



22/01878/P | Land at Broom Hill/Brislington Meadows, Broomhill Road, Bristol BS4 4UD

Application for Outline Planning Permission with some matters reserved - Development of up to 260 new residential dwellings (Class C3 use) together with pedestrian, cycle and vehicular access, cycle and car parking, public open space and associated infrastructure. Approval sought for access with all other matters reserved. (Major)

We are unable to support this outline application as it is currently proposed, for the following reasons:

1. Brislington Meadows (the Meadows) are an almost unique heritage asset in Bristol, which will suffer substantial irreparable harm or total loss of significance if this development is allowed.
2. The site remains part of the Brislington Meadows SNCI, notwithstanding the fact that it was allocated for residential development when the 2014 Local Plan was adopted. As such, the requirements for protecting this part of the larger SNCI set out in DM19 still apply: this says that development which would have a harmful impact on the nature conservation value of a Site of Nature Conservation Interest will not be permitted.
3. If this application is approved, the opportunity will be lost to create an enhanced wildlife corridor between the Meadows and the protected habitats on Eastwood Farm and the Avon valley beyond.
4. The site contains thousands of trees comprising a wide range of native species (including a number of exceptional, mature ancient and veteran specimens), many of which will be lost if this development is allowed.
5. We have identified 13 historic ancient, native species-rich hedgerows, closely aligned with the field boundaries shown in the 1840 tithe map; many of these have been in existence since at least the 1780s. Each hedge forms an integral part of the historic asset of the Meadows and has an important impact on the biodiversity of the site. The proposal will see the removal of some 31% of the hedgerow habitat - 76% on the applicant's figures.
6. To replace the tree habitat lost plus the 10% net gain required, 644 new trees will be needed to generate the 2.62 hectares of new tree habitat that will be required after 30 years. The applicant's own Biodiversity Net Gain (BNG) calculation shows a net loss of 24.12% of habitat units but a 132.12% net gain of hedgerow units.
7. Our BNG calculation, cast differently from the applicant's, shows a net loss of 28.83% of habitat units with a small 2.81% net gain of hedgerow units rather than the much higher net gain that the applicant calculates.
8. No proposals have been made to offset this loss either on or off site.
9. The planning authority requires that all BNG submissions should be accompanied by a nature conservation and Landscape and Ecological Management Plan (a LEMP), but none has been provided.

Our reasons are set out in more detail below.

For the planning policy context of this application, see Appendix 1.



The application: how it falls short

1. The historical environment

All the evidence shows that Brislington Meadows (the Meadows) are an important part of Bristol's historical heritage. The area around Brislington is known to have been inhabited since long before the Romans invaded England, some two millennia ago. Archaeological evidence dating back to the Neolithic period is directly associated with the Meadows. Here are two examples:

- <https://www.wavewrights.com/brisorg/view.php?exhibit=220212a1>
- <https://www.wavewrights.com/brisorg/view.php?exhibit=220207a1>

The remains of a Roman villa from around AD 270-300 were also found in 1899 when Winchester Road was being built. This villa was probably the centre of a large estate that encompassed what is now known as the Meadows.¹ A fuller history of the area is set out in the applicant's own Historic Environment Assessment (HEA).²

Once part of Brislington Common, the Meadows were enclosed in 1778, which is probably when the hedgerows, seen on the 1846 tithe map (Figure 1 below), were first created. The *Site Report for October 2010 visit to fields around Victory Park Brislington Bristol* written by Ken Taylor, Chair of the Brislington Community Archaeology Project,³ provides more information about the history of the Meadows as well as listing the 1846 tithe apportionments and the uses of each field at the time. This is confirmed in a hedge survey undertaken by the late Richard Bland in 2014 (Appendix 2 and see Section 5 - The Hedgerows, below) and acknowledged by the applicant at paragraphs 4.55 to 4.57 of their HEA.

The HEA also recognises that the agricultural use of the site is far more ancient:

*The proposed development site contains the possible remains of ridge and furrow which may date to the medieval period (NDHA9). Under open field systems each manor would have two or three large fields arranged with narrow strips cultivated by tenants who could hold strips scattered across the fields. Common land was owned land over which there were traditional common rights of use such as grazing, wood collecting or turf cutting.*⁴

LiDAR data shows evidence of these vestiges of ridge and furrow lines on many of the fields.⁵ Ken Taylor, Chair of the Brislington Community Museum, reviews this evidence in his *A note on land use at Brislington Meadows* (Appendix 10). In addition, his article *Brislington Meadows - notes on some hedges* (Appendix 3), also discusses the evidence of lynchet rises along many of the hedgerows - also formed as a result of many years of ploughing. The balance of this evidence suggests that these features probably predate the enclosure of the land.

As the planning arboriculturist officer has observed (Appendix 7), 'the hedgerows on site are neglected ancient hedgerows that have been in existence since before 1840. The ancient/veteran oaks, ash and holly within the hedgerows provide a significant historical and cultural heritage locally and must therefore be retained during any development process.'

The remains of a waggon pond at the entrance to the lane running to the south of the allotments to School Road also points to the sites' long association with agriculture. The applicant recognises this: 'The historic landscape character of the proposed development site is predominantly

¹ <https://brislingtonhistory.org.uk/history.php>

² 22_01878_P-HISTORIC_ENVIRONMENT_ASSESSMENT-3200486

³ https://bristoltreeforum.files.wordpress.com/2022/07/2010-fields_around_victory_park.pdf

⁴ HEA at paragraph 4.29

⁵ HEA at paragraph 4.53 and https://kitwallace.co.uk/terrain/show-terrain.xq?id=BRISMEADOWS_DTM_1m&url=https://bristoltrees.space/Tree/sitecode/BRISMEADOWS

agricultural, historically open fields which were enclosed in the late 18th century.⁶

The Meadows clearly form an almost unique part of one of the key elements of Bristol's historical environment and, as such, fall to be considered under paragraphs 189 - 202 of the National Planning Policy Framework (NPPF), Bristol Core Strategy BCS22 and Development Management Policy DM31 (see Appendix 1). If there is substantial harm (or total loss of significance of the heritage asset), then paragraph 201 of the NPPF requires that 'local planning authorities should refuse consent, unless it can be demonstrated that the substantial harm or total loss is necessary to achieve substantial public benefits that outweigh that harm or loss.' Alternatively, the application must demonstrate that all the criteria set out in paragraph 201 are satisfied. Even if it were shown that there would be less than substantial harm, that harm must still be weighed against the public benefits of the proposal.

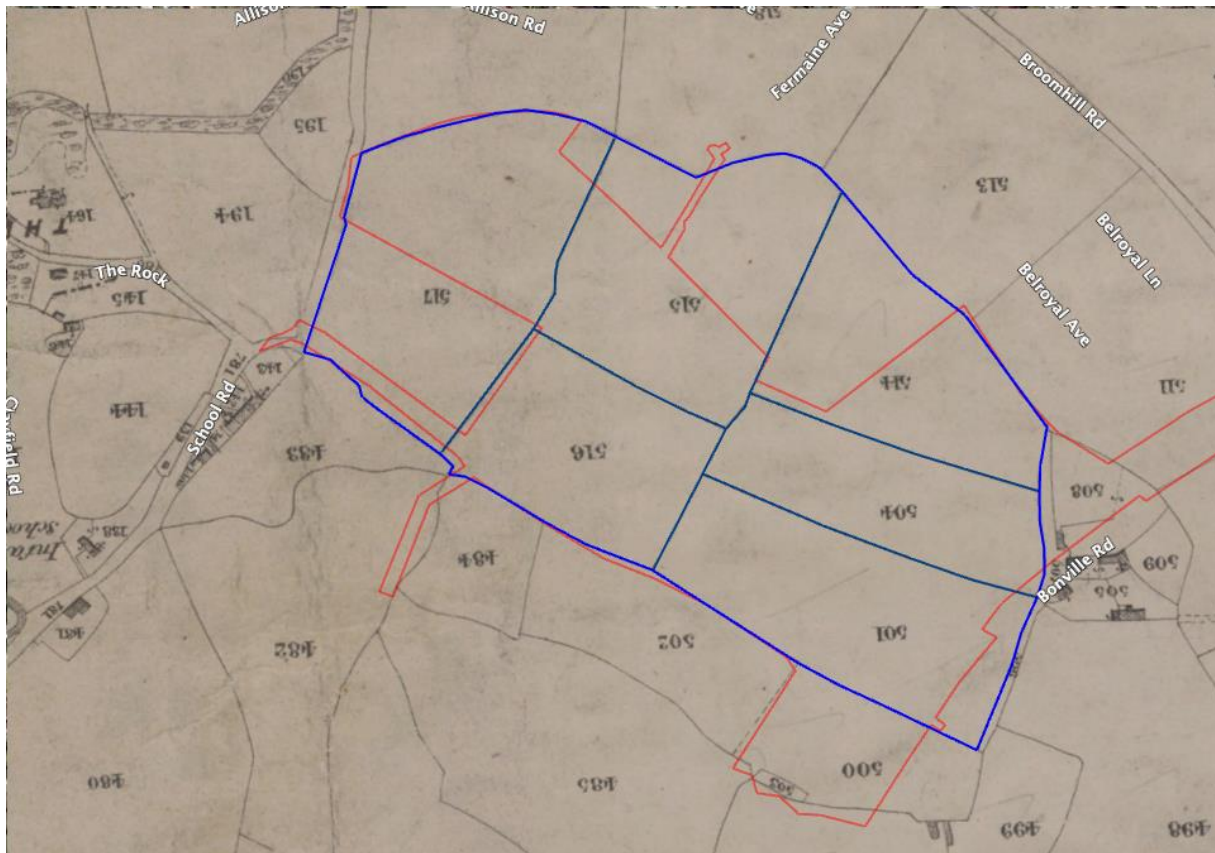


Figure 1 The 1846 tithe map superimposed (approximate) on the proposed red-line development area with hedgerows shown then and now outlined in blue.

The Bristol Core Strategy BCS22: Conservation and the Historic Environment aims to ensure that 'all new development safeguards or enhances the historic environment' and that 'Development proposals will safeguard or enhance heritage assets and the character and setting of areas of acknowledged importance, including gardens and Conservation areas.'

DM31 recognises that Heritage assets, which can range from whole landscapes to individual items of street furniture, are a finite non-renewable resource that can often be irreparably damaged by insensitive development. In particular, it requires that 'proposals affecting locally important heritage assets should ensure they are conserved having regard to their significance and the degree

⁶ Paragraph 4.54 of the HEA



of any harm or loss of significance.’

The applicant’s proposals will destroy most if not all of this heritage - the ancient, species-rich hedgerows and the trees associated with them, the ridge and furrow and lynchet rises and the waggon pond - all evidence of ancient farming practices. What is proposed will not safeguard or enhance this important historic environment. It will instead cause ‘substantial harm’, which does not outweigh any public benefit proposed.

Unless it can be demonstrated that the loss of this historic landscape is necessary to achieve substantial public benefits that outweigh that loss, the local planning authority should refuse consent.

2. The SNCI status of the site

The applicant asserts that ‘Paragraph 1.6 of the Outline Biodiversity Net Gain Assessment states “Prior to allocation in 2014, the site was part of the SNCI known as Brislington Meadows. The allocation part was deregistered as an SNCI to enable allocation for residential development as part of the Local Plan housing review. This was apparently confirmed with BCC’s Nature Conservation Officer (Dr. Nick Michael) in August 2020.”’⁷

We have challenged this assertion and issued Freedom of Information requests both to Natural England⁸ and to Bristol City Council⁹ requesting proof of this. Natural England holds no information, and the Council has yet to provide the information requested.

The development site was first allocated as a potential housing development site when the current iteration of the Local Plan was adopted in July 2014 (BSA1201 - Land at Broomhill, Brislington).¹⁰ Part of the development considerations recognised that any plans should, amongst other things:

- be informed by an ecological survey of the site and make provision for mitigation and compensation measures, including enhancement to the grazing land adjacent to Victory Park and compensation for the loss of semi-improved neutral grassland and damp grassland (the site currently has city-wide importance for nature conservation due to the presence and condition of particular species, habitats and/or features)
- retain or incorporate important trees and hedgerows within the development, to be identified by a tree survey
- provide a green infrastructure link with Eastwood Farm Open Space to the north-east.

However, as far as we can ascertain, no formal steps were taken to remove the 9.1 hectares comprising the site from the Brislington Meadows SNCI (BC16) when the Local Plan was adopted. This is why the records BRERC¹¹ held as of 11 January 2022 still confirm that the site remains part of the SNCI (Figure 2 below). As far as we are aware, this has not changed.

The SNCI is described as “Semi-improved neutral grasslands that may include areas of Priority Habitat Lowland Meadow (Criteria 3), stream, marshland and scrub woodland containing a wasteland area. Black Knapweed (*Centaurea nigra*), rushes, Brooklime (*Veronica beccabunga*).” The main Priority habitat noted by BRERC on the allocation site is Lowland Meadows. The onsite Phase 1 habitats there are listed as: Neutral grassland semi improved, Neutral grassland unimproved and Scrub dense/continuous. its south-western boundary comprises Broadleaved woodland. The

⁷ 22_01878_P-OUTLINE_BIODIVERSITY_NET_GAIN_ASSESSMENT-3200573.

⁸ https://www.whatdotheyknow.com/request/please_provide_evidence_of_the_d

⁹ https://www.whatdotheyknow.com/request/deregistration_of_the_snci_at_br

¹⁰

<https://www.bristol.gov.uk/documents/20182/34540/Site%20Allocations%20Annex%20Adopted%20July%202014%20Indexed.pdf/d6dfdc7e-0f55-4a07-be74-9cd5fffaa64d>

¹¹ <https://www.brerc.org.uk/index.htm>

site is also immediately adjacent to or part of a number of Bristol Wildlife Network sites recorded by BRERC. In particular, the strip of land joining the site with Broomhill Road forms an important wildlife corridor to the Eastwood Farm SNCI on the banks of the Avon to the east, BC47.

The following documents also reinforce the special nature conservation interest of this site:

- The Brislington Meadows hedge survey by Richard Bland on 28 May 2014 (Appendix 2)
- Brislington Meadow SNCI review undertaken on 10 December 2010 (Appendix 5)
- The Field Survey of Brislington Meadows - 15 October 2010 (Appendix 6).

BRERC also records three veteran trees - 623, 643 and 1,046 - though there is no sign of tree 1,046 any more.

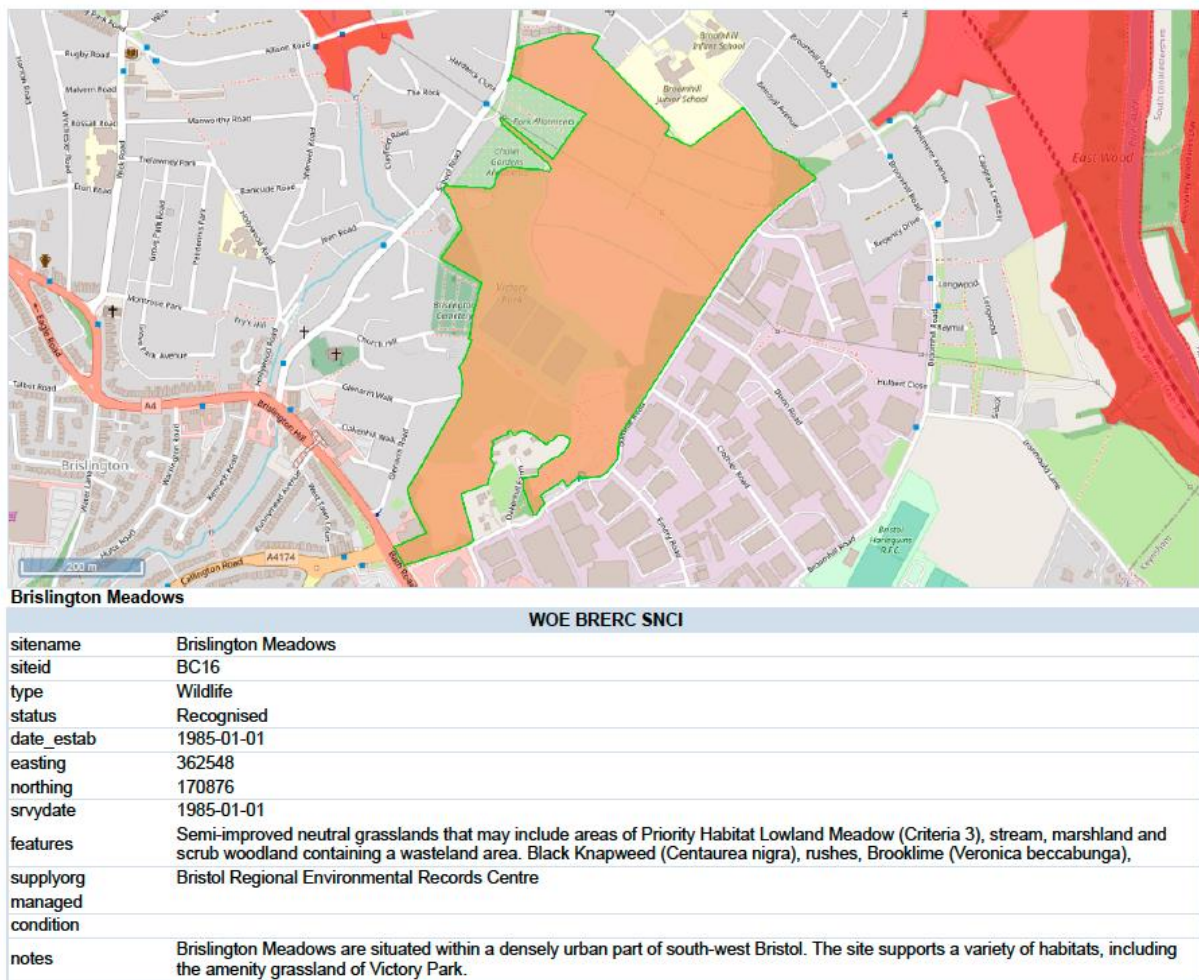


Figure 2 BRERC SNCI Record

DM19 (see Appendix 1) states that development which would have a harmful impact on the nature conservation value of an SNCI will not be permitted.

3. The site access proposal

One of the main parts of this application is for the construction of pedestrian, cycle and vehicular access. This overlaps the still pending application 21/00550/P | *Outline application for preliminary works to deliver a 'Green Link' between Brislington Meadows and Broomhill Road, including the*

laying of a pedestrian footpath, ecological enhancements and provision of a temporary construction access and compound within the site to facilitate the preliminary works.

The proposal is that the only viable vehicular access to the site is in the north-east corner (Figure 3 below). This will be developed to allow vehicular as well as pedestrian access and to build four houses along this route. All traffic to and from the site will use this one access point.

This proposed street, which will need street lighting, forms the only remaining wildlife corridor into the Eastwood Farm SNCI and the meadows and woodlands beyond, which lead down to the banks of the Avon River. This corridor was expanded following the demolition of Sinnott House, the building on Broomhill Road, by the applicant in 2020,¹² no doubt in anticipation of this application. The removal of this building added to the potential of this wildlife corridor.

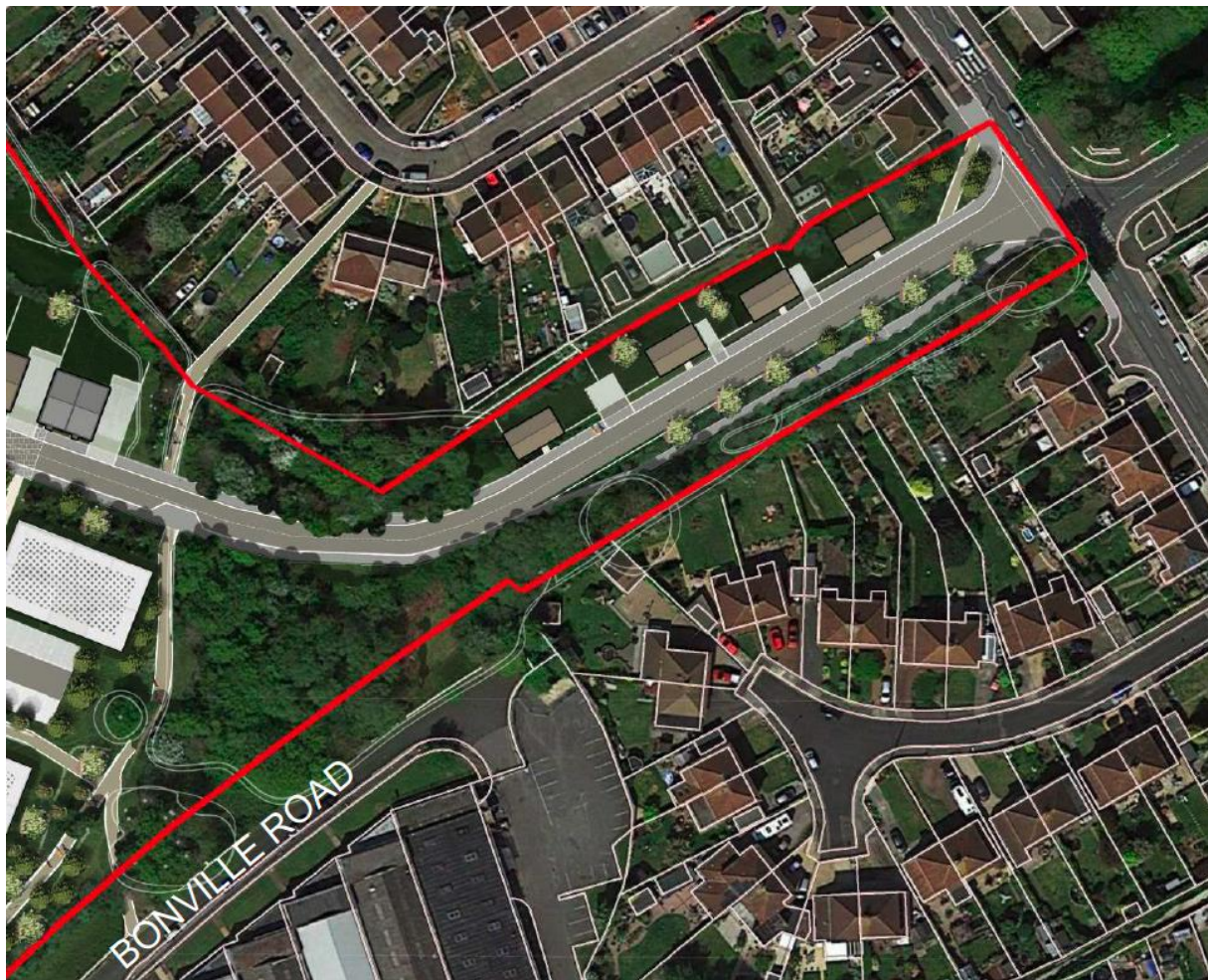


Figure 3 Detail taken from the illustrative master plan submitted with this application¹³

Whilst a narrow green verge is shown on the master plan, these proposals will result in the destruction of a significant area of habitat (406 sq m of tree group G37, 947 sq m of woodland W2 and 15 metres of hedgerow H6/H13 (see Appendix 8)). What could have been an excellent opportunity to 'connect any identified on-site habitats, species or features to nearby corridors in

¹² <https://pa.bristol.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=QCOMNVNLR00>

¹³ 22_01878_P-ILLUSTRATIVE_MASTERPLAN-3200507



the Wildlife Network'¹⁴ will be lost.

Development Management policy DM19: Development and Nature Conservation (Appendix 1) notes that 'together the SNCIs and connected sites in Wildlife Corridors form the Bristol Wildlife Network' and adds:

Development which would have a harmful impact on the connectivity and function of sites in Wildlife Corridors will only be permitted where the loss in connectivity, or function, of an existing Wildlife Corridor is mitigated in line with the following hierarchy:

- a. Creation of a new wildlife corridor within the development site*
- b. Enhancement of an existing corridor or creation of a new corridor off-site to maintain the connectivity of the Bristol Wildlife Network.*

The applicant's plans propose neither of these mitigations; no new wildlife corridor is proposed within the development site and no enhancement of an existing corridor or creation of a new corridor off-site has been suggested.

4. Tree surveys and BTRS analysis

The planning authority's arboricultural officer's response to the original pre-application, 19/05220/PREAPP (Appendix 7), confirmed that 'a number of the ancient oak and holly trees plotted during the mapping of the area are still in existence today'. They noted that 'the fields a [sic] divided by ancient hedgerows that contain ancient oak, holly and hawthorn trees.'

They also noted that 'the most predominate [sic] species on site is Hawthorn (*Crataegus monogyna*) which forms the major species within the hedgerows. Mature oak (*Quercus robur*) and Holly (*Ilex aquifolium*) form the majority of the climax species with ash, field maple, elder, blackthorn and Hazel present to a lesser degree.

The applicant's arboricultural Impact Assessment (AIA)¹⁵ identifies just 36 trees as well as 19 tree groups and two woodlands. We estimate that these tree groups and woodlands contain around 2,800 to 3,000 trees comprising a wide range of native species ranging from outgrown shrubby Blackthorn to large, well-established, mature Ash and Oak, one of which (T6) is a veteran.

16 of the trees are protected with a TPO, as are three groups (G1, G2, G3) and one woodland (W1).

Three of the individual trees have been identified for removal (T9, T16 & T28). This is because they are "... in conflict with capacity plan". If these tree trees are removed, then the Bristol Tree Replacement Standard (BTRS) will require that they be replaced with 14 new trees.

However, a significant percentage of group and woodland trees have been identified for removal - some 0.8 hectares of the canopy on the most recent estimate - but no tree count has been undertaken so it is not possible to calculate the number of BTRS replacements that will be required.

We suspect that most of the group trees will have stem diameters (called DBH) which are below the 15cm lower BTRS limit. If this is the case, then their loss will have to be accounted for by using, we suggest, using the BNG methodology set out in Section 4 below. In the end, it will be for the planning authority to decide how best to treat these losses for the purposes of BTRS.

The trees lost in the W2 woodland will need a BTRS calculation. The AIA gives stem diameters between 12-60 cm - a median DBH of 36 cm, so three trees would be needed for each tree lost. We calculate that 47 of the woodland trees will be removed. Applying BTRS, the number of replacement trees required would be - $47 \times 3 = 141$. However, more information will be needed

¹⁴ DM 19 - Appendix 1.

¹⁵ 22_01878_P-ARBORICULTURAL_IMPACT_ASSESSMENT-3200578

before the BTRS issue can be resolved.

5. The hedgerows

Paragraph 4.56 of the HEA recognises that “The hedgerows can be demonstrated from historic mapping to pre-date 1850, meeting criterias 5a and 5b, and are therefore considered in this report as ‘important’. The historic evidence for the age of the hedgerows on the site is discussed in Section 1 above. Paragraph 6.15 goes on to state: ‘Development within the proposed development site has the potential to impact upon historic hedgerows assessed as important under the Hedgerow Regulations Act. Development within the site may result in partial or total removal of historic hedgerows.’

Despite this, the HEA then asserts that ‘the hedgerows are of low heritage significance’, even though it is accepted that ‘the magnitude of effect [of the proposal] would be moderate to high. It is then suggested that ‘the impact would be minor adverse.’

We do not accept that ‘the hedgerows are of low heritage significance’ or that ‘the impact would be minor adverse.’ Whilst it is clear that the hedgerows have become significantly outgrown and expanded by bramble and blackthorn growth, it is possible to see that their original cores still exist when viewed from above (Figure 4 below).

When the late Richard Bland surveyed the site in 2014 (Appendix 2), he noted that ‘the 1880s map shows a large number of trees, many of which will have been elms and have gone. It is thus clear that, as was a very old tradition, the hedges combined the traditional hedge species, mainly hawthorn and hazel with large trees that would have been felled at need. The oldest trees in the hedges are at least 160 years old, and it is fair to assume that the shrubby species are the same age.’ He adds: ‘A very few of the species in the hedges show clear signs that they were formerly laid in the traditional manner, but many of them suggest that the hedges were simply maintained by clipping. If the fields were ever arable the hedges do not need to be stock proof.’



Figure 4 Part of the meadows viewed from above showing the original hedgerows still in place.

The applicant has identified six hedgerows totalling 0.712 km in length. We have identified 13 totalling 1.71 km in length. These 13 are closely aligned with the field boundaries shown in the 1840 tithe map (Figure 1). Appendix 8 is a table setting out our analysis of the site. This shows that each hedgerow is native species rich, averaging six different species each and comprises substantial original and outgrown trees. We have designated most of the hedges as *Native Species Rich Hedgerow with trees* habitats, though four of those with evident lynchet rises (see Appendix 3) we have designated *Native Species Rich Hedgerow with trees - Associated with bank or ditch* habitats. This has an important impact on the biodiversity net gain calculation (BNG) discussed in Section 5 below.

Of the 1.71 kilometres of hedgerow that we have identified on the site, the proposal will see the removal of some or all of five hedgerows amounting to about 0.54 km - some 31% of the hedgerow habitat. The loss increases to 76% If the applicant's analysis is accepted.

6. Biodiversity net gain analysis

Save for the exceptions discussed below, we have adopted the applicant's BNG calculations.

a. Strategic significance

We do not agree with the applicant's designation of the habitats on the site as having a medium strategic significance of *Location ecologically desirable but not in local strategy*. The site is specifically identified for housing development in the 2014 Local Plan - BSA1201 - Land at Broomhill, Brislington. We have set the strategic significance of all the habitats there as High - *Within area formally identified in local strategy*.

b. The appropriate BNG metric

The applicant relies on BNG 3.0. However, the basis upon which the areas of Urban tree habitats are calculated in BNG 3.0 is flawed because the table produced at 7-2 of the BNG 3.0 User Guide is unusable. This is because it is impossible (save where a DBH exactly matches one of the three size categories given - 10cm, 30cm & 50cm) to allocate any given tree's DBH to any of the three size categories - Small, Medium, Large - that are listed (see Figure 5 below).¹⁶

7.12 The area calculation for Urban trees is worked out using a Root Protection Area (RPA)⁴⁹ formula. The Urban tree helper uses the RPA to generate an area equivalent value. (See Table 7-2.)

TABLE 7-2: Urban tree size by girth and their area equivalent

Size	Diameter at Breast Height (cm)	Stem Diameter (cm)	RPA (radius in metres)	Area equivalent (ha)	No. of Trees equivalent to 1 ha
Small	30cm	10cm	1.2m	0.0005 ha	2,000 trees
Medium	90cm	30cm	3.6m	0.0041 ha	244 trees
Large	150cm	50cm	6 m	0.113	89 trees

Figure 5 BNG 3.0 Table 7-2

¹⁶ The second column heading is also incorrect - the measurement refers to stem girth, not DBH diameter.

This has been rectified with the recent publication of BNG 3.1 which now gives this useable guidance for Urban tree habitat calculation (Figure 6 below):

Calculating area

Baseline

7.9. The area calculation for Urban trees is worked out using the Root Protection Area (RPA) (British Standards Institution, 2012)⁴⁴ formula **area = $\pi \times r^2$** where **r** is twelve times the tree's Diameter at Breast Height (DBH) for a single stemmed tree. For multi-stemmed trees the DBH of the largest stem in the cluster should be used to determine radius (**r**).

- Where detailed measurements are available to the assessor, through an Arboricultural Impact Assessment (AIA) or similar, these measurements should be used to determine the area measurement for use with the biodiversity metric.
- The area of all trees within the project boundary should be accounted for, regardless whether a tree would require root protective measures or not.

⁴⁴ For more information see: THE BRITISH STANDARDS INSTITUTION (BSI) (2012) *Trees in relation to design, demolition and construction – recommendations* [online]. Available from: [British Standard 5837 2012 Trees in relation to design, demolition and construction](#)

Therefore, DBH values within AIA reports should be used to calculate area values for use with the metric (rather than RPA's prescribed by the AIA).

7.10. In the absence of detailed measurements, the 'Urban tree helper' may be used to generate an area equivalent RPA value (for example, at project scoping prior to detailed survey). The urban tree helper is found within the 'Main menu' of the metric tool. Table 7-2 sets out class sizes of Urban tree sizes, and area equivalent (for input into the metric tool).

Figure 6 The approach to use when calculating Urban tree habitat (see Figure 7 below for Table 7-2)

On this basis, we propose that Table 3 produced at **Section 4 Tree Population** of the amended AIA be corrected to reflect the latest canopy cover provided by the author of the AIA on 5 July 2022 for the group and woodland trees (see Appendix 9) thus:

Baseline Tree Habitats (ha)			
Trees	Baseline	Remove	Retain
Urban Trees (RPA)	0.8353	0.0349	0.8004
Group Trees (canopy area)	1.8200	0.7243	1.0957
Woodland Trees (canopy area)	0.7431	0.0947	0.6484
Total	3.3984	0.8539	2.5445

The Urban trees habitat values are the combined RPAs of the 36 trees surveyed calculated using paragraph 7.9 in Figure 3 above. The Group and Woodland tree values are based on their combined surveyed canopies and treated as *Woodland and forest - Other woodland; broadleaved* habitats.

We have adopted this approach and, using the applicant's AIA, calculate that the baseline habitat area of the trees on site is 1.1142 hectares, of which 0.3702 hectares will be removed and 0.744 hectares retained.

c. Urban tree habitat creation

The methodology for new habitat creation used in BNG 3.1, as set out in Figure 7 below:

TABLE 7-2: Urban tree size classes and their area equivalent			
Size class	Diameter at breast height (cm)	Metric RPA radius (m)	Metric area equivalent (ha)
Small	≤ 30cm	3.6m	0.0041 ha
Medium	> 30 to ≤ 90cm	10.8m	0.0366 ha
Large	> 90cm	15.6m	0.0764 ha

Post-development

7.11. When calculating the area for newly planted Urban trees Table 7-2 should be used. Size classes for newly planted trees should be classified by projected size at 30 years from planting.

7.12. When determining post-development changes to rural hedgerows and lines of trees recorded in the baseline (see Chapter 8) these should not be entered post-development as linear blocks of Urban trees. This is to satisfy trading rules.

Figure 7 The methodology for creating new Urban tree habitat

We have adopted the approach set out in paragraph 7.11 and, using the new version of Table 7-2 (Figure 7 above), have calculated that a Standard stock tree¹⁷ planted today will have grown into a BNG 3.1 Small category (BNG 3.0 Medium category) tree at the end of 30 years.¹⁸

The BNG 3.1 Trading Rules also state (Figure 8 below):

<u>Trading Rules</u>	
7.8.	The mitigation hierarchy and trading rules apply to Urban trees. Given Urban trees are a 'Medium' distinctiveness habitat trading rules stipulate that the same broad habitat type (or a higher distinctiveness habitat) is required. However, given the important ecosystem services value provided by trees, where possible 'like for like' compensation is the preferred approach (i.e. where possible any loss of Urban trees should be replaced by Urban trees - rather than other urban habitats).

Figure 8 BNG 3.1 Trading Rules

¹⁷ Stock tree sizes are set out in BS 3936-1.

¹⁸ See <https://bristoltreeforum.org/2022/06/07/our-proposal-for-a-new-bristol-tree-replacement-standard%ef%bf%bc/>

The new trading rules make it clear that lost Urban tree habitat must be replaced like-for-like and so cannot be replaced by the creation of other habitat types - any trees lost as a result of this proposal must be replaced with new trees.

Using this approach, we calculate that the 401 trees proposed to be planted on site will generate 1.64 hectares of new Urban tree habitat after 30 years. This is on the basis that a new Standard tree planted today will produce a Small BNG 3.1 category tree with an RPA of 0.0041 hectares after 30 years. We have ignored the high risk of failure that is often found when urban trees are planted¹⁹ and assumed that a suitably drafted and executed Landscape and Ecological Management Plan (LEMP) will have been put in place.

However, if all the Urban tree habitat lost plus 10% net gain is going to be replaced, then 644 new trees will be needed to generate the 2.62 hectares of new tree habitat that will be needed after 30 years.

d. The hedgerow habitats

See the discussion at Section 4 above and the baseline linear values set out in Appendix 3, both of which explain the linear BNG habitats that we have used. This information has been used to populate the baseline hedgerow habitats.

e. Summary

The applicant's own BNG calculation shows a net loss of 24.12% of habitat units but a 132.12% net gain of hedgerow units.

Our own BNG calculation, cast differently from the applicant's, shows a very similar net loss of 24.97% of habitat units but with only a marginal 2.81% net gain of hedgerow units (Figure 9 below).

Brislington Meadows		Return to results menu	
Headline Results			
On-site baseline	Habitat units	92.31	
	Hedgerow units	24.71	
	River units	0.00	
On-site post-intervention (Including habitat retention, creation & enhancement)	Habitat units	69.26	
	Hedgerow units	25.40	
	River units	0.00	
On-site net % change (Including habitat retention, creation & enhancement)	Habitat units	-24.97%	
	Hedgerow units	2.81%	
	River units	0.00%	
Off-site baseline	Habitat units	0.00	
	Hedgerow units	0.00	
	River units	0.00	
Off-site post-intervention (Including habitat retention, creation & enhancement)	Habitat units	0.00	
	Hedgerow units	0.00	
	River units	0.00	
Total net unit change (including all on-site & off-site habitat retention, creation & enhancement)	Habitat units	-23.05	
	Hedgerow units	0.69	
	River units	0.00	
Total on-site net % change plus off-site surplus (including all on-site & off-site habitat retention, creation & enhancement)	Habitat units	-24.97%	
	Hedgerow units	2.81%	
	River units	0.00%	
Trading rules Satisfied?		No - Check Trading Summary	

Figure 9 BNG 3.0 calculation Headline results.

¹⁹ https://www.fs.fed.us/nrs/pubs/jrnl/2014/nrs_2014_roman_001.pdf



7. Bristol LPA guidance on BNG

The latest guidance we have seen from Bristol LPA on the requirements for biodiversity net gain is as follows:

“Ecological mitigation is required to meet the requirements of the National Planning Policy Framework (NPPF). The National Planning Policy Framework (2019) states in paragraph 170(d) on page 49 that planning decisions should minimise impacts on and provide net gains for biodiversity. It is recommended that the proposal employs Defra / Natural England’s Biodiversity Net Gain (BNG) biodiversity metric 2.0 (as updated) to develop ecological mitigation proposals. The BNG assessment should be undertaken prior to the validation of a future planning application and not conditioned. Planning applications submitted to Bristol City Council should demonstrate a positive biodiversity gain when using this metric. Please note that this may require off-site mitigation to achieve a Biodiversity Net Gain. Applicants should provide full details of their data, measurements and workings used to calculate the percentage BNG. Engagement with the Council’s pre-application process to inform BNG proposals and the design of ecological mitigation proposals at an early stage is encouraged. The Defra Biodiversity Net Gain (BNG) Biodiversity Metric 2.0 includes an off-site module which is fully integrated within the methodology. If a positive on-site BNG score cannot be achieved, the off-site module should be used as the automatic next step to achieve a positive BNG score.

A financial contribution is not an acceptable way forward because it does not calculate biodiversity units and so will be an arbitrary figure that will be very difficult to calculate or justify.

All BNG submissions should be accompanied by a nature conservation and landscape management plan which addresses features of interest, objectives, management compartments and prescriptions, a work schedule including a thirty year annual work plan, resourcing including a financial budget and ecological monitoring. This should cover a 30 year period.

Please note that if the Environment Bill is passed, a future planning application will be required to demonstrate a mandatory minimum 10% Biodiversity Net Gain as measured using the Defra Biodiversity Metric 2.0 (as amended).”²⁰

Save that the relevant paragraph in the NPPF (2021) is now 174 d)²¹, that the current biodiversity net gain metric is BNG 3.1 and that the Environment Act 2021 is now law, and the mandatory minimum 10% Biodiversity Net Gain will take effect next year, this guidance still applies.

Both on the applicant’s and on our analysis, the applicant fails to ‘provide net gains for biodiversity’ or to ‘demonstrate a positive biodiversity gain when using this metric.’

The applicant also proposes that ‘management prescriptions to establish habitats at (or above) their required condition is detailed within a Landscape and Ecological Management Plan (LEMP), secured by an appropriately worded planning condition.’ However, the guidance above states that ‘all BNG submissions should be accompanied by a nature conservation and landscape management plan which addresses features of interest, objectives, management compartments and prescriptions, a work schedule including a thirty year annual work plan, resourcing including a financial budget and ecological monitoring. This should cover a 30 year period.’ This cannot be ‘secured by an appropriately worded planning condition’ to be prepared at a later date nor be

²⁰ Dr Nick Michael, BCC Nature Conservation Officer - planning application 22/01878/P - Ecological Technical Appendix A Desk Study - 7507.20.039 published as ECOLOGICAL_DESK_STUDY-3200493. Appendix A. (see also Appendix 4)

²¹ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf



limited to just 27 years.

For all the reasons set out above, the applicant has failed to comply with the minimum requirements of the planning authority and its application must therefore be refused.

Bristol Tree Forum
13 July 2022



Appendices

Appendix 1 - The Planning Context

The National Planning Policy Framework (the Framework), the Mitigation Hierarchy and Bristol's core planning policies, BCS9 - Green Infrastructure, DM15: Green Infrastructure Provision and DM17 Development Involving Existing Green Infrastructure - the local policies upon which the goals of the Framework may be achieved - are set out below. This is the case whether or not the relevant sections of the Environment Act 2021 have been enabled by the time this application is decided.

1. The National Planning Policy Framework

This Framework seeks to ensure that new development is sustainable. It stresses the importance of green Infrastructure as one of three overarching, interdependent objectives - economic, social and environmental. This means that sustainable environmental development is no less important than the economic and social development objectives.

The whole emphasis of the environmental objective has changed to become much more imperative with the publication of the latest version of the Framework last July. It now reads:

an environmental objective - to protect and enhance our natural, built and historic environment, including making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.

Furthermore, with the introduction of a new paragraph 131, trees are made an integral part of this:

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.

Paragraph 174 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); ...

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 ...

Paragraph 180 states:

When determining planning applications, local planning authorities should apply the following principles:

- a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;*
- b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;*
- 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; and*
- d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.*

Paragraph 185 states:

Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:

- a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development - and avoid noise giving rise to significant adverse impacts on health and the quality of life;*
- b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason; and*
- c) limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.*

Conserving and enhancing the historic environment

The NPPF also sets out how development within a Conservation Area should be considered:

189. Heritage assets range from sites and buildings of local historic value to those of the highest significance, such as World Heritage Sites which are internationally recognised to be of Outstanding Universal Value. These assets are an irreplaceable resource, and should be conserved in a manner appropriate to their significance, so that they can be enjoyed for their



contribution to the quality of life of existing and future generations...

... 199. When considering the impact of a proposed development on the significance of a designated heritage asset, great weight should be given to the asset's conservation (and the more important the asset, the greater the weight should be). This is irrespective of whether any potential harm amounts to substantial harm, total loss or less than substantial harm to its significance.

200. Any harm to, or loss of, the significance of a designated heritage asset (from its alteration or destruction, or from development within its setting), should require clear and convincing justification...

201. Where a proposed development will lead to substantial harm to (or total loss of significance of) a designated heritage asset, local planning authorities should refuse consent, unless it can be demonstrated that the substantial harm or total loss is necessary to achieve substantial public benefits that outweigh that harm or loss, or all of the following apply:

- a) the nature of the heritage asset prevents all reasonable uses of the site; and*
- b) no viable use of the heritage asset itself can be found in the medium term through appropriate marketing that will enable its conservation; and*
- c) conservation by grant-funding or some form of not for profit, charitable or public ownership is demonstrably not possible; and*
- d) the harm or loss is outweighed by the benefit of bringing the site back into use.*

202. Where a development proposal will lead to less than substantial harm to the significance of a designated heritage asset, this harm should be weighed against the public benefits of the proposal including, where appropriate, securing its optimum viable use.

203. The effect of an application on the significance of a non-designated heritage asset should be taken into account in determining the application. In weighing applications that directly or indirectly affect non-designated heritage assets, a balanced judgement will be required having regard to the scale of any harm or loss and the significance of the heritage asset.

2. Biodiversity Net Gain

With the recent publication of Biodiversity Metric 3.1, (BM3.1), a new way of measuring and accounting for biodiversity losses and gains resulting from development or land management change has been adopted. Net Gain is defined as an:

... approach to development that aims to leave the natural environment in a measurably better state than beforehand. This means protecting existing habitats and ensuring that lost or degraded environmental features are compensated for by restoring or creating environmental features that are of greater value to wildlife and people. It does not change the fact that losses should be avoided where possible, a key part of adhering to a core environmental planning principle called the mitigation hierarchy.

3. The Mitigation Hierarchy

Ideally, development should always be planned around existing trees whatever their size or quality. This is because an established tree that is retained offers far more benefits and ecoservices than newly planted trees (no matter how many are planted), whose potential will take decades to be realised, if indeed it ever is.



The mitigation hierarchy provides a cascading decision process: only if the preceding choice is unavailable is the next one considered.

2. Avoid - Where possible, habitat damage should be avoided.
3. Minimise - Where possible, habitat damage and loss should be minimised.
4. Remediate - Where possible, any damage or lost habitat should be restored.
5. Compensate - As a last resort, damaged or lost habitat should be compensated for.

This is encapsulated in NPPF, paragraph 180 a) above

4. Local planning policies

Local planning authorities have a duty to consider both the protection and planting of trees (an important part of Green Infrastructure) when considering planning applications. The potential impact of development on all trees is therefore a material consideration. The following key planning policies relate to this application:²²

a. BCS9: Green infrastructure

BCS9 states that 'Individual green assets should be retained wherever possible and integrated into new development.'

Where habitat damage cannot be avoided (which we would dispute), BTRS and the Biodiversity Metric are two tools which the planning authority can use to ensure that:

- the integrity and connectivity of the strategic green infrastructure network will be maintained, protected and enhanced
- opportunities to extend the coverage and connectivity of the existing strategic green infrastructure network are taken
- individual green assets are retained wherever possible and integrated into new development
- appropriate mitigation of the lost green infrastructure assets is required
- development should incorporate new and/or enhanced green infrastructure of an appropriate type, standard and size
- where on-site provision of green infrastructure is not possible, contributions will be sought to make appropriate provision for green infrastructure off site.

²² [https://www.bristol.gov.uk/documents/20182/34540/Core+Strategy+WEB+PDF+\(low+res+with+links\)_0.pdf](https://www.bristol.gov.uk/documents/20182/34540/Core+Strategy+WEB+PDF+(low+res+with+links)_0.pdf)



b. BCS22: Conservation and the Historic Environment

- The aim of this policy is to ensure that all new development safeguards or enhances the historic environment.
- Development proposals will safeguard or enhance heritage assets and the character and setting of areas of acknowledged importance including: ...Historic parks and gardens both nationally and locally listed; Conservation areas...

c. DM15: Green infrastructure provision

The provision of additional and/or improved management of existing trees will be expected as part of the landscape treatment of new development. The design, size, species and placement of trees provided as part of the landscape treatment will be expected to take practicable opportunities to:

- connect the development site to the Strategic Green Infrastructure Network, and/or Bristol Wildlife Network
- assist in reducing or mitigating run-off and flood risk on the development site
- assist in providing shade and shelter to address urban cooling
- create a strong framework of street trees to enclose or mitigate the visual impact of a development.

d. DM17: Development involving existing green infrastructure

Trees DM17 also recognises the important status of trees.

All new development should integrate important existing trees. Development which would result in the loss of Ancient Woodland, Aged trees or Veteran trees will not be permitted.

Where tree loss or damage is essential to allow for appropriate development, replacement trees of an appropriate species should be provided...

Due to their characteristics and value, Aged and Veteran trees are considered to be of relatively greater importance than other trees and even trees of a similar species. Aged trees, by definition, have developed characteristics associated with great age and often have particular landscape and townscape value. Veteran trees are considered to have particularly important nature conservation value. Both will often have significant visual amenity, and potentially historic and cultural importance. As such their loss or harm will not be permitted, and the design and layout of development will be expected to integrate them into development.

Trees are considered valuable multifunctional green infrastructure assets. The policy seeks to protect the most valuable trees and in line with the Core Strategy approach to green infrastructure assets, mitigate for the loss of other important trees by securing replacement trees on-site or in the public realm. The tree compensation standard set out in this policy provides a suitable mechanism to determine the appropriate level of mitigation where loss of trees is proposed as part of development.

The council's Planning Obligations Supplementary Planning Document sets out the circumstances when off-site tree provision will be necessary. Where trees are to be provided off-site, planning obligations will be sought to provide the appropriate number of replacement trees, utilising the



approach set out in the Supplementary Planning Document...

Where trees are present on a development site a British Standard 5837 Tree Survey 'Trees in relation to Construction survey' and related survey information should be submitted along with an application for planning permission.

Important open spaces

Development on part, or all, of an Important Open Space as designated on the Policies Map will not be permitted unless the development is ancillary to the open space use.

Important open spaces with a role and value for recreation, leisure, community use, townscape, landscape or visual amenity quality are designated and shown on the Policies Map and protected from development.

Under DM17, development of features such as these are not permitted:

- unless the development is ancillary to the open space use
- if it would result in the loss of open space which is locally important for recreation, leisure and community use, townscape and visual amenity.

e. Policy DM19: Development and Nature Conservation

Bristol contains a wide range of important nature conservation sites that contribute to a varied stock of natural habitats and species. The city has two sites of international importance. One of which is the Avon Gorge SAC.

DM19 makes it clear that Development which would be likely to have any impact upon habitat, species or features, which contribute to nature conservation in Bristol will be expected to:

- i. Be informed by an appropriate survey and assessment of impacts; and
- ii. Be designed and sited, in so far as practicably and viably possible, to avoid any harm to identified habitats, species and features of importance; and
- iii. Take opportunities to connect any identified on-site habitats, species or features to nearby corridors in the Wildlife Network.

Where loss of nature conservation value would arise development will be expected to provide mitigation on-site and where this is not possible provide mitigation off-site. Development on or adjacent to sites of nature conservation value will be expected to enhance the site's nature conservation value through the design and placement of any green infrastructure provided.

Local nature conservation sites help to ensure the habitats, species and features of value are adequately protected and allow for appropriate public access to nature. Local nature conservation sites in Bristol include Sites of Nature Conservation Interest (SNCIs), Regionally Important Geological Sites (RIGS) and Wildlife Corridors. These sites provide a refuge for flora and fauna; contribute to national biodiversity and geodiversity targets; add to the local character and distinctiveness of an area; contribute to quality of life; enhance the natural processes that support quality of life by maintaining air, soil and water quality; and can also reduce the effects of flooding and pollution.



Together the SNCIs and connected sites in Wildlife Corridors form the Bristol Wildlife Network. This network strengthens the resilience of species and habitats to changes in the built and natural environment, including rising temperatures and flood risk associated with climate change. It also encourages public interaction with wildlife and an appreciation and understanding of nature conservation which makes a positive contribution to the quality of life in Bristol.

Sites of Nature Conservation Interest

Development which would have a harmful impact on the nature conservation value of a Site of Nature Conservation Interest will not be permitted.

Wildlife Corridors

Development which would have a harmful impact on the connectivity and function of sites in Wildlife Corridors will only be permitted where the loss in connectivity, or function, of an existing Wildlife Corridor is mitigated in line with the following hierarchy:

- a. Creation of a new wildlife corridor within the development site;
- b. Enhancement of an existing corridor or creation of a new corridor off-site to maintain the connectivity of the Bristol Wildlife Network.

f. Policy DM31: Heritage Assets

Heritage assets, which can range from whole landscapes to individual items of street furniture, are a finite non-renewable resource that can often be irreparably damaged by insensitive development. Great weight is given to the conservation of designated heritage assets. As set out in the Core Strategy, the historic environment is important not just for its own sake, but also as an asset that can add value to regeneration and help to draw businesses to the city, acting as a stimulus to local economic growth.

The key to the sympathetic management of heritage assets is through a clear understanding of the assets themselves and the context in which they exist. Early discussions on development proposals, before the submission of a planning or listed building application, may also assist in avoiding costly work at a later stage.

This policy implements policy BCS22 of the Core Strategy by setting out in detail how the council proposes to secure the conservation of heritage assets. When assessing development proposals that affect heritage assets, this policy will be applied in conjunction with the relevant parts of policies DM26 to DM30. Other relevant documents such as Conservation Area Character Appraisals and others listed under policy DM26 will form an important part of the assessment.

General Principles

Conservation Areas:

Development within or which would affect the setting of a conservation area will be expected to preserve or, where appropriate, enhance those elements which contribute to their special character or appearance.

Locally important heritage assets:



Proposals affecting locally important heritage assets should ensure they are conserved having regard to their significance and the degree of any harm or loss of significance.

Understanding the asset

Development proposals that would affect heritage assets will be expected to demonstrate, by a thorough understanding of the significance of the asset, how any change proposed would conserve and, where appropriate, enhance that significance.

Conserving heritage assets

Where a proposal would affect the significance of a heritage asset, including a locally listed heritage asset, or its wider historic setting, the applicant will be expected to:

- i. Demonstrate that all reasonable efforts have been made to sustain the existing use, find new uses, or mitigate the extent of the harm to the significance of the asset; and
- ii. Demonstrate that the works proposed are the minimum required to secure the long term use of the asset; and
- iii. Demonstrate how those features of a heritage asset that contribute to its historical, archaeological, social, artistic or architectural interest will be retained; and
- iv. Demonstrate how the local character of the area will be respected.

We set out Bristol's planning policies as they relate more particularly to trees in more detail here - **Summary of Planning policies that relate to trees**



Appendix 2 - Brislington Meadows hedge survey by Richard Bland on 28 May 2014

The Hedges

Age

The Know your place website clearly shows all the present hedges in the 1840 Tithe map, and the 1946 aerial shows all the big trees. The 1880s map shows a large number of trees many of which will have been elms and have gone. It is thus clear that, as was a very old tradition, the hedges combined the traditional hedge species, mainly hawthorn and hazel with large trees that would have been felled at need. The oldest trees in the hedges are at least 160 years old, and it is fair to assume that the shrubby species are the same age. Exactly when the area was enclosed, and divided between the farms is not clear, but is most likely to have been in the mid 18th century, the point in recent history when the population reached five million, which is the maximum number of people that could be sustained with the levels of agricultural productivity at the time. The only way to increase output was to bring marginal land into active cultivation, and enclosure was the way this was done. The age of the farmsteads in the area would establish the date of the change. Once fields with boundary hedges were established their size and shape remained constant in most areas down to the mid 20th century. It is reasonable to assume that the hedges are around 250 years old, and may be a century older, though the fact that the species mix is the same limited range of species in all the hedges carries an implication that they were all created at the same time and are relatively recent.

A very few of the species in the hedges show clear signs that they were formerly laid in the traditional manner, but many of them suggest that the hedges were simply maintained by clipping. If the fields were ever arable the hedges do not need to be stock proof. However the species composition of the fields, especially the presence of so much Pignut, suggests that they have always been grazed, or possibly treated as hay meadows, in which case stock-proof boundaries would be needed for only part of the year.

The Hedge species:

Hawthorn. (12/13) Hawthorn was the normal standard hedging species planted in a new enclosure and it was recorded in 11 of the 12 hedges surveyed. Most of the individual plants were multi stemmed, implying that they had frequently been trimmed right back, but none showed signs of being laid. One multi stem was measured round at 300cm, which might imply an age of 200 years, as hawthorns grow much more slowly than trees. It provides both nectar and berries.

Blackthorn. (10/13) This is now very dominant and, as it suckers, it is expanding rapidly into the meadows. I measured an individual tree at 110cm, and like Hawthorn it grows very slowly and to find it as a tree is unusual. It provides both nectar and sloes.

Elder (10/13) This is an invasive species in hedges, as it tends to create gaps in a stock proof hedge. It is of course very valuable for nectar and berries.

Holly (8/13) The individual trees were not very old, and this looks like a recent invader of the original hedge. Nectar and berries Ash (9/13). Many young trees, invaders from the last 50 years. One or two multi stemmed from being cut down in the past and one was Y shaped indicating having been laid in the past. There were also two magnificent trees in ST625707 both with girths of 400 cm, implying a minimum age of 160 years and these are among the largest in Bristol.

Hazel. (6/13). A common hedge plant as it lays easily, and produces useful poles. The hedge I did not check was in ST625 710 where there are a large number that are multi stemmed, suggesting that perhaps they were used as coppice poles rather than as a hedge.



Common Elm (5/13). The presence in these hedges of young elms indicates the presence of large trees that died 40 years ago and in theory at least they can all be seen on the 1946 aerial photo. As the Dutch Elm disease is at a very low ebb there are now a large number of vigorous young elms which will soon dominate the hedge line as they did in the past, and should Ash die back happened they will be in a position to take over.

Common Oak (5/13) I measured eight trees in hedges, the oldest at 580 on the NE park boundary, implying a minimum age of 250 years. The majority were between 300 and 400 cm, implying an origin in the early to mid 19c. They are all maidens- they have not been pollarded, and were presumably planted as a potential timber source. There are at least the same number again of a similar age that I did not measure. The twin-trunk pair in the Park itself are stag-headed, but that is a normal part of the aging process. All should be preserved as valuable veterans, and are perhaps the best bargaining counter to use with the developers.

Field maple. (3/13) This is a common small tree of hedges, but the trees here are strange as they are all multi trunked and very heavily burred. This implies that they have been cut back heavily in the past. I am uncertain of their normal growth rate, but they are certainly unusual in size

Other species:

A few small young **cherries**. One **Crack Willow** by the stream at ST626 708. One young **Norway maple** derived from the recently planted trees in the Park, one **Holm oak**, one **Sycamore**, (very surprising that more have not invaded), One young **Wych Elm** - I may easily have missed them. They grow from seed, not suckers, and when young are not always easy to distinguish from **Common Elm**. One **Dog Rose** - a common invader of hedges and may have been missed.

There are two whole fields I failed to access so there is more to be done, but it will not change the basic pattern. One of them is almost completely scrubbed up, and has no obvious access- it might be interesting.

Victory Park itself.

An eclectic collection of planted trees, the oldest the Common Limes abutting the cemetery wall which I take it were planted in 1920, but seem to be older. A lot of recent planting has not taken well - but a combination of cold winters and wet summers has not been helpful.

NB the Squares on the map used by the BNHC are wrong. The park entrance square should be ST623 710 not ST623 711 i.e. they are all right in an east west dimension but are all 100 metres too far north in the north south dimension. My references are taken from the Ordnance survey, not from the BNHC map.

Note on the excel file. Three sheets - firstly the hedges, second the trees in the park and thirdly an analysis of the hedges. I have given 6 figure refs for the hedges themselves- i.e. the hectare in which they are, and 8 figure for the measured trees.

Additional comments in email.

It is the great trees that really must be kept- they are magnificent specimens at their finest- they will move into middle age for the next century or so.

Oaks of their size are not uncommon in Bristol, but the Ash trees are the finest in the city, and the Multi trunk Field Maples are amazing.

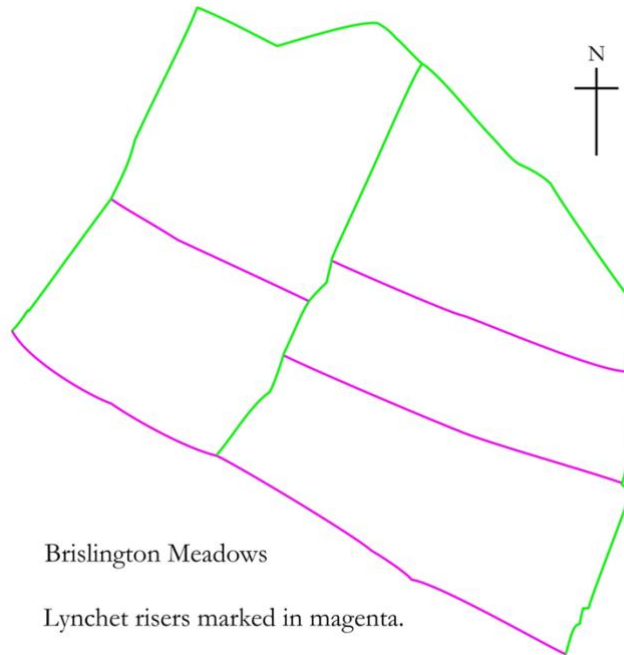
Site	BTF Hedge No.	Grid ref	Co-ordinates	Species	Girth (cm)
Hedge A	06	ST625 712	51.4385457648262,-	Ash	

Site	BTF Hedge No.	Grid ref	Co-ordinates	Species	Girth (cm)
			2.54089714133354	Blackthorn	
				Common Elm	
				Common oak	200
				Elder	
				Hawthorn	
				Hazel	
Hedge B	08	ST627 711	51.4376598943947, - 2.53800933755901	Blackthorn	
				Cherry	
				hawthorn	
Hedge C	08	ST628711	51.4376664905965, - 2.53657074726511	Blackthorn	
				Elm	
				Hawthorn	
				Holly	
Hedge D	10	ST627 710	51.436760778041, - 2.53799876975958	Blackthorn	
				Elder	
				Elm	
				Field Maple	
				Hawthorn	
				Holly	
Hedge E	02	ST626 710	51.4367541643993, - 2.53943733126621	Dog Rose	
				Elder	
				Hawthorn	
				Holly	
Hedge F	02	ST626 710	51.4367541643993, - 2.53943733126621	Ash	
				Blackthorn	110
				Common oak	320
				Elder	
				hawthorn	300
				Hazel	
				Holly	

Table 1 - An extract of the Excel file referred to above - only hedges on the development site are shown.

Appendix 3 - Brislington Meadows - notes on some hedges

The hedgerows that edge the fields of the hillside that Homes England has dubbed Brislington Meadows are fabulous habitats for wildlife because they've been left to sprawl, but that welcome overgrowth conceals an important clue to their history. There's also a tell-tale indicator literally under our feet at the entrance to the fields where the public footpath from School Road emerges - the short steep climb that's so memorably tricky to negotiate when muddy.



The five fields that until recently were used as pasture for cattle, all share an unusual feature hidden in their lower hedge - these are the hedges that run along the contours (as opposed to those that run straight up and down the hillside). The traditional footpaths established by local people over many decades cut through these hedges and reveal their unusual cross section - a change in ground level. On the uphill side of the hedge the ground is at least half a metre higher (sometimes twice that, or even more). It would take an enormous amount of time and effort to build that sort of field boundary, but that's not the way these structures came into being.

This sort of linear feature is created by ploughing from side to side across the hillside. The plough lifts the soil and, as it drops back down to the ground, gravity makes the earth fall slightly downhill (erosion by rain also plays a part in this downward migration). Little by little, year after year, these inexorable processes take soil away from the top of the field, spread it across the slope, and gradually allow it to accumulate at the bottom of the field.

The 1840s tithe survey informs us the higher fields were indeed ploughed arable land, while the lower fields were pasture - this difference is still reflected in the different plant species that are found in them. The physical evidence of the field boundaries themselves though, tell us the lower fields were also ploughed for many years. The key question remains open about these unusual field terraces - known to archaeologists as lynchets - their age. They could be modern, but these features in the landscape have been created by ploughing since before this country was invaded by the Roman Empire.



So, next time you face the slippery slope at the entrance to the fields, at least you'll understand why it's there, and you'll also know why this steep part of the lynchet is called a riser - it's because on a really steep hillside the lynchets are narrow and look like a giant flight of stairs. Incidentally, the riser here doesn't coincide with the actual field boundary - the hedge of ancient hazels, hawthorns and oak trees is a short distance downhill - at the level of the public footpath, and the thin gap between appears to be the route of the original ancient footpath that ran along the full length of this old hedgerow.

Ken Taylor
Chair, Brislington Community Museum
brislington.org



Appendix 4 - Minute of a telephone meeting between Dr Nick Michael and Dr Rachel Roberts on 18 November 2020

Taken from Brislington Meadows - Ecological Technical Appendix A Desk Study - 7507.20.039
Published on [22/01878/P](#) as ECOLOGICAL_DESK_STUDY-3200493. Appendix A reproduces a minute of a telephone conversation between Dr Nick Michael (NM), Nature Conservation Officer (Planning [Bristol LPA]) and Dr Rachel Roberts (RR) acting on behalf of Homes England which took place on 18 November 2020.

‘3.0 BNG

‘...NM explained the current position given BNG is currently in transition, providing the following test via email during the call:

“Ecological mitigation is required to meet the requirements of the National Planning Policy Framework (NPPF). The National Planning Policy Framework (2019) states in paragraph 170(d) on page 49 that planning decisions should minimise impacts on and provide net gains for biodiversity. It is recommended that the proposal employs Defra / Natural England’s Biodiversity Net Gain (BNG) biodiversity metric 2.0 (as updated) to develop ecological mitigation proposals. The BNG assessment should be undertaken prior to the validation of a future planning application and not conditioned. Planning applications submitted to Bristol City Council should demonstrate a positive biodiversity gain when using this metric. Please note that this may require off-site mitigation to achieve a Biodiversity Net Gain. Applicants should provide full details of their data, measurements and workings used to calculate the percentage BNG. Engagement with the Council’s pre-application process to inform BNG proposals and the design of ecological mitigation proposals at an early stage is encouraged.

The Defra Biodiversity Net Gain (BNG) Biodiversity Metric 2.0 includes an off-site module which is fully integrated within the methodology. If a positive on-site BNG score cannot be achieved, the off-site module should be used as the automatic next step to achieve a positive BNG score.

A financial contribution is not an acceptable way forward because it does not calculate biodiversity units and so will be an arbitrary figure that will be very difficult to calculate or justify.

All BNG submissions should be accompanied by a nature conservation and landscape management plan which addresses features of interest, objectives, management compartments and prescriptions, a work schedule including a thirty year annual work plan, resourcing including a financial budget and ecological monitoring. This should cover a 30 year period.

Please note that if the Environment Bill is passed, a future planning application will be required to demonstrate a mandatory minimum 10% Biodiversity Net Gain as measured using the Defra Biodiversity Metric 2.0 (as amended).”



NM clarified to state that BNG would be expected for this site, given its former designation as SNCI. Even though the housing allocation overrules the SNCI designation, it does not change the underlying ecological value of the site (even taking into consideration the fact the grasslands do not appear to have quite retained the same value over years)

NM confirmed that a policy compliant scheme would be one that delivers "a positive outcome" for biodiversity applying the BNG metric Version 2 (or the latest version, at the time of application). However, as BNG is anticipated to be mandated soon (maybe spring 2021) NM advised it would sensible to aim to achieve the 10% as a minimum subject to the timings of the application. A 20% was mentioned in passing as an 'exemplar' but not in any direct application to Brislington Meadows.

Appendix 5 - Brislington Meadow SNCI review undertaken on 10 December 2010

Site Name and Number: Brislington Meadows - BC, HH, JS & JW - 10/12/10

To qualify as an SNCI/Wildlife Site, a site must demonstrate clearly that it is of substantive biodiversity interest, using the above criteria. Each site must be of significant importance for biodiversity in the context of the individual unitary area. Evaluation must be done in a standardised manner.

Whilst it is not appropriate to have absolute cut-off points for these criteria, as a guide, to qualify as an SNCI the site must score strongly on at least one of criteria 1 - 11 (scientific criteria); in addition to the site having either:

- 2 or more strong criteria; or
- 1 strong and 3 or more other criteria; or
- 5 or more moderate or strong criteria

	Criteria	Strong	Moderate	Weak	Nil	NOTES
1	Naturalness		✓			
2	Size		✓			
3a	Diversity - species	✓				
3b	Diversity - habitats	✓				
4a	Rarity - species	✓				
4b	Rarity - habitats		✓			
5	Fragility	✓				
6	Irreplaceability	✓				
7	Typicalness		✓			
8	Geographical position			✓		
9	Important populations			✓		
10a	BAP species	✓				
10b	BAP habitats	✓				
11	Age / continuity	✓				

	Criteria	Strong	Moderate	Weak	Nil	NOTES
12	Community/amenity value	✓				
13	Physical access		✓			
14	Visual access		✓			
15	Educational value		✓			
16	Landscape aesthetic value or	✓				
17	Area lacking in natural habitats		✓			
18	Recorded history		✓			

Supporting Notes

1. Naturalness

Areas of semi-natural habitat, some of which have been effected by disturbance, mainly through inappropriate management/use, however there are also areas where there is an absence of human disturbance.

2. Size

The site is 22ha.

3. 3a. Diversity - species

A high number of species have been recorded, including at least 80 grassland species, 19 butterfly species, 26 bird species, slow worm, and several mammal species including moles, hedgehogs, and badgers.

4. 3b. Diversity - habitats

The habitats present include both neutral and damp grassland, scrub, hedgerows, a stream, and a small area of open mosaic habitat on previously developed land. There are also a number of veteran trees.

5. 4a. Rarity - species

There are records for the Nationally scarce Ivy broomrape, and also for locally scarce Slender rush.

6. 4b. Rarity - habitats

Damp grassland and unimproved neutral grassland are both locally rare habitats.

7. Fragility

Large parts of the site have been included in the Bristol City Council Site Allocations Options Document, allocated for development.

8. Irreplaceability

Because of the veteran trees present, and the large area of habitat, it would not be possible to recreate such an area of these habitats elsewhere within Bristol.

9. Typicalness

The site provides reasonable examples of degraded semi-natural habitats.

10. Geographical Position

The site is weakly linked to Eastwood Farm SNCI.

11. Important Populations



There are no known important populations of notable of BAP species using the site. However this would be better informed if surveys of invertebrate and bat populations were carried out.

12. 10a. BAP species

UK BAP species recorded on the site include: Bullfinch, House sparrow, Song thrush, Dunnock, and Slow worm, and Bristol BAP species include Hedgehog.

13. 10b. BAP habitats

Parts of the site may meet the criteria for the UK BAP habitat Lowland Meadow (according to a survey carried out by BRERC in 2008).

14. Age/Continuity

Much of the site is made up of remnant meadows with their original field boundaries (indicated by the veteran trees). It is believed that these fields have a history dating back over 400 years.

15. Community/Amenity Value

The site is highly valued by local residents for the natural green space and contact with nature that it provides, and there is a local group called Friends of Victory Park that promote its use. It is used by local residents, dog walkers, runners, walking groups, local schools, and scout groups.

16. Physical Access

There is good physical access to most of the site, either through public open space or public rights of way. However surfaced paths are restricted to Victory Park.

17. Visual Access

Visual access is restricted to views from the adjacent industrial area and residential properties along the boundary.

18. Educational Value

Broomhill Junior School is immediately adjacent to the Northern end of the site.

19. Landscape or aesthetic value

The site is highly valued for the 'semi-rural' feel of the landscape, and the presence of veteran trees.

20. Area lacking natural habitats

The site is one of only a few semi-natural areas within the wider Brislington area.

21. Recorded history

Surveys have been carried out on the site in 1993, 2004 and 2008 (Copies of these surveys are held by BRERC). There are also individual species records (also held by BRERC) from 1995, and 2000.

Appendix 6 - Field Survey of Brislington Meadows - 15 October 2010

Brislington Meadows SNCI

Survey of four fields by Helena Crouch, Libby Houston and Margaret Webster (all members of Bristol Naturalists' Society, the Botanical Society of the British Isles and Somerset Rare Plants Group) on 15 October 2010. This is late in the season for surveying grassland - it is likely that more species would be seen earlier in the season, especially grasses.



Table 2 - Map showing the location of the fields surveyed. Only fields 7a & 7b are on the development site.

Field 7 (ST626709 [7a], ST627709 [7b])

The lower, sloping southern part of this large field is undergrazed, yet still species-rich, and has areas of scrub. Like Fields 8 and 9, it slopes down to a small stream. The upper (northern) part of the field is flatter, more open and clearly damp: there are patches of Jointed Rush (*Juncus articulatus*).



(ST627709) Field 7b

<i>Achillea millefolium</i>	Yarrow
<i>Agrostis stolonifera</i>	Creeping Bent
<i>Heracleum sphondylium</i>	Hogweed
<i>Juncus articulatus</i>	Jointed Rush
<i>Plantago lanceolata</i>	Ribwort Plantain
<i>Taraxacum agg</i>	Dandelion
<i>Trisetum flavescens</i>	Yellow Oat-grass
<i>Vicia sativa</i>	Common Vetch
<i>Vicia sepium</i>	Bush Vetch
<i>Fallopia japonica</i>	Japanese Knotweed (At ST62777096, just invading inside the fence on the SE side of this field - invasive weed)



Appendix 7 - 19/05220/PREAPP - Arboriculture Officer's pre-application response - 21 January 2020

Appendix D: Arboricultural Officer

Site Description

Brislington Meadows is an area of land located in Broomhill with pedestrian links from Broomhill Road, School Road and Bonville Road. The site topography consists of seven arable fields that slope from the north down to the southeast where it meets Victory Park and a number of tenanted grazing fields. The fields are divided by ancient hedgerows that contain ancient oak, holly and hawthorn trees.

The field system and hedgerows have not changed significantly since before the 1844-1888 Ordnance Survey's 1st Edition. A number of the ancient oak and holly trees plotted during the mapping of the area are still in existence today.

The 1840 Tithe maps also clearly identify the field system but does not contain any tree-related data. The early layout of Broomhill Road and School Road are present.

Species Distribution

The most predominant species on site is Hawthorn (*Crataegus monogyna*) which forms the major species within the hedgerows. Mature oak (*Quercus robur*) and Holly (*Ilex aquifolium*) form the majority of the climax species with ash, field maple, elder, blackthorn and Hazel present to a lesser degree.

Age Classification

During my site visit I have measured the girth of a number of trees of varying species to demonstrate their age. Broadleaf trees such as Oak, Ash, Beech and Sycamore add, on average, between 1.5 & 2.5cm of circumference/ girth per annum (Royal Forestry Society - Tree Age). This average was created into a methodology by Alan Mitchell to estimate the age of trees. The methodology states that one inch of girth measured equates to a year of life. This is an estimate of age with some variability dependent of the speed of growth within differing species and site conditions.

Due to the significant amount of blackthorn sucker growth it has been impossible to measure the girth of many of the largest Hawthorn and holly, many of which have a multi stem form with large root bases.

Figure 1: An estimate of age from a sample of trees at Brislington Meadows.

Species	Stem Girth (M)	Stem Diameter (cm)	Estimate of age
Oak	2.1-4.7m	67 - 150	82 - 185
Holly	1.7	54	66
Ash	2.8-3.6	89 - 115	110 - 141
Hawthorn	1.5-1.9	48 - 61	59 - 74
Hazel	2.3-2.6	73 - 83	90 - 102



Ancient and Veteran trees

An ancient or veteran tree is a tree that is old for its species, or due to the conditions it has endured, presents a number of characteristics such as cavities, water pockets, hollows, fungal fruit bodies. These characteristics are often high quality niche habitats for bats, birds, mammals and invertebrates, some of which can only exist in these species specific niche habitats. Different species become ancient at different ages; a 100 year old oak can be considered mature whilst a 100 year old hawthorn is very ancient due to the shorter life expectancy of the species.

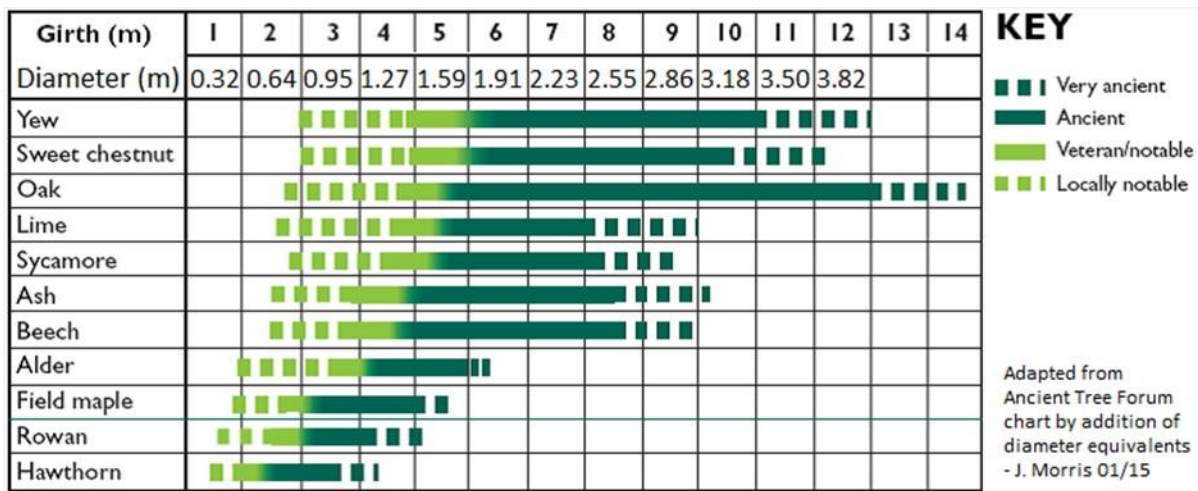


Figure 3: Age classification of the largest

Species	Stem Diameter	Age classification
Oak	150	Veteran/ Ancient
Holly	54	No data available
Ash	115	Veteran/ Ancient
Hawthorn	61	Ancient
Hazel	83	No data available

Ancient Hedgerow

Definitions (Defra: Habitat Action Plans - Ancient and Species Rich Hedgerows)

Ancient hedgerows

An Ancient hedgerow (which tend to be the most biologically diverse in terms of both plants and animals) are defined as those that were in existence before the Enclosures Acts (Mainly passed between 1720 and 1840)

Species-rich hedgerow

Species-rich hedgerows are defined as those containing an average of 5 or more native woody species per 30m length (4 species in northern England, upland Wales and Scotland). Additionally, hedges containing fewer woody species, but with a rich basal flora of herbaceous plants are included, although there is no specific definition for identifying them.



Neglected Hedgerow

Neglected hedgerows gradually turn into rows of trees and develop gaps, impacting on their ecological status. This has become more of a problem in recent years in response to increasing labour costs, and the loss of traditional skills.

The hedgerows within Brislington meadows were in existence before the end of the Enclosures Act period and are therefore defined as Ancient Hedgerows. The hedgerows have not been managed for a significant period and have therefore become neglected reducing the species diversity due to the encroachment of blackthorn sucker growth. The dominant species within a majority of the hedgerows is Hawthorn in the main with sideways colonisation of blackthorn. Gaps have begun to form and trees such as field maple, hazel, holly and elder become scarce where they would have once grown well evident by the small numbers remaining within the hedgerows.

There is still good evidence of age succession of hawthorn with the age diversity from very ancient too young.

Some sections of hedgerow also have more than 5 native species with a 30m length, however, the previously managed hedgerow species have become individual trees. During my site visit I have taken photographic evidence of a number of trees that have almost horizontal sections of stem close to ground level, this demonstrates the hedgerows were once managed by laying. This is a traditional form of hedgerow management that is seldom used since the mechanisation of farming practices.

The hedgerows on site are neglected ancient hedgerows that have been in existence since before 1840. The ancient / veteran oaks, ash and Holly within the hedgerows provide a significant historical and cultural heritage locally and must therefore be retained during any development process.

National Planning policy Framework (NPPF) Glossary of terms

Irreplaceable Habitats: Habitats which would be technically very difficult (or take a very significant time) to restore, recreate or replace once destroyed, taking into account their age, uniqueness, species diversity or rarity. They include ancient woodland, ancient and veteran trees, blanket bog, limestone pavement, sand dunes, salt marsh and lowland fen.

15. Conserving and enhancing the natural environment.

175. When determining planning applications, local planning authorities should apply the following principles:

- 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

Development management policies DM15 & DM17 DM15: Green infrastructure provision

“Green infrastructure provision facilitates a positive effect on people’s health by providing.....Improves the quality of visual and natural environments...”

Trees

The provision of additional and/ or improved management of existing trees will be expected as part of the landscape treatment of new development.



DM17: Development Involving Existing Green Infrastructure Trees

- All new development should integrate important existing trees
- Development which would result in the loss of ancient woodland, aged trees or veteran trees will not be permitted.
- Where tree loss or damage is essential to allow for appropriate development, replacement trees of an appropriate species should be provided, in accordance with the tree compensation standard.

Pre-application proposal

Considering the guidance set out in the National planning policy framework, BCS9, DM15 & DM17 the current site layout, if brought to full planning would have to be refused due to the removal/deterioration of ancient trees. The site layout has not considered the site history, current green infrastructure, the ancient hedgerow network or the ancient and veteran trees on site.

The scheme requires major re-design to incorporate the ancient trees and ancient hedgerow structure. This will require investment to improve the green infrastructure assets in accordance with DM15; improved management to ensure a sustainable hedgerow system into the future must include:

- Management of the invasive blackthorn that has swapped the ancient hawthorn.
- Remedial tree pruning where necessary.
- Re-stocking with traditional native hedgerow species to increase species diversity and renovate the neglected structure.

Full planning application.

If a development is proposed for this site the following information will be required to support a re-design of the site layout to ensure the retention of the ancient trees and hedgerow network:

- A design that retains the important ancient trees and hedgerow structure
- An arboricultural report in accordance with BS5837: 2012 (This is a validation requirement)
- A scheme of improvements and enhancements to restore the neglected hedgerow system.
- Mitigation for tree loss in accordance with Bristol's planning obligations SPD tree replacement standard.
- Landscape/ tree planting plan.



Appendix 8 - Table of current hedgerows on Development site

E T Appendix C No.	ID	Length (km)	Removed (km)	Retained (km)	Habitat	Tree Group	Trees Included	Species Count	Hedge Detail
	H01	0.073		0.073	Native Species Rich Hedgerow with trees	G7	T03, T35	6	G7, T03, T35, Blackthorn, Common ash, Common hawthorn, Elder, English holly, Pedunculate oak
H4	H02	0.190		0.190	Native Species Rich Hedgerow with trees - Associated with bank or ditch	G9, G11	T04	8	G9, G11, T04, Blackthorn, Common ash, Common hawthorn, Common hazel, Elder, Field maple, English elm, English oak
H1a, H1b	H03	0.108		0.108	Native Species Rich Hedgerow with trees	G10		6	G10, Common hawthorn, Elder, English holly, Pedunculate oak, Sycamore, Dog rose
H2	H04	0.130	0.130	0.000	Native Species Rich Hedgerow with trees - Associated with bank or ditch	G20	T09	7	G20, T09, Blackthorn, Common hawthorn, Common hazel, Elder, Holly, English Oak, English elm, Field maple
	H05	0.097		0.097	Native Species Rich Hedgerow with trees	G17, G19	T08, T26, T27	7	G21, G17, G19, T08, T26, T27, Blackthorn, Common hawthorn, Common hazel, Elder, Pedunculate oak, Dog rose
H5	H05A	0.095	0.095	0.000	Native Species Rich Hedgerow with trees	G21		4	Hawthorn, Hazel, English oak. Extremely dense thicket of Blackthorn.
	H06	0.133		0.133	Native Species Rich Hedgerow with trees	G40	T25	3	G40, T25, Sycamore, Horse chestnut, Elder
	H07	0.102		0.102	Native Species Rich Hedgerow with trees	G47	T10, T11	1	G47, T10, T11, Goat willow
H3a, H3b	H08	0.174	0.096	0.078	Native Species Rich Hedgerow with trees - Associated with bank or ditch	G27	T15, T16, T17, T19, T20, T21	8	G27, T15, T16, T17, T19, T20, T21, Common ash, Common hawthorn, Elder, English elm, English holly, Blackthorn, English oak
	H09	0.226		0.226	Native Species Rich Hedgerow with trees	G28, G29, G30, G31, G32, G33	T22	8	G28, G29, G30, G31, G32, G33, T22, Common lime, Sycamore, Common hawthorn, Wild cherry, Blackthorn, Common hazel, English elm, English holly
	H10	0.202	0.202	0.000	Native Species Rich Hedgerow with trees - Associated with bank or ditch	G10, G26	T18	7	G10, G26, T18, Blackthorn, Common hawthorn, Elder, English elm, English holly, Pedunculate oak, Sycamore
H1c	H11	0.061		0.061	Native Species Rich Hedgerow with trees	G24		5	G24, Blackthorn, Common hawthorn, Elder, English elm, Sycamore
	H12	0.104		0.104	Native Species Rich Hedgerow with trees	G37, G38, G39	T24	8	G37, G38, G39, T24, Common ash, Common hawthorn, Common hazel, Crack willow, English elm, Elder, Crimson king Norway maple, Pedunculate oak
H6	H13	0.015	0.015	0.000	Native Species Rich Hedgerow with trees			2	Hawthorn, Ash
Totals		1.710	0.538	1.172			Average	6	

See Appendix 3 which explains why hedgerows H02, H04, H08 & H10 have been designated as *Native Species Rich Hedgerow with trees - Associated with bank or ditch* habitats.



Appendix 9 - Group and Woodland tree areas, removed and retained as reported on 5 July 2022.

Group ID	Area (sq m)	Area Removed (sqm)	Area Retained (sq m)
Total (ha)	2.56	0.82	1.74
G1	42	0	42
G2	21	0	21
G3	27	0	27
G4	90	90	0
G5	87	0	87
G6	94	0	94
G7	2,903	61	2,842
G8	87	87	0
G9	1,068	69	999
G10	850	28	822
G11	156	0	156
G12	155	0	155
G13	310	0	310
G14	40	0	40
G15	116	0	116
G16	47	0	47
G17	756	0	756
G18	755	755	0
G19	43	0	43
G20	1,357	1,357	0
G21	780	780	0
G22	76	0	76
G23	68	0	68
G24	569	569	0
G25	274	0	274
G26	1,160	1,160	0
G27	302	21	281
G28	225	0	225
G29	80	0	80
G30	171	171	0



<i>Group ID</i>	<i>Area (sq m)</i>	<i>Area Removed (sqm)</i>	<i>Area Retained (sq m)</i>
G31	259	259	0
G32	244	244	0
G33	555	292	263
G34	184	184	0
G35	37	37	0
G36	339	0	339
G37	753	406	348
G38	274	0	274
G39	173	0	173
G40	251	0	251
G41	817	0	817
G42	674	674	0
G43	130	0	130
G44	150	0	150
G45	46	0	46
G46	498	0	498
G47	107	0	107
W1	3,390	0	3,390
W2	4,041	947	3,094

Appendix 10 - Discussion of the LiDAR evidence

A note on land use at Brislington Meadows

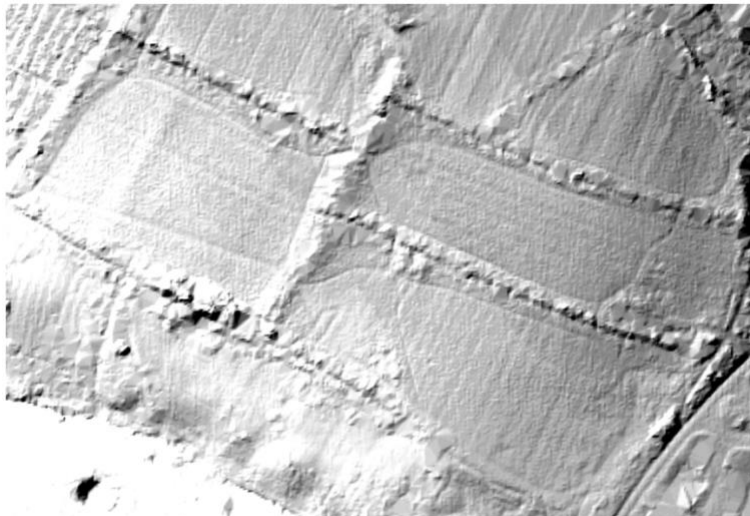
A recent LiDAR survey (lidarfinder.com) shows a variety of parallel linear features distributed among the five large open fields at the heart of the proposed Brislington Meadows housing development. This note examines one only - the central field of the three to the east, which is numbered 504 on the 1846 Tithe map and apportionment where it's called Three Acres (currently enclosing Ordnance Survey reference ST 62727107).

Allowing for some spread of soil at both the higher and lower boundary of this lynchet field, the LiDAR image shows eight linear features that are each composed of a light and dark strip. These linear features are roughly parallel and slightly curved (bending, albeit it loosely, in conformity with the contours of the hillside). The width of this rectangular field has been estimated using aerial photographs of 1946 (<https://maps.bristol.gov.uk/kyp/>), before the hedgerows were allowed to sprawl, and is around 64m, making each linear feature approximately 8m (26 feet) wide.

These features run approximately along contour lines (so cannot be drains), and the banks and troughs have the appearance of ridge and furrow ploughing. The lynchet risers are clearly defined in the landscape and have been estimated at around 0.5m high, which supports the idea of ploughing. The curve along their length rules out machine ploughing.

The Tithe apportionment (1846) states this field was put to pasture and, so far as is known, this use of the field has been continuous since then. At the time of the local Enclosure Act (1778) the area around the enclosed common was described as "Old Enclosures" but research has yet to determine whether this was previously enclosed common land or an enclosure of open medieval fields. Whether these well-preserved features are post-medieval or medieval, it at least seems certain they're not modern.

Ken Taylor
Chair, Brislington Community Museum
brislington.org
July 2022



Screenshot from LiDARFinder <https://lidarfinder.com>.
© Environment Agency copyright and/or database right 2015. All rights reserved.