Arboricultural impact analysis

Trees

at and adjacent to

34 Ornan Road
London
NW3 4QB

for

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1. Introduction

1.1 This report contains a detailed appraisal of 10 trees within or adjacent to the property boundary of 34 Ornan Road, London NW3 4QB, in relation to proposed residential development.

1.2 The report considers the health and safety of the trees under their current growing conditions and assesses the likely impact of the proposed development measured against the advice and guidance set out in *BS5837 2012: Trees in relation to design, demolition and construction – Recommendations.*

1.3 The site inspection for the tree survey on which this report is based took place on the morning of Thursday 13 November 2014 in dry but overcast conditions.

1.4 This report was commissioned by the client in an email dated 10 November 2014.

1.5 I have been provided with the following information in digital format:

- Kings Land and Architectural Surveyors Drawing No. 95711.0001 – Site Survey (dwg)
- Kings Land and Architectural Surveyors Drawing Nos. 95711.0001 - 009 – Site Survey, Floor Plans and Elevations (pdf)
- Ash Sakula Architects Drawing Nos. 140919 ORN 50-51, 61, 62 and 71 – Existing Plans and Elevations
- Ash Sakula Architects Drawing Nos. 140919 ORN 150-51, 161, 162 and 171 – Proposed Plans and Elevations

1.6 The **Tree survey plan** accompanying the detailed report of inspection in **Appendix a** is based on Kings Land and Architectural Surveyors Drawing No. 95711.0001 – Site Survey with additional on-site measurements. The **Tree constraints plan,** also in **Appendix a** is based on the same drawing with the key elements of the proposed rear garden layout (see Ash Sakula Drawing No. 140919 ORN 151 – Proposed Site Plan) overlaid.

2. Background information

2.1 Site layout, boundaries and topography

2.1.1 34 Ornan Road is a substantial Victorian dwelling on 4 floors (lower ground, ground, first and second floors).

2.1.2 The dwelling sits within a substantial plot, narrowly rectangular for approximately 60% of its length (travelling from the southern, Ornan Road, end) and then tapering almost to a point at its northern extremity, where there is an access gate onto Belsize Lane.

2.1.3 The longer axis of the plot runs south east to north west.

2.1.4 At the rear and to the side of the dwelling, the side boundaries of the plot are brick walls of variable height

2.1.5 The **Tree survey plan** in **Appendix a** shows the general layout of the property and the locations of the trees referred to in this report.

2.2 Geology and soils

2.2.1 According to British Geological Survey (BGS) open-source data, the dwelling and the plot in which it stands are located on deep Palaeogene London Clay deposits.

2.2.2 No soil sampling was carried out on site.

2.3 Planning constraints

2.3.1 The property is within the London Borough of Camden Fitzjohns Conservation Area.

2.3.2 It is understood (verbal briefing from the architect) that the tree referred to as T008 in this report is covered by a Tree Preservation Order (TPO). At time of writing, it is not known whether any other tree referred to are covered by a TPO.

2.4 The trees

2.4.1 The **Tree survey schedule** in **Appendix a** describes in detail the 10 trees referred to in this report.

2.5 The proposed development

2.5.1 The main elements of the proposed development include:

- Refurbishment and modifications to the existing dwelling
- External works, in particular re-modelling of the rear garden to create a stepped terraced garden, the lowest level of which will be at proposed (reduced) lower ground floor level, 150mm below the lowest existing garden level.

3. Discussion

3.1 General

3.1.1 The **Tree constraints plan** in **Appendix a** shows the recommended Root Protection Area (RPA) for each tree. Each RPA highlights the primary potential area of conflict between proposed development and retention of existing trees, namely conflicting demands for space at and below ground level

3.1.2 In several cases, adjustments have been made to the RPAs of individual trees to reflect the influence of barriers to the lateral spread of roots, as follows:

T001: lateral spread of roots into the curtilage of 34 Ornan Road and below the carriageway of Ornan Road restricted to 1000mm

T002 and 004: lateral spread of roots into the curtilage of 34 Ornan Road restricted to 1000mm

T003 and 007: lateral spread of roots into adjacent gardens restricted to 1000mm

T008: lateral spread of roots into the curtilage of 34 Ornan Road restricted to 2000mm

T009: lateral spread of roots below the carriageway of Belsize Lane restricted to 1000mm

T010: no lateral root penetration below the footprint of 36 Ornan Road

3.2 Trees to be removed

3.2.1 No trees are to be removed for the purposes of carrying out the proposed development.

3.3 Trees to be retained

3.3.1 **Table 1** overleaf summarises the likely impact of the proposed development upon retained trees within and adjacent to the site.

Trees 001 and 002

3.3.2 With regard to Trees 001 (False Acacia) and 002 (Sumac), both of which stand within the property boundary of 32 Ornan Road, the development proposals include the replacement of existing hard surfacing within the RPAs of both trees, but without any change in finished level.

3.3.3 Bearing in mind that the base of the main stem of T001 is approximately 400mm above the level of the immediately adjacent ground in 34 Ornan Road and that T002 is still very small in relation to the boundary wall that separates it from the proposed development, I consider that any adverse impact from the proposed replacement of existing hard surfacing within the RPAs of these two trees will be insignificant.

Tree No.	Species	Comments	Retention Category
001	False Acacia (*Robinia pseudoacacia*	Proposed replacement of existing hard surfacing overlaps about 5sqm (6%) of the RPA of this tree: existing sub-base depth should not be exceeded	B
002	Sumac *(Rhus typhina)*	Proposed replacement of existing hard surfacing overlaps about 3sqm (30%) of the RPA of this tree: existing sub-base depth should not be exceeded	U
003	Fig *(Ficus carica)*	Excavation to reduced levels will affect 3sqm (25%) and proposed level adjustments a further 4sqm (33%) of the RPA of this small tree: anticipatory reduction in height and spread would be advisable:	C
004	Hawthorn *(Crataegus monogyna)*	Proposed level adjustments will affect just over 5sqm (28%) of the RPA of this small tree: localised adjustments to contouring when works are in progress will help minimise disruption	C
007	Holly *(Ilex aquifolium)*	Excavation to reduced levels will affect 0.5sqm (4%) and proposed level adjustments a further 6.5sqm (57%) of the RPA of this small tree: localised adjustments to contouring when works are in progress will help minimise disruption	C
008	Ash *(Fraxinus excelsior)*	Increases in level of between 50 and 200mm will affect 16.5sqm (10%) of this tree's RPA: localised adjustments to contouring when works are in progress will help minimise disruption: permeable, well structured fill may provide positive benefits	B

Table 1: Summary of impacts on retained trees

Trees 003 to 007

3.3.4 The proposed excavation to reduced levels associated with the extension of outdoor space at lower ground floor level and adjacent re-contouring will have an adverse impact upon T003 (Fig), and, to a lesser extent T004 (Hawthorn) and T007 (Holly). Hawthorns T005 and 006 are unaffected by the proposal.

3.3.5 It would be advisable to severely reduce the height and spread of T003 in order to anticipate the disruption to this small tree's root/shoot balance that will result from the disruption. I would expect it to regrow vigorously and in the meantime, the loss of public visual amenity will be slight , because of the tree's small size and sheltered location.

3.3.6 The possible adverse impact upon T004 will only be quantifiable when the works are carried out but here too, the tree's small size and sheltered location will mean that the adverse effect upon visual amenity will be very small. Level reductions associated with re-contouring affect about 28% of this Hawthorn's RPA. I do not expect this disruption to have significant long-term adverse impact.

3.3.7 The comments relating to T004 apply to T007 too, but in this case about 4% of the RPA will be completely removed and a further 57% will be affected by re-contouring.

Tree 008

3.3.8 The development proposals involve the *raising* of levels over 10% of the RPA of this protected tree, by between 50 and 200mm. I do not think an increase in levels within this range over the area proposed will have significant adverse consequences, provided that the fill material is of sufficient quality.

Tree 009 and 010

3.3.9 Both these off-site trees are unaffected by the proposed development.

4. Conclusions

4.1 The development proposals referred to in this report, which are designed to improve the layout and levels of the garden in relation to the house, and to improve the use and maintenance of the garden, are reasonable and proportionate and can be achieved without significant adverse impact upon public visual amenity or upon the amenities of neighbouring residential properties.

4.2 Proposed works within the RPAs of T001 and 002 are effectively routine maintenance operations and are unlikely to have a significant adverse impact upon either tree.

4.3 Three small trees – Fig T003 and Holly T007 (on-site) and Hawthorn T004 (off-site) will be adversely affected by the proposed re-modelling of the rear garden contours. Anticipatory pruning of T003 and, assuming that there is some flexibility in the proposed levels within the RPAs of T004 and 007, on-site adjustments to final contouring when the works are in progress will minimise disruption. All three trees are small and, although they contribute to low-level screening between the rear garden of 34 Ornan Road and that of an immediately adjacent dwelling in Belsize Lane, they make almost no contribution to general public amenity.

4.4 In the case of T008 (Ash), when the likely effect of the boundary wall upon the rooting pattern of this tree is taken into account, the proposed increase levels of between 50 and 200mm within part of its RPA is unlikely, in my opinion, to have a significant adverse impact. If the fill material is permeable and has a good physical structure and nutrient levels, there could even be a small positive improvement.

4.5 Trees 005, 006, 009 and 010 are unaffected by the proposed development and are separated from it by brick garden boundary walls

Appendix a

Tree survey schedule
Tree survey plan
Tree constraints plan

Explanatory notes

For general information on any entry in the detailed survey text, refer to the notes below which are organised on a column by column basis.

Tree number
All trees have been numbered in the survey text to correspond to the location numbers shown on the accompanying Tree Survey Plan. No trees have been marked on site.

Species
Common English names have been used wherever possible and Latin names are listed (in brackets in *italics*) in all cases.

Dimensions

Height - are recorded in m.

Stem diameter – recorded in mm at breast height (1.5m) wherever possible. Where measurement at 1.5m is not possible, one of the alternative methods set out in *Annex C of BS5837:2012* has been used.
If the diameter has been measured at a different height, this has been recorded, e.g. 60 @ 1m = 60mm diameter at 1m height.
Other abbreviations used:

av - average	est/e - estimated	
ms - multi-stemmed	max – maximum	gl - ground level

Crown spread - radial crown spreads in metres have been recorded at four points on the circumference of the crown (north, east, south and west). The accompanying Tree survey plan shows approximate crown shapes based on these measurements

Crown height - the height of the first major branch and the height of the lowest point of the crown are recorded in metres eg 3/3

Explanatory notes

Age

Y	Young	SM	Semi-mature
EM	Early mature	M	Mature
OM	Over-mature		

Where the precise age of a tree is known, it has been recorded in brackets adjacent to the general classification i.e. M(7).

Condition

Physiological condition

Gives a measure of biological vigour and of the presence or absence of disease, insect attack or other debilitating factors.

G	Good
F	Fair
P	Poor

Structural condition

Gives a measure of each tree's physical form and mechanical stability.

G	Good
F	Fair
P	Poor

Comments

See also **discussion** and **conclusions** in the accompanying report.

Explanatory notes

Recommendations
Preliminary management recommendations under existing conditions

Life expectancy
An approximate estimate for each tree's anticipated future safe life in the following ranges:

<10 years
10-20 years
20-40 years
40+ years

Retention category
This grading is based on the recommendations set out in BS 5837:2012 *Trees in relation todesign, demolition and construction - Recommendations*. The categories are summarised in the standard as follows:

A Trees of high quality with an estimated remaining safe life of at least 40 years
B Trees of moderate quality with an estimated remaining safe life of at least 20 years
C Trees of low quality with an estimated remaining safe life of at least 10 years, or young trees with a stem diameter below 150mm
U Trees in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years

In addition the British Standard requires one or more subcategories to be applied to the main Retention Category. In summary these are as follows:

1 Mainly arboricultural qulaities (that is individual aesthetic characteristics)
2. Mainly landscape qualities
3. Mainly cultural values, including conservation

Tree survey schedule

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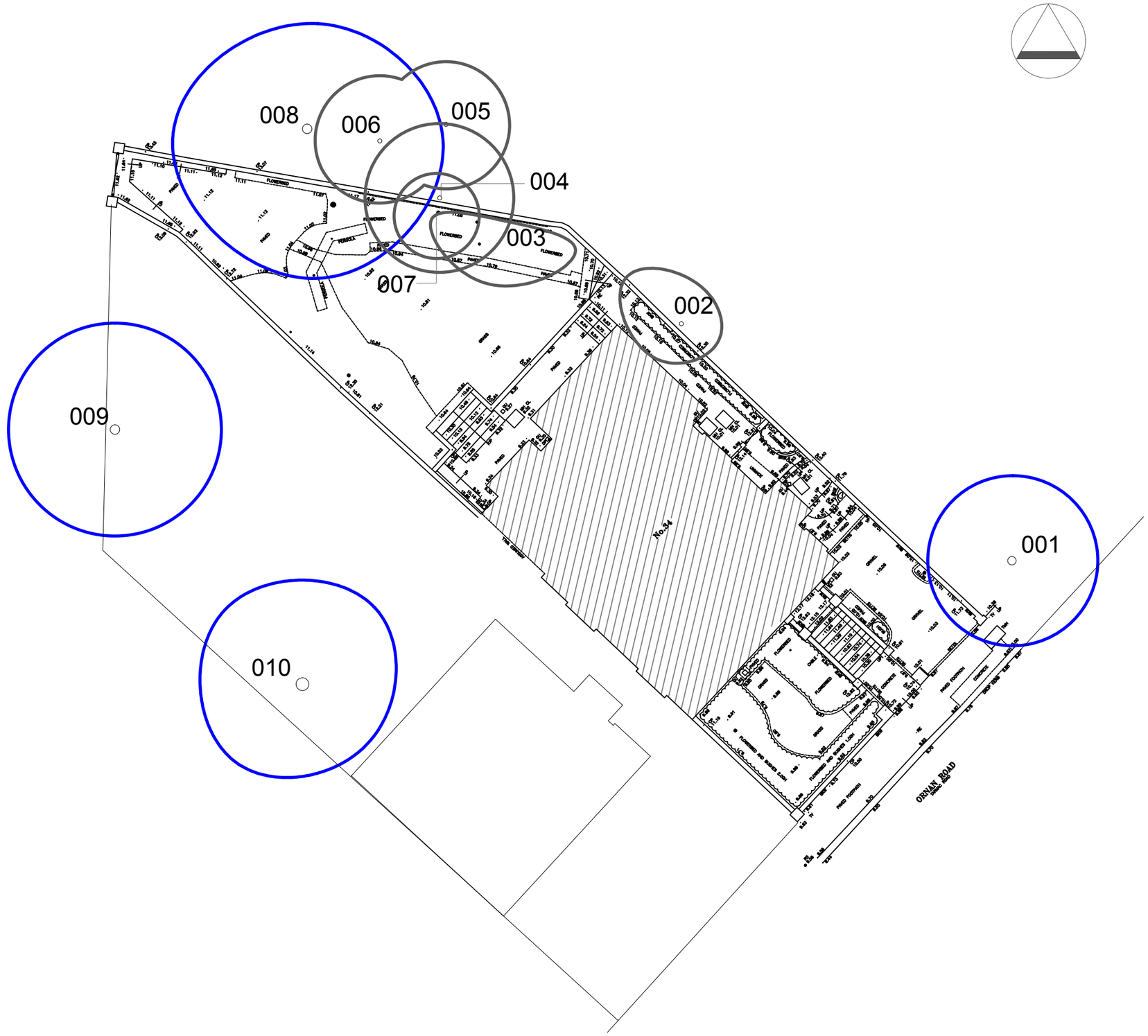
Tree No.	Species	Height (m)	Diam (mm)	Crown Spread (m)				Crown Height (m)	Age	Physiological Condition	Structural Condition	Comments	Recommendations	Life Expectancy	Retention Category	Retention Sub-category
				N	E	S	W									
001	False Acacia (*Robinia pseudoacacia*)	14	400 est	4	4	4	4	3/3	EM	G	G	Single upright stem forks at 3m into 3: quite well balanced crown: stands off-site in an adjacent courtyard: ground level at the base of the main stem is approximately 400mm above the level on the other side of the boundary wall within the curtilage of 34 Ornan Road	No action required	40+	B	1
002	Sumac (*Rhus typhina*)	6	150 est	2	2	2	2.5	2/3	Y	G	G	Single upright stem forks at 2m: well balanced crown: a small tree standing off-site in an adjacent garden	No action required	40+	C	1
003	Fig (*Ficus carica*)	5	80/ 90/ 110	0	4.5	3	3.5	0/1	SM	G	F	Three leaning stems growing against the boundary wall within the site: possibly trained along the wall in the past: very one sided crown (away from N)	No action required	20-40	C	2
004	Hawthorn (*Crataegus monogyna*)	7	200 est	3.5	3.5	3.5	3.5	2/3	M	G	G	Single upright stem forks at 2m: quite well balanced crown: stands off-site in an adjacent garden opposite 003	No action required	40+	C	2
005	Hawthorn (*Crataegus monogyna*)	8	200 est	3	3	3	3	2/2	M	G	G	005 and 006 make up a loose group standing in an adjacent garden: both trees have single leaning stems and one sided branch systems which combine to make a single visually coherent composite crown	No action required	20-40	C	2
006	Hawthorn (*Crataegus monogyna*)	8	200 est	3	3	3	3	2/2	M	G	G	005 and 006 make up a loose group standing in an adjacent garden: both trees have single leaning stems and one sided branch systems which combine to make a single visually coherent composite crown	No action required	20-40	C	2
007	Holly (*Ilex aquifolium*)	7	160	2	2	2	2	1/1	SM	G	F	Single slightly leaning stem curves upright at 1.2m: well balanced narrow conical crown	No action required	40+	C	2
008	Ash (*Fraxinus excelsior*)	17	450 est	5	6.5	7	6	5/5	M	G	F	Single upright stem: first lateral between 4 and 5m: crown one sided (to S) with minor dead wood: reduced in height and spread in the past: stands off-site in an adjacent garden: covered by a TPO	Remove ded wood	40+	C	1/2
009	Lime (*Tilia x europaea*)	17	450 est	5	5	5	5	4/2	EM	G	G	Single upright stem: previously pollarded (cut to a branchless stem) at 6m: regrown crown is well balanced: stands close to the Belsize Lane boundary wall of an adjacent garden	No action required	40+	B	1/2
010	Ash (*Fraxinus excelsior*)	18	600 est	5	4	5	5	4/4	M	G	F	Single upright stem forks between 4 and 5m into 2: well balanced crown has recently (within the last 10 years) been reduced in height and spread and is regrowing vigorously: stands in an adjacent garden	No action required	40+	B	1/2

Client: Mr A de Mol van Otterloo
Location: 34 Ornan Road, London NW3 4BQ
Date: 13.11.14
Job No.: 327



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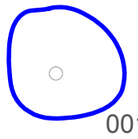

EXISTING TREE

Trees are coloured on plan to correspond to the Retention Categories specified in: *BS5837:20 12 T rees in relation to design, demolition and construction - Recommendations* as follows:

Category A - GREEN
Category B - BLUE
Category C - GREY
Category U - RED

REVISION		CHCK'D	APP'D	DATE

Client:

MR A. DE MOL VAN OTTERLOO

Job Title:

34 ORNAN ROAD
LONDON
NW3 4QB

Drawing Title:

TREE SURVEY PLAN

Drawing Number:	Scale:
327.01.00	1:200 (A3)
Date:	Drawn by:
18.11.14	RS

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KEY

ROOT PROTECTION AREA
as defined in *BS5837:2012 Trees in relation to design, demolition and construction - Recommendations*

003

GROUND LEVEL TO BE RAISED BY LESS THAN 50mm

GROUND LEVEL TO BE RAISED BY BETWEEN 50 AND 200mm

GROUND LEVEL TO BE LOWERED BY UP TO 200mm

REVISION	CHCK'D	APP'D	DATE

Client:

MR A. DE MOL VAN OTTERLOO

Job Title:

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Drawing Title:

TREE CONSTRAINTS PLAN

Drawing Number:	Scale:
327.02.00	1:200 (A3)
Date:	Drawn by:
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