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Proposed development at
Bodenham Manor
Bodenham HR1 3JS

Arboricultural Assessment & Constraints Report
with notes on
Arboricultural Impact & Tree Protection



Prepared on the instructions of
Mr. W. Heather-Hayes

Based on an inspection carried out
23/07/2021
by
J.P.Ross F.Arbor.A



1 Introduction:

- 1.1 The following report was prepared on the instructions of Mr. Heather-Hayes and concerns two trees growing in proximity to some existing outbuildings which it is proposed to replace with what I understand will be a new dwelling to be built in the same location.
- 1.2 My observations were made on a site visit on the 23rd July 2012; weather conditions were warm and bright and visibility was quite adequate for the purposes of this investigation.
- 1.3 The assessment methodology is based on BS5837:2012 (*Trees in relation to Design, Demolition and Construction - Recommendations*), as outlined in Appendix 1. Note that the terms and abbreviations used in the report are explained at Appendix 2. It comprised a brief visual, ground level inspection of the tree and only those features apparent at the time of the inspection could be considered. No liability can be accepted for the condition of parts of the tree that were obscured in part or in whole (e.g. by dense ivy or other foliage) or which were inaccessible to the inspector.
- 1.4 It should be stressed that although the health and safety of the trees is part of the assessment methodology used, this is an *arboricultural constraints* report, as defined by BS5837:2012, and as such is intended for planning purposes only; *it should not be construed as an exhaustive assessment of tree safety*. Faults may be identified and recorded as part of this study but no liability can be accepted for damage or injury sustained as a result of faults that were not apparent at this season or which developed subsequent to the survey. While measures to deal with immediate and significant hazards may be made, detailed management recommendations will *not* normally be made, not least because these should be determined by future patterns of site usage: it remains the client's responsibility to take appropriate action to maintain appropriate levels of safety..

2 General Observations.

- 2.1 The site falls within Bodenham Conservation Area but no trees are shown as being subject to tree protection orders on the Herefordshire Council online Administrative Map.
- 2.2 The wider site has been much altered over the years, the original Bodenham Manor building having been demolished and rebuilt as a vicarage in the mid 19th century. It was later used as a school but when that closed in 1987 I gather that the grounds fell into some disrepair. However the site has now been fully reinstated with two dwellings and a large area of lawn to the south. The trees in question are to the south-east of the grassed area, adjacent to the existing outbuildings, the floor levels of which are significantly lower than that of the lawns to the north west.
- 2.3 Of the two trees, a black pine (*Pinus nigra*) and a beech (*Fagus sylvatica*), the pine is growing immediately adjacent to an old stone wall and close to one of the existing buildings (on the right in the photo below), the floor level of which is perhaps 2 metres lower than the base of the tree.



The building to the left is separated from the pine tree by a strip of rough, sloping ground with a trench dropping down to the rear of the building. It is clear that the roots system of the trees will have been tightly constrained by these structures and, depending on the relative ages of the tree and the buildings, may have resulted in significant root disruption.

3 The Trees (Data gathered July 2021)

3.1 Tree no. 1 Black Pine - *Pinus nigra* sub-species *nigra* (Austrian pine)





Tree 1 (continued)

Height 21m. Diameter ~960cm. (estimated due to dense ivy)

Crown spread (approx. radii):

North 3 m

East 4.5 m

South 6 m

West 6 m

Life Stage: Mature/Late-mature

Health & Vigour: Fair Structural condition: Fair

Notes: Dense ivy on stem to approx. $\frac{1}{2}$ - $\frac{2}{3}$ of height; trunk with slight lean to the south.

No visible sign of disease or decay in the lower stem (but inspection limited by ivy etc.) Crown condition fair; somewhat asymmetric / unbalanced. Quite a lot of dead wood present including one branch retaining brown needles, presumably recently broken but still attached, suspended over the roof of the adjacent building.

The presence of dead wood and broken branch(es) would require attention; its overall condition is generally acceptable but of no more than moderate quality.

Remaining useful Life Expectancy: Potentially 10-20 years.

Retention Category: B- [See Appendix 1 below for definitions of Retention Categories]

Root Protection Area (RPA) 417 m² Nominal root protection radius = 11.5 m

3.2 Tree no. 2 Beech (*Fagus sylvatica*)



[Continued...]



Tree 2 – Beech (continued)

Height 18m.

Diameter ~420 500 450cm. (multi-stemmed ; main sub-stems)

Crown spread (approx. radii):

North 7 m

East 5.5 m

South 7 m

West 5 m

Life Stage: Early-mature/Mature

Health & Vigour: Fair Structural condition: Fair

Notes: The form of the tree, with multiple stems from near ground level, suggest that it is the result of regrowth after having been cut hard back. It now has a multi-stemmed form with the sub-stems forming a complex, slightly congested group with some stems more or less fused.



No visible evidence of disease or significant decay. Foliage is dense and of good colour, borne on shoots with a somewhat weeping form. Parts of the canopy hang down to about 2metres but with a general clearance of about 4 metres.

Remaining useful Life Expectancy: 20-40 years.

Retention Category: B- [See Appendix 1 below for definitions of Retention Categories]

Root Protection Area (RPA) 284 m² Nominal root protection radius 9.5 m



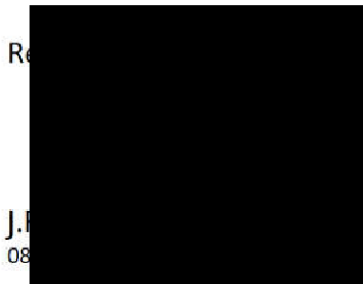
4 Arboricultural Implications and tree protection

- 4.1 The close proximity of tree 1, the pine, to the existing structure means that any significant alterations to the building would require its removal in view of the likelihood that root disturbance would result from any significant alterations in the landform between the tree and the existing log store.
- 4.2 The proposal set out in the site plan as proposed [drawing no. P 3 (1/21)] shows this tree to be removed to facilitate the proposed demolition of that building and the construction of the new house along with an access path to the north west.
- 4.3 The loss of any mature tree would be regrettable, but it should be appreciated that while the general condition of the pine is currently acceptable within the context of its present environment, it cannot be regarded as an exceptional specimen. In addition, the proliferation of ivy and dead wood tends to suggest the lack of vitality associated with the early stages of a general decline into late-maturity and old age.
- 4.4 The overall loss of tree cover is more than offset by tree planting that has been carried out within the wider site which in recent years has benefited from the establishment of six trees (willow, oak and birch) on land to the north of the proposal site as well as four magnolias planted to the front and rear of the house. Some 40 metres of beech hedge was also established two years ago around the site of the proposed dwelling. Note also the three new trees shown to the east and south of the new dwelling on the proposed site plan; these are a Rowan (*Sorbus aucuparia*), a Field Maple (*Acer campestre*) and a cherry (*Prunus avium* cv.). It is also proposed to plant a mixed orchard of twelve trees on the lawn south-west of the main house in the current planting season with additional regenerative tree planting planned throughout the wider overall holding. Thus trees planted in recent years together with those planned for the near future will assure very effective mitigation for the removal of this single pine.
- 4.5 No other trees would be lost as a result of the proposed scheme.
Tree 2, the beech, is to be retained. This is currently growing on a low mound with a low wall around one side, running from the north-west around to the south-east. Another short section of wall is to the north-west of the tree with slightly higher ground beyond. These walls will have constrained tree root development to some degree but it is likely that there will be some root penetration into the land between the tree and the proposed new building.
- 4.6 In order that any roots here will suffer minimal disturbance it is proposed to construct an area of decking, as indicated on the proposed site plan, with steps to provide access between the decking and areas to the east and west. The decking is to be set above the existing ground level, to be achieved by being supported on timber posts set on individual concrete footings (max. size 300x300mm x 450-600mm deep), each of which is to be hand dug. It is proposed that these should be five in number on the side nearest to the tree with additional posts set nearer the gable wall of the new dwelling. If in hand-digging the postholes any roots over 25mm in diameter are encountered, the position of the hole would be adjusted in order to avoid any such



root. Roots *under* 25mm may be severed, using a sharp-bladed knife, secateur or loppers to make a clean cut.

- 4.7 The decking would be installed in the final stages of the build, after the completion of the construction of the new house; before that time, to include the period when the existing structures are demolished and then throughout the period of construction, a tree protection barrier will be erected. This will be set 1.5 metres away from the SW end of the building and will extend out to include the greater part of the tree's RPA to the west, as shown on the Impact and Protection Plan (drawing no. HR13JS/HEA/AIUPP). Only on completion of construction of the new dwelling shall the protection barrier be removed in order to facilitate the construction of the decked area.
- 4.8 The protective fencing should conform to the type 2 barrier as described in Appendix 3A; other precautions also described in Appendix 3A shall be adhered to, notably that throughout the construction phase the barrier shall be maintained erect, intact and *in situ* and that no materials, spoil etc. shall be stored or deposited within the protected area.
- 4.9 All demolition work would be carried out from within the footprint of that building, with debris etc. being pulled back and removed to the north and east. Access to the south of the new building will be required during construction work but should be limited to the area defined by protection barrier, with all personnel being excluded from the area between it and the tree.



- The report has been framed as an 'Arboricultural Constraints Report', as defined in BS5837:2012 - *Trees in relation to design, demolition & construction-Recommendations*. Its purpose is to set out and to quantify the degree of constraint offered by existing tree cover with regard to any development or alteration in land-use that may be proposed and is intended to be used to inform feasibility studies and design options. As such it reflects the conditions *as they existed at the time of our inspections*: no account has been taken of any specific development proposals, although it has been assumed that certain unspecified alterations in site usage patterns are likely to occur, which are likely to result in an increase in site occupancy levels. Additional arboricultural input may be required at subsequent stages of design, planning and implementation in relation to the assessment & management of possible arboricultural impacts.
- The survey parameters are as set out in BS5837:2012 and based on the findings each tree or group is allocated to one of four 'Retention Categories' (see Appendix 2, p2). The factors taken into account in categorising the trees include their overall arboricultural quality, their general health and structural stability, their likely useful life-expectancy, their significance to the local landscape and general public amenity value, the degree to which they provide wildlife habitat and enhance local biodiversity and any other social or cultural values that they may embody.
- Also integral to the methodology of BS5837 is the calculation of **Root Protection Areas (RPAs)** for each of the trees in question. The RPA is defined as a "*layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority.*" BS5837 requires the RPA to be based on the area in square metres formed by a circle of radius (the Root Protection Radius) twelve times the stem diameter of the tree.
- It should be noted that in most cases the plan accompanying this report will show the nominal RPAs of the trees, indicated as circles centred upon the tree of a radius such that they enclose an area equal to the relevant RPA. In practice the distribution of roots around a tree will frequently prove to be uneven due to the presence of a variety of constraining influences. These may be physical barriers such as existing foundations etc, or the existence of localised soil conditions inhospitable to root growth, such as waterlogging or soil compaction. Conversely, soil conditions may be particularly *conducive* to root development in one quarter and this might also lead to an asymmetric distribution of roots around the tree. However in most cases the nominal circular areas as indicated will provide a reasonable guide as to where special measures will be required to protect tree roots and preserve good soil condition.
- The RPAs of the trees will provide the basis for defining **Construction Exclusion Zones (CEZs)**, these being areas around all of those trees intended to be retained where access should be prevented throughout the entire process of site preparation and construction. In certain cases the CEZ will exceed the size of the RPA in order to accommodate the aerial parts of wide-spreading trees.
- Access within the CEZ should be prevented through the erection of barriers, constructed in accordance with BS5837:2012. Where access within an RPA is unavoidable, appropriate ground protection should be installed. Outline details of the design of suitable barriers and ground protection are given in Appendices A & B. These protection measures should be put in place prior to any site clearance or construction work commencing on the site and they should remain *in situ* until all works have been completed. Some activities within the CEZs may be acceptable but should not be put in hand until appropriate arboricultural advice has been sought.

APPENDIX 2: Retention Categories

RETENTION CATEGORY:

Trees are placed into one of four basic categories using the letter codes **A, B, C or U**, as recommended in BS5837:2012, supplemented where appropriate by a Plus [+] or Minus [-] suffix. The categories indicate the surveyor's assessment of the 'Retention Value' of each tree, how much importance should be placed on its retention or conversely, how much or how little would it be missed if it was to be removed.

It would normally be presumed that trees in categories A and B should be retained wherever possible, but with the highest priority given to category A. Category U trees may be lost without significant detriment while category C trees are intermediate, potentially retainable but not of *major* significance in terms of their importance to the site or the wider locality. The Plus [+] and Minus [-] suffixes denote trees that do not fall easily into one or other of the categories but are intermediate between two. A+ and U- have special meaning, defined below.

Note: *These are NOT health and safety assessments: the classifications do not take into account any requirement for remedial tree care or ongoing maintenance apart from that which may affect the trees' general suitability for retention.*

A HIGH RETENTION VALUE (●) Trees or groups of such quality and significance such that their retention and protection should be given a particularly high priority within the design process. Category A trees would generally be expected to have a safe, useful life-expectancy of at least 40 years (although exceptions may be made in the case of specimens of exceptional cultural, historic or scientific value).

'A+' denotes a specimen of exceptional importance, the protection of which should be given the very highest priority. Includes Veteran¹ and champion trees, specimens of particular cultural significance and any other tree whose value and importance extends well beyond its immediate locality, county or even country-wide.

B MODERATE RETENTION VALUE (■): Trees or groups the retention of which would be highly desirable, although the selective removal of certain individuals may be acceptable provided full consideration is given to alternative courses of action and/or appropriate mitigation is provided.

Category B trees will be of generally good quality but may also show some defects or impairments where these are remediable and/or do not detract significantly from their significance or viability. Includes trees with clearly identifiable conservation or other cultural benefits.

They would generally be expected to have a safe, useful life-expectancy in excess of 20 years.

C MINOR RETENTION VALUE (▲): Trees or groups that are not of sufficient value to be regarded as a significant constraint to development.

Includes trees that are of poor quality or form; trees whose health or structural stability is deteriorating and is unlikely to be capable of effective remedial treatment, or where the cost of ongoing management would be excessive. Also trees clearly inappropriate to their location, likely to cause damage to nearby properties or to give rise to significant nuisance; trees being grossly suppressed by other nearby trees as well as those the removal of which would *benefit* better quality adjacent trees. Also included here are trees that are simply undistinguished and make little impact within the local landscape and environment.

Category C trees will normally have potential life expectancy of 10 years (although they may perhaps require attention) so, while not of a quality such as to significantly constrain development (i.e. their loss would not detract markedly from the site), they may nonetheless be retained where it proves appropriate, such as where they may be of benefit while new plantings become established.

Young, small and insignificant trees will be included here, even if of good health, on the basis that such trees can be relatively easily replaced or transplanted.

U UNSUITABLE: (★) Trees likely to prove to be unsuitable for retention for more than 10 years should any significant increase in site usage arise as a result of development: dead or moribund trees, those at risk of collapse or in terminal decline and/or with serious, irremediable defects.

Also trees that will be left unstable by other essential works (such as the necessary removal of other nearby trees); trees infected by pathogens that could materially affect other trees and low quality trees that are significantly suppressing better specimens

Some category U trees may be of significant conservation value which it might be desirable to preserve.

'U-' denotes a tree where removal or major preventative work is regarded as being required *based on the circumstances at the time of inspection and irrespective of any development proposal.*

¹ A Veteran tree is one that is of exceptional age relative to others of the same species and which because of its advanced years possesses special biological, aesthetic and/or cultural interest. It should exhibit crown retrenchment and signs of decay in the trunk, branches or roots, thereby providing a range of diverse habitats for a wide variety of organisms.
[See *Ancient Tree Guide no. 4* (2008): Ancient Tree Forum, c/o The Woodland Trust, Grantham.]

APPENDIX 3: The Protection of trees on demolition & construction sites:

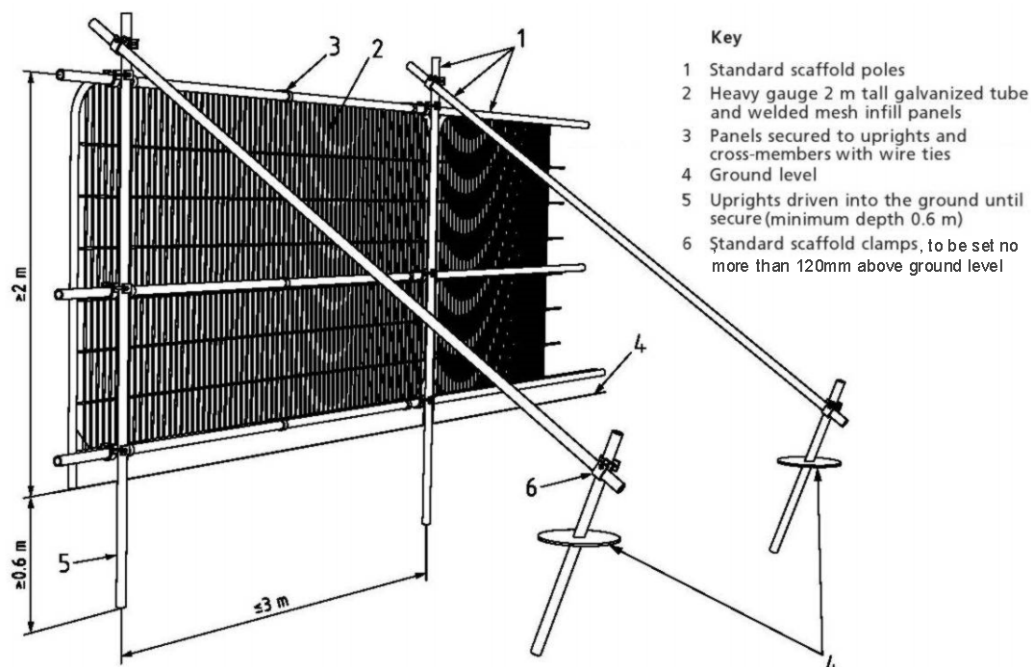
[Including extracts from BS5837:2012 - Trees in relation to design, demolition & construction – Recommendations.]

A **CONSTRUCTION EXCLUSION ZONE** should be established around all trees intended for retention, based upon the Root Protection Areas (RPAs) of those trees. These zones should be adequately protected by appropriately designed **Protective Barriers & Ground Protection** throughout the all demolition & construction processes.

A: PROTECTIVE BARRIERS

- Vertical barriers should be erected and ground protection installed **before any materials or machinery are brought onto the site and before any demolition, development or stripping of soil commences**. Areas of new or retained structure planting should be similarly protected, based on the extent of the soft landscaping as shown on the approved drawings. The project arboriculturist should confirm that barriers and ground protection have been erected and set out correctly prior to the commencement of other operations, and that they are fit for purpose..
- Where required, pre-development tree work may be undertaken before the installation of tree protection, with the agreement of the project arboriculturist and the local planning authority.
- Once erected, barriers and ground protection should be regarded as sacrosanct**. Special attention should be paid to ensure that barriers remain rigid and complete through the entire period of construction; they must not be removed or altered without prior recommendation by the project arboriculturist and approval of the local planning authority.
- Barriers should be fit for the purpose of excluding construction activity and appropriate to the degree and proximity of work taking place around the retained tree(s); three design types are described below.
- Type 1 barriers** are the default design and should be employed in all sites where heavy plant is used and where construction activity is likely to put pressure on the available space. Illustrated below, it will be based on a scaffold framework comprising a vertical and horizontal framework, well braced to resist impacts, with vertical poles spaced at a maximum interval of 3m. Onto this, weldmesh or other sturdy panels should be securely fixed.

Specification for Type 1 protective barrier



- Where driven vertical poles are impractical due to the likelihood of causing damage to tree roots or to underground services, above-ground stabilizing systems may be specified (Refer to the project arboriculturist)
- Type 2 barriers** may be suitable on smaller construction sites where protection is only required from pedestrians, cars, vans and manually operated plant and where less pressure is anticipated. These barriers will comprise Weldmesh panels on rubber or concrete feet, the panels being securely joined together using a minimum of two anti-tamper couplers, installed so that they can only be removed from inside the fence. The panels should be supported on the inner side by stabilizer struts.
- Type 3 barriers** should only be used on small, domestic projects or in locations where no significant pressures to extend the working area will occur. These may comprise split-chestnut paling or plastic mesh barriers. In all cases, however, they must be firmly fixed and maintained secure throughout the duration of all site works.
- Alternative specifications may be acceptable but should be specified in conjunction with the project arboriculturist but they must always ensure an adequate degree of protection for the conditions likely to obtain on site. It may be appropriate on some sites to use temporary site office buildings as components of the tree protection barriers.

APPENDIX 3: The Protection of trees on demolition & construction sites:

[Including extracts from BS5837:2012 - Trees in relation to design, demolition & construction – Recommendations.]

B: GROUND PROTECTION

- Where construction working space or temporary construction access is justified within the RPA, this should be facilitated by a set-back in the alignment of the tree protection barrier. In such areas, suitable existing hard surfacing that is not proposed for re-use as part of the finished design should be retained to act as temporary ground protection during construction, rather than being removed during demolition. The suitability of such surfacing for this purpose should be evaluated by the project arboriculturist and an engineer as appropriate
- However, where the set-back of the tree protection barrier would expose unmade ground to construction damage, new temporary ground protection should be installed as part of the implementation of physical tree protection measures prior to work starting on site. Such temporary ground protection should be capable of supporting any traffic entering or using the site without being distorted or causing compaction of underlying soil.
- The ground protection might comprise one of the following:
 - a) *for pedestrian movements only, a single thickness of scaffold boards placed either on top of a driven scaffold frame, so as to form a suspended walkway, or on top of a compression-resistant layer (e.g. 100 mm depth of woodchip), laid onto a geotextile membrane;*
 - b) *for pedestrian-operated plant up to a gross weight of 2 t, proprietary, inter-linked ground protection boards placed on top of a compression-resistant layer (e.g. 150 mm depth of woodchip), laid onto a geotextile membrane;*
 - c) *for wheeled or tracked construction traffic exceeding 2 t gross weight, an alternative system (e.g. proprietary systems or pre-cast reinforced concrete slabs) to an engineering specification designed in conjunction with arboricultural advice, to accommodate the likely loading to which it will be subjected.*
- In all cases, the objective should be to avoid compaction of the soil, which can arise from the single passage of a heavy vehicle, especially in wet conditions, so that tree root functions remain unimpaired.

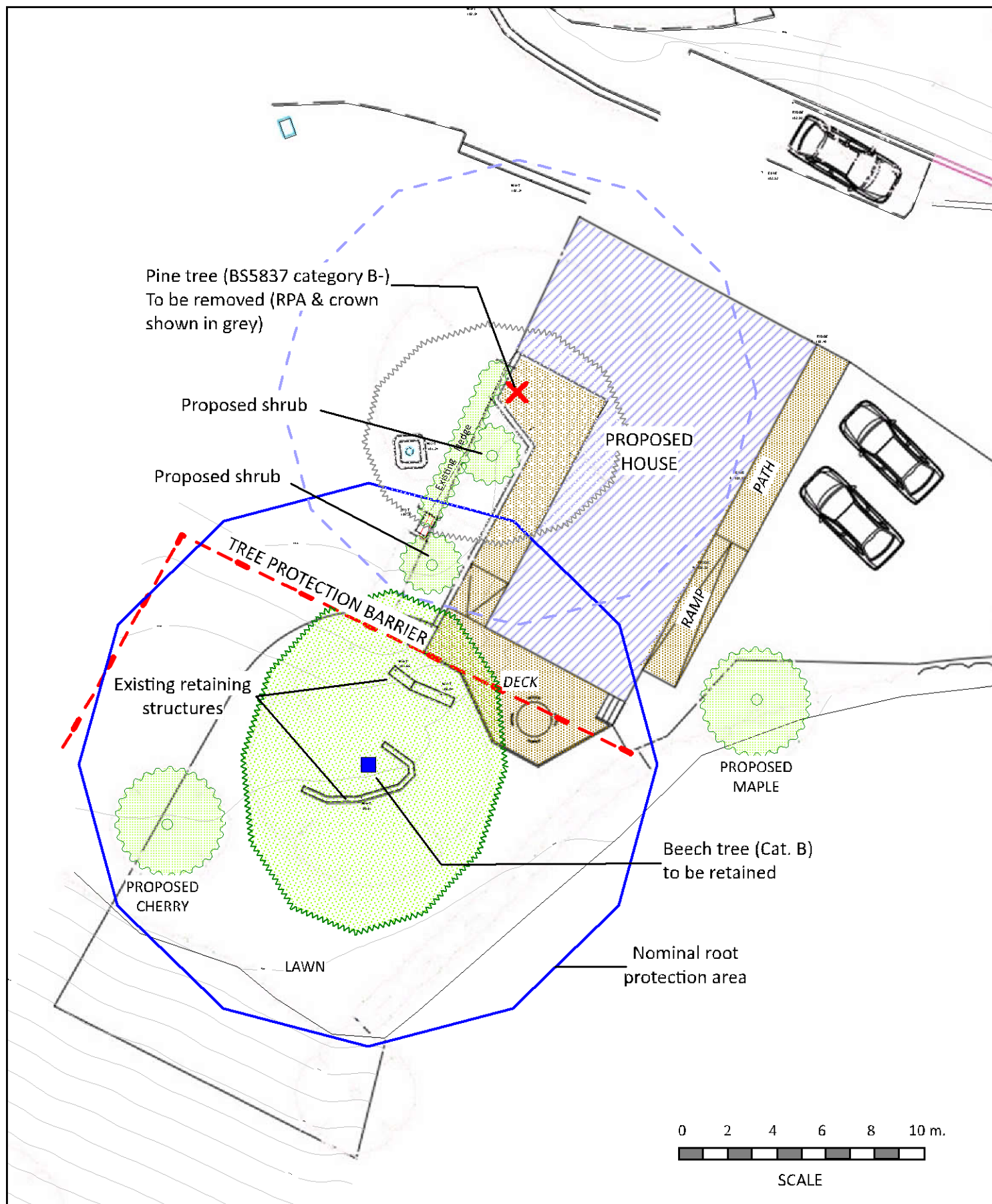
C: ADDITIONAL PRECAUTIONS OUTSIDE THE EXCLUSION ZONE:

- Once the exclusion zone has been protected by barriers and/or ground protection, construction work can commence. All weather notices should be erected on the barrier with words such as:

Construction exclusion zone – NO ACCESS
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In addition the following should be addressed or avoided.

- Care should be taken when planning site operations to ensure that wide or tall loads, or plant with booms, jibs and counterweights (including drilling and piling rigs) can operate without coming into contact with retained trees. Such contact can result in serious damage to them and might make their safe retention impossible. Consequently, any transit or traverse of plant in close proximity to trees should be conducted under the supervision of a banksman to ensure that adequate clearance from trees is maintained at all times. In some circumstances it may be impossible to maintain adequate clearance thus necessitating access facilitation pruning. Local Planning Authority consent for such pruning may be required.
- Material which will contaminate the soil, e.g. concrete mixings, diesel oil and vehicle washings, should not be discharged within 10 m of the tree stem.
- Fires should be avoided on sites if at all possible. Where they are unavoidable they must not be lit in a position where heat could affect the trunk, branches or foliage of any tree. The size of the fire and the wind direction should be taken into account, and fires must be attended at all times.
- Notice boards, telephone cables or other services should not be attached to any part of the tree.
- It is essential that allowance should be made for the slope of the ground so that damaging materials such as concrete washings, mortar or diesel oil cannot run towards trees..



ARBORICULTURAL IMPACT & PROTECTION PLAN

Bodenham Manor, Bodenham HR1 3JS
Mr. W. Heather Hayes

Drawing no. HR13JS/HEA/AIPP
Scale: 1:200 at A4

Date: 08/12/2021

Based on Site Plan as Proposed (dwg.no. P 3 (1/21))
provided by AJMW Design

All critical measurements to be confirmed on site



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