THE TOWN AND COUNTRY PLANNING ACT 1990

PROOF OF EVIDENCE BY
PROFESSOR IAN DOUGLAS ROTHERHAM
BSc, PhD, PGCE, FRSB, CBiol, MCIEEM, CEnv

SITE: 2020/1180
Site Address: Land at Bank End Road, Worsbrough, Barnsley, S70 4QH

REF: application 2020/1180

B.M.B.C REF: application 2020/1180

1. Personal details

1.1 My name is Ian Douglas Rotherham (BSc, PhD, PGCE, FRSB, CBiol, MCIEEM, CEnv). I am a research consultant specialising in woodland ecology and history, and am Emeritus Professor at Sheffield Hallam University where I worked for 28 years. I was formerly Principal City Ecologist for Sheffield City Council.

1.2 The evidence I have prepared and provide for this appeal (reference application 2020/1180) in this proof of evidence is true and has been prepared and is given in accordance with the guidance of the appropriate professional institution (the Chartered Institute of Ecology and Ecological Management, CIEEM). I confirm that the opinions expressed are my true and professional opinions.

2. Scope of evidence: Woodland Assessment Review (2020/1180) Bank End Road Worsbrough Appeal - Report by Professor Ian D. Rotherham, August 2021

2.1 Context & Overview

This review involves the following works as specified in relation to the above planning application:

1) Consideration of the relevant documents and critique them from a point of view as to whether UK priority woodland habitat or relict (but undesignated) ancient woodland relict habitat within the redline boundary of the site would be harmed as a result of the proposed development;
2) A brief visit to the site in order to appreciate the context of the habitats described as described by the application consultants (specifically NOT re-survey);
3) Write a Statement of Witness supported by professional and academic details and standing relevant to the case;
4) Give opinion in a written report both of the documents as submitted and of the woodland's ecological importance.

The relevant documents are:

1) Initial PEA (Weddles) and Biodiversity & Landscape Management Plan
2) Statement of Case (Urbana).
3) (Ecology) Technical Note (Baker Consultants).
4) BNG metric (Baker's) [Noting that the primary question here is not so much how will the applicants demonstrate No Net Loss of Biodiversity (our current policy requirement) but rather 'is the current habitat irreplaceable?']
5) Wildscapes Ltd's comments regarding the applicant's information (6/7/21) produced on behalf of the LPA.
6) Initial in-house Biodiversity Officer (14/12/20) specialist response to the above documents to the LPA.
7) (Planning) Officer's Report for Planning Regulatory Board.

This was a paper-based exercise and not based on detailed site survey. I do not comment in detail on other aspects of the reports or the proposal, for instance protected species such as bats or breeding birds.

2.2 Review of documents

Table 1 Documentation to be reviewed		
BANK END ROAD, BARNSLEY Preliminary Ecological Appraisal (PEA)	Weddle Landscape Design	September 2019 (Rev A – February 2020)
Statement of Case (Urbana) - Planning Statement Report, Urbana Town Planning & Appeal Statement of Case Report	Urbana Town Planning	September 2020 June 2021
Ecology Technical Note Report	Baker Consultants	June 2021
Defra Metric 2.0 assessment Excel	Baker Consultants	June 2021
Appraisal of Ecology information from Weddle Landscape Design and Baker Consultants - comments regarding the applicant's information) produced on behalf of the LPA	Wildscapes Ltd	July 2021
Initial specialist response to the LPA on the above documents	In-house Biodiversity Officer	December 2020
Report for the Planning Regulatory Board BMBC	In-house Planning Officer	

1) **BANK END ROAD, BARNSLEY Preliminary Ecological Appraisal (PEA) and Biodiversity & Landscape Management Plan (Weddles)**

This report fails to address ecological and landscape history aspects of the site and whilst the management recommendations include some elements of merit, they have significant errors in terms of feasible and relevant conservation outputs. It suggests that the site is '*mature oak established secondary woodland with low biodiversity value due to the poor understory, narrow age range and presence of invasive species….*' but the statement as to age and origin of the woodland is not justified. The poor condition due to tipping, arson, and vandalism is of course obvious but this does not affect the age or historic continuity of the site, merely its present condition. The likely

presence of bat roosts is noted and we agree on this. The landscape designation context is usefully summarised:

'*The site is covered entirely by Barnsley Metropolitan Borough Council TPO No. 13, Woodland Group W1. The site is also within an area designated as Deciduous Woodland Priority Habitat Inventory (PHI), and within the Local Plan policy areas "Bank End Road Escarpment" Greenspace and Dearne Valley Green Heart 'Nature Improvement Area"*. This context suggests that the woodland in its situation is of strategic value.

1.2 Development Proposals suggests tree planting but with current tree canopy, it is unlikely that planted saplings will have any opportunity to establish. Furthermore, the site has oak and other seedlings already and should opportunities for regeneration occur then these will grow on; and so planting is unnecessary. It is suggested in the report that sustainable woodland management practice should be adopted but in a site of this size, conservation protection and generally tidying of rubbish will suffice if combined with removal of invasive species. If boundaries between any plots were hedged rather than fenced then the need for hedgehog or badger holes would be redundant.

1.4 The suggested management arrangements would not be economically feasible for a small development and I consider that it is unlikely that appropriate maintenance (as specified) will be carried out.

2.0 '*The development of the site offers an opportunity to contribute to the Dearne Valley Green Heart Nature Improvement Area and Barnsley Biodiversity Action Plan through long-term positive management of the woodland, installation/creation of a range of habitats for bird, bat, invertebrates and mammals and tree and shrub planting within the development area*.' If the area of old woodland is reduced then the contribution is reduced accordingly and there is nowhere on site to offer effective mitigation or habitat addition.

3.0 Management Aims and Strategies – These appear to be essentially a generic 'wish list' but not related to this particular site and mostly inappropriate and unfeasible here. For example:

- *Prune shrubs back from pathways.*
- *All access routes kept clear and ensure that there is adequate access for emergency and maintenance vehicles.*
- *Maintain pathways by removing debris, leaf litter, moss, algae etc to prevent accidents.*
- *Grit pathways when required to prevent ice.*
- *Paving and fencing defects to be repaired as soon as possible*.

There are no pathways through or around the woodland at present and if created they would add further damage to an already fragile site. Why and where would winter gritting take place and by whom? This is very confused and confusing.

4.1.1 seems generally sensible, as do some elements of 4.1.2. Again, however, 4.2.1 and 4.2.2 do not resonate with the site in question but mix garden maintenance and woodland management. The latter mixes suggestions that are unfeasible or inappropriate here.

The tree mapping is competent and useful and the site location plan is accurate.

2) Statement of Case (Urbana) - Appeal Statement of Case Report Urbana Town Planning June 2021, & Planning Statement Report, Urbana Town Planning September 2020

This report presents the case for the development and attempts to justify tree removal and woodland loss through arguing that the site is neglected and lacks funding for necessary management. The recognition of the value of the trees as reflected in the Tree Preservation Order is noted. However, unsupported by relevant ecological survey, the report does not acknowledge the antiquity of the woodland or it continuity in the landscape. Furthermore, the suggestion that the woodland can be sacrificed because its conservation is presently unfunded seems illogical. Minor but necessary management to control invasive species and to tidy away litter could be implemented with minimal cost and this is not a justification for development that compromises the site.

3) (Ecology) Technical Note (Baker Consultants), June 2021

The site survey is competently done and effectively presented but in terms of age, the interpretation is conservative. The site is noted as being on the early Ordnance Survey maps, which are generally taken as a first step for indicating 'ancient woodland' though this important point is not made. The survey omitted some old woodland indicators and did not note specifically all the ancient woodland indicators which were identified in their report. The trees were accepted to be a minimum of 150 years in age and the woodland *per se* to be at least 170 years old. However, it was noted that *'…… neither is it feasible to confirm that the woodland is not ancient*'.

The use of the Defra metric as summarised in *Table 1. Biodiversity Net Gain Summary* is problematic in cases like this. Essentially the monetary values attached to supposed habitat values are inherently subjective and any loss here is one that cannot be effectively compensated. There is nowhere in the locale in which replacement habitat could be established and furthermore, historic landscape continuity cannot be replicated. This means that proposed compensation or mitigation is not real. Whilst some of the management suggestions in the Conclusions section are sensible, the idea of '*Planting of native bluebell bulbs and other woodland plants such as foxglove, red campion and wood avens*' into a semi-natural, relict woodland is inappropriate and effectively 'gardening' not conservation.

4) BNG metric (Baker's) [Noting that the primary question here is not so much how will the applicants demonstrate No Net Loss of Biodiversity (our current policy requirement) but rather 'is the current habitat irreplaceable?'], June 2021

If it is accepted that the evidence suggests the woodland is 'ancient' (either ASNW or PAWS) or that there is effectively historic continuity of a treescape on this site, then use of the *Defra Metric 2.0* is inappropriate. Assuming that the site has continuity in a historical ecology sense then the replacement metric does not consider this. Furthermore, any off-site 'mitigation' fails to address the locale and context issue of this habitat in this location. There is no available site nearby where any compensatory habitat creation can take place.

Nevertheless, the Bakers' report does present a Metric calculation for the development. However, without any detailed landscape plan or site layout from which to assess the veracity of areas entered into the Metric, it is impossible to check the reliability of this calculation. The present Metric calculation shows a loss of 0.043 ha of 'high distinctiveness habitat' and suggested actions to address

any habitat losses. This is suggested to be through provision of the equivalent same habitat e.g. woodland. However, in this case the development would replace 'high distinctiveness woodland' with 'low and very low distinctiveness amenity grassland and hard standing'. Therefore, despite a proposal to enhance the retained woodland, the development proposed would mean the loss of difficult to replace habitat of high distinctiveness amounting to 11% of the site.

5) Wildscapes Ltd.'s comments regarding the applicant's information (6/7/21) produced on behalf of the LPA

This is a thorough and comprehensive assessment of the evidence submitted and of the issues needing to be addressed. Furthermore, Dr Rivers provides a useful summary of policy context and matters relating to protocols and methodologies.

6) Initial in-house Biodiversity Officer (14/12/20) specialist response to the above documents to the LPA

The comments from the planning ecologist (Trevor Mayne) give a clear and unambiguous rationale for refusal of the application and for the retention of mature trees. The comments emphasize '*the need for applications of this size to demonstrate **No Net Loss of biodiversity**. This needs to be done by way of the Defra Biodiversity Metric 2.0 and a supporting Biodiversity Impact Assessment – the latter to explain how **No Net Loss** including habitat types, condition, and how they will be managed through to ecological functionality. It also needs to describe how retained habitats will be protected during the construction phase. This needs to be provided to the LPA's satisfaction at this stage*.'

7) Planning Officer's Report to the Planning Regulatory Board.

In the decision to recommend refusal, the Planning Case Officer notes the significance of the site as designated 'Green Space'.

Key points relating to the woodland are given:

1) The proposal would constitute an unacceptable loss to a high value natural/semi-natural Green Space in an area with an insufficient amount of this type of Green Space. The proposal does not support the function of the Green Space nor does it provide appropriate replacement to outweigh the Green Space loss contrary to Local Plan Policies GS1 and GI1.

2) The proposal would cause unavoidable harm to the biodiversity of Bank End Road Escarpment through the felling of up to fourteen mature trees. This harm has not been adequately mitigated or compensated for in the supporting information and nor has an established quantifiable net biodiversity gain been established. (This would be contrary to Local Plan Policy BIO1 and to NPPF Paragraph 175 (a) & (d)).

3) The woodland, though presently undesignated, is believed to be relict Ancient Woodland site. Reduction in size would constitute significant harm contrary to Local Plan Policy BIO1 and NPPF Paragraph 175 (a).

4) Insufficient evidence has been submitted to justify the proposed felling of up to fourteen trees in TPO W1-13. Potentially more trees would be lost to accommodate necessary access for the

development (taking into account root and canopy spread) and for the provision of residential amenity perspective outlook for the dwellings.

Furthermore, these trees occupy a prominent location within the street scene and contribute substantially to the amenity, character, and appearance of the locality. Consequently, their removal cannot be supported. The proposal is therefore contrary to Local Plan Policies GD1, D1 and LC1, and NPPF Paragraph 130.

3. Comments following site visit & research

3.1 The Technical note from Baker Consultants considers whether the site is likely to be 'ancient woodland'. There is no map available of the area from 1600 to provide evidence that the woodland is ancient and so we have to rely on other indicators. It may be that a through documentary / archive search would reveal earlier maps but this has not been done. Bakers found the woodland to be present on Ordnance Survey maps from 1850 to 1890, but the site context is not described beyond '*A historic Ordnance Survey Map from 1850-1890 confirms that woodland is at least 170 years old, but was not much larger in 1850 than it is now*.' However, the extent of the woodland belt on the escarpment indicates that the site was part of a much wider anciently wooded landscape in the 1800s and that much of this has been removed. This point is significant when interpreting the modern situation.

3.2 Some of the woodlands to the west are on the maps as 'plantations' but dates for the trees being planted are not given and it is also possible that these were planted on previously wooded sites and come within the definition of PAWS (Planted Ancient Woodland Sites).

3.3 The late Professor Melvyn Jones, my research collaborator at Sheffield Hallam University and respected woodland historian, described Barnsley Landscape Character Zones for the South Yorkshire Forest and in various publications (e.g. Jones, M. (2012) *Trees and Woodland in the South Yorkshire Landscape: A Natural, Economic and Social History*. Wharncliffe Publishing, Barnsley). Jones notes the seventeenth century manor house at Worsbrough probably associated with a deer park and states that '*Trees and woodlands are an important feature of most of these landscapes, with numerous ancient woodlands and deciduous plantations and scattered trees punctuating open areas.*' He does not provide of the specific woodland at Bank End Road, but this is the landscape history context.

3.4 Bakers present a full species list from a site visit in June 2021 (Technical Note, June 2021). However, the Weddle's tree survey (January 2020) and Ecological Appraisal (September 2019), show a discrepancy over the species of oak present at Bank End Road. Weddles identify the oaks as 'English oak' (*Quercus robur*) and Bakers suggest they are 'sessile oak' (*Quercus petraea*). This is potentially significant here since in the South Yorkshire region sessile oak is an ancient woodland indicator species whereas English oak is the more frequently planted. I have confirmed the trees to be sessile oak.

3.5 Jones provides a South Yorkshire list of ancient woodland indicator species (excluding ferns and bryophytes). The Field Studies Council have also published a guide which includes identifying regions of the country where species can be used as indicators and this is based substantially on my own work. The Baker species list includes the following indicator species for this area:

• Sessile oak (*Quercus petrea*)
• Bluebell (*Hyacinthoides non-scripta*)
• Bush vetch (*Vicia sepium*) - very strongly associated with ancient woodland, rarely found elsewhere
• Wood millet (*Milium effusum*) - very strongly associated with ancient woodland, rarely found elsewhere

Other significant species are noted below (p8-9).

3.6 Whilst the Bakers' visit (8th June) includes most ancient woodland indicator species (though not early or late flowering plants), Weddles did not provide a full species list in their Ecological Appraisal and did not note any ancient woodland indicators in their account. This may be because their site visit was on 8th September and will have missed the season for most botanical ancient woodland indicator species.

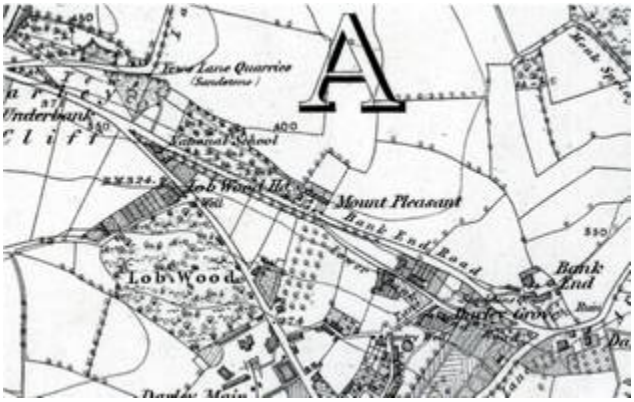
4. Woodland evidence

4.1 The site under consideration is shown on the six-inch Ordnance Suvey maps first edition published in 1851. It is noteworthy that in England, presence on the first edition OS maps is taken as a starting point for a site to be likely to be 'ancient woodland'. Place-names here are significant with 'Bank End' and hence 'Bank End Road'. This derives from Old Norse or Old Danish and relates to topography – a hill or a ridge. In this region a location with the 'place-name' –'Banks' is often used for unimproved land with wood-pasture of some sort with oak trees, heath, and acidic grassland, but sometimes with enclosed, named woodland. There are numerous examples of this usage across the region and the interpretation is of continuity of anciently 'unimproved', unploughed land and often with some tree cover and on sloping terrain. Furthermore, in the nineteenth century the countryside around Worsbrough is still rural but becoming industrialised and urbanised and is in a well-wooded landscape. The ancient 'Lob Wood' (from Old Norse – perhaps 'the wood of the fugitive') lies immediately south and the land in question is probably part of the estate of 'Lob Wood House' there are planted avenues and what appears to be an orchard along with several small treed areas along the escarpment. To the immediate north-east lies 'Monk Spring Wood', another ancient coppice woodland. Along with other smaller woods on the early maps, nearby 'Yews Lane' and woodland associated with that also suggests established treescapes on the ridge-line.

4.2 Sometime in the early to mid twentieth century Lob Wood disappears. This is marked by absence from the more recent maps. It becomes a public park with playing fields and perhaps a 'ghost wood' with some mature trees scattered in a landscape of short-mown grass and playing fields. Significantly, the Bank End Road treescape in question shows already mature decisuous and planted coniferous trees on the 1851 six-inch map – suggesting they are at least 100 to 150 years in age (lower band and upper band) at that date. Both Lob Wood and the Bank End Road woodland are present on the 1841 one-inch map. Nearby, there is Lob Wood Colliery and small quarries presumably extracting sandstone. Assuming 100 to 150 years as a conservative estimate of age and assuming the surveys for the 1841 map were up to 15 years prior to publication, then this would place trees on the site back to at least around 1725 or 1675. Therefore, the planted trees could well originate sometime during the 1700s and so appear as mature trees on the 1851 six-inch map (perhaps surveyed in the 1830s) this would perhaps be around 1700 to 1730.

4.3 Review of the trees on site shows some large oaks of up to around five feet in girth and suggestive of an age perhaps between 200 and 250 years old but possibly older. This again indicates their origins to be 1820 to 1770 or earlier and maybe part of a series of plantings over that period. There are also mature sweet chestnut that are undoubtedly planted. No conifers remain and this is typical of the fate of many re-planted or planted treescapes in industrialised South Yorkshire. The gross air pollution which affected the region from the mid-nineteenth century to the late twentieth century with colossal levels of acid rain, grit and soot, caused death of more sensitive trees species and particularly of evergreen (coniferous) species. These changes are clearly visible in the 1892 map with the conifers gone and a mix of mature oak woodland and open heathy grassland indicated. The other relevance of the air pollution is that oak trees across the region are significantly small for their age because they simply did not grow. Acid rain and the exclusion of sunlight by smoke means trees are today maybe reduced by at least a third in size and this must be taken into account when estimating age. All the mature trees on site here are 'standards' i.e there is no sign of coppicing or similar utilisation but there is variation in size which may imply differential ages.

1851 six-inch Ordnance Survey map:



It is present on the 1892-revised map.

1892 six-inch Ordnance Survey map:

4.4 Consultation with first edition of the 'South Yorkshire Ancient Woodland Inventory' (South Yorkshire Inventory of Ancient Woodland (Provisional), Nature Conservancy Council, 1986) indicates that the region north of Worsbrough was neither surveyed nor assessed and this omission may be a

reason for absence from the current inventory too. I have inspected both the first edition (1986) and the current on-line Inventory.

5. Ground flora evidence

5.1 Interpretation of the ground flora and botanical 'woodland indicators' suggests longevity as a treescape with perhaps open woodland (a 'banks') that was re-planted during the 1700s and 1800s and suffered impacts of air pollution during the 1800s and 1900s. Abundant species across the site include old woodland grasses such as wavy hair-grass and creeping soft-grass along with wood millet, and bearded (wood) couch. Wood meadow grass was reported in the Bakers' notes and is a locally uncommon woodland grass. Common bent grass, false oat grass, and hawkweed (*Hieracium*) represent species typical of vegetation of more open grassy or heathy areas. Other old woodland species were recorded including native bluebell, wood sage, honeysuckle, native holly, and sessile oak. The woodland immediately south of the road had wood dock. Exotic ivy and occasional Japanese knotweed dominate the upper zone of the present wood. Bakers also found bush vetch, which is a good indicator of ancient woodland.

5.2 The plant species noted both here and in the Baker consultancy report suggest this site has long-standing persistent vegetation from an earlier period of unimproved acid grassland and open woodland. There has been some re-planting of trees perhaps in the 1700s and these now dominate the woodland canopy. The most recent impacts are associated with abandonment, urbanisation, introduction of garden plants, fires and rubbish dumping, and gross air pollution; the latter now much reduced.

5.4 The dense ivy growth on some of the mature trees will probably hold roosting bats and potentially bird nesting sites. There are ground diggings and scrapings typical of badger activity.

5.5 The final major impact on the site has been progressive development in and around the 'Banks' woodland over the last century and the fragmentation and degradation of the remaining habitat. The most recent direct impact is the residential development (No. 17 Bank End Road) in the central section of the wood and the obvious incorporation of mature woodland trees into the gardens of the dwellings and the loss of woodland ground flora. This building appears to be from the early 1900s and it significantly reduced the area and connectivity / integrity of the woodland.

6. Nature conservation significance of the Bank End Road woodland

6.1 Whether or not the woodland is classed as 'ancient', it is still a local priority habitat with mature trees (including oak) of 150 to 250+ years old. The Baker report states that the woodland is of 'significant ecological interest'. Indeed, Barnsley Metropolitan Borough Council (BMBC) recognises the significance through protection of the entire woodland by a Tree Preservation Order. Whilst the present woodland is small, it is part of an ecological corridor and designated as 'Bank End Road Escarpment Greenspace'.

7. Biodiversity Net Gain

7.1 In planning applications, there is an increasing tendency to suggest that adverse developments affecting ecology can be 'offset'. This is now rationalised in guidance and documentation from bodies such as Natural England:

(http://publications.naturalengland.org.uk/publication/5850908674228224), and the CIEEM: (https://cieem.net/wp-content/uploads/2019/02/Biodiversity-Net-Gain-Principles.pdf). However, the metric does not apply if the habitat is deemed 'irreplaceable'.

Principle 2 of the Biodiversity Net Gain Principles (CIEEM) is to '*Avoid losing biodiversity that cannot be offset by gains elsewhere: avoid impacts on irreplaceable biodiversity – these impacts cannot be offset to achieve No Net Loss or Net Gain*'. Furthermore, the '*Biodiversity Net Gain Good Practice Principles for development: a practical guide*' notes how BNG does not apply to statutory designated sites or irreplaceable habitats. The guide states that impacts on statutory designated sites or irreplaceable habitat are to be avoided where possible, and furthermore, 'Irreplaceable habitats' are specifically excluded from the Defra Metric 2.0. Essentially, as noted in **Principle 4** of the '*Biodiversity Metric 2.0 use Guide*' '*The metric focuses on widespread and typical habitats. Area based habitats are considered a suitable proxy for widespread species found in typical examples of different habitat types'*. In the guidance, it is accepted that impacts on protected species and irreplaceable habitats are inadequately assessed by this metric and need to be considered separately.

8. Potential impacts of future development

8.1 Should development take place then there will be both direct and indirect impacts on the woodland that remains. There will be the loss of trees with from the development and trees with root-plates affected by construction of buildings and by the access road; issues noted by the BMBC Case Officer. A further potential problem was shade cast by the remaining trees onto the potential houses. Additionally, light and noise from constructed houses would have negative impacts on the woodland and on its fauna with increased 'edge' effects on this already small site. Similarly, there will be increased risk of garden plant escapees from the gardens into the woodland.

9. Conclusions & Recommendations

9.1 The Baker report concludes that '*There is no evidence to support the proposition that the woodland is ancient, but neither is it feasible to confirm that the woodland is not ancient. Many oak plantations were established on sites that were already wooded. The historical demand for oak products is confirmed by Rackham (1980) and there are numerous examples of oak being planted into broadleaved woodlands and replacing other native species such as ash and wych elm. However, given the uniformity of the oak trees and their age, the type of woodland stand (W16 woodland), and the typical affinity of field layer species secondary woodland, it is considered that the woodland is probably not ancient. Although it is concluded that the woodland is probably not ancient, it is more than 150 years old and oak trees of such maturity are of significant ecological interest*.'

9.2 Whilst the existing trees are not themselves ancient but old, perhaps in excess of 250 years, the Bank End Road site has several species accepted as ancient woodland indicators and grasses typical of old woods on acid soils, namely wavy-hair grass and creeping soft-grass. Furthermore, these species are characteristic of relict treescapes in the region derived from ancient woods, and wood-pastures of various types. **I consider the site to be relict ancient woodland even if not a named 'ancient wood'.**

9.3 The *Preliminary Ecological Assessment* (PEA) by Weddles states that '*The majority of the site is broadleaved semi-natural woodland. The woodland was likely planted on the embankment above Bank End Road, possibly to stabilise the slope, for timber or for amenity value*'. It should be noted that there is no actual evidence to support this assertion. Indeed, the 1895 maps show the Bank End Road wood as a remnant of more extensive woodland. As explained earlier, such remnants of old woodland are frequently found on steep land historically difficult to cultivate and which remained as a treescape with wood-pasture; this is reflected in the place-name 'Banks'

9.4 Many woodland fragments are not recorded in the Ancient Woodland Inventory either because their small size meant they were missed when the original surveys were undertaken, or their relatively low tree densities meant they were simply not recorded as 'woods' historically on maps or in archives. Two hectares was the original cut-off in size.

9.5 The idea of woodland continuity is also significant in these evaluations since 'wooded continuously' does not mean continuous tree cover across the entire area. Furthermore, not all trees in the woodland have to be old and open areas (both temporary and permanent) are important components of ancient woodlands. In that case, even if the present trees are not 'ancient' (but 150 - 250+ years old) and perhaps planted, then they may be 'plantations on ancient woodland sites'; a possibility noted in the Baker report. In that case, their status would be as 'PAWS' (Planted Ancient Woodland Site), which in the standing advice and the National Planning Policy Framework (NPPF) is treated equivalent to Ancient Semi-Natural Woodland (ASNW).

9.6 It is noted that there has been no assessment of soils, fungi, bryophytes, lichens or invertebrates of ancient woodlands and which provide useful indicators of antiquity and of landscape continuity. Whilst these necessitate particular specialist surveys that are more difficult to undertake than trees and woodland ground flora, they potentially add a greater degree of certainty to an assessment. Use of a range of indicator taxonomic groups and positive assessment of archaeological features if present are advantageous. In this context, it is observed that there has been no archaeological desktop survey, no archival search, and no specialist expert archaeological survey of the site. The Baker report states that '*Given the small size of the site, it is not surprising that archaeological features such as earth-banks and ditches are not apparent*' and this seems logical. The Weddle Ecological Appraisal notes the obvious point '*The woodland habitat is likely to support a wide range of common invertebrate species*' though they offer no supporting field data.

9.7 Finally, the proposals and supporting documents offer no assessment of potential loss of woodland biodiversity beyond trees and protected species. Combined with the landscape context as explained and the absence of specialist surveys and assessment (invertebrate ecology and archaeology / history) to suggest this is not a relict site, a precautionary approach should be taken and the site treated as 'ancient woodland'. In that case, remnant ancient woodland is irreplaceable and this is relevant since 'Biodiversity Net Gain' calculations do not apply to irreplaceable habitats.

9.8 The development proposal suggests that house construction is the only way to bring this damaged woodland back into better condition. I concur with Dr Rivers (Wildscapes) in that this is not the only option through which to fund and deliver desirable conservation management. Funds for managing woodland can be obtained directly through the Forestry Commission or in partnership with the Woodland Trust or with BMBC. Local community groups are often keen to get involved in woodland conservation projects and the Heritage Lottery Fund will consider support to such groups.

9.9 Furthermore, smaller woodlands in the South Yorkshire region are sought after and are selling above their listed sale price. In some cases, it is local people and community groups wanting to take on wooded sites. Ideally, the site requires a comprehensive conservation management plan in order to recover it from decades of neglect. I agree with Dr Rivers' comments that *The Woodland Biodiversity and Landscape Management Plan* provided has bullet-pointed information that might be a basis for this. As Dr Rivers notes this is very brief and, if planning permission were granted, would require considerably more work. I would add that much of the management plan indicated at this stage of the process (as noted earlier) is inappropriate for this site and apparently generic in nature.

9.10 In summary, I believe that there is clear evidence of both the antiquity of the woodland and the age of some of the trees. Combined with landscape context information which suggests historic continuity of the site I feel that refusal of permission is justified. Granting consent would be contrary to both national and local planning policies and guidance.

Appendix 1 – Statement of academic and professional background pertinent to the case

Formerly *Professor of Environmental Geography*, *Reader in Tourism & Environmental Change*, & *International Research Coordinator*

Qualifications: BSc, PhD, PGCE, FRSB, CBiol, MCIEEM, CEnv

I have over 35 years in university research, local government, voluntary, and private sectors. My current work addresses core themes of ecology, sustainable development, quality of life, education, health & wellbeing, and empowerment. In particular, I have developed ideas of the importance of historic context in understanding key drivers and barriers relating to these issues. I lead research in the UK and Europe on concepts of rewilding and future treescapes. This involves close liaison with key stakeholders such as the Ancient Tree Forum, the Woodland Trust, the Forestry Commission, Natural England, and many NGOs. The work also engages major landowners, private sector interests, and local communities. On these and related issues, I work extensively with both traditional and social media.

I am a leading researcher on aspects of historic landscapes and ecological indicators of quality, antiquity and change, with particular reference to woodlands, forests, and hedgerows. I chair and facilitate European research networks such as the European Society for Environmental History, and globally for the International Union of Forest Research Organisations. However, my work is grounded with experience of practitioners, planners, and landowners. I was lead author and project manager for the **'*Woodland Heritage Manual*'** – the accepted good practice guide for woodland heritage conservation, and author / editor of **'*Ancient Woodlands and Trees: A Guide for Landscape Planners and Forest Managers*'** (IUFRO, Vienna).

My work has been diverse, including the importance of outdoor and wildlife leisure and tourism (nature-based, heritage-, and garden- leisure and tourism), community issues, economic impact assessments, sustainable development, and economic and social regeneration, and major studies on forest landscapes and cultural history. I work extensively on landscape ecology and chaired the British Ecological Society's Peatlands Special Interest Group, for eight years. Collaborating extensively with academics and practitioners nationally and internationally on treescape issues, I research and write on issues of trees, woods, peat bogs, flooding and land management, on aliens and exotics, relict and indicator species, urban hydrology, sustainable ecology, assessment and remediation contaminated / degraded landscapes, and problems of land and water contamination along industrial rivers. My work has involved establishing, funding, and managing major community-led environmental projects in South Yorkshire; addressing the needs of both industry and community. I have on-going research interests in local community involvement (especially BME groups), information networks for community groups, and land restoration to treescapes, heathland, wetland, and grassland.

I have wide research interests connecting ecology to sustainability including work on cultural-, nature-based and heritage tourism, and associated economic impacts. These have involved major research contracts from government agencies and others. International research collaborations, published papers, and international awards evidence this. I led international research to examine *Triple Bottom Line* issues associated with environment, society and economy in the context of industrial decline, environmental degradation, and post-industrial regeneration. Present work with the Heritage Lottery includes engaging local communities in woodland management leading to health, educational, and employment benefits through the re-discovery of traditional woodland crafts.

Research outputs:

I have supervised over 300 research and consultancy projects for clients and written around 500 academic papers and articles plus numerous books and book chapters, and several hundred popular articles. I work extensively with popular and social media to communicate scientific ideas to a wide audience. I edit a number of journals including the International Journal of Urban Forestry, and am an invited member of the editorial boards of several others – including 'Landscapes' and 'Global Environment'. I have been guest editor of journals such as 'ECOS', 'Aspects of Applied Biology', and 'Biodiversity & Conservation'. I am an invited reviewer for many other (50+) journals.

Roles with national & international organisations:

1. The *International Union of Forest Research Organisations* (formerly chairing the *International Working Group of Social and Economic Aspects of Forestry and Forest History*, & co-authoring guidance to EU Government Ministers, and now *International Chair of IUFRO Division 9 Forest History and Traditional Knowledge*);
2. The *European Society for Environmental History* (former Coordinator for Britain & Ireland);
3. The British Ecological Society (former Chair / Secretary of the Peatlands Special Interest Group);
4. UK representative on the *International Consortium of Environmental History Organisations*, and invited member of the International Steering Committee *World Congress of Environmental History*;
5. Adviser & ambassador: the *Arboricultural Association*, the largest body of tree management professionals in Europe.

I have been a research proposal reviewer for the UK Research Councils (e.g. AHRC, ESRC, NERC), for Leverhulme Foundation, for the European Union *BiodivERsA* network (21 research-funding agencies across 15 European countries), for other funding organisations such as the Dutch Research Council, Research Council of Norway, Social Sciences and Humanities Research Council of Canada, the National Science Centre Poland, the Austrian Science Fund (FWF), and the Royal Society of Edinburgh. I have been a UK Research Council facilitator in cross-disciplinary workshops and a partner in AHRC research networks on landscapes.

Summary:

Researcher, communicator, advocate for treescapes and for sharing collaborative research on futurescapes. I have substantial background in running networks and organising projects and a proven record in working with stakeholders at all levels. Whilst an ecologist and environmental historian (my core disciplines), I also work across a broad range of both natural and social sciences. I have considerable experience in both writing and editing.

1. In terms of **ancient woodland verification**, along with the ***Woodland Heritage Manual***, I wrote guidance since tested at public inquiry: Rotherham, I.D. (2011) ***A Landscape History Approach to the Assessment of Ancient Woodlands***. In: Wallace, E.B. (ed.) *Woodlands: Ecology, Management and Conservation*. Nova Science Publishers Inc., USA, 161-184.

2. I have been responsible for (10 years) for the ecological assessment of local authority planning issues and have appeared at public inquiries and in the Crown Court for private sector, for conservation bodies and groups, and for local authorities.