

Proposal for the Conservation of Stanley Park's Hollow Tree

Prepared by the Hollow Tree Subcommittee of
the Vancouver Heritage Commission

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1) **Background and Introduction**

Left alone, the remains of a once-giant cedar, now known as the Stanley Park Hollow Tree, will eventually fall down. This important Vancouver landmark and tourist attraction has not been a massive tree for a very long time, but it is still large enough to cause harm were it to fall; and given its degree of tilt, it is possible that time is not far off. For this reason, Vancouver Park Board staff wisely brought this to the attention of Park Board on March 31, 2008. Unfortunately, the staff report did not present the Commissioners with all the facts about the Hollow Tree and its condition.

At that point, some preliminary investigation had already taken place, and information had been provided by the Park Board Staff to the elected officials, known as Park Commissioners, who serve on Park Board and ultimately make decisions on such matters.

Park Board staff had commissioned a study by DNA Engineering (see Appendix 1) that described the problem and one possible temporary solution for preventing it from falling. The DNA report noted in section 3.2 (Structural Integrity) that “Specific techniques and measures are required to restore the structural integrity of the Hollow Tree (and) are beyond the scope of DNA’s terms of reference.” The report also noted in section 6.0 (Findings and Recommendations) that “The structural integrity and physical condition of the Hollow Tree is poor. We recommend that a tree restoration specialist be consulted to address the structural integrity of the trunk accordingly.” No such additional work had taken place prior to the March 31 meeting.

The Park Board Staff Report that was provided to Vancouver Park Commissioners in advance of their March 31 meeting (as shown in Appendix 2) did not mention these limitations when it described the DNA Report. Some feel that as a result, the staff report implied that all needed information had been gathered and that all practical solutions had been carefully considered, but, rightly or wrongly, that was not the case.

The Staff Report also inadvertently failed to mention the key fact that the Stanley Park Hollow Tree is a cultural heritage resource listed in the Vancouver Heritage Registry and is also as a Level One Cultural Resource specifically mentioned in Parks Canada’s Commemorative Integrity Statement for Stanley Park National Historic Site under the heading “Designed Park Landscapes.”

In associated discussion at and around that Park Board meeting, two additional erroneous ideas circulated. First, some Commissioners said that adequate public consultation had already occurred on this subject, and that the public supported taking down the tree, but no professional public opinion research had taken place. A subsequent informal, but truly random study showed that only a tiny fraction of the public had any idea what was really going on and that, when informed, most were very skeptical of the appropriateness of the decision to take down the tree without a thorough investigation of options. (At any rate, decisions on beloved community features are not made based on majority opinion – if they were, we would lose our diversity and public places would be limited to the greatest common denominator.) Second, some Commissioners said they believed there

was a safety problem at hand that required immediate action – suggesting there was a need to quickly take down the tree before someone would be hurt. But by that time the tree has been safely fenced off for some time and was not a safety hazard. The only somewhat urgent problem was a need to fix the traffic flow in and near the parking lot, which was being blocked by the safety fencing.

On March 31, the Park Board voted to take down the tree. As described above, it seems that the Commissioners, at that time, very reasonably believed the following four ideas which are now known to be incorrect. To repeat:

- They felt there was an urgent safety problem that required an immediate decision.
- They felt the public had been adequately consulted and was supportive of taking down the tree.
- They felt that the Hollow Tree had no official Heritage status and that they were free to make their decision without consultation with Heritage authorities.
- They believed that all possibilities for maintaining the tree upright and in situ had been thoroughly explored and that there was no reasonable way to do that.

At the meeting, these ideas were disputed by a few public presenters. There was no public discussion of their concerns, so there is no way to know if they influenced the Commissioners views, but under the circumstances that would be unlikely, as there are always a few critics on any matter. Overall, there is no reason to doubt that the Commissioners felt they were responsibly addressing an urgent public safety issue in a fiscally responsible manner. (A number of prominent people who are critical of that decision have nevertheless said that, had they been one of the Commissioners at that time, they probably would have voted the same way.)

However, subsequently, it became apparent that many well-informed people, who had additional relevant information that the Commissioners did not have on March 31, strongly felt that the matter warranted re-consideration. One indication of this is that in the April 28 meeting of the Vancouver Heritage Commission, several motions were made and unanimously approved to urge for the protection of the Hollow Tree site for a reasonable period of time pending further study. The Commission struck an expert Subcommittee to look into this matter. (See Appendix 3) It consists of 13 individuals, (see Appendix 4), most with advanced university degrees, several with professional engineering certification in BC, and more importantly all having a great deal of successful career experience that is directly relevant to the conservation of the Hollow Tree.

On May 7, the initial members of the Subcommittee met with Jim Lowden, Director of Special Projects of the Vancouver Park Board. It was agreed that Park Board staff would hold off on taking the tree down while the Subcommittee carried out a preliminary analysis of options including, but not limited to, the possibility of keeping it standing.

Since then, Park Board staff has provided access to the Hollow Tree as well as helpful advice and information. The Subcommittee members have invested about 200 hours of volunteer effort so far and as a result a very positive conclusion has been reached - one

that we believe optimally meets most expressed objectives. The plan contains a few options and variations, all leading to the same simple outcome, which is:

**To safely retain the Stanley Park Hollow Tree,
in situ, upright and with its appearance substantially unchanged,
as a significant lasting heritage landmark in Vancouver.**

This report develops these ideas in more detail and leads to a recommendation for affordably and safely achieving this goal. It begins with a description of the value of the Hollow Tree, the general considerations for heritage conservation, the current state of the tree, and how these factors were considered together, without a pre-conceived outcome, in the case of the Hollow Tree.

It then goes on to explain the conclusion mentioned above and to outline a plan for achieving it, as well as the resources required.

Lastly, there is a section providing answers to frequently asked questions that have arisen in numerous discussions and a conclusion containing suggested next steps for moving the project forward.

2) The value of the Hollow Tree

A Tangible Link with Nature

The Hollow Tree is an ancient western red cedar that serves as a tangible link with the nature. Nature in the form of the Hollow Tree provides a scale for human experience and history; the tree says “this is what this place once was” and enables people who visit to measure “progress” – from such forests a mighty city grew! The tree also provides scale in a different way, as a natural “wonder” because of its size, verticality, and age: it’s so big (we can fit inside it!), and people are so small; it’s so old, and we’re so young – this is a scale of another kind; a measure of the brevity of human history that humbles us.

From Tree to Monument

The Hollow Tree is both cultural and natural and debates over what to do with it reflect this. If it’s natural then perhaps it should be allowed to die a natural death; to fall down and return to the earth. If it’s cultural (i.e. the product of human hands) then intervention can be justified.

The Hollow Tree is both natural and cultural: it was once a living tree and then became a natural non-living hollow snag which people have then turned into a cultural monument through their repeated visits, photography, and descriptions. It is a piece of popular art akin to Warhol’s soup cans, that we have all created by visiting, touching, going inside, and snapping pictures.

The transformation into monument was formalized by the presence of professional photographers, who set up shop at the Hollow Tree and offered to take pictures of visitors; by travel writers who wrote magazine articles and guidebooks about Vancouver; and by the City and the Province, which continue to use the Hollow Tree to promote tourism. When the Park Board inserted steel bars in the 1960s, the tree’s monumental status was (literally!) reinforced.

The Hollow Tree was and is a microcosm of Stanley Park, Vancouver, and British Columbia. Like Britain’s Stonehenge, it is an artifact that reflects people’s relationship with nature and the process of making something natural into a cultural artifact. Today it is an icon of Vancouver, featured in guides to the City, the Park, and in the promotion of the city as an Olympic site.

Official Recognition and Protection of the Tree

The Hollow Tree is listed as a Municipal Heritage Resource on the Vancouver Heritage Register. Listing on the Register means that any proposed interventions should be referred to the City’s Heritage Commission, which is charged with advising City Council on the management of heritage resources. While the Vancouver Heritage Commission does not have the authority to prevent the demolition of a heritage resource, it can recommend delaying the destruction of resources in order to provide time for discussion

of alternatives to demolition.

The Hollow Tree is also a key recognized component of Stanley Park National Historic Site. Section 3.1 of Park Canada's Commemorative Integrity Statement (CIS) for Stanley Park lists the resources that "symbolize or represent the site's national historic significance." These are the highest level resource, which are termed Level One Cultural Resources. Included in this section of the CIS are designed park landscapes. Under the list of resources included under this heading are trees with cultural significance. This alone would strongly suggest that the Hollow Tree is a Level One Resource. Moreover, the CIS provides even greater certainty of this, by specifically citing the Hollow Tree, (and only the Hollow Tree), as an example in this Level One Cultural Resource sub-category.

When the Park Board participated in the development of the Commemorative Integrity Statement, it agreed to manage the resources that contribute to the national historic significance of the Park. A site is said to possess commemorative integrity when the resources that symbolize its importance are not impaired or under threat, when the reasons for its significance are effectively communicated to the public, and when the heritage value of the historic place is respected by all persons whose decisions or actions affect the site.

The first step in managing a heritage resource is to articulate why it is valued and what specifically is valued. This is done by preparing a Statement of Significance. The statement is used to guide decisions about management of the resource.

A Statement of Significance for the Hollow Tree is being prepared at the request of the City's Heritage Commission. A near-final version of the statement is shown in Appendix 5 of this document.

3) Approaches to the conservation of the Hollow Tree

Since the Hollow Tree is a valued cultural resource as well as a significant wood artifact, it should be conserved by paying respect to best heritage conservation practices. These are set out in the *Standards and Guidelines for the Conservation of Historic Places*, a manual prepared by the federal government's Parks Canada and circulated as part of the Historic Places Initiative. (www.pc.gc.ca/docs/pc/guide/nldclpc-sgchpc/index_e.asp.) The Province of BC and the City of Vancouver have both accepted this manual as the guide for heritage resource management. The manual is also intended to be followed for the conservation of National Historic Sites, which Stanley Park has been designated.

Some notes on terminology used in this section and in the *Standards and Guidelines*:

- The Hollow Tree is considered a 'historic place' in the language of the manual, because it has been officially recognized as possessing cultural heritage value.
- The 'character-defining elements' of the Hollow Tree are identified in the Statement of Significance in Appendix 5.
- 'Conservation' is the general term used for all approaches to retaining and protecting historic places. 'Restoration' is one particular kind of conservation treatment. Other approaches, which are not recommended in this document for the Hollow Tree, include Preservation (which would retain the 11-degree tilt of the Hollow Tree) and Rehabilitation (which would upgrade it for a new use).

The conservation approach being selected for the Hollow Tree is 'Restoration'. Restoration is defined in the *Standards and Guidelines*:

Restoration: the action or process of accurately revealing, recovering or representing the state of a historic place or of an individual component, as it appeared at a particular period in its history, while protecting its heritage value.

The following Standards for Conservation and Restoration Projects from the *Standards and Guidelines* are particularly applicable to the restoration of the Hollow Tree:

1. Conserve the heritage value of a historic place. Do not remove, replace, or substantially alter its intact or repairable character-defining elements. Do not move a part of a historic place if its current location is a character-defining element.
3. Conserve heritage value by adopting an approach calling for minimal intervention.
7. Evaluate the existing condition of character-defining elements to determine the appropriate intervention needed. Use the gentlest means possible for any intervention. Respect heritage value when undertaking an intervention.
8. Maintain character-defining elements on an ongoing basis. Repair character-defining elements by reinforcing their materials using recognized conservation methods. Replace in kind any extensively deteriorated or missing parts of character-defining elements, where there are surviving prototypes.

9. Make any intervention needed to preserve character-defining elements physically and visually compatible with the historic place, and identifiable upon close inspection. Document any intervention for future reference.

13. Repair rather than replace character-defining elements from the restoration period. Where character-defining elements are too severely deteriorated to repair and where sufficient physical evidence exists, replace them with new elements that match the forms, materials and detailing of sound versions of the same elements.

The recommendations for the conservation of the Hollow Tree that follow in the remainder of this Proposal follow best conservation practices in general, and these standards in particular.

4) The present condition of the Hollow Tree

As mentioned earlier, Park Board staff engaged DNA Engineering to prepare a report on the status of the Hollow Tree. That report is shown in Appendix 1. It describes the state of the tree, including its 11 degree tilt, and reasonably concludes that the tree is insufficiently safe in its current condition. The reported work did not include detailed analysis by a certified arborist or consideration of all option for its restoration and the report accurately states those limitations.

After the Subcommittee was formed, one of its members, professional arborist Julian Dunster, carried out a preliminary inspection of the Hollow Tree, including testing the wood making up the base region of the tree up to a height of 6 ft. (See as an illustration Figure 1 below depicting one of the preliminary Resistograph measurements he took.) Dr. Dunster believes, based on his many years of experience, that the higher reaches also have sufficient quantities of sound wood to ensure that the major pieces comprising the tree are not in any danger of disintegration. Further testing will be needed of course, but he is confident based on these preliminary observations that an acceptable engineering solution can be found.

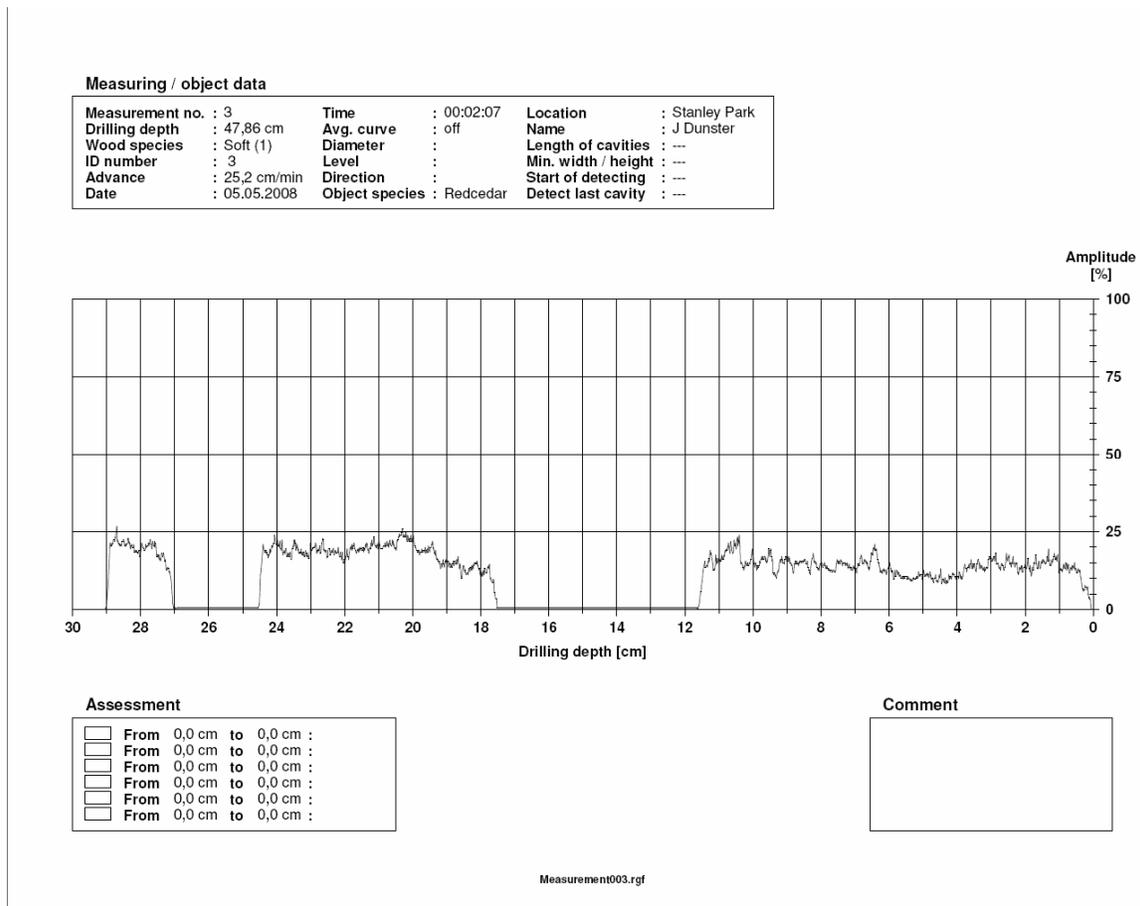


Figure 1 An example Resistograph measurements taken on the Hollow Tree

We have also investigated photographs from the early part last century with more recent ones to determine the manner in which the tree has tilted. Figure 2 shows two such photographs that have been adjusted to the same scale. It is clear that the overall shape of the Hollow Tree has remained very stable over that period, and that the front of the tree has descended approximately 1 m, resulting in the current 11 degree tilt. This is encouraging news, as some had thought that the tree had largely collapsed onto itself. We now see that what had once been viewed as a narrowing of the front opening was simply a result of the descent of the front of the tree.

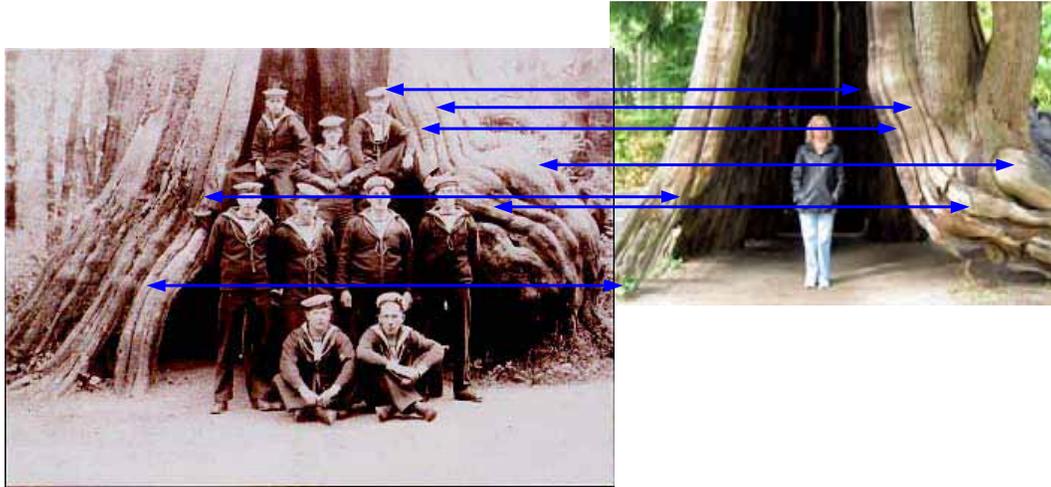
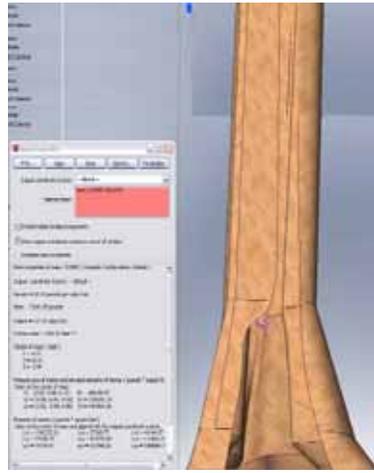


Figure 2 Historic and recent photos showing the front of the tree has descended 1 m. to cause the present 11 degree tilt of the tree.

Another committee member, mechanical engineer Neil McPhail has taken preliminary measurements of the tree and translated these into a SolidWorks 3D CAD model of the tree, in order to facilitate various scenarios for lifting and adjusting the tree. Further, mechanical engineer Jon Scott has worked with physicist Lorne Whitehead to devise a 1:12 conceptual scale model of the tree and an associated frame arrangement for lifting and re-orienting it. One interesting fact is that the tree is not unstable – its center of mass is above its “footprint” so in principle there is no requirement to remove the tilt. However, reducing the tilt will lessen the degree of reinforcement required for long term stability and would also bring the tree back to its orientation of a century ago. Figure 3 depicts images from the tree, the CAD model, and the scale model.



a



b



c

Figure 3 Hollow Tree, CAD model, 1:12 scale model of temporary framing

5) Consideration of design options leading to the current proposal

A number of approaches were carefully considered by the committee from the perspective of conservation.

The external brace concept developed by DNA Engineering was considered first. The Subcommittee agreed with Park Board that this plan unacceptably compromises the aesthetics of the site. Moreover, as DNA itself notes, this is a temporary plan only. As the tree continues to try to fall over, forces will transfer from the ground to those supports, which will apply unnatural torsion to the sub-component pieces of the tree. As the tree continues to deteriorate, the effect of these forces may be to threaten the integrity of the tree as a whole.

Next the Subcommittee considered the Park Board plan of taking the tree down but displaying it in some form on site. It agreed this is preferable to the external brace concept, and that it would respect some aspects of the significance of the Hollow Tree. However, the Subcommittee felt very strongly that this plan fails to maintain the most important heritage aspects of the Hollow Tree.

The Subcommittee considered very briefly the idea of removing the Hollow Tree but replacing it with a sculptural replica. This would preserve some aspects of the Hollow Tree experience, but it would fail on many others. While it would have the advantage of long life, it would have the disadvantage of extremely high cost. Overall, this was seen as inferior to the initial Park Board plan.

Finally the Subcommittee considered very carefully plans for discretely restoring the tree to an upright orientation and stabilizing it in its current location. The Subcommittee concluded that this plan respects all key aspects of heritage value of the Hollow Tree, and its highly credible technical experts unanimously concluded with great confidence that such a plan can be carried out in a practical and safe manner and be consistent with good conservation principles. This is the preferred plan, and it is therefore described in greater detail in the next section.

6) The proposed conservation plan, methods and options

As described in the previous section, the Subcommittee developed a very strong consensus that the following goal is appropriate and realistic for the Stanley Park Hollow Tree:

**To safely retain the Stanley Park Hollow Tree,
in situ, upright and with its appearance substantially unchanged,
as a significant lasting heritage landmark in Vancouver.**

The flow chart in Figure 4 summarizes the proposed conservation plan for achieving this goal, based on four major decision points. These decisions will be made as the project proceeds, rather than in advance, because the work itself will generate information which will assist in making the best decisions. Each will be made according to the principles of heritage conservation, the absolute requirement for human safety, and with a view toward timely and economical completion of the project. From the safety perspective, our plan will be to employ an independent structural engineering firm that is not a volunteer member of the Hollow Tree Subcommittee, to avoid any possibility of perceived conflict of interest. One such firm, Teora Engineering, has considerable experience with such areas of safety assessment and has indicated interest in taking this project on and confidence in its eventual success. (See their letter to that effect in Appendix 7.)

As with most unique projects, the work flow may take a number of different paths and fortunately in this case there is little if any uncertainty in the eventual outcome. This is because every path leads to success according to the project objective, which is to safely maintain the tree upright in its current location, substantially unchanged, for a very long time. Moreover, as described further in the next section, the most expensive and time consuming path (i.e. the worst case scenario) is both practical and affordable. The four decision points are as follows:

Decision A: Should a low cost tripod support system first be installed?

This concerns the possibility of attaching temporary support “legs” to the two large steel mounting plates currently attached midway up the tree on the right and left sides. These legs would extend to the ground in front of the tree to the left and right, effectively forming, with the tree, a stable tripod. This could be done very quickly and would immediately provide improved stability of the tree, possibly to an extent that would make it safe to reduce the size of the region currently cordoned off by the blue safety fencing (which could help with the traffic flow problems – see Appendix 8 for a discussion of this separate but related issue.) This would also make it safer to carry out some exploratory excavation around the tree in order to assess the strength and extent of any root materials and also the nature of the ground itself. The only reason not to do this is that it will involve cost and will take some time, and for some of the possible project paths, this time and money would be unnecessary and thus would have been a waste.

Decision B: Is framing system needed for safely continuing?

This is more fundamental to the overall project. It is possible that upon investigation, we will determine that a fairly simple method could be used to tilt the tree back toward the vertical, and to allow the ground under the front portion of the tree to be built up in some manner in order to support it. (This could employ a crane, levers, jack, guy wires, or some combination.) If so, this would be the least expensive and simplest solution. In assessing this possibility, there would be several key concerns:

- safety of workers at the site during the work
- safety of the public after the work is completed
- certainty that the Hollow Tree will not be damaged by such an operation
- confidence that the solution will provide an acceptable lifetime

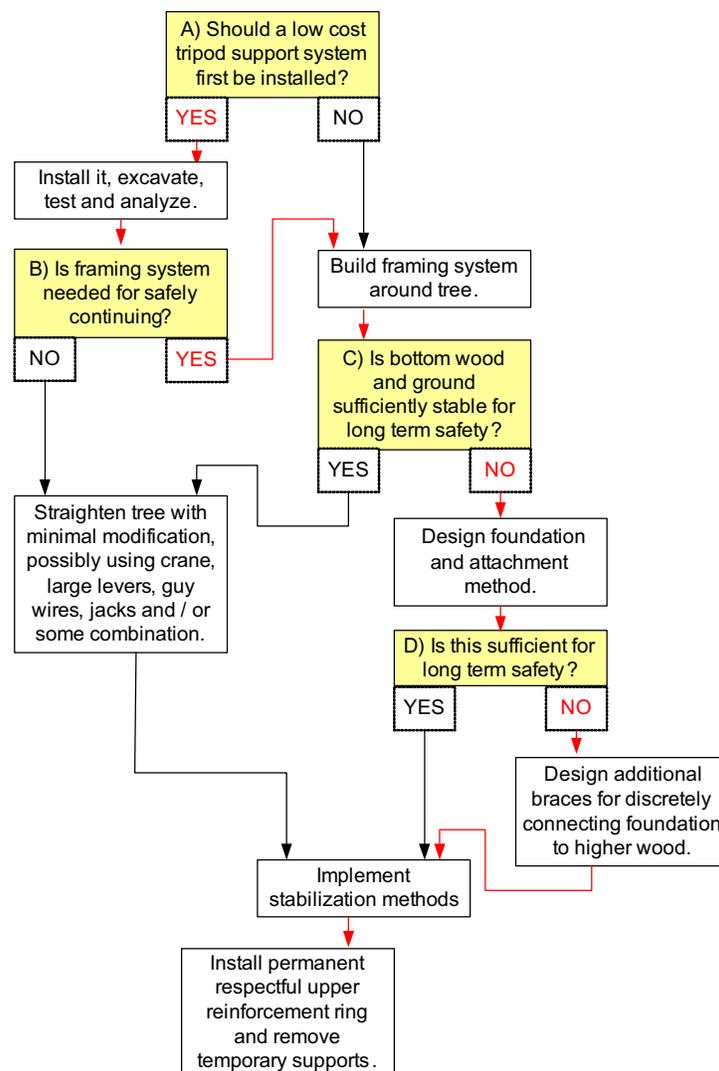


Figure 4 Decision tree, or flow chart, for conservation of Stanley Park Hollow Tree in situ, upright, with appearance substantially unchanged. (Yellow signifies decisions and red indicates the most resource-intensive path.)

If the engineering firm contracted for safety assurance purposes is comfortable with these points, we may take this approach. If not, we then move on to build a simple temporary external bracing system. This would involve temporarily fastening the various pieces of the tree to one another, so the individual pieces of the tree are not able to shift relative to one another, and tying them also to a large number of temporary external pulleys which connect to multiple wire ropes. In turn, these wire ropes would connect to support pulleys and winches mounted on a temporary external wood frame. The frame would basically be a 24' cubic truss structure surrounding the bottom half of the tree, possibly made of recycled 12x12 beams. (The appearance could be somewhat along the lines of the model shown in Figure 3c.) The winches could orient and/or lift the tree in any desired manner, through the application of very evenly distributed forces to many points so as to minimize the torsion on the individual pieces of wood that make up the tree, thus minimizing the likelihood of damage of the overall structure. The frame arrangement could also support the tree in any desired position for extended periods of time, in order to allow conservation work to proceed carefully and providing time for subsequent decisions to be made in a thoughtful and collaborative manner. Finally, the pulley mounting points would themselves be slightly adjustable to allow fine tuning of the relative positions of the pieces before finalizing the project.

Decision C: Is bottom wood and ground sufficiently stable for long term safety?

This concerns the need for a foundation to more firmly support the tree. Key information will be the nature of the soil in that location and also on the required shape of support to accommodate the desired degree of straightening of the tree. The decision will be based in part on heritage considerations and in part on engineering factors. Given that the creation of a foundation is not terribly difficult or expensive, this should not be a difficult decision to make.

Decision D: Is this sufficient for long term safety?

This involves the feasibility of arranging sufficient stability without visible support elements near the base of the tree. The challenge is that the wood is less strong near the base of the tree and may be insufficient to support the weight of the tree for a long period of time with a sufficient engineering safety margin. However, it is possible to use non-toxic wood consolidation products to increase the long term strength of the wood in this region and also to use internal pins that help in this regard. We will obtain data on the strength of the wood by further Resistograph measurements and by failure testing a number of samples of the wood in a laboratory of Professor Frank Lam in the UBC Faculty of Forestry. Armed with this data, we will rely on the structural engineering firm to indicate whether further bracing is needed.

If such further bracing is needed, it will be designed to be virtually unnoticeable from the most common viewing positions.

The final steps are to secure the tree to the ground in the selected manner and to replace all temporary steel support hardware with a more aesthetically pleasing solution that is respectful of the overall heritage value of the piece. Likely this would involve a single, hollow bronze ring, with an opening at the front, that bolts through the inside of the pieces that make up the tree, at a height of about 20'. This would allow an unobstructed view of the sky from inside the tree, and would replace the complex web of steel rods and plates currently carrying out the same purpose. There would be considerable design freedom for this piece.

The major design decisions have been described above, but it should also be noted that numerous additional minor decisions will be made as the project proceeds, and will involve trade-offs from a heritage perspective. Examples include:

- There is a trade-off involving the tilt of the structure. If the structure is left tilted, more bracing would be required, which could slightly detract from the apparent “naturalness” of the object. Thus, the more respectful choice could be for the tree to be brought to vertical, but the factors that led to this tentative conclusion could evolve as the project proceeds, so perhaps this is a decision better left to later in the project. Also, this is not a black and white decision – an intermediate degree of residual tilt could be selected as a compromise.
- Another decision involves the possible use of non-toxic wood treatment products to extend the durability of the tree without changing the appearance too much.
- Another could be a trade off between removing (or burying) the wood at the bottom of the rear of the tree versus having an uneven foundation that would eliminate the gap that would be caused at the front of the tree by straightening it.
- Another question would be whether to try to close one or more large cracks which appear to have developed quite recently and can probably be respectfully repaired while the project is underway.
- Finally there is the important consideration of lifetime of the Hollow Tree. Ultimately, unless the wood is appropriately treated, it will rot away, but this may take another 100 years and this may be considered long enough. Still some feel that as a monument we should now initiate a practical maintenance plan that will keep the monument intact indefinitely. At the very least, we should avoid taking actions during this project that would irreversibly impede the ability to subsequently embark on such a long term conservation plan.

To repeat, the intention to make important decisions along the way is not a result of disagreement or lack of confidence. Rather, the decisions necessary to satisfy sound engineering and heritage conservation principles require a flexible approach, some of which will depend entirely on specific factors that will be clarified as we move through the project. Thus, the basis for decision making at the crucial decision points noted in Figure 4 will become clear as we proceed. This approach allows us to optimize the strategies necessary for success.

7) Resources required for carrying out the plan

It is premature to detail all of the costs of this project, but at the same time it is important to have a rough sense of the magnitude of the various component costs that may be required. As a conservative approach, the discussion below reflects the most resource-intensive path for this project. We believe it is prudent to plan for this path, as this ensures that the goals of safety and heritage conservation will be met. At the same time, we should bear in mind that as the project proceeds we may be fortunate and find that we can follow a path that is less expensive and faster.

The required resources for the conservative path are grouped into the following categories as listed below. (We recommend that the Park Board pay directly for the engineering services which will amount to approximately \$30,000 as this is preferable from a legal perspective.) The largest single cost, the high level design services, is being provided on a voluntary basis by the Subcommittee. In all likelihood, many of the other costs may be provided on an in-kind basis by interested firms and individuals, and we also know that some donors would, if necessary be willing to contribute. Arranging the financing of this project is clearly not part of the responsibility of this committee, but it certainly seems that this should be at most a minor concern.

- **High level design**

This is the ongoing work of the authors of this proposal, the Vancouver Heritage Commission Subcommittee on the Hollow Tree. The members are highly skilled professionals with corresponding professional consulting rates that are being waived or significantly discounted. To date we estimate that collectively we have invested approximately 200 hours and this sum will increase to about 800 hours for project completion, representing an in-kind contribution of approximately \$100,000.

- **Engineering certifications**

In order to have utmost confidence in the required certifications, we feel that we should pay one or more engineering firms having experience in projects involving public safety and civil engineering issues concerning construction in and around trees. We have identified suitable firms for this purpose. In the context of the preliminary design work provided by the professionals on the Subcommittee, we expect the required fee to be modest, perhaps around \$20,000.

- **Design drawings**

For a similar reason, we believe the actual design drawings should be prepared on a commercial basis, possibly by the same firm(s), and we estimate this fee to be perhaps \$10,000.

- **Project management**

The project will involve a dedicated (but part time) project manager who would be contracted by Park Board and would report jointly to Park Staff and to the Subcommittee. We estimate this to be a 20% time commitment for a period of 6 months for a fee of \$20,000.

- **On-site labour**
There will be a need for considerable on site semi-skilled labour, on a highly variable basis. This will be obtained in collaboration with the Park Board in whatever manner is most desirable from the point of view of all relevant regulatory considerations. This is expected to contribute only modestly to the cost, perhaps amounting to \$10,000.
- **Materials**
Most of the materials will not actually be consumed, so there is a good chance that they will be provided on an in-kind basis. We estimate that the commercial value of the materials required would be of order \$50,000.
- **Contingency**
We feel it is prudent to identify a contingency amount of about \$50,000.

At present we are hesitant to suggest a total cost for the project as these estimates are rough, as on the one hand other costs may arise, but on the other hand less expensive paths may become viable as the project proceeds.

The key point is that the required resources are not prohibitive for a project of this importance, and almost half is being contributed in kind by members of the Subcommittee. If necessary, a fund can be set up to solicit additional cash contributions as well, however we feel that there is already a very strong argument that Park Board should apply its existing resources toward this clearly worthwhile project. This question must be addressed elsewhere.

8) Frequently Asked Questions.

When a subject is important to many people, it is normal for a lot of critical questions to arise, some of which could cause concern if left unanswered. This section compiles the questions commonly raised during the Subcommittee's numerous discussions with various groups and individuals; and attempts to answer them.

How can we conserve the Hollow Tree when there is no money for this?

This is a common objection whenever an unbudgeted expenditure is needed. But unbudgeted expenditures come up all the time. When an expense needed is unbudgeted this simply means the funding decision must pass a higher threshold of justification than would a budgeted one. It is untrue that money can only be spent on things already budgeted for; such unbudgeted expenditures are often made.

Won't this cost too much?

For any expenditure, there is a reasonable cost limit beyond which it would be unwise to proceed. How can there be certainty that the costs for conserving the hollow tree are reasonable? Generally there are two tests: The first is to make sure that the work in question is done efficiently and at reasonable prices. The second is to compare the cost of the work to other relevant sums of money to see if it seems reasonable. Since much of the work proposed in this document is being provided on a voluntary basis, the first test is easily passed. For the second test, there are a various relevant comparisons – for example, the project will cost less than:

- the Hollow Tree parking lot meter fees that will be paid over the next few decades
- a few pennies per Stanley Park visitor over that period
- a few % of the amount recently donated for Stanley Park repair

According to such reasonable comparisons, this is an easily justified expenditure.

Shouldn't such money be used to house the homeless?

There are many worthwhile causes and uses of money to help people in need. But that doesn't imply that as a society we cannot also spend money on things that bring joy to the general public. According to that reasoning we would have no parks, no bridges, no airports, no public art, no art galleries, etc., as long as there is a single disadvantaged person needing help.

Safety can't wait! Won't this take too long?

On the contrary, safety should not be rushed. All over the world, great care is taken in the conservation of beloved resources in order to make them safe and long-lasting for human enjoyment. Tourists understand this is important and respect such work. It is not uncommon to spend years restoring important heritage items – in comparison the time required for this project will be less than six months.

Isn't the safest thing to just take the tree down?

First, there is no automatic assurance the Hollow Tree would be safe if placed horizontally – it would still be a very large structure than people could fall off and which could hurt people by collapsing. The truly safest plan would be to simply remove it entirely. The only relevant question is can the Hollow Tree be saved upright in its current location in a manner that fully complies with our stringent modern standards of safety engineering. The experts are saying that is the case for the Hollow Tree.

But hasn't this decision already been made? Why revisit it?

Decision makers should be willing to entertain the possibility that past decisions could be improved upon, as long as the justification for doing so is sufficiently compelling. Such justification often arises when new information is found that might reasonably have led to a different conclusion if it had been understood at the time of the original decision.

That's the case here - as mentioned earlier in this proposal, the Park Board decided on March 31 to take down the hollow tree, based largely on four ideas which are now known to be incorrect. For perfectly understandable reasons, Commissioners believed, at the time, the following false statements:

- The Hollow Tree cannot be saved in a respectful manner. (Untrue – it can be.)
- It is not an officially listed Heritage Resource. (Untrue – it is.)
- The public was well informed and was in favour of taking it down. (Actually very few knew of this and when informed most wanted more study.)
- This decision had to be made on an urgent basis for safety reasons. (Untrue – safety fencing has removed the immediate hazard.)

Since we now know these ideas were not the case, isn't it only reasonable to reconsider?

Since the level of support for retaining the tree is unknown, how can we justify proceeding?

This question is based on a misunderstanding of decision-making in our democratic society. The idea of majority opinion applies to high level concepts and not individual decisions. For example, if 60% of the residents of a neighbourhood grow flowers in their front yard and would prefer that everyone would do so – could they compel everyone else to grow flowers? Given the vast majority of people agree with a number of higher principles that would be violated by such a requirement, this would be unlikely. With the Hollow Tree, the decision needs to be made with full information and respect of the principle of valuing our heritage. As long as a large number of people value the Hollow Tree – and that is absolutely beyond doubt – then these higher principles suggest reasonable efforts should be taken to maintain it.

How can you claim that a dead stump is important?

A child stands in the Hollow Tree, with a parent and grandparent. The parent talks fondly about visiting this site years earlier as a child. So does the grandparent. Such shared memory that crosses generations feels important to many people. Something is important if people feel it is, and a great many people *do* feel the Stanley Park Hollow Tree is important. This, among the many other factors outlined in this report help to explain the value of the Hollow tree as a Heritage Resource. (For clarification it should also be added that it is misleading to call the Hollow Tree a “dead stump”. Stumps are the short remains of a tree left after loggers fell it. The Hollow Tree is different - it was never logged and as a result is far taller than a stump. And the clear solid cedar wood of which it is composed is in virtually the same state as the central wood in any living cedar. Only the surface wood of a tree is actually technically alive.)

Stanley Park is about nature – how can human intervention with the Hollow Tree be justified?

Indeed, much of Stanley Park appears to be largely free from human intervention, but this is certainly not entirely the case. If this view were followed slavishly, vines, bushes and trees would be allowed to gradually overtake all of the roads and buildings in the Park, or perhaps those roads and buildings would never have been built in the first place! The fact is that all over the world it is considered to be prudent and appropriate conservation practice to preserve local heritage through discrete human interaction that ensures safety and longevity for our cherished treasures.

It's a slippery slope - what comes next?

Using the slippery slope argument presumes that future decision makers will not employ good judgment – but history shows that, for the most part, decision makers do use good judgment. Sound judgment and common sense should, and usually do, trump precedent. In this particular case, some have said that saving the Hollow Tree would imply that we must save all trees. We are confident that future Park Boards would not seriously entertain such a thought.

Given that the Hollow Tree is in such a bad state and so ugly, isn't the proper thing to do simply to lay it to rest in a dignified respectful manner?

One of the province's most respected arborists has determined that the tree is not in a bad state at all. It is sound, but the foundation needs some reinforcement. Similar issues often arise with historic buildings. And while beauty is indeed in the eye of the beholder, a great many people find many aspects of the Hollow Tree both beautiful and awe-inspiring.

Isn't saving the tree simply denying that death is part of life?

Some have suggested that those who wish to save the Hollow Tree feel that way because they are not sufficiently wise to accept death as a natural part of life. That's unfair: First, it's untrue. Second it suggests that sensible people never try to prolong the longevity of the people, animals, and objects they treasure but in fact they almost always do so. The reasonable question is "Can the Hollow Tree be conserved in a *reasonable, sensible* manner?" Fortunately it can be.

On a related note, it may be misleading to label the Hollow Tree "dead". The wood of the Hollow Tree is no different than the wood comprising a cherished historic church. Both the Hollow Tree and a cherished historic church are alive in the minds of the countless visitors that lend them great meaning. And it is safe to say that the Hollow Tree has actually been visited by more people than any church in this province.

9) Conclusions, recommended next step(s)

The Subcommittee has unanimously recommended that the project proceed as described in this report, and suggests the following next steps:

1. Park Board Staff recommend to Park Board on June 9, 2008 that this project be initiated, and establish a Hollow Tree Conservation Management Team, to be chaired by an Appointee of the Vancouver Heritage Commission and to include 2 members of Park Board Staff and 2 members of the Hollow Tree Subcommittee.
2. A Project Manager for the Hollow Tree Conservation Project to be hired by and report to the Conservation Management Team, commencing work on June 15, 2008.
3. By June 15, confirm with Vancouver Traffic Engineering a specific traffic management plan for the period of this project and a general plan for afterward.
4. The contract structural engineering firm, which ultimately will sign off on safety, to be retained by June 15, 2008
5. Project to commence on July 1, 2008 with a goal of completion between October 31, 2008 and December 31, 2008.

STRUCTURAL ASSESSMENT

OF

THE HOLLOW TREE
STANLEY PARK



CLIENT
VANCOUVER PARKS & RECREATION

7 March 2008

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David Nairne + Associates

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davidnairne.com

7 March 2008**DNA 4502**

Vancouver Parks & Recreation
Rose Garden Cottage, Stanley Park
2099 Beach Avenue
Vancouver, BC V6G 1Z4

Attn: Jim Lowden
Director of Special Projects
Email: jim.lowden@vancouver.ca

Subject: Structural Assessment of the Hollow Tree
Stanley Park Drive, Stanley Park

Further to our meeting on Feb 22, 2008, we are pleased to submit our final report attached concerning our structural assessment of the Hollow Tree.

The Hollow Tree is structural unstable and in poor condition and will likely collapse if left in its present state. We identified only one realistic option to stabilize and reinforce the Hollow Tree involving shoring the Hollow Tree with steel braces, restraining the base of the tree with concrete foundations and reinforcing the tree with steel straps and frames. However, this option will be visually disruptive and costly. The repairs will not stop the natural deterioration of the Hollow Tree nor eliminate the risks to the public. Moreover, the lifespan of the Hollow Tree is limited, given its advanced age and recent movements and damage. In consideration of these factors, we concur with you that the prudent and long-term approach in this situation would be to take down the Hollow Tree.

We trust our report addresses your concerns regarding the Hollow Tree. Please contact us should you have any questions or concerns.

Sincerely,

David Nairne + Associates Ltd

Jerry Y. M. Lum

Jerry Y.M. Lum, P.Eng.
Head Structural Engineering
Associate

Review by:

Paul Miskimmin, P.Eng.
Senior Structural Engineer

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1.0 TERMS OF REFERENCE

The Hollow Tree is a historic Stanley Park landmark and a popular tourist attraction. The Hollow Tree consists of 100+ year old hollowed out cedar tree trunk located on the west edge Stanley Park Drive near Siwash Rock. Recent windstorms have damaged the Hollow Tree and have caused it to lean further to the east. Due to concerns about the safety of the Hollow Tree and the potential for the tree to fall over, Vancouver Parks & Recreation (VPR) retained DNA to carry out a structural assessment in order to identify options for stabilizing the Hollow Tree.

2.0 THE HOLLOW TREE

The Hollow Tree measures over 13.4 m tall and 6.7m at its widest point. The trunk leans approximately 11 degrees to the east with two tree trunks rooted to the base of the Hollow Tree, one at the east side of the trunk and the other at the west side of the trunk. All of these tree trunks have been topped several times for safety reasons down to the height of Hollow Tree. Previous attempts by the VPR to reinforce portions of the Hollow Tree have included installed steel rods and plates through the tree and wrapping the tree with steel cable.

3.0 TEMPORARY BRACING

VPR observed significant damage and movements to the Hollow due to windstorms in the fall of 2007. VPR started survey monitoring of the Hollow Tree on October 29, 2007 and found that the tree had leaned 40 mm further to the east by November 14, 2007. Due to concerns about the stability of the tree, VPR fenced off the immediate area around the Hollow Tree on November 28, 2007, removed the two small trees growing out of the northeast corner of the trunk and tied Hollow Tree back to the Hemlock growing out of the base of the trunk at the west side of the tree.



Photo 1: Hollow Tree temporarily tied back to hemlock trunk



Photo 2: Hemlock trunk rooted to base of the Hollow Tree



Photo 3: Steel washers and bolts no longer effective

At the request of VPR, DNA prepared details and specifications to temporarily brace the Hollow Tree from falling over until VPR could decide on what to do with the tree, see Appendix A. The temporary bracing scheme involved installing three pairs of steel braces to against the east half of the tree. The braces would be welded to steel plates bolted through the face of the tree to an internal steel frame and bolted down to precast concrete blocks. VPR own forces have recently completed the installation of the bolted steel plates and the internal steel frame.

4.0 STRUCTURAL ASSESSMENT

Our structural assessment of the Hollow Tree is based on structural analysis of the tree subjected to gravity and lateral loads, physical examination of the tree, review of site conditions, consultation with a wood consultants and discussions with parks staff. The structural assessment identified two major structural issues regarding the Hollow Tree concerning the stability and integrity of the tree.



Photo 4: Hollow Tree leaning 11° to the east

4.1 Structural Stability

The Hollow Tree is structurally unstable due to its present lean, its poor condition and the lack of competent root structure at the base of the trunk. The support of the Hollow Tree at the base of the trunk is tenuous with much of the trunk no longer in contact with the ground or severely decayed. The Hollow Tree is likely to sustain further damage and fall over if left in its present state.

4.2 Structural Integrity

The structural integrity of the Hollow Tree is poor due to its present configuration and extent of deterioration. The tree is hollow through its full height and resembles a "C" shape in cross section due to a wide gap (varying between 3000 mm at the base to 600 mm at the top) at the east face of the tree. There are several deep vertical splits running up the face of the tree. Several of the splits penetrate the full thickness of the face, which varies in thickness between 400 mm to 600 mm. The wide gap and vertical splits have significantly weakened the tree and give rise to the potential for the tree to collapse in on itself. In addition, the tree is deteriorating with wood decay occurring throughout the tree due to exposure to weather and moisture. The bark of the tree is soft and loose with portions of the bark readily removed by hand.

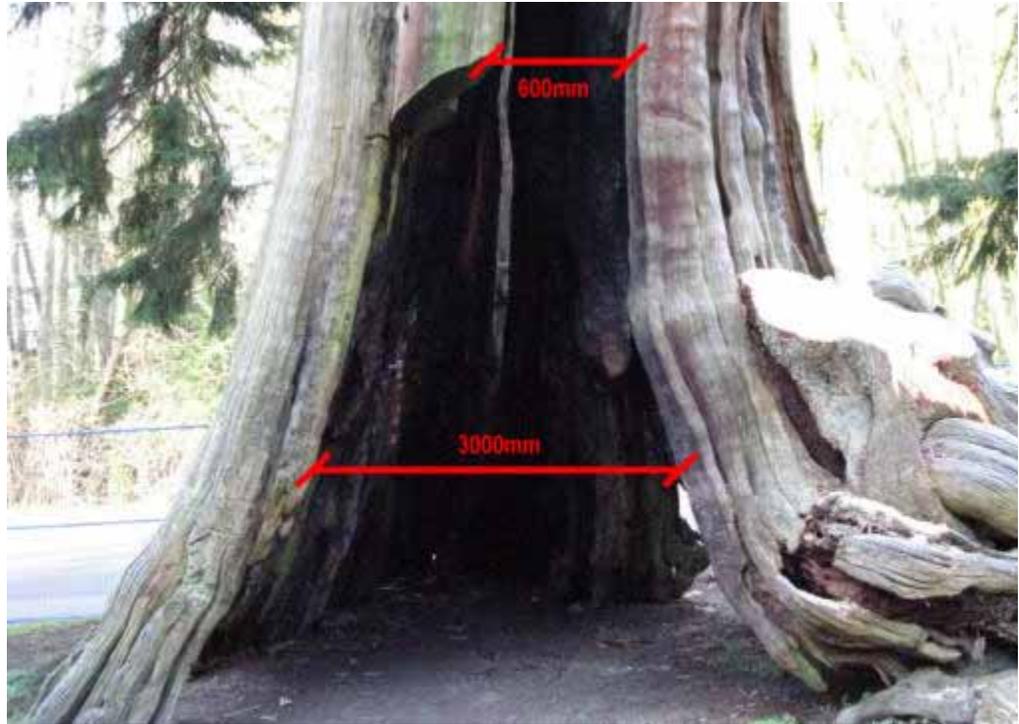


Photo 5: Wide gap at east face of Hollow Tree



Photo 6: Looking down centre of Hollow Tree at weakened "C" shaped cross section



Photo 7: Top of trunk showing decay of exposed end grain

5.0 STRUCTURAL REPAIRS

5.1 Criteria

Any attempts to save the Hollow Tree in its current state will require both the stabilization and restoration of the tree in a cost effective manner that will maintain safe public access to the base of the tree and minimize the visual impact to the tree and immediate site.

5.2 Stabilization Options

DNA reviewed and discussed with VPB staff a range of options and approaches to saving the Hollow Tree. Three of these options are summarized below;

Option	Description
Option A Braces	Brace tree against direction of lean with six steel braces placed against the east face of trunk. Anchor each brace with concrete footings. Support weight of tree with concrete foundations and prevent bottom of tree from sliding with concrete slab. Our preliminary cost estimate for this option is in the order of \$ 60,000 to \$ 70,000.
Option B Tied Poles	Tie back tree with steel strut to three steel poles placed around west face of tree. Anchor each pole with concrete footings to prevent overturning. Support weight of tree with concrete foundations and prevent bottom of tree from sliding with concrete slab.
Option C Centre Pole	Remove, modify and re-erect tree in plumb position over top of steel pole running up centre of tree. Anchor steel pole to concrete foundation to prevent overturning.

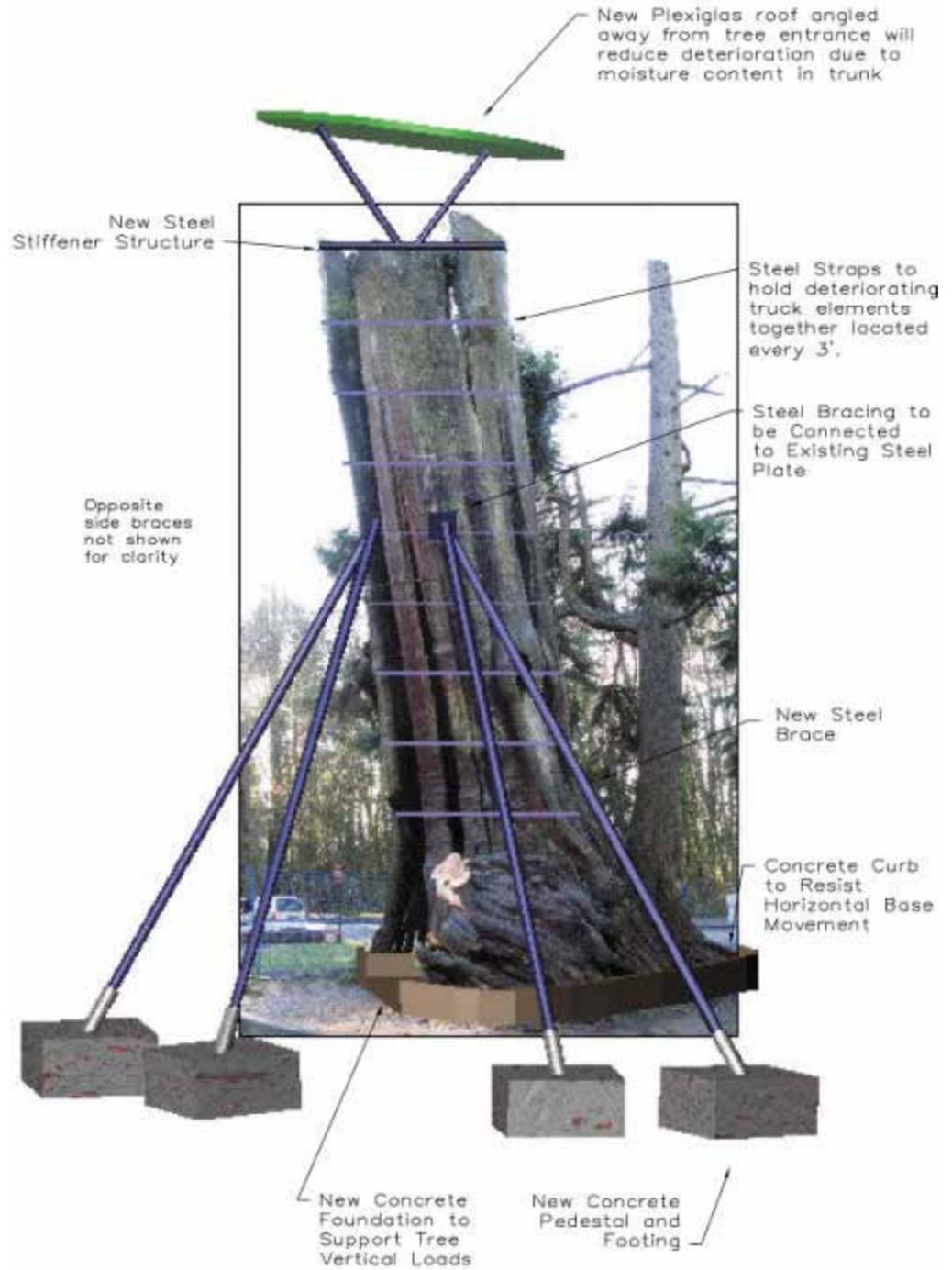


Photo 8: Concept illustration of Option A Braces

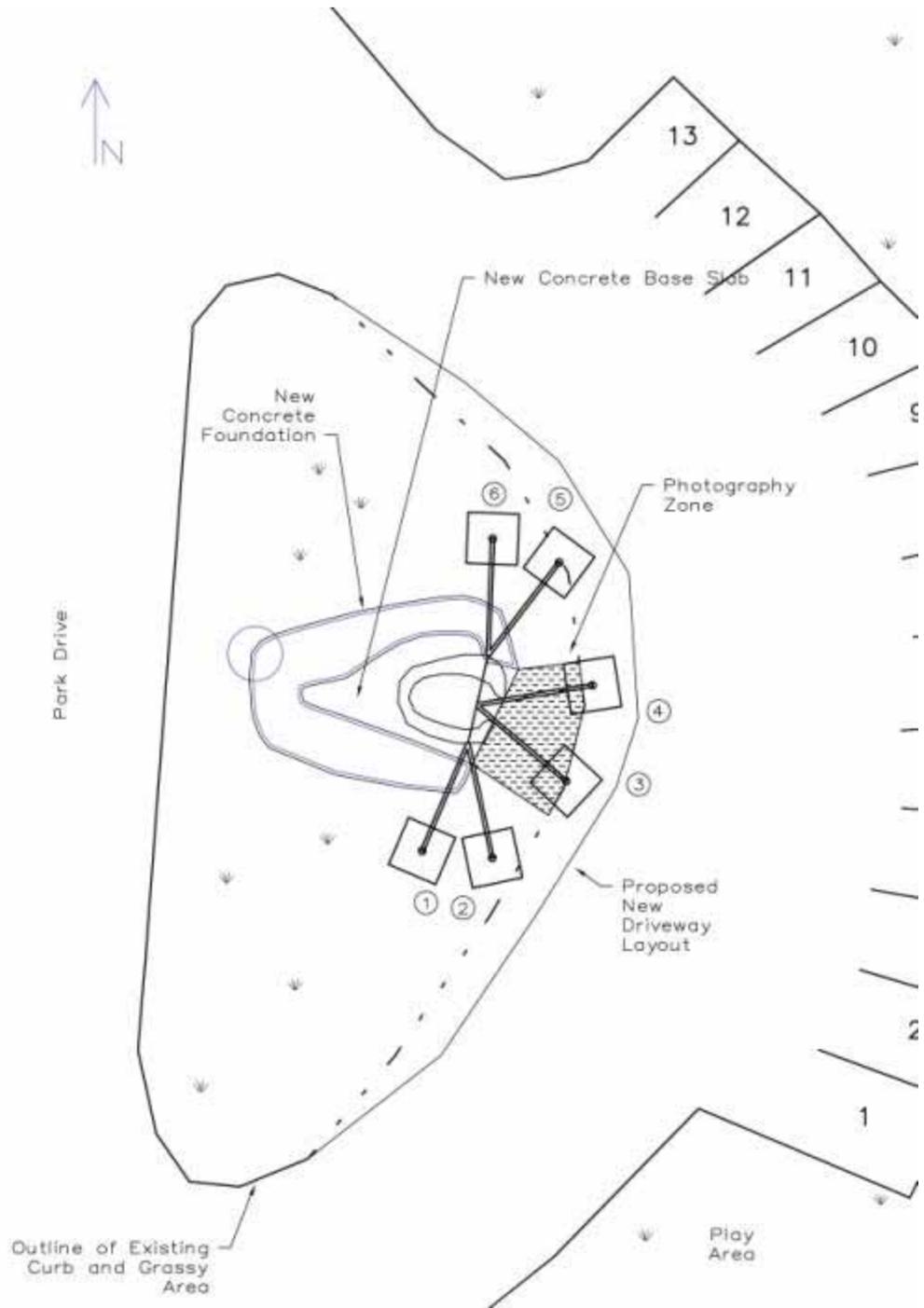


Photo 9: Site Plan of Option A Braces

5.3 Reinforcing the Hollow Tree

Due to the poor condition of the tree, extensive measures will be required to restore the structural integrity of the Hollow Tree and to prevent portions of the tree from falling off. A mechanical approach to reinforcing the tree would involve installing a grid of closely spaced steel straps and plates bolted or screwed to both the exterior and interior faces of the tree in an attempt to hold the tree together. Internal steel frames will also have to be installed to prevent the tree from collapsing in on itself. There is a risk that this reinforcing work may be in fact, increase the rate of deterioration to the tree by introducing new holes for moisture to infiltrate and by causing further splitting. We note that there may be other non-mechanical methods and techniques to reinforce the tree using specialty coatings. Such restoration methods are beyond the scope of our work and expertise.

6.0 FINDINGS & RECOMMENDATIONS

- 6.1 The Hollow Tree is structurally unstable and in poor condition. If left in its present state, the Hollow Tree will likely sustain further damage or will collapse. The Hollow Tree must either be stabilized and reinforced to prevent further damage and collapse or be taken down.
- 6.2 DNA has prepared a temporary bracing scheme to stabilize the Hollow Tree until long term plans are made. Work on installing the temporary bracing has been started but has not been yet completed.
- 6.3 All of the three structural repair options considered are costly and will severely impact of the aesthetics of the Hollow Tree and its immediate surroundings. We believe that only Option A to be structurally feasible and cost effective (preliminary cost estimate between \$ 60,000 to \$ 70,000. It is important to note that Option A will not prevent the natural deterioration of the tree nor eliminate all of the risks to the public inherit with a dead tree. Furthermore, the Hollow Tree has a limited lifespan given its age, poor condition, recent damage and movements.
- 6.4 Although the Hollow Tree can be structurally braced and reinforcing as proposed in Option A, we do not believe that this represents a safe and cost effective long term solution. We therefore recommend that no further structural repairs be carried out to the Hollow Tree and that the Hollow Tree be taken down.

APPENDIX A
INTERIM REPORT

David Nairne + Associates

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11 December 2007

DNA 4502

Vancouver Parks & Recreation
2099 Beach Avenue
Vancouver, BC V6G 1Z4
Fax: 604-681-1626

Attn: Eric Meagher
Supervisor Stanley Park Maintenance
email: eric.meagher@vancouver.ca

Subject: Interim Report
Structural Assessment & Temporary Bracing
Hollow Tree, Stanley Park

This interim report summarizes our findings to date regarding our structural assessment of the Hollow Tree and details for its temporary bracing.

1.0 TERMS OF REFERENCE

DNA was retained by Vancouver Parks & Recreation (VPR) to assess the structural condition of the Hollow Tree and prepare a report identifying options to stabilize the trunk to prevent it from falling over.

2.0 BACKGROUND

DNA first visited the site on November 5, 2007 to view the Hollow Tree and to meet with VPR staff to discuss their concerns. VPR staff reported visible movements and damage to the Hollow Tree due to recent storm activity. The trunk of the Hollow Tree at the time was found leaning approximately 11 degrees to the east with two trees growing out of the base of the trunk on the east and one tree growing out of the base of trunk on the west. Due to concerns about the stability of the Hollow Tree, VPR started survey monitoring of movements to the top of the trunk on October 29, 2007.

On November 14, 2007, VPR survey monitoring measured additional movements in the Hollow Tree with two separate points near the top of the trunk leaning further to the east approximately 40 mm and 20 mm respectively. Due to growing concerns about the safety of the Hollow Tree, VPR closed the adjacent parking lot and fenced off the immediate area around the Hollow Tree on November 28, 2007. In addition, VPR removed the two small trees growing out of the northeast corner of the trunk and tied the Hollow Tree back to the Hemlock growing out of the base of the trunk at the west side of the tree.

On December 6, 2007 DNA revisited the site at VPR's request to assess the stability of the Hollow Tree and propose measures to temporarily brace the tree from falling over.

3.0 STRUCTURAL ASSESSMENT

3.1 Structural Stability

The mass of the Hollow Tree is substantial with an estimated weight of 52,000 lbs and overall height of 44 feet. The lean of approximately 11 degrees in the trunk of the Hollow Tree is significant given the age, condition and lack of firm support at the base of the trunk. Based on our observations, we conclude that the Hollow Tree is now structurally unstable and must be braced to prevent further damage to the trunk and to prevent the trunk from falling over. Based on the direction of lean of the trunk and measurements of recent movements to the top of the trunk, the fall axis of the Hollow Tree is likely to be to the northeast.

3.2 Structural Integrity

The Hollow Tree is completely hollow structurally weak along the east face of the trunk due to a wide gap running the full height of the trunk. The gap varies from 3000 mm wide between the base to 3 m up the trunk and is 600 mm wide the rest of the trunk. As a result of the gap, the cross section of the trunk resembles either a "V", "U" or "C" shape as opposed to a "O" shape. There are several deep splits running part way up the trunk. Due to the large size and long length of these vertical splits, the trunk can be described as a collection of partially attached vertical planks as opposed to a solid circular trunk. Based on our observations, we judge the structural integrity and physical condition of the Hollow Tree to be poor.

Portions of the trunk have been wrapped with steel cables in an attempt to prevent portions of the trunk from buckling outwards. Several steel rods driven through the tree at mid height and near the top of the trunk some years ago are no longer effective as the steel washer plates are no longer in contact with the trunk.

Specific techniques and measures are required to restore the structural integrity of the Hollow Tree are beyond the scope of DNA's terms of reference.

4.0 TEMPORARY BRACING

4.1 Objectives of Temporary Bracing

The objective of the bracing is to temporarily stabilize the trunk of the Hollow Tree to prevent the trunk from falling over. The temporary bracing is to remain in place until VPR decides to either restore and permanently brace the Hollow Tree or to cut down the Hollow Tree. The temporary bracing will not restore the structural integrity of the trunk or address the poor condition of the trunk.

4.2 Description of Temporary Bracing

The temporary bracing design incorporates readily available components, steel braces and precast concrete blocks were utilized in our bracing design where possible in combination with site fitted and welded steel members where necessary. The temporary bracing scheme involves placing three pairs of steel braces around the east, north and south faces of the trunk approximately 6.4 m from the ground (see drawings in Appendix A). Each brace will be welded to a pair of steel plates bolted through the trunk. The trunk at the bracing point will be reinforced by introducing a triangular shaped internal steel frame welded to the backside of these steel plates. The steel braces will be bolted precast concrete blocks placed on the ground around the base of the trunk. Some new steel cables will be wrapped and anchored to the trunk to help prevent some of the large split portions of the trunk from falling off.

We understand that most of this work to install the temporary bracing will be carried out by VPR own forces.

5.0 PERMANENT BRACING

DNA is currently developing options to permanently stabilize the Hollow Tree and will be submitting a final report accordingly.

6.0 FINDINGS & RECOMMENDATIONS

- 6.1 The Hollow Tree is structurally unstable and must be temporarily braced as soon as possible to prevent the trunk from falling over.
- 6.2 The temporary bracing will not restore the structural integrity of the trunk or address its poor condition and portions of the trunk may fall off without warning.
- 6.3 The Hollow Tree should remain temporarily braced and fenced off until a decision is reached regarding whether to save and permanently brace the Hollow Tree or to cut down the Hollow Tree.
- 6.4 DNA has prepared a temporary bracing scheme found in Appendix A of this report.
- 6.5 The structural integrity and physical condition of the Hollow Tree is poor. We recommend that a tree restoration specialist be consulted to address the structural integrity of the trunk accordingly.

Please contact us should you have any questions or concerns.

Sincerely,
David Nairne + Associates Ltd

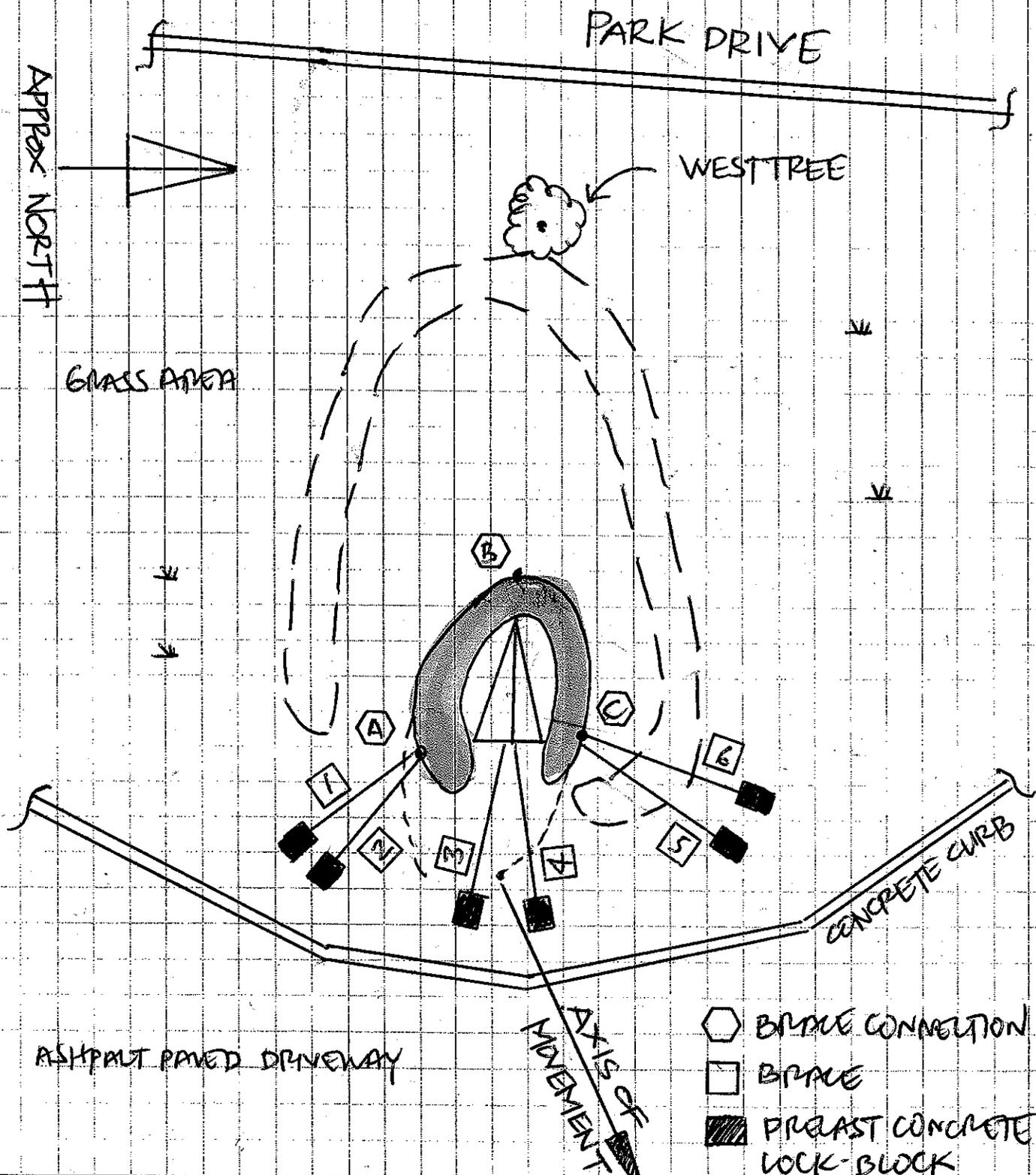
Jerry Y.M. Lum, P.Eng.
Head Structural Engineering
Associate

APPENDIX A

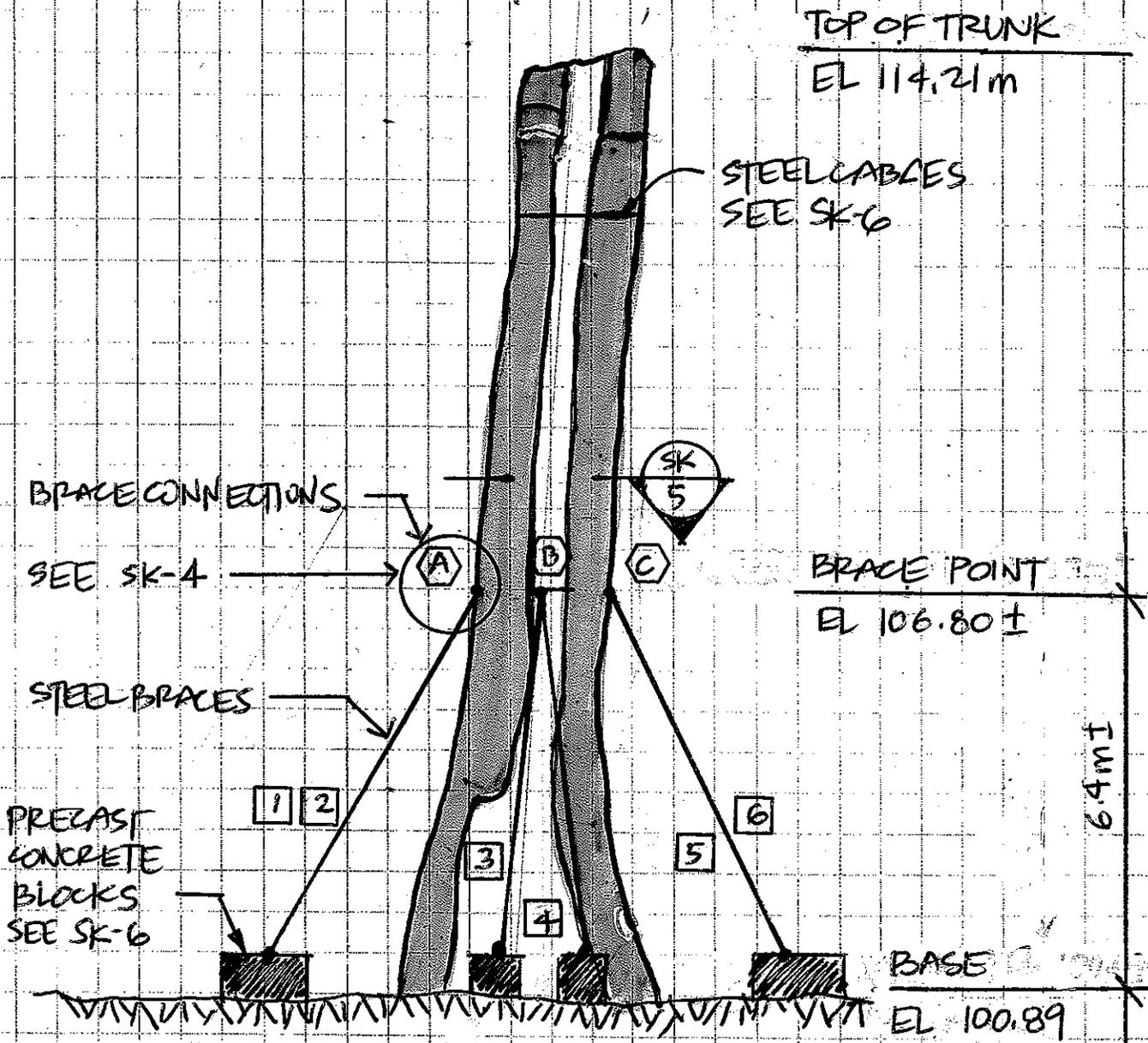
TEMPORARY BRACING DRAWINGS

SK-1
SK2
SK3
SK4
SK5
SK6

APPENDIX B
TEMPORARY BRACING



DRAWING BRACING PLAN		REVISION NUMBER	
PROJECT TEMPORARY BRACING		ACAD FILE No.	
ADDRESS HOLLOW TREE, STANLEY PARK		REF DRAWING	JOB NUMBER 4502
David Nairne+Associates Ltd 250-171 W Esplanade North Vancouver BC V7M 3J9 T (604) 984-3503 F (604) 984-0627	DATE DEC 11/07	CHECKED BF	DWG NUMBER
	DESIGNED WJM	REVISED	43 SK-2
	DRAWN WJM	SCALE NTS	



DRAWING EAST FACE OF TRUNK		REVISION NUMBER	
PROJECT TEMPORARY BRACING		ACAD FILE No.	
ADDRESS HOLLOW TREE, STANLEY PARK		REF DRAWING	JOB NUMBER 4502
David Nairne + Associates Ltd 250-171 W Esplanade North Vancouver BC V7M 3J9 T (604) 984-3503 F (604) 984-0627	DATE Dec 11/07	CHECKED BF	DWG NUMBER
	DESIGNED LUM	REVISED	44 SK-3
	DRAWN LUM	SCALE NTS	

STEEL BRACES NOT SHOWN FOR CLARITY

BRACE CONNECTION SEE SK 4

THICKNESS VARIES MAX 600

INTERNAL FRAME
 C250x23 CUT TO
 SVIT FIELD WELD
 TO BRACE CONNECTION
 INSTALL LEVEL AS POSSIBLE

WELD BRACE TO FRAME

DRAWING INTERNAL BRACE		REVISION NUMBER 	
PROJECT TEMPORARY BRACING		ACAD FILE No.	
ADDRESS HOLLOW TREE, STANLEY PARK		REF DRAWING	JOB NUMBER 4502
 David Nairne+Associates Ltd 250-171 W Esplanade North Vancouver BC V7M 3J9 T (604) 984-3503 F (604) 984-0627	DATE DEC 11/07	CHECKED BF	DWG NUMBER
	DESIGNED LMM	REVISED	45 SK5
	DRAWN LMM	SCALE NTS	



TO: Board Members – Vancouver Park Board
FROM: General Manager – Parks and Recreation
SUBJECT: Stanley Park Hollow Tree

RECOMMENDATION

THAT the Board approve the taking down of the “Hollow Tree”, as it has become a public safety concern.

BACKGROUND

The “Hollow Tree” is a veteran cedar snag on the west side of Stanley Park. Cedars, with age, rot from the inside out, and most old specimens are hollow at the base. In this case, a portion of the circumference also rotted or was shattered by a lightening strike, leaving a doorway to the hollow core. For the last century, this anomaly has been the subject of thousands of amateur photographs of people standing in the hollow.

DISCUSSION

The Hollow Tree is actually a dead snag and has been for a long time. The illusion of a green canopy was in fact three hemlocks which were growing out of the deadwood in the cedar root flair. The eastern half of the root flair has rotted away, resulting in the 11-degree lean of this 13 meter snag. Early photos show the tree standing erect. The trunk is also vertically cracked and in some places separated; akin to the staves of a barrel. Cabling, bolts and braces have been added over the past 30 years to keep the trunk together.

The winter storms of 2006/2007 not only downed thousands of living trees but also caused the Hollow Tree to further splinter and lean. As a result, staff monitored the tree throughout 2007 to watch for further deterioration. The storms of last winter resulted in further cracking, and staff determined that the snag had become a safety risk to the public. The area around the snag has been fenced off, and a structural engineering firm was retained to assess the possibility of saving the “Hollow Tree.” The recommendation was for a series of large external steel braces to counter act the 11-degree lean. To internally brace the tree would require attempting to return the snag to a vertical position. This would require cutting the remaining roots and an artificial build-up of the missing root flair on the east side. Because of the barrel stave nature of the trunk, there is a high probability it would break apart without numerous significant steel collars, inside and out. Even with these efforts, there is no assurance of success.

Hence, the external steel braces (APPENDIX 1) are the only reasonably certain solution. However, they will ruin the aesthetics of the setting as they would be right in front of the hollow opening, discouraging family photos.

CONCLUSION

The “Hollow Tree” has become a safety risk for the hundreds who stand in front of it to take photos. The engineered solution to stabilize the snag will ruin the aesthetics of the site and greatly diminish the attraction of the tree.

The snag will continue to deteriorate over time at an accelerated rate. Therefore, staff recommend that the snag be taken down, whole if possible, and laid as two longitudinal pieces that visitors can walk between to appreciate its size. The trunk would be cut about 200mm above the ground plane with the lower root flair becoming a symbolic planter for a new single cedar planted at its centre.

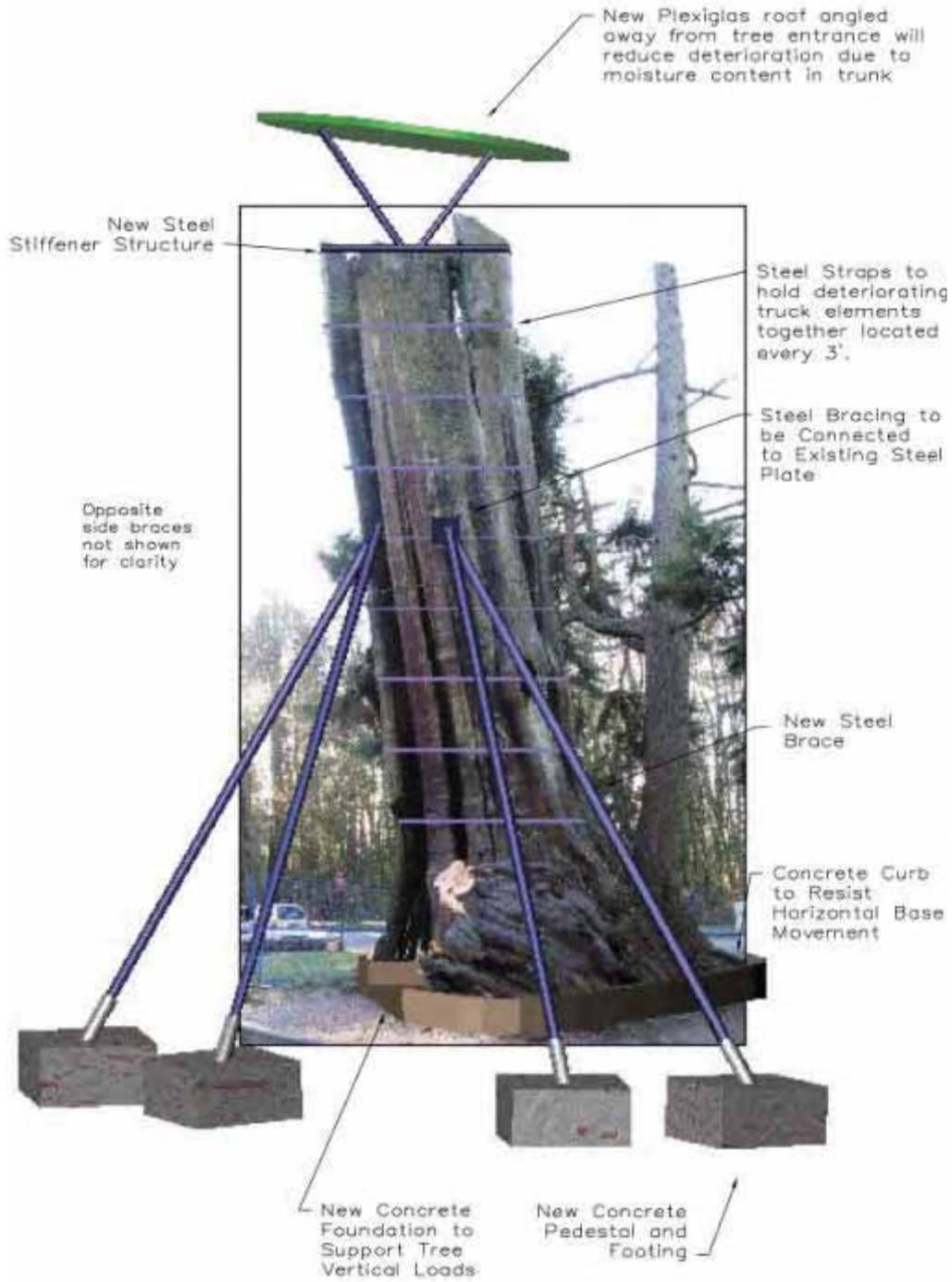
A number of interpretive concepts will be developed to provide the history of changes that time and nature has brought to bear on the “Hollow Tree”.

Prepared by:

JDL/yf
Vancouver Board of Parks and Recreation
Vancouver, BC

APPENDIX 1

Hollow Tree with External Steel Braces



These Minutes will be adopted at the next meeting of the Vancouver Heritage Commission

VANCOUVER HERITAGE COMMISSION
April 28, 2008

Minutes

A regular meeting of the Vancouver Heritage Commission was held on Monday, April 28, 2008, at 11 a.m. in Committee Room # 1, Third Floor, City Hall.

Members Present: Richard Keate, Chair
Marian Brown
James Burton*
Denise Cook*
Cheryl Cooper
Judith Hansen
Karen Jarvis
Kim Maust, Vice-Chair*
Charlotte Murray

Members Absent: Greg Kozak (Leave of Absence - approved Jan. 14/08)
Andrew Pottinger (Leave of Absence)

Also Present: Councillor Suzanne Anton, City of Vancouver

City Clerk's Office: Tina Hildebrandt, Meeting Coordinator

* Denotes absence for a portion of the meeting.

Attendance

There were no objections to granting Leave of Absence for Andrew Pottinger for this meeting.

Adoption of Minutes

Minutes of the March 17, 2008, meeting were adopted.

1. Business Arising from the Minutes
 - a) 58 West Hastings Street DE # D411789

Yardley McNeill, Heritage Planner, responded to questions regarding social housing policies in the Gastown Area and advised staff will report back.

2. Conservation Review
 - a) Salt Building - 85 West 1st Avenue; VHR B - Enquiry

Issues:

- i) Stairs and ramp locations and design
- ii) North patio deck area

Applicant: Robin Petrie, Manager of Engineering, SEFC Project Office
Mark Ostry and Russell Acton, Acton Ostry Architects Inc.
Staff: Yardley McNeill, Heritage Planner

Staff, along with the Applicant, reviewed the design and construction issues as well as the heritage/rehabilitation approach, and responded to questions.

RESOLVED

THAT, regarding the Salt Building - 85 West 1st Avenue, the Vancouver Heritage Commission (VHC) supports the project as presented at its meeting on April 28, 2008, specifically, the following:

- the north patio deck area;
- the stairs and ramp locations; and
- that the relative solidity of the east and west elevations be maintained.

FURTHER THAT the VHC would like to see the entire development permit application for the Salt Building project be brought back for review; and

FURTHER THAT the presentation material include the Salt Building in its context, specifically showing the plazas and the pedestrian routes around the building.

CARRIED UNANIMOUSLY

b) Hotel Georgia - 667 & 669 Howe Street; VHR A, Designated
Minor Amendment & Heritage Alteration Permit

Issues:

- i) Design of new canopies and relationship to the historic canopies over the entrance.

Applicant: Malcolm Elliot, Endall Elliot Associates and Robert Lemon
Kirk Robinson, Delta Land Developments Ltd.

Staff: Yardley McNeill, Heritage Planner

Staff, along with the Applicant, reviewed the project and responded to questions (drawings submitted - on file).

RESOLVED

THAT the Vancouver Heritage Commission (VHC) supports the Hotel Georgia project at 667 and 669 Howe Street as presented at its meeting on April 28, 2008, specifically, the design of the new canopies and the relationship to the historic canopies over the entrance, as well as the modifications to the rooftop to allow for private use.

CARRIED UNANIMOUSLY

c) Vogue Theatre - 918 Granville Street; VHR A (F) - Workshop

Issues:

- i) What extent of changes would be supported to the interior of the building in order to achieve an economically viable use?
- ii) How important is maintaining the theatre use to the building's historic value?

Attendees: Janet Leduc, Chair, Heritage Vancouver and Tom Durrie

Staff: Yardley McNeill, Heritage Planner

Lucia Cumerlato, Liquor Licensing

Staff, along with the Applicant, reviewed the project and responded to questions (document submitted - on file).

It was agreed that allowing a 1000-seat liquor license could threaten the Vogue's heritage value and the Commission should strongly urge staff not to support the application.

RESOLVED

THAT the Vancouver Heritage Commission (VHC) supports the continued use of the Vogue Theatre at 918 Granville Street as a theatre as part of its heritage value and discourages the application for a 1000-seat liquor license and change of use; and

FURTHER THAT the VHC, recognizing that the Vogue Theatre is a national historic site, recommends the conservation of the theatre's interior and exterior; and

FURTHER THAT should a proposal come forward to preserve the theatre and conserve the interior and exterior historic elements and requires transferable density to contribute to the economic viability of the project, the VHC recommends Council support the Vogue Theatre as a donor site for transferable density, independent of the present moratorium on generating density for transfer.

CARRIED UNANIMOUSLY

(Kim Maust absent for the vote.)

3. Sub-committee Reports

(a) SOS Sub-committee

Statements of Significance and Vancouver Heritage Register records for the following properties not on the Register were recently prepared:

3599 Commercial Street
877 East Georgia
879 East Georgia
2426 East 23rd
2274 W 10th

* * * * *

At 1:23 p.m., Denise Cook and James Burton declared Conflict of Interest due to their involvement with: 877 East Georgia, 879 East Georgia, 2426 East 23rd and 2274 W 10th. They left the meeting and returned at the conclusion of this item.

* * * * *

The Chair of the SOS Sub-committee brought a motion forward to the Vancouver Heritage Commission regarding the nomination of these properties to the Vancouver Heritage Register. All nominations have the support of the property owner.

Attachments: Statements of Significance for the above-listed properties.
Staff: Liberty Walton, Heritage Planner
Consultants: Denise Cook, Denise Cook Design

RESOLVED

THAT the Vancouver Heritage Commission nominate the following addresses as additions to the Vancouver Heritage Register:

3599 Commercial Street
877 East Georgia
879 East Georgia
2426 East 23rd
2274 W 10th

CARRIED UNANIMOUSLY
(Denise Cook and James Burton absent for the vote.)

(b) Terms of Reference for Sub-committees

Liberty Walton, Heritage Planner, provided a brief overview of the roles and responsibilities of Sub-Committees to Advisory Bodies.

4. Correspondence

The Correspondence File was circulated.

5. Other Business

a) Hollow Tree, Stanley Park

Staff: Marco D'Agostini, Senior Heritage Planner
Attendee: Meg Stanley, Commonwealth Historic Resource Management Limited

Ms. Stanley provided a background on the process, spoke to the heritage value of the Hollow Tree and put forward a recommendation for the Commission's consideration (documents submitted - on file).

Staff provided an update on this matter, advised that the Park Board is willing to meet with the Commission later in the week, and responded to questions.

RESOLVED

THAT, regarding the Vancouver Heritage Register Resource known as the Stanley Park Big Hollow Tree (hereinafter the "Hollow Tree"), the Vancouver Heritage Commission requests that the Park Board follow sound principles of Cultural Resource Management including assessing/defining the cultural, historic, symbolic and natural values associated with the feature to elicit the best possible solution for maintaining the "Hollow Tree" while ensuring there is no danger to the public by:

1. Preventing public access to the "Hollow Tree" until steps have been taken to eliminate hazards to public safety;
2. Making no changes to the Heritage Resource for 120 days to allow time for a consultative process using the principles of cultural resources management to develop an optimal solution to maintain the integrity of the of the "Hollow Tree"; and
3. Ensuring the consultative process provide ample opportunity for public input and include deliberation by independent experts from the forestry, landscape architecture, structural engineering, heritage and curatorial professions.

CARRIED UNANIMOUSLY

RESOLVED

THAT the Vancouver Heritage Commission recommends that Council pass a motion under Part 13, Section 589 of the Vancouver Charter, creating temporary heritage protection of the resource "Hollow Tree" for a period of 120 days.

CARRIED UNANIMOUSLY

RESOLVED

THAT the Vancouver Heritage Commission strike a Hollow Tree sub-committee and include the following individuals on the membership:

Meg Stanley, Karen Jarvis, Harold Kalman, Lorne Whitehead, Bruce McDonald and Commissioner Spencer Herbert.

CARRIED UNANIMOUSLY

6. Next Meeting

Monday, May 26, 2008, 11:00 a.m.
Committee Room # 1 - Third Floor, City Hall

The meeting was adjourned at 2:08 p.m.

Appendix 4 Members of the Vancouver Heritage Commission Subcommittee on the Stanley Park Big Hollow Tree:

1) (Staff representative) Marco D'Agostini

Senior Heritage Planner, City of Vancouver
(604) 873-7056 Marco.D'Agostini@vancouver.ca

2) Randolph A. Churchill, Ph.D. (Engineering)

Project Manager, Macdonald & Lawrence Timber Framing Ltd.
1356 Ball Road, Cobble Hill, BC
(250) 743 - 8840 randy@macdonaldandlawrence.ca

Randy coordinates complicated heavy timber design, construction and installation projects.

3) Julian Dunster, B.Sc. (Forestry), M.Sc. (Forestry), Ph.D., (Regional Planning and Resource Development)

Registered Professional Forester in British Columbia (# 1708)
Professional Planner, with membership in the Canadian Institute of Planners and the Planning Institute of British Columbia
Certified Arborist with the International Society of Arboriculture (PNW 089)
Registered Consulting Arborist - American Society of Consulting Arborists (RCA # 378)
Certified Tree Risk Assessor # 1. PNW ISA and Lead Instructor in British Columbia
P.O. Box 109, Bowen Island, B.C. Canada. VON 1G0
(604) 947 - 0016 jadunster@gmail.com

Julian has delivered lectures on his work all over the world, with an emphasis on trees and environmental issues, conservation, and designs that will contribute to better environmental awareness. He has served on several Boards of Directors, audit committees, and panels, and has considerable expertise with non-profit groups in the environmental sector, helping them to develop strategies for promoting their goals, and deliver effective critiques and messages. He has published several books and numerous articles.

4) Ian Green

President, Greenheart Conservation
(778) 898-9694 ian@greenheart.ca

Greenheart is a world leader in developing, manufacturing and installing forest canopy walkways all around the world. As such, his firm routinely finds practical methods for managing human safety in civil engineering projects based in, on, and around large trees. He is currently installing a forest canopy walkway in the forest beside the UBC Botanical Garden.

5) (Chair) Karen Jarvis B.A.P. (Bachelor Landscape Architecture), Dip.T. (Forest Resources Management), RPF

Professional Forester, Campbell Jarvis Landscape Forestry
c/o Vancouver Heritage Commission
City of Vancouver

City Clerks Department
453 West 12th Avenue
Vancouver BC V5Y 1V4
bodog@telus.net

Karen specializes in visual resource management / landscape assessment in both urban and forest settings. She also serves in a volunteer capacity as a Commissioner with the Vancouver Heritage Commission, providing staff and Council with input regarding heritage applications, policy and practice.

6) Harold D. Kalman, Ph.D., BCAHP

Principal, Commonwealth Historic Resource Management Limited

(604) 734-7505 kalman@chrml.com

Hal is a heritage planner and a principal of Canada's first and largest heritage consulting firm. He is President of the BC Association of Heritage Professionals, the BC member of the Historic Sites and Monuments Board of Canada, the former chair of the Vancouver Heritage Commission, and a former board member of the Association for Preservation Technology.

7) R. Bruce Macdonald, B.A. Sc. (Civil Engineering), P.D.P (School Teaching)

Principal, Living History Historical Research & Consultation

Member, Vancouver Heritage Commission Sub-Committee (reviewing the heritage values of Vancouver's historic places)

1730 William Street, Vancouver, BC V5L 2R4

(604) 251-4222 bruce1m@shaw.ca

Bruce received a major Social Sciences and Humanities Research Council grant at SFU to produce an innovative history of Vancouver, "Vancouver: A Visual History," and works on Vancouver heritage issues. He has an abiding interest in the unique aspects of Vancouver, and first wrote about the Hollow Tree in 1990.

8) Gordon Macdonald

Building Conservator, Macdonald & Lawrence Timber Framing Ltd.

1356 Ball Road, Cobble Hill, BC

(250) 743 - 8840 gord@macdonaldandlawrence.ca

Gordon has 20 years of international experience in building conservation and complex timber structures.

9) Neil A. McPhail, B.A.Sc. (Mechanical Engineering), M.A.Sc. (Mechanical

Engineering), P. Eng. (British Columbia and Ontario, Mechanical Engineering) Financial

Engineering Manager, QuIC Financial Technologies Suite 1105, 1095 W. Pender St.

Vancouver, BC Canada V6E 2M6

(604) 773-3486 nmcphail@telus.net

At QuIC Neil manages a group of software engineers and mathematicians in the development of software for valuation and risk analysis of complex financial instruments/portfolios. He is also actively consulting in the areas of advanced display technologies, hybrid solar/electric day-lighting and GPS-controlled watercraft. Prior to

QuIC, he was Vice President of Engineering for BrightSide Technologies, a successful high-technology startup company purchased by Dolby Laboratories in April 2007.

10) Philip Robbins B.Ed. (UBC), ECIAD Diploma in Fine Art (Honours), MA from the Royal College of Art (London)

Instructor, Emily Carr Institute of Art + Design

1399 Johnston Street, Granville Island

Vancouver BC V6H 3R9

Canada

604-327-5011 probbins@eciad.ca

Philip's work draws on his extensive experience in a range of materials and processes, including metal, synthetics, and ceramics. His work has shown in Canada and the UK. He is a former member of the Public Art Advisory Committee for the City of Vancouver, and the District of North Vancouver.

11) Jon Scott, P.Eng. (Mech Eng - UBC)

Product development consultant - Self-employed

Unit #4, 7 East 6 Avenue, Vancouver, BC, V5T 1J3

604-727-0992 jonscottindia@hotmail.com

Jon has worked in optical & mechanical product development for almost 30 yrs, and is inventor or co-inventor on approximately ten patents.

12) Meg Stanley, BA (Honours History), MA (Public History/Canadian History).

Historian, Commonwealth Historic Resource Management Limited

Vice-Chair, Friends of the City of Vancouver Archives, Member, City of Vancouver

Archives Advisory Committee

308-2233 Burrard Street, Vancouver, British Columbia

604 734 7505 meg@chrml.com

Meg Stanley's work in the field of heritage conservation focuses on the intersection of history and the environment, built and natural. Her publications include an article about the Hollow Tree for Canada's national history magazine, *The Beaver*.

13) Lorne A. Whitehead, B.Sc. (Honours Physics), M.Sc. (Low Temperature Physics), Ph.D. (Applied Physics), P.Eng. (British Columbia, Electrical Engineering)

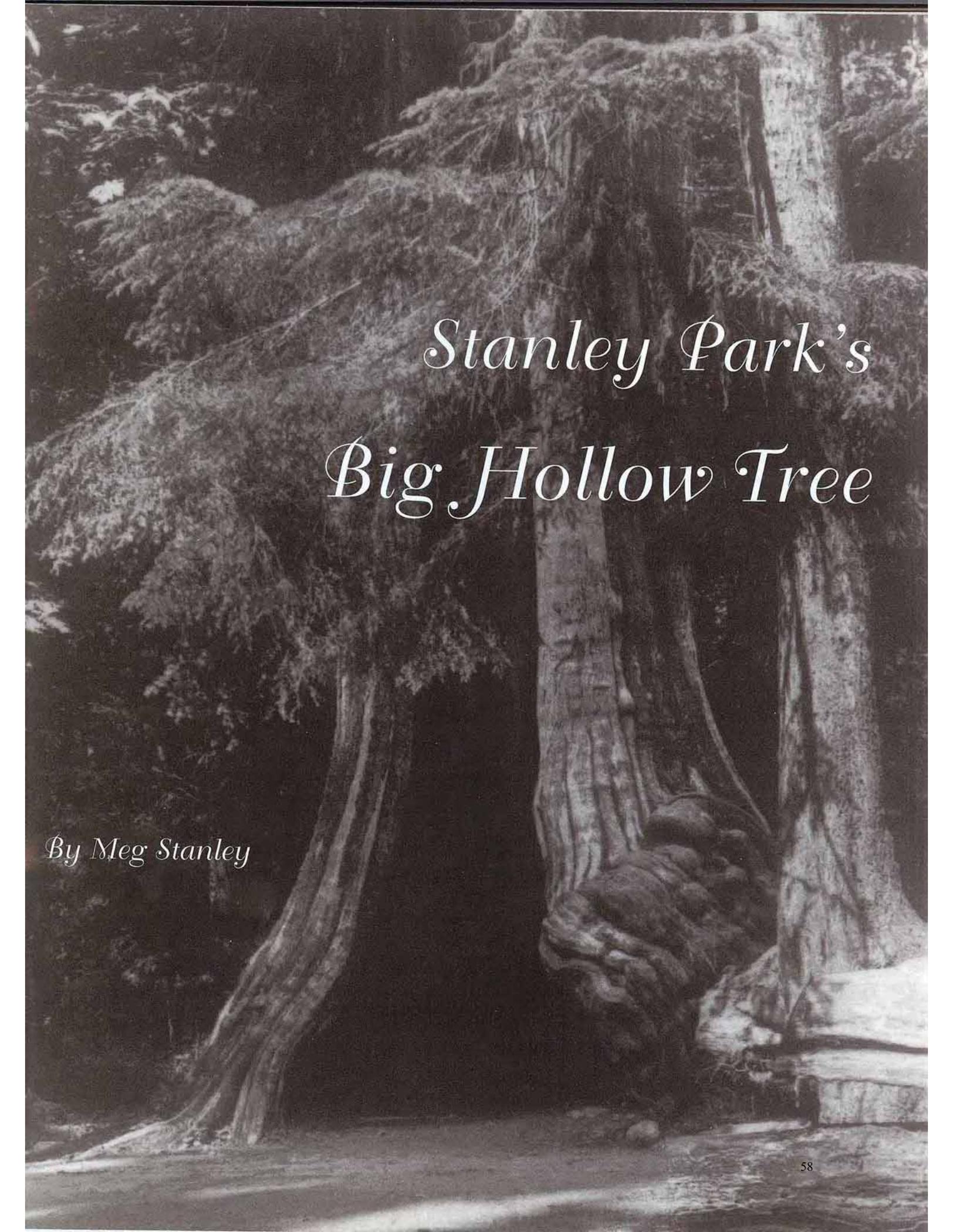
Professor and Leader of Education Innovation, University of British Columbia

6224 Agricultural Road, Vancouver, BC, V6T 1Z1

(604) 822-3075 lorne.whitehead@ubc.ca

In his research capacity, Lorne specializes in finding innovative solutions to technical problems, and in his administrative responsibilities he employs the principles of innovation to help make organizational improvements. Lorne holds over one hundred patents, has launched several successful companies and has served on numerous boards in both the private and non-profit sectors. His administrative experience includes 10 years as a corporate CEO and 9 years of university administrative experience in positions including Associate Dean, Dean pro tem, and Vice President Academic. At UBC he also runs a research program for which he holds the 3M Chair in Applied Physics and in this

capacity he often collaborates with major companies such as 3M, Philips and Dolby, all of which employ technology that has come from his UBC lab.

A black and white photograph of a massive, ancient tree with a large hollowed-out section in its trunk, set in a forest. The tree's trunk is thick and gnarled, with a large, dark, hollowed-out section in the center. The tree's branches are dense and dark, filling the upper part of the frame. The ground is dark and appears to be a path or a clearing. The overall mood is somber and majestic.

*Stanley Park's
Big Hollow Tree*

By Meg Stanley

The "Big Hollow Tree" in Vancouver's Stanley Park has survived more than 100 years of fame as one of the City's landmarks. Located just off of the main park road near Siwash Rock, the tree has been on the itinerary of tourists since the road opened in 1889. As Major Matthews, the City Archivist, told the Parks Board in 1965, "To come to Vancouver and not see 'The Big Hollow Tree' was like eating an egg without salt."

For many years, there was an "official" photographer stationed at the tree to capture the tourists' stop for posterity. As a result, there is an abundance of photographs of the tree and its visitors dating from the late nineteenth and early twentieth centuries. City records show that



City of Vancouver Archives

Mr. and Mrs. Luigi Trasolini, with children, Norman and Tosca, circa 1910.

photographers George Schenck, George C. Fricke, and G.A. King of "The Camera Workers" held the lease on the photograph concession at the "Big Tree" from 1908 until 1915. Frank Gowan obtained the concession in 1916 after the park authorities cancelled the lease of the "Camera Workers" at the urging of the police. Evidently, "conversations at the big tree since the outbreak of the war were distasteful to British ears and could no longer be tolerated." One of the "German photographers" was a British subject, but Canada was in the process of identifying and interning "enemy aliens" in 1915 and individuals with German surnames were subjected to harassment regardless of their official status.

Gowan obtained the exclusive right to take and sell photographs at "(1) The 'Big Tree' off the Main Driveway, (2) the 'Seven Sisters' and the Big Cedar Tree on Tatlow Walk, (3) Prospect Point and (4) Brockton Point". In

Opposite: The earliest known photograph of the "Big Tree", probably taken about 1889.

return, he agreed to be in attendance at the "Big Tree" at "all reasonable times and hours of the year when the weather conditions are favourable." He also obtained use of a small building erected at the site.

This photographer found the concession less rewarding than his predecessors had. In 1908, the first year Schenck, Fricke, and King held the lease, they were able to pay the park authorities \$750; nine years later, Gowan was willing to offer \$50. The decline in business was not because people had lost interest in having their photograph taken, but was, in a cruel twist, a product of the popularity of photography generally. An increasing number of people owned their own Kodak and took their own snapshots at the tree. Gowan tried to make up for the declining business by selling general views of Stanley Park, and by serving as a "guide, philosopher, and friend" to visitors. This strategy must have been at least partially successful since Gowan continued to renew his lease until 1941.

What drew people to the tree? Was it the fulfillment of a long-harboured ambition instilled, as one newspaper article published in 1941 suggested, by photographs of the huge tree glimpsed in school books? Certainly, the size of the tree made a strong impression. The circumference, which reaches 80 feet in the most generous descriptions, awed many. A groove was reportedly worn into the bole by the measuring tapes visitors used to establish its girth for themselves.

If size fascinated, so too did age. Here was an ancient survivor, Vancouver's Stonehenge, that commanded respect and inspired the reflective to contemplate the comparatively brief lifespan of humans. In a new city with "no history", the tree, estimated to be 800–1,000 years old, offered a link to the local past that only native visitors could match. One writer went so far as to speculate that, "The Big Tree may have flourished before a human voice disturbed the silence of the Park, or before a human foot left its impress upon the ground near where it stands."

Ultimately, it was the tree's hollowness that fascinated. Here, visitors could not only pause and wonder at the magnificence of nature, they could enter into its womb-like interior. Perhaps this contributed to the tree's popularity as a lovers' trysting spot. On a more prosaic note, one writer boasted of having managed to squeeze close to 40 people into the tree for a lecture on ferns. There was, he reported, barely enough room to pass the hat at the close.

For most, nature alone was not sufficiently interesting to justify a photograph. It had to be made useful, by providing a backdrop for humans, and improved upon, by the addition of embellishments. By the 1920s, the latter included grottos, ferns, a ladder, and a low fence.

People especially liked to have a photograph taken of themselves in a vehicle which was parked beside or inside the tree. With the advent of the automobile, it was

here that nature and machine met with the scene saved for posterity by the camera. At a time when cars were still novelties, these photographs must have been particularly amusing; the huge, hollow, freak of nature exhibited with the newest freak of the machine age.



City of Vancouver Archives

*“Stanley Park Hotel ... drinks and cigars 2 bits”:
fun in the park, early 1890s.*

The “Hollow Tree” was not, in fact, a freak. Foresters’ reports prepared between 1913 and 1918 on the condition of Stanley Park’s trees noted that the western red cedar is a common species on the West Coast and is “very generally ‘stagheaded’ and hollow-hearted.” The foresters made two specific recommendations for the management of these hollow trees with dead tops. First, they suggested that the “stag”, or dead-heads be cut so as to reduce the risk of their being blown down in heavy winds and to improve the appearance of the trees. Finally, they proposed that concrete be used to fill the hollow cavities so as to extend the life of the trees.

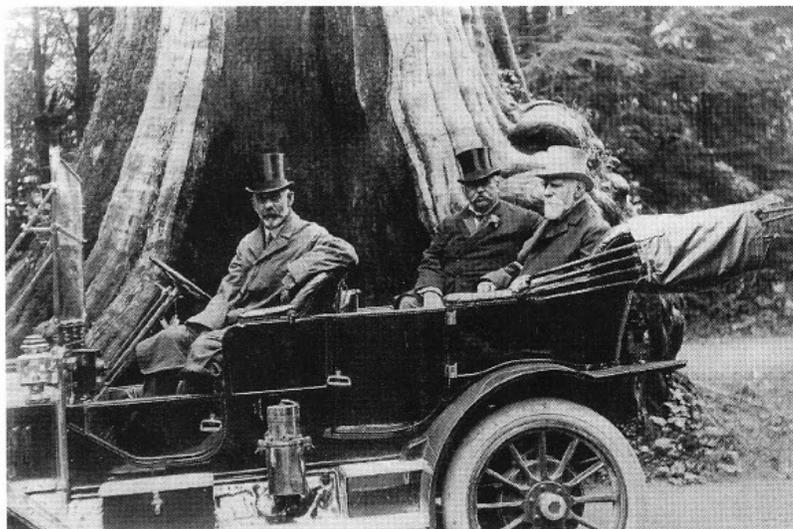
The idea of using a relatively new material, concrete, to “repair” ancient trees is another example of humans improving upon nature. For obvious reasons, however, the cavity of the “Big Hollow Tree” was never filled with concrete. Instead, its dead top was cut back to the point that, in 1936, it was ridiculed and described as a “hollow stump” with a “warty, unsymmetrical [sic] butt.” Following the urging of W.M. Sellens, banker, the Vancouver park authorities agreed to remove the sign pointing to the “Big Tree”. This turn-of-events did not go un-noticed. The editor of the *Vancouver Sun* wrote in his eulogy that, “The Hollow Tree has gone to its fathers, to become, one of the legends of time.”

Time proved the editor, banker, and park authorities

wrong. The “Big Hollow Tree” continued to be popular with visitors. When the tree appeared on the agenda again in 1965, it was to address a number of issues relating to the need to manage this popular, but admittedly worn, attraction. Park staff recommended installing steel tie-rods anchored to steel rods embedded in concrete above eye-level inside the tree to re-enforce the trunk, constructing a curb around the tree to discourage “parking” in the tree, and building a small parking lot.

For Major Matthews, the City Archivist, this approach was insufficient. The steel would only hold things together for another hundred years, at best. Matthews, like the foresters of 1913–1918, saw natural decay as a problem that could be addressed with the liberal use of concrete. He proposed making a wax mould of the tree and casting it in tinted concrete. Vancouver’s landmark would thus be turned to stone and last another thousand years. Matthews’ proposal is interesting because it shows the extent to which the “Big Tree” had become symbolic of nature; it no longer had to be natural itself.

Today, the “Big Hollow Tree” remains popular with park visitors. Ironically, the stump is now camouflaged by much



Lord Strathcona, at right, conceals his enthusiasm during a visit to the tree.

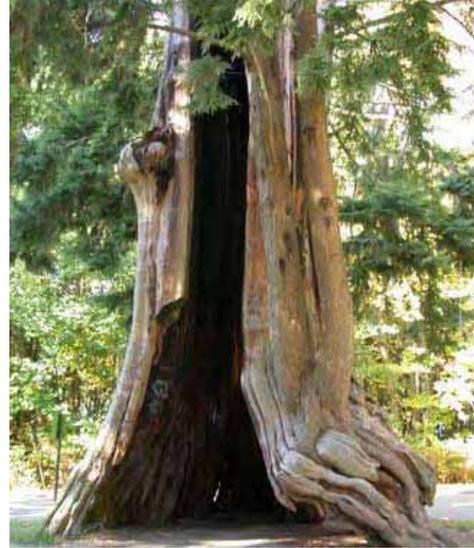
younger hemlocks that have taken root in the aged cedar. The rest of the stump will eventually erode as time and the hemlocks’ roots take their toll, but the most immediate threat to it at present is vandals who occasionally light fires inside. Apart from putting the fires out, Park staff have no explicit plans to try to improve any further on nature. ♦

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Meg Stanley is a Vancouver writer and historical consultant.

Stanley Park Big Hollow Tree Statement of Significance

Description

The Stanley Park Big Hollow Tree, estimated to be at least 1000 years old, is a Western Red Cedar tree approximately 12 metres (58 feet) in circumference. The tree has an exceptionally large hollow core. It is located on Stanley Park Drive in the western portion of the park, in Vancouver, B.C.



Heritage Value

One of the most popular tourist destinations in Stanley Park, the Big Hollow Tree is significant for its aesthetic, scientific, historical/cultural, and social values, notably for its role as an historic and iconic monument widely known to the citizens of Vancouver and visitors to the city.

Aesthetic significance

Famous for its great size, hollow form, and worn exterior contours, the aesthetic value of the Tree is key to its overall heritage value. It is world renowned for providing the visitor with the singular experience of entering into a skylit space within a natural (formerly) living object. The Hollow Tree is valued for its material qualities, particularly the effects of natural slow decay, and its accessible surfaces, worn smooth with more than a century of intense human contact.

Scientific significance

The oldest tree in Stanley Park, the Big Hollow Tree is significant for its age and for its ongoing survival in the face of storms and human interventions in the landscape.

The Tree's scientific name is *Thuja plicata* or Western Red Cedar. It is valued as an indicator species of the of the Coastal Western Hemlock biogeoclimatic zone and as the Cedar tree with the largest diameter growing within the coastal forest ecosystem of the Pacific Northwest. It is a representation of the first growth that originally existed in Stanley Park, a result and an example of the natural forces that have and will continue to change the Park.

Historical/cultural significance

The Western Red Cedar has been part of local First nations culture for centuries, used extensively in First Nations art and technology, and as the building material of choice by newcomers to the West Coast because of its resistance to decay.

The Tree is a record of the first post-contact encounters and relationships with the west coast forest, particularly through the lens of the late 19th century romantic notions of wilderness. As part of Stanley Park's pristine first growth, it emerged as one of the wonders of the local natural world early in the history of the cultivation of Stanley Park as a naturalistic urban park.

As a culturally modified living organism that is an important cultural artifact, the Hollow Tree represents both sides of the relationship between the natural environment and the cultural elements of Stanley Park. It has become a monument through public process, a formerly living tree, now non-living snag, transformed into a cultural icon through thousands of visits, photographs and acts of physical contact.

Social significance

The most photographed site in Stanley Park, the Hollow Tree is important for its use as the premier traditional park feature to document pleasure excursions into the park, reflecting the ability of people around the world to experience the tree either first hand or through picture postcards. The image of visitors in carriages, automobiles and on foot photographed inside the hollow displays the central role of the Tree in the city's mythology. The continuing attempts, beginning in the 1960s, to keep the tree solid and upright attest to its importance to the park and to the collective memory of the people of Vancouver, as well as to the current importance of environmental stewardship.

The Hollow Tree remains an icon in the popular culture of Vancouver, representing the unique identity of Stanley Park, and playing a continuing role in the perception of the Park, and Vancouver, worldwide. A hollow cedar tree will act as a portal to the B.C.-Canada pavilion at the Beijing Olympics, while mascots for the 2010 Olympics photograph each other in the hollow of the tree in classic Vancouver tradition, both testaments to the perceived power of the Tree to project Vancouver's unique setting to the world.

Character Defining Elements

Character-defining elements of the Hollow Tree include:

Its original physical characteristics:

- Its large size, contributing to the tree's monumental presence within Stanley Park, and with the largest diameter of any tree within the Park
- The age of the tree, at least 1000 years old
- Its impressively large hollow core
- The complex internal shape arising from natural decay and erosion of the tree's interior core
- Opening to the sky
- Substantial vertical height and stature, truncated much higher than old logging stumps, indicative of its initial great height
- The form of the tree, with its wider base and narrowing trunk
- The vertical ridged texture of the tree, with its distinctive root forms
- Location, aspect and physical setting adjacent to the main ring road around Stanley Park, a determinant of the way in which the Tree was first viewed and experience
- Physical association with other large-scale and impressive trees within the Park
- Its species, *Thuja plicata*, with its tendency to form a hollow core

Its evolved physical characteristics:

- 11° tilt of the tree
- Signs of decay of wood material
- Signs of fire on the interior of the tree
- Sawn-off top

Appendix 6 Second DRAFT of Statement of Significance for Hollow Tree

- Smooth surface
- Cabling, bolts and braces that have been added to stabilize the trunk
- Carving and graffiti that symbolize people's identification with the tree
- Its physical link with the younger living hemlock tree

Its associative characteristics:

- The long and ongoing focus of human attention on the tree
- The long and ongoing traditions of visiting the tree, entering the hollow core of the tree, or of having one's photograph taken in or near the tree
- The importance of the tree to both residents of Vancouver and visitors to the city

Appendix 7



May 23,2008

Karen Jarvis
Chair, Stanley Park Hollow Tree Subcommittee
Vancouver Heritage Commission, City of Vancouver
City Clerks Department
453 West 12th Avenue
Vancouver BC V5Y 1V4

Dear Ms. Jarvis,

Re: Your committee's proposal for the conservation of the Hollow Tree

I am a registered Professional Engineer in the Province of British Columbia and I have considerable expertise with projects involving human safety and civil engineering activities within a forest setting.

I have reviewed your committee's proposal entitled "Proposal for the Conservation of Stanley Park's Hollow Tree." The proposal is well thought out and seems very reasonable to me. I note that at several points it will be necessary for a Professional Engineer to sign off on the safety, for safe work at the work site, and then for safety as a public exhibit.

My firm is able and willing to perform this service. To do so we would require the advice of a certified arborist, such as for example Dr. Julian Dunster, and the help of an assistant engineer who would normally be involved with one of the firms involved with the conservation work, such as for example Greenheart Conservation.

Overall, I have a high level of confidence that this project will be successful, that we will indeed be able to sign off on its safety, and that it will achieve the admirable conservation goals described in your document.

If I may be of further service in this regard, please let me know.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Radu Petru'. The signature is stylized and written over a faint, illegible printed name.

Radu Petru, P.Eng. -President

Teora Engineering and Services Ltd.

Appendix 8 Parking: Summary of Suggested Improvements and Short / Long Term Considerations

Context:

At their meeting of March 31st Parks Board Commissioners argued that safety issues associated with the Hollow Tree required urgent action and that the tree needed to be quickly removed before someone was hurt. At the time of this discussion action had already been taken to minimize the safety hazard of the tree by surrounding the tree with fencing. However, subsequent to this meeting it was revealed the greatest safety issue had been caused by the location of the safety fencing and its affect on traffic and parking:

Specific issues include:

- Automobile and bicycle traffic typically driving too fast downhill;
- The Hollow Tree is shortly after a blind left hand curve
- The signage signaling the location of the hidden Hollow Tree is inadequate: Specifically, the fonts employed are too small and the sign is placed too low, resulting in it being blocked by vegetation;
- Vehicles slowing down to view the tree area are blocking through traffic. This causes following traffic to make sudden and unsafe lane changes putting cyclists and others in peril;
- Vehicles are presently pulling in diagonally on the left hand side of the Drive to stop and then backing out into oncoming traffic when leaving the site;
- Tour buses stopping on the right hand side of road block through traffic. Bus passengers disembark and cross the road to view tree - often by walking in front of the bus and crossing where there is formal pedestrian crossing
- Temporary stopping opportunities were provided to alleviate flowing traffic conflicts but in turn caused an increase in dangerous conditions

Design parameters:

- In the long term there will be no additional parking or pavement area and an equivalent number of parking spaces will be retained (13 on the site plan) plus room for two small buses
- Any change to the location of the parking area should not jeopardize nearby trees
- Ideally there would be a site arrangement wherein the presence of parked buses would not interfere with the opportunity to take unobstructed photos of the tree from a suitable distance
- Ideally an improved site context could be provided

Suggested Improvements / Actions to Mitigate Traffic Issues:

Members of City Planning and Engineering staff, the Parks Board and the VHC Hollow tree sub-committee met to explore the traffic issues and to identify possible solutions. Several options and actions were suggested for both the short and longer term. These include:

- a) two alternatives for the short term while conservation are underway
 1. no parking
 2. providing a loop drive around the safety fence

- b) two suggestions for the long term
 1. providing parking in a region around the current location of the safety fence and natural space within the current location of the safety fence
 2. use the existing parking once the safety fence is removed

Each is briefly summarized in the following:

Short Term Options / Actions:

Budget option – no parking/stopping permitted.

- Provide no opportunities for parking/stopping in the vicinity of the Hollow Tree.
- Use barriers to remove opportunities for the diagonal parking opportunities presently being used
- Speed bumps and signage are still required as we expect people to ignore signage and to stop wherever they like

Optimal option – develop a loop drive around the safety fencing.

- Slightly extend the current driving area to allow a narrow drive loop around the current fencing. Protect existing trees by remaining a minimum of 3 metres from the tree to the north and a minimum of 4 metres from the tree to the east.
- This loop would have the minimum required surface treatment to withstand the anticipated vehicular traffic for a period of about 4 months.
- This option provides, on the interim basis, little or no parking but does offer opportunities for visitors and the conservation team to pull out of traffic safely.
- This option is consistent with a long term solution in which the new drive area would become part of the new, preferred plan for the renewed site.

Long Term Options / Actions:

Budget option (employing the existing parking lot):

- Bus parking stalls are once again situated within a few feet of the opening of the Hollow tree.

- Issues associated with this option include buses blocking opportunities to photograph the tree, and the Hollow Tree remaining isolated on a small dirt traffic island situated in the middle of a parking pullout, a situation that undoubtedly contributes, psychologically, to the neglected appearance of the Hollow Tree.

Optimal option:

- After the fencing is removed, finalize the paved area at a larger radius, but without larger area, in order to permit parallel parking on the outside and bus parking in a less obtrusive location.
- This allows for the design of a more dignified setting for the tree. An example design is shown in the following figure:

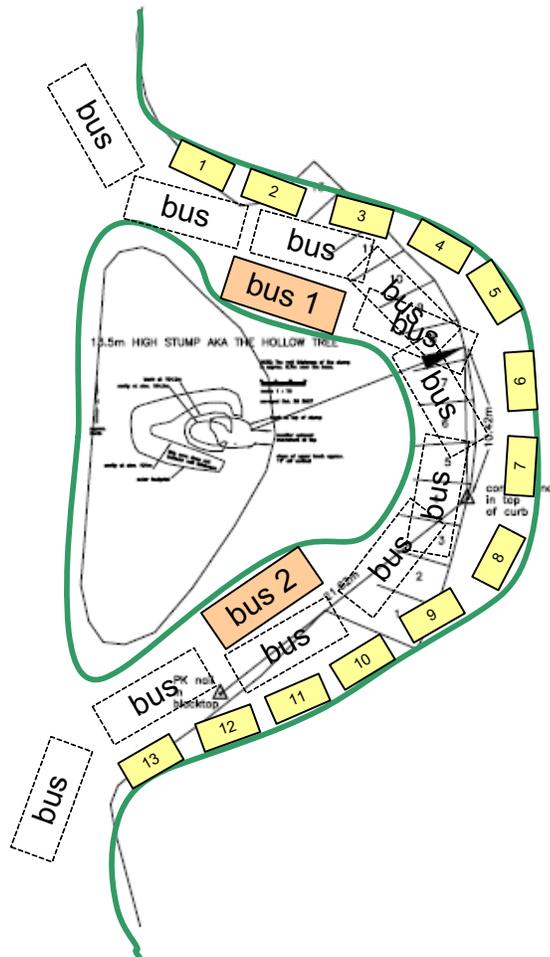


Figure A6-1 Possible reshaping of pavement area to provide a natural vicinity for Hollow Tree, while enabling equivalent parking to that of the previous lot.

Additional considerations from Elizabeth Ballard, City Traffic Engineer

Ms. Ballard was in agreement with the ideas presented above and added the suggestion that whichever of these approaches are taken, they might further benefit from adopting measures similar to those employed at the Stanley Park Totem site. These include:

- The use of speed bumps along Park Drive
- Improved signage, including:
 - Warning limited visibility
 - Curve warning
 - Larger, higher Hollow Tree sign
 - Sign indicating “Slow down, attraction ahead on left.”

Summary

- All options would benefit from speed bumps and signage improvements
- With the optimal approach, the grass lost to allow the loop drive in the temporary solution will also be a part of the plan for the longer term solution. This option would open up room to develop a more respectful site for the Hollow Tree.
- **The subcommittee recommends this optimal approach: namely that a small investment be made now to restore a safe temporary loop drive from Park Drive around the temporarily fenced area around Hollow Tree, which in turn will be used at the end of the project as part of a parking facility having the same area and capacity as was previously present, but providing a more dignified natural setting in the area immediately around the Hollow Tree.**