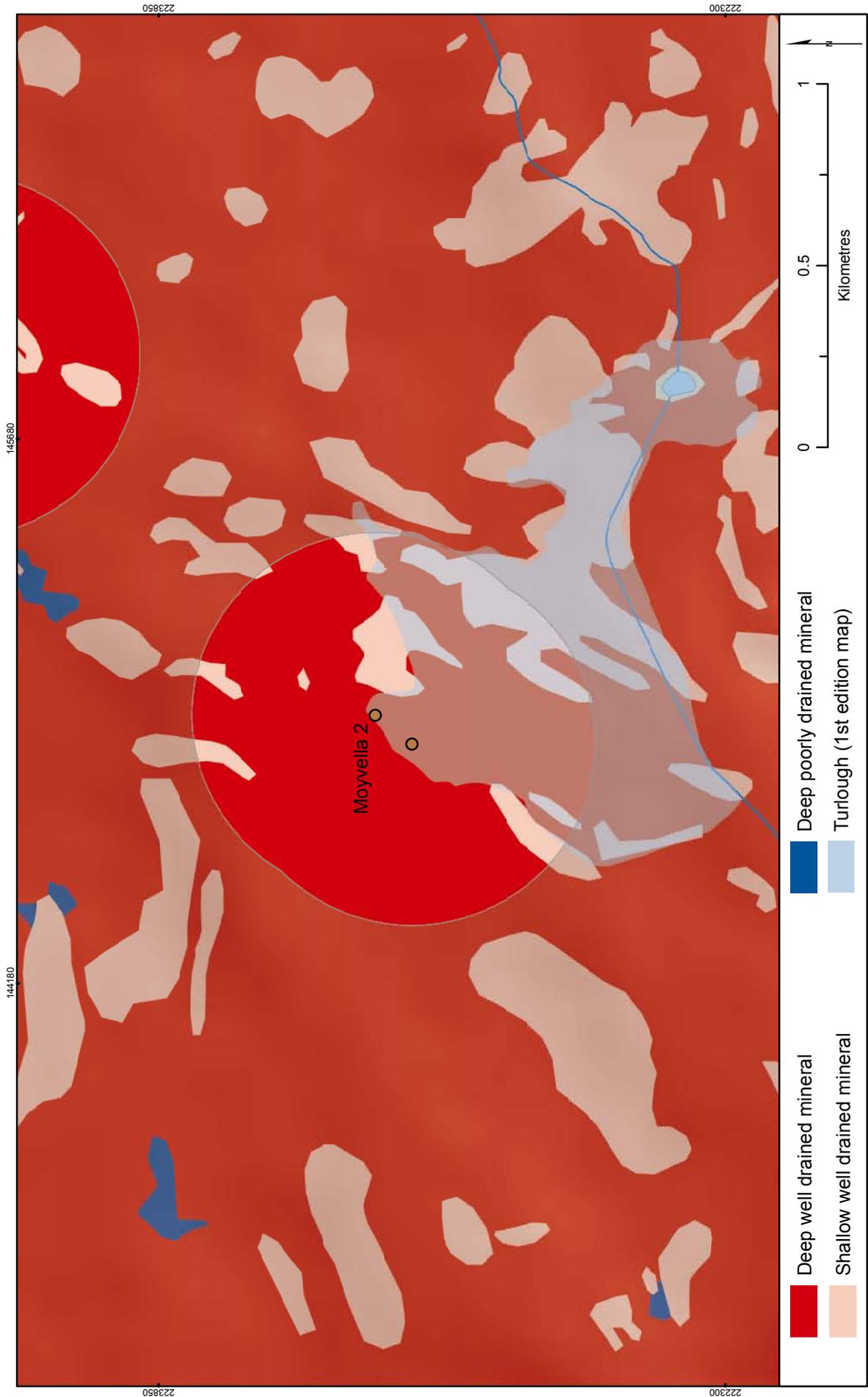


Figure 6: The soil type at Moyveela 2 (data provided from Teagasc and Forest Service, Dept of Marine and Natural Resources, EPA). The map shows the extent of the turlough visible on the first edition Ordnance Survey map.

map also shows that the burnt mounds at Moyveela and Coldwood fit into a concentration of this monument type to the south and south-west of Atherny.

The burnt mounds in Moyveela are located in the south-eastern corner of the townland. Unusually, the outline of the townland boundary changes slightly between the first edition Ordnance Survey six inch map and later editions (Fig 3, 4 and 5). The location of the burnt mounds is shown on the first edition map as being located on rougher ground, at the western extremity of the large turlough in Coldwood townland to the east. The small lake known as Pollawarla is shown as being located within the turlough margins just to the south.

## 5 Site description

The excavated site was located in the south-western corner of Moyveela townland (NGR 144921/223253) (Fig 1). It is located very close to the point where the three townlands of Moyveela, Coldwood and Ballinillaun converge. Unusually the townland boundaries have shifted slightly between the first and second edition Ordnance Survey maps of the area (Figs 3, 4 and 5). The site is located to the south of the N6 and to the south-east of a tertiary road running between the N6 and Clarinbridge village.

The site is located on slightly raised ground along the western edge of a large turlough. There are wide views from the site to the east and south across the open expanse of rough pasture which corresponds with the turlough (Plate 1). The burnt mound is situated on a boundary between an enclosed, well managed, field system and the open expanse of rough pasture. The fields are bounded by single-leaf drystone walls lined with small trees and scrub. The remains of the towerhouse built by the Burkes is clearly visible to the north and a lane running from the castle opens out into the turlough land just to the north of the site. An area of rock outcropping covered in large mature trees is visible to the north-east of the site.

## 6 Methodology

An area measuring roughly 20 m x 20 m ( 400 sq m) was topsoil stripped by a 20 tonne excavator, under archaeological supervision, using a flat bucket to reveal the extents of the burnt mound and any associated features. The site was then subjected to an intensive hand clean. The burnt mound was fully excavated by hand and recorded using the single-context recording system with plans and sections being produced at a scale of 1:20 or 1:10 as appropriate. A complete photographic record was maintained throughout the excavation.

The soil samples taken during the excavation were sieved and the resultant flots were examined by Mary Dillon for plant remains and charcoal analysis. Two charcoal samples were sent for radiocarbon dating to Queen's University in Belfast. The animal bone was examined by Margaret McCathy.



Plate 1: Looking south-east across the excavation area and the nearby turlough.

## 7 Results of excavation

A small burnt mound covered the remains of a large trough and two small pits. Stakeholes were identified within and surrounding the trough. Just to the south of the burnt mound another large trough with internal stakeholes was identified. A sub-circular pit, which contained a smaller later pit, was identified to the south of the second trough. Three parallel plough furrows were identified to the north of the burnt mound. Topsoil (C.1) in this area was shallow at 0.12 m and all the excavated features were cut directly into the underlying glacial till (C.2).

| Mound area (m)     | Trough/Pit | Shape         | Dimensions (m)     | Volume (m3) |
|--------------------|------------|---------------|--------------------|-------------|
| 6.34 x 5.95 x 0.19 | C.14       | oval/circular | 2.7 x 2.3 x 0.56   | 3.5         |
|                    | C.15       | oval/circular | 1.48 x 1.36 x 0.55 | 1.1         |
|                    | C.21       | rectangular   | 2.45 x 1.45 x 0.33 | 1.2         |
|                    | C.18       | oval          | 0.6 x 0.31 x 0.22  | 0.04        |
|                    | C.31       | oval          | 0.78 x 0.52 x 0.47 | 0.2         |
|                    | C.34       | Oval          | 0.5 x 0.36 x 0.23  | 0.04        |
|                    | C.35       | sub-circular  | 0.53 x 0.43 x 0.56 | 0.1         |

Table 2: Dimensions of mound, troughs and pits at Moyvella 2

### 7.1 Features below the burnt mound

The largest feature was a sub-rectangular pit (C.21) which was orientated roughly east to west (Plate 3). It was interpreted as a trough and measured 2.45 m in length, 1.45 m in width and was 0.33 m in depth. The trough was roughly cut with a very irregular base and had a single fill (C.26) consisting of burnt mound material. A small pit (C.34) was located at the base on the western extremity of the trough. Three stakeholes were also identified driven into the upper sides of the trough (C.21). Two (C.44 and C.42) occurred on the western edge, and a single stakehole (C.46) was located on the eastern edge. These features were sub-circular in plan and varied between 0.07 m and 0.04 m in diameter. The three stakeholes formed a triangular shape, which might suggest use as a suspending frame. The function of the small pit could not be ascertained. Two stakeholes (C.50 and C.52) were located c. 0.4 m west of the trough (C.21) and may have formed a shelter or



Plate 2: Looking north across the excavation area after hand cleaning.

rack associated with the use of the trough. Small pieces of wood were noted in the fill of these stakeholes however the wood could not be identified.

Two pits were located c. 2.5 m north-east of the large central trough (C.21). The largest of the two (C.31) was oval in plan and measured 0.78 m in length, 0.52 m in width and 0.47 m in depth. Its fill (C.32) contained burnt sandy silt mixed with heat-shattered stone. The smaller pit (C.35) was sub-circular in plan measuring 0.52 m by 0.43 m by 0.37 m in depth. The fill (C.36) was not as burnt as the others and contained virtually no heat-shattered stone. The function of the two pits is unknown but they were probably related to the activities taking place within and around the central trough. It is hypothesized that they were upright posts for a H-frame rack, used, possibly, for suspended butchery or hide suspension, or both.

## 7.2 Features to the south of the burnt mound

A sub-circular pit (C.14) was located immediately south of the burnt mound (Plate 4). The pit was very well cut with a level base and was interpreted as a boiling pit. It was sub-circular in plan, measuring 2.7 m by 2.3 m by 0.56 m in depth. A single fill (C.9) resembling the burnt mound material contained one fragment of animal bone. Six vertical stakeholes were identified, cut into the base of the trough (C.14). All the stakeholes were located at the break of slope of the trough base. They formed a regular pattern apart from the eastern side, where no stakeholes were identified. The two eastern corner stakeholes

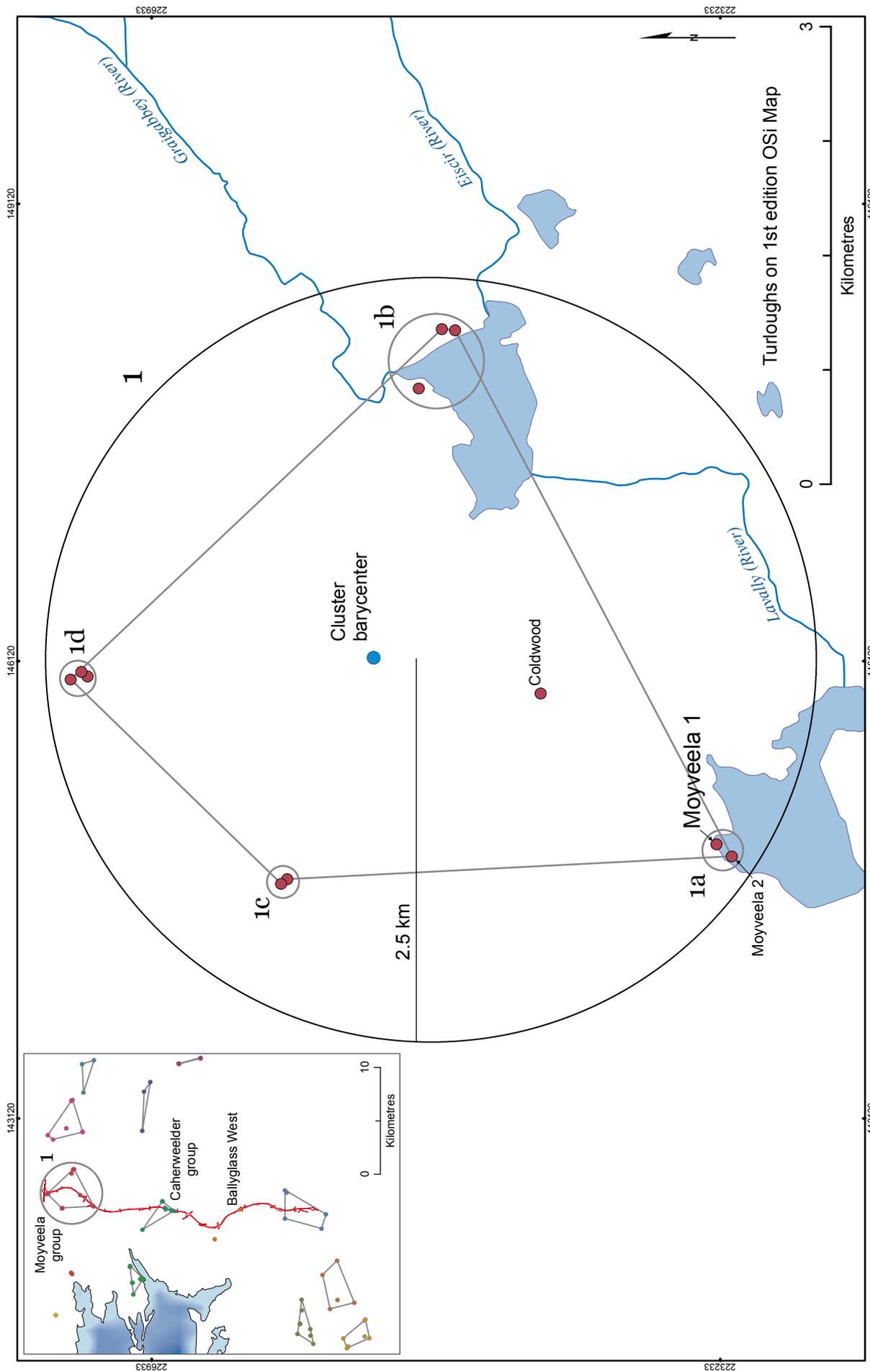


Figure 7: Clusters of burnt mound sites showing the location of Moyveela 2 within the cluster. The insert shows the level of clustering of burnt mounds in the study area.

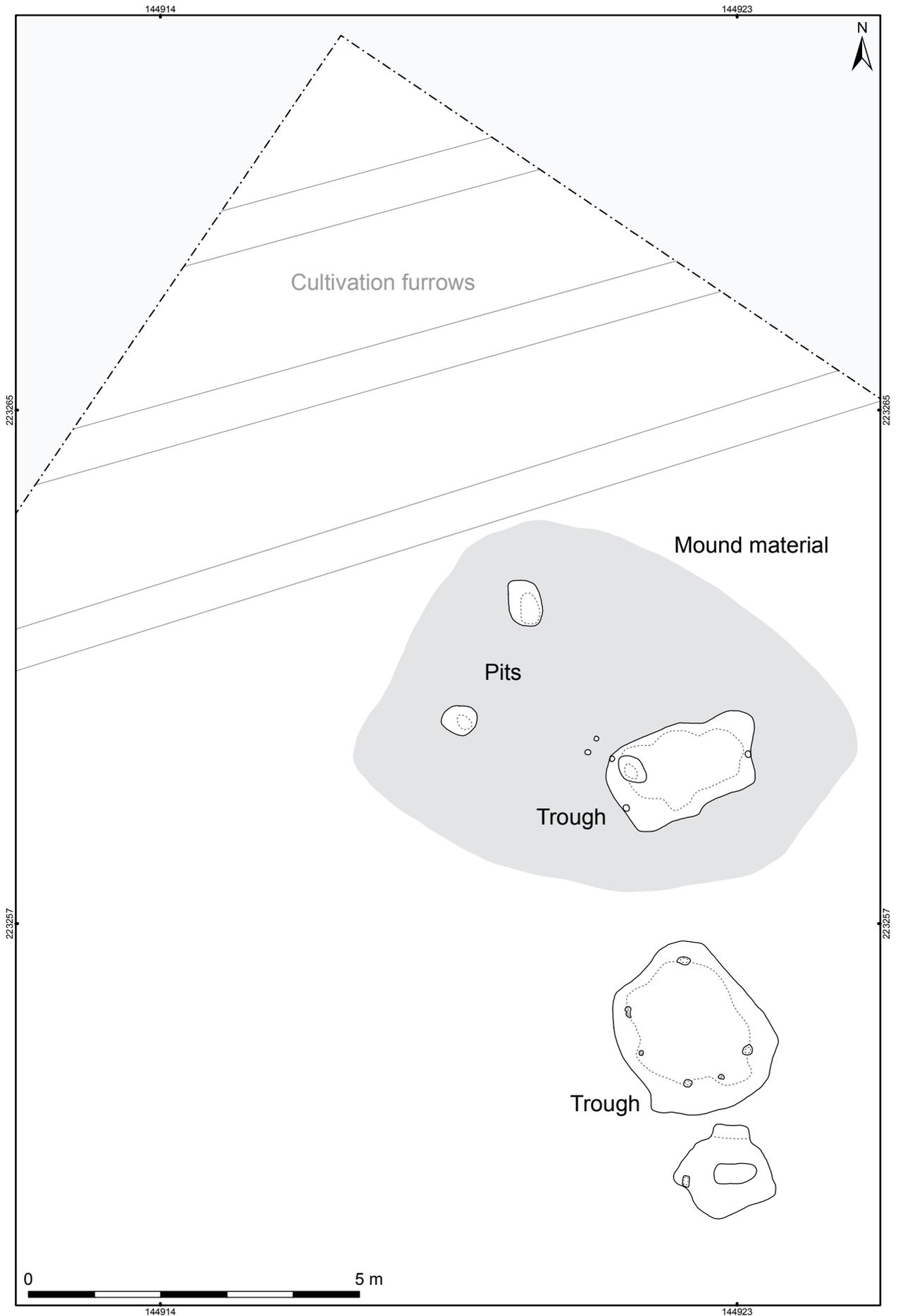


Figure 8: Interpretive post-excavation plan of the site.



Plate 3: Looking north at the roughly cut trough (C.21) located below the burnt mound.

(C.19 and C.29) were the most substantial. The stakeholes (C.22 and C.27) occupying the opposite corners were smaller but of similar dimensions to each other. The two remaining (C.24 and C.37) were less substantial. No traces of the original stakes remained and all cuts were filled (C.20, C.30, C.23, C.28, C.25 and C.38) by mid grey silty sand with moderate occurrences of sub-rounded and sub-angular pebbles. There was no direct evidence of wickerwork or of a similar structure but it is suggested that such a feature was supported by the *in situ* stakes. The four corner stakeholes were substantial and would have been capable of either supporting a weight a wickerwork structure. It is probable that these four stakeholes were the main supports and the two other stakeholes acted as intermediate supports.

To the south of the southern trough a sub-circular pit (C.15) was identified. The pit (C.15) measured 1.48 m by 1.36 m and was 0.55 m in deep. It contained a single fill (C.12) which was similar to the burnt mound material. A single vertical stakehole (C.39) was identified cut into the western slope of the pit. Interconnected or figure of 8 pit groups are commonly found on burnt mounds and are increasingly being interpreted as contemporary and functionally interrelated. In this case the two pits may be contemporary also, just not connected.

Immediately south-west of the pit was a deposit (C.17) of dark black sandy silt with moderate occurrence of heat shattered angular and sub-angular coarse pebbles and small stones that stratigraphically pre-dated the pit fill (C.12). It is possible that the deposit

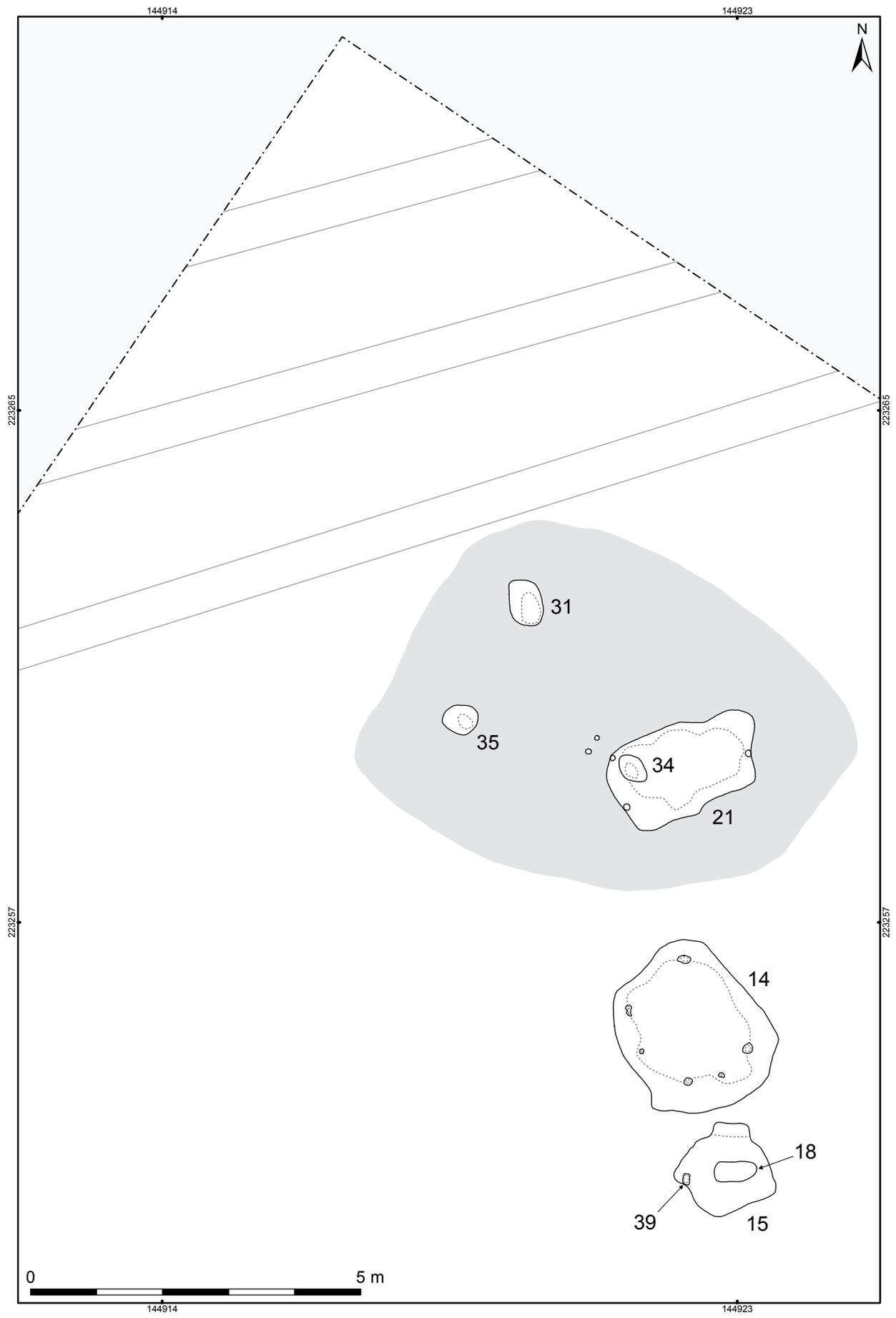


Figure 9: Post-excitation plan of the site.

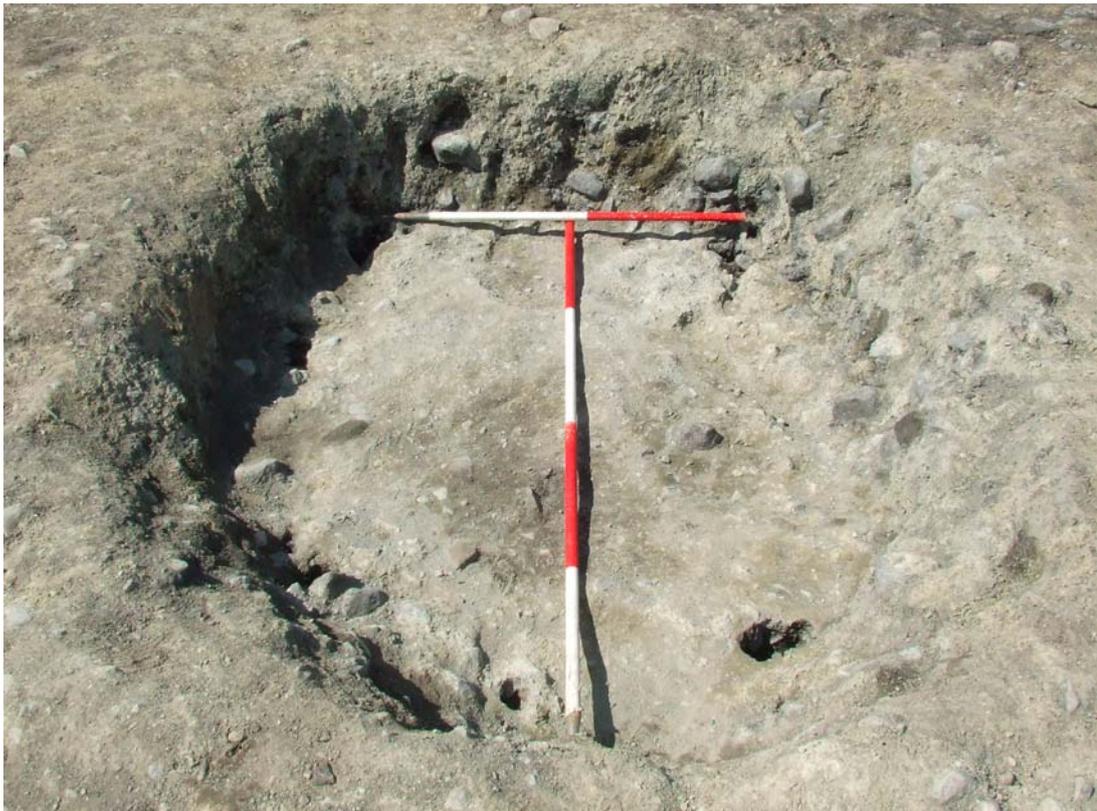


Plate 4: Looking north at the sub-circular trough located to the south of the burnt mound.

located to the south-west of the pit represents the remains of an earlier cleaning out of the pit.

A small oval pit (C.18), measuring 0.6 m by 0.31 m by 0.22 m in depth, was cut into the fill (C.12) of the southernmost pit (C.15). The pit contained orange brown sandy silt with few inclusions apart from some small fragments of animal bone.

### 7.3 The burnt mound

A shallow layer of burnt sediment (C.3) (Plate 2) measuring 6.34 m in length, 5.98 m in width and 0.19 m in maximum depth occupied a central position on the summit of a low rise. This layer, typical of *fulachta fiadh* or burnt mound material, consisted of grey/black sandy clay mixed with frequent medium-sized angular and sub-angular heat-shattered limestone.

### 7.4 Cultivation furrows

Three furrows (C.47, C.48, and C.49) were found orientated in an east-west direction at the northern extremity of the excavated area. It is probable that these are the remnants of ridge-and-furrow cultivation. There was no stratigraphic relationship between the furrows and the burnt mound material, however, they are likely to reflect a much later use of the area than that associated with the burnt mound activity.

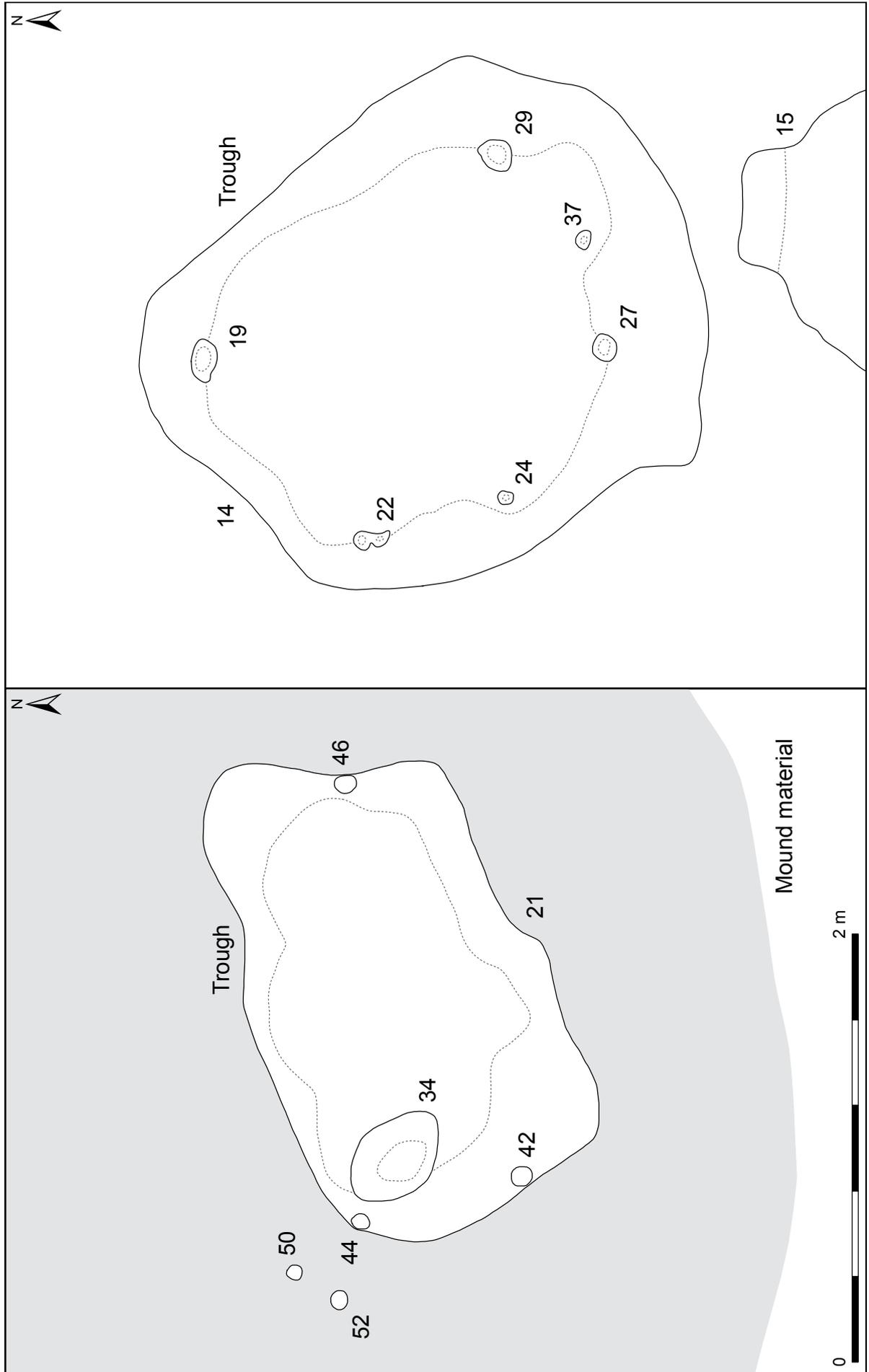


Figure 10: Close-up post-excavation plans of C. 14 and C. 21.

## 8 Charred plant remains

The sieved flots from the Moyveela 2 samples were examined by Mary Dillon. No charred seeds were found.

## 9 Charcoal

A total of 174 fragments were analysed from eight samples (Appendix 4). The identification was carried out by Mary Dillon. There are no distinct differences between the charcoal assemblages from the different deposits, indicating that the gathered fuel probably originated from the same woodland source. The samples were rich in charcoal and a wide range of trees were represented in the assemblage. The most common were hazel, oak and Pomoideae. In all, seven wood types were identified. Sloe-type, alder and elm were present albeit in less than three samples. The assemblage from Moyveela 2 is similar to that from the nearby site known as Moyveela 1.

## 10 Animal bone

The animal bone recovered from the site was examined by Margaret McCarthy. Two fragments of a cow horn core were recovered from the fill (C16) of a pit (C18) located beneath the burnt mound. The fill (C9) of a sub-circular pit (C14) produced evidence for the exploitation of red deer through the recovery of the lower shed portion of an antler.

## 11 Radiocarbon dates

Radiocarbon analysis was carried out by the 14 Chrono Centre in Queen's University Belfast. Dates were calibrated using Calib Rev5.0.2 (©1986–2005 M.Stuiver & P.J. Reimer) and in conjunction with Stuiver & Reimer 1993 and Reimer et al. 2004.

Dates were obtained from two hazel charcoal fragments from two deposits. Two Late Bronze Age dates was obtained from the fills (C.12 and C.26) of two pits (C.15 and C.21).

| Lab. Code | Context                   | Sample | Material                      | Years BP    | $\delta^{13}C$ | 1 sigma calibrated date   | 2 sigma calibrated date   | Period           |
|-----------|---------------------------|--------|-------------------------------|-------------|----------------|---------------------------|---------------------------|------------------|
| UB-11508  | Fill (C.12) of pit (C.15) | 2      | Charcoal: Hazel, 1 frag, 0.2g | 2809± 20 BP | -25.1          | cal BC 993–986<br>980–927 | cal BC 1010–909           | Later Bronze Age |
| UB-11509  | Fill (C.26) of pit (C.21) | 12     | Charcoal: Hazel, 1 frag, 0.6g | 2669± 21 BP | -25.4          | cal BC 829–806            | cal BC 894–873<br>846–798 | Later Bronze Age |

Table 3: Moyveela 2 Radiocarbon dates

## 12 Discussion

Burnt mounds are the most common Bronze Age sites found in Ireland. Estimates suggest that at least 4,500 examples are known (Power et al. 1997) and this number is continuously growing as sites continue to be identified during archaeological field work. The characteristic site-type is found in low-lying and damp ground and consists of a mound of charcoal-rich black sediment that is packed with heat shattered stones and forms a horse-shoe shape around a pit or trough that filled with water. In many cases all that survives to the present day are black charcoal rich deposits with fragments of shattered stones visible in ploughed fields.

These sites are associated with the process of roasting stones to heat water. The remains of these 'pyrolithic technologies' (terminology follows Ó Néill 2004) produce the tell-tale deposits rich in charcoal and heat-affected stone. Debate continues about their use, as hot water is required for many processes including cooking, brewing, washing, dyeing and, most recently it has been argued that some burnt mounds were primarily used to boil and cure meat for long term storage (Roycroft 2006).

Traditionally these sites have been interpreted as ancient cooking places, where large stones were heated in fires and then added to the water-filled trough. The extreme heat of the stones eventually boiling the water in the trough. Experimental cooking at reconstructed sites such as Ballyvourney (O'Kelly 1954) has demonstrated that meat wrapped in straw and placed into a boiling trough can be cooked quite effectively. The perceived lack of any animal bones from these excavated sites has been used as an argument against this theory. More recently however there is a growing corpus of sites which have produced animal bone (Tourunen 2008) and all of the burnt mound sites excavated during the N18 Oranmore to Gort project have produced animal bone all be it in very small quantities.

The traditional perception of the burnt mound site is that they are isolated features on the landscape situated on marginal ground away from settlement. Recent studies however are prompting a re-evaluation of this perception. Excavations along the route of the N25 Kilmacthomas realignment in Co. Waterford produced evidence for a burnt mound site (Ahanaglogh) which was repeatedly used in the Early Bronze Age. Some Early Bronze Age dates from a nearby settlement site suggest that there may have been an overlap in occupation. (Johnston et al 2008). A similar discovery was made at Cloghers II, Co. Kerry where Beaker settlement was found in close association with and proximity to an Early Bronze Age burnt mound (Kiely and Dunne 2005). The recent publication on the archaeology of Clare Island has also established the intimate relationship between burnt mounds and settlement areas (Gosling 2007). Surveys on Clare Island highlighted the spatial association of the identified burnt mounds with enclosures, houses and huts and boundary walls.

Until recently, comparatively few burnt mound sites had been excavated in County Galway. The excavations data-set listed 18 excavations of burnt mounds in the county prior to 2006 (Bennett 1970–2003). The published archaeological inventories for the county record only six examples from the west of the county and 17 in the north. Large

scale archaeological works such as those associated with the N6 Galway to Ballinasloe road scheme suggest that the numbers recorded are under representative: the N6 archaeological works identified thirteen burnt mound sites. However work associated with the gas pipeline to the west revealed only 1 new burnt mound site in Co. Galway (Grogan et al. 2007). The inventory for the south of the county is not yet published but a look at the distribution map based on the RMP data would suggest that the numbers are significantly higher in the southern portion of the county. Archaeological investigations on the N18 from Oranmore to Gort and from Gort to Crusheen bear out this impression of under representation. A total of 12 burnt mounds including Moyveela 2 were excavated on the Gort to Oranmore section while 27 burnt mound sites were excavated on the N18 Gort to Crusheen section by Irish Archaeological Consultancy Ltd.

| Site Name       | E No. | Radiocarbon date (2 sigma) cal BC   | Period     |
|-----------------|-------|-------------------------------------|------------|
| Ballinillaun 1  | E3888 | 1260–1228<br>1220–1108<br>1105–1055 | MBA        |
| Ballinillaun 2  | E3886 | 1912–1876<br>1842–1821<br>1797–1781 | EBA        |
| Ballyglass west | E3870 | 1411–1290<br>1280–1270              | MBA        |
|                 |       | 1687–1602<br>1591–1532              | EBA        |
|                 |       | 1740–1703<br>1699–1618              | EBA        |
| Caherweelder 1  | E3880 | 1125 – 978<br>974–957<br>941–831    | MBA<br>LBA |
|                 |       | 1038–1034<br>1028–901               | LBA        |
| Caherweelder 2  | E3890 | 1192–1174<br>1164–1143<br>1132–1005 | MBA        |
|                 |       | 1294–1124                           | MBA        |
| Caherweelder 3  | E3889 | 1668–1501                           | EBA        |
|                 |       | 1448–1370 1351–1316                 | MBA        |
| Caherweelder 5  | E3866 | 1125–976<br>952–947                 | MBA        |
|                 |       | 1944–1865 1849–1773                 | EBA        |
| Caherweelder 6  | E3871 | 2195–2174 2145–2119 2096–2040       | EBA        |
| Coldwood        | E3887 |                                     | Unknown    |
| Moyveela 1      | E3883 | 731–691<br>660–652<br>544–406       | LBA        |
| Moyveela 2      | E3884 | 1010–909                            | LBA        |
|                 |       | 894–873<br>846–798                  | LBA        |
| Roevehagh 1     | E3885 | 976–952<br>948–832                  | LBA        |

Table 4: Table of radiocarbon dates from the burnt mound sites on the N18 Gort to Oranmore

The burnt mound site at Moyveela 2 is located on slightly raised ground on the western edge of a large turlough. This preference for wetland margins has been consistently noted by other commentators (Gowen et al 2005 and Grogan 2007). Grogan (2007) states that in the 'Mooghaun area of south-east Clare the majority of fulachta fiadh occur along the margins of turloughs, bogs and marshy areas'. The burnt mound sites at Caherweelder (to the south) which were excavated as part of the same programme of excavations had a similar location on slightly raised ground on the edge of a turlough.

Clustering of burnt mound sites is also a feature of this type site which has been described by many commentators (Grogan 2007, Waddell 2000 and Gosling 2007). This clustering of burnt mound sites along with the large size of some examples has led Waddell (2000) to believe that 'they were an integrated part of a wider settlement pattern'. The burnt mounds at Moyveela 2 and Moyveela 1 along with some smaller areas of burnt mound activity noted during the phase 1 monitoring in the area reveals a small cluster of these sites along the western edge of a turlough which appear to fit into a larger concentration of sites located to the south and south west of Athenry. A similar cluster of burnt mound sites was also revealed in Caherweelder townland to the south. The apparent concentration of barrow sites to the west of the burnt mound concentration appears to reflect significant Bronze Age activity in the general area and would appear to substantiate the theory of these sites forming part of an integrated settlement pattern.

A statistical cluster analysis has been applied to the entire set of burnt mounds recovered on a study area around the N18 OG project and the results show a multiscalar high level of clustering for this type of site. Consideration of the burnt mound distribution in a landscape perspective, Moyveela 2 belongs to one of the larger clusters identified in the area. The cluster is composed of 11 sites, eight RMP and three newly recorded. At a larger scale an additional level of clustering is apparent, showing four groups of two or three sites (Fig 7).

| Cluster | Site quantity | Area enclosed | Density per sq. km. | Sites mean distance | Minimum distance | Maximum distance |
|---------|---------------|---------------|---------------------|---------------------|------------------|------------------|
| 1       | 11            | 8.5 sq. km.   | 1.3                 | 2.6 km.             | 50 m.            | 4.4 km.          |
| 1a      | 2             |               |                     | 130 m.              |                  |                  |
| 1b      | 3             | 0.02 sq. km.  |                     | 317 m.              | 86 m.            | 448 m.           |
| 1c      | 2             |               |                     | 50 m.               |                  |                  |
| 1d      | 3             | 0.002 sq. km. |                     | 82 m.               | 50 m.            | 112 m.           |

Table 5: Summary of cluster analysis

The three excavated troughs both showed evidence in the form of internal stakeholes located along the trough sides for structural features. The three stakeholes in the trough located under the burnt mound may have formed some sort of three legged suspension frame. While the stakeholes at the break in slope along the base of the trough located to the south of the burnt mound seem to suggest use as supports for a trough lining.

The animal bone recovered from the site was two fragments of a cow horn core and a portion of shed red deer antler.

The radiocarbon dates obtained give a Later Bronze Age date for the site. Most dated burnt mound sites have a focus of activity in the Middle to Late Bronze Age (Brindley and Lanting 1990; and see graph of dates in Ó Néill 2003/2004).

The site of Moyveela 2 fits into the distribution pattern of Bronze Age activity as reflected by the recorded archaeological sites in the area to the south west of Athenry and it provides another element in the growing corpus of excavated burnt mound sites in Co. Galway.

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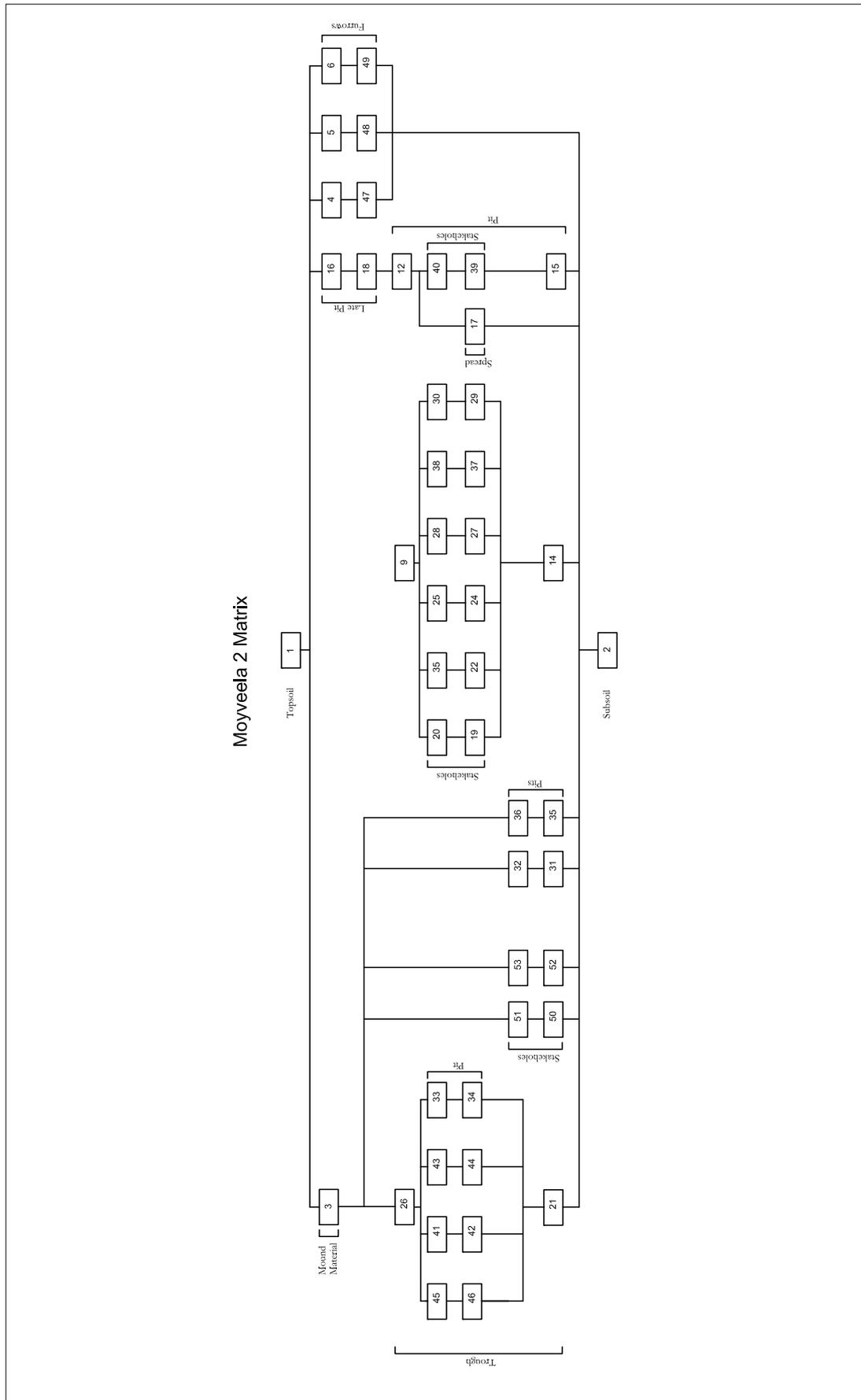
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## Appendix 1 Context register

Please see attached CD for Context Register.

# Appendix 2 Stratigraphic matrix



## Appendix 3 Groups and subgroups

### Natural Deposits – Group 1

#### Topsoil - subgroup 1001

Context Number – C.1

##### *Description*

A shallow deposit, measuring 0.12 m in depth, of soft mid yellowish brown sandy clay with moderate inclusions of fine and medium pebbles and with occasional occurrence of sub-angular and sub-rounded medium stones.

##### *Interpretation*

This represented the topsoil which had formed across the site.

#### Subsoil – subgroup 1002

Context Number C.2

##### *Description*

Light orange brown clay with very frequent occurrence of sub-angular and sub-rounded stone up to 1 m in diameter.

##### *Interpretation*

This was the underlying glacial till which extends across the excavation area.

### Mound material – Group 2

Context Number – C.3

##### *Description*

A shallow deposit measuring 6.54 m in length, 5.98 m in width and 0.19 m in maximum depth occupied a central position on the summit of a low rise. This deposit consisted of greyish black clayey sand mixed with frequent medium-sized angular and sub-angular heat-shattered limestone. A small wood and bark sample was recovered from the spread.

##### *Interpretation*

This deposit was the remains of a burnt mound. The material was the discarded by-product of a technology which used hot stones to heat water. The burnt mound is located on a low hill on western edge of a large turlough.

### Features identified below the mound - Group 3

A trough with an internal pit, internal and external stakeholes and two pits were identified below the burnt mound material.

#### Trough – subgroup 3001

Context Numbers – C.21 and C.26

##### *Description*

The larger pit (C.21) was sub-rectangular in plan and was orientated roughly east to west. It measured 2.45 m in length, 1.45 m in width and was 0.33 m in depth. The pit was roughly cut with a very irregular base. A single fill (C.26) consisting of greyish black clayey silt mixed with moderate small and medium heat-shattered limestone mixed throughout with flecks of charcoal occurred within the cut.

##### *Interpretation*

This was the typical remains of a trough used to heat a volume of water.

#### Internal Pit and Stakeholes – subgroup 3002

Context numbers – C.34, C.33, C.42, C.41, C.44, C.43, C.46 and C.45

##### *Description*

A small pit (C.34) was located at the base on the western extremity of the trough (C.21) It measured 0.5 m by 0.36 m and was 0.23 m in depth. It was filled by (C.33) sandy silt, which had originated in the surrounding sediment.

Three stakeholes were identified driven into the upper sides of the trough (C.21). Two (C.44 and C.42) occurred on the western edge, and a single stakehole (C.46) was located on the eastern edge. These features were sub-circular in plan and varied between 0.07 m and 0.04 m in diameter. Depths were from 0.1 m to 0.13 m. All three stakehole fills (C.43, C.41 and C.45 respectively) were silty and had formed from the surrounding sediment.

##### *Interpretation*

The internal pit was investigated as a potential posthole but no associated fill evidence was found to suggest that it was and its function is currently unknown. The three stakeholes formed a triangular shape, which might suggest use as a suspending frame in association with burnt mound activities.

## External stakeholes - Subgroup 3003

Context Numbers – C.50, C.51, C.52 and C.53

### Description

Two stakeholes (C.50 and C.52) were located *c.* 0.4 m west of the trough (C.21). Both measured 0.06 m in diameter and were up to 0.08 m deep. The fills were (C.51 and C.53) were mid greyish brown sandy silt with occasional small fragments of wood and fine pebbles.

### Interpretation

Two stakeholes probably related to the large central trough. The stakeholes may have been used as supports or as a shield to the function of the trough.

## Two pits – Subgroup 3004

Context Numbers – C.31, C.32, C.35 and C.36

### Description

Two small pits were located *c.* 2.5 m north-east of the large central trough (C.21). The largest of the two (C.31) was oval in plan and measured 0.78 m in length, 0.52 m in width and 0.47 m in depth. Its fill (C.32) contained burnt sandy silt mixed with heat-shattered stone. The smaller pit (C.35) was sub-circular in plan measuring 0.52 m by 0.43 m by 0.37 m in depth. The fill (C.36) was not as burnt as the others and contained virtually no heat-shattered stone.

### Interpretation

No finds or bone samples were recovered from the pit fills and there was no direct evidence that either pit had functioned as a posthole. The two features were probably associated with whatever function was taking place within and around the trough during its use.

## Features located to the south of the burnt mound – Group 4

This group consists of a large trough with internal stakeholes and a pit with an associated smaller pit, stakehole and spread.

## Trough – Subgroup 4001

Context Numbers – C.14 and C.9

### Description

A sub-circular pit (C.14) was located immediately north of Pit 4. This pit was very well cut with a level base. It was sub-circular in plan measuring 2.7 m by 2.3 m by 0.56 m in depth. A single fill (C.9) comprised of a dark greyish black sandy clay mixed with frequent

small and medium heat-shattered limestone. One fragment of bone was recovered from the fill but no artefacts.

#### *Interpretation*

A large trough used to heat a volume of water. The fill was similar to the mound material which was discarded by-product of a technology which used hot stones to heat water.

### Internal stakeholes – Subgroup 4002

Context Numbers – C.19, C.29, C.22, C.27, C.24, C.37, C.20, C.30, C.23, C.28, C.25 and C.38

#### *Description*

Six vertical stakeholes were identified cut into the base of the trough (C.14). All the stakeholes were located at the break of slope of the trough base. They formed a regular pattern apart from the eastern side where no stakeholes were identified. The two eastern corner stakeholes (C.19 and C.29) were the most substantial and measured 0.17 m by *c.* 0.13 m in diameter and were 0.31 m and 0.35 m in depth respectively. The stakeholes (C.22 and C.27) occupying the opposite corners were smaller but of similar dimensions to each other and measured 0.1 m by 0.1 m by 0.15 in depth and 0.09 m by 0.11 m by 0.16 m in depth respectively. The two remaining (C.24 and C.37) were less substantial at 0.09 m by 0.07 m by 0.1 m and 0.06 m by 0.08 m by 0.13 m. No traces of the original stakes remained and all cuts were filled (C.20, C.30, C.23, C.28, C.25 and C.38) by mid grey silty sand with moderate occurrence of sub-rounded and sub-angular pebbles.

#### *Interpretation*

There was no direct evidence of wickerwork or of a similar structure but it is suggested that such a feature might have been supported by the *in situ* stakes. The four corner stakeholes were substantial and would have been capable of either supporting a weight or the *in situ* construction of a wickerwork structure. It is probable that these four stakeholes were the main supports and the two other stakeholes acted as secondary supports.

### Pit, Deposit and associated stakehole – Subgroup 4003

Context Numbers – C.15, C.12, C.39, C.40 and C.17

#### *Description*

A sub circular pit (C.15) not covered by the burnt mound was located to the south of the trough (C.14) not covered by the burnt mound (C.3) and was 5.5 m to the south of the central trough (C.21). The pit (C.15) measured 1.48 m by 1.36 m and was 0.55 m in deep. It contained a single fill (C.12), which comprised of dark greyish brown clayey silt mixed with moderate small and occasional medium heat-shattered limestone. No artefacts or bone samples were recovered.

A single vertical stakehole (C.39) was identified cut into the western slope of the pit. It measured *c.* 0.15 m in diameter and was 0.25 m in depth. Its single fill (C.40) was a dark brownish grey silty sand with fine and medium pebbles.

Immediately south-west of the pit was a deposit (C.17) of dark black sandy silt with moderate occurrence of heat shattered angular and sub-angular coarse pebbles and small stones that stratigraphically pre-dated the pit fill (C.12). This deposit extended 1.62 m by 0.9 m and was 0.16 m in depth.

#### *Interpretation*

The pit was filled with the dark burnt mound material and had an internal stakehole. The activity originally represented by the pit is unknown however due to its location it likely to have been associated with the use of the nearby trough. The fill of the stakehole had probably formed from the fill of the pit after the stake had been removed. Due to its stratigraphy in relation to the other features, it is possible that the deposit located to the south west of the pit represents an earlier cleaning out of the pit.

### Later pit – subgroup 4004

Context Numbers – C.18 and C.16

#### *Description*

A small oval pit (C.18), measuring 0.6 m by 0.31 m by 0.22 m in depth, was cut into the fill (C.12) of the southernmost pit (C.15). It was filled with mid orangish brown sandy silt (C.16) with inclusions of sub-angular small stones and coarse pebbles occasional flecks of charcoal and some animal bone.

#### *Interpretation*

The function of the pit is unknown however it is probable that this pit filled naturally, as it contained orange brown sandy silt with few inclusions.

### Plough Furrows – Group 5

Context Numbers – C.47, C.48, C.49 C.4, C.5 and C.6

#### *Description*

Three furrows (C.47, C.48, and C.49) were found orientated in an east to west direction at the northern extremity of the excavated area. The furrows were filled with dark greyish brown clay with moderate inclusion of angular and sub-rounded pebbles (C.4, C.5 and C.6) These features were not fully excavated but recorded widths were between 0.88 m and 0.58 m. Depths varied from 0.13 m to 0.08 m.

*Interpretation*

It is probable that these are the remnants of ridge-and-furrow cultivation. There was no stratigraphic relationship between the furrows and the burnt mound material however they are likely to reflect a much later use of the area than that associated with the burnt mound activity.

## Appendix 4 Charcoal analysis

Mary Dillon

### Introduction

This report gives the results of the analysis of charcoal from samples taken during excavation at Moyveela 2 (E3884) in Co. Galway. The excavation found a burnt mound site with a burnt spread, pits and stakeholes. The samples from this site contained frequent charcoal, land *molluscs and occasional bone*.

### Methodology

Bulk soil samples were collected on site and were processed by the client. All charcoal fragments that measured 2 mm or greater in the transverse section were identified. Each fragment was prepared for microscopic examination by fracturing it by hand and thereby exposing a clean surface along transverse, radial and tangential planes. All three planes were examined at a range of magnifications. For reference literature the Schweingruber (1990) was consulted. The number and weight of fragments were recorded for each wood type.

### Results

In all, 174 fragments of charcoal were analysed from eight samples. A total of seven samples contained charcoal. S.24 from C.51 (fill of a stakehole) contained no charcoal. It contained wood, which was possibly the remains of a stake, but the wood had dried out to such an extent that it was not identifiable. The seven samples had charcoal that was suitable for AMS dating. Hazel was present in all of the samples and this is recommended, and marked as suitable, for submitting for dating as it has a lifespan of just 80 years.

In Figs. 1 and 2 percentage frequencies of the various wood types, based on fragment count and dry weight respectively, are shown.

The most common wood types based on fragment count were hazel (38%) and oak (26%). Pomoideae (15%), ash (11%), *Prunus* (5%), alder (3%) and elm (2%) were also identified (Fig. 1, Table 1.).

When the results of percentage weight are taken into account the results change slightly (Fig. 2, Table 2.).

### Discussion

The samples came from the burnt deposit (1 sample), pits (4 samples) and stakeholes (3 samples). There are no distinct differences between the charcoal assemblages from the different deposits, indicating that the charcoal probably originated from the same source. The assemblages from the stakeholes were generally smaller, but this was probably due to the size of the samples. The samples from all over of contexts consisted of several wood types. The wide variety of woods identified suggesting that there was a broad range of

trees growing in the area. The results from Moyveela 2 are particularly similar to the burnt mound site at Moyveela 1.

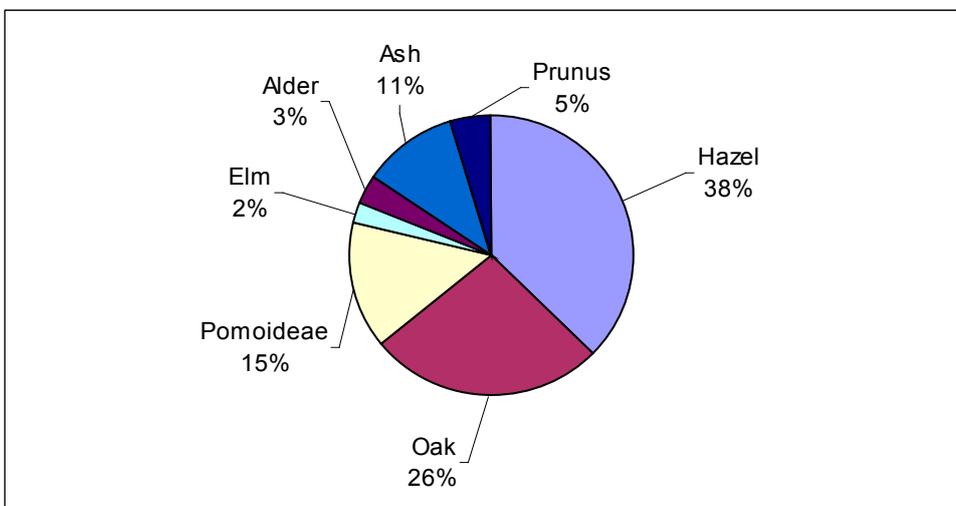


Fig. 1 Percentage fragment frequency

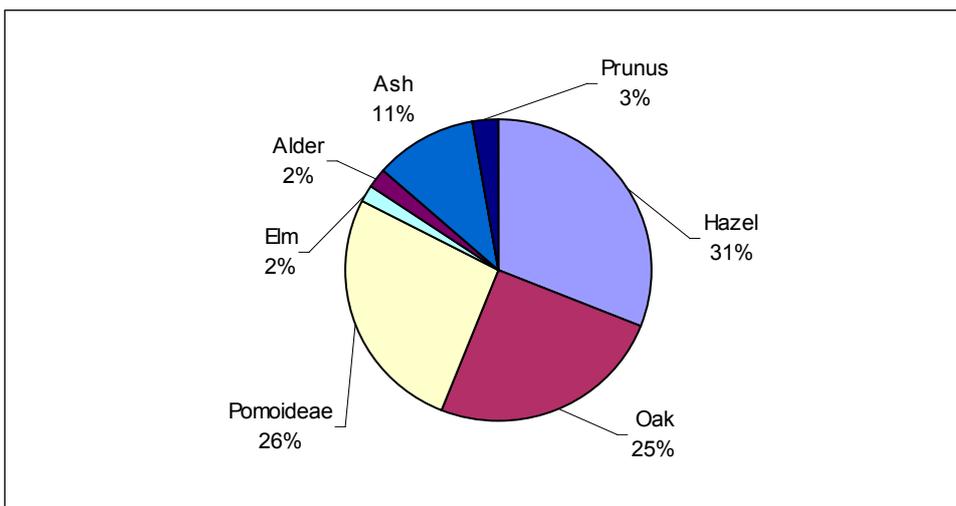


Fig. 2 Percentage weight

**Corylus (hazel; *C. avellana*).** The charcoal data shows that hazel was the most common used wood. It accounts for 38% of all charcoal fragments identified. It was present in all the samples where charcoal was recorded. Hazel was widely exploited in both prehistory and historical times for its nutritious nuts and supple rods which were widely used for building. Its coppice-like growth form makes it relatively easy to cut and there are normally substantial quantities of dead wood available near ground level. Pollen analytical studies indicate that hazel was of great importance in Ireland for most of the Holocene. It is one of the more frequent native trees growing in south Co. Galway today. Hazel is commonly found on burnt mound sites (O’Donnell 2007) probably because it was so readily available.. It was the most common wood type identified in the samples from the nearby

burnt mound sites Caherweelder 1, 2, 5, and 6, Ballinillaun 1, Roevehagh, and Moyveela 1 (Dillon 2009 a,b,d,e,f,g and h).

**Quercus (oak).** *Quercus* makes up 26% of the fragment frequency. It was present in all but one of the samples where charcoal was recorded. Oak is slow burning and gives out substantial heat as it burns which would have made it a natural choice for a fire. There are two native species of oak in Ireland, namely *Q. petraea* and *Q. robur*. Unfortunately, it is difficult to distinguish these species on the basis of wood anatomy (Grosser 1977). Oak is commonly found on burnt mound sites (O'Donnell 2007). However, the samples from the burnt mounds sites excavated along the N18 contained less oak than those excavated in other parts of the country. Just Caherweelder 3 and Moyveela 1 had frequent oak charcoal (Dillon 2009c, and h)

Pomoideae (rowan, whitebeam, hawthorn and crabapple), ash, , *Prunus* spp. (wild cherry, bird cherry and blackthorn), alder (*Alnus glutinosa*) and elm (*Ulmus glabra*) were likely growing in the immediate environs of the site. They were also present in various amounts in the samples from the other N18 burnt mound sites (Dillon 2009 a,b,c,d,e,f,g and h).

## Conclusion

The samples from Moyveela 2 burnt mound site were rich in charcoal. A wide range of trees were represented in the assemblage. The most common were hazel and oak. In all, seven wood types were identified. The assemblage from Moyveela 2 is particularly similar to that from nearby Moyveela 1.

| Sample | Context | Hazel | Oak | Pomoideae | Elm | Alder | Ash | Prunus |
|--------|---------|-------|-----|-----------|-----|-------|-----|--------|
| 2      | 12      | 16    | 1   | 4         |     | 2     | 2   | 5      |
| 3      | 9       | 11    | 9   | 5         | 1   |       | 4   |        |
| 9      | 17      | 7     | 9   | 8         |     |       | 4   | 2      |
| 10     | 20      | 5     | 6   | 2         | 3   |       | 2   |        |
| 12     | 26      | 7     |     | 3         |     | 4     | 4   |        |
| 15     | 30      | 5     | 7   | 3         |     |       | 2   | 1      |
| 19     | 32      | 14    | 14  | 1         |     |       | 1   |        |
| 24     | 51      |       |     |           |     |       |     |        |

Table 1. Charcoal fragments sorted by sample and wood type

| Sample | Context | Hazel | Oak  | Pomoideae | Elm  | Alder | Ash  | Prunus |
|--------|---------|-------|------|-----------|------|-------|------|--------|
| 2      | 12      | 0.6   | 0.05 | 0.1       |      | 0.05  | 0.1  | 0.1    |
| 3      | 9       | 0.6   | 0.5  | 0.4       | 0.05 |       | 0.2  |        |
| 9      | 17      | 0.2   | 0.4  | 0.9       |      |       | 0.1  | 0.05   |
| 10     | 20      | 0.1   | 0.1  | 0.1       | 0.1  |       | 0.05 |        |
| 12     | 26      | 0.2   |      | 0.1       |      | 0.1   | 0.1  |        |
| 15     | 30      | 0.1   | 0.2  | 0.3       |      |       | 0.2  | 0.05   |
| 19     | 32      | 0.5   | 0.6  | 0.05      |      |       | 0.05 |        |
| 24     | 51      |       |      |           |      |       |      |        |

Table 2. Charcoal weight sorted by sample and wood type

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## Appendix 5 Animal bone report

A shallow spread of burnt material, typical of fulachta fiadh, was excavated in Moyveela townland. Two fragments of a cow horn core were recovered from the fill (C16) of a pit (C18) located beneath the burnt mound. The fill (C9) of a sub-circular pit (C14) produced evidence for the exploitation of red deer though the recovery of the lower shed portion of an antler. The specimen is very poorly preserved but the antler was clearly shed as the coronet has survived.

|       | Cow | Red Deer | Total |
|-------|-----|----------|-------|
| C9    |     | 1        | 1     |
| C16   | 2   |          | 2     |
| TOTAL | 2   | 1        | 3     |

Table 1: Anatomical distribution of mammals