



Tree and Hedgerow Protection Plan

For

Development of Five Affordable dwellings

On

Land adjacent Uchel Dre, Kerry, Newtown, Powys, SY16 4PS

On behalf of

Mr and Mrs M Evans

Introduction

This Tree and Hedgerow Protection Plan provides guidance on the physical protection and appropriate precautionary measures required in order to reduce any significant or detrimental impact on the health or amenity of the trees and hedgerow within or near to the construction zone.

In order for tree and hedgerow protection measures to work effectively, all personnel associated with the construction process must be familiar with this Protection Plan and the principles of protection herein. A copy of this document plan will be retained on site at all times.

1. Tree Protection Plan

- 1.1. The trees for retention and the Trees to be removed are identified on the accompanying plans.

2. Tree Protection and Establishing the Root Protection Area (RPA).

- 2.1. During development works, trees often become damaged or killed because of injury they receive throughout the construction phase. This is usually due to root crushing injury, root severance, mechanical injury from collision with above ground parts, soil compaction from vehicular movements or soil contamination through spillage or tipping phototoxic material. In order to prevent this from happening, a Root Protection Area (RPA) is established for each tree worthy of retention based on the requirements of each tree.
- 2.2. The amount of protection required is evaluated and based on several factors. The distance of protection has been established using Table Two from the British Standard which essentially is a 12 x multiplier of the stem diameter when measured at a height of 1.5-metres above ground level or 10 x in the case of multi stemmed trees. Why trees require protection is explained in more detail below.
- 2.3. These distances essentially provide a Construction Exclusion Zone, (there are exceptions). The erection of a substantial temporary barrier fence is required to protect these sensitive areas.

3. Root function explained

- 3.1. Tree roots provide anchorage for the tree and support the stem and crown. The parts of the root system which are active in water and nutrient uptake are very fine, typically less the 0.5 mm diameter.
- 3.2. It is essential that conditions in the soil remain conducive to healthy growth of these fine roots so that water and nutrients necessary for healthy tree growth can be absorbed. In addition to water and nutrients, roots, in order to function, require oxygen from the soil for the purpose of respiration. Diffusion between the soil and the atmosphere is essential. Anything, which disturbs this balance, will affect the condition of the root system and in turn the health of the tree.

- 3.3. Compaction of the soil within the rooting zone of a tree will create long term damage through preventing respiration and the percolation of water. Vehicles tracking over the soil are responsible for such damage and such action must be avoided.

4. Why Trees Require Protection.

- 4.1. The part of the tree most susceptible to damage is the root system which, because it is not immediately visible, is frequently ignored, although the trunk and branches are also vulnerable.
- 4.2. Damage or death of the root system will affect the health, growth, vigour, life expectancy, and safety of the rest of the tree. This is because the majority of the tree's root system is found within the top 600-mm of the soil, extending radially for a distance frequently in excess of the tree's height. All the structural roots are found within the top 300-mm of the soil

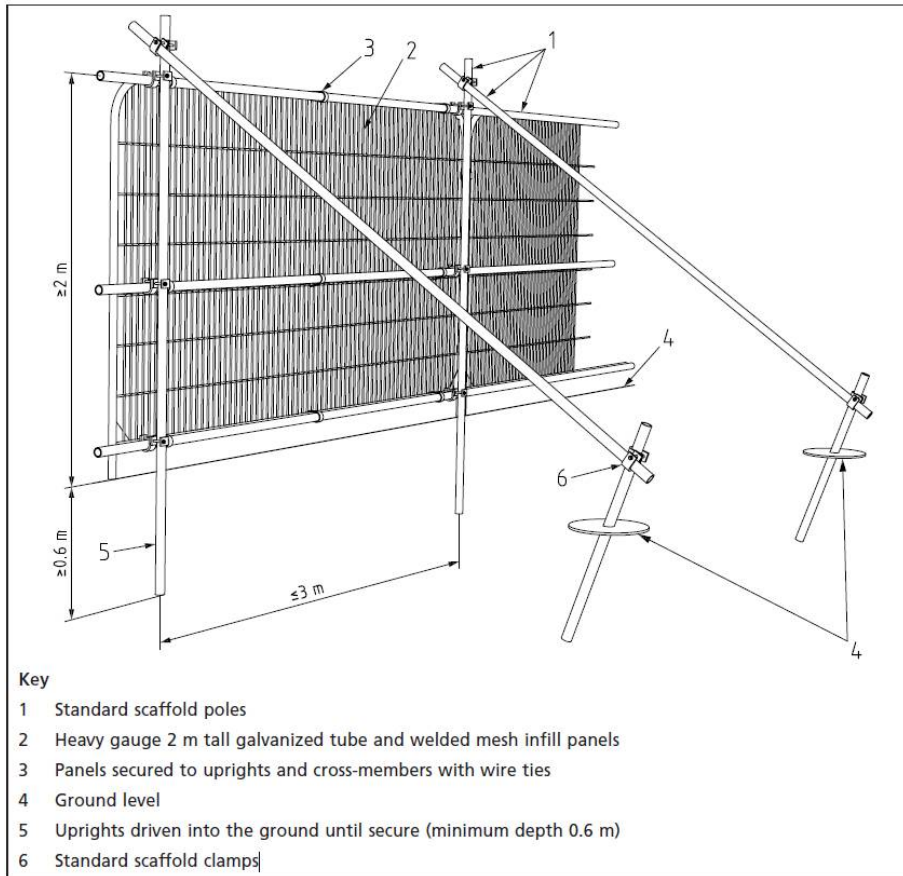
5. Tree protection programme will be as such -

- Approved tree clearance works
- Approved facilitation pruning
- Erect Root Protection Barrier Fencing
- Fix warning and advisory signs
- Install ground protection where necessary
- Monitor and maintain barrier fencing during the entire Construction Phase
- Dismantle barrier fencing once all construction works are complete
- Facilitate any post remedial tree works as identified

6. Root Protection Area Protective Barrier

- 6.1. Once the RPA is established, a 'Protective Barrier' is to be erected at the appropriate distances. Such fencing if robust and fit for purpose will offset injury or damage occurring to the critically functioning roots of the retained tree during construction.
- 6.2. When considering the activities of a construction site it is necessary to use robust materials that can withstand the day to day working practices through the duration of the development. A suitable 'Protective Barrier' is recommended within BS; 5837 which is reproduced in Figure 2.
- 6.3. The barrier should consist of a scaffold framework comprising a vertical and horizontal framework, well braced to resist impact, with vertical tubes spaced at a maximum interval of 3-metres. Onto this, weld mesh panels should be securely fixed with wire or scaffold clamps.
- 6.4. This type of fencing is preferred because it is readily available, resistant to impact, can be re-used, and enables unhindered inspections of the protected area. (Weldmesh panels on rubber or concrete feet are not resistant to impact and must not be used).

Figure 2 Default specification for protective barrier



7. Additional Precautions outside the Exclusion Zones

7.1. Once the barrier fencing has been installed to enclose the RPA's and/or ground protection adequately installed, construction work can commence. All weather notices should be erected on the barrier with words such as:

"Construction Exclusion Zone — Keep out"

7.2. 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 can operate without coming into contact with any part of a retained tree as contact may result in serious damage. Consequently, any transit or traverse of such 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 not be impossible to maintain adequate clearance thus necessitating access facilitation pruning.
- Material which has the potential to contaminate soil and have an adverse effect on the health of a tree such as – cement and concrete washings, diesel, oil, and vehicle washings should not be discharged within 10 metres of any tree stem or 30 metres if up slope from any tree.

- Fires should not be lit in a position where their flames can extend to within 15 metres of foliage, branches, or trunk. This will depend on the size of the fire and the wind direction.
- Notice boards, telephone cables or other services should not be attached to any part of the tree.

8. Maintaining the Protective Barrier

- 8.1. Special attention is essential in maintaining the 'Protective Barrier' during the construction phase ensuring that it remains rigid and in-place and fit for the purpose intended.
- 8.2. In order to avoid disturbances to the Protective Barrier once installed should be inspected frequently. Repairs must be made immediately where required to allow continued protection.

9. Site Construction Access

- 9.1. The main construction access point will be through the proposed access at the East of the. This involves the complete removal of one mature tree set within the existing hedgerow (which is also to be removed).

10. The Intensity and Nature of the Construction Activity

- 10.1. The development of the site is likely to be carried out in phases with the construction of the new access at the south of the site access being the first phase.
- 10.2. It is likely to follow these basic principles starting with vegetation control, site security, tree works, erection of Barrier Fencing to enclose the Root Protection Areas, prior to occupation by the site cabins etc., prior to commencement of groundwork's and building construction.
- 10.3. All Construction Exclusions Zones will be fenced-off immediately following the tree works and prior to commencement of vegetation clearance.

11. Contractors Compound

- 11.1. The site is likely to be developed in phases, as such the contractors facilities will be positioned in various locations around the site as the development progresses, the compound will include facilities such as temporary site offices, site huts, steel containers, cabins, and latrines all of which are essential for the duration of the construction phase and will be positioned.
- 11.2. The compounds will be positioned outside of any RPA and in a location where they are not exposed to branches.

12. Demolition of Structures

- 12.1. There are no existing building structures to be demolished so this matter is not considered further.

13. The Space required for all Foundation Excavations and Construction Works

- 13.1. Any excavated material will be stockpiled away from the identified Root Protection Areas. If there is a need to stockpile it in any other location, then advice will be sought on other suitable locations to avoid damage to trees.

14. Space for Storing Materials, Spoil and Fuel and for the Mixing of Cement and Concrete

- 14.1. Such activities can have implications on tree health if they occur within the established RPA or if they have the ability to contaminate a RPA.
- 14.2. Running contamination can happen where slopes are concerned or wind blowing cement dust into a RPA if in sufficient quantities. All such activities should be kept clear of such special areas.
- 14.3. In particular, cement washings are often discharged onto site and this can be particularly damaging to trees. Allowances should be made for such 'washings' to be discharged into a suitably designed 'pit' so the handling of this waste can be done appropriately, in line with current legislation and well away from any RPA.

15. The Type and Extent of Landscaping Works required within Tree Protection Areas

- 15.1. Planting will be avoided within the RPA of any retained trees as digging pits during planting is damaging to tree roots. Also, soil preparation in advance of any planting or seeding can also be extremely damaging and should be avoided.
- 15.2. Where soft surfaces are to be installed such as gravel, slate or other loose material they should be laid onto a membrane to prevent the substance from mixing with the soil. Where pedestrians will traffic over the surface then a geotextile load spreading membrane is advised in addition to the membrane. Such surface may only be installed using no dig construction methods and under the guidance of an Approved method statement.

16. Hedgerow Protection Plan

- 16.1. The Section of hedgerow for retention are clearly marked on the accompanying plan with a red solid line. Short section of hedgerow to be removed are identified on the accompanying plan in red with a dashed outline.

17. Hedge Protection Zone

- 17.1. A temporary protective zone will be created one metre from the spread of the hedge surrounding the site and it must be ensured that the protection zone adjacent to the hedge is maintained at all times throughout the construction phases.

17.2. During construction works the following conditions must be adhered to with regard to the Hedge Protection Zone.

- Any temporary hedge protection fencing will not be removed until all construction works and all plant and construction equipment have been removed from the site.
- No vehicle shall be parked or driven within the Hedge Protection Zone.
- No storage of any new building materials or equipment within the Hedge Protection Zone.
- All static plant placed within 1m of the hedge is to be fully banded to ensure no fuel leakage is possible into the water table close to the Hedge Protection Zone.
- No fires to be lit beneath or in close proximity or near the hedge.
- Care should be exercised when using cranes or similar equipment near the spread of a tree or the hedge.
- It is essential that allowances are made for the slope of the ground so that damaging materials such as concrete washings, mortar or fuel oil cannot run towards the hedge.
- During any works close to the Hedge Protection Zone fence should contractor encounter any roots. Any root smaller than 35mm diameter should be pruned carefully with a propriety-cutting tool such as saw or secateurs and roots larger than this will require consultation with an arboriculturist before severing, as they could be essential to the hedges' health.

18.0 Hedgerow Planting

18.1 The hedgerow planting is identified on the accompanying plans.

18.2 Where possible form a hedge bank with topsoil arising from the excavations: 1 meter width and 250-300mm height at the center.
The planting areas should be prepared thoroughly to achieve a good weed free tilth to a depth of approximately 300mm over a 600mm width.
Where the soil is poor then organic matter should be added at about 1 cubic meter per 5 cubic meters of soil. Dig in well-rotted manure into the top layer of soil prior to planting.

18.2 Plant hedge saplings in a double staggered row 150mm between rows. The hedge will comprise mixed deciduous species 6 per linear meter in the proportions given in Table 1.
Weed control is essential for the first 3 to 4 years and the planting strip (600mm) should be kept completely weed free to allow plants to establish.
Spot treat pernicious weeds with approved weed killer.
Protect plants with rabbit guards.

Table 1: Native species for hedge planting

Species	Size	%	Notes
Acer campestre (Field Maple)	400-600mm ht	15	
Corylus avellana (Hazel)	400-600mm ht	25	
Crataegus monogyna (Hawthorn)	400-600mm ht	40	
Ilex aquifolium (Holly)	400-600mm ht	10	Plant in groups of 3-5

	2 Litre pot.		
Prunus spinosa (Blackthorn)	400-600mm ht	10	