Historic England

Conserving War Memorials

Inscriptions

Summary

This technical advice note describes good practice for conserving inscriptions on stone war memorials, outlining a step-by-step approach to aid decision making on whether any intervention is necessary and the range of techniques available. It includes where to get further help.

This guidance is intended for those designing, specifying and undertaking conservation and repair work to war memorials, such as architects, building surveyors, project managers, contractors, craftspeople and conservators. It will also be of interest to those responsible for decisions, such as local authority staff including conservation officers and custodians, parish or volunteer groups.

This technical advice note forms part of a series of resources, produced by Historic England, to commemorate the centenary of World War I. The series covers the overall approach to caring for war memorials and also some of the more poorly understood technical aspects. These include:

- guidance on how to record, repair, conserve, maintain and protect these unique monuments for future generations
- short technical advice notes covering inscriptions, structural problems and repairs, and maintenance
- case studies on conservation options for specific war memorial issues
- videos on technical aspects of war memorial conservation.

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HistoricEngland.org.uk/advice/technical-advice/war-memorials/

Front cover: An incised and painted inscription on a First World War stone memorial, updated to commemorate World War II.

Contents

1 Introduction

War memorials play an important role in the memory of individuals and communities. The inscriptions on them provide both a record of past conflicts and a way to honour the dead. Over time, however, the text on war memorials can become less legible. Many war memorials are externally located and are exposed to natural weathering, resulting in erosion and the loss of carved and inscribed detail. Often, the sharp edges of cut lettering are reduced and the delicate paint layers lost. Lead infills can also detach. While these problems are most prevalent with external war memorials, internal war memorials may also experience variable environmental conditions and inappropriate treatments, which lead to deterioration.

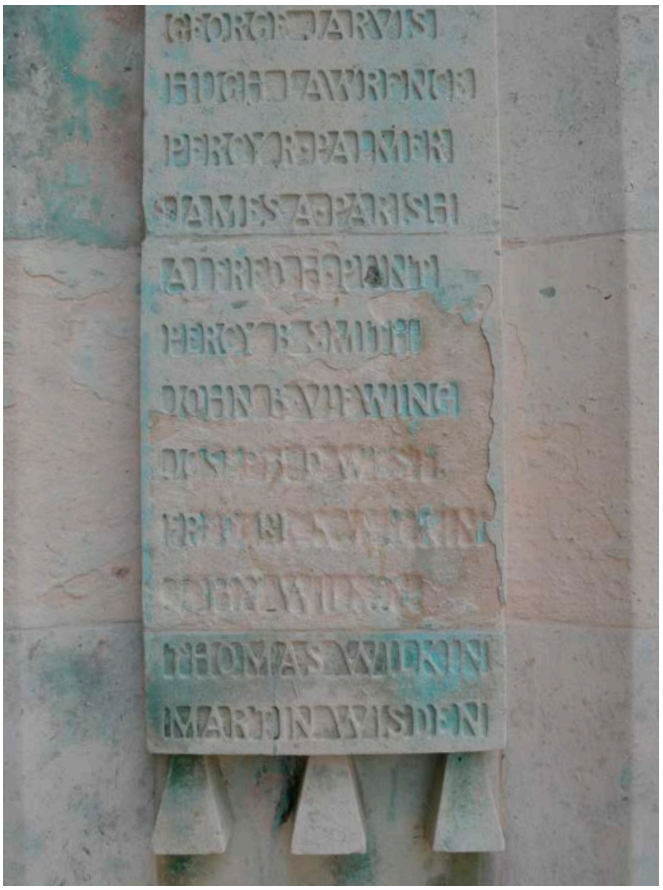

Figure 1: St John's Church, Waterloo, London. At the top of this memorial, the inscription is weathered but legible but towards the bottom, the inscription is illegible due to surface delamination.

Figure 2: Memorial to Edgar Mobbs, Northampton. Surface discolouration has severely impaired legibility of this inscription.

Whether the inscriptions consist of a humble ‘Lest we forget’ plus a list of names or are something more grand, such as ‘The Glorious Dead’ on the Cenotaph in Whitehall, the legibility of names, campaigns and mottos is fundamental to the purpose and significance of war memorials. Thus, when assessing the general condition of a memorial, legibility should be an important consideration. However, any intervention must be balanced against the need to retain the other heritage values of the memorial which contribute to its significance. For example, the materials and overall design of memorials contribute to their communal value as focal points in many urban and village settings. Memorials also have architectural and aesthetic values; some are examples of the ‘standard’ designs created by architects Reginald Blomfield and Edwin Lutyens, whilst others may include decoration or lettering by a renowned artist.

Figure 3: As well as commemoreating those lost in war, some memorials also record details of battles and campaigns or include military mottos and motifs, which contribute to their value as records of past lives and events.

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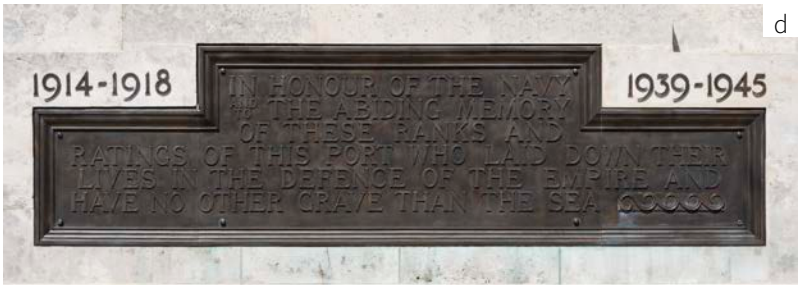

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2 Types of inscriptions

England has an abundance of stones suitable for monumental carving. Many have been used for English war memorials, including fine-grained limestones, sandstones and granite. Marble and other polishable stones have also been utilised, although mostly only for memorials inside buildings.

The properties of the stone often determine the style and execution of lettering. From the 1880s, hard stones such as granites could be inscribed with machine-cut lettering. The inscriptions were often infilled to make them more legible. On softer fine grained stones such as Portland stone, inscriptions were still hand-cut creating sharp edges and arises.

It is important to keep in mind that inscriptions were the products of craftspeople, who often used unique fonts. This adds to the complexity of any decisions regarding their conservation or repair. Some lettering may also be particularly important because it is the work of a significant artist, for example Charles Sargeant Jagger or Eric Gill, who both carried out a number of war memorial commissions.

2.1 Carved inscriptions

Incised

This was the most common method of inscribing stone war memorials in England. V-shaped incisions were hand-cut using a straight-edged chisel and a rounded letter-carving dummy or mallet. Fonts, styles and the depth of incision varied depending on the type and hardness of stone.

Figure 4: Stockwell war memorial, Lambeth Road, London. Incised lettering in Portland stone. The marks of the chisel are evident on each side of the 'V' cut of the letters.

Incised and painted

Incised lettering may have been painted as part of the original design or paint may have been applied subsequently to restore legibility. On porous stones, letters were carefully painted with a fine brush, keeping the paint within the edges of the 'V' cut. This was a time-consuming and exacting task. On hard stones such as granite, flood painting was often used. This technique involved painting the 'V' cut, but overlapping the edges at the face. Excess paint was then removed by sanding the face with abrasive paper.

Paint types varied, but they were traditionally oil-based. They may have required some sort of primer or ground, particularly if the stone was very porous. Often the ground was simply a few coats of oil-based sealant or varnish, which kept the edges of the lettering sharp by preventing the paint from being absorbed into the stone.

Incised and gilded

Gold leaf was often applied to incised letters to accentuate the inscription. Its reflective qualities made it ideal for inscriptions in low-lit environments, such as in a candlelit chapel. Yellow or red oil-based paint was often used as a ground to seal the stone and to change the tone of the applied gold. The final preparatory step was to carefully apply oil size before adhering gold leaf to the lettering.

Raised

This technique involves chiselling the outline of each letter before removing the background stone to leave the letter proud of the surrounding surface.

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Figure 5: St Anne's Church, Bagshot, Surrey. Incised and painted lettering.

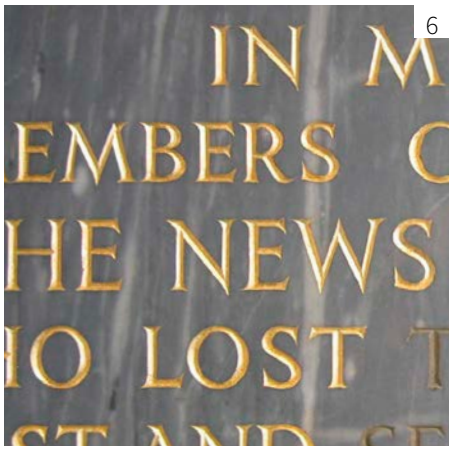

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Figure 6: News of the World war memorial. Incised and gilded lettering.

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Figure 7: Streatham war memorial, Remembrance Gardens, Streatham, London. Raised lettering carved in Portland stone.

Figure 8: St Mark's Church, Kennington, London. Lead lettering applied to granite. The drill holes used to anchor the letters can be seen where a 'T' has been lost, and the paint layer is damaged showing the lead underneath.

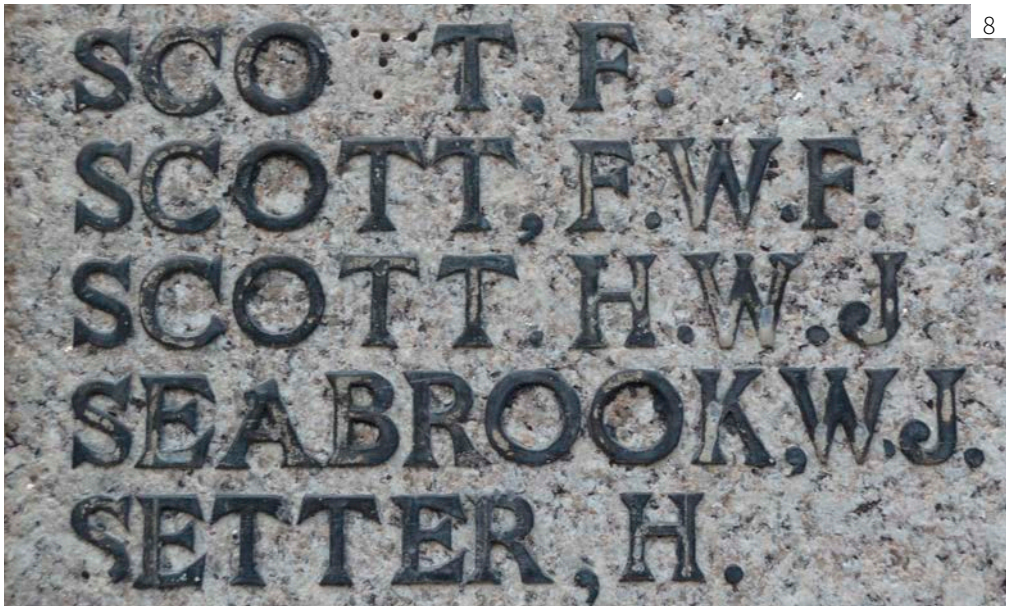

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Figure 9: Royal Botanic Gardens, Kew, Richmond. Integrally cast raised lettering on a bronze backing plate.


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Figure 10: St James' Church, Taunton, Somerset. Brass war memorial plaques are frequently found within churches. In a stable environment, they retain their original lustre (which may or may not have a surface lacquer) and lettering, picked out with an applied coloured shellac or enamel.

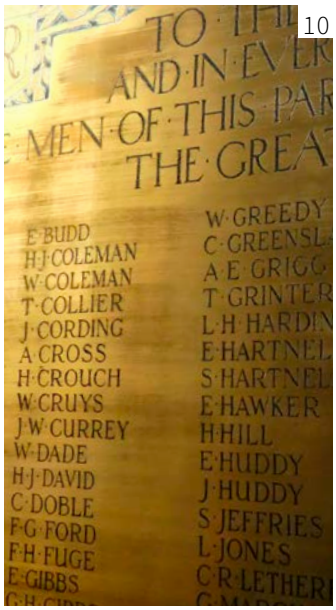

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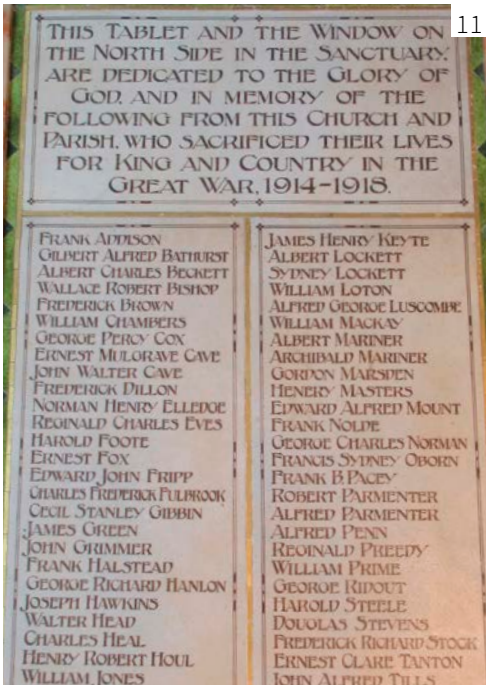
Figure 11: Originally from St Simon's Church, Paddington, now at St Luke's C of E Primary School, London. The inscription has been painted onto ceramic tiles, which were then glazed and fired.


THIS TABLET AND THE WINDOW ON THE NORTH SIDE IN THE SANCTUARY, ARE DEDICATED TO THE GLORY OF GOD AND IN MEMORY OF THE FOLLOWING FROM THIS CHURCH AND PARISH, WHO SACRIFICED THEIR LIVES FOR KING AND COUNTRY IN THE GREAT WAR, 1914-1918.

FRANK ADDISON
GILBERT ALFRED BATHURST
ALBERT CHARLES BECKETT
WALLACE ROBERT BISHOP
FREDERICK BROWN
WILLIAM CHAMBERS
GEORGE PERCY COX
ERNEST MULGRAVE CAVE
JOHN WALTER CAVE
FREDERICK DILLON
NORMAN HENRY ELLEDGE
REGINALD CHARLES EVES
HAROLD FOOTE
ERNEST FOX
EDWARD JOHN FRIPP
CHARLES FREDERICK FULBROOK
CECIL STANLEY GIBBIN
JAMES GREEN
JOHN GRIMMER
FRANK HALSTEAD
GEORGE RICHARD HANLON
JOSEPH HAWKINS
WALTER HEAD
CHARLES HEAL
HENRY ROBERT HOUL
WILLIAM JONES
JAMES HENRY KEYTE
ALBERT LOCKETT
SYDNEY LOCKETT
WILLIAM LOTON
ALFRED GEORGE LUSCOMBE
WILLIAM MACKAY
ALBERT MARINER
ARCHIBALD MARINER
GORDON MARSDEN
HENERY MASTERS
EDWARD ALFRED MOUNT
FRANK NOLDE
GEORGE CHARLES NORMAN
FRANCIS SYDNEY OBORN
FRANK B PACEY
ROBERT PARMENTER
ALFRED PARMENTER
ALFRED PENN
REGINALD PREEDY
WILLIAM PRIME
GEORGE RIDOUT
HAROLD STEELE
DOUGLAS STEVENS
FREDERICK RICHARD STOCK
ERNEST CLARE TANTON
JOHN ALFRED TILLS
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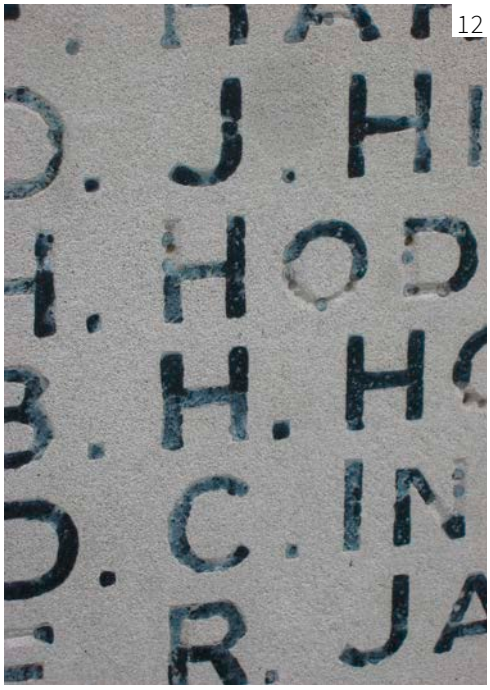
Figure 12: Bridge Street, Sheerness, Kent. Incised lettering with mortar infill. Holes have been drilled in the incisions to give the mortar a better key.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2.2 Applied inscriptions

Lead

Lead was often used for lettering on war memorials. One method was to cut the inscription into the stone and drill small holes into the 'V' cut, tamping the lead into the incisions with a hammer. In order to make the letters flush with the surface, carborundum blocks and fine abrasive papers were used to remove excess material. Another method was to cut raised lead letters from a lead sheet laid on top of the stone. In both cases, the lead was kept in place during the procedure by tapping it into pre-drilled holes.

Although lead eventually oxidises and darkens, it usually remains stable. Lead lettering was sometimes painted (often in black) or coated with patination oil to improve and retain legibility.

Bronze

Bronze lettering was usually raised and cast integrally with a backing plate, although sometimes individual cast bronze letters were applied to the surface of the stone in the same way as lead lettering. Bronze was often chemically patinated (usually to a deep brown colour) during manufacture. Green copper carbonate and sulphate deposits often form on the surface of bronze over time, caused by exposure to the atmosphere. This characteristic green surface finish is known as verdigris.

Brass

Brass plaques are usually found inside buildings. Their engraved or embossed lettering may have been highlighted in a different colour as part of the production process or filled with other materials such as pigmented shellac (an organic resin secreted by the female lac bug, dissolved in alcohol to make liquid shellac).

Painted

Lettering was sometimes hand-painted directly onto a flat stone face using oil-based paints. There are also examples of lettering being applied as a glaze on a ceramic panel as part of the manufacturing process.

Mortar

Occasionally, incised letters were cut in the same way as for lead and filled with coloured material such as mortar.

3 Loss of legibility

All materials deteriorate over time. When the surface of war memorials erodes, inscriptions can become less legible. Various factors may contribute to the deterioration of fabric. They are outlined below. Further information can be found in Historic England's Condition and Legibility video, available online.

3.1 Surface soiling

Soiling can build up on a stone surface over the years and may obscure significant details, such as inscription panels. It can look very unsightly. Heavy soiling can even obscure inscriptions and may cause damage. However, a degree of light surface soiling can sometimes add character and patina to an exterior stone monument.

The origin of the dirt may be airborne pollutants, such as particulates or gases, microbiological growths, deterioration products from other materials or deliberate damage, such as graffiti.

Airborne pollutants

Before the Clean Air Act of 1956, high levels of sulphur dioxide in the atmosphere led to acid rain, which dissolved the surface of limestone and marble. The dissolved stone combined with particulates, creating black calcium sulphate streaks or crusts in more sheltered areas, weakening the underlying stone and making inscriptions more difficult to read.

Further legislation was passed in 1993, which lowered air pollution considerably. However, airborne pollutants and dirt still remain a problem. Sooty particulates may adhere to the surface, obscuring detail and potentially leading to permanent staining.

Microbiological growth

The presence of algae, moss and lichen on external stonework is common and not necessarily harmful. However, heavier biological growths can obscure the design and may encourage further soiling by providing a suitable surface onto which pollutants can adhere.

The growth of algae on a stone surface indicates the presence of water. Algal growths are usually green and slimy when fresh, and become black when the surface dries out. Moss will only grow where there are persistent damp and sheltered conditions, so it may form on the shaded sides of war memorials. Lichen is slow growing and usually harmless. However, endolithic lichens grow inside the stone, causing blistering or pitting on the surface.

Corrosion products

On some memorials, ferrous or copper alloy fixings may have been used to attach elements or metal lettering to inscription panels. As these metals corrode, some of the corrosion products leach into the stone itself, causing orange/brown iron staining or turquoise copper staining to appear on the surface. Although unsighty, this staining does not usually affect the legibility of inscriptions.

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Figure 13: Memorial near Catterick, North Yorkshire. Legibility is impaired by the heavy algal growth.

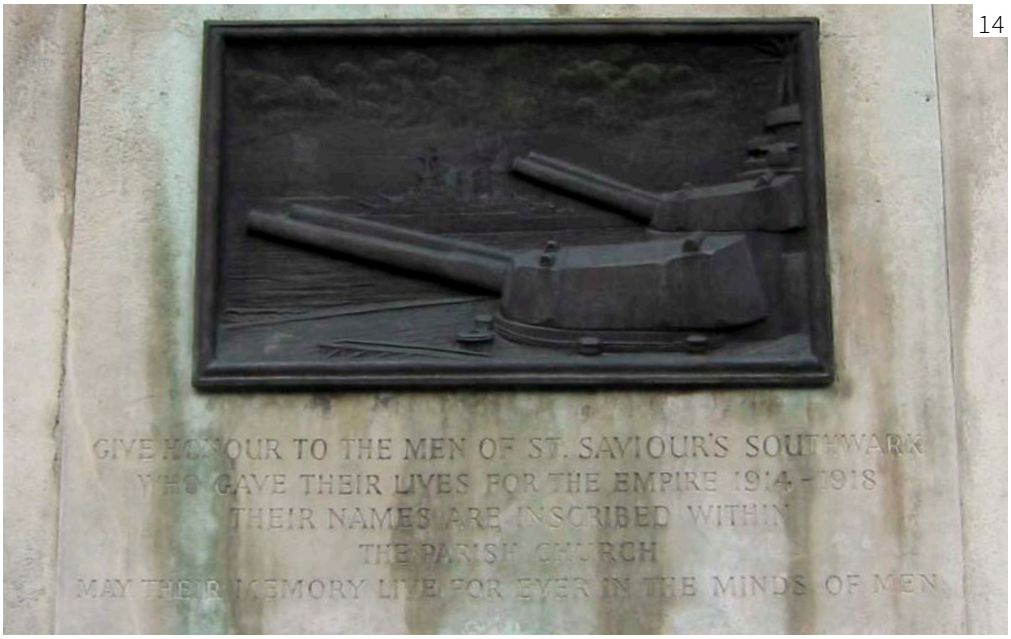

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Figure 14: Southwark war memorial, Borough High Street, London. Copper staining on a Portland stone inscription underneath a bronze statue and plaque.

3.2 Stone decay

Natural weathering processes such as wind, rain and especially frost can lead to the decay of exterior stonework. In addition, atmospheric pollutants such as sulphur dioxide, nitrogen oxides and ozone can cause a change in the stone's surface composition, leading to decay and loss. Soluble salts, can have a detrimental effect when they are absorbed, because if they crystallise they may disrupt the stone's structure.

3.3 Poor design

Flaws in the original design of the war memorial may only become apparent many years later. For example, elaborate architectural constructions may not shed rainwater effectively, instead channelling it down areas such as inscription panels, eventually resulting in differential weathering. Softer stones may be vulnerable to decay and vandalism, and if sedimentary stones with pronounced bedding planes are not correctly orientated, their edges can be exposed, leading to surface delamination and the consequent loss of inscriptions. Corrosion of ferrous fixings or dowels may result in panels working loose or even splitting as the rust expands.

Figure 15: Memorial at Stanway, Gloucestershire. The lower part of this memorial is more exposed to moisture and soluble salts than the sheltered upper parts, causing deterioration of the inscription at low level.

Figure 16: Royal Marines Reserve HQ, Old Jamaica Road, Bermondsey, London. Inscription stained due to water run-off from the flat surface above.

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Figure 17: Inappropriate cleaning of this brass memorial has disfigured the surface making it harder to read the inscription.

Figure 18: Lewisham Hospital war memorial, Lewisham, London. Raised lead lettering applied to granite. Lead is a relatively soft material and some letters have been damaged through impact. The surface is mottled as a result of oxidation.

3.4 Previous interventions

Unfortunately, past attempts to clean or repair war memorials have sometimes been detrimental. Air-abrasive methods can cause damage to stone surfaces and inscriptions if not carried out by experienced practitioners. Repairs and fills using very hard cementitious mortars can accelerate the decay of adjacent stonework. Well-intentioned but inappropriate cleaning of brass inscription panels can also result in the loss of surface detailing or permanent disfigurement.

3.5 Detachment of applied lettering

Decay, weathering of adjacent stone and overzealous cleaning methods, such as pressure washing, can all cause the weakening of physical fixings and the loosening and even detachment of applied lettering. Inappropriate cleaning methods may also harm infilled coloured-mortar lettering.

3.6 Theft

The applied metal components of war memorials, particularly lead, copper and bronze, may be vulnerable to theft. Efforts to remove them often damage the surrounding fabric.

In Memoriam 2014 is an initiative between War Memorials Trust and ©SmartWater that encourages custodians to protect their war memorials.

4 Assessing condition and conservation need

The legibility of the inscriptions must be balanced against the need to conserve the naturally aged condition of the monument. Before performing any cleaning or repairs, a condition survey should be commissioned. The survey will determine what, if any, interventions are truly necessary, and will prevent inappropriate treatments, such as over-cleaning, or the unnecessary replacement of original stonework.

The number of people involved in the survey will depend on the scale and complexity of the memorial. A small and simply designed war memorial may only need a conservator to assess its condition and to propose conservation options. A large and complicated memorial may need a more detailed survey, which might involve an architect, surveyor, structural engineer and specialist conservator. Whatever the size of the project, a general survey should include a structural assessment, which looks at structural stability, and a surface assessment, which details losses and deterioration, and also determines whether the decay is active or stable. These issues are important when assessing the state of inscriptions, too, but more specific questions should also be asked, including the following:

- How much of the lettering is unclear? Is there significant weathering over the whole panel or only a few letters in specific areas?
- Is the meaning of the inscription still comprehensible even though some of the letters are damaged?
- Is the inscription illegible due to surface soiling or microbiological growth, rather than weathering of the stone?
- Is there any art historical significance attached to the specific carver or artist who cut the inscription?
- If the inscription, or parts of it, is now completely illegible, are there any accurate records of the original text?
- Is the stone stable enough to allow the lettering to be re-cut?
- Is there any surviving paint?

Answering these questions will help determine if practical conservation is necessary and what form it should take.

5 Practical conservation

Any proposed conservation repairs should be based on Principles of practical conservation, which ensures that any work is sympathetic to the significance of the memorial. It is important to employ specialist contractors to carry out the tasks.

Conservation work needs to be programmed to take account of the time needed to gain permissions, secure funding and undertake research. Work should be programmed well in advance of any commemorative events, such as Armistice Day, and treatments such as lime mortar repairs should not be carried out when the weather is extremely cold, because this is likely to affect curing.

Before undertaking any work on a memorial, it is important to determine the causes of deterioration and take steps to reduce or eliminate these if at all possible. Once this has been done, the following interventions should be considered step-by-step to achieve the desired improvement in the legibility of the inscription.

Getting consent for work to a war memorial

Many war memorials are included in the National Heritage List for England. This celebrates buildings and monuments of special architectural or historic interest and encourages sympathetic and sustainable management. If a war memorial is included in the List, any proposed work, including sharpening, re-cutting or replacement, may require Listed Building Consent or Scheduled Monument Consent. This helps ensure that any proposed changes maintain the significance of the memorial and that appropriate methods and materials are used in any repairs. Before carrying out work on a war memorial, it is worth consulting the conservation or planning team at your local planning authority to find out whether permission is needed.

Principles of practical conservation

Conservation of a memorial should never be thought of solely in terms of practical treatment. It is intrinsically linked to the values that we associate with the memorial, and understanding these values will influence the degree of intervention considered appropriate. Since the mid-19th century, a number of manifestos and charters have sought to identify the principles that should govern the conservation of historic buildings and monuments. These are described in detail in Practical Building Conservation: Conservation Basics (2012).

Phrases such as 'reversibility' and 'minimum intervention' are often used to summarise conservation principles. However, these do not fully answer the complex questions that need to be asked when evaluating the need for work to a war memorial. When considering options for practical repair, there are a number of overriding criteria that should be taken into account:

- Before undertaking any remedial work, try to determine the causes of deterioration and take steps to reduce or eliminate these if possible.
- Only materials that have been demonstrated to be appropriate to the original fabric should be considered. These will normally be the same as or similar to the host material. Where this is no longer possible (for example, the original stone is not available), the technical and aesthetic properties of any replacement must be compatible with the original.
- Any method should aim to involve the least impact to achieve the desired result. This might mean using a gentle water-based cleaning system rather than an abrasive method.
- Interventions should aim to maximise the life expectancy of the memorial while retaining as much of the original fabric as possible. This might mean retaining features if they can be repaired or are still performing their function.
- Interventions should aim for reversibility (that is, they can be removed without affecting the original fabric), although in many cases this may be neither feasible nor practicable.
- Interventions should not preclude repeated or other interventions in the future. This concept of 'retreatability' encourages the use of like-for-like repairs, sacrificial repairs and coatings.
- All works should be adequately recorded and the records made available to others.


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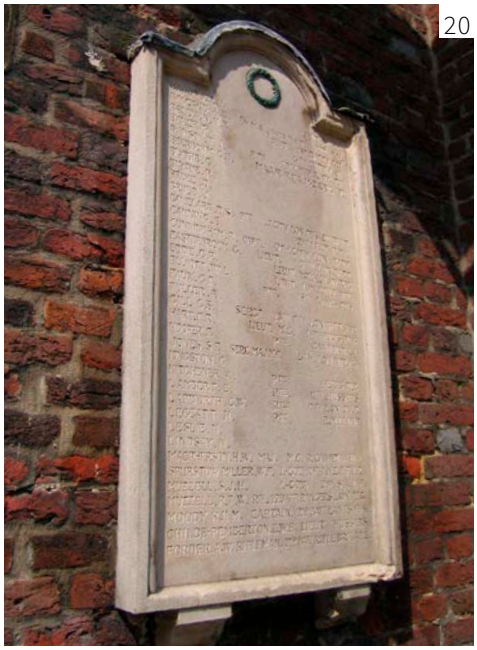
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Figures 19, 20: Church of the Annunciation war memorial, Bryanston Street, London. Inscription obscured by calcium carbonate sulphation layer, caused by the area being sheltered by the moulding above and remaining unwashed (19). Inscription legible after cleaning (20).

5.1 Carved stone inscriptions

Cleaning

Sensitive cleaning can often restore legibility without any further intervention. Further information about cleaning can be found in Historic England's Conserving War Memorials: Cleaning and series of videos.

Repair

Small lime mortar repairs can secure vulnerable stone surfaces, which will prevent the loss of lettering details. Repointing around the inscription panel with lime mortar will inhibit water ingress into the panel, thus preventing further deterioration.

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Figures 21, 22: St Mary's Church, Merton, London. Inscription before (21) and after (22) lime mortar repairs have been applied to the eroded areas to improve legibility and to protect vulnerable arises from further weathering.

Figure 23: Biggin Hill Memorial Museum, Biggin Hill, London.
A thin sheltercoat applied to a war memorial made of Maastricht limestone provides a sacrificial, breathable and protective coating to the stone.

Surface protection

Overall surface protective measures, such as limewashing and sheltercoating, should also be considered. These are breathable and will provide a protective surface that will safeguard the original stonework. (It is important to remember, however, that these applications are sacrificial and will need to be maintained every few years.) Localised application of tinted limewashes can also be useful for picking out lettering, thus making it more legible.

It is best to avoid masonry paints, sealants and waterproofers, as they can change the appearance of the stone surface and restrict moisture movement, thereby causing further problems.

Figure 24: Cheltenham war memorial in Gloucestershire has more than 1,200 men commemorated on it.
Each inscription name was originally carved and infilled with mortar.
A discreet stainless steel flashing was installed, which seems to have minimised the run-off.

Inpainting, re-gilding and refilling

If the letters have lost some of their original paint, gilt or infill, they can be sympathetically retouched to unify the inscription. Coloured infills (mortars, waxes, shellacs, and so on) will require analysis to confirm the original base material and pigments so they can be matched. Artists' acrylics, enamel or oil-based paints can all be used to fill in gaps in painted inscriptions. The environmental conditions will determine which paint is the best option. For instance, acrylic paint, which is easy to remove, is a good choice for memorials sited indoors, but it is not robust enough to tolerate exterior or very damp conditions, where enamel would be more suitable.

A case study illustrating the conservation of mortar-filled inscriptions in Cheltenham is available to download from Historic England.

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Figure 25: St Peter's Church, Cheltenham, Gloucestershire. Tinted limewash applied to incised lettering improves legibility.


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Figures 26, 27: Alford war memorial, Lincolnshire. The inscription before and after inpainting.

Sharpening and re-cutting

If the surface is eroded and letters are mostly illegible, sharpening – for example, locally re-carving edges of letters or deepening the 'V' cut, or re-cutting the letters – can be carried out if the stone is sound enough and there is an existing record of the wording or names. As long as the overall appearance is not compromised, the following treatments might be considered to make the panel suitable for the lettering to be re-cut:

- mortar repairs to fill voids or to protect vulnerable edges where stone has been lost
- resurfacing, involving careful removal of loose areas of stone before consolidation or lime mortar fills; the use of abrasive wheels should be avoided as it often results in spinning marks that cannot be removed
- consolidation of friable areas using materials that are compatible with the stone to strengthen the original inscription panel.

The original style of lettering must be retained. In order to ensure this happens, an experienced letter carver with demonstrable expertise should be appointed. The carver should be able to provide design drawings and examples of previous work for approval. This will help ensure that the work is carried out to the appropriate standard. Further information can be found in Historic England's Re-cutting video, available online.

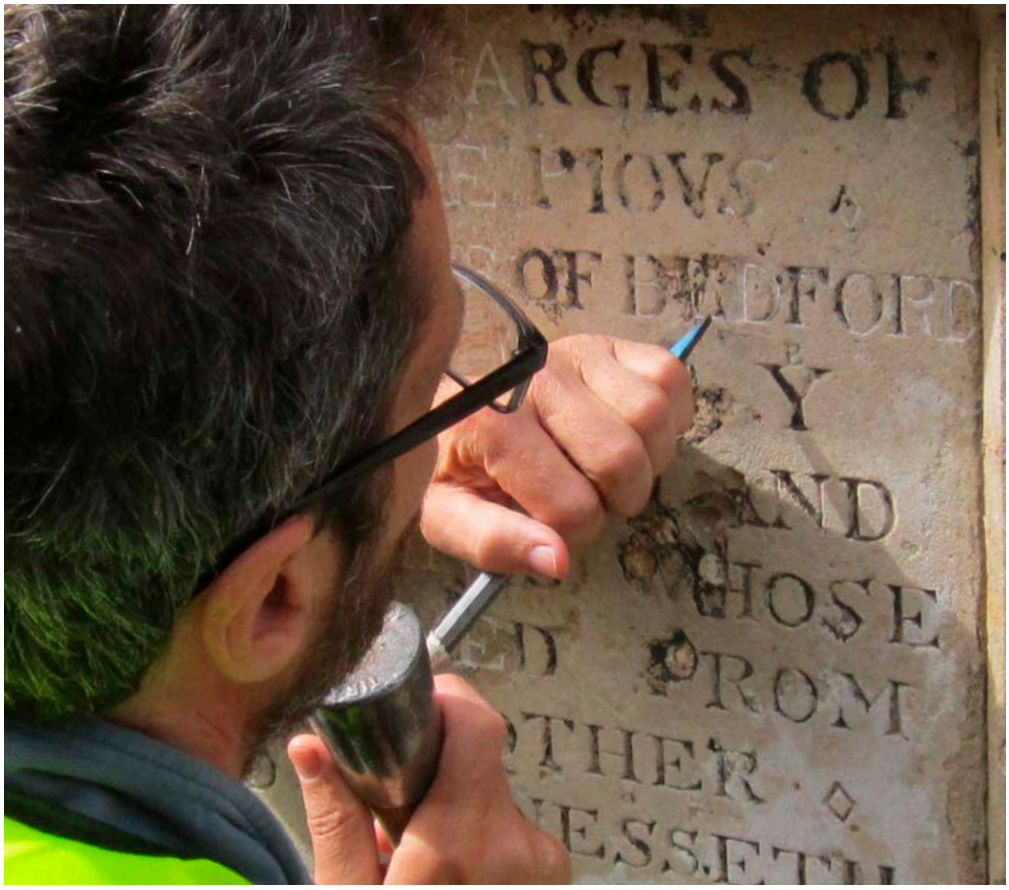
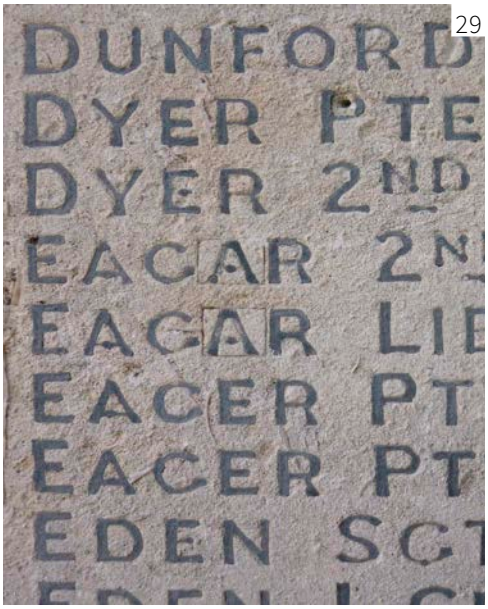


Figure 28: An experienced letter cutter can sharpen the inscription on a deteriorated stone panel to improve its legibility.

Replacement

If the stone is severely decayed and structurally unsound, it might be necessary to cut out the affected stonework and replace it. This replacement piece should be of the same stone or one compatible with the original. Replacement with other materials or placing new panels over the top of weathered panels can cause reactions and affects the original design. Advice on identifying and sourcing replacement stone for repair can be found in Historic England's publication Sourcing Stone for Historic Building Repair. The style and font of the original inscriptions should be determined from records or adjacent surviving panels and the new inscriptions should duplicate them.

It is important to keep in mind that cutting out an inscribed structural element in order to replace it may damage other areas. It may be better to accept the weathering and record the names elsewhere in the vicinity of the memorial.



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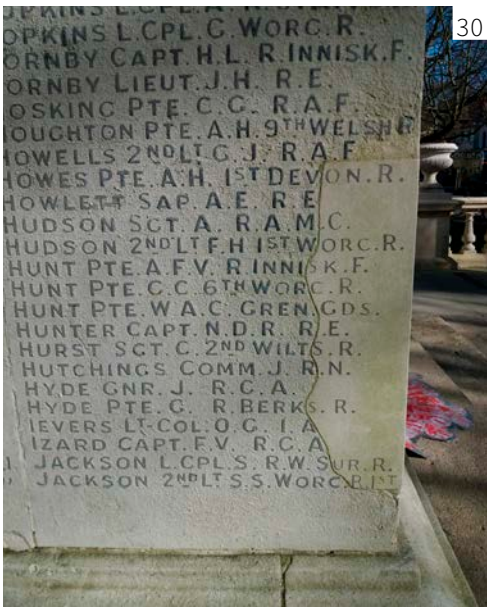

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Figures 29, 30: Cheltenham war memorial. Portland limestone indents of approximately 10mm square have been precisely inserted into the original stonework. The letters have then been cut into these and filled with a coloured mortar. A larger Portland limestone indent has been cut to closely follow the area of loss. This has less visual impact than if the indent was cut as a rectangular insert.

Figure 31: This war memorial at King's Cross station commemorates employees of the Great Northern Railway and the London and North Eeastern Railway who lost their lives in the two world wars. The marble panels bearing the names of the fallen formed part of a memorial originally erected in 1920 that was dismantled in 2008 during redevelopment of King's Cross station. The panels were incorporated into this new memorial, which was unveiled in 2013.

5.2 Applied metal lettering

Lead

Damaged lead letters can be repaired by beating lead wool into any splits or damaged areas. Missing infilled letters can be refilled by tamping new lead into the incisions, with the original drilled holes providing the key. This requires a sharply defined incision at the edge of the letter. The finishing must be carefully carried out to avoid disturbing the original surface.

Raised surface letters are reproduced by cutting lead strips to size and beating them into the existing holes. The strip is then trimmed with a sharp chisel and rubbed smooth. Next, the letter is cut out using a variety of shaped chisels before finishing the surface with patination oil or black paint to match the surviving original letters.

Figures 32, 33: St Mary Magdalene, Ickleton, Cambridgeshire. Inscription with missing lead lettering (32). The fixing holes are evident as is the original colour of the stone beneath. The inscription after the lead lettering has been replaced (33). Great care needs to be taken to ensure that the font of the replacement lettering is the same as the original.

Bronze

Cast bronze lettering needs to be produced by a specialist. If moulds are taken from existing letters, a slight reduction in size must be accepted, as the metal shrinks slightly upon cooling. The alternative is to create moulds based on the original design, but slightly over-sized to allow for shrinkage, and use them to make replacement casts. This work is always done by hand.

Where the lettering has been lost as a result of theft, replacement in an alternative material such as resin could be considered. This material has no inherent economic value and is cheaper to replicate than metal. However, it must be carefully manufactured to match the appearance of the original.

Figure 34: Norwich Cathedral cloisters, Norwich, Norfolk.
The badges in the lower two corners have been cast in resin from moulds taken from the bronze ones at the top.

Brass

Brass inscriptions can be conserved and repaired by specialist conservators, who will ensure that the surface is not damaged or that detail is not compromised through over-cleaning. Specialist brass makers can produce replicas from archive photographs if the original panel has been lost.

5.3 Adding new names

Occasionally, there is a need to add further names or to correct inscriptions to existing panels on war memorials. Archival research is essential to make sure that the details of the additional names are correct. If the war memorial is listed or scheduled, permission should be obtained from relevant bodies before carrying out any work.

The location, style and method of lettering must be determined. It is not always possible to add new names to the panel, as often the original names have been listed in alphabetical order and spaced to fill the area completely. In some instances, this can require names to be added to an adjacent panel or recorded nearby. Further information on adding names can be found on the War Memorials Trust website.

Figure 35: The war memorial at Ditton, Kent, records additional names on seperate panels.

6 Further reading

6.1 Historic England

Videos

Further information on the conservation of inscriptions on war memorials is available in Historic England's series of war memorial videos, available on YouTube. Topics include:

Condition and legibility

Inpainting

Gilding

Re-cutting

Replacement

Web pages and publications

Caring for Historic Graveyard and Cemetery Monuments (web page) https://historicengland.org.uk/advice/caring-for-heritage/cemeteries-and-burial-grounds/monuments/

Historic England 2017 *Commemorative Structures: Listing Selection Guide* https://historicengland.org.uk/images-books/publications/dlsg-commemorative-structures

Historic England 2016 *Conservation and Management of War Memorial Landscapes* https://historicengland.org.uk/images-books/publications/conservation-management-war-memorial-landscapes-updated/

Historic England 2019 *Conservation Area Appraisal, Designation and Management: Historic England Advice Note 1* Swindon. Historic England. https://historicengland.org.uk/images-books/publications/conservation-area-appraisal-designation-management-advice-note-1/

Historic England 2008 *Conservation Principles, Policies and Guidance* https://historicengland.org.uk/images-books/publications/conservation-principles-sustainable-management-historic-environment

Historic England 2021 *Graffiti on Historic Buildings: Removal and Prevention* Swindon. Historic England.
https://historicengland.org.uk/images-books/publications/graffiti-on-historic-buildings/

Historic England 2015 *Listing War Memorials in England: A Guide for Volunteers*
https://historicengland.org.uk/images-books/publications/listing-war-memorials-in-england/

Historic England 2016 *Sourcing Stone for Historic Building Repair*
https://historicengland.org.uk/images-books/publications/sourcing-stone-for-historic-building-repair/

Historic England 2015 *The Conservation, Repair and Management of War Memorials*
https://historicengland.org.uk/images-books/publications/conservation-repair-management-war-memorials/

Historic England 2015 *The Listing and Grading of War Memorials*
https://historicengland.org.uk/images-books/publications/listing-and-grading-of-war-memorials/

Historic England 2017 *The Setting of Heritage Assets: Historic Environment Good Practice Advice in Planning Note 3*
https://historicengland.org.uk/images-books/publications/gpa3-setting-of-heritage-assets/

Historic England 2015 *Types of War Memorial*
https://historicengland.org.uk/images-books/publications/types-of-war-memorial/

Historic England 2015 *War Memorial Parks and Gardens: Introductions to Heritage Assets*
https://historicengland.org.uk/images-books/publications/iha-war-memorial-parks-gardens/

Practical Building Conservation series

Aimed at those who work on or look after historic buildings, this series of books looks at the conservation of buildings, materials and systems.

Building Environment (2014)

Concrete (2013)

Conservation Basics (2013)

Earth, Brick and Terracotta (2015)

Glass and Glazing (2012)

Metals (2012)

Mortars, Renders and Plasters (2012)

Roofing (2013)

Stone (2012)

Timber (2012)

6.2 War Memorials Trust

The War Memorials Trust provide helpsheets on various topics:

Condition survey

Ownership of war memorials

Preparing a method statement

Researching the history of a war memorial

Types of contractors and their roles

A complete A–Z of War Memorials Trust helpsheets can be found on their website: www.warmemorials.org/helpsheets

6.3 Other publications

Ashurst, N 1994 *Cleaning Historic Buildings*, 2 vols. Shaftesbury: Donhead

Ashurst, J and Dimes, F (eds) 1990 *Conservation of Building and Decorative Stone.* London: Butterworth-Heinemann

British Standards Institution 2012 *BS 8221-1:2012 Code of Practice for Cleaning and Surface Repair of Buildings. Cleaning of Natural Stone, Brick, Terracotta and Concrete.* London: British Standards Institution

7 Where to get Advice

7.1 General advice

War Memorials Trust
2nd Floor
14 Buckingham Palace Road
London SW1W 0QP
020 7233 7356 or 0300 123 0764
conservation@warmemorials.org
www.warmemorials.org

Historic England
The Engine House
Fire Fly Avenue
Swindon SN2 2EH
01793 445050
HistoricEngland.org.uk

Details of all listed and scheduled war memorials can be found at
HistoricEngland.org.uk/listing/the-list/

7.2 Historical research

Commonwealth War Graves Commission
2 Marlow Road
Maidenhead
Berkshire SL6 7DX
01628 634221
www.cwgc.org

War Memorials Online
War Memorials Trust
14 Buckingham Palace Road
London SW1W 0QP
020 7233 7356 or 0300 123 0764
www.warmemorialsonline.org.uk

War Memorials Register
c/o Imperial War Museum
Lambeth Road
London SE1 6HZ
020 7207 9851/9863
www.iwm.org.uk/warmemorials

7.3 Conservation professionals

Building Conservation Directory
c/o Cathedral Communications Ltd
High Street
Tisbury
Wiltshire SP3 6HA
01747 871717
info@buildingconservation.com
www.buildingconservation.com

Conservation Register
(for conservators of materials)
c/o The Institute of Conservation
Radisson Court, Unit 2
219 Long Lane
London SE1 4PR
020 3142 6799
conservationregister@icon.org.uk
www.conservationregister.com

Conservation Register
(for conservation architects)
c/o Royal Institute of British Architects
66 Portland Place
London W1B 1AD
020 7580 5533
conservation.register@riba.org
www.architecture.com/working-with-an-architect/conservation-register

Directory of Accredited Conservationists
c/o Chartered Institute of Architectural Technologists
397 City Road
London EC1V 1NH
020 7278 2206
info@ciat.org.uk
https://architecturaltechnology.com/joining/specialistregisters/conservation-register-new.html

National Association Of Memorial Masons
1 Castle Mews
Rugby
Warwickshire CV21 2XL
01788 542264
www.namm.org.uk

Register of Accredited Building Conservation Surveyors
c/o Royal Institution of Chartered Surveyors
Parliament Square
London SW1P 3AD
0870 333 1600
contactrics@rics.org
www.rics.org/uk/join/member-accreditations-list/building-conservation-accreditation

Register of Architects Accredited in Building Conservation
AABC Register
No. 5 The Parsonage
Manchester M3 2HS
0161 832 0666
info@aabc-register.co.uk
www.aabc-register.co.uk

8 Acknowledgements

Images

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