The Morton Partnership

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THE MORTON PARTNERSHIP LTD.

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22nd July 2013

David Balcombe
Colchester and North East
Building Preservation Trust
C/o 97 Shrub End Road,
Colchester
Essex CO3 4RA

by email only

Dear David,

RE: ST. PETER'S CHURCH, BIRCH, COLCHESTER, ESSEX

As you are aware I attended site on Thursday 4th July 2013, in order to carry out an inspection of the Church to provide comments on the structural condition, and also to comment on the proposals to part demolish the building, with the retained elements being potentially converted to residential use.

The inspection was undertaken using a crane and bucket provided by Cadman, with the inspection being visual only. The weather at the time was fine and sunny. I have enclosed some of the photographs taken, referred to in the report, together with a disc containing the whole set.

At the tip of the spire there was a weather vane with a cockerel motif. It is clear that the cockerel was previously gilded, and there was evidence of some shotgun pellet damage. The cockerel motif was bent out of shape; the local story being that this was caused by a helicopter. The Cadman site operative did gently bend this back into the correct position (see photographs 5 and 6).

The dowel rod to which the weather rod is fixed appears to be copper, or at least non-ferrous (see photograph 7). It extends down, as expected, through the top of the spire and we presume to an internal cross tree or plate, which was possibly identified, but from some distance from the internal inspection (see photograph 8). I think it is highly likely that the top of the spire was rebuilt over a number of courses, as the colour of the stone is clearly different from the majority, and also as the weather vane rod is non-ferrous (see photograph 9). The lightning conductor will need to be checked, and I suggest at that time allowance for renewal is made, as the existing may not comply with current guidelines. The fixings to hold the copper tape in place are iron, and will need to be replaced (see photograph 10).

Overall the structural condition of the spire is not unreasonable, with there being no signs of any major instability. However, there are clear iron dog-leg cramps built into the structure, at various positions to help bind the spire, which is not unexpected (see photograph 11). It is not clear from the survey how regular these are, but there are large areas where no damage has occurred which may suggest that the cramps were only used at strategic positions in the height of the spire. Certainly the cramps seem to be concentrated around the windows in particular, a logical position to have these.

The cramps have corroded, with the associated corrosion jacking in the worst cases having forced sections of stone to pop off, (see photographs 12 and 13), fractures to develop (see photographs 14 and 15), and indeed some lifting of the structure, identified through open horizontal joints (see photograph 16).

There are clearly other fractures as well in the structure in local areas, which I suggest are linked with this damage, and probably associated with local higher stresses. These can develop through the tight joints and maybe odd aggregate particles in the mortar, as well as wind action etc. on the spire.

Whilst in overall terms the stonework has fared reasonably well other than the cramp damage, the windows have been more affected by erosion as expected. These are in variable condition, but clearly will require some repairs and also replacement. Some windows have evidence of past cement based repairs, whilst others have fractures to elements, or decay to areas, as well as evidence of past cement pointing or repairs (see photographs 17 to 26). Odd stones show evidence of more advanced decay to the face (see photograph 27), although this seems to relate to the quality of the stone, probably from a weaker bed in the quarry.

At the base of the spire, the stonework overhangs the masonry of the walling below, with occasional lost edges, but which is structurally not significant. Below this is a roll moulding, which has suffered quite significant erosion in local areas. This is not required structurally, and I suggest simply needs de-frassing to remove loose material (see photographs 28 and 29).

The tower faces below are formed of stone quoins, stone window dressings, and then flints set in mortar built onto a masonry core. Whilst I was anticipating that this core was predominantly of brick, on inspection inside the tower it seems quite clear that they reused the masonry from the previously existing Church on the site (see photographs 30 and 31), along with elements and banding with brick.

In all areas inspected I checked the integrity of the flint facing, as it is not uncommon for flints to fall away, or bulges to form where the facing comes away from the core of the wall. Whilst there were very occasional missing flints (see photograph 32), overall I found that they were well adhered, being set in a relatively deep mortar. The pointing is somewhat eroded, and it would benefit from some repointing to prevent further flints dropping out (see photograph 33).

At a number of positions in the height of the tower, old apparent putlog or scaffold holes were noted, often with a tile spanning over the hole to allow the flint work above to be set during the original construction. Many of these putlog holes were not filled in their depth, but simply a face built up, and some of these have now opened up and formed nesting points (see photographs 34 to 36).

To the west elevation at the base of lower window cills, a more significant bulge of the face work was found and when tapped, was clearly found to be hollow behind (see photograph 37). This area will need to be carefully removed and re-built.

To the buttresses generally, there has been erosion of mortar at the joint between the stones and the flint work (see photograph 38). However where tested, the quoins are still stable generally. The exception was the north buttress to the west elevation of the tower, where the quoins to the north side were loose (see photograph 39). Whilst it may be possible to pin these back into the core, I suggest an allowance for rebuilding these quoins and the associated flint work alongside is included. It is possible that these may fall, particularly over the winter period.

At some lower levels it may be found that the ivy has disrupted the flint work face more through root growth (see photograph 40), but generally I could not inspect these areas in detail, and the extent of work is unclear.

At one position adjacent to a window, a short section of 'hoop iron' was located (see photograph 41). This was a material used quite regularly by Victorian builders to reinforce masonry, but generally brickwork where the coursing is regular. No other evidence was found, and its position within the flintwork is odd. Some repair work to the belfry windows is required where the stone had eroded (see photographs 42 and 43), although this is not wholesale. The single lancet windows at lower level are generally in reasonable condition (see photograph 44). One name was found carved into the stonework to a corbel to a buttress to the south side (see photograph 45).

In a few locations it was possible to take some photographs into the spire through openings. The condition appears as expected in the local areas viewed (see photograph 46), with odd areas where daylight could be seen through the joints (see photograph 47). This probably relates to lifting from corroding cramps, but suggests some repointing will be necessary in areas of the spire – this is backed up by the evidence of water staining seen internally.

From the crane cradle it was possible to over view the roofs (see photograph 48). The valleys are clearly blocked and this is allowing water ingress and significant decay to the roof structures (see photograph 49).

It was difficult to inspect the other walls of the church externally due to hoardings. It was noted to the south aisle that an area of facing had collapsed (see photograph 50). This reveals a rough random core of masonry, again providing evidence for the re-use of masonry from the previous church. Elsewhere no particularly significant structural defects were noted.

Internally there is a long iron ladder which provides access to the ringing chamber. There was much guano at the base of the tower and within the tower itself, which will need to be carefully cleared, using appropriate health and safety equipment and clothing. Whilst the ringing floor structure appears sound, guano may have caused decay particularly to boarding and thus, there is a risk when walking across these areas. There is a further timber ladder within the ringing chamber rising up to the bell frame level.

This allowed a brief inspection up into the spire, which as expected is formed of apparent around 6" – 8" wide stones rising up to the solid tip. The rear facing is somewhat irregular inside as expected, as there was no need to dress the stones to this concealed elevation. No particular signs of structural distress were noted, although the inspection was rather limited at this level, but some areas where pointing had been lost were obvious with light shining through, and some water staining was noted (see photograph 51). At the base of the spire, at the junction with the square tower, there are the normal squint brick arches across the corners (see photograph 52). No particular structural defects were noted in the tower structure on descending.

Whilst I did inspect these areas, this was with great care. Due to the unknown condition of both the floors, I do not recommend that others undertake inspections or access the tower due to these risks, the same applying to the ladders also.

Internally within the main body of the spire it was quite gloomy and, even with torches, assessing the condition was not straightforward. The valley gutter between the north aisle and nave is clearly in very poor condition with much water ingress evident, and in some places vegetation can be seen internally (see photographs 53 and 54). There will be a significant amount of repair needed to these elements with the following likely to be necessary: repair of trusses including wall post, principal rafter foot and arched braces; repair of common rafters say up to first purlin level, and then replacement of entire rafter wall plate; replacement of arched wind braces on underside of common rafters. This will be for both the retained section of north aisle and nave, and will need to include temporary works to support the structure whilst these works are undertaken. A close level survey would be necessary to identify the full extent of the works accurately.

The south aisle roof does not appear to be in such poor condition from the underside (see photograph 55), however it would be prudent to clear to valley to help reduce water ingress and therefore decay in these areas. This would need to be undertaken with great care and with appropriate safety equipment and harnesses, as the condition of the gutter sub-structure is not known. Similar access to the north valley gutter is not suggested due to the condition of the structure.

The north wall of the north aisle to the east end is also suspect, due to water ingress as evidenced from the water staining to the external wall and plaster failure (see photographs 56 and 57).

Outline Structural Comments on Proposed Options

Three options are currently being considered, and below we provide comments on each in turn.

Option one is to create a single unit, comprising the tower and spire and the western two bays of the nave and north aisle, with a link corridor running along the retained north aisle north wall, returning south across the length of the vestry and chancel. The chancel and vestry will be retained. There will be first floor accommodation within the chancel, west end of the nave and north aisle and the tower. A second floor room will be created in the tower. The remaining walls and associated roof of the church will be demolished.

The main structural consideration is the lateral stability of the arches at the west end. This will be in both the north-south and east-west directions, and the current equilibrium by the adjoining structure will be removed. The first floors will assist this condition particularly, but an allowance should be made for additional ties at the springing points of the arches running along the outside walls, and including the truss line running north-south at roof wall plate level.

Theoretically, we may be asked to prove that the existing foundations are capable of supporting any additional load from the proposals, i.e. the first floor, any new finishes, insulation etc. Normally we would make an assessment on the percentage increase in load, and if this is relatively low, make a judgment based on this. We suspect the existing will be adequate, but the columns will need careful assessment due to the concentration on loads on these foundations. A discussion with Building Control will be necessary in due course, and when the existing foundations are known.

Option two retains the tower and west end as Option one as a single unit. Then at the east end the chancel and vestry are retained, again along with the eastern bay of the chancel and north aisle as a second unit. Both have accommodation at first floor level, and a small second floor in the tower.

Similar comments as for Option one apply, but here also repeated for the retained bay to the eastern end, as well related to both loading and the tying of the arches.

Option three retains the same as Option one, but without the chancel and vestry which are demolished. The north wall of the north aisle remains as a courtyard wall.

Our insurers require us to say that we have not inspected woodwork or other parts of the structure unless specifically detailed in the report, which are covered, unexposed or inaccessible and we are therefore unable to report that any such part of the property is free from defect. The roof space was not entered as this was not relevant to the movement identified to the rear of the building.

This report has been carried out to the Client's requirements and no liability is intended or will be accepted from any third party whatsoever. The limits of liability are restricted to the contents of this report. No opening up or investigation of foundations etc. was carried out, the inspection being visual only. No checks on load bearing capabilities have been carried out.

I hope the above is useful but please do not hesitate to call if you have any queries.

Yours sincerely
FOR THE MORTON PARTNERSHIP LIMITED,

Edward Morton

EDWARD MORTON

Encls - photos

Photograph 1: East facing elevation of spire

Photograph 2: North facing elevation of spire

Photograph 3: West facing elevation of spire

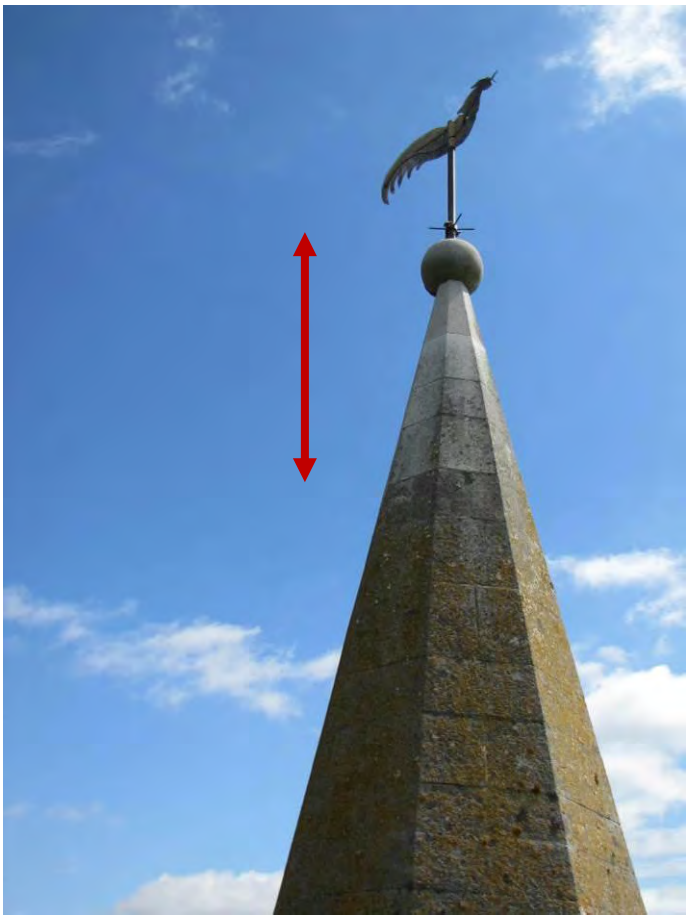
Photograph 4: South facing elevation of spire

Photograph 5: Cockerel to weathervane with bent head

Photograph 6: Cockerel with head bent straight and evidence of gilding and pellet damage

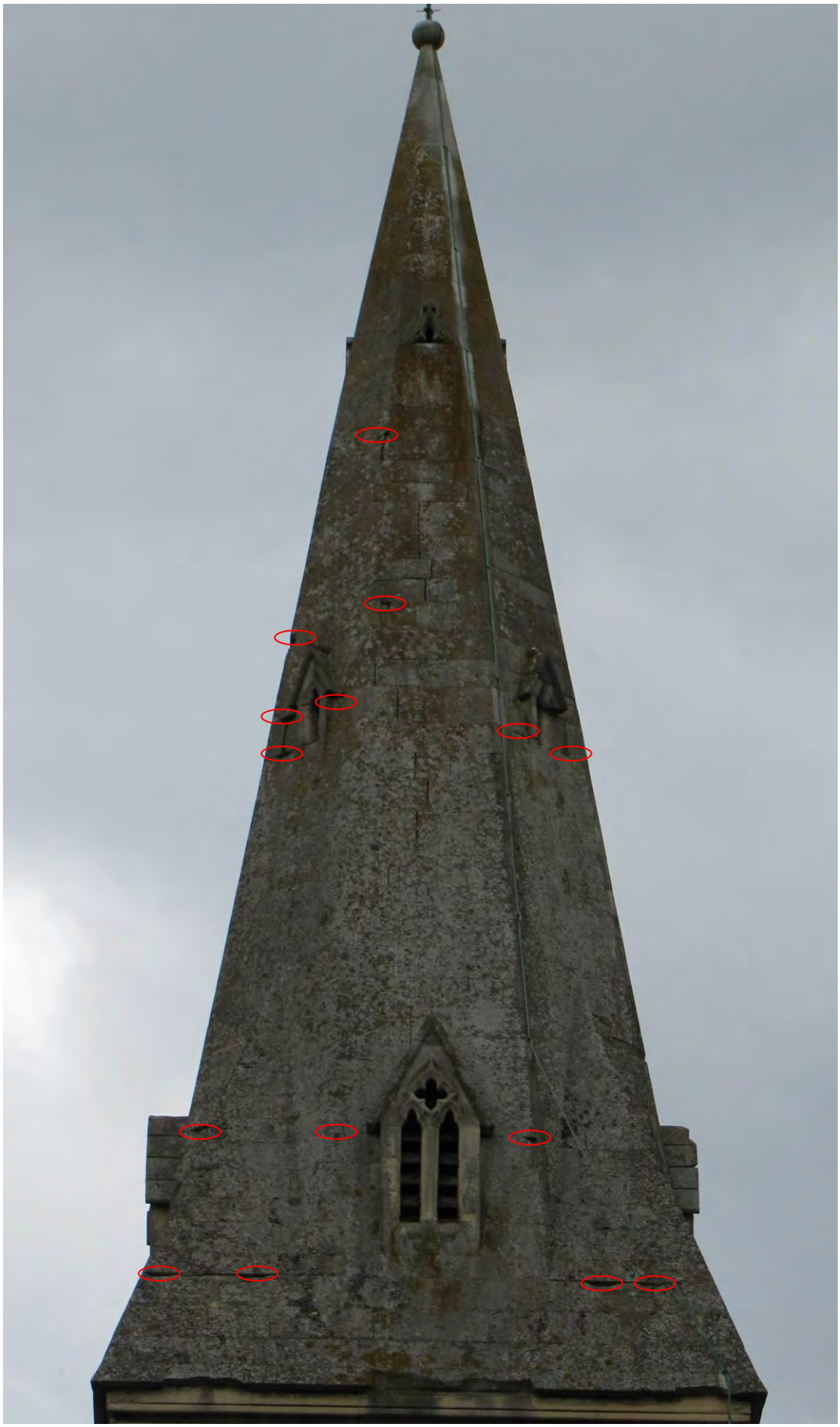
Photograph 7: Central dowel rod for weathervane and associated lightening conductor

Photograph 8:Internal view up into spire with apparent fixing plate or cross-tree to solid tip



Photograph 9: Tip of spire a possible re-build?

Photograph 10: Corroding iron fixings for copper tape



Photograph 11: East facing elevation marked up with identified cramp positions

Photograph 12: Damage to stone from iron cramp corrosion jacking

Photograph 13: Cramp damage in two courses with associated damage

Photograph 14: Fractures developed in the stonework through corroding cramps

Photograph 15: Fractures developed in the stonework through corroding cramps

Photograph 16: Lifting of stones through corrosion jacking

Photograph 17: Upper ventilation opening in reasonable condition

Photograph 18: Erosion and some cramp damage to central lucarne window to spire

Photograph 19: Damage to head of central lucarne window

Photograph 20: North eastern central lucarne window in poor condition

Photograph 21: Loose section of stone to head of NE central lucarne window

Photograph 22: Lower lucarne window with evidence of past cement pointing

Photograph 23: Fracture to side of lower lucrane window

Photograph 24: Erosion and decay to internal face of lower lucrane window reveal

Photograph 25: Fracture to head of lower lucarne window opening

Photograph 26: Decayed mullion to lower lucarne window

Photograph 27: Face of stone decayed

Photograph 28: Eroded roll moulding below base of spire

Photograph 29: Eroded roll moulding below base of spire

Photograph 30: evidence for re-used masonry in tower

Photograph 31: Internal view of tower

Photograph 32: Occasional missing flints to tower

Photograph 33: Mortar eroded to flint facing

Photograph 34: Putlog holes to west elevation

Photograph 35: Part filled in apparent putlog hole

Photograph 36: Part filled in apparent putlog hole

Photograph 37: Approximate area of bulged flintwork to west elevation

Photograph 38: Open joint to buttress quoins and flintwork

Photograph 39: North buttress to west elevation with 'live' quoins

Photograph 40: Ivy growth to flint facework to north elevation

Photograph 41: Short section of 'hoop iron' in flintwork

Photograph 42: Belfry window stonework in poor condition

Photograph 43: Belfry window stonework in reasonable condition

Photograph 44: Lancet window to tower at lower level

Photograph 45: Graffiti to stone corbel

Photograph 46: Out of focus view into spire

Photograph 47: Daylight seen through joints

Photograph 48: Overview of roofs

Photograph 49: Blocked valley gutter

Photograph 50: Collapsed face to south wall of south aisle

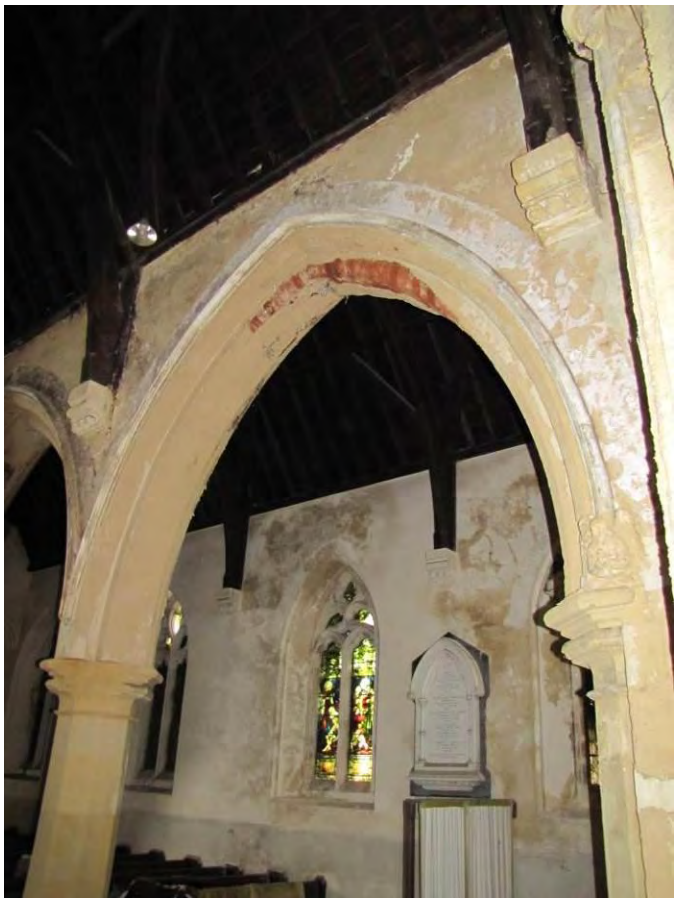
Photograph 51: Internal view of stonework to spire

Photograph 52: Brick arches to squint corner of spire supporting elevations above

Photograph 53: North side of nave roof adjacent to south elevation of tower

Photograph 54: North side of nave roof and valley to north with decayed structure obvious

Photograph 55: North side of south aisle at west end



Photograph 56: North aisle at east end

Photograph 57: North aisle external wall at east end