

Method Statement for the Protection, Conservation and Repair of Existing Boundary Walls to Evans Home, Kilkenny.

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Introduction.

The Evans Home on John Street, Kilkenny is to be re-used as a new art facility for the Butler Gallery. As a part of this work, the existing perimeter walls of the Evans Home garden will be retained; the work for the project will include a phased repair and conservation of these walls in line with best conservation practice. Given the proximity of St John's Abbey, it is possible that some of the walls are medieval in date or contain medieval masonry; the site also served as the location of a barracks in the 18th century. The perimeter wall to the East of the site and the North East corner is substantially excluded from the site, with the exception of the South East corner and the entrance gate to the site.

The walls should be carefully surveyed and measured with a full measured survey produced. The walls should be subjected to a thorough historic analysis of their function and location in Kilkenny. The walls should be assessed by relevant experts to determine the relative age of the various sections and how these sections inter-relate. The types of masonry and stone construction should be recorded. The walls should be surveyed and assessed from the viewpoint of structural stability. The walls should be assessed for flora and habitat evidence, also noting where vegetation may affect the stability or impinge on the detail of the walls. When the surveys are to hand, they should be studied together to determine any

In general, the walls will not be affected by the proposed works, but will remain as the secure perimeter of the Evans as an 'art garden'. The only interventions proposed are a new access hoist location on the Southern elevation of the wall, where the wall status has been determined as non-medieval by excavation; in this location, the wall will be reduced to the internal ground level for a 2m width only. Gates will be renewed within existing opes. Where the new building adjoins the existing wall on the South-Western boundary, the piled foundation structure to the new building should be devised to minimize risk to the existing wall; the new building should be set away from the wall by a sufficient distance to avoid the risk of undermining it. During construction works, the wall adjacent to the new building should be fully protected on its inner face.

The conservation and repair of the wall will be related to its status in different sections as revealed through the study. In general, the intention is to clear the wall of excess vegetation (except where this has a specific status or is a habitat environment), to gently clean the wall surface, to repair the wall capping where necessary, to re-point the existing joints in the wall on both sides using lime mortar and to repair any significant damage. It is not intended to rebuild any section of the wall, but to determine other methods of structural support to keep its existing fabric and finish. Any new work will be clearly marked and separated.

Stone and Mortar Conservation and Repair.

Overall architecture and character.

The walls should be maintained as they are with bulges, infilled opes and different layers of repair and replacement retained; the conservation should avoid any return to a 'uniform look'. Following investigation, careful liaison with the structural engineer to find intelligent minor structural repairs to leaning or bulging walls is critical. The status of walls should be carefully addressed before work is carried out with all relevant permissions for work sought and received.

When structural defects such as cracks and bulges are identified, it is strongly recommended that the advice of a structural engineer with a knowledge and experience of older structures is sought. In all instances the causes of failure should first be correctly diagnosed in order to plan the appropriate repair works. Minor cracks can be repaired by carefully cutting out the affected areas, replacing fractured stones, and repointing using a mortar appropriate to the wall. Where major cracking has occurred, or where stones are displaced or out of alignment due to structural movement, specific repair works will need to be planned and directed by a structural engineer experienced in the repair of traditional structures. Each situation will require a specific solution and it should always be the primary aim to repair the stonework in situ, rather than take down and rebuild. However, there are occasions when the structural defect is such that the appropriate solution will be to carefully take down the damaged section and rebuild it using the original stones. In such cases, the section to be taken down should firstly be recorded and then carefully dismantled in such a way as to maximise the retention of stones for reuse. When rebuilding, matching historic bonding patterns and pointing materials and techniques should be used. This is specialised work and will require to be designed, specified and overseen on site by a suitably-qualified structural engineer. The conservation officer in the local authority should be consulted before any works are undertaken.

There is also a range of repair techniques available depending on the specific problem, the severity of it, location of bulge, The primary repair solution involves tying the bulging wall to a sound structural element and there are several different approaches to tying. Sometimes, where a wall is being tied back to the structure, the tie will be fixed to the wall with an anchor plate. These are commonly found on historic buildings, but it is also sometimes possible to conceal the fixing. It is important that the repair solution does not result in making a structure overly rigid that was designed to have flexibility.

Stone.

Where mortar repair is impractical due to the size of the aperture, repair might be necessary by piecing in new stone. Often referred to as "indental repair" this method requires particular accuracy. The stone piece used should conform as closely as possible to the colour and texture of its intended surroundings. It should also be cut to fit the aperture tightly. If complete stones are to be replaced then original joints must be respected and the replacement stone should be as close a match as possible. Finding potential sources of new stone is clearly an important issue

and should be addressed at the earliest opportunity. Sometimes second-hand stone may become available but if new stone is required then a visit to the source by the conservator is advisable for the more unusual stone types. It is not proposed to add a shelter coat to the stonework.

Mortar joints.

When repointing stone, strong cement mortars and weather struck jointing must be avoided. When carrying out re-pointing it is rarely necessary to repoint entire elevations or buildings- Similarly, if the existing mortar is set firmly within the joint it is often more sensible to leave it in situ. Friable and cracked mortars are the only types that should normally need replacing in the course of conservation work. Historic walls may often have been re-pointed several times, so much so that in some cases establishing the make-up of the original mortar can be quite difficult. However, mortar analysis, preferably using three samples should determine this. Establishing trial panels which take into account the surrounding original mortar finish is the key to agreeing sample re-pointing panels. A number of principles should be adhered to when carrying out repointing work. These include: the wall should be dampened prior to repointing, the mortar should be pressed hard into the joints - feathered edges are unacceptable as they will encourage the retainment of water, although individual finishes will be site specific the mortar mix must be no stronger than the stonework, the joints must be raked out to at least, depth equivalent to the joint width. Special tools may be needed to avoid damage to the arrises. All loose material must be removed prior to repointing. Re-pointing in extreme temperatures should be avoided, but if hot weather is unavoidable dampening with a wet hessian cloth and spraying with water will be needed. Pointing finishes to rubble stone walling should be matched as closely as possible to the surrounding work. Sometimes this may involve 'galleting', inserting small pieces of stone into the joint. Although it is important to try to repoint as unobtrusively as possible, producing a standard mix or an ideal finish that will suit all historic buildings is impossible, so it will be inevitable that each mortar mix will vary slightly.

Cappings.

The walls should be carefully examined and existing cappings retained where possible; this will be influenced by whether they are cracked or porous. The existing pattern of water run-off should be studied. New cappings should be carefully detailed so as not to interrupt the line or character of the wall; new stone or metal cappings should be avoided. The use of mortar and slate should be encouraged, with samples undertaken before work is carried out.

Specifying the Repair

The main signs that something is wrong with old stone walls are cracks or bulges stones becoming loosened or dislodged, spalling (deterioration of the surface of bricks), surface staining from organic growth, efflorescence (white powdery residue, algae growth soft, loose or crumbling mortar. The masonry repair and re-pointing specification on a historic facade or old wall should be a balance that accounts for tight controls being implemented whilst allowing appropriate flexibility without delay. The repair method chosen should be practical, but must also reflect the relative

delicacy of the historic fabric. Professional stone repair specialists, experienced in the practical aspects of such work, may be the best 'barometer' of what is possible and what is not.

As a minimum the chosen method should, if possible, involve the following- the historic status of the building and the materials of the facade, the extent of the works required, the repair procedures with the quality of the repairs predetermined, any special processes that may

be involved, provision of test and control panels by the contractor, compliance with statutory and Health & Safety requirements, scaffolding requirements. operatives and supervision. equipment. environmental requirements. repair procedures. completion, final cleaning and rinsing down, exemplar trial results.

Works.

The key to successful stone repair and repointing is to obtain suitable unimpeded access.

Protected scaffolding would normally be required although small areas may only warrant a tower or hydraulic platform. Temporary coverings may also be needed to protect windows/openings while contaminants or water cascading down the facade must be provided for. Provision should also be made for the removal of heavy stones from the site. As repair and repointing work will inevitably involve the use of water it is best to avoid the months of the year when frost is likely. However, if this is not possible work must only be undertaken when the temperature is 5°C and rising. Where temperatures are likely to be high damping down and shading may be necessary. Consideration should be given to adequate available water and power supplies. Water should be clean potable tap water. If cleaning is to take place concurrently with stone repairs it may be desirable to seal off drainage inlets against the ingress of undesirable elements. Inevitably it is the provision of temporary facilities, including scaffolding, that will provide one of the principal costs. It must not be overlooked that providing protection for associated sculptures, external fittings and other wall finishes must be taken into account prior to the start of work. Also final rinsing down will always be needed to clear dust and debris.

Maintenance.

For the future maintenance of building's it is essential that records are established and maintained. The work schedule should require that a record of all contract and 'as installed' documentation should be retained with the building's maintenance manual. Details should include those who undertook the work, all materials and processes employed. Properly annotated 'before', 'after' and 'progress' photographs. Survey and 'as installed' drawings. Regular inspection should also be undertaken as part of works maintenance to ensure that any defects which occur can be remedied promptly. These could include blocked rainwater gutters and downpipes, defective flashings and coverings, overgrowth of ivy and similar climbers, breakdown of coatings to ferrous fixings and resultant corrosion.