The Tree Hub

Glasgow Botanic Gardens

Gateway to Scotland's Trees

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Glasgow's Gateway to Scotland's Trees

Life Drawing

Trees capture our pasts

Fill the present with colour and emotion

Paint our futures with hope

Introduction

This study explores a multi-faceted project. Its scope includes the following objectives:

- Increasing awareness and understanding of a nationally important arboreal legacy and its lasting effect on much of Scotland's landscape today.
- Reaching out across Scotland to provide orientation information and encourage visits to sites of particular importance (hence the use of the word HUB in the project title) and in the process support Scotland's domestic and international tourism.
- Educating visitors, through interpretation, about this important part of Scotland's history and the colourful figures involved.
- Providing further interpretive education about trees in general and their environmental importance; education that will be tailored to impact on peoples' perception of trees and change/improve their behavioural attitude towards them.
- Utilising Glasgow Botanic Gardens as a vehicle for the project. Located at the centre of Scotland's largest population centre, it attracts 400,000 visitors per year from a very wide cross section of the conurbation's demographic (from the wealthiest to the most deprived). It is consequently an ideal location. Plus, as an established botanical garden and arboretum it already has a strong connection to the story in both historical and contemporary contexts.
- Adding an extra interpretive dimension to the gardens and increasing the critical mass of its facilities.
- Working in partnership with other environmental agencies and botanical gardens in imparting the above messages and information.
- Involving local communities at every stage of the development process.
- Supporting the Commonwealth Games 2014 programme, particularly with regard to improving the experience of visitors to Glasgow and the rest of Scotland with a view to encouraging return visits.
- Encouraging further education on a broad front as well as supplementing and enhancing the roll of the Gardens Education Officer, especially in her work with school related curriculum visits to the Gardens that currently number 4100 per annum. If this project is implemented it is estimated that this number could rise to 5000 pa.

The study was commissioned by the *Friends of Glasgow Botanic Gardens*.

The Friends of Glasgow Botanic Gardens was established as a charitable organisation in the early 1990' s. It is run entirely by volunteers. Their aim is "the enhancement of education for the public benefit by supporting and furthering the activities of Glasgow Botanic Gardens as a centre for education, research and public amenity"

In practical terms the organisation has a winter programme of talks to the Friends covering specialised plant collections and general matters relating to environmental issues, culminating with the Kibble Lecture in April, which is open to all.

As well as this project, the Friends are launching the Certificate in Practical Horticulture, in April 2013. It will be operated in partnership with the Royal Botanic Garden Edinburgh.

In addition the Friends continue to manage their recently launched web site, which is the only primary, online source of information for the Gardens.

They also organise visits to other major gardens in Scotland both public and private and assist in expanding horticultural knowledge. In the latter regard, the Friends have access to the extensive library within the Gardens.

Their fundraising is directed towards the enhancement of the plant collections within the Gardens and the provision of education and information programmes for all ages and backgrounds.

Above all, The Friends are all avid enthusiasts of their favourite subjects – plants, gardens and landscapes!

The study has been funded by the *Central Scotland Green Network.*

The Central Scotland Green Network (CSGN) is changing the face of Central Scotland, by restoring and transforming the landscape of an area stretching from Ayrshire and Inverclyde in the west, to Fife and the Lothians in the east.

The Scottish Government's second National Planning Framework identifies the CGSN as a national priority, which will deliver:

"...a step change in environmental quality, woodland cover and recreational opportunities...[and] make Central Scotland a more attractive place to live in, do business and visit; help to absorb CO^2; enhance biodiversity; and promote active travel and healthier life styles".

The CSGN is included in NPF2 as one of only 14 National Developments and is considered by Ministers to be an essential element of the strategy for Scotland's long term development.

Relevant to this study, it was CSGN (via The Forestry Commission) who contacted the Friends of Glasgow Botanic Gardens and asked for this project to be considered and taken forward by them, hence CSGN's study funding role. At the same time they indicated that, subject to the results of a formal application process, they may be able to support the project at a level of around £150,000.

This study and has also been supported and endorsed by a variety of organisations that include the following:

Glasgow City Council

National Tree Collections of Scotland

Monkey Puzzle Tree,
Glasgow Botanic Gardens

Scotland has some of the world's finest tree collections. Their diversity reflects the role many individual landowners have played over the centuries, collecting and planting specimen trees from around the globe. The best of Scotland's specimen tree collections have been brought together as the National Tree Collections of Scotland, to increase public awareness of and access to these collections and to help protect this aspect of our national heritage for future generations.

The National Tree Collections of Scotland initiative has been established by **Forestry Commission Scotland** and **Royal Botanic Garden Edinburgh**, with widespread support from a broad range of stakeholders. It is part of the UK's response to the UN International Year of Forests 2011, which includes a year-long programme of educational, community and recreational events in Scotland.

As the National Tree Collections of Scotland evolves, other sites will join, and ultimately it is envisaged that the initiative will operate independently of the original sponsoring bodies.

The study has been undertaken by a team led by Ross Associates.

They were assisted by:

John Finlay, Project Principal
Graham Addison, Quantity Surveyor
Sandy Andrew, Researcher and Visitor Surveys

1.0 Project Overview

Scotland has one of the most concentrated and diverse collections of specimen trees on the planet. The incredible diversity of these trees has transformed Scotland's landscape over several centuries and has created a landscape legacy that is unique.

While Scotland has pioneered tree cultivation for hundreds of years, it was during the 18th century that the whole concept of tree collections really boomed. This explosion was led by the rich landowners of the period, like the *Planting Dukes of Atholl*, who planted more than 20 million trees in the space of around 100 years.

The philanthropist and founding member of the National Trust for Scotland, Sir John Stirling Maxwell, was one such innovator. He initiated ground-breaking experiments in the planting of different species on moorland in Perthshire.

It was not only fashionable to create wondrous tree plantations and exotic groves, these landowners also introduced the concept of commercial tree planting of conifers to the world. They were, arguably, the founding fathers of today's Forestry Commission and these forward thinking landowners shaped how much of Scotland's landscape looks today.

During this planting fervour, there was huge pressure to discover newer and more exotic species. By the 19th century Scottish botanists were scouring the world for new species. Known collectively as the '*Plant Hunters'*, these colourful characters explored the furthest corners of the world and brought back seeds from Australia and New Zealand, Japan, China, North America, the Himalayas, and the Andes. The Plant Hunters were true adventurers who also brought back intrepid tales of their experiences. The most famous Plant Hunters were Archibald Menzies, David Douglas, Thomas Drummond and John Jeffrey. They paved the way for many more and they collectively fed the landowners' hunger for new species.

Menzies is best known for bringing the 'monkey puzzle' tree to Scotland (he pocketed some unknown seeds that were in his food and the rest is history).

David Douglas, who is now immortalised by the *Douglas Fir* collected more than 240 species. One of the original Doulas Fir seeds he collected in 1826 is now a mature tree that can be seen at Scone Palace. He is also famous for introducing the Sitka Spruce that is the mainstay of the UK's commercial forestry sector.

The lasting result of all these hundred of years of tree collecting, planting and management is that Scotland is now home to several world class collections of trees. Many such collections are easily accessible from Glasgow. Plus Glasgow's Botanic Garden has its own collection of 'champion trees'. The result is a priceless and amazingly diverse legacy that is accessible to almost everyone.

Unfortunately, while Scotland has benefitted greatly from the efforts of both the planting landowners and the plant hunters in terms of its unique, rich and diverse arboreal legacy, few people know about it, and this legacy is neither widely nor effectively communicated. Glasgow's

Botanic Garden's own arboretum is a prime example. Partly as a result of its location, and partly due to the aforementioned lack of awareness, it is undervalued and 'missed' by visitors.

Nationally there is a 'black hole' in our cultural heritage resulting in tourism opportunities which are not being fully exploited and some very important tree collections which are under threat through lack of management and awareness.

The forthcoming Commonwealth Games are seen by The Friends of Glasgow Botanic Gardens as an opportunity to begin addressing this challenge.

As the City is historically linked with the pioneering 'Plant Hunters' it is felt that there is a Glasgow based opportunity to celebrate the connection, communicate the Scottish Tree Collections and Landscape stories to as wide an audience as possible, and to act as an **orientation hub** for some of the most important sites. And where better to locate such a hub than Glasgow's Botanic Garden? It will ensure that the information is accessible to hundreds of thousands of visitors every year. Dedicated web site pages for these sites will also increase exposure numbers still further.

Indeed, the project is seen as pioneer. It could become one of several gateway, or hub, projects throughout Scotland that will connect and orientate people with an important part of our nation's landscape heritage.

In summary, the project has the following key objectives:

- To highlight, promote, interpret and orientate people to Scotland's National Tree Collection Heritage.
- To tell the story of the pioneering individuals (from plant-hunters to planters) who played important roles in creating this unique landscape legacy.

Before translating these objectives into a tangible form, a study was undertaken to consult with users and to investigate and analyse the range of user profiles encountered. The study also explored the projects impact on the sensitive landscape within Glasgow Botanic Garden. Section 2 of this document summarises the first part of study's findings and conclusions.

1.1 Project Overview: Glasgow Botanic Gardens

Glasgow Botanic Gardens, situated in the West End of the city, lies beside the River Kelvin.

Thomas Hopkirk, a distinguished Glasgow botanist, was the founder of the Gardens and, with the support of a number of local dignitaries and the University of Glasgow, they were set up in 1817.

The Garden was originally laid out on an 8 acre site at Sandyford at the western end of Sauchiehall Street (at that time, on the edge of the city). Laying out the grounds was the work of Stewart Murray, the first curator. Three thousand plants were donated by Hopkirk as the nucleus of the collection. The Garden flourished to such an extent that in 1839 a new site, to the west of the city on the banks of the River Kelvin, was purchased to house the rapidly expanding collection. In 1842 the new Gardens – on their present site – were opened to members of the Royal Botanic Institution of Glasgow who owned and managed the Botanic Gardens. The public were admitted at weekends for

a small charge. In 1821 William Jackson Hooker, one of the most eminent botanists in the world at the time, was appointed to the Regius Chair of Botany at the University of Glasgow. During the twenty years the Gardens were under his guidance they went from strength to strength. In 1825 the collection numbered 12,000 individual plants. In 1841 Hooker was appointed Director of the Royal Botanic Gardens, Kew.

David Douglas was born at Scone near Perth. In 1820 he took up a post at Glasgow Botanic Gardens. Professor Hooker took a great liking to Douglas and the two men made a number of botanical trips together to the Scottish Highlands while Hooker was writing his book "Flora Scotica." It was on Hooker's recommendation that the Horticultural Society (not yet 'Royal') employed Douglas in 1823 as an explorer. He was sent to North America and in 1826 sent home seeds of *Pseudotsuga menziesii* – the Douglas Fir.

The garden also boasts a Victorian landmark building: The Kibble Palace. It was designed and built by John Kibble who has been described, among other things, as an engineer, astronomer and photographer. It was at his home at Coulport on the shores of Loch Long that Kibble erected his glass palace. The architects of what originally was known as 'The Kibble Crystal Art Palace,' were John Boucher and James Cousland.

In 1871 Kibble entered into negotiations to have the structure dismantled and moved by barge to Glasgow where it was to be reconstructed in the Botanic Gardens. In the garden it was much enlarged with the addition of the large circular dome, 150 ft in diameter, and the extension of the transepts to form an impressive front elevation. The new palace opened in 1873, its interior lit by 600 gas lamps which could be coloured for effect.

The two greatest British politicians of the Victorian era were installed as rectors of Glasgow University in the Kibble Palace. Benjamin Disraeli – Lord Beaconsfield – on 19th November 1873 and William Ewart Gladstone in December 1879.

The tree fern collection was planted in the 1880's and today forms a National Collection.

The Gardens currently cover an area of 19.6 hectares (42.2 acres) including a popular section of the Kelvin Walkway linking the City to the West Highland Way.

The arboretum, which opened in 1976, is now well established and displays natural groupings of tree species in a tranquil setting alongside the River Kelvin. Situated here is an area of plants introduced by David Douglas the famous plant collector.

The wooded walkways of the River Kelvin provide an ideal habitat for wildlife and are of conservation importance. Within the grounds the mature native and exotic trees furnish an impressive background for the plant collections that are grouped according to their cultural requirements.

The herb garden and herbaceous borders are particularly attractive in the spring and summer. The chronological beds, in which the plants are arranged in the order of their introduction to Britain, are a popular educational feature.

The large aerial photograph/map on the next page gives an overview of the gardens and the river.


Arboretum
Entrances from Kirklee Gate
River Kelvin
Entrance from Gt Western Road

2.0 Visitor Survey and Conclusions

At the commencement of the project, a generic visitor survey was undertaken. It was purposely not related to the concept of the Tree Hub, as further consultations were planned as product ideas began emerging. The survey's primary purpose was to gain a better understanding of why people came to the Gardens, what they do there, what they enjoy/dislike, what behavioural patterns exist and what could be done to improve their experience. This data was then to be used to help formulate and evolve the Tree Hub concept.

While Appendix 1 provides a detailed overview of the survey, the next bullet points summarise some of the more relevant findings and their associated conclusions (bold):

- Many users are just walking through. They use the diagonal path between the main entrance and the Kirklee Gate access, by the Arboretum, as a short-cut. **They are a potential audience and the location of the planned Tree Hub should recognise this.**

- Some users perceive the Garden as a park. Indeed they call it 'The Park' and it is, to many, a green leisure space. While this is refreshing, very user-friendly and ensures a broad mix of visitor profiles, **it does imply that there is scope for the botanical aspect of the gardens to be reinforced. This will also enhance synergy with the Tree Hub concept.**

- Irrespective of what visitors call it, there is a genuine and deep affection for the Botanic Gardens.

- In the same regard it became clear is that visitors would like to see more information about the plants. This request ranged from **more-informative plant labels to better in-garden interpretation.**

- Kibble Palace and the nearby Café are extremely popular. There is a degree of indifference towards the tropical houses. This is clearly as a result of the fact that the building cannot compete, architecturally, with the Kibble Palace. It also suggests that it may need some rejuvenation of its interior and/or interpretation. **This aspect could play a role in determining the siting of the Tree Hub.**

- The gardens attract a very wide range of social, demographic and age groups. **It will consequently be vital that the Tree Hub caters for *all*.**

(Detailed observation of how visitors used and accessed the garden was also part of the remit of this survey and the relevant findings are included in section 4.0)

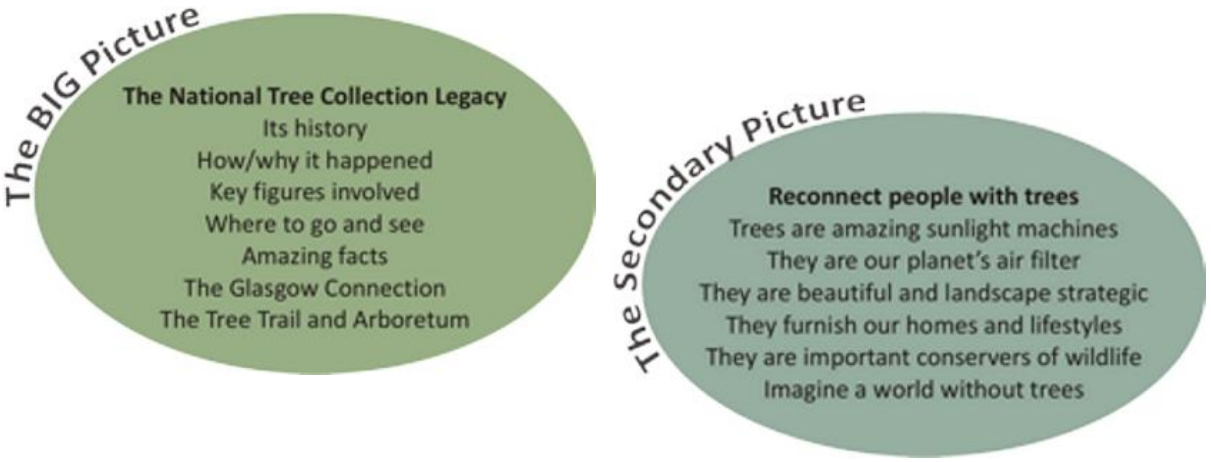
One important conclusion that can be drawn from the research are that visitors are keen to learn more about the plant collections and plants themselves, although this should not be at the expense of the simple enjoyment of the garden or to imply that the garden experience should be made 'stuffy'.

It also suggests that while the core project vision must focus on the important tree collections, there is the opportunity to widen the concept to include the objective of reconnecting people with all trees in memorable, intellectual and emotional ways. This will not dilute the original vision, but reinforce it.

Consequently there is a significant range of potential other communication objectives that are naturally derived from the above:

- To emphasise that Glasgow's Botanic Garden is an important tree collection in its own right.
- To reintroduce people to the wonder of trees and reinforce their importance to us and to life on earth. Irrespective of whether trees are nationally important specimens or not, they're not always fully appreciated or valued by everyone. This project consequently will use the wonder of the nation's important tree collections as a catalyst to reconnect people with all trees in both intellectual and emotional ways.
- To encourage people to see and understand trees in new ways and to discover their importance to our landscapes, our everyday lives and to all living creatures on our planet.
- To encourage a better understanding of our native trees and their indigenous importance to our landscape and culture.
- To create an iconic physical gateway, or hub, within the Gardens that, through interpretation and orientation, addresses these issues and contributes to the important built heritage within the complex.
- To use effective interpretation that reaches out to all social and age groups: *Access for All*.

These diagrams summarise such an expanded vision:



3.0 Potential for a Widened Vision

In the light of the visitor survey and its associated conclusions a revised vision for the Tree Hub could potentially include:

Within the Garden:

- Orientation
- Promoting wider awareness of Scotland's tree collection heritage and how they historically came to be created
- Improving awareness and use of Glasgow's own Arboretum. This should include a gateway orientation point close to the entrance to the Arboretum.
- Forming a gateway into a tree trail
- Introducing a new level of *Access For All* interpretation

Outwith the Garden:

- Orientation
- Promoting wider awareness of tree collections throughout the local, regional and national areas and encourage visits to them.

Within and Outwith the Garden:

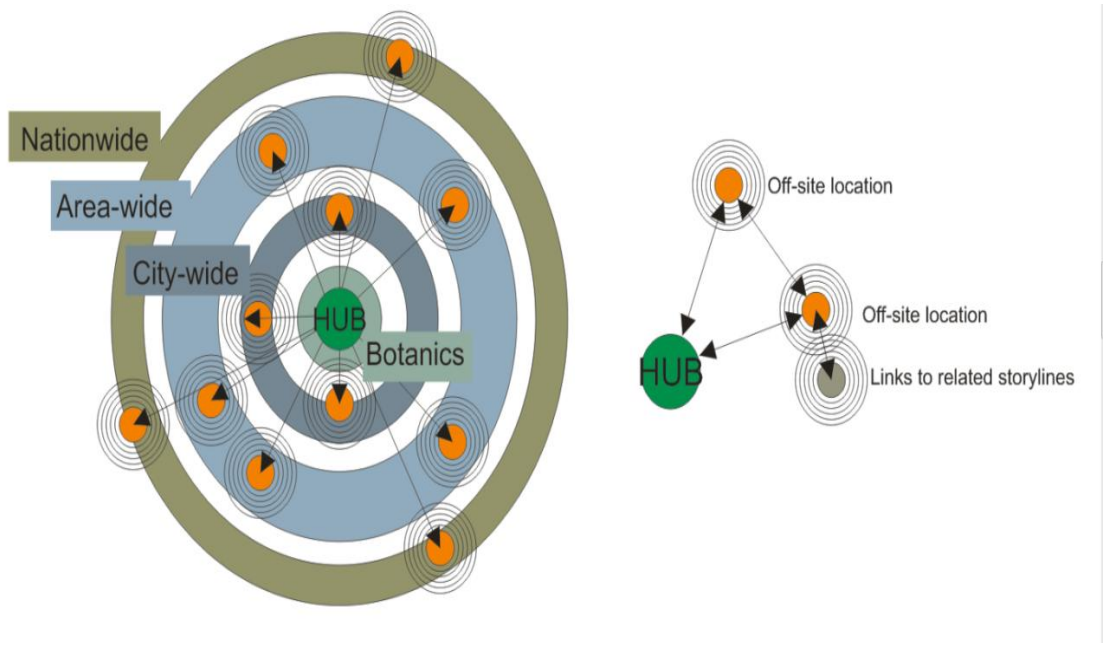
- Through interpretation, telling the historical story of the tree collections from plant hunters to landscape creators and Glasgow's connections.
- Bringing trees to life through links with the educational curriculum, expounding on the importance of trees to life on earth and revealing their amazing physiology.

Within the Garden

- Using the Hub to attract visitors to the lesser used areas of the gardens through its physical design and location.
- Creating an added landscape component that will benefit the entire garden experience.
- Introducing a degree of Botanical 'gravitas' while simultaneously making learning about trees fun, accessible and enjoyable.

- Respecting the existing and historically important structures and designed landscape. By implication, the Hub should not be a building solution; it should be a creative landscape installation.

The context of the hub, relative to its wider environment, is summarised by the diagram below.



Examples of nationally important sites that the hub will explain and orientate visitors to include:

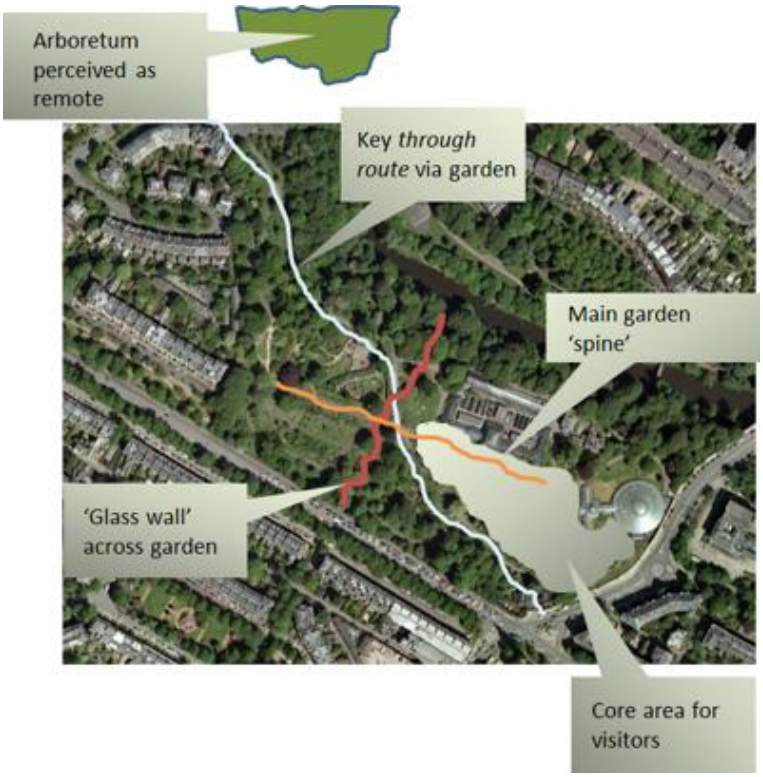
Benmore Botanic Gardens
Dawyck Botanic Gardens
Scone Palace
Dunkeld Estate
Camperdown Park, Dundee
Drumlanrig Castle
Mount Stuart
Lael Forest Garden

While the above strategy is part of an intellectual analysis, of equal importance is the need for a physical landscape analysis that explores the siting of the Tree Hub and its potential impact, both good and bad, on the Botanic Garden. The next section 4.0 highlights these study conclusions.

4.0 Site Use Analysis

The noted visitor survey observations highlighted a number of important criteria. This diagram highlights them.

One of the most obvious issues is that the majority of visitors contain themselves with the area around the Kibble Palace, not far from the garden's primary entrance. As the diagram shows, there is a *glass wall* across the site. While this might suggest that the Tree Hub be located within this high-use zone, arguably the opposite is true. As long as the hub is visible and not too divorced from the core area, it could act as a 'magnet' that draws visitors out of the established use patterns and encourage wider exploration of the gardens. Add in a tree trail that can be centred on the hub and there is the potential for the hub to play an important role in diversifying visitor use patterns.



The same issue also affects visitor numbers to the Arboretum, which is perceived by many to be remote yet it is only a 4 minute walk from the edge of the core area. Again, the combination of strategically sited hub and a tree trail that embraces the Arboretum will help to rectify this perception and psychologically make the Arboretum more accessible.

The main garden walk (shown orange) is a key dispersal route and any hub must be located close to it. The same applies to the diagonal 'through route' (shown grey).

In conclusion:

- The Tree Hub can be a tool to expand the core area and attract a wider visitor audience and break down the 'glass wall'.

- Strategically, it must make the Arboretum part of the garden experience. It should be an Arboretum gateway.

- New visitor 'magnet' should be on the 'glass wall' or just beyond it and located adjacent to the primary circulation routes.

4.1 Site Visibility Analysis

If the proposed Tree Hub is to act as the described 'visitor magnet' it should be located in a position that is visible to the core areas and to those using the 'through route' (to encourage casual users to visit and/or come back) and the main 'spine' road.

It also must be an iconic, unusual and intriguing installation if it is to achieve this objective.

Conversely, it must not be too close to existing buildings so as to compromise their Architecture. Such separation will also to ensure that the Tree Hub will draw visitors through the 'glass wall'. However, it should not be too far away so as to discourage access by disabled, infirm or young family users, particularly as the spine road becomes an incline beyond the core area.

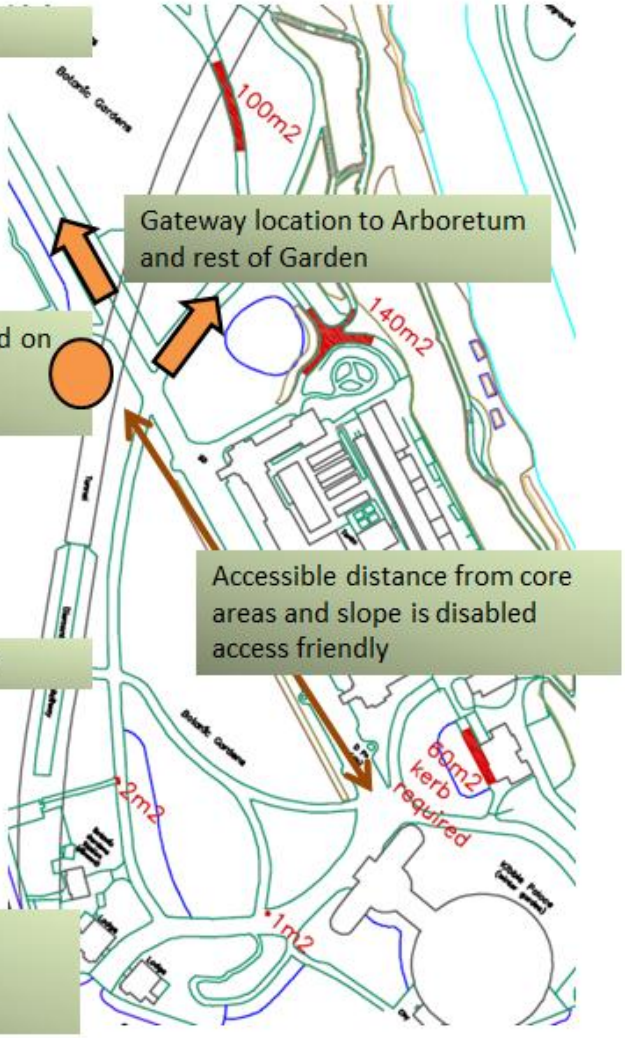
The diagram below highlights the junction of all of the described parameters that occurs in the area shown by the blue circle. Extensive evaluation of several other sites confirms that this is the only location that meets all of the defined criteria.

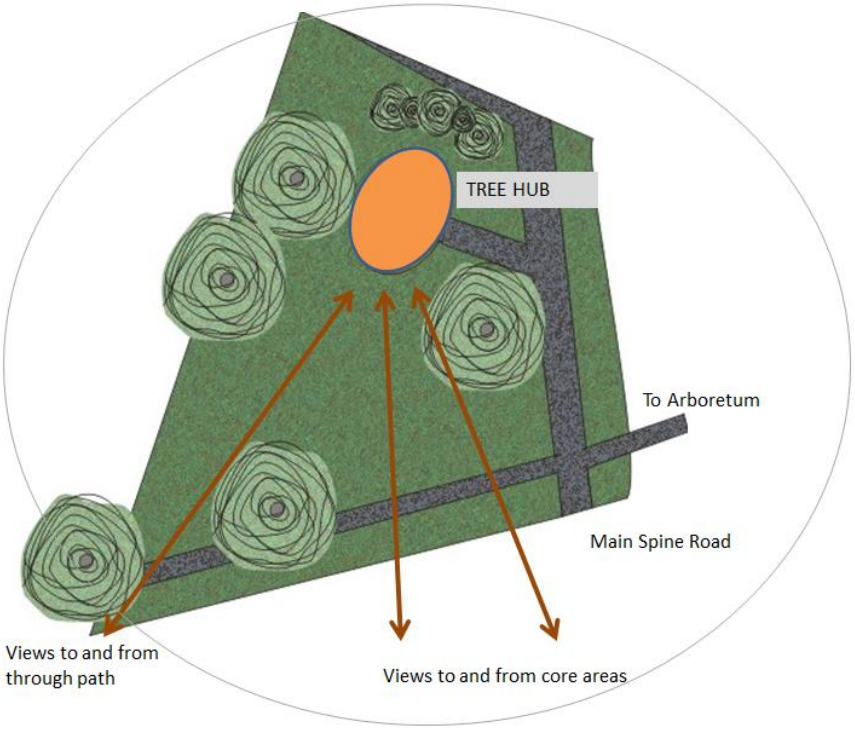
The diagrams on the next page illustrate the area in more detail.

Visible from core area

Visible from through path

Visible from spine road. Location has no impact on mature tress .





The preceding diagram also highlights that there is potential to create a 'through-path' across the chosen site that will encourage access from several directions. The site also boasts its own specimen tree, creating a natural synergy between the hubs purpose and its location.

Further analysis of the site's physical characteristics reinforce that the form of any installation must be transparent and that a solid, building-derived, solution would be wholly inappropriate. By contrast, the scale of the existing trees will permit a solution to be created that has a high degree of presence and boldness in a 'transparent' context.

The site shape and disposition of trees is informal, even though the formal spine road runs alongside it. This suggests a part-relaxed, part-informal landscape approach to how the Tree Hub components can be laid out.

Section 5 highlights the design solutions that evolved from this analysis and its associated conclusions.

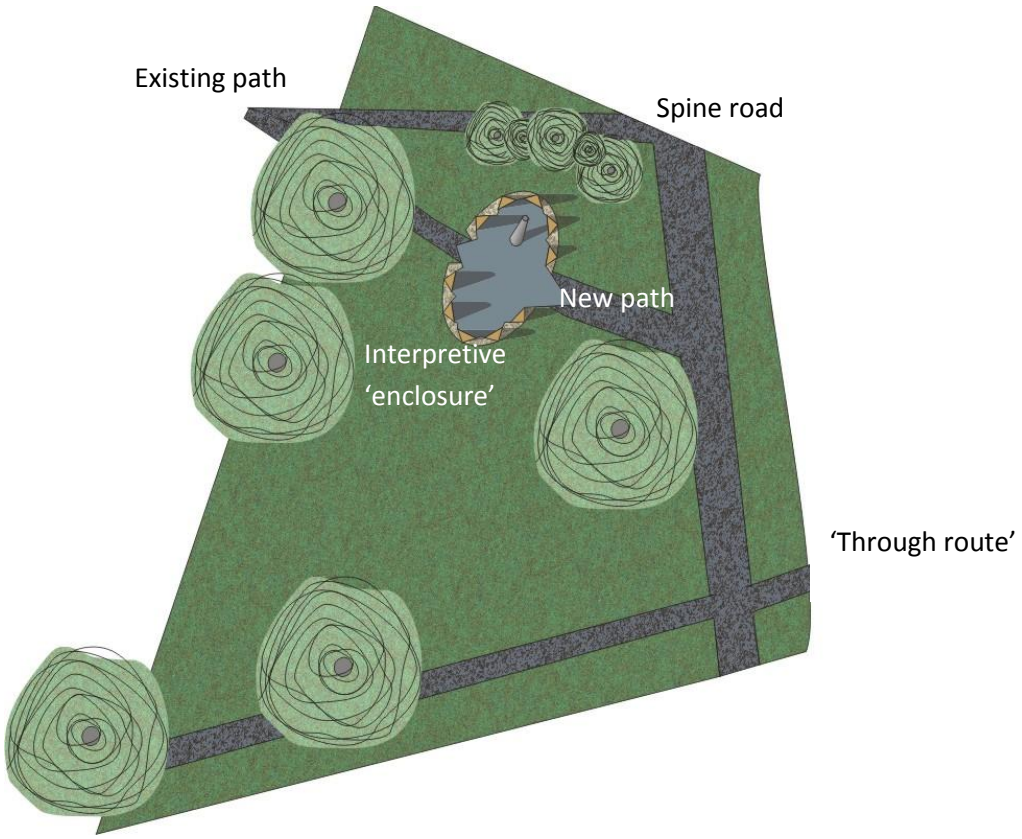
5.0 Tree Hub Design Proposals

A summarised overview of the site analysis and the project vision are listed below. They suggest that the installation and any associated components must be:

- Landscape sensitive, yet high profile, iconic and a visitor 'magnet' or attractor.
- Visible from all key approach and core areas.
- Transparent and not solid.
- Semi-formal in site layout.
- Utilise a *through-path* concept, rather than a *dead-end* path structure.
- Be Tree-inspired and a gateway to the rest of the garden's specimen trees and Arboretum.
- Be a National Tree Gateway.
- Contain quite extensive orientation and interpretation information in an 'access for all' package.
- Be DDA compliant in all respects.
- As it will be potentially be a venue for other events or school groups it should, ideally, have a roof of some sort.

Initial discussions with the Client group also suggested that 2 solutions be evolved. One should be an *optimum* solution that is designed without thought for budgets. The other should be a more fiscally pragmatic solution that could be viewed as a 'fall-back' option, should sufficient capital funds not be secured to address the optimal design. However, as a result of the public consultation exercise (which overwhelmingly supported the optimum solution) and after more discussions with the group it was concluded that in view of the National status of the gardens plus the needs for a truly iconic structure, a compromised solution was not felt to be appropriate.

The design that has been developed uses the site identified within the preceding section of this report. The proposed structure is set within the context of a semi-enclosure of space created by a ring of interpretive monoliths. Partly inspired by standing stones in their disposition, the monoliths are, however, iconographic interpretations of fir cones and symbolic forms that 'grow out of the earth'. This plan explains the concept.



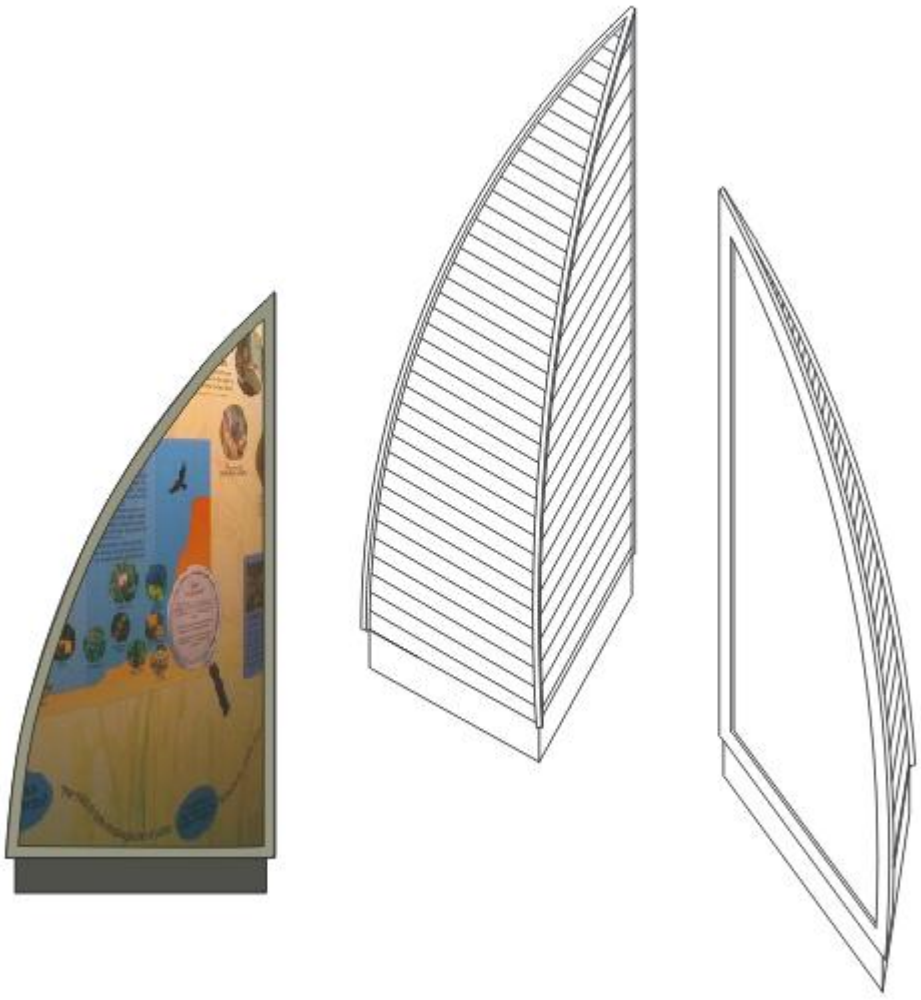
The interpretive 'cone pods' solution addresses several issues. The first is that there is a large amount of interpretive and orientation information required, which will be in graphic panel form. Graphic panels are difficult to install in sensitive landscape settings as they can be very invasive, particularly as they generally need to be colourful and visually appealing. By arranging the pods like a circle of monoliths they can be orientated to face into the enclosure, thereby minimising the external impact of colourful graphic panels.

The second issue is that the solution gives a degree of informality, yet still retains a layout that is contained and manageable. While the arrangement will encourage visitors to explore and walk around the pods, at the same time they will be gently constrained by them and the inevitable erosion of the adjacent soft landscaping will be minimised.

The third reason for the pods concept is that each is potentially a 'sponsorable' item. Like all projects, the Tree Hub will need a range of grants and other funding to secure the necessary capital. A high profile and 'green' development in Glasgow's Botanic Gardens could be highly valued by a wide range of private sector sponsors. Such sponsors could be asked to pay for a single pod, giving them a very tangible item, branded with the sponsor's identity, in return. This concept is developed further in Section 8.1.

This next diagram shows how the grove of cone pods will look without the primary structure in place. It highlights that although the plan layout is structured, the built appearance will be less so, particularly when appropriate landscaping is undertaken to 'deformalise' the installation further.

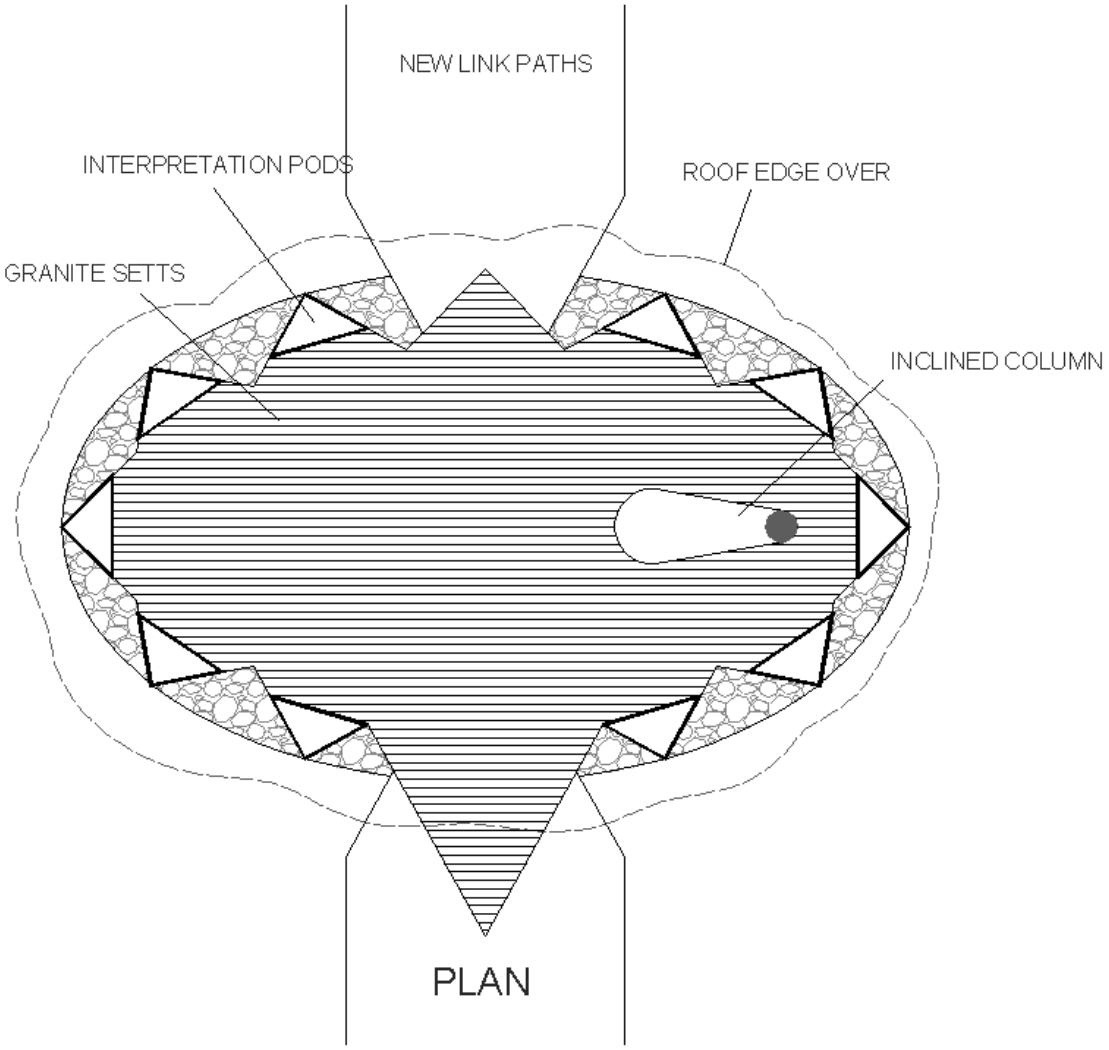
This diagram illustrates in more detail the form of each pod.



Triangular in plan, each vertical inner face will contain a large GRP encapsulated graphic panel (shown diagrammatically). The shaped and curved outer faces will be clad in unwrought larch boards fixed over timber formers. A solid base of polished concrete will lift each pod above the ground to protect them from garden maintenance work and visitors' feet. Each pod will be approximately 2.4m in height.

Below is the iconic design to cover the interpretive area. It is a tree-inspired-sculpture-pavilion-hybrid that would be made from raw aluminium.

The (roughly oval shaped) roof of the structure is a curved sheet of aluminium into which abstract glazed shapes are cut so that standing under it will be like looking up through a tree canopy and seeing the sky. The tree branches are actually lattice beans that will support the roof, and the inclined single column is, of course, the tree trunk. The solution is simultaneously iconic, dramatic and yet transparent enough to enable the existing landscape and trees to maintain their dominant presence. The apex of the roof will be some 6m high.



The drawing above shows the plan arrangement in detail. This plan also applies to Option 2, apart from the fact that the column is central to the space.

6.0 Testing the Concept and Tree Hub Design Proposals.

To test the project ideas that were being realised, a Public Consultation workshop day was held in the south wing of Kibble Palace. The Friends of the Glasgow Botanic Garden invited all the local community groups to the workshop and it was also open to general members of the public. While Appendix 2 contains full details of the workshop findings, the next section of text summarises the findings. Public consultations can often be very inconclusive, however in this instance there was an unprecedented level of clarity. The findings were very conclusive, and the support for the concept was very positive and enthusiastic, as was the reception to the designs and project's planned location.

At the core of the workshop was an exhibition that explained the background to the project, its concept, the design proposals, the interpretive storylines and the Tree Hub's national orientation function. Everyone who viewed the exhibition was individually spoken to and their feedback was recorded.

Around 70% of the workshop participants were positive about the project. Only 3% were against it and the rest had no opinion. Of those who were favourable towards the project, 78% preferred the *optimum* Option.

This exercise reinforced that the designs and concept were extremely well received and would be supported by a substantial majority of garden users and local people.

6.1 Further Consultations

As part of the Client team, representatives of Glasgow City Council Land and Environmental Services have attended meetings and are fully aware and supportive of the outcomes of this study. In addition, consultations have taken place with Council's Development and Regeneration Services (Planning).

Similarly, the Manager of Glasgow Botanic Garden and his colleague have been part of the Client group that has fully participated in the study's development.

7.0 Orientation and Interpretation Functions.

In terms of the Local and National orientation functions of the Tree Hub it is clear that, if to be successful, it will have to operate at several levels and use a variety of media.

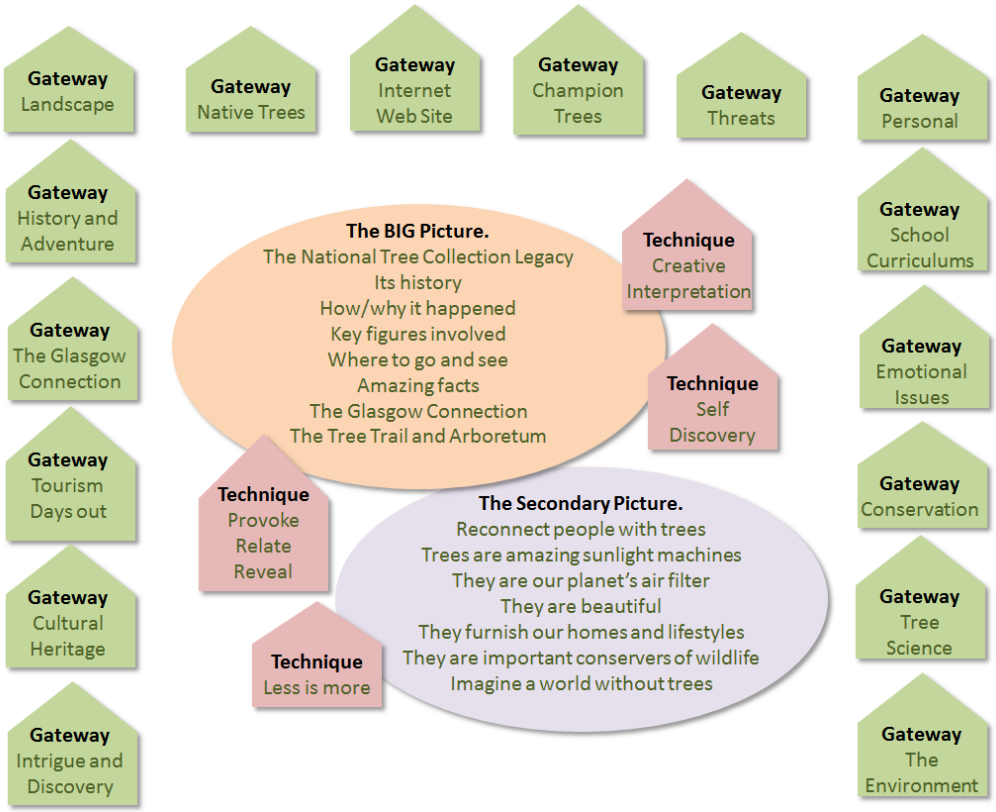
To recap slightly, the storylines of the previously described BIG PICTURE can be summarised as below:

- Scotland has one of the most diverse collections of specimen trees on the planet.
- Many of these tree collections are easily accessible from Glasgow, indeed Glasgow's own Botanical Gardens has its own Arboretum.
- Glasgow is historically linked with the pioneering, new world 'Plant Hunters' who collected the seeds that kick-started the Victorian tree planting bonanza, whose inheritance is so integral to Scotland's landscape today.
- At the heart of the old British Commonwealth, Glasgow University and its botanists had access to much of the world.
- The result is a priceless and amazingly diverse legacy that should be accessible to everyone.
- Few people know about this important legacy and it is not (yet) widely or effectively communicated.
- As a result there is a 'black hole' in our cultural heritage, with tourism opportunities not being fully exploited and some very important tree collections are under threat through lack of management.
- Glasgow Botanic Garden's own arboretum is a prime example. Partly as a result of its location, and partly due to the aforementioned lack of awareness, it is undervalued and 'missed' by visitors.
- The Commonwealth Games are seen by the National Tree Collections of Scotland initiative as an opportunity to begin addressing the challenge.
- Irrespective of whether trees are nationally important specimens or not, they're not always fully appreciated or valued by the wider community.
- The initiative should, consequently, not be about 'preaching to the converted'. It should be about making the wonder and awe of the tree collections and native trees valued, accessible and understood.
- There is a unique opportunity to further build into the initiative ways of generically reconnecting people with <u>all trees</u> in intellectual and emotional ways.
- In other words, the project should be trying to encourage people to see trees in new ways and to understand their importance to our everyday lives, as well as to life-on-earth.

In summary, the project has 5 key objectives:

1. To highlight, promote, interpret and orientate people about Scotland's National Tree Collection Heritage.
2. As part of the above, to reintroduce people to the wonder of trees.
3. To create a physical gateway, or hub, within the Gardens that, through interpretation and orientation addresses these issues.
4. To utilise effective communication that reaches out to all social and age groups: *Access for All.*
5. To achieve this accessibility, there needs to be a series of intellectual gateways, each of which appeals to different groups in different ways.

What are the Gateways? This diagram suggests how they may be formulated and combined with good interpretive and communication practices:



All of the above suggests communication components in the form of:

- A centralised installation at the Tree Hub that orientates and communicates. It can use a variety of techniques beyond creative graphic panels. For example, QR codes can be incorporated into the graphics so that visitors can *find out more* or *undertake virtual visits* to local and/or remote National Tree Collection sites. Sound stores can also be integrated into the displays using 'wind up' systems that require no power (they can also be wound in 2

directions and tell 2 different stories). Audio commentaries can range from evocative Poetry to further layers of information or, even, just the sound of wind in trees.

- A Glasgow Botanic Garden's *Tree Trail* that starts from the Tree Hub and takes visitors on a short interpreted walk through the garden's important tree collection. This trail should also be designed so that it can be encountered and 'dipped into' independently of the Tree Hub.
- An orientation leaflet that can be dispensed at the hub and taken away. It can be bi-functional, providing general information about the National Tree Collections initiative and key locations on one hand, and also providing specific orientation for the Tree Trail in the garden.
- An enhanced Glasgow Botanic Garden's website that incorporates a Tree Hub section which would include hyperlinks to the website of other stakeholders in the project.

In physical and visual terms, interpretation within the Tree Hub complex should be bold and strong; to ensure that it attracts the visitors and provokes interaction. From a landscape perspective the issue of bold interpretation has been accommodated by the inward facing format of the Tree Hub concept.

In more practical terms, the proposals within the Gardens have considered the most sustainable method of interpretation and concluded that there should be a limited use of "new technology" due to maintenance/management issues. However, the use of QR within the Hub and Tree Trail, provides an ideal opportunity to expand the NTCS information through a wider base of information, through the Friends of Glasgow Botanic Gardens own web site and beyond.

7.1 The Tree Trail

Venturing beyond the Tree Hub and into the Gardens (in the form of the interpreted Tree Trail) is equally landscape-challenging. Interpretation within gardens gives rise to many conflicts. The most notable challenge is designing installations that are *interpretation-effective and appealing yet not landscape invasive*. Fortunately, (and unfortunately!) there are lots of poor botanical interpretation examples that can learnt from. Most fall into similar bad practice traps:

Trying too hard. Awful colour. Inappropriate shape.

Too many words. Not DDA compliant. Stark white background is landscape invasive. QR is a plus.

Unsympathetic support and invasive white background rectangle is stark and visually jarring.

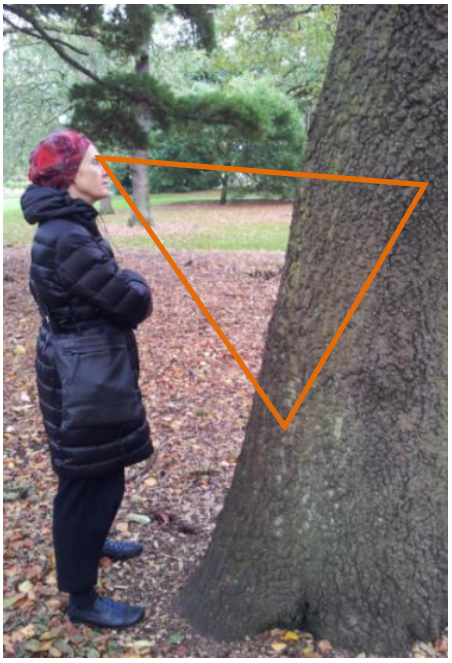
There are some better examples that can also teach good practice lessons:

Aside from the unsympathetic support this illustrates that dark colours are a better solution, in the same way that botanical labels are not overtly intrusive.

The lessons learned from an extensive review of botanical interpretation on a number of sites are quite simple:

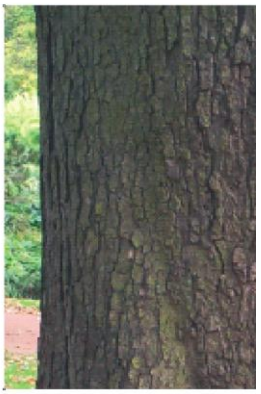
- Avoid white or light colours. Black or very dark colours are best. Green should be avoided.
- Text should be minimal, legible and accessible.
- Panels on stalks (lollypops!) are 'hard', landscapes are 'soft'. They are also visually incongruous: trees are big, skimpy panel supports do them no justice.
- Camouflage is good, as long as it is not too well done!
- Do not try too hard with text/images. Retain some dignity. Use good 'Provoke, Relate, Reveal' interpretive practices.
- QR inclusion is good, but needs to be at an accessible height.
- Low level is landscape sensitive but not user friendly when eyesight impairment and other DDA issues are considered.
- A discovery related icon is a positive asset. It is more interactive and, as a result, the core message is more memorable.
- Installations must be very robust and vandal proof.
- The industry standard of rectangular panels on 2 legs is clumsy and too generic. Over-exposed visitors actively avoid them!

So how can a Tree or the Tree Trail be interpreted to a standard commensurate with the Tree Hub?



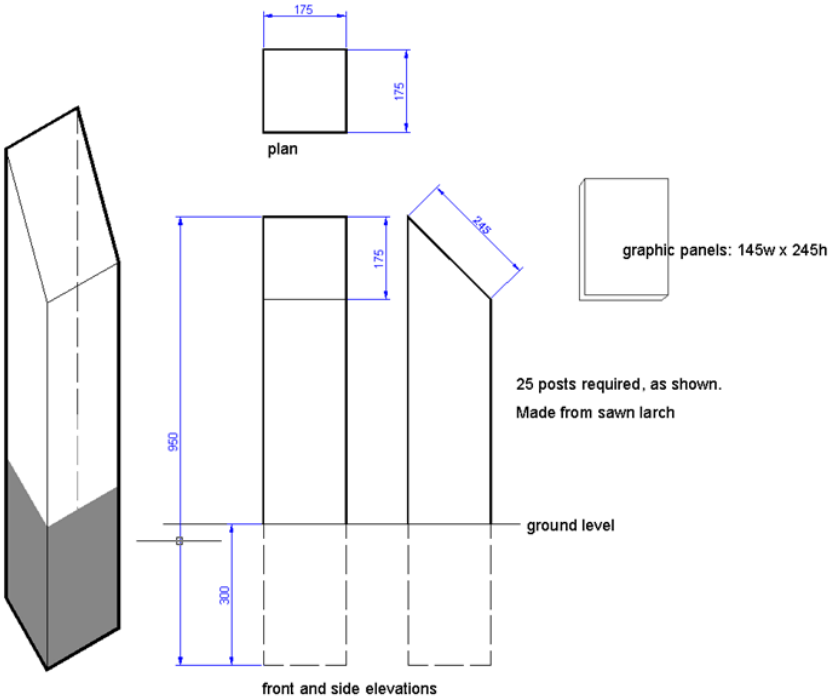
- It should be located in this orange triangle zone indicated on right, which is visually and tactilely accessible to adults and children alike, but not mounted on a tree as this would require unacceptable fixings and potentially undermine the interpretive message.

- It needs a visual connection with the tree itself. One solution is use the bark of the tree as a dark and textured background. This means each Tree Trail point is individually tailored to each tree.



- The panel support requires solidity and synergy with the tree it relates to. This suggests timber construction of a generous size.

- The support and the graphic panel should be holistically combined so that there is no 'lollypop' design anachronism. After much analysis and debate this simple solution was chosen. It is relatively inexpensive, adaptable and sympathetic. Plus it meets all of the stated access, visual and ergonomic criteria.



In terms of the Tree Trail itself, the diagram on the next page shows what has been developed in conjunction with the garden's team. The key is below.

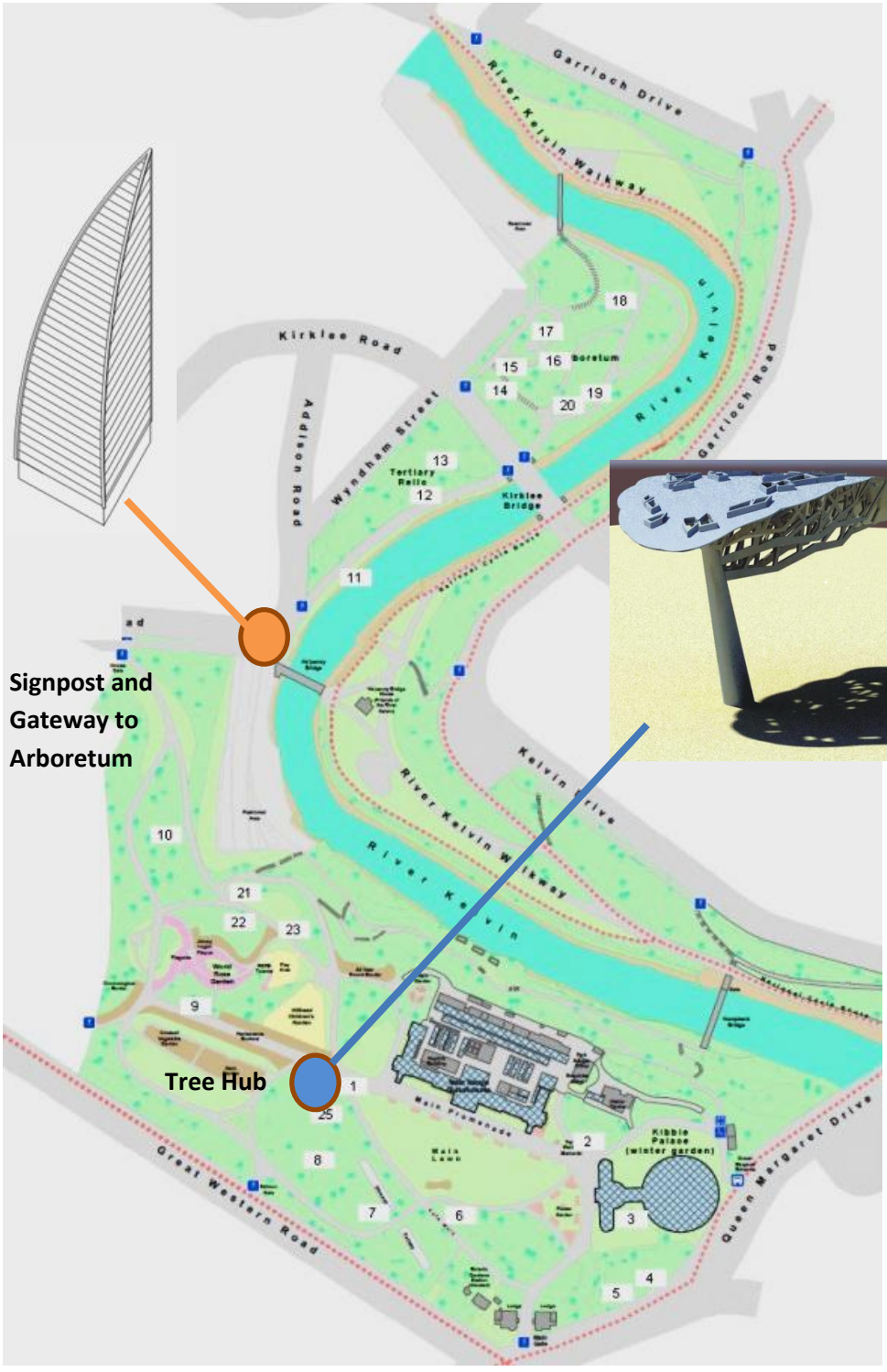
It comprises 25 trees that range from the exotic to native specimens, thereby linking directly with the Tree Hub's interpretive storylines. The storylines on each of the Tree Trail points will reinforce this synergy.

The orange dot defines an additional interpretive pod, separate from the main group, that would be sited at the entrance into the Arboretum to act as a signpost and orientation gateway.

The blue dot is a reminder of the Tree Hub location. This trail will apply to either of the Tree Hub options.

1. *Pinus nigra* var. *maritima* (Aiton) Melville (Syn. *Pinus nigra* subsp. *laricio* Maire) = Corsican Pine
2. *Toona sinensis* (Juss.) M.Roem. = Chinese Mahogany
3. *Kalopanax septemlobus* (Thunb.) Koidz. = Prickly Castor Oil Tree
4. *Ginkgo biloba* L. = Maidenhair Tree
5. *Taxodium distichum* (L.) Rich. = Bald Cypress
6. *Fraxinus excelsior* L. 'Pendula' = Weeping Ash
7. *Larix decidua* Mill. = European Larch
8. *Quercus robur* L. = English Oak
9. *Fagus sylvatica* L. 'Atropurpurea Group' = Copper Beach
10. *Quercus velutina* Lam. = Black Oak
11. *Sequoiadendron giganteum* (Lindl.) J.Buchholz = Wellingtonia
12. *Metasequoia glyptostroboides* Hu & W.C.Cheng = Dawn Redwood
13. *Liriodendron tulipifera* L. = Tulip Tree
14. *Tsuga heterophylla* (Raf.) Sarg. = Western Hemlock
15. *Betula alleghaniensis* Britton = Yellow Birch
16. *Pinus coulteri* D.Don = Coulter Pine
17. *Picea sitchensis* (Bong.) Carrière = Sitka Spruce
18. *Sorbus arranensis* Hedl. = Scottish Whitebeam
19. *Alnus japonica* (Thunb.) Steud. = Japanese Alder
20. *Acer griseum* (Franch.) Pax = Paperbark Maple
21. *Pinus sylvestris* L. = Scot's Pine
22. *Carpinus betulus* L. = European Hornbeam

23. *Abies pinsapo* subsp. *marocana* (Trab.) Emb. & Maire (check status) = Spanish Fir
24. *Araucaria araucana* (Molina) K.Koch = Monkey Puzzle
25. *Betula maximowicziana* Regel = Monarch Birch



The Tree Hub

Glasgow's Gateway to Scotland's Trees

Final Report

January 2013