

Priory Heritage

Architectural Surveyors and Historic Building Consultants

Condition Inspection Report

Brickwork to Former Kitchen Garden Walls at Dower House - Preston



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Instruction

1.01

To inspect and report on the condition of the upstanding remains of brick wall formerly the enclosure for the kitchen garden to the Dower House in Preston

Date of Inspection

1.02

22nd March 2023

Site Overview

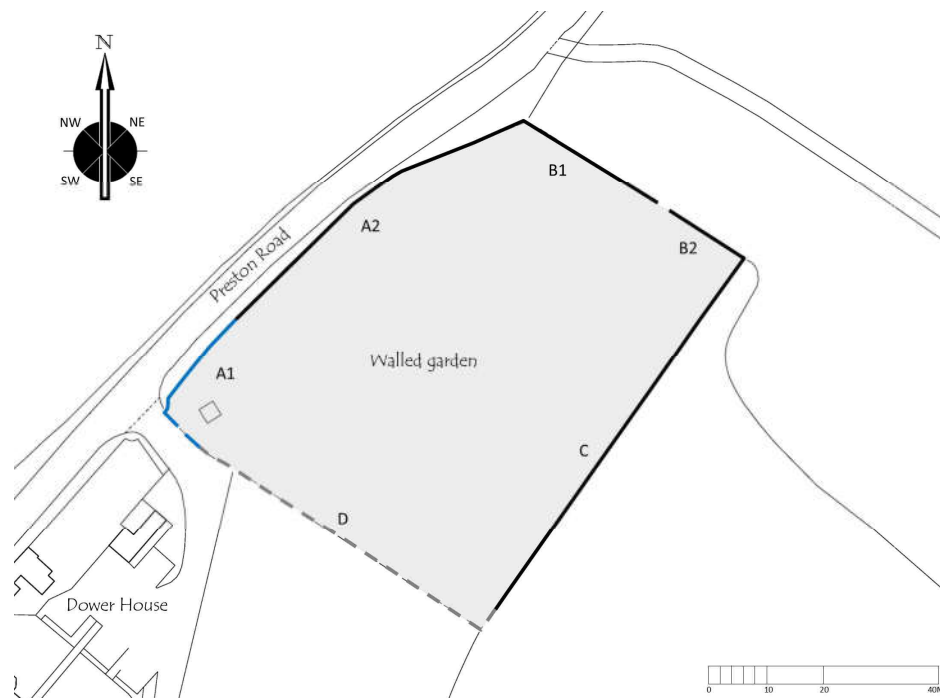
1.03

The particular construction / structure subject to inspection within this report is the perimeter brick wall erected to enclose and protect planting within the kitchen garden located adjacent the Dower house.

The Dower house (formerly known as 'the cottage') is independently listed and is itself located in the environs of and forms part of the Temple Dinsley estate. The walled garden does not have a separate listing but may reasonably be presumed to fall within the curtilage of both the Dower House and the wider Temple Dinsley estate.

List description - The Dower House, Princess Helena College - Grade II

House. Early C18, extended and altered early C19, lower C19 extensions to E. W part of front restored after flood damage 1968. Red brick in Flemish-bond, chequered with black headers to S front of older part. Dark weatherboarding to 1st floor at rear. Steep old red tile hipped roofs. A large irregular 2-storeys house facing S with long lower wings alongside road on W and stepping down steep slope to E. Double-pile plan main block with 2-storeys canted brick bay to rear at NE and large internal chimney with 2 square shafts linked by a recessed panel. S front 4 windows long with recessed sash windows with 8/8 panes and flat gauged arches. Flush box sash at left on 1st floor. Early C19 door with flush panel with reeded surround and corner blocks under trellis porch. 8-panel heavy fielded rear door and fielded panelled partition on 1st floor.



General

1.04

The walls for the former kitchen garden are prominent to and contribute significantly to the sense of place upon entry to the village of Preston from Hitchin (using the North East approach along Preston road)

The walled garden is currently disused and has not been actively managed for its intended purpose for many years. The enclosed land area had most recent commercial use for tree plantation although all trees have now been cut down and cleared.

Neither brickwork or kitchen garden enclosure have been maintained and the walls are now in general disrepair. Some sections of wall are now missing or collapsed.

A section of the original wall noted (A1) on plan was demolished and rebuilt recently to accommodate revisions for the new electrical substation currently installed in the South West corner of the enclosure

The South westerly wall section (D) is entirely missing save for isolated bricks surviving on the original line of the wall, now evidenced by a shallow depression where foundation brickwork appears to have been grubbed out.

For all original brick wall sections there is no apparent provision for damp proof course either within a low level bed joint or by use of an appropriate dense engineering brick (or similar). The top capping detail throughout was formed using brick on edge with plain clay tile creasing. The bricks were common flettons not suited to the task and the tiles are modern machine made laid with nibs exposed. The tiles offer some protection and overhang but do not create a properly functional drip edge detail.

Condition

Construction

2.01

The entire enclosure structure is not ancient or an especially well built high quality construction. It is erected throughout using wire cut 'frogged' Faucet / fletton type bricks. From inspection of several fallen bricks on site two separate brick types are apparent. The manufacturers seen are New Peterborough Brick Co (NPB Co) and Hicks Co of Fletton. If the bricks were utilised around the date of their manufacture it would suggest a date circa 1911 - 1927 for erection of the upper wall areas.

The wall construction is not uniform, exhibiting apparent phases of build consequently other bricks of similar type may be used within the wall / at lower level.

2.02

The surviving walls are out of vertical in many locations. Localised assessments for the angle of lean were taken in several positions and are later noted within the appropriate wall section notes. However without excavation of foundation structure and associated advice from a structural engineer it is not possible to determine if the extent of lean is within permissible tolerance for height / foundation width.

Depending on the approach to repairs or rebuild as later to be decided by others, such calculation for stability might not be needed.

Section A1

2.03

This length of wall starting at the entrance on the SW corner and continuing for 15-20M along the NW roadside elevation has been rebuilt in recent years. Although the exact mortar mix and brick type are unknown it remains in good order. It is erected in Flemish bond with recessed pointing, overall its character does not seem inappropriate to an historic setting. Lowest courses on inside face visible in concrete block. Ground levels require regrading. No significant defect was apparent in this section although it should be noted there was no provision for horizontal thermal movement. Depending on mortar strength and the maturity of the bricks when utilised omission of movement joints might later cause a defect

Section A2

- 2.04** Straight joint to section A1. Section A2, full height wall along the NW boundary, erected on an elevated position relative to the adjacent road. Constructed using Fletton type bricks built up with a dense cement based mortar. The upper half on the external face, plinth stretchers and pier tablings / capping's are built using the LBC rustic brick type. On the inside face the bricks are laid to conceal the rustic face but in several locations the bricks have been incorrectly laid with the rustic face visible. The entire upper wall area to (A2) may be a later phase.
The bricks visible on the inside face are in moderate order. Many are laminated and defaced due to freeze thaw frost action but overall repair might be a reasonable possibility. Externally to the upper wall area many of the rustic face bricks survive in fair order however the brickwork to plinth courses and capping's etc on the outer face are universally decayed to point of failure. Some early vine eyes and their associated wire tensioning spools remain on the inside face.
- 2.05** The bricks used at lower level on the outer face are a different brick type / phase and have deteriorated more than the upper levels. Below plinth offset level the bricks are smooth faced flettons many of which are now friable and / or laminated to point of individual structural failure.
There is a significant structural fault and decay to brickwork on the pier formed at the outer junction of faces (A2 and B). This will need reconstruction but failure in this location is potentially also a symptom on inadequate provision for thermal expansion.
- 2.06** The wall to (A2) will require extensive renewal of bricks at low level, complete reconstruction of plinth offset courses, upper pier structure, tablings, pier capping's and entire wall head capping detail. In addition the wall has no provision for thermal movement. There are several full height vertical cracks and a significant horizontal structural crack which propagates along the majority of wall length for (A2).
The wall in general is reasonably vertical toward the corner at (B1) but further south has a general lean outward of 2 - 3 degrees. If wall is to be considered for repair consult structural engineer for repair of thermal movement crack and acceptability for extent of lean.
- 2.07** In general the outer face of section (A2) is encroached by various self seeded shrubs etc along the highway verge and in places overgrown with ivy. These limit natural ventilation and encourage retention of damp in the structure. In this case with poor frost resistance in the bricks the retained dampness accelerates freeze - thaw damage

Section B

- 2.08** The wall along the North East boundary is a continuous high wall approximately 33 courses high (varying) separated by a pedestrian doorway with arch over. (no door or gate still exists although evidence for original pin hinges survives at low level).
The wall top edge steps down in uneven amounts to follow the general fall of the land, dropping consistently toward the South East. The wall (B1+B2) generally also exhibit an apparent construction phase inconsistency with the lower 10 - 12 courses along the entire length being of different form / mortar type.
The jointing to the low level brickwork is softer and in most areas deeply eroded. At upper level the mortar appears considerably harder cementitious mix to the extent that in many locations (particularly on the external face) the bricks have become sacrificial to the joints. Leaving deeply eroded bricks and projecting mortar jointing.

Vertical crack to wall at abutment (B1 - A2) and in several locations along wall length + at abutment (B2 - C)
- 2.09** As previously the fletton bricks have not proved durable and resistant to frost with many extensively damaged. On the inner face perhaps 30 - 40 % of bricks would need cutting out and replacing but on the outer face many sections of brickwork are worse. The low level plinth bricks are almost all fractured or excessively friable and on panels above, on average, perhaps just 10 - 20% of bricks could be salvaged. Numerous bricks initially seem in fair condition but closer inspection reveals frost action has cracked them horizontally on bed through the body of the brick. This renders them prone to accelerated decay in future and work to cut out the more visibly decayed bricks adjacent would certainly result in further losses of those already fractured bricks.
- 2.10** The arch over the doorway between (B1) and (B2) is structurally unstable and currently dangerous. The sections of wall panel along B1 as it approaches the doorway become progressively further out of vertical with a pronounced inward lean up to 6 degrees. The brickwork beyond the arch to (B2) has a less pronounced lean of 2 - 3 degrees. Consequently the wall / arch is no longer in line and has failed. Realistically this could only be repaired by rebuilding several panels of brickwork either side of the arch back to vertical such that the wall + arch can achieve a continuous line. The walls along both section B1 and B2 become less out of vertical as they approach the corner and are stiffened by buttressing effect from the adjacent wall.

- 2.11** The NE wall section (B1/B2) exhibits several vertical cracks through brickwork along its length and in the corner with (B2 - C). Similar to section (A2) there is no provision for thermal movement joints along the wall and expansion likely concentrates at the door opening which is an inherently weak point, horizontal forces contributing to the tendency for the wall to become out of vertical.
- Section C
- 2.12** The wall along the South East boundary section (C) remains full height at the most northerly end, as it returns from (B2) it is relatively upright being only 1-2 degrees out of vertical. The general condition of brickwork on the internal face is fair, the top courses and capping's are extensively friable / fractured and will need to be rebuilt, for the lower sections numerous localised replacements and repointing could retain the existing if required. However continuing in a southerly direction the wall has collapsed and the lean on remaining lower courses is considerably more pronounced. The brickwork of surviving lower courses is loose + unstable and would need to be rebuilt with fractured bricks replaced. Externally the surviving high section has decayed bricks to capping's and plinth offset stretchers as elsewhere around the wall. There are also numerous frost fractured bricks and a section of mechanical damage / loss of brickwork on the outer corner (C - B2). Probably tractor impact or similar. At higher level the wall is built up in dense cement type mortar although lower down the mortar is softer lime based and deeply eroded.
- 2.13** Continuing south along the wall the detail changes to become a mid height wall with tall slender piers irregularly placed. This section of wall adopts a different construction detail at low level with the wall thickness reduced and the offset plinth course omitted. From inspection of the brick coursing at the point of detail change it appears this variation was original to construction. Several of the tall piers along section (C) have collapsed and those that remain are in very poor condition + dangerous. The piers have pronounced leans in varying directions and brickwork is extensively loose and decayed. The walling at lower level retains many of the iron vine eyes and tensioners in a consistent arrangement.
- 2.14** Brickwork to the lower levels along this section is in moderate order but could be repointed and damaged bricks replaced. However, the wall has a consistent pronounced lean varying inward and outward between 4 -6 degrees and the horizontal bed / coursing wanders considerably either due to original low quality construction or subsequent ground movement. Numerous large rotted tree stumps remain along the external side of the SE boundary which may in the past have destabilised the wall. Much of the fallen masonry appears to remain overgrown where fallen but due to the poor frost resistance of the bricks it is unlikely any useful quantity of those original bricks will be salvageable.
- Beyond the section with upstanding piers the most south easterly length of wall (C) has no further surviving piers other than one still standing close to the SW corner.
- 2.15** Both the wall and pier in this section are extensively overgrown with ivy. Ivy can on occasions form a protective layer over masonry but in this case where the brick jointing is loose and open the ivy can be expected to have rooted into the wall itself and be causing considerable (unseen) damage. Removal of the ivy will further destabilise the wall and likely require reconstruction.
- 2.16** Potentially some low level brickwork along (C) might be repairable but the wall lean + lack of provision for thermal movement would need to be addressed. The complete top courses + capping's and piers would in any event need to be rebuilt.
- Section (D)
- 2.17** The wall along the South West boundary section (D) and the short return immediately to the SE corner has collapsed or been demolished. All brickwork has been cleared including remnants of any foundation save for isolated bricks. There remains a shallow depression along the line of the former wall where the foundation brickwork has been removed. To regain the correct form and sense of enclosure for the kitchen garden along section (D) the wall ,or a similar boundary treatment, should be reinstated.

Summary / Advice

- 3.01** The original walls to the complete kitchen garden enclosure are not apparently ancient, Brick manufacturers and use of cement mortar for much of the construction suggest a construction date likely early - mid C20
- 3.02** The choice of brick type as wire cut fletton clay bricks has not (at least with benefit of hindsight) proved to be durable. The bricks are extensively decayed both due to friability + loss of brick face and structural cracking horizontally through the brick (a failure not uncommon in frogged fletton bricks).
- 3.03** Irrespective of brick type the walls are not of quality construction. The brickwork is not well laid or well detailed. The brick coursing and bond are inconsistent, there is no DPC to protect against rising damp or robust capping detail to protect the wall head.
- 3.04** The walls have no provision for thermal expansion / contraction. Whilst a good handmade stock brick, seasoned and built in lime mortar might tolerate the omission of expansion jointing, a modern brick laid in cement mortar will not, hence the pervasive structural cracking.
- 3.05** The lean of the walls has already caused collapse in various places and in other areas the wall is liable to be condemned by an engineer if consulted. The lean itself probably consequent on a combination of factors, a) minimal foundation, b) slender wall construction and c) thermal expansion.
- 3.06** An engineer may be able to provide a detail to retrospectively introduce provision for thermal movement but (if possible) to do so will be invasive. Foundations could be checked for adequacy but are likely minimal. It is unlikely to be economically reasonable to underpin the complete wall structure hence sections of wall the engineer deems excessively out of vertical will need to be rebuilt.
- 3.07** Several sections of wall whilst still upstanding at date of inspection such as arch + adjacent wall to section (B1/2) and the piers along section (C) are dangerously unstable and will have to be demolished to be made safe irrespective of decision to rebuild or otherwise.
- 3.08** The lower phase / areas of wall built up in lime based mortar need to be holistically repointed, the cement mortar used for the upper brickwork ought be replaced with lime but to do so with walls retained insitu is not realistic.
- 3.09** Some sections of the brickwork have so many bricks that have deteriorated beyond use (approaching 100%) that rebuild is unavoidable. Other areas whilst still in poor condition are relatively better. In such locations cutting out and replacing the numerous damaged bricks is technically achievable although the economics and relative merits of doing so should be considered.
Cutting out for repair will further damage adjacent bricks seemingly still in reasonable condition. Any original bricks that are retained will still be old Flettons of poor quality prone to frost damage. Consequently regular return phases of maintenance to cut out and replace further bricks as they fail will be inevitable.



Section A1 - Wall rebuilt at entrance + electric sub-station



Modern | original



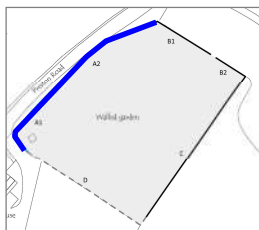
Continuation of North West side - Section A2



A2 also exhibits the visible change in construction at low level seen clearly along elevation B1-B2



Surviving tension spools for vine wires





North East wall Section B1



Side gate



Section B2



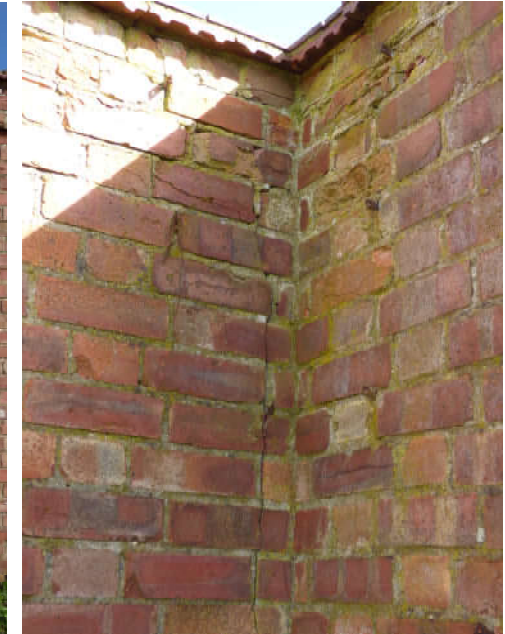
Sequence / construction break in brick type + jointing visible as increased erosion of lower 10-12 courses



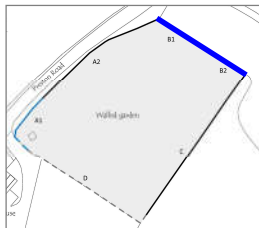
Fruit tree remnants



Unstable brick arch to side gate



One of several vertical cracks, section B1+B2





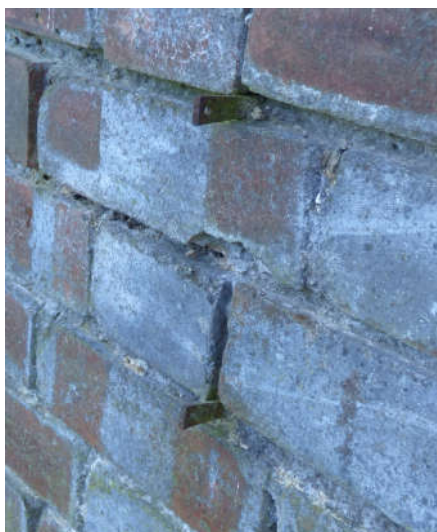
South East wall Section C I----- fallen section -----I



Lower wall along SE boundary with slender brick piers



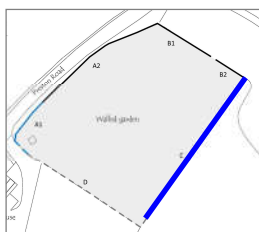
Truncated prior to return for (D)

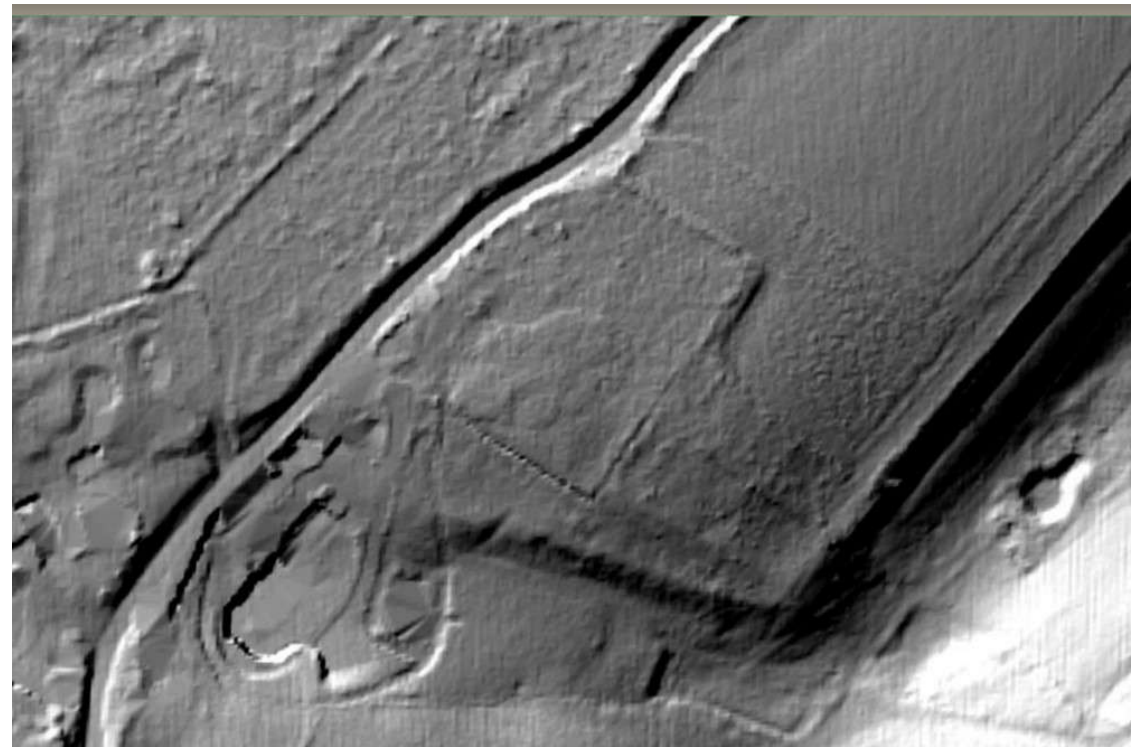


Surviving vine eyes (mild steel) and wire tension spools.



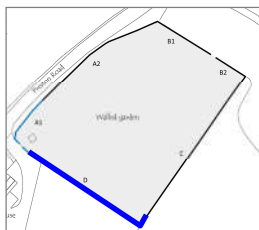
Example of extensively eroded and open jointed brickwork to piers along section (c)





Former South West wall to kitchen garden now demolished and footings largely robbed out.

Line of wall apparent as a shallow depression on site and seen on LIDAR map above





External face of section A2



Original section A2 adjoins rebuilt section A1



External face section A1

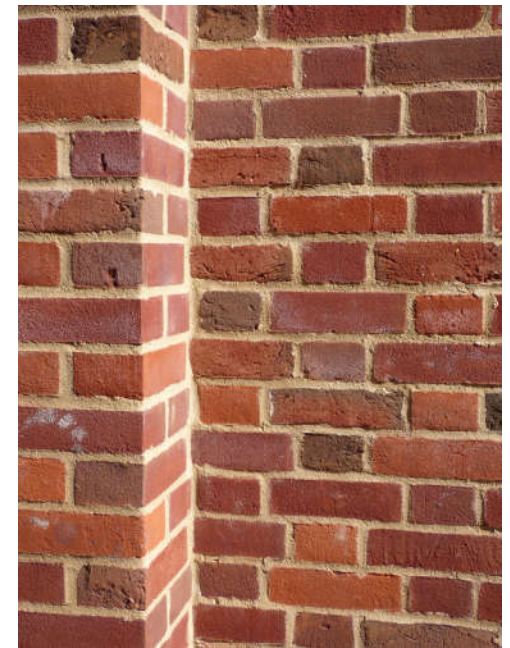
Typical detail to section A2.
Upper brick capping to wall and
pier tablings decayed

Upper level LBC rustic keyed
face bricks fair condition but
offset plinth stretchers
universally decayed.

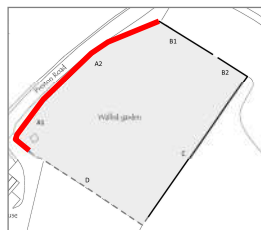
Lower course LBC Fletton
unfaced brick, commonly used
for more functional purposes.
I.e. below DPC, non visible walls,
economy outbuildings etc.



Above - low level brick decay and horizontal structural crack. Displacement of the brickwork is caused by insufficient allowance for thermal expansion in the wall.



Right - example of rebuilt section of brickwork A1 adjacent to the main entrance + new electric substation.

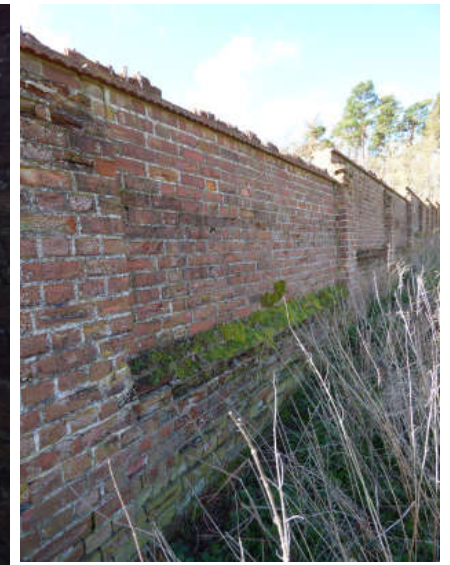




North east wall, Section B1 / B2, external face as visible from highway



Structural failure / inward lean to arch



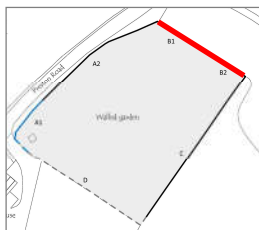
Typical brick panel to NE elevation

Almost complete failure of all plinth stretcher bricks and extensive spalling + structural lamination of bricks more generally



Above - clay tile capping, in places still functional but many tiles cracked / missing. Upper level frost decay to bricks over entire wall face but more prevalent in courses below capping's

Left - Extensive decay is accelerated by dense cement based mortar used in many areas, seen here as hard mortar surviving as projecting ledges causing the softer bricks to become a sacrificial route for damp leaving the wall.



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External DRG 2306 - 6



Southerly end of wall section (C) – low level without piers



middle section of wall with slender piers



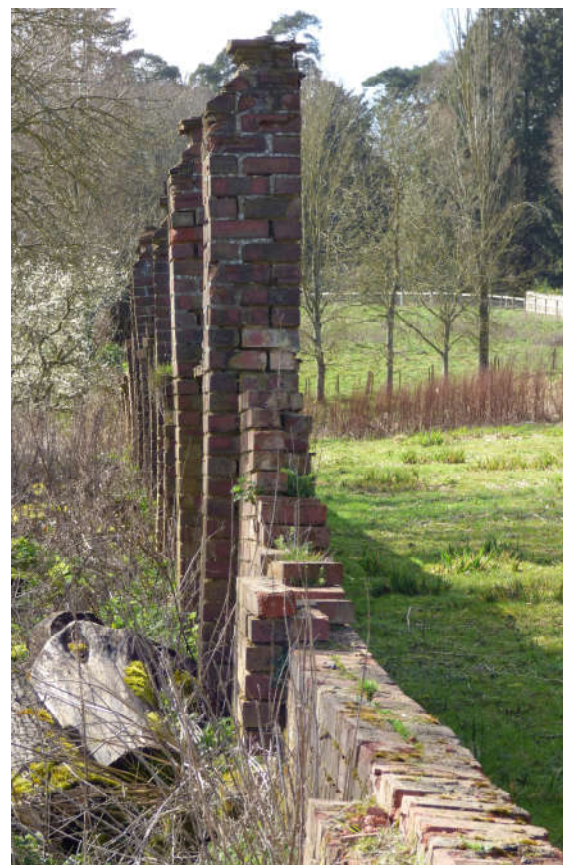
Northerly end, high wall partially collapsed



Above, extensive ivy cover to south end wall (C)

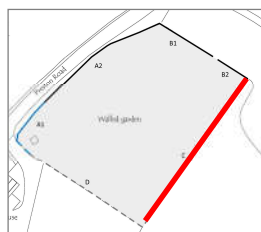


Right – Slender piers, open jointed and out of vertical.



Above – Damaged brickwork at external corner of sections (C) – (B). Decayed plinth and low level brickwork continues.

Left – low level remnants of collapsed wall decayed and open jointed.



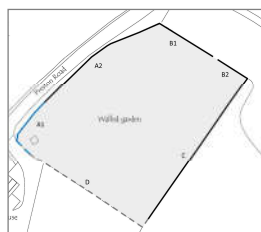


X--



Above - Detail of brickwork, note clear change in bond from English Garden wall at low level to a version of Flemish bond above (X). Brick bond is generally irregular and of intermediary quality (Bed thickness is variable and perps visibly 'wander' out of vertical.)

Above right - decayed brick capping's
Right - change in detail along wall (C) where wall thickness reduces and low level plinth was omitted during construction



Above -
Bricks used are of at least two types, NPB Co and Hicks & Co Flettons.

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External DRG 2306 - 8