the National Trust for Scotland
Urras Nàiseanta na h-Alba
a place for everyone àite don h-uile duine

DUALCHAS NA CRUINNE • WORLD HERITAGE • PATRIMOINE MONDIAL

The St Kilda Archaeologist's

Annual Report, April 2012 to January 2013

Andrew Walsh, February 2013

Supported by

HISTORIC SCOTLAND

Contents

Distribution list

Property Manager, Balnain House, Inverness, NTS
Balnain House library, NTS
St Kilda library, NTS
Deborah Anderson, CnES
Lesley Ferguson, RCAHMS
Ian Riches, Head Office Archivist, NTS
John Raven, HS
Stephen Watt, HS

List of figures

1 Summary

This report summarises the work undertaken by the National Trust for Scotland's St Kilda Archaeologist, Andrew Walsh, during the period May 2012 to March 2013.

The on-island work comprised of the supervision of three volunteer work parties, the coastal erosion survey, monitoring 311 cleits in the Cleit Preservation Programme (CPP), re-photographing each side of 187 cleits in the CPP, undertaking the quinquennial monitoring of the Gleann Mor structures, photographic recording of four enclosures and ten kaleyards, producing written descriptions for seven blackhouses, monitoring sub-contractor works in the Factor's House and at the Milking Stone (Clach a' Bhainne), and undertaking a watching brief during the excavation of a new pipe trench.

The off-island work included writing this report, as well as producing reports for the conservation work undertaken in 2012, the monitoring of the Gleann Mor structures, and the monitoring of the refurbishment Factor's House works. An extensive amount of time has been spent updating the St Kilda SMR database and integrating it with a GIS system.

2 Introduction

The post of St Kilda Archaeologist is recognised in the current management agreement between NTS and Historic Scotland (HS) as 'pivotal to the management of the prehistoric and historic structures of St Kilda' (NTS 2007, 11) and the employee is involved in a number of outline tasks including monitoring, guidance, conservation work, fieldwork and project supervision, as well as associated administrative tasks. The position is managed from Inverness by Susan Bain, NTS Western Isles Manager with archaeological advice and guidance from Jill Harden. It is funded by the NTS and Historic Scotland.

The work of the St Kilda Archaeologist for the period May 2012 to March 2013 can be broken down into:

- Conservation work
- Condition monitoring
- Archaeological monitoring
- Off-island work

3 Conservation work

The SKA is directly involved in the conservation work that takes place on St Kilda. In 2012 this work was carried out by three work parties (on island during May and early June), Sylwia Mosko, a stone conservation specialist (during June) and Innes Watson, a professional drystane dyker (during July).

Due to a severe drought it was deemed too dry to repair the cleit roofs and this part of the work programme was largely abandoned. Two roofs (72 and 73) were repaired in early May by Work Party 1 under the supervision of Susan Bain and the SKA, and these were monitored throughout the rest of the season. Although some shrinkage to the turfs was visible at the end of September the grass was still in reasonable condition. However it is not clear whether the roots of the turfs have bonded to rest of the roof material or if the repairs will be successful in the long term.

The majority of the archaeologically sensitive works carried out by the work parties were drystane dyke repairs, cleit wall repairs (Figure 1), and clearing open water courses (Figure 2).

These were undertaken with supervision from the SKA and details are listed in Appendix 1. See Walsh 2012a for a detailed report listing all the works undertaken.

Figure 1. Repairing a cleit wall

Figure 2. Clearing out the drain by the Munitions Store

The works carried out by Innes Watson (Highland Stonecraft) were the most complex tasks (Figure 3) and are also listed in Appendix 1. His report on the works is presented in Appendix 2.

Figure 3. Cleit 686 before (top) and after it collapsed (middle), and after it was repaired by Innes Watson (bottom)

Sylwia Mosko (Graciela Ainsworth Sculpture Conservation) carried out repair and conservation works to the Milking Stone (Clach a' Bhainne; Figure 4). It had been damaged in 2011 by geologists from the University of St Andrews, who were using fieldwork methods contrary to their professional code of practice. A few small stone fragments had been mislaid between taking the samples and returning them to the NTS, but the main pieces of broken stone were successfully re-attached and blended into the surrounding rock (Figure 5). See Appendix 3 for the report on the works.

Figure 4. The Milking Stone (Clach a' Bhainne) with the main area of damage highlighted

Figure 5. Sylwia Mosko repairing the damaged area

4 Condition Monitoring

4.1 Coastal Erosion monitoring

4.1.1 Introduction and methodology

The rapid coastal erosion assessment is an ongoing project to document the rate of erosion around Village Bay. The coastline between NF 10430 98978 and NF 10084 99094 has been divided into eight sections labelled A to H (Figure 6). The survey has been carried out every year since 1996, with the current methodology in use since 1999 (Johnstone 1999). A 'full set' of new photographs facing straight onto the eroding cliff, are produced every two to three years. They are supplemented with additional photographs taken in the intervening years if change is noted. During 2011 a full set of new photographs were taken so the 2012 coastline was compared to those. The results of the monitoring are presented below.

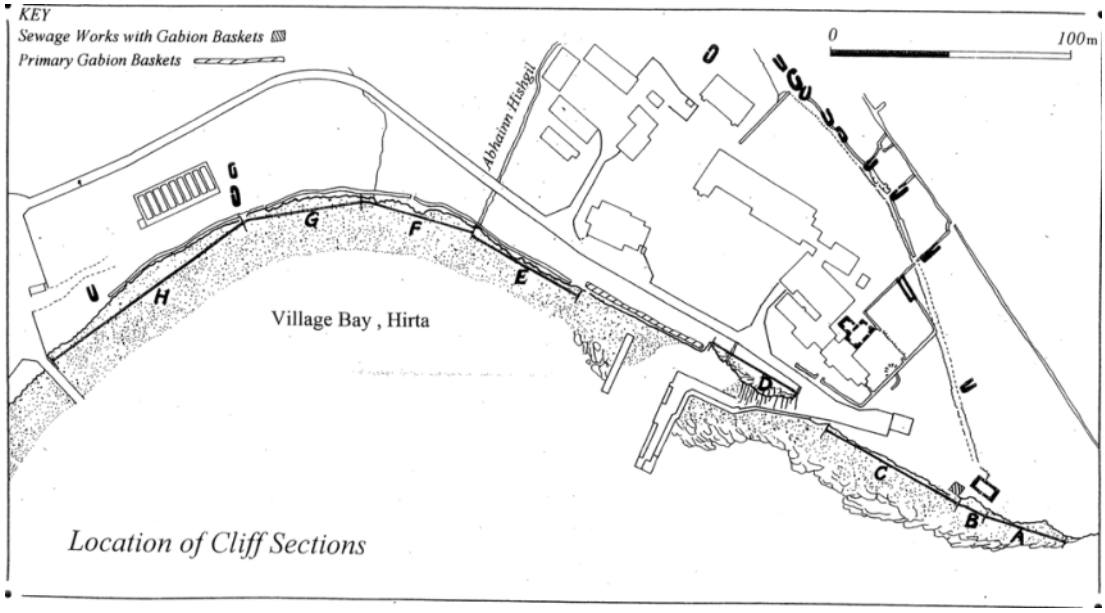


Figure 6. Location of the coastal erosion areas A-H

4.1.2 Results

Full details of the assessment are listed in Appendix 4. A description is presented below.

Sections A to D, F and G

In Sections A to D, F and G little or no change was noted.

Section E

Two areas of change were noted in this section. A small stone and area of surrounding soil has fallen from the soft cliff edge south of the electricity generating station (Figure 7).

Figure 7. Relatively minor change in Section E involving the loss of a small stone and surrounding soil between 2011 (top) and 2012 (bottom)

Further west a more significant change has occurred. Stonework from at least three courses near the base of the Sea Dyke has been lost (Figure 8). This is a cause for concern as erosion from wind, rain and sea could undermine this part of the dyke and cause significant further collapse.

Figure 8. Part of the Sea Dyke in Section E has been lost between 2011 (top) and 2012 (bottom)

Section H

Two areas of change were noted in Section H. A stone near the base of the Sea Dyke below Cleit 93 has been lost (Figure 9). Further west a piece of soil and turf has been dislodged and is visible at the base of the cliff (Figure 10)

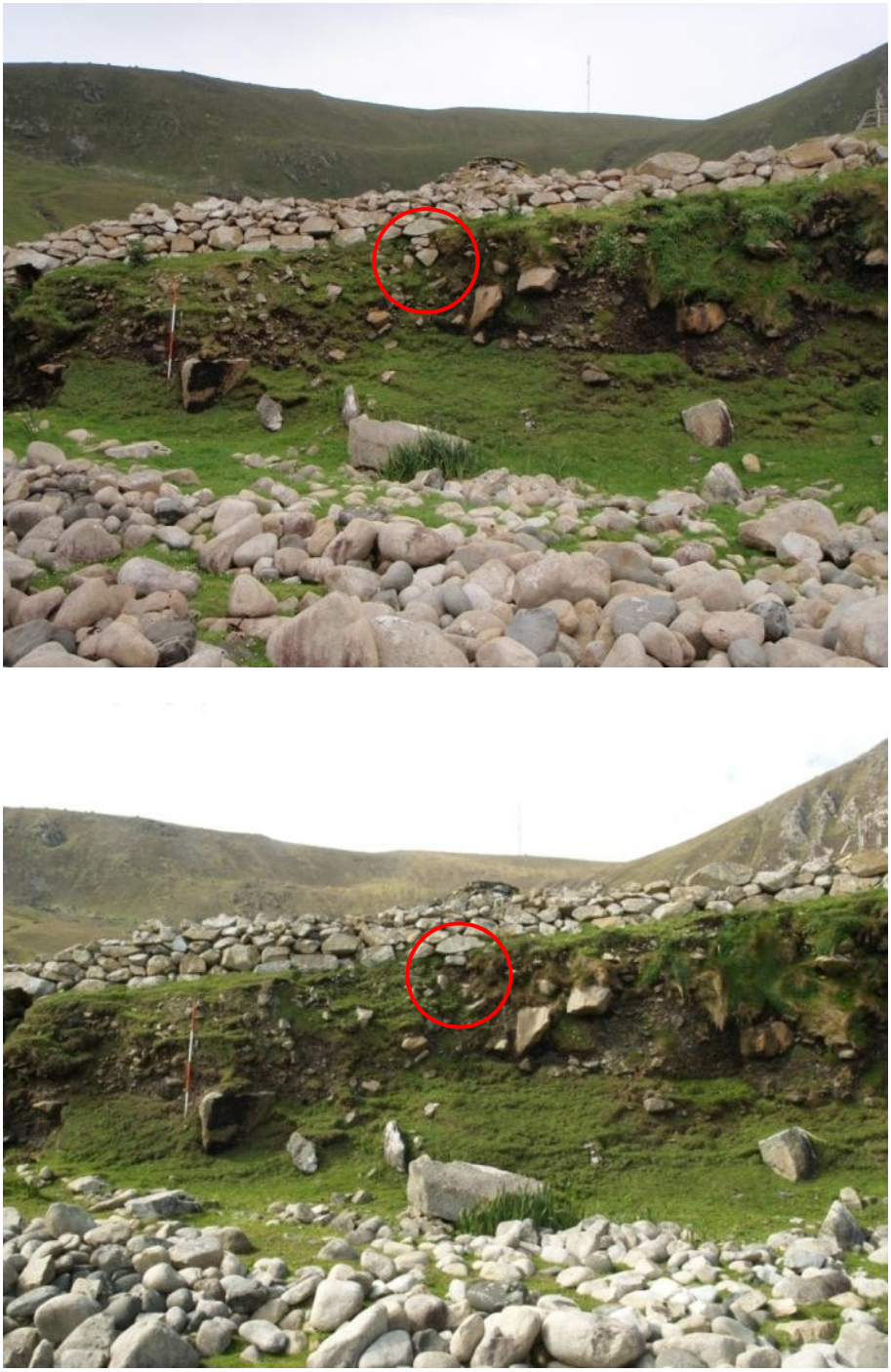


Figure 9. A stone near the base of the Sea Dyke in Section H has been lost between 2011 (top) and 2012 (bottom)

Figure 10. A piece of turf in Section H had been dislodged and is visible at the base of the cliff between 2011 (top) and 2012 (bottom)

4.1.3 Discussion

In general few significant changes to the coastal edge were noted and most of those were the relatively minor loss of individual stones, indicating that the winter of 2011-12 was a comparatively calm one. However in two areas (E and H) losses to the lower course(s) of the Sea Dyke were noted. Given that the winter had apparently been quiet and the rest of the survey yielded little change this is of significant concern and could indicate that sections of the dyke are in imminent danger of being lost. Due to this, emergency repairs were carried out on the fall in Section E by Innes Watson in order to stabilise the structure (see Appendix 2).

The fall of a single stone near the base of the Sea Dyke in Section H was deemed less significant and was not repaired. However the same issue of wind, rain and sea erosion attacking the void applies here and detailed monitoring should be carried out in future to check the integrity of the Sea Dyke in this area.

4.2 Cleit Preservation Project

4.2.1 Introduction and methodology

The Cleit Preservation Project (CPP) is an ongoing project to monitor cleit condition and feed into a programme of repair. It was initiated in 2001 when 313 cleits were chosen for regular monitoring and conservation (Taylor 2001), and visits and repairs have been reported on annually since this date. A photograph of the external sides of each cleit, mainly taken in 2007 or 2008, forms the baseline survey. During the CPP visit if a change has occurred it is noted and that side is re-photographed. Change is categorised as minor change (1-3 stones fallen or slumped), more significant change (4+ stones) or turf erosion/decay.

In addition a new 'full set' of photographs was taken for each side of the 185 cleits in the Village Bay area: Cleits 1-83, 85-104, 106-111, 120-150, 152-167, 169, 170, 800-802, 804-814, 900, 901, 905-911, 913, 916, 1008, and 1075 inclusive.

4.2.2 Results

Three hundred and eleven cleits were visited during the 2012 season. Cleit 84 was not specifically noted although it was examined as part of the 'assessment of winter damage' visit in March 2012. Since the major collapse of cleit 105, it no longer forms part of the CPP monitoring programme, although its condition will be reviewed during the ten-yearly programme of monitoring of all other structures on Hirta.

Minor changes were noted in 109 cleits (4, 8, 9, 10, 11, 12, 14, 18, 19, 24, 25, 26, 30, 31, 34, 35, 37, 38, 39, 41, 44, 47, 49, 50, 51, 52, 53, 54, 59, 60, 61, 62, 63, 64, 66, 68, 69, 72, 75, 76, 79, 81, 85, 87, 89, 90, 91, 94, 98, 99, 107, 109, 110, 111, 120, 124, 127, 129, 132, 136, 140, 144, 148, 149, 152, 155, 157, 159, 162, 164, 165, 166, 167, 170, 282, 288, 346, 422, 429, 443, 479, 482, 484, 485, 555, 686, 791, 807, 808, 810, 813, 814, 823, 826, 827, 832, 900, 901, 906, 907, 908, 911, 933, 1084, 1094, 1120, 1197, 1201 and 1215).

More significant or major changes were noted in 58 cleits (2, 5, 6, 7, 13, 16, 17, 21, 22, 23, 27, 28, 29, 32, 36, 45, 46, 48, 55, 56, 58,67, 70, 71, 73, 74, 80, 82, 83, 86, 88, 92, 93, 95, 96, 97, 100, 104, 106, 108, 131, 138, 147, 154, 158, 169, 280, 421, 487, 790, 800, 803, 905, 913, 918, 1046, 1075 and 1231).

The numbers of cleits with minor change, which are greater than in previous years, are probably due to the fact that there hasn't been a rigorous approach to the use of previous years' monitoring photographs. This means that over the years the same minor changes have been regularly re-recorded and so the numbers of minor change increase year on year. Beyond the zone of intervention, minor change was noted in 35 cleits, and more significant change in twelve, similar numbers to that of previous years. The results of the monitoring survey of cleits beyond the Head Dyke are presented in Appendix 5.

Following this year's monitoring and photographic work a reassessment of the response to minor change is proposed. In the instance where 1-3 stones have fallen or slumped the SKA will note the fact and return the stones to their original position immediately. Thus the following year's

monitoring work can assess any continuing instability. Major changes will continue to be dealt with as in previous years – they will be repaired by the following season's work parties or by contractor, as appropriate.

Turf roof erosion was noted on 64 cleits (2, 6, 13, 15, 20, 21, 23, 47, 48, 52, 57, 59, 60, 61, 62, 101, 120, 122, 124, 126, 128, 131, 132, 134, 135, 137, 138, 141, 146, 147, 149, 150, 152, 154, 155, 159, 161, 162, 163, 164, 165, 166, 167, 169, 170, 280, 281, 288, 307, 442, 443, 566, 757, 807, 814, 909, 910, 942, 1008, 1042, 1043, 1044, 1046 and 1075). Failure of a roof repair was also noted on another four cleits (24, 41, 66 and 106).

The number of cleits with turf roof erosion beyond the zone of intervention will continue to increase, as they are not part of the repair programme. The number of cleits within the zone of intervention that have eroding turf roofs is also increasing. This reflects the difficulty in repairing the roofs during the May-June period, when there have been extended drought periods over the past five years. It is a challenge that is being addressed. In 2013 it is expected that some roofs repairs will be undertaken in early March in the belief that these should prove more successful than those usually completed during in the middle of summer. However, this work will not suffice for all turf roofs within the head dyke. Decay and erosion of some is so great that considerable quantities of soil, as well as turf, will be required to re-roof them. Where and how these are to be sourced needs to be discussed with SNH and HS and agreed before a fuller programme of intervention can be developed. An evaluation of all the repairs that have been carried out during the last ten years will form the basis of a report examining the current methodology and proposing a way forward.

4.3 Gleann Mor Structures

A complete photographic record of the twenty structures in Gleann Mor was created in 1996. Subsequent condition surveys in 2002 and 2007 established a five-year monitoring programme and observed that a gradual process of deterioration to the structures was taking place.

The results for 2012 indicate that the slow deterioration of most of the structures continues. A small number of more substantial changes were noted to six structures, and eight structures did not exhibit any change. It is hoped that a decision on the long term future of these structures can be made in the near future (see Walsh 2012b for the full report on the condition of these structures).

4.4 Recording enclosures and blackhouses

Monitoring photographs were taken for the interior and exteriors of Enclosures 32 and 33 (the Graveyard; Figure 11), completing the photographic recording of the large enclosures within the Head Dyke. Photographic recording of Enclosures 31 (west of the Head Dyke; Figure 12) and Enclosure 39 (An Lag) was also completed (Figures 13 and 14).

The interiors and exteriors of Kaleyards E-H6, E-H7, E-H11, E-H14, E-H15, E-H16, E-BQ, E-C84 and E-C99, and the interior of E-H8, were also fully photographed (Figure 13). The exterior of E-H8 was not photographed due to dense vegetation cover.

Additional dimensions were recorded for Blackhouses A to V and written descriptions were produced for D, J, M, N, P, Q and R to be included in the updated database (see off-island work).

Figure 11. The Graveyard wall was photographed in detail during 2012

Figure 12. Photographing Enclosure 31 with the assistance of Janet Gruber (Work Party 3)

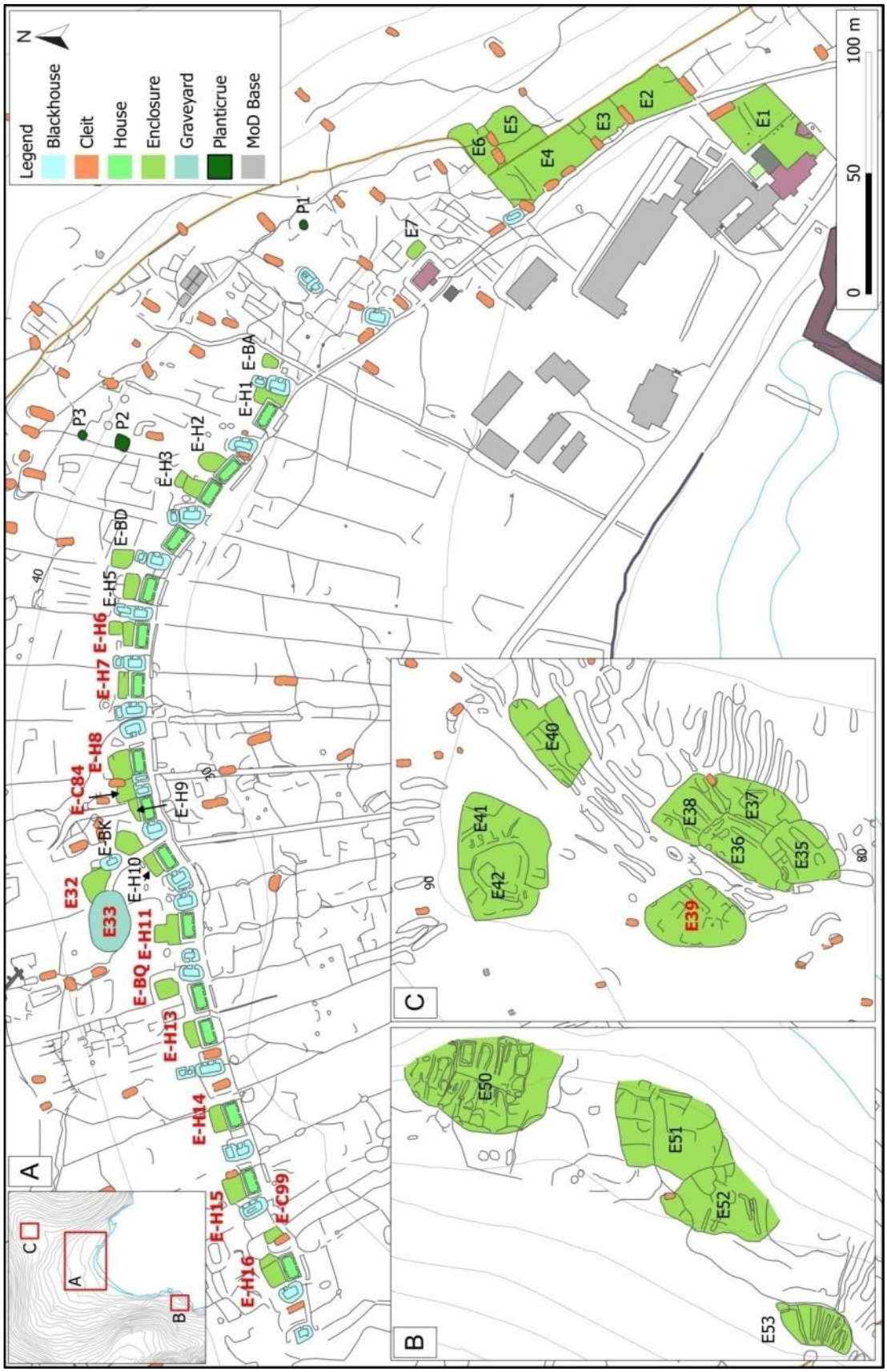


Figure 13. Plan of the enclosures, kaleyards and planticrues. The enclosures photographed in detail during 2012 are highlighted in red (scale: 1:2500 @ A4. Crown Copyright: RCAHMS)

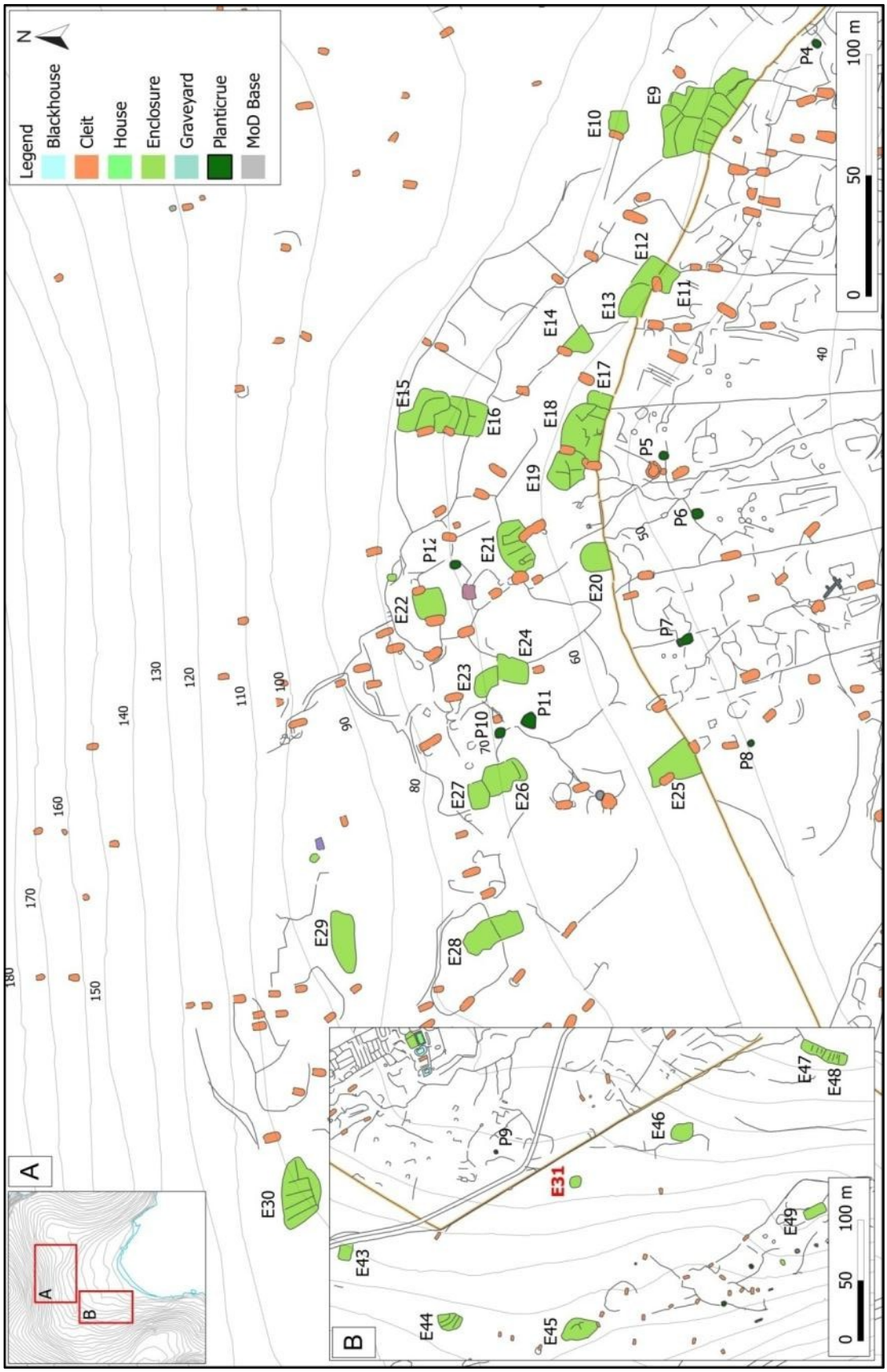


Figure 14. Plan of the enclosures, kaleyards and planticrues. The enclosures photographed in detail during 2012 are highlighted in red (scale: A=1:2500 @ A4; B=1:5000 @ A4. Crown Copyright: RCAHMS)

4.5 Other monitoring

A collapse in the Head Dyke wall (Section B) to the rear of the Factor's House was noted during August (Figure 15). A second collapse to the Head Dyke (above the MacKenzie's Slabs in Enclosure 2) occurred during the sheep catch, to which the SKA was promptly notified by members of the Soay Sheep Project (Figure 16). The collapses will be repaired during the 2013 season.

Figure 15. A collapse to the Head Dyke to the north of the Factor's House

Figure 16. A small collapse to the Head Dyke in Enclosure 2

5 Archaeological Monitoring

5.1 The Factor's House

Stripping out and refurbishment works at the Factors House were carried out during the summer, with Scheduled Monument Consent from Historic Scotland. The works were undertaken using the principle of minimum intervention and did not reveal any features of significant archaeological interest. Where the works were more intrusive it gave an opportunity for features and finds to be recorded.

In the living room none of the timber panels were removed from the wall but six of the floor boards were lifted to replace the rotting floor joists. Under them part of a stoneware container, which probably dates to the late 19th or early 20th century, was found. In the bathroom two layers of floorboards were identified. The upper layer probably dates to the refurbishment in the 1970s, but the boards forming the lower layer were of the same size and tongue and grove design as the floorboards in the living room. The refurbishment of the kitchen during the 1970s seems to have removed any trace of architectural features and finds there. Elsewhere only a few of the floorboards or timber linings were temporarily removed and it is possible that other features or finds remain preserved (see Walsh 2012c for a full report on the works to the Factor's House).

5.2 Pipe trench watching brief

A pipe trench was excavated on the east side of the main accommodation block of the MoD base (Figure 17), in an area which had been subject to extensive terracing and landscaping during construction of the base. It lay outwith the Scheduled Area of Village Bay (Scheduled Monument No 2276).

The trench was routed between the rear of the 'Puff Inn' and the 'VIP' (Figures 17 and 18) to allow cold water to run into the VIP and Manse below ground, rather than through the base which was causing it to warm to unacceptable levels.

The trench was dug by hand by QinetiQ staff and sub-contractors between 28th and 30th June. It measured c.65m in length, 0.3m in width, and a maximum of 0.5m in depth (Figures 18 and 19). Most of the deposits revealed by the works were associated with terracing and landscaping around the MoD base, and the only deposit of note was a dark drown sandy silt which was exposed in the base of the trench nearest to Cleit 2. This was interpreted as a buried agricultural soil. No archaeological features or finds were identified during the watching brief.

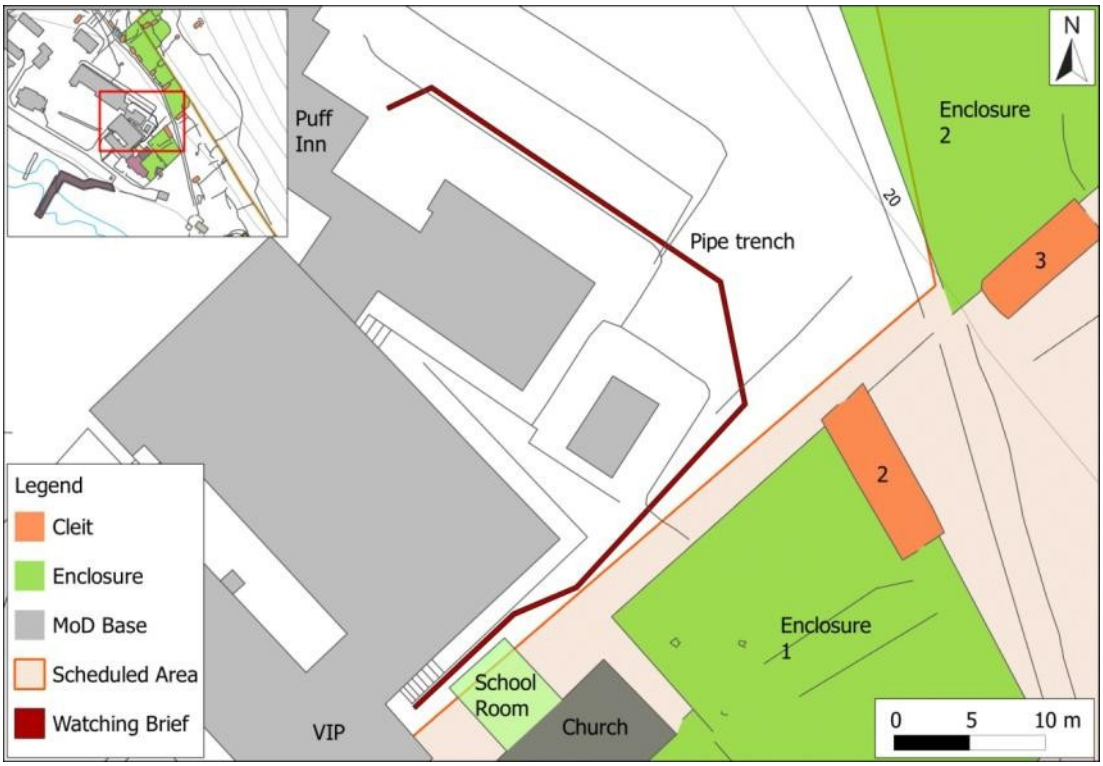


Figure 17. Location of the pipe trench watching brief (scale: 1:500 @ A4. Crown Copyright: RCAHMS)

Figure 18. The pipe trench after excavation, looking south east

Figure 19. The pipe trench after excavation. No archaeological features, deposits or finds were identified

As part of a proposed water pipe replacement, a second small trench was excavated by QinetiQ subcontractors adjacent to the filtration plant (Figure 20). The trench measured 1.1m by 0.9m and was 0.25m in width. It was excavated to a maximum depth of 0.10m. The corroded water pipe targeted by the excavation was exposed but no archaeological features or deposits were identified. The pipe is due to be replaced in summer 2013 and will be fully detailed then.

Figure 20. A short section of corroded pipe exposed. The pipe is due to be replaced in 2013 and the excavations will be fully detailed then

6 Off-island work

6.1 Database and GIS

This year a considerable amount of time has been spent adding information to the NTS database from the RCAHMS database, and other NTS sources. The NTS database, which has been extensively redesigned over the last few years by Alison Andrew, George Geddes and Jill Harden, has also been linked to a GIS system. The 2007-9 RCAHMS survey CAD plan for St Kilda has been digitised into .shp files, providing the heart of the mapping resource. Every structure, and major site and event, has been given a Unique Identification Number or 'SMR number', which may be increasingly referenced in future reports. To ensure successful use of the system in the future, a short guide has also been produced.

6.2 Reports and articles

Reports have been written for the monitoring work on the Factor's House, the five yearly monitoring of the Gleann Mor structures, and the 2012 Work Party and contractor maintenance works. An article on the Factor's House refurbishment was also produced for the St Kilda Mail and Island Book Trust newsletter.

6.3 Miscellaneous

As well as day to day administration, the SKA also attended a number of internal and external meetings, regarding the transfer of the HS/CDDV LiDAR and terrestrial laser surveys to the NTS. It is anticipated that these surveys will be a useful additional dataset, and it will be interesting to compare their results with the 2007-9 RCAHMS survey.

The SKA also began to undertake preparatory work for the conservation of the Ferguson Memorial, and other gravestones, in the graveyard. It is anticipated that this work will take place in late 2013 or early 2014.

7 Acknowledgements

The work of the St Kilda Archaeologist would not be possible without the financial assistance of Historic Scotland, and the support of the other NTS island staff Gina Prior and Paul Sharman.

I would like to thank all the Work Party members, Innes Watson, and Steve MacDonald who undertook the vast majority of the conservation and maintenance work. Their hard work and enthusiasm was much appreciated. I would also like to thank Davey Fraser and his team for their patience and good humour throughout the renovation of the Factor's House.

Archaeological guidance was provided by Jill Harden and the post was managed by Susan Bain. Invaluable logistical support was provided by QinetiQ, ESS and Kilda Cruises. I would also like to thank the members of the Soay Sheep Project and the other researchers on St Kilda for their support and good humour throughout the season.

8 Bibliography

NTS. 2007. NTS/Historic Scotland Management Agreement 2007-2012. NTS/Historic Scotland

Taylor, M. 2001. Cleit Preservation Project. NTS

Walsh, A. 2012a. Works undertaken on St Kilda during 2012. NTS

Walsh, A. 2012b. Gleann Mor Condition Survey. NTS

Walsh, A. 2012c. Report on works at the Factor's House, St Kilda, June-July 2012. NTS

Appendix 1: Conservation works in 2012

Work Party works requiring archaeological supervision

Cleit roof repairs

Small repair to Cleit 72 Side C
Repairs to Cleit 72 Sides A, C & D

Cleit wall repairs

Large repair to Cleit 41 Side C started by WP and SKA but completed by Innes Watson.
Large repair to Cleit 154 Side C
Small repair to Cleit 900 Side A/B
Small repair to Cleit 906 Side A
Small repair to Cleit 908 Side A/B

Drystane dyke repairs

Minor repair to Head Dyke in Enclosure 2 (behind MacKenzie slabs)
Minor repair to Head Dyke in Enclosure 2 (NW of MacKenzie slabs)
Minor repair to Head Dyke in Enclosure 3
Major repair to Head Dyke in Enclosure 9 (a)
Major repair to Head Dyke in Enclosure 9 (b)
Major repair to Head Dyke in Section M
Minor repair to Consumption Dyke immediately north of the modern road
Major repair to Consumption Dyke immediately south of the modern road
Major repair to Consumption Dyke near Cleit 86
Minor repair to Enclosure 6 dyke
Minor repair to Enclosure 19 dyke
Minor repair to Planticrue 11 dyke
Minor repair to free standing dyke immediately NE of cleit 125

Open watercourses and drains

Removed vegetation and blockages from all open watercourses
Cleared and replaced gravel in drainage channel next to path to/from the Munitions Store
Cleared and re-cut drain south of Blackhouse T
Cleared and re-cut drain south of Blackhouse R

Works undertaken by Innes Watson

Cleit wall repairs

Completed the major repair to Cleit 41 Side C
Major repair to Cleit 686 Side C

Other

Emergency repair to Sea Dyke
Innes Watson also visited the Amazon's House, the coastal outflow of the Dry Burn (Abhainn Illishgill), the revetted sides of the Dry Burn and the Head Dyke in Enclosure 4 with the SKA in order to discuss and develop methodologies for conservation works in 2013 and thereafter.

Works undertaken by Sylwia Mosko

Conserved damaged area of the Milking Stone (Clach a' Bhainne)

Appendix 2: Report on works undertaken by Innes Watson (Highland Stonecraft)

highland stonecraft
Innes Watson member of the dry stone walling association.

tel: 01463 870 675
mob: 07775 692 139
email: Info@highland-stonecraft.co.uk
web: www.highland-stonecraft.co.uk

Report on work carried out on St Kilda for NTS

Site name	Cleit 41		
Location	Village Bay		
Date work carried out	27 July 2012		
Craftsman	Innes Watson		
Description of defect	70% collapse of external skin of cleit 41 at face C		
Repair methodology	NTS/HS Management Agreement 2007-2012 Appendix 9 – Drystone wall repairs		
Description of work done	• Previous attempt by work party showed incorrect identification of some stone and some stone faces missing lichen • Dismantled previous work identifying key stones as work progressed • Rebuilt full height of external skin from foundation to lintel • Rebuilt as per archive photograph ref. *(to be added)* as far as possible • Could not identify some stone from pictures provided • Used best guess and St Kilda build style to complete build • Record photographs taken of 8 aspects		
Materials	Original stone		
Photographic record	Archive:	Defect:	After repair:
Digital photographs appended	*(to be added)*		
Repairs still to be done	None		
Comment	Stone identification proved difficult due to steep slope at foot of face C causing stone fall to spread. Also fall had been moved by previous works		
Date of report	23 Sept 2012		
Author	Innes Watson		

highland stonecraft
Innes Watson member of the dry stone walling association.

tel: 01463 870 675
mob: 07775 692 139
email: Info@highland-stonecraft.co.uk
web: www.highland-stonecraft.co.uk

Report on work carried out on St Kilda for NTS

Site name	Cleit 686		
Location	Mullach Mor		
Date work carried out	25 July 2012		
Craftsman	Innes Watson		
Description of defect	90% collapse of external skin of cleit 686 at face C		
Repair methodology	NTS/HS Management Agreement 2007-2012 Appendix 9 – Drystone wall repairs		
Description of work done	• Cleared out collapse identifying key stones as work progressed • Rebuilt full height of external skin from foundation to lintel • Rebuilt to a state of collapse as per archive photograph ref. *(to be added)* • Large hole in rebuilt structure. Integrity suspect • Could not identify top smaller stone from pictures provided • Used best guess and St Kilda build style to finish off • Record photographs taken of 8 aspects		
Materials	Original stone		
Photographic record	Archive:	Defect:	After repair:
Digital photographs appended	*(to be added)*		
Repairs still to be done	None		
Comment	Recommend inspection in 12 months time to check condition around large hole in rebuilt structure.		
Date of report	23 Sept 2012		
Author	Innes Watson		

highland stonecraft
Innes Watson member of the dry stone walling association.

tel: 01463 870 675
mob: 07775 692 139
email: Info@highland-stonecraft.co.uk
web: www.highland-stonecraft.co.uk

Report on work carried out on St Kilda for NTS

Site name	Coastal Dyke		
Location	Opposite side of road from generator		
Date work carried out	29 July 2012		
Craftsman	Innes Watson assisted by SKA Andy		
Description of defect	Small collapse of coastal dyke 1m high x 0.7m wide.		
Repair methodology	NTS/HS Management Agreement 2007-2012 Appendix 9 – Drystone wall repairs		
Description of work done	• Removed larger stone from above collapsed area taking note of its position and orientation. • Rebuilt full height of dyke from foundation • Used best guess and St Kilda build style to complete build • Record photographs taken		
Materials	Original stone and additional lichen faced stone sourced from suitable location 100m along coast advised by SKA		
Photographic record	Archive:	Defect:	After repair:
Digital photographs appended	*(to be added)*		
Repairs still to be done	None		
Comment	Original key stones from collapse smashed on rocks below Built using St Kilda build style – not in keeping with surrounding stone work on reflection maybe not correct method		
Date of report	23 Sept 2012		
Author	Innes Watson		

highland stonecraft
Innes Watson member of the dry stone walling association.

tel: 01463 870 675
mob: 07775 692 139
email: Info@highland-stonecraft.co.uk
web: www.highland-stonecraft.co.uk

Report on work carried out on St Kilda for NTS

Site name	Manse wall end (LHS looking at manse)		
Location	Manse front entrance		
Date work carried out	30 July 2012		
Craftsman	Innes Watson		
Description of defect	Wall end bulging and partially collapsed		
Repair methodology	NTS/HS Management Agreement 2007-2012 Appendix 9 – Drystone wall repairs		
Description of work done	• Photographs taken for identification • Dismantled corner of wall taking note of stone position and orientation. • Rebuilt full height of dyke corner from foundation • Stone put back in original position • Record photographs taken		
Materials	Original stone and three additional stones from coast taken from location advised by SKA (same location as for coastal dyke repair)		
Photographic record	Archive:	Defect:	After repair:
Digital photographs appended	*(to be added)*		
Repairs still to be done	None		
Comment	-		
Date of report	23 Sept 2012		
Author	Innes Watson		

Appendix 3: Report on conservation works on the Milking Stone (Clach a' Bhainne) by Sylwia Mosko (Graciela Ainsworth Sculpture Conservation)

GRACIELA AINSWORTH

® Collective Trade Mark of PACR
Accredited Conservator-Restorer

c/o Susan Bain
Western Isles Manager
National Trust for Scotland
Balnain House
40 Huntly Street
Inverness
IV3 5HR

04th July 2012

Dear Susan,

CLACH A' BHAINNE (the Milking Stone), ST KILDA

Please find enclosed the final report for the conservation works undertaken on the Clach a' Bhainne – Milking Stone, St. Kilda. If you require any further information, or have any queries, please do not hesitate in contacting us.

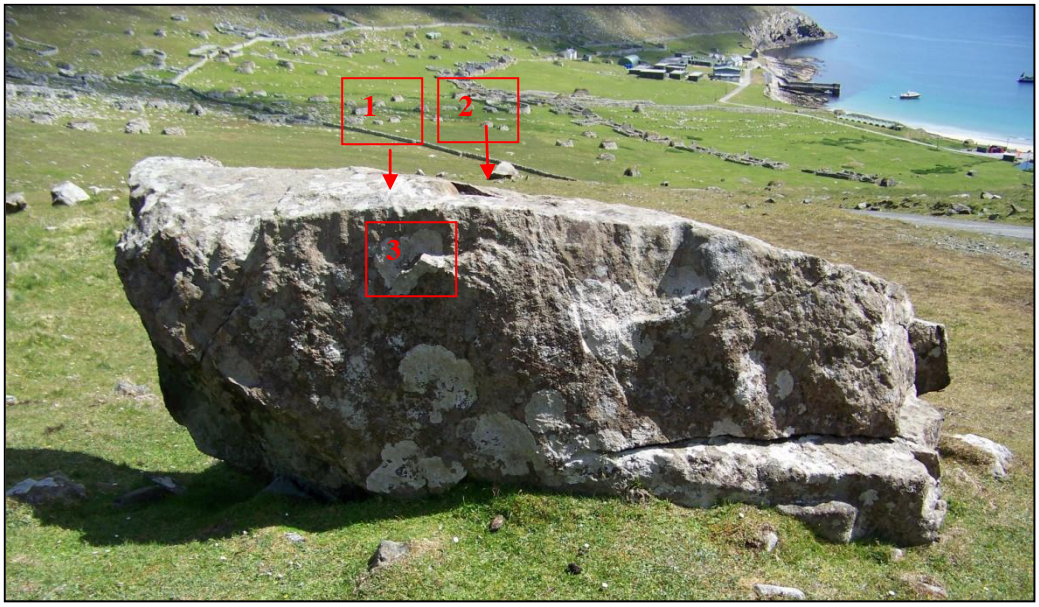
Yours Sincerely,

Sylwia Mosko
Pp Graciela Ainsworth Sculpture Conservation

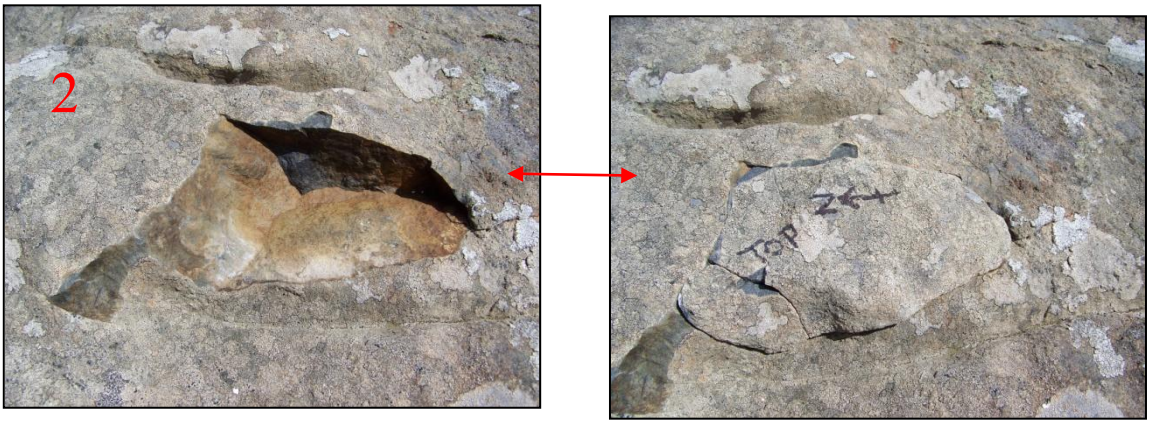
Sculpture Conservation and Restoration, Sculpture Commissions
Graciela Ainsworth B.A. Hons., Dip. Conservation of Sculpture, ACR
Unit 4 & 10, Bonnington Mill Business Centre, 72 Newhaven Road, Leith, Edinburgh EH6 5QG. Tel: (0131) 555 1294 Fax: (0131) 467 7080
e-mail: workshop@graciela-ainsworth.com
Consultant: W.R. Ainsworth OBE, B.Arch, FRIBA, MSCD. Newcastle upon Tyne, England.

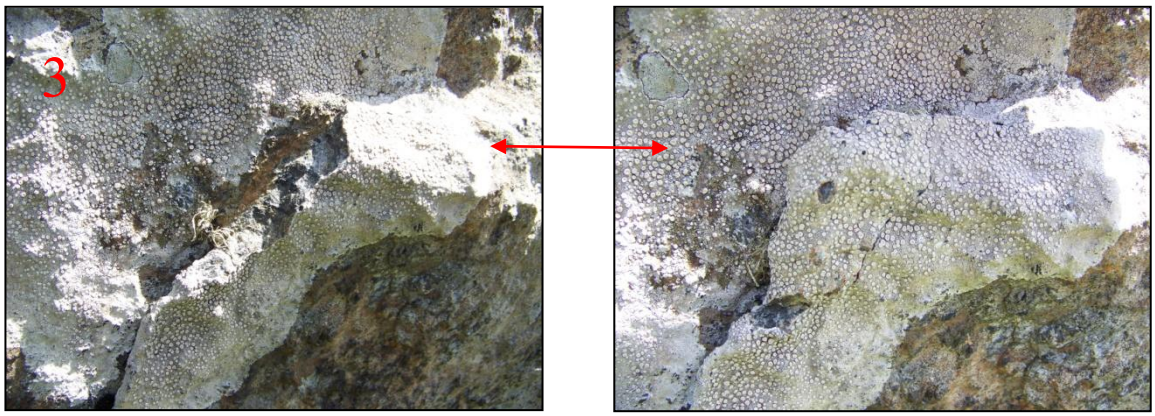
FINAL REPORT: Clach A'Bhainne – Milking Stone, St Kilda.

- Prior to the conservation treatment, the Milking Stone and detached pieces of stone were documented photographically. This photographic record was continued throughout the works.



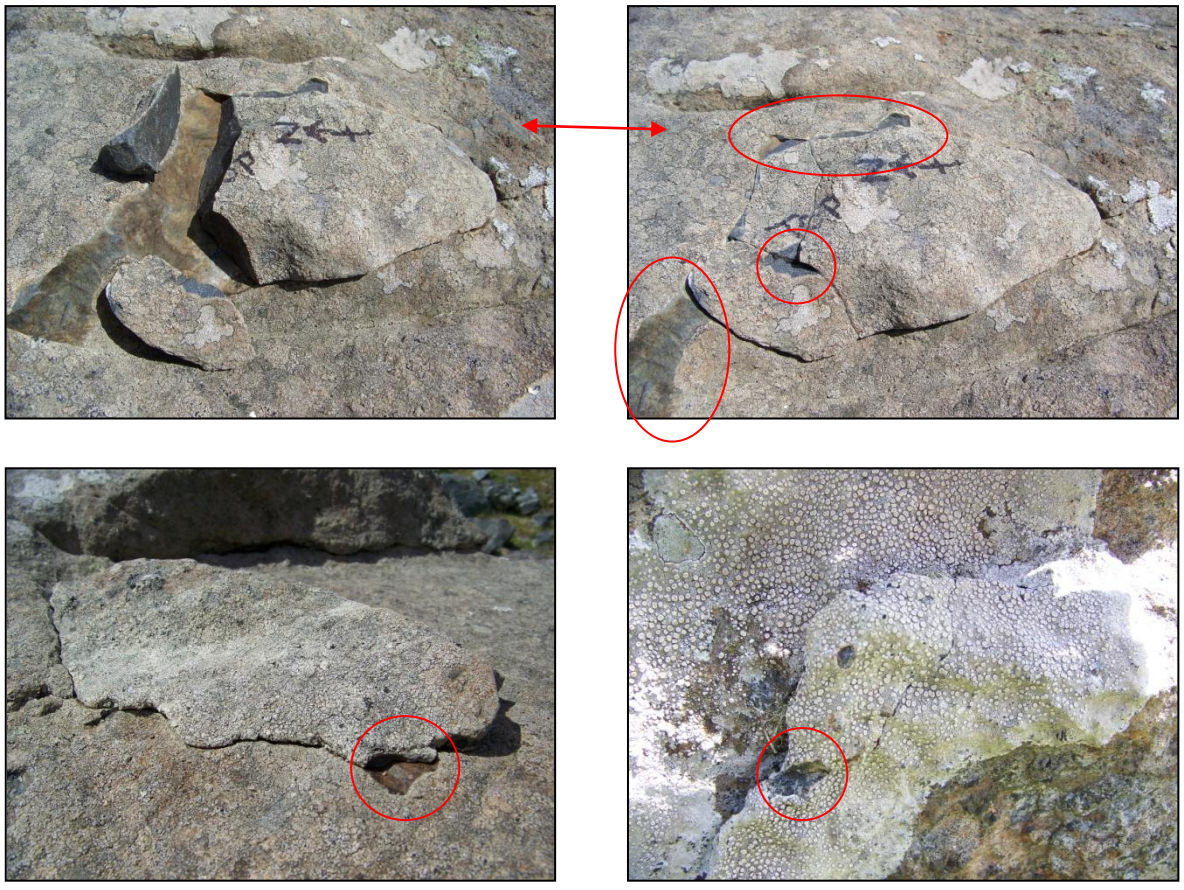
Milking Stone and positions of the detached pieces





- Following dry cleaning of the detached pieces and the surfaces of the breaks on the Milking Stone, loose fragments were carefully placed on their original position and assessed.

- All of the pieces fitted well, however stone number **2** was broken in to three sections and its top surface was stained with black felt pen. Several fragments, chips to the edges of all three pieces, were missing.

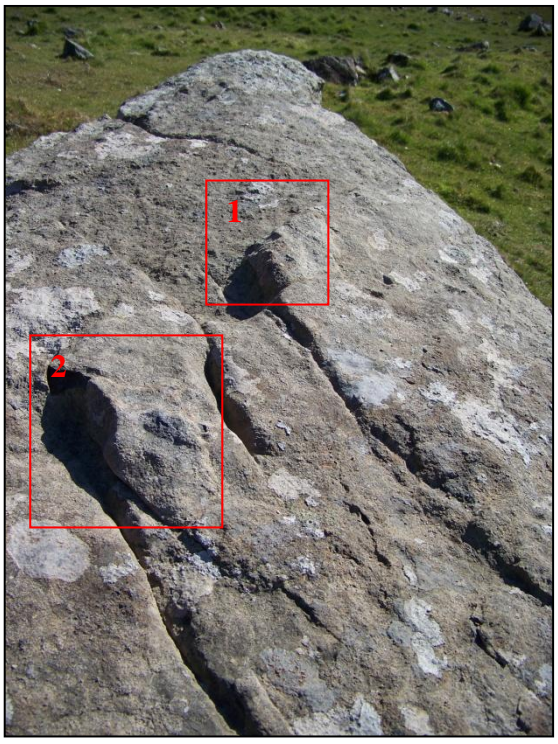


Chips to the edges of the detached pieces

- Black felt pen marks from the surface of the piece number **2** were removed using acetone and kitchen towels.

- All loose elements of the stone were re-attached using polyester resin applied as a series of pads to allow moisture migration between the main body of the boulder and the fragments.

- Next all fissures and cracks were filled with 20% solution of acrylic resin Paraloid B72 in acetone mixed with sand and natural pigments to much the surrounding colour of the stone and lichen.



Milking Stone after conservation

Appendix 4: Coastal Erosion Assessment

The table below lists the areas recorded by the Coastal Erosion Assessment Survey in 2012.

Section	2011 photo	2012 photo	CE No.	Description of change
A	-	SKA12-1-001	4	New shot in gap between CE3 and CE5
B	SKA11-3-31	SKA12-1-002	9	Small stone missing in group below right window of the store is missing
C	SKA11-3-42	SKA12-1-003	14	Small stone near top of cliff has fallen, visible at base
C	SKA11-3-49	SKA12-1-004	20	Small stone has disappeared
D/E	-	SKA12-3-001	27	New shot in gap between CE26 and CE28
E	SKA11-3-76	SKA12-1-006	31	Small stone and surrounding soil has disappeared
E	SKA11-3-80	SKA12-1-007	34	Two-three courses of the base of the Sea Dyke have disappeared
F	-	SKA12-1-008	43	New shot in gap between CE42 and CE44
F	SKA11-3-97	SKA12-1-009	44	Small stone near base of grass has moved slightly
H	SKA11-3-119	SKA12-1-010	58	Stone near base of Sea Dyke has disappeared
H	SKA11-3-120	SKA12-1-011	59	Section of turf and soil has been eroded away and is visible at base of cliff
H	SKA11-3-121	SKA12-1-012	60	Close up of above
H	-	SKA12-1-013	62	New shot in gap between CE61 and CE63
H	-	SKA12-1-014		New shot in gap between CE63 and CE64
H	-	SKA12-1-015		New shot in gap between CE64 and CE65

Appendix 5: Cleit monitoring beyond the Head Dyke

The table below lists the changes to cleits beyond the Head Dyke recorded in 2011 and 2012. Cleits not listed have not changed in any way.

Cleit No.	Changes in 2011	Changes in 2012
120	Minor turf erosion	1 stone shifted B; minor turf erosion
122	Interior non-structural slab slipped onto floor	Minor turf erosion
124	Minor turf erosion	1 stone missing A; minor turf erosion
125	Minor turf erosion D; one stone missing C/D roofline	-
126	Minor turf erosion	Minor turf erosion
127	1 stone fall, 1 missing from A/D collapse. Minor turf erosion	2 stones missing A; 1 stone missing C
128	-	Minor turf erosion
129	Stones at B/C roofline slightly shifted since 2002	Stones in roofline shifted B
131	2 stones missing B/C roofline; 1 moved slightly D/A	3/4 stones shifted A; 1 stone missing C; minor turf erosion
132	Turf erosion leading to 1 stone fall, 1 shifted B roofline; 1 stone fall C roofline	1 stone in roofline missing A; 1 stone missing D; minor turf erosion
133	Minor turf erosion – 1 stone shifted within roof	-
134	-	Minor turf erosion
135	Minor turf erosion – 1 stone shifted on roof	Minor turf erosion
136	Minor turf erosion – 1 stone shifted on roof D/A	Minor turf erosion
137	Minor turf erosion, pre-2006?	Minor turf erosion
138	Turf erosion leading to 1 stone missing, 1 stone fall C roofline, 1 shifted	3 stones missing C; 1 stone in roofline missing, 1 slipped C; Minor turf erosion
140	-	1 stone missing B
141	-	Minor turf erosion
144	1 stone shifted amongst loose collapse from 144 on 145 roof	1 stone shifted amongst loose collapse from 144 on 145 roof
146	Minor turf erosion	Minor turf erosion
147	Minor turf erosion - 2 stones slipped	1 stone missing B; 1 stone missing D; 2 stones in roofline missing D; minor turf erosion
148	Slight movement in upper part of side B?	1 stone missing, 1 slipped B
149	Minor turf erosion. Ground-set boulder dislodged	1 stone missing B; minor turf erosion
150	-	Minor turf erosion
152	Minor turf erosion	1 stone missing B; minor turf erosion
154	Fallen lintel over opening in side B (fulmar nest)	Collapse B (around lintel); minor turf erosion
155	-	1 stone shifted B; minor turf erosion
156	Minor turf erosion	-
157	I stone fall from turf at A – noted 2006? Slight movement above opening on B roofline	1 stone missing roofline A
158	2 stones fallen upper corner D/A	Stones shifted C; 2 stones shifted D; collapse D/A
159	Turf erosion, I stone missing C roofline	Stone in roofline shifted A; 1 stone missing C; minor turf erosion
160	-	1 stone missing D
161	Minor turf erosion – minor stone movement on roof	Minor turf erosion
162	Minor turf erosion – 1 stone slipped or missing on roof on D roofline – noted 2006?	1 stone missing, 2 stones shifted C; minor turf erosion
163	I stone fall from B – noted 2006?	Minor turf erosion
164	Much of remaining turf lost. I stone fall D base	1 stone missing A; 1 stone changed D; roof nearly completely eroded
165	Minor turf erosion – 1 stone fall C roofline	1 stone missing A; 1 stone missing, 1 stone shifted D; minor turf erosion

Cleit No.	Changes in 2011	Changes in 2012
166	Minor turf erosion A– 1 stone missing from turf at D.	1 stone missing C; 1 stone missing D; minor turf erosion
167	Minor turf erosion – possibly 1 stone fall from turf	2 stones missing A; minor turf erosion
169	2 stones missing C roofline. Slight movement of stones over A/B caused by turf erosion and/or guy ropes for sheep nets	2 stones missing B; 2 stones in roofline missing C; minor turf erosion
170	Minor turf erosion – 1 stone missing from turf	1 stone missing A/B; 2 stones missing C/D; minor turf erosion
173	Minor turf erosion	-
261	1 stone slumped from side D near side A	
280	Turf erosion on sides A and B	Collapse D; minor turf erosion
281	Turf erosion on side B	Minor turf erosion
288	Side A rebuilt, Turf erosion A and B, collapse at base of Side C, stone replaced side D	Stones have shifted B; minor turf erosion
307	Stones missing and turf erosion A, B, C, D	Minor turf erosion
344	1 stone shifted B/C roofline	
346	Small bulge developing at top of side C	Bulging C (collapse imminent?)
348	Minor turf erosion	-
354	Minor turf erosion. 1 stone slip within roof at B	-
402	1 stone fall B, slight collapse of 1 or 2 stones at C	-
409	1 stone fallen from B/C	-
421	1 stone fallen from B/C, some collapse in side C	Collapse A
422	Slight movement in loose stones on B/C roofline	-
429	1 stone fall from B/C; 1 slip, 1 fall from C base	1 stone missing, 1 stone shifted C
432	Minor turf erosion	-
442	Turf roof denuded	Minor turf erosion
443	Minor turf erosion, 2 stones fallen D, slight movement D roofline	Minor turf erosion
445	Minor turf erosion, 1 stone missing C roofline	-
446	Very minor turf erosion	-
476	One small stone missing, not structural	-
479	One stone missing from B roofline	1 stone missing, 2 stones shifted D
482	2 stones shifted within collapse at D. Slight further slips in loose stones to side of B	1 stone missing B
484	1 stone shifted	3 stones shifted A
485	1 stone fall from A/B roofline. 1 stone slipped over lintel	1 stone missing, other stones shifted A
487	-	Collapse A
488	Movement within turf roof, and on porch wall	-
492	2 stones shifted within collapse at D and to side of B	-
493	Minor turf erosion	-
513	1 stone missing above lintel on side A, side B has been rebuilt since monitoring photo	-
543	Turf erosion, all sides	-
555	1 stone missing, RHS of lintel, side A. Turf erosion.	Collapse A
566	Turf roof eroded all sides	Minor turf erosion
568	Turf roof eroded all sides	-
686	Blocking stone fallen over, side A; complete collapse of downhill end, side B,C & D.	Stone fallen over A; large collapse C
736	Turf roof eroded side A	-
757	-	Minor turf erosion
790	-	Collapse A/B; large collapse C; 2 stones missing D
791	-	2 stones missing B

Cleit No.	Changes in 2011	Changes in 2012
800	-	Collapse C
803	-	Large collapse C
807	Stones missing	Collapse A; Roof nearly completely eroded
808	-	2 stones missing C/D
810	-	1 stone missing A
812	-	Bulging A (collapse imminent?)
813	-	1 stone missing A; 1 stone missing D
814	-	1 stone missing, 1 stone shifted; minor turf erosion
815	1 small stone slip or fall from B roofline	
823	-	1 stone missing D
826	-	?Collapse A/B; minor turf erosion
827	-	1 stone in roofline missing B
832	-	Stones shifted A/B
900	Slight collapse at A/B lower corner. 1 stone fall B/C	Stones shifted C; minor turf erosion
901	Minor turf erosion	1 stone missing A; minor turf erosion
905	Lintel fallen into interior at C. 2 stones fallen A/B roofline. 1 lower stone fall A/B	1 stone missing A; large collapse C; 2 stones missing D; minor turf erosion
906	Slight collapse at A/B roofline	1 stone missing A
907	Slight movement at corner of A/D	1 stone missing A
908	Collapse at corner of A/B. 1 stone fall A/B roofline	1 stone missing D
909	-	Minor turf erosion
910	-	Minor turf erosion
911	1 stone fall A/B roofline. 1 stone fallen, 1 slipped D roofline	1 stone missing A; various stone shifted (collapse imminent?) D
913	1 stone fall from C roofline	1 stone missing, various stones shifted B; 1 stone in roofline missing C
918	-	Collapse C; 1 stone missing D
933	1 stone replaced side A and 2 missing side D - compared to '04; Turf roof eroded	Collapse D
942	-	Minor turf erosion
1000	Rebuilt in 2011	
1008	-	Roof nearly completely eroded
1042	-	Minor turf erosion
1043	Turf roof eroded side B only	Minor turf erosion
1044	Turf roof eroded all sides	Minor turf erosion
1046	-	Roof collapsed A
1047	Turf roof eroded all sides	-
1048	Turf roof eroded all sides	-
1049	Turf roof eroded all sides	-
1075	-	1 stone missing, 1 stone shifted A; 2 stones missing A/B; minor turf erosion
1084	-	1 stone missing D
1094	-	2 stones missing B
1120	-	1 stone missing D
1154	Stones missing from roof	-
1197	-	1 stone missing C
1201	-	1 stone missing B
1215	Stones missing, turf roof eroded	1 stone missing D
1231	-	Collapse B; 1 stone missing D