

Scottish Water Solutions:

Berneray WTW

**Archaeological and Built Heritage
Desk-based Assessment and
Walkover Survey**

25 March 2009

Document Control Sheet

Client: Scottish Water Solutions
 Project: Berneray WTW Job No: B0570000
 Title: Desk-based assessment and Walkover survey Report No:

	Prepared by	Reviewed by	Approved by
ORIGINAL	NAME Jonathan Dempsey	NAME Alastair Rees	NAME Pete Fasham
DATE 23/10/07	SIGNATURE	SIGNATURE	SIGNATURE 

REVISION	NAME	NAME	NAME
DATE	SIGNATURE	SIGNATURE	SIGNATURE

REVISION	NAME	NAME	NAME
DATE	SIGNATURE	SIGNATURE	SIGNATURE

This report, and information or advice which it contains, is provided by Jacobs Engineering UK Limited solely for internal use and reliance by its Client in performance of Jacobs Engineering UK Limited's duties and liabilities under its contract with the Client. Any advice, opinions, or recommendations within this report should be read and relied upon only in the context of the report as a whole. The advice and opinions in this report are based upon the information made available to Jacobs Engineering UK Limited at the date of this report and on current UK standards, codes, technology and construction practices as at the date of this report. Following final delivery of this report to the Client, Jacobs Engineering UK Limited will have no further obligations or duty to advise the Client on any matters, including development affecting the information or advice provided in this report. This report has been prepared by Jacobs Engineering UK Limited in their professional capacity as Consulting Engineers. The contents of the report do not, in any way, purport to include any manner of legal advice or opinion. This report is prepared in accordance with the terms and conditions of Jacobs Engineering UK Limited's contract with the Client. Regard should be had to those terms and conditions when considering and/or placing any reliance on this report. Should the Client wish to release this report to a Third Party for that party's reliance, Jacobs Engineering UK Limited may, at its discretion, agree to such release provided that:

- (a) Jacobs Engineering UK Limited's written agreement is obtained prior to such release, and
- (b) By release of the report to the Third Party, that Third Party does not acquire any rights, contractual or otherwise, whatsoever against Jacobs Engineering UK Limited, and Jacobs Engineering UK Limited accordingly assume no duties, liabilities or obligations to that Third Party, and
- (c) Jacobs Engineering UK Limited accepts no responsibility for any loss or damage incurred by the Client or for any conflict of Jacobs Engineering UK Limited's interests arising out of the Client's release of this report to the Third Party.

Contents

1	Introduction	1
1.1	General	1
2	Planning and Legislative Background	2
3	Methodology	4
3.1	General	4
3.2	Aims and Objectives	4
3.3	Assessment of Sensitivity of Cultural Heritage Sites	4
3.4	Predicted Impacts	6
3.5	Assessment of Significance of Effects	8
4	Archaeological and Historical background	9
5	The Archaeology and Built Heritage of the Study Area	9
5.1	Desk-based assessment	9
6	Assessment of Impacts	18
7	Mitigation Proposals	24
8	References	25
8.1	Bibliographic References	25
8.2	Cartographic References	26

List of Tables

Table 1	Cultural Heritage Importance	5
Table 2	Criteria to Assess Magnitude of Impact on Archaeology and Historic Buildings	6
Table 3	Significance of Effects Matrix	8
Table 4	Sites identified by Chronological period	9
Table 5	Summary of Assessment of Sensitivity of Identified Heritage Sites	18
Table 6	Assessment of Potential Impacts during construction; Trumaisgearraidh to the junction of the B893 and an unnamed road to Loch nam Ban Jetty	18
Table 7	Assessment of Potential Impacts during construction; Option A	20
Table 8	Assessment of Potential Impacts during construction; Option B	21
Table 8	Assessment of Potential Impacts during construction; junction of the unnamed road to Loch nam Ban Jetty and the Berneray Causeway	22
Table 9	Assessment of Potential Impacts on Setting	23

List of Figures

B057000/CH/1:	Figure 1 Location of North Uist, Harris and the Study Area
B057000/CH/2:	Figure 2 Location of Sites of Cultural Heritage Interest (1 of 6)
B057000/CH/3:	Figure 3 Location of Sites of Cultural Heritage Interest (2 of 6)
B057000/CH/4:	Figure 4 Location of Sites of Cultural Heritage Interest (3 of 6)
B057000/CH/5:	Figure 5 Location of Sites of Cultural Heritage Interest (4 of 6)
B057000/CH/6:	Figure 6 Location of Sites of Cultural Heritage Interest (5 of 6)
B057000/CH/7:	Figure 7 Location of Sites of Cultural Heritage Interest (6 of 6)

1.1 General

- 1.1.1** Jacobs Engineering UK Ltd has been commissioned by Scottish Water Solutions to undertake an archaeological and built heritage desk-based assessment of the potential impacts of the construction of a water pipeline from Trumaisgearraidh on North Uist (NGR NF8712074490) to Aird Ma Ruibhe on Berneray (NGR NF 91336 880161; see Figure 1), a distance of approximately 8km. From Trumaisgearraidh to the junction of the B893 and an unnamed road to Loch nam Ban Jetty one option is proposed. From here to the junction of this unnamed road and the Berneray Causeway access road two route options are proposed; Option A lies the east of the road while Option B is located to the west of the road. Beyond this point one option, located to the west of the Berneray Causeway access road, is proposed.
- 1.1.2** Jacobs Engineering UK Ltd conforms to the standards of professional conduct outlined in the Institute of Field Archaeologists Code of conduct, and relevant Standards and Guidance documents. Jacobs Engineering UK Ltd is a Registered Archaeological Organisation (RAO) with the Institute of Field Archaeologists (IFA). This status ensures that there is regular monitoring and approval by external peers of our internal systems, standards and skills development.
- 1.1.3** Data gathering and assessment was undertaken in accordance with the Institute of Field Archaeologists *Standard and Guidance on Archaeological Desk-Based Assessments* (1999).

- 2.1.1 World Heritage Sites are described by The United Nations Educational, Scientific and Cultural Organization (UNESCO) as exceptional places of ‘outstanding universal value’ and ‘belonging to all the peoples of the world, irrespective of the territory on which they are located’. (UNESCO) seeks to protect and preserve such sites through an international treaty called the [Convention concerning the Protection of the World Cultural and Natural Heritage](#), drawn up in 1972. Scottish Ministers identify and put forward sites to the Department for Culture, Media and Sport for nomination and also responsible for ensuring compliance with the UNESCO Convention in relation to sites in Scotland. Historic Scotland undertakes this role as part of their wider responsibility towards the historic environment¹
- 2.1.2 Some archaeological sites enjoy statutory protection as Scheduled Ancient Monuments (SAMs), protected under the Ancient Monuments and Archaeological Areas Act 1979, and are by definition of National importance. Without the prior written consent of the Scottish Ministers, known as Scheduled Monument Consent (SMC), it is an offence to undertake any works which would have the effect of demolishing, destroying, damaging, removing, repairing, altering, adding to, flooding or covering up a Scheduled Monument. Under article 15 (1) of the Town and Country Planning (General Development Procedure) (Scotland) Order 1992 notification to Historic Scotland of any planning application affecting a Scheduled Monument is also required
- 2.1.3 Buildings of special architectural or historic interest may also enjoy statutory protection as Listed Buildings (Graded A, B or C(s)) under the terms of the Town and Country Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997 and Listed Building consent must be obtained where proposals will alter the character of the Listed Building. It is a criminal offence to undertake such works without this consent. Any object or structure which is fixed to a listed building, or which falls within the curtilage of such building and, although not fixed to the building, has formed part of the land since before 1 July 1948, is treated as part of the building and also listed. Some buildings of lesser interest may be protected under Local Plan policies (see below).
- 2.1.4 The Town and Country Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997 imposes a duty of local planning authorities to designate and protect the historic character and appearance of some areas through their designation as Conservation Areas. These are areas of special architectural or historic interest, the character or appearance of which it is desirable to preserve or enhance, and along with the main implication of designation is that consent will be required for specific types of development

¹ <http://www.historic-scotland.gov.uk/index/heritage/worldheritage/what-is-a-world-heritage-site.htm>

that would not otherwise require it, 'conservation area consent' is used for applications to demolish unlisted buildings in conservation areas.

- 2.1.5** Parks and gardens included on the Inventory of Gardens and Designed Landscapes in Scotland are protected under Section 15(1)(j)(iv) of The Town and Country Planning (General Development Procedure) (Scotland) Order 1992 (the GDPO) which requires planning authorities, prior to granting planning permission, to consult Scottish Ministers on 'development which may affect a historic garden or designed landscape'.
- 2.1.6** Central government guidance on archaeology in the planning process is given in National Planning Policy Guideline 5, Archaeology and Planning (NPPG 5) and Planning Advice Note 42, Archaeology (PAN 42). Key tenets of these documents is that desirability of preserving a monument (whether scheduled or not) and its setting is a material consideration in determining a planning application, and that while preservation *in situ* is the preferred option for mitigating impacts on the cultural heritage resource, where this is not feasible, preservation by record is an acceptable alternative.
- 2.1.7** National Planning Policy Guideline 18, Planning and the Historic Environment (NPPG 18) outlines the Government's advice to developers and local authorities etc. in their consideration of development proposals affecting amongst others Listed Buildings and their setting, Conservation Areas and other historic buildings. Paragraph 12 of NPPG 18 states that "In the determination of an application for listed building consent or for planning permission for development affecting a listed building or its setting, the planning authority is required to have special regard to the desirability of preserving the building, or its setting, or any features of special architectural or historic interest which it possesses". In addition prior consideration should be given to the scope for recycling buildings which have clear historic or architectural significance.
- 2.1.8** Guidance given in NPPG 5, PAN 42 and NPPG 18 is expanded in the Finalised Western Isles Local Plan (2005) Policies LP/RM1 Built Heritage Conservation and LP/RM 2 Archaeology and Archaeologically Sensitive Areas.

3.1 General

3.1.1 In order to define the cultural heritage baseline for the development, a study area extending 150m to either side of the proposed route(s) of the pipeline was defined. The following sources of information were consulted for this study area:

- *National Monuments Record of Scotland;*
- *Aerial Photograph Collection of the Royal Commission on Ancient and Historical Monuments of Scotland;*
- *Western Isles Council (Comhairle nan Eilean Siar) Archaeological Service Sites and Monuments Record (SMR);*
- *Ordnance Survey and pre-Ordnance Survey mapping held by the Map of the National Library of Scotland and the National Archives of Scotland;*
- *Published and unpublished archaeological reports, articles journals and books;*
- *A walkover survey was undertaken on the 22nd and 23rd of April 2008.*

3.1.2 Additional information was gathered from a wider surrounding area to place this baseline information in its local and regional context, and to assess the potential for unknown archaeological remains.

3.1.3 Sites of cultural heritage interest identified from these sources are shown on Figures 2 - 7.

3.2 Aims and Objectives

3.2.1 The main objective of this study is to identify the archaeological and built heritage resource of the study area. The evidence presented, and the conclusions reached, aim to offer a comprehensive basis for further decisions regarding the future of the sites and for the formulation of a strategy for the mitigation of impact, should this be required.

3.3 Assessment of Sensitivity of Cultural Heritage Sites

3.3.1 An assessment of the degree of sensitivity to change of each cultural heritage receptor within the study area has been made on a five-point scale of Very High, High, Medium, Low, Negligible and Unknown, according to the criteria given in Table 1 below. Existing statutory and non-statutory designations will be taken into account in the assessment of sensitivity.

Table 1: Cultural Heritage Importance

Sensitivity	Criteria
Very High	World Heritage Sites or other sites of acknowledged international importance.
High	<p>Scheduled Ancient Monuments (SAM), Category A or B Listed Buildings;</p> <p>Other listed buildings that can be shown to have exceptional qualities not adequately reflected in the listing grade;</p> <p>Sites proposed for Scheduling or Listing;</p> <p>Conservation Areas containing very important buildings;</p> <p>Parks and gardens included on the Inventory of Gardens and Designed Landscapes in Scotland and</p> <p>Site is not Scheduled or Listed, but meets the criteria used in Scottish Historic Environment Policy 2 for the designation of SAMs or criteria used in their designation of Listed Building categories (Memorandum of Guidance on Listed Buildings and Conservation Areas, Historic Scotland 1998. In general, these sites will be rare and in outstanding condition.</p>
Medium	<p>Category C (s) Listed Buildings;</p> <p>Conservation Areas containing buildings that contribute significantly to its historic character;</p> <p>Historic Townscape or built-up areas with important historic integrity in their buildings or built settings;</p> <p>Site is a non-statutory archaeological site or standing structure that contributes significantly to the Cultural Heritage resource of the local area or, to a lesser extent, the county as a whole; and,</p> <p>Site is of low sensitivity, but has wider value as part of a group of sites.</p>
Low	Site is a non-statutory archaeological site or standing structure that contributes to the Cultural Heritage of the parish/local area; and
Negligible	<p>Site is a non-statutory archaeological site with no surviving remains;</p> <p>Buildings of no architectural or historical note; and</p> <p>Buildings of an intrusive character.</p>

Sensitivity	Criteria
Unknown	The sensitivity of the site cannot be ascertained.

3.3.2 For the purposes of assessment, undesignated sites were assigned a level of sensitivity using professional judgement supported by review of the following guidance:

- *criteria used in Scottish Historic Environment Policy 2 for the designation of SAMs; and*
- *non-statutory criteria used in their designation of Listed Building categories (Memorandum of Guidance on Listed Buildings and Conservation Areas, Historic Scotland 1998).*

3.3.3 Setting is a material consideration in government planning policy for the historic environment, as defined in NPPG5 and PAN42, and is recognised often to form an intrinsic part of a site’s special interest. Impacts upon setting therefore have the potential to affect the understanding and appreciation of a cultural heritage site.

3.3.4 There is currently no statutory guidance for the assessment of setting or impacts upon this. The following assessment has therefore been undertaken against the criteria laid out below. For each site, the elements which contribute to its setting are identified against the following criteria:

- *Physical relationship with or characteristics of the site;*
- *Demonstrable former relationship; or*
- *Perceptual non-physical relationship (e.g. public perceptions of the site, historical associations etc).*

3.3.5 The sensitivity of each element is then assessed on a three point scale of Low, Medium and High in order to define its level of contribution to the setting of the site as a whole.

3.4 Predicted Impacts

3.4.1 Criteria for the assessment of the magnitude of impact are set out in Table 2.

Table 2 - Criteria to Assess Magnitude of Impact on Archaeology and Historic Buildings

Magnitude	Criteria
Major	Complete or nearly complete demolition or truncation of most or all key elements of a site; Development will be visible from the site and/or a significant viewpoint and will change several landscape elements, important to the understanding of the site;

Magnitude	Criteria
	<p>and,</p> <p>Development would physically sever one element of the site from another regardless of its visual intrusion.</p>
Moderate	<p>Demolition or truncation of many key elements of a site;</p> <p>Development will substantially alter the setting of a historic building, transforming its character, removing or altering significant elements within this, to affect the understanding and appreciation of the structure; and,</p> <p>Development will be visible from the site and/or a significant viewpoint and will alter several small, or a single large landscape elements, which may affect our understanding of the site. The development may interrupt views from a site, or change the function of landscape elements, and the interactions between them, important to the understanding of the site.</p>
Minor	<p>Demolition or truncation of key elements of a site;</p> <p>Development will be visible from the site and/or a significant viewpoint and does not represent a change in overall character of the landscape setting;</p> <p>A small change to an element of the landscape character. Typically this would be physically removed from the site and affect only a small proportion of its surrounding landscape; and,</p> <p>Development represents a change to landscape elements which are visible from the site, but which are of very minor or no importance to the understanding of the site.</p>
Negligible	<p>Change to or loss of minor elements of a site;</p> <p>Elements of the scheme will be barely visible from the site and/or from a significant viewpoint to the site, and does not represent an overall change to the character of the landscape; and,</p> <p>The scheme will change historic landscape elements of little relevance to the understanding of a site.</p>
No Change	<p>No observable loss of site elements; and,</p> <p>The scheme is not visible from the site and/or from a significant viewpoint, and will only change historic landscape elements of no relevance to the understanding of a site.</p>

3.5 Assessment of Significance of Effects

3.5.1 Significance of effect is determined as a combination of the site sensitivity and impact magnitude. Five levels of significance were defined which apply equally to beneficial and adverse impacts:

Table 3 Significance of Effects Matrix

Sensitivity	Magnitude				
	No Change	Negligible	Minor	Moderate	Major
Very High	None	Slight	Moderate / Large	Large / Very Large	Very Large
High	None	Slight	Moderate / Slight	Moderate / Large	Large / Very Large
Medium	None	Neutral / Slight	Slight	Moderate	Moderate / Large
Low	None	Neutral / Slight	Neutral / Slight	Slight	Slight / Moderate
Negligible	None	Neutral	Neutral / Slight	Neutral / Slight	Slight

- 4.1.1** Human occupation of Scotland began with the arrival of hunter-gatherer groups in the Mesolithic period (c.8000 – 4000BC) and elsewhere in Scotland Mesolithic activity is mainly indicated by scatters of flint tools, largely along coastlines and rivers. A reduction in the tree pollen and presence of charcoal in pollen cores recovered from Renival on South Uist and dated to circa 6000BC has been interpreted as evidence for the arrival of people on South Uist (Parker Person, Sharples and Symonds 2004, 26), burning woodland to provide clearings for temporary settlement and to attract red deer (Badcock 2008, 12). It has also been suggested that later rises in sea level has inundated possible Mesolithic coastal sites in the Western Isles.
- 4.1.2** With the introduction of agriculture in the Neolithic period (c.4500 – 2500BC), communities became more settled and land was cleared for farming. Neolithic occupation has been identified on a number of causewayed islets, such as Eilean Domhnuill and Eilean an Tighe, both of which situated on the north west coast of North Uist. At the former numerous phases of drystone built sub-oval or rectilinear houses with central hearths were identified and the nature of the structures identified, along with the depth of occupation deposits and number of artefacts recovered, would indicate that these islets were occupied on a more or less permanent basis. Evidence has been recovered for more transient settlement, for example at Screvan Quarry, where in addition to numerous sherds of Neolithic pottery, a macehead was recovered during archaeological works undertaken in advance of the construction of the Berneray Causeway (Downes and Babcock 1998).
- 4.1.3** The highest density of chambered tombs in the Western Isles can be found on North Uist. Chambered tombs are large mounds of stone with one or more chambers accessed via a central passage from the outside and there is often a forecourt to the passage. Rather than individual burials, excavations have revealed that the bones of a number of individuals were placed in the chambers. Examples such as Barpa Langais are located part way up the slopes of prominent hills with the passage entrance facing upslope and this would have allowed people to witness events taking place on the forecourt of the tomb (Badcock 2008, 15).
- 4.1.4** Evidence from excavation would suggest that many of the chambered tombs went out of use in the succeeding Bronze Age (c.2,500 BC to 800 BC), with the chambers of some tombs such as Clettrevall were deliberately sealed with soil containing fragments of a distinctive Bronze Age pottery type known as Beaker ware. It is likely that such sealing episodes are related to the change from communal to individual burial and a number of short cists, containing either individual cremations or inhumations, have been identified on the machair to the west of Newtown (Megaw and Simpson 1961).
- 4.1.5** In addition burial evidence, at least 15 settlements with evidence for occupation during this period to the Western Isles including The Udal on the

northwest tip of North Uist (Crawford and Switsur 1977) and sites on the west coast of South Uist such as Cladh Hallan and Cill Donnain (Parker Pearson, Sharples and Symonds 2004).

- 4.1.6** Some of the sites occupied in the Early and Middle Bronze Age continue to be occupied in the Late Bronze Age when more substantial stone and timber built roundhouses, often occupied for long period of time, have been identified. It likely that these buildings influenced the development of the Atlantic roundhouses (brochs and duns etc) which characterise the Early and Middle Iron Age (800BC – AD400). Atlantic roundhouses are monumental circular or sub-circular drystone buildings very often with cells or galleries contained within the thickness of a double skinned wall. These structures vary considerably in architectural complexity and while this may be partly a chronological development, it could also derive from variations in the wealth or status of the occupants. While they may appear initially to be defensive structures, they were all probably primarily farmhouses. By around the start of the 1st millennium AD, a new type of house appears. These ‘wheelhouses’ are characterised by semi-subterranean construction with a circular outer wall revetted into machair sand and radial internal divisions. There was considerable overlap in the occupation of these types, and they sometimes occupied the same sites, with no apparent break in occupation. Other Iron Age structural types found on North Uist include crannogs, for example at Loch Olabhat and souterrains, such as the example found to the west of Newtown House (MWE149148), associated with a possible Iron Age roundhouse settlement (ME148785).
- 4.1.7** Buildings constructed in the ruins of Atlantic roundhouses continue to be occupied into the Late Iron Age/Pictish Period (AD 400 – 900), and these often have a characteristic ‘figure of 8’ or ‘jelly baby’ shape. The evidence for high quality metal working recovered from these sites would suggest that people were expressing their status through portable artefacts rather than monumental buildings. Extended inhumation in long cists was predominantly practiced in this period, including some inhumations under square cairns, such as the example excavated at Cille Pheadair on South Uist (Parker Pearson, Sharples and Symonds 2004).
- 4.1.8** Around 800 AD North Uist was subject to attack by Viking raiders, and while settlements dating to this early period are known, it is not until after the mid 10th century AD that Norse settlements, with their characteristic long houses, tend to become more common (Badcock 2008, 35). In 1098 the dominance and political power of the Norse ultimately forced the Scottish Kings to surrender the lordship of the Outer Hebrides, which became part of the kingdom of Norse Kingdom of ‘Man and the Islands’. In the mid 12th century Somerled revolted against the Kingdom of Man and Alexander III’s victory over the army of King Haakon IV of Norway in 1263 at the Battle of Largs, resulted in the Outer Hebrides being returned to the Kingdom of Scotland.
- 4.1.9** By 1346 John of Islay, controlled both the Inner and Outer Hebrides and became the first Lord of the Isles. A number of sites associated with the clan leaders of this period have been identified, including the reuse of islets such

as Dún an Sticir or the construction of new duns such as Dún Aonghais near Sollas. Teampull na Trionaid (Church of the Holy Trinity) may have been founded as early as the 13th century and historical sources suggest that enlarged between 1350 and 1390 at the behest of Amie Nic Ruari, the first wife of John of Islay. Evidence for more ordinary forms of settlement in the later medieval period has been recovered from Eilean Olabhtha and Druim nan Dearcag on North Uist (Armit 1996).

- 4.1.10 The Lordship of the Isles was forfeited in 1493, with the McDonalds, traditional descendants of Somerled, retaining control of North Uist (although Berneray and Otternish were held by the MacLeods of Harris). The power of clan leaders was traditionally based on the size of his retinue, especially the number of fighting men, and conspicuous consumption of agricultural produce and system of land rental was designed to support this. In return for nominal rents lands were rented by clan chiefs to tacksmen, usually their relations, whose principal function was to provide military men rather than cash income. Chiefs tried to maximise the social product of the land, rather than cash returns from it. The short land tenure offered by this system not only led to short lived settlement patterns but also offered little security to tenants or incentives to improve the land. It possible that the early dispersed settlement pattern suggested by sites such as Druim nan Dearcag was replaced in this period with the bailtean system of irregular clusters of houses known as clachans or bailes surrounded by open land and runrig cultivation (where strips of land were apportioned on a regular basis and arable farmed jointly (Dodgshon 1993), although in some areas this only developed in the 19th century (ibid). Possible bailes are visible on Reids map of 1799.
- 4.1.11 After the '45 laws designed to end this military power resulted in the status of a chief becoming more dependent on his monetary wealth rather than his men. Cash crops were required more than traditional tributes. While money was initially raised by the sale of black cattle, it later came from the production of wool and kelp (industrial raw material made by burning seaweed) and to maximise production (and therefore profit) there needed to be a direct tenurial contact between the landlord and his tenants. To achieve this land was apportioned (lotted) into parcels, known as crofts, with one tenant occupying each croft and paying cash rent directly to the landlord. The size of these crofts were small, not only to maximise their number, but also to ensure that tenants needed to kelp in order to pay their rent. Landlords could afford to pay as little as possible for their labour and, as they owned the seaweed, profits were maximised further. Thus while the price of kelp increased, especially during the Napoleonic war when demand increased and the traditional sources of supply were disrupted, the cost of the raw materials and labour did not. Massive profits were made; in this period Lord MacDonald made £14,000 per annum from kelp alone (Grey 1951, 203).
- 4.1.12 Kelping therefore led to reorganisation of the settlement pattern with the old runrig system of joint holdings broken up in favour of crofts occupied by a single tenant. Many of the earlier bailes on this part of North Uist were lotted into crofts by 1814.

- 4.1.13** The basic form of vernacular house seen in the Outer Hebrides in this period was the 'blackhouse', so-called to distinguish it from the more architecturally sophisticated cottages common in the south of Scotland and in the Islands from the mid-19th century onwards, which were often whitewashed. Branigan has provided the following description of blackhouse:
- 4.1.14** "... low thick walled rectangular buildings with rounded external corners, varying in length from 10m to 20m. They had one, or quite often two opposing, doors found towards the one end of the long walls. Inside was a central hearth with an area for human occupation to one side, and another (sometimes with rough cobbling and usually a drain) for animals on the other" (2005, 20).
- 4.1.15** Blackhouses are usually associated with byres and barns, sometimes freestanding and sometimes integral, and agricultural features such as yards, turf and turf and stone dykes and stone walls, and hand dug cultivation plots or lazy beds.
- 4.1.16** The decline in the price of kelp which occurred after the end of the Napoleonic Wars highlighted the unsustainable nature of the kelping system. As tenants could pay part of their rents with money derived from labour, kelp made it possible for them to live on smaller amounts of land (Grey 1951, 206) but also made them wholly dependent on it. Landlords shared in this dependency as they required the kelp not only to generate rent but also additional profits. The fall in the price of kelp therefore had disastrous consequences for both landlord and tenants, as the tenants had small crofts with not enough arable or pasture to pay the rent (inflated due to the kelp) or provide a reserve of food to prevent famine, while the landlords lost their rental income and profits. Landlords turned to sheep farming to, which required not only less labour but also machair lands for grazing. This resulted in clearance of these crofts and creation of larger farms, mainly for sheep. Between 1849 and 1856 Lord MacDonald cleared 2500 people from his land.
- 4.1.17** It was not until the late 19th or early 20th century that the Congested Districts Boards or Board of Agriculture divided some these farms into the regular pattern of crofts visible to day, often with modern houses built to patterns provided by the Department of Agriculture and Fisheries. For example, the township of Newton was resettled by crofters in 1924, mainly ex-servicemen (Lawson 2004b, 17).

5 The Archaeology and Built Heritage of the Study Area

5.1 Desk-based assessment

5.1.1 A total of 154 sites of cultural heritage interest were identified within the study area. The locations of these sites are shown on Figures 2 – 7 and information on these sites is presented in Appendix A. Of these Dun an Sticir (Site 92) is a Scheduled Ancient Monument and the former Newton House Hotel (Site 86) is a Category C(s) Listed Building.

5.1.2 Table 4 summarises the known sites by chronological period :

Table 4 – Sites identified by Chronological period

Period	Number of Sites
Neolithic	1
Bronze Age	2
Iron Age	6
Prehistoric	4
Norse	2
Medieval	2
Post Medieval	122
Modern	5
Unknown	10
Total	154

5.1.3 A total of 13 sites are prehistoric or potentially prehistoric in date. A Neolithic settlement site was excavated by ARCUS at Screvan Quarry (Site 121) in advance of the construction of the rock extraction site for the Berneray causeway, while a circular kerbed cairn (Site 139), identified close to the slipway at Otternish during a watching brief undertaken as part of the same development and preserved *in situ* has been interpreted as a Bronze Age burial cairn. Erskine Beveridge identified a number of cists on the sandy slope at Rudha na Traghaidh, a little to the east of Port nan Long (part of Site 106) and it is possible that some of these were short cists of Bronze Age date. Based on parallels with an excavated example at Cleann nan Clachan, also on North Uist (Armit and Braby 2002), the large burnt mound identified on the northwestern shore of Oban Trumaisgearraidh (Site 13) may date to Late Bronze Age or Early Iron Age. Burnt mounds are mounds of fire cracked stones which very often surround a trough and/or cellular structure. It is thought that the stones were heated and added to the water in the trough to heat it; the stones were then discarded to form the mound. A number of functions have been suggested for these monuments including cooking and feasting sites, sweat lodges and saunas or smoke houses for meat or fish.

5.1.4 Three Atlantic Roundhouses have been identified within the study area (Sites 8, 47, 92), including Dun an Sticir (Site 92), a Scheduled Ancient Monument. Located on an islet within Loch an Sticir this Middle Iron Age broch is reached from the shore by a causeway, and was reused in medieval period

when a rectangular hall was built within the remains of the broch, the causeway was widened and a rectangular building constructed on the adjacent island of Eilean na Mi-Comhairle (Site 88). This site has some parallels with Finlaggan on Islay and is also likely to have been used as centre for the lord or local clan chief. It is unknown if a short stone causeway (Site 94) identified on the western side of the loch by the walkover survey is related to either of these periods of use. A factor of the North Uist Estate recovered a number of glass beads (Site 91), now in the National Museum of Scotland, from 'Dun Torquil at Newton' and it is possible that this findspot may relate Dun an Sticir or to Dún Torcuill located in Loch an Dúin to the east of the study area.

- 5.1.5** Other sites potentially dating to the Iron Age include a souterrain (Site 111), or underground stone lined passage used for storage or refuge, identified a sandy hillock at Screvan, on the east side of Port Nan Long and partially excavated in the late 19th century. This site overlooks an area of machair to the around Loch a' Chaolais (in the vicinity of Rudha na Traghad), and a hearth excavated in the midden deposit to northeast of the loch was dated to the "Dark Ages" (part of Site 106; see Barber n.d.). The kerbed square cairn identified at Aird ma Ruibhe (Site 142) provides more secure evidence for late Iron Age/Pictish period activity within the study area. While this site was not excavated (it was preserved *in situ*), it has good parallels with other Pictish burial cairns, including the example excavated at Cille Pheadair on South Uist (Parker Pearson, Sharples and Symonds 2004).
- 5.1.6** In addition to the cists described above at Rudha na Traghad, in the same area Beveridge also identified potsherds, iron slag bone pins, bronze brooches, two pieces of flint, part of a small clay crucible and boat rivets of Viking type. Viking type rivets have also been recovered from two cairns at Rudh' A' Charnain Mhor (Sites 129 and 134) and the identification of skeletal remains from the latter has led to the suggestion that this is the remains of boat burial dating to before the 11th century AD (Beveridge 1911).
- 5.1.7** As stated above, in the medieval period a rectangular structure was built within the remains of the broch at Dun an Sticir (Site 92) and a rectangular building constructed on the adjacent island of Eilean na Mi-Comhairle (Site 88). It is also possible that Clach an t-Sagairt Cross Marked Stone (Site 50) dates to the medieval period and may have marked a sanctuary limit of St Columba's Chapel (NMRS Number NF87NE 9) located approximately 500m to the west of the study area.
- 5.1.8** The cultural heritage of the study area is characterised by sites dating to the Post medieval and Modern periods. A total of 127 of the 154 sites identified date to these period, and can be divided into four broad functional categories:
- *Category 1: 66 agricultural sites –including field systems, field boundaries (turf dykes, stone and turf dykes, stone walls), clearance cairns, rig and furrow, enclosures;*

- *Category 2: 35 settlement sites, farmsteads, blackhouses, cottages, farmhouses, hotels, schools. Wells have also been included in this category;*
- *Category 3: 8 industrial sites, the majority of which are related to extractive industries – quarries and gravel pits;*
- *Category 4: 18 transport and communication sites – roads, bridges and associated sites, including benchmarks and milestones, and the modern Berneray Causeway.*

5.1.9 The majority of the post medieval sites identified are relict field boundaries, mainly denuded turf dykes. While a number of these are shown on the first edition of the Ordnance Survey 6" map of 1888, which indicates that they were constructed at least by the late 19th century, given the major reorganisation of field patterns in the recent past it is difficult to assign a more secure date to these features; they could relate to early or later crofting or intervening period of farm use. However given their substantial nature and topographical location, it is possible that Site 115 and 110 were head dykes, dividing the arable on Otternish from the pasture on Beinn a' Chaolais. Sites 25, 29, 31, 40 and 153 are best interpreted as part of croft boundaries relating to the lotting of the township of Reumisgarry, which had taken place by 1814. While this township was cleared in 1836, these boundaries are still shown on the first edition of the Ordnance Survey 6" map of 1888. Sites 87, 89, 93, 95 and 150 are likely to be the remains boundaries associated with the 15 crofts created from the pre-crofting township Baile Mhic Phail in or around 1814; this township was cleared 1826 (Lawson 2004b, 111) and the farm of Newtown created. The farm of Newtown was divided into crofts in 1924.

5.1.10 Rig and furrow is also included in this category. Differences in size, orientation and preservation of rigs suggests that they were not all contemporary or constructed by the same method.

5.1.11 Post Medieval settlement sites range from the poorly preserved remains of blackhouses, for example Reumisgarry Blackhouse 1 (Site 30) to the former Newton House Hotel, a Category C(s) Listed Building; Trumaisgearraidh School (Site 42), built around 1879 is also included in this category. A total of 13 sites were identified as blackhouses or possible blackhouses (Sites 11, 12, 22, 24, 26, 28, 30, 32, 37, 39, 57, 60, 144) and the majority of these sites are located in the townships of Trumaisgearraidh, Reumisgarry or Goulaby; seven are marked on the Ordnance Survey 6" map of 1888. It is unknown if these relate to the early 19th century crofting townships or later cotter occupation of the farms.

5.1.12 Site 46 is the remains of the settlement of Clachan Shannda. First recorded in the Judicial Rental of 1718 but probably in existence by 1666 (Crawford 1965), a baile is shown here on Reid's map of 1799 and thirteen tenants and four cottars are recorded by the *List of the Inhabitants of Lord MacDonalds Estate in North Uist* produced in the same year. It is possible that the group of blackhouses and ancillary structures, rig and furrow and dykes visible are associated with the baile as this township was not lotted into crofts until the

1920s but was cleared in 1809 (Lawson 2004b). Elements of this settlement are visible on either side of the B893 and the depicted extent is based on the extent of structures visible on the ground and a possible township boundary comprising a substantial stone and turf dyke visible on the ground and aerial mapping.

- 5.1.13** Tradition indicates a pre-clearance township located beneath the road to the east of Port nan Long, and this settlement is referred to as Balliviconen, Baile Mhic Cumhais or Kylis (Site 108). This is referred to in the Judicial Rental of 1718 and while the Reid Map of 1799 for this area is damaged and it shows a group of house steads " at the back of the bay on the east side of the islet" (Barber n.d., 110). The exact location and extent of this site is unknown.

- 5.1.14** Other sites in this category include more recent cottages (Sites 35 and 79), farmhouses and farmsteads (Sites 62, 64, 69, 81, 83) or sites of buildings marked on early Ordnance Survey mapping (Site 34), the concrete foundations of a building (Site 100), possible with a former military use, and 8 wells marked on the first or second editions of the Ordnance Survey 6" map of 1888 and 1904 (Sites 38, 54, 56, 76, 82, 84, 99, 120).

- 5.1.15** A total of eight gravel and quarry pits have also been identified (Sites 38, 54, 56, 76, 82, 84, 99, 120), the majority of which are shown on the first or second editions of the Ordnance Survey 6" map of 1888 and 1904. Some of these may have been used in construction of the road from Glac Ghlas to Otternish. The 10 benchmarks identified from early Ordnance Survey mapping (Sites 1, 3, 18, 36, 45, 49, 58, 73, 85, 90) are most likely to have been used to set out this road. Few of these survive and of two milestones shown on the on the first edition of the Ordnance Survey 6" map of 1888 (Sites 27 and 55) only Site 55 was identified during the walkover survey. Two possible boat noosts (Site 101 and 133) were included in the category, along with the slipways at Otternish (Site 138) and Aird ma Ruibhe on Berneray (Site 141), the Berneray Causeway (Site 140) and the stepping stone at Oban na Sruthan (Site 20); these are marked on the second edition of the Ordnance Survey 6" map and are still visible.

- 5.1.16** A date or category could not be ascribed to a total of ten sites, including two possible cairns on the saltings at Trumaisgearraidh (Sites 14 and 15) and five possible circular structures (Sites 4, 5, 63, 67, 71). It is possible that some of these are sheilings or possible earlier hut circles. Other sites in this category include a mound at Screvan (Site 112) and an orthostat also at Screvan (Site 116). Abraded fragments of pottery were recovered from a road cutting at Cnoc Raineach (Site 109) have not yet been dated.

- 5.1.17** Based on the presence of a number of known archaeological sites dated to the prehistoric to the medieval period (Site 106) and the local tradition and documentary evidence for a Post Medieval settlement in this area (Site 108), the area of machair at Loch A'Chaolais has been assessed as having a high potential for the presence of unknown archaeological remains (Site 107). In addition, based on the concentration of known sites of all periods, the

potential for unknown archaeological remains within the study area has been assessed as Moderate.

6.1.1 An assessment of importance following the methodology described in Section 3, the sensitivity of each site was assessed. The assessment of sensitivity for each sites is included in Appendix A and is summarised in the table below:

Table 5 – Summary of Assessment of Sensitivity of Identified Heritage Sites

Assessment of Sensitivity	Number of Sites
High	14
Medium	40
Low	72
Negligible	26
Unknown	2
Total	154

6.1.2 Potential for direct impacts would occur during the construction phase of the proposed scheme. Of the 154 cultural heritage sites identified within the study area, potential direct impacts on 26 sites by the scheme from Trumaisgearraidh to the junction of the B893 have been identified, ranging from Slight to Moderate Significance as summarised in Table 6 below:

Table 6 – Assessment of Potential Impacts during construction; Trumaisgearraidh to the junction of the B893 and an unnamed road to Loch nam Ban Jetty

Site No.	Site Name	Description of Impact	Site Sensitivity	Impact Magnitude	Impact Significance
16	Ruchgy Rig and Furrow	The scheme as proposed will have a slight impact on the northwestern edge of this area of rig and furrow	Low	Negligible	Slight
17	Ruchgy Turf Dyke	Less than 5% of this dyke will be removed by the proposed scheme	Low	Negligible	Slight
21	Ruchgy Turf Dyke	Less than 5% of this dyke will be removed by the proposed scheme	Low	Negligible	Slight
23	Reumisgarry Rig and Furrow 3	The scheme as proposed will have a slight impact on the northwestern edge of this area of rig and furrow	Low	Negligible	Slight
24	Reumisgarry Blackhouse 1	The scheme as proposed passes under 5m from the	Low	Minor	Slight
25	Reumisgarry	Less than 5% of this	Low	Negligible	Slight

Site No.	Site Name	Description of Impact	Site Sensitivity	Impact Magnitude	Impact Significance
	Turf Dyke	dyke will be removed by the proposed scheme			
27	Reumisgarry Milestone (site of)	This site has been removed	Negligible	None	None
29	Reumisgarry Turf Dyke	Less than 5% of this dyke will be removed by the proposed scheme	Low	Negligible	Slight
30	Reumisgarry Blackhouse 1	The proposed scheme will have a direct impact on this blackhouse	Low	Major	Moderate
31	Reumisgarry Turf Dyke	Less than 5% of this dyke will be removed by the proposed scheme	Low	Negligible	Slight
36	Reumisgarry benchmark	This site has been removed	Negligible	Negligible	Slight
38	Reumisgarry Gravel Pit	The proposed scheme will have a direct impact on this	Negligible	Low	None
46	Clachan Shannda Settlement	The proposed scheme will have a direct impact the western edge of this site	Medium	Minor	Slight
53	Clachan Rig and Furrow	The proposed scheme will have a direct impact the northwestern edge of this site	Low	Negligible	Slight
55	Clachan Farm Milestone 1	This milestone is located 5m to the northwest of the proposed scheme	Low	Negligible	Slight
59	Clachan Rig and Furrow	The proposed scheme will have a direct impact the northwestern edge of this site	Low	Negligible	Slight
65	Alt Gulabaidh Turf Dyke	Less than 5% of this dyke will be removed by the proposed scheme	Low	Negligible	Slight
66	Alt Gulabaidh Rig and Furrow	The proposed scheme will have a direct impact the western edge of this site	Low	Negligible	Slight
68	Bail Mhic Phail Turf Dyke	Less than 5% of this dyke will be removed by the proposed scheme	Low	Negligible	Slight
74	Bail Mhic Phail Turf Dyke	Less than 5% of this dyke will be removed by the proposed	Low	Negligible	Slight

Site No.	Site Name	Description of Impact	Site Sensitivity	Impact Magnitude	Impact Significance
		scheme			
76	Bail Mhic Phail Quarry Pit	The proposed scheme will have a direct impact on this quarry pit	Negligible	Negligible	None
85	Newton Benchmark 1	This site has been removed	Negligible	Major	None
87	Bail Mhic Phail Enclosure	Less than 5% of the dykes forming this enclosure will be removed by the proposed scheme	Low	Minor	Slight
89	Loch an Sticir Turf Dykes	Less than 5% of these dykes will be removed by the proposed scheme	Low	Negligible	Slight
148	Reumisgarry Rig and Furrow	The proposed scheme will have a direct impact on the northwestern edge of this area of rig and furrow	Low	Negligible	Slight
153	Reumisgarry Turf Dykes	Less than 5% of these dykes will be removed by the proposed scheme	Low	Negligible	Slight

6.1.3 From junction of the B893 and an unnamed road to Loch nam Ban Jetty, Option A will have potential impacts on 10 sites of cultural heritage importance as detailed in the table below:

Table 7 – Assessment of Potential Impacts during construction; Option A

Site No.	Site Name	Description of Impact	Site Sensitivity	Impact Magnitude	Impact Significance
97	Loch A'Chaolais Clearance Cairn	This cairn is located less than 3m from the proposed scheme	Negligible	Minor	Slight
98	Loch A'Chaolais Stone and Turf Dyke	Less than 5% of these dykes will be removed by the proposed scheme	Low	Negligible	Slight
107	Cnoc Raineach Area of Archaeological Potential	The proposed scheme will have a direct impact on this area of archaeological potential	High	Minor	Moderate
108	Kylis Settlement	Unknown	Medium	Unknown	Unknown
109	Cnoc Raineach Pottery Findspot	The proposed scheme will have a direct impact on this findspot	Medium	Moderate	Moderate
113	Screvan Rig and	The proposed	Low	Negligible	Slight

Site No.	Site Name	Description of Impact	Site Sensitivity	Impact Magnitude	Impact Significance
	Furrow	scheme will have a direct impact on the western edge of this area of rig and furrow			
117	Screvan Rig and Furrow	The proposed scheme will have a direct impact on the northern edge of this area of rig and furrow	Low	Negligible	Slight
119	Screan Field Boundary 1	Less than 5% of this dyke will be removed by the proposed scheme	Low	Negligible	Slight
151	Loch A'Chaolais Rig and Furrow	The proposed scheme will have a direct impact on the northern edge of this area of rig and furrow	Low	Negligible	Slight
152	Loch A'Chaolais Rig and Furrow	The proposed scheme will have a direct impact on this area of rig and furrow	Low	Negligible	Slight

6.1.4 From junction of the B893 and an unnamed road to Loch nam Ban Jetty, Option B will have potential impacts on 11 sites of cultural heritage importance as detailed in the table below:

Table 8 – Assessment of Potential Impacts during construction; Option B

Site No.	Site Name	Description of Impact	Site Sensitivity	Impact Magnitude	Impact Significance
99	Loch A'Chaolais Quarry	This option will have a direct impact on this quarry	Negligible	Negligible	Neutral
100	Loch A'Chaolais Foundations	This site is located less than 10m to the west of this option	Negligible	Negligible	Slight
104	Loch A'Chaolais Clearance Cairn	This option will have a direct impact on this site	Negligible	Negligible	Neutral
107	Cnoc Raineach Area of Archaeological Potential	This option will have a direct impact on this area of archaeological potential	High	Minor	Moderate
108	Kylis Settlement	Unknown	Medium	Unknown	Unknown
110	Screan Field Boundary 3	Less than 5% of this dyke will be removed by the proposed scheme	Low	Negligible	Slight
112	Screvan Mound	This site is located less than 5m from this option	Unknown	Unknown	Unknown
118	Screan Field Boundary 2	Less than 5% of this dyke will be removed	Low	Negligible	Slight

Site No.	Site Name	Description of Impact	Site Sensitivity	Impact Magnitude	Impact Significance
	(CFA Site 96)	by the proposed scheme			
124	Rudh' A' Charnain Mhor Rig and Furrow 2	The proposed scheme will have a direct impact on the southern edge of this area of rig and furrow	Low	Negligible	Slight
151	Loch A'Chaolais Rig and Furrow	The proposed scheme will have a direct impact on the southern edge of this area of rig and furrow	Low	Negligible	Slight
152	Loch A'Chaolais Rig and Furrow	The proposed scheme will have a direct impact on the northeastern edge of this area of rig and furrow	Low	Negligible	Slight

6.1.5 There is no significant difference in the nature and quality of impacts identified for Option A and Option B.

6.1.6 Potential impacts of the proposed route from the junction of the unnamed road to Loch nam Ban Jetty and the Berneray Causeway are identified in the table below:

Table 8 – Assessment of Potential Impacts during construction; junction of the unnamed road to Loch nam Ban Jetty and the Berneray Causeway

Site No.	Site Name	Description of Impact	Site Sensitivity	Impact Magnitude	Impact Significance
124	Rudh' A' Charnain Mhor Rig and Furrow 2	The proposed scheme will have a direct impact on the eastern edge of this area of rig and furrow	Low	Negligible	Slight

6.1.7 On Berneray no impacts on any known sites of cultural heritage interest are predicted.

Potential Impacts on Setting

6.1.8 A total of 8 sites were identified in which their setting make a significant contribution to our understanding of the site and which are therefore susceptible to impact (Sites 8, 13, 47, 50, 92, 86, 129 and 134). However given that the narrow nature of the wayleave (approximately 10m) and the pipe trench (approximately 1m wide) the temporary nature of the construction works and the burial of infrastructure, the Magnitude to the potential impact on the setting of these sites has been assessed as None.

Table 9 – Assessment of Potential Impacts on Setting

Site No.	Site Name	Sensitivity of Setting	Impact Magnitude	Impact Significance
8	Oban Trumaisgearraidh Dun	Medium	None	None
13	Oban Trumaisgearraidh Burnt Mound	Low	None	None
47	Dun Rosail	Medium	None	None
50	Clach an t-Sagairt Cross Marked Stone	Medium	None	None
86	Newton House Hotel	Medium	None	None
92	Dun an Sticir	High	None	None
129	Rudh' A' Charnain Mhor Cairn; Iron Rivet; Viking Burial (Possible)	Low	None	None
134	Rudh' A' Charnain Mhor Cairn; Iron Rivets; Viking Burial	Low	None	None
139	Otternish Cairn	Medium	None	None
142	Aird ma Ruibhe Square Kerbed Cairn	Medium	None	None

7.1.1 The preferred mitigation option for any sites or archaeological deposits affected by the proposed scheme would be to preserve the remains *in situ* and it may be possible to achieve this through slight alterations to the route of the pipeline. However, where preservation *in situ* is not feasible, then preservation by record would be the appropriate alternative mitigation strategy. This may be achieved by the following :

- **Archaeological watching brief:** archaeological monitoring of the main topsoil/overburden stripping operations, and other excavation works as appropriate, should be, followed by appropriate archaeological investigation and recording of any remains that are identified, and an agreed programme of post excavation assessment analysis, reporting and possible publication.

7.1.2 This recommendation should be agreed with the Western Isles Archaeologist.

7.1.3 Sites of cultural heritage importance close to the lands subject to construction activities should be adequately signed and protected by fencing for the duration of the works.

8.1 Bibliographic References

Armit, I. 1996. *The archaeology of Skye and the Western Isles*. Edinburgh University Press

Armit I and Bradbury A 2002 'Excavation of a burnt mound and associated features at Ceann nan Clachan, North Uist'. PSAS Volume 132 (2002) 229 – 259

Badcock A (ed) 2008. *Ancient Uists: Exploring the Archaeology of the Outer Hebrides*. Comhairle nan Eilean Siar

Badcock A and Symonds J 1997. *An Archaeological Walkover Survey: Berneray-North Uist Causeway and Quarry Site*. Unpublished archaeological report on behalf of Comhairle nan Eilean Siar

Badcock A and Webster J 1995. *An Archaeological Walkover Survey: Berneray-North Uist Causeway*. Unpublished archaeological report on behalf of Comhairle nan Eilean Siar

Barber J n.d. 'Bronze Age Farm and Iron Age Farm Mounds of the Outer Hebrides'. *Scottish Archaeological Internet Reports 3*
<http://www.sair.org.uk/sair3>

Beveridge, E. 1911. *North Uist: its archaeology and topography, with notes upon the early history of the Outer Hebrides*

Branigan K 2005. *From Clan to Clearance: History and Archaeology on the Isle of Barra c850 – 1850AD*. Sheffield Environmental and Archaeological Research Campaign in the Hebrides Volume 6. Oxbow Books

Crawford IA 1965 'Contributions to a history of domestic settlement in North Uist', *Scottish Studies*, 102, pp 34 – 63

Crawford, I and Switsur, R. 1977. *Sandscaping and the Udal, N.Uist* in *Antiquity*, Vol 51 pp 124-136

Dodgshon RA. 1993 'West Highland and Hebridean settlement prior to crofting and the Clearances' *Proceedings of the Society of Antiquaries of Scotland* 123 (1993), 419 – 38

Downes J and Badcock A 1998. *Berneray Causeway Archaeological Watching Brief and Excavations at the Screvan Quarry and Otternish, North Uist*. Unpublished archaeological report on behalf of Comhairle nan Eilean Siar. ARCUS Report 231c

Grey M. 1951 'The Kelp Industry in the High-Lands and Islands' *The Economic History Review, New Series, Vol. 4, No. 2. (1951), pp. 197-209.*

Lawson B 2000. Croft History, Isle of Berneray, Volume 1. Bill Lawson Publications, Lewis

Lawson B 2000. Croft History, Isle of Berneray, Volume 1. Bill Lawson Publications, Lewis

Lawson B 2004a. *North Uist in History and Legend.* Birlinn

Lawson B 2004b. Croft History, Isle of North Uist, Volume 4. Bill Lawson Publications, Lewis

Megaw JVS and Simpson DDA 1961. 'A short cist burial on North Uist and some notes on the prehistory of the Outer Isles in the second millennium BC' *PSAS Volume 94 (1961), 62 – 78*

New Statistical Account of 1834-45, vol.14 p.159: North Uist, County of Inverness

Old Statistical Account of 1791-99 vol.13, p.300: North Uist, County of Inverness

Parker Pearson M, Sharples N and Symonds J 2004. *South Uist: Archaeology and History of a Hebridean Island.* Tempus

8.2 Cartographic References

'Plan of the island of North Uist belonging to Alexander, Lord Macdonald'. By Robert Reid 1799. Reference RHP1306

First Edition of the Ordnance Survey six inch map, Invernesshire Sheet 31, published 1883

Second Edition of the Ordnance Survey six inch map, Invernesshire Sheet 31, published 1904