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# Arboricultural Implications Report

## Proposed re-development at

### Southern Gas Network

### Yarnton Way

### Belvedere



**August 2023**

Ref. SJA air 22009-01a

## SUMMARY

S1. On the basis of our assessment, we conclude that the arboricultural impact of this scheme is of negligible magnitude, as defined according to the categories set out in **Table 1** of this report.

S2. Our assessment of the impacts of the proposals on the existing trees concludes that no trees of high landscape or biodiversity value are to be removed. The proposed removal of individuals and groups of trees will represent no alteration to the main arboricultural feature of the site growing along the east site boundary, which will be retained. Whilst the proposed tree removal will result in the loss of all those trees growing on site, as these comprise individuals of low arboricultural quality and landscape value, their removal will not have a significant adverse impact on the arboricultural character and appearance of the local landscape, whilst the extensive replacement planting proposed as part of the scheme will not only mitigate the tree loss but will ultimately result in a long-term improvement to the arboricultural character of the site.

S3. None of the off-site trees to be retained are to be pruned to facilitate implementation of the proposals.

S4. The incursion into the Root Protection Area of one off-site tree (ash no. 37) to be retained is minor, and subject to implementation of the measures recommended on the Tree Protection Plan and set out at **Appendix 1**, no significant or long-term damage to the tree's root system or rooting environment will occur.

S5. None of the proposed dwellings or private gardens are likely to be shaded by the off-site retained trees to the extent that this will interfere with their reasonable use or enjoyment by incoming occupiers, which might otherwise lead to pressure on the Local Planning Authority to permit felling or severe pruning that it could not reasonably resist.

S6. As the proposed development will not result in the removal of important trees, it complies with Policy DP21 of the London Borough of Bexley Local Plan.

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- 1. Outline arboricultural method statement**
- 2. Tree survey schedule (SJA tss 23339-01)**
- 3. Tree protection plan (SJA TPP 22009-041a)**

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# 1. INTRODUCTION AND BACKGROUND INFORMATION

## 1.1. Instructions

1.1.1. SJAtrees has been instructed by Bellway Homes to visit the Southern Gas Network site at Yarnton Way, Belvedere and to survey the trees growing on or immediately adjacent to this site.

1.1.2. We are further asked to identify which trees are worthy of retention within a proposed re-development of the site; to assess the implications of the development proposals on these specimens, and to advise how they should be protected from unacceptable damage during demolition and construction.

## 1.2. Scope of report

1.2.1. This report and its appendices reflect the scope of our instructions, as set out above. It is intended to accompany a planning application to be submitted to the London Borough of Bexley (“the LPA”) and complies with local validation requirements.

1.2.2. It complies also with the recommendations of British Standard BS 5837:2012, *Trees in relation to design, demolition and construction – Recommendations* (‘BS 5837’). However, the British Standard is not a Code of Practice that consists of written rules outlining how actions or decision must be taken and it “should not be quoted as if it were a specification<sup>1</sup>”; it is a set of recommendations intended to “assist decision-making with regard to existing and proposed trees in the context of design, demolition and construction<sup>2</sup>”. It doesn’t form part of planning policy; and it is neither mentioned nor referenced in Policy DP21 of the London Borough of Bexley Local Plan (2023) or the accompanying text, but it is a material consideration to which weight is likely to be given.

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<sup>1</sup> British Standard BS 5837:2012. Trees in relation to design, demolition and construction – Recommendations; Foreword. *The British Standards Institution*.

<sup>2</sup> Ibid., p.1, Introduction.

1.2.3. The proposed development comprises the redevelopment of the site to provide residential units including affordable housing (Use Class C3) and commercial floorspace (Class E) in new buildings ranging between 3 to 5 storeys in height, together with associated car parking and cycle storage, landscaping including new areas of public open space and a reptile retention zone, associated infrastructure including new junctions off Yarnton Way, drainage and land raising.

1.2.4. This report summarises and sets out the main conclusions of the baseline data collected during the tree survey and identifies those trees or groups of trees whose removal could result in a significant adverse impact on the character or appearance of the local area (Section 3). It then details and assesses the impacts of the proposed development on individual trees and groups of trees, including those to be removed (Section 4), those to be pruned (Section 5), those which might incur root damage that might threaten their viability (Section 6) and those that might become under pressure for removal after occupation because of shading (Section 7). A summary and conclusions, with regard to local planning policy, are presented in Section 8.

### **1.3. Site inspection**

1.3.1. A site visit and tree inspection were undertaken by Anthony Harte of SJAtrees on Tuesday the 26<sup>th</sup> of April 2022 and a further visit by Tom Southgate, on Tuesday the 1<sup>st</sup> of August 2023. Weather conditions in 2022 were clear, dry and bright and in 2023, dry with scattered cloud. Deciduous trees were in partial leaf in 2022 and in full leaf in 2023.

### **1.4. Site description**

1.4.1. The site is located on the south side of Yarnton Way, which constitutes the site's north boundary, as shown at **Figure 1** below. The east boundary abuts the gable ends and rear gardens of the adjacent residential dwellings located along Sutherland Road and Maida Road to the east, while the west boundary adjoins an area of industrial buildings and warehouses. The south boundary lies adjacent to and parallel with a train track.



**Figure 1: Site location shown on aerial image**

1.4.2. The site is on relatively level ground and comprises a former gasholder station. The northern half of the site includes two decommissioned gas holders with associated auxiliary buildings and access tracks but otherwise the site mostly comprises open waste ground colonised by wild grasses and plants.

1.4.3. Historical maps dating between 1863-1946 show the site as open land throughout the cartographical timeline and do not appear to record the presence of any trees within or immediately adjacent to the site at any point. Although the presence of the current gasholder station does not appear to be reflected in the historical maps, a cursory online search suggests that it was established from 1922.

## **1.5. Soil type**

1.5.1. The British Geological Survey Solid and Drift Geology map of the area indicates the site overlies superficial alluvium deposits of clay, silt, sand and peat above a bedrock of sand (Thanet Formation).

1.5.2. The class of soil in this area is recorded on the Department for Environment, Food & Rural Affairs ('Defra') Magic website as a naturally loamy and clayey floodplain soil.

1.5.3. We are not aware of a site investigation or soil analysis having been undertaken; but the class of soil and the indications of the British Geological Survey map suggest that the soil is unlikely to be particularly susceptible to compaction.

## **1.6. Statutory controls**

1.6.1. At the time of writing none of these trees are covered by a tree preservation order (TPO).

1.6.2. The site is not within a conservation area, and therefore there are no constraints relating to existing trees in this regard.

## **1.7. Non-statutory designations**

1.7.1. There are no woodlands within or abutting the site that are classified as 'Ancient'. Ancient woodland is defined as "any area that's been wooded continuously since at least 1600 AD" and is considered an important and irreplaceable habitat.

1.7.2. There are no trees within or abutting the site that can be classified as 'Ancient' or 'Veteran'. Ancient and veteran trees are also considered to be irreplaceable habitats, and contribute to a site's biodiversity, cultural and heritage value, and the National Planning Policy Framework (see below) states that development resulting in the loss or deterioration of ancient or veteran trees should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists.

## 2. METHODOLOGY

### 2.1. National policy context

2.1.1. Under Section 197 of the Town and Country Planning Act 1990, local authorities have a statutory duty to consider the protection and planting of trees when considering planning applications. The effects of proposed development on trees are therefore a material consideration, and this is normally reflected in local planning policies.

2.1.2. The National Planning Policy Framework ('NPPF')<sup>3</sup> sets out the Government's planning policies for England and how these should be applied in both plan and decision-making. Paragraph 2 makes it clear that the NPPF is itself a material consideration in the determination of planning application. Paragraph 11 states that **"Plans and decisions should apply a presumption in favour of sustainable development."**

2.1.3. In paragraph 130, within Section 12 "Achieving well-designed places" the NPPF states: **"Planning policies and decisions should ensure that developments:**

**a) will function well and add to the overall quality of the area, not just for the short term but over the lifetime of the development;**

**b) are visually attractive as a result of good architecture, layout and appropriate and effective landscaping;**

**c) are sympathetic to local character and history, including the surrounding built environment and landscape setting, while not preventing or discouraging appropriate innovation or change (such as increased densities);**

**d) establish or maintain a strong sense of place, using the arrangement of streets, spaces, building types and materials to create attractive, welcoming and distinctive places to live, work and visit;**

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<sup>3</sup> The National Planning Policy Framework (NPPF) (July 2021) Ministry of Housing, Communities & Local Government



**e) optimise the potential of the site to accommodate and sustain an appropriate amount and mix of development (including green and other public space) and support local facilities and transport networks; and**

**f) create places that are safe, inclusive and accessible and which promote health and well-being, with a high standard of amenity for existing and future users; and where crime and disorder, and the fear of crime, do not undermine the quality of life or community cohesion and resilience.”**

2.1.4. Paragraph 131 in this section states: **“Trees make an important contribution to the character and quality of urban environments, and can also help mitigate and adapt to climate change. Planning policies and decisions should ensure that new streets are tree-lined, that opportunities are taken to incorporate trees elsewhere in developments (such as parks and community orchards), that appropriate measures are in place to secure the long-term maintenance of newly-planted trees, and that existing trees are retained wherever possible. Applicants and local planning authorities should work with highways officers and tree officers to ensure that the right trees are planted in the right places, and solutions are found that are compatible with highways standards and the needs of different users.”**

2.1.5. The section titled Planning for climate change states at paragraph 153: **“Plans should take a proactive approach to mitigating and adapting to climate change, taking into account the long-term implications for flood risk, coastal change, water supply, biodiversity and landscapes, and the risk of overheating from rising temperatures. Policies should support appropriate measures to ensure the future resilience of communities and infrastructure to climate change impacts, such as providing space for physical protection measures, or making provision for the possible future relocation of vulnerable development and infrastructure.”**

2.1.6. In paragraph 174, within Section 15 “Conserving and enhancing the natural environment” the NPPF states: **“Planning policies and decisions should contribute to and enhance the natural and local environment by:**

**a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);**

**b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and**

other benefits of the best and most versatile agricultural land, and of trees and woodland;...

d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;

e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans;

2.1.7. In paragraph 180, under the 'Habitats and biodiversity' section, the NPPF states: **"When determining planning applications, local planning authorities should apply the following principles:**

**c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists...."**

## **2.2. Regional policy context**

2.2.1. Policy G1 'Green infrastructure' of the London Plan<sup>4</sup> states:

**"A London's network of green and open spaces, and green features in the built environment, should be protected and enhanced. Green infrastructure should be planned, designed and managed in an integrated way to achieve multiple benefits.**

**B Boroughs should prepare green infrastructure strategies that identify opportunities for cross-borough collaboration, ensure green infrastructure is optimised and consider green infrastructure in an integrated way as part of a network consistent with Part A.**

**C Development Plans and area-based strategies should use evidence, including green infrastructure strategies, to:**

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<sup>4</sup> The London Plan (March 2021); Greater London Authority

- 1) identify key green infrastructure assets, their function and their potential function
- 2) identify opportunities for addressing environmental and social challenges through strategic green infrastructure interventions.

**D Development proposals should incorporate appropriate elements of green infrastructure that are integrated into London’s wider green infrastructure network.”**

2.2.2. Policy G7 ‘Trees and woodlands’ of the London Plan states:

**“A London’s urban forest and woodlands should be protected and maintained, and new trees and woodlands should be planted in appropriate locations in order to increase the extent of London’s urban forest – the area of London under the canopy of trees.**

**B In their Development Plans, boroughs should:**

- 1) protect ‘veteran’ trees and ancient woodland where these are not already part of a protected site<sup>139</sup>
- 2) identify opportunities for tree planting in strategic locations.

**C Development proposals should ensure that, wherever possible, existing trees of value are retained.<sup>140</sup> If planning permission is granted that necessitates the removal of trees there should be adequate replacement based on the existing value of the benefits of the trees removed, determined by, for example, i-tree or CAVAT or another appropriate valuation system. The planting of additional trees should generally be included in new developments – particularly large-canopied species which provide a wider range of benefits because of the larger surface area of their canopy.**

<sup>140</sup> **Category A, B and lesser category trees where these are considered by the local planning authority to be of importance to amenity and biodiversity, as defined by BS 5837:2012”.**

## **2.3. Local policy context**

2.3.1. Local planning policies are contained in the London Borough of Bexley Local Plan, adopted 26<sup>th</sup> April 2023.

2.3.2. The relevant section of Policy DP21: Greening of development Sites of the Local Plan states:

**“1. Development proposals should set out what measures have been taken to achieve urban greening onsite; and all new major developments should quantify what urban greening factor (UGF) score has been achieved.**

**2. Development proposals will be required to provide a high standard of landscape design, having regard to the well-being, water, wildlife and character of the surrounding area, ensuring sustainable planting for the long term and be supported by appropriate management and maintenance measures.**

**3. There will be a presumption in favour of the retention and enhancement of existing trees, woodland and hedgerow cover on site; and planning permission will not normally be permitted where the proposal adversely affects important trees, woodlands, or hedgerows.**

**4. Development proposals should maximise potential for the planting of new native trees and hedges within the development site and new streets should be tree-lined, unless, in specific cases, there are clear, justifiable and compelling reasons why this would be inappropriate.”**

## **2.4. Neighbourhood policy context**

2.4.1. At the time of writing there is no Neighbourhood Plan covering the area within which the site is found.

## **2.5. Tree survey and baseline information**

2.5.1. We surveyed individual trees with trunk diameters of 75mm and above<sup>5</sup>, trees with trunk diameters of 150mm and above growing in groups or woodlands, and shrub masses, hedges and hedgerows<sup>6</sup> growing within or immediately adjacent to the site; and recorded their locations, species, dimensions, ages, condition, and visual importance in accordance with BS 5837 recommendations.

2.5.2. The baseline information collected during the site survey was recorded on site using a hand-held digital device. This information was then imported into an Excel spreadsheet and used to produce the tree survey schedule at **Appendix 2**. The

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<sup>5</sup> BS 5837, paragraph 4.2.4 b), recommends that all trees over 75mm stem diameter should be included in a pre-planning land and tree survey.

<sup>6</sup> Ibid., 4.4.2.7

numbers assigned to the trees in the tree survey schedule correspond with those shown on the appended tree protection plan.

2.5.3. We surveyed trees as groups where they have grown together to form cohesive arboricultural features, either aerodynamically (trees that provide companion shelter), visually (e.g., avenues or screens) or culturally<sup>7</sup>. However, where it might be necessary to differentiate between specific trees within these groups, we also surveyed these individually.

2.5.4. We inspected the trees from the ground only, aided by binoculars as appropriate, but did not climb them. We took no samples of wood, roots or fungi. We did not undertake a full hazard or risk assessment of the trees, and therefore can give no guarantee, either expressed or implied, of their safety or stability.

2.5.5. We have categorised the trees in accordance with BS 5837, and details of the criteria used for this process can be found in the notes that accompany the tree survey schedule. We applied this methodology in line with the NPPF's presumption in favour of sustainable development, giving greater weighting to the contribution of a tree to the character and appearance of the local landscape, to amenity, or to biodiversity, where its removal might have a significant adverse impact on these factors.

## **2.6. Tree constraints**

2.6.1. In line with the NPPF's presumption in favour of sustainable development, we assessed whether any trees should be retained in the context of the proposed development / re-development. Our assessment of which trees might have to be retained, and which can be removed, is based on:

- which trees contribute to local character and history, including to the surrounding landscape setting; which trees contribute to biodiversity; and which trees help mitigate and adapt to climate change; and whose removal would thereby be unlikely to comply with national planning policy guidance;

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<sup>7</sup> Ibid., 4.4.2.3

- which trees are important features of the local landscape, such that their removal would be contrary to local planning policies: specifically, Policy DP21 of the London Borough of Bexley Local Plan, as set out above; and
- our assessment of the trees' quality, value and remaining life expectancy, in accordance with BS5837:2012, as summarised in the notes that accompany the tree survey schedule.

2.6.2. As trees growing outside the boundaries of the site are in the control of others, we have assumed they will be retained, irrespective of their size, age or condition.

2.6.3. Whilst we have categorised trees in accordance with BS 5837, we have not used these categorisations as the main criterion of whether specimens might be removed or should be retained. Trees in categories 'A', 'B' and 'C' are all a material consideration in the development process; but the retention of category 'C' trees, being of low quality or of only limited or short-term potential, will not normally be considered necessary should they impose a significant constraint on development.

2.6.4. Furthermore, BS 5837 makes it clear that young trees, even those of good form and vitality, which have the potential to develop into quality specimens when mature **"need not necessarily be a significant constraint on the site's potential"**<sup>8</sup>.

2.6.5. Moreover, BS 5837 states that **"... care should be taken to avoid misplaced tree retention; attempts to retain too many or unsuitable trees on a site can result in excessive pressure on the trees during demolition or construction work, or post-completion demands for their removal"**<sup>9</sup>.

2.6.6. The 'Root Protection Areas' (RPAs)<sup>10</sup> of the trees identified for retention were calculated in accordance with Section 4.6 of BS 5837; and were assessed taking account of factors such as the likely tolerance of a tree to root disturbance or damage, the morphology and disposition of roots as influenced by existing site conditions

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<sup>8</sup> BS 5837, 4.5.10.

<sup>9</sup> Ibid., 5.1.1.

<sup>10</sup> Ibid., paragraph 3.7. "The minimum area around a retained tree "deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority."

(including the presence of existing roads or structures), as well as soil type, topography and drainage. Where considered appropriate, the shapes of the RPAs (although not their areas) were modified based on these considerations, so that they reflect more accurately the likely root distribution of the relevant trees.

2.6.7. To assess whether the trees identified for retention would be in a sustainable relationship with the proposed development (without casting excessive shade or otherwise unreasonably interfering with incoming residents' prospects of enjoying their properties, and thereby leading inevitably to requests for consents to fell), we plotted a segment or "shading arc" from each trunk, with a radius equal to the current height of the tree concerned, from due north-west to due east. This gave an indication of potential direct obstruction of sunlight and the shadow pattern cast through the main part of the day<sup>11</sup>.

2.6.8. Based on these principles and recommendations, the tree survey and assessment of suitability for retention informed the production of a tree constraints plan (TCP) which indicates the most suitable trees for retention, and their associated below-ground and above-ground constraints.

2.6.9. As a design tool, the TCP also indicates how close to those trees selected for retention the proposed development could be positioned, in terms of three key criteria:

- a). avoidance of unacceptable root damage;
- b). avoidance of the necessity for unacceptable pruning works; and
- c). avoidance of future felling or pruning works to prevent unacceptable shading or apprehension on behalf of the occupants.

## **2.7. Arboricultural impact assessment and tree protection plan**

2.7.1. Once finalised, we assessed the arboricultural impacts of the proposed layout, by overlaying it onto the TCP, and produced the tree protection plan (TPP) presented

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<sup>11</sup> Ibid., paragraph 5.2.2 Note 1.

at **Appendix 3**. This is based on the proposed site layout by Stockwool Architects, drawing no. 3499-STO-ZZ-ZZ-PL-A-90000.

2.7.2. The TPP identifies the need to remove all of the trees growing on site to accommodate the proposed development, either because they are situated within the footprints of proposed structures or surfaces, or because in our judgment they are too close to these structures or surfaces to enable them to be retained. These are shown by means of **red crosses** on the TPP.

2.7.3. The TPP also shows how trees to be retained will be protected from damage during demolition and construction, and the measures identified are set out and described at **Appendix 1** to this report. The implementation of, and adherence to, these measures can readily be secured by the imposition of appropriate planning conditions.

2.7.4. For the trees shown to be retained, all measurements for pruning specifications, percentage estimates of RPA incursions and shading issues have been calculated using AutoCAD software.

2.7.5. Details of the impacts identified within these categories, and our assessment of their respective significance, are analysed in Sections 4 to 7 below.

2.7.6. Based on these findings, we have assessed the magnitude of the overall arboricultural impact of the proposals according to the categories defined in **Table 1** below.

Impact	Description
High	Total loss of or major alteration to main elements/ features/ characteristics of the baseline, post-development situation fundamentally different
Medium	Partial loss of or alteration to main elements/ features/ characteristics of the baseline, post-development situation will be partially changed
Low	Minor loss of or alteration to main elements/ features/ characteristics of the baseline, post-development changes will be discernible but the underlying situation will remain similar to the baseline
Negligible	Very minor loss of or alteration to main elements/ features/ characteristics of the baseline, post-development changes will be barely discernible, approximating to the 'no change' situation

**Table 1: Magnitude of impacts<sup>12</sup>**

<sup>12</sup> Determination of magnitude based on DETR (2000) Guidance on the Methodology for Multi-Modal Studies, as modified and extended.



## 3. THE TREES

### 3.1. Survey findings

3.1.1. We surveyed 36 individual trees and eight groups of trees growing within or immediately adjacent to the site. Their details can be found in the tree survey schedule at **Appendix 2**.

3.1.2. The arboricultural character of the site is defined by semi-mature, native broadleaved trees, many of which are self-seeded specimens. The most commonly found species is wild cherry closely followed by silver birch, hawthorn and sycamore.

3.1.3. The majority of the trees are located adjacent to the north boundary where they grow densely together to form 'scrubby' groups of mutually suppressed individuals. Elsewhere, the trees are scattered throughout the site and include a row of crack willow which grow along the bank of a water-logged ditch.

3.1.4. Beyond the site, tree cover is mostly confined to those trees growing along the east boundary within the rear gardens of adjacent residential dwellings. These off-site trees consist of a mix of native specimens including two mature individuals (an ash and sycamore) alongside occasional non-native or ornamental tree species such as cedar gum, Japanese maple, and Italian alder.

3.1.5. Overall, the arboricultural quality of the trees reflects the post-industrial character of the site, and is consistent with the trees in the surrounding area.

### 3.2. Assessment of suitability for retention

3.2.1. As noted above in Section 2.3, local planning policies require the retention of “**important trees, woodlands, or hedgerows.**” We consider off-site trees nos. 37, 80, 85, 87, 88 & 89, and off-site groups G3 & G5 as collectively possessing the arboricultural importance necessary to meet this criterion.

3.2.2. By contrast, we consider all the on-site trees to be of sufficiently low arboricultural quality as to fall short of this criterion both as individuals and as groups.

3.2.3. Two individual trees (nos. 79 & 81) have been assessed as category 'U'. These are trees that are unsuitable for retention, on the basis of them being 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 this case, however, as both trees grow off site they are to be retained regardless. The category 'U' trees are indicated on the accompanying tree protection plan by **bracketed red** numbers.

3.2.4. There are no category 'A' trees but three category 'B' specimens (ash tree no. 37, field maple no. 69 & sycamore no. 85). The remaining 31 trees are assessed as category 'C' trees, being either of low quality, very limited merit, only low landscape benefits, no material cultural or conservation value, or only limited or short-term potential; or young trees with trunk diameters below 150mm; or a combination of these.

3.2.5. Of the groups of trees, none have been assessed as category 'A', one as category 'B' (G5), and the remaining seven as category 'C'.

## 4. TREES TO BE REMOVED

### 4.1. Details

4.1.1. To accommodate the proposed development, as shown on the proposed layout plan, 27 individual trees (nos. 1-11, 13, 14, 34-36, 40, 41, 47, 49, 50, 51, 63, 65, 69, 70 & 82) and four groups (G1, G2, G7 & G8) are to be removed, either because they are situated within the footprints of proposed structures or surfaces, or because they are too close to these to enable them to be retained.

4.1.2. Details of the trees to be removed, including their dimensions, age class and British Standard categorisation, are shown and listed on the TPP and at **Table 2** below.

Tree no.	Species	Height	Trunk diameter	Age class	BS category
1	Hawthorn	6m	2 stems @ 55mm, 70mm, 90mm, 105mm, 100mm	Semi-mature	C (2)
2	Hawthorn	7m	150mm, 100mm	Semi-mature	C (2)
3	Hawthorn	8m	90mm, 110mm	Semi-mature	C (2)
4	Silver birch	14.5m	305mm	Semi-mature	C (2)
5	Wild cherry	10m	125mm, 190mm	Semi-mature	C (2)
6	Wild cherry	10m	170mm	Semi-mature	C (2)
7	Wild cherry	10m	195mm	Semi-mature	C (2)
8	Wild cherry	9m	160mm est.	Young	C (2)
9	Wild cherry	10m	125mm	Young	C (2)
10	Wild cherry	11m	140mm, 85mm	Semi-mature	C (2)
11	Wild cherry	11m	140mm, 185mm ivy	Semi-mature	C (2)
13	Ash	12m	305mm	Semi-mature	C (2)
14	Wild cherry	12m	520mm	Mature	C (2)
34	Silver birch	14m	280mm ivy, 335mm	Semi-mature	C (2)
35	Silver birch	10m	220mm, 195mm both ivy	Semi-mature	C (2)
36	Wild cherry	9m	215mm	Semi-mature	C (2)
40	Lombardy poplar	14m	4 stems @ 180mm 20 stems @ 90mm all est.	Semi-mature	C (2)
41	Lombardy poplar	14m	200mm, 190mm, 210mm, 250mm all est.	Semi-mature	C (2)
47	Sycamore	15m	2 stems @ 265mm	Semi-mature	C (2)
49	Sycamore	13.5m	215mm	Semi-mature	C (2)
50	Sycamore	13m	210mm	Semi-mature	C (2)
51	Sycamore	14m	255mm ivy, 340mm, 325mm	Semi-mature	C (2)
63	Silver birch	14.5m @ 1.2m	230mm, 85mm, 155mm	Semi-mature	C (2)
65	Silver birch	17m	255mm	Semi-mature	C (2)
69	Field maple	12.5m	510mm	Mature	B (2)
70	Ash	14m	260mm, 160mm est.	Semi-mature	C (2)
82	Hawthorn	5m	105mm @ 1.2m	Young	C (2)
G1	Various	9m	Max 150mm est.	Young	C (2)
G2	Various	17m	Max 280mm est.	Semi-mature	C (2)
G7	Crack willow	Min 9m Max 19m Avg 18m	Min 200mm est. Max 560mm ivy Avg 300mm ivy	Mature	C (2)
G8	Various	10m	Max 200mm est.	Semi-mature	C (2)

**Table 2: Trees to be removed**

## 4.2. Assessment

4.2.1. All those trees or groups of trees that together constitute the main arboricultural features of the site and which make the greatest contribution to the character and appearance of the local landscape, to amenity or to biodiversity (see paragraph 3.2.1), will be retained.

4.2.2. As there are no ancient or veteran trees on site, none will be removed.

4.2.3. None of the trees to be removed are mature specimens of species of large size: all the other trees to be cleared are young, semi-mature or of small ultimate size. The significance of this is threefold. Firstly, for obvious reasons mature trees tend to be larger in size and therefore are likely to be more visible and to make a greater contribution to the landscape. Secondly, mature trees are more likely to have formed associations with wildlife and to support other flora or fauna (for example, young trees infrequently contain splits, cracks or cavities that might provide roosting sites for bats); and thirdly, mature trees have a significantly greater capacity than smaller trees to actively sequester and store carbon<sup>13</sup>. Accordingly, the removal of no large mature trees on or adjacent to the site minimises the impacts on the benefits that mature trees provide in relation to smaller ones.

4.2.4. Three of the trees and one group to be removed (nos. 8, 9, 82 & G1) comprise young specimens, which BS 5837 states “**need not necessarily be a significant constraint on the site’s potential**”.

4.2.5. Of the three category B trees, one (field maple no. 69) is to be removed, as shown in **Table 2** above.

4.2.6. Field maple no. 69 is a mature specimen (albeit not of a ‘large growing’ species and not therefore, in contrast to paragraph 4.2.3. above) that is readily visible from Yarnton Way, the combination of which having furnished the chief impetus for its

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<sup>13</sup> Stephenson N. L., Das A. J., Zavala M. A. (2014) Rate of tree carbon accumulation increases continuously with tree size. *Nature*, volume 507.

category B designation. Despite its visibility, the tree does not however reserve any particular importance within the local landscape for the following reasons.

4.2.7. As a species field maple is generally of small ultimate size with most individuals attaining ultimate heights no greater than 14m. This is reflected by tree no. 69 which currently shows a height of 12.5m and a crown spread of no more than 8m in any given direction. The tree's limited size consequently diminishes its prominence and importance within the local area.

4.2.8. Because it is already mature, tree no. 69 is unlikely to grow significantly beyond its current dimensions and so it would be reasonable to surmise that the tree will never attain the size necessary to constitute an important arboricultural feature. Therefore, its removal will not have a significant impact on the arboricultural character or quality of the local landscape.



***Photograph 1: Showing limited size of field maple tree no. 69***



***Photograph 2: Showing field maple tree no. 69 from Yarnton Way***

4.2.9. Twenty-six of the thirty-one category 'C' trees on or adjacent to the site are to be removed: these are either of low quality, low value, or short-term potential. For these reasons, their removal will have no significant impact on the character or appearance of the area.

4.2.10. Although the proposed tree removals represents the loss of all those trees growing on site, considering their prevailing low quality consistent with the post-industrial landscape in which they grow, and the extensive replacement planting included within the proposals (discussed below), the removal of all the on-site trees will not have an adverse impact on the arboricultural quality of the area and is justifiable within the context of the significant benefit provided by the scheme (which is allocated for housing).

4.2.11. The proposals incorporate considerable replacement tree planting as shown in the landscape statement by Macfarlane + Associates submitted with this application. This will mitigate the proposed removals, improve the age class balance of the trees on site, enhance the local landscape, and re-establish a framework for the ongoing and long-term character of the site.

4.2.12. In the light of these considerations, and taking account of the numbers, sizes and locations of the trees to be retained, including those that are off-site, the felling of the trees and groups identified for removal will represent no alteration to the main arboricultural feature of the site.



## **5. TREES TO BE PRUNED**

### **5.1. Details**

5.1.1. None of the off-site trees to be retained are to be pruned to facilitate implementation of the proposals.

### **5.2. Assessment**

5.2.1. As no trees are to be pruned, and none of the proposed dwellings will be within 3m of the extents of the canopies of trees to be retained, there will be adequate working space for construction close to trees, and a reasonable margin of clearance for future growth.

## 6. ROOT PROTECTION AREA INCURSIONS

### 6.1. Details

6.1.1. Part of the proposed hard surfacing will encroach within the RPA of one tree, off-site ash no. 37, to be retained.

6.1.2. The proposed hard surfacing encroaches within the RPA of ash tree no. 37 by up to **20.3%** (or 38.8m<sup>2</sup>).

6.1.3. No parts of the proposed drainage as shown on the proposed drainage strategy by Ardent Consulting Engineers, drawing no. 194180-D-014, encroach within the RPAs of any of the off-site trees to be retained.

### 6.2. Assessment

6.2.1. Any potential adverse impacts due to the incursion by part of the proposed hard surfacing within the RPA of tree no. 37 can be satisfactorily mitigated as set out below.

6.2.2. The incursion into the RPA of tree no. 37 is by a proposed footpath, and subject to proposed levels, some degree of excavation will be required. To minimise impacts on this specimen, excavation within the RPA will be undertaken manually, under the direct control and supervision of an appointed arboricultural consultant, so that any over dig into the RPA is avoided, and any roots encountered can be treated appropriately.

6.2.3. As the footpath represents a lightly loaded structure, installation of its foundations is expected to require shallow excavation only, to a depth no greater than 500mm below the existing soil level. Because studies have shown that as much as 90% of tree root length occurs in the upper metre of the soil<sup>14</sup> it is therefore unlikely that this incursion into the RPA will result in all the roots in this area being severed.

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<sup>14</sup> Roberts J., Jackson N., & Smith M. (2006). Tree Roots in the Built Environment. TSO.

6.2.4. As a species ash has been identified as moderate at tolerating root pruning and disturbance<sup>15</sup>. As this specimen is of average physiological condition, there is no reason to suggest that it will not be able to tolerate the cutting of roots within this small sections of its RPA.

6.2.5. Furthermore, within the site boundary the opportunity exists for the soil used by the tree for root growth to be improved. Subject to proposed landscaping, the soil and rooting environment within the RPA of this specimen could be enhanced to promote improved root growth by de-compaction, aeration, fertilisation or mulching, as appropriate, and this can be ensured by condition.

6.2.6. Implementation of measures to prevent other incursions into the RPAs of the off-site trees to be retained and to protect them during demolition and construction can be assured by the erection of appropriate protective fencing, as shown on the TPP at **Appendix 3**.

6.2.7. Accordingly, subject to implementation of the above measures, and considering the current physiological condition and tolerance of disturbance of the retained tree, no significant or long-term damage to its root system or environment will occur as a result of the proposed development.

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<sup>15</sup> MATHENY, N. P. and CLARK, J. R. (1998). Trees and Development. International Society of Arboriculture.

## **7. RELATIONSHIP OF RETAINED TREES TO NEW DWELLINGS**

### **7.1. Details**

7.1.1. In none of the proposed new dwellings or apartments does the fenestration of their main habitable rooms (living rooms, kitchens) exclusively and directly face trees within the shadow patterns<sup>16</sup> of which they are situated; that is, where proposed dwellings or apartments are sited in an arc between the north-west and the east of the off-site retained trees and are closer to them than the current heights of these specimens.

### **7.2. Assessment**

7.2.1. As none of the proposed dwellings or private gardens lie within the shadow patterns of any retained trees, they will not be shaded by retained trees to the extent that this will interfere with their reasonable use or enjoyment by incoming occupiers; which might otherwise lead to pressure to permit felling or severe pruning that the LPA could not reasonably resist.

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<sup>16</sup> BS 5837, 5.2.2, Note 1: "An indication of potential direct obstruction of sunlight can be illustrated by plotting a segment, with a radius from the centre of the stem equal to the height of the tree, drawn from due north-west to due east, indicating the shadow pattern through the main part of the day."

## 8. CONCLUSIONS

### 8.1. Summary

8.1.1. Our assessment of the impacts of the proposals on the existing trees concludes that no trees of high landscape or biodiversity value are to be removed. The proposed removal of individuals and groups of trees will represent no alteration to the main arboricultural feature of the site growing along the east site boundary, which will be retained. Whilst the proposed tree removal will result in the loss of all those trees growing on site, as these comprise individuals of low arboricultural quality and landscape value, their removal will not have a significant adverse impact on the arboricultural character and appearance of the local landscape, whilst the extensive replacement planting proposed as part of the scheme will not only mitigate the tree loss but will ultimately result in a long-term improvement to the arboricultural character of the site.

8.1.2. None of the off-site trees to be retained are to be pruned to facilitate implementation of the proposals.

8.1.3. The incursion into the Root Protection Area of one off-site tree (ash no. 37) to be retained is minor, and subject to implementation of the measures recommended on the Tree Protection Plan and set out at **Appendix 1**, no significant or long-term damage to the tree's root system or rooting environment will occur.

8.1.4. None of the proposed dwellings or private gardens are likely to be shaded by the off-site retained trees to the extent that this will interfere with their reasonable use or enjoyment by incoming occupiers, which might otherwise lead to pressure on the Local Planning Authority to permit felling or severe pruning that it could not reasonably resist.

8.1.5. The sizes and dispositions of the proposed private gardens are such that in our assessment they will not be unduly shaded and will receive reasonable sunlight and daylight. Their use is thus unlikely to lead to future demands for felling or severe pruning of trees.

## 8.2. Compliance with national planning policy

8.2.1. As the proposals will retain the main arboricultural feature of the site, its arboricultural attractiveness, history and landscape character and setting will be maintained, thereby complying with Paragraph 130 of the National Planning Policy Framework.

8.2.2. Whilst all of the on-site trees are to be removed, there is no duty in planning policy to retain all existing trees in all circumstances. Paragraph 131 of the NPPF states (*italics added for emphasis*): “**Planning policies and decisions should ensure... that existing trees are retained wherever possible**”; and thereby recognises circumstances in which it might not be possible to retain every tree. Accordingly, the proposed removal of trees does not mean that this application must thereby be refused; and does not mean it conflicts with Paragraph 131 of the NPPF.

8.2.3. The proposals do not necessitate the removal of any mature trees of large ultimate size, which make the greatest contribution to carbon sequestration and storage, surface water run-off, biodiversity and landscape and air temperature and cleanliness; for all of which, appropriate space for their retention is provided. Accordingly, insofar as this relates to existing trees, the scheme can be seen to have taken a proactive approach to mitigating climate change and thereby complies with Paragraph 153 of the National Planning Policy Framework.

8.2.4. As the proposals will not result in the loss or deterioration of any ancient woodland or any ancient or veteran trees, they comply with paragraph 180 (c) of the NPPF.

## 8.3. Compliance with regional planning policy

8.3.1. As all the existing trees assessed as being features in the existing built environment will be retained, in arboricultural terms the proposed development complies with Policy G1 ‘Green infrastructure’ of the London Plan.

8.3.2. As all trees of significant value and importance to amenity will be retained, and space exists within the proposed layout for replacement planting, including of large-canopied trees such as oak, plane or lime, the proposed development will protect,

maintain and enhance the main arboricultural features of the site. As such, it complies with Policy G7 'Trees and woodlands' of the London Plan.

#### **8.4. Compliance with local planning policy**

8.4.1. As the proposed development will not result in the removal of important trees, it complies with Policy DP21 of the London Borough of Bexley Local Plan.

#### **8.5. Conclusion**

8.5.1. On the basis of our assessment, we conclude that the arboricultural impact of this scheme is of negligible magnitude, as defined according to the categories set out in **Table 1** of this report.

# **APPENDIX 1**

## **Outline Arboricultural Method Statement**



# Outline arboricultural method statement

## **A1.1. Tree Protection Plan**

A1.1.1. The TPP at **Appendix 3** shows the general and specific provisions to be taken during construction of the proposed development, to ensure that no unacceptable damage is caused to the root systems, trunks or crowns of the trees identified for retention. These measures are indicated by coloured notations in areas where construction activities are to occur either within, or in proximity to, retained trees, as described in the relevant panels on the drawing.

## **A1.2. Pre-start meeting**

A1.2.1. Prior to the commencement of any site clearance, ground preparation, demolition or construction works the developer will convene a pre-start site meeting. This shall be attended by the developer's contract manager or site manager, the demolition contractor, the fencing/boarding contractor, the groundwork contractor(s) and the arboricultural consultant. The LPA tree officer will be invited to attend. If appropriate, the tree felling/surgery contractor should also attend. At that meeting contact numbers will be exchanged, and the methods of tree protection shall be fully discussed, so that all aspects of their implementation and sequencing are made clear to all parties. Any clarifications or modifications to the TPP required as a result of the meeting shall be circulated to all attendees.

## **A1.3. Site clearance**

A1.3.1. No clearance of trees or other vegetation shall be undertaken until after the pre-start meeting and after the erection of the tree protection fencing (see below). If any vegetation clearance is required behind the line of the protection fencing this will be made clear at the pre-start meeting and arrangements will be made to do this prior to the fencing's erection, under the supervision of the arboricultural consultant, who will ensure it doesn't cause any soil compaction or damage to the roots of trees to be retained.

A1.3.2. Except where within the RPAs of trees to be retained, all trees and other vegetation to be removed may be cut down or grubbed out as appropriate; but within

the RPAs of trees to be retained, trees and vegetation will be cut by hand to ground level and stumps will be either left in place or ground out with a lightweight self-powered stump grinding machine. No excavators, tractors or other vehicles will enter the RPAs.

#### **A1.4. Ground preparation**

A1.4.1. No ground preparation or excavation of any kind, including topsoil stripping or ground levelling, shall be undertaken until after the pre-start meeting and after the erection of the tree protection fencing (see below).

#### **A1.5. Tree protection fencing**

A1.5.1. Construction exclusion zones (CEZs) will be formed by erecting protective fencing around the RPAs of all on-site trees to the specification recommended in BS 5837, Section 6.2, prior to the commencement of construction. This will consist of a scaffold framework comprising a vertical and horizontal framework, well braced to resist impacts, with vertical tubes spaced at maximum intervals of 3.5m. Onto this, welded mesh panels should be securely fixed with wire or scaffold clamps, as shown in **Figure 2** of that document. "**TREE PROTECTION ZONE - KEEP OUT**" or similar notices will be attached with cable ties to every third panel.

A1.5.2. The RPAs of the off-site trees will also be enforced by the erection of protective fencing to the same specification, prior to the commencement of construction, thereby safeguarding them from incursions by plant or machinery, storage and mixing of materials, or other construction-related activities which could have a detrimental effect on their root systems.

A1.5.3. The recommended positions of the protective fencing are shown by **bold blue lines** on the TPP. The precise positioning of the fencing around the trees will be considered in conjunction with any other protective hoarding/fencing which may be required around the site boundary.

A1.5.4. Within the CEZs safeguarded by the protective fencing, there will be no changes in ground levels, **no soil stripping**, and no plant, equipment, or materials will be stored. Oil, bitumen, diesel, and cement will not be stored or discharged within 10m of any trees. Areas for the storage or mixing of such materials will be agreed in

advance and be clearly marked. No notice boards, or power or telephone cables, will be attached to any of the trees. No fires will be lit within 10m of any part of any tree.

#### **A1.6. Manual excavation within RPAs**

A1.6.1. The first 750mm depth of excavations required within the RPAs of the trees to be retained (as shown by **bold orange lines** on the TPP) will be dug by hand, using a compressed air soil pick if appropriate, and under on-site arboricultural supervision, to safeguard against the possibility of unacceptable root damage being caused to these specimens. Any roots encountered of over 25mm diameter will be cut back cleanly to the face of the dig nearest to the tree, using a sharp hand saw or secateurs, and their cut ends covered with hessian to prevent desiccation.

## **APPENDIX 2**

# **Tree Survey Schedule**



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(Operations)

## **Preliminary Tree Survey Schedule**

### **SGN Belvedere, Yarnton Way**

**August 2023**

SJA Ref: 23339-01

# Tree Survey Schedule: Explanatory Notes

## SGN Belvedere, Yarnton Way

This schedule is based on a tree inspection undertaken by Anthony Harte of SJATrees (the trading name of Simon Jones Associates Ltd.), on Tuesday the 26th April 2022 and a further visit by Tom Southgate, on Tuesday the 1st August 2023. Weather conditions in 2022 were clear, dry and bright and in 2023, dry with scattered cloud. Deciduous trees were in partial leaf in 2022 and in full leaf in 2023.

The information contained in this schedule covers only those trees that were examined, and reflects the condition of these specimens at the time of inspection. We did not have access to the trees from any adjacent properties; observations are thus confined to what was visible from within the site and from surrounding public areas.

The trees were inspected from the ground only and were not climbed, and no samples of wood, roots or fungi were taken. A full hazard or risk assessment of the trees was not undertaken, and therefore no guarantee, either expressed or implied, of their safety or stability can be given.

Trees are dynamic organisms and are subject to continual growth and change; therefore the dimensions and assessments presented in this schedule should not be relied upon in relation to any development of the site for more than twelve months from the survey date.

### 1. Tree no.

Given in sequential order, commencing at "1". Numbers correspond with numbering on topographical survey plan.

### 2. Species.

'Common names' are given, taken from MITCHELL, A. (1978) A Field Guide to the Trees of Britain and Northern Europe.

### 3. Height.

Estimated with the aid of a hypsometer, given in metres.

### 4. Trunk diameter.

Trunk diameter measured at approx. 1.5m above ground level; or where the trunk forks into separate stems between ground level and 1.5m, measured at the narrowest point beneath the fork. Given in millimetres.

### 5. Radial crown spread.

The linear extent of branches from the base of the trunk to the main cardinal points, rounded up to the closest half metre, unless shown otherwise. For small trees with reasonably symmetrical crowns, a single averaged figure is quoted.

### 6. Crown break.

Height above ground and direction of growth of first significant live branch.

### 7. Crown clearance.

Distance from adjacent ground level to lowest part of lowest branch, in metres.

### 8. Age class.

Young: Seedling, sapling or recently planted tree; not yet producing flowers or seeds; strong apical dominance.

Semi-mature: Trunk often still smooth-barked; producing flowers and/or seeds; strong apical dominance, not yet achieved ultimate height.

Mature: Apical dominance lost, tree close to ultimate height.

Over-mature: Mature, but in decline, no crown retrenchment

Veteran: Mature, with a large trunk diameter for species; but showing signs of veteranisation, irrespective of actual age, with decay or hollowing, and a crown showing retrenchment and a structure characteristic of the latter stages of life.

Ancient: Beyond the typical age range and with a very large trunk diameter for species; with extensive decay or hollowing; and a crown that has undergone retrenchment and has a structure characteristic of the latter stages of life.

### 9. Physiology.

Health, condition and function of the tree, in comparison to a normal specimen of its species and age.

### 10. Structure.

Structural condition of the tree – based on both the structure of its roots, trunk and major stems and branches, and on the presence of any structural defects or decay.

Good: No significant morphological or structural defects, and an upright and reasonably symmetrical structure.

Moderate: No significant pathological defects, but a slightly impaired morphological structure; however, not to the extent that the tree is at immediate or early risk of collapse.

Indifferent: Significant morphological or pathological defects; but these are either remediable or do not put the tree at immediate or early risk of collapse.

Poor: Significant and irreparable morphological or pathological defects, such that there may be a risk of failure or collapse.

Hazardous: Significant and irreparable morphological or pathological defects, with a risk of imminent collapse.

### 11. Comments.

Where appropriate comments have been made relating to:

- Health and condition
- Safety, particularly close to areas of public access
- Structure and form
- Estimated life expectancy or potential
- Visibility and impact in the local landscape

### 12. Category.

Based on the British Standard "Trees in relation to design, demolition and construction - Recommendations", BS 5837: 2012; adjusted to give a greater weighting to trees that contribute to the character and appearance of the local landscape, to amenity, or to arboricultural biodiversity.

**Category 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.

- (1) Trees that have a serious, irreparable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category 'U' trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning).
- (2) Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline.
- (3) Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality.

**Category A:** Trees of high quality with an estimated remaining life expectancy of at least 40 years.

- (1) Trees that are particularly good examples of their species, especially if rare or unusual.
- (2) Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features.
- (3) Trees, groups or woodlands of significant conservation, historical, commemorative or other value.

**Category B:** Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.

- (1) Trees that might be included in category 'A', but are downgraded because of impaired condition (e.g. presence of significant though remediable defects including unsympathetic past management and minor storm damage) such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category 'A' designation.
- (2) Trees present in numbers, usually growing as groups or woodlands, such that they form distinct landscape features, thereby attracting a higher collective rating than they might as individuals; or trees present in numbers but situated so as to make little visual contribution to the wider locality.
- (3) Trees with material conservation or other cultural value.

**Category C:** Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm.

- (1) Unremarkable trees of very limited merit or of such impaired condition that they do not qualify in higher categories.
- (2) Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value, and/or trees offering low or only temporary landscape benefits.
- (3) Trees with no material limited conservation or other cultural value.

## TREE SURVEY SCHEDULE

### SGN Belvedere, Yarnton Way

No.	Species	Height	Trunk diameter	Radial crown spread	Crown break	Crown clearance	Age class	Physio - logy	Structure	Comments	Category
1	Hawthorn	6m	2 stems @ 55mm 70mm 90mm 105mm 100mm	N 3m E 4m S 3.2m W 3.2m	S 0.5m	S 0.75m W 1.75m	Semi-mature	Average	Indifferent	Twin-stemmed from 0.5m; stems divide into multiple secondary stems from 1m with compression forks; small-growing species; inessential component of group in which it stands.	C (2)
2	Hawthorn	7m	150mm 100mm	N 2.5m E 2.8m S 2.4m W 3.1m	2m	W 1m	Semi-mature	Average	Indifferent	Twin-stemmed from 0.75m with tensile union; small-growing species; inessential component of group in which it stands.	C (2)
3	Hawthorn	8m	90mm 110mm	N 2.2m E 1.2m S 2.7m W 3.4m	2.5m	W 2m	Semi-mature	Average	Indifferent	Twin-stemmed from 1m with tight compression fork; suppressed crown as overtopped by adjacent tree no. 4; small-growing species; inessential component of group in which it stands.	C (2)
4	Silver birch	14.5m	305mm	N 4.6m E 4.2m S 3.7m W 3.5m	W 2.5m	W 2.5m	Semi-mature	Average	Indifferent	Dominant crown; visible in views from Yarnton Way to N; short-lived species; significant component of group in which it stands.	C (2)
5	Wild cherry	10m	125mm 190mm	N 4m E 2m S 0.5m W 1m	N 2.5m	E 4m	Semi-mature	Below average	Indifferent	Twin-stemmed from base with tight compression fork and evidence of included bark; E stem shows cambial wound with decay on S-side; drawn-up and mutually suppressed; inessential component of group in which it stands.	C (2)
6	Wild cherry	10m	170mm	N 3m E 0.5m S 1.5m W 4.7m	SW 2m	W 2.5m	Semi-mature	Average	Indifferent	Spreading buttress root to W extending 2.8m from trunk base; drawn-up and mutually suppressed specimen with height/diameter ratio greater than 50: at risk of failure if companion shelter removed; significant component of group in which it stands.	C (2)
7	Wild cherry	10m	195mm	N 4m E 3m S 1m W 2m NW 1m	N 2m	E 2.5m	Semi-mature	Average	Indifferent	Drawn-up and mutually suppressed specimen with height/diameter ratio greater than 50: at risk of failure if companion shelter removed; significant component of group in which it stands.	C (2)
8	Wild cherry	9m	160mm est.	N 1m E 2.5m S 2m W 2.5m	4.5m	4m	Young	Average	Indifferent	Drawn-up and mutually suppressed; inessential component of group in which it stands.	C (2)

No.	Species	Height	Trunk diameter	Radial crown spread	Crown break	Crown clearance	Age class	Physio -logy	Structure	Comments	Category
9	Wild cherry	10m	125mm	N 2m E 1.5m S 2m W 3m	4.5m	4.5m	Young	Average	Indifferent	Drawn-up and mutually suppressed; inessential component of group in which it stands.	C (2)
10	Wild cherry	11m	140mm 85mm	N 3m NE 4m E 2.5m S 1.8m W 4m	NE 2.5m	NE 2m	Semi-mature	Average	Indifferent	Spreading buttress root to W extending 3.3m from trunk base and connecting with base of neighbouring cherry tree; drawn-up and mutually suppressed; inessential component of group in which it stands.	C (2)
11	Wild cherry	11m	140mm 185mm ivy	N 3.5m E 4.8m S 1.5m W 4m	E 3m	E 2.5m	Semi-mature	Average	Indifferent	Partially ivy-covered; twin-stemmed from base with tight compression fork; drawn-up and mutually suppressed; significant component of group in which it stands.	C (2)
13	Ash	12m	305mm	N 6m E 5.6m S 3.6m W 5.5m	NE 2.5m	N 1m E 2m	Semi-mature	Average	Moderate	Slightly upswept lower trunk, self correcting from 2m; tensile main branch unions; readily visible in views from Yarnton Way to N; amenity value limited by semi-mature age and size; significant component of group in which it stands.	C (2)
14	Wild cherry	12m	520mm	N 6m E 7.6m S 5.9m W 7.3m	E 2.5m	SE 0m	Mature	Average	Indifferent	Three-stemmed from 3m with tight compression forks; partially obscured in views from Yarnton Way to N by surrounding trees; inessential component of internal landscape.	C (2)
34	Silver birch	14m	280mm ivy 335mm	N 4.3m E 7.4m S 6m W 7.3m	W 2.5m	W 3m	Semi-mature	Average	Indifferent	Partially ivy-covered; twin-stemmed from base with tensile union; short-lived species; significant component of group in which it stands.	C (2)
35	Silver birch	10m	220mm 195mm both ivy	N 4.2m E 3.7m S 4.7m W 3.7m	S 2.75m	S 3.5m	Semi-mature	Average	Indifferent	Ivy-covered; twin-stemmed from base; union obscured by ivy; short-lived species; inessential component of group in which it stands.	C (2)
36	Wild cherry	9m	215mm	N 5m E 3.3m S 2.5m W 3.6m	E 2.75m	SE 2m	Semi-mature	Below average	Indifferent	Suppressed crown as overtopped by adjacent specimens; inessential component of group in which it stands.	C (2)
37	Ash	15m	650mm est.	N 7.8m E 5m S 6.7m W 7m	S 4.5m	W 4m	Mature	Average	Indifferent	Off-site tree; three-stemmed from 1.5m with tight compression forks and evidence of included bark; of impaired form; significant component of group in which it stands.	B (2)



No.	Species	Height	Trunk diameter	Radial crown spread	Crown break	Crown clearance	Age class	Physiology	Structure	Comments	Category
40	Lombardy poplar	14m	4 stems @ 180mm 20 stems @ 90mm all est.	N 4.8m E 4.5m S 3.8m W 3.8m	0.5m	0.5m	Semi-mature	Average	Indifferent	Multi-stemmed from base; short-lived species; inessential component of group in which it stands.	C (2)
41	Lombardy poplar	14m	200mm 190mm 210mm 250mm all est.	N 5.5m E 6m S 5m W 5m	S 0.5m	S 1m	Semi-mature	Average	Indifferent	Multi-stemmed from base with tight compression forks; short-lived species; inessential component of group in which it stands.	C (2)
47	Sycamore	15m	2 stems @ 265mm	N 3.8m E 4.3m S 5.5m W 4m NW 2m	2.5m	N 2.5m	Semi-mature	Average	Indifferent	Trunk base surrounded by inorganic waste; twin-stemmed from base with compression fork; obscured in views from Yarnton Way to N by surrounding trees; self-seeded specimen of limited arboricultural quality; significant component of group in which it stands.	C (2)
49	Sycamore	13.5m	215mm	N 1m E 3.7m S 3.9m W 5.9m	2m	S 0.5m	Semi-mature	Average	Indifferent	Self-seeded specimen; mutually suppressed by tree no. 50 with which it forms companion shelter; inessential component of group in which it stands.	C (2)
50	Sycamore	13m	210mm	N 2.7m E 2.8m S 1.5m W 3.7m	NE 1m	N 1m NE 0m	Semi-mature	Below average	Indifferent	Self-seeded specimen; mutually suppressed by tree no. 49 with which it forms companion shelter; upper 1m of N crown extent shows conspicuously unflushed buds suggestive of physiological stress; inessential component of group in which it stands.	C (2)
51	Sycamore	14m	255mm ivy 340mm 325mm	N 5.9m E 5.9m S 7.3m W 6.7m	E 2m	E 1m	Semi-mature	Average	Moderate	Self-seeded specimen; three-stemmed from 1m with tensile unions; trunk and stem partially ivy-covered to 4m; visible in views from Yarnton Way to N; amenity value limited by semi-mature age and size; significant component of group in which it stands.	C (2)
63	Silver birch	14.5m @ 1.2m	230mm 85mm 155mm	N 4.7m NE 6.4m E 5m S 3.5m W 3m	NE 2m	N 1.5m	Semi-mature	Average	Indifferent	Self-seeded specimen; three-stemmed from base with compression forks; N stem leans moderately NE; partially fallen concrete fence post leans on central stem at 1.5m; short-lived species; significant component of group in which it stands.	C (2)
65	Silver birch	17m	255mm	N 5m E 5m S 2.2m W 2.3m	N 4m	N 3m	Semi-mature	Average	Indifferent	Drawn-up and mutually suppressed; partially obscured in views from Yarnton Way to N by surrounding trees; short-lived species; significant component of group in which it stands.	C (2)

No.	Species	Height	Trunk diameter	Radial crown spread	Crown break	Crown clearance	Age class	Physio -logy	Structure	Comments	Category
69	Field maple	12.5m	510mm	N 6.5m E 5.8m S 5.1m W 7.5m	W 2.5m	W 2m	Mature	Average	Moderate	Spreading buttress roots to N and SE both extending to 900mm from trunk base; twin-stemmed from 2m with tensile union; partially occluded wound at 2m on S-side of E stem, up to 40mm width X 300mm height with exposed wood solid; S, E and W crown extends previously lifted resulting in several stubs of deadwood and lowest two lateral limbs to W reduced with young, 2 year old epicormic growth arising from pruning wounds; small-sized deadwood up to 60mm diameter scattered throughout inner crown consistent with natural shading; readily visible in views from Yarnton Way to N; significant component of group in which it stands.	B (2)
70	Ash	14m	260mm 160mm est.	N 3.6m E 5m S 4.7m W 5m	E 2m	E 1m	Semi-mature	Below average	Indifferent	Historically windthrown trunk resting on ground to N, former lateral limb located at 2.7m from trunk base has grown upright to form stem that constitutes the tree; stem bifurcates at 1m with tight compression fork with evidence of included bark; visible in views from Yarnton Way to N; of impaired form; significant component of group in which it stands.	C (2)
79	Goat willow	8m	200mm est.	N 3m E 6m S 2m W 2.5m	2.5m	W 6m	Semi-mature	Dead	Dead	Off-site tree; located within fenced off area: surveyed from a distance; twin-stemmed from 2.5m; S stem historically failed at 3m with remnants of snapped out limb still attached; dead tree.	U
80	Sycamore	11m	380mm ivy est.	N 4.5m E 5m S 4m W 5.5m	3m	W 8m	Semi-mature	Average	Indifferent	Off-site tree; located within fenced off area: surveyed from a distance; ivy-covered; twin-stemmed from 3m; dominant crown; significant component of group in which it stands.	C (2)
81	Blackthorn	9m	300mm 220mm both est.	N 6m E 5m S 8.8m W 1.5m	2m	NW 2.5m	Mature	Dead	Dead	Off-site tree; located within fenced off area: surveyed from a distance; W crown extent heavily reduced back to site boundary resulting in truncated stems and structural limbs with wounds up to 180mm diameter; dead tree; inessential component of group in which it stands.	U
82	Hawthorn	5m	105mm @ 1.2m	N 3.1m E 2m S 1m W 2.8m	2m	NW 2m	Young	Average	Indifferent	Twin-stemmed from 1.5m with compression fork; suppressed crown as overtopped by adjacent tree no. 4; small-growing species; inessential component of group in which it stands.	C (2)
85	Sycamore	17m	600mm est.	N 5.5m E 6m S 6m W 6m	5m	4m	Mature	Average	Indifferent	Off-site tree; four-stemmed from 2.5m; crown heavily reduced in past from 6m and comprises established regrowth of average 100mm diameter; significant component of group in which it stands.	B (2)
86	Blackthorn	7m	2 stems @ 150mm est.	N 1.5m E 4.5m S 4m SW 3m W 1m	2.5m	W 2.5m	Semi-mature	Average	Indifferent	Off-site tree; trunk growing into adjacent fence to S; twin-stemmed from 1m; union obscured; asymmetrical crown as suppressed by adjacent specimens; inessential component of group in which it stands.	C (2)

No.	Species	Height	Trunk diameter	Radial crown spread	Crown break	Crown clearance	Age class	Physio -logy	Structure	Comments	Category
87	Cider gum	17m	290mm est.	N 4m E 4m S 3m W 3m	SW 5m	W 4m	Semi-mature	Average	Indifferent	Off-site tree; drawn-up; significant component of group in which it stands.	C (2)
88	Cider gum	16m	280mm est.	N 4m E 4m S 3.5m W 4m	W 4.5m	W 4m	Semi-mature	Average	Indifferent	Off-site tree; drawn-up; significant component of group in which it stands.	C (2)
89	Cider gum	16m	350mm est.	N 5.5m E 5m S 5m W 4.9m	W 3m	W 3m	Semi-mature	Average	Indifferent	Off-site tree; significant component of group in which it stands.	C (2)
G1	Various	9m	Max 150mm est.	2m	0m	0m	Young	Average	Indifferent	Small group comprising young self-seeded trees; species include, dogwood and sycamore; of scrubby character and low arboricultural quality; inessential component of the local arboricultural landscape; approx. 3 individuals.	C (2)
G2	Various	17m	Max 280mm est.	4m	1m	0m	Semi-mature	Average	Indifferent	Group comprising semi-mature silver birch with occasional sycamore, ash and blackthorn, growing densely together, drawn-up and mutually suppressed; extensive inorganic and organic waste present on surrounding ground; visible in views from Yarnton Way to N, but set back from the road; dominated by short-lived species of limited arboricultural quality but which collectively form significant component of the local arboricultural landscape.	C (2)
G3	Various	9m	Max 200mm est.	4m	0m	0m	Semi-mature	Average	Indifferent	Off-site group growing adjacent to E site boundary; dominated by hazel; also includes horse chestnut, sycamore and pyracantha; trees grow densely together; comprises individuals of limited arboricultural quality but which collectively form significant component of the local arboricultural landscape.	C (2)
G4	Various	11m	Max 150mm est.	3m	0m	0m	Young	Average	Indifferent	Off-site group growing along E site boundary; comprises young scrubby specimens growing densely together; species include buddleia, sycamore, blackthorn and elder; inessential component of the local arboricultural landscape.	C (2)
G5	Various	16m	Max 250mm est.	4m	0m	0m	Semi-mature	Average	Indifferent	Off-site group growing adjacent to E site boundary; trees grow densely together; species include eucalyptus, Lawson cypress, Norway maple, Japanese maple, juniper, Italian alder and various ornamental shrubs; significant component of the local arboricultural landscape.	B (2)

No.	Species	Height	Trunk diameter	Radial crown spread	Crown break	Crown clearance	Age class	Physio -logy	Structure	Comments	Category
G7	Crack willow	Min 9m Max 19m Avg 18m	Min 200mm est. Max 560mm ivy Avg 300mm ivy	5m	1m	3m	Mature	Average	Indifferent	Group dominated by mix of semi-mature and mature crack willow growing in single line along bank of internal stream; drawn-up and mutually suppressed; includes occasional semi-mature goat willow scattered throughout but mostly concentrated at E end of group; several of the goat willow show partially failed limbs still attached; most of the trees are ivy-covered; readily visible within site but obscured in long distance views from Yarnton Way to N by surrounding trees and so inessential component of the wider arboricultural landscape.	C (2)
G8	Various	10m	Max 200mm est.	3m	0m	0m	Semi-mature	Average	Indifferent	Group growing adjacent to N site boundary; species include wild cherry, hawthorn, elder and field maple; wild cherry dominates E half of group adjacent to existing access road; trees grow densely together, drawn-up and mutually suppressed, especially in E half; W half of group shows slightly more open structure and clearance of bramble ground covering; visible from Yarnton Way to N; dominated by mix of small growing and short lived species that collectively form significant component of the local arboricultural landscape.	C (2)
G9	Field maple	9.5m	Max 220mm est.	3.5m	2m	2m	Semi-mature	Average	Indifferent	Off-site group of trees; comprises line of semi-mature field maple and two Corsican pine at W end of group, planted in single line within traffic islands; significant component of the local arboricultural landscape owing to their ready visibility from Yarnton Way.	C (2)

## Root Protection Areas (RPAs)

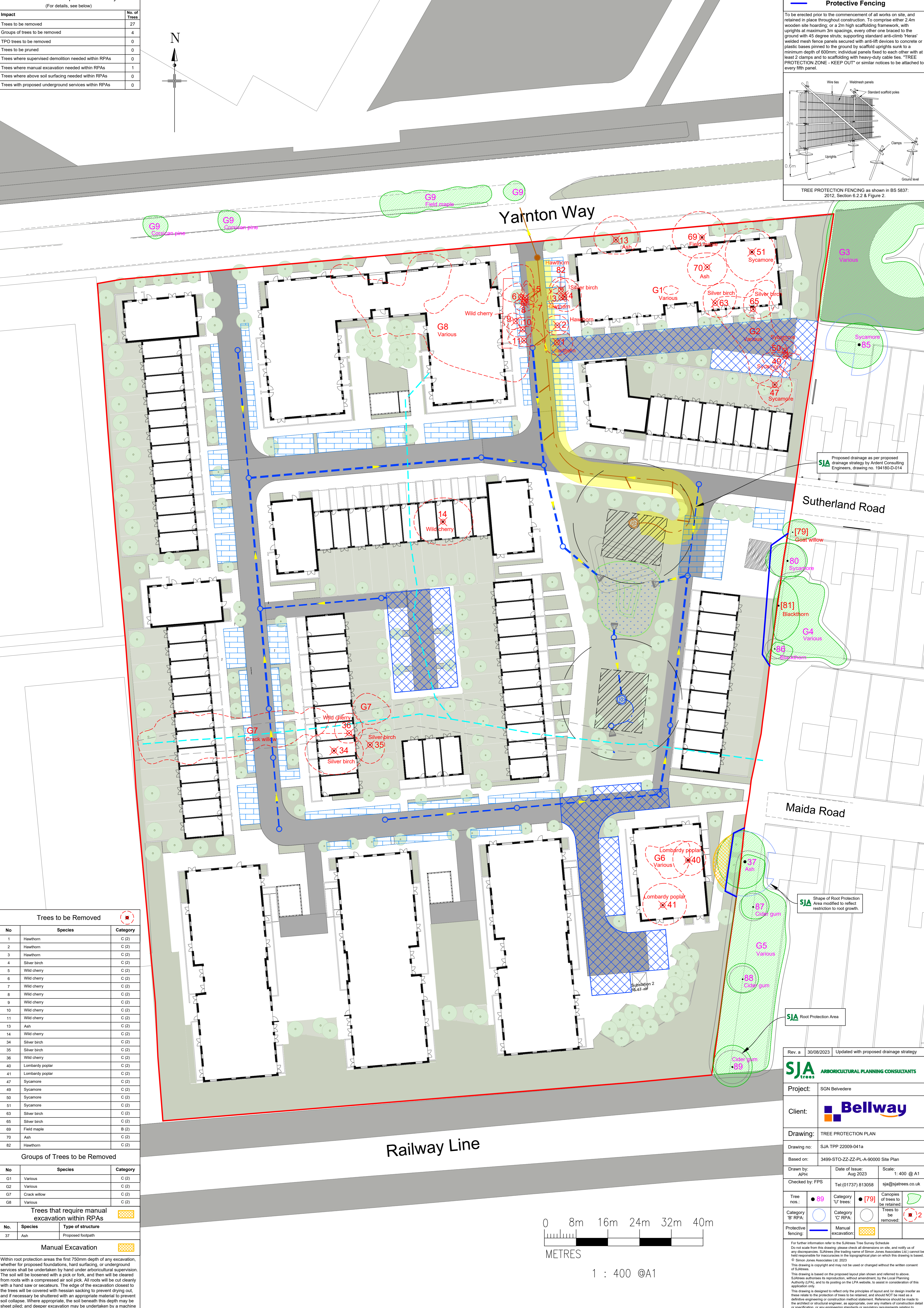
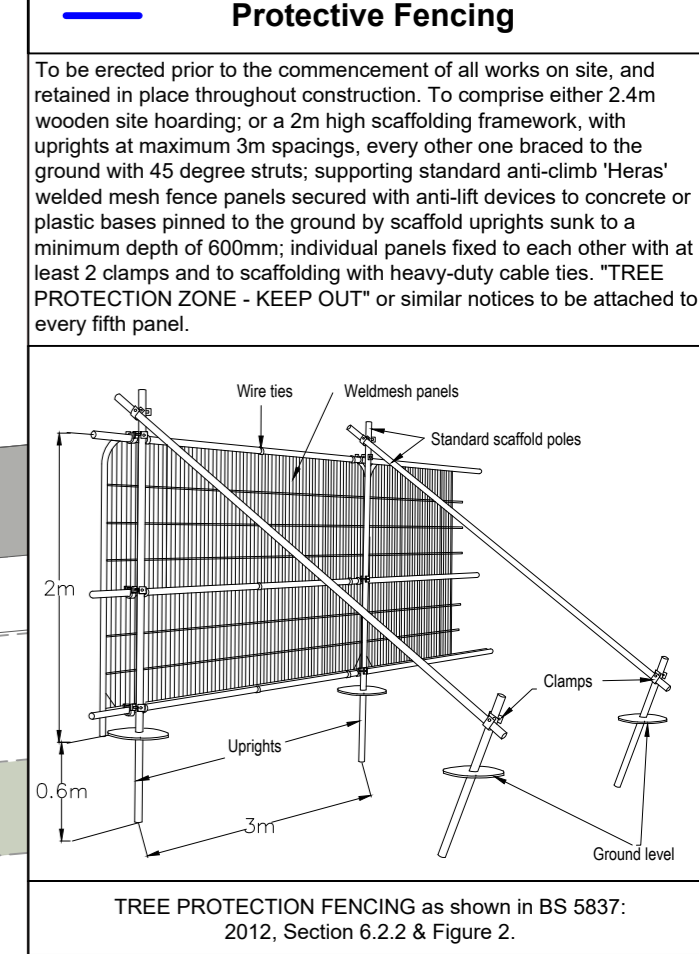
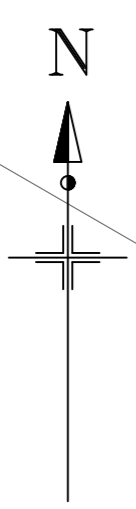
Root Protection Areas have been calculated in accordance with paragraph 4.6.1 of the British Standard 'Trees in relation to design, demolition and construction – Recommendations', BS 5837:2012. This is the minimum area which should be left undisturbed around each retained tree. RPAs are portrayed initially as a circle of a fixed radius from the centre of the trunk; but where there appear to be restrictions to root growth the circle is modified to reflect more accurately the likely distribution of roots.

<b>Tree No.</b>	<b>Species</b>	<b>RPA</b>	<b>RPA Radius</b>
1	Hawthorn	17.0m <sup>2</sup>	2.3m
2	Hawthorn	14.7m <sup>2</sup>	2.2m
3	Hawthorn	9.1m <sup>2</sup>	1.7m
4	Silver birch	42.1m <sup>2</sup>	3.7m
5	Wild cherry	23.4m <sup>2</sup>	2.7m
6	Wild cherry	13.1m <sup>2</sup>	2.0m
7	Wild cherry	17.2m <sup>2</sup>	2.3m
8	Wild cherry	11.6m <sup>2</sup>	1.9m
9	Wild cherry	7.1m <sup>2</sup>	1.5m
10	Wild cherry	12.1m <sup>2</sup>	2.0m
11	Wild cherry	24.3m <sup>2</sup>	2.8m
13	Ash	42.1m <sup>2</sup>	3.7m
14	Wild cherry	122.3m <sup>2</sup>	6.2m
34	Silver birch	86.2m <sup>2</sup>	5.2m
35	Silver birch	39.1m <sup>2</sup>	3.5m
36	Wild cherry	20.9m <sup>2</sup>	2.6m
37	Ash	191.1m <sup>2</sup>	7.8m
40	Lombardy poplar	119.7m <sup>2</sup>	6.2m
41	Lombardy poplar	82.7m <sup>2</sup>	5.1m
47	Sycamore	63.5m <sup>2</sup>	4.5m
49	Sycamore	20.9m <sup>2</sup>	2.6m
50	Sycamore	20.0m <sup>2</sup>	2.5m
51	Sycamore	129.5m <sup>2</sup>	6.4m
63	Silver birch	38.1m <sup>2</sup>	3.5m
65	Silver birch	29.4m <sup>2</sup>	3.1m
69	Field maple	117.7m <sup>2</sup>	6.1m
70	Ash	42.2m <sup>2</sup>	3.7m
79	Goat willow	18.1m <sup>2</sup>	2.4m
80	Sycamore	65.3m <sup>2</sup>	4.6m
81	Blackthorn	62.6m <sup>2</sup>	4.5m
82	Hawthorn	5.0m <sup>2</sup>	1.3m
85	Sycamore	162.9m <sup>2</sup>	7.2m
86	Blackthorn	20.4m <sup>2</sup>	2.5m
87	Cider gum	38.0m <sup>2</sup>	3.5m
88	Cider gum	35.5m <sup>2</sup>	3.4m
89	Cider gum	55.4m <sup>2</sup>	4.2m
G1	Various	10.2m <sup>2</sup>	1.8m
G2	Various	35.5m <sup>2</sup>	3.4m
G3	Various	18.1m <sup>2</sup>	2.4m
G4	Various	10.2m <sup>2</sup>	1.8m
G5	Various	28.3m <sup>2</sup>	3.0m
G7	Crack willow	141.9m <sup>2</sup>	6.7m
G8	Various	18.1m <sup>2</sup>	2.4m
G9	Field maple	21.9m <sup>2</sup>	2.6m

**APPENDIX 3**  
**Tree Protection Plan**

**Arboricultural Impacts: Summary**  
(For details, see below)

Impact	No. of Trees
Trees to be removed	27
Groups of trees to be removed	4
TPO trees to be removed	0
Trees to be pruned	0
Trees where supervised demolition needed within RPAs	0
Trees where manual excavation needed within RPAs	1
Trees where above soil surfacing needed within RPAs	0
Trees with proposed underground services within RPAs	0



**Trees to be Removed**

No	Species	Category
1	Hawthorn	C (2)
2	Hawthorn	C (2)
3	Hawthorn	C (2)
4	Silver birch	C (2)
5	Wild cherry	C (2)
6	Wild cherry	C (2)
7	Wild cherry	C (2)
8	Wild cherry	C (2)
9	Wild cherry	C (2)
10	Wild cherry	C (2)
11	Wild cherry	C (2)
13	Ash	C (2)
14	Wild cherry	C (2)
34	Silver birch	C (2)
35	Silver birch	C (2)
36	Wild cherry	C (2)
40	Lombardy poplar	C (2)
41	Lombardy poplar	C (2)
47	Sycamore	C (2)
49	Sycamore	C (2)
50	Sycamore	C (2)
51	Sycamore	C (2)
63	Silver birch	C (2)
65	Silver birch	C (2)
69	Field maple	B (2)
70	Ash	C (2)
82	Hawthorn	C (2)

**Groups of Trees to be Removed**

No	Species	Category
G1	Various	C (2)
G2	Various	C (2)
G7	Crack willow	C (2)
G8	Various	C (2)

**Trees that require manual excavation within RPAs**

No.	Species	Type of structure
37	Ash	Proposed footpath

**Manual Excavation**

Within root protection areas the first 750mm depth of any excavation, whether for proposed foundations, hard surfacing, or underground services shall be undertaken by hand under arboricultural supervision. The soil will be loosened with a pick or fork, and then will be cleared from roots with a compressed air soil pick. All roots will be cut cleanly with a hand saw or secateurs. The edge of the excavation closest to the trees will be covered with hessian sacking to prevent drying out, and if necessary be shuttered with an appropriate material to prevent soil collapse. Where appropriate, the soil beneath this depth may be sheet piled; and deeper excavation may be undertaken by a machine provided it works from outside the root protection areas.

SJA Shape of Root Protection Area modified to reflect restriction to root growth.

SJA Root Protection Area

Rev. a 30/08/2023 Updated with proposed drainage strategy

**SJA** ARBORICULTURAL PLANNING CONSULTANTS

Project: SGN Belvedere

Client: **Bellway**

Drawing: TREE PROTECTION PLAN

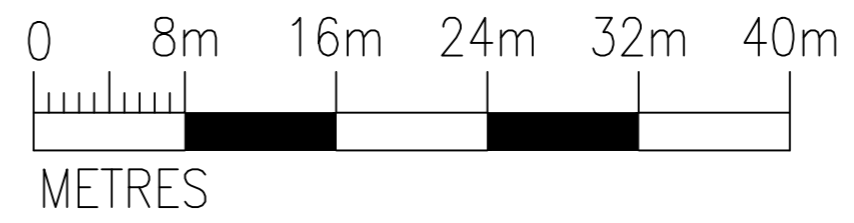
Drawing no: SJA TPP 22009-041a

Based on: 3499-STO-ZZ-ZZ-PL-A-90000 Site Plan

Drawn by: APH Date of Issue: Aug 2023 Scale: 1:400 @ A1  
Checked by: FPS Tel: (01737) 813056 sja@sja-trees.co.uk

Tree nos.: ● 89 Category 'U' trees: ● [79] Canopies of trees to be retained.  
Category 'B' RPA: ○ Category 'C' RPA: ○ Trees to be removed: ● 2

Protective fencing: Manual excavation: [Symbol]



1 : 400 @A1

For further information refer to the SJA/Arb. Tree Survey Schedule. Do not scale from this drawing; please check all dimensions on site, and notify us of any discrepancies. SJA/Arb. (the trading name of Simon Jones Associates Ltd.) cannot be held responsible for inaccuracies in the topographic plan on which this drawing is based. © Simon Jones Associates Ltd. 2023. This drawing is copyright and may not be used or changed without the written consent of SJA/Arb. SJA/Arb. authorises its reproduction, without amendment, by the Local Planning Authority (LPA), and to its posting on the LPA website, to assist in consideration of this application only. This drawing is designed to reflect only the principles of layout and/or design insofar as these relate to the protection of trees to be retained, and should NOT be used as a definitive engineering or construction method statement. Reference should be made to the architect or structural engineer, as appropriate, over any matters of construction detail or specification, or any engineering standards or regulatory requirements relating to proposed structures, hard surfaces or underground services.