Prehistoric Round House Structures in Wester Ross, and in Selected Areas of Skye

Collation and Analysis of Detailed Data

with regard to distribution, construction and landscape settings

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Undergraduate Dissertation

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I, Anna Welti, declare that

- This study is researched and written by myself,
- The fieldwork on which the study is based has been carried out by myself together with volunteers whom I trained and supervised myself,
- All sources of information have been specifically acknowledged in the text.
- The copyright of this study rests with myself.

Signed Date

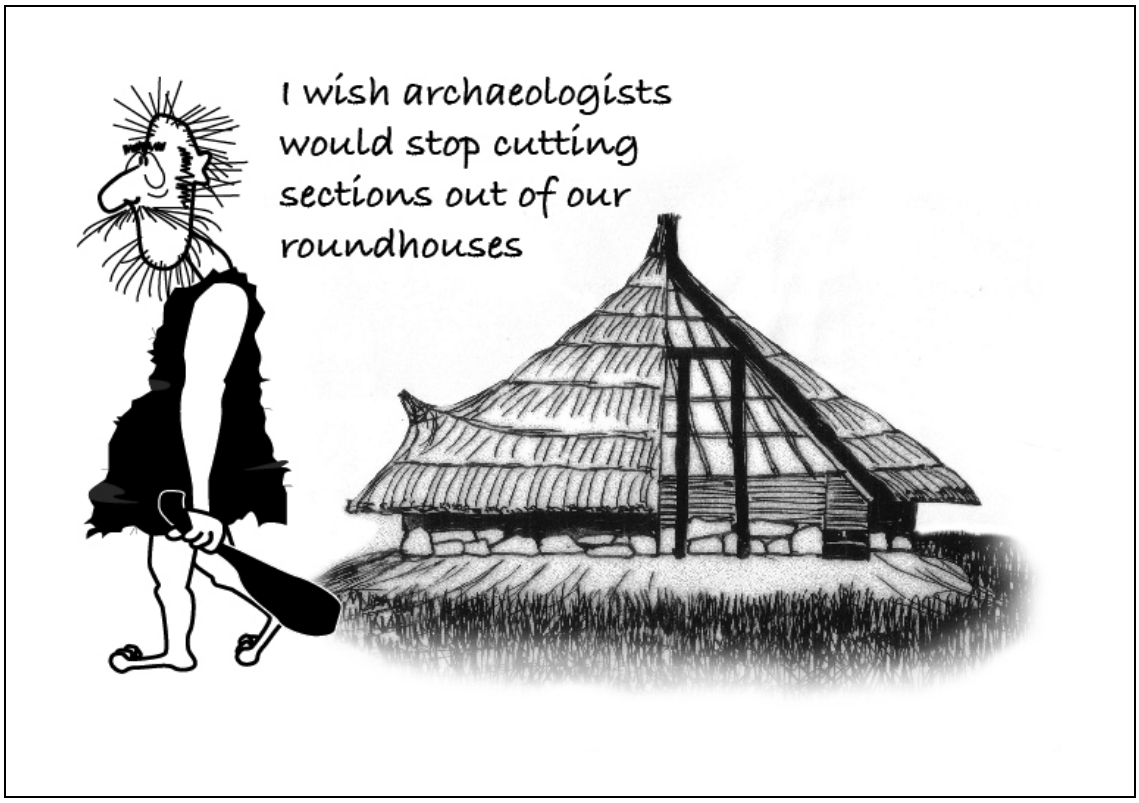
Anna Welti March 7th 2011

Anna Welti

[Word Count 12,833]

This research is dedicated to my father

A.G. MacGregor, MC,DSc, FRSE


I wish archaeologists would stop cutting sections out of our roundhouses

Abstract

The aim of this study was to understand the reasons behind the siting and structure of roundhouses in Wester Ross. Some existing records are detailed and some are very brief: inter-site comparisons cannot easily be made.

The project was designed as a field survey to record roundhouses and their settings in detail. A database would be produced for future researchers. Sketches and photographs were to be included in the record, which was to be formatted in a manner acceptable to Highland Council HER and RCAHMS Canmore.

Roundhouse sites proved more numerous than records had suggested, hence the areas in the study were limited to four; Achiltibuie, Gairloch & Poolewe, Badachro, and selected parts of Skye. The sites in other areas of Wester Ross, Lochalsh and part of Skye have been recorded to the same standard and will later be included in the database.

The current database includes 234 roundhouse sites and around 100 fields. It was tested with a variety of queries. These produced some informative results about structure, entrance orientations, site locations, enclosures and field systems. Individual clusters of roundhouses were studied to examine whether site differences could indicate chronological depth. These results, together with information from site plots on both Ordnance and Geological maps, as well as from aerial photographs, have given interesting insights into roundhouses and their locations.

The fieldwork form from which the database was constructed has proved fit for purpose; its design is already being used as a basis for a similar recording project.

Acknowledgements

This study was only possible because of the willing help of very many helpers, both professional archaeologists and enthusiastic volunteers. I thank them all, and list them below:

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Special thanks to the late **James Kenworthy** who lit the fuse and opened my mind to the excitement of trying to interpret man's involvement in the landscape.

Last but not least is the long list of volunteers who turned out in all weathers to clamber around 'hut circling' on slippery, rocky and heathery hillsides:

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Anne MacInnes
Cerian MacInnes
Cathy MacNeilage
Ewen MacNeilage
Meryl Marshall
Catriona Martin
Catherine Martin
Peter Newling
Angela Rogers
Hector Rogers
Gordon Sleight
Paul Swan
Ann Wakeling
Sue Watkins
Martin Wildgoose
John Wombell
Trina Wombell
Jamie Womersley-Stroud
Molly Womersley-Stroud

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1 Introduction

1.1 Background

1.1.1 The archaeological study of Bronze Age and Iron Age structures in Wester Ross and Skye has been heavily biased towards Brochs, perhaps because these are clearly visible and hence regarded as potentially rewarding to excavate (Hingley 1992). Houses with low archaeological visibility have had little interest value for archaeologists (Armit 1990). Roundhouses, formerly known as hut circles, although contemporary with Brochs and Duns, have been recorded in a very haphazard way over many decades. These records have been made in a variety of ways; by enthusiastic amateurs, by the OS and by archaeologists during field survey of estate and Forestry Commission land. Very few have been excavated. The result is a mixed quality of data which precludes comparative studies. The following study is an attempt to standardize data by visiting each roundhouse site and recording the same details in the same way for each one. The resulting database was designed to be of considerable use to researchers.

1.1.2 Definition of a roundhouse

1.1.2.1 In this study a roundhouse is a structure which was probably a dwelling, with remains in the landscape which have the following features (Wildgoose 1999):

- A circular (or sub-circular) raised bank of soil, turf or rubble, at least 1m thick, sometimes with inner and outer stone facings, and enclosing an area with diameter ranging between 4m and 12m.
- The structure is usually sited on a natural terrace or a platform dug into and out from a hill slope.
- Entrances can lie between
  - standard terminals, which are the same thickness as the wall, or
  - extended terminals, where the walls thicken making a long entrance passage.

1.2 Scottish Chronology

1.2.1 In this study the approximate Chronology is taken as shown in Table 1.

Late Neolithic	3400BC t0 2300BC
Early Bronze Age (EBA)	2300BC to 1200BC
Late Bronze Age (LBA)	1200BC to 700BC
Early Iron Age (EIA)	700BC to 400BC
Middle Iron Age (MIA)	400BC to 100BC
Late Iron Age (LIA)	100BC to 450 AD

Table 1 Scottish Chronology (approximate)

1.3 Published research and literature on roundhouses and land use in the UK, with emphasis on Scotland

1.3.1 My interest in making a study of roundhouses in Wester Ross and Skye was aroused by an inspiring lecture in 2008, when Rachel Pope described her PhD study of prehistoric circular structures in North and Central Britain. This is referred to in section 1.3.2.4.1.

1.3.2 Previous Studies of Roundhouses in Northern Scotland

1.3.2.1 There follows an overview of relevant work up to the present day, under the following headings:

- Excavation
- Field Survey
- Use of Archival Material

1.3.2.2 **Excavation**

1.3.2.2.1 There are no published reports of roundhouse excavation in the area of study, (although see forthcoming Braemore Square 2009, Dagg C. et al), but there are unpublished reports from Skye. Several excavation reports from the Western Isles have relevance, where climate and terrain is similar to that of the study area. In-depth studies on excavated roundhouses and their landscapes have been produced for Sutherland and Easter Ross.

1.3.2.2.2 **The Lairg Project** in Easter Ross examined evolution of the archaeological landscape over time. It was found that Bronze Age occupation had been destructive to earlier Neolithic remains, apart from those of major monuments. Each community tended to settle on the site of earlier occupations. Small areas of well drained sandy soils attracted settlement, the settled fertile patches often being surrounded by poorer badly drained soils. (McCullagh.& Tipping 1998)

1.3.2.2.3 **At Kilphedir, Sutherland,** five roundhouses were excavated in 1971.Their construction was simple and similar in construction, and they were dated around 500BC, an early Iron Age date. Group occupation was possible, although the sites may not all have been in use simultaneously. Soil was poor and the houses were surrounded by a very small area of arable ground, indicating reliance on stock and wild game rather than crops, (Fairhurst & Taylor 1971). The settlement as a whole was not surrounded by an enclosing boundary. It has been suggested that an open settlements may have implied that there were no clear social boundaries between the individual households, (Hingley 1992).

1.3.2.2.4 **Excavations on Arran** highlighted the difficulty of discerning archaeological structures in peat covered landscapes profuse with heather, bracken and long grasses, (Barber 1997).

1.3.2.2.5 A prehistoric settlement at An Sithean, Islay is sited on low lying terraces. These terraces are fringed with boulders, probably deposited as the glaciers receded. The site chronology was difficult to establish by field survey alone, (Barber & Brown 1984). Selective excavation of small wall sections showed that some roundhouses, which from field survey appeared similar, were often structurally varied. Dished internal flooring, together with the absence of phosphate rich soils from the floors, may have been due to regular removal of the floor surface for cleanliness; dishing could be an indicator of chronological depth, (Barber & Brown 1984).

1.3.2.2.6 Structural interpretation of a prehistoric roundhouse excavated at Cul a' Bhaile, Jura, indicated that it could have been in use for 150 years or more. Repairs to the walling had doubled its thickness, hence it is possible that a very thick wall indicates a long period of use, (Stevenson 1984).

1.3.2.2.7 Ian Armit describes an excavation in 1992 by R Miket et al (unpublished) of a roundhouse at Coille a Ghasgain near Ord in Skye. The site was on marginal land in an inland valley. Miket suggested that the structure was representative of a typical type of Hebridean roundhouse; it consisted of a low circular drystone wall, a long entrance passage, a kerbed central area which included a built hearth, and an internal circle of post holes. These post holes could indicate radial spatial division. A radiocarbon date put the structure in the Iron Age at 470BC. Further excavations at Altnacloiche, also near Ord, found a cluster of roundhouses, with similar internal post rings, (Armit 1996).

1.3.2.2.8 At Cladh Hallan, on the South Uist machair, a Late Bronze Age settlement evolved in 1000BC on top of a cremation site dating from 1300BC. An unusual 'terraced' row of roundhouses was built here. The entrances mostly faced East, and in each house daily activities followed a 'sunwise' cycle. For example sleeping and cooking areas were identified to the north and southeast respectively. Settlements on the island at the time of the terrace row were in three main coastal clusters to the north, middle and south of the island. After 400BC, when Cladh Hallan was abandoned, the settlement pattern changed. Roundhouses were then built spread out all along the machair plains, around 1km apart. This change could have been to make more space available for allocation of land strips as population grew, (Parker Pearson et al 2005)

1.3.2.3 **Field Survey**

1.3.2.3.1 Settlement enclosures in Scotland have been dated from around 1000BC. Enclosure building was possibly related to soil exhaustion and retreat from the uplands as the climate deteriorated. However most settlements in both the Bronze Age and Iron Age periods in Scotland appear to have been unenclosed, (Cook & Dunbar 2008).

1.3.2.3.2 Preferred settlement location for Bronze Age settlers would have been on well drained land. Valley bottoms were swampy and poorly drained; houses were sited on lower hill slopes and gravel ridges and, when the climate was favourable, at higher elevations. Dense woodland and landscape topology probably made travel difficult, hence proximity to navigable rivers or the coast was an important factor, (Wickham-Jones 2009). However on the Hebrides the dense woodland would

probably have disappeared by 2500BC. On the mainland woodland vanished later, by around 1500BC, (Barber 1997).

1.3.2.3.3 Factors in siting of settlements were thought by B.J.Garner,(as quoted by Michael Aston) to include their distance from other settlements, their accessibility, and a terrain which ensured acceptable returns for house dwellers work effort, (Aston 1985).

1.3.2.3.4 Wheelhouses are roundhouses, usually of Iron Age date, and are circular drystone structures with radial subdivision of the interiors. These occur frequently on the Outer Hebridean machair, (Barber 2003). They also occur on Shetland, but are apparently absent on Orkney and mainland Scotland. (Armit 2006).

1.3.2.4 **Use of Archival Material**

1.3.2.4.1 Prehistoric circular structures in North and Central Britain were studied by Rachel Pope, (Pope 2003). Her study data included all excavated and published sites north of a notional line drawn from Aberystwyth to The Wash. This was incorporated into a database. Data included regions, diameter measurements, siting, orientation, and entrance detail; the database was used for analysis and comparison. The Welsh Roundhouse Project (Ghey & Johnston 2007) followed Pope's study. The project was set up to provide a comprehensive study of later prehistoric practices in Wales, creating a valuable resource for researchers. Prior to this there had been no detailed study of the role and construction of Welsh Roundhouses.

1.3.2.4.2 Late prehistoric domestic locations were studied by K. Sabine in an attempt to devise a model for Northern Scotland, with emphasis on environmental factors. Her sample of roundhouses was selective and was chosen from Ordnance Survey Records drawn from different types of terrain such as coastal, moorland, and lochside. She made the assumption, perhaps questionable, that the roundhouses in each settlement studied were all domestic units, were all occupied at the same time, and also that surrounding field systems together with any nearby brochs or duns, were contemporary. Her resulting model brought in slope, aspect, elevation, proximity to water, proximity to other settlements and geology. (Sabine 1984)

1.3.3 General Comment on Literature

1.3.3.1 The above summary of some of the books and papers studied includes content considered most relevant to this research study. Many other books and articles have been consulted in order to give a broad background of previous UK based research work covering the Bronze and Iron Age periods. These are listed in the Bibliography, and may be referred to in discussion of the results.

1.4 Aims of the Research Undertaken

1.4.1 The Primary Aim

1.4.1.1 This has been to collect, collate and study detailed data on Roundhouses and their settings in chosen areas of North West Scotland. Such data collection has not previously been done in a consistent and detailed manner.

1.4.2 The Chosen Areas

1.4.2.1 These areas were Wester Ross with Lochalsh and selected areas of Skye, (see Figure 1) The northern limit is bounded by the Assynt area which has very few recorded roundhouse sites.

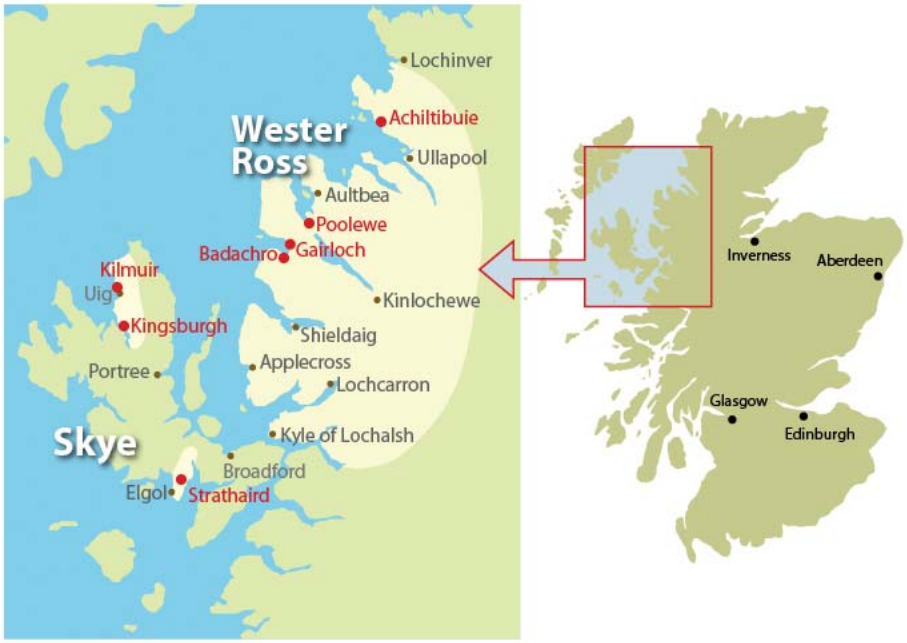


Figure 1 Geographical areas included in the study

1.4.2.2 To the south, Skye made a natural geographical boundary. Accessibility for volunteers was a consideration in this area selection. This overall area was split up into smaller areas as follows: Achiltibuie, Lochbroom, Dundonnell, Scoraig, Aultbea, Gairloch and Poolewe, Badachro, Applecross, Lochcarron, Lochalsh, Skye Kilmuir, Skye Hinnesdal Bridge, Skye Kingsburgh, Skye Strathaird, Skye Torrin.

1.4.3 The Microsoft Access Database

1.4.3.1 Field data, after collection, collation and study, was to be entered into a database format which would enable the answering of questions, both those posed in section 1.4.4.1, as well as those arising from the gathered evidence. Formatting of the Database was designed to enable subsequent incorporation into Highland Council HER and RCAHMS Canmore. In addition a separate file was to be prepared for each roundhouse in order to store digitised sketches and photographs, also in a format compatible with HER and Canmore.

1.4.3.2 The completed database and files will be available as a research resource accessible by others for their own fields of study and may be published if results warrant this.

1.4.4 Questions

1.4.4.1 The questions posed in this study are as follows:

- Are the sites all Roundhouses as defined in section 1.1.2.1?
- Is there any pattern in the range and variety of architectural features?
- Can we postulate a chronology of style?
- Can we compare landscape settings where there are several roundhouses with those where there is only one?
- What can we learn about roundhouse dwellers :
  - Use of resources?
  - Interaction with the environment?
  - Transhumance?
- Is there any pattern in the selection of site locations? Was selection due to
- The underlying geology?
  - proximity to running or standing water?
  - local resources such as minerals, food sources?

- Other?

1.4.5 Modifications made as the Study progressed

1.4.5.1 Re-assessment of the study areas was necessary as the project progressed. At the start of the project there were estimated to be around 100 roundhouse sites previously recorded in Wester Ross and 50 in the chosen areas of Skye. This proved to be a considerable under-estimate, and many new sites were identified. Consequently it was decided to omit Lochalsh, Applecross, Lochcarron, Lochbroom, Aultbea, and Skye Torrin from the initial database and comparative study, although all the roundhouses in these areas have been field recorded to the same standard. Data from these omitted areas will be processed and analysed as follow-up work to this study. The areas to be considered for the current study are now in four well populated groups, (see map, Figure 1) :

- Achiltibuie in the north of Wester Ross,
- Gairloch and Poolewe, central in Wester Ross,
- Badachro, central in Wester Ross,
- Skye (selected areas), to the south of Wester Ross.

1.4.5.2 The total number of roundhouse sites in this modified study is 234.

2 Methodologies and Data

2.1 Data selection

2.1.1 The data collected in this study includes, for the chosen areas, details for all the recorded sites listed on the Highland Environment Record (HER) and Canmore RCAHMS). It also includes details for sites newly discovered during extensive Field Survey carried out by volunteers over 2009/2010.

2.2 The database

2.2.1 The database was constructed using Microsoft Access and consists of details of 234 roundhouse structures from the chosen areas. The database holds information in around 100 fields under headings as follows:

General	Site name, Site id, Recorder's name, Date of Survey, Area, National Grid references, HER and Canmore references.
Site	Elevation, Slope angle, Slope orientation, Platform type, Distance from water, Proximity to other roundhouses.
Landscape	Surrounding Enclosures and Field systems, Terrain, Vegetation inside and outside the structure, Extent of view.
Construction and wall morphology	Shape, Inner and Outer diameter measurements, Wall construction, thickness and height, Entrance measurements, Entrance orientation.
Other	Overlying structures, Proximity to Broch or Dun or Ritual site, Condition of structure, Additional notes.

Table 2 Database fields

2.2.2 Figure 2 shows an example of a completed database input form. The complete database is stored on a CD, Appendix L.

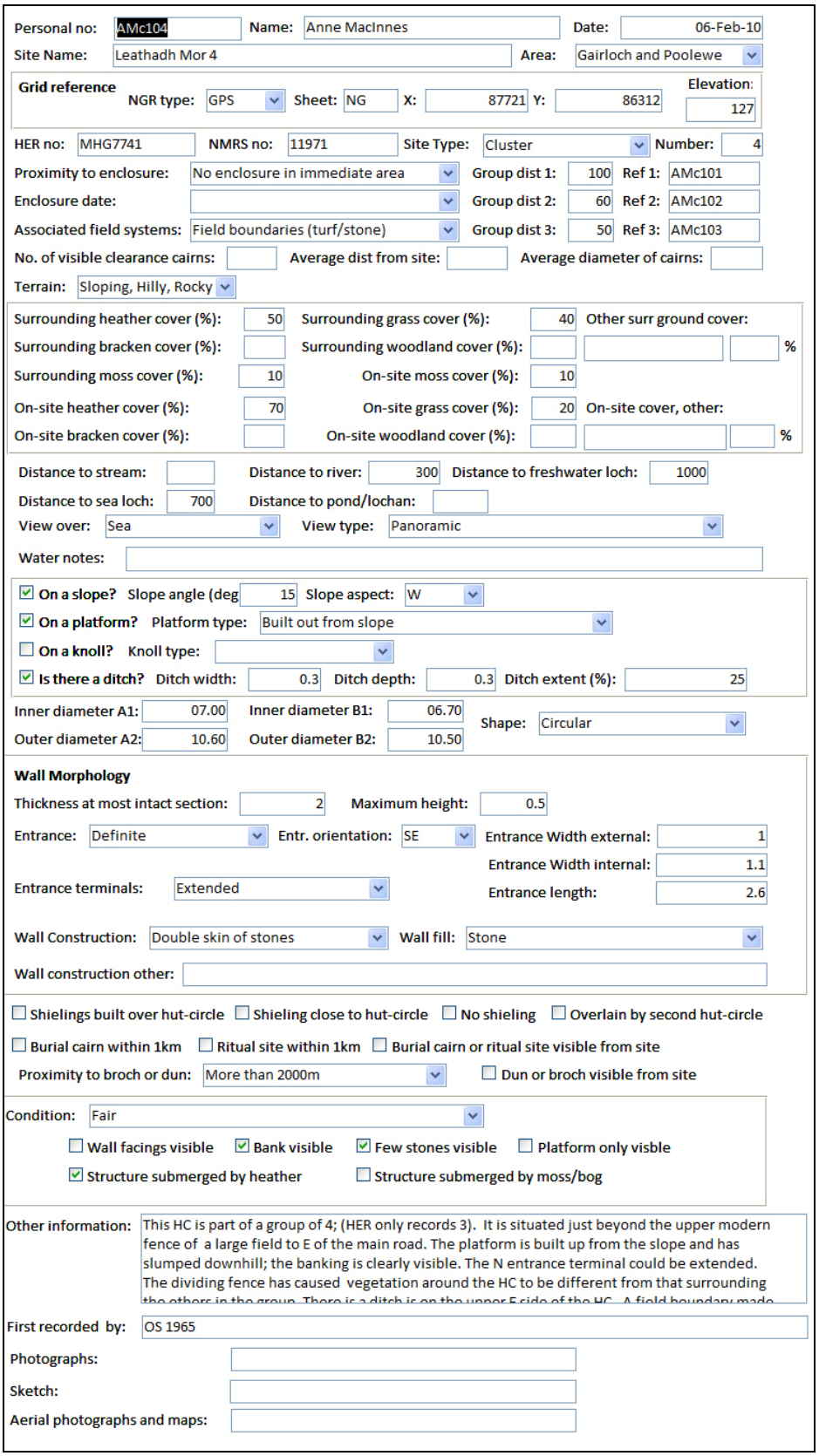


Figure 2 Database Input form, completed

2.3 Recording in the Field

2.3.1 The Recording Form

2.3.1.1 This was designed to record, as concisely and clearly as possible, the information needed for each roundhouse. During initial field survey the form layout evolved, so that instead of using several sheets of paper for each roundhouse the written information was compacted onto one A4 sheet, with a further sheet for a sketch and one for the photographic record. Fewer pages made the form easier to use in wet and windy conditions. Some new fields, not previously rated as important, were added to the layout, examples being the extent of views from each site and whether sheilings had been built over the site or adjacent to it. Each record had a unique identifier label based on the initials of the recorder; for example JG002 meant the second site recorded by Joni Guest.

2.3.2 Photographic Data

2.3.2.1 Photographs were taken at each roundhouse site, with the direction of each shot noted together with a short description. Ranging poles and/or volunteers were included for scale.

2.3.3 Sketch

2.3.3.1 A pencil sketch was drawn for each roundhouse. Each sketch included orientation, an approximate scale, hachures to show slopes and banking, approximate indications of nearby enclosure or shieling walls, annotation, and, where possible, a section through the site. These scaled annotated sketches were very valuable in later analysis. Studied together with the labelled photographs of the structure they gave a clear picture of the roundhouse in its landscape.

2.3.4 The Completed Form

2.3.4.1 An example of a recording form completed in the field, together with a photographic record, and sketches of the structure and its immediate surroundings is shown in Appendix E, Appendix F, Appendix G.

2.4 Equipment Used

2.4.1 Equipment was simple, a pre-requisite being that it should be easy to carry for long distances over steep heather or bracken covered terrain. The following items were needed:

- Ranging pole
- Tape measure (30m)
- Pocket Tape (5m)
- Survey Arrows (several)
- Flag-Marks (12 in one colour and 2 red)
- String
- Compass
- Handheld GPS (generally accurate to + or – 5m)
- A4 Weather Writer
- Waterproof Notebook
- Pencils, erasers
- Camera
- Trowel
- OS Maps

2.5 Organisation of Each Fieldwork Day

2.5.1 Roundhouses in the chosen area already on the national record were identified from the HER and their positions marked on an Ordnance Survey map. These positions were not always accurate as many old records had used map grid estimates before GPS availability. The GPS was invaluable in location of the sites, as the vegetation was often so high that stones or banking could not readily be seen. Volunteers, with varying degrees of experience, were formed into teams of between two and six, the most practicable number for task allocation being four. Occasionally a professional archaeologist joined the team. It was found to be impracticable for a team to try to record more than six roundhouses in one day. When a roundhouse was located members of the team were each allocated tasks as follows, the beginners having simple tasks such as holding a tape or ranging pole, and the experienced field workers managing several more interpretive tasks:

- Exploring the structure to work out its nature and shape, and then placing coloured flags at intervals around the bank or wall. This close examination clarified the structure's shape, together with any adjoining or internal additional structures, and identified any entrance. The flags made it possible for photographs to show the structure clearly, even when it was submerged in vegetation.
- Using a compass to find the N/S direction, and marking N and S on the bank or wall with a ranging pole, or a red flag.
- Starting to fill in the recording form with site identifying details, GPS reading, and information about the landscape. This needed discussion at all stages.
- Measuring the inner and outer diameters of the wall or bank in N/S direction, and then E/W direction. This needed discussion and judgement as the inner and outer faces were not always obvious.
- Measuring the thickness and height of the wall or bank at the highest point.
- Measuring the width of the entrance and the length of the entrance passage, and its orientation.
- Filling in these measurements on the recording form.
- Drawing a sketch approximately to scale, with annotations and notes.
- Taking several photographs, including the landscape with views from the site, the whole structure with its walls/banking delineated by the flags, (see Plate 1), and any interesting stonework or banking detail.

2.5.2 A photograph showing the shape of a roundhouse wall outlined by yellow flags is shown in Plate 1.

Plate 1 **Roundhouse site at Hinnesdal Bridge, Skye. Yellow flags indicate shape**

2.6 Volunteers and their Training

2.6.1 Recruitment of Volunteers

2.6.1.1 Around 45 volunteers took part in the survey, over a timespan of eighteen months. Volunteers were recruited through NOSAS (North of Scotland Archaeological Society), by means of a recording day in Highland Archaeology Fortnight 2008, and also locally by word of mouth. Local people in each area with special knowledge of and interest in prehistoric remains were sought out to help.

2.6.2 Ensuring Consistency

2.6.2.1 It was important to ensure consistency in recording as this was fundamental to the research; each volunteer was given information about roundhouses in general, about the project aims, and about use of the equipment. An experienced volunteer was always on hand to help where interpretation was needed. A risk assessment was done for each expedition.

2.7 Data Quality

2.7.1 Measurements

2.7.1.1 These were recorded in metres, and, whenever possible, correct to one decimal place. Where the structure was too ruinous to be sure about the position of inner or outer wall faces in N/S or E/W directions, another direction was chosen and noted on the recording form. The positions where measurements were taken were marked on the pencil sketch.

2.7.1.2 Distances between roundhouses in a group were found using GPS and also by pacing. Distances between roundhouses and distant water features, brochs, duns and ritual sites were measured later on an Ordnance Survey map.

2.7.1.3 Angles of slope were subjective and for the purposes of analysis will be grouped as 'gentle', 'moderate', and 'steep', (see Figure 33).

2.8 Problems arising and evaluation of methodology

2.8.1 Unforeseen Problems

2.8.1.1 These arose as follows:

- Many roundhouse structures were infested with bracken, and recording had to be undertaken after the bracken had died away in the autumn, and before new bracken shoots grew too high, usually by the end of May.
- Recording was often done under cold and harsh weather conditions with driving winds and rain, as well as snow. Walking in rough hilly terrain became dangerous in these conditions. Deep snow sometimes obscured the visibility of land features and so prevented recording. Thick mists also occurred and this hindered viewing the landscape setting of a site. These factors delayed the fieldwork, and two seasons were needed to complete it.
- It proved difficult to locate some previously recorded roundhouses; records were often thirty or more years old with only an approximate grid reference, grazing patterns had changed, and later forestry fences created barriers. Heather and grasses were thick and tall where grazing had been minimal and stones overgrown with heather and moss were hard to spot.

- Although some new sites were recorded there may be more unknown sites which have never been recorded and which were not found. Forestry plantations may have destroyed settlement evidence. These factors may skew information gathered about groupings, elevations and distances between structures.

2.8.2 Ongoing Critical Assessment of Methodology

2.8.2.1 During the period of fieldwork the success or otherwise of the methods used was regularly assessed. Problems encountered were discussed with the volunteers and ways forward were found. The resulting body of data is consistently gathered and will be a reliable research resource.

3 Results and Analysis

3.1 The process of evaluating the information from site recording

3.1.1 Queries

3.1.1.1 Data fields entered into the database can be used to build 'Queries' which enable questions to be addressed. For example a list can be produced showing all roundhouses with inner diameters between 5m and 8m. The information can be refined so that the list is produced area by area. A pie chart or a bar chart can then be created in Microsoft Excel so that the comparative results can be seen visually. This process can clarify and answer many of the initial questions posed in Section 1.4.4.1, and repeated below:

- Are the sites all Roundhouses as defined in section 1.1.2.1?
- Is there any pattern in the range and variety of architectural features?
- Can we postulate a chronology of style?
- Can we compare landscape settings where there are several roundhouses with those where there is only one?
- What can we learn about roundhouse dwellers :
  - Use of resources?
  - Interaction with the environment?
  - Transhumance?
- Is there any pattern in the selection of site locations? Was selection due to
- The underlying geology?
  - proximity to running or standing water?
  - local resources such as minerals, food sources?
  - Other?

3.1.1.2 The lists and charts produced from the database have to be interpreted in the context of the landscapes where the roundhouses are sited. This realization prompted a closer study of landscape formation in the study areas.

3.1.2 Landscapes

3.1.2.1 Extensive fieldwork gave volunteers a 'feel' for landscapes where roundhouse sites might be found and an understanding as to why the above questions were being asked. We were aware that the process of formation of the landscape was very relevant to settlement interpretation. The siting of individual roundhouses and the orientations of their entrances may also have been governed to some extent by climate and weather conditions. Consequently further research was done to investigate:

- Effects of Climate
- Prevailing winds
- Geological Landscape Formation
- A summary of this research is outlined in Appendix A.

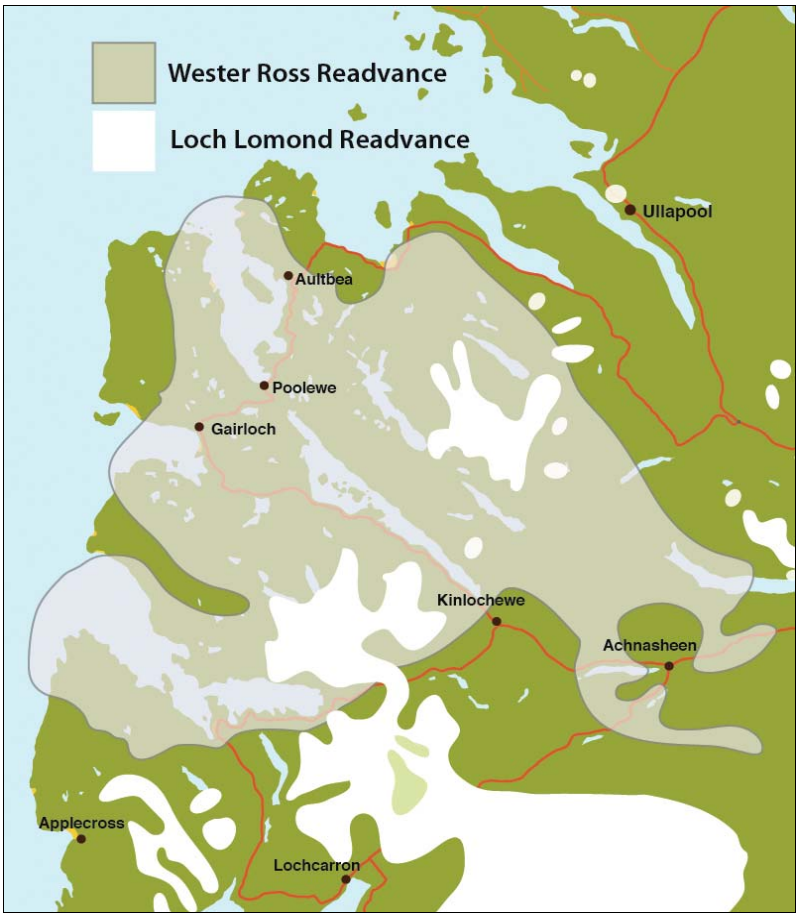


Figure 3 Wester Ross Ice Sheets during LLR and WRR (JB)

3.1.3 Geological Areas of Study

3.1.3.1 The areas in the study are all on the West coast mainland of Scotland, and most are west of the line of the Moine Thrust, with the exception of Skye. When the roundhouse locations were plotted on geological maps it was found that patterns emerged. The area of the Loch Lomond Re-advance (LLR) and the Wester Ross Re-advance (WRR) are shown in Figure 3. (For background information see Appendix A.6) As the WRR retreated ice-marginal moraines were formed.

3.2 Use of maps to understand site choices and settlement patterns

3.2.1 It became apparent that accurate plotting of recorded sites on Ordnance Survey (OS) maps and geological maps gave extra information to help with interpretation of the siting and clustering of settlements in the landscape.

3.2.2 The use of OS maps with site Grid references

3.2.2.1 Using the GPS results, grid references and personal identification numbers for each site were plotted on sections of an OS map. Settlement groupings and patterns could be clearly seen.

3.2.2.2 Achiltibuie Area

3.2.2.2.1 An example of a pattern of settlement groupings is seen in Figure 4, a plot of roundhouse sites in Achiltibuie. There are two linear clusters along contour lines, to the East and to the West of Loch Raa and Loch Vatac

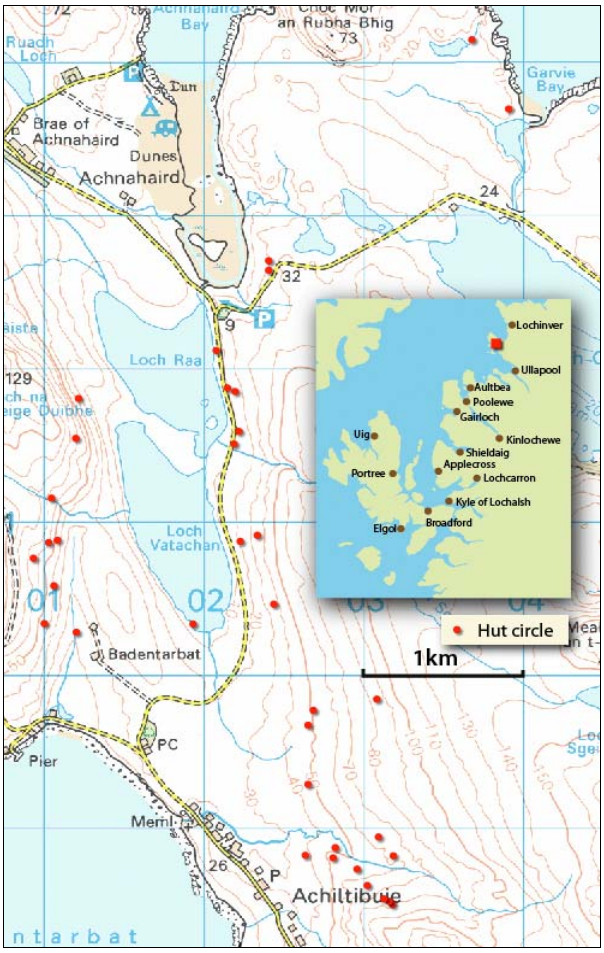


Figure 4 Achiltibuie Area

3.2.2.2.2 All the sites shown are near to the sea or to a fresh water loch. (Figure 4).

3.2.2.3 Gairloch, Sand River Area

3.2.2.3.1 Another area of interest is in the vicinity of the Sand River, near Gairloch. A string of sites stretches along a contour from North Erradale to the main Sand River, (Figure 5), and a large grouping of sites is located around the tributaries which coalesce to form the River Sand.

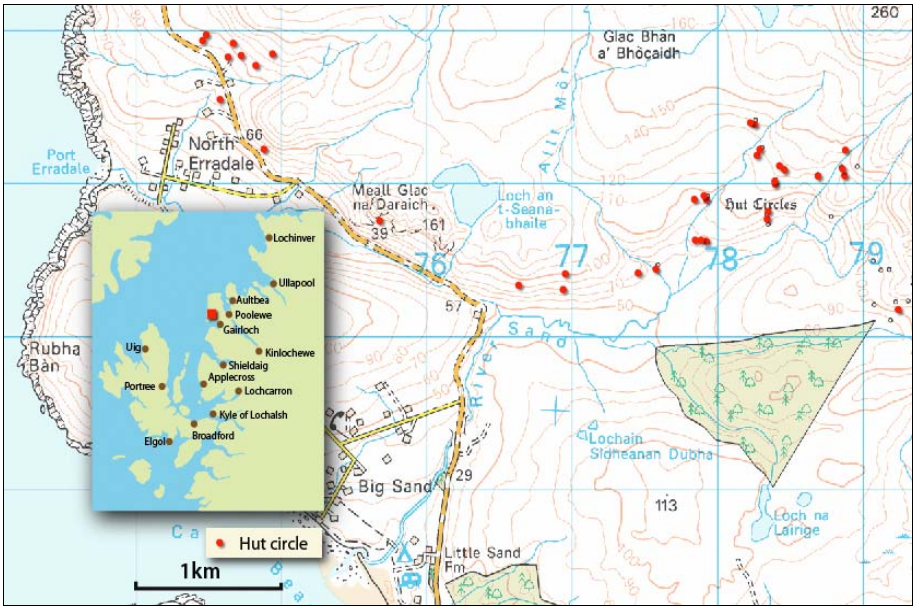


Figure 5 Sand River Area, Gairloch

3.2.2.4 Kirkibost, Strathaird, Skye

3.2.2.4.1 Kirkibost on Skye, at Cille Mhaire Glen, has a similar grouping of sites, around tributaries in a river valley, although here these sites are near to the sea, (Figure 6). A linear cluster of sites can be seen to the north, on a steep slope, along a contour west of Loch Slapin.

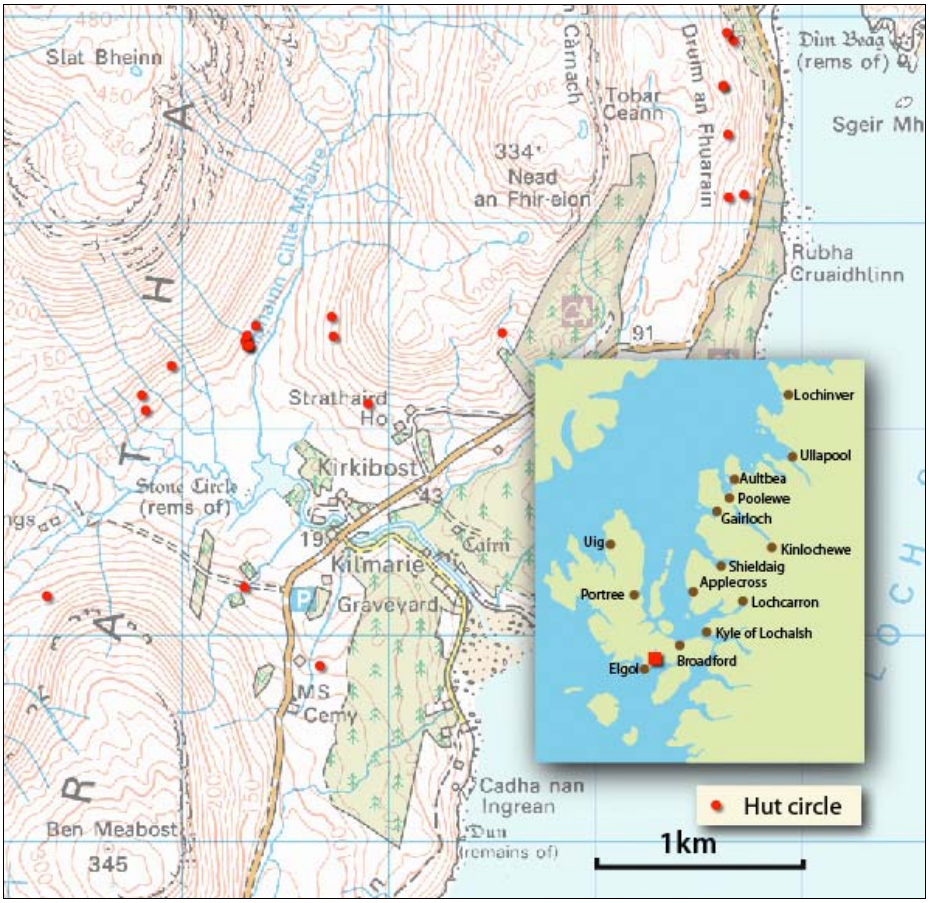


Figure 6 Kirkibost, Strathaird, Skye

3.2.2.5 **Kingsburgh, Skye**

3.2.2.5.1 There is a cluster of sites on flattish terrain to the west of the main road, (see Figure 7), and more sites spread out to the east. All these sites are within 1km of one of three duns or 'forts', seen marked on the map.

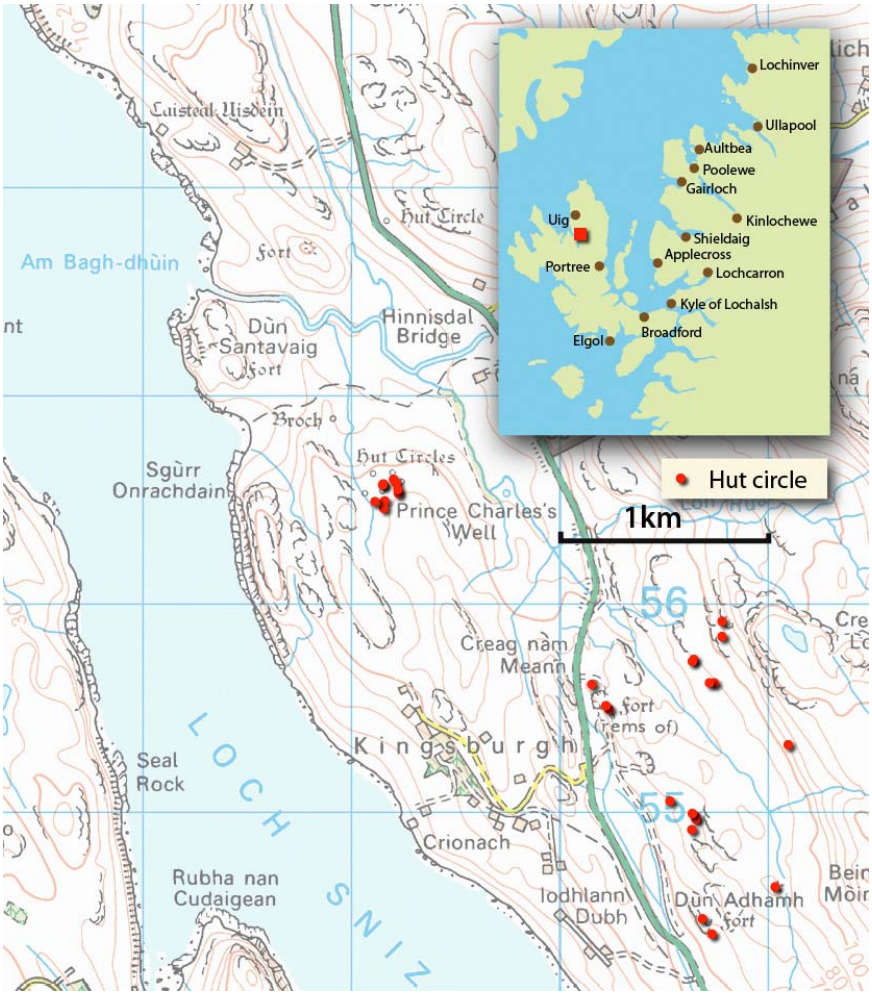


Figure 7 Kingsburgh, Skye

3.2.2.6 **Badenscaille, Achiltibuie**

3.2.2.6.1 At Badenscaille (Figure 8) there are the degraded remains of a cluster of roundhouse sites, as well as some possible house platforms, all in a small area near to the sea.

3.2.2.6.2 Also in Figure 8 three single roundhouse sites can be seen, at Achnacarinan, Acheninver and Culnacraig. Each of these may have been part of a small group; later cultivation has probably destroyed any other sites, the stone being recycled for walls, barns etc.

3.2.2.6.3 These sites are all on low ground where often the best land for houses has been used and re-used through the centuries, obliterating all traces of prehistoric dwellings.

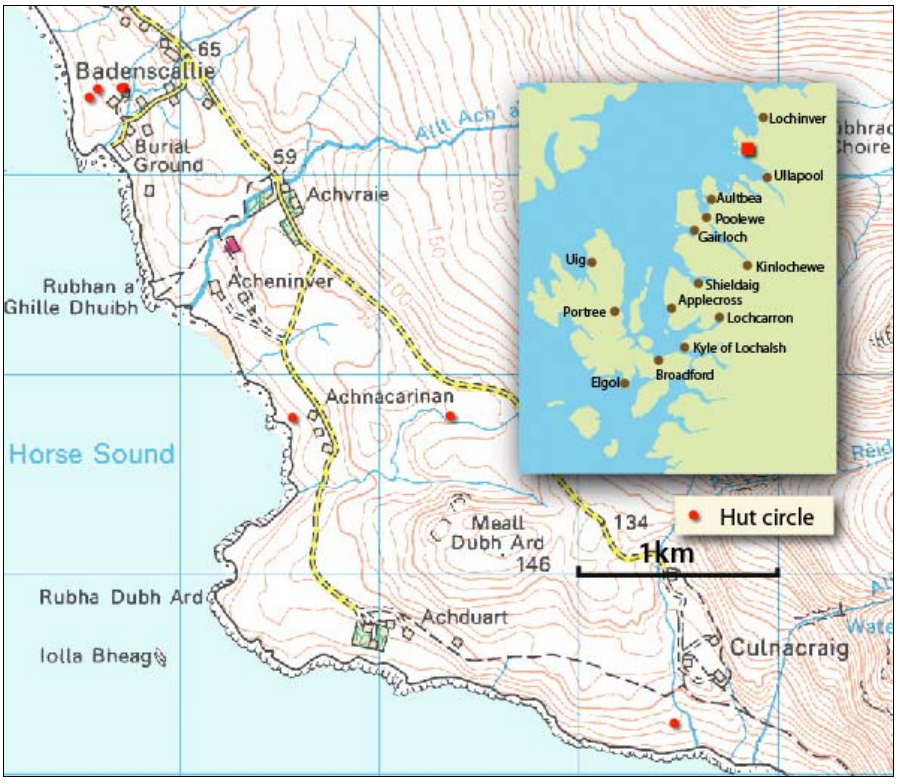


Figure 8 Badenscaille, Achiltibuie

3.2.3 Plots of roundhouse grid references on geological maps

3.2.3.1 The recorded grid references for the areas of study were plotted on 1:50,000 Geological Map Sheets. The results were unexpected and are shown in sections 3.2.3.2 , 3.2.3.3, 3.2.3.4, 3.2.3.5 below.

3.2.3.2 Gairloch, Sand River area

3.2.3.2.1 The plot of roundhouse sites around the Sand River (OS map in Figure 5) is shown geologically in Figure 9. Sites are circular white dots. They seem to be mainly within areas of glacial deposits, marked by pale blue lines and avoiding the TCA (coarse pebbly red sandstone). The Wester Ross Readvance (WRR) is indicated by short darker blue lines. (See Appendix A.6)

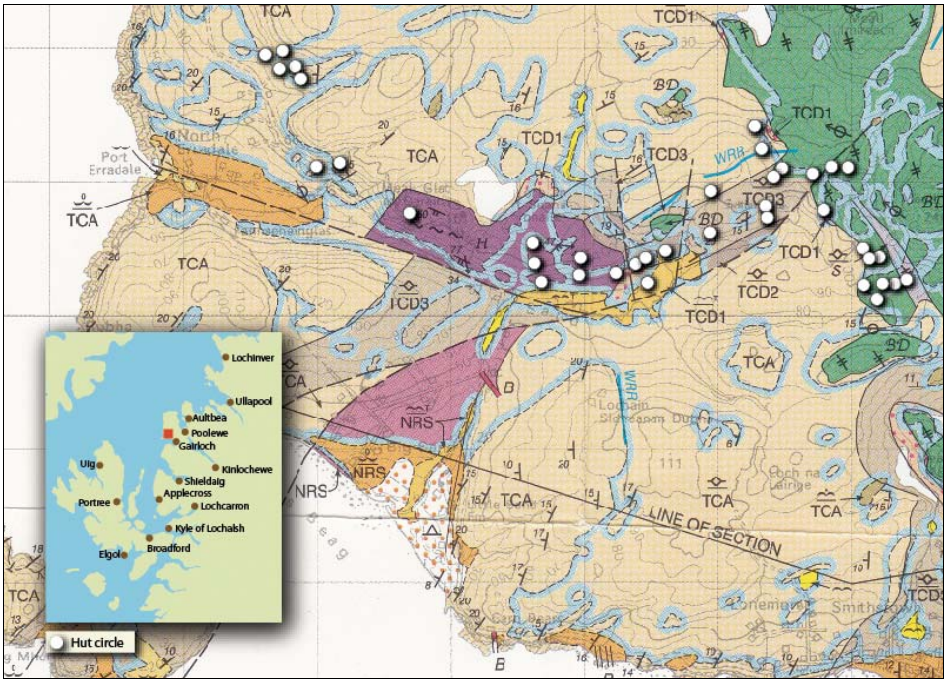


Figure 9 (C)BGS/NERC Gairloch, Sand River area, part of Sheet 91

3.2.3.2.2 Shading in Figure 10 shows the probable extent of the ice sheet. The sites are all on the northern edge of this area. The dotted lines show an estimate of a further finger of ice which may have existed and which on retreat would have formed more areas of glacial till.

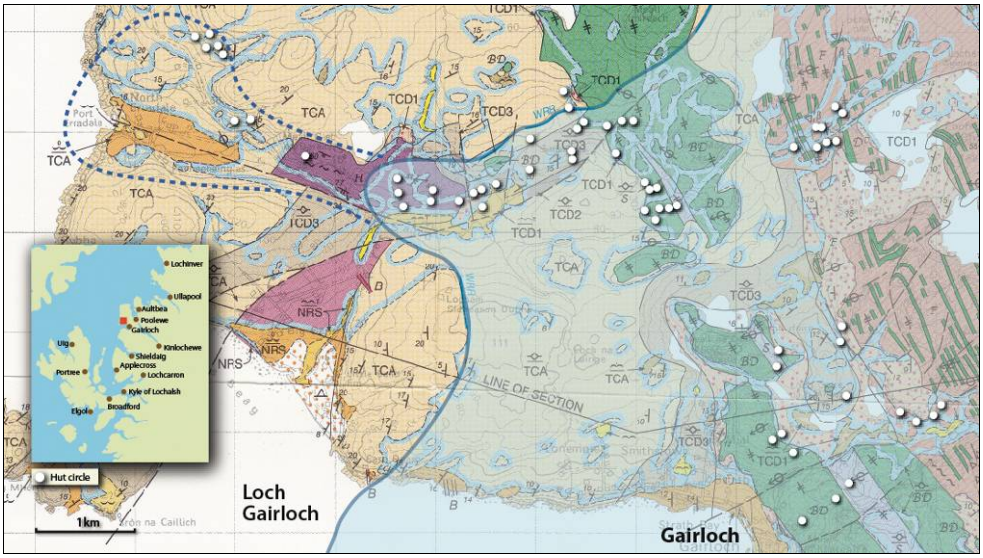


Figure 10 (C)BGS/NERC Gairloch, Sand River area, part of Sheet 91

3.2.3.3 **Achiltibuie**

3.2.3.3.1 The pattern on the Achiltibuie map (OS map Figure 4) is slightly different. The geological map in Figure 11 shows that the western sites on Lochs Vatachan and Raa are mostly within or very near areas of glacial till (thick pale blue lines), sitting on bedrock of medium grained red sandstone (brown). The Loch Raa eastern sites are at low level in small areas of glacial till and alluvial deposits (yellow). The sites east of Achiltibuie township are situated on two types of red sandstone (beige) with indications on the map that there are some glacial deposits, and also peat cover. House sites have avoided the hard quartzite rocks (blue).

Figure 11 (C)BGS/NERC, Part of Sheet101W, Achiltibuie

3.2.3.4 Kingsburgh and Hinnesdal Bridge, Skye

3.2.3.4.1 The predominant bedrock In the Kingsburgh and Hinnesdal Bridge areas of Skye (see OS map Figure7) is volcanic basalt, (pink on the map). Roundhouse sites are shown by red dots; most are on or very near areas of peat (brown on map), see Figure 12.

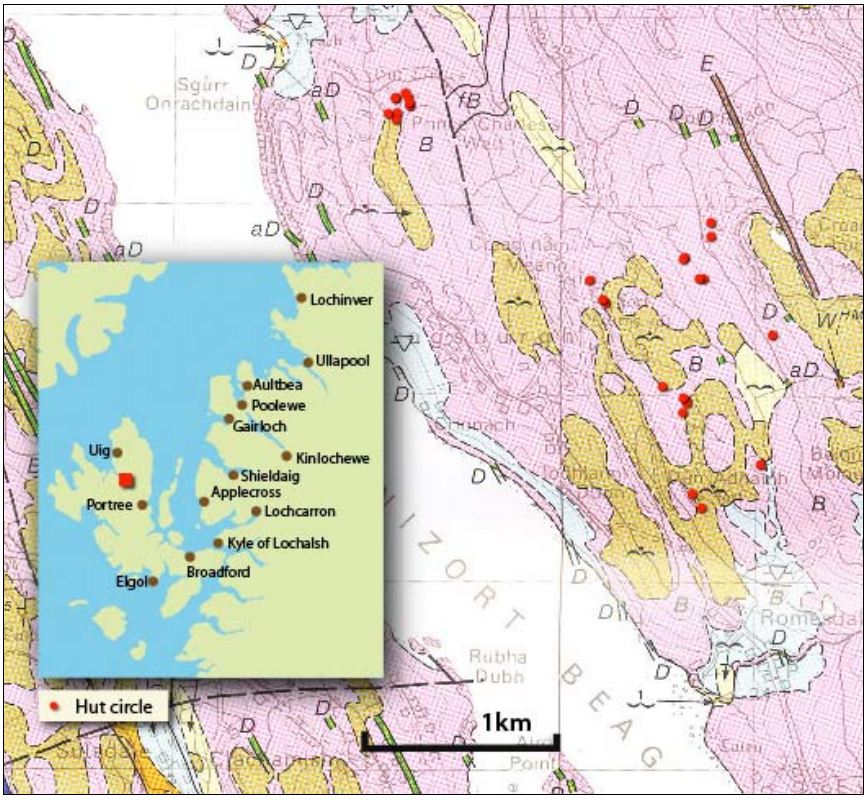


Figure 12 (C)BGS/NERC Kingsburgh, Trotternish, Skye, part of Sheet 80E

3.2.3.5 Kirkibost, Strathaird, Skye

3.2.3.5.1 The geology of the Kirkibost area of Strathaird, Skye (Cille Mhaire Glen and Druim an Fhurainn sites), is shown in Figure 13. (See Figure 6 for OS map of the same area). The rocks are Jurassic, sedimentary, and younger than the metamorphic rocks of the mainland. The green/grey colour indicates coarse sandstone/mudstone, the turquoise indicates limestone/mudstone, and the yellow is sandstone and sandy limestone.

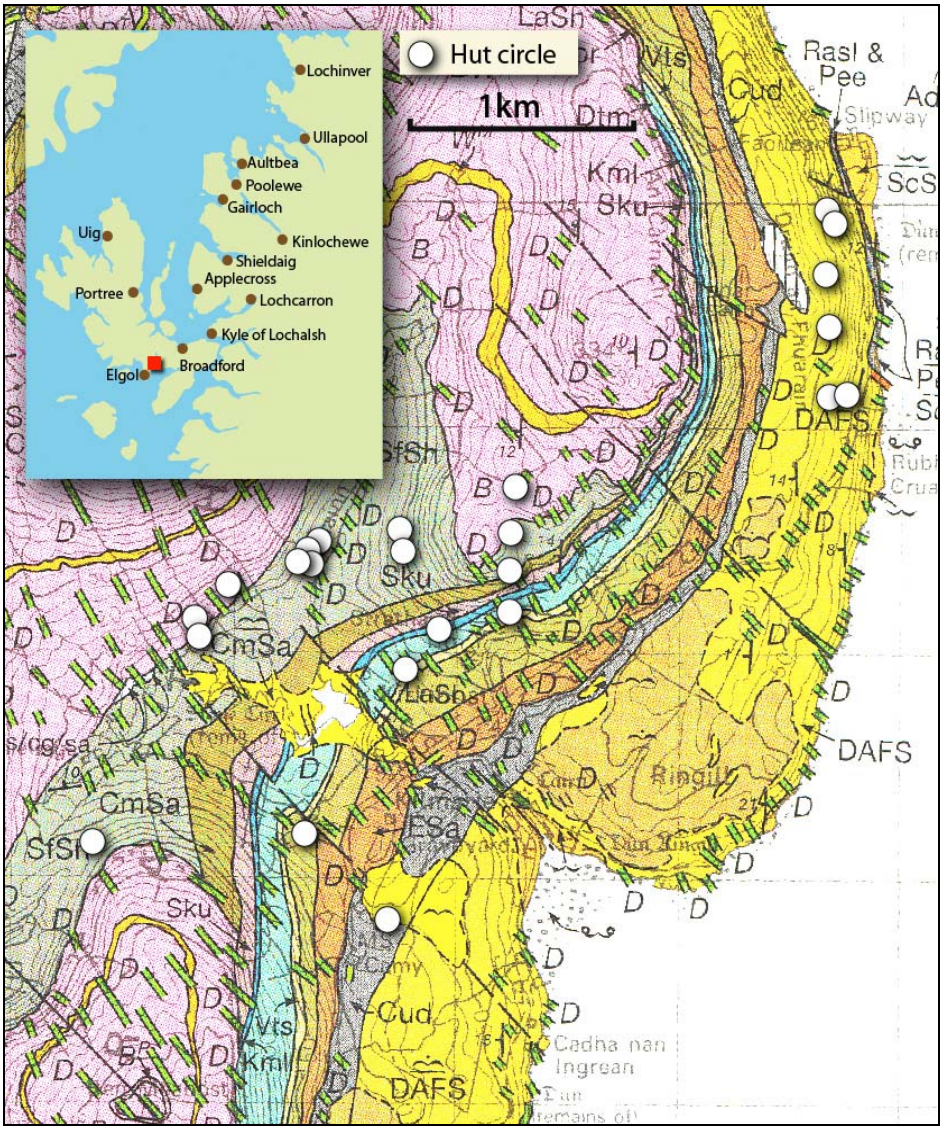


Figure 13 Geological map showing the location of roundhouse sites at Kirkibost, Strathaird, Skye. (C)BGS/NERC

3.3 Use of Aerial photographs together with maps to understand site choices and settlement patterns

3.3.1 Study of aerial photographs was of considerable help in interpreting the settlement patterns in the landscape. With practice it was possible to identify previously recorded roundhouse sites from the photographs, and to discern new sites. The field systems were often easier to see in the photograph than on the ground.

3.3.2 An example is illustrated in Figure 14 and Plate 2, relating to **Boor,** near Poolewe. The roundhouse sites and field systems are outlined in colour, and the OS map is shown as a comparison.

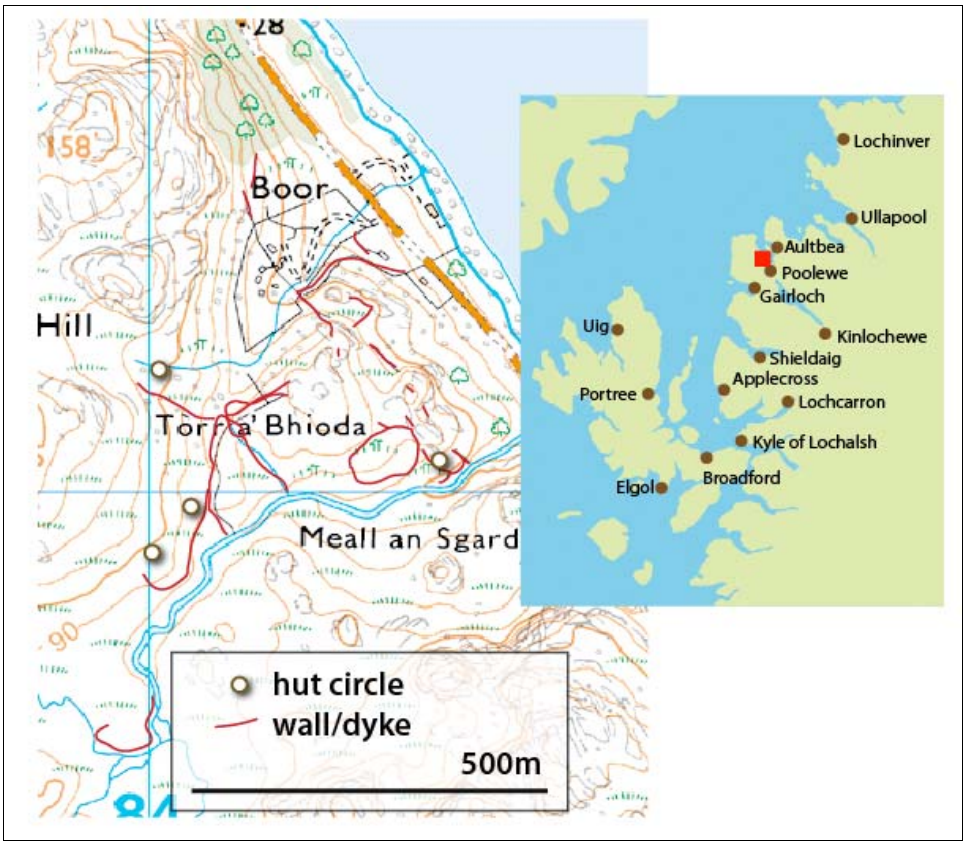


Figure 14 OS Map of Boor with red lines showing field systems discerned from aerial photograph in Plate 2

3.3.3 The Plate 2 photograph covers the same area as the OS map, and a key identifies the different colour annotations.

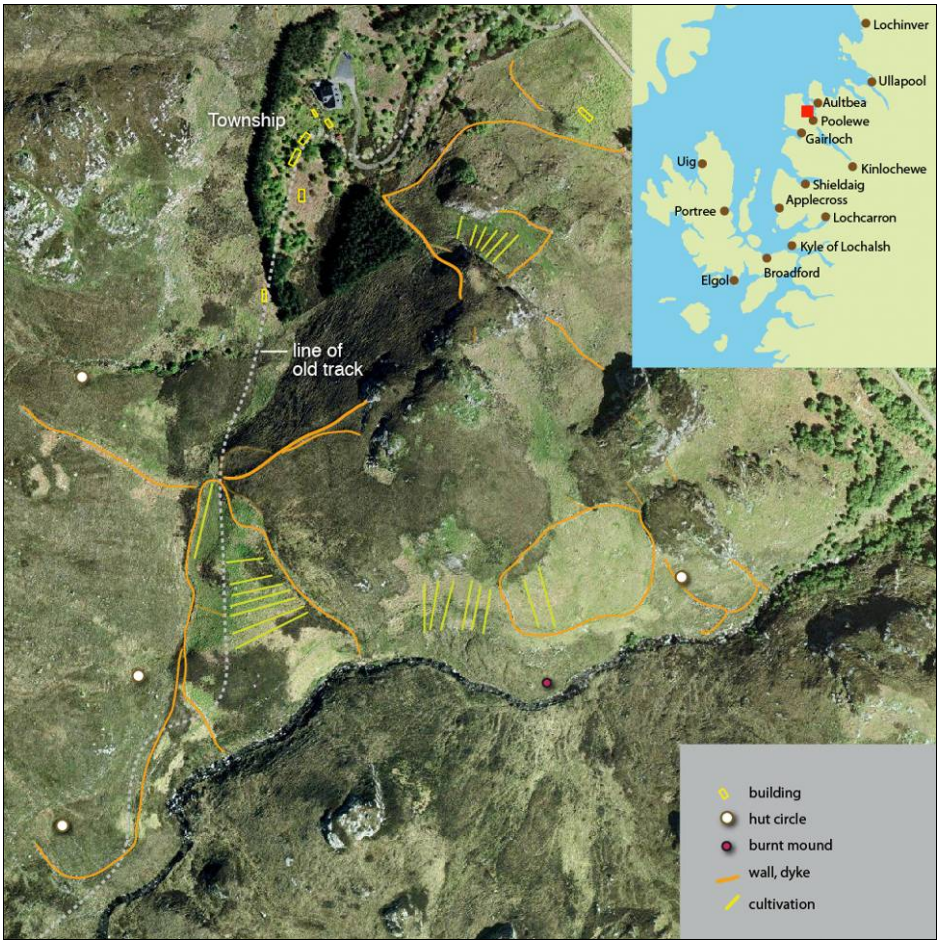


Plate 2 Aerial photograph of Boor

(www.getmapping.com)

3.3.4 Further aerial photographs outlining field systems can be seen in Appendix H and Appendix I, Plates 6 and 7.

3.4 Use of the Access database

3.4.1 **The input form** of the database is based on a set of tables. These can be seen on the left hand pane of the Access Master Table. Each input entry appears in the relevant table. For example the table 'platform type' can have entries as follows:

- Natural Terrace
- Dug into slope
- Built out from slope

- Other

3.4.2 **The 'site data' table** contains all the information gathered. When a query is formulated it is entered into a design format where the site name, personal number, area, and details of the question posed, are linked to the site data table. If the information wanted is 'Which sites have a platform dug into the slope?' a code is entered relating to 'dug into slope', and a spreadsheet appears listing all sites which have this feature.

3.4.3 **The spreadsheet data** can be transferred to Microsoft Excel and manipulated to give charts which show the results in a visual way.

3.4.4 **The full dataset** consists of 234 entries. Not all sites have the relevant measurable features.

3.5 Results and charts produced in answer to the questions posed in 1.4.4.1

3.5.1 Question: Is there any pattern in the range and variety of architectural features?

3.5.1.1 This question can be approached through several different database queries. These will be outlined as follows:

- Site shapes
- Comparison of Inner diameters, circular sites
- Wall morphology, whole dataset
  - Construction
  - Thickness
- Entrance type, oval and circular sites
- Entrance Orientation

3.5.1.2 **Shapes of sites**

3.5.1.2.1 The proportions of circular, oval, and subcircular structures is shown in Figure 15. These designations were made on the basis of the interior measurements of the structure.

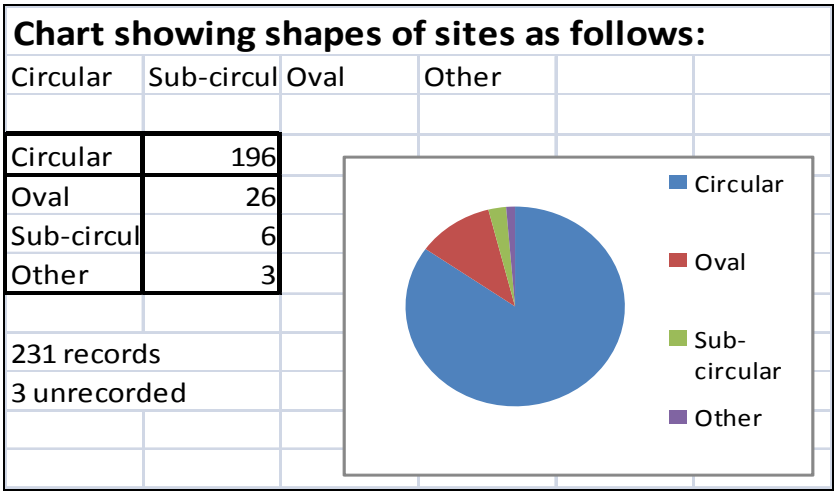


Figure 15 Shapes of sites

3.5.1.2.2 85% are circular, 11% are oval, and the other categories make up 4%.

3.5.1.3 **Comparison of inner diameters for the whole data set of circular structures**

3.5.1.3.1 The inner diameter was taken as a measure of internal space in the roundhouse. The diameter B1 (see input form) was used. An initial query with 3 ranges of inner diameter did not show enough discrimination.

3.5.1.3.2 With 5 ranges as shown below (see Figure 16) the chart indicates that 97 roundhouses have an inner diameter of between 5.6m and 8.0m, 58% of those recorded.

Bar chart showing Inner diameters (B1) for whole site data set.

(circular structures)

Diameters (metres)	Records
3.5-5.5	21
5.6-8.0	97
8.1-10.0	37
10.1-12.0	8
12.1-15.0	4

167 records

67 could not be measured

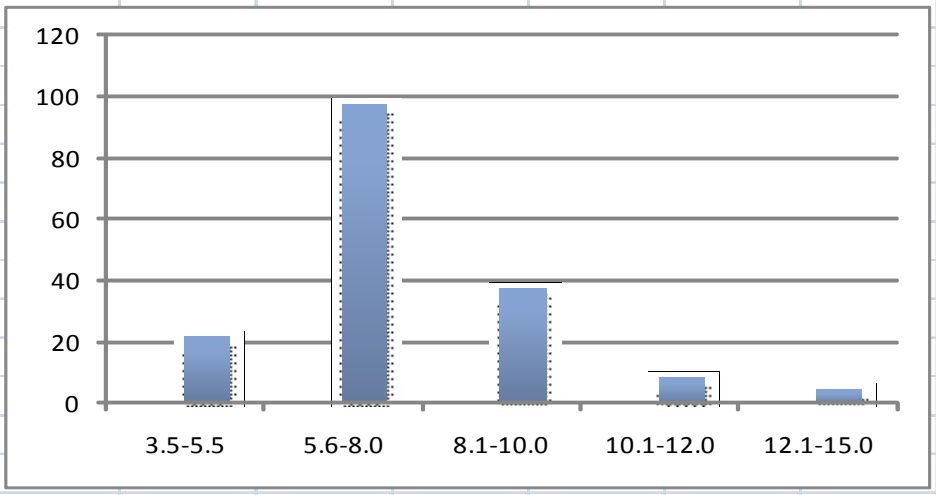


Figure 16 Inner diameters

3.5.1.3.3 Inner diameters are now compared using data from the four areas, see Figure 17.

Charts showing inner diameter comparisons for data from Achiltibuie, Gairloch, Badachro and Skye *(circular structures)*

Diameters	Achiltibuie	Badachro	Gairloch	Skye
>3.5<=5.5	6	3	4	8
>=5.6<=8.0	19	13	50	16
>=8.1<10.0	4	8	15	10
>=10.1<12.0	4	1	3	0
>=12.1<15.0	3	0	1	0
Total sites	36	25	73	34

168 records in total

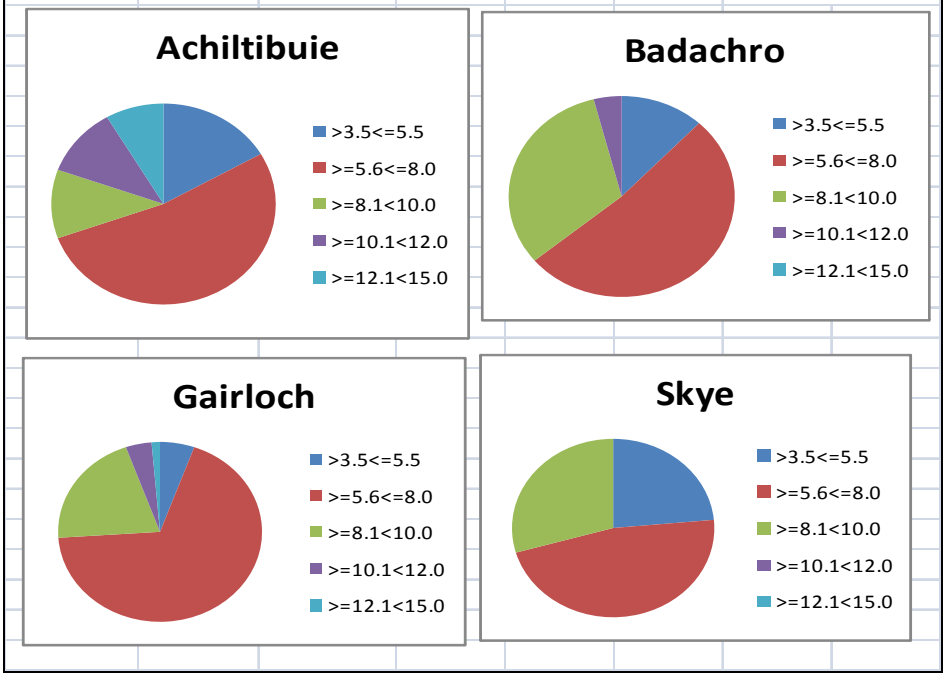


Figure 17 Inner Diameter Comparison between the four areas for circular sites

3.5.1.3.4 Skye is different from the other areas in that there are no sites over 10m. Badachro has only 1 site over 10m. Overall there are very few sites over 10m.

3.5.1.3.5 Gairloch has nearly 69% of its sites in the range 5.6m to 8.0m, and the other areas have around 50% in this range.

3.5.1.3.6 Skye has around 25% of sites in the lowest range, and Achiltibuie has around 17%. In contrast Gairloch has only 5% in this range.

3.5.1.4 **Wall morphology for the full set of site data, circular, oval, sub-circular**

Wall Construction

3.5.1.4.1 Only 1.6% of the recorded sites had single skin walls, over 98% had double skin, see Figure 18.

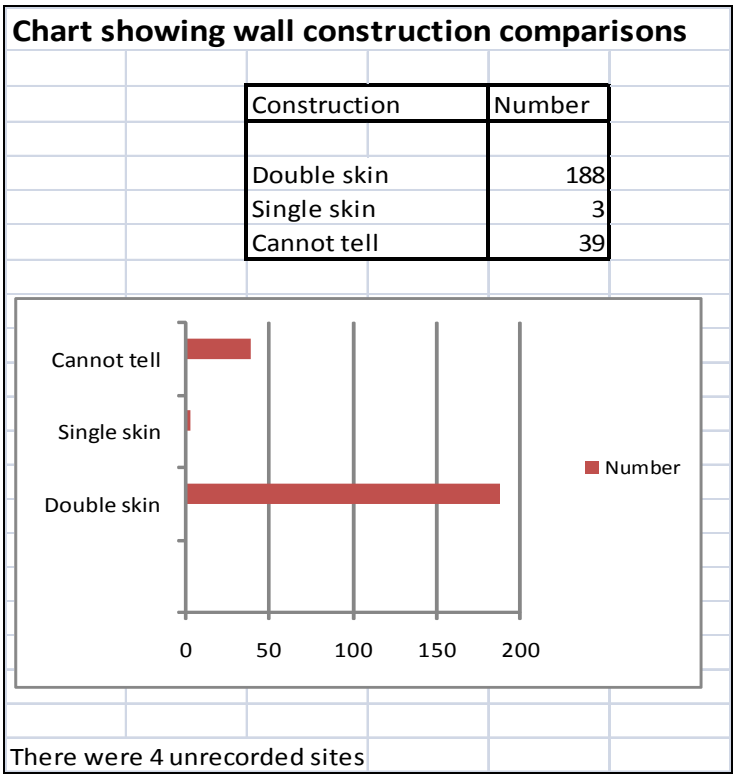


Figure 18 Wall construction comparisons

Wall Thickness

3.5.1.4.2 Wall thickness was measured at the most intact section of walling, see Figure 19.

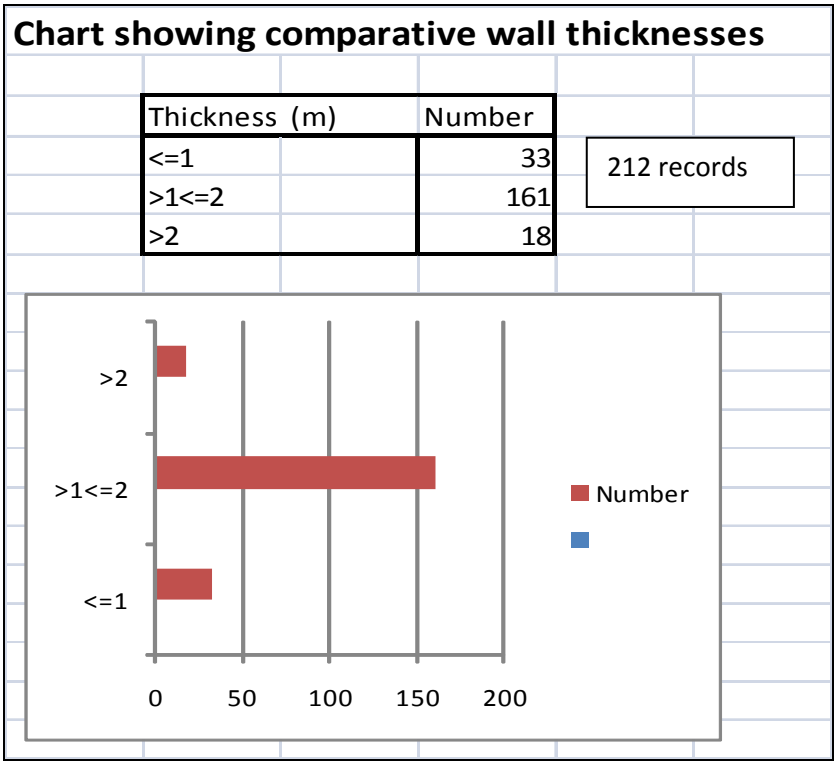


Figure 19 Comparative wall thickness

3.5.1.4.3 From the chart 76% of measured walls were between 1m and 2m thick.

3.5.1.4.4 8.5% had thickness greater than 2m, and 20% were less than 1m.

3.5.1.4.5 22 sites could not be measured.

Entrance type

3.5.1.4.6 The entrance can have standard or extended terminals (see section 1.1.2.1), see Figures 20, 21 and 22.

3.5.1.4.7 Figure 20 shows entrance types both for oval and for circular sites.

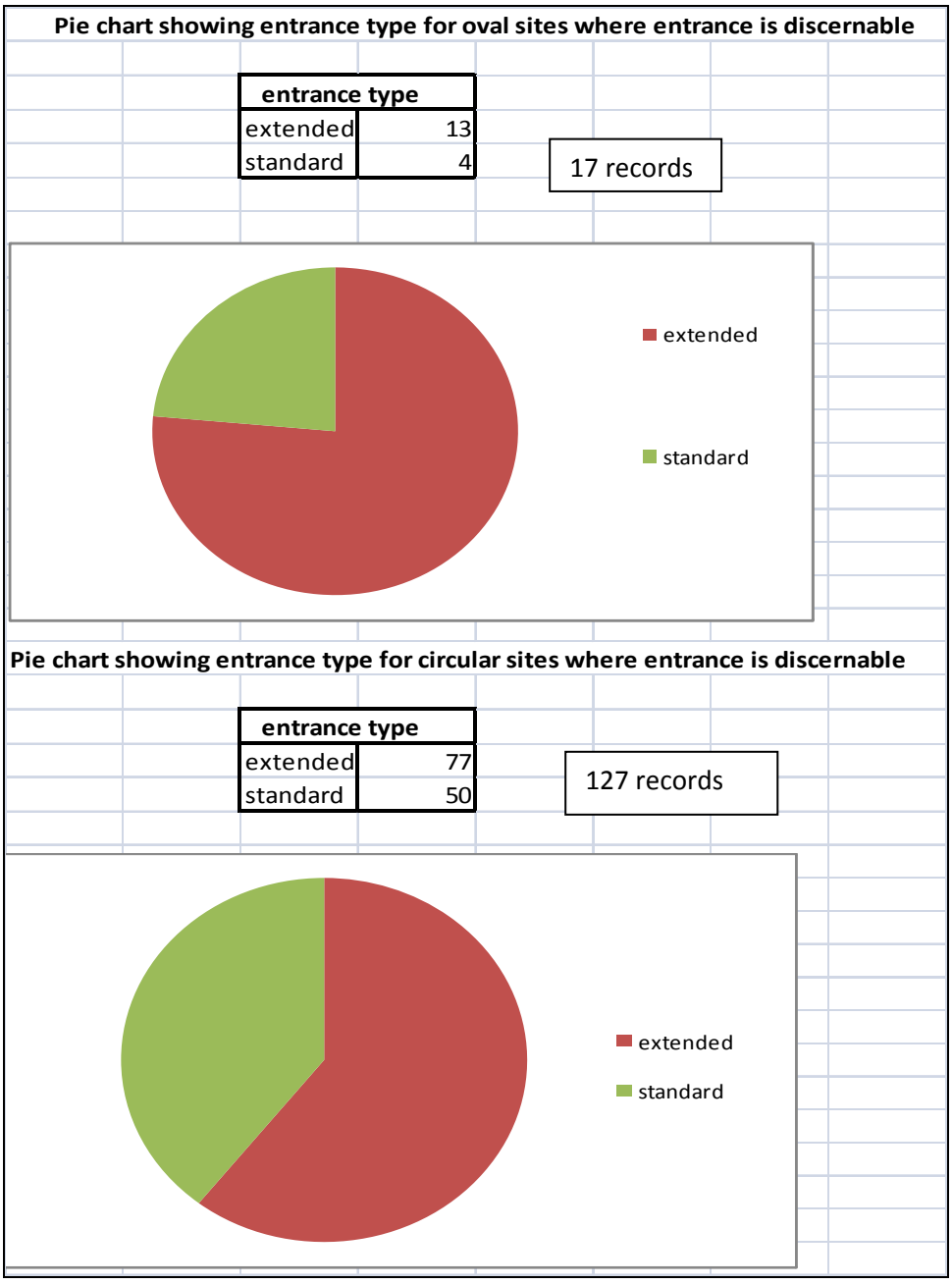


Figure 20 Entrance type

3.5.1.4.8 Circular sites have a slightly lower percentage of extended terminals (61%) than do oval sites (76%), (Figure 20). However only 17 oval sites could be measured, (total of all oval sites is 25), a very small sample on which to base conclusions.

3.5.1.4.9 Another approach to comparison of terminals is to look at standard and extended terminals for circular sites using 5 ranges of inner diameters, see Figure 21.

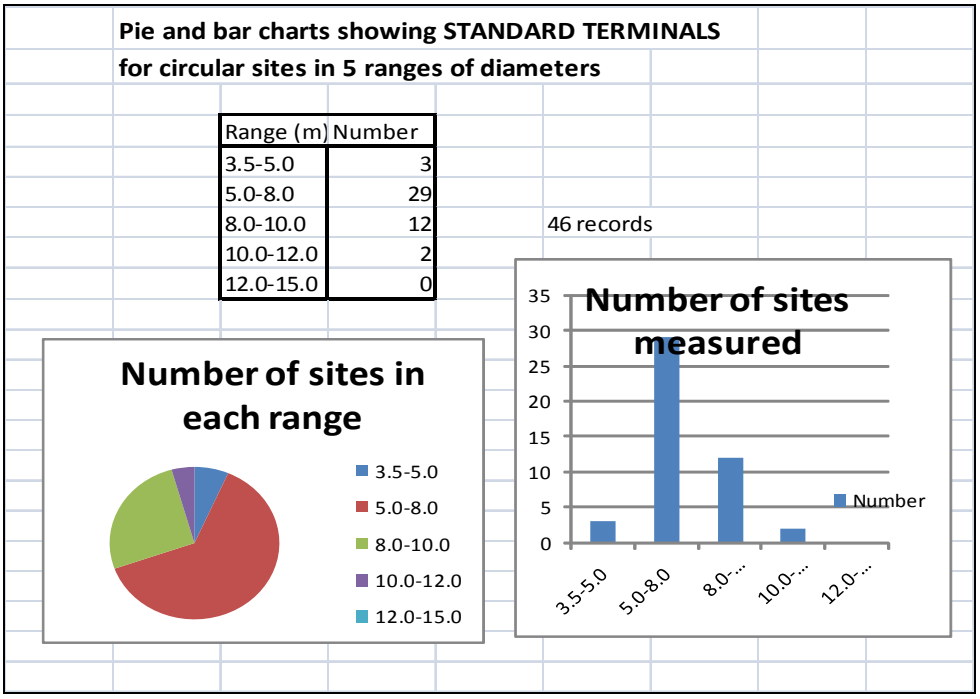


Figure 21 Standard terminals

3.5.1.4.10 This can be compared with a chart showing extended terminals for circular sites using 5 ranges of inner diameters, see Figure 22. The pie charts show similar proportions of each type of terminal for each diameter range.

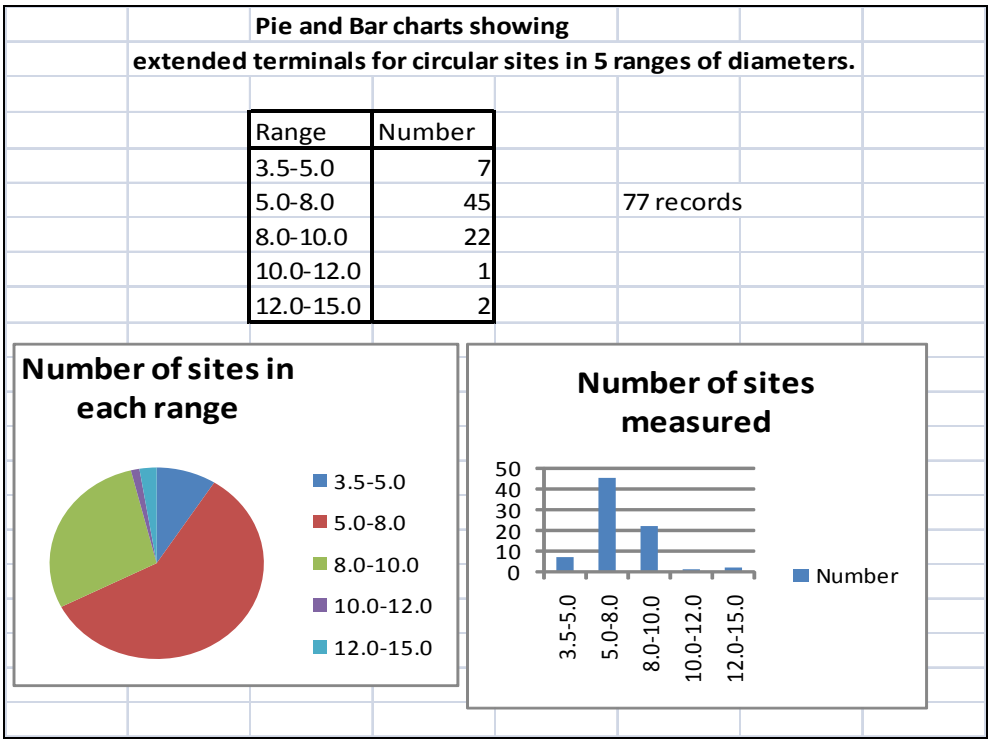


Figure 22 **Extended terminals**

3.5.1.5 **Entrance orientation**

3.5.1.5.1 The entrance orientation could be identified for 87% of sites, shown in Figure 23.

Pie chart showing entrance orientations, all site data.

orientation	no of records
E	41
SE	79
S	16
SW	15
W	11
NW	7
N	1
NE	7

177 records

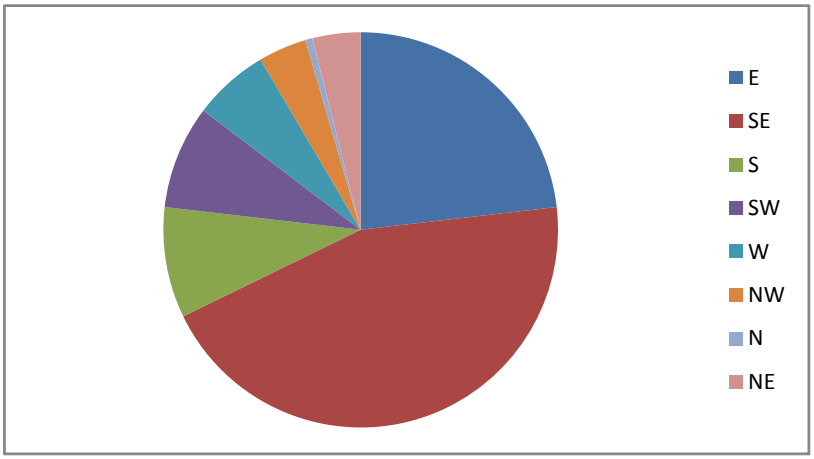


Figure 23 Entrance orientation

3.5.1.5.2 Sites with SE entrances make up only 45% of the total. However if E and S entrances are added to the SE number, these make up 79% of the total.

3.5.1.5.3 Sites with either SW, W or NW entrances make up 19% of the total. Those with N or NE entrances make up 4.5%.

3.5.1.6 Comparison of orientations for different slope aspects

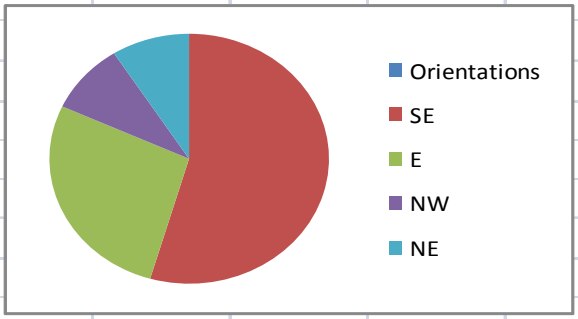
3.5.1.6.1 The following 3 charts, Figures 24, 25 and 26, display orientation for E, SE, S, SW, W, NW, N, and NE aspect directions. The aspect of a slope is the direction in which it faces.

Comparison of orientations and aspect directions

22 records

East aspect

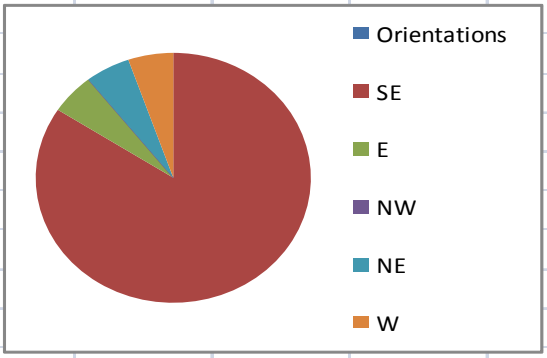
Orientations	
SE	12
E	6
NW	2
NE	2



SE aspect

19 records

Orientations	
SE	16
E	1
NW	0
NE	1
W	1



S aspect

38 records

Orientations	
SE	23
E	12
NW	0
NE	1
W	1
SW	1

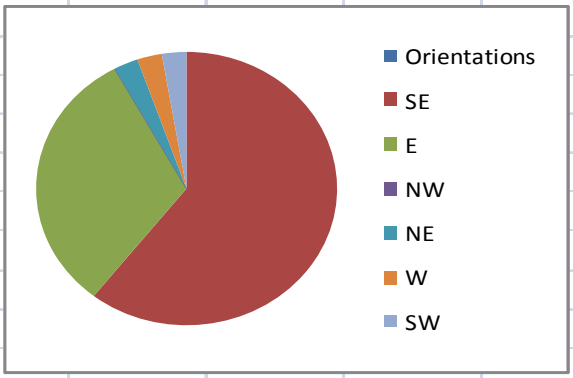


Figure 24 E, SE and S aspects Chart 1

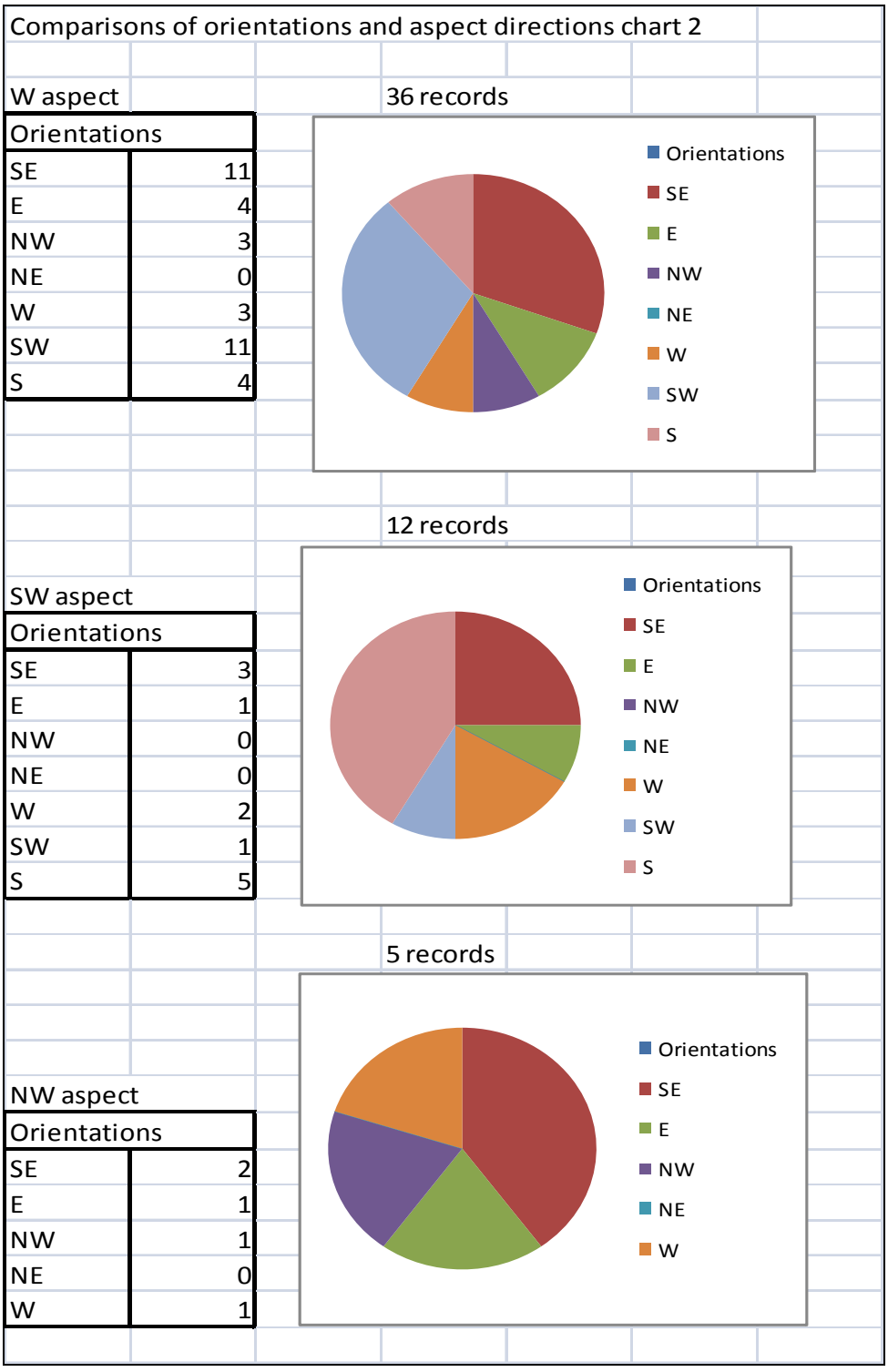


Figure 25 **W, SW and NW aspects Chart 2**

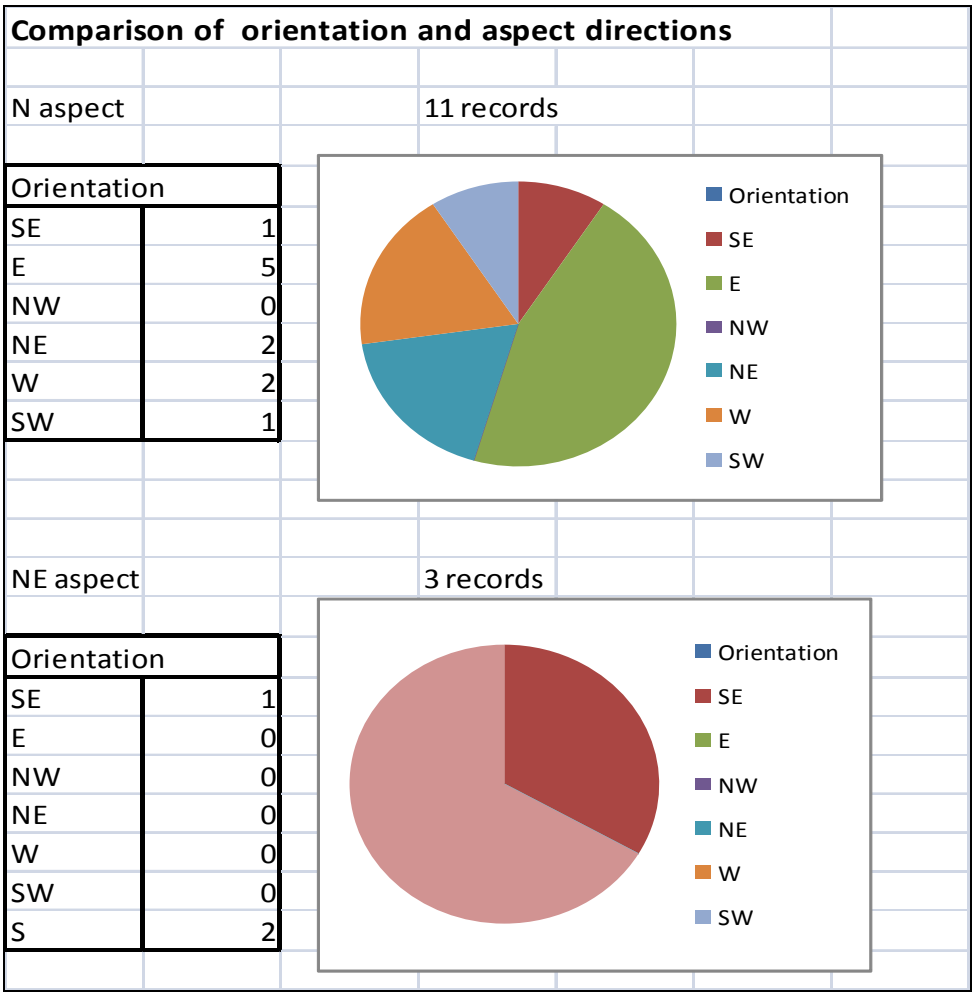


Figure 26 N and NE aspects Chart 3

3.5.1.6.2 E and S aspect slopes both have far more E entrances than do SE aspect slopes.

3.5.1.6.3 N slopes have nearly 50% E or SE entrances, although the sample is small.

3.5.1.6.4 SE entrances : SE slope sites have 84%, E slope sites have 55%, S slope sites have 61%,

3.5.1.6.5 W slope sites have 30%. Other slope aspects have too few records to be meaningful.

3.5.1.6.6 There are no NW entrances on SE, SW or S slope sites.

3.5.2 Question: What can we learn about roundhouse dwellers use of resources, their interaction with the environment, and transhumance?

3.5.2.1 The first two parts of this question can be approached by examining the number of sites within or near enclosures, and a similar exercise for those with evidence of field systems. Transhumance is examined by analysing roundhouses with sheilings near or overlying.

3.5.2.2 **Comparison of numbers of sites within, or adjacent to, enclosures**

3.5.2.2.1 An enclosure is taken to be an area surrounded by a dyke or bank, in which or beside which the roundhouse is sited. See Figure 27 for sites with enclosures.

Comparison of numbers of sites with enclosures;

1 sites within enclosure of same period
2 sites within enclosure of later period
3 sites adjacent to enclosures of same period
4 sites adjacent to enclosures of later period
5 sites with no enclosure in immediate area.

sites	numbers	
within/same	41	203 records
within/later	7	31 'cannot tell'
adjacent/same	66	
adjacent/later	26	
none	63	

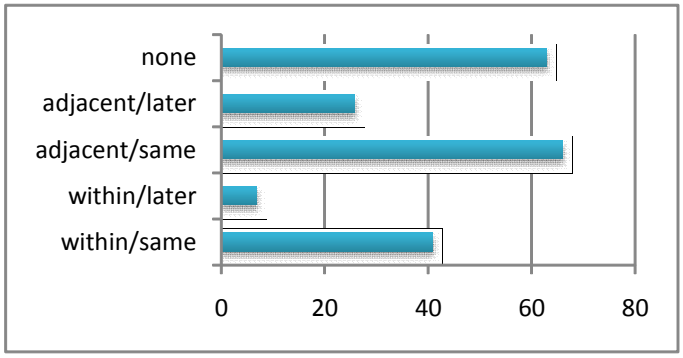


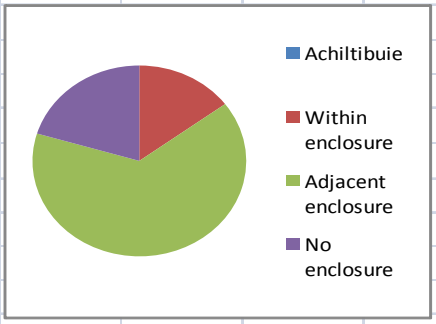
Figure 27 Sites with enclosures

3.5.2.2.2 Here around 50% of the recorded sites are within or adjacent to enclosures judged to be of the same period. More detail is gained from comparison between areas.

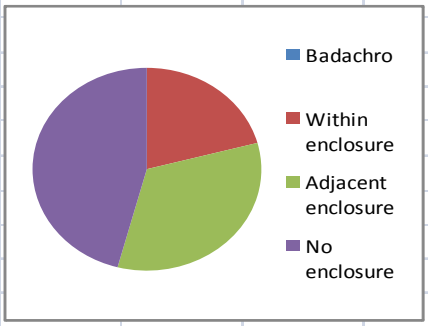
3.5.2.2.3 Comparison between areas is shown in Figure 28.

Comparative charts showing enclosures noted in four areas

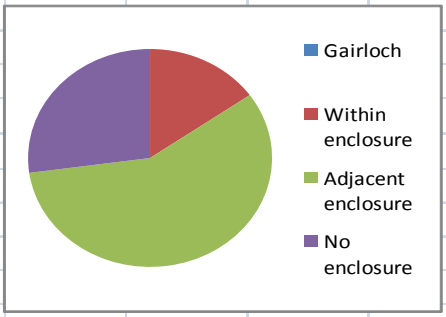
Achiltibuie	
Within enclosure	8
Adjacent enclosure	35
No enclosure	11
Total sites	54



Badachro	
Within enclosure	5
Adjacent enclosure	8
No enclosure	11
Total sites	24



Gairloch	
Within enclosure	14
Adjacent enclosure	53
No enclosure	25
Total sites	92



Skye	
Within enclosure	14
Adjacent enclosure	32
No enclosure	13
Total sites	59

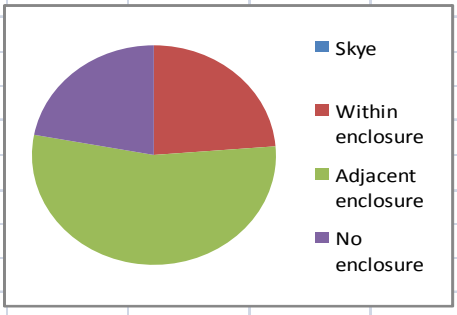


Figure 28 Enclosures in 4 areas

3.5.2.2.4 In Figure 28 Badachro seems to stand out from the other three as having the most sites with no enclosures, about 45% and it has fewer adjacent, around 33%.

3.5.2.2.5 The other areas have over 50% of sites adjacent, with Achiltibuie having 65% adjacent.

3.5.2.2.6 All the areas have a similar percentage within an enclosure, between 15% and 18%.

3.5.2.2.7 Taking 'within' and 'adjacent' together, Skye and Achiltibuie both have around 79% in these categories.

3.5.2.3 **Comparison of numbers of sites with field systems**

3.5.2.3.1 The data from the input form records the presence of:

- field boundaries,
- vegetation change,
- clearance cairns,
- lazy beds, or
- a combination of these.

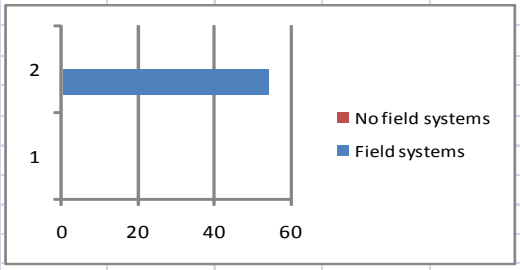
3.5.2.3.2 The term 'field systems' includes any or all of the above features. A site is only counted once however many of these features are recorded for it.

3.5.2.3.3 The following bar charts in Figure 29 show the presence or absence of field systems associated with sites in each area.

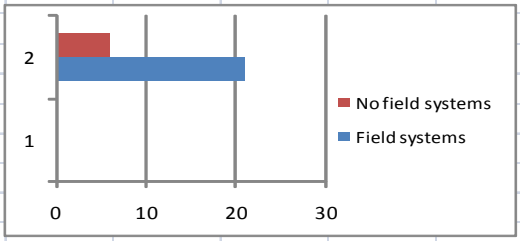
Comparison of numbers of sites with field systems: these may be

Field boundaries Clearance cairns
Vegetation change Lazy beds
or a combination of several of these.

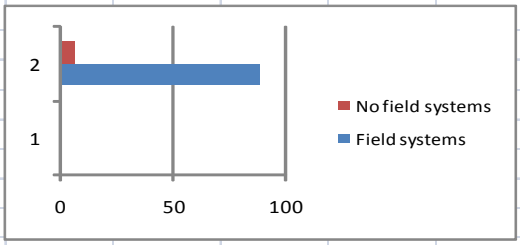
Achiltibuie	
Field systems	54
No field systems	0
Total sites	54



Badachro	
Field systems	21
No field systems	6
Total sites	27



Gairloch	
Field systems	88
No field systems	6
Total sites	94



Skye	
Field systems	46
No field systems	13
Total sites	59

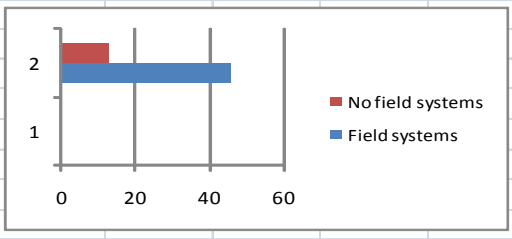


Figure 29 Number of sites with field systems

3.5.2.3.4 Achiltibuie is the only area where every site has field systems recorded.

3.5.2.3.5 Gairloch has a high percentage of sites with field systems, of 93%.

3.5.2.3.6 Skye and Badachro have high percentage of 28% with no field systems.

3.5.2.3.7 Often the age of the field systems was impossible to gauge.

3.5.2.4 **Transhumance**

3.5.2.4.1 The transhumance question can be approached by looking at prevalence of later sheilings in close vicinity to roundhouse sites.

3.5.2.4.2 Comparison of numbers of sites with sheilings overlying or near, or with a second roundhouse overlying is shown in Figure 30.

Chart showing number of sites with
1. Sheilings overlying
2. Sheilings nearby
3. Second hut circle overlying

	Number
Sheiling overlying	43
Sheiling near	38
Hut circle overlying	6

87 records

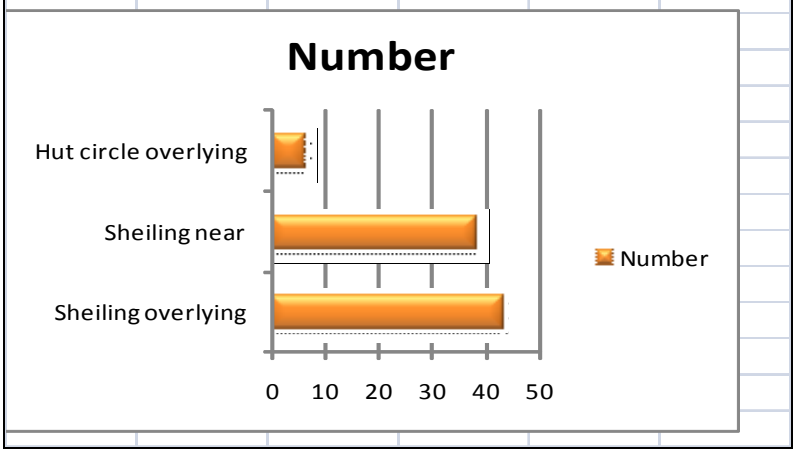


Figure 30 Sites with sheilings

3.5.2.4.3 The chart in Figure 29 shows that 35% of the total dataset of 234 had sheiling remains either overlying or near.

3.5.3 Question: Can we compare landscape settings where there are several roundhouses with those where there is only one?

3.5.3.1 Clusters of sites

3.5.3.1.1 Groups of several roundhouses can be in close clusters, or spread out in a linear cluster along a hillside on or near to the same contour line. Figure 31 shows relative proportions for close clusters (cluster in table), linear clusters and single sites.

Site types comparison: single, cluster, linear cluster along a contour

Site type	Number
Single	18
Cluster	179
Linear	35

232 records
2 unrecorded

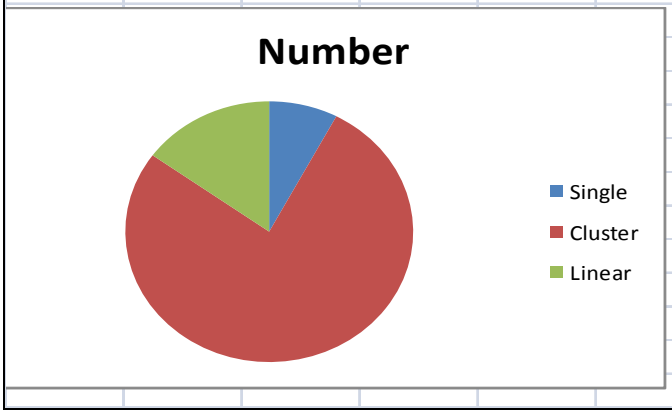


Figure 31 Site types comparison

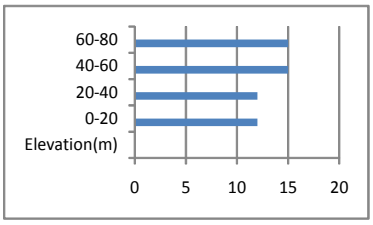
3.5.3.1.2 Only 8% of the total are single sites. Most roundhouses are in cluster groupings ; 15% in linear clusters and 77% are in clusters which will consist of several near neighbours.

3.5.3.2 Elevation (altitude) of roundhouse sites

3.5.3.2.1 This may have been important in site choice in the four areas. Figure 32 shows bar charts with elevations in each area, with the average (mean) calculated from the complete data in the database

Achiltibuie area: chart showing elevations

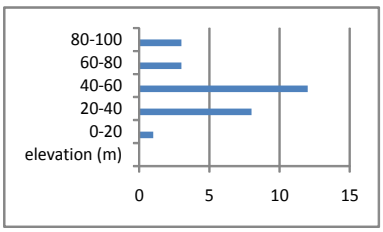
Elevation(m)	Number of sites
0-20	12
20-40	12
40-60	15
60-80	15



Average elevation 42m

Badentarbat area: chart showing elevations

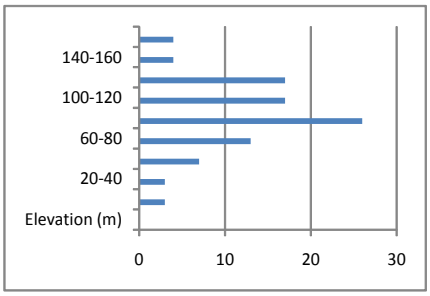
elevation (m)	number of sites
0-20	1
20-40	8
40-60	12
60-80	3
80-100	3



Average elevation 51.7m

Gairloch and Poolewe area: chart showing elevations

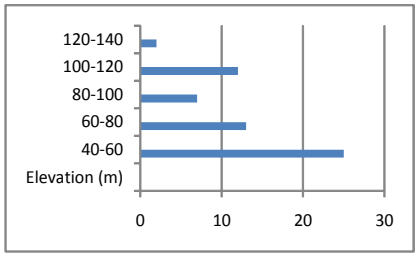
Elevation (m)	Number of sites
0-20	3
20-40	3
40-60	7
60-80	13
80-100	26
100-120	17
120-140	17
140-160	4
160-180	4



Average elevation 97m

Skye Area: chart showing elevations

Elevation (m)	Number of sites
40-60	25
60-80	13
80-100	7
100-120	12
120-140	2



Average elevation 75.3

Figure 32 Site elevations

234 records

3.5.3.2.2 Average elevations are very different in each area with Gairloch having a particularly high average of 97m. The Skye sites have no elevation less than 40m, and Achiltibuie has none over 80m.

3.5.3.3 Investigation of the angle of slope for roundhouse sites

3.5.3.3.1 The angle of slope may have influenced the location of the roundhouse sites. Figure 33 shows the slope angle for all sites in the dataset.

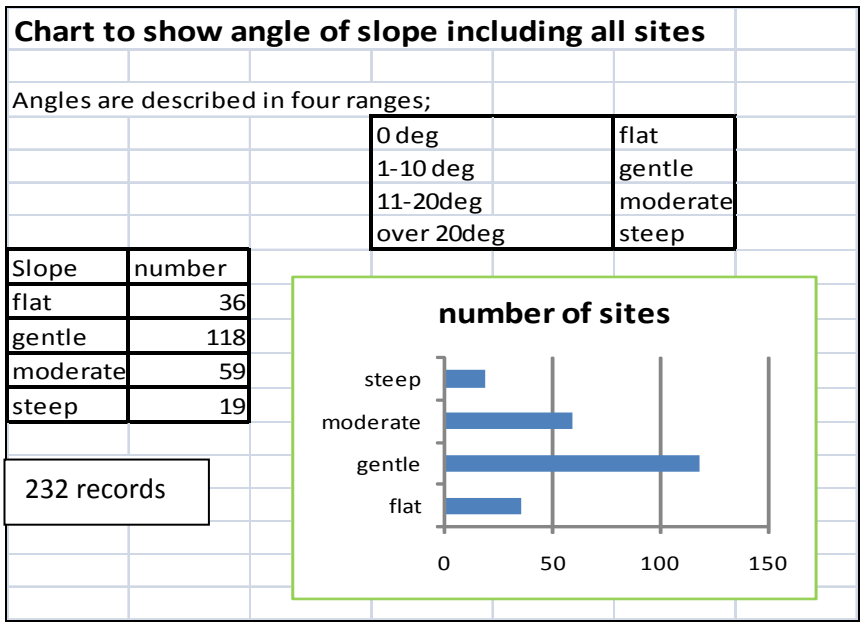


Figure 33 Angle of slope (all sites)

3.5.3.3.2 Figure 34 shows an area by area comparison of angle of slope.

Figure 34 Angle of slope (area by area)

3.5.4 Question: why were the site locations selected? Was it because of proximity to running or standing water?-or other?

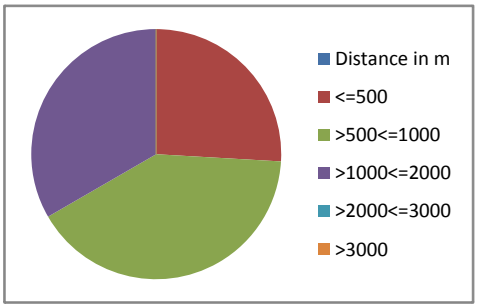
3.5.4.1 Initial query

3.5.4.1.1 An initial query was run to show comparisons of distances from a sea loch, for all four areas, see Figure 35.

Chart showing distances from sea lochs
Comparisons, four areas

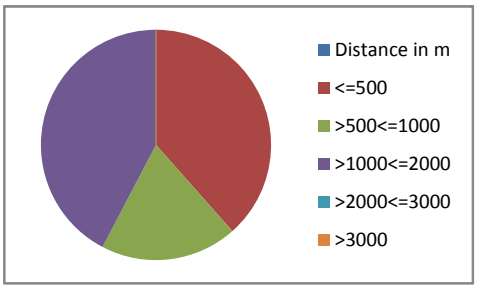
Achiltibuie 54 records

Distance in m	Number of sites
<=500	14
>500<=1000	22
>1000<=2000	18
>2000<=3000	0
>3000	0



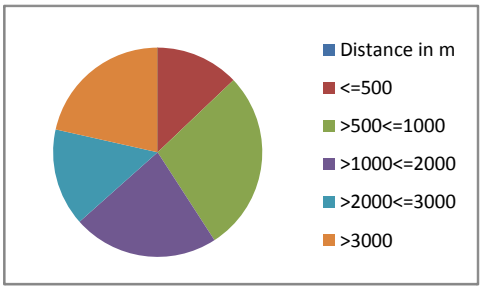
Badachro 26 records

Distance in m	Number of sites
<=500	10
>500<=1000	5
>1000<=2000	11
>2000<=3000	0
>3000	0



Gairloch & Poolewe 93 records

Distance in m	Number of sites
<=500	12
>500<=1000	26
>1000<=2000	21
>2000<=3000	14
>3000	20



Skye 58 records

Distance in m	Number of sites
<=500	6
>500<=1000	27
>1000<=2000	25
>2000<=3000	0
>3000	0

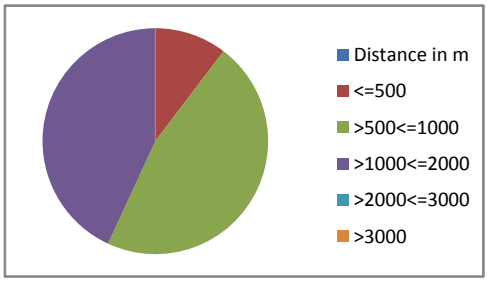


Figure 35 Distance from sea lochs

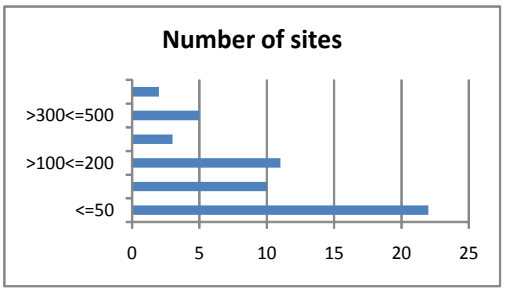
3.5.4.1.2 This was followed up with a query on the site distances from a stream, see Figure 36.

3.5.4.1.3 Figures 36 and 37 show distances from streams.

Chart showing comparative distances from streams
for Achiltibuie, Gairloch & Poolewe and Skye.

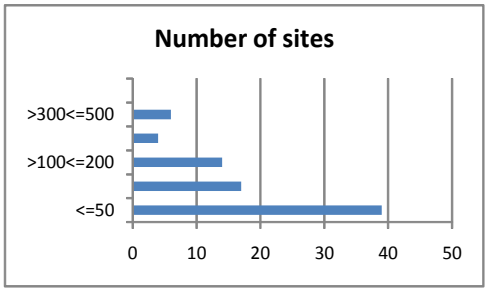
Achiltibuie 53 records

Distance in m	Number of sites
<=50	22
>50<=100	10
>100<=200	11
>200<=300	3
>300<=500	5
>500	2



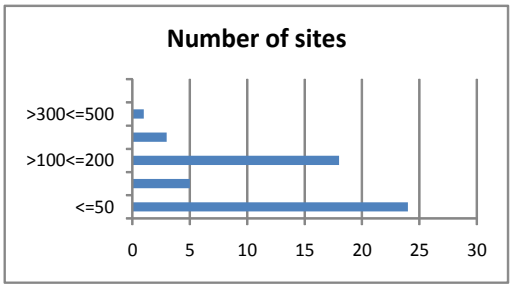
Gairloch & Poolewe 80 records

Distance in m	Number of sites
<=50	39
>50<=100	17
>100<=200	14
>200<=300	4
>300<=500	6
>500	0



Skye 51 records

Distance in m	Number of sites
<=50	24
>50<=100	5
>100<=200	18
>200<=300	3
>300<=500	1
>500	0



Badachro is not shown as its number of records is too small.
Some sites have no record of stream distance as they are nearer to a river.

Figure 36 Distance from streams (by area)

3.5.4.1.4 The records in each area seem incomplete, but this is because for some sites a river distance was given instead. A further query should be done asking for distances from either rivers or streams. Badachro has fewer sites than the other areas, and its stream results had too few entries to be meaningful. However these were included in the overview piechart using the whole dataset, (see Figure 37). Sections 3.5.4.2 and 3.5.4.3 give a brief description of the results from the charts in Figures 35, 36 and 37.

Chart showing distances from a stream for whole data set.
Some sites have no record of stream distance as they are nearer to a river.

Distance in	Number of sites
<=50	75
>50<=100	37
>100<=200	45
>200<=300	14
>300<=500	13
>500	2

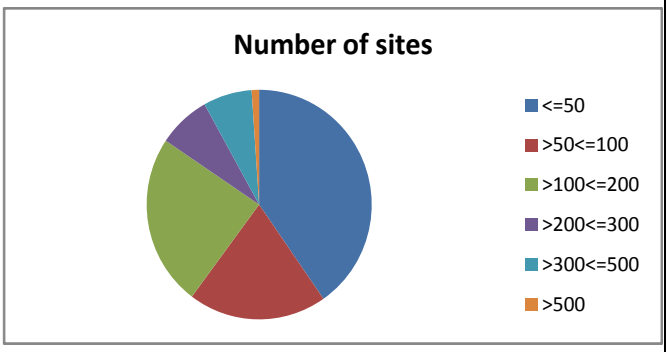


Figure 37 Distance from streams (all sites)

3.5.4.2 **Distances from sea lochs, description of results**

3.5.4.2.1 Gairloch and Poolewe are the only areas with sites further than 2000m from the sea .

3.5.4.2.2 Gairloch and Poolewe have the least proportion of sites less than 500m from the sea.

3.5.4.2.3 Nearly half the recorded sites on Skye are between 500m and 1000m from the sea and 43% of sites are between 1000m and 2000m from the sea. Only 10% are closer to the sea than 500m.

3.5.4.3 **Distances from streams, description of results**

3.5.4.3.1 Figure 36 shows bar charts for three of the four areas. In each area the greatest number of sites were less than 50m from a stream; for Achiltibuie this was 41%, for Gairloch and Poolewe 48%, for Skye 47%. This seems a consistent percentage.

3.5.4.3.2 Figure 37 shows the results for all four areas in a pie chart.

3.5.4.4 **Possible other reasons for site choice**

3.5.4.4.1 Possible other reasons for site choice might have been:

- proximity to a broch or a dun,
- proximity to a ritual site
- scope of views from the site

3.5.4.5 **Proximity to a broch or a dun**

3.5.4.5.1 Without dating evidence it is not possible to say whether the individual sites were contemporary with each broch or dun. Figure 38 compares distances for the whole dataset.

Distances of sites from broch or dun

Distance (m)	Number
<500	30
500-1000	13
1000-2000	59
>2000	131

233 records

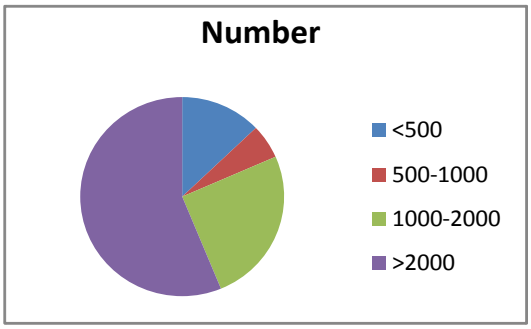
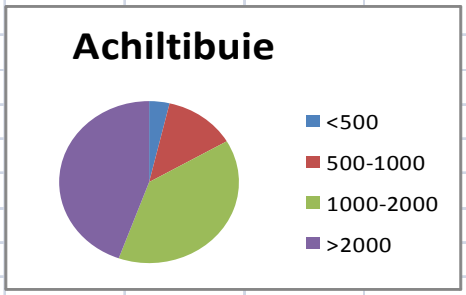


Figure 38 Distance from broch or dun (all sites)

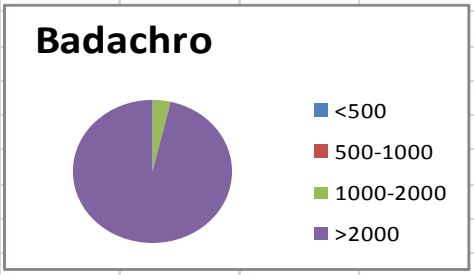
3.5.4.5.2 Around 13% of sites were less than 500 m from a broch or dun. Results were compared for the four areas, see Figure 39.

Comparison by area of site distance from a Broch or a Dun

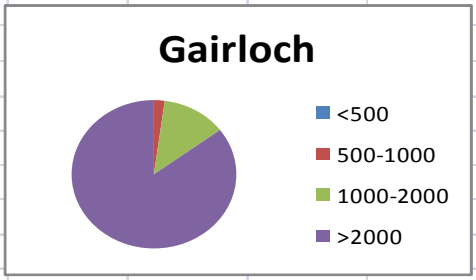
Achiltibui	54 records
Distance i	Number
<500	2
500-1000	7
1000-2000	21
>2000	24



Badachro	27 records
Distance i	Number
<500	0
500-1000	0
1000-2000	1
>2000	26



Gairloch	94 records
Distance i	Number
<500	0
500-1000	2
1000-2000	12
>2000	80



Skye	59 records
Distance i	Number
<500	28
500-1000	5
1000-2000	25
>2000	1

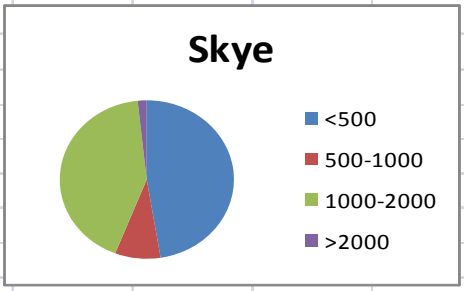


Figure 39 Distance from a broch or dun (by area)

3.5.4.5.3 Skye has nearly 50% of sites within 500m of a broch or dun, whereas Gairloch and Badachro have none.

3.5.4.5.4 For sites less than 1000m from a broch or dun, Achiltibuie has 16%, Badachro has none, Gairloch has 2% and Skye has 56%.

3.5.4.6 **Proximity to a burial cairn or ritual site**

3.5.4.6.1 Sites within 1000m of a burial cairn or ritual site are examined in Figure 40.

Chart showing sites within 1000m of burial cairn or ritual site

Ritual site	28
Burial cairn	4
Neither	203

232 records

NB 1 record appears in both ritual and burial categories

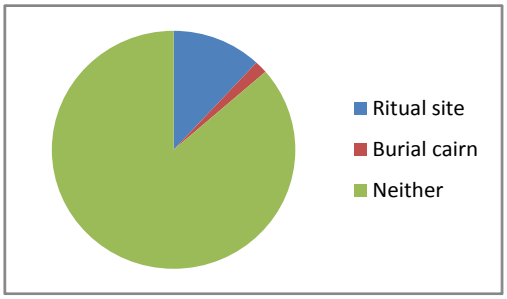


Figure 40 Sites close to cairn or ritual site (all sites)

3.5.4.6.2 Figure 41 shows the sites in each area which are within 1000m of a burial cairn or a ritual site.

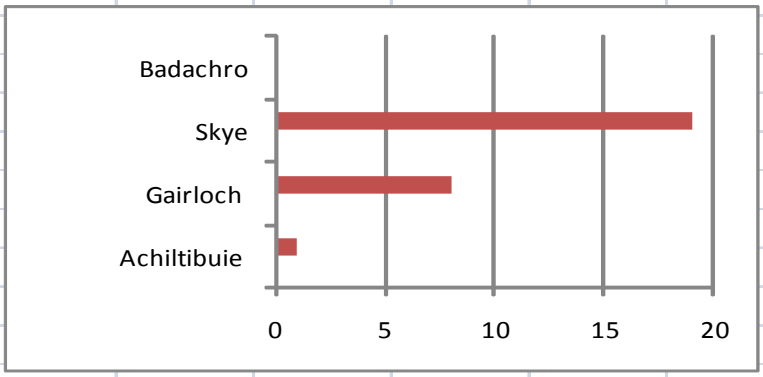
3.5.4.6.3 Ritual sites can only be identified as possibilities without further investigation.

3.5.4.6.4 There is little evidence of burial cairns in the study area as a whole.

Chart showing sites by area which are within 1000m of a ritual site.

Ritual Site	Number
Achiltibuie	1
Gairloch	8
Skye	19
Badachro	0

28 records



Sites within 1000m of a **burial cairn** are 4 in number 3 of these are in Skye, 1 in Achiltibuie (The same site as shown in the above chart)

Figure 41 Sites close to a cairn or ritual site (by area)

3.5.4.6.5 The Gairloch ritual sites are at Coille Eagasgarg , Tollie Wood and the Sand River. Figure 48 in Appendix D shows two possible ritual sites at Sand River. These have a similar profile in the landscape.

3.5.4.6.6 The Skye sites near to a ritual site are at Cille Mhaire Glen, (see OS map of Kirkibost, Figure 6). The 3 sites in Skye within 1000m of a burial cairn are all at Kilmuir, near Uig, (see Appendix I Figure 53 for OS map)

3.5.4.7 **Site views examined**

3.5.4.7.1 Early in the fieldwork process it was realized that many sites had magnificent views, often at the expense of shelter. A query was set up to show the proportions of panoramic and limited views from each site. Figure 42 shows the results. 92% of the dataset have panoramic views.

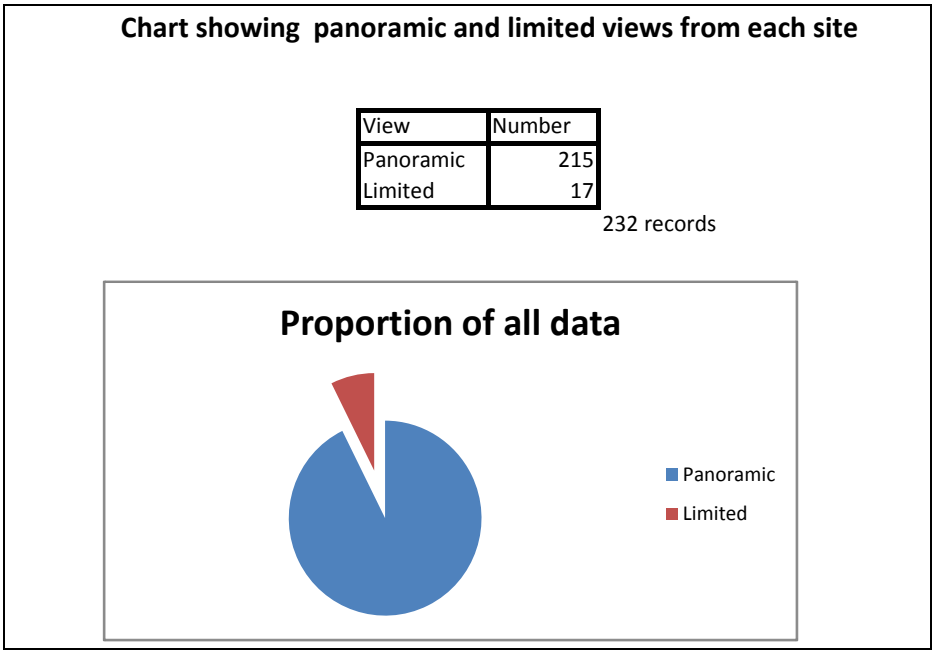


Figure 42 Panoramic and limited views

3.5.5 Question: Can we postulate a chronology of style?

3.5.5.1 There are some structural differences within a group which could indicate different periods of build and usage. Three groups are analysed site by site as follows:

3.5.5.2 **Leathad Mor sites**

Site name	Inner diameter	Shape	Wall thickness	Entrance orientation	Personal no	Terminals
Leathad Mor 1	6.7	Circular	1.7	NW	AMC101	Extended
Leathad Mor 2		Circular	1.8	?NW	AMC102	
Leathad Mor 3	9	Circular	1	NE	AMC103	Extended
Leathad Mor 4	6.7	Circular	2	SE	AMC104	Extended

Table 3 Comparison of Leathad Mor sites (measurements in meters)

3.5.5.2.1 These sites at Leathad Mor are compared in Table 3 and plotted individually on the OS map in Figure 43, section 4.7.2. They are situated close to each other: the assumption could be that they are a group settlement.

3.5.5.2.2 Differences in structure shown by the table:

3.5.5.2.3 AMC101 and AMC102 seem similar, with the same entrance orientation of NW, and similar wall thickness. Inner diameter comparisons cannot be made.

3.5.5.2.4 AMC104 is a similar size to AMC101, but entrance orientation is SE.

3.5.5.2.5 AMC103 is larger than the others. The notes in the database give additional information about outer walling circling the W side of the structure. The orientation is NE, which is very unusual in the whole dataset. (see tape and offset sketch, Figure 46, Appendix B).

3.5.5.3 **Sand East sites**

Site name	Slope aspect	Inner diameter	Shape	Entrance orientation	Personal no	Terminals	Wall thickness
Sand East 2	W	7.7	Circular	E	AMC201	Extended	1.5
Sand East 3	W	11	Circular		AMC202		2
Sand East 4	W	9	Circular	E	AMC203		2
Sand East 5	E	7.3	Circular	SE	AMC204	Extended	2.2
Sand East 6	E	8.3	Circular	SE	AMC205	Extended	1.5
Sand East 7	S	6	Circular	SE	AMC206	Extended	2.3
Sand East 8		7.3	Circular	SE	AMC207	Extended	1.5
Sand East 10	E	6.5	Circular	E	JB301	Extended	1.7
Sand East 11	E	3.6	Circular	E	JB302		
Sand East 12	S	8.2	Circular	SE	JB303	Standard	2
Sand East 13	SW		Circular		JB304		
Sand East 14	SW	7.9	Circular	S	JB305		1.8
Sand East 15	W		Circular		JB306		
Sand East 16	S	9	Circular	SE	JB307	Extended	1.4
Sand East 17	S		Circular	SE	JB308		2
Sand East 18	S		Circular		JB309		
Sand East 19		5	Oval	SE	JB310	Extended	1.2
Sand East 20			Circular		JB311		
Sand East 21	S	7.3	Circular	S	JB312	Extended	1.5

Table 4 Comparison of Sand East sites (measurements in meters)

3.5.5.3.1 The sites in Table 4 are shown plotted individually on the OS map in Figure 44, section 4.7.3.

3.5.5.4 **Summary of data from Table 4**

3.5.5.4.1 AMC201, 202, 203 are on a low ridge, all in line with, and in view of, one another. Terminals were not possible to compare. All have a W facing aspect and two have E entrance orientations. The centre site, AMC202, has inner diameter 11m, much

larger than AMC201, 203. AMC202 and 203 have greater wall thickness than AMC201.

3.5.5.4.2 AMC204, 205 are very close together. Their diameters are similar, the terminals are both extended, slope aspect and entrance orientation are the same. The difference is that wall thickness of AMC204 is greater than that of AMC205.

3.5.5.4.3 AMC207 is on a small knoll and AMC206 is sited below. They have similar inner diameters and entrance orientations. Here again the difference is in wall thickness. AM206, the lower site, has a much thicker wall than AMC207.

3.5.5.4.4 JB301,302 are sited very close to one another with the same entrance orientations, but the inner diameter of JB302 is around half of that of JB301.

3.5.5.4.5 JB303,304 are close but detailed comparisons cannot be made, as with JB005,006..

3.5.5.4.6 JB310 is oval in shape and has a comparatively small inner diameter.

3.5.5.5 **Coille Eagasgarg sites**

3.5.5.5.1 Table 5 shows comparisons between the Coille Eagasgarg sites, which are shown individually on the OS map in figure 45, section 4.7.4.

Site name	Inner diameter	Shape	Wall thickness	Entrance orientation	Personal no	Terminals
Coille Eagasgarg 1	11	Circular	1	?E	MB001	
Coille Eagasgarg 2	10	Circular	1.3	E	MB002	Extended
Coille Eagasgarg 3	6.9	Circular	2	SE	MB003	Standard
Coille Eagasgarg 4	9.1	Circular	1.5	SE	MB004	Standard
Coille Eagasgarg 5	6.2	Circular	1	NE	MB005	Standard
Coille Eagasgarg 6	8	Circular	1.3	SE	MB006	Standard
Coille Eagasgarg 7	8.4	Circular		SE	MB007	Standard

Table 5 Comparison of Coille Eagasgarg (measurements in meters)

3.5.5.6 **Summary of data from Table 5**

3.5.5.6.1 MB001 and MB002 have larger inner diameters than the others. Notes in the database show that MB001 is constructed with very large boulders. MB001 has wall thickness of only 1m.

3.5.5.6.2 MB005 stands out with an entrance orientation NE where the others are E or SE. Wall thickness of MB005 is only 1m.

3.5.5.6.3 MB007 is a single ring of large boulders, a different construction from the others.

4 Interpretation of Results

4.1 Résumé

4.1.1 The study was designed so that data could be collected in the field, and entered into a database format. Attempts could then be made to answer questions posed in Section 1.4.4.1. Use was made of O.S. maps, geological maps and aerial photographs in addition to the information entered onto the database.

4.1.2 There are many more queries which could be asked of the database, and some of these are mentioned in the interpretations which follow. The scope of this study precludes investigating further at present.

4.2 Site choices in relation to resources

4.2.1 The database has shown that most site locations in the study fulfil a number of the following location criteria, and these provide the resources listed below in Table 6;

Location	Resource availability
Near to sea	Boat travel/trade, fish, shell fish, seaweed(fertiliser)
Near to freshwater loch or navigable river	Boat travel, fish
Near to stream	Running water for cooking and drinking
On glacial till or river terrace	Soil workable and improvable without hard metal tools
Amongst glacial moraines	Building materials readily available
Near to hills	Upland grazing, game for hunting

Table 6 Resources available according to site locations

4.2.2 In addition woodland would have been dense until the Middle Bronze Age, by which time blanket peat was developing, (see Appendix A.1). Wood and peat were both fuel resources.

4.3 O.S. maps, Geological maps and aerial photographs used with the database

4.3.1 It has proved informative to plot roundhouse sites onto relevant area extracts from O.S. maps, and then to look at the same areas with site plots onto Geological

maps showing both bedrock and drift. Taken together with an understanding of the landscape through the fieldwork recording process, the choice of settlement locations becomes clearer.

4.3.2 Roundhouse sites and glacial moraines

4.3.2.1 **Overview**

4.3.2.1.1 From the samples of site plots on geological maps (Figures 9, 10, 11, 12, 13) it seems that roundhouse sites are often situated on or near glacial moraines and glacial till. This observation has created interest in the British Geological Survey, (Tom Bradwell pers com). Reasons for this site preference could be as follows:

4.3.2.1.2 The discovery that roundhouse sites are often linked with glacial moraines is pivotal in understanding site location choices. This may be one of the most useful facts to emerge from this study.

- Tools of stone, wood, horn or soft metal would have been of little use on hard bedrock.
- Glacial till would have yielded soils and subsoils capable of being broken up and deep enough to cultivate.
- Moraines would have provided boulders for construction.

4.3.2.2 **Choice of settlement location**

4.3.2.2.1 This becomes clearer when the underlying geology, as mentioned above, is considered together with an understanding of the landscape through the fieldwork recording process. The geology in part of Achiltibuie, in part of Gairloch, and in two areas of Skye, is now examined.

4.3.2.2.2 **Achiltibuie** has site clusters as described in 3.2.2.2 and shown in Figure 4. Figure 35 shows that no site in Achiltibuie is more than 2km from a sea loch. Figure 11 shows the underlying geology of the same area as Figure 4. This is described in 3.2.3.3. The linear sites are here mostly on alluvial deposits and glacial till, a source of fertile soil. The grouped cluster is spread out in an area of sandstone bedrock, where some glacial deposits are indicated together with peat cover. All in this group are near to a stream. Portage of small ships from Achnahaird Bay in the North to Badentarbat Bay in the South would have been possible, traversing the lochs and the low level land. This would have avoided sailing round the rocky

peninsula in poor weather. It would have aided trading and may have been a factor in the density of settlement here.

4.3.2.2.3 **Around the Sand River, Gairloch** site clusters are spread out as shown in Figure 5. There are a number of sites along a contour stretching from the Sand River as far as North Erradale, with gaps where perhaps original sites have now disappeared. The area around the tributaries of the River Sand is gently undulating and is quite a long way from either the sea or a fresh water loch. Settlers here would have had less easy access to the sea than the Achiltibuie settlers.

4.3.2.2.4 The plot of these sites on a geological map is shown in Figures 9 and 10. As the 'Wester Ross Re-advance' ice sheet began to retreat, (see Figure 3, and section 3.1.3 and Appendix A.6) a wide band of moraine was deposited. The sites follow this band, (see section 4.3.2.1.1). The moraine would have provided boulders of all sizes for building and also areas of glacial till, a source of fertile soil.

4.3.2.2.5 **The geology of Skye** is complicated. Figure 12 shows **Kingsburgh and Hinnesdal Bridge** on the **Trotternish peninsula**, (for OS map see Figure 7), where the bedrock is volcanic basalt with a covering of peat. The sites to the E of the map are situated on hillside terraces formed by erosion of lava flows. Soils thus formed will be fertile, (see section 3.2.3.4 and Appendix A.5).

4.3.2.2.6 **Clusters of hut circles at Cille Mhaire Glen and Druim Fhurainn, in Strathaird, Skye,** are shown in Figure 13, (for OS map see Figure 6). The sites are on steep slopes and are well drained, and the sedimentary rocks described in section 3.2.3.5 break down fairly easily to give fertile soils.

4.3.2.3 **Associated field systems**

4.3.2.3.1 These are compared in section 3.5.2.3 and Figure 29. Achiltibuie is the only area in the study to have field systems recorded near to every site. This may be an indication of the fertility of the land, both at the time of the roundhouse dwellers and also continuing to recent times. Some of the field systems may be part of more recent cultivation of the land; it is often difficult to judge the age of banks, dykes and clearance heaps from field survey alone. Lazy beds indicate more recent cultivation, but also show that crops could be grown in the area. Skye and Badachro have a high number of sites with no field systems; this may be because

the signs were difficult to discern in the landscape. Rampant heather cover in particular tended to obliterate signs of clearance cairns, lazy beds, and remains of field walls. Plate 2 (with Figure 14 for location) shows field walls highlighted in an aerial photograph at Boor, Gairloch & Poolewe. Further aerial photographs showing field walls at Tournahuildh, Gairloch & Poolewe, and at Kilmuir, Skye, together with OS maps for location, are shown in Plate 6, Appendix H and Plate 7, Appendix I.

4.3.2.3.2 **Sites with associated enclosures** are compared in section 3.5.2.2 and Figures 27 and 28. The charts show distinct differences between the four areas. Badachro has the highest proportion with no enclosures, although this is based on a small number of sites.

4.4 Use of database to analyse distances from sea lochs, streams, brochs and duns

4.4.1 Comparisons of these distances are shown in section 3.5.4 and Figures 35, 36, 37, 38, 39.

4.4.2 **In the Achiltibuie area** 66% of sites are within 1000m of a sea loch (see section 3.5.4.1.1). This is an indication of availability of fishing and boat travel. Some fields of recorded data have not been used at this stage. Site distances from a freshwater loch and from a river are also in the database; some site records include more than one of these distances and more complex queries could extract fuller information on proximity of sites to fresh water for daily use, and to the sea or to large freshwater lochs for transport. Figure 37 shows that between 40% and 50% of sites were less than 50m from a stream, (see section 3.5.4.3).

4.4.3 **At Gairloch,** site proximity to water differs from that at Achiltibuie. Figure 35 shows that in the Gairloch area as a whole around 20% of sites are more than 3000m from the sea. Many of the **Sand River** sites fall into this category. Settlers did not have easy access to the sea but perhaps located there because of fertile soil, availability of boulders for building and abundant streams.

4.4.4 **On Skye** 50% of sites are within 500m of a **broch or dun** (Figure 38). The sites at **Kingsburgh and Hinnesdal Bridge** are all within this range, (see sections 3.2.2.5

and 3.5.4.5, and OS map Figure 7). It is possible that proximity to a broch or dun was a reason for location choice here. Most of the Skye sites can be loosely set in the Iron Age period (M. Wildgoose pers com). Occupation contemporary with the brochs and duns cannot be confirmed without dating evidence.

4.4.5 In the Skye study areas, 19 sites were within 1000m of a **ritual site.** Most of these are at **Cille Mhaire Glen, Kirkibost, Strathaird,** (see section 3.2.2.4 and Figure 6). The OS map shows sites following a contour level around a moderately sloping valley basin which has numerous streams. Standing stones are marked at a visual focal point for all the sites. This may indicate an ancient ritual site, and its presence may be a powerful reason for choice of site location. These roundhouse sites are also within 2000m of a dun and of a good landing area for fishing and boat travel. At **Sand River, Gairloch & Poolewe,** there are two possible ritual sites set among the roundhouse sites, (see Appendix D, Figure 48 and section 3.5.4.6).

4.5 Structural comparisons using the database

4.5.1 Maps were of no use for investigation of structure. The database produced a comparative overview of diameter, shape, wall morphology, orientation and other variables.

4.5.2 Shape

4.5.2.1 **Shape** of the structures was examined in Figure 15. 85% of sites were circular, with around 11% oval and the remainder sub-circular or 'other'. Inner diameters were meaningful only for circular sites, but other variables could be examined with the whole dataset.

4.5.3 Inner diameters

4.5.3.1 Inner diameters as a measure of internal space, were compared over the whole dataset and then over the four areas, (see section 3.5.1.3 and Figures 16, 17).

4.5.3.2 The most common diameters in all areas were between 5.6m and 8m. Gairloch had the greatest percentage of these, 69%. Skye is unique in having no sites in the study over 10m. This comparison has shown up some significant differences between the four areas.

4.5.4 Walling measurements

4.5.4.1 Walling measurements were made for all sites whether circular, oval or sub-circular.

4.5.4.2 Section 3.5.1.4 and Figures 18,19, show that:

- The majority of sites have double skin walling (Figure 18 and Plate 3).
- The majority of sites have wall thickness between 1m and 2m. (Figure 19)

4.5.4.3 This information gives us an understanding of the strength of the building structure. Most of the double skinned walls showed evidence of infill of stones and turf. This design would have created a strong stone wall capable of supporting roof timbers. It would have provided good insulation. The roof could have overlapped the outer wall and allowed rain to run into an outside gully, or it could have been constructed so as to let rain run into the wall infill. The same type of wall structure continued until the 'black houses' of the nineteenth century, although the shape of the houses altered over the centuries through circular to sub-circular and rectangular, (Holden 2004).

Plate 3 Showing the inner face of a double skinned wall, Creag Bo Maoile, Gairloch & Poolewe (MM008)

4.5.5 Standard and extended terminals

4.5.5.1 Standard and extended terminals were examined, (see section 3.5.1.4.6, Figures 20, 21, 22, and Plate 4). The results are not very informative, apart from showing that more sites have extended terminals than have standard. The charts in Figures 21 and 22 show that the proportions of either standard or extended terminals seem to match the proportions in the different diameter ranges. To obtain some more useful information a comparison of terminals should be made between individual clusters of sites. A terminal comparison should also be made with inner diameters and wall thickness, possibly finding that similarity of structural styles matches a terminal type. Plate 4 shows a site at Hinnesdal Bridge, Skye, where extended wall terminals are marked by a long entrance passage.

Plate 4 **Long entrance passage showing extended wall terminals, Hinnesdal Bridge Skye, (site EB203).**

4.5.6 Entrance orientations

4.5.6.1 Entrance orientations for the whole dataset are shown on the chart in Figure 23 and described in section 3.5.1.5. The majority of entrances are in E, SE or S, but around 25% are not. In order to examine this more closely charts were compiled (Figures 24, 25, 26) showing orientations for sites on slopes with different aspects.

It would also be useful to examine detail for the 25% of sites where orientations are not E, SE or S.

4.6 Landscape setting comparison using the database

4.6.1 Site type

4.6.1.1 Site type comparison in section 3.5.3 and Figure 31 shows that 92% of sites are in clusters. Of these more are in clusters of near neighbours than in linear clusters. It seems possible that the few single sites were originally part of groupings, no longer visible in the landscape. Distances from other sites are included in the database but have not yet been used in queries. Further database queries using these details, together with the information derived from maps (as described in section 3.2) should begin to address the comparison of site types.

4.6.2 Slope

4.6.2.1 The slope in each site location is most often gentle (see section 3.5.3.3 and Figures 33, 34). Badachro is the exception, where there are almost as many sites on flat or moderate slopes as on gentle ones. It would be informative to use the database to look at settlement clusters in the four areas to see how slope angles compare.

4.6.3 Elevations

4.6.3.1 **Mean elevations** range from 42m in Achiltibuie to 97m in Gairloch and Poolewe, (see section 3.5.3.2 and Figure 32). These facts are partially explained by the topography of the areas.

4.6.3.2 **Links between elevation and linear clusters** in different areas should be examined with further database queries. Other possible links could be, between elevation and the number of sites in a cluster group, between elevation and proximity to sheilings, and between elevation and inner diameters.

4.6.4 Views

4.6.4.1 **The extent of the views** from each site is shown in Figure 42, section 3.5.4.7. 92% of sites had panoramic views. It would be informative to follow up this query by looking more closely at the sites which have limited views. These might have common features such as slope aspect, orientation of entrance, inner diameter, and number in cluster. Defensive reasons could have forced the siting of so many roundhouses in exposed places with good views. When defence was not a priority there may have been further reasons for exposed site location. Hillside terraces where the break of slope had caused build up of soil would have been suitable locations; also wide mountainous vistas could have had a ritual connotation, (see Plate 5, a site on a hillside terrace above Loch Vatichan).

Plate 5 **Loch Vatichan West (site EGM001) showing panoramic view to East**

4.6.5 The presence of shielings

4.6.5.1 The presence of sheilings overlying or near to roundhouse sites was common, (see section 3.5.2.4 and Figure 30). 35% of sites came into this category. **Transhumance** involves the movement of some of the population with their stock to higher pastures in the summer months. The presence of sheilings, whether overlying roundhouses or nearby, as indicated in Figure 30, indicates continuing use of the

area for transhumance. Another query to the database could establish whether sheiling presence is linked to site elevation. However the only way to determine whether this practice applied to the roundhouse dwellers is by establishing dating of roundhouses and sheilings by excavation.

4.6.5.2 **A sequence of roundhouses** on the same 'footprint', or nearby, gives chronological depth to the site.

4.7 Structural Comparison using data for individual site clusters.

4.7.1 Data was tabulated for three site clusters in order to investigate whether different build periods were indicated. (See Tables 3, 4 and 5).

- Leathad Mor
- Sand East
- Coille Eagasgarg

4.7.2 **Leathad Mor** sites (Table 3) are plotted in Figure 43 with the individual personal number marked for each site. They are situated close to each other: the assumption could be that they are a group settlement. However the table shows major differences in structure and orientation. AMC103 is especially interesting; it has an unusual NE orientation and an outer arc of wall encircling the West side of the structure.(See Appendix B, Figure 46 for a tape and offset drawing of AMC103).

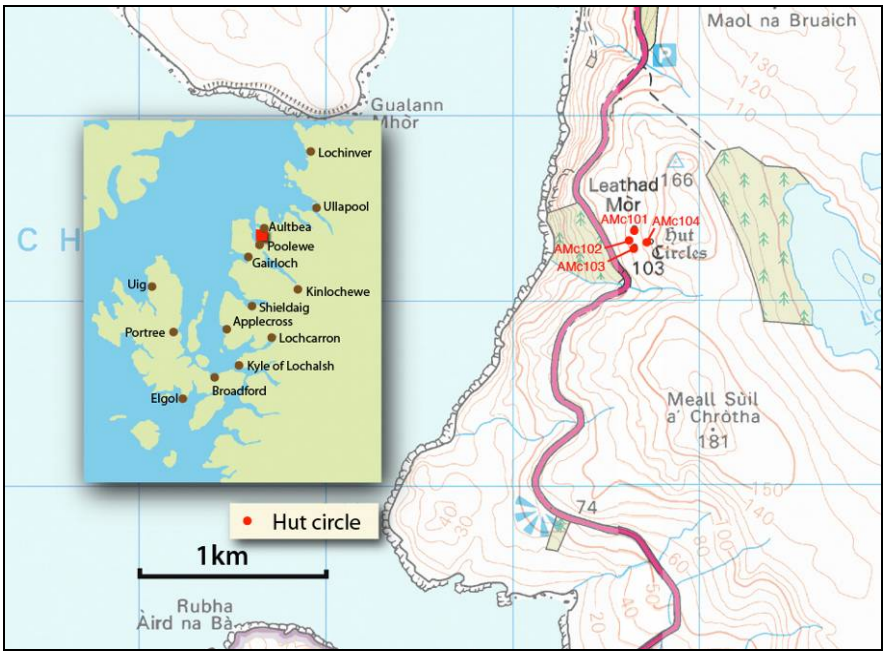


Figure 43 Leathad Mor individual site cluster

4.7.3 **Sand East** sites are plotted in Figure 44. They seem to separate into small groupings within the main large cluster. Table 4 shows differences of inner diameters and of wall thickness in these small groupings. The group of AMC201, 202 and 203 are especially interesting as they seem associated; they are in clear sight of one another along a low ridge, but diameters and wall thickness vary. Further interesting small clusters can be identified from Table 4 and section 3.5.5.4.

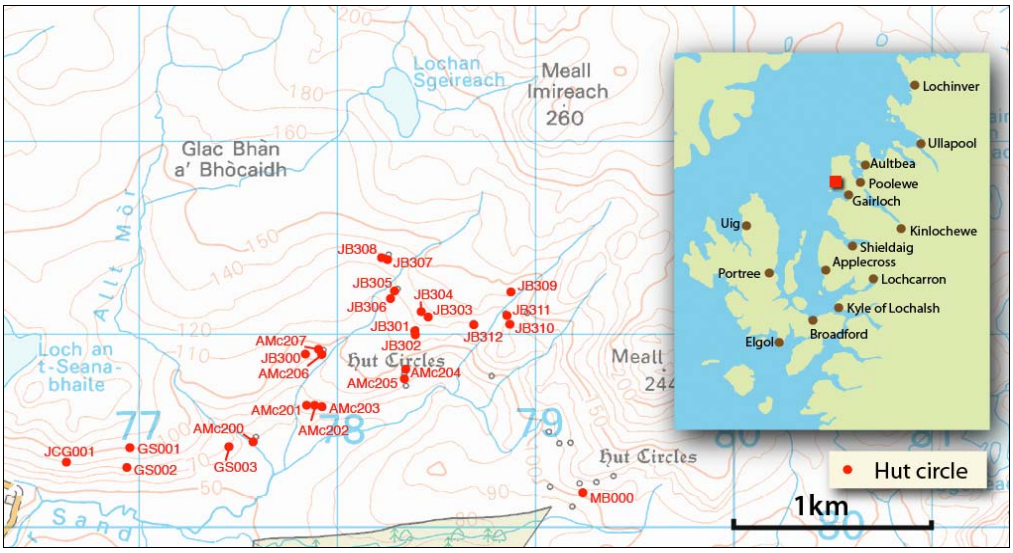


Figure 44 Sand East individual sites showing clustering

4.7.4 **Coille Eagasgarg** sites are plotted in Figure 45, (See Table 5 and section 3.5.5.5). One site in the group, MB005, has orientation of NE, the others all being E or SE. MB005 is also the smallest. There are variations in inner diameters and in build structure; all are double skinned except MB007 which consists of a single ring of boulders. It is possible that these structural differences indicate a chronology of site build.

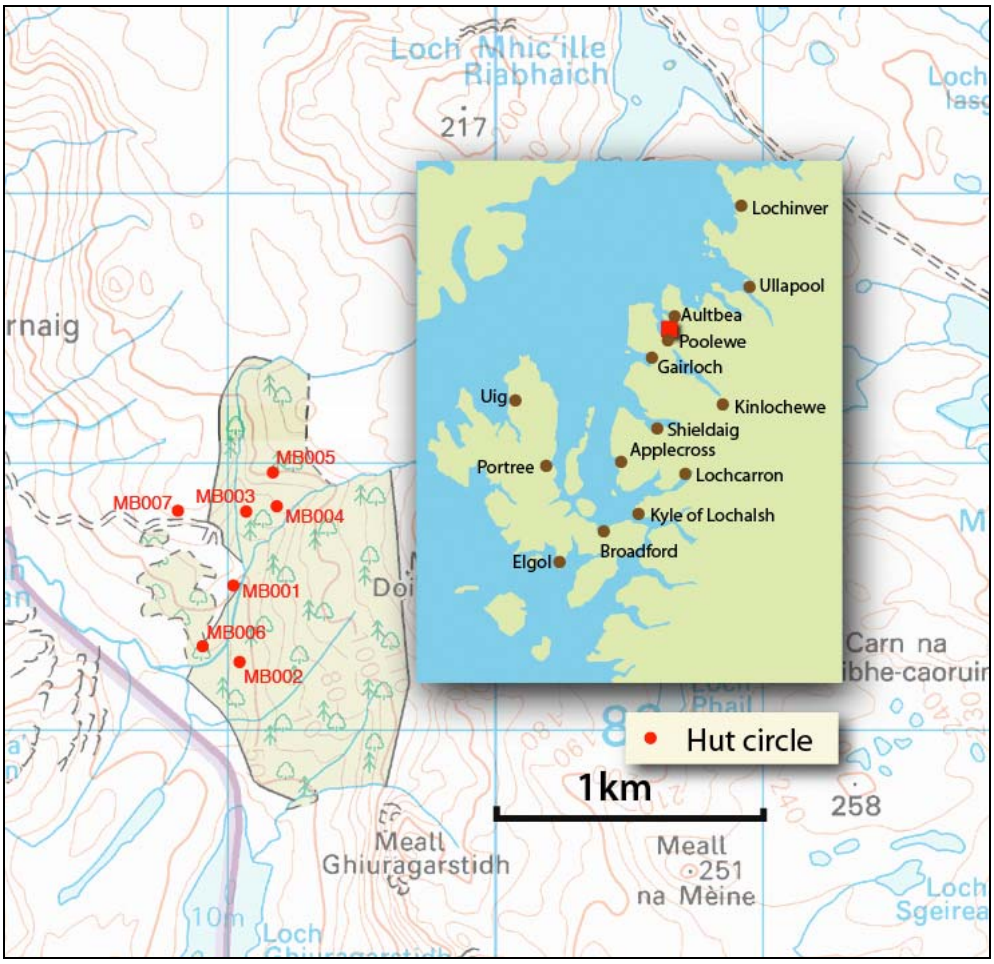


Figure 45 Coille Eagasgarg individual site cluster

4.7.5 **Unusual sites occur at Skye Kingsburgh:** (see OS map Figure 7 for location). Two sites to the East of the road, (EB216 and 217), are situated on level ground, within a massive enclosure wall, and not far from a prominent dun. The database notes show that boat shaped structures are attached to each of these roundhouses on the NE side, (see Figure 47, Appendix C). A nearby site (EB218) is 6m from a complete boat shaped structure with similar construction to the roundhouse. It is

not possible to tell by field survey whether these boat shaped structures were contemporaneous with the main roundhouses or were built on later.

4.7.6 More detailed examination of structural differences in site clusters in all areas could indicate differences in build, which in turn could indicate different time spans for house occupation. It is not possible to interpret any such differences with a chronology of use, unless dating is obtained through targeted excavation of individual sites.

4.8 Possibilities of stylistic matches with recent archaeological investigations, published and unpublished

4.8.1 **Excavations at Kintore,** Aberdeenshire, have produced measurements for roundhouse sites of Early, Middle and Late Bronze Age (EBA, MBA, LBA) and Early and Middle Iron Age (EIA, MIA),(Cook M. & Dunbar L.2008). Internal diameters of MBA roundhouses were the smallest (average 8m) and of LIA the largest (average 11.6m), but there was no regular increase in diameter over time. Entrance orientations were found to be varied in the MBA and uniform in the LBA. There was a range of orientations although most were in S or SE. W or N facing entrances were thought to indicate a differing function or status for the roundhouse, (Hingley et al 1997).

4.8.2 At **Blackford, by Gleneagles,** Perthshire, fifteen roundhouses were excavated in 2009 (C. O'Connell, pers. comm.) It was found that in the MBA sites had no porches, but LBA and Early Iron Age sites had porches. Entrance orientations were all in the SE except one, with probable NW orientation. This site had different internal organisation from the others, and may have had a different function, perhaps as a smithy, or connected with ritual. Inner diameters were around 8m in the MBA, 10 to 12m in LBA and 13 or 14m in Early Iron Age.

4.8.3 **The High Pasture Cave Project Landscape Assessment** has produced detailed and surprising results by test pitting 29 of the 32 circular stuctures recorded within the survey area, (Wildgoose M. pers com). Most sites were orientated to the SE or S. Two had no evidence of occupation and one of these (Site LS28) had a western facing entrance and a small cache of probably Iron Age artifacts in a small cave immediately beneath the structure. Initial analysis of the finds indicates that the

tested structures range in date from the Neolithic to the later 19th Century with the majority of the sites dating to the Iron Age.

4.8.4 K. Sabine's study on **roundhouses in selected areas of Northern Scotland** (Sabine 1982) measured shape, entrance orientations and altitudes/elevations, (see section 1.3.2.4.2). Her results are tabulated in Tables 7, 8, 9, to compare with those of the current study:

Shape	**K Sabine**	**Current study**
Circular	80.75%	85%
Oval/elliptical	19.25%	11%

Table 7 Comparison of shape with K Sabine results (see Figure 15)

Entrance Orientation	**K Sabine**	**Current study**
E, SE, S	83%	79%
SE	27%	45%

Table 8 Comparison entrance orientations with K Sabine results (see Figure 23)

Elevation	**K Sabine**	**Current study**
Upper limit	250m	180m
Lower limit	0m	0m
Mean	124.3	73.5m

Table 9 Comparison site elevations with K Sabine results (see Figure 32)

4.8.5 The percentages of oval as against circular roundhouses are not exactly the same, but indicate that in both studies a minority of sites were oval. It was also apparent from both studies that both oval and circular sites occurred in the same settlements.

4.8.6 The orientations in E, SE and S are broadly similar, but the percentages for SE are not. The elevation range is different and so also the mean elevation. It may be that elevation is governed by the topology of the landscape, and meaningful comparisons are not possible.

4.8.7 **In summary of stylistic matching,** structural comparisons with the settlements described above show possibilities of matches with sites in the current study in

- inner diameters,
- interpretation of entrance orientation,
- presence of porches, as indicated by entrance terminal type.

4.8.8 Firm dating from excavations mentioned above may assist in establishing a stylistic chronology in the study area. It would be informative to make structural comparisons with excavated Hebridean sites such as Arran, An Sithean on Islay, and Cladh Hallan on South Uist.

5 Conclusions

5.1 Evaluation of Project Methodology and the Results Obtained

5.1.1 The scope for data investigation from this study is huge, and the results charted and discussed are only a small proportion of what is possible. Further data investigations are beyond the scope of this study.

5.1.2 The 234 sites included in this study are entered onto a digital database (Microsoft Access) and this information is stored on a CD, Appendix L, inserted in the back cover of this document.

5.1.3 Only a small sample of all the queries possible have been produced using the database. The results have given useful comparative information on settlement choices and roundhouse structures. There are some differences between areas, and some similarities. When the focus is put onto individual settlement clusters it becomes possible to postulate a chronology depth from style differences.

5.1.4 Use of maps, both O.S. and Geological, has been helpful in understanding the landscape settings of settlements. Aerial photography has also been of use, especially in examining field systems.

5.1.5 The results have not been examined statistically, chiefly because there are a number of sites which are too degraded to ensure measurements for all fields. These omitted fields cannot therefore be included in the dataset for the given query. The pictorial charts give sufficient information to show percentages and trends.

5.1.6 Field survey alone cannot provide dates, unless from style comparisons from other areas of Scotland, (see section 4.8). Target excavation would be needed to confirm any stylistic matches.

5.2 Significance of the study findings

5.2.1 Local significance

5.2.1.1 In this study the majority of the extant roundhouses in the study areas have been recorded, in their state in the landscape at this time. As time goes on, grazing

patterns may alter and further forestry fencing may be erected. Many sites may then disappear from view as heather and bracken engulfs the stones.

5.2.1.2 The gazetteer (Appendix K) with accurate grid references should enable local people to explore and find sites in their area. The full database and files for each roundhouse will be made available to local museums.

5.2.2 National significance

5.2.2.1 Results will be available to the public when the further 80 sites recorded but not included in the current study have been entered onto the database. The complete database, together with sketches and photographs, will then be lodged with both the Highland Council HER and RCAHMS Canmore. It will be available for individual research.

5.2.2.2 The complete database will provide a new and well researched archaeological resource. There is much yet to be learned about roundhouse settlements both in Scotland and in the UK as a whole, and comparisons between areas and settlement sites will become more possible as further studies are made.

5.2.2.3 The study has shown possibilities of more intriguing comparisons between sites and areas, and further queries will be asked of the fully completed database. Any interesting conclusions will be lodged with HER and Canmore.

5.2.3 Future Plans

5.2.3.1 One of the problems in interpretation has been lack of dating evidence. Further investigation of stylistic comparisons with excavated roundhouses in all areas of Scotland may help in understanding the chronology.

5.2.3.2 The range and variation of structural styles and materials may make it difficult to draw chronological conclusions from stylistic comparisons.

5.2.3.3 Locally it is planned to instigate a programme of test pitting carefully selected sites, following the methodology used by M. Wildgoose in his landscape survey at High Pasture Cave in Skye. It is hoped that hearth evidence will yield charcoal for dating, and that wall structures will be clarified. A chronology of style may emerge.

5.2.4 Summing Up

5.2.4.1 All who took part in the study have gained from the experience. It has helped us to look carefully at landscapes and to better understand the terrain where roundhouses are likely to be found. We all endured extremes of weather and had a lot of fun.

A Notes on Landscapes; Climate, Weather and Geology.

A.1 Climate

Climatic changes, indicated from bog stratigraphy and dendroclimatology, showed a Late Bronze Age temperature drop of 2degC around 1300-900BC, as well as a possible short term catastrophic change in 1200BC which gave two decades of winter weather.

This cold period may have been due to the eruption of Hekla 3, an Icelandic volcano, which sent dust into the upper atmosphere. A wet phase followed which probably brought about the blanket spread of peat. Later, in the Iron Age, 400BC – AD 500, it became warmer and drier. (Barber 1997))

A.2 Vegetation

Palaeo-environmental studies showed that there were two prehistoric vegetation clearance phases, the first in the Late Neolithic/Early Bronze Age, which was followed by regeneration, and the second in the Middle Bronze Age when forest cover vanished and was never regenerated. (Barber 1997)

A.3 Effects on upland settlement

If these results are extrapolated to upland Scotland as a whole, it would seem that Late Bronze Age climatic and soil deterioration probably affected the density of population which the land could support, causing the abandonment of upland settlements, (Barber 1997).

However more recent pollen analysis across Britain by Dark (Dark 2006) quoted by Brown (Brown 2008) shows no evidence for wholesale land use change after 900BC. Pollen analysis of the climatic deterioration period in the Late Bronze Age, covering upland and lowland north east Scotland, indicates that agricultural activities in this period were restructured rather than abandoned (Tipping et al 2008).

A.4 Prevailing winds

Prevailing winds in the Neolithic, Bronze and Iron Ages were probably from the West, as they are now. This is evidenced by the dating of machair formation on the west coasts of the Outer Hebrides to around 3000BC. The western coastal plain was inundated with sand blown in by storms which had whipped up the Atlantic seabed. By around 2500BC the woodlands of the Outer Hebrides had disappeared, leaving a sandy western coastal strip, heather covered and boggy mountains, and blanket peat to the East (Parker Pearson et al 2005).

Prevailing wind direction could have been a practical factor in the design and siting of roundhouses. The entrance orientation could have been chosen so as to maximize light and minimize draughts. However the siting of some roundhouses on exposed ridges cannot have been chosen for comfort, (Cook & Dunbar 2008).

A.5 Geological Landscape Formation

The landscapes in which roundhouses are sited have been formed by geological processes over millions of years. On the West coast of Scotland from Cape Wrath to Gairloch the bedrock west of the Moine Thrust consists of very ancient Lewisian Gneiss, and Torridonian Sandstone. Skye is different in that more recent sedimentary and igneous rocks occur, (Gillen 2003).The northern areas of Skye consist of plateau lavas which give a landscape of flat topped hills, and hillsides which have been terraced by erosion of lava flows (Price 1976).

A.6 Effects of Ice

An ice cap covered most of Scotland around 15,000 years ago. The ice moved in a westerly direction, it ground and eroded the bedrock and carried rock debris which it deposited as hummocky moraines. The last cold period was 12,000 years ago when the Loch Lomond Stadial ice covered much of the west coast of Scotland, (McKirdy & Crofts 1999). Lines of boulders from ice-marginal moraines are found in Wester Ross. These were formed around 14,000 years ago; the previous ice sheet had been retreating, then its margin re-advanced. This is called the Wester Ross Readvance (WRR). (Ballantyne 2009)

The ice sheets have carried away most surface deposits, leaving only a thin covering on the bedrock. In the coastal zone ground uplift occurred when the ice sheet melted, causing formation of raised beaches. (Curtis C. pers. comm.) Highland soils are mostly shallow, with widespread uniform peaty surfaces. Drift deposits have rarely formed to any depth over the bedrock. Raised beaches yield fertile land, as do tongues of glacial sand amongst marshy bog (Barber 1997).

B Tape and offset survey, Leathad Mor, Gairloch & Poolewe

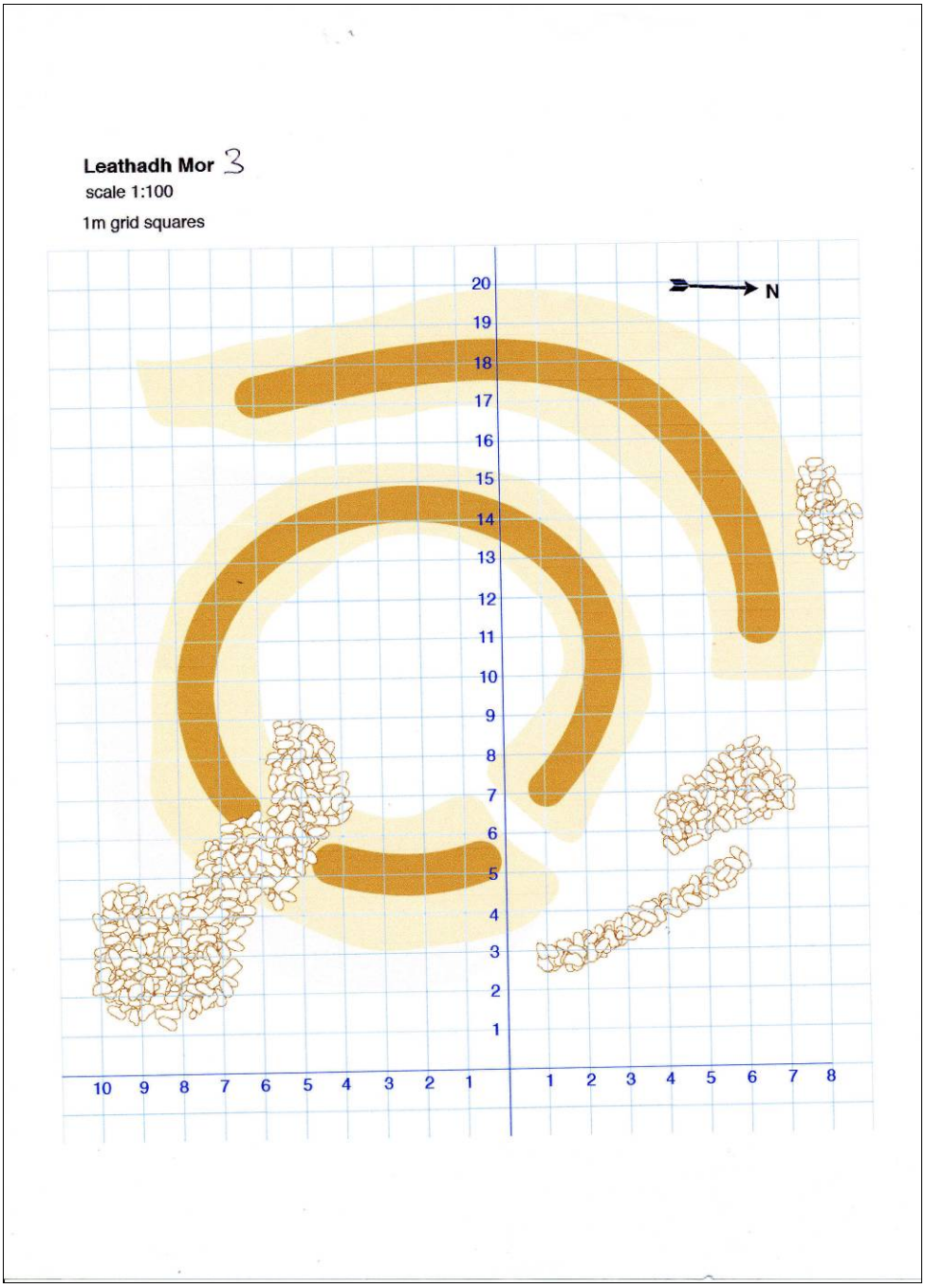


Figure 46 Site AMC103, Leathad Mor

(see Table 3, Figure 43 and sections 3.5.5.2.5 and 4.7.2)

Brown shading indicates double skinned walling, Pale yellow shading indicates tumble from wall. Stone tumble which seems unrelated to the wall structure is shown as outlined stones

C Field sketch of unusual site at Kingsburgh, Skye

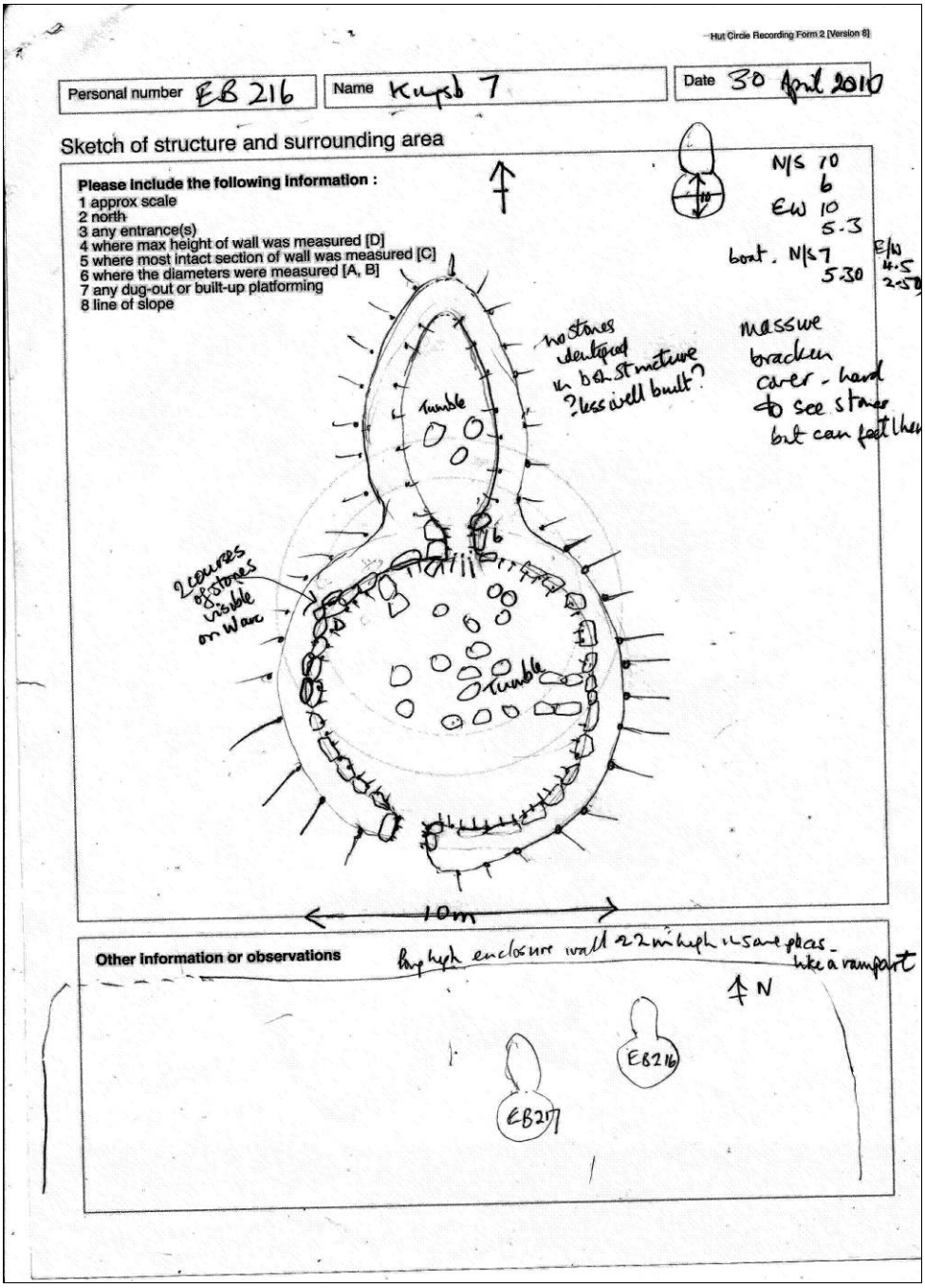


Figure 47 Field sketch of EB216, Kingsburgh, Skye.

(See Figure 7 for map and sections 3.2.3.4 and 4.7.5)

A related sketch of the area around the site is shown under the main drawing, showing a high enclosure wall and nearby similarly shaped site EB217.

D Map showing possible ritual site locations, Sand River, Gairloch.

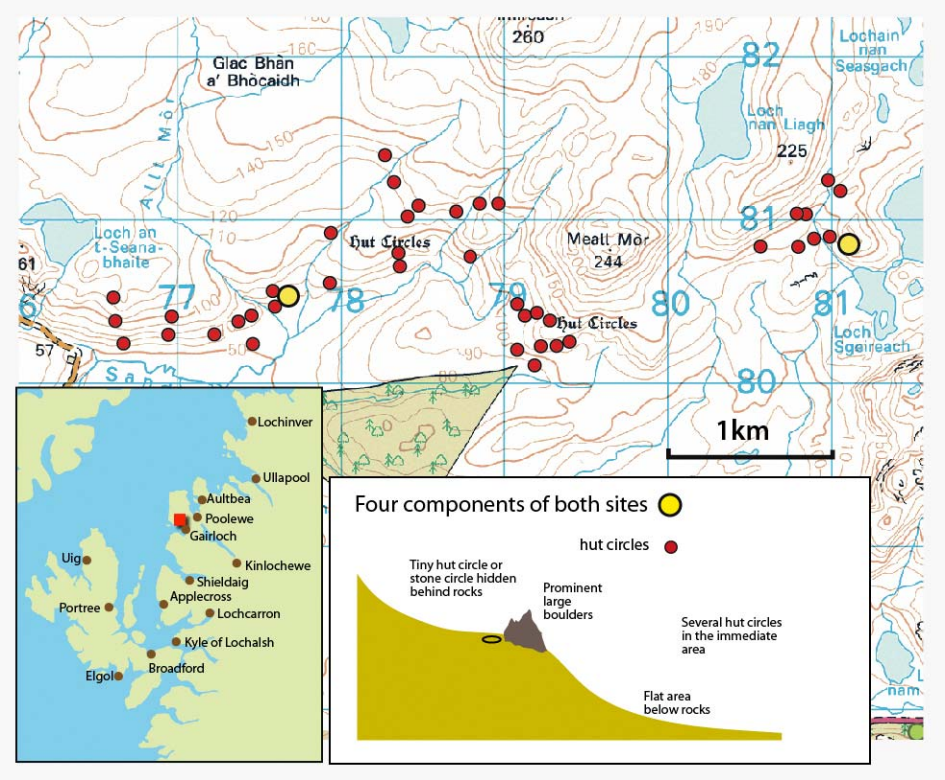


Figure 48 Locations of two possible ritual sites at Sand River

(See Figures 40 and 41).

A profile of landscape is shown which applies to each of the two sites. For discussion see sections 3.5.4.6. and 4.4.5.

E Field Recording form

Personal number MB 002 | Name MARY BUCHANAN (& JIM) | Date 28.02.10

Site name COILLE EAGASGARG 2 | Parish GAIRLOCH

Grid Reference ☑ GPS ☐ Map NG 89030 82263 (282385) | Elevation 46 m

Site number ☐ HER ☑ NRMS 282385

Site type: Single hut circle ☐ / Group of hut circles ☑ — If part of group, list distances and ref numbers: 200 m MB001; 300 m MB003; 300 m MB007

Proximity to enclosure: ☐ Hut circle within enclosure; ☐ Hut circle adjacent to enclosure; ☑ No enclosure in immediate area

Dating of enclosure: ☐ Same period as hut circle; ☐ Later than hut circle; ☐ Cannot tell

Contemporary cultivation: ☐ Signs of vegetation change; ☐ Field boundaries (turf/stone); ☐ Field clearance piles — Number of clearance piles: ☐ — Approx size & distances of piles (one decimal place): m / m / m

Surrounding terrain: ☐ Flat ☑ Sloping ☑ Hilly ☐ Rocky ☐ Other (state)

Surrounding vegetation (approx %): ☐ Heather ☑ Bracken 80 ☑ Grass 20 ☐ Woodland ☐ Other (state) — AREA GRAZED BY CATTLE AT TIMES

Vegetation on/within hut circle (approx %): ☐ Heather ☑ Bracken 80 ☑ Grass 20 ☐ Woodland ☐ Other (state)

Distance from water source (descriptive notes may be helpful): Stream/Burn 40 m; River m; Freshwater loch m; Sea loch m; Pond/lochan m

Views from site: ☑ Panoramic — ☐ Sea ☑ Inland; ☐ Limited

Slope: Is hut circle on a slope? ☑ Yes ☐ No — Approx angle of slope 15° — Direction slope faces W

Platform: Is hut circle on a platform? ☑ Yes ☐ No — ☐ Natural terrace; ☐ Dug into slope; ☐ Built out from slope; ☑ Other RAISED PLATFORM

Knoll: Is hut circle on a knoll? ☑ Yes ☐ No — ☑ Natural IMPROVED; ☑ Artificial

Ditch: Is there a ditch around hut circle? ☐ Yes ☑ No — Width m; Depth m (one decimal place); Extent %

Dimensions of hut circle (Mark on sketch) — Take two measurements at right angles: Inner diameter 1 A1 9.0 m; Outer diameter 1 A2 11.7 m; Inner diameter 2 B1 10.0 m; Outer diameter 2 B2 12.0 m (one decimal place)

Shape of hut circle: ☑ Circular; ☐ Oval; ☐ Polygonal; ☑ Subcircular; ☐ Other

Walls (Mark on sketch): Thickness of most intact section C 1.30 m; Maximum height (internal measurement) D 0.70 m (two decimal places)

Entrance (Mark on sketch): ☑ Definite; ☐ Probable; ☐ Possible; ☐ Cannot tell — Orientation E — Width at external end 1.0 m; Width at internal end 1.0 m; Length of passage 2.8 m (one decimal place)

Construction of walls: ☐ Single skin of stones; ☑ Double skin of stones; ☑ Filled with stones; ☐ Filled with turf; ☐ Other (state); ☐ Cannot tell

Figure 49 Example of a completed field recording form for a site at Coille Eagasgarg, Gairloch & Poolewe.

(See Figure 45 for location map)

F Example of annotated field sketch

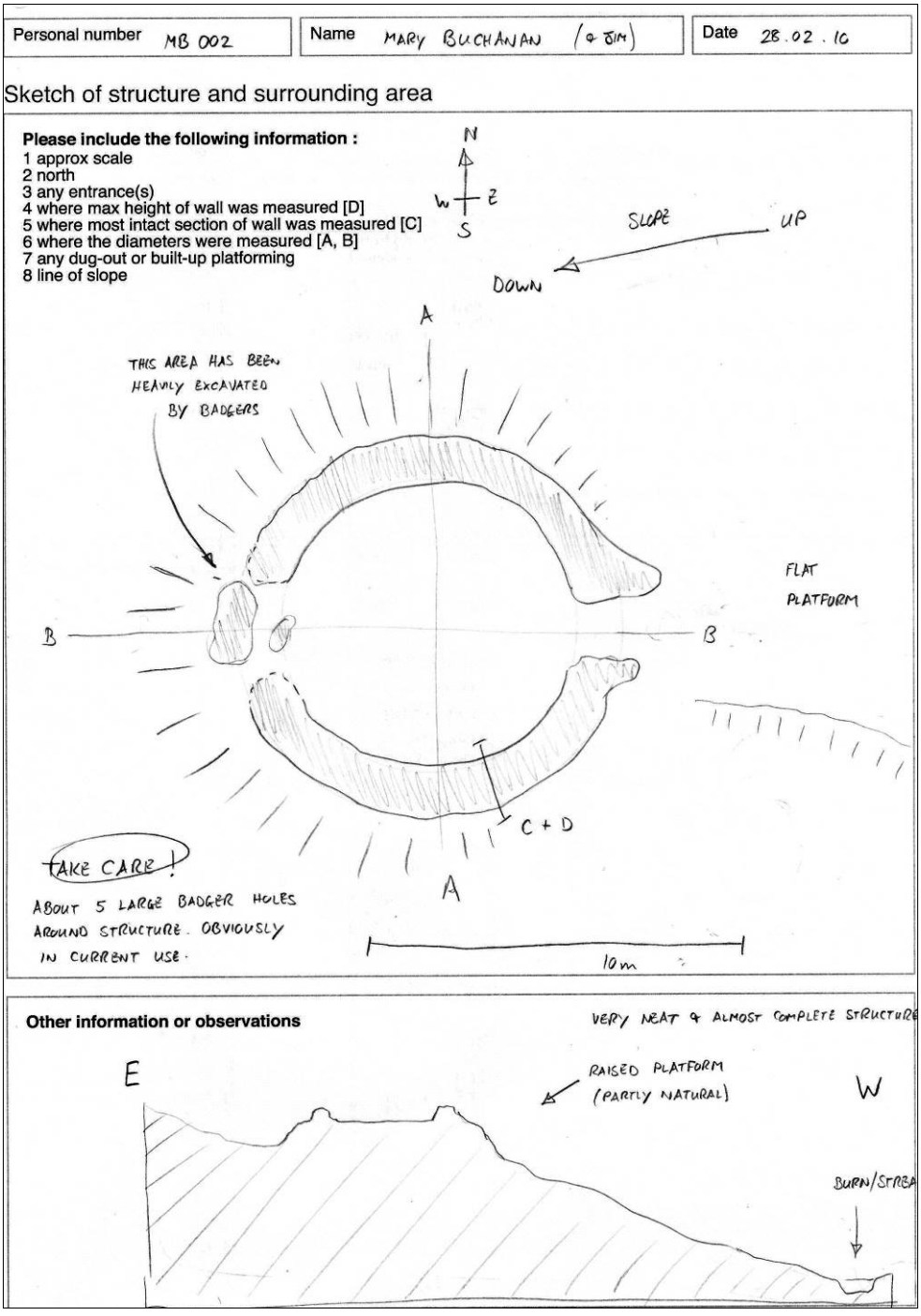


Figure 50 Annotated sketch of MB002, Coille Eagasgarg, Gairloch & Poolewe

(See Figure 45 for location map)

G Example of field photographic record

Personal number	Name	Date
MB002	MARY BUCHANAN (& JIM)	28.02.10

Photographic Record with examples of records

Photo No.	Site No.	Direction of shot	Description
003	JW 005	from W	General view of hut circle in landscape
004	JW 005	from SE	Detail of entrance showing exposed stonework
004	MB 002	from SE	Looking downslope along flat platform
005	MB 002	from SE	Looking downslope (closer to HC)
006	MB 002	from E	Entrance between centre two red flags

Other information (overflow from form 1)

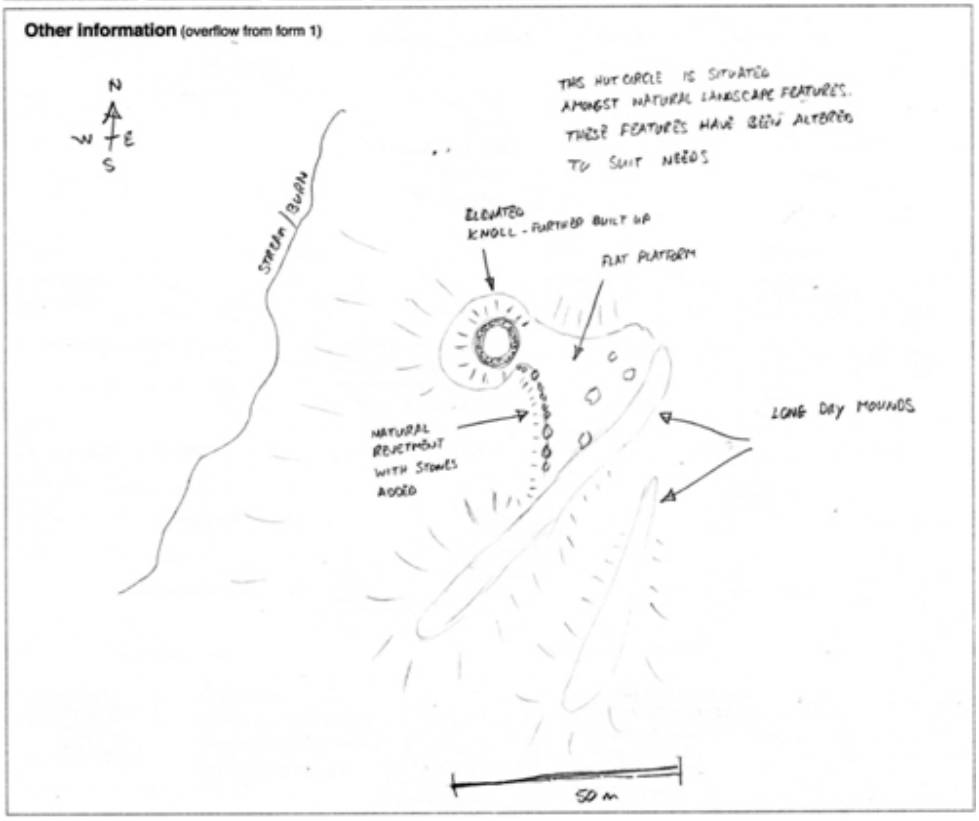


Figure 51 Example of photographic record, Coille Eagasgarg, Gairloch & Poolewe.

(See Figure 45 for location map)

This includes a further sketch showing landscape around the site

H Aerial photograph Tournahuildh, Gairloch & Poolewe

Plate 6 **Tournahuildh, Gairloch & Poolewe, sites and field systems are highlighted**

(www.getmapping.com)

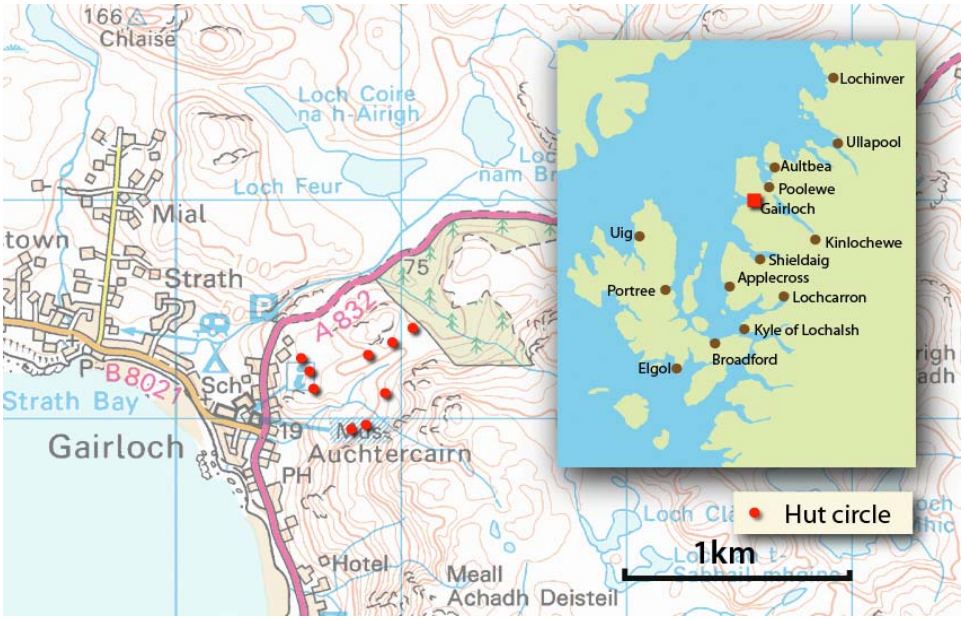


Figure 52 **OS map showing location of Tournahuildh sites**

For discussion see sections 3.3 and 4.3.2.3

I Aerial photograph Kilmuir, Skye

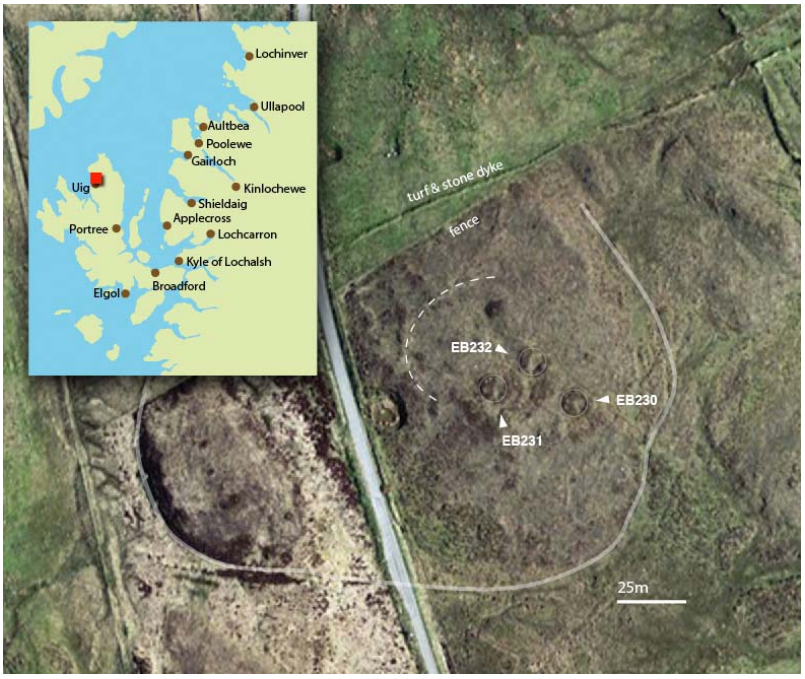


Plate 7 **Kilmuir, Skye, sites and field systems**

(www.getmapping.com)

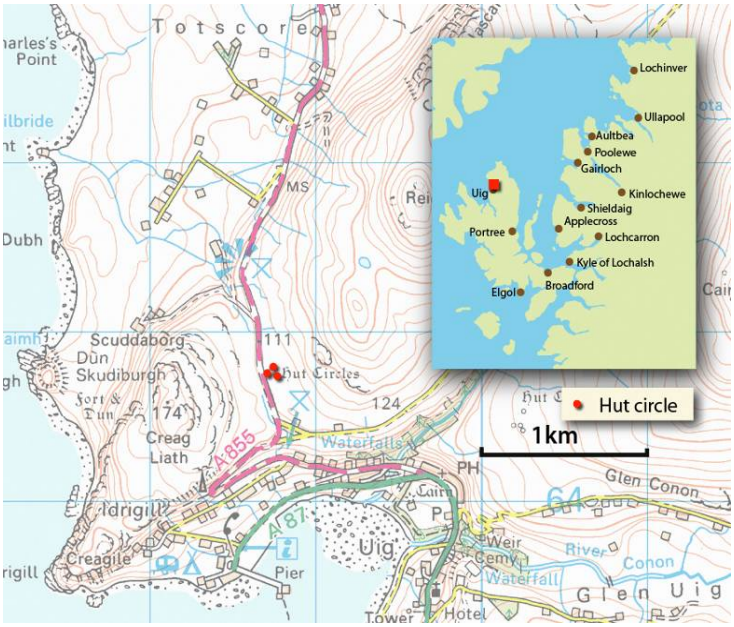


Figure 53 **OS map showing Kilmuir sites**

For discussion see sections 3.3, 3.5.4.6.6 and 4.3.2.3.

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K Gazeteer of Sites June 2013

Site_Name	AREA	Personal_no	NGR_Map_sheet	NGR_X	NGR_Y	HER_no	NMRS_no
Achnahaird 1	Achiltibuie	AW401	NC	02297	12650	MHG45594	116406
Achnahaird 2	Achiltibuie	AW402	NC	02301	12802	MHG45594	116406
Loch Vatichan West 1	Achiltibuie	AW403	NC	01216	11802	MHG26621	116407
Loch Vatichan West 2	Achiltibuie	AW404	NC	01199	11568	MHG26621	116407
Loch Vatichan West 4	Achiltibuie	EGM001	NC	00125	01150	MHG26621	116407
Loch Vatichan West 3	Achiltibuie	EGM002	NC	00129	01138	MHG26621	116407
Badenscaille 1 (The Fireplace)	Achiltibuie	PC001	NC	03540	06397	MHG7162	4472
Badenscaille 2	Achiltibuie	CEM001	NC	03597	06431		
Badenscaille 3	Achiltibuie	CEM004	NC	03704	06439		
Badenscaille 4	Achiltibuie	CEM002	NC	03618	06430		
Badenscaille 5	Achiltibuie	CEM020	NC	03716	06437		
Clachan na Bidach, Achnacarinan. (Dirk Stone)	Achiltibuie	CEM008	NC	04570	04791	MGH7158	4478
Garvie Bay 1	Achiltibuie	CM003	NC	03902	13694	MHG26614	116396
Garvie Bay 2	Achiltibuie	JK001	NC	03675	14155	MHG24971	116394
Loch Raa 1	Achiltibuie	CM101	NC	02072	12114	MHG9125	4492
Loch Raa 2	Achiltibuie	CM102	NC	02132	11872	MHG9126	4491
Loch Raa 3	Achiltibuie	CM103	NC	02193	11850	MHG38976	4491
Loch Raa 4	Achiltibuie	CMM205	NC	02208	11598	MHG13057	4487
Loch Raa 5	Achiltibuie	CMM204	NC	02178	11506	MHG24962	114978
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Achiltibuie Post Office 07	Achiltibuie	CMM007	NC	03180	08818	MHG26113	115176
Achiltibuie Post Office 08	Achiltibuie	CMM008	NC	03084	08944	MHG26113	115176
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Achiltibuie Post Office 10	Achiltibuie	CM002	NC	02800	08805	MHG26113	115176
Achiltibuie Post Office 11	Achiltibuie	CM001	NC	02818	08880	MHG26113	115176
Achiltibuie Post Office 12	Achiltibuie	CMM216	NC	00300	00910	MHG26113	115176
Achiltibuie Stores 1	Achiltibuie	CMM010	NC	02651	09681		
Achiltibuie Stores 2	Achiltibuie	CMM011	NC	02687	09776		
Achiltibuie Stores 3, Na Tobhtoban Breac	Achiltibuie	CMM012	NC	02655	09291	MHG25169	4463
Altandhu 1	Achiltibuie	CMM201	NC	99185	11943	MHG33093	
Altandhu 2	Achiltibuie	CMM202	NC	99086	11984	MHG 24489	114606
Altandhu 3 (Laide of Reiff)	Achiltibuie	CMM203	NC	97528	13013	MHG28735	136153
Loch Vatichan E1, Druim Mhor Oscaig	Achiltibuie	CMM213	NC	02219	10871	MHG9127	4490
Loch Vatichan E2, Druim Mhor Oscaig	Achiltibuie	CMM214	NC	02328	10913	MHG9127	4490
Loch Vatichan E3, Druim Mhor Oscaig	Achiltibuie	CMM215	NC	02430	10473	MHG7352	69795
Loch Vatachan Badentarbat 1	Achiltibuie	CMM207	NC	01000	10304	MHG24525	
Loch Vatachan Badentarbat 2	Achiltibuie	CMM206	NC	00942	10341	MHG24525	
Loch Vatachan Badentarbat 3	Achiltibuie	CMM208	NC	01061	01059	MHG24525	
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Loch Vatachan Badentarbat 5	Achiltibuie	CMM210	NC	00937	10775	MHG26622	116409

Site_Name	AREA	Personal_no	NGR_Map_sheet	NGR_X	NGR_Y	HER_no	NMRS_no
Loch Vatachan Badentarbat 6	Achiltibuie	CMM211	NC	01025	10857	MHG26622	116409
Loch Vatachan Badentarbat 7	Achiltibuie	CMM217	NC	01081	10879	MHG26622	116409
Loch Vatachan Badentarbat 8	Achiltibuie	CMM218	NC	01042	11152	MHG26622	116409
Poll Mor , Achnacarinan	Achiltibuie	DC005	NC	05360	04790	MHG7160	4452
Culnacraig	Achiltibuie	JA001	NC	06476	03253	MHG7161	44755
Creag Dail	Achiltibuie	KC001	NC	07711	13515	MHG9134	4483
Cnoc na Dail	Achiltibuie	KC002	NC	07875	13287	MGH44746	4486
Inverkirkaig 1	Achiltibuie	KC003	NC	09001	19598	MHG19445	91621
Inverkirkaig 2	Achiltibuie	KC004	NC	09016	19586	MHG19445	91621
An Torr 1	Badachro	AMC137	NG	78290	73421	MHG8276	76471
An Torr 2	Badachro	AMC107	NG	78693	73108	MHG8279	76472
An Torr 3	Badachro	AMC109	NG	78679	73107	MHG8282	76474
An Torr 4	Badachro	AMC110	NG	78668	73077	MHG30972	76473
An Torr 5	Badachro	AMC108	NG	78743	73123	MHG8281	76475
Lochan Fuar	Badachro	AMC111	NG	79659	71007	MHG41229	11762
Glac Shieldaig 1	Badachro	AMC112	NG	80371	71779	MHG8382	76502
Glac Shieldag 2	Badachro	AMC134	NG	80430	72311	MHG8296	76503
Loch Bad a Chrotha	Badachro	AMC113	NG	78381	72394	MHG7668	11763
Badachro River 1 Coille Mhor	Badachro	AMC114	NG	78636	71807	MHG49724	282369
Badachro River 2	Badachro	AMC115	NG	78629	71770		
Badochro River 3 (Creag nam Braid)	Badachro	AMC116	NG	78630	71615	MHG7670	11761
Camas na h-Airigh 1	Badachro	AMC117	NG	79221	73452	MHG8288	76479

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Camas na h-Airigh 2	Badachro	AMC133	NG	79258	73217	MHG8287	76480
An Druim Fearna 1	Badachro	AMC118	NG	82094	71516	MHG8293	76506
An Druim Fearna 2	Badachro	AMC119	NG	82696	71167		
An Druim Fearna 3	Badachro	AMC120	NG	82720	71117		
An Druim Fearna 4 - Achadh Na Clais	Badachro	AMC121	NG	82836	71064	MHG8294	76505
An Druim Fearna 5 - Allt Airigh Na Cloiche	Badachro	AMC122	NG	82049	71324	MHG8295	76504
Camnassie Burn 1	Badachro	AMC123	NG	79707	72587	MHG8286	76481
Camnassie Burn 2	Badachro	AMC124	NG	79820	72659	MHG8291	76482
Camnassie Burn 3	Badachro	AMC125	NG	79951	72745	MHG8290	76483
Alt Dhunnchaidh	Badachro	AMC126	NG	82385	72960	MHG8292	76507
Charleston Gleann A Bhaile Dheirg	Gairloch and Poolewe	AMC127	NG	81070	74559	MHG49730	282380
Sheildaig 1	Badachro	AMC128	NG	80581	72370	MHG6334	76499
Shieldaig 2	Badachro	AMC129	NG	80539	72385	MHG8385	76498
Shieldaig 3	Badachro	AMC136	NG	81199	72760	MHG8384	76500
Shieldaig 4	Badachro	AMC135	NG	80822	73016	MHG6335	76501
Aird	Badachro	AMC130	NG	77754	73984		
Bad Na Scalaig 1	Badachro	AMC131	NG	84425	71935	MHG49717	282357
Bad Na Scalaig 2	Badachro	AMC132	NG	84314	71979	MHG49715	282355
Tor na Huildh 1	Gairloch and Poolewe	AH005	NG	80605	77136	MHG7523	76494
Tor na Huildh 2	Gairloch and Poolewe	AH006	NG	80598	77210		
Tor na Huildh 4	Gairloch and Poolewe	AH004	NG	80889	77276		
Tor na Huildh 5	Gairloch and Poolewe	AH003	NG	80964	77350		

Site_Name	AREA	Personal_no	NGR_Map_sheet	NGR_X	NGR_Y	HER_no	NMRS_no
Tor na Huildh 6	Gairloch and Poolewe	AH002	NG	81050	77407	MHG8336	76492
North Erradale 1	Gairloch and Poolewe	AM001	NG	74620	81809	MHG53321	298311
North Erradale 2	Gairloch and Poolewe	AM002	NG	74698	81923	MHG53321	298311
North Erradale 3	Gairloch and Poolewe	AM003	NG	74706	81843	MHG53321	298311
North Erradale 4	Gairloch and Poolewe	AM004	NG	74827	81792	MHG53321	298311
North Erradale 5	Gairloch and Poolewe	AM005	NG	74490	81981		
North Erradale 6	Gairloch and Poolewe	AM006	NG	74452	81944		
Meall Glac na Daraich 1	Gairloch and Poolewe	AMC001	NG	74936	81084		
Meall Glac na Daraich 2	Gairloch and Poolewe	AMC002	NG	75109	81159		
Meall Glac na Daraich 3	Gairloch and Poolewe	AMC003	NG	75693	80758		
Leathad Mor 1	Gairloch and Poolewe	AMC101	NG	87652	86378	MHG7741	11971
Leathad Mor 2	Gairloch and Poolewe	AMC102	NG	87627	86327	MHG7741	11971
Leathadh Mor 3	Gairloch and Poolewe	AMC103	NG	87646	86281	MHG7741	11971
Leathadh Mor 4	Gairloch and Poolewe	AMC104	NG	87721	86312	MHG7741	11971
An Cachaileath Dearg	Gairloch and Poolewe	AMC105	NG	80522	76612	MHG8263	76490
An Torr 1	Gairloch and Poolewe	AMC137	NG	78290	73421	MHG8276	76471
Sand East 01	Gairloch and Poolewe	AMC200	NG	77583	80443		
Sand East 02	Gairloch and Poolewe	AMC201	NG	77848	80624		
Sand East 03	Gairloch and Poolewe	AMC202	NG	77885	80620		
Sand East 04	Gairloch and Poolewe	AMC203	NG	77929	80605		
Sand East 05	Gairloch and Poolewe	AMC204	NG	78345	80723		
Sand East 06	Gairloch and Poolewe	AMC205	NG	78342	80780	MHG7650	
Sand East 07	Gairloch and Poolewe	AMC206	NG	77939	80898	MHG7650	

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Sand East 08	Gairloch and Poolewe	AMC207	NG	77917	80922	MHG7650	
Tournaig Dun 1	Gairloch and Poolewe	AMC208	NG	85744	83385	MHG7757	11987
Tournaig Dun 2	Gairloch and Poolewe	AMC209	NG	87113	83349	MHG7568	11981
North Erradale Little Lodge	Gairloch and Poolewe	AMC210	NG	74584	81566	MHG53321	298311
Sand West 1	Gairloch and Poolewe	GS001	NG	76948	80392	MHG 25315	76484
Sand West 2	Gairloch and Poolewe	GS002	NG	76933	80294	MHG 25315	76484
Sand West 3	Gairloch and Poolewe	GS003	NG	77449	80394	MHG 25315	76484
Sand West 4	Gairloch and Poolewe	JCG001	NG	76620	80326	MHG25315	76484
Loch Bad A' Chreamh 1	Gairloch and Poolewe	HAB001	NG	80973	80902	MHG49704	282323
Loch Bad A' Chreamh 2	Gairloch and Poolewe	HAB002	NG	80871	80906	MHG49721	282366
Loch Bad A' Chreamh 3	Gairloch and Poolewe	HAB003	NG	80769	80860	MHG49722	282367
Loch Bad A' Chreamh 4	Gairloch and Poolewe	HAB004	NG	80528	80862	MHG49723	282368
Loch Bad A' Chreamh 5	Gairloch and Poolewe	HAB005	NG	80749	81051	MHG49720	282365
Loch Bad A' Chreamh 6	Gairloch and Poolewe	HAB006	NG	80812	81061	MHG49719	282364
Loch Bad A' Chreamh 7	Gairloch and Poolewe	HAB007	NG	80937	81264	MHG49705	282324
Loch Bad A' Chreamh 8	Gairloch and Poolewe	HAB008	NG	81011	81204	MHG49706	282325
Meall na Dubh 1	Gairloch and Poolewe	HAB009	NG	79675	78357		
Meall na Dubh 2	Gairloch and Poolewe	HAB010	NG	79681	78323		
Meall na Dubh 3	Gairloch and Poolewe	HAB011	NG	79556	78533		
Meall na Dubh 4	Gairloch and Poolewe	HAB012	NG	79857	78336	MHG8274	76466
Naast 1 Druim Barraich	Gairloch and Poolewe	JB011	NG	82775	82950	MHG49718	282363
Naast 2	Gairloch and Poolewe	JB012	NG	82691	82952		
Naast 3 Allt na Criche	Gairloch and Poolewe	JB013	NG	82508	82977	MHG49711	282350

Site_Name	AREA	Personal_no	NGR_Map_sheet	NGR_X	NGR_Y	HER_no	NMRS_no
Naast 4 Allt Glas	Gairloch and Poolewe	JB014	NG	82375	83054	MHG49712	282351
Naast 5	Gairloch and Poolewe	JB015	NG	82441	83285		
Naast 6	Gairloch and Poolewe	JB019	NG	83172	82604	MHG18084	88048
Boor 1	Gairloch and Poolewe	JB016	NG	84424	81034	MHG52630	
Boor 2 Boor Hill	Gairloch and Poolewe	JB017	NG	84023	81168	MHG49738	282388
Boor 3 Torr a Bhioda	Gairloch and Poolewe	JB018	NG	84009	80869	MHG49707	282326
Sand East 09	Gairloch and Poolewe	JB300	NG	77844	80899	MHG7650	
Sand East 10	Gairloch and Poolewe	JB301	NG	78396	81004	MHG7650	
Sand East 11	Gairloch and Poolewe	JB302	NG	78394	80997	MHG7650	
Sand East 12	Gairloch and Poolewe	JB303	NG	78458	81077	MHG7650	
Sand East 13	Gairloch and Poolewe	JB304	NG	78427	81122	MHG7650	
Sand East 14	Gairloch and Poolewe	JB305	NG	78295	81222	MHG7650	
Sand East 15	Gairloch and Poolewe	JB306	NG	78277	81198	MHG7650	
Sand East 16	Gairloch and Poolewe	JB307	NG	78256	81398	MHG7650	
Sand East 17	Gairloch and Poolewe	JB308	NG	78228	81399	MHG7650	
Sand East 18	Gairloch and Poolewe	JB309	NG	78885	81207	MHG7650	
Sand East 19	Gairloch and Poolewe	JB310	NG	78883	81050	MHG7650	
Sand East 20	Gairloch and Poolewe	JB311	NG	78852	81095	MHG7650	
Sand East 21	Gairloch and Poolewe	JB312	NG	78695	81046	MHG7650	
Tollie Wood	Gairloch and Poolewe	JB601	NG	86949	74869		
Dubh Chlais 1	Gairloch and Poolewe	JW001	NG	80418	78578	MHG7491	76496
Dubh Chlais 2	Gairloch and Poolewe	MM003	NG	80388	78714	MHG7522	76495

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Sidhean Donn 1	Gairloch and Poolewe	JW002	NG	80421	77940	MHG45794	11949
Sidhean Donn 2	Gairloch and Poolewe	JW003	NG	80586	77839	MHG45794	11949
Sidhean Donn 3	Gairloch and Poolewe	MM004	NG	80482	77978	MHG45794	11949
Sidhean Donn 4	Gairloch and Poolewe	MM001	NG	81021	78773		11951
Sidhean Donn 5	Gairloch and Poolewe	MM002	NG	81003	78917	MHG49725	282370
Sidhean Donn 6	Gairloch and Poolewe	AMC106	NG	81187	78234	MHG7524	76493
Coille Eagasgarg 1	Gairloch and Poolewe	MB001	NG	89017	82534	MHG49734	282384
Coille Eagasgarg 2	Gairloch and Poolewe	MB002	NG	89030	82263	MHG49735	282385
Coille Eagasgarg 3	Gairloch and Poolewe	MB003	NG	89619	82809	MHG7749	11979
Coille Eagasgarg 4	Gairloch and Poolewe	MB004	NG	89185	82852	MHG7749	11979
Coille Eagasgarg 5	Gairloch and Poolewe	MB005	NG	89176	82973	MHG7749	11979
Coille Eagasgarg 6	Gairloch and Poolewe	MB006	NG	88917	82302		
Coille Eagasgarg 7	Gairloch and Poolewe	MB007	NG	88829	82829		
Sand River South 1	Gairloch and Poolewe	MB301	NG	79241	80192	MHG17462	11767
Creag Bo Maoile 1	Gairloch and Poolewe	MM005	NG	81620	78163		11950
Creag Bo Maoile 2	Gairloch and Poolewe	MM008	NG	82037	78143		11950
Creag Bo Maoile 3	Gairloch and Poolewe	MM007	NG	82010	78201		11950
Creag Bo Maoile 4	Gairloch and Poolewe	MM006	NG	81820	78054		11950
Hinnesdal Bridge 1 Sgurr Onrachdain	Skye	EB201	NG	39158	56463	MHG3164	11128
Hinnesdal Bridge 2 Sgurr Onrachdain	Skye	EB202	NG	39162	56496	MHG3164	11128
Hinnesdal Bridge 3 Sgurr Onrachdain	Skye	EB203	NG	39152	56573	MHG3164	11128
Hinnesdal Bridge 4 Sgurr Onrachdain	Skye	EB204	NG	39150	56572	MHG3164	11128
Hinnesdal Bridge 5 Sgurr Onrachdain	Skye	EB205	NG	39110	56492	MHG3164	11128

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Hinnesdal Bridge 6 Sgurr Onrachdain	Skye	EB206	NG	39226	56547	MHG3164	11128
Hinnesdal Bridge 7 Sgurr Onrachdain	Skye	EB207	NG	39214	56579	MHG3164	11128
Hinnesdal Bridge 8 Sgurr Onrachdain	Skye	EB208	NG	39226	56534	MHG3164	11128
Hinnesdal Bridge 9 Sgurr Onrachdain	Skye	EB209	NG	39201	56596	MHG3164	11128
Kingsburgh 01	Skye	EB210	NG	40632	54921		
Kingsburgh 02	Skye	EB211	NG	40632	54921		
Kingsburgh 03	Skye	EB212	NG	40530	55055		
Kingsburgh 04	Skye	EB213	NG	40651	54983	MHG38870	406549
Kingsburgh 05	Skye	EB214	NG	40654	54974	MHG38864	406549
Kingsburgh 06	Skye	EB215	NG	40641	54993	MHG38869	406549
Kingsburgh 07	Skye	EB216	NG	40746	55628	MHG39905	407556
Kingsburgh 08	Skye	EB217	NG	40722	55026	MHG38862	407556
Kingsburgh 09	Skye	EB218	NG	40773	55847	MHG38861	407558
Kingsburgh 10	Skye	EB219	NG	40770	55910	MHG38861	407558
Kingsburgh 11	Skye	EB220	NG	40640	55733	MHG38862	406557
Kingsburgh 12	Skye	EB221	NG	40644	55721	MHG38862	406557
Kingsburgh 13	Skye	EB222	NG	41095	55325	MHG38874	410553
Kingsburgh 14	Skye	EB223	NG	40735	54405	MHG38874	410553
Kingsburgh 15	Skye	EB224	NG	40685	54490	MHG38872	406544
Kingsburgh 16 Ben Moine	Skye	EB225	NG	41305	54649	MHG38854	406544
Kingsburgh 17	Skye	EB226	NG	40154	55605		401546
Kingsburgh 18	Skye	EB227	NG	40220	05505		402555
Kingsburgh 19	Skye	EB228	NG	40220	55505		402555

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Kingsburgh 20	Skye	EB229	NG	40234	55491		402554
Kilmuir 1	Skye	EB230	NG	38762	64749		11191
Kilmuir 2	Skye	EB231	NG	38746	64765		11191
Kilmuir 3	Skye	EB232	NG	38739	64762		11191
Allt an Ruadh 1 (Cnoc an Taibse)	Skye	MW001	NG	54672	16849	MHG28999	138332
Allt an Ruadh 2 (Cnoc an Taibse)	Skye Strathaird	AMC905	NG	54672	16849	MHG28996	138328
Fhurainn 7 Druim an Fhuarainn	Skye Strathaird	AMC906	NG	56637	19933		
Fhurainn 6 Druim an Fhuarainn	Skye Strathaird	AMC908	NG	56620	19671		
Fhurainn 1 Druim an Fhuarainn	Skye Strathaird	AMC909	NC	56658	18895	MHG29082	138619
Fhurainn 4 Druim an Fhuarainn	Skye Strathaird	AMC910	NG	56641	19434	MHG29079	138616
Fhurainn 3 Druim an Fhuarainn	Skye Strathaird	AMC911	NG	56749	19125	MHG29081	138618
Fhurainn 2 Druim an Fhuarainn	Skye Strathaird	AMC912	NG	56723	19139	MHG29081	138618
Cille Mhaire Glen 00	Skye Strathaird	AW701	NG	54309	18426		
Cille Mhaire Glen 01a	Skye Strathaird	AW705	NG	54314	18400		
Cille Mhaire Glen 02	Skye Strathaird	AW703	NG	54311	18428		
Cille Mhaire Glen 03	Skye Strathaird	AW704	NG	54322	18408		
Cille Mhaire Glen 04	Skye Strathaird	AW702	NG	54313	18456		
Cille Mhaire Glen 05	Skye	SG007	NG	54322	18405	MHG28979	13805
Cille Mhaire Glen 06	Skye	SG008	NG	54315	18460	MHG28979	13805
Cille Mhaire Glen 07 Keppoch	Skye Strathaird	AMC902	NG	54728	18546	MHG28973	138299
Cille Mhaire Glen 08 Abhainn Cille Mhaire	Skye Strathaird	AMC903	NG	54732	18453	MHG28972	138298
Cille Mhaire Glen 09 Slat Bheinn	Skye	SG005	NG	53960	18302	MHG28977	138303
Cille Mhaire Glen 10 Slat Bheinn	Skye	SG004	NG	53960	18302	MHG28977	138303

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Cille Mhaire Glen 11	Skye	SG006	NG	53960	18302	MHG28977	138303
Cille Mhaire Glen 12	Skye	SG003	NG	52813	18162	MHG28979	138305
Cille Mhaire Glen 13 Slat Bheinn	Skye	SG002	NG	53827	18091	MHG28977	138304
Cille Mhaire Glen 14 Slat Bheinn	Skye	WAK001	NG	56370	17893	MHG28982	138310
Cille Mhaire Glen 15	Skye Strathaird	AMC904	NG	54893	18174		
Keppoch Wood	Skye Strathaird	AMC901	NG	55550	18476	MHG29091	138644
Ben Meabost 2	Skye Strathaird	AM011	NG	53410	17243	MHG28986	138315
Ben Meabost 1	Skye Strathaird	AM012	NG	53340	17198	MHG28985	138314