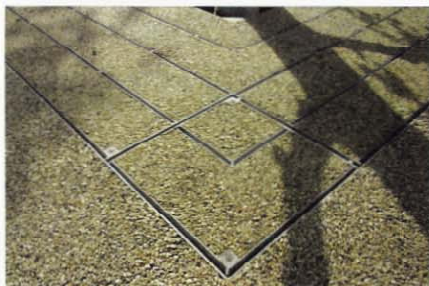


# TREE SURGERY

Cherished in many cultures for their healing powers, trees are a natural antidote to the hard functionality of urban landscaping. Both trees and pedestrians can be put at risk however if careful thought is not given to their integration, as Michael Miles discusses



**Continuity of paving through recessed tree surrounds eliminates slip hazards associated with changes in material while assisting smooth passage for wheel and pushchairs and maintaining scheme aesthetics**

**T**rees are an integral part of today's public realm improvements, bringing welcome green relief to the street scene. They can help to soften hard building outlines, provide a focal point, or reinforce the form and structure of streets and spaces. They can also help to curb pollution and buffer the effects of our climate by reducing wind speed, raising ambient temperature and providing shelter.

A mature beech tree, for example, can produce enough oxygen for ten people every year and fix 2kg of carbon dioxide an hour. But careful consideration needs to be given to their installation to ensure healthy tree growth, the safety of pedestrians and the fulfilment of DDA responsibilities – fundamental to public realm landscaping.

The design and strength of the tree surround is an important starting point. Structurally, it needs to provide rigid protection across the tree base, absorbing stresses from live pavement loads and foot traffic, street cleansing plant, emergency vehicles or HGVs that can harm the tree system. If a metal surround bends or breaks, loads will transfer into the root-bole, causing pavement settlement, and potentially cracking and failure.

Broken metal may leave edges proud of finished levels, posing a serious trip hazard to pedestrians. They are also a physical obstacle to the passage of wheelchairs, wheeled frames and pushchairs, in breach of DDA Part 3, and can even 'turn over' a wheelchair.

Recessed designs, which allow paviour infill, are a more DDA-friendly choice. They effectively 'insulate' the tree root-ball from loads by allowing paving detail to bridge across the installation. But they must have the structural integrity to withstand service loads or they may deflect and damage the tree installation below.



**Aiding wheelchair mobility in line with the DDA, Arborslot recessed tree surrounds from Jones of Oswestry have been used in upgrades to St Helens' town centre**

When loads are properly supported, back-filled root soil needs only to be 'trodden' rather than compacted, preserving natural voids that aid saturation and aeration.

Loose gravel or earth should not be used as a surface finish within the tree aperture of the surround as it can impede wheelchair movement.

Resin-bound gravels are an effective alternative, but their use should be restricted to the aperture, to permit healthy growth without 'strangling' the tree. They should be installed with a flexible nursery bar to maintain separation between the original nursery mark and new finished levels, otherwise tree rot may set in.

Slots within the tree surround must be configured to allow adequate light, water and air to reach the soil and root system. These are essential for maintaining soil pH balance and the correct conditions for the tree to thrive. For this reason, a small gap should be maintained around the base of the tree, free of backfill, for aeration.

Some manufacturers offer additional integrated features to provide a complete solution for installing and sustaining trees in urban environments. These include in-built root irrigation and aeration systems, and tree containment structures or 'rootboxes'.

A rootbox system answers the concern that heave and settlement may result from trees taking up moisture. It also eliminates the potential impact of root spread on underground services and adjacent building foundations.



**Arborslot tree surrounds with integral root retention box and bespoke curved hollards were specified for Bradford City Council City**

If specified, the position and angle of integral up-lighters should be designed to avoid harsh shadows which can look like a step or other obstacle to the visually impaired.

An experienced manufacturer will be able to advise on DDA considerations as well as recommended procedures for bedding trees within the chosen tree surround for a long and healthy life. A tree can live off its root-bole for around two years after which it will die, so tree installation must be carefully executed as problems may not be apparent until a long time after project completion.

Finally, designers and access officers should assess whether tree surrounds will be capable of supporting safe, unhindered passage of all users for the design life of the project – typically 25 years – for the purposes of the access design statement. So care should be taken to inspect the manufacturer's data on system longevity.

Michael Miles is director of Jones of Oswestry.

Enquire about Jones of Oswestry 066