BARNET
LONDON BOROUGH

COMMITTEE REPORT

LOCATION:	Asmuns Place Allotments (Rear of 7 – 9 Asmuns Hill, London NW11 6ES)		
REFERENCE:	TPO/00007/13/F	**Received:**	20 December 2012
WARD:	GS	**Expiry:**	14 February 2013
CONSERVATION AREA	Hampstead Garden Suburb		
APPLICANT:	OCA UK Ltd		

PROPOSAL: 1 x Oak (T5 Applicant's Plan) – Fell, T1 of Tree Preservation Order.

RECOMMENDATION:
That Members of the Planning Sub-Committee determine the appropriate action in respect of the proposed felling of 1 x Oak (applicant's ref T5), T1 of Tree Preservation Order, either:

REFUSE CONSENT for the following reason:
The loss of the tree of special amenity value is not justified as a remedy for the alleged subsidence damage on the basis of the information provided.

Or:
APPROVE SUBJECT TO CONDITIONS

1. A replacement Hornbeam of 14 – 16cm stem diameter shall be planted within 1m of the stump of T5 within 6 months (or as otherwise agreed in writing) of the commencement of the approved treatment (either wholly or in part). The replacement tree(s) shall be maintained and / or replaced as necessary until 1 new tree(s) are established in growth.

   Reason: To maintain the visual amenities of the area.
2. Within 3 months of the commencement of the approved treatment (either wholly or in part) the applicant shall inform the Local Planning Authority in writing that the work has / is being undertaken.

   Reason: To maintain the visual amenities of the area.

Recommended Informative if consent is approved:

The applicant should note that the felling of the tree has ground heave potential which may affect neighbouring properties.

Consultations

Date of Press and Site Notices: 17th January 2013

Consultees:
Neighbours consulted: 9 also Hampstead Garden Suburb Trust
Replies: 125 0 support 125 objections

It may be noted that a number of objections were identically worded and in many cases multiple objections were received from different family members at the same address. Many of the grounds of objection are very similar to the previous application (TPO/00421/12/F) which is included as an appendix to this report, but additional objections can be summarised as:

- Specialist Engineer's reports indicate the tree is highly unlikely to be the primary cause of damage
- Specialist Engineer's reports indicate the extension is lifting up not subsiding
- An engineering solution is required whether or not the tree remains and there is an inexpensive and effective method of repair
- Alternative to felling or underpinning to remedy the problems at considerably less expense than the insurer is claiming
- Shortcomings in provision of information for Building Regulations
- Whole extension moved away from original house suggesting need to be tied in to original building for stability
- Recommended drain repairs completed before further major drain problems in March 2012
- No evidence of full recommendations of 20/09/10 Engineering Appraisal Report having been implemented, in particular, the additional excavation for new drain liners
- No mention of severe flooding of drains in March 2011 and no repair since
- Extension foundations constructed with expectation that the tree remain. Removal will require further foundation support
- Foundations at neighbouring properties have not been constructed with anti-heave precautions. The expected 38mm heave would require underpinning to neighbouring properties.
- Stating that any subsequent heave, movement upwards, would be beneficial to the property would imply that such movement would be detrimental to adjoining and near neighbours. Also unquantifiable in both the amount of heave and time-frame for it to occur.
- Movement to whole property is what would be expected as seasonal on clay soil regardless of whether a tree was growing nearby.
- Although more comprehensive documents have been submitted than previously, Hampstead Garden Suburb Trust's Structural Engineer highlights the movement is not consistent with subsidence; remedial work to poorly constructed extension need not include underpinning and would not be lessened by removal of Oak; removal of Oak likely to cause heave which would damage both subject property and neighbours.
- Surprise that this is a new application to fell tree and not an appeal against Barnet's earlier refusal to grant permission to fell. This seems to make sense only if the applicant acknowledges that they had insufficient evidence to make a successful appeal.

- Having been at the Town Hall when a previous application was discussed, I am disturbed that the Insurance Company is wasting Councillors' and residents' time by putting in a new application to have this magnificent Oak felled – and yet they were not even present at the planning meeting on 12 November 2012, to hear the cogently-argued case against their proposal.
- The removal of the tree will result in a substantial and irrevocable loss of amenity, will not solve the problem, and in addition will cause further problems – but there is an alternative inexpensive and effective method of repair to the defects.
- [The application to fell the tree] has already been refused once and the Council must stand firm against this and similar applications from insurers and developers who have no care for urban conservation and design but whose sole motive is to minimise risk at all costs and to protect private profit.
- The case made by the insurance company's consultants is questionable, there are deficiencies and inaccuracies in their information
- Residents [of Hampstead Garden Suburb] should not suffer the loss of amenity because of the failure to put in proper foundations for extension.
- Every one of the points of objection made at the time of the previous application is still valid. The new application …… tries to make a stronger case for removing the tree, but cannot meet any of the objections.
- There is yet another application to fell [the Oak] within a month of the failure of the last application. Frankly this strikes one as vexatious litigation. Are we to expect that should this application fail, there will be yet another on the same basis of 'new information'?
- The reasons given for the Council to reject the previous application are satisfactory and a duplicate application appears to be an abuse of the planning process.
- Proposed replacement of a mature Oak with a small Hornbeam is inadequate
- The Hampstead Garden Suburb Trust submitted their own Structural Engineer's comments

MATERIAL CONSIDERATIONS

Relevant Recent Planning History:

Oak Tree

- as previous Report plus:

TPO/00421/12/F - 1 x Oak (T5 Applicant's Plan) – Fell, T1 of Tree Preservation Order
- refused 12th November 2012

TPO/00669/12/F - Crown Thin Approx 30% as Specified. T1 of Tree Preservation Order
- conditional approval 21st December 2012

9 Asmuns Hill

- as previous Report

PLANNING APPRAISAL

1. Introduction

On 12th November 2012, the Council's West Area Planning Sub-Committee having heard representations from local residents and the Hampstead Garden Suburb Trust,

determined to refuse consent to fell 1 x Oak (T5 Applicant's Plan), T1 of Tree Preservation Order, standing in Asmuns Place Allotments (rear of 7/9 Asmuns Hill) – application reference TPO/00421/12/F - for the reason that "The loss of the tree of special amenity value is not justified as a remedy for the alleged subsidence damage on the basis of the information provided.".

Following the decision refusing consent to fell, on 6th December 2012 the Council's Interim Chief Executive was sent an Opening Letter of Compensation Claim from the applicant. The applicant was not yet in a position to fully quantify the claim but for clarification attached a schedule with heads of claim:

Arboricultural fees	£2,500
Legal fees	tba
Engineering fees	£2,000
Design fees	tba
Substructure repairs	£31,500
Current claim total excluding interest charges	£36,000

Further to this letter, a meeting was arranged at the affected property which was attended by the Council's Principal Structural Engineer; Principal Planner – Trees and Environment; the applicant and their Engineer / Loss Adjuster. In consequence of this meeting, a second application (TPO/00007/13/F) was submitted with additional supporting technical information.

The current Committee Report (TPO/00007/13/F) addresses only the updated information and matters arising. To avoid duplication, this Report should be read in conjunction with the previous Committee Report (TPO/00421/12/F), which is attached as Appendix A.

2. Appraisal

Tree and Amenity Value

As previous report at Appendix A.

The application

The application submitted by OCA UK Ltd was registered on 20th December 2012. The reasons for the proposed removal of the Oak (applicant's reference T5) cited on the application form are essentially the same as previously except for the estimated repair costs and the proposed replacement:

> *2. The above tree works are proposed to limit the extent and need for extent and need for expensive and disruptive engineering repair works at the insured property. In this instance the estimated repair costs are likely to vary between £8,000 and £31,500 depending upon whether the tree can be removed or have to remain.*
>
> *5. I consider that in this specific instance the planting of a Hornbeam, 14 – 16cm stem diameter within 1m of the stump of T5; to the rear of the above would be a suitable replacement.*

In addition to that submitted previously, the supporting documentation comprised:

- letter dated 19 December 2012 from applicant's Engineer commenting on technical issues raised in TPO/00421/12/F Committee Report.

- letter dated 20 December 2012 from applicant's Engineer on behalf of buildings Insurers confirming that, provided the current application is successful, they would not pursue a compensation claim for costs resulting from the refusal in respect of the previous application.

- letter dated 8 January 2013 from applicant's Engineer accompanied by CET Safehouse Ltd Distortion Survey reading dated 2/12/12 issued 1/1/13 and associated sketch; internal level monitoring relative survey reading dated 28/12/12 issued 1/1/13, associated sketch and graph; external level monitoring relative survey reading dated 28/12/12 issued 1/1/13, associated sketch and graph; Floor Contour and Skirting Distortion issued 1/1/13; Floor Contour plan issued 1/1/13; reference to a survey of extension window sills.

- letter dated 23 January 2013 from applicant's Engineer stating that they do not consider heave to be an issue and that insurers are prepared to accept risk of heave damage in relation to the subject property without seeking redress, but that it is beyond the scope of the insurance policy cover to extend indemnities to third parties (i.e. other properties). The applicant's Engineer strongly disagrees with the contention that the damage relates to defective construction rather than clay shrinkage subsidence. The letter advises that "unless the identified oak is removed, then we will proceed with repairs in the form of a piled raft with an estimated cost in excess of £41,000 (including VAT) and we will pursue a compensation claim for recovery of this amount plus Professional Expert fees and Legal costs." (The applicant had separately suggested 'that it would be entirely reasonable to add a figure of at least £25k for taking a case to the Lands Tribunal in relation to solicitor and barrister fees'.)

In addition, there have been comments from the applicant's Engineer about the Hampstead Garden Suburb Trust's Engineer's assessment.

The opinions of the Engineers

It would appear that the Engineers for the parties – the applicant, the Council, and Hampstead Garden Suburb Trust (the tree owner) – have each assessed the evidence provided and come to different conclusions about causation and remedy of the alleged damage to the extension. The applicant's and Council's Engineers agree the Oak T5 is implicated in the damage, however they disagree on the effects of contributory factors, i.e. method of construction and leaking drains. The Trust's Engineer does not consider the Oak tree to be implicated in the damage. Fuller details of each of the Engineers' views are attached as Appendix B to this report, but in essence they may be summarised as:

The applicant's Engineer / Loss Adjuster

The applicant's Engineer contends that the alleged property damage to the extension is due to clay shrinkage subsidence – on the basis that the subsoil beneath foundations was desiccated highly shrinkable clay, oak roots were found beneath foundations, monitoring showed cyclical movement, and the timing of damage was consistent with clay shrinkage subsidence. He argues that if problems were due to defective design it would be expected to occur within a short period of time after construction – however, 15 years after construction is consistent with clay shrinkage subsidence being the cause, and this is demonstrated by the cyclical pattern of movement shown by the monitoring results. He suggests that Building Control have approved the foundations by inspection. He notes that the crack damage to the walls would be within BRE category 1, but that other damage is category 3. He says that the heave prediction gives an estimated uplift of 38mm (moderate to low risk), and as the affected corner has subsided by 50mm, the heave may be beneficial. In respect of potential impact on other properties, affected property is closest to

the tree hence most likely to be affected and rear extension of no. 7 has reported deep foundations so unlikely to be affected. The applicant has considered alternative schemes, but decided that internal piles and a raft is the most structurally efficient and cost effective means of repairing the damage. He suggests that cyclical movement was recorded to both the floor slab and the external walls after drains had been repaired, and this demonstrates that clay shrinkage subsidence was the cause of the damage to the floor slab.

The opinion of the Council's Structural Engineer

The Council's Structural Engineer has visited the site and assessed the information, he summarises the new information as:

The floor slab monitoring results exhibit a very similar pattern to the external wall monitoring results in terms of magnitude and seasonal pattern. This indicates both the foundations and the floor slab are being influenced by the tree root action on the subsoil.
The floor contour map shows a level difference of 30mm across the floor. The level difference is much greater than the seasonal movement of 10mm. This is most likely due to the floor slab being ground bearing on fill material which has settled over the years, exacerbated by the leaking drains under the extension. The method of slab construction and leaking drains would therefore have contributed to the extent of the damage to the floor.
The drains were repaired and the start of the monitoring process and therefore would not have influenced the results. However the drains were previously in a very poor condition, probably leaking for a number of years and are very likely to have contributed to the settlement of the floor slab.
He concludes:
The additional information from the applicant's Structural Engineer provides further evidence the rear extension has been affected by subsidence due to tree root action. On the basis of this and the previous site investigation results referred in my report of the 19/9/12, the oak tree T5 would be implicated in the damage to the rear extension of no. 9 Asmuns Hill.
The damage to the floor has most likely being exacerbated by the method of construction and the previously leaking drain.
The insurer accepts the risk of heave damage to no. 9 only. No. 7 which is opposite the oak tree has a recent rear extension on new deep foundations. However it should be confirmed that no other property will be affected by ground heave following the removal of the oak tree, this can be done by checking records of foundation depths or further site investigations.
It is unfortunate that the applicant is unwilling to consider tree reduction and maintenance as an alternative to removal. The seasonal movement is relatively small due to only a narrow band of soil beneath the foundation being desiccated. Following the reduction works the property could be monitored for stability. If successful only superstructure repairs would then be required and the floor re-screeded to take up the settlement. Regular maintenance of the tree would be required to ensure stability.

The opinion of Hampstead Garden Suburb Trust's Engineer

The Hampstead Garden Suburb Trust's Engineer, however, having also visited the site and reviewed the evidence has an alternative interpretation. He has advised the Trust that the removal of the Oak tree will cause long term heave damage to the property and that an engineering solution is required whether or not the tree remains. He believes that the alleged damage to the extension is attributable to defective design and construction. He

also questions how the damage can be due to subsidence now, if damage did not occur in previous drought conditions with a mature tree to the rear and conditions much the same. He notes that the Trust plans of the original house show there was a covered yard area, suggesting that the builder of the 1995 extension merely demolished the superstructure and utilised and built onto the original footings of the yard, and that it is therefore not surprising that some damage has resulted from shrinkage and differential movement induced by two dissimilar foundations abutting one another. He suggests that the difference in levels is due to builder's error – faced with the north and south sides of the extension being built at different levels, the builder had no option other than to strike a line from rear corner to rear corner and follow it, despite the level difference, which probably made the construction of the timber framed structure difficult necessitating the use of steel shims or dowels to pack up the posts to better levels. He contends that lack of crack damage to the plinth confirms that it is not suffering from subsidence, further the level monitoring proves that the north side of the extension is relatively stable and that side is near another mature Oak tree, reinforcing his view that the problem to the subject extension has nothing to do with the Oak trees.

On basis of inspection in January 2013 he disputes BRE damage categorisation - measuring the maximum gap between sloping floor and skirting as 10mm, thus category 2 (not 3). He suggests that the proposed system of underpinning is overcomplicated and unnecessary and will not entirely resolve the problem.
He considers 38mm heave potential to be substantial. He disagrees that heave would be less if the investigations had been carried out in Spring, suggesting the tree and house have been in equilibrium for many years since the tree reached maturity. He also notes that foundations at no. 7 have incorporated insufficient anti heave precautions to make it acceptably free of risk from heave; and that no. 11 is almost as close to the subject Oak and therefore it is reasonable to assume it would experience over 30mm of heave, considered unacceptable. He believes that removing the tree will cause the ground to swell up, grip the sides of the trench fill concrete and force the extension out of the ground; noting that the extension foundations do not have any anti heave precautions; and suggesting that the movement could continue for up to 10 years.

3. Legislative background

See previous report at Appendix A.

In particular, the following may be noted:
In November 2012, Members determined that the loss of this Oak tree of special amenity value was not justified as a remedy for the alleged subsidence damage on the basis of the information provided, and refused consent for its felling. The applicant has submitted a formal claim for compensation for all loss and damage incurred in consequence of the refusal of consent in accordance with Article 9 of the Town and Country Planning (Tree Preservation) (England) Regulations 2012 and section 202E of the Town and Country Planning Act 1990 (as amended) – the value of this claim is not fully quantified but the schedule currently totals £36,000 excluding legal fees, design fees, and interest charges.

On 19th December 2012, the applicant's Engineer / Loss Adjuster wrote to advise that this current application would be submitted, stating "Provided this further application is successful, I am able to confirm, on behalf of the buildings Insurers of the subject property, that they would not pursue a compensation claim for costs resulting from the refusal in respect of the previous application."

As noted in the previous report (at Appendix A), Government guidance advises that when determining the application the Council should (1) assess the amenity value of the tree and the likely impact of the proposal on the amenity of the area, and (2) in the light of that assessment, consider whether or not the proposal is justified, having regard to the reasons put forward in support of it. It should also consider whether any loss or damage is likely to arise if consent is refused or granted subject to conditions.

If it is considered that the amenity value of the tree is so high that the proposed felling is not justified on the basis of the reason put forward together with the supporting documentary evidence, such that TPO consent is refused, there may be liability to pay compensation. The applicant has already indicated their willingness to seek compensation, believing that "It has been clearly enshrined since 1948 – if you suffer measureable financial loss the public purse is legitimately exposed to risk of claim." and "Retaining the value of 'amenity' has a cost and that cost falls very squarely on an Authority who has the power to act pragmatically and expediently.". It may be noted that the TPO Regulations impose no obligation on an applicant to lodge an appeal with the Planning Inspectorate against a Council's refusal of consent when seeking compensation.

In this case the applicant had initially indicated that "the estimated repair costs are likely to vary between £8,000 and £31,500 depending upon whether the tree can be removed or has to remain.", although the letter dated 23rd January 2013 advises that "unless the identified oak is removed, then we will proceed with repairs in the form of a piled raft with an estimated cost in excess of £41,000 (including VAT) and we will pursue a compensation claim for recovery of this amount plus Professional Expert fees and Legal costs." (The applicant had separately suggested 'that it would be entirely reasonable to add a figure of at least £25k for taking a case to the Lands Tribunal in relation to solicitor and barrister fees'.)

Potential liability arises in two ways:

(i) due to the statutory compensation provisions of the TPO legislation, which would be a matter for the Council as Local Planning Authority

(ii) in damages for nuisance at common law, which would be a matter for the Hampstead Garden Suburb Trust as tree owner.

The proposed treatment of the Oak could only be undertaken with the separate consents of both the Council and the Trust. If both grant consent, no liability is likely to accrue, but there could be significant financial implications if either or both of these bodies withhold permission. The Council could become wholly liable for TPO compensation in the event that it refuses but the Trust grants consent; conversely, if the Council were to grant consent for the proposed felling of the Oak the TPO compensation liability would fall away, but the Trust would still be liable in damages if it refused consent. If both the Council and the Trust refuse consent, liability may accrue to both bodies.

It is very clear that the various Engineers have come to different conclusions about causation and remedy of the alleged damage to the extension. But it is to be noted that the Council's Structural Engineer has concluded "The additional information from the applicant's Structural Engineer provides further evidence the rear extension has been affected by subsidence due to tree root action. On the basis of this and the previous site investigation results referred in my report of the 19/9/12, the oak tree T5 would be

implicated in the damage to the rear extension of no. 9 Asmuns Hill." albeit having concerns about the construction of the extension and heave implications.

If Members consider that the amenity value of the tree is sufficiently high that consent to fell should be refused, there are likely to be significant financial implications. The Hampstead Garden Suburb Trust has already indicated their considerable concern on the basis of the divergence of engineering advice. The potential costs will almost certainly be considerably higher if legal and technical costs are involved in disputing causation.

COMMENTS ON THE GROUNDS OF OBJECTION
Matters addressed in the body of the report(s).

CONCLUSION
The applicant, OCA UK Ltd, arboricultural consultant on behalf of the building insurers of 9 Asmuns Hill, proposes to fell the former field boundary Oak standing in the allotments at the rear of 7 / 9 Asmuns Hill because of its alleged implication in subsidence damage to the property.

The proposed felling of the Oak would be significantly detrimental to the streetscene and would fail to preserve or enhance the character or appearance of the Hampstead Garden Suburb Conservation Area.

The Council's Structural Engineer has assessed the supporting documentary evidence and has concluded that the additional information from the applicant's Engineer submitted with this application provides further evidence the rear extension has been affected by subsidence due to tree root action. The Hampstead Garden Suburb Trust's Engineer, however, considers that the extension is not affected by subsidence and the alleged damage is due to defective design and construction; believing that the removal of the Oak will cause long term heave damage and that an engineering solution is required whether the tree remains or not.

Bearing in mind the potential implications for the public purse, as well as the public amenity value of the tree and its importance to the character and appearance of the Hampstead Garden Suburb Conservation Area, it is necessary to considered whether or not the proposed felling is justified as a remedy for the alleged subsidence damage on the basis of the information provided.

If it is concluded that the amenity value of the Oak is so high that consent to fell should be refused, the Council will have significant compensation liability (which would increase if legal / technical costs are incurred in disputing causation). This is because it is highly likely that a claim for costs against the Council, incurred for carrying out repair works, will be made in the future.

Appendix A
Previous Committee Report - TPO/00421/12/F

BARNET
LONDON BOROUGH

COMMITTEE REPORT

LOCATION:	Asmuns Place Allotments (Rear of 7 – 9 Asmuns Hill, London NW11 6ES)		
REFERENCE:	TPO/00421/12/F	**Received:**	30 July 2012
WARD:	GS	**Expiry:**	24 September 2012
CONSERVATION AREA	Hampstead Garden Suburb		
APPLICANT:	OCA UK Ltd		
PROPOSAL:	1 x Oak (T5 Applicant's Plan) – Fell, T1 of Tree Preservation Order.		

RECOMMENDATION:

That Members of the Planning Sub-Committee determine the appropriate action in respect of the proposed felling of 1 x Oak (applicant's ref T5), T1 of Tree Preservation Order, either:

REFUSE CONSENT for the following reason:
The loss of the tree of special amenity value is not justified as a remedy for the alleged subsidence damage on the basis of the information provided.

Or:
APPROVE SUBJECT TO CONDITIONS

1. The species, size and siting of the replacement tree(s) shall be agreed in writing with the Local Planning Authority and the tree(s) shall be planted within 6 months (or as otherwise agreed in writing) of the commencement of the approved treatment (either wholly or in part). The replacement tree(s) shall be maintained and / or replaced as necessary until 1 new tree(s) are established in growth.

   Reason: To maintain the visual amenities of the area.
2. Within 3 months of the commencement of the approved treatment (either

wholly or in part) the applicant shall inform the Local Planning Authority in writing that the work has / is being undertaken.

Reason: To maintain the visual amenities of the area.

Consultations

Date of Press and Site Notices: 9th August 2012

Consultees:
Neighbours consulted: 9 also Hampstead Garden Suburb Trust
Replies: 70 0 support 70 objections

It may be noted that a number of objections were identically worded and in many cases multiple objections were received from different family members at the same address. The grounds of objection can be summarised as:

- Oak is an original boundary tree that predate houses
- Tree is one of oldest in Suburb (estimates between 100 to more than 350 years old)
- Presence of trees influenced design and layout of area
- Tree identified on Parker and Unwin 1911 plan of Hampstead Garden Suburb
- Oak significant to streetscene and allotments
- Oak integral part of Suburb's history
- Mature trees essential to unique green character and appearance of Suburb Conservation Area
- Oaks iconic species in Hampstead Garden Suburb
- Tree irreplaceable if removed / beauty and majesty take generations to replace
- Value for screening / privacy
- Importance for wildlife, particularly birds (including Green and Greater Spotted Woodpeckers, several species of finches and tits)
- Role of tree in filtering pollution and noise
- Tree is beautiful / fine / handsome / magnificent / 'the George Clooney of trees'
- CAVAT value of tree over £50,000
- Alternatives to tree removal
- Poor construction of extension with inadequate foundations
- Inaccuracies in supporting information submitted by applicant
- Problem with leaking drains
- Need to underpin
- Risk of heave
- Alternative causes for alleged property damage
- Tree felling is insurance company default position
- Argument based on cost to insurers does not take account of wider cost to community
- Precedent set by Northway Electricity Substation appeal decision
- The Hampstead Garden Suburb Trust submitted their own structural engineer's comments

MATERIAL CONSIDERATIONS

Relevant Recent Planning History:

Oak Tree
TREC11846B – crown thin 25% and deadwood, T1 of Tree Preservation Order
- conditional approval 8th November 1996

TREC11846D/04 – shorten back overhanging branches by up to 6ft, reduce density by up to 10%, T1 of Tree Preservation Order
- conditional approval 16th February 2004

TREC11846F/05 – thin by 20% to include removal of deadwood and necessary shaping. Remove 2 low branches encroaching laterally to main trunk, T1 of Tree Preservation Order
- conditional approval 4th July 2005

TREC11846H/08 – thin crown by 25%, remove deadwood and epicormic growth, T1 of Tree Preservation Order
- conditional approval 10th March 2008

TPO/00460/09/F – reduce density by 15%, deadwood, lift low branch to 3m, T1 of Tree Preservation Order
- conditional approval 12th October 2009

9 Asmuns Hill
C02479C – 9 & 11 Asmuns Hill – Single storey rear extensions to both houses. Alterations to ground floor and first floor windows to No. 9 Asmuns Hill.
- conditional approval 10th May 1995

C02479D – 9 & 11 Asmuns Hill – demolition of part of rear of both houses (Conservation Area Consent)
- conditional approval 10th May 1995

C02479E – Garden shed in rear garden
- conditional approval 11th May 1995

C02479K/00 – Loft conversion involving new window in gable end and two traditional rooflights in rear roof
- conditional approval 30th August 2000

C02479L/00 – Loft conversion involving new window in gable end and two traditional rooflights in rear roof. Internal alterations at first and second floor levels (Listed Building Consent)
- conditional approval 30th August 2000

F/02012/12 – Internal alteration including piled raft to rear extension (Listed Building Consent)
- conditional approval 28th June 2012

PLANNING APPRAISAL

1. Introduction

An application form proposing felling of the Oak tree on the boundary of the allotments in connection with alleged property damage at 9 Asmuns Hill was submitted via the Planning Portal in February 2012, however, there were discrepancies and shortcomings in the information – clarification was thus requested. Further information was submitted on 13th June and then on 30th July 2012, allowing registration of the application. In an e-mail on 30th July 2012, the applicant states "To clarify OCA UK Ltd were instructed in Jan 2012 in respect of the TPO Service that we provide and we submitted the TPO application in February 2012. Following your email of the 24 Feb 2012, which appears to have been interpreted as a refusal to validate the application and unfortunately some delays, we submitted a second application recently. As such there was no real delay between the last level monitoring of August 2011 and our instruction in January 2012."

OCA UK Ltd also provided an Arboricultural Assessment Report dated September 2010 to Oriel Services Ltd, the agent for application F/02012/12 – an application for Listed Building Consent for Internal piled raft to rear extension of 9 Asmuns Hill – which was approved 28th June 2012.

9 Asmuns Hill is a two-storey semi-detached dwelling, as with other houses in this part of the Hampstead Garden Suburb Conservation Area, it is a Grade II Listed Building.

2. Appraisal

Trees and Amenity Value

The subject Oak stands on the boundary of the allotments between Asmuns Hill and Asmuns Place, to the rear of 7 Asmuns Hill, on land owned by Hampstead Garden Suburb Trust. The Oak subject of this application is approximately 18m in height with a trunk diameter (at 1.5m above ground level) of 88cm. The tree forks at approximately 4 metres and has been previously reduced in the distant past with subsequent regrowth; it has been previously lifted (including the removal of a quite large branch) and thinned with some localised rot at previous branch removal points, but it appears to be in reasonable condition with no major faults apparent.

The mature Oak is one of the original field boundary trees that pre-date the development of the Suburb. The tree is marked on an old Suburb map dating from 1911 drawn by Parker and Unwin, the Suburb's master-planners. The tree (and others adjacent) were retained and influenced the design and layout of this part of the Artisans' Quarter – the Oak(s) are clearly visible above the roofline and there are glimpsed views between the houses from Asmuns Hill, and it provides screening and privacy between the residential properties and the allotments. The Oak contributes to the general character and appearance of the Hampstead Garden Suburb Conservation Area. Hampstead Garden Suburb is also within a designated Area of Special Character.

Hampstead Garden Suburb is internationally renowned for the way in which mature landscape features have been incorporated into the built environment. As noted by many of the objectors, the Oak appears to be older than the surrounding development (it was originally a field boundary tree) and would have been present at the time the Hampstead Garden Suburb was designed. The retention of trees such as this Oak was an integral part of the design ethos during the development of the Garden Suburb. The Hampstead

Garden Suburb Character Appraisal Statement is one of many documents setting out the importance of trees to the character and appearance of the area e.g.:

- "Trees and hedges are defining elements of Hampstead Garden Suburb. The quality, layout and design of landscape, trees and green space in all its forms, are inseparable from the vision, planning and execution of the Suburb".
- "Wherever possible, in laying out the design for "the Garden Suburb" particular care was taken to align roads, paths, and dwellings to retain existing trees and views. Extensive tree planting and landscaping was considered important when designing road layouts in Hampstead Garden Suburb, such that Maxwell Fry, one of the pioneer modernists in British architecture, held that "Unwin more than any other single man, turned the soulless English byelaw street towards light, air, trees and flowers".
- "Unwin's expressed intention, which he achieved, was: 'to lay out the ground that every tree may be kept, hedgerows duly considered, and the foreground of distant views preserved, if not for open fields, yet as a gardened district, the buildings kept in harmony with the surroundings.'"
- "Trees contribute fundamentally to the distinctive character and appearance of the Conservation Area in a number of different ways, including:
    - Creating a rural or semi-rural atmosphere
    - Informing the layout of roads and houses with mature field boundary trees
    - Providing links with pre-development landscape and remaining woodland
    - Creating glades, providing screening and shade, and marking boundaries
    - Framing views, forming focal points, defining spaces and providing a sense of scale
    - Providing a productive, seasonal interest and creating wildlife habitats

As the Conservation Area Character Appraisal Statement notes "The Artisans' Quarter was designed as a new kind of community in which attractively designed housing for a wide range of income groups was set within a green environment. The provision of large gardens and open recreational spaces was central to the vision……..The density of development is relatively high for the Suburb. However, houses were provided with generous gardens and there are areas of allotments, tennis courts and greens which provide generous open green spaces. Housing layouts were designed to retain existing mature trees." In describing the overall character of the Artisans' Quarter it notes "The retention of boundary oak trees from the pre-existing field boundaries, together with the street trees, hedges and the generous gardens, make a lush green setting for the houses." and included amongst the Principal positive features are "mature oaks from earlier woodlands or field boundaries still thrive, particularly in allotments and back gardens or as focal points in the layout"; "trees and greenery rise above cottages in some areas"; and "there are glimpsed views, between houses, of greenery".

The Oak is considered to be of special amenity value - in terms of its visual contribution to the streetscape; its environmental contribution to e.g. air quality, road noise attenuation, and to wildlife; its value for screening; and its historical significance in the layout of the Suburb. It contributes significantly to the character and appearance of the Hampstead Garden Suburb Conservation Area. The mature Oak is an original field boundary tree, if it was removed any replacement planting would take many years to attain a similar size and stature and its historic attributes would be lost - thus there would be considerable

detriment to public amenity for decades and substantial harm to the character and appearance of the Conservation Area.

The application

The application submitted by OCA UK Ltd was registered on 30th July 2012. The reasons for the proposed removal of the Oak (applicant's reference T5) cited on the application form are:

1. *The above tree works are proposed as a remedy to the differential foundation movement at [9 Asmuns Hill] and to ensure the long-term stability of the building.*
2. *The above tree works are proposed to limit the extent and need for extent and need for expensive and disruptive engineering repair works at the insured property. In this instance the estimated repair costs are likely to vary between £8,000 and £28,000 depending upon whether the tree can be removed or have to remain.*
3. *The above tree works are proposed to limit the duration of any claim period and therefore allow the landowner their right to peaceful enjoyment of their property.*
4. *It is the case that an alternative to felling such as pruning or significant 'pollarding' of the tree would not provide a reliable or sustainable remedy to the subsidence in this case. We do not consider that any other potential means of mitigation, including root barriers, would be effective or appropriate in the circumstances.*
5. *I consider that in this specific instance the planting of either a container grown Silver Birch tree or Field Maple tree, 10 – 12cm stem diameter within 1m of the stump of T5; to the rear of the above would be a suitable replacement.*

The supporting documentation comprised:

- OCA Arboricultural Assessment Report dated 12 July 2012 based on survey dated 28 September 2010 including Cunningham Lindsey Engineering Appraisal Report dated 20th September 2010 and CET Safehouse Ltd 'Factual Report of Investigation' dated 31st August 2010 and level monitoring 09/09//10 - 02/08/11

- Notwithstanding the OCA Report referring to the August 2010 CET Report, an updated CET Report issued 19th May 2012 was submitted which included trial pit and 2 borehole data dated 31st August 2010, soil testing dated 15th September 2010, root identification dated 3rd September 2010, drainage investigation 31st August / 1st September 2010; and a heave calculation dated 24th May 2012.

- There was also e-mail clarification that "[The insured] has confirmed that he has lost the Building regs certificate as it was so long ago. But it is very clear that the LA were involved at all satges *[sic]* and recalls the officer requested the foundations be dug deeper."

The OCA Tree Survey fails to include the neighbouring mature Oak (also an original field boundary tree) to the rear of 11 Asmuns Hill which is of a similar height and very slightly larger trunk diameter.

The Council's Structural Engineer having visited the site and assessed the information, notes:

Background Information

An application for building regulations was made in June 1995 for the construction of a rear extension, however structural details were not provided, and a completion certificate was not issued.

The construction of the extension appears to be a single storey timber frame on a trench fill foundation with a ground bearing slab.
According to our records one site inspection was undertaken by the building control officer, the foundations were recorded as 1.7m deep and no roots were visible within 0.6m of the base.

Trees
The OCA report shows the locations of trees around the property. Their report shows the Oak tree T5 in the allotments at the rear of the garden at a distance of 14.6m from the building and 18.8m high.
The other trees indicated are hazel T2, bay laurel T3 and cherry laurel T4.
Also there is another Oak tree in the allotments not shown on the OCA plan, which is approximately 20m from the building.

Damage
The damage to the rear extension was discovered in August 2010.
The damage consists of sloping floors, gaps below skirting boards worst at the rear left hand corner, step in level of the floor at the junction with the main house, binding of doors and cracking to brickwork of the left flank wall.
The crack damage is classified as category 1 in accordance with BRE Digest 251. This classification of damage is described in the BRE digest as fine cracks which can be treated easily using normal redecoration.
The Cunningham Lindsey report states the main damage is to the floor within the extension.

Subsoil investigations
CET carried out subsoil an investigation on 31/8/10. This consisted of a trial pit and borehole to the rear of the property and a control borehole at the front of the property.
Results of the investigation were as follows;

1. The foundations to the extension are 1650mm deep.
2. Firm/stiff brown Clay was encountered for the full depth of the borehole.
3. Roots extend to 2.0m depth. Dead and decomposing root fragments were recorded at 3.9m depth.
4. Oak tree roots identified at the underside of the foundation
5. No ground heave precautions were evident next to the foundation.

Soil Testing
The soil analysis results indicate desiccation to 2m depth.
A ground heave prediction has been calculated in accordance with BRE Digest 412 using the soil suction test results. The predicted potential ground heave is 38mm.

Monitoring
Level monitoring has been carried out from 9/9/10 to 2/8/11 and indicates seasonal movement with a maximum movement of 10mm to the rear left hand corner of the extension.
The distortion survey shows a large level difference across the extension. This does not relate to the monitoring results or the extent of the damage, and may simply indicate the extension was poorly constructed.

Drainage

The drain survey showed the drains under the extension were in a poor condition and failed the water test.
However the trial pits and boreholes were dry, with some water seepage at 4.1m, and the cyclical pattern of movement demonstrated by the monitoring indicates the underground drainage was not implicated in the damage; water leaking from drainage usually causes progressive widening of the cracks.

Summary
The site investigation results indicate the rear extension has been affected by a minor episode of subsidence due to tree root action affecting a narrow zone of soil under the foundations.
Roots have been found below the foundations and Oak roots were identified at the underside of the foundation. The most likely source of these roots shown on the OCA plan is the Oak tree T5 which is 14.6m from the building.
The extension does not have building regulations completion certificate according to our records, and the foundation depth does not meet NHBC guidelines for building near trees.
On the basis of the proximity of the Oak tree T5 the recommended depth according to the 1985 NHBC guide is 2m deep. However, at the time of the excavation of the foundation in 1995 the depth of visible roots is recorded as 1.1m, the nearest Oak tree was already a mature specimen and it was most likely considered further extensive root growth was unlikely.
There was no record of any inspection of the ground floor slab and no details of the construction were provided to the building control department.
On the basis of the description of the damage in the Cunningham Lindsey report the crack damage is slight and could be repaired during normal redecorations.
The problem of the sloping floor appears to be of more concern with gaps under the skirting board and a step at the junction of the main house.
The predicted potential ground heave of 38mm could cause greater damage to the extension than currently experienced, and take several years to complete.
It should be noted that a significant part of the potential ground heave would occur above the foundation level, and although this could still affect the building due to the friction between the clay soil and the side of the trench fill foundation, this will have a lesser effect than ground heave occurring to the soil below the foundation.
A heave assessment of all properties within the influence zone of Oak tree T5 should be undertaken before the T5 Oak tree is considered for removal.
No. 7 Asmuns Hill which is directly opposite the Oak tree T5 has a rear extension on deep foundation which would limit the effects of ground heave on this property.

Conclusion
Although the foundations of the extension are slightly shallower than the NHBC guidelines current at the time of construction, the crack damage to the superstructure slight and can be dealt with in the course of normal redecorations.
The main concern appears to be the sloping floor. This is most likely to be the result of constructing the concrete slab directly onto the ground where tree root activity was recorded.
In this situation where the ground has been affected by tree root action it is recommended the new ground floor is designed to span onto the foundations with a void between the underside of the floor and the ground level.
No inspection of the floor was carried out by the building control department and no construction details were provided for their assessment.

There are clear discrepancies between the applicant's contention and the Council's Building Control in respect of Building Regulations. In June 1995, a Building Notice Form was submitted to the Council – unlike a 'Full Plans application', this procedure does not involve checking of plans for compliance with Building Regulations and no approval notice is issued, but once the building / extension is subject of a satisfactory final inspection by Building Control, a completion certificate would be issued. However, if construction details are requested, they must be supplied by the applicant – in this case structural calculations for proposed timber beams and posts were requested but not provided, it appears that only one Building Control inspection took place and no completion certificate was issued. The foundations are some 300mm shallower than the NHBC guidance and the extension is not in compliance with Building Regulations. (Although unrelated to the current application, it may be noted that the loft conversion (C02479K & L/00) appears to have been implemented - also without Building Control approval.)

In Borehole 1, roots extend to 2m in depth – in accordance with NHBC guidance, this is the depth to which the foundations should have been constructed. Dead and decomposing root fragments are noted to 3.9m in borehole 1 and to 3.5m in borehole 2 which is in the front garden remote from the Oaks – it is very likely that the condition of the roots is attributable to the defective drains which were not repaired until 12th October 2010 (although one objection notes that there were major drain problems in March 2011). The root analysis identifies Oak roots 1 – 1.5mm in diameter from the underside of trial pit 1, but the 'thread-like' root obtained from depth 1850 – 2000mm of borehole 1 was 'too immature to analyse'.

The main damage is to the single storey rear extension of 9 Asmuns Hill, taking the form of sloping floors with gaps apparent below the skirting board, in addition there are cracks above the skirting, a step in level across the floor, binding doors and low level external brickwork cracking – the cracks are described as being within BRE Category 1, but that the main damage is to the floor. The damage was first discovered on 3rd August 2010 and it is reported to have appeared suddenly, first commencing in July 2010. BRE Digest 251 *Assessment of damage in low-rise buildings* includes a 'Classification of visible damage to walls with particular reference to ease of repair of plaster and brickwork or masonry'. It describes category 1 damage as "Fine cracks which can *be treated easily using normal decoration*. Damage generally restricted to internal wall finishes; cracks rarely visible in external brickwork. Typical crack widths up to 1mm." The BRE Digest concludes "Category 2 defines the stage above which repair work requires the services of a builder. For domestic dwellings, which constitute the majority of cases, damage at or below Category 2 does not normally justify remedial work other than restoration of the appearance of the building. For the cause of damage at this level to be accurately identified it may be necessary to conduct detailed examinations of the structure, its materials, the foundations and the local clear ground conditions. Consequently, unless there are clear indications that damage is progressing to a higher level it may be expensive and inappropriate to carry out extensive work for what amounts to aesthetic damage."

The level monitoring data provided is for the period from 9/9/10 to 2/8/11, on updated monitoring being requested, the applicant responded "*I have checked with Cunningham Lindsey and they have confirmed that the level monitoring submitied [sic] in support of the application is all there is. Please could you therefore determine the application on these results.*" As the Suburb Trust's objection notes, "The movement readings supplied are sparse and need updating. The existing readings show minor net movement. The

maximum movement of 10mm is upward. Upward movement is the antithesis of subsidence. Although there is some net downward movement, the Trust is advised that the movement shown could be due to seasonal movement rather than subsidence."

The Hampstead Garden Suburb Trust's independent engineering advice suggests that the problems at 9 Asmuns Hill appear to be related to the construction of the extension at this property and its interaction with the original structure as opposed to tree root subsidence – the foundations of the extension not appearing appropriate for the site and not in accordance with the appropriate building regulations.

No ground heave precautions were evident next to the foundation. Heave calculations predict a potential ground heave of 38mm – were the tree to be removed, ground heave could take several years to complete and may result in even greater damage to the extension than is currently being experienced, and may have implications for neighbouring properties. In commenting on the assertion by the applicant that the heave risk is acceptable, the Suburb Trust's Engineer states that they "do not consider that 38mm of heave is acceptable…..removal of T5 will not prevent damage to the extension reoccurring, but instead create a new set of problems. The damage to the extension is due to the way it has been built and not to T5. I consider that Mr Fox [engineer for Cunningham Lindsey] should instead be addressing the facts that the extension was incorrectly designed and constructed."

On 11th October 2012, the applicant submitted additional information which included a conservatory floor contour survey dated 9th September 2010; confirmation that monitoring stopped in August 2011, the last reading was the 2nd August 2011; and in regards to the monitoring, CET's instruction was to undertake:
1) Level monitoring, brick course level survey and floor slab level survey - all to the rear extension.
2) Set up level monitoring of the floor in the extension as well as the brick courses - if possible.
In response to this information, the Council's Structural Engineer commented:
The slab contour plan, which we have not seen before, shows a 30mm level difference across the slab, which is much greater than the recorded seasonal movement. This suggests the slab has been affected by tree root action to a greater extent than the foundations, or the leaking drains have contributed to the slab settlement.
Without monitoring results of the slab levels (which CET was supposed to carry out according to OCA) it is not possible to confirm if the tree roots or drains have had the greater effect.

<u>Listed Building application</u>
A Listed Building application (F/02012/12) for internal piled raft to rear extension at 9 Asmuns Hill was registered by the Council on 23rd May 2012. The application included an Arboricultural Assessment Report by OCA UK Ltd dated 30th September 2010 based on a survey dated 28th September 2010; a CET Safehouse Ltd 'Factual Report of Investigation' dated 19th May 2012 which included trial pit and 2 borehole data dated 31st August 2010, soil testing dated 15th September 2010, root identification dated 3rd September 2010, drainage investigation 31st August / 1st September 2010; a Design and Access Statement; a Heritage Statement; some plans; and a letter from Hampstead Garden Suburb Trust dated 14th June 2011 to Oriel Services Ltd (the applicant's agent).

The Hampstead Garden Suburb Trust letter includes the following:

The Trust has now obtained advice from independent structural engineer in respect of the damage and movement at the above property a structural engineer of the Hampstead Garden Suburb Trust's considers that the form of construction of the extension at the rear of the property is a lightweight timber structure on 1.65m deep trench fill concrete foundations located on shrinkable clay. A structural engineer of the Hampstead Garden Suburb Trust's notes that the foundations have no anti heave precautions. On the basis of the disparity between the readings taken for the floor and the external level surveys, a structural engineer of the Hampstead Garden Suburb Trust's believes the floor is a solid ground bearing floor, which is built over a drain. A structural engineer of the Hampstead Garden Suburb Trust's advice is that the form of construction of the extension does not accord with the NHBC and Local Authority guidelines for a structure located 17m from an Oak tree, and that 'trench fill foundations are problematic in clay sites because they are prone to damage due to seasonal movement'.

The site investigations showed live Oak roots immediately under the trench fill foundations. As the Oak tree T5 on the Trust's land is a mature specimen, a structural engineer of the Hampstead Garden Suburb Trust's suggests that if these Oak roots emanate from Oak tree T5, then they would have been present when the extension was constructed. Therefore, the extension should have been constructed differently.

A structural engineer of the Hampstead Garden Suburb Trust's considers that the floor slab should have been suspended with a movement joint installed between the extension and the original house. This would cater for the differential movement between the lightly loaded timber extension on mass concrete trench fill foundations and the original masonry house likely to be built on shallow concrete strip foundations.

A structural engineer of the Hampstead Garden Suburb Trust's advises that removing the Oak tree T5 "will not solve any problem and will indeed cause more problems, due to heave. As the ground under the extension is desiccated, albeit in a narrow band, the ground surrounding the trench fill will also be desiccated. Removing the tree will cause the ground to swell up, grip the sides of the trench fill concrete and force the extension out of the ground."

This advice contrasts with the comments in OCA's report dated 30 September 2010 which states "The Engineer does not consider heave to be a consideration should the adjacent vegetation be removed."

A structural engineer of the Hampstead Garden Suburb Trust's concludes that the design of the extension is not appropriate for the site conditions and that differential movement induced by the design is considered the cause of the damage. The fact that the extension is rising (as shown in CET Safehouse's report of 8 April 2011) casts doubt on the assertion that the cause of the damage is only due to downward movement.

The Design and Access Statement states "The works are required due to clay shrinkage & vegetation subsidence caused by moisture extraction from the nearby mature Oak Tree. To avoid further damage to the property, we feel the best solution is to carry out stabilisation works to the foundations to the rear addition. We are proposing to install internal piled underpinning to help stabilise the rear extensions foundations. The works will require the internal floor to be removed and a new suspended slab being installed."

The application for the internal piled raft to the rear extension was conditionally approved on 28th June 2012 – a month prior to the registration of the TPO felling application TPO/00421/12/F.

As the Appeal Inspector noted in his decision in respect of the proposed tree removal at the Northway Sub-station (TPO/00650/10/F) "The purpose of the TPO legislation is that trees of high amenity value should be protected, and it follows that other alternatives should be preferred to felling wherever possible." If stabilisation would be required in the light of the heave assessment or because of other factors, the proposed removal of the Oak may be considered excessive.

3. Legislative background

Government guidance advises that when determining the application the Council should (1) assess the amenity value of the tree and the likely impact of the proposal on the amenity of the area, and (2) in the light of that assessment, consider whether or not the proposal is justified, having regard to the reasons put forward in support of it. It should also consider whether any loss or damage is likely to arise if consent is refused or granted subject to conditions.

The Town and Country Planning (Tree Preservation) (England) Regulations 2012 provide that compensation is payable for loss or damage in consequence of refusal of consent or grant subject to conditions. The provisions include that compensation shall be payable to a person for loss or damage which, having regard to the application and the documents and particulars accompanying it, was reasonably foreseeable when consent was refused or was granted subject to conditions. In accordance with the 2012 Regulations, it is not possible to issue an Article 5 Certificate confirming that the tree is considered to have 'outstanding' or 'special' amenity value which would remove the Council's liability under the Order to pay compensation for loss or damage incurred as a result of its decision.

In this case the applicant has indicated that "the estimated repair costs are likely to vary between £8,000 and £28,000 depending upon whether the tree can be removed or has to remain."

The Court has held that the proper test in claims for alleged tree-related property damage was whether the tree roots were the 'effective and substantial' cause of the damage or alternatively whether they 'materially contributed to the damage'. The standard is 'on the balance of probabilities' rather than the criminal test of 'beyond all reasonable doubt'.

In accordance with the Tree Preservation legislation, the Council must either approve or refuse the application i.e. proposed felling. The Council as Local Planning Authority has no powers to require lesser works or a programme of cyclical pruning management that may reduce the risk of alleged tree-related property damage. If it is considered that the amenity value of the tree is so high that the proposed felling is not justified on the basis of the reason put forward together with the supporting documentary evidence, such that TPO consent is refused, there may be liability to pay compensation. It is to be noted that the Council's Structural Engineer has noted "The most likely source of these roots [identified at the underside of the foundation].… is the Oak tree T5 which is 14.6m from the building." albeit having significant concerns about the construction of the extension and heave implications.

The compensation liability arises for loss or damage in consequence of a refusal of consent or grant subject to conditions - a direct causal link has to be established between the decision giving rise to the claim and the loss or damage claimed for (having regard to the application and the documents and particulars accompanying it). Thus the cost of rectifying any damage that occurs before the date of the decision would not be subject of a compensation payment. It is to be noted that Listed Building consent F/02012/12 was approved prior to the registration of the TPO felling application currently under consideration. At that time, the applicant's supporting documentation included the Hampstead Garden Suburb Trust's letter which indicated that the extension should have been constructed differently to take account of the proximity of the mature Oak tree(s) with a suspended floor slab and movement joint between the extension and original house to cater for the differential movement between the lightly loaded timber extension and original masonry house with their different foundations. If, as stated prior to the submission of the TPO felling application, the removal of *the Oak tree T5 "will not solve any problem and will indeed cause more problems, due to heave. As the ground under the extension is desiccated, albeit in a narrow band, the ground surrounding the trench fill will also be desiccated. Removing the tree will cause the ground to swell up, grip the sides of the trench fill concrete and force the extension out of the ground."* and "*the design of the extension is not appropriate for the site conditions and that differential movement induced by the design is considered the cause of the damage. The fact that the extension is rising (as shown in CET Safehouse's report of 8 April 2011) casts doubt on the assertion that the cause of the damage is only due to downward movement.",* then it is to be questioned whether loss or damage could be considered to be in consequence of a refusal of consent.

The extension's existing slab floor was not inspected by Building Control and appears not appropriate for site conditions. The suspended floor for which Listed Building consent has previously been granted would be an improvement on the construction of the existing floor and thus may represent 'betterment'. A piled raft would be an excessive remedy for BRE category 1 crack damage to the superstructure.

If it is concluded that extension stabilisation works would be required in any event, regardless of the proposed tree removal; or if the removal would create even greater problems due to heave; it may be argued that loss or damage would not be in consequence of a refusal of TPO consent to fell.

However, if it is concluded on the balance of probabilities that the Oak's roots are the 'effective and substantial' cause of the damage or alternatively whether they 'materially contributed to the damage' and that the damage would be addressed by the tree's removal, there is likely to be a compensation liability (the applicant indicates repair works would be an extra £20,000 if the tree is retained) if consent for the proposed felling is refused.

COMMENTS ON THE GROUNDS OF OBJECTION
Matters addressed in the body of the report.

CONCLUSION
The applicant, OCA UK Ltd, arboricultural consultant on behalf of the building insurers of 9 Asmuns Hill, proposes to fell the former field boundary Oak standing in the allotments at the rear of 7 / 9 Asmuns Hill because of its alleged implication in subsidence damage to the property.

The proposed felling of the Oak would be significantly detrimental to the streetscene and would fail to preserve or enhance the character or appearance of the Hampstead Garden Suburb Conservation Area.

The Council's Structural Engineer has assessed the supporting documentary evidence and has noted that the subject Oak is the closest to the property and the most likely source of roots found at the underside of the foundations. However, the extension's existing slab floor was not inspected by Building Control and appears not appropriate for site conditions. Both the Council's and Hampstead Garden Suburb Trust's Structural Engineers have drawn attention to the shortcomings in the construction of the extension and believe that the applicant has considerably underestimated the heave potential of the proposed tree removal and have significant concerns about heave implications.

Bearing in mind the potential implications for the public purse, as well as the public amenity value of the tree and its importance to the character and appearance of the Hampstead Garden Suburb Conservation Area, it is necessary to considered whether or not the proposed felling is justified as a remedy for the alleged subsidence damage on the basis of the information provided, particularly in the light of the Structural Engineers' concerns about heave and the need, regardless of tree removal, for previously consented remedial works to the extension.
If it is concluded on the balance of probabilities that the Oak's roots are the 'effective and substantial' cause of the damage or alternatively whether they 'materially contributed to the damage' and that the damage would be addressed by the tree's removal, there is likely to be a compensation liability (the applicant indicates repair works would be an extra £20,000 if the tree is retained) if consent for the proposed felling is refused.

However, particularly given the amenity value of the tree, if it is concluded that extension stabilisation works would be required in any event, regardless of the proposed tree removal; or if the removal would create even greater problems due to heave; it may be argued that loss or damage would not be in consequence of a refusal of TPO consent to fell, and that it would be justifiable to refuse the application.

Appendix B

More Detailed Structural Engineers' Information

The opinion of the applicant's Structural Engineer

The applicant's Structural Engineer contends that the alleged property damage to the extension is due to clay shrinkage subsidence – on the basis that the subsoil beneath foundations was desiccated highly shrinkable clay, oak roots were found beneath foundations, monitoring showed cyclical movement, and the timing of damage was consistent with clay shrinkage subsidence. In response to the technical issues raised in the previous report (TPO/00421/12/F), he comments:

Defective design of the floor slab – a suspended floor slab would also have been damaged as the external walls have moved especially in the rear left corner, there would still be falls across the floor but the damage would be different to that currently exhibited. The damage to the floor occurred at the same time as French Doors began to bind in August 2010 – if ground bearing slab was subject to settlement, settlement due to the drainage trench, subsidence due to defective drains or inadequate construction, it would be expected to occur within a short period of time after construction – however, 15 years after construction is consistent with clay shrinkage subsidence being the cause, and this is demonstrated by the cyclical pattern of movement shown by the internal monitoring results. In a letter dated 23rd January 2013, it is pointed out that if defective construction were involved there is a more than reasonable probability that the influence of the drought year in 2003 would have exploited any weakness in design or alternatively that settlement would have occurred within three years of construction. It is therefore a coincidence that the damage should occur to the walls and also the floor at the same time but due to different causes in 2010. The timing of the damage to the floor is consistent with the cause relating to clay shrinkage subsidence and not its form of construction. The householder's recollection of the timing of the damage to the floor, walls, windows and doors occurring in autumn 2010 is clear. The distortions to the doors and windows in the rear left corner were not evident after construction in 1995 or in 2003/2004 (during previous drought conditions).

Defective foundations to the Extension – if the foundations were inadequate, then the building inspector had the opportunity to make the builder aware of any deficiencies and [the applicant considers] that Building Control have approved the foundations by inspection. Even if the foundations had been constructed to 2m in accordance with NHBC guidelines, roots found at the site were at 2m and desiccation at a depth greater than 2m – so subsidence damage would still have occurred but the applicant accepts that the severity of the damage would have been less.

Building Control Missing information – there is no outstanding information request concerning the ground bearing floor slab, which is now allegedly defective. The request for information was not communicated to the householder who would have had an opportunity to provide what was required.

BRE Categorisation of damage – the external and internal crack damage to the walls would be within category 1, probably because the essentially timber framed structure is more flexible than masonry construction. However, there are also falls across the floor, distortion to the windows and doors, and a 12mm gap under the timber post in the rear left corner, with slippage on the DPC in the same corner – this damage is category 3. There is

a 15mm gap beneath the skirting boards in the rear left corner, also placing the sloping floor damage in category 3.

Heave – the heave prediction gives an estimated uplift of 38mm (moderate to low risk), as the affected corner has subsided by 50mm, the heave may be beneficial, in addition the desiccation is not deep seated and is restricted to a narrow band of clay beneath the foundations. The heave prediction is based on site investigations completed in August 2010 and are a worst case scenario, if heave estimates were undertaken based on Spring site investigations (when clay subsoil wetter), likely to have been substantially less. In respect of potential impact on other properties, affected property is closest to the tree hence most likely to be affected and rear extension of no. 7 has reported deep foundations so unlikely to be affected.

System of underpinning – considered alternative schemes (including root barrier, traditional underpinning, foam injection, mini displacement piles, and external cantilevered piles) and found inappropriate for situation. Decided that internal piles and a raft is the most structurally efficient and cost effective means of repairing the damage. The Insurance Ombudsman decided that underpinning was not betterment and as such, insurers are required to meet those costs, under the terms of their Policy, when justified. The piled raft scheme is not excessive when the category 3 damage and the amount of cyclical movement are taken into account.

Drains – drain repairs were undertaken in October 2010 and after those repairs cyclical movement was recorded to both the floor slab and the external walls by monitoring. This demonstrates that clay shrinkage subsidence was the cause of the damage to the floor slab.

Brick course Survey results – disagrees with the assertion that the fall is due to a building defect with the extension being built 'out of level'. There is substantial evidence of downward movement occurring in August 2010 in the rear left corner of the extension which is confirmed by the sloping floor, the distortion to the French doors, distortion of the windows in the rear left corner, a gap beneath the timber post in the affected corner and slippage on the DPC.

Monitoring – duration was eleven months with two month interval between readings (as company norm). The readings show a cyclical pattern of movement sufficient to demonstrate the cause of the damage to both external walls and the floor slab to relate to clay shrinkage subsidence. *Information submitted on 8th January 2013 including monitoring data issued 1st January 2013 – an interval of some 16 months after the previous readings.*

The opinion of the Council's Structural Engineer

The Council's Structural Engineer having visited the site and assessed the information, notes the following:

Site Meeting - There was only minor cracking to the wall of the extension, however the main damage is the sloping floor, the 15mm gap under the skirting board and the out of square rear door frame. Externally there was a 10mm gap under the rear left hand side post.
The Council advised there appeared to be some missing information from the site investigations which had previously submitted to the Council, i.e. Monitoring and level survey of the ground floor slab, date when the drains under the extension were repaired and a realistic cost of the repairs; it was agreed this would be checked and the information forwarded.

The applicant's Structural Engineer advised that if the Oak tree were removed the insurers would accept the risk of heave damage to no. 9, and would confirm this in writing [written confirmation received 23/1/13]. No. 7 opposite the oak tree has a recent extension on new foundations.
The applicant advised that it was not considered that reduction works to the oak tree would be sufficient to stabilize the extension unless they were so severe as to cause the tree to lose its amenity value, and was also concerned a regime of tree maintenance would not be continued resulting in a re-occurrence of old damage. However, it was agreed to consider the options and respond (in an e-mail dated 10/1/13, the applicant confirmed her view that reduction and maintenance of the oak tree are not a realistic alternative to removal.

Letter of 8/1/13 – the applicant's Structural Engineer confirmed that the internal monitoring results over the period 9/9/10 to 2/8/11 are for the floor levels taken at the perimeter. The pattern of the movement is seasonal with a maximum movement of 10.4mm.
Level survey contour plan provided. This shows a 30mm level difference across the floor, sloping down towards the rear left hand side corner.
It was also confirmed the drains under the extension were repaired at the start of the monitoring. Drain repair invoice has a date of 6/10/10.

Summary of new information
The floor slab monitoring results exhibit a very similar pattern to the external wall monitoring results in terms of magnitude and seasonal pattern. This indicates both the foundations and the floor slab are being influenced by the tree root action on the subsoil.
The floor contour map shows a level difference of 30mm across the floor. The level difference is much greater than the seasonal movement of 10mm. This is most likely due to the floor slab being ground bearing on fill material which has settled over the years, exacerbated by the leaking drains under the extension. The method of slab construction and leaking drains would therefore have contributed to the extent of the damage to the floor.
The drains were repaired and the start of the monitoring process and therefore would not have influenced the results. However the drains were previously in a very poor condition, probably leaking for a number of years and are very likely to have contributed to the settlement of the floor slab.

Conclusion
The additional information from the applicant's Structural Engineer provides further evidence the rear extension has been affected by subsidence due to tree root action. On the basis of this and the previous site investigation results referred in my report of the 19/9/12, the oak tree T5 would be implicated in the damage to the rear extension of no. 9 Asmuns Hill.
The damage to the floor has most likely being exacerbated by the method of construction and the previously leaking drain.
The insurer accepts the risk of heave damage to no. 9 only. No. 7 which is opposite the oak tree has a recent rear extension on new deep foundations. However it should be confirmed that no other property will be affected by ground heave following the removal of the oak tree, this can be done by checking records of foundation depths or further site investigations.
It is unfortunate that the applicant is unwilling to consider tree reduction and maintenance as an alternative to removal. The seasonal movement is relatively small due to only a narrow band of soil beneath the foundation being desiccated. Following the reduction

works the property could be monitored for stability. If successful only superstructure repairs would then be required and the floor re-screeded to take up the settlement. Regular maintenance of the tree would be required to ensure stability.

The opinion of Hampstead Garden Suburb Trust's Structural Engineer

The Hampstead Garden Suburb Trust's Structural Engineer, however, having also visited the site and reviewed the evidence has an alternative interpretation. He has advised the Trust that the removal of the Oak tree will cause long term heave damage to the property and that an engineering solution is required whether or not the tree remains. He believes that removing the tree will cause the ground to swell up, grip the sides of the trench fill concrete and force the extension out of the ground; noting that the extension foundations do not have any anti heave precautions; and suggesting that the movement could continue for up to 10 years. In particular, he comments:

Defective design of the floor slab – the present floor damage and condition can only be attributed to the poor design and construction, suggesting that the stated commencement of damage, August 2010, is difficult to reconcile with the facts – he considers that the floor slab was doomed to failure from the day it was built and it was also built on raised, filled ground over leaking drains that have only been repaired in October 2010 according to the invoice. He considers that the binding of the French doors is independent of the settlement of the floor slab, requiring further investigation, and may be due to degradation of the timber frame supporting them. He disagrees that the internal monitoring shows a cyclical pattern of movement consistent with clay shrinkage subsidence, noting that [the rear left corner], the part of the structure with the deepest trench fill foundations, has gone up over the monitoring period – the antithesis of subsidence. In a later response he observes that given the construction of the floor slab, he finds it inconceivable that no movement occurred before 2010, there is insignificant damage to the substructural walls and no ceiling damage to the extension, which would not be the case if subsidence was occurring. He also questions how the damage can be due to subsidence now, if damage did not occur in previous drought conditions with a mature tree to the rear and conditions much the same.

Defective foundations to the Extension – The lack of design drawings, the absence of records and building regulation approval all point to the facts that the extension was not properly designed, supervised or built. The responsibility for this must rest with the householder and not the local authority. He does not consider that the depth of the trench fill foundations at 1.65m deep is the problem; it is the very fact that they are trench fill foundations. In a later response he comments that the extension was probably built on desiccated clay therefore it can hardly be subsiding, and the monitoring shows evidence of upward movement.

Building Control Missing information – the fact remains that a completion certificate was not issued because requested information was not received.

BRE Categorisation of damage – on basis of inspections in June 2011 and January 2013 disputes damage categorisation. The Trust plans of the original house show there was a covered yard area. It is apparent that the builder of the 1995 extension merely demolished the superstructure and utilised and built onto the original footings of the yard. It is therefore not surprising that some damage has resulted from shrinkage and differential movement induced by two dissimilar foundations abutting one another. There is a little damage to the plinth in the south west [rear left] corner, but the brick coping has simply come loose. A crack midway along the rear facing wall was also noted in June 2011. The mastic joints

between the timber boarding and the original house are cracked, but this is considered to be due to old age; the mastic simply needs raking out and replacing. Although accepting that the serviceability of the floor has been impaired, the ridges at the door thresholds are a potential trip hazard needing attention - various methods of remedial works have been suggested without adopting underpinning; he contends that the floor damage is unrelated to the stability of the foundations and brick plinths. He does not consider that movement of the timber framed superstructure is related to the stability of the plinth structure and its foundations – the 12mm gap under the post was noted in June 2011 and, when probed, a metal shim, pin or dowel was encountered between the post and plinth suggesting the structure had been built in that way; he considers the weight of the post on the small shim or pin must be having an effect on the stability of the post and needs further investigation. In January 2013, he measured the maximum gap between sloping floor and skirting as 10mm, thus category 2 (not 3).

Heave – does not consider 38mm to be low or moderate risk (noting in a later response it to be substantial). He disagrees that heave would be less if the investigations had been carried out in Spring, suggesting the tree and house have been in equilibrium for many years since the tree reached maturity. He also notes that foundations at no. 7 have incorporated insufficient anti heave precautions to make it acceptably free of risk from heave; and that no. 11 is almost as close to the subject Oak and therefore it is reasonable to assume it would experience over 30mm of heave, considered unacceptable.

He disputes the distortion survey proves 50mm subsidence in affected corner of extension, suggesting that Points 7 and 8 [south western flank of extension - 8 abutting house, 7 midway] are located on the original covered yard footings and the levels at each end are within 20mm of one another which is considered acceptable given the age of the house, the presence of the drainage gully at Point 7 and leaking drains; the covered yard probably has shallower footings than the main house; and that when the builder built the 1995 extension, he merely extended the brickwork coursing from Point 7 towards Point 6 [south west / rear left corner], and that section of brickwork is shown to be within 6mm of being level. He notes that the level monitoring readings on 2nd August 2011 show a 14mm difference in levels between Points 6 and 7, with the rear corner being higher, which would be impossible if subsidence were occurring. He suggests that the difference in levels is due to builder's error – the monitoring points on the north side of the extension are reasonably level and have remained so throughout; faced with the north and south sides of the extension being built at different levels, the builder had no option other than to strike a line from rear corner to rear corner and follow it, despite the level difference, which probably made the construction of the timber framed structure difficult necessitating the use of steel shims or dowels to pack up the posts to better levels. The lack of crack damage to the plinth confirms that it is not suffering from subsidence, further the level monitoring proves that the north side of the extension is relatively stable and that side is near another mature Oak tree, reinforcing his view that the problem to the subject extension has nothing to do with the Oak trees.

System of underpinning – suggests that the proposed system is overcomplicated and unnecessary and will not entirely resolve the problem. He cannot see how piling a small structure down to a depth of 10m is justified when it can be demonstrated that the ground movement below its foundations is not the cause of damage.

Drains – it is not known how long the drains were defective and now the drains have been repaired any consolidation settlement caused by them has now probably ceased, however, movement may well have still been occurring at the time of the last monitoring reading in August 2011. He does not consider that the movement to the floor slab is cyclical, it has

settled overall, nor does he see how the floor slab would recover if the tree was removed, and is convinced that the floor slab damage is not related to the tree.

Brick course Survey results – considers that the distortion is building error and defective construction.

Monitoring – considers the monitoring should have continued to date, especially since allegations of subsidence have been made which the monitoring has failed to confirm.

In respect of the information submitted on 8th January 2013, he reiterates that the results in various different ways demonstrate that the building is not subsiding.