

# Emergency measures for historic memorials

A short guide for  
cemetery managers



## This leaflet provides guidance for those directly involved with organising work in historic burial grounds on how to minimise the damage caused by emergency measures to ensure monument stability

The following *Graveyards and Gravestones Electronic Leaflets* have been prepared by Heritage Policy Group and Technical Conservation, Research and Education Group of Historic Scotland. They are all free and can be downloaded from Historic Scotland's website: [www.historic-scotland.gov.uk](http://www.historic-scotland.gov.uk)

1. *Working in a scheduled or listed graveyard or burial ground*
2. *Good practice in maintaining a historic graveyard*
3. *Looking after gravestones*
4. *Health and safety for historic graveyards: guidance for visitors and owners*
5. *Health and safety for historic graveyards: guidance for works teams and volunteer workers, including volunteer surveyors*
6. *A short guide for cemetery managers: emergency measures for historic memorials*
7. *Historic Scotland grants in relation to graveyards or burial grounds*
8. *Abandoned structures within graveyards*

To obtain copies of all Historic Scotland publications referred to in this leaflet, including free leaflets, e-mail [hs.conservation.bureau@scotland.gsi.gov.uk](mailto:hs.conservation.bureau@scotland.gsi.gov.uk) or telephone 0131 668 8638. Useful publications include *Conservation of Historic Graveyards: Guide for Practitioners 2* (£19.50) and *The Conservation of Architectural Ancient Monuments in Scotland: Guidance on Principles* (£5.50).



April 2003

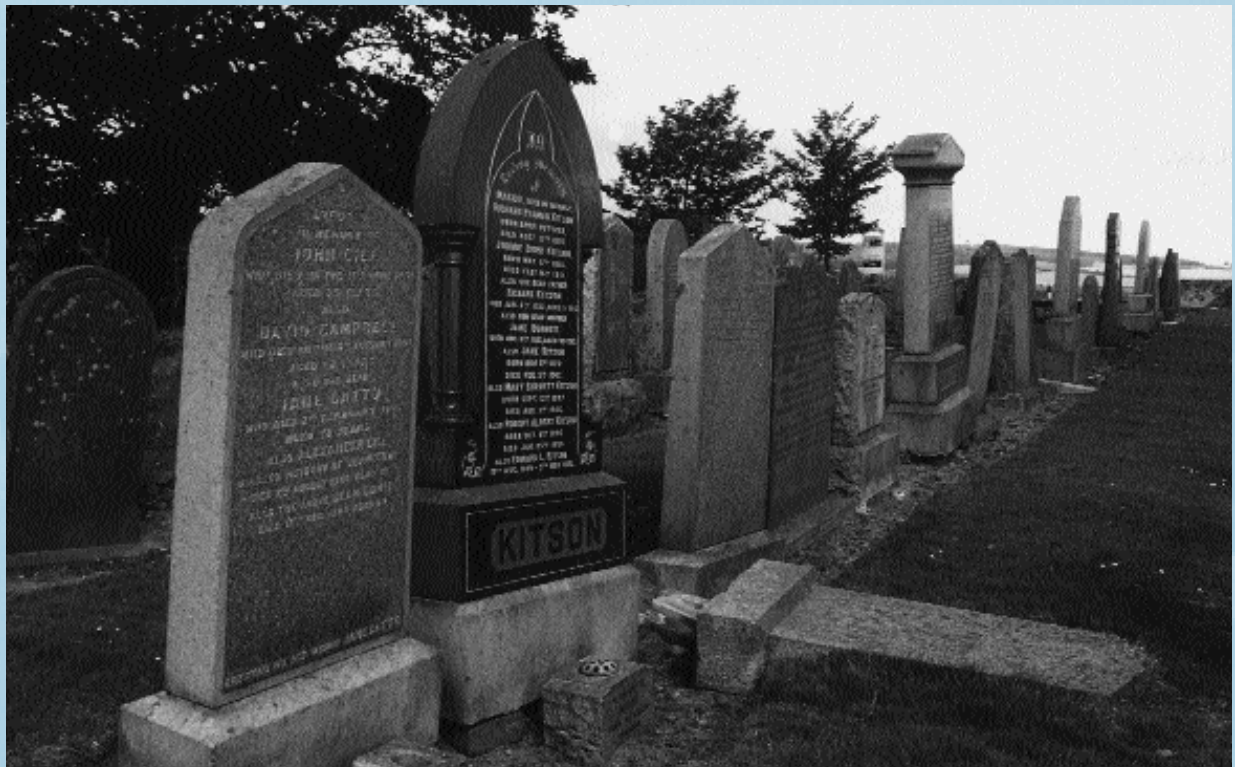
## 1. Introduction

Many local authority and other cemetery managers are currently undertaking memorial stability programmes. Ideally, a strategy should be prepared for each burial ground to include:

- survey
- risk assessment
- identification of unstable stones and addressing of immediate risk
- development of a long-term solution to monument stability

Funding for this type of strategy is not always available yet managers are under pressure to make burial grounds safe now.

It is a matter of urgency that cemetery managers are provided with information on simple, affordable methods of making unstable historic stones safe.





## 2. Legalities

### 2.1 Health and safety legislation

Graveyard and cemetery managers are legally obliged under the Occupiers Liability (Scotland) Act 1960 to take reasonable care for the safety of visitors, volunteers, staff, contractors and even trespassers. In addition, employers, the self-employed and employees are obliged under the Health and Safety at Work Act 1974 to ensure the safety of those who could be affected by their acts or omissions.

The Management of Health and Safety at Work 1999 (Management Regulations) also places an obligation on an employer to carry out a risk assessment and act accordingly.

In order to discharge these obligations, graveyard and cemetery managers must introduce a programme of regular inspections to identify potentially hazardous memorials and structures and must take remedial action to control the risk of injury.

Owners of memorials should be contacted prior to undertaking any inspections so that they are aware of the reasons for the work. It is also good practice to inform clergy, local residents and visitors to the graveyard of the work being undertaken and why.

Health and safety legislation requires that a hierarchy of control is followed when selecting risk controls. Where practicable, risks must be controlled by removing the hazard. Where this is not practicable, perhaps in the very short term, physical barriers must be used to prevent access being gained to any 'danger zone'.



## 2.2 Other legislation

Cemetery managers should be aware that health and safety legislation is not the only legislation that applies to burial grounds. Scheduled ancient monument legislation and listed building legislation may also apply. A brief summary of how these statutory protection measures may affect the works you propose to carry out under health and safety legislation is given below. More information is available in *Graveyards and Gravestones Electronic Leaflet 1*.

The gravestones you wish to work on may be legally protected as part of a scheduled ancient monument, listed building, conservation area, or designed landscape. Natural heritage designations may also apply. This means you may require formal permissions or consents before carrying out any work. You will therefore need to check whether all or part of the graveyard and its contents are covered by any of these designations. *Graveyards and Gravestones Electronic Leaflet 1* provides fuller guidance on the implications of these designations. The following information covers only the type of actions that might be associated with programmes of emergency measures for historic memorials.

### 2.2.1 Scheduled ancient monument legislation as it applies to graveyards

A scheduled ancient monument is an ancient monument that has been given legal protection under the Ancient Monuments and Archaeological Areas Act 1979.

Until maps of scheduled areas are available on the web (and this is in progress), the only reliable and up-to-date way of finding out what is scheduled, and what its boundaries are, is to ask Historic Scotland (telephone 0131 668 8777 or e-mail HSAMAdmin@scotland.gsi.gov.uk). Not all of a graveyard and its contents may be scheduled, so it is important that you find out the precise boundaries of the protected area.

Check with Historic Scotland whether the wording of the scheduling includes the gravestones themselves. This varies from site to site. The normal rule of thumb is that gravestones are included unless the wording of the scheduling description specifically excludes them.

You must have prior written permission under Section 2 of the Ancient Monuments and Archaeological Areas Act 1979 from the Scottish Ministers (called Scheduled Monument Consent) to carry out any works that will lead to damage, demolition or destruction of a scheduled monument, any works of repair, removal, alteration or addition, or

any flooding or tipping. You also require prior consent under Section 42 of the Act for metal detecting of all types, including geophysical investigations, on a scheduled site.

Application forms for Scheduled Monument or Section 42 consent are available from Historic Scotland at the address given at the end of this leaflet, or ring 0131 668 8777, or e-mail HSAMAdmin@scotland.gsi.gov.uk

If a gravestone is scheduled, the types of works for which you require consent include any works affecting the body or surface of the stone/structure, such as lifting or repair. The same applies to other scheduled structures in the graveyard that might have structural problems. If a gravestone is not scheduled but the land around it is, the only works to a gravestone for which you require consent are those involving any ground disturbance, including deturfing. You also require prior consent to erect fences or noticeboards in scheduled areas, e.g. to fence off dangerous monuments.

However, you do not require consent for works which are urgently necessary in the interests of health and safety providing that you limit the works to the minimum measures necessary, and give notice in writing justifying the need for the works to the Scottish Ministers (through Historic Scotland) as soon as practicable. Since the aim is to avoid unnecessary and irreversible damage to features of historic interest, we encourage you to discuss the nature of your proposals in advance with Historic Scotland, even if circumstances mean that you cannot apply for formal consent.

If in doubt, ask.

Remember that scheduling takes precedence over listing. In cases of dual designation your point of contact is the Ancient Monuments Division of Historic Scotland (telephone 0131 668 8777 or e-mail HSAMAdmin@scotland.gsi.gov.uk).

The local authority archaeological service can advise on non-scheduled archaeological interests.

### 2.2.2 Listed building legislation as it applies to burial grounds

There are currently about 800 entries in the list of listed buildings compiled by the Scottish Ministers which make reference to places used for burial (including churchyards, kirkyards, cemeteries and necropolises). The entry may refer specifically to certain parts of the burial ground such as the walls, gates and gatepiers marking the boundary or to an individual monument or group of monuments within.



You can consult the list for a particular area in the offices of the local authority. You can also obtain information on list entries for a particular area from Historic Scotland (telephone 0131 668 8719 or 8720).

Items mentioned in the list entry are deemed to be 'listed' and are subject to the listed building control procedures set out in the *Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997*. It is therefore important if you are considering works within a burial ground that you check whether it is listed and, if it is, that you find out whether the work you propose to carry out requires Listed Building Consent (Note: burial grounds are not covered by ecclesiastical exemption). Structures within the curtilage of a listed burial ground are also protected under the Act. This means that you also require consent for works to items not mentioned in the list entry for the burial ground but lying within its boundary.

It is clearly important that you make early contact with the planning authority to determine what might and what might not need consent. In the case of works promoted by the local authority, the planning authority is the Scottish Ministers (through Historic Scotland) and *not* the local authority.

You should not begin work which is deemed to require Listed Building Consent before consent is given. Work can only be undertaken in advance of consent in cases where there is a direct threat to public safety. In such instances, you must ensure that emergency works are restricted to the minimum needed to avert the immediate danger. If you are considering such action, you should consult with the Inspectorate of Historic Buildings (telephone 0131 668 8618) so that they can comment on what you are proposing.

### 2.2.3 Designed landscapes

Cemeteries that are considered to be nationally important designed landscapes may be included in the *Inventory of Gardens and Designed Landscapes in Scotland* (1988) and its supplementary volumes (in preparation). Cemeteries included in the Inventory are subject to the statutory consultation provisions of the *Town and Country Planning (General Development Procedure) (Scotland) Order 1992*. This means that local authorities must consult the Scottish Ministers (through Historic Scotland and Scottish Natural Heritage) regarding any proposal which involves, or may affect, *Inventory* sites. Again, you should consult with the Historic Buildings Inspectorate (and Scottish Natural Heritage) well in advance of any proposed work.

### 2.2.4 Natural heritage designations

Graveyards may also be protected by natural heritage designations, such as Sites of Special Scientific Interest, or acknowledged for particular natural heritage values, e.g. through listing in the *Inventory of Gardens and Designed Landscapes in Scotland*. Check with your local Scottish Natural Heritage office. You can obtain contact details for your local office by telephoning Scottish Natural Heritage headquarters (0131 447 4784) or via their website (<http://213.121.208.4/>).



### 3. Sources of funding

*Graveyards and Gravestones Electronic Leaflet 7* provides information on Historic Scotland grants. Information on other grants that may be available is currently being prepared and will be available on the Council for Scottish Archaeology Carved Stones Adviser's website in due course at [www.scottishgraveyards.org.uk](http://www.scottishgraveyards.org.uk)

### 4. Responsibilities of employers or organisers of workers

Section 3 of *Graveyards and Gravestones Electronic Leaflet 3* provides guidance on this matter.





## 5. Surveys and risk assessment

### 5.1 Headstones

#### 5.1.1 Identification of unstable headstones

All headstones, especially those that consist of two or more pieces, may pose a risk of serious injury to the unwary. A memorial that is standing at an angle is an obvious, easily recognised hazard requiring a cautious approach. However, the greatest risk arises from gravestones that, upon a superficial assessment, show no obvious signs of instability. A headstone can be perfectly upright but highly unstable. The following tell-tale signs should be looked for from a safe distance away (equal to at least one and half times the height of the memorial) to indicate whether or not the stone is unstable.

Look for any of the following:

- Is it a granite memorial composed of several separate stones? Granite headstones erected between the mid-19th century and the mid-20th century were frequently constructed with inadequate foundations and with little or no fixings between the stone components. Many are very unstable.



An unstable granite headstone. The gap between the base and the foundation indicates potential instability of the whole memorial. Careful examination of the joint between the slab and base reveals a hairline crack in the biological growths at this point. This headstone could be easily overturned by moderate pressure.

- Is the foundation exposed and above the surrounding soil level? If so, look for evidence of crumbling brickwork and/or mortar.
- Is there a gap between the foundation and the base of the headstone? A gap of only a few millimetres can be sufficient to cause instability.
- Are there any signs that the memorial has moved since it was erected? A memorial that has tilted imposes a greater stress on any joints and so poses a greater safety risk.
- Is the memorial made up of two or more separate stone pieces? A headstone formed from a single stone is less likely to fail.
- Are the joints between the component parts of the memorial close-fitting? Even a small gap can indicate that movement in the joint is occurring. Look closely at any dirt or organic growths that have collected at the joint. Any instability or slight movement will show up as disruption to the dirt or growth film.



The joint between slab and base shows disruption of the biological growths and indicates movement between the slab and base.



- Be aware that some marble and other panels may appear sound but actually may not be held in place. Is there any indication that the panel is slipping? Even the slightest indication of movement can mean that the fixings that attach the panel to the background have failed. There is thus a high risk to anyone within the fall zone of the panel. For safety purposes, you can assume the fall zone to be one and a half times the height to the top of the plaque.
- Is there rust staining or rust-stained fractures in the stone? This can indicate corrosion of concealed iron fixings and the potential for failure of the fixings.
- Are there self-sown shrubs or trees growing adjacent to the memorial? If there are, it is highly likely that the memorial is unstable.

To test the stability of a memorial, approach it carefully from one side and apply gentle horizontal fingertip pressure, away from your body, to a point at approximately shoulder height. Do not lean on the headstone. Any instability in the headstone will show as a small degree of movement at the base, between joints in the stones, or both. This simple test, combined with visual observation, should be enough to indicate whether the memorial represents a safety risk.

Proprietary tests to assess memorial stability are available, but there is still much uncertainty over what constitutes an appropriate load for testing and an appropriate testing method. This issue is currently being addressed by the Memorial Safety sub-group of the Home Office's Burial and Cemeteries Advisory Group (<http://www.homeoffice.gov.uk/comrace/humanrights/burials/burialsgroup.html>).

### 5.1.2 Lifting and Temporary Protection

Further advice on lifting stones is provided in Section 5 of *Graveyards and Gravestones Electronic Leaflet 5*.

Further advice on temporary protection of headstones is given in section 8 of this leaflet.

#### *Broken headstones*

- You should remove any broken headstones in pieces or splint them together so that you can handle them as one. When deciding which approach to take, you must consider what has caused the break.
- You should splint together delaminating stone with foam padding against the deteriorating face. You should also cushion the stone with blankets when you are lowering it onto temporary protection.

You must protect the stone from moisture with a semi-permeable membrane when you are leaving the stone in temporary protection.

- You may find a metal detector useful to find out whether dowels or other fixings within the stone are the cause of the break. You will require prior permission to use such equipment on a scheduled ancient monument (see 2.2.1 of this leaflet).

### 4.1.3 Complex headstones made up of a number of separate stone pieces

- You should either take headstones of this type apart (this may require cutting through any dowels with a thin saw blade) or splint them securely together and move them as one.

## 5.2 Wall monuments

### 5.2.1 Identification of unstable wall monuments

See the advice in section 5.1.1 above, plus the following additional comments:

#### *Differential settlement:*

Carry out a visual check for differential settlement – look for any signs of slippage between the monument and the flanking wall.

#### *Access:*

If you cannot see all of the monument from the ground, use a mobile access platform if there is sufficient space in the graveyard, *not* a ladder propped against the wall. You may also find binoculars and/or the zoom lens of a camera useful to gain a sufficiently detailed view of the monument from the ground.

### 5.2.2 Lifting and temporary protection

If you consider any monuments to be at risk of instability, you should obtain specialist advice – engineers within the local authority may be available to assist. It is not possible to move even small stones from a height without specialist equipment.

## 5.3 Tall monuments

### 5.3.1 Identification of unstable tall monuments

See the advice in section 5.1.1 above, plus the following additional comments:

#### *Access:*

If you cannot see all of the monument from the ground, use a mobile access platform if there is sufficient space in the graveyard, *not* a ladder propped against the monument. You may also find binoculars and/or the zoom lens of a camera useful to gain a sufficiently detailed view of the monument from the ground.

### 5.3.2 Lifting and temporary protection

If you consider any monuments to be at risk of instability, you should obtain specialist advice – engineers within the local authority may be available to assist. It is not possible to move even small stones from a height without specialist equipment.

## 5.4 Chest and table tombs

### 5.4.1 Identification of unstable chest tombs

See the advice at section 5.1.1 above, plus the following additional comments.

#### *Differential settlement:*

Carry out a visual check for differential settlement. Note in particular whether there is a gap or misalignment between any of the legs or sides and the top stone.

#### *Loss of components:*

Note if any of the legs or sides are missing or broken so that they no longer support the top stone.

### 5.4.2 Lifting and temporary protection

General handling procedure:

In general, the procedure is to lift the top stone using an A-frame (see section 5.4 of *Graveyards and Gravestones Electronic Leaflet 5*), remove the legs/sides of the tomb, then lower the top stone onto a prepared area (see section 8 of this leaflet).

## 5.5 Built structures

Burial grounds often contain a number of different types of structures, including grave enclosures (walls, fences, posts, rails, chains and upstand kerbs), perimeter walls with gatehouses and gates, watch houses, vaults, mausoleums, mort houses, ruinous structures and ornamental features such as statues and obelisks. This is not a complete list but is sufficient to indicate the range of built elements that may be encountered (see also *Graveyards and Gravestones Electronic Leaflet 8*).

Inspection of buildings and other structures must be carried out by a competent person, for example a qualified surveyor or engineer, because a building, wall or the ground may be in danger of collapse, even if apparently sound.

Walls and fences are often erected to prevent a fall into a ditch or over a steep edge or bank. If these are not properly maintained, they can pose a danger to visitors and workers. The condition of these features should therefore be assessed by a competent person.



## 6. Recording

The minimum recording required in conjunction with memorial stability assessment is:

- **Make a graveyard site plan** to show the position of memorials and other features. Identify each gravestone with a number or other short code. You may already have an up-to-date plan of the graveyard. Even if you have a recently prepared plan, you should check it for accuracy before beginning any memorial stability programme. If you need to draw up a plan of the graveyard for the first time, you can obtain more information on the Council for Scottish Archaeology Carved Stones Adviser's website at [www.scottishgraveyards.org.uk](http://www.scottishgraveyards.org.uk)
- **Make a photographic survey of the gravestones and graveyard.** This should include some general photographs showing the overall layout of the graveyard. If you have taken photographic prints, mark in soft pencil on the back of each one where the photograph was taken from and in which direction, for example, graveyard gate looking north. You should also take at least two photographs of each stone to show all sides. For example, for a simple headstone, an oblique view from the front-left and another from the rear-right would show all the elevations of the stone. For more complicated memorials, you may have to take more than two photographs. It is important that you mark each photograph with the number or code of the gravestone it depicts. If you have taken photographic prints, mark the number or code on the back of the print in a soft pencil.
- **Archiving** the site plan and photographs in an accessible location is important. They will provide valuable information when you return to the graveyard to re-assess the stability of stones or when you are planning other work in the graveyard. You may also wish to make them accessible to the public by lodging copies of the information with the National Monuments Record of Scotland at the Royal Commission on the Ancient and Historical Monuments of Scotland (more information is available at <http://www.rcahms.gov.uk>).



## 7. Temporary Safety Barriers

As soon as a memorial is identified as being unstable, you must put measures in place to protect the public and others from risk of injury.

If you cannot make the memorial safe immediately, you must erect a barrier at a safe distance away – at least one and a half times the height of the memorial – which prevents access to the danger zone. You must place clear warning signs on the barrier identifying the danger and prohibiting entry.

Barriers must be rigid, at least 2 metres high, with no gap greater than 10 centimetres. They should also be difficult to remove, tamper with, or climb over. You must inspect and maintain the barrier regularly to ensure it remains effective.

When erecting barriers, take care to ensure that neighbouring memorials are not damaged or disturbed (see section 2 of this leaflet and *Graveyards and Gravestones Electronic Leaflet 1*).



Examples of inappropriate temporary safety barriers



## 8. Temporary protection for historic gravestones

You must ensure that gravestones identified as posing a health and safety risk and therefore to be dismantled are protected in the short-term. Preferred techniques are described below. However, it must be noted that all these techniques carry potential risks for the long-term well-being of the stone. Therefore you should put in place strategies to reinstate the gravestones as soon as possible (see section 9 of this leaflet). Guidance on safe lifting techniques that are suitable for historic gravestones is given in section 5 of *Graveyards and Gravestones Electronic Leaflet 5*.

### 8.1 Laying the stone on a recessed fine gravel bed

#### *Method:*

- Remove turf to prepare a bed for the stone.
- Lay Terram or a similar semi-permeable membrane, then fine, rounded gravel or coarse sand as a bed for the stone.
- Lay the stone at a slight angle if possible so that water runs off.
- Check that the stone is completely stable, with even support from the fine gravel or sand across all of its downward-facing side.

Estimate of time taken = 2–3 hours per stone.

#### *Comments:*

- Stones with high relief will collect water, which will hasten stone decay mechanisms. You may decide therefore to place gravestones with their major carved face downwards on a sand bed to protect from decay. In this case, you must recognise that in certain circumstances, placing the stones face-down may make them more vulnerable because they will be less visible and so their value may not be recognised. You must decide on a case-by-case basis which approach is more appropriate.
- Perceptions are important – the burial ground will appear as if vandalised. You should erect notices to inform the public of what you have done and why.
- Be aware of the increased danger of theft of stones – the fact that the stones are no longer earth-fast may cause them to be perceived as potentially portable.
- Stones will be at higher risk of damage from grass cutting operations.

### 8.2 Laying the stone on a fine gravel bed bounded by wooden battens

#### *Method:*

- As above, but with no turf removal and gravel instead contained by wooden battens.

Estimate of time taken = 1 hour per stone.

#### *Comments:*

- As above, plus the gravel is likely to spill onto the grass as the battens decay and may impede access for grass cutting, etc.

### 8.3 Laying the stone on Terram

#### *Method:*

- As above, but with Terram only on grass.

Estimate of time taken = 10 minutes per stone.

#### *Comments:*

- As above, plus this technique is inappropriate for stones with carving in relief on the side to be laid on the ground as the high relief area alone will bear the weight of the entire stone, causing excessive stresses.

### 8.4 Lowering the stone into a ditch

#### *Method:*

- Prepare a ditch into which the stone is lifted.
- Repack the earth to leave the stone leaning at approximately 30° to vertical.

Estimate of time taken = 1 hour per stone.

#### *Comments:*

- This technique is inappropriate for all thin or long stones as the bending stresses that will be applied because the stone is leaning will be excessive, causing a danger of the stone snapping.
- This technique is not appropriate in areas of archaeological interest.

## 8.5 Burying the stone

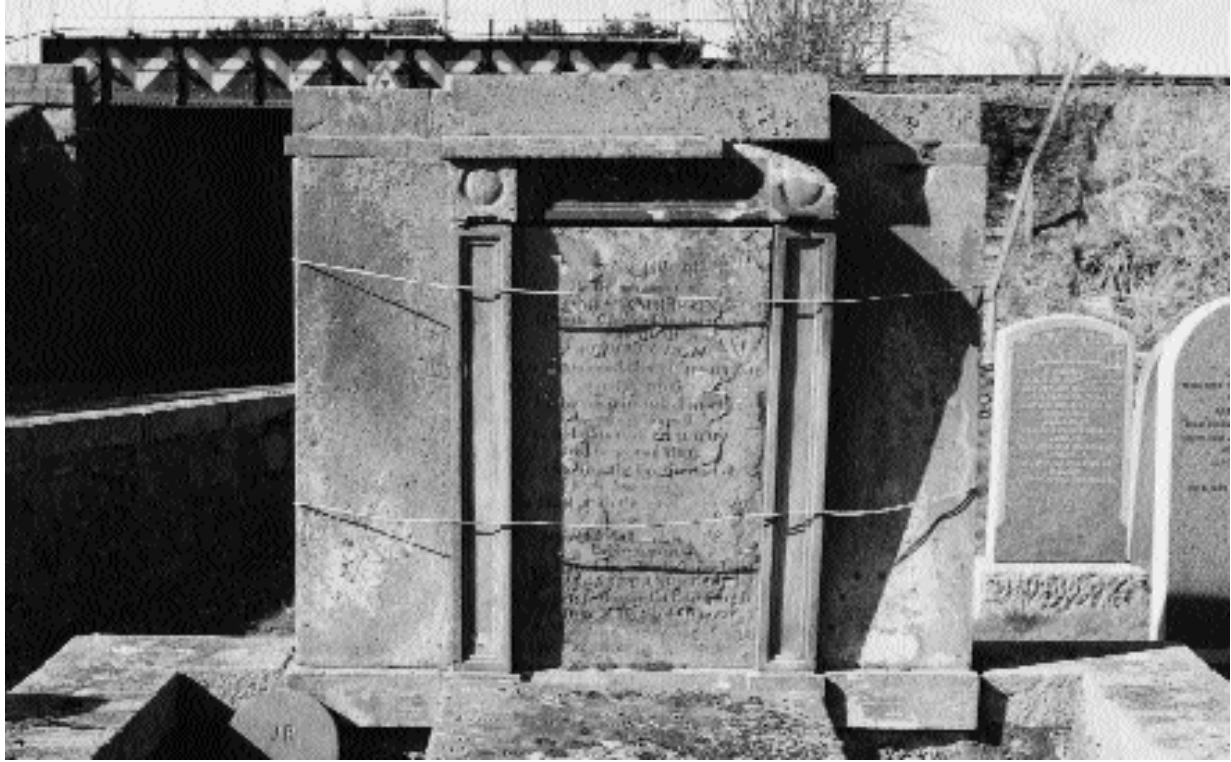
### *Method:*

- Dig a shallow pit.
- Lay the stone in and repack the earth carefully.
- Mark location on a survey plan.

Estimate of time taken = 2 hours per stone.

### *Comments:*

- The stone is likely to be well protected from decay, but not visible and so there is a risk that it will be overlooked and that ultimately it may be lost. Marking on site is needed to address this risk, but you will have to consider carefully whether this is enough to prevent the stone from becoming lost.
- This technique is not appropriate in areas of archaeological interest.



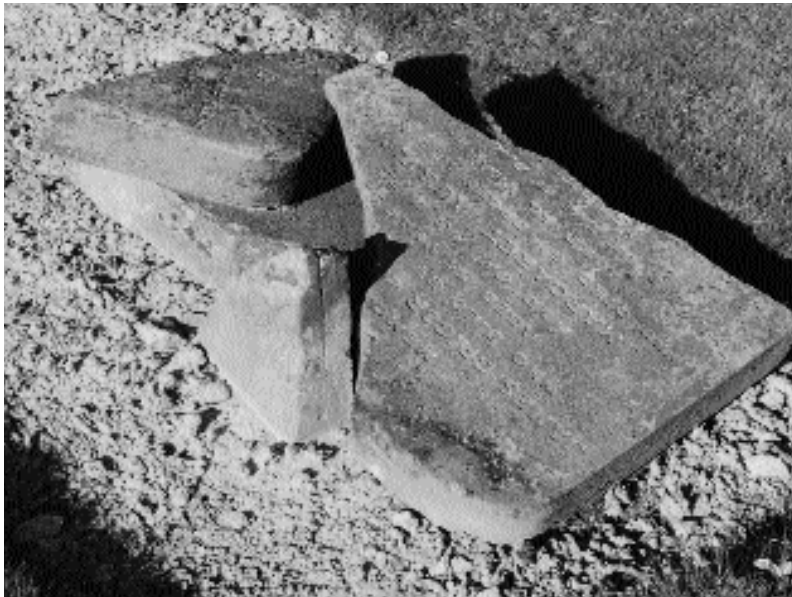
Examples of inappropriate methods of temporary protection



## 9. Reinstatement

You must consider a strategy for reinstatement at the time emergency works are carried out and include reinstatement works in forward job plans.

Detailed repair guidelines and advice on the preparation of documentation, Conservation Plans and Management Plans are included in the *Conservation of Historic Graveyards: Guide for Practitioners 2*.



## Further reading and information

- ❑ Graveyards and Gravestones Electronic Leaflets – (download free from [http://www.historic-scotland.gov.uk/index/tc\\_carved\\_stones\\_scotland.htm](http://www.historic-scotland.gov.uk/index/tc_carved_stones_scotland.htm))
- ❑ Conservation of Historic Graveyards: Guide for Practitioners 2 (2001) (£19.50 from the Scottish Conservation Bureau, address below)
- ❑ Conservation of Ancient Monuments in Scotland: Guidance on principles (2001) (£5.50 from the Scottish Conservation Bureau, address below)
- ❑ Inspectorate of Ancient Monuments, Historic Scotland, Longmore House, Salisbury Place, Edinburgh EH9 1SH Tel: 0131 668 8777, [HSAMAdmin@scotland.gsi.gov.uk](mailto:HSAMAdmin@scotland.gsi.gov.uk)
- ❑ Inspectorate of Historic Buildings, Historic Scotland, Longmore House, Salisbury Place, Edinburgh EH9 1SH Tel: 0131 668 8618
- ❑ Scottish Conservation Bureau, TCRE, Historic Scotland, Longmore House, Salisbury Place, Edinburgh EH9 1SH Tel: 0131 668 8668, [hs.conservation.bureau@scotland.gsi.gov.uk](mailto:hs.conservation.bureau@scotland.gsi.gov.uk)
- ❑ Carved Stones Adviser, Council for Scottish Archaeology, c/o National Museums of Scotland, Chambers Street, Edinburgh EH1 1JF Tel: 0131 247 4119, [s.buckham@nms.ac.uk](mailto:s.buckham@nms.ac.uk), <http://www.scottishgraveyards.org.uk>
- ❑ Health and Safety Executive Infoline, Caerphilly Business Park, Caerphilly CF83 3GG Tel: 08701 545500 [hseinformationservices@natbrit.com](mailto:hseinformationservices@natbrit.com), <http://www.hse.gov.uk/>
- ❑ Memorial safety sub-group, Burial and Cemeteries Advisory Group <http://www.homeoffice.gov.uk/comrace/humanrights/burials/burialsgroup.html>
- ❑ Royal Commission on the Ancient and Historical Monuments of Scotland, John Sinclair House, 16 Bernard Terrace, Edinburgh EH8 9NX Tel: 0131 662 1456, [nmrs@rcahms.gov.uk](mailto:nmrs@rcahms.gov.uk), <http://www.rcahms.gov.uk>
- ❑ Scottish Natural Heritage, 12 Hope Terrace, Edinburgh EH9 2AS Tel: 0131 447 4784, <http://213.121.208.4/>

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