Appendix 10.7

ARBORICULTURAL IMPACT ASSESSMENT ADDENDUM

Landmark Trees

ARBORICULTURAL IMPACT ASSESSMENT REPORT FOR:

Broadwater Lake

Off Moorhall Rd

Harefield

Middlesex

UB9 5HJ

INSTRUCTING PARTY:

Private Client c/o Quod

21 Soho Square

London

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Ref: QUOD/BWL/AIA/01f

Date: 17th November 2025

PART 1: MAIN TEXT

PART 2 - APPENDICES

PART 3 - PLANS

DOCUMENT HISTORY

Revision	Status	Comments	Date
Rev 0	DRAFT	For Internal Review (Client / Design Team)	8/11/24
Rev 01a	DRAFT	For Internal Review (Client / Design Team)	22/7/25
Rev 01b	AUTHORISED	For External Issue (Planning)	31/7/25
Rev 01c	AUTHORISED	For External Issue (Planning)	5/9/25
Rev 01d	AUTHORISED	For External Issue (Planning)	29/9/25
Rev 01e	AUTHORISED	For External Issue (Planning)	13/11/25
Rev 01f	AUTHORISED	For External Issue (Planning)	17/11/25

1. SUMMARY

1.1 The existing site comprises a nature reserve which contains a number of trees potentially constraining development. The proposal includes the construction of a watersports and activity centre.

1.2 The site is densely wooded throughout. For convenience the tree stock has been delineated into the various individuals and groups listed in Appendix 1. These individuals / groups have been assigned categories of retention as per BS 5837: 2012 but it should be noted that the value of the tree stock present lies in the round rather than in individual / small groups of trees.

1.3 The report has assessed the impacts of the development proposals and concludes there would be at most a low impact on the resource: a small portion of trees will be removed or pruned to facilitate construction. Those removed have generally more collective than individual specimen value, such that their loss will be mitigated with new planting, bringing its own benefits to a relatively unmanaged resource: the area of new planting exceeds the area of canopy loss by a factor of 6. Similarly, though pruning here is to serve development, if undertaken to best practice, the scale envisaged should not be altogether untoward in an occupied site.

1.4 Whilst the default position is that structures be located outside the Root Protection Area* (RPA) of trees to be retained, there are some modest encroachments that could not be avoided in the design of the scheme. The report has demonstrated that the tree(s) can remain viable; the report also proposes a series of mitigation measures to improve the tree resource. A 30-year management plan from an ecology perspective will be undertaken by LBH once planning is granted. There is the opportunity for a routine woodland improvement management plan as well balancing the ecological value of dead / poor condition trees with overall woodland health and safety. The landscape masterplan indicates coppicing and pollarding of trees, particularly willows around proposed buildings, car parking and areas of primary pedestrian usage. This would of course significantly extend the longevity of the trees in question.

1.5 Notwithstanding the above assurances, the report sets out a series of recommendations prior and during construction that will ensure impacts to trees are minimised. These are detailed in sections 6.3 and 8 of this report.

1.6 In conclusion, the proposal, through following the above recommendations, will have a positive impact on the existing tree resource.

* British Standards Institute: Trees in relation to design, demolition and construction BS 5837: 2012 HMSO, London

2. INTRODUCTION

2.1 Terms of Reference

2.1.1 Quod instructed Landmark Trees (LT) to prepare this Arboricultural Impact Assessment on behalf of their client, to support a full planning application submitted to the London Borough of Hillingdon ('LBH').

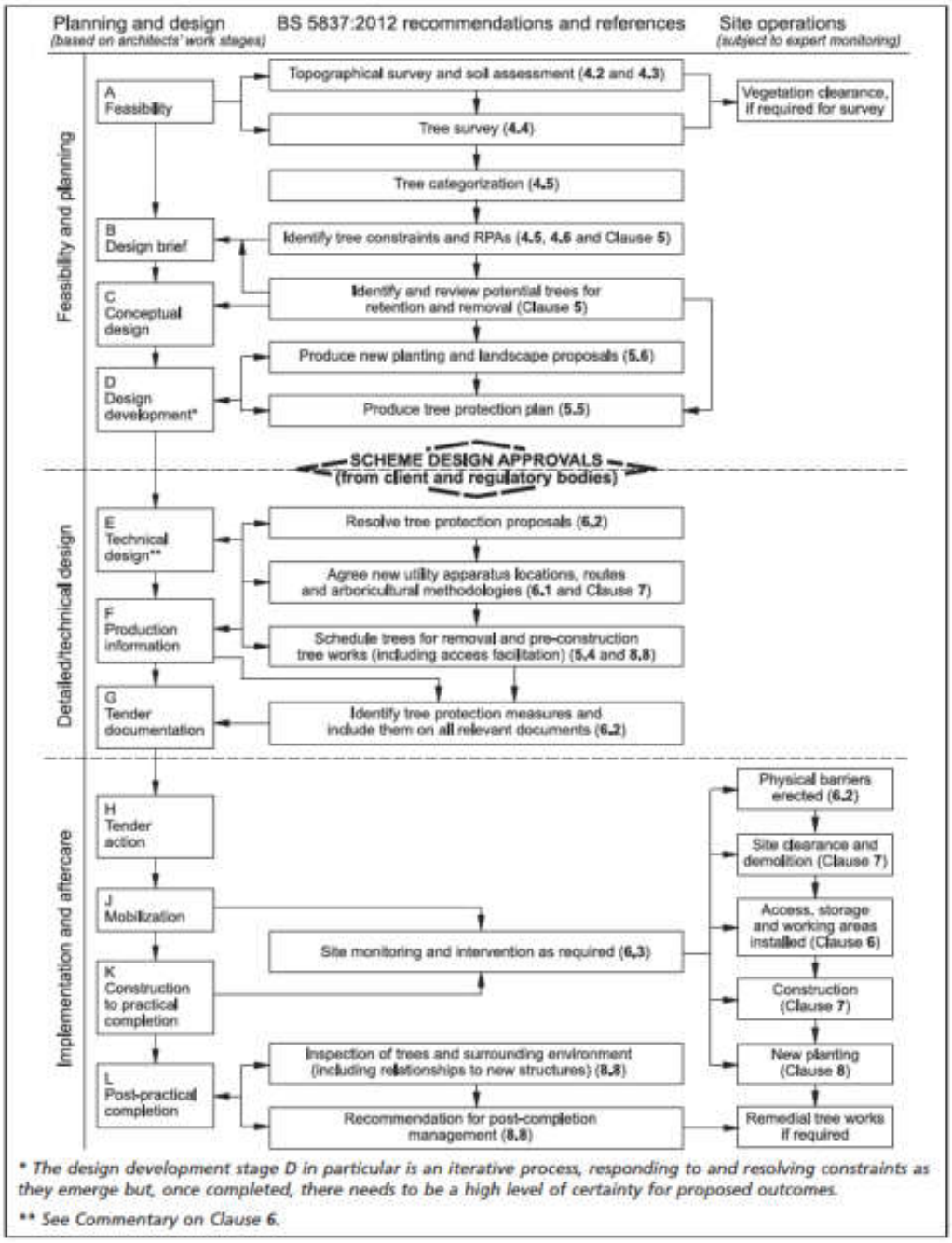
2.1.2 The application relates to the construction of a watersports and activity centre.

2.1.3 This report will assess the impact on trees and their constraints, identified in our survey. Although the proposals were known at the time of the survey, Landmark Trees endeavour to survey each site blind, working from a topographical survey, wherever possible, with the constraints plan informing their evolution. The purpose of the report is to provide guidance on how trees and other vegetation can be integrated into construction and development design schemes. The overall aim is to ensure the protection of amenity by trees which are appropriate for retention.

2.1.4 Trees are a material consideration for a Local Planning Authority when determining planning applications, whether or not they are afforded the statutory protection of a Tree Preservation Order or Conservation Area. British Standard BS 5837:2012 Trees in Relation to Design, Demolition and Construction sets out the principles and procedures to be applied to achieve a harmonious and sustainable relationship between trees and new developments. The Standard recommends a sequence of activities (see Fig.1 overleaf) that starts in the initial feasibility and design phase (RIBA Stage 2 'Concept Design' as defined in 2012) with a survey to qualify and quantify the trees on site and establish the arboricultural constraints to development (above- and below-ground) to inform the design in an iterative process, and continues with an assessment of the arboricultural impacts of the final design and measures to mitigate such impacts should they be negative. Detailed technical specifications for mitigation and protection measures are devised in the design phase that follows (RIBA Stage 3-4 'Developed and Technical design'), and the sequence ends with the Implementation and Aftercare phase (RIBA Stages 5-7) with the implementation of those measures once planning permission is granted, guided by Arboricultural Method Statements (RIBA Stage 4-5, 'Technical Design and Construction) and professional guidance where appropriate.

2.1.5 **This report is produced to support the Design Team to the Scheme Design Approvals stage in the process chart overleaf.**

Figure 1 The design and construction process and tree care



** The design development stage D in particular is an iterative process, responding to and resolving constraints as they emerge but, once completed, there needs to be a high level of certainty for proposed outcomes.*

*** See Commentary on Clause 6.*

2.2 Drawings Supplied

2.2.1 The drawings supplied by the client and relied upon by Landmark Trees in the formulation of our survey plans are:

Existing site survey: L-X-2121-Tree Survey_As Received

Proposals: HWSFAC-COL-00-XX-DR-L-1120_16 - Proposed Landscape Layout-Peninsula

2.3 Scope & Limitations of Survey

2.3.1 As Landmark Trees' (LT) arboricultural consultant, Adam Hollis surveyed the trees on site on various dates between the 12th of October 2024 and the 7th of November 2024 and recently with Kim Dear surveyed the trees on the site access road on 19th of August 2025, recording relevant qualitative data in order to assess both their suitability for retention and their constraints upon the site, in accordance with British Standard 5837:2012 Trees in relation to design, demolition and construction – Recommendations [BS5837:2012].

2.3.2 Our survey of the trees, the soils and any other factors, is of a preliminary nature. The trees were SURVEYED on the basis of the Visual Tree Assessment method expounded by Mattheck and Breloer (The Body Language of Trees, DoE booklet Research for Amenity Trees No. 4, 1994). LT have not taken any samples for analysis and the trees were not climbed but inspected from ground level.

2.3.3 The results of the tree survey, including material constraints arising from existing trees that merit retention, should be used (along with any other relevant baseline data) to inform feasibility studies and design options. For this reason, the tree survey should be completed and made available to designers prior to and/or independently of any specific proposals for development. Tree surveys undertaken after a detailed design has been prepared can identify significant conflicts: in such cases, the nature of and need for the proposed development should be set against the quality and values of affected trees. The extent to which the design can be modified to accommodate those trees meriting retention should be carefully considered. Where proposed development is subject to planning control, a tree survey should be regarded as an important part of the evidence base underpinning the design and access statement

2.3.4 A tree survey is generally considered invalid in planning terms after 2 years, but changes in tree condition may occur at any time, particularly after acute (e.g. storm events) or prolonged (e.g. drought) environmental stresses or injuries (e.g. root severance). Routine surveys at different times of the year and within two - three years of each other (subject to the incidence of the above stresses) are recommended for the health and safety management of trees remote from highways or busy access routes. Annual surveys are recommended for the latter.

2.3.5 The survey does not cover the arrangements that may be required in connection with the laying or removal of underground services.

2.4 Survey Data & Report Layout

2.4.1 Detailed records of individual trees are given in the survey schedule in Appendix 1. General husbandry recommendations are distinguished at Appendix 2 from minimum requirements to facilitate development which form part of the planning application at Appendix 3. The former may still be relevant to providing a safe site of work, of course. Planning considerations notwithstanding, we trust these necessary recommendations are passed on to relevant parties with due diligence and the trees to be managed appropriately.

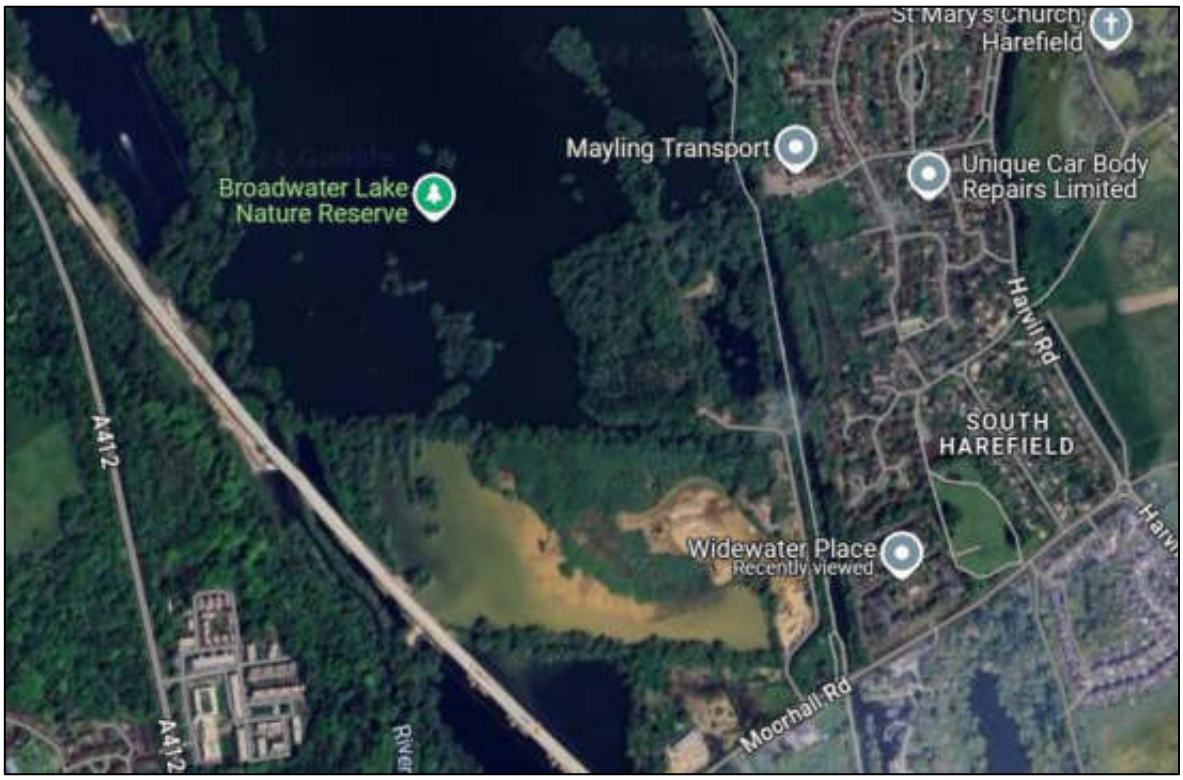
2.4.2 A site plan identifying the surveyed trees, based on the Instructing Party's drawings / topographical survey is provided in Part 3 of this report. This plan also serves as the Tree Constraints Plan with the theoretical Recommended Protection Areas (RPAs), tree canopies and shade constraints, (from BS5837: 2012) overlain onto it. These constraints are then overlain in turn onto the Instructing Party's proposals to create a second Arboricultural Impact Assessment Plan in Part 3. Physical measures required to protect trees during construction will be added to this plan to create an Outline Tree Protection Plan prior to submission to planning.

2.4.3 Whilst we endeavour to review all relevant documentation / plans prior to producing this Outline Tree Protection Plan, there may be instances where this is not possible or they are not available at the time of writing. Those responsible for designing elements including temporary works that may affect trees should recognise the primacy of the tree protection details contained herein and follow its provisions or alert us to potential conflicts.

2.4.4 General observations, discussion, conclusions and recommendations follow, below.

3. SITE CHARACTERISTICS

3.1 Property Description & Planning Context



Photograph 1: Aerial view of application site (Source: Google Maps)

3.1.1 This property comprises a wetland nature reserve that forms part of the Mid Colne Valley Site of Special Scientific Interest (SSSI).

3.1.2 The site is relatively level throughout.

3.1.3 LB Hillingdon's online mapping system confirms that there are no Preservation Orders present nor does the site stand within a Conservation Area. The site's SSSI designation may affect tree removals however.

3.1.4 Relevant local planning policies comprise Policies G1 and G7 of the London Plan 2021 and Policies EM4, EM5 and EM7 of LB Hillingdon's Local Plan Part 1, adopted December 2012 and Policy DMHB14 of LB Hillingdon's Local Plan Part 2, adopted January 2020.

3.2 Soil Description

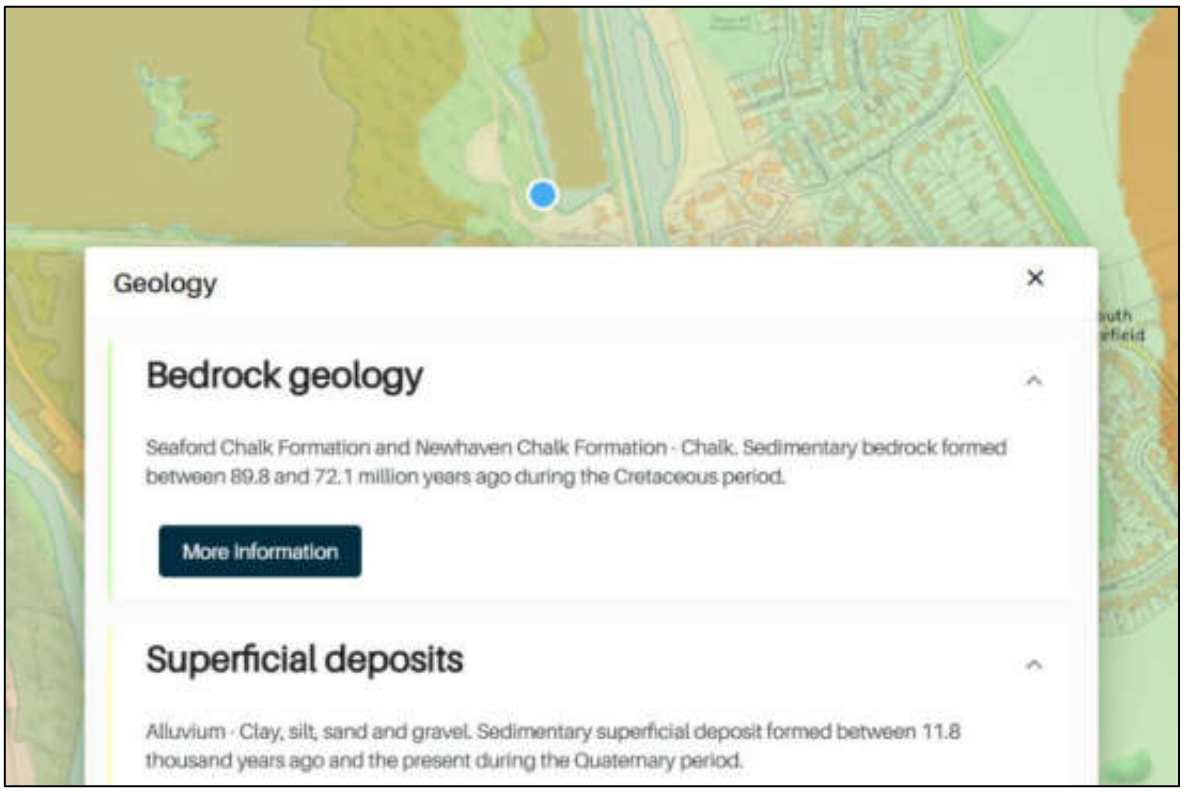


Figure 2: Extract from the BGS Geology of Britain Viewer

3.2.1 In terms of the British Geological Survey, the site overlies the Seaford Chalk and Newhaven Chalk Formations with superficial deposits of alluvium. The actual distribution of the soil series are not as clearly defined on the ground as on plan and there may be anomalies in the actual composition of clay, silt and sand content.

3.2.2 The actual limits of soil series are not as clearly defined on the ground as on plan and there may be anomalies between them. Further advice from the relevant experts on the specific soil properties can be sought as necessary.

3.3 Subject Trees

3.3.1 Of the 96 surveyed trees and groups, 26 are category* B (Moderate Quality) with the remainder being category C (Low Quality) or category U (Poor Quality); none are category A (High Quality).

3.3.2 The tree species found on the site are predominantly willows with alder, birches and occasional ash, poplars and conifers also present.

3.3.3 In terms of age demographics there is a broadly even mix of all age classes present.

3.3.4 Full details of the surveyed trees can be found in Appendix 1 of this report.

3.3.5 There are recommended works for a number of trees. These are listed in Appendix 2.

*page 9 of: British Standards Institute: Trees in relation to design, demolition and construction BS 5837: 2012 HMSO, London

4. DEVELOPMENT CONSTRAINTS

4.1 Primary Constraints

4.1.1 BS5837: 2012 gives Recommended Protection Areas (RPAs) for any given tree size. The individual RPAs are calculated in the Tree Schedule in Appendix 1 to this report, or rather the notional radius of that RPA, based on a circular protection zone. The prescribed radius is 12-x stem diameter at 1.5m above ground level, except where composite formulae are used in the case of multi-stemmed trees.

4.1.2 Circular RPAs are appropriate for individual specimen trees grown freely, but where there is ground disturbance, the morphology of the RPA can be modified to an alternative polygon, as shown in the diagram below (Figure 3). Alternatively, one need principally remember that RPAs are area-based and not linear – notional rather than fixed entities.

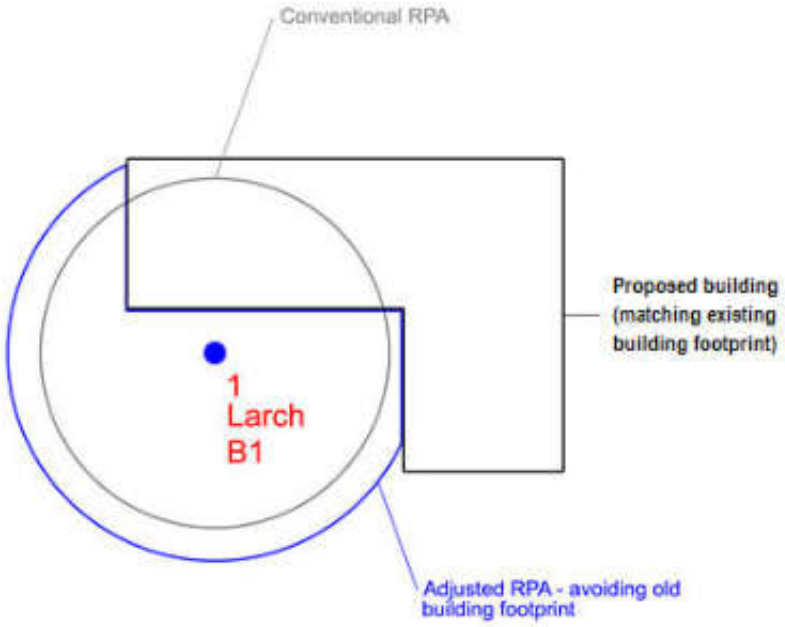


Figure 3 – Generic BS 5837 RPA Adjustments

4.1.3 In BS5837, paragraph 4.6.2 states that RPAs should reflect the morphology and disposition of the roots; where pre-existing site conditions or other factors indicate that rooting has occurred asymmetrically, a polygon of equivalent area should be produced. Modifications to the shape of the RPA should reflect a soundly based arboricultural assessment of likely root distribution. This can be done as a desktop / theoretical exercise but is not altogether (scientifically) reliable and may also invite disagreement / differences of opinion as to that distribution.

4.1.4 LT prefer where possible and practical to raise the issue of modification but suspend judgment until such time as more reliable site investigations have been undertaken (Tree Radar scans and / or trial pits). Of course, the justification for these investigations will depend upon whether trees are (or are likely to be once modified) subject to impacts and also upon their quality / condition: it is generally not worth commissioning a radar study to locate the roots of a poor- or low-quality tree. On other occasions, there may not be the opportunity to commission investigations, either because the access is restricted by ownership / tenancy or the report's turnaround simply does not allow it, and they may need to follow on or be conditioned. **No *a priori* RPA modifications have been made in this instance.**

4.1.5 The quality of trees will also be a consideration: U Category trees are discounted from the planning process in view of their limited useful life expectancy. Again, Category-C trees would not normally constrain development individually, unless they provide some external screening function.

4.1.6 At paragraph 5.1.1. BS5837: 2012 notes that "Care should be exercised over misplaced tree preservation; attempts to retain too many or unsuitable trees on a site are liable to result in excessive pressure on the trees during demolition or construction work, or post-completion demands on their removal."

4.1.7 In theory, only moderate quality trees and above are significant material constraints on development. However, low quality trees comprise a constraint in aggregate, in terms of any collective loss / removal, where replacement planting is generally considered appropriate.

4.1.8 In this instance, the moderate quality trees and woodland elements that form part of the SSSI have the potential to pose significant constraints to development of the site.

4.3 Secondary Constraints

4.3.1 The second type of constraint produced by trees that are to be retained is that the proximity of the proposed development to the trees should not threaten their future with ever increasing demands for tree surgery or felling to remove nuisance shading (Figure 4), honeydew deposition or perceived risk of harm.

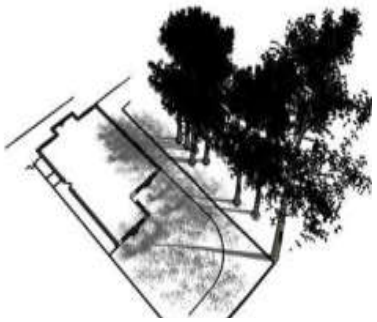


Figure 4 –
Generic Shading Constraints

4.3.2 The shading constraints are crudely determined from BS5837 by drawing an arc from northwest to east of the stem base at a distance equal to the height of the tree, as shown in the diagram opposite. Shade is less of a constraint on non-residential developments, particularly where rooms are only ever temporarily occupied.

Figure 5 – Shading Arc

4.3.3 This arc (see Figure 5) represents the effects that a tree will have on layout through shade, based on shadow patterns of 1x tree height for a period May to Sept inclusive 10.00-18.00 hrs daily.

4.3.4 Assuming that they will be retained, the orientation of the on-site trees will ensure that shading constraints are minimal, with leaf deposition and honey-dew likely to be as it is today. The significance of these constraints will vary depending on the location and proximity to the proposed re-development which is considered below (in Sections 5 & 6). As specified by BS5837, this section (4) of the report considers only the site as it is, not in the light of pending proposals.

Note: Sections 5 & 6 below will now assess the impacts of the proposals upon constraints identified in Section 4 above. Table 1 in Section 5 presents the impacts in tabular form (drawing upon survey data presented in Appendices 1 & 2). Impacts are presented in terms of whole tree removal and the effect on the landscape or partial encroachment (% of RPA) and its effect on individual tree health. Section 6 discusses the table data, elaborating upon the impacts' significance and mitigation.

Ref	Species	BS cat	Impact	Age	Phys Condition	Species Tolerance	Impact on tree rating	Impact on site rating	Mitigation
T11	Birch (Betula spp)	U	Hard Surfacing within RPA	Young	Fair	Moderate	Low	Very low	Manual excavation
T46	White willow (Salix alba)	B	Building Construction within RPA & canopy	Early mature	Fair	Moderate	M	Low	Low-invasive foundation design & remedial tree surgery
T47a	Birch	C	Felled to Facilitate Development	Semi Mature	Fair	N/a	N/a	Low	New planting
T51	White willow (Salix alba)	B	Felled to Facilitate Development	Over Mature	Poor	N/a	N/a	Low	New planting
T55	Birch (Betula spp)	C	Building Construction within RPA	Semi Mature	Poor	Moderate	Very low	Very low	Manual excavation
T68	Birch (Betula spp)	C	Felled to Facilitate Development	Young	Fair	N/a	N/a	Low	New planting
T72	White willow (Salix alba)	U	Felled to Facilitate Development	Semi Mature	Poor	N/a	N/a	Very low	New planting
T89	White willow (Salix alba)	B	Felled to Facilitate Development	Mature	Fair	N/a	N/a	Moderate	New planting
G1	White willow	B	Shelter Installation within RPA	Early Mature	Fair	Moderate	Very low	Very low	Manual excavation
G2	White willow (Salix alba);Birch (Betula pendula)	B	Sensory Garden Creation within RPA	Semi-mature	Fair	Moderate	Low	Very low	Manual excavation
G5	White willow, birch, alder	B	Acoustic barrier and Bird hide Construction within RPA	Mature	Fair	Moderate	Low	Very low	Manual excavation

Ref	Species	BS cat	Impact	Age	Phys Condition	Species Tolerance	Impact on tree rating	Impact on site rating	Mitigation
G9	Alder, birch	B	Building Construction & Shelter Installation within RPA	Semi-mature	Fair	Moderate	Low	Very low	Manual excavation
G10	Silver Birch (Betual pendula)	C	Caving and Acoustic Fence Installation within RPA	Young	Fair	Moderate	Low	Very low	Manual excavation
G25a	White willow (Salix alba)		Felled to Facilitate Development	Semi-mature	Fair	N/a	N/a	Low	New planting
G26	Goat willow (Salix caprea)	C	Felled to Facilitate Development	Semi-mature	Poor	N/a	N/a	Low	New planting
G26a	Birch	B	Boat Rack Installation within RPA	Early mature	Good	Moderate	Low	Very low	Manual excavation
G26b	Birch	B	Boat Rack Installation within RPA	Early Mature	Fair	Moderate	Low	Very low	Manual excavation
G26c	Birch	B	Boat Rack & Hard Surfacing Installation within RPA	Early Mature	Good	Moderate	Low	Low	No-dig construction
G27	White willow (Salix alba);Butterfly bush (Buddleja davidii)	C	Felled to Facilitate Development	Early Mature	Fair	N/a	N/a	Low	New planting
G28	Goat willow (Salix caprea)	C	Felled to Facilitate Development	Early mature	Fair	N/a	N/a	Low	New planting

Ref	Species	BS cat	Impact	Age	Phys Condition	Species Tolerance	Impact on tree rating	Impact on site rating	Mitigation
G28a	Birch	B	Boat Rack & Hard Surfacing Installation within RPA	Early Mature	Good	Moderate	Low	Low	No-dig construction
G30	White willow (Salix alba);Butterfly bush (Buddleja davidii)	C	Felled / Pollarded to Facilitate Development	Mixed	Fair	N/a	N/a	Low	New planting if felled, none if pollarded
G87	Goat willow (Salix caprea)	C	Boat Rack & Hard Surfacing Installation within RPA	Semi Mature	Normal	Moderate	Low	Low	No-dig construction

6. ARBORICULTURAL IMPLICATIONS

6.1 Rating of Primary Impacts

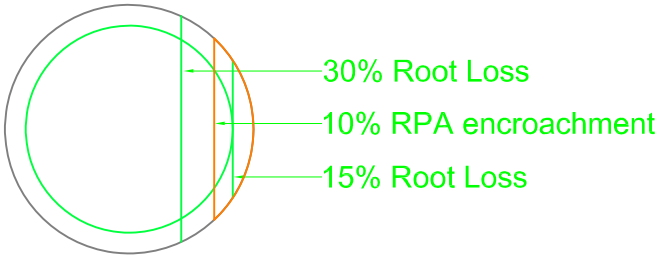
6.1.1 The principal impacts in the current proposals are the removal of the trees listed above. In terms of resource management, these comprise a very small portion of the whole. Those removed generally have more collective (Category C) than individual specimen value (Category B), exception being T89. Whilst the removal of island 7 and its covering of willows (G25a) may have a more visible impact, their condition is variable to poor. Overall then, the losses can be mitigated with new planting, bringing its own benefits of enrichment and diversification to a relatively unmanaged and subsisting resource. Similarly, though pruning of a number of trees is required here to serve development, undertaken to best practice, the scale envisaged should not be altogether untoward in a more managed and occupied site. The immediate reduction in canopy cover through felling and / or pruning is therefore rated as a low impact unlikely to harm either the resource or the wider area. It will also be noted that no trees within the woodland forming part of the SSSI are to be felled.

6.1.2 Further impacts to retained trees comprise the encroachments of 11 individual and groups of trees' RPA by various, predominantly lightweight, structures as well as landscaping activities within the RPA of G2. In our view, the tree(s) are of a species, age and condition sufficient to remain viable in the circumstances, provided the series of mitigation measures outlined below are followed to both reduce the immediate impact of working methods and also improve the soil environment that is used by the tree for growth. Supervision and monitoring of such measures will also be essential. Subject to these provisos the net impacts are assessed as being low.

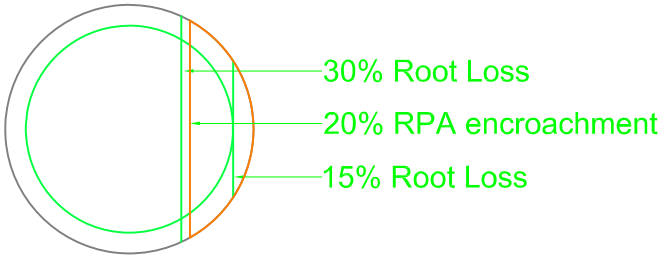
6.1.3 There is no set RPA encroachment that is immediately permissible. However, at para 5.3.a of BS5837, the project arboriculturist is charged with demonstrating that the tree(s) will remain viable in the instance of RPA encroachment. By inference this applies to any encroachment, severance being the most severe but also including other potential impacts such as soil compaction. Whilst there is little research on RPA encroachment itself and as stated above, not every encroachment will result in root severance, there have been various commonly cited studies of root severance (see overleaf).

6.1.4 Whilst the RPA is not coextensive with the wider root system, one can make some correlations after Thomas (2014): in average (sic) conditions, a straight line tangential with a tree's canopy would transect 15% of the root system, for another mid-way to the trunk that figure would be 30%. In the current cases, **the impacts would be well below the lower of these two parameters** as can be seen in Plan 2 in the Appendix or where more irregular in profile, can be gleaned from the percentage RPA encroachments in Table 1. There is no precise correlation between % RPA and root impairment or loss. However, in our experience, most RPA tend to exceed the free-grown canopy spread a little (c. x 1.2 -1.5), suggesting by reference to both Thomas and Fig. 6a - 6c overleaf, RPA encroachments marginally understate the percentage root loss. The informal 20% RPA threshold may equate to c. 30% root loss, and 10% RPA encroachment to c. 20% root loss. The assumptions made here are relatively crude and apply more to open grown trees but are nonetheless illustrative.

RPA: 5m



Area 7.98 sq.m. (10.0%)



Area 15.96 sq.m. (20.0%)

Figure 5a: approximate correlation between RPA encroachment and actual root loss on a free-grown tree of 5m RPA radius (after Thomas (2014))

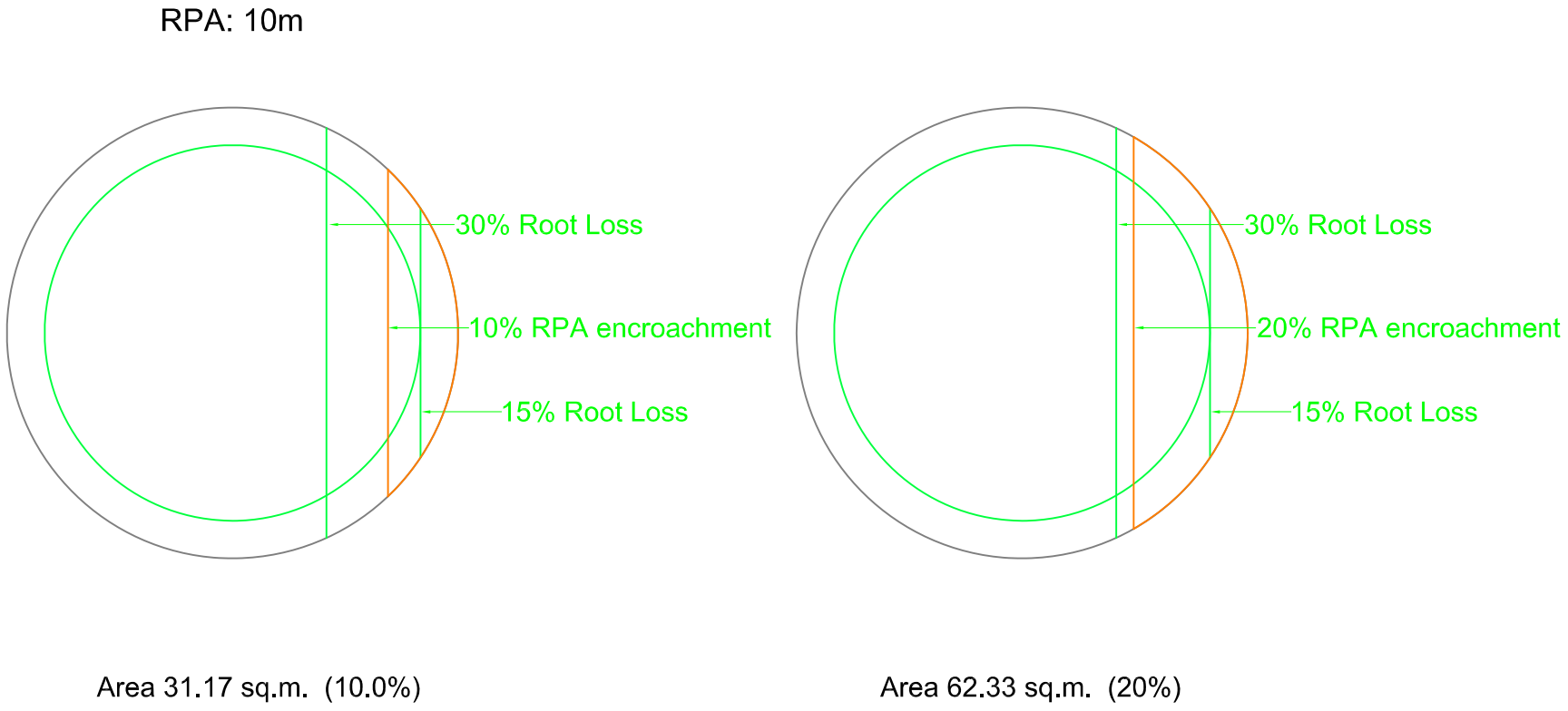


Figure 5b: approximate correlation between RPA encroachment and actual root loss on a free-grown tree of 10m RPA radius (after Thomas (2014))

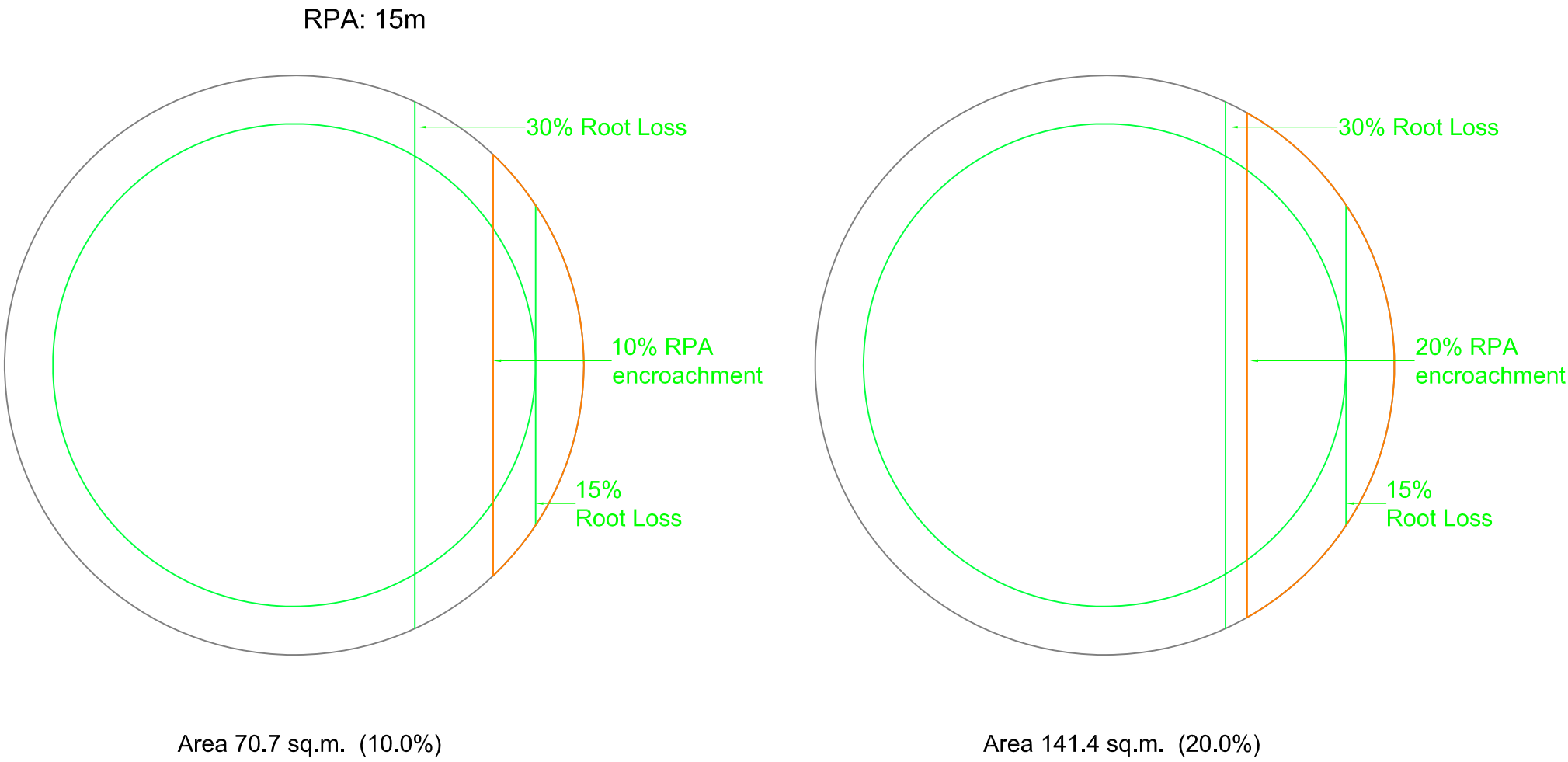


Figure 5c: approximate correlation between RPA encroachment and actual root loss on a free-grown tree of 15m RPA radius (after Thomas (2014))

6.1.5 Published references suggest healthy trees tolerating up to 30-50% root severance in general (Coder, Helliwell and Watson in CEH 2006). "**In practice 50% of roots can sometimes be removed with little problem**, provided there are vigorous roots elsewhere. Inevitably, this degree of root loss will temporarily slow canopy growth and even lead to some dieback" (Thomas 2014). Clearly, it is not the purpose of this report to sanction impacts to test a tree's physiological tolerance, where the guidance recommends the avoidance of impact / RPA encroachment as the default position. However, it has not proved possible at the design stage to avoid such encroachment altogether, and in that regard, the project arboriculturalist has determined that the retained trees can remain viable in the scheme before planning.

6.1.6 The trees in question are shown in Table 1 above to be healthy specimens of species with a good resistance to development impacts, and of an age quite capable of tolerating these limited impacts. Nor do the site characteristics suggest specific soil anomalies (e.g. heavy clay) having a bearing on such considerations, provided appropriate measures (e.g. ground protection) are taken.

6.1.7 As per BS5837 recommendations (at 5.3.1a), the above assessment demonstrates that the tree(s) can remain viable. The guide also recommends (at 5.3.1b) the arboriculturist propose a series of mitigation measures (to improve the soil environment that is used by the tree for growth). These are provided at 6.3 below.

6.2 Rating of Secondary Impacts

6.2.1 Whilst the new structures will be subject to shading and organic deposition, the nature of the site's use means this is unlikely to result in post-development conflict.

6.2.2 The increase in use of the site does though inherently increase the risk the trees present pose which in turn increases the likelihood of tree pruning / removal to maintain this risk at tolerable levels. However, given the site will be operated by LB Hillingdon, it is reasonable to assume that any such risk management will be undertaken appropriately.

6.3 Mitigation of Impacts

6.3.1 The replanting scheme will offer considerable enhancement and replaces mainly low-quality trees. In area alone, replacement planting exceeds canopy loss by a factor of 6 (see Appendix 4 below). Replacement trees will have the advantage of being specifically selected for the proposed site, healthy and fit-for-purpose. Naturally regenerated trees and saplings tend to be of pioneer / opportunist species (ash and sycamore) which can cause problems for infrastructure, springing up in unsuitable locations. Design can provide for a diverse range of native and ornamental species that will complement rather than conflict with the proposals, so providing a more sustainable long-term resource for the future.

6.3.2 A 30-year management plan from an ecology perspective will be undertaken by LBH once planning is granted. There is the opportunity for a routine woodland improvement management plan as well balancing the ecological value of dead / poor condition trees with overall woodland health and safety. The landscape masterplan indicates coppicing and pollarding of trees, particularly willows around proposed buildings, car parking and areas of primary pedestrian usage.

6.3.3 Soft ground within the unaffected parts of encroached RPAs will be treated with a 75mm layer of mulch which will be maintained in place throughout the duration of construction activities.

6.3.4 The building encroachment to T46's RPA necessitates the use of low-invasive foundations comprising discontinuous small diameter piles / groundscrews and a suspended slab.

6.3.5 The limits of excavation within remaining RPAs will be undertaken manually; any roots encountered will be cleanly pruned back to an appropriate junction with a sharp pruning saw or secateurs. Roots larger than 25mm diameter may only be cut in consultation with an arboriculturalist.

6.3.6 The immediate canopy encroachment of new structures can be avoided through remedial tree surgery.

6.3.7 New hard surfacing within RPAs will be installed using a no-dig methodology employing an above ground cellular confinement system with no-fines aggregate as the sub-base.

6.3.8 Nuisance deposition can be further mitigated with routine maintenance, light pruning / deadwooding and the fitting of filtration traps on guttering (see Figure 7 below).

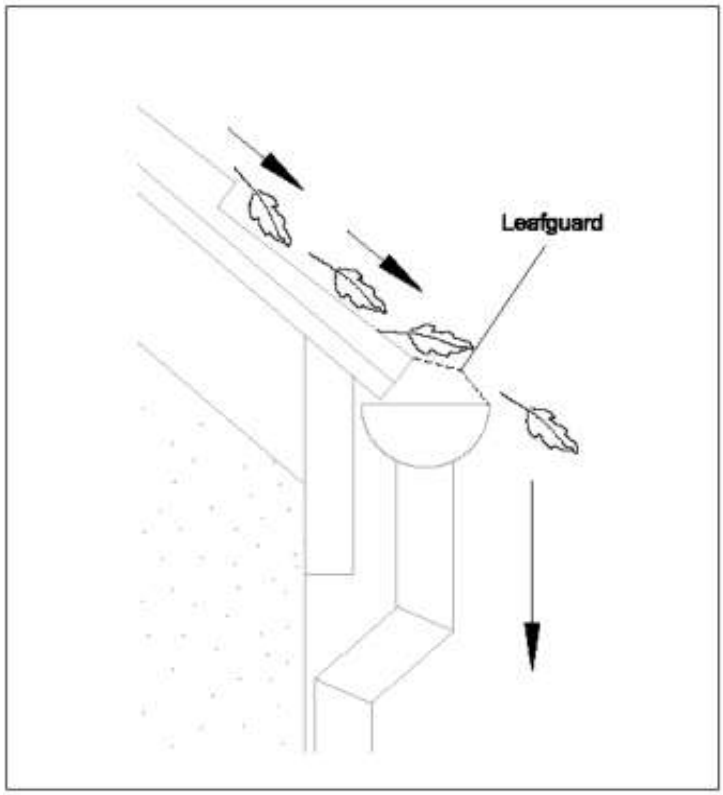


Figure 7: Filtration traps, as shown above, could be fitted on the gutters which can easily be maintained at 2-3m above ground.

7. CONCLUSION

7.1 The short-term impacts of development are all relatively low in terms of both quality of trees removed and also RPA encroachments of trees retained. In the latter case, the report has demonstrated as per BS5837 paragraph 5.3.1 (a) that the tree(s) can remain viable; the report also proposes as per paragraph 5.3.1 (b) a series of mitigation measures to improve the soil environment that is used by the tree for growth.

7.2 The full potential of the impacts can thus be largely mitigated in through design and precautionary measures. These measures can be elaborated in Method Statements in the discharge of planning conditions.

7.3 The species affected are generally tolerant of root disturbance / crown reduction and the retained trees are generally in good health and capable of sustaining these reduced impacts.

7.4 The trees that are recommended for felling are of little individual significance, such that their loss will not affect the visual character of the area and can be mitigated by new planting and landscaping. New planting is to exceed canopy loss by a factor of 6 and environmental management plans are proposed for the extant resource. Thus, the overall impact beyond initial tree loss / encroachment is positive.

7.5 Therefore, the proposals will not have any significant negative impact on either the retained trees or wider landscape (quite the opposite) thereby complying with Policies G1 and G7 of the London Plan 2021 and Policies EM4, EM5 and EM7 of LB Hillingdon's Local Plan Part 1, adopted December 2012 and Policy DMHB14 of LB Hillingdon's Local Plan Part 2, adopted January 2020. Thus, with suitable mitigation and supervision the scheme is recommended to planning.

8. RECOMMENDATIONS

8.1 Specific Recommendations

8.1.1 Tree works recommendations in Appendix 2 are not part of the current application, but requirements of general maintenance that will need to be applied for (subject to para. 3.3 of this report and any other relevant constraints in planning or leasehold) by the client separately. Consent for the current planning application does not impart any consent for the Appendix 2 maintenance works. Please note, though, the owner and / or manager of a property have a duty to maintain a safe site of work and to protect occupiers of the surrounding land / members of the public from tree hazards. Works recommended in this report should be enacted in a timely fashion by the relevant party regardless of the progress of the development.

8.1.2 Recommendations for works required to facilitate development are found in Appendix 3 and a selection of columnar tree species cultivars for constricted sites provided in Appendix 4. Any tree removals recommended within this report should only be carried out with local authority consent.

8.1.3 Excavation and construction impacts within the RPAs of trees identified in Table 1 above, will need to be controlled by method statements specifying mitigation methods suggested in para 6.3 above and by consultant supervision as necessary. These method statements can be provided as part of the discharge of conditions.

8.1.4 Replace felled trees with native ornamental nursery stock under current best practice; i.e. conforming to and planted in accordance with the following:

- BS8545: 2014 Code of Practice for Trees from Nursery to Landscape
- BS 3936-1: 1992 Nursery stock. Specification for trees and shrubs; and
- BS 5236:1975 Cultivation and Planting of Trees in the Advanced Nursery Stock Category.
- All replacement stock should be planted and maintained as detailed in BS 4428:1989 (Section 7): Recommendations for General Landscape Operations.

8.2 General Recommendations for Sites Being Developed with Trees / Outline Arboricultural Method Statement

8.2.1 Any trees which are in close proximity to the proposed development should be protected with a Tree Protection Barrier (TPB). Protective barrier fencing should be installed immediately following the completion of the tree works, remaining in situ for the entire duration of the development unless otherwise agreed in writing by the Council. It should be appropriate for the intensity and proximity of the development, usually comprising steel, mesh panels 2.4m in height ('Heras') and should be mounted on a scaffolding frame (shown in Fig 2 of BS5837:2012). The position of the TPB can be shown on plan as part of the discharge of conditions, once the layout is agreed with the planning authority. The TPB should be erected prior to commencement of works, remain in its original form on-site for the duration of works and be removed only upon full completion of works. The areas behind the TPBs are to be treated as Construction Exclusion Zones (CEZ) where no access, material, spoil or plant storage is permitted.

8.2.2 A TPB may no longer be required during soft landscaping work but a full arboricultural assessment must be performed prior to the undertaking of any excavations within the RPA of a tree. This will inform a decision about the requirement of protection measures. It is important that all TPBs have permanent, weatherproof notices denying access to the RPA. Extant areas of RPA that cannot be fenced off and therefore lie outside the CEZ must be protected with fit-for-purpose ground protection. The location and type of ground protection is shown in the Tree Protection Plan in the Appendices

8.2.3 The use of heavy plant machinery for building demolition, removal of imported materials and grading of surfaces should take place in one operation. The necessary machinery should be located above the existing grade level and work away from any retained trees. This will ensure that any spoil is removed from the RPAs. It is vital that the original soil level is not lowered as this is likely to cause damage to the shallow root systems.

8.2.4 Any pruning works must be in accordance with British Standard 3998:2010 Tree work [BS3998].

8.2.5 Where sections of hard surfacing are proposed in close proximity to trees, it is recommended that "No-Dig" surfacing be employed in accordance with BS5837:2012.

8.2.6 If the RPA of a tree is encroached by underground service routes then BS5837:2012 and NJUG VOLUME 4 provisions should be employed. If it is deemed necessary, further arboricultural advice must be sought.

8.2.7 Numerous site activities are potentially damaging to trees e.g. parking, material storage, the use of plant machinery and all other sources of soil compaction. In operating plant, particular care is required to ensure that the operational arcs of excavation and lifting machinery, including their loads, do not physically damage trees when in use.

8.2.8 To enable the successful integration of the proposal with the retained trees, the following points will need to be taken into account:

1) Plan of underground services.
2) Schedule of tree protection measures, including the management of harmful substances.
3) Method statements for constructional variations regarding tree proximity (e.g. foundations, surfacing and scaffolding).
4) Site logistics plan to include storage, plant parking/stationing and materials handling.
5) Tree works: felling, required pruning and new planting. All works must be carried out by a competent arborist in accordance with BS3998.
6) Site supervision: the Site Agent must be nominated to be responsible for all day-to-day arboricultural matters on site. This person must:
   - be present on site for the majority of the time;
   - be aware of the arboricultural responsibilities;
   - have the authority to stop work causing, or may cause harm to any tree;
   - ensure all site operatives are aware of their responsibilities to the trees on site and the consequences of a failure to observe these responsibilities;
   - arrange with the retained arboricultural consultant an initial pre-start briefing to inspect tree protection measures and agree a schedule of both monthly ongoing site supervision as well as monitoring of specific operations including but not limited to those detailed overleaf.
   - give advance notice (ideally 2 weeks) to retained arboricultural consultant to arrange for supervision of any excavation (especially for services and foundations) within RPA
   - make immediate contact with the local authority and/or a retained arboricultural consultant in the event of any tree related problems occurring.

8.2.9 These points can be resolved and approved through consultation with the planning authority via their Arboricultural Officer.

8.2.10 The sequence of works should be as follows:

i) initial tree works: felling, stump grinding and pruning for working clearances;
ii) installation of TPB for demolition & construction;
iii) installation of underground services;
iv) installation of ground protection;
v) main construction;
vi) removal of TPB;
vii) soft landscaping.

Arboricultural Supervision Sign off Checklist

Tree No (s)	Project Phase	Task	Date Completed	Signed (Project arboriculturist)	Signed (Site Manager)
	Pre-commencement	Pre-commencement site meeting to include site manager briefing (S.1.5)			
	Pre-commencement	Confirm the location and specification of the protective measures is in accordance with AMS & Tree Protection Plan (TPP)			
	Pre-commencement	Confirm any tree works have been undertaken in accordance with this AMS (S.2.1/ App 1) and determine if further tree work is required			
	Pre-commencement	Seek required permission for further tree works if necessary.			
	Installation of any new services	Attend any excavation within RPA's where arboricultural supervision is prescribed by the AMS (S3.4) to ensure work is undertaken in accordance with NJUG provisions or other specification.			
	Demolition	Demolition of hard surfaces/ structures within RPA (S3.6) Confirm position of any additional temporary ground protection and that temporary ground protection is in accordance with AMS.			
	Completion of Demolition	Sign off of the demolition phase			
	Construction	Supervised manual excavation of foundations			
	Construction	Installation of 'No Dig' hard surfacing			
	Construction	Additional excavations (if required)			
	Completion of Construction	Completion of construction			
	Post Construction	Removal of machinery and materials from site			
	Post Construction	Dismantle & removal of protective measures			
	Landscaping	Completion of Landscaping			
	Project Completion	Sign off from project arboriculturist			

9. COMPLIANCE: Trees and the Planning System

9.1 Under the UK planning system, local authorities have a statutory duty to consider the protection and planting of trees when granting planning permission for proposed development. The potential effect of development on trees, whether statutorily protected (e.g. by a tree preservation order or by their inclusion within a conservation area) or not, is a material consideration that is taken into account in dealing with planning applications. Where trees are statutorily protected, it is important to contact the local planning authority and follow the appropriate procedures before undertaking any works that might affect the protected trees.

9.2 The nature and level of detail of information required to enable a local planning authority to properly consider the implications and effects of development proposals varies between stages and in relation to what is proposed. Table B.1 provides advice to both developers and local authorities on an appropriate amount of information. The term "minimum detail" is intended to reflect information that local authorities are expected to seek, whilst the term "additional information" identifies further details that might reasonably be sought, especially where any construction is proposed within the RPA.

9.3 This report delivers information appropriate to a full planning application and to these specific proposals as per BS5837 Table B.1 below, providing both minimum details and further additional material in the form of general tree protection recommendations and constructional variation.

Table B.1 **Delivery of tree-related information into the planning system**

Stage of process	Minimum detail	Additional information
Pre-application	Tree survey	Tree retention/removal plan (draft)
Planning application	Tree survey (in the absence of pre-application discussions)	Existing and proposed finished levels
	Tree retention/removal plan (finalized)	Tree protection plan
	Retained trees and RPAs shown on proposed layout	Arboricultural method statement – heads of terms
	Strategic hard and soft landscape design, including species and location of new tree planting	Details for all special engineering within the RPA and other relevant construction details
	Arboricultural impact assessment	
Reserved matters/ planning conditions	Alignment of utility apparatus (including drainage), where outside the RPA or where installed using a trenchless method	Arboricultural site monitoring schedule
	Dimensioned tree protection plan	Tree and landscape management plan
	Arboricultural method statement – detailed	Post-construction remedial works
	Schedule of works to retained trees, e.g. access facilitation pruning	Landscape maintenance schedule
	Detailed hard and soft landscape design	

10.0 REFERENCES

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- Lonsdale D 1999. Research for Amenity Trees No.7: Principles of Tree Hazard Assessment and Management, HMSO, London.
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Landmark Trees

Caveats

This report is primarily an arboricultural report. Whilst comments relating to matters involving built structures or soil data may appear, any opinion thus expressed should be viewed as qualified, and confirmation from an appropriately qualified professional sought. Such points are usually clearly identified within the body of the report. It is not a full safety survey or subsidence risk assessment survey. These services can be provided but a further fee would be payable. Where matters of tree condition with a safety implication are noted during a survey they will of course appear in the report.

A tree survey is generally considered invalid in planning terms after 2 years, but changes in tree condition may occur at any time, particularly after acute (e.g. storm events) or prolonged (e.g. drought) environmental stresses or injuries (e.g. root severance). Routine surveys at different times of the year and within two - three years of each other (subject to the incidence of the above stresses) are recommended for the health and safety management of trees remote from highways or busy access routes. Annual surveys are recommended for the latter.

Tree works recommendations are found in the Appendices to this report. It is assumed, unless otherwise stated ("ASAP" or "Option to") that all husbandry recommendations will be carried out within 6 months of the report's first issue. Clearly, works required to facilitate development will not be required if the application is shelved or refused. However, necessary husbandry work should not be shelved with the application and should be brought to the attention of the person responsible, by the applicant, if different. Under the Occupiers Liability Act of 1957, the owner (or his agent) of a tree is charged with the due care of protecting persons and property from foreseeable damage and injury.' He is responsible for damage and/or nuisance arising from all parts of the tree, including roots and branches, regardless of the property on which they occur. He also has a duty under The Health and Safety at Work Act 1974 to provide a safe place of work, during construction. Tree works should only be carried out with local authority consent, where applicable.

Inherent in a tree survey is assessment of the risk associated with trees close to people and their property. Most human activities involve a degree of risk, such risks being commonly accepted if the associated benefits are perceived to be commensurate.

Risks associated with trees tend to increase with the age of the trees concerned, but so do many of the benefits. It will be appreciated, and deemed to be accepted by the client, that the formulation of recommendations for all management of trees will be guided by the cost-benefit analysis (in terms of amenity), of tree work that would remove all risk of tree related damage.

Prior to the commencement of any tree works, an ecological assessment of specific trees may be required to ascertain whether protected species (e.g. bats, badgers and invertebrates etc.) may be affected.

Landmark Trees

PART 2 – APPENDICES

APPENDIX 1

TREE SCHEDULE

Notes for Guidance:

1. Height describes the approximate height of the tree measured in metres from ground level.
2. The Crown Spread refers to the crown radius in meters from the stem centre and is expressed as an average of NSEW aspect if symmetrical.
3. Ground Clearance is the height in metres of crown clearance above adjacent ground level.
4. Stem Diameter (Dm) is the diameter of the stem measured in millimetres at 1.5m from ground level for single stemmed trees. BS 5837:2012 formula (Section 4.6) used to calculate diameter of multi-stemmed trees. Stem Diameter may be estimated where access is restricted and denoted by '#'.
5. Protection Multiplier is 12 and is the number used to calculate the tree's protection radius and area
6. Protection Radius is a radial distance measured from the trunk centre.
7. Growth Vitality - Normal growth, Moderate (below normal), Poor (sparse/weak), Dead (dead or dying tree).
8. Structural Condition - Good (no or only minor defects), Fair (remediable defects), Poor - Major defects present.
9. Landscape Contribution - High (prominent landscape feature), Medium (visible in landscape), Low (secluded/among other trees).
10. B.S. Cat refers to (British Standard 5837:2012 section 4.5) and refers to tree/group quality and value: 'A' – High, 'B' - Moderate, 'C' - Low, 'U' - Unsuitable for retention. The following colouring has been used on the site plans:
    - High Quality (A) (Green),
    - Moderate Quality (B) (Blue),
    - Low Quality (C) (Grey),
    - Unsuitable for Retention (U) (Red)
11. Sub Cat refers to the retention criteria values where 1 is Arboricultural, 2 is Landscape and 3 is Cultural including Conservational, Historic and Commemorative.
12. Useful Life is the tree's estimated remaining contribution in years.

Ref	Species	Stems	Dbh mm	RPA Radius M	Height m	Lwr CH	Canopy Spread (m)				Age class	Struc Condition	Phys Condition	General Observations	Est remaining LE	BS cat	Sub Cat
							N	S	E	W							
T9	Birch (Betula spp)	1	220	2.6	12	1	3.5	3.5	3.5	3.5	Semi Mature	Good	Poor	Drought stressed, sparse crown. No significant defects noted; Competing leaders.	<10	U	1
T10	Birch (Betula spp)	1	130	1.6	12	1.50	1	2	3	1	Young	Fair	Poor	Drought stressed, dying back	<10	U	1
T11	Birch (Betula spp)	1	100	1.2	8	3	1	1	1	1	Young	Poor	Fair	Exposed supporting roots.	<10	U	1
T12	White willow (Salix alba)	1	200	2.4	15	1	6	7	6	5	Mature	Fair	Good	Restricted access due to lower dense scrub. Multi-stem from ground level. Adjacent to hard standing	20+	C	1
T13	Black walnut	1	360	4.3	13	2	6	3	5	5	Early Mature	Fair	Good	Situated within small soil area surrounded by hard standing . Codominant form	<10	U	1
T14	Horse chestnut (Aesculus hippocastanum)	1	450	5.4	12	0	4	4	4	4	Early Mature	Good	Good	No significant defects noted; Adjacent failed tree within lower crown.	30+	B	1
T15	Western red Cedar (Thuja plicata)	1	300	3.6	14	2	4	3	2	3	Early Mature	Fair	Fair	Situated on fence line of third party property. Minimal crown on east side due to adjacent tree.	20+	C	1
T16	Wild Cherry (Prunus avium)	1	400	4.8	14	4	7	5	3	5	Early Mature	Poor	Fair	Adjacent to hardcore track. Poor crown form, ivy clad throughout preventing inspection. Twin stemmed at 0.5m now competing for leadership.	10+	C	1
T17	Western red Cedar (Thuja plicata)	1	300	3.6	10	2	3	3	3	3	Early Mature	Fair	Fair	Located in third party property, measurements estimated.	20+	C	1
T18	Grey Poplar (Populus x canescens)	2	1000	17.0	24	6	10	11	9	10	Over Mature	Fair	Fair	Extra large tree adjacent to track. Twin stemmed from ground level. Wide spreading crown with some lower over extended large limbs. Some decay present at base.	20+	B	1

Ref	Species	Stems	Dbh mm	RPA Radius M	Height m	Lwr CH	Canopy Spread (m)				Age class	Struc Condition	Phys Condition	General Observations	Est remaining LE	BS cat	Sub Cat
							N	S	E	W							
T19	Grey Poplar (Populus x canescens)	1	800	9.6	20	7	8	1	5	5	Mature	Poor	Fair	One sided crown towards the north. Ivy clad stem preventing inspection. Slight lean to north due to phototropism.	20+	C	1
T20	White willow (Salix alba)	1	600	7.2										Part of G19			
T21	White willow (Salix alba)	1	650	7.8										Part of G19			
T22	Wild Cherry (Prunus avium)	1	280	3.4	10	3	4	4	4	4	Semi Mature	Poor	Fair	Kinked trunk at base. Co dominant at 2m with v shaped union. Crossing rubbing branches. Vehicular damage.	10+	C	1
T23	Silver Birch (Betual pendula)	1	400	4.8	15	2	4	6	4	4	Early Mature	Fair	Fair	Ivy clad - preventing full inspection. Large over extended limb to south.	20+	C	1
T24	Goat willow (Salix caprea)	2	300	5.1	14	5	3	2	2	3	Early Mature	Fair	Fair	Ivy clad situated on third party kind. Twin stemmed at 2m. Slight asymmetric crown.	10+	U	
T25	Ash (Fraxinus excelsior)	1	650	7.8	14	3	6	6	3	7	Mature	Poor	Fair	Adjacent to compacted layby with dirt mounded around base. Ivy clad stem. Asymmetric crown to west. Possible adb present. Low hanging branches over access road.	10+	C	1
T26	Sycamore (Acer pseudoplatanus)	5	230	2.8	12	2	3	4	4	5	Early Mature	Fair	Fair	Self set under barrier at layby causing kink at base of trunk. Ivy clad. Multi stemmed just above ground level. Many upright competing branches.	10+	C	1
T46	White willow (Salix alba)	1	600	7.2	13	4	6	6	6	4	Early Mature	Fair	Fair	Minor deadwood. Situated with concrete and structures within rpa.	20+	B	12
T47	Birch (Betula spp)	1	190	2.3	6	2	2	1	0	1	Semi Mature	Poor	Fair	Poor rooting environment. Decay within main stem and failed top.	<10	U	1

Ref	Species	Stems	Dbh mm	RPA Radius M	Height m	Lwr CH	Canopy Spread (m)				Age class	Struc Condition	Phys Condition	General Observations	Est remaining LE	BS cat	Sub Cat
							N	S	E	W							
T47a	Birch	2	222	2.7	13	2	4	1	1	1	Semi Mature	Fair	Moderate	Codominant stems, suppressed by next tree	20+	C	2
T48	Birch (Betula spp)	1	270	3.2	11	2	3	2	4	4	Semi Mature	Fair	Good	Excess - - -.Situated on top of dirt bank. Co dominant form with a tight v shaped union at 3m.	20+	B	12
T49	Birch (Betula spp)	1	250	3.0	13	1	4	2	2	3	Semi Mature	Good	Fair	No significant defects noted	30+	B	12
T50	Goat willow (Salix caprea)	1	500	6.0	9	2	8	5	6	6	Early Mature	Good	Good	Situated at bottom of dirt bank. Some include bark and crossing branches. Upright growth within crown.	20+	B	12
T51	White willow (Salix alba)	5	500.0	6.0	10	1.5	7	7	8	3	Over Mature	Poor	Fair	Originally a larhe dbh tree, which has biw failed multiple times. Tree is multi stemmed from ground level with large trunks arising. Intrinsic feature for habitat and dead wood habitat on the ground.	30+	B	3
T52	Birch (Betula spp)	1	210	2.3	11	2.5	3	2	3	2	Semi Mature	Fair	Fair	Drought stressed, sparse crown. Poor rooting environment. Buried root flare. Slight asymmetric crown due to shadowing of adjacent tree. Bowed trunk.	10+	C	2
T53	Birch (Betula spp)	1	180	2.2	11	3	1	4	3	2	Semi Mature	Fair	Fair	Poor rooting environment. Buried root flare. Slight asymmetric crown due to shadowing of adjacent tree. Bowed trunk.	10+	C	2
T54	Birch (Betula spp)	1	110	1.3	7	3	1	4	3	2	Young	Poor	Poor	Pooely formed tree being overshadowed.	<10	U	1
T55	Birch (Betula spp)	1	200	2.4	10	2	3	1	5	0	Semi Mature	Poor	Fair	Situated withing concrete. RPA approx. 90% hard surfacing.	10+	C	1

Ref	Species	Stems	Dbh mm	RPA Radius M	Height m	Lwr CH	Canopy Spread (m)				Age class	Struc Condition	Phys Condition	General Observations	Est remaining LE	BS cat	Sub Cat
							N	S	E	W							
T56	Birch (Betula spp)	1	50	0.6	6	2	1	1	1	1	Young	Fair	Fair	Small natural regen. Poor rooting environment with hard surfacing throughout.	20+	C	1
T57	Birch (Betula spp)	1	50	0.6	6	2	1	1	1	1	Young	Fair	Fair	Small natural regen. Poor rooting environment with hard surfacing throughout.	20+	C	1
T58	Birch (Betula spp)	1	50	0.6	6	2	1	1	1	1	Young	Fair	Fair	Small natural regen. Poor rooting environment with hard surfacing throughout.	20+	C	1
T59	Birch (Betula spp)	1	50	0.6	6	2	1	1	1	1	Young	Fair	Fair	Small natural regen. Poor rooting environment with hard surfacing throughout.	20+	C	1
T60	Birch (Betula spp)	1	50	0.6	6	2	1	1	1	1	Young	Fair	Fair	Small natural regen. Poor rooting environment with hard surfacing throughout.	20+	C	1
T61	Birch (Betula spp)	1	50	0.6	6	2	1	1	1	1	Young	Fair	Fair	Small natural regen. Poor rooting environment with hard surfacing throughout.	20+	C	1
T62	Birch (Betula spp)	1	50	0.6	6	2	1	1	1	1	Young	Fair	Fair	Small natural regen. Poor rooting environment with hard surfacing throughout.	20+	C	1
T64	Birch (Betula spp)	1	50	0.6	6	2	1	1	1	1	Young	Fair	Fair	Small natural regen. Poor rooting environment with hard surfacing throughout.	20+	C	1
T65	Birch (Betula spp)	1	50	0.6	6	2	1	1	1	1	Young	Fair	Fair	Small natural regen. Poor rooting environment with hard surfacing throughout.	20+	C	1
T68	Birch (Betula spp)	1	50	0.6	6	2	1	1	1	1	Young	Fair	Fair	Small natural regen. Poor rooting environment with hard surfacing throughout.	20+	C	1
T71	White willow (Salix alba)	1	200	2.4	8	3	2	3	3	1	Semi Mature	Poor	Fair	Situated within concrete structure with limited life expectancy.	<10	U	1

Ref	Species	Stems	Dbh mm	RPA Radius M	Height m	Lwr CH	Canopy Spread (m)				Age class	Struc Condition	Phys Condition	General Observations	Est remaining LE	BS cat	Sub Cat
							N	S	E	W							
T72	White willow (Salix alba)	1	200	2.4	7	3	1	1	1	1	Semi Mature	Poor	Poor	Situated within concrete structure with limited life expectancy.	<10	U	1
T76	Poplar	2	300	3.6	20	2	1	1	1	1	Semi Mature	Normal	Fair		40+	B	1
T73	White willow (Salix alba)	6	400	11.8	13	3	7	7	7	6	Mature	Moderate	Fair	Deadwood throughout the crown	20+	B	2
T74	Goat willow (Salix caprea)	6	300	8.8	16	4	8	8	8	8	Mature	Normal	Fair		20+	C	2
T76	Silver willow	1	800	9.6	18	3	9	9	9	9	Mature	Normal	Fair		20+	C	2
T77	White willow (Salix alba)	1	550	6.6	18	2	5	5	5	5	Mature	Normal	Fair		40+	B	1
T78	Silver Birch	1	270	3.2	18	3.50	2.5	2.5	2.5	2.5	Semi Mature	Normal	Good		40+	B	2
T81	Grey Willow	6	100	2.9	5	1	3	3	3	3	Semi Mature	Normal	Fair		20+	C	2
T82	White willow (Salix alba)	3	400	8.3	10	1	13	13	13	13	Early Mature	Normal	Fair	Fallen tree	20+	C	2
T83	White willow (Salix alba)	1	800	9.6	10	1	13	13	13	13	Early Mature	Normal	Fair		20+	C	2
T89	White willow (Salix alba)	1	510	6.1	12	1	0	15	0	12	MAture	Normal	Fair	Leaning significant to South	20+	B	2

Ref	Dominant Species	Lesser Species	Stem diameter	RPA	Height	Lwr CH	Spread (NSEW)				Age class	Structural Condition	Physiological Condition	General Observation	Life Expectancy	BS category	Sub category
G5	Hybrid of G5 and G10	White willow, birch, alder	600	7.2	16	6	5	5	5	5				Significant wind flow to white willow leaning birch and (alder) regen as dominant tall standing dead wood. Circa 15m band of birch and ditch on Southern boundary= 5/10, of semi mature birch 5m of ditch 5m of Alder and then woodland proper- Alder on bank N of ditch willow plantation 10m --- on from bank of Alders, Willows are 600 diameter. ALders are 400 dm and the birch are 200 dm.			
G6	Birch (Betula spp);Alder (Alnus gultinosa);White willow (Salix alba)		100	1.2	5	1	0	0	0	0	Young	Poor	Dead		<10	U	
G7	Sycamore (Acer pseudoplatanus)		280	3.4	12	3	5	5	5	5	Semi Mature	Fair	Fair		30+	C	2
G8	White willow (Salix alba);Alder (Alnus gultinosa)		300	3.6	8	4	0	0	0	0	Semi Mature	Fair	Good		40+	C	3
G9	Alder, birch	Mostly alder to West, mostly birch to East	300	3.6	12	3	0	0	0	0	Semi Mature	Fair	Fair		40+	B	2
G10	Silver Birch (Betual pendula)		100	1.2	8	2	2	2	2	2	Young	Good	Good		40+	C	2
G13	White willow (Salix alba)		600	7.2	14	3	5	5	5	5	Mature	Poor	Fair	Semi collapsed pollard east of track. Low hanging branches. Leaning stems.	20+	C	2

Ref	Dominant Species	Lesser Species	Stem diameter	RPA	Height	Lwr CH	Spread (NSEW)				Age class	Structural Condition	Physiological Condition	General Observation	Life Expectancy	BS category	Sub category
G14	Hybrid black poplar		1000	12	20	5	10	10	10	10	Over Mature	Fair	Fair	Dominant tree group with large dbh. Slight asymmetric crowns. Twin stemmed at ground level (2 trees). Over due a crown reduction due to target area. Situated on a bank adjacent to a ditch.	20+	B	2
G15	White willow (Salix alba)		400	4.8	4	2	4	4	4	4	Mature	Poor	Fair	Pollarded trunks at 4m. Situated on opposite aide of ditch.	30+	C	2
G16	Hazel (Corylus avellana)	Hawthorn (Crataegus monogyna)	100	1.2	6	0	5	5	5	5	Semi Mature	Fair	Fair	No indicators of decay, disease or dysfunction noted	30+	C	2
G17	Ash (Fraxinus excelsior)		250	3	18	8	6	6	6	6	Early Mature	Poor	Fair	Poorly formed trees, ivy clad	10+	C	2
G18	Grey Poplar (Populus x canescens)	Ash (Fraxinus excelsior)	300	3.6	16	3	7	7	7	7	Early Mature	Fair	Fair	Deadwood through out crown. Ivy clad stems. Two hung up failed limbs. Asymmetric crowns.	20+	B	23
G25	White willow (Salix alba)	Birch (Betula spp);Butterfly bush (Buddleja davidii)	250	3	9	0	7	7	7	7	Early Mature	Poor	Fair	Restricted access in places due to dense undergrowth. Some positions and measurements estimated. Multi stemmed Willow throughout with failed and failing branches. Sporadic birch are well formed and better quality.	40+	C	2

Ref	Dominant Species	Lesser Species	Stem diameter	RPA	Height	Lwr CH	Spread (NSEW)				Age class	Structural Condition	Physiological Condition	General Observation	Life Expectancy	BS category	Sub category
G26	Goat willow (Salix caprea)	Birch (Betula spp)	(6x5) 100	1.2	8	0	4	4	4	4	Semi Mature	Poor	Poor	Sprawling collapsed habitAdjacent to internal track and hard standing. Small scrubby willow with a larger mutli stemmed Birch and one other Willow.	30+	C	2
G26a	Birch		300,300	5.1	14	4	4	4	5	5	Early Mature	Fair	Good	Codominant stems, surface rooting on top of bank	20+	B	2
G26b	Birch		270	3.2	13	2.5	3	3	3	3	Early Mature	Fair	Good		40+	B	1
G26c	Birch		290	3.5	13	8	3	3	3	3	Early Mature	Good	Good		40+	B	1
G27	White willow (Salix alba);Butterfly bush (Buddleja davidii)		(3x5) 300	3.6	10	0	4	4	4	4	Early Mature	Fair	Fair	Hard standing on south and north side. Minimal sound rooting environment. Mutli stemmed willow trees with root flare buried. Arising from the ground with poor stem formation. Piled up hardcore debris present.	20+	C	23
G28	Goat willow (Salix caprea)		(4x5) 200	2.4	8	0	5	5	5	5	Early Mature	Fair	Fair	Sprawling erratic Goat willow in semi collapse	20+	C	2
G28a	Birch		460	5.5	15	8	4	3	3	5	Early Mature	Good	Good	Swept stem to west	20+	B	1
G29	White willow (Salix alba)		150	1.8	7	0	4	4	4	4	Semi Mature	Fair	Fair	Rooting within lake. Poor rooting environment to north. RPA not needed.	30+	C	2

Ref	Dominant Species	Lesser Species	Stem diameter	RPA	Height	Lwr CH	Spread (NSEW)				Age class	Structural Condition	Physiological Condition	General Observation	Life Expectancy	BS category	Sub category
G30	White willow (Salix alba);Butterfly bush (Buddleja davidii)	Birch (Betula spp)	300	3.6	8	0	4	4	4	4	Mixed	Fair	Fair	Situated around and within hard standing. Dense undergrowth present restricting access. The large willow trees are multi stemmed with numerous failures and decay present. Smaller trees have upright form and minimal lateral branches due to insufficient space. Further south the group opens up with better formed young birch trees. Hung up and wind blown present. Concrete debris throughout.	30+	C	23
G31	White willow (Salix alba);Butterfly bush (Buddleja davidii)	Birch (Betula spp)	200	2.4	8	0	4	4	4	4	Mixed	Poor	Fair	Dense undergrowth preventing full access. Majority of trees are small self set birch and willow. One large mutli stemmed willow to north with previous failures and highly likely more to follow soon. One birch tree to south with good form. Remaining trees insignificant from an arb perspective.	40+	C	2
G80	White willow (Salix alba)		250	3.0	18	2	4	4	4	4	Early Mature				40+	B	2
G84	Grey Willow		200	2	6	1	3	3	3	3	Semi Mature	Normal	Fair		20+	C	2
G85	White willow (Salix alba)		200	2	6	1	3	3	3	3	Semi Mature	Normal	Fair		20+	C	2
G86	Silver Birch		100	1	8	2	2	2	2	2	Young	Good	Good		40+	C	2
G87	Goat willow (Salix caprea)		200	2	6	1	3	3	3	3	Semi Mature	Normal	Fair		20+	C	2
G90/ G1a	White willow (Salix alba)		734	9	12	6	4	6	6	4	Mature	Moderate	Fair	Deadwood throughout crown, broken canopy profile.	20+	B	2

Landmark Trees

Site: Broadwater Lake, Denham

Date: 19/8/24

Appendix 1

BS5837 Tree Constraints Survey Schedule

Landmark Trees Ltd

020 7851 4544

Surveyor(s): Kim Dear

Ref: MEA//68BRD/AIA

Tree No.	English Name	Height	Crown Spread	Ground Clearance	Stem Diamete	Age Class	Protection Radius	Growth Vitality	Structural Condition	B.S. Cat	Sub Cat	Useful Life	Comments
G25 a	Willow Species	5	1	0.5	350	Mature	4.2	Poor	Fair	C	2		Group of trees on island 7
G35	Willow Species	10	3333	1.0	600	Early Mature	7.2	Normal	Fair	B	2	20+	Pollard (Old) white and crack willow, some collapsed, lapsed pollard
G36	Ash, Common	9	2322	3.0	100	Semi-mature	1.2	Moderate	Fair	C	2	10+	group ash
G37	Cypress, Leyland	10"	2222	0.5	350	Mature	4.2	Moderate	Fair	C	2	20+	group leylandii as boundary, 200-500 diam
100	Ash, Common	19	8998	5.0	950	Mature	11.4	Moderate	Fair	B	2	10+	Ivy clad Remote survey only (RS) currently ok
101	Ash, Common	17	3545	4.5	620	Early Mature	7.4	Poor	Poor	U		<10	ash dieback

Landmark Trees

Site: Broadwater Lake, Denham

Date: 19/8/24

Appendix 1

BS5837 Tree Constraints Survey Schedule

Landmark Trees Ltd

020 7851 4544

Surveyor(s): Kim Dear

Ref: MEA//68BRD/AIA

Tree No.	English Name	Height	Crown Spread	Ground Clearance	Stem Diamete	Age Class	Protection Radius	Growth Vitality	Structural Condition	B.S. Cat	Sub Cat	Useful Life	Comments
102	Sycamore	13	4552	5.5	531	Early Mature	6.4	Normal	Fair	C	2	20+	crown cut back to stem to clear services
103	Ash, Common	12	4433	3.5	397	Semi-mature	4.8	Moderate	Fair	C	2	<10	
104	Willow Species	16	4555	4.0	500	Early Mature	6.0	Normal	Good	B	2	20+	Ivy clad
105	Ash, Common	9	4424	2.0	245	Semi-mature	2.9	Moderate	Fair	C	2	<10	
106	Ash, Common	10	5453	3.5	367	Early Mature	4.4	Normal	Fair	C	2	10+	copard, single base at 480 dia
107	Ash, Common	10	4544	3.0	530	Early Mature	6.4	Moderate	Poor	U		<10	ash dieback.

Landmark Trees

Site: Broadwater Lake, Denham

Date: 19/8/24

Appendix 1

BS5837 Tree Constraints Survey Schedule

Landmark Trees Ltd

020 7851 4544

Surveyor(s): Kim Dear

Ref: MEA//68BRD/AIA

Tree No.	English Name	Height	Crown Spread	Ground Clearance	Stem Diamete	Age Class	Protection Radius	Growth Vitality	Structural Condition	B.S. Cat	Sub Cat	Useful Life	Comments
108	Ash, Common	9	3333	2.5	400	Early Mature	4.8	Moderate	Fair	C	2	<10	early dieback
109	Willow, Goat	11	3324	3.5	350	Early Mature	4.2	Moderate	Fair	C	2	10+	A sparser than normal canopy Ivy clad hawthorn adjacent.

Ref	Dominant Species	Lesser Species	Stem diameter	RPA	Height	Lwr CH	Spread (NSEW)				Age class	Structural Condition	Physiological Condition	General Observation	Life Expectancy	BS category	Sub category
G1	White willow	Common Lime (Tilia x europaea);Birch (Betula spp);Common alder (Alnus glutinosa);Common alder (Alnus gultinosa)	250	3	14	0	7	7	7	7	Early Mature	Fair	Fair	Situated on a separate island. Trees located along the peripheries as ground undulates within central spine. Failed stems and branches throughout, larger stem failures from multi stemmed willows. Dense undergrowth throughout. Desire line present with evidence of branches being cut for access.	40+	B	2
G2	White willow (Salix alba);Birch (Betula pendula)	Butterfly bush (Buddleja davidii)	200	2.4	12	2	5	5	5	5	Semi Mature	Good	Fair	Lakes side group which opens up for fishing spots. Dense Butterfly bush (Buddleia davidii) to east restrict ing access. Larger specimen's to north west of group with young birch to east. Willow are majority multi stemmed from just above ground level.	40+	B	2
G3	Alder	Birch pendula	250	3	10	0	5	5	5		Semi Mature	Poor	Fair	Situated south of lake. Many multi stemmed willow have significant lean or have failed. Dense undergrowth throughout restricting access. One early mature birch tree to east of group in a good condition.	20+	C	2
G4	Alder	Willow	200	2.4	10		3	3	3	3	Semi Mature	Poor	Fair	Situated south of lake. Many slender upright stems with minimal lateral branches. Desire lines present to fishing spots.	30+	C	2

APPENDIX 2

RECOMMENDED TREE WORKS

Notes for Guidance:

Priority 1 - Urgent (ASAP), 2 - Standard (within 3 months), 3 - Non-urgent (2-3 years)

CB - Cut Back to boundary/clear from structure.
CL# - Crown Lift to given height in meters.
CT#% - Crown Thinning by identified %.
CR#% - Crown Reduce by given maximum % (of outermost branch & twig length)
DWD - Remove deadwood.
Fell - Fell to ground level.
FInv - Further Investigation (generally with decay detection equipment).
Pol - Pollard or re-pollard.
Mon - Check / monitor progress of defect(s) at next consultant inspection which should be <18 months in frequented areas and <3 years in areas of more occasional use. Where clients retain their own ground staff, we recommend an annual in- house inspection and where practical, in the aftermath of extreme weather events.
Svr Ivy / Clr Bs - Sever ivy / clear base and re-inspect base / stem for concealed defects.

Ref	Species	Height m	General Observations	Recommended Works	Priority
T18	Grey Poplar (Populus x canescens)	14	Extra large tree adjacent to track. Twin stemmed from ground level. Wide spreading crown with some lower over extended large limbs. Some decay present at base.	Pollard at 9m and reduce lower limb to 2m stub	RH2
T47	Birch (Betula spp)	6	Poor rooting environment. Decay within main stem and failed top.	Fell	RH2
T51	White willow (Salix alba)	10	Originally a large dbh tree, which has biw failed multiple times. Tree is multi stemmed from ground level with large trunks arising. Intrinsic feature for habitat and dead wood habitat on the ground.	Pollard at 3m	RH2
G13	White willow (Salix alba)	14	Semi collapsed pollard east of track. Low hanging branches. Leaning stems.	Re-pollard	RH2
G14	Hybrid black poplar	20	Dominant tree group with large dbh. Slight asymmetric crowns. Twin stemmed at ground level (2 trees). Over due a crown reduction due to target area. Situated on a bank adjacent to a ditch.	Sever ivy & monitor	RH2
G17	Ash (Fraxinus excelsior)	18	Poorly formed trees, ivy clad	Monitor	RH2
G18	Grey Poplar (Populus x canescens)	16	Deadwood through out crown. Ivy clad stems. Two hung up failed limbs. Asymmetric crowns.	Reduce overhanging branches by 30%	RH2
G90/G1a	White willow (Salix alba)		Deadwood throughout crown, broken canopy profile.	Pollard at 2m	RH2

Landmark Trees

Site: Broadwater Lake, Denham
Date: 19/8/24

Surveyor(s): Kim Dear
Ref: MEA//68BRD/AIA

Appendix 2

Recommended Tree Works

Hide irrelevant
Show All Trees

Tree No.	English Name	B.S. Cat	Height	Ground Clearance	Crown Spread	Recommended Works	Comments/ Reasons
G35	Willow Species	B	10	1.0	3333	POL	Pollard (Old) white and crack willow, some collapsed, lapsed pollard
101	Ash, Common	U	17	4.5	3545	Fell	ash dieback
107	Ash, Common	U	10	3.0	4544	Fell	ash dieback.

APPENDIX 3

RECOMMENDED TREE WORKS TO FACILITATE DEVELOPMENT (See Table 1)

Notes for Guidance:

RP - Pre-emptive root pruning of foundation encroachments under arboricultural supervision.
CB - Cut Back to boundary/clear from structure.
CL# - Crown Lift to given height in meters.
CT#% - Crown Thinning by identified %.
CCL - Crown Clean (remove deadwood/crossing and hazardous branches and stubs)*.
CR#% - Crown Reduce by given maximum % (of outermost branch & twig length)
DWD - Remove deadwood.
Fell - Fell to ground level.
FInv - Further Investigation (generally with decay detection equipment).
Pol - Pollard or re-pollard.
Mon - Check / monitor progress of defect(s) at next consultant inspection which should be <18 months in frequented areas and <3 years in areas of more occasional use. Where clients retain their own ground staff, we recommend an annual in- house inspection and where practical, in the aftermath of extreme weather events.
Svr Ivy / Clr Bs - Sever ivy / clear base and re-inspect base / stem for concealed defects.

*Not generally specified following BS3998:2010

Ref	Species	BS cat	Height m	General Observations	Works Recommended to Facilitate Development
T46	White willow (Salix alba)	B	13	Minor deadwood. Situated with concrete and structures within rpa.	Pollard
T47a	Birch	C	13	Codominant stems, suppressed by next tree	Fell
T51	White willow (Salix alba)	C	10	Originally a large dbh tree, which has biw failed multiple times. Tree is multi stemmed from ground level with large trunks arising. Intrinsic feature for habitat and dead wood habitat on the ground.	Fell
T68	Birch (Betula spp)	C	6	Small natural regen. Poor rooting environment with hard surfacing throughout.	Fell
T72	White willow (Salix alba)	U	7	Situated within concrete structure with limited life expectancy.	Fell
T89	White willow (Salix alba)	B	12	Leaning significant to South	Fell
G25a	White willow (Salix alba)	C	8	RS only	Fell
G26	Goat willow (Salix caprea)	C	8	Sprawling collapsed habit. Adjacent to internal track and hard standing. Small scrubby willow with a larger mutli stemmed Birch and one other Willow.	Fell
G27	White willow (Salix alba);Butterfly bush (Buddleja davidii)	C	10	Hard standing on south and north side. Minimal sound rooting environment. Mutli stemmed willow trees with root flare buried. Arising from the ground with poor stem formation. Piled up hardcore debris present.	Fell
G28	Goat willow (Salix caprea)	C	8	Sprawling erratic Goat willow in semi collapse	Fell
G30	White willow (Salix alba);Butterfly bush (Buddleja davidii)	C	8	Situated around and within hard standing. Dense undergrowth present restricting access. The large willow trees are multi stemmed with numerous failures and decay present. Smaller trees have upright form and minimal lateral branches due to insufficient space. Further south the group opens up with better formed young birch trees. Hung up and wind blown present. Concrete debris throughout.	Fell

APPENDIX 4: A GUIDE TO TREE SELECTION FOR URBAN LOCATIONS

Table A4.1: Small Ornamental Tree Species

Common Name	Species	(Columnar Form for discrete usage)
Hawthorn	Crataegus monogyna	Stricta
Cockspur	Crataegus prunifolia	Splendens
Cherry	Prunus x hillieri	Spire
Bird cherry	Prunus padus	Albertii
Rowan / Mountain ash	Sorbus aucuparia	Cardinal Royal
Swedish whitebeam	Sorbus intermedia	Brouwers
B. whitebeam	Sorbus x thuringiaca	Fastigiata

Table A4.2: Medium Specimen Tree Species

Common Name	Species	(Columnar Form for discrete usage)
Chinese red bark birch	Betula albosinensis	Fascination
Mongolian lime	Tilia mongolica	
Hornbeam	Carpinus betulus	Fastigiata Frans Fontaine
Turkish hazel	Corylus colurna	
Maidenhair tree	Gingko biloba	
Pride of India	Koelreuteria paniculata	Fastigiata
European larch	Larix decidua	Sheerwater Seedling
Tulip tree	Liriodendron tulipfera	Fastigiata

w

Table A4.3: Larger Specimen Tree Species

Common Name	Species	(Columnar Form for discrete usage)
English oak	Quercus robur	f. Koster
American elm	Ulmus americana Princeton	
Cedar of Lebanon	Cedrus libani	

Landmark Trees

PART 3 – PLANS

PLAN 1

TREE CONSTRAINTS PLAN

NOTE:

This survey is of a preliminary nature. The trees were inspected from the ground only on the basis of the Visual Tree Assessment method. No samples were taken for analysis. No decay detection equipment was employed. The survey does not cover the arrangements that may be required in connection with the laying or removal of underground services.

Branch spread in metres is taken at the four cardinal points to derive an accurate representation of the crown.

Root Protection Areas (RPA) are derived from stem diameter measured at 1.5 m above adjacent ground level (taken on sloping ground on the upslope side of the tree base).

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Site: Broadwater Lake	1:200@ A0
Drawing Title: Tree Constraints Plan	November 2024

Key:

- Category A High Quality
- Category B Moderate Quality
- Category C Low Quality
- Category U Trees Unsuitable for Retention

Category — Crown Spread — Tree Number — Species — Category — Root Protection Area

Tree Position Approximate (not shown on original survey)

NOTE:

This survey is of a preliminary nature. The trees were inspected from the ground only on the basis of the Visual Tree Assessment method. No samples were taken for analysis. No decay detection equipment was employed. The survey does not cover the arrangements that may be required in connection with the laying or removal of underground services.

Branch spread in metres is taken at the four cardinal points to derive an accurate representation of the crown.

Root Protection Areas (RPA) are derived from stem diameter measured at 1.5 m above adjacent ground level (taken on sloping ground on the upslope side of the tree base).

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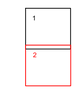
Site: Broadwater Lake	1:200@ A0
Drawing Title: Tree Constraints Plan	November 2024

Key:

- Category A High Quality
- Category B Moderate Quality
- Category C Low Quality
- Category U Trees Unsuitable for Retention

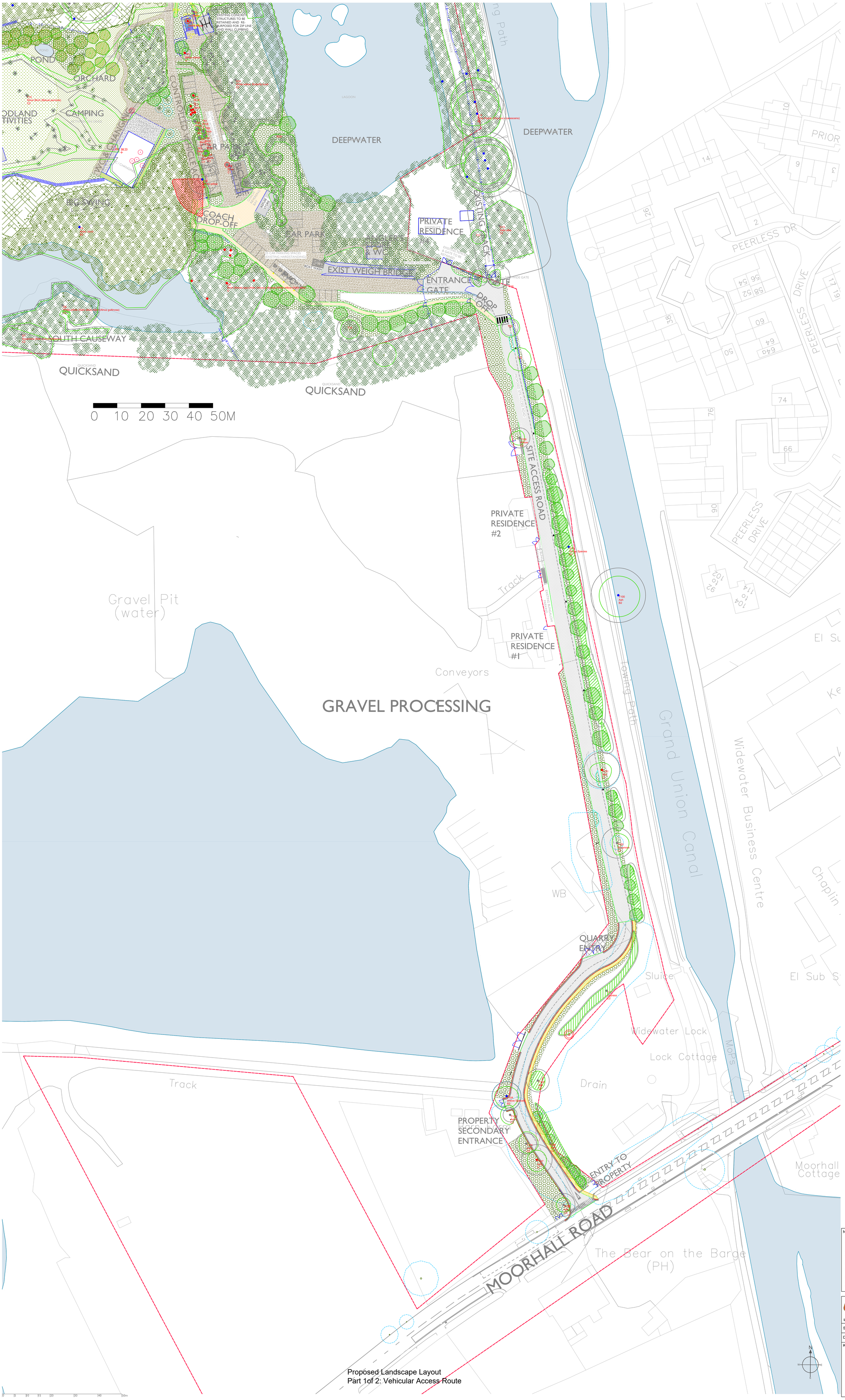
Tree Position Approximate (not shown on original survey)



PLAN 2

ARBORICULTURAL IMPACT ASSESSMENT PLAN (S)

i. Landscape



KEY

Site

- Application boundary
- Existing waterbody
- Existing woodland to be protected (exempt from use / access)
- Sporadic tree groups on hard standing
- Existing tree cover (blue dashed = root protection zone blue dashed line)
- Existing native groundcover shrubs on top of existing hardstanding
- Exposed existing concrete hardstanding to be used as driveway, car parking, footpath and pedal karting track surface

Hardworks

- Vehicular Tarmac / Blacktop
- Pedestrian Tarmac / Blacktop
- Pedestrian coloured Tarmac / Buff
- Vehicular coloured Tarmac / Buff
- Grass-concrete paving (Grasscrete)
- Gravel surface with native wildflower overseeding for dinghy parking and rigging
- Wet-pour safety surface for fall protection at bouldering walls
- 2.0m high living acoustic barrier (Gramm EcoSoundBlok)
- 1.2m high chestnut paling fence
- 1.8m high V-mesh security fencing
- 1.2m high & 1.0m wide dry hedge with shrub planting alongside to close gaps in existing vegetation barrier
- 1.5m high hazel hurdle panels attached to dry hedge

Softworks

- Native tree planting
- Willow planting in submerged planters
- Native hedge planting
- Woven willow barriers
- Native shrub planting
- Other neutral grassland seeding
- Lowland meadow seeding
- Woodland improvement planting
- Floating reedbeds
- Big swing to be micro-located so as to avoid existing vegetation

NOTE:

This survey is of a preliminary nature. The trees were inspected from the ground only on the basis of the Visual Tree Assessment method. No samples were taken for analysis. No decay detection equipment was employed. The survey does not cover the arrangements that may be required in connection with the laying or removal of underground services.

Branch spread in metres is taken at the four cardinal points to derive an accurate representation of the crown.

Root Protection Areas (RPA) are derived from stem diameter measured at 1.5 m above adjacent ground level (taken on sloping ground on the upslope side of the tree base).

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Site: Broadwater Lake	1:200@ A0
Drawing Title: Arboricultural Impacts Assessment Plan	November 2025

Key:

- Category A High Quality
- Category B Moderate Quality
- Category C Low Quality
- Category U Trees Unsuitable for Retention

Category · Crown Spread · Tree Number · Species · Root Protection Area · Category

- Tree Position Approximate (not shown on original survey)
- Tree Felled To Facilitate Development

REEDBEDS
RESCUE BOAT PONTOON
REMOVED ISLAND (#07)
TRAIL
EXISTING ISLAND (#08)
DEEPWATER
PONTOON
SLIPWAY
PONTOON
EXISTING TRACK
DEEPWATER
EXISTING ISLANDS (#09)
RIGGING AREA
SHELTER #1
DINGHY STORAGE AREA
DOCK
SLIPWAY
FOOT BRIDGE
BOAT RACK
BOAT BRIDGE
DEEPWATER
GARDEN
WC & CHANGING
SAFETY EQUIPMENT STORE
MAIN BUILDING
WORKSHOP
BOAT WASH
ACCESSIBLE PARKING
PROPOSED GRAVEL SHALLOWS
LAGOON
SUBMERGED WILLOW PLANTING
PROTECTED WOODLAND (EXEMPT FROM USE)
ZIP LINE
EXISTING TRACK
LAGOON DEEPWATER
DEEPWATER
POND
ORCHARD
SPORADIC TREE GROUPS ON HARD STANDING
CAMPING
WOODLAND ACTIVITIES
CONTROLLED VEHICLE ACCESS
CAR PARK
BIRD #01 HIDE
TRAIL
BIG SWING
COACH DROP-OFF
PRIVATE RESIDENCE
EXIST WEIGH BRIDGE
ENTRANCE GATE
DROP OFF
INLET DEEPWATER
SOUTH CAUSEWAY
QUICKSAND
QUICKSAND
QUICKSAND
QUICKSAND
0 10 20 30 40 50M

KEY

Site

- Application boundary
- Existing waterbody
- Existing woodland to be protected (exempt from use / access)
- Sporadic tree groups on hard standing
- Existing tree cover (blue dashed = root protection zone blue dashed line)
- Existing native groundcover shrubs on top of existing hardstanding
- Exposed existing concrete hardstanding to be used as driveway, car parking, footpath and pedal karting track surface

Hardworks

- Vehicular Tarmac / Blacktop
- Pedestrian Tarmac / Blacktop
- Pedestrian coloured Tarmac / Buff
- Vehicular coloured Tarmac / Buff
- Grass-concrete paving (Grasscrete)
- Gravel surface with native wildflower overseeding for dinghy parking and rigging
- Wet-pour safety surface for fall protection at bouldering walls
- 2.0m high living acoustic barrier (Gramm EcoSoundBlok)
- 1.2m high chestnut paling fence
- 1.8m high V-mesh security fencing
- 1.2m high & 1.0m wide dry hedge with shrub planting alongside to close gaps in existing vegetation barrier
- 1.5m high hazel hurdle panels attached to dry hedge

Softworks

- Native tree planting
- Willow planting in submerged planters
- Native hedge planting
- Woven willow barriers
- Native shrub planting
- Other neutral grassland seeding
- Lowland meadow seeding
- Woodland improvement planting
- Floating reedbeds
- Big swing to be micro-located so as to avoid existing vegetation

Proposed Landscape Layout
Part 2 of 2: Peninsula

0 5 10 15 20 30 40 50m

Area displaced from RPA
Area from RPA redistributed

NOTE:
This survey is of a preliminary nature. The trees were inspected from the ground only on the basis of the Visual Tree Assessment method. No samples were taken for analysis. No decay detection equipment was employed. The survey does not cover the arrangements that may be required in connection with the laying or removal of underground services.

Branch spread in metres is taken at the four cardinal points to derive an accurate representation of the crown.

Root Protection Areas (RPA) are derived from stem diameter measured at 1.5 m above adjacent ground level (taken on sloping ground on the upslope side of the tree base).

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Site: Broadwater Lake	1:200@ A0
Drawing Title: Arboricultural Impacts Assessment Plan	November 2025

Key:
- Category A High Quality
- Category B Moderate Quality
- Category C Low Quality
- Category U Trees Unsuitable for Retention

Root Protection Area: Category; 13 Birch; Crown Spread; Tree Number; Species; Category
- Tree Position Approximate (not shown on original survey)
- Tree Felled To Facilitate Development