

13 January 2009
IG08/287/JH/le

J P Chick & Partners Limited

Consulting Civil & Structural Engineers



SUMMARY OF COSTINGS FOR WORKS AS RECOMMENDED TO ST PETER'S CHURCH

ST PETER'S CHURCH, THETFORD

Description of Works

Costs

OF UTMOST URGENCY

NB: All costs are without VAT

i)	Strip and re-lay lead roof to the north aisle	£28,000 - £32,000
ii)	Replace flashing to the north east corner of the nave	£500 - £650
iii)	Clean out, repair and re-fix or replace rainwater goods as necessary	£300 - £400

ESSENTIAL WITHIN THE NEXT 18 MONTHS

i)	Undertake clearance of all underground drainage system to ensure effective discharge of surface water away from the structure	£500
(Clearly where replacement works are required allow £60 per linear metre for replacement of defective pipework)		
ii)	Remove vegetation in close proximity to the tower	DIY or £250
iii)	Remove ivy growth to the south east corner of the chancel	Incorporated with the above
iv)	Clear out the void between the east gable of the chancel and the nearby structure	DIY or £100
v)	Overhaul velux window to lavatory block and address any weather tightness issues with roof tiling to the same	£250
vi)	Continue to keep gutter to the tower top clean	DIY - Continuing maintenance
vii)	Re-lead north clerestory windows	£6000 - £7000
viii)	Partially re-lead windows to south of chancel and remove / replace decaying ironwork	£4,500 - £5,500
ix)	Replace north window to toilet block	£600 - £700
x)	Undertake pointing to the boundary walls and ensure programme for re-inspection is commenced	£500 - £650
xi)	Re-point cracks seen within buttresses	£750 - £850

xii)	Hack off render to north aisle and re-apply in suitable lime based materials, enabling inspection of the exposed structure beneath	£4,000 - £5,000
xiii)	Address cracks noted to all internal aspects of the church utilising lime putties or other similar suitable materials	£2,000 - £2,500
xiv)	Re-point coping stones and re-point any weathered stonework typically seen to the east elevation and to the limestone work to the base of buttresses about the tower	£2,500 - £3,000

ESSENTIAL WITHIN THE NEXT FIVE YEARS

i)	Remove any vegetation growing against the structure	Future maintenance
ii)	Re-decoration to all internal aspects of the church	£6,000 - £7,500
iii)	Re-assess spalling faces of quoining work to the tower	£500
iv)	Undertake repairs as necessary to windows within the tower including louvers to belfry	£2,500 - £3,500
v)	Consider the installation of restraining measures for the outward leaning walls dependent upon intermediate inspections and clarification of the evidence of further damage occurring	

Costs will be directly proportionate to ...
levels of movement experienced,
currently this is unknown

DESIRABLE WORKS

i)	Re-wiring of church (dependant upon future use)	£4,500 - £5,500
ii)	Commission on Arborist's report on existing vegetation	£450

Depending on the potential use of the building and any requirement for disabled access alterations to the entrance from street level should be considered under Building Regulations approved Document M, Access and Facilities for Disabled People whereby the entrance will need to be re-graded to provide a ramp and suitable door. An additional £6,000 should be allocated to this work which will include repair to the walling from the footpath to the access door.

With the undertaking of some of these works high level access will clearly be required and should be quoted for by a specialist. Consideration should also be given to the planning of certain aspects in order to reduce these repeat costs for access, which are likely to occur. At the same time consideration should be given to CDM Regulations. In event that the works are undertaken on a piece meal basis under separate contracts, it may be possible to undertake the works without the requirement for CDM. If undertaken as a whole a job of this size may cost in the region of £2,500 plus VAT to cover CDM and the appointment of a CDM Coordinator.

20 December 2008
IG08/287/JH/le

J P Chick & Partners Limited
Consulting Civil & Structural Engineers



STRUCTURAL INSPECTION REPORT



**ST PETER'S CHURCH
THETFORD
CLIENT: THETFORD TOWN COUNCIL**

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ST PETER'S CHURCH, THETFORD

1.0 BRIEF

- 1.01 J P Chick & Partners Limited were appointed on behalf of Thetford Town Council by Susan Glossop to undertake a structural inspection of St Peter's Church and determine any maintenance issues which exist therein.

2.0 DATE OF INSPECTION AND WEATHER

- 2.01 The church was inspected on Tuesday, 2 December 2008.
- 2.02 The weather was cold and overcast with wintery showers.

3.0 GENERAL INFORMATION

- 3.01 The church is situated in the town of Thetford on the junction of White Hart Street and King Street. This is adjacent to the King's House, which is occupied by Thetford Town Council.
- 3.02 Its location is 586950, 283150 Eastings and Northings or TL869831 with reference to Ordnance Survey land ranger. The site itself is relatively level, although the footpath which it abuts on White Hart Street has a slight fall from north to south of less than 5%.
- 3.03 The last quinquennial report was undertaken in 2004 entitled an 'eighth inspection report', a copy of which has been provided by Thetford Town Council. This was undertaken by Michael Swash of Birdsall Swash & Blackman Chartered Architects and Diocese & Surveyors of 3 Pottle's Alley, Hingham, Norfolk, NR9 4HS.

4.0 GEOLOGY AND ENVIRONMENT

- 4.01 British Geological Survey Sheet 174 is currently unavailable, however from our knowledge sub-solls to the south of the river, Little Ouse and in close proximity consist of mainly sands and gravels likely to arise from glacial deposits.
- 4.02 With reference to information published by the Environment Agency, the site is shown to exist on the edge of an area shown to be at risk during extreme flooding, which is considered to be an outlying area, which has a 1 in 1000 chance of flooding each year. Given the slightly elevated position the church has, it is considered that it is unlikely even in the extent of extreme flooding that this will be subject to damage during a flood event.

5.0 HISTORY AND BACKGROUND

- 5.01 The church has a Grade II* listing with English Heritage, which was first listed in 1951. The main church is thought to date to the 14th Century, although the west tower was re-built in 1789. The nave and chancel roofs are duo-pitched and clad in tiles, whilst the north aisle running the length of the nave and chancel has a mono-pitched leaded roof. External walls to the south consist of knapped flint with buttressing provided between the high perpendicular windows, typical of this period of construction.
- 5.02 The north aisle is separated from the nave with 3 piers linked with high arches and from the chancel by piers which have been infilled to provide a physical separation. To the east, what is considered to be the vestry has more recently been converted into toilets.
- 5.03 The tower is finished in black knapped flint with diagonal stepped buttresses to the north west and south west corners. The tower has four lifts with a flat roof and crenellated parapet. There is a full set of 7 bells which are frequently rung.

6.0 DAMAGE AND OBSERVATIONS

6.1 EXTERNAL

6.1.1 CHANCEL

East Elevation

- 6.1.1.1 The east elevation of the chancel is largely obscured by the later flat roofed structure, which is built in close proximity to it. From that which is visible it can be noted that the majority of the flint work to the top of the arch height of the window has been undertaken in common and un-knapped flints, giving a lighter appearance. Immediately beneath the south facing window brickwork is evident, which is considered possibly to have been undertaken as later works. All flint work appears to be relatively stable with no obvious movement or damage, although some loss or erosion of lime mortar can be noted at high level.
- 6.1.1.2 At high level to the window the arch to the north is noted to have suffered degradation to the projecting stonework. Coping stones to the parapet detail all appear secure with weathering and long term degradation to the jointing, especially on the northern slope.
- 6.1.1.3 Roof slopes to the vestry are also visible from this aspect and would appear to be in reasonable condition with flashings intact as well as all tiling. There is a build up of lichen on and around the velux type window, which is installed above the ladies toilet.
- 6.1.1.4 Against the south buttress is considerable ivy growth, which has reached full height of the staggered buttress as well as what would appear to be a young Elderberry growth in this vicinity. This has also extended over the flat roof structure, which sits adjacent the south elevation of the chancel.

South Elevation

6.1.1.5 A later doorway has been installed to the eastern end of the chancel in the form of a brick drop arch. This has been constructed in red bricks, which key into the existing flint work. All appears to be in satisfactory condition with weathering noted to the vertical panel door. Rainwater goods appear to have minor leaks and wooden inserts forming dowels for the downpipe brackets have become dislodged and are missing. There is evidence of significant damp activity at ground level where the downpipe connects into the gully, which would appear to be partially blocked.

6.1.1.6 Buttreassing to the south have lead flashings, which appear in reasonable condition. Cracking is noted to the interface of the same between key stones and the flints, which were noted to continue full height and are a maximum of 1mm in width. Similarly at the plinth level the limestone to all buttresses appears to have longstanding cracks which have weathered and worn accordingly. Central buttresses have suffered some outward rotation considered to be in the region of 30 – 40mm over their height. Low level stonework making up the plinth is seen to be weathered in places. The tiled roof would appear to be in good condition with flashings intact, no slipped tiles and a consistent ridge level. The south facing perpendicular windows both appear in good condition with no obvious indications of significant movement or deterioration.

6.1.2 NAVE

South Elevation

6.1.2.1 The nave is approximately 2m higher than the chancel overall buttressed by 5 stepped side buttresses, the central 3 of which have decorative stone niches to the external face. The mid-height steps to the central buttresses have had lead flashings installed over the chamfered stone, which appear to be in good order. At high level the flint panels and the intermittent brick soldier coursing above the windows all appear intact, whilst at the low level there are excessive quantities of pigeon droppings and weathering noted to the decorative plinth stones, which may have been historically replaced in more modest plain faced stone to the western end including the adjacent buttress.

6.1.2.2 Windows to the south elevation of the nave typically remain intact, although movement is evident where the lead is suffering from age. Inset ironwork is also seen to be rusting and there are early indications that this is causing spalling where embedded into the stonework.

6.1.2.3 As with buttressing to the chancel, cracks are present at the interface between the lime key stones and the knapped flints with cracks of a maximum of 2 – 2.5mm width. These typically continue up to the first step height and do not appear to continue above this level. These abutments are again seen to be overturning with the eastern most of the central abutments, overturning by approximately 60mm over the lower stage alone.

6.1.2.4 The tiled roof to the nave would appear to be in good condition, possibly with some replaced tiles toward the tower. Flashings appear to be in good order as do the coping stones to the gable and parapet upstand at the intersection with the chancel. The rainwater troughing appears to be in reasonable order as do the downpipes, although there is evidence of partial blockage within the connecting gullies at ground level.

6.1.3 WEST TOWER

6.1.3.1 Stepped buttresses to the west tower all remain plumb with cracking noted only to the north eastern side abutment, which occurs above the northern aisle at the interface of the key stones and the knapped flints. This runs to full height where the buttress diminishes at belfry level. The flint work and the pointing to the same appears in good condition, although the limestone quoining is suffering weathering to all four corners, which has caused surface spalling to relatively widespread areas. Minor cracking is also noted at the interface between the stone quoining and the flint work at first floor to the south west abutment typically no more than 1mm in width occurring in an isolated 1m length. The faces of the diagonal buttresses have cracking existing between the quoining and the inset knapped flints, which typically exists to the lower staging only. The bases of the exposed abutments have suffered some weathering, especially those that extend on to the pavement of White Hart Street. Typically, stonework within the 'splash zone' has seen significant deterioration to the face and subsequent patch repairs, which have been made over time are again falling.

6.1.3.2 Minor cracking is noted to the stone surround of the west window of the clock tower as well as slight misalignment of the same. Timber louvers to the belfry appear weathered, although largely intact. Their fixings could not be closely inspected and we therefore remain unaware of their condition.

6.1.3.3 The crenellated stonework to the top of the tower appears generally in good condition.

6.1.3.4 Inspection of the roof confirms that it is lead covered with a central gully draining to the north. At the time of inspection this appeared to be in good order with mortar work around flashings largely intact with the gully appearing to be relatively free draining.

6.1.4 NORTH AISLE

6.1.4.1 The northern aisle runs the length of the nave at single storey height with four clerestory windows to the nave above the roof height. There is a boiler room beneath the structure accessed from cellar type doors which were locked at the time of inspection. A chimneystack is situated above this providing ventilation. The west elevation is finished in knapped flint with a crenellated upstand parapet which is built into the side buttress of the tower, linking with the stairwell to the tower. Separation cracking is present between the lime quoining stones and the chequered knapped flints in this proximity at a maximum of up to 4mm. The window to the west in the north aisle appears in reasonable condition with no obvious signs of movement.

6.1.4.2 The external wall to the north aisle has had an applied render, which over the years has been patch repaired. Currently there is extensive evidence of spalling and debonding, in particular to the eastern end against the chimneystack at the junction with the north chapel / chancel. The external walling in particular the area where windows are situated is seen to be overturning by approximately 150mm over its height in the worst affected area. The damp results from rainwater goods being blocked and entirely ineffective. Similarly, windows have suffered weathering again with ironwork causing spalling where it is embedded into the stone and leading in some areas is perished. This is the same for the clerestory windows at high level, some of which would appear to have had historic repairs. From that which can be seen of the walling to the face of the clerestory this appears in reasonable condition having been rendered, although there is evidence of some flaking to the surface finish and damp staining in the locality of rainwater downpipes, which are likely to either be leaking or have leaked historically.

6.2.1.2 Separating the nave from the north aisle are three octagonal pillars linked with high arches. The two pillars situated to the east are seen to be rotating into the north chancel by approximately 40mm over the shaft height. None of this movement would appear to be recent, or has resulted in any obvious damage. Only hairline cracking exists to the second arch from the west, which emanates from the top up to the clerestory in the form of a hairline crack.

6.2.1.3 To the south wall bulging plasterwork can be seen at low level, indicating some damp penetration. Cracking is present above the eastern and western most windows, which would appear to emanate from the bottom of the hammer beam and runs into the window reveal itself, continuing down to sill height, whilst that to the east horizontal cracking is present which continues down to the window head and onto the connecting wall with the chancel. These would appear to be no more than 2mm in width.

6.2.1.4 The verticality of the windows was checked and these would appear to be rotating outward by in the region of 100mm over their height. The roof structure of the nave consists of single hammer beams at approximately 2.7m centres with two rows of purlins to each pitch. This is over a span of approximately 7m. The roof structure and all the jointing etc appears to be in good condition, with no obvious signs of distress.

6.2.2 CHANCEL

6.2.2.1 Within the chancel cracking is noted at the intersection with the nave, which would appear slightly worse to the south side. Further cracking is noted above the windows to the south elevation and also above the eastern most arch to the north elevation. These would appear to be no more than 1 – 2mm in width. Further cracking of a similar magnitude is present above the east window running into the fabric of the ceiling; the decoration of which is seen to be spalling and flaking. There is a vertical crack present approximately 300mm from the east wall, which would appear to continue from ground level up to plate height. This would appear to taper marginally from high level where the crack width is considered to be in the region of 2 – 3mm. This has historically been repaired.

6.2.2.2 The window appears to be in reasonable condition with some fractures noted at high level within the stonework. Glazing and lead work appears to be generally in good condition.

6.1.4.3 The northern pitch to the nave appears to be in good condition with no slipped or broken tiles and flashings appear largely intact with the exception to that to the bottom of the upstand to the east where a short section is missing. The leaded roof to the north aisle appears to be reaching the end of its serviceable life and shows signs of wear and tear. This is not helped by the significantly blocked guttering, which services this roof, which in turn is having an adverse effect on the external walling also.

6.1.4.4 The external wall to the north chapel / chancel aisle again has a rendered application, which would appear to have been repaired to its lower half in recent times and this would appear to continue to be adequate. At higher level the face is spalling and there are cracks emanating from the tops of window arches. At high level in between the main roof beams, which project beyond the face of the wall horizontal cracking can be noted, possibly indicating some outward thrust of the roof. Vertical cracking also exists at the junction between the chancel aisle and the lavatories to the rear of this.

6.1.5 VESTRY (TOILETS)

6.1.5.1 The vestry is considered a later addition and structurally would appear to be sound, although suffering slight weathering to the north face below sill height. The window frame is noted to be rotten and in need of replacement.

6.1.5.2 The northern pitch of the chancel again appears in good condition with all flashings and tiles appearing in good condition. Rainwater goods would appear to be effective.

6.2 INTERNAL

6.2.1 NAVE

6.2.1.1 The floor to the nave is free from pugs or any other fixed seating and has acrylic tile flooring thought to have been put down in the 1950's / 60's. This is noted to be slightly uneven with some slight crowning to the centre resulting in some cracked tiles.

6.2.3 NORTH AISLE

6.2.3.1 The north aisle is split in two with that to the west being open to the nave with that to the east having been more recently separated, containing a kitchenette to the east end.

6.2.3.2 To the external wall to the north, distortions seen externally reflect that which can be seen internally with evidence of water penetration to the north east end in the proximity of the external chimney and ineffective rainwater goods.

6.2.3.3 The roof structure consists of main arch braced beams spanning onto walls between window openings with intermediate beams supported by bridging beams running east to west between the main beams. At the time of our inspection the roof was noted to be leaking to the north east corner and it would appear from the roof boarding that this has been a longstanding, albeit probably intermittent, problem. Elsewhere there is evidence of water staining and activity to the wall plate / edge beams and it is not clear whether this is recent. There has been some form of mortar based repair to the face of the edge beam to the north, which appears to remain relatively intact. Historic over turning of the north wall to the nave and the clerestory above has necessitated repairs in the form of the installation of fillets or packers to the base of the arch braced beam where it abuts the wall. These do not appear to have suffered any further significant movement.

6.2.3.4 The eastern portion the roof structure is less ornate with approximately 300 x 300mm main beams spanning onto the north wall situated between window openings with a bridging beam at half span. There is evidence to the north wall and to the eastern wall of high level moisture penetration which no doubt arises from defective roofing. Vertical cracking is also seen beneath the eastern most window, which can be seen to continue into the stone frame itself.

6.2.4 VESTRY

6.2.4.1 Within the vestry which has been converted to toilets it can be noted that low level damp penetration is present to all walls within this area, as well as some lintel movement above the north facing window. To the south east corner within the ladies toilets there would appear to be some limited high level moisture penetration which may be entering via the velux style window.

6.2.5 TOWER

6.2.5.1 The base of the tower provides access to the nave from the west, the level of which sits between the internal level of the nave and the external pavement. At this level all walls and the arch vaulted ceiling has a rendered and painted finish. There is no evidence of any crack damage and everything appears in good order. To the north at the base of the tower is the stairwell to the ringing chamber. This has been lined with red bricks, which historically have had a surface application and which has in part deteriorated, possibly from a combination of damp and wear and tear. There is no evidence of any structural movement.

6.2.5.2 The ringing chamber is brick lined in an English bond. There is a single window to the south with a recessed arch to the east. Indications are that the walls are approximately 1200mm thick. To the top of the arch to the south window there is a crack which steps up through the brickwork and can be seen running the full depth of the wall. This would appear to be relatively longstanding having possibly being decorated over. Two main ceiling beams are visible at this level spanning east west, which are approximately 250mm deep and of similar dimension in width. Smaller section joists span from the north and south walls between these two main beams. All appear to be in good order.

6.2.5.3 Within the clock tower of the second lift there are again two main beams spanning east west. These typically have a very large section being approximately 350mm wide and 400mm deep. Intermediate joists of varying dimension span north to south. Bolt ends can be seen to the bottom face of the main beams, which are thought to bolt through to the belfry timbers spanning north south above. At this level a repaired crack is visible beneath the most northern of the beams to the west face, which shows no further signs of re-opening. Exposed timbers at this stage appear to be in good condition with wear occurring to the boards which have a felt covering there are no obvious wormholes or any evidence of deathwatch beetle or other timber degrading spores.

6.2.5.4 There is a west facing window with plain glass lights, which would appear to be in reasonable condition. The hardwood frame shows signs of weathering and moisture staining, although at this juncture has not adversely affected its performance.

6.2.5.5 Within the belfry at the third lift all four walls have openings, all of which are bordered with sheet material. Minor cracking can be traced from the end of the arch to the north and south walls where the main timber for the roof support is seated, although these would appear to be longstanding. Elsewhere faces of red bricks have spalled in randomly occurring places.

6.2.5.6 The roof structure to the tower top would appear to be in reasonable condition, all joist ends visibly appear to be sound and free from excessive staining, wracking or splitting.

6.2.5.7 At the time of our inspection the 'tower captain' was present and confirmed that the full set of eight bells remain full in order and are still utilised. The steel reinforced timber cradle frame within which the set of bells is housed all appears sound with no evidence of rot or infestation that could be seen from accessible parts of the structure. The cradle itself is supported by a lattice work basically comprising of four deep section beams, two of which span east west and two north south. All connections and the beams themselves appear sound without any evidence of significant movement.

6.3 CHURCHYARD AND PERIPHERALS

6.3.1 To the south east corner of the chancel abutting the church is a flint and brick wall which has a stone archway set within the wall providing access to the churchyard from King's House car park. The flint element nearest the church would appear to be in reasonable condition with the transition into the brickwork which includes the stone arch suffering rotational movement, which would appear to be longstanding in nature. On the east side within the car park the lower level has a more recent brick face addition, which is no doubt offering significant support. It does not show signs of any movement. At high level the chamfered and coping course of brickwork has seen movement and deterioration as has the flint work beneath, which has been eroding over a long period.

6.3.2 It was not possible to inspect the gap between the flat roof structure in close proximity to the eastern gable of the chancel, although it is anticipated that this will benefit from protection against elemental forces, although there is the possibility that leaves and general detritus will be captured providing damp bridging in the long term.

- 6.3.3 Churchyard walling to the south and west is constructed of similar knapped flints as the church with brick piers. It is anticipated that this may historically have been rebuilt providing three courses of engineering bricks at ground level. Outwardly, the wall would appear to be in good condition however vertical cracks are present, typically occurring between the flint panels and the brick piers. Some of these cracks extend to approximately 5mm. These are seen more so to the radius to the south west corner with some rotation noted on the first two panels against King Street. Mortar work has been re-pointed against the brick string and coping course to prevent significant weather ingress, which has been undertaken recently and would appear to have not moved significantly since its application.
- 6.3.4 Pedestrian access to the north aisle is via a stepped footway from White Hart Street. Cracking is present to the dwarf retaining walls to either side, indicating that historic rotation of the retained wall against the footpath of White Hart Street has taken place. There is what would appear to be a gully outlet to the face of this wall possibly serving the drain for the tower top. This appeared dry despite rainfall on the day of inspection.
- 6.3.5 The boundary wall to the north consists of a mixture of brick and knapped flint and appears in good condition despite the growth of the mature Sycamore against it.
- 6.3.6 Growing against the north elevation of the church tower is a bamboo cluster, which should be removed including root structures to prevent re-growth as this will spread rapidly and uncontrollably.

7.0 LIMITATIONS

- 7.01 This report shall be for the private and confidential use of the client for whom it was undertaken and it should not be reproduced in whole or in part or relied upon by third parties for any use without the express written authority of J P Chick and Partners Limited.
- 7.02 Unless stated otherwise in the report, we have not disturbed any fixtures and therefore no fitted carpets, floorboards or linings have been removed. Coupled with this, we have not exposed the foundations or tested the drains to the property. We are therefore unable to report that such part of the property is free from defect.

- 7.03 We have not inspected woodwork or other parts of the structure which are covered, unexposed or inaccessible and we are therefore unable to report that any such part of the property is free from defect.
- 7.04 The condition of the finishes, waterproofing, damp penetration and structural timbers, unless specifically referred to, are not the subject of this report. We would recommend the services of a specialist to cover these areas.

8.0 CONCLUSIONS

- 8.01 Throughout the centuries the church has clearly seen significant change including re-tiling of the roofs, the re-building of the west tower, the addition of the vestry and its further conversion into toilets, and more recently the clearing of the nave of church pugs. Overall and with reference to the previous quinquennial report produced by Michael Swash of Birdsall Swash & Blackman we consider that there has been very little in the way of progressive movement or damage to the structure and its fabric, although we do consider that some of the maintenance issues highlighted at that time have become more urgent in nature.
- 8.02 The main concern of a structural nature is that of the outward rotation of the walls to the nave and the chancel and whether this movement is largely historic or is likely to become progressive or continue. Typically this movement is caused by long term loadings from roofs to the external wall, although is exacerbated by external soils at foundation depth being repeatedly saturated by rainfall and leaking / poorly maintained gutters softening founding soils which therefore allows the walls to lean outwards. As a result of this movement internally the floor may be seen to dome up as can be noted to a certain extent within the nave. This rotational movement is not restricted to the external walls alone as the freestanding piers between the nave and the north aisle are also rotating as a result of the loading of the roof on the external clerestory wall. Cracks are present within abutments to the south elevation typically seen between quoining and flint work, although their patterns do not appear to suggest that their presence is exacerbating the issue, which can sometimes be the case. Levels of damage recorded would suggest that if movement is indeed progressive then this is occurring at a very slow rate and that the structure could be considered relatively stable. Defects noted however could cause movement to recommence at any given time. Current problems can typically be broadly categorised as follows: -

- Rotational movement of walls leading to potential instability problems
- Lack of restraint to roof elements exacerbating problems with the rotational movement of the walls
- Erosion and loss of mortar to pointing and joint work between stones
- Deterioration and ageing of window units including lead work and embedded metals
- Deterioration of external rendered finish to the north aisle
- Defective and blocked rainwater guttering and surface water drainage
- Ageing and falling lead roof sheeting to the north aisle
- Vegetation growth both near and upon the structure

9.0 RECOMMENDATIONS

- 9.01 In line with the requirement of quinquennial reports we would recommend that a four stage programme of preventative maintenance be considered with regard to the church and when looking at future costings for its upkeep. These are based on structural needs and the timings therefore may be brought forward where required if that would suit the needs of efficiency and convenience whilst considering finance. These can be summarised as follows: -

- I) Of utmost urgency
- ii) Essential within the next 18 months
- iii) Essential within the next 5 years
- iv) Desirable

9.02 OF UTMOST URGENCY

- I) Strip and re-lay lead roof to the north aisle
- ii) Replace flashing to the north east corner of the nave
- iii) Clean out, repair and re-fix or replace rainwater goods as necessary

9.03 ESSENTIAL WITHIN THE NEXT 18 MONTHS

- I) Undertake clearance of all underground drainage system to ensure effective discharge of surface water away from the structure
- II) Remove vegetation in close proximity to the tower
- III) Remove Ivy growth to the south east corner of the chancel
- IV) Clear out the void between the east gable of the chancel and the nearby structure
- V) Overhaul velux window to lavatory block and address any weather tightness issues with roof tiling to the same
- VI) Continue to keep gutter to the tower top clean
- VII) Re-lead north clerestory windows
- VIII) Partially re-lead windows to south of chancel and remove / replace decaying Ironwork
- IX) Replace north window to toilet block
- X) Undertake pointing to the boundary walls and ensure programme for re-inspection is commenced
- XI) Re-point cracks seen within buttresses
- XII) Hack off render to north aisle and re-apply in suitable lime based materials, enabling inspection of the exposed structure beneath
- XIII) Address cracks noted to all internal aspects of the church utilising lime putties or other similar suitable materials
- XIV) Re-point coping stones and re-point any weathered stonework typically seen to the east elevation and to the limestone work to the base of buttresses about the tower

9.04 ESSENTIAL WITHIN THE NEXT FIVE YEARS

- i) Remove any vegetation growing against the structure
- ii) Re-decoration to all internal aspects of the church
- iii) Re-assess spalling faces of quoining work to the tower
- iv) Undertake repairs as necessary to windows within the tower including louvers to belfry
- v) Consider the installation of restraining measures for the outward leaning walls dependent upon intermediate inspections and clarification of the evidence of further damage occurring

9.05 DESIRABLE WORKS

- i) Re-wiring of church (dependant upon future use)
- ii) Commission on Arborist's report on existing vegetation

Signed.....

J Harvey ACIOB
On behalf of J P Chick & Partners Limited

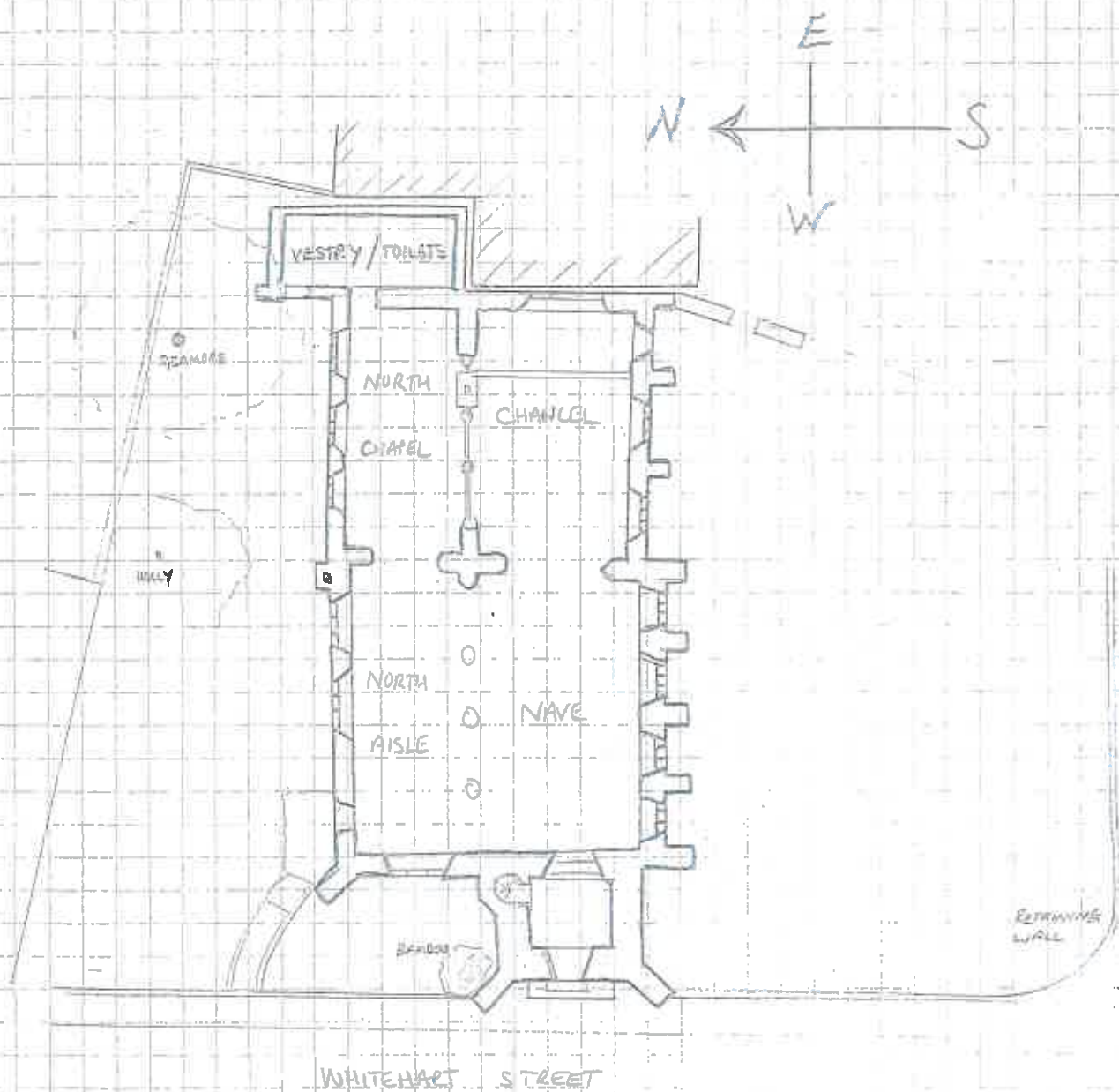
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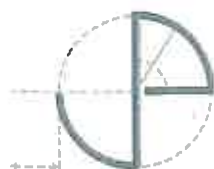
J P Chick & Partners Limited
Consulting Civil & Structural Engineers



APPENDIX A
Church Plan



ST. PETERS CHURCH THETFORD



7 Museum Street
Ipswich
Suffolk
IP1 1HQ

Tel: (01473) 280699
Fax: (01473) 280701

JP Chick & Partners Ltd
Consulting Civil & Structural Engineers

www.chick.co.uk
ipswich@chick.co.uk

Designed

Checked

Date

Job No.

1208/287

CALCULATION SHEET

SHEET NO. 1 of 1

20 December 2008
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J P Chick & Partners Limited
Consulting Civil & Structural Engineers



APPENDIX B

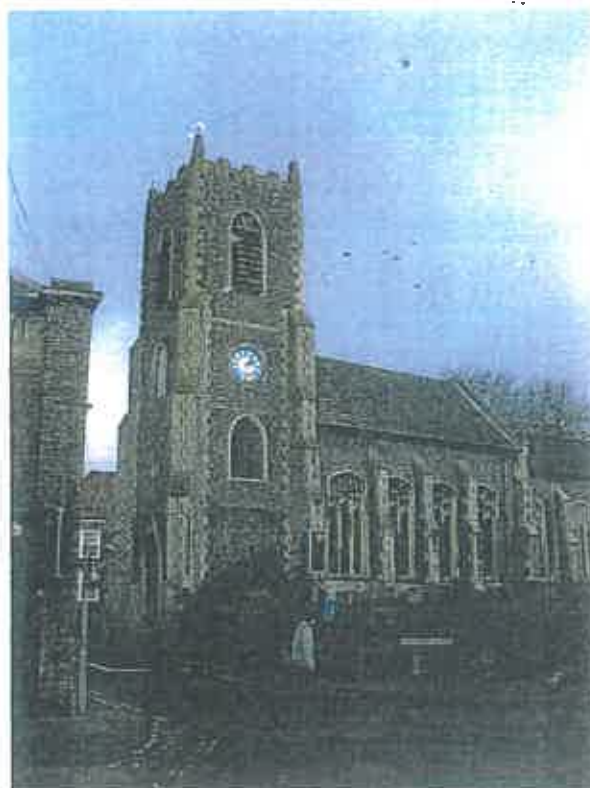
Photographs

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ST PETER'S CHURCH, THETFORD
APPENDIX B – PHOTOGRAPHS



General Views



General Views

ST PETER'S CHURCH, THETFORD
APPENDIX B – PHOTOGRAPHS

External



Chancel – East Elevation



Chancel – East Elevation



Chancel – East Elevation



Chancel – East Elevation

ST PETER'S CHURCH, THETFORD
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Chancel – East Elevation



Chancel – East Elevation



Chancel – South Elevation



Chancel / Nave – South Elevation

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ST PETER'S CHURCH, THETFORD
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Nave – South Elevation



Nave – South Elevation



Tower - South



Tower - South

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Tower - West



Tower - West



Tower - West



Tower - West

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Tower - West



Tower - North

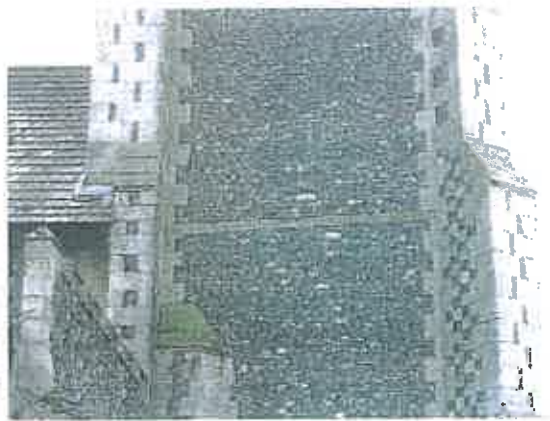


Tower - North

ST PETER'S CHURCH, THETFORD
APPENDIX B – PHOTOGRAPHS



Tower - North



Tower - North



North Aisle



North Aisle



North Aisle



North Aisle

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North Aisle



North Aisle



North Aisle

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Internal



Chancel



.. Chancel



Chancel



Chancel

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Chancel



Chancel



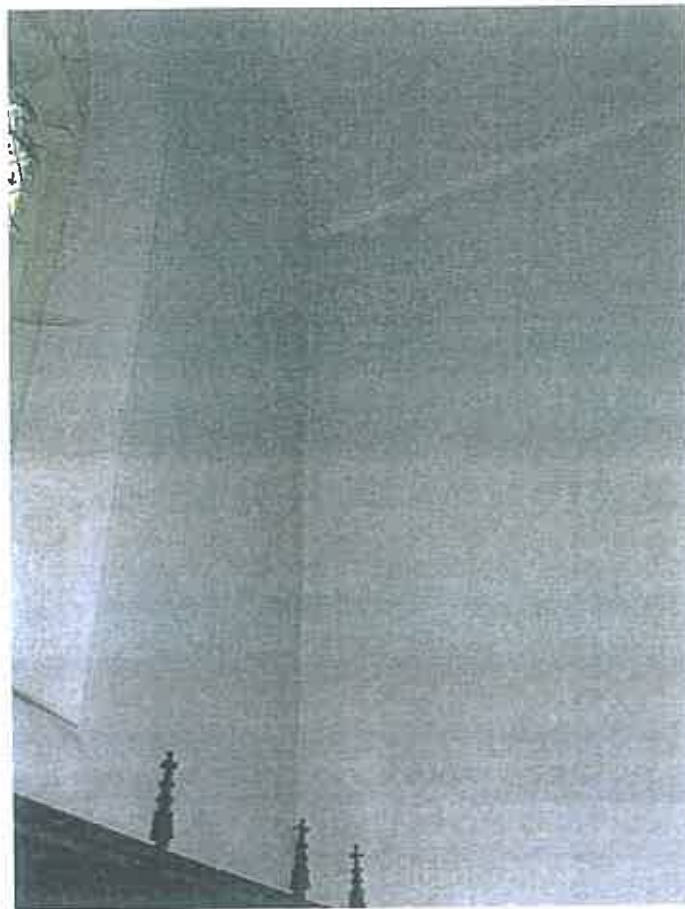
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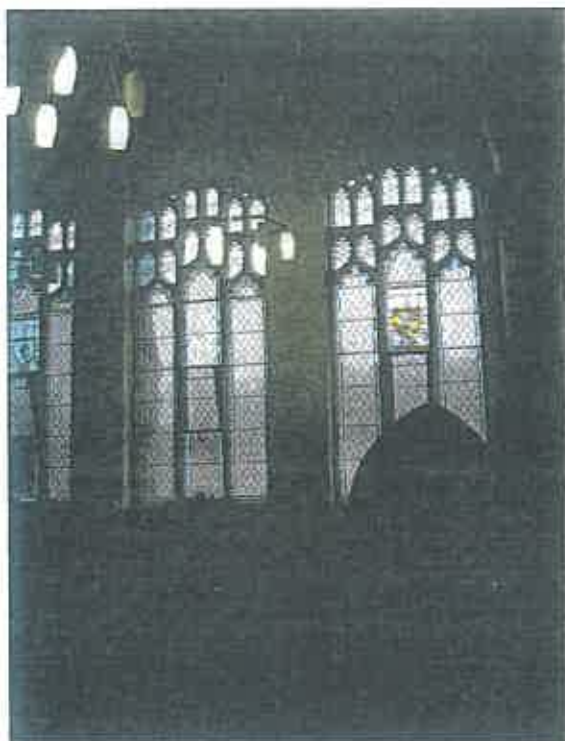
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APPENDIX B – PHOTOGRAPHS



Chancel

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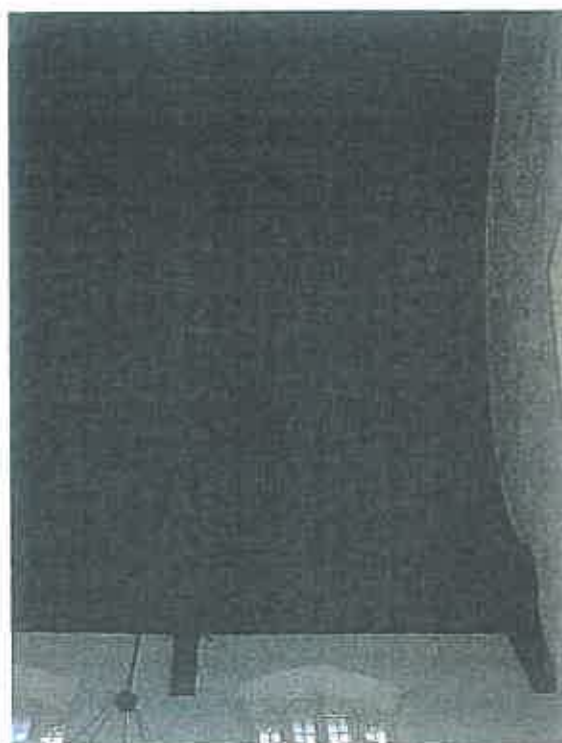
Nave



Nave



Nave



Nave

ST PETER'S CHURCH, THETFORD
APPENDIX B – PHOTOGRAPHS



Nave



Nave



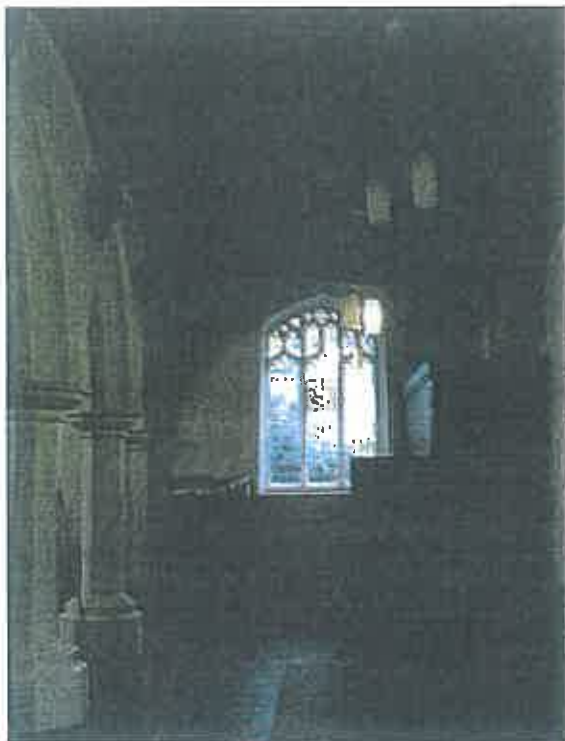
Nave



Nave

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ST PETER'S CHURCH, THETFORD
APPENDIX B – PHOTOGRAPHS



North Aisle



North Aisle



North Aisle



North Aisle

20 December 2008
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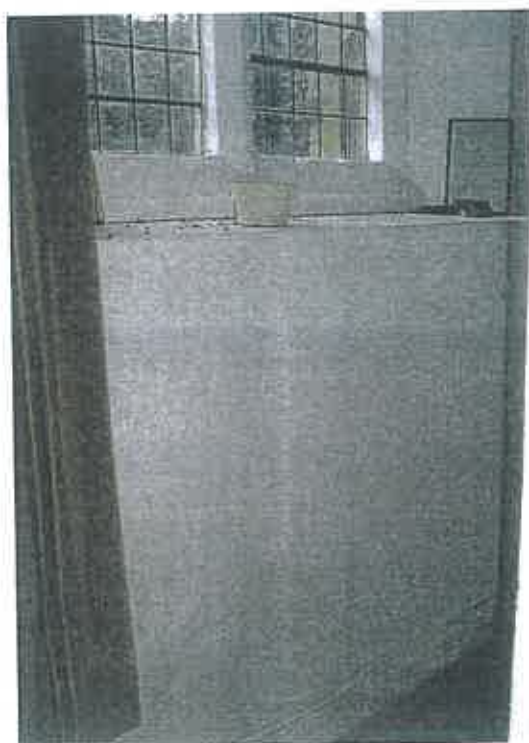
ST PETER'S CHURCH, THETFORD
APPENDIX B – PHOTOGRAPHS



North Aisle



North Aisle



North Aisle

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APPENDIX B -- PHOTOGRAPHS



North Aisle



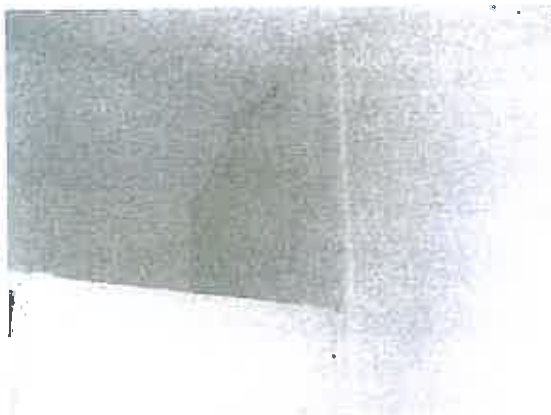
North Aisle



Vestry



Vestry



Vestry



Vestry

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APPENDIX B – PHOTOGRAPHS

Tower



Ringling Chamber



Ringling Chamber



Ringling Chamber



Ringling Chamber

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APPENDIX B – PHOTOGRAPHS



Clock Tower



Clock Tower



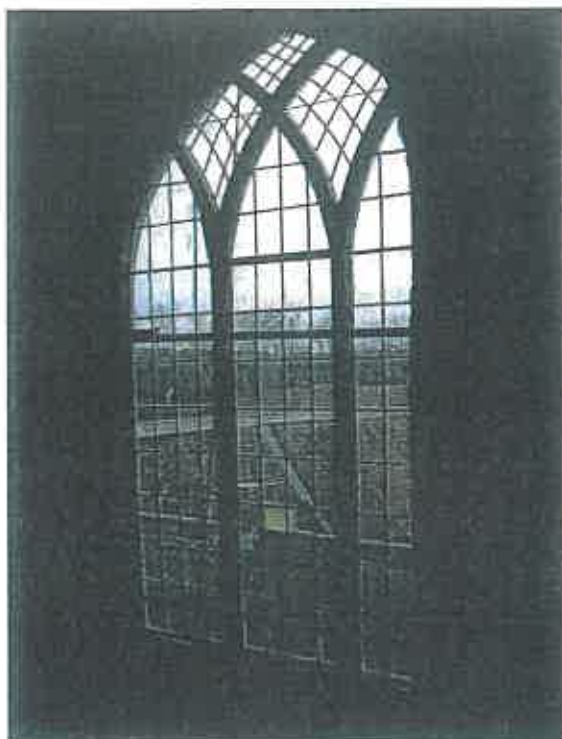
Clock Tower



Clock Tower

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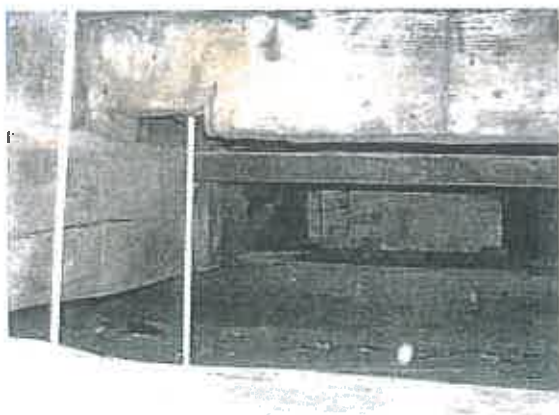
ST PETER'S CHURCH, THETFORD
APPENDIX B - PHOTOGRAPHS



Clock Tower



Clock Tower



Belfry



Belfry

ST PETER'S CHURCH, THETFORD
APPENDIX B – PHOTOGRAPHS



Belfry



Belfry



Belfry



Belfry



Belfry



Belfry

ST PETER'S CHURCH, THETFORD
APPENDIX B – PHOTOGRAPHS



Belfry



Churchyard & Peripherals



Churchyard & Peripherals



Churchyard & Peripherals



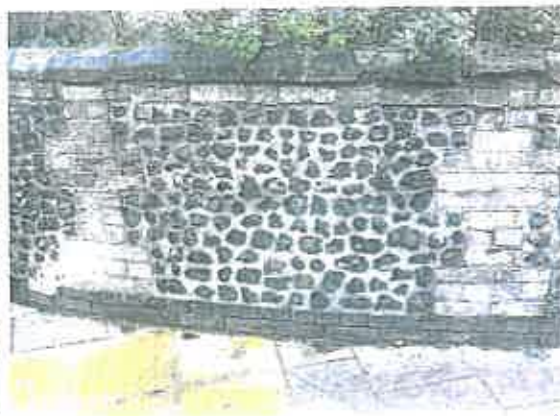
Churchyard & Peripherals

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ST PETER'S CHURCH, THETFORD
APPENDIX B – PHOTOGRAPHS



Churchyard & Peripherals



Churchyard & Peripherals



Churchyard & Peripherals

ST PETER'S CHURCH, THETFORD
APPENDIX B – PHOTOGRAPHS



Churchyard & Peripherals



Churchyard & Peripherals



Churchyard & Peripherals