



**barrell**  
TREE CONSULTANCY

## ***BS 8545: more of the same or something different?***

*Municipal Tree Officers Association Newsletter (Summer 2014)*

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**Urban canopy cover; why does it matter?**

In February 2007, I attended a four-day Consulting Academy in Sacramento, California, run by the American Society of Consulting Arborists. We stayed in the Downtown Hilton and from the balcony of the ninth floor, there was a panoramic view out over the city (photo 1). It is an image that remains engrained in my mind because it graphically demonstrated a dominant urban character of buildings set within a treed landscape. Most disturbing was that this was not the way that many British towns and cities looked, where character is dominated by buildings, with a few trees fitted in here and there, where there is space.



**Photo 1:** Sacramento in 2007 from the 9<sup>th</sup> floor of the Downtown Hilton, showing a landscape of buildings among trees, as opposed to trees fitted in between buildings.

I wanted to understand why Sacramento was so much greener than its British counterparts and spent the next few months pondering the reasons for such a stark difference. I was booked to speak at the AA Conference in Warwick six months later in September, and my US experience significantly influenced what I talked about. Something was clearly wrong in Britain, I wanted to find out what it was and, more importantly, work out what to do about it. My presentation was titled *Trees; urban air-conditioning*, and it was the first airing of the idea that canopy cover in British cities was declining.

I had always suspected that there was a problem; for decades as a contractor, I had been removing trees and it was obvious that few were being replaced (photo 2). A gradual denudation of urban canopy cover was happening right in front of our eyes,





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but it was so subtle that nobody had really realised the cumulative impact it was having. Slowly, but surely, a vital component for making communities pleasant to live in was being eroded away. Although subconsciously I knew there was a problem, I had never really thought about it in a strategic way until the Sacramento experience exposed the grim reality. The AA event was a turning point in the canopy cover story because two dedicated conferences soon followed run by Neville Fay at TEP ([www.treeworks.co.uk](http://www.treeworks.co.uk)), and today we have London imminently the subject of the biggest i-Tree project in the world. Canopy cover is now firmly on the urban management agenda and that is a big difference from back in 2007.



**Photo 2:** Site clearance in the 1980s; many of us suspected that urban canopy cover was declining as trees were being removed and not replaced.

Since my trip to Sacramento, canopy cover has dominated my thinking. I identified that primary causes for the decline include; the failure of arborists to understand and promote the benefits of trees; the complexity of tree risk management that has resulted in arborists felling trees rather than risk keeping them; the failure of local and national government to understand the importance of trees in creating and maintaining sustainable communities; the failure of local planning authorities (LPAs) to prepare tree strategies; the failure of LPAs to effectively use and enforce planning conditions relating to existing and new trees; a predisposition of highway authorities to remove trees and not replace them; and, most relevant to this story, a failure rate of around 25% for new tree planting. None of these reasons is the sole or dominant



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cause, but nonetheless, I was convinced that all were contributing to the cumulative and relentless downwards trend of our urban canopy cover.

Working towards the ultimate objective of establishing and maintaining a fully stocked and healthy urban canopy is the reason why arboriculture exists and why arboriculturists have a job, so canopy cover should be of profound importance to us all.

### **What is different about BS 8545?**

I am not a nursery specialist and I don't know much about tree planting, but I knew that planting failures was one small part of the bigger canopy cover picture, and I had realised that seemingly small individual improvements across the spectrum of problems could make a big cumulative difference. I sensed that increasing the success rate of new planting was clearly an important element towards reversing the loss of canopy cover, but how could I contribute to that cause? So, when Keith Sacre contacted me around 2009 and asked if I would help him with a new British Standard on tree planting, I was interested because I knew it would be important, but I also had serious reservations. My experiences at working with the British Standards Institution (BSI) had all been bad; I perceived it as an archaic and inward-looking organisation, with a weak leadership failing to understand or adapt to the demands of the modern professional environment, and I had no confidence in its ability to deliver a document of quality or value. However, Keith convinced me otherwise, and I joined the group.

*BS 8545 Trees from nursery to independence in the landscape* is different from the run-of-the-mill material that BSI normally churns out in a number of ways:

1. **Panel members:** Instead of the usual focus on industry representatives, with all the vested interest conflicts that brings, this panel was assembled with an emphasis on specialists of proven practical experience across the range of disciplines that engage in tree growing, planting and maintenance.
2. **Lead author:** The Trees and Design Action Group (TDAG), in the way it prepared and delivered its outstanding publication, *Trees in the Townscape, a Guide for Decision Makers* ([www.tdag.org.uk/trees-in-the-townscape.html](http://www.tdag.org.uk/trees-in-the-townscape.html)), has set a modern benchmark in producing documents that are relevant and easy to use for the target audience. It did this through using a lead author, who compiled the bulk of the content through extensive consultation, with the assistance of leaders in the multiple disciplines that the subject embraced. The TDAG document demonstrates the obvious benefits that arise from this approach, namely consistency of style, relevance of content and ease of use. This BS panel adopted a similar approach, with one lead author who pulled together all the input from the panel of specialists.
3. **Ease of accessing the content:** A priority throughout the preparation of this Standard was that it would be easy to use for the people who were growing, planning for, planting and maintaining new trees. However, we soon realised that there was so much technical information and research that to simply regurgitate



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all that material was not feasible. At the same time, we were conscious of the problems that BS 3998 had encountered in getting to grips with the same issue, and wanted to learn from that experience. Indeed, BS 3998 was so lengthy and difficult to use that it had prompted the Tree Life Arboricultural Consultancy Ltd to prepare an excellent concise version ([www.treelifeac.co.uk/bs3998](http://www.treelifeac.co.uk/bs3998)), which is far more useful on a practical level than the original document. Towards this end, BS 8545 has three layers of information; the first and most obvious is that each individual recommendation is listed as a separate clause of one or two sentences in the main body text of the document; the second is a series of annexes behind these recommendations to provide more prose-orientated detailed explanation; and the third is a list of the technical references and links that readers can access if they need even more detail.

4. **Visual and conceptual content:** It is widely known and understood that diagrams, flow charts and images are extremely effective at engaging readers and imparting important information quickly and clearly. In that context, we carefully considered the whole process of producing, planting and maintaining new trees, and created a series of flowcharts to conceptualise its key components. These form the basis of the body text and each individual recommendation flows from that framework. This allows users to easily understand the overview quickly and identify the particular issue that they require information on without reading the whole document. Furthermore, although the BSI framework does not allow photographs (one of the multiple reasons why the organisation seems archaic and out of touch with the modern world), we were able to introduce many diagrammatic illustrations of important aspects within the overall process.

BS 8545 is unique in many ways, and I pull out just a few important points to emphasise how it is relevant to emerging good practice:

1. **Growing, supplying, planting and maintaining new trees should be a joined up process:** One of the most challenging difficulties with the existing market for new trees is that their production and sale by the producers is primarily influenced by the immediate needs of the consumers, i.e. a tree of a certain size at the time of delivery, and hardly at all influenced by the longer term needs, i.e. the tree survives and thrives to maturity and beyond, once it is planted. This Standard stresses the importance of treating the growing, supply, planting and maintenance of new trees as one continuous process, which is only as good as the weakest link in that process, i.e. a failure of any part will compromise the successful outcome of the whole. Achieving the objective of new trees that can survive and thrive to independence in the landscape will require substantial changes to the mindset of both suppliers and consumers. Suppliers will need to think much more carefully about species, provenance and growing practice to increase tree survivability after planting. Consumers will need to be much more demanding in the quality of plants they ask for and what they accept on delivery. If successful, this Standard





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will facilitate those changes by empowering consumers to clearly specify what they want and motivate suppliers to meet those detailed demands.

2. **Climate change:** Adapting to climate change will become an increasingly important aspect of LPAs managing their local environment and increasing canopy cover is one of the most effective way of buffering the direct impacts on local communities. That means a focus on bigger and longer-lived species that provide more climate adaptation benefits for longer. The importance of this as a planning consideration is set out very early on in the Standard at 5.4.3: *"All planting projects should be designed with the climate adaptation benefits of trees in mind and should specifically aim to contribute to the national climate adaptation initiative"*.
3. **Finding out about and fitting in with local initiatives:** The nature of modern tree planting schemes is that they are often not very well linked and lack overall co-ordination. This results in omissions, misunderstandings and duplications of effort, which are all counterproductive to the objective of efficient canopy cover management. This failing can be improved by careful planning early on in the design of a scheme by investigating what other local initiatives are around and organising your project within that wider framework. The importance of finding out about other initiatives in the design process is set out very early on in the Standard at 5.6.2: *"Where appropriate, the design of new planting projects should be informed by the responses to community consultation and local interest groups"*.
4. **Rooting through the bottom and sides of pits:** One practical focus, of the many that this Standard embraces, relates to tree rooting. It is widely, and often mistakenly for the urban environment, expected that trees will only root in the top metre or so of the soil profile, and anything deeper than this is not important. My practical observations over the years indicates that often the opposite is the case in many urban conditions, i.e. that the upper metre of the soil profile can be so hostile to rooting that trees are forced to go deeper, with species that can do so, such as plane and lime, performing best in poor conditions. This has direct implications for the design of planting installations where there is a presumption to use geotextiles to line the sides and bottom of the pit. If these prevent roots growing beyond the pit, and that includes downwards as well as sideways, then that may severely compromise the long term survival of the tree through preventing access to deeper and more distant soil reserves. This is recognised and highlighted in a number of places in the Standard, namely in 10.2.4: *"The use of geotextiles or any other barrier to root growth, either at the base of or along the sides of tree pits, can limit root development into surrounding soils. Unless there is a specific requirement to inhibit root growth, such barriers should not be used as a tree pit lining."* and in Annexe F1.3: *"It also seems likely that the use of geotextiles to surround the cell installation needs to be carefully assessed. Membranes that are a barrier to root growth beyond the planting pit prevent trees exploiting*



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*adjacent native soil and can adversely affect long term survival."* These clauses are intended to assist users in making provision for longer term tree survival by securing access to extended rooting volumes.

### **How can tree officers make a difference?**

Although the burden of efficiently adapting to climate change falls on us all, LPAs and particularly tree officers, are well-placed to have a significant impact, and quickly. Here are some suggestions of positive actions that tree officers can take to make a difference:

1. **Get a copy of BS 8545:** As a matter of due diligence, all LPAs should have a copy of nationally recognised guidance documents and this Standard falls into that category. Of course, there will be complaints about the cost and funding cuts, but it is difficult to see how any public body charged with administering efficient development can discharge its statutory duty without having access to its own copy.
2. **Talk to forward planning:** All LPAs have to prepare strategic plans and have specific people in forward planning charged with that function. Even if the bulk of the LPA officers and members are not aware of the requirements of the Climate Change Act (2008) right now, they soon will be and the specific requirement in that legislation for LPAs to report on their progress in managing the risk from climate change. As this Act begins to bite in the next decade, LPAs will be scrabbling to find ways to demonstrate how they have managed the risks from climate change, and climate adaptation through the planting of new trees is likely to be a very effective means of demonstrating achievement. Even if it does not have a high profile right now, planting new trees is soon going to be very important and getting this document cited in emerging plans will be a very effective mechanism for delivering that policy objective.
3. **Write it into planning conditions:** Planning conditions are a very effective mechanism for administering development, and specifically referencing this Standard in conditions is likely to be instrumental in improving planting success rates. However, those conditions have to be updated and tree officers must be proactive in initiating that process. All tree officers should be talking to planners asking for planning conditions to be updated to specifically reference this Standard.
4. **Use it in enforcement:** This Standard has been specifically written to empower those who buy trees and oversee their planting to be able to demand certain standards, identify when those standards have not been met and have the confidence to challenge poor practice. When tree officers discover poor quality trees or planting, that are not in accordance with this Standard, then its provisions give them the means and backup to insist that minimum standards are met.
5. **Encourage its use:** Tree officers are often in a position to lead good practice by referencing appropriate standards and making it clear that they are expecting compliance. Tell developers, planning consultants, architects, landscape



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architects, arboriculturists, and all the other professionals involved in planning applications, that they are expecting the provisions of this Standard to be met in all submissions. Then there can be no complaints when inadequate planning applications are delayed because of insufficient information.

6. **Seek out and promote instances of effective use:** One of the most effective means of persuading doubting LPA officers that a course of action is worth taking is to show them cases in other LPAs where it has been applied and the benefits that have followed. There will be examples of LPAs that get this right very quickly and using them as exemplars of how it should be done will often worry doubters into action for fear of being left behind.
7. **Feedback:** It would be impossible to take on the task of producing such a complex standard and get it right first time. This Standard is new and is no exception, so plenty of areas for improvement will emerge as it is tested through everyday use and its weaknesses are exposed. There is no doubt that the panel have done the best they could in the time available with the resources at their disposal, but it is a work-in-progress, and improvements will be needed. Everyday users are the best-placed people to find those weaknesses and feedback to BSI is the mechanism to make sure problems are considered at the next revision.

In summary, although there is still a long way to go before tree planting success rates are anywhere near acceptable, it is clear from the above suggestions that individuals can make a positive contribution to that overall objective. Tree officers are in a very strong position to drive change and, although each action in isolation will be small and unlikely to make much difference very quickly, the cumulative impact of lots of people working towards the same end has the potential to deliver a much bigger result. As a group, tree officers are extremely powerful and have real potential to change planting success rates. Knowing how to make a difference is a good start, but doing something is even better!