



**CITY OF RICHMOND**

**REPORT TO COMMITTEE**

*TO PARKS, REC & CULTURE - JUNE 26/01*

**TO:** Parks, Recreation and Cultural Services Committee **DATE:** June 14, 2001

**FROM:** David Naysmith, P. Eng. **FILE:**  
Manager, Facilities Planning & Construction

**RE:** Britannia Heritage Site - Investigation - Powder Post Beetle Infestation

**STAFF RECOMMENDATION**

That the report prepared by Entech Environmental Consultants be received and staff include the specific treatment recommendations in future building upgrades at Britannia Site.

David Naysmith, P. Eng.  
Manager, Facilities Planning & Construction

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<b>Routed To:</b>	<b>Concurrence</b>	<b>CONCURRENCE OF GENERAL MANAGER</b>
Recreation & Cultural Services.....	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	
Facility Management.....	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	

## ORIGIN

At the Council meeting Tuesday November 28, 2000, staff was directed to report on the level of the powder post beetle infestation in the buildings comprising the Britannia Heritage site.

## BACKGROUND

During the course of the structural/seismic upgrading to the Britannia Shipyard Building, the contractor and consultants discovered a significant infestation of the powder post beetle. Due to this discovery, Council approved the increased scope of work and project budget. Council further recommended that staff initiate an investigation of other Britannia waterfront buildings including Scotch Pond, to determine the extent of this problem. This survey would provide Council and staff important information as to the level of beetle infestation and help determine future maintenance, and repair concerns for the buildings.

## ANALYSIS

The consultants have now completed a lengthy investigation of all of the buildings on the Britannia Heritage site. The information has determined that a significant powder post beetle infestation exists, and the resulting decay to the many structures varies from critical to good condition. Problems are also aggravated by the practice of storing untreated wood and artefacts in, and around the buildings, which act as havens for the beetles.

Appendix A summarizes the condition of the buildings related to the observed level of infestation, resultant decay, and structural integrity. The detailed consultant report identifies ten (10) buildings, or areas within the buildings, that are deemed to be in critical or poor condition.

In many situations the buildings require repair and upgrading prior to initiating an effective treatment program. Others (Scotch Pond and Seine Net Loft Walkway) identified as in critical structural condition have or, are being addressed.

## OPTIONS

In reviewing the consultant's recommendations, staff determined the following options are available:

1. **Immediate Action** - Implement a major restoration and treatment program immediately for all Britannia buildings to minimize future deterioration of the structures caused by powder post beetle.  
*(Not Recommended due to significant cost, funding availability, timing and lengthy disruption to Britannia services.)*
2. **Phased Program** – Initiate a regular inspection and treatment schedule and include repairs and treatment plans in future building upgrades. *(Recommended)*

FINANCIAL IMPACT

The ongoing repair and restoration of Britannia Heritage Shipyard is funded through the Capital reserve. The current 5-year plan includes projects slated for 2002, 2003 and 2004 totalling \$438,000. A revision to the existing scope of work that will replace and treat infested timber will potentially increase the project budgets approximately 30% to 50%.

CONCLUSION

The consultant's report provides a concise review as to existing level of infestation and, decay of the Britannia waterfront buildings due to powder post beetles. The report will prove invaluable for staff in preparing future capital project requests and maintenance budgets, to address the repair and preservation of these and other heritage facilities. Implementing an annual treatment program will further decrease the rate of deterioration by controlling the extent of infestation.



Patrick Hartney  
Project Manager

PWH:cmm

## 1.0 Executive Summary

To properly formulate a plan for the rehabilitation of the Britannia Heritage Shipyard Park, an assessment of the buildings for infestation of powder post beetle and decay was required. To conduct this task, the City of Richmond commissioned ENTECH to examine the wooden structures that comprise the site. Based on the findings of this inspection it is now possible to recommend plans of action for the various buildings, which in certain cases calls for a detailed survey. Detailed surveys are required so that budgets for extensive repairs and rehabilitation can be developed and to ensure that restoration and preservation work will be effective.

During the preliminary inspection, evidence of powder-post beetle infestation was noticed in all of buildings throughout the site (see figure 1). This was to be expected, as powder post beetles are endemic to the region, and infest many of the older wooden buildings along the waterfront. Generally, most of the problem areas identified in this inspection are in the substructures or undersides of the buildings. Infestation by powder post beetles and decay are readily apparent in the beams and joists beneath the Chinese Bunkhouse, the Large and Small Murchison houses and the Seine Net Loft.

During the inspection of the substructure of the storage building on Scotch Pond, it was noted that the current state of the pilings makes the building completely unsafe for occupation. In many places entire rows of piles have decayed away, and it would take little for the entire structure to fail. In our opinion, this site should be sealed off, and an alternate means of accessing the dock, arranged.

The walkway to the north of the Seine Net Loft has also been found unsafe. The beams, joists and decking are all heavily decayed, and are incapable of supporting heavy loads. It is our opinion that the use of vehicles to load and unload material from the Seine Net Loft should be stopped. This structure needs immediate repair/replacement.

Detailed surveys are recommended for the following structures: Seine Net loft (superstructure and substructure), Seine Net Loft - walkway to the North, Japanese Duplex, Longhouse, Richmond Boatbuilders Building, Cannery office, Britannia substructure, Britannia Wharf, Large Murchison House, Small Murchison House, Chinese Bunkhouse, Scotch Pond Storage Building. These buildings or parts of buildings have levels of infestation and decay that require a detailed examination before rehabilitation takes place. (See Table 1.)

It is recommended that a priority task be to remove all of the infested wood that is stored in and around the buildings. This wood acts as a haven and means of transmission for the beetles. Infested artifacts can be treated with heat to kill the existing larvae, and then sprayed with a Tim-bor® solution to protect the wood and hamper the further spread of the beetles. The spraying of all the buildings with Tim-bor® is recommended to protect against further infestation and decay. Before spraying, the roofs and siding of several of the buildings needs to be improved to reduce the penetration of water into the building. Water speeds the decay and infestation process, and also reduces the effectiveness of the Tim-bor® treatment.

This report was prepared in cooperation with Mr. Rob Smith P.Eng. of Smith and Co. and with the assistance of City of Richmond employees and volunteers at Britannia Heritage Shipyard Park, and Scotch Pond.

**Table 1: Summary of Building Condition and Recommendations:**

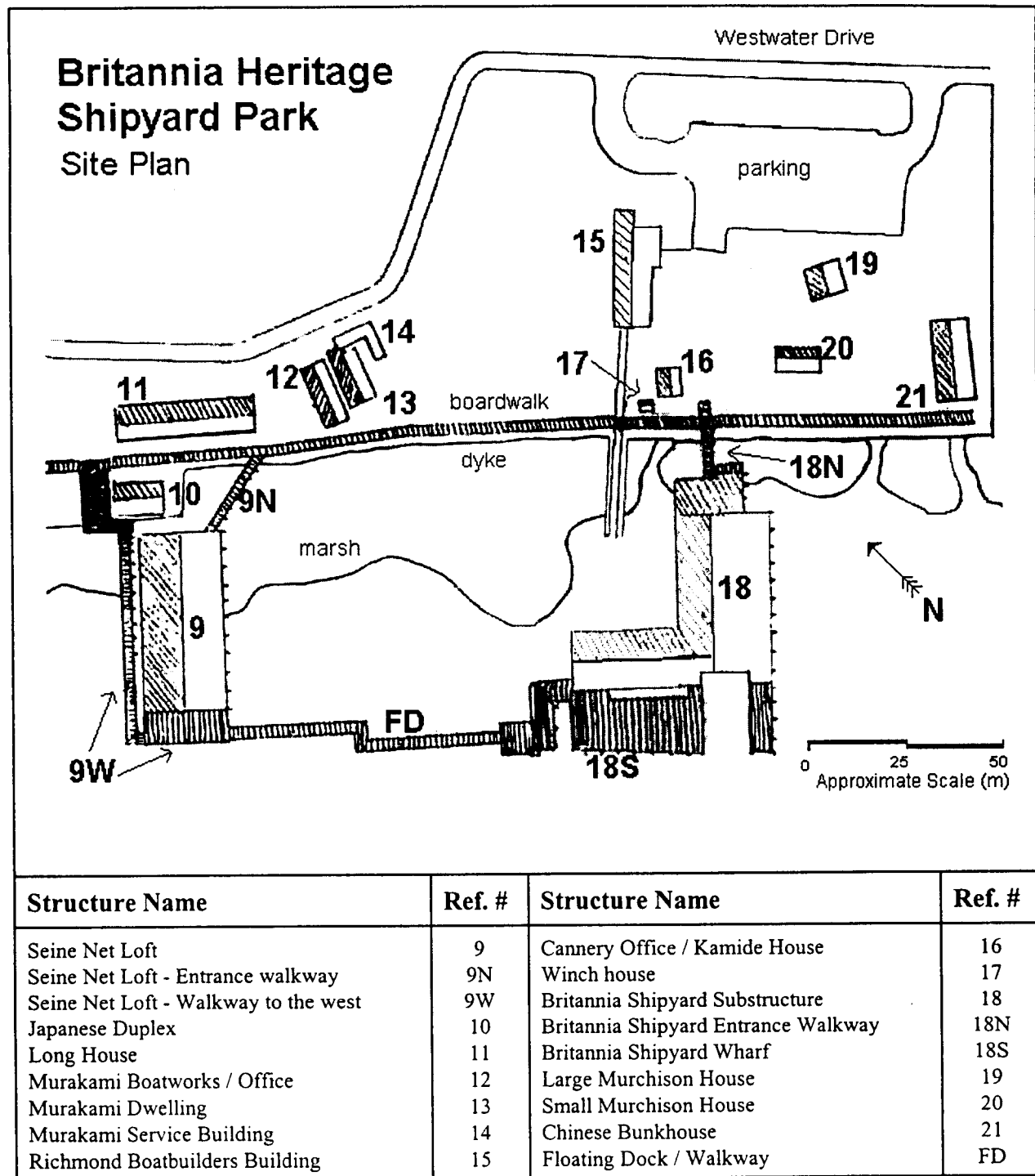
Structure / Ref. No.	Safety Risk	Current Structure Condition			Detailed Inspection Required
		Sub structure	Super structure	Comments	
Seine Net Loft / 9	Low - Moderate	G-P	VG	Cross bracing needed	Yes
Seine Net Loft Entrance Walkway / 9N	Extreme-High	piles P decking C	--	No heavy loads permitted	Yes
Seine Net Loft West Walkway / 9W	Low	VG	VG	New (2000) construction	No
Japanese Duplex / 10	Extreme, fenced	--	C	Badly decayed	Yes
Longhouse / 11	High, fenced	--	P	Decaying base	Yes
Murakami Boatworks / 12	Low	--	G	Some beetles	No
Murakami Dwelling / 13	Low	--	G	Some beetles	No
Richmond Boatbuilders Building / 15	Low	not surveyed	G	Some members heavily infested	Yes
Cannery Office / 16	Extreme, blocked	C	C	Badly decayed	Yes
Winch House / 17	Low	--	VG	Repaired (~1996)	No
Britannia Shipyard Substructure / 18	Moderate-High	P	--	Heavily infested	Yes
Britannia Entrance Walk / 18N	Low	VG	VG	New (~1996)	No
Britannia Wharf / 18S	High	C	--	Badly decayed	Yes
Large Murchison House / 19	Moderate	--	VG -joists P	Infested joists	Yes
Small Murchison House / 20	Low	--	VG -joists P	Infested flooring	Yes
Chinese Bunkhouse / 21	High	--	G -joists P	Roof leaks	Yes
Floating Dock/Walkway / FD	Low	G	--	New (~1996)	No
Scotch Pond Storage Building	Extreme	-piles C -caps P	VG -joists G	Replace piles immediately	Yes

VG - Very Good

G - Good

P - Poor

C - Critical



**Figure 1:** Site Plan. Britannia Heritage Shipyard Park, Richmond, BC. By ENTECH Environmental Consultants.