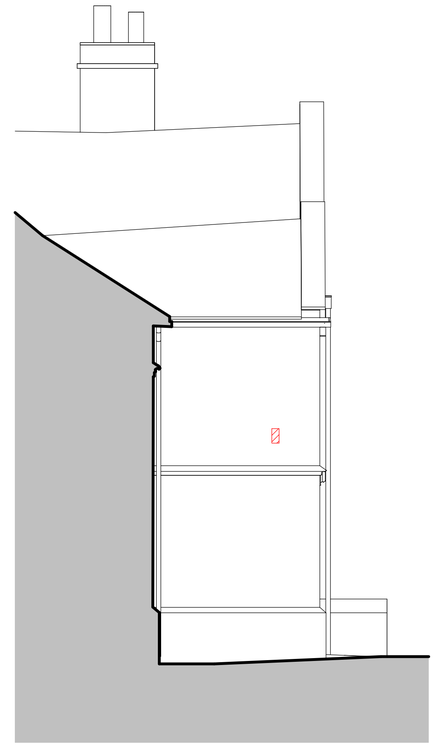
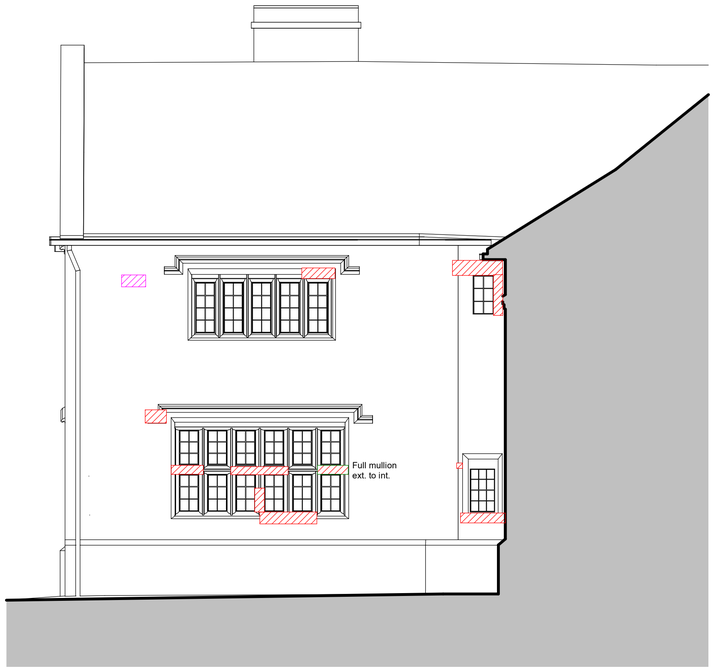
1 Proposed - South West Elevation 1
1 : 50



2 Proposed - South West Elevation 2
1 : 50



3 Proposed - South West Elevation 3
1 : 50

Stonework strategy
The intention is to provide a durable repair strategy to reduce the need for stone repair and replacement in the future.

Causes of damage or decay
The impervious cement pointing previously applied is causing deterioration of stones, with erosion due to salt migration and frost action.

Some stones, particularly the mullions and transoms of windows have broken or cracked due to minor movement, which has in cases been accentuated by frost action and the expansion of ice crystals within these cracks.

Many walling stones have been damaged, either due to deterioration due to incorrect bedding, pollution, clay pockets, or as they are softer than the surrounding masonry.

In some locations failure of gutters or other features has lead to saturation of stones, resulting in frost damage or vegetation growth.

Prioritisation of repairs
There is an intention to retain as much of the original material as possible.

Repointing is proposed to remove the impervious cement mortar and replace this with a more porous hot lime mortar.

Where stones are damaged and affecting the gathering characteristics of other building elements (drip moulds, copings, etc.) these are a priority for repair or replacement.

Broken mullions and transoms have been identified for replacement as these affect the structure and visual integrity of the windows. Many windows have plastic (render) repairs internally, reducing the breathability of the stones.

Where stones are soft and shedding material these have been prioritised for indent repair, once the face of the stone has been lost, these stones will exhibit accelerated decay and further erode. They are also considered cosmetically inappropriate on principal elevations.

Where stones have eroded or delaminated resulting in water traps which may lead to damp or further deterioration they have been prioritised for indent repair.

Previous partial indents have been identified for partial replacement to return coursed stones to the appearance of full coursing, to remove their half course height patched appearance.

Where stones have clay pockets or are grooved due to erosion of softer bed joints they have been considered dependent on location. To the principal elevations indent repair is specified. To the rear some stones have been retained with this cosmetic damage, which may in part be pointed up with colour matched mortar.

Occasional stones with minor surface loss have been identified for defrassing or the removal of loose surface material. These stones may exhibit accelerated decay in the future but are considered durable enough for retention at present.

Replacement stones and Indent repairs
Stone should be newly quarried, not reclaimed, sources to match the existing. Stone from Woodkirk, Britannia Quarry, Morley is suggested subject to samples and confirmation.

Indents should have a minimum embedment of 75 to 100mm. In walling stones they should be fully bedded in hot lime mortar, without the use of pins, epoxy or cementitious grouts. Stones should be set with their faces on the original wall line, not recessed to fit with surrounding eroded masonry.

Indents should be full course height. Partial indents should retain the bond pattern avoiding double height perpends or similar joints.

Mullions, transoms and window jambs should be cut back to the glazing line. As mullions and transoms can not be fully embedded in the surrounding stones these should each be bedded in hot lime as the other stones but also each fixed with a pair of stainless steel dowels or cramps set in epoxy.

Masonry Construction
Raking Out
Joints to be raked out using hand tools only.

Remove all vegetation from mortar joints and crakcs in masonry. Treat with Roundup Super Concentrate herbicide.

Mortar Analysis
The building has been extensively overpointed with cement strap pointing. Some areas have more recently been pointed using NHL mortars. There is no benefit in sampling the pointed faces of the walls.

Mortar analysis should be taken at four points from deep within the bed joints of the wall in various locations. Sampling may confirm the grade and colour of sands and the proportion of sand and lime in the mortar mix. As quicklime expands during curing a mix ratio of 1:3 quicklime and aggregate will, after expansion, produce a mortar ratio of between 1:1 and 1:1.4, this should be considered when analysing mortar samples.

Hot Lime Mortar
Mortar for building and pointing stonework to be hot lime mortar with a mix of 1:3 quicklime to washed grit and river sand (4mm down). A pozzolan such as Argical-M 1000 between 5% – 10% by volume may be required depending on the time of year. Horse hair at a rate of 3kg/m^3 should be teased into the mix to provide reinforcement.

Prior to pointing the building rake out and provide up to three 1m^2 sample panels, at low level, for inspection and approval of the architect. Mortar may be site or premixed, but should be colour matched to the stonework. Womersley's hot lime colour matched or equal approved.

Joints to be pointed with mortar finished tight within arises of stonework. Strap pointing is not acceptable.

Weather and Protection
Lime mortar should not be used when the temperature is below 5°C and falling or when there is a risk of freezing temperatures for at least 24-72 hours after application

After application, cover the new mortar with layers of hessian and a layer of impermeable sheeting eg. tarpaulin to protect it from frost, wind, and drying.

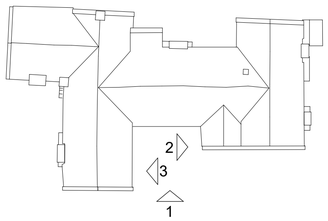
If work is programmed in winter, a scaffold system with gentle, consistent heating may be required to create a controlled environment.

The protective covering and any heating should remain in place until the risk of frost has passed, which can be weeks or months in the winter, especially for non-hydraulic limes.

Work should not be carried out if the temperature reaches 30°C. In warm or dry weather damp down the stone or substrate to avoid the substrate taking moisture from the mortar.

In hot weather the mortar should be knocked back wi th a stiff brush and dampened at intervals during curing to prevent cracking.

Embedded Metal
Embedded metal should be removed if this can be carried out without further damage to the stonework.



Repairs Key:

- Indent Required
- Surface Descale / Defrass Required
- Replace with New Stone Flag Vent

Note:
For all works to existing windows and glazing, refer to Glass Survey Report by D. Eckersley

For all works to existing structure and drainage, refer to Structural Engineers Reports.

SCALE 1 : 50
0 1 2 3

Rev	Description	Date	Dr by	App by
A	Updated to suit latest survey review	09.01.25	RB	NW

original by	date created	approved by
RB	Sept 25	KD

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project
Oakwell Hall - Fabric Repairs

drawing
Proposed Elevation - South West

computer file
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project number
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issue status
LBC