

DIOCESE OF CHELMSFORD
DIOCESAN ADVISORY COMMITTEE

**DRAINAGE AND GROUNDWORKS AT
CHURCHES**

GUIDELINES TO ASSIST PARISHES

Issued August 2000

DRAINAGE AND GROUNDWORKS AT CHURCHES

INTRODUCTION

- 1.1 Old buildings have evolved through a process of gradual and cumulative change over the centuries. Sudden changes can have a disruptive effect on the way the structure of the building functions. New works involving radical alterations to matters such as drainage should be a last resort after careful consideration by experts and people with an intimate knowledge of the building.
- 1.2 Rising damp is a common problem in churches, often caused by a rise in ground level outside the building.
- 1.3 The standard solution to this problem, the lowering of ground level and sometimes the laying of drains, is fraught with hazards, which include damage to archaeological features and deposits, damage to the foundations of the church, damage to wall surfaces, undermining of the building and possibly excessive drying out of the building with subsequent cracking and subsidence.
- 1.4 In managing a historic building of many different construction phases like a church, it is necessary to understand the sequence of its development (i.e. its building history) and also the 'ecology' of the building, i.e. how it works in terms of moisture and structural movement. Only with an understanding of these aspects can a strategy be formulated for its management.
- 1.5 To illustrate this point, it is only necessary to point out that the foundations of a church are likely to be different for each of its construction phases. The requirement to lower ground levels will also vary according to changes in internal and external levels.

- 1.6 In view of these circumstances, the DAC will not normally approve of the excavation of dry areas or French drains unless very specific criteria have been satisfied.

ARCHAEOLOGICAL IMPLICATIONS

- 2.1 These are mainly of two types:

- (a) archaeological deposits may be preserved running up against church walls, in which case any drainage works will destroy them;
- (b) the differing character of church foundations can contain information valuable for the interpretation of the structural development of the building.

- 2.2 In addition it is not uncommon for 18th and 19th century vaults and cists to abut church walls.

BIOLOGICAL IMPLICATIONS

- 3.1 The grassland of churchyards is often of considerable biodiversity, both in plant species and in habitat type. Before grass around a church is dug and removed to make a dry area, it should be assessed botanically. If the grass is of importance, this may count against creating the dry area, or efforts must be made to mitigate its negative effects.
- 3.2 Lowering the ground level will destroy any tree roots in the area, most of which are within 0.5m. of the surface, though some may be deeper. This can stress damaged trees, causing their premature death. It can also weaken their mechanical support systems so that they are more likely to topple. If there are trees within 15m. of the edge of the proposed dry area, expert arboricultural advice is required.

- 3.3 With the trend to increasing drought in south-east England, many more buildings are showing signs of subsidence. Often trees are blamed, and there is a danger of losing many fine trees in churchyards. Trees are not the only source of soil drying, a problem to which dry areas and drainage can contribute. It is important to assess whether the dry area and any associated drainage may have a negative effect on the structural stability of the church.

PRELIMINARY REQUIREMENTS

- 4.1 Before agreeing to the excavation of dry areas or drains, the DAC will require the following information:
- (a) an assessment of the extent of damp inside the building, to include details of how floors are made and what sort of plaster there is on the walls;
 - (b) an assessment, with simple sectional drawings, of the difference between internal and external levels in and around the church;
 - (c) an assessment of the type of subsoil, how rainwater is disposed of, whether the ground is generally damp or dry, and whether the church building is showing any signs of movement;
 - (d) the results of test holes, one test hole to be dug for each building phase of the church as recognised in the Royal Commission on Historical Monuments Survey of Essex. These results will include observations from the Consultant Archaeologist and, if appropriate, from the Consultant Engineer;
 - (e) an assessment of the position, size and species of trees around the church. An expert opinion is required if significant trees lie within 15m. of the dry area;
 - (f) an assessment of the grassland that will be removed for plant species and National Vegetation Classification community.

THE STRATEGY AND SPECIFICATION

- 5.1 In the light of this information, the DAC will expect the architect to formulate a strategy, incorporated into a specification, which will take into account the differing foundations, soil conditions and levels at different points round the perimeter of the church.
- 5.2 As a general rule, no excavation round a church building should go any deeper than a foundation offset. Such offsets should not be exposed but covered with earth and gravel.
- 5.3 Any groundworks in a churchyard will have conditions attached requiring an archaeological watching brief or else the works to be carried out by archaeological contractors. This work should be costed into the project from the outset. A brief for archaeological work will be provided by the Consultant Archaeologist.
- 5.4 The specification prepared by the architect should include clauses requiring building contractors to stop work if they encounter any obstruction, masonry, buried footing or other unusual feature in the course of groundworks. In these circumstances they should notify the architect and the Consultant Archaeologist immediately. The contractor should also be required to place any human bone or charnel in a black plastic bag and pass it to the incumbent for re-interment usually elsewhere in the churchyard.
- 5.5 Architects are reminded that the use of excavating machinery is not normally allowed in churchyards. Permission to use it should be specifically included in the faculty application, and supported by a statement justifying the need for it (see Appendix 2).

CHECKLISTS FOR CONTRACTORS

- 6.1 Guidance sheets with checklists of points to be observed by contractors and gravediggers when working in churchyards are available from the Diocesan Resources Centre. These should be given by the parish to the contractors working in the churchyard and copies can be found in Appendices 3 and 4.

APPENDIX 1

RAINWATER DISPOSAL

It is generally recommended that the best way of disposing of rainwater is by down pipes to gulleys and soakaways. This gets the water directly away from the church wall.

If a church does not have rainwater goods, the provision of them could have the effect of drying out the ground and causing structural movement and subsidence. The same could be true where old brick or concrete gutters are being removed, or where leaking drains are being repaired. The building should therefore be checked for movement and subsidence, and any strategy formulated should take into account the need for a gradual and perhaps not excessive drying out of the ground.

APPENDIX 2

THE USE OF EXCAVATING MACHINERY IN CHURCHES AND CHURCHYARDS

Traditionally excavation work at churches has been done by hand. Today there is an increasing tendency to use heavy machinery. This is unlikely to be safe or appropriate.

Groundworks are typically carried out in churchyards for the following tasks:

- The creation of dry areas or French drains against church walls.
- The excavation of drains and soakaways.
- Construction work i.e. erection of a new building.
- Grave digging.
- Removal of trees and stump grinding.

Whilst it may seem unnecessary to observe that it is inappropriate to use heavy plant inside churches, this has occurred in the past. If major building works are taking place in a church, there can be little doubt that contractors will assume that they can use diggers and dumpers unless the specification instructs to the contrary.

The risks presented by the use of heavy plant include:

- Damage to historic floors and surfaces.
- Damage to vaults which may collapse. Similarly, graves may subside.
- Accidental damage to the church fabric, walls, trees, gates, monuments and gravestones.
- Damage to the greensward which may become unacceptably rutted, or reduced to a quagmire.
- Ecological damage to the greensward, which often supports a traditional flora of a type now rare.

It follows that heavy plant should not normally be used in churches and churchyards. **If it is intended to use heavy plant, then this should be specifically included in the application for a DAC certificate.** Proposals to use it should be accompanied by a written justification which should include a risk assessment, details of measures that will be taken to mitigate those risks and the route through the churchyard which will be used by the vehicles.

APPENDIX 3

Diocese of Chelmsford Churchyard “Alerts” for builders

When working in churchyards and churches builders may come across interesting and vulnerable archaeological remains. The Diocesan Advisory Committee for the Care of Churches has prepared this checklist of what to do if something is found. The Diocesan Archaeological Advisor can be contacted at the Planning Department, Essex County Council, County Hall, Chelmsford (tel. 01245 437669).

- **Loose bones:** collect and put in black plastic bag and give to the incumbent for reburial.
- **Full skeleton** (nearly all the bones in place): stop digging and immediately contact the Diocesan Archaeological Advisor.
- **Solid objects**, eg mortared or unmortared stones, brickwork, vaults: stop work and immediately contact the architect and the Diocesan Archaeological Advisor.
- **Objects of interest**, e.g., worked flints, moulded stones, pieces of brick and tile, pottery, metal objects and coins: keep carefully with a note of exactly where found and inform the Diocesan Archaeological Advisor.
- **Tree roots** (over 25mm diameter): do not cut but tunnel beneath them. Excavation within 3m of a tree must be carried out by hand.
- **Excavating by a wall:** digging close to a wall should be carried out by hand. If the foundations change from what is expected, notify the Diocesan Archaeological Advisor.
- **Do not use excavating machinery unless prior permission has been obtained from the DAC.**

Please give this card to the contractors working in the churchyard

APPENDIX 4

Diocese of Chelmsford Churchyard “Alerts” for grave-diggers

When working in churchyards grave-diggers may come across interesting and vulnerable archaeological remains. The Diocesan Advisory Committee for the Care of Churches has prepared this checklist of what to do if something is found. The Diocesan Archaeological Advisor can be contacted at the Planning Department, Essex County Council, County Hall, Chelmsford (tel. 01245 437669).

- **Loose bones:** hide during service and then rebury in the grave when back-filling.
- **Full skeleton** (nearly all the bones in place): stop digging, tell the vicar, and immediately contact the Diocesan Archaeological Advisor.
- **Solid objects**, e.g., mortared or unmortared stones, brickwork, vaults, stop work, tell the vicar, and immediately contact the Diocesan Archaeological Advisor.
- **Objects of interest**, e.g., worked flints, moulded stones, pieces of brick and tile, pottery, metal objects and coins: keep carefully with a note of exactly where found and inform the Diocesan Archaeological Advisor.
- **Trees:** advise the vicar that graves should not be dug closer than 10m to a significant tree (Chancellor’s Guidance).
- **Do not use excavating machinery unless prior permission has been obtained from the DAC.**

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POLICY

1. Proposals to excavate dry areas round churches, to improve the drainage, and to carry out other groundworks, can have unforeseen repercussions and will only be considered by the DAC if fully documented and soundly argued, taking into account the fabric of the church building as a whole, and the archaeology and ecology of the churchyard.
2. The use of excavating machinery will only be permitted if it is specifically mentioned in the faculty application which should include the reasons why it is considered necessary and a full risk assessment.
3. DAC Archaeologist to be consulted whenever excavations are contemplated.

This is one of a series of DAC Guidance Notes obtainable from the Diocesan Resources Centre (Tel: 01245 294405).

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