

North Head Memorial
Wick

Condition Report
23rd March 2017

1.0 Brief

- 1.1 HRI Munro Architecture were appointed by the Royal British Legion Scotland - Wick Branch to update their earlier 2016 condition survey of the North Head Soldier's Memorial.
- 1.3 This work is undertaken in advance of a proposed repair scheme for the memorial, working in partnership with the War Memorial Trust and other funders. It is hoped this assessment will inform the forthcoming repair programme.
- 1.3 The inspection was undertaken on Thursday 23rd March 2017, in good weather by Glyn Young MRICS. Supporting photographic images, both general and specific, are provided in an attached appendix with references made throughout the report.

2.0 Historical Background

- 2.1 The North Head Memorial was originally constructed and dedicated in 1909 under the instruction of Pastor John Horne who wished to have a memorial raised to the memory of the people of Caithness who had served country on land and sea.
- 2.2 It lies on the cliff edge at North Head overlooking the bay to the east of Wick Harbour. The coastal path now skirts the landward side of the memorial, and later housing has developed on the land adjacent.
- 2.3 The structure is built of Caithness stone masonry, and photographic evidence records it was rendered to resemble toothed quoin stones at corners, around openings and recesses. There were ornamental render projections over the door. Projecting stone course and corbelling rendered at roof deck level, and a rendered and struck parapet wall, along with a small cap house in the same style. The door openings to both main entrance and cap-house were of timber vertically boarded.
- 2.4 Main faces of the monument house memorial plaques of Caithness stone slab, in ground and first floor recesses. Some of the panels are inscribed, one with a dedication, some with locations of battles, and others yet uninscribed. They record battles during the Crimean and Boer Wars as well as before this.
- 2.5 The original intention was to incorporate a room of remembrance at ground floor and have a middle floor housing a museum. The tower was to have a cast iron fence around it and a weathervane atop the cap-house. There is only evidence that the weathervane was achieved, the other elements never coming to fruition.
- 2.6 It is believed that a casket holding the names of 400 veterans is buried under the floor slab.
- 2.7 Little is known regarding the condition of the building up until it receives a cementitious dry dash render coating in the 1970's. Apparently at that time the buildings condition was very poor and a local builder undertook the work free of charge. It is not known how much of the original render coatings had survived to this point. It is believed that the cap-house and main entrance doorways were built up and evidence of materials suggests this was the case.
- 2.8 The stewardship and care of the memorial has been sporadic throughout its life. Its general condition is now poor, the roof is leaking into the structure, along with the deteriorating render coating, resulting in falling debris, has led to the structure being temporarily fenced to protect the public.

3.0 Construction and Condition

3.1 Main External Walls

- 3.1.1 The structure is built on a square plan and rises two storeys with parapet walls enclosing a flat roof. The walls are constructed of Caithness stone and a very hard, presumed lime based, bedding mortar. The masonry is rubble in construction and the face plane is very straight and true. It has a single arched door opening on the west elevation, and linteled plaque recesses to all other sides. It can be assumed the structure was built with the intention of receiving a render finish. (Ref: Images 1-6)
- 3.1.2 The stonework where exposed is in very good condition. The stone is very hard, non-porous, and the bedding mortar remains in good condition. (Ref: Image 10 & 12) There is no evidence of structural movement other than a small crack in the interior stone arch way over the main entrance door.
- 3.1.3 The current render coating has failed and come away in several areas. It is also boss in a great deal of other areas. The render is a cement based three coat dry dash finish. It has been coloured red brown on the finish coat and the finish chip is red. There is evidence of lime core mortar being flushed from the core of the masonry, where this has leached out of the lintels over the memorial plaque recesses. (Ref: Images 16 & 17) This would suggest the entry of water at a higher-level flushing through the core of the masonry. This water entry could be occurring at the roof covering interface with the parapets, or through the parapet masonry itself. The render exhibits areas of dampness which suggests it is also trapping moisture behind. (Ref: Images 2/3/4/5/6/12/23/26/27)
- 3.1.4 Where this 1970's render is removed, there remain areas of the original coatings, mock toothed quoins and original harl coatings, which give an indication of how the memorial would originally have been detailed. These remnants are made of very strong mortar and remain very well bonded to the masonry. (Ref: Images 7-9 & 15)

3.2 Roof

- 3.2.1 Access to the roof was not possible during the inspection therefore the exact detailing and covering remains unknown. Any access from within the monument has long been removed, and the door from the cap-house built up. Due to the low nature of the parapet, and on inspecting the underside of the structure from beneath, it can be assumed this is very flat, possibly lead or asphalt.
- 3.2.2 The roof surface is currently drained by two small off-lets that exit in the recessed corbel course, one on the south elevation and the other on the west elevation. These off-lets do not throw the water clear of the structure, but rather the water runs down the wall face. (Ref: Image 13&27)
- 3.2.3 The roof structure observed from inside the monument consists of steel railway line bedded into the external masonry with Caithness stone slab between. There is surface corrosion of the steel, and staining of the slab edges. There was evidence of water dripping from the structure onto the monument floor. The weather was dry at the time. (Ref: Images 28-32)
- 3.2.4 It is assumed that the roof covering is in poor condition and that the structural integrity of the roof steelwork will need to be verified. The detailing of a new roof covering will be critical to any repair strategy

3.3 Corbels & Projecting Masonry

- 3.3.1 Between the main masonry walls and the parapet wall lies a projecting stone course with indented corbel course below. These stones have probably never been dressed, being made of hard Caithness stone, they are likely to have been the back structure to a more ornate render finish. This detailing is shown in the original images of the completed memorial.
- 3.3.2 These courses have been crudely dry dashed, and there is an assumption they have been made true by under-layers of cementious coats prior to the finish. Where exposed in a couple of places, the underlying stone looks small and crude in its dressing. There are wider constructional joints and the bedding mortar appears in poorer condition. (Ref: Image 13/19/21)
- 3.3.3 It may be that water ingress at roof or parapet level has accelerated this deterioration over time. Any repair strategy should consider how this process can be alleviated if possible.

3.4 Parapet Wall

- 3.4.1 The projecting course allows the build line of the parapet wall to be 50mm outside that of the main masonry construction. It is assumed that the parapet is constructed of Caithness stone as the other elements, albeit the rendering has not failed in this area to expose the underlying stone. The parapet walls are approximately 300mm in height rising to 600mm at the corners. The height change is achieved by a 45-degree slope. The face surfaces that can be seen from the ground are dry dashed. The parapet runs into the cap-house on west and south elevation.
- 3.4.2 The early images of the parapet indicate that this was smooth rendered and struck to resemble dressed ashlar masonry. It may be that evidence of these earlier coatings lies beneath the current finish.
- 3.4.3 The parapet wall could not be inspected closely, and inspecting it from the ground there are no visible signs of failure in fabric or coatings. The evidence further down the structure - free lime wash at plaque lintels - suggests water is being allowed into the core of the wall, and this may be through porous parapets. Further detailed inspection will be required to inform a repair strategy, but better access will be required to do this. (Ref: Images 13/19/21)

3.5 Cap House

- 3.5.1 In the south west corner of the roof area, a masonry cap house is constructed. Its build line projects beyond the main wall similarly to the parapet. A projecting course exists below but at a lower level on the wall. There is also a projecting course atop at roof level, with a modest parapet over. The construction of the roof slab is unknown. In height, it stands 1500mm above parapet level, and is approximately 1200mm square in plan. Again, it is assumed this is built of Caithness stone similar to the parapet, and is now dry dashed largely apart from the parapet to the roof which is smooth rendered. (Ref: Image 13)
- 3.5.2 There has been a doorway from the cap house to the roof, but this appears to have been built up and dry dashed over. Evidence suggests a timber vertically lined door originally. There is no remaining evidence internally of how one would access that doorway. The absence of an opening also hinders air movement within the structure generally.
- 3.5.3 Early images suggest the structure was rendered in a combination of toothed quoins and harl, as per the main structure. The parapet to the roof is smooth rendered and this may be a remnant of the original coating as evidenced by these images. A weather vane is also apparent in images but from the ground now no evidence remains.
- 3.5.4 The condition of the cap house is generally good; however, inspection was very limited. Render coatings are intact. The original detailing of the projecting courses and possibly surface render may still exist under the later dry dash, however further investigation will be required to understand if they can be re-exposed. The roof structure remains unknown, and whether this is performing its role in keeping water out. There is vegetation growing from the cap house roof which could be removed easily if access was possible.

3.6 Main Door Opening

- 3.6.1 On the west elevation a ground floor door opening provides access to the interior. Constructed in arched masonry this has been closed with concrete block work and dry dashed. It is assumed this was done to prevent access at the time the original vertically lined timber double leaf door was removed. A temporary opening has been broken through this blockwork and is currently secured by a crude steel gate. (Ref: Image 11)
- 3.6.2 Original images show that the ingoes and head were rendered with to appear like dressed ashlar stone. The doorway also had an ornate pediment over.
- 3.6.3 The interior masonry is exposed and in good order, however there is a structural crack through the keystone of the internal arch. This is roughly 3mm wide and doesn't appear to be progressive. (Ref: Image 33 & 37)
- 3.6.4 There are benefits to reinstating the opening; to the presentation of the monument, to facilitating good and safe access, and to allowing air movement through the interior of the structure. This should be considered in any repair strategy.

3.7 Internal Walls

- 3.7.1 The internal wall surfaces are entirely exposed and constructed of Caithness stone. The line is very true and straight, albeit not as true as the exterior surfaces. The masonry has been repointed flush at a later stage with what is believed to be a white cementitious mortar or very strong lime hydrate mix. The wall surfaces are dry to touch and in good condition. The plaque recesses have stone lintels over and these appear in good order generally (Ref: Images 29-36)
- 3.7.2 There is a remnant first floor joist built into the masonry running from the north to south walls near the east elevation. (Ref: Image 35)
- 3.7.3 Consideration should be given to whether the pointing is trapping moisture in the wall. The condition of the timber joist ends, and the longevity and benefit of retaining this joist, should be considered.

3.8 Floor

- 3.8.1 The floor is a concrete slab with floated finish. It looks possible that it is contemporary to the original build. There is staining in certain areas where water has dripped from the roof structure above. The floor is flush to the main entrance threshold level. (Ref: Images 38 & 39)
- 3.8.2 A letter 'R' is seen painted onto the floor surface in the centre of the room. It is believed at the time of the memorials dedication; a casket of veteran names was buried under the floor. This may be related to that story.
- 3.8.3 The floor is in good condition and surprisingly dry given the water that falls onto it from the leaking roof.

3.9 Memorial Plaques

- 3.9.1 There are seven plaque recesses on the memorial. At ground and first floor of North, East and South Elevation, and at first floor level on the west elevation. They house plaques of Caithness stone slab, two slabs per recess and these are bedded on edge, and built in to the masonry at the ingoes. The depth of the retaining masonry recess is unknown but looks slight, however there is no evidence of movement or apparent risk of fall. (Ref: Images 14/17/18/20/22/24/27)
- 3.9.2 Only four of the seven stone plaques are inscribed. West Elevation first floor plaque has a dedication inscription, while North, East & South ground floor plaques are inscribed with battles from the period the memorial was intended to remember. North, East and South first floor plaques are uninscribed.
- 3.9.3 The condition of the plaques varies with exposure. Those on the east elevation are in better condition than those on the south and west. There appears to be four areas of consideration affecting their long-term health:
 - 3.9.3.1 In places the surface of the stone is delaminating, and this is getting close to areas of inscription. The delamination is allowing water to be held behind the face layers of the stone slabs and is accelerating the process of deterioration. (Ref: Images 46/47/49)
 - 3.9.3.2 There is modest lichen growth on the faces of the stone which may produce issues in the future. (Ref: Image 48)
 - 3.9.3.3 There is free lime or salts washing from the masonry wall core out through the recess head at lintel level and washing down the face of the slabs. This has calcified or crystallised on the surface and presents risk of damage, staining and good presentation. (Ref: Image 50)
 - 3.9.3.4 Consideration should be given to protecting the stone surface in the future, to protect the stone faces and inscriptions, and whether the lettering of the inscription should be picked out at such time to aid interpretation.
- 3.9.4 Any repair strategy should seek specialist advice as to how these issues should be addressed. A stone conservator report on how to remove contaminants, repair and protect the plaques should be sought.

4.0 Recommendations

Fabric Repair Recommendations

4.1 External Walls

- 4.1.1 The existing cementitious dry dash render should be removed as it presents a fall risk and is trapping moisture into the structure of the building and deteriorating the condition of other specific fabric elements.
- 4.1.2 The location, design and exposure of the memorial will require that the render is replaced to prevent water ingress and in terms of the memorials presentation. The selection of an appropriate render specification is critical. The underlying masonry is hard and can carry a robust render, however breathability is critical too. Future maintenance is a consideration as funds for the memorials care will always be limited.
- 4.1.3 The selection of a style and detailing for any render re-instatement is more subjective. The appearance of the memorial has suffered from the loss of its original architectural features and a repair that matched the original intent would benefit the visual integrity considerably, however the initial costs, serviceability of such detail, and future costs need to be considered.
- 4.1.4 An alternative would be a roughcast harl coating which could provide the weather protection and breathability required. This would however leave the memorial rather featureless by comparison to the original design. Although some detailing could be re-instated, and costs would be more modest, it would generally resemble the current dry dash in uniformity and absence of detail.
- 4.1.5 Any re-rendering or harling would require the input of a Mortar / Render Specialist to develop a specification that would work in these specific conditions.

4.2 Roof

- 4.2.1 A new roof covering is required to prevent further water ingress. This should ensure adequate falls, weathering's and drainage. Access to the roof level will be required to undertake this design work
- 4.2.2 The steel and slab structure that supports the roof needs to be inspected by an engineer to confirm its strength and longevity.
- 4.2.3 Drainage and dispersal of rainwater at ground level needs to be considered as part of these works. Options to through the water clear of the building by drainage chutes may present issues for new wall coatings. An external hopper and drainage pipes would change the character and presentation of the memorial. It may be possible to drain the roof through the interior of the building, with pipework having accesses for rodding and cleaning. This could then exit the structure at ground level to an adjacent soakaway or the cliff edge

4.3 Corbels and Projecting Masonry

- 4.3.1 During any render removal the treatment of the corbels or projecting stonework will need to be handled very carefully to ensure the retention of as much detail as possible.
- 4.3.2 These courses have been, and if re-rendered in an ornate manner, will be subject to deterioration from penetrating water at the parapet above. Consideration needs to be given to the detailing of the roof / parapet interface to minimise this risk.
- 4.3.3 Any proposed re-rendering or reinstatement of feature would need a very specific mortar specification and design. Again, as with the external wall treatment the advice of a specialist will be required.

4.4 Parapet Wall

- 4.4.1 Again any re-rendering will require the careful removal of existing covering, and the potential retention of remnant original fabric below, if there is the possibility of keeping this. The choice of treatment is related in points 4.1.3 & 4.1.4. and requires specialist assistance to identify the correct mortar specification.
- 4.4.2 The parapet is a risk point in terms of water ingress to the main wall core. It is possible that a lead d.p.c could be installed at the base of the parapet, continuous to the roof weathering's, and preventing water moving down

through the structure. This would involve the deconstruction and reconstruction of the parapet. This may be too costly or invasive, when measured against the benefits. Once the render is removed, the condition and dampness of the underlying masonry established and the detailing of the roof considered, a decision on this front will be more straightforward.

4.5 Cap House

- 4.5.1 Current vegetation growth should be removed at the earliest opportunity
- 4.5.2 Again any re-rendering will require the careful removal of existing covering, and the potential retention of remnant original fabric below, if there is the possibility of keeping this. The choice of treatment is related in points 4.1.3 & 4.1.4. and requires specialist assistance to identify the correct mortar specification.
- 4.5.3 The opening to the cap-house should be considered for re-instatement. This would allow safer access to the roof, could provide enhanced air movement within the memorial in tandem with the main door improvements, and to see the reinstatement of a beneficial feature.
- 4.5.4 With improved access further understanding of whether a weather vane existed and how it was fixed could be ascertained.

4.6 Main Door Opening

- 4.6.1 The structural crack in the internal masonry arch should be monitored and a structural opinion taken when convenient.
- 4.6.2 It would be beneficial during any re-rendering to remove the current concrete block infill, to reinstate a door sympathetically, and provide integrated ventilation to enhance air movement within the memorial.

4.7 Internal Walls

- 4.7.1 The existing masonry pointing of the internal walls is not necessarily the choice of materials we choose to enhance breathability; however, the stonework appears robust enough to cope.
- 4.7.2 At the point the render is removed from the memorial externally an assessment will need to be made on how wet the walls have become and if this pointing is exacerbating the problem. This will inform whether removal or retention is beneficial, coupled with advice from the Mortar / Render Specialist.
- 4.7.3 Assess the condition of the timber joist ends when access is facilitated and decide on removal or retention.

4.8 Floor

- 4.8.1 No fabric repairs are required
- 4.8.2 The client may wish to undertake non-invasive investigation to establish the presence of the casket and any required care thereafter.

4.9 Memorial Plaques

- 4.9.1 The advice of a Stone Conservator should be sought to inform and cost the necessary works to prevent further loss and good presentation.
- 4.9.2 The advice of a structural engineer should be taken on the stability and fixing of the plaques to surrounding masonry

Phasing and Approach - Recommendations

4.10.1 The instruction of this condition report by RBLs Wick, is led by the guidance and possible grant support of the War Memorial Trust. They have indicated in recent advice that the works to the Memorial should be approached in a two-phase process. Phase 1 would see the removal of the existing render coatings and detailed investigation informing; Phase 2 which would encompass the delivery of a considered complete repair programme.

4.10.2 Other possible funding for the scheme appears to be conditional on a fully developed and costed repair programme. This information is not likely to be available until a more detailed understanding of the structure is developed i.e. on completion of Phase 1, and tendering the Phase 2 repair programme.

4.10.3 On this basis it is recommended that the following actions are considered at each phase:

4.10.4 Phase 1

- Scaffolding of the Memorial
- Removal of existing 1970's render coatings
- Exposure and retention of remnant earlier coatings for analysis
- Inspection of masonry to inform the development of an appropriate mortar / render specification by specialist
- Inspection of memorial plaques to inform required conservation and presentation works
- Inspections where required by Structural Engineer
- Measured survey of memorial
- Inspection and consideration of roof repairs, parapet detailing, & drainage et al. to inform a following repair specification
- Removal of vegetation at roof level
- Temporary repairs to roof to enhance weather tightness in the short-term

4.10.5 Phase 2

- Re-rendering and masonry repair - as specified
- Roof covering, weathering and drainage renewal
- Reinstatement of doors
- Structural corrections - as specified
- Memorial plaque conservation repair & presentation - as specified