

Arboricultural Impact Assessment



Homes
England



BRISLINGTON MEADOWS
BRISTOL

ARBORICULTURAL IMPACT ASSESSMENT IN SUPPORT OF OUTLINE PLANNING

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CONTENTS	PAGE
Executive Summary	1
1.0 Introduction	2
2.0 The Site and Surroundings.....	3
3.0 Statutory Protection and Guidance.....	4
4.0 Tree Population.....	9
5.0 Detailed Impact Assessment	14
6.0 Impacts and Opportunities of the Development Framework	15
7.0 Considerations at the Detailed Design Stage	17
8.0 Recommendations	19

TABLES	PAGE
Table 1: Veteran Trees	4
Table 2 Tree Preservation Orders.....	5
Table 3 Existing canopy coverage.....	9
Table 4 Summary of BS 5837 quality categorisation	12

FIGURES	PAGE
Figure 1 Site location and approximate boundary (OS Street View ®)	3
Figure 2 Veteran oak (T6) on southern boundary.....	10
Figure 3 View of W2 from Bonville Road showing area of Japanese knotweed.....	10
Figure 4 Example of the heavily outgrown former hedgerows that divide the site.....	11
Figure 5 Offsite group of Leyland cypress overhanging public right of way to School Road	11

APPENDICES

- APPENDIX A: Arboricultural Survey Data
APPENDIX B: Survey Method

DRAWINGS

- Drawing 1 - Tree Constraints Plan
Drawing 2 - Tree Works Plan (Known Effects)
Drawing 3 - Tree Conflicts Plan
Drawing 4 - Illustrative Masterplan

Executive Summary

1. This report provides information on the constraints and opportunities posed by existing trees to the development of the land at Brislington Meadows in Bristol. It supports an outline planning application for up to 260 residential dwellings with associated vehicular and pedestrian access routes, and green infrastructure.
2. The scope of the survey covered an area of approximately 9.6 hectares and recorded predominantly middle-aged trees in fair or good condition. Trees are evenly distributed throughout the site with dense, heavily outgrown hedgerows dividing it into several small field parcels. Large mature trees are present on the southern boundary and there are two areas of woodland on or adjacent to the site.
3. 34 individual trees; 47 groups of trees; and 2 woodlands were recorded within influencing distance of the application site. Based on an objective assessment made in accordance with BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations, these were categorised as 10 high quality (Category A), 34 moderate quality (Category B) and 34 low quality (Category C) features.
4. The site survey and desktop searches identified 1 Tree Preservation Order (covering 14 trees, 6 groups and 1 woodland included in the survey); no trees within a Conservation Area; 1 veteran tree; no ancient woodland; and 5 sections of Habitat of Principal Importance Hedgerow within influencing distance of the site.
5. Construction of an improved public right of way to School Road would require the removal of 1 group of predominantly hazel trees equating to circa 0.0673ha of canopy loss. Some pruning of group G47 would be required to facilitate the pedestrian access to the north.
6. The Illustrative Masterplan indicates that development conflicts with trees within the site and if built as shown would result in the loss of 3 individual trees, 18 groups or parts of groups, and part of 1 woodland.
7. A detailed Arboricultural Impact Assessment (AIA) should be required in support of any future reserved matter/full planning applications. This should identify, evaluate and possibly mitigate the impacts of developing land on the existing tree resource.
8. In consideration of the desktop search and survey results, and the parameters set by the Parameters Plan and Design Code, there are no adverse effects that cannot be mitigated or offset and which therefore lead to potential grounds for a refusal of outline planning permission.
9. Provision of new tree planting would form part of matters reserved. A detailed planting plan should address mitigation for the loss of trees and hedgerow, opportunities to augment and connect retained tree cover; and opportunities to establish or grow new value types within different character areas.

1.0 Introduction

- 1.1 TEP has been commissioned by Homes England to conduct an arboricultural survey of land at Brislington Meadows in Bristol. This report provides information on the constraints and opportunities posed by existing trees to the principle of development rather than the specific impacts of a detailed layout.
- 1.2 This report supports an outline planning application for up to 260 residential dwellings with associated vehicular and pedestrian access routes, and green infrastructure. Main site access from Broomhill Road, emergency accesses from Bonville Road and a number of pedestrian and cycle access routes are the only aspects applied for in full.
- 1.3 The surveys were carried out in July and August 2020 by means of inspection from ground level by a qualified Arboricultural Consultant. Trees were assessed in accordance with BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations.
- 1.4 Under the British Standard the assessment of trees is made objectively. The categorisation method identifies the quality and value of the existing tree stock.
- 1.5 A topographical survey was used to record the position of trees and vegetation (drawing reference: 194/10967) and was supplied by the client. Where trees were not shown on the topographical survey, their locations were estimated.
- 1.6 The nature of the soils on site was not assessed during the survey. The possibility of minor soil movement due to tree root activity cannot be discounted. Prior to the undertaking of foundation depth calculations any estimated tree locations should be resolved.

2.0 The Site and Surroundings

- 2.1 The site is located approximately 3.8km south-east of Bristol between School Road to the west and Bonville Road to the East.
- 2.2 At the time of the survey, the site was mainly open space with informal public access and slopes towards the south. An area to the north-west contained horse paddocks and was not accessible to the public. It is bordered by School Lane and some allotments to the west; Bonville Road and Brislington Industrial Estate to the east; a school, residential properties and Broomhill Road to the north; and further open space within Victory Park to the south.
- 2.3 Weather conditions at the time of the survey were sunny.
- 2.4 The site is approximately 9.6ha in size and is centred on grid reference ST 626711. The approximate extent of the site is shown in Figure 1.

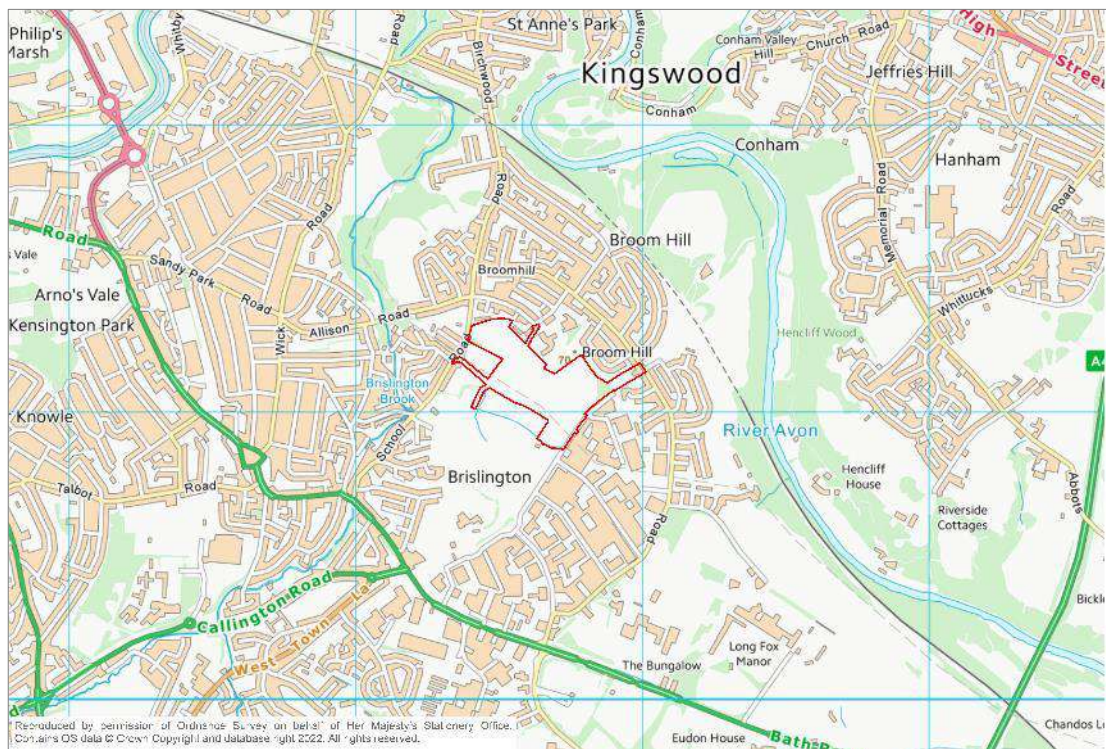


Figure 1 Site location and approximate boundary (OS Street View ®)

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3.0 Statutory Protection and Guidance

National Planning Policy Framework (NPPF)

- 3.1 The NPPF assumes protection of all ancient woodland and veteran trees unless there are wholly exceptional reasons and a suitable compensation strategy exists. In this respect ancient woodland is defined as an area which has been wooded continuously since at least 1600 AD and a veteran as a tree that because of its age, size and condition, is of exceptional biodiversity, cultural or heritage value.
- 3.2 On this site there is no ancient woodland.
- 3.3 NPPF defines veteran trees are those which, because of age, size and condition, are of exceptional biodiversity, cultural or heritage value. All ancient trees are veteran trees. Not all veteran trees are ancient, though they tend to be relatively old for the species. Ancient and veteran trees are regarded as 'irreplaceable'.
- 3.4 There is no comprehensive national register of veteran trees. The Woodland Trust maintains an inventory of significant trees which includes some ancient and veteran individuals. At the time of writing, it contained no records of relevance to the site.
- 3.5 An assessment of each tree was made by a qualified arboriculturist as part of the tree survey which identified 1 veteran tree within the site.

Table 1: Veteran Trees

Survey Reference	Species	Veteran Characteristics
T6	Pedunculate Oak	Large size, numerous hollows and decay, fungal associations

- 3.6 Not all mature trees or those of high habitat interest are veterans. Trees with individual or simple assemblages of features typically associated with veteran trees were also noted. Such trees may become veterans but should not be treated as such for the purposes of impact assessment.
- 3.7 To comply with planning policy, development must not result in loss or deterioration of ancient and veteran trees unless wholly exceptional reasons and a suitable compensation strategy exist. In practice, harm to such trees would constitute grounds for refusal of the majority of planning applications that are not nationally significant. It is therefore necessary to demonstrate no adverse effects would occur.
- 3.8 Natural England publishes Standing Advice in collaboration with Forestry Commission on how the effects of development on veteran trees should be assessed. The advice is a material consideration and recommends that a buffer zone of at least 15 times the stem diameter or 5m from the canopy edge (whichever is larger) should be provided.

Tree Preservation Orders & Conservation Area Designations

- 3.9 Where it is considered expedient to do so, local authorities can create Tree Preservation Orders (TPO) to protect the amenity value conferred to a location by a tree or group of trees. Where a TPO is in force, lopping, topping, felling, uprooting or wilful damage caused to a tree is prohibited and such actions may be prosecuted and incur an unlimited fine. Works to TPO protected trees must only be undertaken with the written consent of the local authority.
- 3.10 Section 211 of The Town and Country Planning Act 1990 (TCPA) relates to the preservation of trees in Conservation Areas. Under Section 211 anyone proposing to remove, uproot or destroy any tree within a Conservation Area is required to give the local planning authority six weeks' prior notice (a "section 211 notice"). During this period the Council may consider serving a Tree Preservation Order to prevent the proposed work from being undertaken.
- 3.11 Online mapping confirms that no trees within influencing distance of the site are within a Conservation Area.
- 3.12 Bristol City Council served a TPO on the site in October 2020. This resulted in 16 trees, 3 groups of trees and 1 woodland being included in TPO 1404 Land at Broom Hill, Broomhill Road, Bristol, BS4 4UD. These are listed in Table 2.

Table 2 Tree Preservation Orders

TPO reference	TEP survey reference
T1	Within G7
T2	T3
T3	T4
T4	T5
T5	T6
T6	Within G19
T7	T25
T8	T26
T9	T27
T10	T9
T11	T19
T12	T20
T13	T21

TPO reference	TEP survey reference
T14	T23
T15	Within W2
T16	T18
G1	G7, W1
G2	G14, G15, T7
G3	G27
W1	W1

Habitats of Principal Importance

- 3.13 A list¹ of habitats which are of principal importance for the purpose of conserving biodiversity is maintained by the Secretary of State². The list includes habitat types that are defined by woody vegetation, which are listed below. The geographical extent and location of these habitats (excluding hedgerow) is mapped by Natural England on the Priority Habitat Inventory³. Observations were also made to corroborate the mapping during the site survey.
- 3.14 All public authorities, including local planning authorities and statutory undertakers have a duty to have regard to the purpose of conserving biodiversity⁴. Habitats of Principal Importance provide a means of evaluating effects on biodiversity, and thereby a metric to demonstrate the discharge of this duty. In the context of planning, adverse effects on Habitats of Principal Importance that cannot be mitigated are material to decision making.

Deciduous Woodland

- 3.15 Six distinct types of woodland⁵ are amalgamated in the Inventory under the habitat type 'Deciduous Woodland'.
- 3.16 The Inventory has no records of Deciduous Woodland on the site although offsite woodland W1 is present.
- 3.17 On site observations suggest that woodland W2 should be considered Deciduous Woodland.

¹ <http://incc.defra.gov.uk/page-5706>

² Natural Environment and Rural Communities Act 2006, 41 (1)

³ <https://magic.defra.gov.uk/MagicMap.aspx>

⁴ Natural Environment and Rural Communities Act 2006, 40 (1)

⁵ Upland Oakwood; Lowland Beech and Yew Woodland; Upland Mixed Ashwoods; Wet Woodland; Lowland Mixed Deciduous Woodland; Upland Birchwoods

Wood Pasture and Parkland

- 3.18 Wood-pasture and parkland are mosaic habitats valued for their trees, especially veteran and ancient trees, and the plants and animals that they support. They are exclusively associated with some species of insects, lichens and fungi which depend on dead and decaying wood. Grazing animals and continuity of management are fundamental to the existence of the habitat and it can be a type of ancient woodland.
- 3.19 The Inventory has no records of Wood Pasture and Parkland on the site.

Traditional Orchards

- 3.20 Traditional orchards are defined, for priority habitat purposes, as groups of fruit and nut trees planted on vigorous rootstocks at low densities in permanent grassland; and managed in a low intensity way. Habitat structure rather than vegetation type, topography or soils, is the defining feature of the habitat.
- 3.21 The Inventory has no records of Traditional Orchards on the site.

Hedgerow

- 3.22 Hedgerow is any boundary line of trees or shrubs over 20m long and less than 5m wide, and where any gaps are less than 20m wide. It may include banks, walls, ditches, herbaceous vegetation, climbing plants or trees within 2m of the centre line. All hedgerows which comprise at least 80% woody native species are included.
- 3.23 The survey identified no hedgerows. The ecology Hedgerow Assessment (7507.20.057) considered that 5 linear groups fit the criteria for Habitat of Principal Importance (G10 and G24; G20; G25, G27 and G34; G26; and G21).

Protected Species – Bats

- 3.24 Mature trees often contain cavities, crevices and hollows, which are a potential habitat for roosting bats. Bats are afforded protection under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), as well as under Schedule 2 of the Conservation of Species and Habitats Regulations 2010, and as such causing damage to a bat roost constitutes an offence.
- 3.25 The capacity of trees to support roosting bats is reported within the bat survey (Ref: 7505.20.021) which identified 17 trees with low or greater potential for roosting bats.
- 3.26 If the presence of a bat roost is suspected whilst undertaking works on any trees on site, operations must be halted until a licensed bat handler or ecologist can provide advice.

Protected Species - Birds

- 3.27 Trees are a potential habitat for nesting birds, which (as well as their nests and eggs) are protected under the Wildlife and Countryside Act 1981 (as amended). This makes it an offence to intentionally or recklessly, damage or destroy an active nest or any part thereof.

- 3.28 Due to the suitability of the trees within the survey boundary for nesting birds, all tree work should ideally be undertaken outside the bird nesting season (March to August, inclusive).
- 3.29 If this is not possible then a detailed inspection of each tree should be undertaken by a qualified ecologist immediately prior to the arboricultural works. Should an active nest be found (being built, containing eggs or chicks), any work likely to affect the nest must be halted until the nest becomes inactive.

4.0 Tree Population

- 4.1 34 individual trees (T1-T34); 47 groups of trees (G1-G47); and 2 woodlands (W1-W2) were recorded within influencing distance of the application site.
- 4.2 Feature locations, their quality categories, canopy spreads and root protection areas are shown on Drawing 1. The following table provides the total canopy area for mapped trees and the total length of mapped hedgerow on Drawing 1. In some cases this may be more than the absolute area of cover due to canopy overlap between adjacent features.

Table 3 Existing canopy coverage

Trees	Groups	Woodland	Hedgerow
0.3760ha	1.7860ha	0.7431ha	0m

- 4.3 All arboricultural information recorded during the survey is presented at Appendix A.

Overview

- 4.4 Tree cover is distributed throughout the site with concentrations around the edges. Internally there are several extremely outgrown former hedgerows that form dense road thickets demarcating the old field network. Woodland is present in the northeast and southeast.
- 4.5 There are a number of large mature oaks on the southern boundary of the site (T4, T5 and T6) in typical condition for their age and location. There is some dead wood present in the crowns as well as occasional small cavities, but they are all showing good vigour and health.
- 4.6 Tree T6 is the largest of these and is considered to be a veteran tree. It has a stem diameter of 1,450mm and a broad heavy crown. There are cavities in the main stem with some hollowing observed, it has lost a main leader in the past leaving a large area of decay forming a flat platform at around 5m height with further decay into side limbs emerging from this point. Fungal fruiting bodies of Beefsteak fungus (*Fistulina hepatica*) were observed on the main stem.



Figure 2 Veteran oak (T6) on southern boundary

- 4.7 The area around T6 supports a number of unusually large, lapsed hazel coppices. They form part of a heavily outgrown hedge along the southern boundary.
- 4.8 There are two more large trees within the north-western field parcel, T27 and T29. T27 is a mature pedunculate oak just within the paddock, it has a dense heavy crown with some dead wood present and has not been subject to the same heavy livestock browsing damage that has affected other trees in this area. T29 is a multi-stemmed sycamore growing on the bank down to School Road, it has good unions and although slightly suppressed by adjacent trees is in good condition.
- 4.9 Trees bordering the northern boundary of the site where it adjoins the school are typical amenity and screen planting. Largely sycamore and common lime with occasional smaller elder, hawthorn and hazel. T15 is a standout tree of high quality in this area. Group G33 is a fragmentary screening group containing numerous dead or dying elm to the south of properties on Belroyal Avenue.



Figure 3 View of W2 from Bonville Road showing area of Japanese knotweed

- 4.10 There are 2 woodlands on or adjacent to the site, W1 is to the south of the site and is a well-established mature woodland with a good age and size structure. Woodland W2 divides the main body of the site from a small area extending north to Broomhill Road. It comprises mainly crack willow with occasional ash and pedunculate oak; it has limited understorey dominated by dense bramble. There are numerous failed stems from the large crack willow and many standing dead elms.



Figure 4 Example of the heavily outgrown former hedgerows that divide the site.

- 4.11 The outgrown hedges that divide the site into discrete field parcels typically comprise hawthorn, blackthorn, elder and holly with occasional oak and sycamore. Some of these groups contain larger individual trees such as T9, an oak, and T18, a field maple. Both of these trees have low squat forms and are surrounded by the dense vegetation of the groups.



Figure 5 Offsite group of Leyland cypress overhanging public right of way to School Road

- 4.12 The site includes three areas where narrow spurs extend to join nearby roads, these include a footpath link extending west to School Road, a small area extending through the school ground north to Allison Road, and a wider area extending north to Broomhill Road. The public right of way to School Road is bordered by groups G46, large offsite Leyland cypress with a significant amount of overhang, and G42 a mixed broadleaf group of ash, beech, wild cherry and hazel.

- 4.13 The area towards Broomhill Road extends beyond woodland W2 and includes groups G37, G38 and G39. G37 is contiguous with woodland W2 and contains mainly smaller trees and woodland edge species, it has very dense undergrowth; G38 forms a linear group or outgrown hedgerow of hawthorn and elder along the south-eastern edge of this area; G39 comprises larger amenity trees such as oak, Norway maple and common ash growing in a narrow strip between the site and adjacent properties.
- 4.14 Tree and group locations, their quality categories and canopy spreads are shown on Drawing 1.

Tree Quality Categorisation

- 4.15 Under BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations, trees and groups are objectively assigned a quality category to quantify their value within any future development. The table overleaf contains a summary of the categories presented in the British Standard. The full table has been reproduced at Appendix B.

Table 4 Summary of BS 5837 quality categorisation⁶

Category	Description	Total existing
A	Trees of high quality, typically with a long remaining life expectancy; and with clear and identified merit as specimens, visually, culturally or for conservation.	0.4789ha
B	Trees of moderate quality, typically with at least a medium remaining life expectancy; with remediable defects only; or low quality but with collective merit.	1.1544ha
C	Trees of low quality, typically with at least a short remaining life expectancy; unremarkable trees; young or small trees that could be replaced.	1.2756ha
U	Trees that cannot realistically be retained in the current land use for 10 years; with serious and irreparable defects, pathogens or decline.	0ha

- 4.16 The majority of canopy cover is evenly divided between moderate (Category B) and low (Category C) quality with a slightly greater amount of Category C. They are evenly distributed throughout the site with no area dominated by any one category. The value of trees on this site is mainly for their landscape and visual quality, and habitat provision. The linear outgrown hedgerows are notable for providing good habitat links between large areas of continuous canopy cover.

⁶ Refer to Appendix B for the full table

- 4.17 10 features comprising 7 trees, 2 groups and 1 woodland have been categorised as high quality (Category A) due to their large size, maturity, good condition and attractive canopy forms as well as good structure which gives them considerable landscape, habitat and environmental value that would take several decades to replace.
- 4.18 There are no Category U trees within influencing distance of the site.

5.0 Detailed Impact Assessment

- 5.1 This section describes the results of an assessment of the impact of the main and emergency access points from Broomhill Road and Bonville Road, and the pedestrian and cycle access routes through the school to the north and to School Road to the west which are the only aspects applied for in full. Tree retention in relation to the wider site construction would be determined in detail as part of a subsequent application or applications to discharge reserved matters.

Tree Removal

- 5.2 Construction of the four access routes will require the removal of group G42 to facilitate the improved cycleway onto School Road equating to circa 0.0673ha of canopy loss. Construction of the pedestrian access the school to the north would require pruning. The parts of all other access routes that are proposed in detail in this application would not result in any additional tree loss. Establishing the proposed locations for access would make further tree loss inevitable, irrespective of the design of the routes of access thereafter. However, the identification of which trees would be lost and how many would be dependent on detailed design.
- 5.3 The results of the assessment are shown on Drawing 2 (drawing ref D8610.02.002).
- 5.4 Temporary tree protection measures would be required during the construction of the new cycleway due to being in close proximity to the RPA of retained trees T31 and T32. This would be included in a Tree Protection Scheme for the wider site in any subsequent reserved matters/detailed planning application.

6.0 Impacts and Opportunities of the Development Framework

- 6.1 This section gives an overview of the likely impact of residential development on existing trees based on the Capacity Testing Plan (Reference: 7456_017ZA). The actual impact will be determined in any subsequent reserved matters/detailed planning application.

General Considerations

- 6.2 All trees have some inherent value and there should be a common sense ambition to limit tree loss to that which is strictly necessary to facilitate the proposal, and to ensure that the condition and safety of all remaining trees would not be compromised by the development.
- 6.3 Trees form a material consideration in the planning process. The tree categorisation method identifies the quality and value of the existing tree stock but is not meant to be interpreted rigidly and is presented in order to allow an informed judgement on tree retention and removal. In some instances, the removal of high or moderate value trees can be justified based on other development priorities and their weighting in the planning balance.
- 6.4 High quality (Category A) and moderate quality trees (Category B) should be retained wherever possible due to their aesthetic, amenity and screening value that would be more difficult and expensive to immediately replace. In some cases they are the next generation of high value trees or provide functions that cannot be readily recreated via new tree planting within a short to medium time frame. The requirement to remove these trees must be justified by sound design rationale and may result in the requirement for an increased level of mitigation compared to the removal of lower value trees.
- 6.5 The presence of low value (Category C) trees should not unduly constrain development design, but wherever possible they should be incorporated into future development plans, as these currently provide areas of young establishing screening, understorey woodland cover or the next generation of trees.

Site-specific effects on trees

- 6.6 The site comprises several small field parcels divided by outgrown hedgerows with concentrations of tree cover to the edges of the site. Development in accordance with the Illustrative Masterplan would result in unavoidable loss of trees, particularly some of those in the middle of the site including T9 and T18, both moderate quality trees included within the TPO, and group G20 one of the largest and most well established of the outgrown hedgerows that divide the site.
- 6.7 The most significant effect of these removals would be loss of connectivity between the east and west of the site as well as some fragmentation of habitats.

- 6.8 Access into the site would result in the inevitable loss of part of woodland W2, a habitat of principal importance, to enable construction of the primary access road. As well as the direct impact on the woodland through loss of trees there would be fragmentation of the remaining woodland and other indirect impacts from lighting, pollution and increased access.
- 6.9 Total losses would be 3 individual trees, 18 groups or parts of groups, and part of 1 woodland.
- 6.10 Other tree losses would be restricted to predominantly low quality groups of screening trees, dense scrub or hedgerow remnants.
- 6.11 The Illustrative Masterplan includes a large attenuation basin towards the south of site that has been designed to avoid the veteran tree buffer zone. This area also includes some pedestrian footpaths, but these are understood to be proposed as boardwalks and could be routed to avoid the tree or designed to avoid harm to its roots.
- 6.12 Conflict between existing trees and the principle of development are shown on Drawing 3: Tree Conflict Plan. It identifies trees that would be removed if development were to proceed in accordance with the Illustrative Masterplan. It is reasonable to expect similar effects to arise from a development of a similar density and type, following the principles established by the Illustrative Masterplan.

Opportunities

- 6.13 It may be possible to avoid tree removal in some areas but where this does occur there will be opportunities within both private and public greenspace to increase arboricultural value by most key metrics: number, canopy coverage, species diversity, distribution, function and longevity.
- 6.14 Retaining mature and middle aged trees now ensures a mixed generational age of tree cover when new planting is implemented.
- 6.15 New planting within the housing infrastructure and around the road network should look to introduce new landscape or amenity values that do not currently exist across the site. Formal avenues and ornamental planting would allow different value types to be introduced.
- 6.16 Outline proposals show that 4.48ha of green infrastructure including public open space, sustainable drainage and landscape buffers are included. This will provide the opportunity for an increase in the number, variety and age profile of tree cover on site with the trade-off that some habitat connectivity would be lost.

7.0 Considerations at the Detailed Design Stage

- 7.1 The following information sets out the primary considerations in determining the requirement for tree protective measures and in the assessment of development impact.
- 7.2 This information should be read and understood by all project specialists involved in layout or infrastructure design as it will be used by the project Arboricultural Consultant and Local Planning Authority in the assessment of future impacts on trees.

Root Protection Areas

- 7.3 As per BS 5837:2012, the Root Protection Area (RPA) is calculated using each tree's diameter at 1.5 metres⁷ and represents the minimum area around each tree that must be left undisturbed to ensure its survival.
- 7.4 Tree roots typically spread two times the width of the crown, although this figure may be significantly increased for certain species and where specific ground conditions are present. The majority of tree roots are found in the top 600mm of soil and most of the fine roots that absorb water and nutrients are found close to the surface.
- 7.5 Veteran trees are particularly sensitive to changes to their rooting environment and as such Natural England and the Forestry Commission recommend that in addition to the RPA a buffer zone of 15 times the stem diameter or 5m beyond the canopy extents is provided.
- 7.6 Very few activities are permitted within the buffer zone, are limited to those which will not harm the tree and could include pedestrian access or sensitively designed sustainable drainage.
- 7.7 The morphology of roots is influenced by past and present site conditions (including roads, buried structures and underground services), soil type, topography and drainage. This means that a tree's roots may not be uniform in extent and the RPA may not be a circular area centred on the tree stem.
- 7.8 On this site, influences on root morphology are considered to be minimal with only occasional effects from areas of hardstanding. The RPAs shown on Drawing 1 represent the most likely spread of tree roots that should be prioritised for protection during development.

Underground Utility Issues

- 7.9 The installation of utilities can be very damaging to tree root systems and can affect a much larger area of roots than is directly affected by trench creation.
- 7.10 Where the installation of services within the RPA of retained trees is unavoidable, appropriate work methods will be required to ensure the safe long-term survival of those trees. This process will require additional consultation with a qualified Arboricultural Consultant and is likely to be more expensive than conventional trench installation.

⁷ Refer to Appendix A for RPA area calculations

Structural Stand-off

- 7.11 A minimum structural standoff will need to be considered for retained trees. The function of such a development standoff is to ensure adequate space is afforded for future growth, ultimate height and crown spread, and to minimise adverse interference with future site use.

Ground Level Changes

- 7.12 A rise or reduction in soil level can have major implications on the longevity and health of the trees. Minor changes (up to 100mm) can be tolerated in some cases but is heavily dependent on tree species, condition and growing environment.
- 7.13 Existing ground levels within the RPA should be maintained. The advice of a qualified Arboricultural Consultant should be sought if level changes are required.

Drainage & Storm Water Run-off Issues

- 7.14 Drainage and storm water run-off requires due consideration to prevent excessive and/or polluted run-off into the rooting area of trees to be retained. An attenuation pond has been considered on this site, located outside of the RPA of trees along the north east and south east. A full assessment of impact on trees of all drainage aspects should be considered as part of the reserved matters process.

8.0 Recommendations

Arboricultural Impact Assessment

- 8.1 An Arboricultural Impact Assessment (AIA) should be produced in support of a reserved matter/detailed application. This should identify, evaluate and possibly mitigate the impacts of developing land on the existing tree resource.
- 8.2 One function of the AIA process will be the consideration of trees alongside other project disciplines (layout, drainage, utilities etc.) in order to minimise future conflict and avoid uncalculated expense or undesirable tree loss. It will review in detail the considerations to ensure the final design is compatible with existing trees and to reduce the risk of an objection being raised to the application on arboricultural grounds.
- 8.3 The requirement for site-wide tree protection measures which may include physical, operational and procedural protections will also be assessed as part of the detailed AIA.

Mitigation

- 8.4 The National Planning Policy Framework (NPPF) is a material consideration in the planning process and promotes a presumption in favour of sustainable development.
- 8.5 In respect of trees, a sustainable development will be one whereby the total number, value or function provided by trees is maintained or increased or where the long-term prospects of the existing tree stock can be substantially improved. Net gains in biodiversity may be demonstrated where the number of tree species, variety of tree ages or range of niche habitats can be increased. Native, old, large or dead trees are likely to have a relatively significant impact on a scheme's environmental credentials, as will the connectivity of trees, hedges and woodland.
- 8.6 It also notes that "planning policies and decisions should ensure that new streets are tree-lined and that opportunities are taken to incorporate trees elsewhere in developments"
- 8.7 Improvement of the existing public right of way onto School Road will necessitate the removal of group G42 equating to circa 0.0673ha of canopy loss.
- 8.8 New tree planting within and around the proposed residential plots and road network could adequately mitigate for the loss of G42.
- 8.9 The residual effect on trees and hedgerow from the scheme should be assessed as part of the detailed AIA at Reserved Matters stage. Planting plans in accordance with Bristol City Council's tree replacement policy which provides a clear requirement for the number of trees that would need to be planted should be produced. It may not be possible to deliver the required amount of replacement planting within the site, in this case the policy prescribes the level of financial contribution that would need to be delivered to provide off-site planting.

Post Construction Tree Care

- 8.10 Provision should be made for the maintenance of new planting in accordance with British Standard 8545:2014 Trees: from nursery to independence in the landscape - Recommendations, and replacement of failures for a period of at least 5 years.
- 8.11 Hazard recommendations are based on observations at the time of survey. Trees are dynamic living organisms whose structure is constantly changing. Even those in good condition can suffer from damage or stress. Following site development, regular (annual or biennial) inspections of all retained trees should be undertaken by a qualified Arboricultural Consultant.

APPENDIX A: Arboricultural Survey Data



Surveyor Angus Blankenstein
 Survey Date 20.07.2020
 Site Brislington Meadows
 Drawing Ref D7507.21.001

Italicised Feature Ref: Inspection of this feature was restricted
Italicised Values: Feature value was estimated

APPENDIX A: Arboricultural Survey Data Sheets

Ref	Species	Height	Canopy Ground Clearance	Stem Diameter (or range)	No. of stems/ individuals	Crown Spread North	Crown Spread South	Crown Spread East	Crown Spread West	Lowest Branch Height	Lowest Branch Direction	Maturity	Condition	Comments on form, condition, health and significant defects	Management recommendations in current context	BS 5837 Quality Category	Estimated Remaining Contribution
		(m)	(m)	(mm)	arising below 1.5m	(m)	(m)	(m)	(m)	(m)	(N,S,E,W)	Young, Middle Age, Mature	Good, Fair, Poor, Veteran			A,B,C,U (1,2,3)	Long, Medium, Short, Very Short
Trees																	
T1	Apple species	5.0	1.5	490	6	4.5	4.0	2.5	3.5	1.0	S	Mature	Fair	Multistemmed fruit tree on road edge, dense vigorous crown		B ,1	Medium
T2	Pedunculate oak	5.0	1.5	380	1	5.0	5.0	5.5	4.5	1.0	N	Middle Age	Good	Squat broad tree near road, dense crown, pruned to East Side to clear road, some retained stubs, no major defects		B ,1, 2	Long
T3	Common ash	14.0	1.0	450	1	9.0	6.0	6.0	6.0	1.5	SW	Middle Age	Good	Vert dense blackthorn and bramble prevents access, good vigour with no ADB observed		B ,1, 2	Medium
T4	Pedunculate oak	14.0	2.0	880	1	8.0	9.0	11.0	7.0	3.0	E	Mature	Good	Large mature tree within dense scrub group, major and minor dead wood within crown, Broad vigorous Crown, no major defects		A ,1, 3	Long
T5	Pedunculate oak	13.0	0.5	1120	1	8.0	9.0	9.0	7.0	2.5	E	Mature	Good	Very large oak within Old hedge, dead wood and cavities throughout, light ivy growth on main stem, excellent form and vigour		A ,2, 3	Long
T6	Pedunculate oak	13.0	2.0	1450	1	10.0	14.0	11.0	11.0	4.0	SE	Mature	Veteran	Enormous tree within old hedge line, basal cavity to south with some decay, major and minor dead wood with some well decayed, major cavity on large limb to North with decay extending within, main leader lost in the past with hollowing and formation of platform, numerous decay cavities and hollows, beefsteak fungus noted		A ,1, 2, 3	Long
T7	Common hazel	8.0	1.0	741	7	7.0	7.0	3.5	5.0	1.0	SE	Mature	Good	Very large lapsed Hazel coppice, numerous stems with some fusing, dead wood and dexpay in places, excellent vigour with dense crown and basal regrowth		A ,1, 3	Long
T8	Common ash	12.0	1.0	491	3	5.0	6.0	8.0	5.0	3.0	E	Middle Age	Fair	Triple stemmed tree, two stems rubbing and fusing at 3m, minor read wood in crown, slightly sparse		B ,1	Medium
T9	Pedunculate oak	10.0	1.5	520	1	7.0	7.0	8.0	6.0	1.0	SE	Middle Age	Good	Large individual tree within outgrown hedgerow, squat form with Broad spreading crown, some minor dead wood in crown, no major defects noted		B ,1	Long
T10	Pedunculate oak	8.0	1.0	300	1	4.0	5.0	5.0	4.0	1.5	S	Middle Age	Good	Good small tree on edge of gardens, some minor tip dieback, generally free of defects		B ,1	Long
T11	Elder	3.0	2.0	180	1	2.0	2.0	3.0	2.5	2.0	SE	Middle Age	Poor	Small boundary tree with yellowing canopy, slightly sparse		C ,3	Short
T12	Common hawthorn	6.0	0.5	260	3	2.5	2.0	3.0	2.0	1.0	S	Middle Age	Good	Typical form, dense. Congested crown, some crossing and rubbing branches, no major defects		B ,1	Long
T13	Sycamore	12.0	3.0	480	1	6.0	7.0	2.0	6.0	3.0	S	Middle Age	Good	Large tree in school grounds, close to T14 with heavily suppressed crown to East, some minor dead wood but generally free from defects, unable to access base		B ,2	Long
T14	Sycamore	12.0	3.0	480	1	6.0	6.0	7.0	2.0	2.0	S	Middle Age	Good	Large tree in school grounds, close to T13 with heavily suppressed crown to west, some minor dead wood but generally free from defects, unable to access base		B ,2	Long
T15	Sycamore	14.0	3.0	650	1	8.0	7.0	6.0	8.0	2.0	E	Middle Age	Good	Are offsite tree, unable to access due to dense vegetation, excellent vigour with no visible defects, likely pruning wounds to North where it overhangs school grounds		A ,1	Long
T16	Common hazel	9.0	0.5	441	6	1.0	3.0	3.0	4.0	1.0	S	Middle Age	Good	Lapsed coppice or hedgerow tree, multistemmed form, suppressed to north by offsite lime tree, some dead wood, fusing stems		B ,1	Long
T17	Common lime	12.0	1.5	410	1	5.0	4.0	4.0	4.0	3.0	S	Middle Age	Good	Offsite tree in school grounds, lower crown raised to provide clearance, good crown form, some minor dead wood in crown, no major defects noted		B ,1	Long
T18	Field maple	9.0	1.0	510	3	7.0	6.0	6.0	6.0	1.5	E	Middle Age	Fair	Larger individual within outgrown hedge, multistemmed form, dense and congested crown, squat form, minor dead wood in crown, small epiphyte elder in union, some Black staining of bark observed		B ,1	Long



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		(m)	(m)	(mm)	arising below 1.5m	(m)	(m)	(m)	(m)	(m)	(N,S,E,W)	Young, Middle Age, Mature	Good, Fair, Poor, Veteran			A,B,C,U (1,2,3)	Long, Medium, Short, Very Short
T19	Pedunculate oak	9.0	1.5	609	1	7.0	8.0	6.0	7.0	2.5	E	Middle Age	Good	Large tree within outgrown hedgerow group, footpath to East, dense undergrowth at base, major and minor dead wood in crown, tip dieback observed and epicormic growth throughout canopy, signs of stress		B ,1	Long
T20	Common ash	12.0	1.5	750	2	10.0	7.0	4.0	8.0	4.0	S	Mature	Good	One of a pair of old hedgerow trees with twisted main stems, Crown slightly sparse but ADB presence is under 25, dead wood throughout, suppressed to East, dense ivy on lower stem, numerous branch socket cavities to southern side		B ,1, 2, 3	Medium
T21	Common ash	12.0	1.0	710	2	12.0	7.0	9.0	3.0	1.0	E	Mature	Good	One of a pair of old hedgerow trees with twisted main stems, Crown slightly sparse but ADB presence is under 25, dead wood throughout, suppressed to west, dense ivy on lower stem, Crown biased to north-east		B ,1, 2, 3	Medium
T22	Common lime	7.0	1.5	250	1	3.0	3.0	3.0	3.0	1.0	E	Middle Age	Good	Good small tree on school boundary, very dense undergrowth makes inspection difficult, vigorous even crown		B ,1	Long
T23	Pedunculate oak	8.0	1.0	410	1	4.0	4.0	4.0	3.0	1.5	N	Middle Age	Good	Good small oak, some pruning wounds and stubs, minor dead wood in crown, no major defects noted		B ,1	Long
T24	Common ash	14.0	3.0	727	2	8.0	10.0	7.0	10.0	1.0	SW	Mature	Fair	Large tree on boundary with gardens, twin stemmed with evidence of additional stems since lost, some basal cavities, slightly sparse crown		B ,1, 3	Medium
T25	Pedunculate oak	8.0	2.0	744	2	8.0	7.0	7.0	7.0	2.5	NE	Mature	Fair	Squat broad tree on boundary with allotment, large stem wounds to northern main stem - likely livestock damage, dead wood throughout crown, some epicormic growth noted, compaction around base on site sode,		B ,1, 2	Long
T26	Pedunculate oak	8.0	2.0	841	2	8.0	9.0	9.0	9.0	2.0	SW	Mature	Fair	Broad squat tree on slightly raised ground, very large wounds to one of the main stems with 50% exposed heartwood - livestock damage, major and minor dead wood in crown, compacted ground at base, good vigour overall		B ,1, 2	Long
T27	Pedunculate oak	9.0	2.0	980	1	8.0	8.0	8.0	9.0	2.5	SW	Mature	Good	Large broad tree on edge of paddocks, some major and minor dead wood in crown, dense vigorous crown, barbed wire included into main stem, eastern side inaccessible		A ,1, 2	Long
T28	Sycamore	7.0	1.5	493	5	5.0	4.0	4.0	5.0	1.5	SW	Middle Age	Fair	Multistemmed boundary tree, unable to access due to very dense undergrowth, showing signs of early senescence with some tip dieback and very vigorous seed production		C ,1	Medium
T29	Sycamore	13.0	5.0	980	5	8.0	5.0	9.0	8.0	3.0	E	Mature	Good	Very large multistemmed tree within roadside group, unions sound, basal erosion to lower side, suppressed to South by adjacent tree, some dead wood in crown but no major defects noted		A ,1, 2	Long



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		(m)	(m)	(mm)	arising below 1.5m	(m)	(m)	(m)	(m)	(m)	(N,S,E,W)	Young, Middle Age, Mature	Good, Fair, Poor, Veteran			A,B,C,U (1,2,3)	Long, Medium, Short, Very Short
Groups																	
G1	Common ash	3 to 5	1.0	90 to 150	3							Middle Age	Fair	Small self set trees on road edge		C ,2	Medium
G2	Common ash	3 to 5	0.5	120 to 180	2							Middle Age	Good	Small self set trees on road edge		C ,2	Medium
G3	Common hawthorn, Elder	4 to 4	0.5	100 to 160	3							Middle Age	Fair	Dense cluster of hawthorn and elder forming single crown		C ,3	Medium
G4	Common ash, Common hawthorn	4 to 4	1.0	120 to 170	3							Middle Age	Fair	Boundary trees along fence, some multi stemmed, some dense ivy		C ,2	Medium
G5	Goat willow	4 to 5	1.0	140 to 260	4							Middle Age	Fair	Dense group of willow in scrubby area, some multi stemmed forms		C ,2	Medium
G6	Elder	2 to 3	1.0	85 to 120	6							Middle Age	Poor	Small group of sickly looking elder, very dense undergrowth		C ,3	Short
G7	Blackthorn, Common ash, Common hawthorn, Elder, English holly, Pedunculate oak	3 to 8	1.0	75 to 200	50							Young to Middle Age	Fair	Large area of scattered trees within dense scrub, some multistemmed forms, access impossible		C ,2	Long
G8	Common ash, Elder	3 to 3	1.0	75 to 120	6							Middle Age	Fair	Small trees within dense scrub		C ,3	Medium
G9	Blackthorn, Common ash, Common hawthorn, Common hazel	2 to 10	0.5	50 to 160	50							Young to Middle Age	Fair	Dense scrub and small trees with impenetrable brambles and blackthorn		C ,2	Long
G10	Common hawthorn, Elder, English holly, Pedunculate oak, Sycamore	2.5 to 5	0.5	80 to 220	50							Middle Age to Mature	Fair	Outgrown and overgrown hedgerow, trees quite spaced out with dense low crowns, brambles and other scrub, some standing dead trees		B ,3	Long
G11	Common hawthorn, Elder	2 to 4	1.0	80 to 170	20							Middle Age to Mature	Fair	Densely outgrown hedgerow, impossible to access with dense undergrowth, some dieback present with dead wood throughout		C ,2, 3	Long
G12	Pedunculate oak	6 to 8	2.0	220 to 300	3							Middle Age	Good	Group of 3 small oaks within dense scrub area, some minor dead wood in crowns but generally free from defects		B ,1, 2	Long
G13	Common ash, Common hawthorn	3 to 5	1.0	90 to 120	15							Young to Middle Age	Fair	Mixed understorey beneath larger oak trees, dense and closely spaced		C ,2	Long
G14	Common hawthorn, Common hazel	8 to 8	1.0	140 to 200	2							Mature	Good	Part of a row of old coppiced Hazel and hawthorn, one of each species growing together forming single crown with multiple stems, some large areas of decay and hollowing with saprophytes, stems fusing, excellent vigour with new basal growth observed		A ,3	Long



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		(m)	(m)	(mm)	arising below 1.5m	(m)	(m)	(m)	(m)	(m)	(N,S,E,W)	Young, Middle Age, Mature	Good, Fair, Poor, Veteran			A,B,C,U (1,2,3)	Long, Medium, Short, Very Short
G15	Common hawthorn, Common hazel	7 to 8	1.0	180 to 240	5							Mature	Good	Old coppiced Hazel and hawthorn, 5 trees, dead wood and decay with hollowing, multiple large stems - some fusing, generally Good vigour		A ,3	Long
G16	Common hawthorn, Common hazel	4 to 7	2.0	160 to 220	4							Mature	Fair	Further outgrown hedge and coppice trees, some dieback present, adjacent to path with signs of clearance pruning		B ,2, 3	Long
G17	Blackthorn, Common hawthorn, Common hazel, Elder, Pedunculate oak	3 to 6	0.0	85 to 200	200							Young to Middle Age	Good	Outgrown hedgerow with extremely dense undergrowth making access impossible, likely multistemmed forms present, forms border with allotments to north-west		B ,3	Long
G18	Blackthorn	2 to 3	0.0	50 to 100	200							Young to Middle Age	Good	Extremely dense blackthorn thicket, suckering into field		C ,2, 3	Long
G19	English holly	5 to 7	1.0	200 to 400	4							Middle Age	Fair	Small group of Holly within dense outgrown hedge, dense crowns and twisted stems, access difficult, some dead wood and decay cavities		B ,2	Long
G20	Blackthorn, Common hawthorn, Common hazel, Elder	2 to 4	0.0	50 to 190	200							Middle Age to Mature	Fair	Dense outgrown hedgerow with vigorous blackthorn suckering, some larger multistemmed trees within group, dead wood throughout, good habitat connectivity standing dead tree to Eastern end		B ,3	Long
G21	Blackthorn	1.5 to 4	0.0	40 to 60	200							Middle Age	Good	Extremely dense thicket of blackthorn		C ,2	Long
G22	Common hawthorn, Elder, Pedunculate oak, Sycamore	3 to 5	0.5	60 to 160	10							Young to Middle Age	Fair	Small cluster of trees forming very dense Single crown, some minor dead wood, dense undergrowth		C ,2, 3	Long
G23	Common ash, Common hawthorn, Sycamore	5 to 8	0.5	160 to 240	3							Middle Age	Fair	Small group of trees straddling boundary, dense hawthorn with taller Ash and sycamore, some dead wood and minor Ash dieback		B ,2	Long
G24	Blackthorn, Common hawthorn, Elder, English elm, Sycamore	2 to 7	0.0	50 to 240	100							Young to Middle Age	Fair	Dense group of shrubby trees, primarily blackthorn with occasional larger sycamore and hawthorn, standing dead elm present		C ,2, 3	Long
G25	Common hawthorn, Common hazel, Elder, English elm, Pedunculate oak	2.5 to 9	0.5	50 to 260	60							Young to Middle Age	Fair	Boundary group along fence, likely outgrown hedge, lots of standing dead elm with occasional small live trees, generally multistemmed		C ,2, 3	Medium
G26	Blackthorn, Common hawthorn, Elder, English elm, English holly	2 to 6	0.0	50 to 200	250							Young to Middle Age	Fair	Further outgrown hedgerow, numerous dead elms, very dense undergrowth, habitat connectivity		C ,2, 3	Long
G27	Common ash, Common hawthorn, Elder, English elm, English holly	3 to 6	0.5	75 to 280	100							Young to Middle Age	Fair	Outgrown hedgerow, dense undergrowth, some standing dead elm, Ash showing substantial ADB, dead wood throughout, some multistemmed forms		C ,2, 3	Long
G28	Common lime, Sycamore	8 to 13	1.0	400 to 500	4							Middle Age	Good	Group of amenity trees within school grounds, access impossible, typical forms with no observable defects		B ,1, 2	Long
G29	Common hawthorn	4 to 5	0.0	150 to 200	2							Middle Age	Fair	Outgrown hedge trees with dense congested crowns		C ,3	Long
G30	Wild cherry	3 to 10	0.5	75 to 360	10							Young to Middle Age	Good	Middle-aged cherry with successional growth extending into field, larger tree including fence, typical forms with untidy crowns, good vigour overall		B ,2	Long



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		(m)	(m)	(mm)	arising below 1.5m	(m)	(m)	(m)	(m)	(m)	(N,S,E,W)	Young, Middle Age, Mature	Good, Fair, Poor, Veteran			A,B,C,U (1,2,3)	Long, Medium, Short, Very Short
G31	Blackthorn, Common hawthorn, Common hazel	1.5 to 6	0.5	50 to 150	60							Young to Middle Age	Fair	Outgrown hedge and blackthorn suckering, some multistemmed, typical forms with congested crowns		C ,2, 3	Long
G32	Blackthorn	1.5 to 3	0.0	50 to 75	100							Young to Middle Age	Good	Dense blackthorn thicket		C ,3	Long
G33	Common hawthorn, English elm, English holly, Sycamore	4 to 8	1.5	100 to 250	40							Middle Age	Fair	Boundary group with numerous gaps, some multistemmed trees, standing dead elm, dense undergrowth		C ,2	Medium
G34	Common ash, Common hawthorn, Common hazel, English elm, English holly	4 to 8	1.5	100 to 180	30							Young to Middle Age	Fair	Outgrown hedgerow remnant, typical dense crowns, multistemmed forms, standing dead elm, unable to access		C ,2, 3	Medium
G35	Common hawthorn	3 to 4	1.0	100 to 160	5							Middle Age	Fair	Small hedgerow remnant		C ,3	Long
G36	Butterfly bush species, Common ash, Common hawthorn, Elder, English elm	3 to 13	2.0	80 to 370	25							Middle Age	Fair	Primarily Ash with standing dead elm, part of larger group now cut off to North, dense ivy, dead wood throughout		C ,2	Medium
G37	Common ash, Common hawthorn, Common hazel, Crack willow, English elm	4 to 9	1.5	120 to 350	200							Middle Age	Fair	Tree group contiguous with woodland with very dense undergrowth, greater proportion of woodland edge successional species, access difficult		B ,2, 3	Long
G38	Common hawthorn, Elder	3 to 6	1.0	80 to 240	50							Middle Age	Fair	Outgrown hedgerow along edge of Police station, typical forms with congested crowns, climbers present, some multistemmed forms		C ,2	Long
G39	Common ash, Crimson king Norway maple, Pedunculate oak	8 to 13	2.0	230 to 400	5							Middle Age	Fair	Small group of well established trees in strip between site and adjacent properties, dense undergrowth, crowns biased to west, minor dead wood in crowns but no significant defects		B ,2	Long
G40	Sycamore, Horse chestnut, Elder	3 to 8	1.0	75 to 390	25							Middle Age	Fair	Screening group between paddocks and allotments, occasional livestock damage to main stems, some epicormic growth, minor dead wood throughout		C ,2	Medium
G41	Common hawthorn, Common ash, Blackthorn, Pedunculate oak, Elder, English elm	3 to 12	3.0	90 to 620	50							Middle Age to Mature	Good	Large screening group on steep bank next to School Road, occasional large multistemmed sycamore, some standing dead and and dying elm, dead wood throughout, effective screen		B ,2	Long
Woodlands																	
W1	Common hawthorn, Elder, English elm, English holly, Pedunculate oak, Sycamore	3 to 18	2.0	60 to 600	250							Mixed Age	Good	Mixed broadleaf woodland, predominantly Oak with sycamore and elm, some dead elm, dead wood throughout, well established understorey		A ,2, 3	Long
W2	Common ash, Common hawthorn, Common hazel, Crack willow, English elm	4 to 14	1.5	120 to 600	200							Middle Age	Fair	Woodland with dense undergrowth and limited understorey, large crack willow with failed stems throughout, standing dead elm, access difficult, Japanese Knotweed to east by road		B ,2, 3	Long

APPENDIX B: Survey Method

APPENDIX B: Survey Method

The survey of trees is conducted from ground level only. The nature of the soils on site is not assessed.

Trees are dynamic living organisms with a constantly changing structure; even trees in good condition can suffer from damage or stress. The information recorded is presented as being correct at the time of survey.

The following features of each tree, group of trees or wood may have been recorded in the Arboricultural Survey Data Sheets at Appendix 1.

Species	The common name is given. The Latin name may also be given if further clarification is required.	
Height	Top height of tree recorded in metres.	
Stem Diameter	For single-stemmed trees the measurement is taken at 1.5 metres above ground level and recorded in millimetres. For multi-stemmed trees an average all stems measured at 1.5m above ground level is used. For tree groups a range from minimum to maximum diameters is provided based on measurements taken using one of the aforementioned methods.	
No. of Stems	A count of stems arising below a height of 1.5 metres.	
Crown Spread	The N, S, E and W branch spreads are recorded in metres to provide a representative crown shape.	
Height of Lowest Branch	Crown clearance above ground level recorded in metres.	
Direction of Lowest Branch	The direction of growth of the first significant branch from the point of attachment.	
Maturity	Young	Trees that can reasonably be relocated or replaced like for like, without undue cost;
	Middle Age	Trees in the established growth stage of their life with the potential to continue increasing in size;
	Mature	Trees that have reached their ultimate size, given their location and surroundings;
Condition	Good, Fair, Poor. An overall assessment of a tree's physiological and structural state in which factors that may increase its susceptibility to the effects of development are taken into account. Veteran. Trees that are in such a condition as to significantly increase their biological, cultural or aesthetic value. This is characteristic of, but not exclusive to, individuals surviving beyond the typical age range for the species concerned.	
Comments	A brief evaluation and description of the tree with comments on form, vitality, health and any significant defects or symptoms of ill-health.	

BS 5837 Tree Quality Assessment

The tree quality assessment is based on Table 1 of BS 5837:2012 (See below). Four categories (A, B, C and U) are used to denote tree quality (A= High, B = Moderate, C = Low, U= Unsuitable for retention). Subcategories (1-3) denote the specific function value of the trees and the reasoning behind the allocation of a specific category (the subcategories may be used in combination but do not accumulate collective weight).

Root Protection Area (RPA)

The RPA is allocated to ensure that a sufficient area is left undisturbed during development. It is provided as an area (m²) and as the radius of a circle (m) typically plotted from the centre of the stem.

The RPA is calculated using a mathematical equation included in BS 5837:2012 (Section 4.6 and Table D.1) and is based on a tree's stem diameter. In some cases the RPA may need to be adapted to best reflect the likely area and position of roots required to ensure survival; this may be based on criteria such as the tree's condition, species, crown spread and any barriers to growth. Any alteration must be justifiable but is made at the Arboricultural Consultants discretion.

Recommendations

Recommendations for arboricultural works, etc. are based on the **current** land use, and take into account the tree or group attributes without bias to the proposed development.

Estimated Remaining Contribution

An estimation of the life expectancy as healthy functioning tree. This will be influenced by species and the condition of the tree at the time of survey.

Long	> 40 years
Medium	20 – 40 years
Short	less than 20 years

APPENDIX B: Survey Method

Table 1 Cascade chart for tree quality assessment

Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
Trees unsuitable for retention (see Note)				
Category U Those 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	<ul style="list-style-type: none">Trees that have a serious, irremediable, 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)Trees that are dead or are showing signs of significant, immediate, and irreversible overall declineTrees 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 <p><i>NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve, see 4.5.7.</i></p>			See Table 2
	1 Mainly arboricultural qualities	2 Mainly landscape qualities	3 Mainly cultural values, including conservation	
Trees to be considered for retention				
Category A Trees of high quality with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	See Table 2
Category B Trees of moderate quality with an estimated remaining life expectancy of at least 20 years	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 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	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural value	See Table 2
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 150 mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	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/transient landscape benefits	Trees with no material conservation or other cultural value	See Table 2

British Standards Institute (2012) *BS5837:2012 Trees in relation to design, demolition and construction – Recommendations.*
p.9

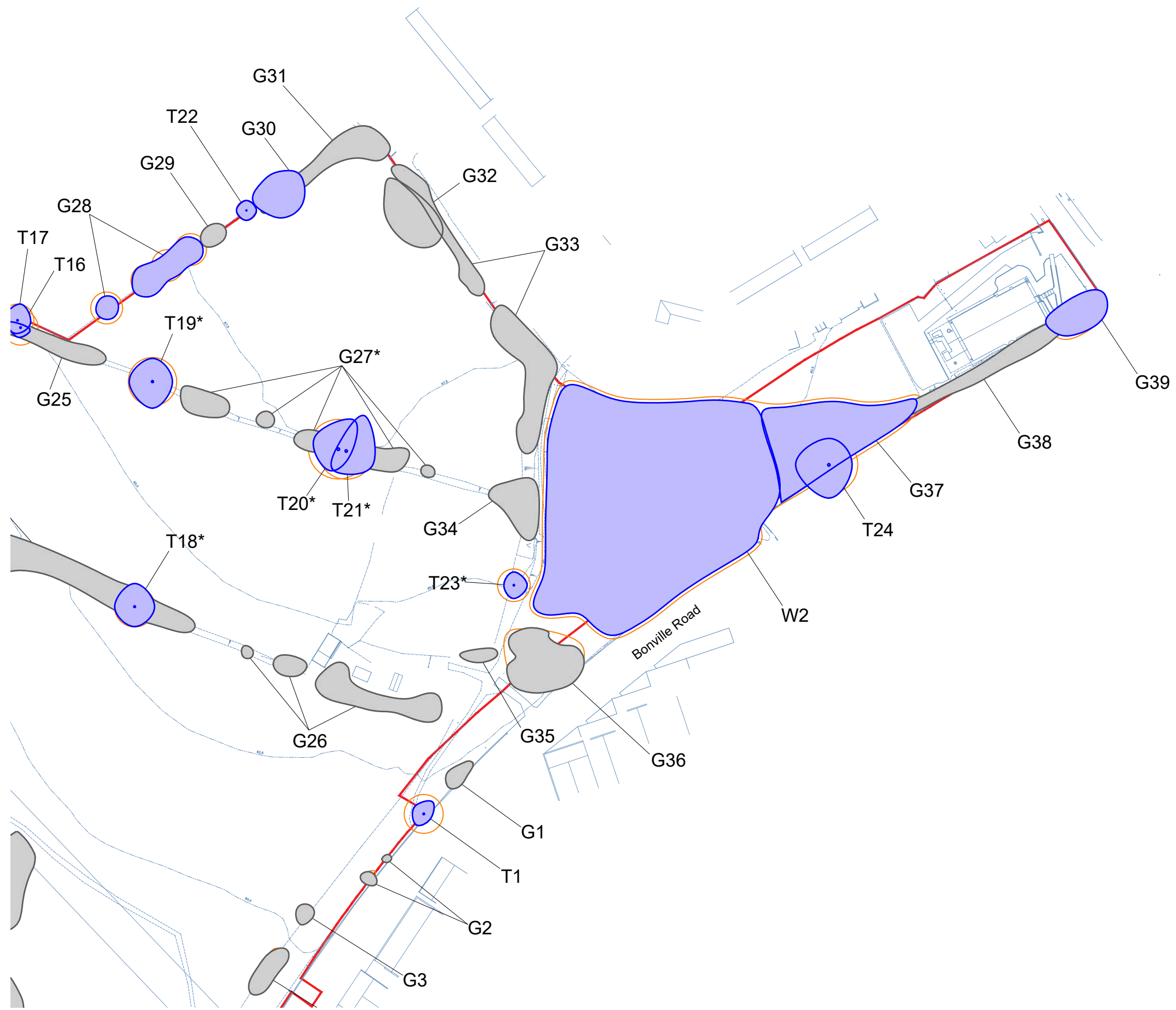
NOTES:

All young trees are assessed as quality category 'C' but this does not preclude their retention within a development.

For hedges the height, canopy spread and number of stems is recorded but they are not assigned a quality category.







DRAWINGS

Drawing 1 - Tree Constraints Plan
Drawing 2 - Tree Works Plan (Known Effects)
Drawing 3 - Tree Conflicts Plan
Drawing 4 - Illustrative Masterplan






KEY

[This drawing must be reproduced in colour]

-  T1/G1/W1 Existing trees
-  Root Protection Area (RPA)
-  Veteran Tree Buffer Zone
-  Application boundary
-  Approximate location
(Feature not shown on supplied topographical survey)
-  Tree Preservation Order

Tree Quality Categorisation

(Based on BS 5837:2012 Trees in relation to design, demolition and construction - Recommendations)

-  Category A
(High quality)
-  Category B
(Moderate quality)
-  Category C
(Low quality)
-  Category U
(Unsuitable for retention)

NOTE: This drawing should be read in conjunction with the respective Arboricultural Survey Data (Appendix A).



A	Added TPO Tree W2.1	AAB	RMG	22.10.20
Rev	Description	Drawn	Approved	Date



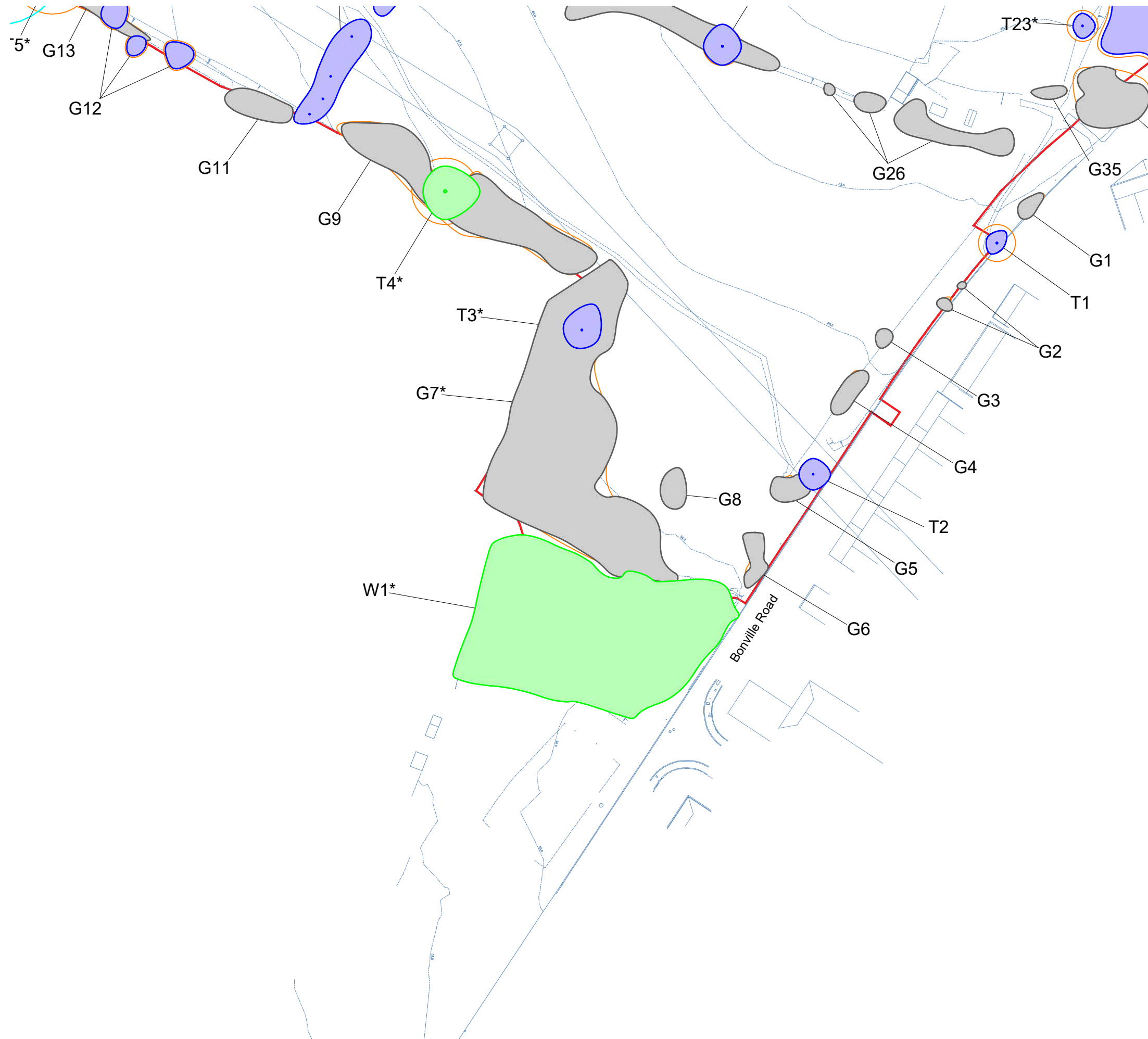
Genesis Centre, Birchwood Science Park, Warrington WA3 7BH
Tel 01925 844004 e-mail tep@tep.uk.com www.tep.uk.com

Project
Brislington Meadows, Bristol

Title
Drawing 1: Tree Constraints Plan [BASELINE] Sheet 1 of 3

Drawing Number
D7507.21.100

Drawn	Checked	Approved	Scale	Date
AAB	RMG	JGS	1:1,250 @ A3	21/08/2020



KEY

[This drawing must be reproduced in colour]

T1/G1/W1 Existing trees

Root Protection Area (RPA)

Veteran Tree Buffer Zone

Application boundary

Approximate location
(Feature not shown on supplied topographical survey)

* Tree Preservation Order

Tree Quality Categorisation

(Based on BS 5837:2012 Trees in relation to design, demolition and construction - Recommendations)

Category A
(High quality)

Category B
(Moderate quality)

Category C
(Low quality)

Category U
(Unsuitable for retention)

NOTE: This drawing should be read in conjunction with the respective Arboricultural Survey Data (Appendix A).

N

A	Added TPO Tree W2.1	AAB	RMG	22.10.20
Rev	Description	Drawn	Approved	Date

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Project

Brislington Meadows, Bristol

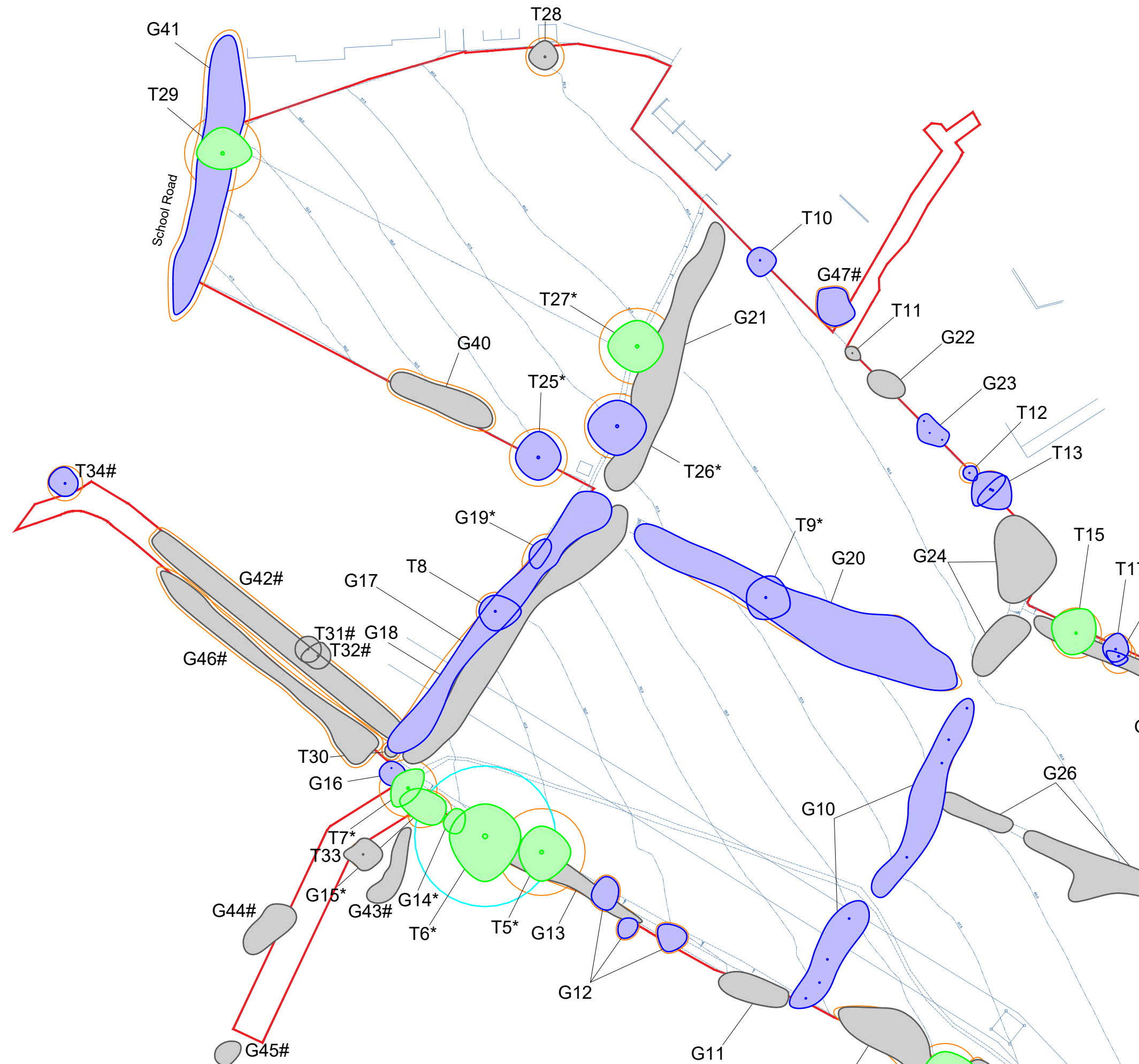
Title

Drawing 1: Tree Constraints Plan [BASELINE] Sheet 2 of 3

Drawing Number

D7507.21.101

Drawn	Checked	Approved	Scale	Date
AAB	RMG	JGS	1:1,250 @ A3	21/08/2020



KEY

[This drawing must be reproduced in colour]

- T1/G1/W1 Existing trees
- Root Protection Area (RPA)
- Veteran Tree Buffer Zone
- Application boundary
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(Feature not shown on supplied topographical survey)
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Tree Quality Categorisation

(Based on BS 5837:2012 Trees in relation to design, demolition and construction - Recommendations)

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- Category B
(Moderate quality)
- Category C
(Low quality)
- Category U
(Unsuitable for retention)

NOTE: This drawing should be read in conjunction with the respective Arboricultural Survey Data (Appendix A).

A	Added TPO Tree W2.1	AAB	RMG	22.10.20
Rev	Description	Drawn	Approved	Date

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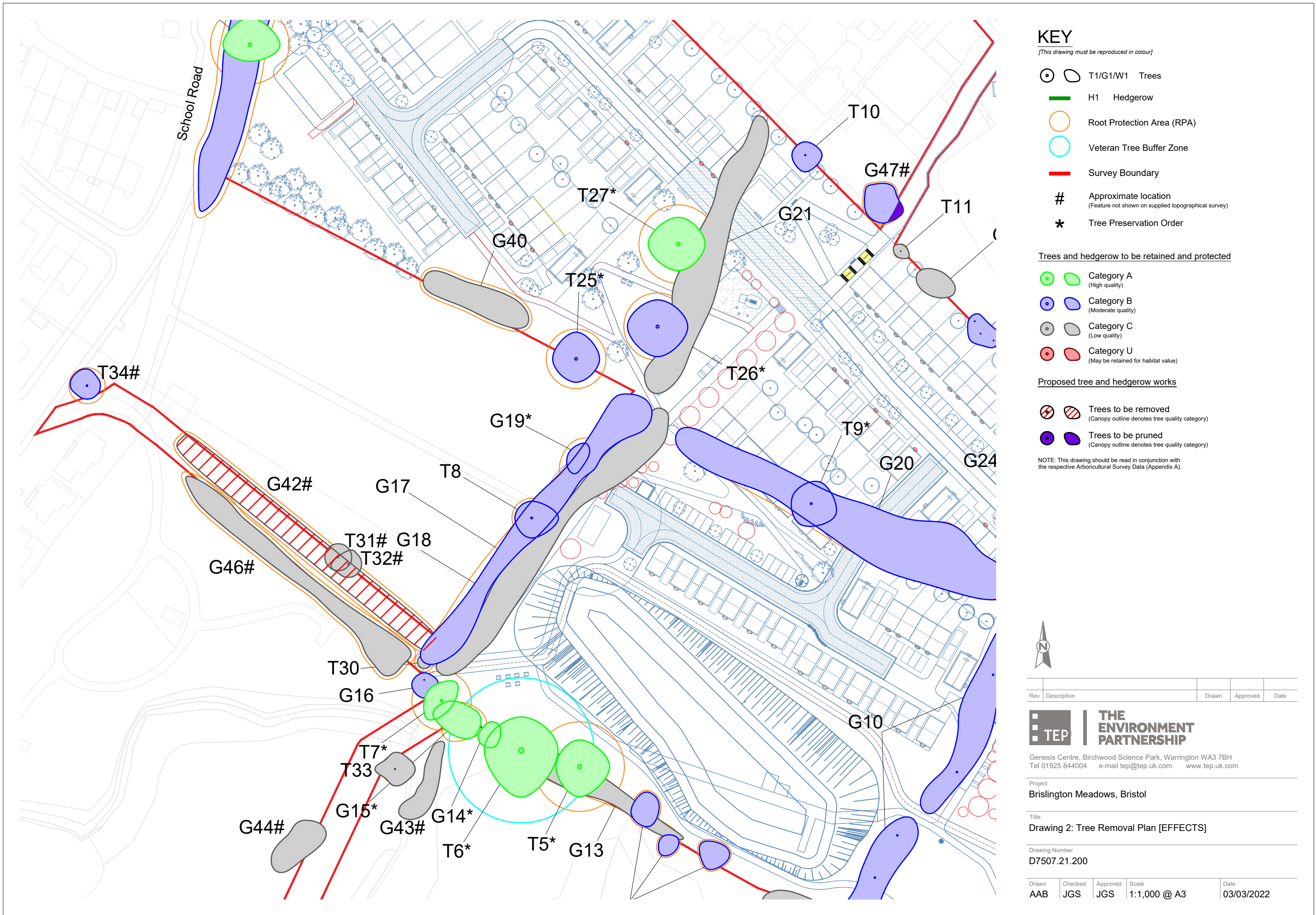
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Tel 01925 844004 e-mail tep@tep.uk.com www.tep.uk.com

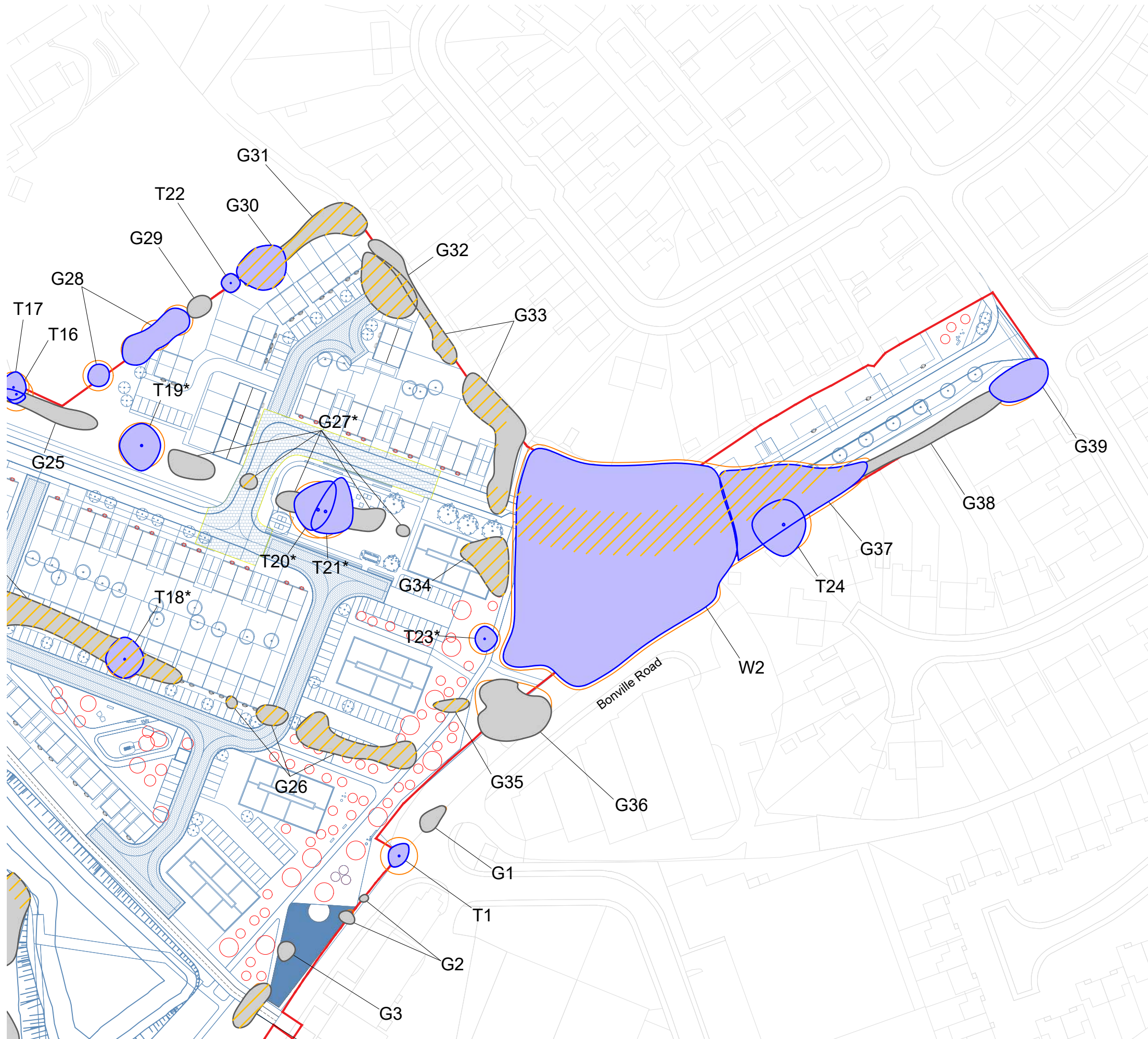
Project
Brislington Meadows, Bristol

Title
Drawing 1: Tree Constraints Plan [BASELINE] Sheet 3 of 3

Drawing Number
D7507.21.102

Drawn	Checked	Approved	Scale	Date
AAB	RMG	JGS	1:1,250 @ A3	21/08/2020





KEY

[This drawing must be reproduced in colour]

- T1/G1/W1 Existing trees
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- Veteran Tree Buffer Zone
- Application boundary
- Approximate location
(Feature not shown on supplied topographical survey)
- Tree Preservation Order

Tree Quality Categorisation

(Based on BS 5837:2012 Trees in relation to design, demolition and construction - Recommendations)

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 - Category B
(Moderate quality)
 - Category C
(Low quality)
 - Category U
(Unsuitable for retention)
- NOTE: This drawing should be read in conjunction with the respective Arboricultural Survey Data (Appendix A).
- Trees in Conflict with Capacity Plan



Rev	Description	Drawn	Approved	Date
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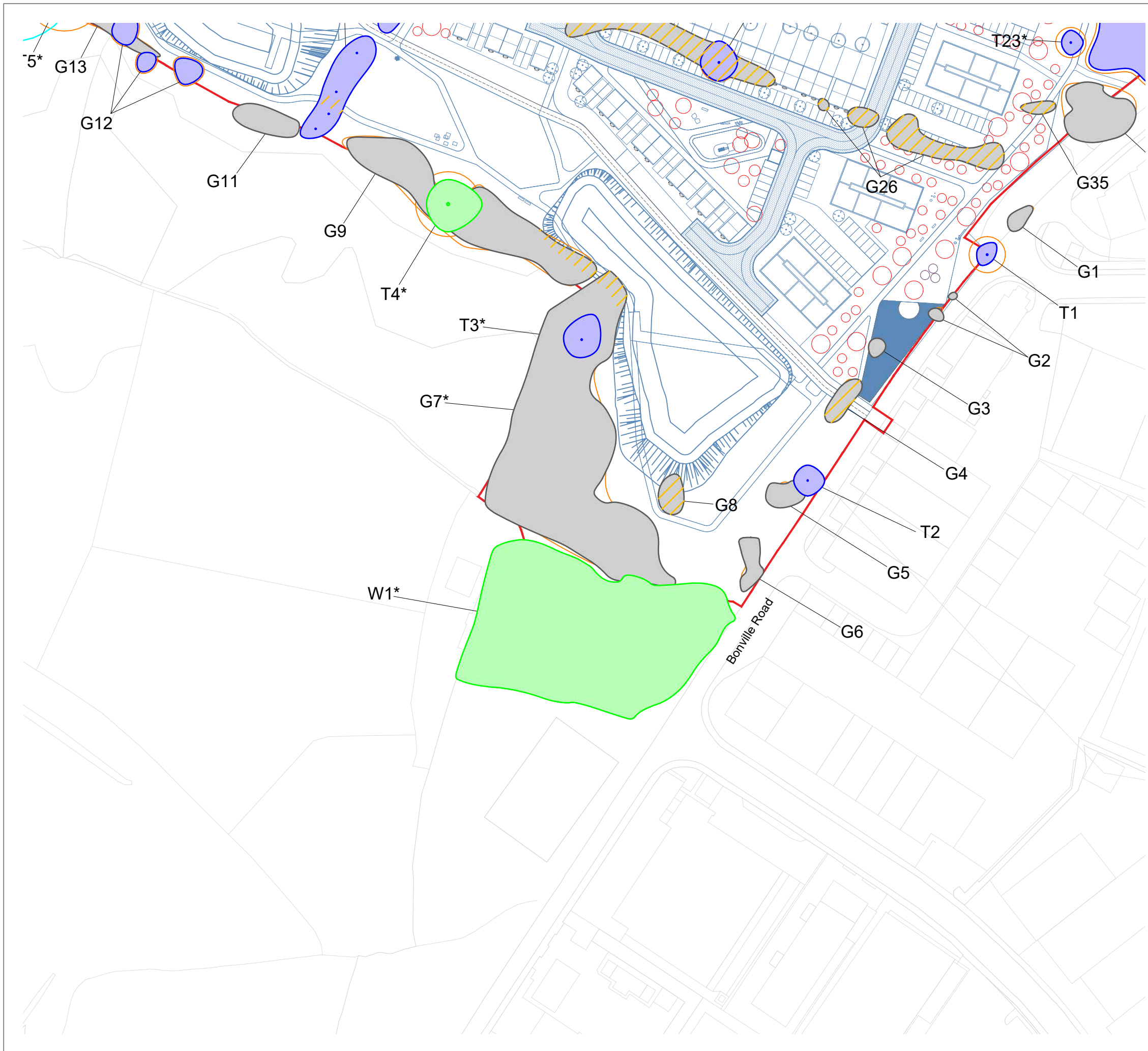
Genesis Centre, Birchwood Science Park, Warrington WA3 7BH
Tel 01925 844004 e-mail tep@tep.uk.com www.tep.uk.com

Project
Brisington Meadows, Bristol

Title
Drawing 3: Tree Conflicts Plan [BASELINE] Sheet 1 of 3

Drawing Number
D7507.21.300

Drawn	Checked	Approved	Scale	Date
AAB	JGS	JGS	1:1,250 @ A3	03/03/2022



KEY

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- T1/G1/W1 Existing trees
- Root Protection Area (RPA)
- Veteran Tree Buffer Zone
- Application boundary
- Approximate location
(Feature not shown on supplied topographical survey)
- Tree Preservation Order

Tree Quality Categorisation

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 - Category B
(Moderate quality)
 - Category C
(Low quality)
 - Category U
(Unsuitable for retention)
- NOTE: This drawing should be read in conjunction with the respective Arboricultural Survey Data (Appendix A).
- Trees in Conflict with Capacity Plan



Rev	Description	Drawn	Approved	Date
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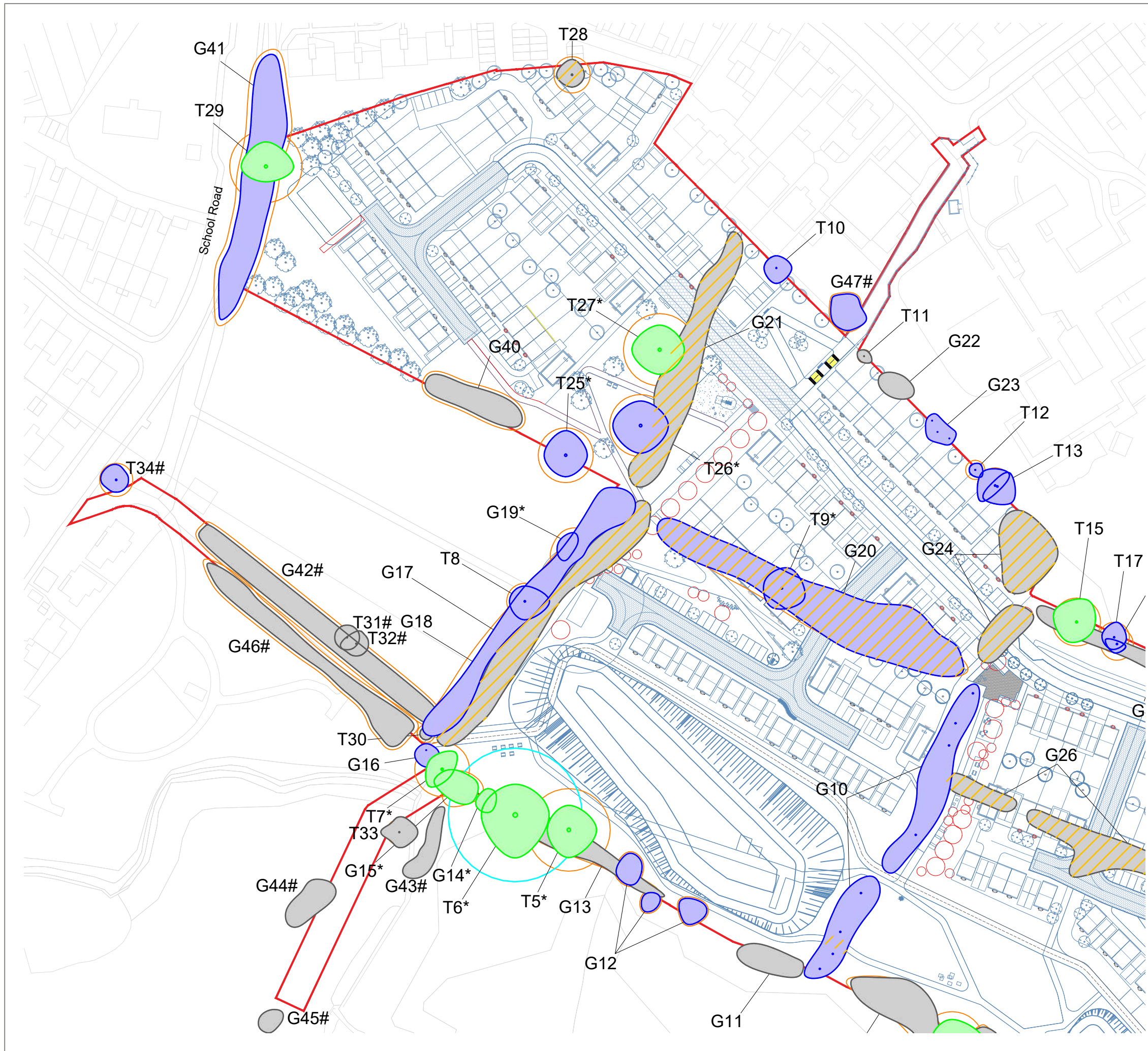
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Project
Brislington Meadows, Bristol

Title
Drawing 3: Tree Conflicts Plan [BASELINE] Sheet 2 of 3

Drawing Number
D7507.21.301

Drawn	Checked	Approved	Scale	Date
AAB	JGS	JGS	1:1,250 @ A3	21/08/2020



KEY

[This drawing must be reproduced in colour]

- T1/G1/W1 Existing trees
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- Veteran Tree Buffer Zone
- Application boundary
- # Approximate location
(Feature not shown on supplied topographical survey)
- * Tree Preservation Order

Tree Quality Categorisation

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(Unsuitable for retention)

NOTE: This drawing should be read in conjunction with the respective Arboricultural Survey Data (Appendix A).

- Trees in Conflict with Capacity Plan



Rev	Description	Drawn	Approved	Date
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Brislington Meadows, Bristol

Title
Drawing 3: Tree Conflicts Plan [BASELINE] Sheet 3 of 3

Drawing Number
D7507.21.302

Drawn	Checked	Approved	Scale	Date
AAB	JGS	JGS	1:1,250 @ A3	03/03/2022

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V0216.0

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LEGEND

Site Boundary

READ THIS FIRST

Note for Contractors

This drawing should be considered along with the risk information contained in the CDM Pre Construction Information. This information will include details of the SIGNIFICANT risks which LDA Design has identified which may arise from constructing their designs shown on this drawing. A Competent Contractor should be aware of the typical risks associated with doing this work.

Note for Workers

DO NOT START YOUR WORK unless you know the Risks and Controls relating to the work on this drawing (including SAFE SEQUENCES OF WORK and EQUIPMENT).

STOP

Do not issue copies of parts of this drawing without the above Note for Workers (unless you are sure that the Workers can undertake the work safely).

ZB	Landscape areas enhanced	16/03/22
Z	Road layout, developable areas, green space	03/03/22
REV.	DESCRIPTION	APP. DATE

LDĀDESIGN

PROJECT TITLE
7456 BRISLINGTON MEADOWS

DRAWING TITLE
Illustrative Masterplan

ISSUED BY

Bristol

DATE

03 March 2022

SCALE@A1

1:1000

STATUS

Draft

T: 0117 2033 628

DRAWN

RH

CHECKED

RF

APPROVED

PC

DWG. NO. 7456_039

No dimensions are to be scaled from this drawing.
All dimensions are to be checked on site.
Area measurements for indicative purposes only.
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Sources: Ordnance Survey...

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N



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