Green infrastructure, trees and soft landscaping

Green infrastructure such as trees and soft landscaping are features that should be included within the highway. Green infrastructure can break up hard landscaping and brings a higher quality feel to the development. Street trees can add value to the properties within development.

Green infrastructure can also provide character to a street, providing a sense of enclosure, walk appeal and seasonal interest and, when carefully designed into a streetscape, can promote a traffic calmed environment. Planting and trees help mitigate traffic pollution and noise, reduce urban heat gain, and are effective at containing surface water, reducing the impacts of run off onto the highway drainage system minimising flood risk, as well as forming part of a Green Infrastructure network.

Retaining existing landscape features of value must also be taken into account in proposed developments.

Street Trees

Trees should be designed as an integral part of a street scene with consideration to their location given from the outset in early stages of the design process to ensure that other highway requirements such as drainage, utilities and street lighting do not prevent the introduction of trees.

When planting trees in the highway, the creation of an optimum soil environment with appropriate soil volume for the tree species is required to promote growth, but reduce conflict with utilities. Designers should carefully consider how root protection will be used to prevent damage to utilities, in consultation with utility companies.

Additional root barriers may also be needed to prevent root ingress into services. Street tree pit details which allow for adequate root growth but avoid damage from roots and footways can be found in the Council's *Standard Details*.

Location of trees

Trees should also be suitably located as not to encroach onto essential pedestrian space.

It is often beneficial to plant trees into carriageway build outs, which allow services to run through the footway. This can create traffic calming features throughout the street and break up large areas of hard landscaping.

Trees must be planted sufficiently far from the edge of carriageway to accommodate growth to maturity.

Fig 1: **Street trees within highway**

Trees and lighting

Tree and lighting locations should be considered together from the early stages of the design process with consultation between the relevant specialist consultants to ensure tree patterns are integrated into the streetscape that achieve;

- a reasonable distance from lighting columns so trees do not interfere with lighting or the column;
- a clearly visible lantern of the lighting column when standing at the mid-point between columns; and
- street lighting schemes which are not dependent on the trimming of trees or landscaping.

Type of tree

The design, size, species and placement of trees provided as part of the landscape treatment will be expected to take opportunities to reduce or mitigate the run off and flood risk associated with the proposed development, provide shade and shelter, and create a framework of street trees.

The spread of the tree must be considered in these circumstances, as tree canopies could spread over the carriageway when planted on footways. The selection of trees species therefore needs to consider the canopy spread and eventual height to ensure that it is appropriate to the street type. For example, larger trees would be more suitable to the mixed use primary streets, and smaller trees better placed in the smaller residential streets to allow for traffic movement and sightlines within a more constrained street geometry.

This can be achieved with the selection of suitable species with sufficient clear stem when planted, with crown lifting over time (where this is considered suitable and sustainable), or the choice of a fastigiate tree species to avoid encroachment onto the carriageway.

The development of SUDS schemes provides opportunities for tree planting within the areas of soft landscape created.

Construction

For the design of street tree pits see our *Standard Details*.

Any development works should be located outside of any proposed or existing tree canopy to prevent damage to the new construction by the tree roots.

During construction the protection of landscape features, such as trees and hedges is essential. BS 5837:2012 provides detailed guidance on the protection of trees on development sites and in the highway.

Developers must not remove or carry out work to existing or planted trees, shrubs, hedges and other vegetation during the bird nesting season. This is generally considered to be from March until the end of July but can cover a longer period. Developers should check for the presence of active nests outside that period.

Process

It is essential that a suitably qualified arboriculturalist/landscape architect is consulted for professional advice on all landscaping matters relating to trees in a new development.

If trees are to be removed due to development proposals prior approval must be sought from Bristol City Council's Arboricultural team. A Tree Survey and related survey information should be submitted along with an application for planning submission and be in accordance with British Standard 5837:2012. Guidance and the number of trees required to compensation for loss of existing trees depends upon the size and category of the trees lost. This is set out in the *Bristol Tree Replacement Standard* on page 21 of the council's *Planning Obligations Supplementary Planning* document.

Trees are to be planted in the first available planting season (late November to January) and ideally before Christmas.

Fig 2: **Planting in the highwayy**

After the contractual maintenance period that covers the Defects or Rectification period for trees is carried out by the developers, trees that will be adopted for maintenance by Bristol City Council should be handed over in a healthy state and not with an immature tree that has been recently replaced.

Soft landscaping / green infrastructure

Development proposals are expected to incorporate quality landscape elements to enhance the street scene.

A comprehensive planting schedule for all proposed planting within or adjacent to the highway should be submitted for checking and approval.

For larger scale developments, a strategic landscape strategy for the entire site will be sought that sets out an integrated vision for the development.

Fig 3: **Tree in footway**

Siting

When selecting an appropriate palette of materials in regards to soft landscaping, from a transport perspective the positioning must take into consideration:

- Structures
- Underground Utilities
- Lighting columns, signs
- Visibility splays
- Vehicle tracking

Where planting takes place adjacent to the highway, vegetation should not encroach onto the carriageways or footways, as this can affect visibility, maintenance and accessibility.

Planting must not obstruct visibility for any road user. Where planting is proposed in the footway, and where visibility splays are required, such as at crossing locations, it should be no higher than 600mm.

Lighting schemes and visibility splays should not depend on trimming of trees or landscaping.

Maintenance / Adoption

Landscape proposals can be incorporated within private boundaries or within managed areas where the management company is responsible for overall maintenance.

The Highway Authority will consider the adoption of meaningful areas of landscaping. Smaller, discrete pockets of landscaping / grassed areas would not be adopted due to the long term maintenance liabilities involved. Planted areas within the highway would be subject to commuted sums. Details of the ownership and management of a development site should be provided as part of a planning submission.

Planted areas shall be contained within kerbs.

Utilities and service strips

Whilst utility companies prefer their services to be within adopted highway, landscaped areas alongside shared surfaces have the ability to contain utilities. We will consider the adoption of grassed service strips if they are considered easily maintainable, and form part of an agreed, meaningful site wide landscaping scheme.

It is important to ensure that if the strip is soft-landscaped and un-adopted, this will be managed effectively. Therefore soft landscaped strips should be either within a management company responsibility or private ownership with an easement for utility companies.

To ensure adequate access to utilities, service strips should be of a nature that is easy to maintain (e.g. mechanically mown grass areas and shrubs). For ease of maintenance grass verges should be at least 1m wide and planted areas at least 2m wide.

Planters

The use of moveable planters is not encouraged on new developments. Planting should be directly into the ground to ensure that plants are adequately watered and secured.

Any planting structures in the highway above kerb height are likely to be subject to commuted sums, to ensure that these can be effectively maintained.

Construction and effects on existing planting

During construction the protection of existing landscape features, such as trees and hedges is essential. BS 5837:2012 provides detailed guidance on the protection of trees on development sites and in the highway.

When carrying out work on existing Trees and shrubs developers must adhere to the requirements of The Wildlife and Countryside Act 1981 and the Conservation Regulations 2007.

Fig 4: **Street Planting**