99/21

LINDSEY ARCHAEOLOGICAL SERVICES

St Mary Magdalene Church, Fleet
Detached Bell Tower
TF389 238

Archaeological Building Survey

for

Fleet Parochial
Church Council

LAS Report No. 373
November 1999

25 WEST PARADE · LINCOLN · LN1 1NW
TELEPHONE 01522 544554 · FACSIMILE 01522 522211 · EMAIL las@lasarchaeology.demon.co.uk
F.N.FIELD B.A.(Hons), MIFA

Contents

Introduction	1
Method	1
Bell Frame	1
Wall Ties	2
Timbers 1 and 2	2
Timber 3	3
Timber 4	3
Timber 5	3
Joints	3
Bolted Connections	3
Brick Lining	3
Conclusion	4
Acknowledgements	5
References	5

The Figures

St Mary Magdalene Church, Fleet: Detached Bell Tower Building Survey

TF389 238

Introduction

Lindsey Archaeological Services was commissioned by Fleet PCC to undertake an archaeological recording survey, as required under a condition of the Faculty granted on August 2nd 1999. The purpose of the works was to restore the ring of six bells and to install the bells in a steel-framed bell frame. At the same time adjustments were made to the church clock which required the permanent removal of two timbers inside the tower (nos 1 and 2 below).

Five timbers in the first floor chamber were inspected by the author on August 16th 1999. Background information was provided on site by Mr R. Cutler (church warden) and the Rev. D. Edwards. Additional information is taken from the leaflet on the *Project to Restore the Bells* by Rev. D. Edwards and the church guide booklet (1996). Background information on the church was beyond the scope of this survey.

The supervising architect for the project was Mr G. Cooke of Bond and Read. A survey by Ward Cole has established the structural stability of the tower fabric. Recommendations have been made by Mr G. Pledger of English Heritage and the work was undertaken by John Taylor Bellfounders Ltd, Loughborough.

Method

At the time of the visit all timbers were inaccessible to detailed observation. Only approximate measurements can be given within the basic framework of chamber and window heights and widths. As there was no information readily available regarding the function of the various timbers existing in the first-floor chamber and the bell chamber, it was thought advisable to record all timbers for comparison and future reference. The relative position of timbers and bell-frame are shown in the isometric view of the tower (Fig .1)

The large glazed cabinet housing the clock mechanism (the latter had been removed before the survey), and covering most of the first floor east window, is omitted for clarity. The drawings are in proportion but not to measured scale. (Note: the drawing shows internal wall limits and elevations, including brickwork detail.)

Bell Frame

The earliest bell is dated 1512; others were re-cast at various dates. The first mention of Thomas Mears and Son of London (identified by the letter "M" incorporated as bracing in the existing cast iron frame) is in 1806, when the firm re-cast the treble and the second bell. Mears also re-cast the third bell in 1904, and the fourth bell in 1909; but at these later dates the firm is given as "Mears and Stainbank". If no "S" exists on an obscured part of the frame it may be provisionally assumed that it was installed prior to 1904.

The only mention of work relating to the bells between 1806 and 1904 is re-hanging of the tenor bell in 1874 although the firm's name is not given. Nor is it known at what date Mears and Son became Mears and Stainbank, so the frame could have been installed between 1806 and 1904, or even prior to 1806, but probably not earlier than 1766, at which date the bell was cast by Leicester and Pack of London. Total bell weight is c.53 cwt.

The six bell cast-iron frame totally replaced any previous frame of timber and was installed a few feet lower, as evidenced by the height of the bell-chamber access threshold (Figs 1 and 4). At least two vertical radial scoops in the walls indicate earlier bell positions (Fig. 1) although the low height suggests they represent a secondary phase rather than the original. Investigations of previous wall-secured timber positions was prevented by the existing frame which occupies about four fifths of the floor area. The date of the lowered floor to which the existing frame is bolted is not known although it is certainly of no great age and could be 19th century. Frame and floor may be contemporary.

Wall Ties

Fig. 3 shows the approximate location of external wall ties, based on proximity to windows and buttresses. Fig. 1 shows the obviously close correlation of seven of the timbers, including 1 and 2 to these ties, For this reason ties have been allotted numbers that correspond to approximate timbers (e.g. timber 5 has tie 5-east at one end and ties 5-west at the other). There are no ties which correspond to timbers 4 and 3 (the only one not set into the walls).

No metal tie rods or brackets are visible internally (when viewed from floor levels). This suggests that the timbers themselves, even if they function primarily as wall anchored hoist platforms, serve as tension bars. The only metal straps visible are those casing or reinforcing timber 6; the upper strap visible through a large decayed area. Since no straps are evident elsewhere it is likely that timber 6 was strengthened due to subsequent weakness and decay; it is illogical that a timber in a poor condition be used as a hoist or as a tie. Timbers 6,7,8 and 9 are at a level inappropriate to a floor, neither do they show obvious indications of re-use. The nearest floor or permanent platform level is the ledge at the junction of tower and spire, near the level of the spire access door. Timber 8 is centred slightly north-west to avoid internal projection of the newel stair wall. There are no indications that these upper timbers are in situ remains of the tower frame, although a re-use of such is possible.

Timbers 1 and 2 (Fig. 2)

These exhibit no signs of previous use other than an irregular vertical hole near the centre of 2 which appears to be a guide hole for an earlier bell rope. Existing ropes do not pass through the timbers, but are enclosed in raked timber box-channels which are let into 2 and fixed to the chamber floor. Two eye bolts in the soffit of 1 are believed to be for a stay or bracket for the clock drive (mechanism removed prior to survey). Neither 1 nor 2 have any appearance of antiquity or wear, or are located at any original floor level (but see "brick courses" below). These are the timbers which will be removed.

Two short struts (omitted from Fig .1) are bird-mouthed to the upper inner arris of 1 and 2 north ends, both angled inwards and upwards, and fixed to the soffit of the northern floor support. No struts exist on the south side.

Timber 3 (Fig. 2)
This is flush to the south wall and the only timber seen which does not have its ends set into the walls. Details of fitting are not known, but it appears to be trenched (as opposed to halved) over the uncut upper south surfaces of 1 and 2. The trenching abruptly cuts an inner soffit chamfer associated with previous use. Compared to the relatively straight, clean and unworn surfaces of timbers 1 and 2, timber 3 is slightly irregular, sagging, and worn, most noticeably over the centre upper and inner surfaces for a length of approximately 1m. Its present structural function appears to be to assist in locking 1 and 2 in the wall-fast positions, i.e. maintaining the distance between them as do the struts at the north ends.

Timber 4
The decay in 6 may have been directly due to ingress of water from the damaged spire (restored 1994-5) since timber 4, immediately below, was apparently still in use as an internal angled gutter trough in the 1970s (from information by Rev. Edwards). Note the short angled timbers to 4 (Fig. 1), it is assumed that these are all that remains of an added gutter board.

Timber 5
The opposite number to 4 is 5. Other than the chamfer to timber 3 (first floor), this is the only component which displays obvious evidence of previous use. There are three close-set holes (for nails or pegs?) in an inverted pyramid pattern. On the same face neared the west end is a shallow open mortice similar to that required for a diagonal half-lapped brace at approx. 45º. Both 4 and 5 are set flush to the north and south walls and would be useable for hoisting operations only with the additional provision of spanning timbers.

Joints
Limited observation suggests that timber 3 is the only one that has been cut to fit other timbers, albeit with a large single bolt to each joint. In all other cases where the two timbers cross each other they appear to be bolted only. All timbers except No. 3 are also bedded into the walls.

Bolted Connections (figs 1,2 and 4)
All timber connections are by bolts, i.e 1/3; 2/3; 6/8; 6/9 7/8; 7/9. Bolted timbers correlate to external wall ties. Timber 5 has wall ties but no visible bolts. All bolt fittings are of the same type, implying they are contemporary. Recessed bolt heads in the timber soffits may be fixtures for tie bars not visible from below.

Brick Lining
The first floor chamber is brick lined with stone dressings and quoins up to a height of the window apexes. From here to the level of timbers 1 or 2 it is stone faced. At this level there appear to be three courses of brick. From 1 and 2 upwards the facing is stone which continues throughout the remainder

of the bell chamber and spire. The significance of the three-course brickwork is not known unless it represents an infilled ledge previously supporting an under-floor, earlier hoist platform, or bedding for a tower frame (note: the bell chamber width was not measured, therefore the amount of setback or ledging compared to the chamber is unknown).

The east wall brick lining is more irregular than other elevations in that it continues for several courses above the window apex, but to one side only, the difference being marked by a vertical fissure partly following the bond between brick and stone. There is a corresponding vertical fissure (infilled with cement) rising from the opposite west window apex.

The directional lean of the tower was not measured, nor has any other structural fault been noted internally. The only comment here, relating to timbers 1 and 2 is that (intentionally or otherwise) in conjunction with the associated pairs of wall ties, they tie the north and south walls together, at a level next to the fissures. The latter may continue into the bell chamber but the bell frame prevents observation. Whereas the three course brickwork could be later infill of the ledge which retained timber staging or anchoring for a support frame, the overall brick lining cannot easily be explained as a later addition. Its implications are potentially important. (a) it accompanies the first level of windows, creating a relatively comfortable ringing chamber (b) the ratios of brick dimensions are comparable to early (e.g. at least 15th century) rather than late examples (c) it is unlikely that early brick would be available for a late repair, of which there is, at present, no evidence.

Conclusion

None of the timbers, including those displaying wear or evidence of re-use, represent any in situ part of a previous bell frame since (a) there are insufficient jointing features at regular intervals as found in a conventionally carpentered frame (b) the buried length is greater than the interval chamber width. This does not preclude their possible origin as vertical timbers in a support frame, i.e. contained within the walls and rising over one or more storeys, being based from the either ground level or from corbelled or ledged supports at a higher level (see Hagworthingham church timber support and bell frame re-construction, Pearson 1990) the spire base corbels may be for support and bell frame re-construction) the spire corbels may be for a frame or temporary staging.

Timbers 1 and 2 serve as a wall anchored tower hoist platform which may coincide with an earlier staging several feet below the original second level. Timbers 6,7,8 and 9 form an upper stage hoisting platform. Timbers 4 and 5 may represent a hoisting and working mid platform for final lowering and placement of bells. Since all timbers are wall anchored by contemporary ties, the proximity of 1 and 2 to the wall fissures may be coincidental unless hoisting and lowering could be achieved by a single stage hoist (the upper) in which case the lower timbers were a contemporary installation but for the primary purpose of retaining structural integrity of east and west walls at the most vulnerable point, i.e. window heads.

It cannot be proved at present that timber use/re-use and wall ties are contemporary with the installation of the cast iron frame although its lowered position may have required the provision of new hoisting stages.

It is recommended that the opportunity provided by the bell frame restoration be used to inspect the fabric for evidence of previous timber settings and to clarify some of the points outlined in this report. The potentially early date of the brickwork is itself important, but if original is particularly so within the context of a tower of the decorated period in which brick is rare.

Acknowledgements
Lindsey Archaeological Services would like to thank the incumbent the Rev. David Bratley; and Mr R. Cutler and Rev. D. Edwards for their help on site. This report was edited by Naomi Field and collated by Jane Frost

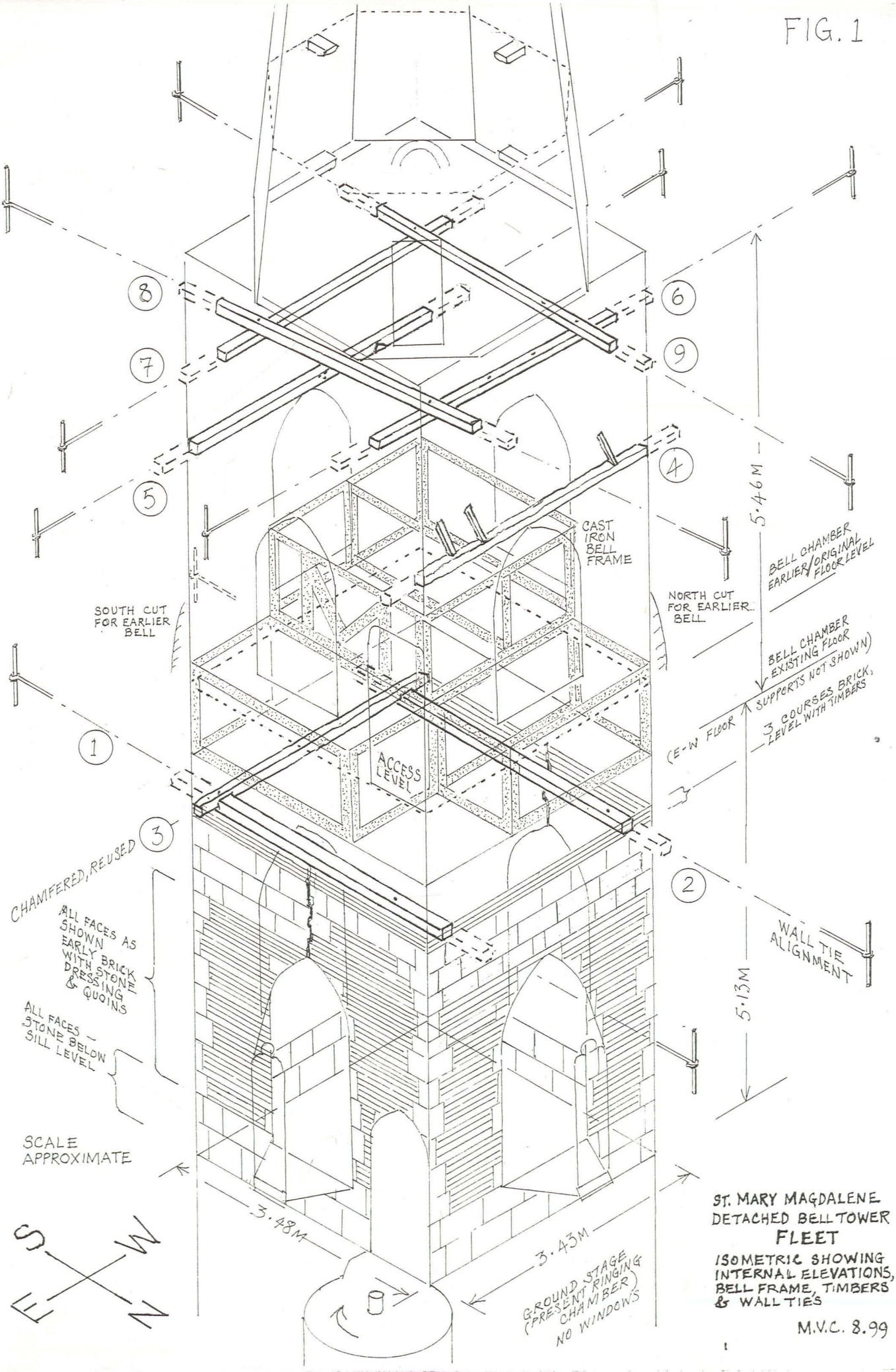
M. V. Clark
for Lindsey Archaeological Services
November 1999

References

Edwards, Rev. D., 1996 *Project to Restore the Bells* church guide booklet.

Pearson, D.W. , 1990 'The church of Holy Trinity, Hagworthingham: dating the construction of the bell-tower frame', *Lincolnshire History and Archaeology* vol. 25, 12-17.

FIG. 1

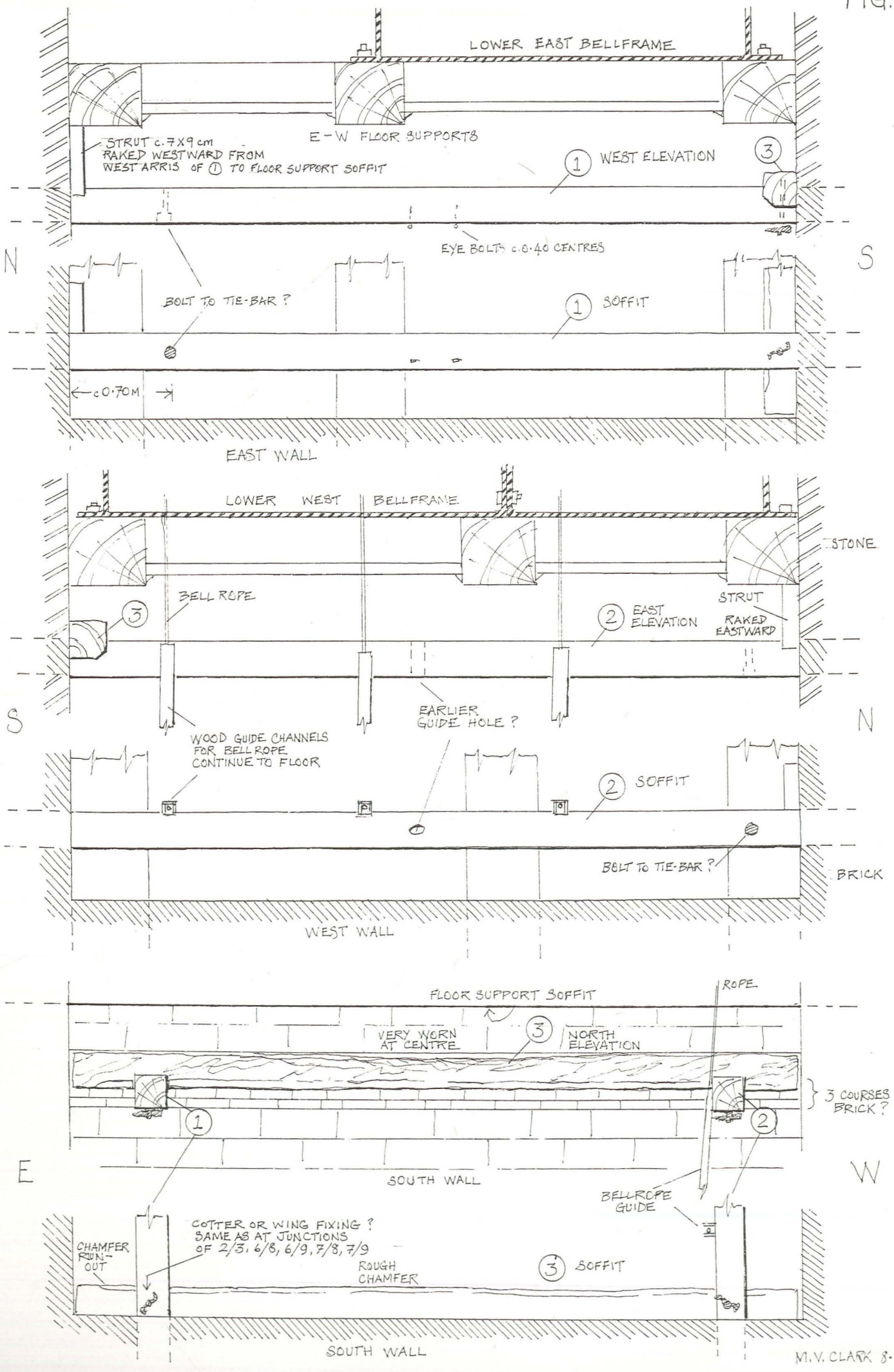


ST. MARY MAGDALENE
DETACHED BELL TOWER
FLEET

ISOMETRIC SHOWING INTERNAL ELEVATIONS, BELL FRAME, TIMBERS & WALL TIES

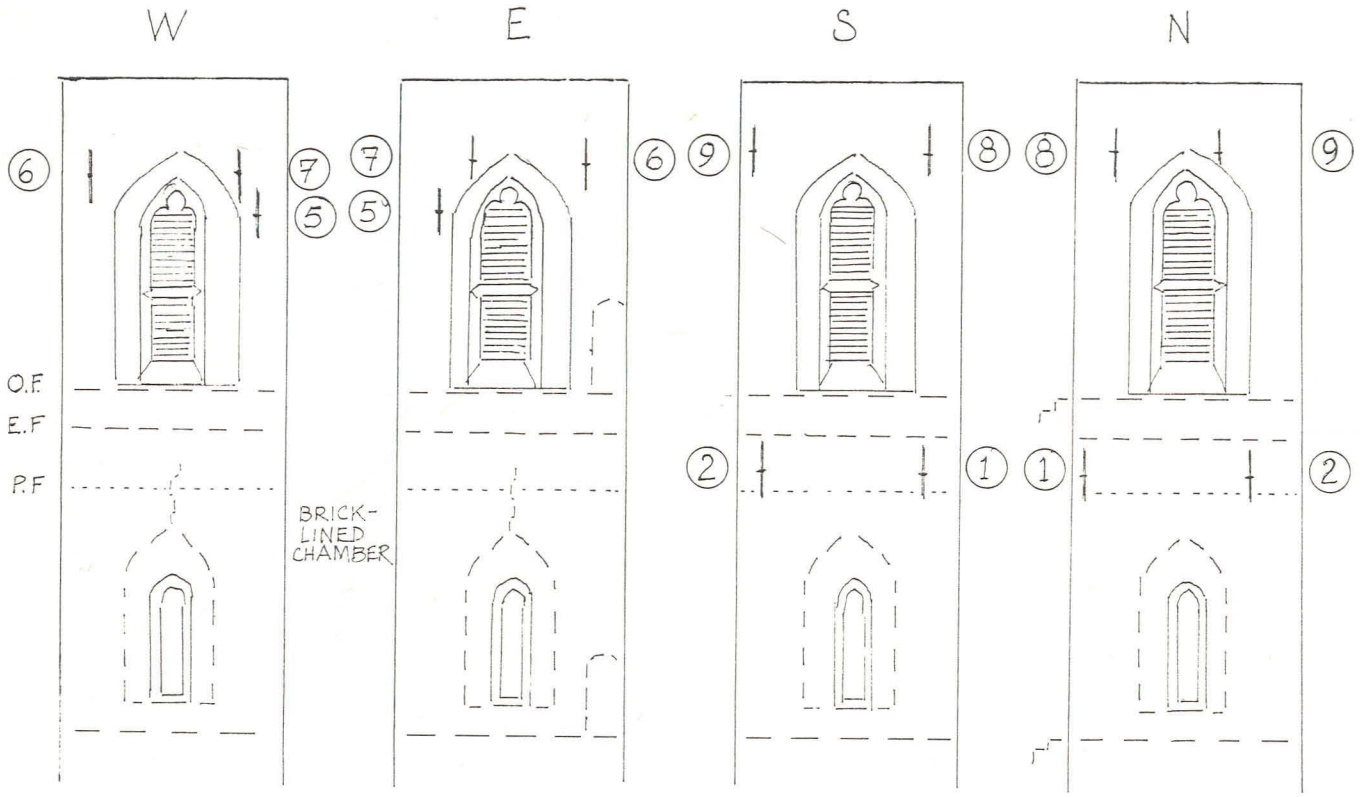
M.V.C. 8.99

FIG. 2



M.V. CLARK 8·1999

EXTERNAL ELEVATIONS & POSITIONS OF WALL TIES (APPROX)

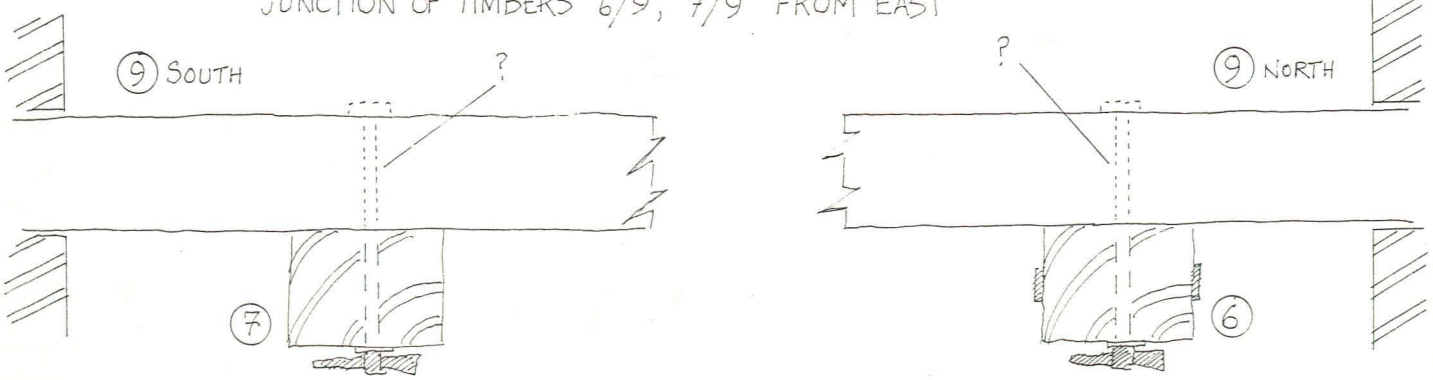


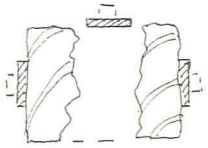
O.F ORIGINAL FLOOR LEVEL
E.F EXISTING FLOOR LEVEL
P.F PROPOSED FLOOR LEVEL (APPROX)

WALL TIES GIVEN NUMBERS CORRESPONDING TO INTERNAL TIMBERS

FIG 4

JUNCTION OF TIMBERS 6/9, 7/9 FROM EAST





UPPER STRAP/BAR VISIBLE THROUGH DECAYED AREA OF 6

M.V. CLARK 8.1999