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Mr Ellis
'Greywell'
High Street
Bursledon
Southampton
SO31 8DL

Our Ref: 211433 - Let 2

20 June 2022

Dear Mr Ellis

Re: Tree issues at 'Greywell', High Street, Bursledon

I write to confirm my ongoing involvement with the above project. Most recently you asked me to revisit the site to assess the condition of two trees on the eastern site boundary and also review the information provided by a structural engineer in respect of the brick boundary wall close to a number of trees.

As you know, I recently submitted a tree work application (council reference 'T/21/92159') for the removal of two trees, an oak and a sycamore located on the eastern site boundary. These were indicated for removal on the grounds that they were in poor condition and it was likely that they were also the cause of the dangerous condition of the nearby wall. This tree work application was subsequently refused by the council on the grounds of insufficient information.

I have appended two letters to the end of this report (attachment 1) from Eastleigh Borough Council and Hampshire County Council, confirming the dangerous/potentially hazardous condition of the wall with regard to highway users. You subsequently commissioned a structural engineer's report (reference 'KBS/211', attachment 2) on the wall by Mr Sargent at KBS Structural Engineering Limited and this concluded that the two trees (T1 and T2) along with two additional trees further to the north were the main contributory factors in respect of wall displacement, with a recommendation for tree removal.

The approximate position of the four trees discussed in this report are shown on the plan 'ECO 3' (attachment 3). This shows the position of trees T1 and T2 which were originally indicated for removal under the refused tree work application, along with the two additional trees highlighted in the structural engineer's report and shown as trees T3 (beech) and T4 (sycamore). I revisited the site on 15 June 2022 to inspect trees T3 and T4 and have included some photographs taken during my visit as attachment 4.

Access to trees T3 and T4 was hindered by the position of existing hedging ivy on the stem of both trees. However, it was clear to me that tree T3 (beech) was in poor condition, with canopy symptoms indicating significant declining vitality (photograph 1, attachment 4). Closer inspection revealed an occluding cavity (with decay) on the lower main stem on its eastern side and this wound appeared to be infected with *Kretzschmaria deusta* (photographs 2 and 3, attachment 4.) The presence of the ivy on the main stem and scaffold branches of tree T4 (sycamore) hindered a proper inspection. However, although the canopy of the tree was a little unbalanced due to its proximity to tree T3, it otherwise appeared to be in good condition, with no obvious canopy symptoms indicating poor tree health.

I set out my views on trees T1 and T2 in my earlier report (ecourban reference '211433 – Let 1') and this is appended at the end of this document as attachment 5. With regard to the trees that I looked at on 15 June 2022, the infection of tree T3 with *Kretzschmaria deusta* is a significant concern, as this is a serious fungal pathogen in respect of tree safety. Given the proximity of the tree to the highway, my view is that the tree should be removed as soon as possible in order to maintain acceptable levels of risk, irrespective of any issues surrounding the rebuilding of the wall. In respect of tree T4, although this tree could be retained in acceptable condition, clearly the issue of the wall and its relationship with the tree needs to be addressed in order to allow the wall to be rebuilt.

I have reviewed Mr Sargent's engineering report regarding the wall and I have had a very helpful telephone discussion with him. My understanding of the situation is that it is unlikely to be feasible to demolish and rebuild the wall in its original position. This is because the wall has been pushed laterally away from the required vertical alignment (toward the highway) due to the action of tree roots, thereby fouling the line of the wall. For the new wall to achieve the correct vertical alignment, significant tree root removal will be required. However, even if the trees were retainable, then the primary cause of the wall damage (direct lateral thrust action of tree roots on the wall fabric), along with the weight of retained soil would still exist. Consequently, the wall would need to be of a thicker and reinforced construction compared to the existing wall, thereby intensifying the need for root severance and further increasing the likelihood that the trees would not be retainable.

I am in agreement with Mr Sargent's view on the trees, in that It is difficult to see a scenario where the trees can be retained in an acceptable condition and the wall rebuilt. My recommendation is therefore that a new tree work application is submitted to the council for the removal of the trees (T1 to T4) in order for the wall to be demolished and rebuilt. It is likely that the council will require compensatory tree planting in the event that they are minded to grant consent for the tree removals and I have indicated on the attached plan what I believe to be acceptable mitigation planting in this respect.

The council have the right to refuse consent under the existing Tree Preservation Order, as they did previously. Nonetheless, I am hopeful that the inclusion of the engineering information will make this less likely. However, in the event that the council do refuse any new application, then I feel that you should appeal such a decision in order to bring some certainty to the current situation.

Please feel free to come back to me with any queries you may have.

Yours sincerely

A handwritten signature in dark ink, appearing to be 'Barrie Draper', with a stylized, cursive script.

Barrie Draper BSc (Hons) Arb TechCert(ArborA) CertArb(RFS)
Arboricultural Consultant

Attached:

- 1: Correspondence from EBC and HCC
- 2: Structural engineers report
- 3: Tree plan
- 4: Site photographs from 15.06.22
- 5: Previous tree report

**SOUTHAMPTON AND EASTLEIGH
BUILDING CONTROL PARTNERSHIP**
Planning and Sustainability Division
Ground Floor, Civic Centre
Civic Centre Road
SOUTHAMPTON S014 7LY



Please ask for: Bill Street
Direct dial: 07810558129
Our ref: BCS/DSE/0038/19

Mr Ellis
Greywell
High Street
Bursledon
Hampshire SO31 8DL

13th January 2022

Dear Mr Ellis

DANGEROUS STRUCTURE

ADDRESS: Greywell High Street Bursledon

DESCRIPTION: The boundary wall is leaning over the highway and is looking dangerous.

APPLICATION NO: DSE/0038/19

Further to my visit on 12.01.22, I would like to confirm the following details of which we discussed.

The length of wall from the gate of your house to the bottom of your garden is leaning over Station Road and in a dangerous condition.

If this section of wall could be removed ASAP it would be appreciated.

Just to remind you that there is a Heritage interest in the house and the wall as we spoke of today.

If I can help you in any aspect of this procedure please phone me any morning between 08.00 and 10.00 AM on 07810558129.

Kind regards Bill Street

Bill Street
Building Control Surveyor



DS.ENF.03.V1.040518



Hampshire
County Council

Owner/Occupier
Greywell
High Street
Bursledon
Hampshire
SO31 8DL

Highways Operation Centre

Hampshire Highways

Trafalgar House North

Trafalgar Street

Winchester, Hampshire, SO23 9DH

Tel: 0300 555 1388 (Roads and Transport)
0300 555 1390 (Textphone)

Email: roads@hants.gov.uk

Web: www.hants.gov.uk

Enquiries to Highways Operation Centre

My reference 24219838

Direct Line

Your reference

Date 11 March 2022

Email

Dear Sir/Madam,

Defective Wall at: Greywell, High Street

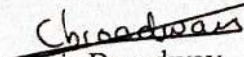
During a recent inspection by Hampshire County Council, a defective wall was observed outside Greywell, High Street as shown in the attached photographs.

Although the defective wall is located on private land, the defect is adjacent to the public highway and as such presents a potential hazard to passing pedestrians.

If an accident should occur and the presence of the wall is in any way considered to be a factor, the County Council will dispute liability for any claim that was submitted and suggest that it be redirected to you.

I must ask for the defective wall to be repaired as soon as possible.

Kind regards,


Chris Broadway

Highways Support Officer
Highways Operation Centre

Director of Economy, Transport and Environment
Stuart Jarvis BSc DipTP FCIHT

Mr K. Ellis
Greywell
High Street
Bursledon
Southampton
SO31 8DL

Our Ref: KBS/211

18th March 2022

Dear Ken

GREYWELL, BURSLEDON, SOUTHAMPTON

Thank you for your request for us to undertake a structural inspection of the boundary retaining wall at the above property. We are pleased to report as follows;

1.0 Introduction

We visited the site on 9th February, at which time the weather was dry and cold and followed a period of wet weather.

The wall was located along the boundary with the High Street and was of traditional brick construction. The visible part of the wall was two bricks thick, built as separate leaves with a soldier course on top and typically had a Sussex bond (also known as Flemish garden wall bond). Please refer to Photograph 1.

Our inspection was limited to those parts of the structure that were visible, and we have not inspected those parts of the wall that were covered, unexposed or inaccessible. We are therefore unable to report if these such areas are free from defects.

At the time of our inspection part of the wall that bordered the High Street had been cordoned off by Hampshire County Council Highways, due to their concerns regarding the condition of the wall.

The section of the boundary wall of greatest concern was located along the North-East border and was approximately 40m long. The Southern part of the wall continues towards to the main entrance of the property, and the Northern part of the wall continues beyond this length but at that point it is beyond the site boundary and under separate ownership.

2.0 Observations

Along this length of the wall four mature trees were located, which were set apart by similar distances of between approximately 11m to 16m. Each of the mature trees were positioned close to the back of the wall. At each of these locations the wall was found to be significantly out of alignment and the lateral displacement in the wall was recorded. There were no masonry movement joints noted along this length of the boundary wall.

A plan view of the wall, labelled SK01, is attached to illustrate the length and heights of the wall relative to the existing trees with the extent of lateral movement recorded. The three sections of the wall have been labelled for ease of reference.

The stretch of the wall closest to the property, Length A, was 1800mm high when measured from the High Street and appeared to be the original construction. At the end closest to the property where the first oak tree occurred, the wall was found to be 110mm out of plumb when measured along a 900mm long spirit level with the top of the wall leaning outwards towards the highway. Please refer to Photographs 2 and 3.

Adjacent to the second oak tree, the amount of lateral displacement in the 1800mm high wall had increased to 180mm when measured along a 900mm long spirit level. A step in the height of the wall occurred at this point, with it then dropping to be only 600mm high. The lower section of the wall was found to be 250mm out of alignment. It was noted that the end of what appears to be a ground anchor with a pattress plate had been installed close to where the step in height occurred. Please refer to Photograph 4.

The second stretch of wall, Length B, increased from being 600mm high at the southern end to 1200mm high at the northern end. In the central section of this wall horizontal shear failure was noted with a local displacement in the brickwork of 25mm. At the Northern end of the wall, the wall was again found to be 250mm out of alignment. Please refer to Photographs 5 and 6.

The last stretch of the wall between the two mature trees was fairly constant in height, increasing to be 1300mm high at the Northern end. At this point the wall was 230mm out of alignment. Please refer to Photograph 7. Again, horizontal shear failure was noted in the base of this wall, occurring close to the third of the mature trees.

We understand that the lower section of wall had been reduced in height as it was considered to otherwise be unstable and at risk of collapse. This is evident by the introduction of a visibly new soldier course along part of the wall, and the absence of a soldier course or capping stone along the remainder.

3.0 Discussion

The general rule of thumb when considering the stability of masonry walls is that any vertical loads in the wall, which in this instance would be its own self weight, should be applied within the middle third of the wall. This is to ensure that the eccentricity of the load does not then itself become a destabilising load and start to contribute to any further lateral displacement. For a 225mm thick wall, this would equate to any lateral displacement being no more than approximately 38mm.

Whilst it is not uncommon for historic walls to exceed this limit, the more this limit is exceeded the greater tendency there will be for the lateral displacement in the wall to be progressive and the greater acceleration with which any further lateral movement could occur.

The stretch of wall referred to as Length A had a maximum lateral displacement of 180mm when measured along a 900mm long spirit level. This would equate to a total displacement of 360mm along the total height of the wall.

Wall Length B had been reduced in level and measured 250mm out of alignment, but wall Length C was 230mm out of line over a height of 1300mm, giving a total displacement over the full height of the wall of 330mm.

In addition, shear failures have occurred in the wall with the brickwork being locally displaced by up to 25mm relative to the adjacent surrounding brickwork.

Given the extent of lateral displacement coupled with the shear failures, we would deem the wall to be structurally unstable and beyond repair. The wall along this length will therefore require demolition and reconstruction.

The lateral forces acting on the wall that will have contributed to this displacement will primarily be from the retained material behind the wall and the root bowl of the mature trees. For a retained height of no more than 800mm, the BRE have produced a publication which states that a 215mm solid brick wall would be adequate. As the retained height is less than this, the current wall should have been suitable. It is therefore more likely that the lateral displacement has been caused by the trees. This is clearly evident in Photograph 5, where the tree is so close to the wall that the root bowl has locally pushed the wall towards the highway.

If the wall were to be simply demolished and reconstructed in its current position, this is unlikely to be viable as the corrected line of the wall and its foundation would then encroach into the footprint of the tree and would significantly damage its root bowl.

As the main contributing factor to the lateral displacement would also then still be present, it is likely that any lateral movement could then simply re-occur in the replacement wall.

Consideration could be given to bridging over the area of the tree roots, but the wall above ground level would still appear to be fouled by the line of the tree in some instances when it is reconstructed in its corrected position. In addition, the boundary wall would then be required to span horizontally as well as acting as a vertical cantilever. This would result in a more substantial structure that, as the thickness of the structure would increase, would then foul the line of the tree. We therefore do not believe that this would be a viable alternative.

4.0 Recommendations

The existing boundary retaining wall has reached a state of lateral displacement where it is now considered to be structurally unstable. The wall will therefore need to be demolished and reconstructed.

The main contributing factor to the displacement in the wall is the four mature trees located close to the back of the wall on the retained side. These trees will also prevent the wall from being reconstructed back in its original corrected position as they now foul the original line of the wall. We would therefore recommend that the trees be removed before the wall is rebuilt.

Replacement trees can be provided if desired, but at a greater distance from the wall to ensure that the boundary wall is outside the zone of influence of the trees so that the trees are no longer a destructive factor.

We trust this report is to your satisfaction, however, should you have any queries or wish to discuss any of the above please do not hesitate to contact us.

Yours sincerely,



Keith Sargent

B Eng (Hons) CEng MICE MFPWS

KBS STRUCTURAL ENGINEERING LIMITED

Encl.



Photograph 1 – General view of Southern end of wall



Photograph 2 – General view of wall Length A



Photograph 3 – View along wall Length A



Photograph 4 – View along junction between wall Lengths A & B showing step in height



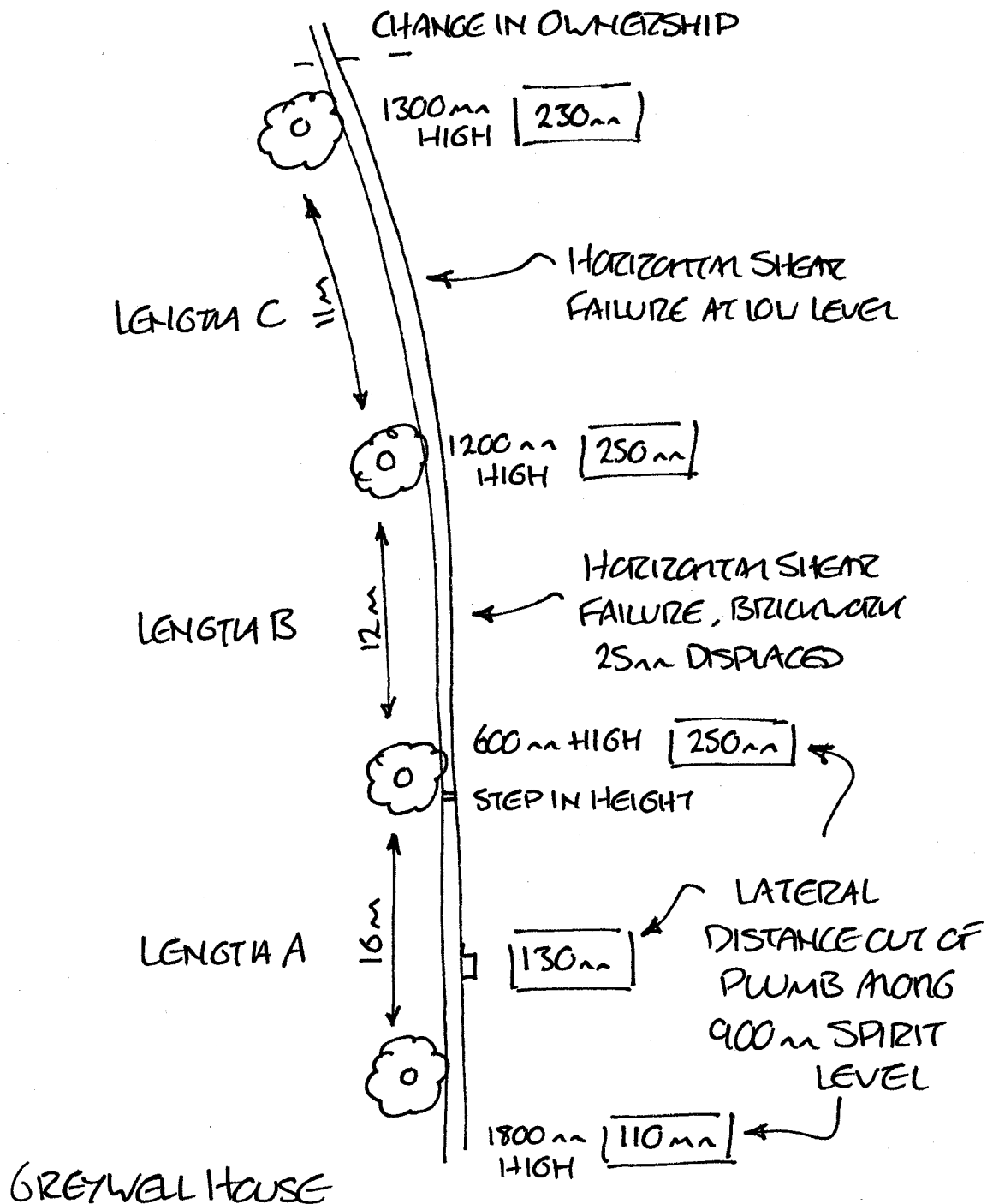
Photograph 5 – Proximity of mature tree behind wall in Length B



Photograph 6 – View along wall Length B showing shear failure along base of wall



Photograph 7 – View along wall Length C



KBS

Structural
Engineering
Limited

E-mail: info@kbsstructural.com
Website: www.kbsstructural.com

Project

GREYWELL, BURZLEDON

Drawing No.

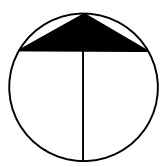
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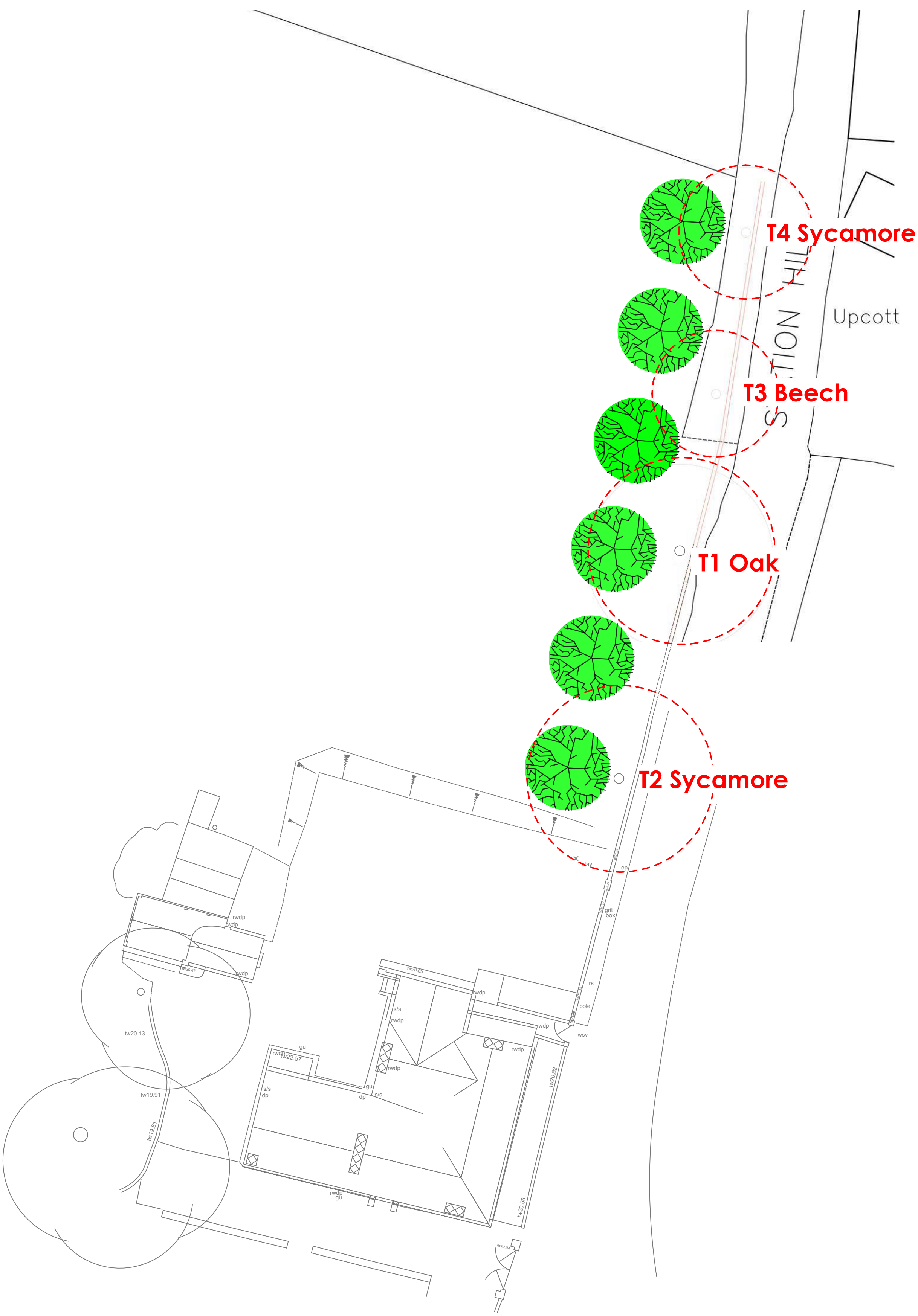
Date MAR'22

By VS

Rev. - Scale NTS



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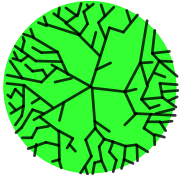
ECO 3 - TREE ISSUES AT 'GREYWELL',
HIGH STREET, BURSLEDON

SCALE: 1:200 @ A3

T1 Tree ID numbering



Trees to be removed



New replacement tree planting
Standard sized (10-12cm girth)
Small Leaved Lime (*Tilia cordata* 'Streetwise')
Indicative crown spreads as shown after 25 years

Photographs



Photograph 1: Canopy of tree T3



Photograph 2: Wound with decay main stem tree T3



Photograph 3: Close up of fungal fruit body main stem tree T₃

Mr Ellis
'Greywell'
High Street
Bursledon
Southampton
SO31 8DL

Our Ref: 211433 - Let 1

23 December 2021

Dear Mr Ellis

Re: Tree issues at 'Greywell', High Street, Bursledon

I write to confirm my recent instruction and subsequent visit to the above address. You asked me to survey two trees, comment on their condition and their relationship with the nearby wall and make any appropriate tree management recommendations.

I visited on 3 December 2021 and the trees I looked at are an oak (*Quercus robur*) and a sycamore (*Acer pseudoplatanus*) located on the eastern site boundary. Their approximate positions are shown on the attached plan (drawing reference 'ECO 2) and I have added in some tree numbering to assist with identification. I understand from our discussions that the building ('Greywell') and the wall are both listed due to their architectural and historic interest and the site also sits within Old Bursledon Conservation Area (OBCA). Reference to the councils online mapping system indicates that a Tree Preservation Order (TPO) is in force across a large part of the site (Council reference '175-H') and this covers 'All Tree Species'.

Tree T1 (oak) is the more northerly of the two trees. It is around 20m in height and is twin stemmed at around 1.4m above ground level, with conjoined trunks at around 2m. The stem diameters at 1.5m were approximately 84cm and 105cm respectively. The tree is positioned in close proximity to the nearby wall and the tree appeared to be exhibiting some root plate displacement (photograph 1). The wall is leaning in an easterly direction toward the nearby highway (photograph 2), with the road sitting at a lower level than the ground around the tree. The tree canopy appeared in rather poor condition, with large amounts of deadwood (particularly over the highway) and some localised dieback of branch extremities (photograph 3). I found a number of fungal fruiting bodies around the base of the tree (photograph 4), which on examination I believe to be *Collybia fusipes*.

Tree T2 (sycamore) is located further to the south of tree T1. It is also around 20m in height and is also twin stemmed, with the main stem having an estimated diameter of about 90cm just below the main fork. The angle between the forks was very acute, resulting in a noticeable zone of 'bark to bark' contact (photograph 5). I noted that the tree was also in close proximity to the nearby wall and that this part of the wall was also leaning at a significant angle eastward toward the highway, which is again positioned at a lower level than the tree. A nearby utility pole to the south of the tree supported an overhead service (electricity) running in a north/south orientation and the leaning wall appeared to be supported by the utility pole (photograph 6).

I understand from our discussions that you are concerned regarding the condition of the wall and have worries that it may collapse onto the adjacent highway. Therefore, you would like to dismantle the wall and rebuild it. However, you are concerned that the trees and their positioning will continue to affect the fabric of the wall once it has been rebuilt. I am not a structural engineer, but given the proximity of the trees to the wall, I think it quite likely that they are the cause of the current wall condition through direct lateral thrust action of roots against the wall fabric and its footing.

Under other circumstances, I would be suggesting that you engage the services of a structural engineer to see what (or if there are any) engineering options available that would 1) allow the wall to be rebuilt whilst maintaining the trees in an acceptable condition and 2) reduce the risk of damage occurring to the rebuilt wall. However, I have concerns regarding the condition of both trees. If my identification of the fungal fruit bodies (*Collybia fusipes*) around tree T1 is correct, then this pathogen is well documented as a cause of root decay. With regard to tree T2, the acute fork angle and area of 'bark to bark' contact is a well-documented type of structural deficiency and in my experience trees with such defects can fail at the point of union.

Where trees have significant amenity value, tree surgery works in the form of canopy reduction, when combined with ongoing monitoring can be an option. However, there is never any guarantee that such works will be sufficient to guarantee acceptable levels of risk and the tree surgery work often ends up disfiguring the tree, with a resultant loss of amenity. The tree wounding also exposes the tree to potential colonisation by decay causing pathogens and the need for ongoing monitoring can also be onerous for the tree owner.

Having considered the issues in some detail, my view would be to accept the loss of the trees now, which would allow the wall to be rebuilt. The removal of the trees will have some implications in the locality, but with replacement planting, I feel that this is a sensible and sustainable way forward. I have indicated new trees on a '2 for 1' basis to create a linear formation, which I feel over time will mature into a useful arboricultural/landscape feature in the locality. I have positioned these new trees so as to reduce the likelihood of any implications on the wall or overhead service in the future.

The position of the trees within the OBCA and likely protection afforded by the TPO means that this work will need to be approved by the council by way of a tree work notification/application. I believe that the removal and replacement of the trees is sensible and should be acceptable to the council. However, they always have the option of either refusing consent under the TPO, or indeed issuing a new TPO to cover the trees under the Conservation Area legislation.

Please feel free to come back to me with any queries you may have.

Yours sincerely

A handwritten signature in dark ink, appearing to be 'Barrie Draper', with a stylized, cursive script.

Barrie Draper BSc (Hons) Arb TechCert(ArborA) CertArb(RFS)
Arboricultural Consultant

Attached: 1: Photographs
2: Tree Plan

Photographs



Photograph 1: Tree T1 and wall



Photograph 2: Leaning wall adjacent to tree T1



Photograph 3: Canopy of tree T1



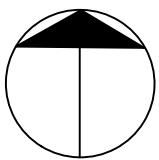
Photograph 4: Fungal fruiting bodies around tree T1



Photograph 5: Main trunk tree T2 with tight fork



Photograph 6: Leaning wall and utility poll close to tree T2



Indicative
North

