

CONDITION SURVEY AND REPORT ON GATE PIER TO THE SW OF CEDARS
HOUSE HILLINGDON

REES BOLTER ARCHITECTS
NOVEMBER 2020

The gate piers were inspected on 28th October 2020 by Jon Bolter BA BArch ARB AA Dip Cons, who has been included on the AABC register of architects accredited in building conservation since its inception in 1999.

The gate pier under consideration is set within a long brick wall running north to south, set about 25 metres east of Cedars House (formerly Cedar House). The wall is listed at Grade II and the listing entry states '*Probably late C16 and contemporary with Cedars House. Red brick garden walls, much patched and repaired.*' No documentary evidence has been seen to confirm this but this seems entirely probable. It should be noted that this survey and report was undertaken before the spontaneous collapse of the west side of the pier on about 15 November 2020.



At that time, the grounds around the house are likely to have been divided by walls into a series of rectilinear compartments. The second edition Ordnance Survey map of 1894 (above) shows the remnants of the N-S walls (tinted blue) which enclosed the main entrance courtyard. The wall under consideration lies further east, separating two more compartments. A pink dot indicates the location of the present gate. The compartment to the east of the wall is shown on other editions of Ordnance Survey mapping as an orchard. Both faces of the present wall bear the nail marks associated with training plants, quite probably fruit trees.

The wall is one and a half bricks in thickness laid in an imperfect English bond with a brick on edge coping and a sloping brick facing below on the east side. The wall is in reasonable structural condition, generally exhibiting a lean to the west of about 75-100mm.



View of the west side of the wall

The construction of the gate piers indicates that they are alterations. It seems probable that the gateway was cut through the wall at a later date, although an earlier opening might have been widened. This could be probably be confirmed by exposing original foundations below the gateway or examination of the ends of the walls within the piers. The newly formed (or possibly enlarged) opening was given brick piers capped with ball pedestals. The piers were formed by wrapping a half brick skin around three sides of the cut back wall rather than by construction of solidly bonded piers. The setting out of the brickwork of the piers suggests that the wall had already started to lean to the west at that time, making it necessary to have a cavity between the original wall and the east and west faces of the pier in order to allow the new pier to be vertical.

The date at which the gate was cut is not clear. The general character and weathering of the brickwork to the piers, which are formed in lime mortar, suggest the 19th century but there is no mapping or documentary evidence for this. Some sections of the brickwork appear more recent still, suggesting some past repair.

The north and south piers are constructed in slightly different ways. The north pier has headers cut into the original wall in order to create some physical tie between the old and new work. The south pier (the subject of this report) appears to have no connections between the two. The differing construction may indicate that one of the piers has been repaired or repositioned.

The metal gates within the opening appear to be of mild steel and therefore probably of the 20th century.

The top of the gate pier was covered in vegetation at the time of survey and so we are unable to report on that area. Recent removal of the vegetation around the lower parts has revealed those areas to be in poor condition.

The following annotated photographs show the present condition of the pier.

Top of pier obscured by vegetation

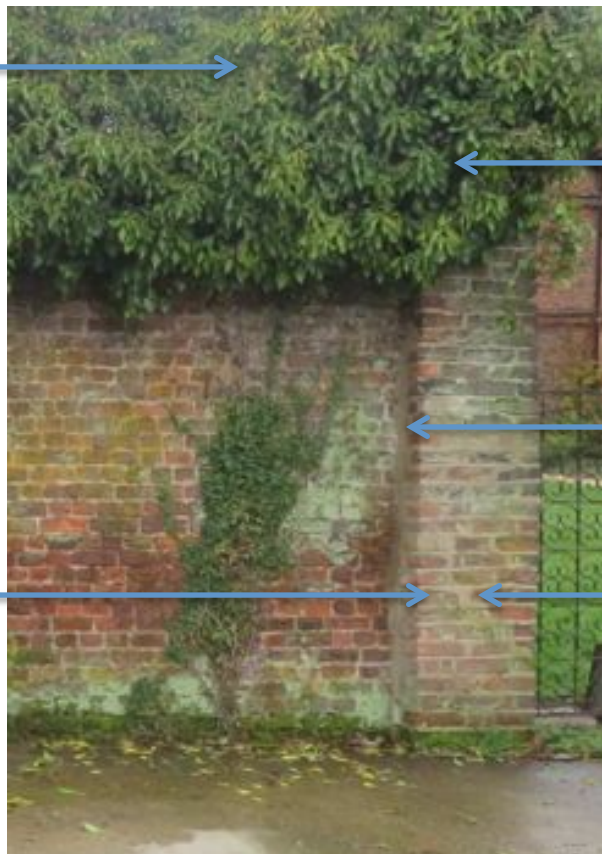
Facing skin has moved out by approx 60mm. The gap has been infilled with a cement mortar which now has cracks indicating further movement



Facing skin bulges out

Top of pier obscured by vegetation

Brickwork has redder bricks at low level, possibly some salvaged from the original wall, with yellower bricks at high level



Brickwork at higher level appears reasonably well bonded

Bed joints of the pier do not align with bed joints of the wall

Cracking of joints in brickwork

EAST FACE OF THE PIER

Cracking in pointing

Stepped crack in brickwork,
faced in cement

Low level brickwork steps
out

Possible rotation of low level
brickwork suggests
inadequate foundations



NE CORNER OF THE PIER.

LH corner bulges out

Substantial cracking through
brickwork. Fractures up to
60mm wide. Left and right
corners have no connection
at this level

Cement pointing

Offset in brickwork



Bricks falling out, exposing
the interior of the wall

NORTH FACE OF THE PIER

Cement pointing

Offset in brickwork

Significant cracking along two main lines, for the full height of this section



Top of pier obscured by vegetation

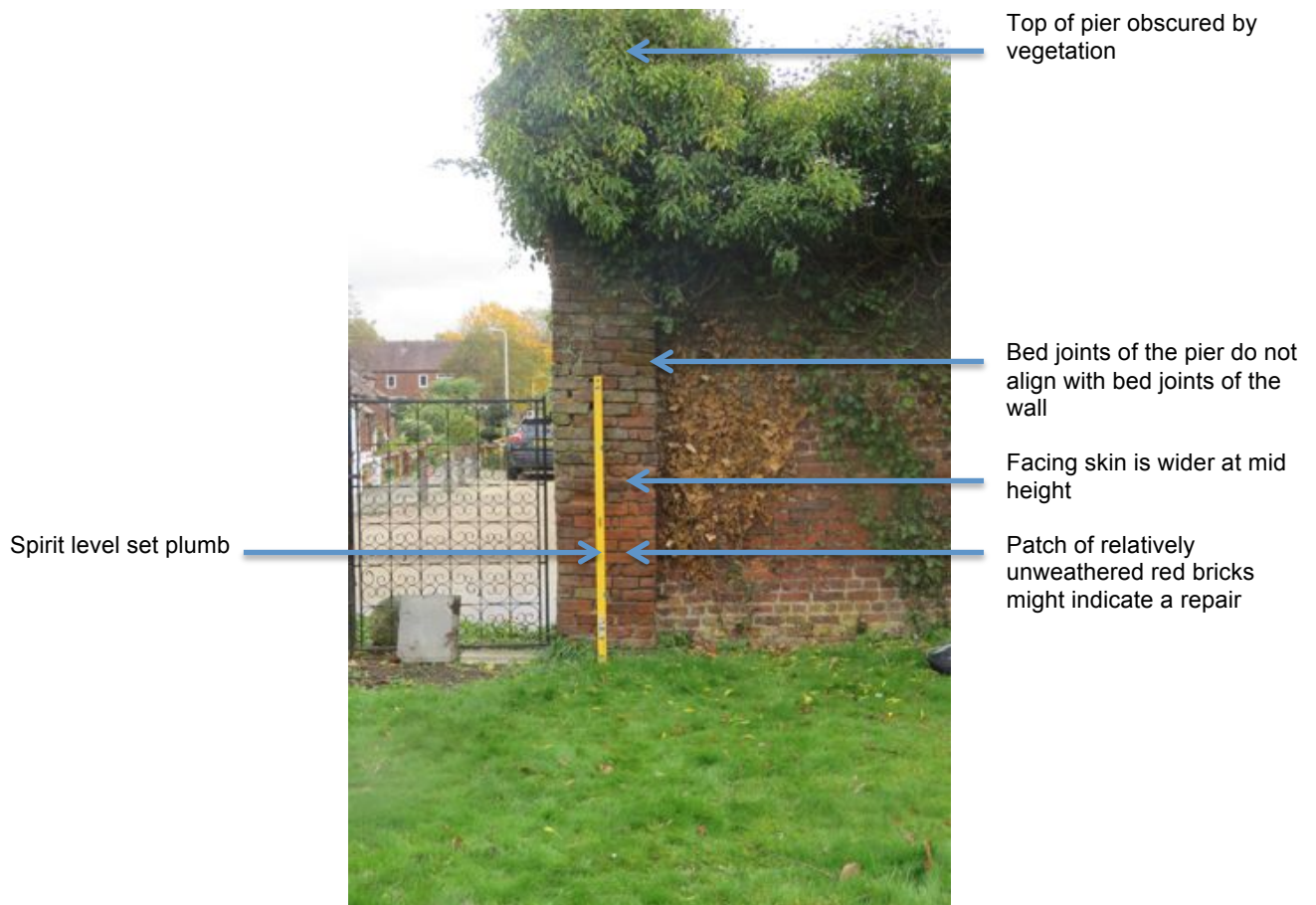
Brickwork at higher level appears reasonably well bonded

Missing and loose bricks

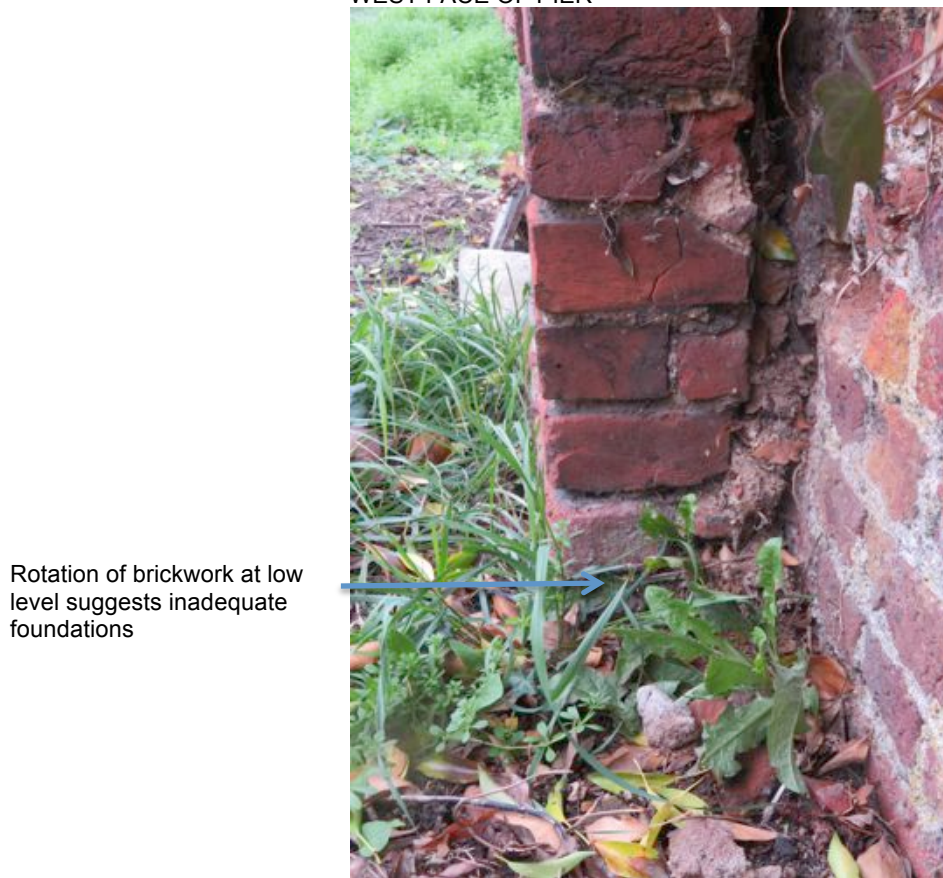
Spirit level set plumb indicates extent of bulging in brickworks



NORTH FACE OF THE PIER



WEST FACE OF PIER



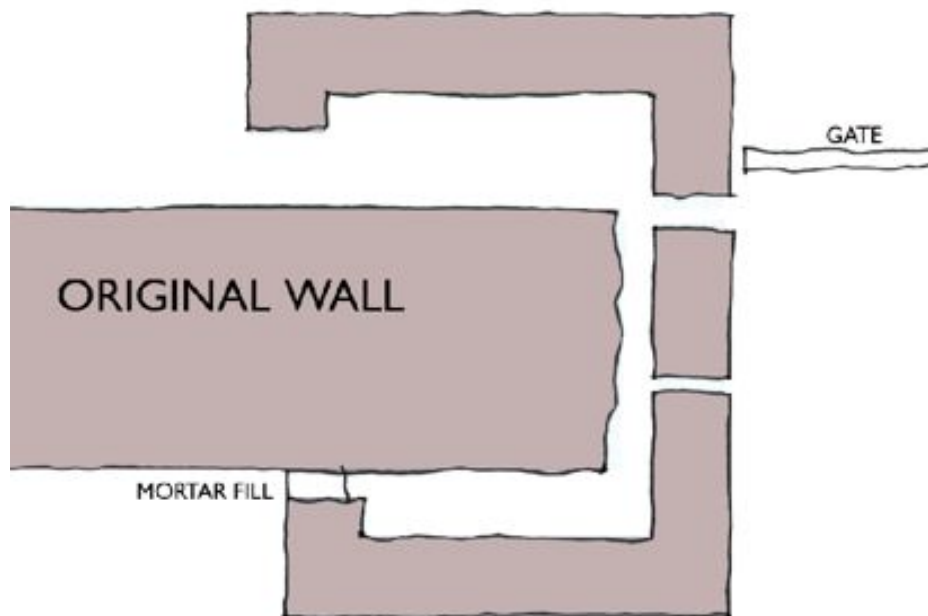
WEST FACE, AT LOW LEVEL, LOOKING NORTH.

Gap between the facing skin (left) and the original wall (right). Approx 100mm. Daylight can be seen through the wall.



WEST FACE OF THE PIER

Sketch plan at mid height of pier showing the extent of voids within the masonry.



The defects noted above can be summarised as follows

There seems to have been no attempt to connect the half brick facing skins with the original wall, unlike the northern pier where headers have been cut into the wall (although they are now pulling out).

The half brick facing skins which form the pier have bulged outwards, resulting in gaps between the brickwork of the east and west faces and the original wall and in significant cracking down the north face.

The brickwork of the pier above the level of the original wall is mostly concealed by vegetation but it is clear that this section has greater integrity and has restrained the tops of the bulging facing skins below

The half brick facing skins appear to be rotating at low level, suggesting that the provisions made for the foundations of these areas were inadequate.

The bulging on the west side is considerably greater than on the east. Cracking in the infill on the east side indicates that this side is still moving. It is remarkable that the brickwork on the west side has not already collapsed. Any attempt at repair is likely to result in the loss of that section.

RECOMMENDATIONS

Any repair strategy would require:

- The employment of a specialist contractor skilled in conservation work and the use of lime mortars
- Trimming the high level vegetation back 600mm beyond the proposed working area. The creepers should be removed by cutting through any roots or tendrils extending into the brickwork and lifting the vegetation off, rather than just pulling as this will disturb the masonry
- Brickwork to be carefully dismantled, setting aside and reusing sound bricks.
- New brickwork to be laid in a hot mixed lime mortar

We have considered the feasibility of securing the east face and cap and then rebuilding the west face. The scope of work would have to be:

- Provide restraint to the upper solid section and to the western face of the pier
- Insert Helifix DryFix ties at 300mm centres overall through the brick skin on the east side and into the original wall.
- Expose the foundations to this section and cast additional concrete pad if required dry packed to brickwork above.
- Rake out and repoint brickwork to the east face.
- Having secured the east face, take down the half brick skin on the west side, including the return along the north side as far as the large fractures.
- Investigate foundations and cast additional concrete pad if needed.
- Insert Helifix DryFix ties into the original wall at 300mm centres.
- Reconstruct the half brick skin building in the Helifix ties and infilling the cavity behind the east face as work proceeds.

However, although this approach allows the retention of some fabric in situ, the retained fabric is evidence of a later alteration, not particularly well built. There is a considerable risk that the disturbance required to secure the east face would jeopardise the stability of the brick skins. This would only become apparent during the work. Given the extent of bulging it is remarkable that the west side has not already fallen

After considering the limited significance of the brickwork of the pier facings in comparison to the significance of the original wall, the health and safety risks in undertaking the work and the risk of failure we recommend that all of the facing brick skins should be rebuilt. The scope of work would then be

- Carefully take down the facing skins, including the solid pier and ball cap above.
- Investigate foundations and cast additional concrete pads if needed.
- Insert Helifix DryFix ties into the original wall at 300mm centres.
- Reconstruct the half brick skins and solid pier above, building in the Helifix ties. Reset the ball cap

This is clearly more straightforward and controlled and will result in a pier better able to provide restraint to the original wall rather than depending on it for support.

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.

Jon Bolter
REES BOLTER ARCHITECTS
5 November 2020