

PUBLIC HEARING BINDER

Bylaw 8187: Heritage Revitalization Authorization Agreement Bylaw

Bylaw 8188: Heritage Designation Bylaw

(114 West Windsor Road – Green Gables)

Table of Contents:

Agenda and Reports – Please note this section will be published to the website Sept. 7, 2016	
1.	Public Hearing Agenda
2.	Staff Report dated July 14, 2016
3.	Bylaw 8187: Heritage Revitalization Authorization Agreement Bylaw
4.	Bylaw 8188: Heritage Designation Bylaw
5.	Public Hearing Notice
Additional Information	
6.	Traffic and Parking <ul style="list-style-type: none"> No Parking Order – South Side of Windsor Road
7.	Land Use <ul style="list-style-type: none"> Small Lot Infill Map
8.	Heritage Significance <ul style="list-style-type: none"> Conservation Plan – Donald Luxton and Associates dated August 2016
9.	Drawings <ul style="list-style-type: none"> Landscape Plan Subdivision Site Plan
10.	Arborist Report <ul style="list-style-type: none"> Radix Tree and Landscape Consulting Ltd. – May 24, 2016
Public Input	
11.	Community Feedback (Minutes of Neighbourhood Meeting – July 13, 2016)
12.	Public Input (Since First Reading)



Memo

September 12, 2016
File: 3060/32.16

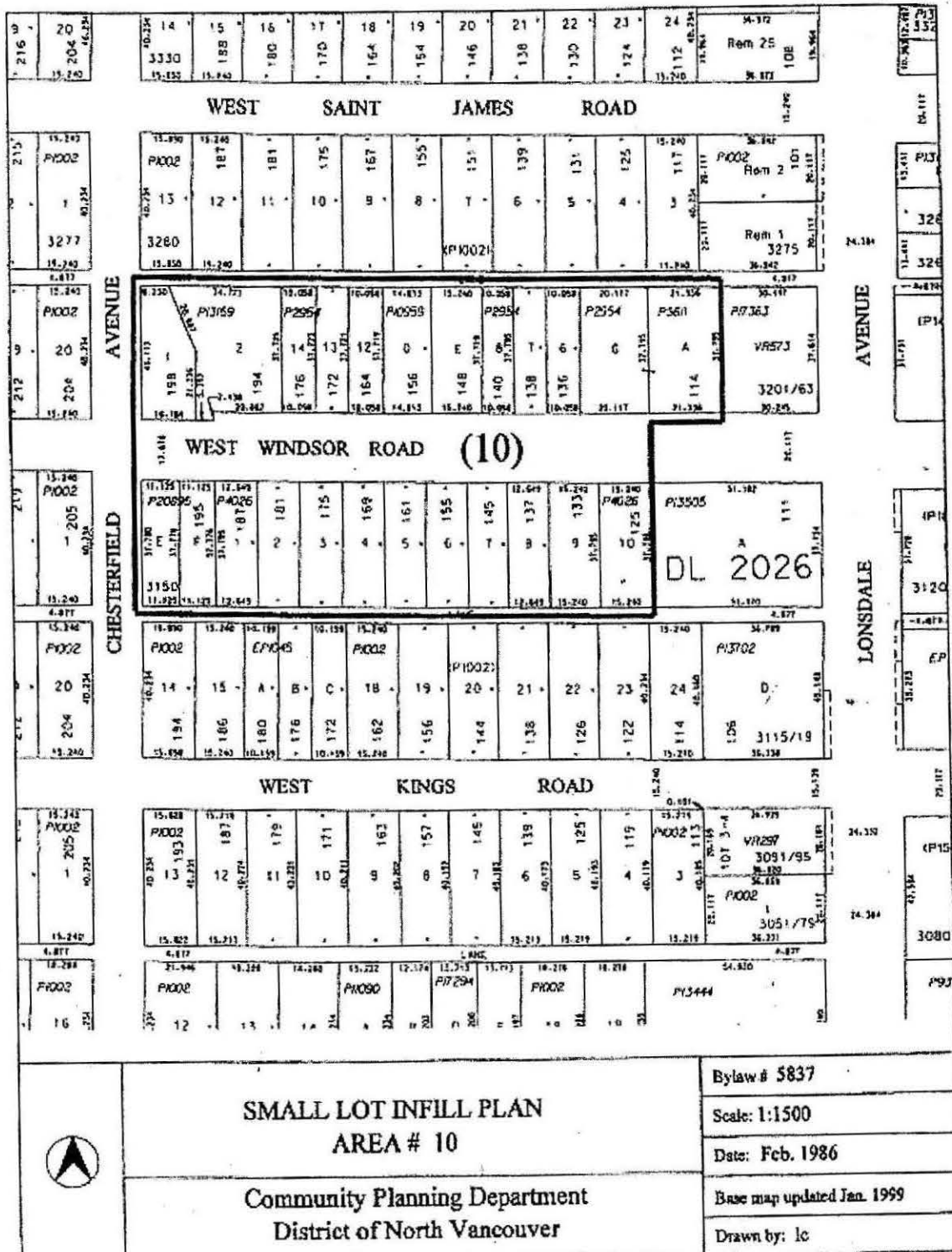
TO: File

FROM: Kathleen Larsen, Community Planner

SUBJECT: 114 West Windsor – No Parking Order – South Side of Windsor Road

The no parking order on the south side of Windsor Road in front of 111 Windsor Road can be amended to allow for at least one additional parking space as shown in yellow. New poles & signs will also be required, at a cost of \$250.







GREEN GABLES

114 WEST WINDSOR ROAD, DISTRICT OF NORTH VANCOUVER, BC

CONSERVATION PLAN

AUGUST 2016

DONALD LUXTON
AND ASSOCIATES INC 

TABLE OF CONTENTS

1. INTRODUCTION.....	1
2. HISTORIC CONTEXT.....	2
3. STATEMENT OF SIGNIFICANCE	5
4. CONSERVATION GUIDELINES.....	7
4.1 Standards & Guidelines.....	7
4.2 Conservation References.....	8
4.3 General Conservation Strategy	9
4.4 Sustainability Strategy	10
4.5 Alternate Compliance	11
4.6 Site Protection & Stabilization.....	13
5. CONSERVATION RECOMMENDATIONS	14
5.1 Site	14
5.2 Form, Scale & Massing.....	14
5.3 Foundations.....	14
5.4 Exterior Wood-Frame Walls	16
5.4.1 Other Wood Elements	17
5.5 Front Portico & Porches.....	17
5.4.1 Front Portico.....	17
5.4.2 Side Porch	18
5.4.3 Rear Porch.....	19
5.6 Fenestration.....	20
5.6.1 Windows	20
5.6.2 Doors	21
5.7 Roof.....	21
5.7.1 Brick Chimney.....	22
5.8 Exterior Colour Schedule	23
6. MAINTENANCE PLAN	24
6.1 Maintenance Guidelines	24
6.2 Permitting.....	24
6.3 Routine, Cyclical and Non-Destructive Cleaning	24
6.4 Repairs and Replacement of Deteriorated Materials	25
6.5 Inspections	25
6.6 Information File	25
6.7 Exterior Maintenance.....	26
APPENDIX A: RESEARCH SUMMARY	29



1.0 INTRODUCTION

HISTORIC NAME: Green Gables
CURRENT ADDRESS: 114 West Windsor Road
ORIGINAL RESIDENTS: Robert Gibson
ARCHITECT: James C. Mackenzie
CONSTRUCTION DATE: 1915

Green Gables is a well-preserved heritage resource located within the District of North Vancouver. In September 2015 Donald Luxton & Associates was retained to conduct a heritage inspection for the historic house on the property.

The proposed conservation strategy for Green Gables involves the preservation of its exterior features and character-defining elements while relocating the historic house to the south, within the property lines, to allow for an infill addition at the rear of the property.

This Conservation Plan is based on Parks Canada's Standards & Guidelines for the Conservation of Historic Places in Canada. It outlines the preservation, restoration, and rehabilitation that will occur as part of the proposed development.

2.0 HISTORIC CONTEXT

HISTORIC CONTEXT: DISTRICT OF NORTH VANCOUVER

The District of North Vancouver was incorporated in 1891 and originally included all three separate municipalities of the North Shore. The City of North Vancouver, comprising the urban core close to Burrard Inlet, officially formed in 1907, while West Vancouver seceded from the District in 1912. In the midst of these administrative transitions, the North Shore was booming with development, due to the economic expansion occurring throughout the Lower Mainland during the Edwardian era. Suburban residential areas, including those in North Vancouver, developed into bedroom communities for employees of the thriving industries and commercial enterprises of the early twentieth century.

Connected by ferry service, and later bridges, to Downtown Vancouver, the District of North Vancouver became a preferred address for those seeking a quiet residential life, away from the polluting effects of industries closer to the shore. The Upper Lonsdale neighbourhood, located just north of the boundary between the City and District of North Vancouver, was developing as a high-quality suburb in the early 1910s, as the Lonsdale Avenue streetcar gradually reached the area; the streetcar made it to Windsor Road in 1912. The construction of the Gibson Residence in 1915 was made possible by this ready access to the remainder of the Lower Mainland.

This beautifully detailed and stately home was built for the Gibson family; Robert Gibson was a printer with the News-Advertiser. The ornate Ionic and Doric columns associate the house with the Colonial Revival. A distinctive profile is provided by the tall chimneys, the hip-on-gable ('jerkin') roofs, and the bellcast detailing of the porches. By 1935 the house had been acquired by the Butterworth family, who maintained stables on the property. Janet Gibson, daughter of the first owners, moved next door to 108 West Windsor Road at that time.

ORIGINAL ARCHITECT: JAMES CLARK MACKENZIE (1877-1941)

From: *Building the West: The Early Architects of British Columbia*

James C. Mackenzie was born on November 6, 1877 in West Kilbride, Ayrshire, Scotland. He was educated at Ardrossan Academy, Ayr Academy and Glasgow High School, and in 1897, started a five-year apprenticeship in Alexander Nisbet Paterson's office, Glasgow. Paterson, described as a "fastidious, comfortably off, and retiring architect, whose best work is too little known," had studied at the At  lier Pascal, and later worked for Aston Webb. After Mackenzie completed his services with Paterson, he went to Italy in 1902 for four months, and then practised in Dumfries for two years. Seeking new opportunities, James followed his older brother, William, to Prince Rupert, where one of their aunts lived. By 1908 he moved to Vancouver, where he entered the office of fellow Scot, William Bow. Mackenzie commenced his own practice in 1909, and worked mostly on residential projects in the Shaughnessy Heights subdivision. He also received the commission for the new West Vancouver Municipal Hall. The Vancouver Daily Province, June 1, 1912, reported "the contract was awarded this week for the municipal hall... It has been designed to conform to the general style of suburban architecture. The whole building will be heated by hot air." In 1912 Mackenzie married Amy Crabtree, an English probationary nurse, and the following year he designed an elegant Craftsman-inspired home in the North Lonsdale area of North Vancouver for his new family, which included three children by 1917. From 1913-15 he worked in partnership with A.





Lonsdale Avenue with streetcar service that stretched up the hill toward the District of North Vancouver, circa 1908, (CVA Out P1221)



Detail: Upper Lonsdale from Carisbrooke Park, looking south, 1916, (CVA PAN N173)

HISTORIC CONTEXT

Scott Ker. Their largest commission was a grand home in Shaughnessy Heights for Frank L. Buckley, Iowa, on Osler Avenue, 1913-14. As work dried up during the First World War, Mackenzie moved his office to his home. Although times were lean, he designed at least one large residence, for Robert Gibson in the North Lonsdale area, 1915, and published an extensive catalogue of house plans, of which his own house was No. 514. After the war he was associated with the Architects Small House Service Bureau (B.C.), which offered a large selection of home plans for thirty dollars each. Mackenzie was also known as a designer of teapots depicting Haida designs, which were made in Japan and were very popular there. By 1920 Mackenzie had gone into partnership with William Bow, whose daughter remembers Mackenzie's wife as a large, imposing woman, who would drop their three children off at the office when she wanted to go shopping, creating endless disruption. The partnership terminated in 1923, and Mackenzie again practised on his own. He died on May 21, 1941 at age sixty-three.

GREEN GABLES

From the 1993 District of North Vancouver Heritage Inventory:

This beautifully detailed and stately home was built for the Gibson family; Robert Gibson was a printer with the News-Advertiser. The ornate Ionic columns and large porch on the eastern side associate the house with the Colonial Revival. A distinctive profile is provided by the tall chimneys, the hip-on-gable ('jerkin') roofs, and the bellcast detailing of the porches. By 1935 the house had been acquired by the Butterworth family, who maintained stables on the property. Janet Gibson, daughter of the first owners, moved next door to 108 West Windsor Road at that time.



3.0 STATEMENT OF SIGNIFICANCE

GREEN GABLES, 114 WEST WINDSOR ROAD, DISTRICT OF NORTH VANCOUVER, BC

Description of Historic Place

Green Gables is a grand, one and one-half storey plus basement, wood-frame house, located at 114 West Windsor Road in the Upper Lonsdale neighbourhood of the District of North Vancouver. It displays features of the Colonial Revival style, and is distinguished by its jerkin-headed roofline, porches with bellcast roofs and Ionic and Doric porch columns.

Heritage Value of Historic Place

Constructed in 1915, Green Gables is valued for its connection with the early twentieth-century growth and development of North Vancouver, and for its sophisticated architecture as designed by James Clark Mackenzie.

Green Gables represents the intense, speculative development that occurred across the Lower Mainland during the Edwardian-era boom period. After regular ferry service was established in 1903 and North Vancouver was incorporated in 1907, the area experienced a period of unprecedented growth and prosperity. This construction boom accelerated until a general financial depression in 1913 halted this ambitious suburban development. Green Gables was constructed at the twilight of the construction boom and was originally owned by Robert Gibson, a printer with the News-Advertiser. This grand house demonstrates the social, cultural, and aesthetic values of successful local businessmen and women of the early twentieth century, including the appreciation of architectural elegance, impressive interior spaces, leisure and recreation, and scenic views.

The ornate classical columns and detailing associate the house with the Colonial Revival style, reflecting the widespread acceptance of neoclassicism in the early twentieth century. A distinctive profile is provided by the tall chimneys, the jerkin-headed roofs, and the bellcast detailing of the porches. It

is a superior example of the work of local architect, James Clark Mackenzie, who lived in Upper Lonsdale, and designed many of the grand homes in the area. Green Gables is also unusual for its date of wartime construction, and was built at a time when domestic construction was generally curtailed.

Character-Defining Elements

The character-defining elements of Green Gables include its:

- location along West Windsor Road in the Upper Lonsdale neighbourhood of North Vancouver;
- continuous residential use since 1915;
- residential form, scale and massing, as expressed by its one and one-half storey plus basement height; jerkin-headed cross-gabled roof structure with returned eaves; shed roof dormers; and swept porch roofs;
- wood frame and masonry construction, featuring original wood lapped siding and detailing, and granite foundation with soldier coursed brick facing along the foundation on the front façade;
- Colonial Revival style architecture, featuring: second-storey overhang of the west, side-gabled wing; wood moulding and dentil coursing across all elevations; wood window boxes on the front façade with solid scroll-cut brackets; fixed shutters on the front façade; square wood pilaster mullions dividing the tripartite window assembly on the west side of the front façade, with wooden keystone detail in the lintel; column-facing at each corner of the shed roof dormer of the front façade; projecting wood sills across all elevations; vented louvres; projecting front entryway, set close to grade, comprised of original ornate wood columns with Ionic capitals, detailed scroll-cut wood brackets, and tongue-and-groove wood soffit; and partially enclosed side porch on the east elevation, comprised of simple wood columns with Doric capitals, wood porch beams, and tongue-and-groove wood soffit and decking;

STATEMENT OF SIGNIFICANCE

- variety of original wood window assemblies, including single, bipartite and tripartite 6-over-1 true-divided double-hung windows with wood horns; a tripartite 6-over-1 with 10-over-1 centre unit true-divided double-hung window with ornamented wood mullions with wood horns; fixed true-divided multi-lite windows; multi-partite true-divided multi-lite casement windows; and fixed leaded glass windows;
- original exterior wood doors, including front door with inset panels and mail slot; wide side entry door on the east elevation with inset panel and true-divided multi-lite window, flanked by twin true-divided multi-lite sidelites with wood bases and inset panels to match the door; and rear double-door assembly with large multi-lite fields of true-divided glass; and
- one external chimney, which intersects the roofline, and two internal brick chimneys of notable height; and
- overall layout of interior spaces, with an open, L-shaped central staircase with wood balustrade, curving banister, bullnosed starting step with spiraled banister around the starting newel post, and panelled window bench on landing; hardwood floors, woodwork, fireplaces and stained glass panels.



4.0 CONSERVATION GUIDELINES

4.1 STANDARDS & GUIDELINES

Green Gables is a significant historical resource in the District of North Vancouver. The Parks Canada's *Standards & Guidelines for the Conservation of Historic Places in Canada* is the source used to assess the appropriate level of conservation and intervention. Under the *Standards & Guidelines*, the work proposed for Green Gables includes aspects of preservation, rehabilitation and restoration.

Preservation: *the action or process of protecting, maintaining, and/or stabilizing the existing materials, form, and integrity of a historic place or of an individual component, while protecting its heritage value.*

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.*

Rehabilitation: *the action or process of making possible a continuing or compatible contemporary use of a historic place or an individual component, through repair, alterations, and/or additions, while protecting its heritage value.*

Interventions to Green Gables should be based upon the Standards outlined in the *Standards & Guidelines*, which are conservation principles of best practice. The following **General Standards** should be followed when carrying out any work to an historic property.

STANDARDS

Standards relating to all Conservation Projects

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.
2. Conserve changes to a historic place, which over time, have become character-defining elements in their own right.
3. Conserve heritage value by adopting an approach calling for minimal intervention.
4. Recognize each historic place as a physical record of its time, place and use. Do not create a false sense of historical development by adding elements from other historic places or other properties or by combining features of the same property that never coexisted.
5. Find a use for a historic place that requires minimal or no change to its character defining elements.
6. Protect and, if necessary, stabilize a historic place until any subsequent intervention is undertaken. Protect and preserve archaeological resources in place. Where there is potential for disturbance of archaeological resources, take mitigation measures to limit damage and loss of information.
7. Evaluate the existing condition of character-defining element 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 element by reinforcing the 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.

Additional Standards relating to Rehabilitation

10. Repair rather than replace character-defining elements. 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. Where there is insufficient physical evidence, make the form, material and detailing of the new elements compatible with the character of the historic place.
11. Conserve the heritage value and character-defining elements when creating any new additions to a historic place and any related new construction. Make the new work physically and visually compatible with, subordinate to and distinguishable from the historic place.
12. Create any new additions or related new construction so that the essential form and integrity of a historic place will not be impaired if the new work is removed in the future.

Additional Standards relating to Restoration

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.
14. Replace missing features from the restoration period with new features whose forms, materials and detailing are based on sufficient physical, documentary and/or oral evidence.

4.2 CONSERVATION REFERENCES

The proposed work entails the preservation, restoration, and rehabilitation of the exterior of Green Gables. The following conservation resources should be referred to:

Standards and Guidelines for the Conservation of Historic Places in Canada, Parks Canada, 2010.
<http://www.historicplaces.ca/en/pages/standards-normes/document.aspx>

National Park Service, Technical Preservation Services. Preservation Briefs:

Preservation Brief 4: Roofing for Historic Buildings.
<http://www.nps.gov/tps/how-to-preserve/briefs/4-roofing.htm>

Preservation Brief 6: Dangers of Abrasive Cleaning to Historic Buildings.
<http://www.nps.gov/tps/how-to-preserve/briefs/6-dangers-abrasive-cleaning.htm>

Preservation Brief 9: The Repair of Historic Wooden Windows.
<http://www.nps.gov/tps/how-to-preserve/briefs/9-wooden-windows.htm>

Preservation Brief 10: Exterior Paint Problems on Historic Woodwork.
<http://www.nps.gov/tps/how-to-preserve/briefs/10-paint-problems.htm>

Preservation Brief 14: New Exterior Additions to Historic Buildings: Preservation Concerns.
<http://www.nps.gov/tps/how-to-preserve/briefs/14-exterior-additions.htm>

Preservation Brief 24: Heating, Ventilating, and Cooling Historic Buildings: Problems and Recommended Approaches.
<http://www.nps.gov/tps/how-to-preserve/briefs/24-heat-vent-cool.htm>



Preservation Brief 37: Appropriate Methods of Reducing Lead-Paint Hazards in Historic Housing.
<http://www.nps.gov/tps/how-to-preserve/briefs/37-lead-paint-hazards.htm>

Preservation Brief 39: Holding the Line: Controlling Unwanted Moisture in Historic Buildings.
<http://www.nps.gov/tps/how-to-preserve/briefs/39-control-unwanted-moisture.htm>

Preservation Brief 41: The Seismic Retrofit of Historic Buildings: Keeping Preservation in the Forefront.
<http://www.nps.gov/tps/how-to-preserve/briefs/41-seismic-retrofit.htm>

Preservation Brief 45: Preserving Historic Wooden Porches.
<http://www.nps.gov/tps/how-to-preserve/briefs/45-wooden-porches.htm>

Preservation Brief 47: Maintaining the Exterior of Small and Medium Size Historic Buildings.
<http://www.nps.gov/tps/how-to-preserve/briefs/47-maintaining-exteriors.htm>

4.3 GENERAL CONSERVATION STRATEGY

The primary intent is to preserve the existing historic structure, while undertaking a rehabilitation that will upgrade its structure and services to increase its functionality for residential use. As part of the scope of work, character-defining elements should be preserved, while missing or deteriorated elements should be restored.

All new visible construction will be considered a modern addition to the historic structure. The *Standards & Guidelines* list recommendations for new additions to historic places. The proposed design scheme should follow these principles:

- Designing a new addition in a manner that draws a clear distinction between what is historic and what is new.
- Design for the new work may be contemporary or may reference design motifs from the historic place. In either case, it should be compatible in terms of mass, materials, relationship of solids to voids, and colour, yet be distinguishable from the historic place.
- The new additions should be physically and visually compatible with, subordinate to and distinguishable from the preserved historic façade.

An addition should be subordinate to the historic place. This is best understood to mean that the addition must not detract from the historic place or impair its heritage value. Subordination is not a question of size; a small, ill-conceived addition could adversely affect an historic place more than a large, well-designed addition.

Additions or new construction should be visually compatible with, yet distinguishable from, the historic place. To accomplish this, an appropriate balance must be struck between mere imitation of the existing form and pointed contrast, thus complementing the historic place in a manner that respects its heritage value.

Relocation of Historic Building

The relocation of an historic building on an existing lot is the least intrusive relocation approach with regards to loss of historic context and invasive work to the structure. The following **Relocation Guidelines** should be implemented for the relocation of Green Gables:

- A relocation plan should be prepared prior to relocation that ensures that the least destructive method of relocation will be used.
- Alterations to the historic structure proposed to further the relocation process should be evaluated in accordance with the Conservation Plan and reviewed by the Heritage Consultant. This can involve removal of later additions that are not enhancing the heritage value and historic appearance of the heritage house.
- Only an experienced and qualified contractor shall undertake the physical relocation of the historic structure.
- Preserve historic fabric of the exterior elevations including the wood-frame structure with stucco siding, wood sash windows and jerkin-headed roof structure as much as possible. Preserve brick chimney and projecting vent in situ and relocate with the main structure if possible. Alternatively reconstruct chimney with salvaged bricks to match historic appearance, if unable to relocate with the historic building due to structural reasons.
- Appropriate foundation materials shall be used at the new site, which can include reinforced concrete foundations and floor slab. The final relative location to grade should match the original as closely as possible, taking into account applicable codes.
- Provide utility installations for electricity, communication and other service connections underground if possible. All installations located above ground should be incorporated harmoniously into the design concept for the relocated structure.

4.4 SUSTAINABILITY STRATEGY

Heritage conservation and sustainable development can go hand in hand with the mutual effort of all stakeholders. In a practical context, the conservation and re-use of historic and existing structures contributes to environmental sustainability by reducing solid waste disposal, saving embodied energy, and conserving historic materials that are often less consumptive of energy than many new replacement materials.

In 2016, the Federal Provincial Territorial Ministers of Culture & Heritage in Canada (FPTMCHC) published a document entitled, *Building Resilience: Practical Guidelines for the Retrofit and Rehabilitation of Buildings in Canada* that is “intended to establish a common pan-Canadian ‘how-to’ approach for practitioners, professionals, building owners, and operators alike.”

The following is an excerpt from the introduction of the document:

*[Building Resilience] is intended to serve as a “sustainable building toolkit” that will enhance understanding of the environmental benefits of heritage conservation and of the strong interrelationship between natural and built heritage conservation. Intended as a useful set of best practices, the guidelines in **Building Resilience** can be applied to existing and traditionally constructed buildings as well as formally recognized heritage places.*

These guidelines are primarily aimed at assisting designers, owners, and builders in providing existing buildings with increased levels of sustainability while protecting character-defining elements and, thus, their heritage value. The guidelines are also intended for a broader audience of architects, building developers, owners,



custodians and managers, contractors, crafts and trades people, energy advisers and sustainability specialists, engineers, heritage professionals, and officials responsible for built heritage and the existing built environment at all jurisdictional levels.

Building Resilience is not meant to provide case-specific advice. It is intended to provide guidance with some measure of flexibility, acknowledging the difficulty of evaluating the impact of every scenario and the realities of projects where buildings may contain inherently sustainable elements but limited or no heritage value. All interventions must be evaluated based on their unique context, on a case-by-case basis, by experts equipped with the necessary knowledge and experience to ensure a balanced consideration of heritage value and sustainable rehabilitation measures.

Resilience can be read as a stand-alone document, but it may also further illustrate and build on the sustainability considerations in the *Standards and Guidelines for the Conservation of Historic Places in Canada*.

4.5 ALTERNATE COMPLIANCE

As a listed building on the Municipal Heritage Register, Green Gables may be eligible for heritage variances that will enable a higher degree of heritage conservation and retention of original material, including considerations available under the following municipal legislation:

4.5.1 BRITISH COLUMBIA BUILDING CODE

Building Code upgrading ensures life safety and long-term protection for historic resources. It is important to consider heritage buildings on a case-by-case basis, as the blanket application of Code requirements do not recognize the individual requirements and inherent strengths of each building. Over the past few years, a number of equivalencies have been developed and adopted in the British Columbia Building Code that enable more sensitive and appropriate heritage building upgrades. For example, the use of sprinklers in a heritage structure helps to satisfy fire separation and exiting requirements. Table A-1.1.1.1., found in Appendix A of the Code, outlines the “Alternative Compliance Methods for Heritage Buildings.”

Given that Code compliance is such a significant factor in the conservation of heritage buildings, the most important consideration is to provide viable economic methods of achieving building upgrades. In addition to the equivalencies offered under the current Code, the City can also accept the report of a Building Code Engineer as to acceptable levels of code performance.

4.5.2 ENERGY EFFICIENCY ACT

The provincial Energy Efficiency Act (Energy Efficiency Standards Regulation) was amended in 2009 to exempt buildings protected through heritage designation or listed on a community heritage register from compliance with the regulations. Energy Efficiency standards therefore do not apply to windows, glazing products, door slabs or products

installed in heritage buildings. This means that exemptions can be allowed to energy upgrading measures that would destroy heritage character-defining elements such as original windows and doors.

These provisions do not preclude that heritage buildings must be made more energy efficient, but they do allow a more sensitive approach of alternate compliance to individual situations and a higher degree of retained integrity. Increased energy performance can be provided through non-intrusive methods of alternate compliance, such as improved insulation and mechanical systems. Please refer to the Standards & Guidelines for the Conservation of Historic Places in Canada for further detail about “Energy Efficiency Considerations.”

4.5.3 HOMEOWNER PROTECTION ACT

The Homeowner Protection Act was implemented in 1998 as a means to strengthen consumer protection for the purchase of new homes. The act was passed following a commission of enquiry into the leaky condo crisis, and was intended on protecting homeowners by ensuring home warranty insurance was provided on new construction, covering two years on labour and materials, five years on the building envelope and 10 years on the structure of the home. As the Act was intended to regulate new construction, considerations were not taken of buildings that have remained in sound condition for a many number of years that already far exceeded what the HPA requires for a warranty on a new home. The act did not take into consideration the protection of heritage projects, and consequently resulted in the loss of significant heritage fabric through the requirement of new windows and rainscreen wall assemblies on residential heritage rehabilitation projects. An example being the requirement to remove original wooden siding

that has successfully protected the building for 100 years, and replace it with a rainscreen assembly that is only warrantied for five years. Not only was valuable heritage fabric lost, but new materials will likely not last nearly as long as the original.

Amendments to the Homeowner Protection Act Regulation made in 2010 allow for exemptions for heritage sites from the need to fully conform to the BC Building Code under certain conditions, thus removing some of the barriers to compliance that previously conflicted with heritage conservation standards and guidelines. The changes comprised:

1. an amendment to the Homeowner Protection Act Regulation, BC Reg. 29/99 that allows a warranty provider, in the case of a commercial to residential conversion, to exclude components of the building that have heritage value from the requirement for a warranty, and
2. clarification of the definition of ‘substantial reconstruction.’ The latter clarification explains that 75% of a home must be reconstructed for it to be considered a ‘new home’ under the Homeowner Protection Act, thus enabling single-family dwelling to multi-family and strata conversions with a maximum of 75% reconstruction to be exempt from home warranty insurance. The definition of a heritage building is consistent with that under the Energy Efficiency Act.

Green Gables falls into the second category, as the proposed project involves retaining a high degree of the original structure and less than 75% of the house will be reconstructed. Consequently, this project is not considered a substantial reconstruction as per the amended definition in the Homeowners Protection Act, and will be exempt from the requirement of a warranty. This amendment will enable a higher degree of retention and preservation of original fenestration, siding and woodwork.



4.6 SITE PROTECTION & STABILIZATION

It is the responsibility of the owner to ensure the heritage resource is protected from damage at all times. At any time that the building is left vacant, it should be secured against unauthorized access or damage through the use of appropriate fencing and security measures. Additional measures to be taken include:

- Are smoke and fire detectors in working order?
- Are wall openings boarded up and exterior doors securely fastened once the building is vacant?
- Have the following been removed from the interior: trash, hazardous materials such as inflammable liquids, poisons, and paints and canned goods that could freeze and burst?

The façade should be protected from movement and other damage at all times during demolition, excavation and construction work. Install monitoring devices to document and assess cracks and possible settlement of the masonry façade.

5.0 CONSERVATION RECOMMENDATIONS

An initial condition review of Green Gables was carried out during a site visit in September 2015. The recommendations for the preservation and rehabilitation of the historic façades are based on the site review, material samples and archival documents that provide valuable information about the original appearance of the historic building.

The following chapter describes the materials, physical condition and recommended conservation strategy for Green Gables based on Parks Canada *Standards & Guidelines for the Conservation of Historic Places in Canada*.

5.1 SITE

Green Gables sits across two mid-block lots at 114 West Windsor Road in the District of North Vancouver. Several mature trees and plantings obscuring views of the house on all sides. All heritage resources within the site should be protected from damage or destruction at all times. Reference **Section 4.6: Site Protection** for further information.

Conservation Strategy: Relocation

- Relocate the heritage house to the south, within the property lines.
- Retain the main frontage on West Windsor Road.

5.2 FORM, SCALE & MASSING

The overall form, scale and massing of the two-storey house has not been significantly altered. At some point in time the northern portion of the porch on the east elevation was enclosed.

Conservation Strategy: Preservation

- Preserve the overall form, scale and massing of the building.

5.3 FOUNDATIONS

The existing foundation was not reviewed in detail, but it was noted that it consists of granite stone foundation, with red brick masonry units laid in soldier course directly above the stone foundation as it transitions to the exterior wood siding.

The existing foundation will be rehabilitated as part of the façade retention, including necessary seismic reinforcements. Careful attention should be executed to ensure the exterior walls above grade, particularly the front façade, are not damaged during rehabilitation work.

Conservation Strategy: Reconstruction

- New foundation is proposed after the relocation of the heritage house to the south, within property lines.
- Concrete is a suitable material for new construction.
- Foundations should be reviewed by a Structural Engineer. Once condition is assessed, conservation recommendations can be finalized.
- To ensure the prolonged preservation of the new foundations, all landscaping should be separated from the foundations at grade by a course of gravel or decorative stones, which help prevent splash back and assist drainage. New vegetation may assist in concealing the newly exposed foundations, if desired.





Primary façade, Green Gables



Secondary basement entrance.



Southwest corner of Green Gables. Note brickwork below exterior wood siding along foundation wall.



Detail photo showing existing condition of foundation wall.

5.4 EXTERIOR WOOD-FRAME WALLS

Green Gables is characterized by traditional wood-frame construction with dimensional lumber. Wood frame construction is one of the most affordable housing construction methods that utilized old growth lumber in the past. The framing type and condition could not be determined during the initial review. Further review is required to confirm that the existing conditions do not have structural implications.

Green Gables also features original wood lap siding. Overall, the wood lap siding is in good condition with minor evidence of deterioration in localized areas that may require minor repairs. The paint is peeling from the wood lap siding in multiple locations.

Conservation Strategy: Preservation

- Due to the integrity of wood frame structure, the exterior walls should be preserved through retention and in-situ repair work.
- Preserve the original wood-frame structure of the historic building.
- Preserve original siding on all elevations, if possible, and clean surface for repainting.
- Replace damaged siding to match existing in material, size, profile and thickness.
- Design structural or seismic upgrades so as to minimize the impact to the character-defining elements.
- Utilize Alternate Compliance Methods outlined in the VBBL for fire and spatial separations including installation of sprinklers where possible.



Primary façade, Green Gables

- Cleaning procedures should be undertaken with non-destructive methods. Areas with biological growth should be cleaned using a soft, natural bristle brush, without water, to remove dirt and other material. If a more intense cleaning is required, this can be accomplished with warm water, mild detergent (such as Simple Green®) and a soft bristle brush. High-pressure power washing, abrasive cleaning or sandblasting should not be allowed under any circumstances.

5.4.1 OTHER WOOD ELEMENTS

The exterior walls of Green Gables feature a number of original wood elements that contribute to the historic character of the heritage property. This includes: wood moulding and dentil coursing across all elevations; wood window boxes on the front façade with solid scroll cut brackets; fixed shutters on the front façade; square wood pilaster mullions dividing the tripartite window assembly on the west side of the front façade, with wooden keystone detail in the lintel; column-facing at each corner of the shed roof dormer of the front façade; projecting wood sills across all elevations; and vented louvres.

Other than the window boxes, which are generally in poor condition, the original wood elements are in good condition, and should be preserved and repaired, as necessary.

Conservation Strategy: Restoration

- All exterior wood features should be assessed to determine their full condition.
- Preserve all original woodwork and detailing on the historic house.
- Replace in-kind missing or deteriorated parts of exterior woodwork where there are surviving original elements. New replica wooden elements should match in-kind the old in form and detailing.
- Paint exposed woodwork in historically appropriate colour.

5.5 FRONT PORTICO & PORCHES

5.5.1 FRONT PORTICO

Green Gables features a hip-roof front portico that is characterized by original ornate wood columns with Romanesque Ionic capitals, detailed scroll cut wood brackets, and tongue-and-groove wood soffit.

The columns are generally in good condition, but are not attached to the brackets above. The scroll cut brackets were briefly reviewed visually and appear to be in good condition. The paint on the tongue-and-groove soffit is peeling, but the wood is in good condition.

Conservation Strategy: Preservation & Restoration

- Preserve the original hip-roof front portico in its existing configuration.
- Preserve the original wood detailing of the front portico, and repair as necessary.
- Replace in-kind missing or deteriorated parts to match existing condition. New replica should match in-kind the old in form and detailing, and should be constructed out of a visually and physically compatible material to the historic originals.
- Paint exposed woodwork in historically appropriate colour.



Projecting front entryway



Existing condition of side porch

5.5.2 SIDE PORCH

Green Gables features a partially-enclosed porch later addition on the east elevation. The side porch is characterized by: simple wood columns with Romanesque Doric capitals; wood porch beams; and tongue-and-groove wood soffit and decking.

At the time of the inspection, the porch columns have localized dry rot, particularly at the base. The northernmost column has been removed from its original location, but the item was found intact, with minor damages, and is stored on site.

The tongue-and-groove decking appears to be in poor condition, showing signs of deterioration in localized area. The soffit is slanting with the beams, but the material appears to be in good condition. The siding on the later enclosure of the north portion of the porch matches the dimensions of the original siding, and has been meticulously aligned.

In general, the porch appears to be structurally unsound, and may need to be demolished and reconstructed to match original historic configuration. Further investigation is required to confirm that the existing conditions do not have structural implications.

Conservation Strategy: Rehabilitation

- Existing porch should be carefully documented prior to careful dismantling of the existing porch.
- Investigate condition of original wood elements. Salvage sound original wood elements that can be cleaned and reused for reconstruction of side porch as possible.
- Restore the side porch to match original detailing, using salvaged original wood elements, and repair as necessary.
- Replace in-kind missing or deteriorated parts to match existing condition. New replica wooden elements should match in-kind the old in form and detailing.
- Paint exposed woodwork in historically appropriate colour.

5.5.3 REAR PORCH

Green Gables features a porch at the rear elevation, and is characterized by: squared, tapered wood columns; wood beams; tongue-and-groove decking and soffit; and a low enclosed balustrade.

The columns appear to be in good condition, but the uneven settling of the porch caused the beams and balustrade to slant and detach from the exterior walls. The soffit also slants with the beams, but the material appears to be in good condition. The decking was covered at the time of the inspection and was not reviewed.

In general, the porch also appears to be structurally unsound, and further investigation is required to confirm that the existing conditions do not have structural implications. A new upper floor deck may be added at this location.

Conservation Strategy: Demolition



Example of dry rot on side porch column base



Example of dry rot on side porch



Existing condition of rear porch



Tripartite 6-over-1 with 10-over-1 centre unit true-divided double-hung window



6-over-1 true-divided double-hung windows

5.6 FENESTRATION

Windows, doors and storefronts are among the most conspicuous feature of any building. In addition to their function — providing light, views, fresh air and access to the building — their arrangement and design is fundamental to the building's appearance and heritage value. Each element of fenestration is, in itself, a complex assembly whose function and operation must be considered as part of its conservation. – Standards & Guidelines for the Conservation of Historic Places in Canada.

5.6.1 WINDOWS

Green Gables features a variety of original wood windows with wood trim and sills, including: single, paired and tripartite 6-over-1 true-divided double-hung windows with sash horns; a tripartite 6-over-1 with 10-over-1 centre unit true-divided double-hung window with ornamented wood mullions with sash horns; fixed true-divided multi-lite windows; multi-partite true-divided multi-lite casement windows; and fixed leaded glass windows. In general, the windows appear to be in good or reparable condition.

During the site review, it was noted that one of the windows had broken lights since the house was vacated. Green Gables is currently vacant and the structure should be temporarily closed up to protect it from the weather and to prohibit unauthorized access.

A comprehensive site protection plan should be developed in discussion between owner, contractor and/or architect. Plan may be reviewed by Heritage Consultant, is desired. Refer to **4.6 Site Protection & Stabilization** for further information.

Conservation Strategy: Rehabilitation

- Inspect for condition and complete inventory to determine extent of recommended repair or replacement.
- Retain existing window sashes; repair as required; install replacement matching sashes where missing or beyond repair.
- Preserve and repair as required, using in kind repair techniques where feasible.
- Overhaul, tighten/reinforce joints. Repair frame, trim and counterbalances.
- Each window should be made weather tight by re-puttying and weather-stripping as necessary.
- Retain historic glass, where possible. Where broken glass exists in historic wood-sash windows, the broken glass should be replaced.
- Window repairs should be undertaken by a contractor skilled in heritage restoration.
- Replacement glass to be single glazing, and visually and physically compatible with existing.
- The consultant can review window shop drawings and mock-ups for new windows.
- Prime and repaint as required in appropriate colour, based on colour schedule devised by Heritage Consultant.



Fixed leaded glass windows

5.6.2 DOORS

Green Gables features original exterior wood doors, which include: front door with inset panels and mail slot; wide side entry door on the east elevation with inset panel and true-divided multi-light window, flanked by twin true-divided, multi-light sidelights with wood bases and inset panels to match the door; and rear double-door assembly with large, true-divided multi-lights. The original exterior wood doors are in good condition, and should be preserved and repaired as necessary.

Conservation Strategy: Preservation

- Retain the door openings in their original locations, and preserve and repair all original door.

5.7 ROOF

Green Gables is characterized by a jerkinhead cross-gabled roof structure, with returned eaves, shed roof dormers, and swept porch roofs. In general, the roof structure appears to be in good condition, as reviewed from the ground. Further review is required to confirm that the existing conditions do not have structural implications.

The existing roof of Green Gables features replacement asphalt shingles, as well as later gutters and downspouts. In general, these elements are in poor condition, showing signs of visible deterioration, and should be replaced with appropriate materials that are sympathetic to the historic character of the heritage property.

Conservation Recommendation: Preservation and Rehabilitation

- Preserve the original roof structure of the historic house.
- If required, roofing membrane and cladding system may be rehabilitated. Cedar shingles are the preferred material, but Duroid shingles or Aged Cedar Enviroshingles™ are also acceptable.

CONSERVATION RECOMMENDATIONS

- Retain the original wood elements. If required, repair or replace in-kind damaged or missing wood elements such as bargeboards, soffits, raftertails, and trim.
- Design and install adequate rainwater disposal system and ensure proper drainage from the site is maintained. Wood gutters with galvanized steel downspouts are recommended. Aluminum in appropriate colours is also acceptable. Paint or provide specification of drainage system elements according to colour schedule devised by Heritage Consultant.

5.7.1 BRICK CHIMNEY

Green Gables features three original brick chimneys with later concrete caps, and are rendered in later rough-cast stucco. Upon visual observation from the ground, it is noted that the stucco render is in poor condition, with notable signs of deterioration in the form of staining, biological growth, cracking, and peeling in localized areas, exposing some of the original red brick masonry units beneath. Further investigation of the brickwork underneath is required to determine if the existing conditions do not have structural implications.

Conservation Recommendation: Rehabilitation

- Preserve the chimney in its original configuration, if possible, and replace later concrete caps with historically appropriate chimney cap. Alternatively, reconstruct chimney with salvaged bricks to match historic appearance above the roofline, if unable to be retained in situ due to structural reasons.
- Existing chimney should be carefully documented prior to careful dismantling of the existing chimney.
- Remove unsympathetic stucco rendering.
- Investigate condition of brickwork. If required, brickwork may be repointed and cleaned using a natural bristle brush and mild rinse detergent.
- Cleaning, repair and repointing specifications to be reviewed by Heritage Consultant.



Detail photos showing typical deteriorated condition of asphalt-shingled roof along gutter and eaves.




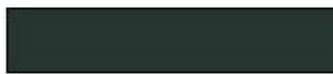


Typical existing condition of exterior brick chimney with later rough-cast stucco.

5.8 EXTERIOR COLOUR SCHEDULE

Part of the restoration process is to finish the building in historically appropriate paint colours. The following preliminary colour scheme has been derived by the Heritage Consultant. The colours have been matched to Benjamin Moore's Historical True Colours Palette. Further on-site analysis is required for final colour confirmation once access is available.

Prior to final paint application, samples of these colours should be placed on the building to be viewed in natural light. Final colour selection can then be verified. Matching to any other paint company products should be verified by the Heritage Consultant.

PRELIMINARY COLOUR TABLE: GREEN GABLES, 114 WEST WINDSOR ROAD, DISTRICT OF NORTH VANCOUVER, BC

Element	Colour*	Code	Sample	Finish
Exterior walls & Trim, Soffits, Columns, & other wood elements	50% Oxford Ivory	VC-01		Semi-Gloss
Shutters & Window Sash	Vancouver Green	VC-20		Eggshell
Doors	Stained & Varnished Siko "Teak"	-		Semi-transparent
Decking	Edwardian Porch Grey	VC-26		Alkyd Enamel or Polyurethane
Chimney Bricks	Unpainted	-	-	-

*Paint colours come from Benjamin Moore's *Historical Vancouver True Colours*

6.0 MAINTENANCE PLAN

A Maintenance Plan should be adopted by the property owner, who is responsible for the long-term protection of the heritage features of the Green Gables. The Maintenance Plan should include provisions for:

- Copies of the Maintenance Plan and this Conservation Report to be incorporated into the terms of reference for the management and maintenance contract for the building;
- Cyclical maintenance procedures to be adopted as outlined below;
- Record drawings and photos of the building to be kept by the management / maintenance contractor; and
- Records of all maintenance procedures to be kept by the owner.

A thorough maintenance plan will ensure the integrity of the Green Gables is preserved. If existing materials are regularly maintained and deterioration is significantly reduced or prevented, the integrity of materials and workmanship of the building will be protected. Proper maintenance is the most cost effective method of extending the life of a building, and preserving its character-defining elements. The survival of historic buildings in good condition is primarily due to regular upkeep and the preservation of historic materials.

6.1 MAINTENANCE GUIDELINES

A maintenance schedule should be formulated that adheres to the *Standards & Guidelines for the Conservation of Historic Places in Canada*. As defined by the *Standards & Guidelines*, maintenance is defined as:

Routine, cyclical, non-destructive actions necessary to slow the deterioration of a historic place. It entails periodic inspection; routine, cyclical, non-destructive cleaning; minor repair and refinishing operations; replacement of damaged or deteriorated materials that are impractical to save.

The assumption that newly renovated buildings become immune to deterioration and require less maintenance is a falsehood. Rather, newly renovated buildings require heightened vigilance to spot errors in construction where previous problems had not occurred, and where deterioration may gain a foothold.

Routine maintenance keeps water out of the building, which is the single most damaging element to a heritage building. Maintenance also prevents damage by sun, wind, snow, frost and all weather; prevents damage by insects and vermin; and aids in protecting all parts of the building against deterioration. The effort and expense expended on an aggressive maintenance will not only lead to a higher degree of preservation, but also over time potentially save large amount of money otherwise required for later repairs.

6.2 PERMITTING

Repair activities, such as simple in-kind repair of materials, or repainting in the same colour, should be exempt from requiring city permits. Other more intensive activities will require the issuance of a Heritage Alteration Permit.

6.3 ROUTINE, CYCLICAL AND NON-DESTRUCTIVE CLEANING

Following the *Standards & Guidelines for the Conservation of Historic Places in Canada*, be mindful of the principle that recommends “using the gentlest means possible”. Any cleaning procedures should be undertaken on a routine basis and should be undertaken with non-destructive methods. Cleaning should be limited to the exterior material such as concrete and stucco wall surfaces and wood elements such as storefront frames. All of these elements are usually easily cleaned, simply with a soft, natural bristle brush, without water, to remove dirt and other material. If a more intensive



cleaning is required, this can be accomplished with warm water, mild detergent and a soft bristle brush. High-pressure washing, sandblasting or other abrasive cleaning should not be undertaken under any circumstances.

6.4 REPAIRS AND REPLACEMENT OF DETERIORATED MATERIALS

Interventions such as repairs and replacements must conform to the *Standards & Guidelines for the Conservation of Historic Places in Canada*. The building's character-defining elements – characteristics of the building that contribute to its heritage value (and identified in the Statement of Significance) such as materials, form, configuration, etc. – must be conserved, referencing the following principles to guide interventions:

- An approach of minimal intervention must be adopted - where intervention is carried out it will be by the least intrusive and most gentle means possible.
- Repair rather than replace character-defining elements.
- Repair character-defining elements using recognized conservation methods.
- Replace 'in kind' extensively deteriorated or missing parts of character-defining elements.
- Make interventions physically and visually compatible with the historic place.

6.5 INSPECTIONS

Inspections are a key element in the maintenance plan, and should be carried out by a qualified person or firm, preferably with experience in the assessment of heritage buildings. These inspections should be conducted on a regular and timely schedule. The inspection should address all aspects of the building including exterior, interior and site conditions. It makes good sense to inspect a building in wet weather, as well as in dry, in order to see how water runs off – or through – a building.

From this inspection, an inspection report should be compiled that will include notes, sketches and observations. It is helpful for the inspector to have copies of the building's elevation drawings on which to mark areas of concern such as cracks, staining and rot. These observations can then be included in the report. The report need not be overly complicated or formal, but must be thorough, clear and concise. Issues of concern, taken from the report should then be entered in a log book so that corrective action can be documented and tracked. Major issues of concern should be extracted from the report by the property manager.

An appropriate schedule for regular, periodic inspections would be twice a year, preferably during spring and fall. The spring inspection should be more rigorous since in spring moisture-related deterioration is most visible, and because needed work, such as painting, can be completed during the good weather in summer. The fall inspection should focus on seasonal issues such as weather-sealants, mechanical (heating) systems and drainage issues. Comprehensive inspections should occur at five-year periods, comparing records from previous inspections and the original work, particularly in monitoring structural movement and durability of utilities. Inspections should also occur after major storms.

6.6 INFORMATION FILE

The building should have its own information file where an inspection report can be filed. This file should also contain the log book that itemizes problems and corrective action. Additionally, this file should contain building plans, building permits, heritage reports, photographs and other relevant documentation so that a complete understanding of the building and its evolution is readily available, which will aid in determining appropriate interventions when needed.

The file should also contain a list outlining the finishes and materials used, and information detailing where they are available (store, supplier). The building owner should keep on hand a stock of spare materials for minor repairs.

6.6.1 LOG BOOK

The maintenance log book is an important maintenance tool that should be kept to record all maintenance activities, recurring problems and building observations and will assist in the overall maintenance planning of the building. Routine maintenance work should be noted in the maintenance log to keep track of past and plan future activities. All items noted on the maintenance log should indicate the date, problem, type of repair, location and all other observations and information pertaining to each specific maintenance activity.

Each log should include the full list of recommended maintenance and inspection areas noted in this Maintenance Plan, to ensure a record of all activities is maintained. A full record of these activities will help in planning future repairs and provide valuable building information for all parties involved in the overall maintenance and operation of the building, and will provide essential information for long term programming and determining of future budgets. It will also serve as a reminder to amend the maintenance and inspection activities should new issues be discovered or previous recommendations prove inaccurate.

The log book will also indicate unexpectedly repeated repairs, which may help in solving more serious problems that may arise in the historic building. The log book is a living document that will require constant adding to, and should be kept in the information file along with other documentation noted in section **6.6 Information File**.

6.7 EXTERIOR MAINTENANCE

Water, in all its forms and sources (rain, snow, frost, rising ground water, leaking pipes, back-splash, etc.) is the single most damaging element to historic buildings.

The most common place for water to enter a building is through the roof. Keeping roofs repaired or renewed is the most cost-effective maintenance option. Evidence of a small interior leak should be viewed as a warning for a much larger and worrisome water damage problem elsewhere and should be fixed immediately.

6.7.1 INSPECTION CHECKLIST

The following checklist considers a wide range of potential problems specific to the Green Gables, such as water/moisture penetration, material deterioration and structural deterioration. This does not include interior inspections.

EXTERIOR INSPECTION

Site Inspection:

- ☐ Is the lot well drained? Is there pooling of water?
- ☐ Does water drain away from foundation?

Foundation

- ☐ Does pointing need repair?
- ☐ Is bedding mortar sound?
- ☐ Moisture: Is rising damp present?
- ☐ Is there back splashing from ground to structure?
- ☐ Is any moisture problem general or local?
- ☐ Is damp proof course present?
- ☐ Are there shrinkage cracks in the foundation?
- ☐ Are there movement cracks in the foundation?
- ☐ Is crack monitoring required?
- ☐ Is uneven foundation settlement evident?



- ☐ Are foundation crawl space vents clear and working?
- ☐ Do foundation openings (doors and windows) show: rust; rot; insect attack; paint failure; soil build-up;
- ☐ Deflection of lintels?

Wood Elements

- ☐ Are there moisture problems present? (Rising damp, rain penetration, condensation moisture from plants, water run-off from roof, sills, or ledges?)
- ☐ Is wood in direct contact with the ground?
- ☐ Is there insect attack present? Where and probable source?
- ☐ Is there fungal attack present? Where and probable source?
- ☐ Are there any other forms of biological attack? (Moss, birds, etc.) Where and probable source?
- ☐ Is any wood surface damaged from UV radiation? (bleached surface, loose surface fibres)
- ☐ Is any wood warped, cupped or twisted?
- ☐ Is any wood split? Are there loose knots?
- ☐ Are nails pulling loose or rusted?
- ☐ Is there any staining of wood elements? Source?

Condition of Exterior Painted Materials

- ☐ Paint shows: blistering, sagging or wrinkling, alligatoring, peeling. Cause?
- ☐ Paint has the following stains: rust, bleeding knots, mildew, etc. Cause?
- ☐ Paint cleanliness, especially at air vents?

Front Portico & Porches:

- ☐ Are steps safe? Handrails secure?
- ☐ Do any support columns show rot at their bases?
- ☐ Attachment – are porches, steps, etc. securely connected to the building?

Windows

- ☐ Is there glass cracked or missing?
- ☐ Are the seals of double glazed units effective?
- ☐ If the glazing is puttied has it gone brittle and cracked? Fallen out? Painted to shed water?
- ☐ If the glass is secured by beading, are the beads in good condition?
- ☐ Is there condensation or water damage to the paint?
- ☐ Are the sashes easy to operate? If hinged, do they swing freely?
- ☐ Is the frame free from distortion?
- ☐ Do sills show weathering or deterioration?
- ☐ Are drip mouldings/flashing above the windows properly shedding water?
- ☐ Is the caulking between the frame and the cladding in good condition?

Doors

- ☐ Do the doors create a good seal when closed?
- ☐ Do metal doors show signs of corrosion?
- ☐ Is metal door sprung from excessive heat?
- ☐ Are the hinges sprung? In need of lubrication?
- ☐ Do locks and latches work freely?
- ☐ If glazed, is the glass in good condition? Does the putty need repair?
- ☐ Are door frames wicking up water? Where? Why?
- ☐ Are door frames caulked at the cladding? Is the caulking in good condition?
- ☐ What is the condition of the sill?

Gutters and Downspouts

- ☐ Are downspouts leaking? Clogged? Are there holes or corrosion? (Water against structure)
- ☐ Are downspouts complete without any missing sections? Are they properly connected?
- ☐ Is the water being effectively carried away from the downspout by a drainage system?
- ☐ Do downspouts drain completely away?

Roof

- ☐ Are there water blockage points?
- ☐ Is the leading edge of the roof wet?
- ☐ Is there evidence of biological attack? (Fungus, moss, birds, insects)
- ☐ Are wood shingles wind damaged or severely weathered? Are they cupped or split or lifting?
- ☐ Are the nails sound? Are there loose or missing shingles?
- ☐ Are flashings well seated?
- ☐ Are metal joints and seams sound?
- ☐ If there is a lightening protection system are the cables properly connected and grounded?
- ☐ Does the soffit show any signs of water damage? Insect or bird infestation?
- ☐ Is there rubbish buildup on the roof?
- ☐ Are there blisters or slits in the membrane?
- ☐ Are the drain pipes plugged or standing proud?
- ☐ Are flashings well positioned and sealed?
- ☐ Is water ponding present?

INTERIOR INSPECTION

Basement

- ☐ Are there signs of moisture damage to the walls? Is masonry cracked, discoloured, spalling?
- ☐ Is wood cracked, peeling rotting? Does it appear wet when surroundings are dry?
- ☐ Are there signs of past flooding, or leaks from the floor above? Is the floor damp?
- ☐ Are walls even or buckling or cracked? Is the floor cracked or heaved?
- ☐ Are there signs of insect or rodent infestation?

6.7.2 MAINTENANCE PROGRAMME

INSPECTION CYCLE:

Daily

- Observations noted during cleaning (cracks; damp, dripping pipes; malfunctioning hardware; etc.) to be noted in log book or building file.

Semi-annually

- Semi-annual inspection and report with special focus on seasonal issues.
- Thorough cleaning of drainage system to cope with winter rains and summer storms
- Check condition of weather sealants (Fall).
- Clean the exterior using a soft bristle broom/brush.

Annually (Spring)

- Inspect concrete for cracks, deterioration.
- Inspect metal elements, especially in areas that may trap water.
- Inspect windows for paint and glazing compound failure, corrosion and wood decay and proper operation.
- Complete annual inspection and report.
- Clean out of all perimeter drains and rainwater systems.
- Touch up worn paint on the building's exterior.
- Check for plant, insect or animal infestation.
- Routine cleaning, as required.

Five-Year Cycle

- A full inspection report should be undertaken every five years comparing records from previous inspections and the original work, particularly monitoring structural movement and durability of utilities.
- Repaint windows every five to fifteen years.

Ten-Year Cycle

- Check condition of roof every ten years after last replacement.

Twenty-Year Cycle

- Confirm condition of roof and estimate effective lifespan. Replace when required.

Major Maintenance Work (as required)

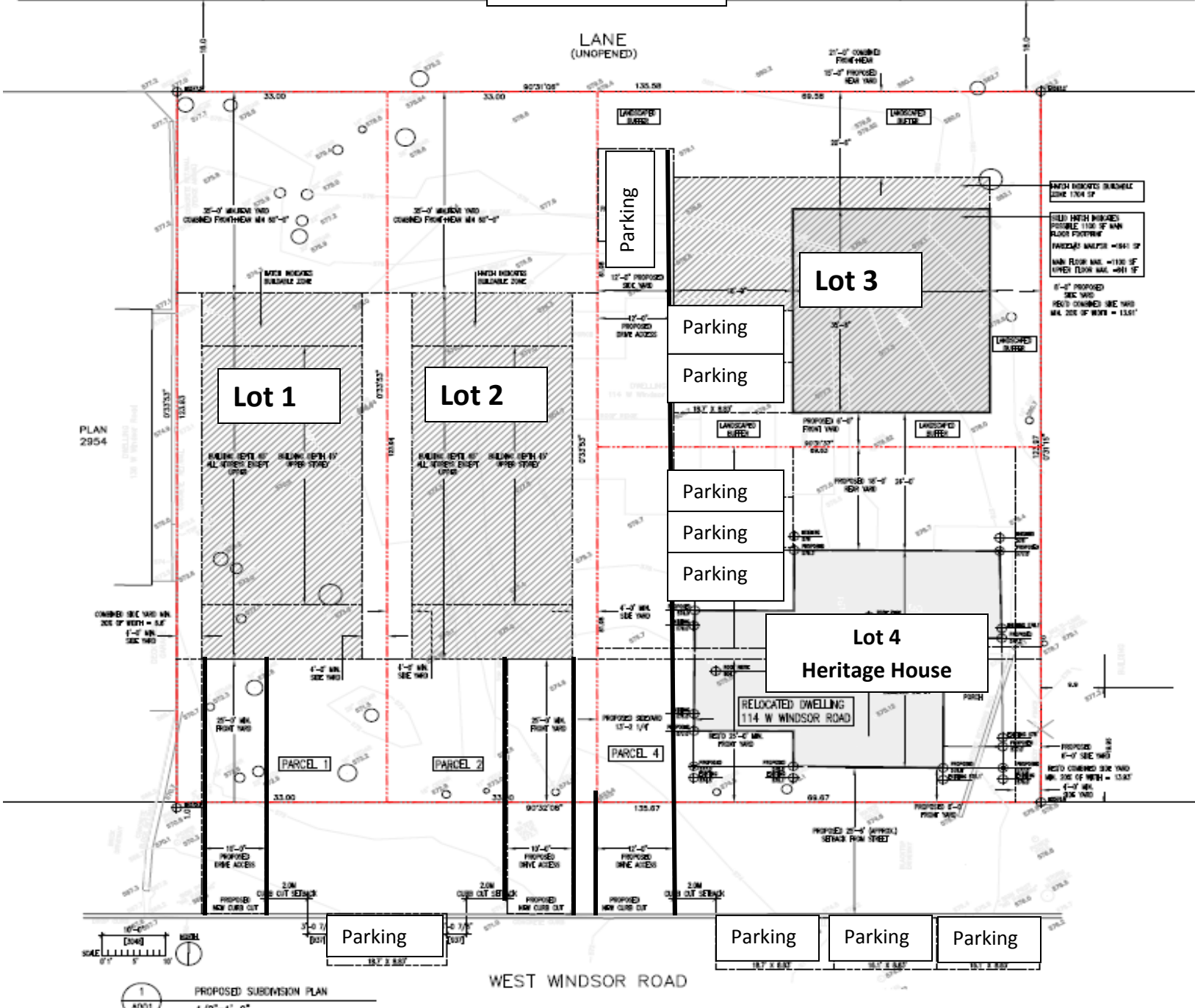
- Thorough repainting, downspout and drain replacement; replacement of deteriorated building materials; etc.

APPENDIX A: RESEARCH SUMMARY

HISTORIC NAME: Green Gables
CURRENT ADDRESS: 114 West Windsor Road
ORIGINAL RESIDENTS: Robert Gibson
ARCHITECT: James C. Mackenzie
CONSTRUCTION DATE: 1915

- Commonwealth Historic Resource Management Limited. *District of North Vancouver Heritage Inventory* Rep. District of North Vancouver: Corporation of the District of North Vancouver, 1993. Print.
- Foundation Group Designs. *Heritage Inventory, the Corporation of the District of North Vancouver*. Rep. District of North Vancouver: Corporation of the District of North Vancouver, 1988. Print.

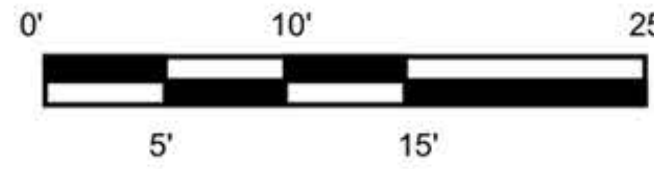
Site Plan



SUGGESTED PLANT LIST

LATIN NAME	COMMON NAME	SIZE	CONDITION
TREES			
Acer japonicum	Japanese Maple	2.0m Ht	B&B
Cornus 'Eddies White Wonder'	Eddies White Wonder Dogwood	2.5m Ht	B&B
Cornus florida rubra	Pink Flowering Dogwood	2 m. ht.	B&B
Cornus kousa	Kousa Dogwood	3.0m Ht	B&B
Ficus carica	Fig Tree	3.0m Ht	B&B
Magnolia grandiflora	Evergreen Magnolia	2.5m Ht	B&B
Magnolia stellata	Star Magnolia	1.5m Ht.	B&B
Prunus serrulata 'Mt. Fuji'	Mt. Fuji Japanese Flowering Cherry	6 cm. cal.	B&B
Prunus serrulata 'Kwanzan'	Kwanzan Japanese Flowering Cherry	6 cm. cal.	B&B
SHRUBS			
Allium cernum	Nodding Onion	0.2m Ht	#1 Pot
Azalea 'Gumpo White'	Gumpo White Azalea	0.3m Ht.	#3 Pot
Buxus microphylla 'Winter Gem'	Winter Gem Boxwood	0.3m Ht.	#3 Pot
Ceanothus impresses 'Victoria'	California Lilac	1.5m Ht.	#3 Pot
Echinacea purpurea	Purple Coneflower	0.3m Ht.	#1 Pot
Euonymus fortunei radicans	Spindle	0.3m Ht.	#3 Pot
Hemerocallis fulva	Day Lily	0.3m Ht.	#1 Pot
Hosta undulata	Hosta seiboldiana	0.2m Ht	#1 Pot
Lavandula agustifolia	Lavender	0.2m Ht	#2 Pot
Philadelphus lewisii	Mock Orange	0.1m Ht	#3 Pot
Rosa meidiland 'Pink'	Meidiland Rose 'Pink'		
Rosa meidiland 'White'	Meidiland Rose 'White'		
Rosa meidiland 'Yellow'	Meidiland Rose 'White'		
Rosa nutkana	Nutka Rose	0.5m Ht	#3 Pot
Rosemarinus officinalis	Rosemary	0.5m Ht	#3 Pot
Rudbeckia hirta 'Goldstrum'	Black Eyed Susan Goldstrum	0.3m Ht.	#3 Pot
Symphyotrichum oblongifoliu	Fall Aster	0.2m Ht	#2 Pot
Thuja occidentalis	White Cedar	2.0 m. ht.	B&B
Vaccinium parvifolium	Red Huckleberry	0.6 m. ht.	#3 Pot
GROUND COVER, GRASSES AND FERNS			
Arctostaphylos uva ursi	Kinnikinnick	0.2m Ht	#1 Pot
Calamagrostis canadensis	Bluejoint Grass	0.5m Ht.	#2 Pot
Festuca idahoense	Blue Fescue	0.2m Ht	#1 Pot
Helictotrichon sempervirens	Blue Oat Grass	0.2m Ht	#1 Pot
Maianthemum dilatatum	False Lily of the Valley	0.2m Ht	#1 Pot
Polystichum munitum	Western Sword Fern		#1 pot

ALL WORK TO CANADIAN LANDSCAPE STANDARDS (CSLA/CNLA)



DATE	ISSUED

REV.	DATE	DESCRIPTION

SUBDIVISION PLAN
114 West Windsor Road
North Vancouver, BC

Vaughan
Landscape Planning
and Design
1406 Clyde Ave.,
West Vancouver, B.C.
Canada V7T 1G1
PH:922-1885
FAX:922-5485
office@vaughanplanning.com

DESIGNED	MCV
SCALE	1/8" = 1'-0"
DATE	Aug 29, 2016
TITLE	
CONCEPTUAL LANDSCAPE PLAN	
DRAWING NO. L1	
REV	
THIS REVISION SUPERCEDES DRAWINGS BEARING PREVIOUS REVISION NUMBER	



RADIX TREE & LANDSCAPE CONSULTING INC

May 24, 2016

Havaal Real Estate Group

Attn: Ryan Deakin

803 E 3rd Street

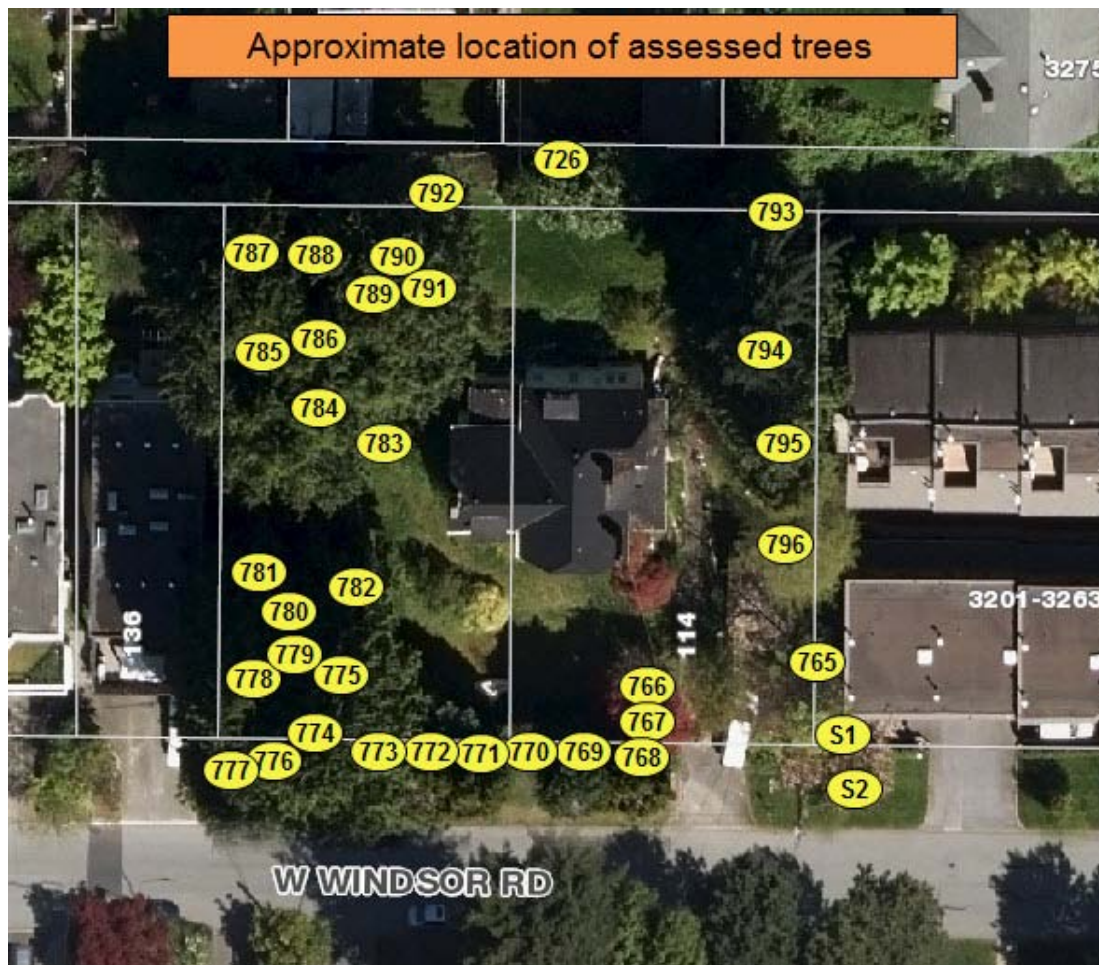
North Vancouver, BC

V7L 1H1

RE: Arborist report for trees at 114 W Windsor Road, NV

ASSIGNMENT:

This report is in response to your request to assess some trees located at 114 W Windsor Road. The intent of this report is to determine the mode of tree protection that would be recommended to preserve these trees from any damage due to the proposed subdivision and re-development of this site. Also, to determine which trees would be candidates for removal based on the site plans provided indicating their proximity to the building envelope and the heavy construction activities that are likely to occur in that area.



Picture 1. Aerial View of property



TREE & SITE DETAILS:

A site visit was conducted on May 16th where 35 trees were inventoried and assessed for this report. A site survey was provided prior to the site visit and as mentioned above this property is proposed for subdivision. These are all mature trees that have been growing in this location for some time and are well established. For the purpose of this report and for ease of identification the trees have been tagged with a plastic yellow numbered tag affixed to the lower 2.0 m of their trunks or near their bases. All trees within 5.0 m of the property boundaries (outside the site) have also been considered and included in the inventory. The species have been identified; the diameters measured at 1.3 meters above grade (D.B.H), their heights approximated and any observations are represented in the inventory table attached at the end of this report. A photo document is also attached at the end of this report as Appendix C.

It was observed that the entire property is on somewhat of a sloped grade which gradually slopes down from the northeast corner toward the southwest. There is also a noted grade variation between the subject property and that of the neighbouring property to the east. The majority of the inventoried trees fall along the west side of the site. An undeveloped green space spans the north side of the site which as I understand will be considered for a future laneway allowance. It was also observed that there is a 3-phase Hydro line running parallel with the south property line along W Windsor Rd.

It was observed that almost all of the trees have been previously topped at some point in past and multiple stems or co-dominant stems have grown. A number have also been heavily pruned to maintain clearance to the Hydro lines. The previous topping and heavy pruning has left the majority misshapen. The survival mechanism that causes a tree to produce multiple shoots below each topping cut comes at great expense to the tree. For deciduous trees, these shoots develop from buds near the surface of the old branches. Unlike normal branches that develop in a socket of overlapping wood tissues, these new shoots are anchored only in the outermost layers of the parent branches. As for conifers, they are more likely to have their branches turn upwards in a competition of growth attempting to re-establish terminal dominance. The multiple stems that result from the topping generally have weak attachments and are more susceptible to failure at these attachment points.

Consequently, the large open pruning wounds from the initial topping cut exposes the sapwood and heartwood, and as a result, it generally fails to compartmentalize. If you look at an old wound, you will notice it does not “heal” from the inside out, but eventually the callus wood will grow around the wound in an attempt to compartmentalize it from infection or decay. Trees that are previously topped generally have a high probability of decay within the tree. This also contributes to the high probability of stem failure if the canopy or top of the tree far outweighs what the lower decayed stems can bear. As the trees grow and the shoots increase in weight, the branches of a topped tree become susceptible to breaking off during storms, heavy winds, snow or precipitation loads. This was observed in one of the trees in the northwest corner which has experienced a partial stem failure as a result.



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A number of the trees were also noted as having a phototropic lean in the stems. *Phototropism* is a physiological growth response that plants have adapted themselves to be able to grow in the direction of its light source. This can result from trees growing within close proximity to one another or from growing on a sloped grade but generally occurs because of the conditions that trees are exposed to *in situ*. It is also important to note that a phototropic lean is not an indication of or representative of a potential failure.

As mentioned above these trees have been growing in this location for some time. It is reasonable to expect that as a result of this, all of these trees are working together to some degree to sustain the forces of nature that travel through this area. For example, their root systems are likely intertwined, their branches overlap and grow into one another and for all intents and purposes, a stand of trees acts like a team and works together, to a certain degree, which makes them more formidable as a group than a 'stand alone' tree. This coupled with known tree species characteristics it is reasonable to expect that when managing the risk of one or two of the trees it increases the probability of failure in the other trees because of the change in the dynamics of the stand and the way it manages the winds.

This stand of trees consists primarily of Western Red Cedars (*Thuja plicata*) which are growing atop nurse mounds (logs or stumps) which encourages atypical root placement of the structural roots. There were also a few trees exhibiting areas of reaction wood showing as ridges or depressions within the stems etc. These types of defects are often characteristic of the likelihood of fungal decay being present or columns of decay are occurring within the trunks.

For the most part these trees are considered to be in overall fair condition overall with only a couple being identified as being in poor condition or marginal at best. There are also a number of trees which have English Ivy (*Hedera helix*) growing up the stems and into the canopies. Although Ivy is not generally considered the cause to why a tree would fail, it does however hide or mask defects on a tree trunk that could be important indicators of tree condition, and or contribute to the overall safety of a certain tree species. As well once the Ivy begins to climb up onto trees and other structures it begins to initiate flowers, grow fruit & spread its seeds. This contributes greatly to its aggressive and invasive spread in our natural forest areas and parks. Additionally there was a large crop of Japanese Knotweed (*Fallopia japonica* syn. *Polygonum cuspidatum*) growing near the northeast corner of the site near tree #794. This is a very aggressive and highly invasive plant species in our climate and it is strongly recommended to take action to control its spread.

For the most part the trees on this property have been poorly managed and maintained over the long term. There are a number of them that would not be considered worthy of imposing material constraints on the proposed subdivision or proposed construction activities related to the re-development of the site. There were no outward signs of chlorosis or excessive cone production. There were no visible fungal conks or outward signs of root decay. There is no apparent indication of shifting or heaving in the root plates at the time the site visit was conducted.



RECOMMENDATIONS:

1. Removal would be recommended for 20 trees located within the property boundaries of the subject property as outlined in Removal, Retention & Protection Plan attached at the end of this report. They are recommended for removal because they are either considered to be in either marginal or poor condition; fall within the proposed building footprints or are within the zones of heaviest excavation & construction activities; will be outcompeted over time & to allow neighbouring trees to become more dominant on site; or will experience an increased probability of failure due to the proposed changes to the stand support (ie: increased windthrow due to loss of stand support). Furthermore as a result of the required grade changes and removal of the nurse material from the site the trees would be negatively impacted by any disruption within their critical root zones (CRZs). These site trees have been poorly maintained or managed over their entire growth period and would not be deemed worthy of posing material constraints on the proposed construction activities for the proposed subdivision therefore removal and replacement would be considered reasonable.
2. Tree #785 located near the northwest property line has experienced a partial stem failure. A vertical crack or “banana crack” has opened up in the lower bole of this tree. There is extensive decay visible within the stem and the loss of structural integrity of the stem increases the probability of complete failure. This tree has a phototropic lean (which is not the concern) however with the canopy weighted to the west and a large crack in the lower stem, this tree is considered to have a High to Extreme likelihood of failure. The neighbouring property of 136 W Windsor Road is a direct target in the event that this tree experiences a complete failure of the stem. Removal is recommended to mitigate the likelihood of failure in this tree.
3. The remaining trees are deemed reasonable to retain and monitor at this time. They fall outside the proposed building footprints and or outside of the zones of heavy construction & excavation activities. There are a few trees however that are within proximity to these proposed works and thus their removal may still be considered at a later time. Based on any site findings that are uncovered during the ground works, their re-assessment is recommended at that time. It may result in additional removals at a later date due to the increased risk created by the changes to the site. Until then these trees are recommended to be retained and monitored.
4. As instructed a thorough review of the outside perimeter of the site was undertaken to identify if there were any trees within 5.0 m (16.5 ft) of the property boundaries. As indicated within this report & inventory only trees #792, #726, #765, #S1 and #S2 were identified within this specified distance. No other trees are identified as being within 5.0 m of the property boundaries of the subject site.
5. Please refer to Appendix A for further information on how trees are impacted by construction.
6. Protection zones for any trees which are intended for retention is required. It should be constructed to delineate a zone around the tree(s) with fencing to prevent encroachment of equipment as well as prevent items from being stored within the root zones. The fencing should be high enough (1.2 metres (4 ft)) to deter anyone from entering the root zones. Signage should be placed on the fencing to convey to workers the purpose for the fence. Wooden frame and orange poly fencing or



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something equivalent is suitable for this application. It is to remain in place for the duration of any construction activities until there is no further possibility that the trunk(s) and root zone(s) will be damaged. Care must be taken when construction activities occur within close proximity to the critical root zone (CRZ) of any tree. The tree protection zones have been determined based on site findings, the CRZ criteria and in consideration of the Corporation of the District of North Vancouver – Tree Protection Bylaw No. 7671. The TPZ specifications can be found within the Inventory & Recommendations Table attached at the end of this report. Additionally please refer to the Removal, Retention and Protection Plan attached at the end of this report.

7. Please refer to Appendix B for further information on tree protection barriers.
8. Please refer to the photo document attached as Appendix 'C' to the end of this report.
9. A qualified Certified Arborist **must be** on-site during any **periods of excavation or construction that falls within or within close proximity to the protection zones of the retained trees** to observe, assess and ensure that the integrity of the CRZs are maintained and conduct any subsequent root pruning (if req'd). Regular inspections throughout the course of the project are recommended and may be required to document the progress, observe and monitor the trees during and post construction. These inspections are to be executed by a qualified Certified Arborist to ensure that all aspects of their preservation are being adhered to and properly addressed.
10. If installation of any utilities, or pipes required for drainage etc, are to be installed within, or cross sect the CRZs of any of these trees, then it is recommended to reconsider their placement and or conduct the excavation for these like items by using an Air Spade® or like equipment to ensure that there are no structural roots severed or damaged during their installation as well as attempting to maintain as many viable feeder roots as possible. This AirSpade® excavation and any subsequent root pruning are to be conducted by or under the direct supervision of a qualified Certified Arborist.
11. Replacement planting is recommended to ensure that the site has sufficient canopy coverage based on the parameters as set out by the Corporation of the District of North Vancouver – Tree Protection Bylaw No. 7671. No landscape plans were provided at this time however it is reasonable that any replacement plantings be incorporated as part of the overall landscape plans for each separate site. The location of the replacement plantings can be in any available areas remaining throughout the property(ies) or as part of the overall landscape plan. The replanting ratio required is at 3:1 for every tree removed. ***This will require verification by the DNV.***
12. The installation of any replacement trees should be executed in accordance with the specifications as set out by the BC Landscape Standards (7th Edition) for proper planting practices. This includes but is not limited to the following items such as exposing the root flare prior to planting, planting it at a proper depth, watering in the plant once it's been installed, staking and mulching etc.
13. Any new plant material requires care in the first 2 to 3 growing seasons until they get established. It is important to note that newly planted trees rely on the moisture held



- within their root balls until they can get their roots out and established. This may take a few seasons therefore it is important to ensure that the root ball **does not dry out** even if the soil around it is moist, the root ball could still be dry. It is important that from time to time to get in there and check with your hands. Regular and thorough watering to the selected replacement plant(s) is required. An automated in-ground irrigation system would be suitable for this site. It is important to note however that despite an automated system being in place many landscapes require additional supplementary water to meet the needs of the new or transplanted plant material. **One option** is to use soaker hoses to direct water directly to the root zone of the new plant(s). The soaker hose(s) can be attached to a supply hose directed to the closest hose bib and attached a battery operated timer to assist with watering within the guidelines provided through the GVRD Water Conservation Practices. The **second option** would be to manually provide water or use a tree watering bags which are commonly available at Rona, Home Depot and Lee Valley Tools.
14. Organic mulch should be placed around the base of any newly planted trees within the critical root zone. This promotes moisture retention in the soil and helps reduce the establishment of competing weeds or grass. Do not place the mulch up against the tree itself; place it several inches away. Mulching at approximately 5 cm – 7.5 cm coverage over the entire root system area to improve overall tree health is recommended. The mulching should be spread out over the critical root zone and not placed right up against the trunk.
 15. If it is found to be viable to retain this tree as ground works get underway then it would be recommended to complete vertical excavation to prevent the need for an angled setback required by WorkSafe BC for safety when working in open pits near tree #794. This could be further completed by use of shoring or Shotcrete shoring in this corner of the pit as well or a like stabilization technique which would be required to stabilize the soil in and around the areas of the retained trees to ensure that no undermining of the soil occurs beneath the root plate of the tree.
 16. It is recommended to maintain the existing grade within the CRZ of any retained trees. Changing the grade around the tree(s) proposed for retention could possibly change the water table and the sites drainage creating other problems such as standing water, anaerobic soil conditions & or root rot etc. It would be discouraged to change the grade by importing fill to level out an area.
 17. A soil analysis and sub-surface prescription fertilizer applications, to maintain soil fertility and the trees' overall health, before, during and after construction, is strongly recommended. Trees are often highly impacted by disruption within their CRZ due to construction activities thus implementing a prescription fertilizer program to help bolster the trees' health and natural defenses is recommended if the intent is to preserve the health and longevity of these trees.
 18. If the construction work is to occur during a drought period, for example, summer time, then thorough watering of the retained trees to keep the soil moistened is recommended. ***This could be completed during non-construction-work hours.*** Ensuring that the trees are adequately watered through this period will help reduce the impact of the stress being imposed on the tree during the construction activities. Setting up a temporary irrigation system by use of soaker hoses or sprinklers, supply



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- lines and attached back to the closest hose bib with a battery operated timer is recommended to achieve this.
19. There was English Ivy (*Hedera helix*) observed climbing up onto the stems and into the canopies of these trees. Although Ivy is not generally the cause of a trees decline it can contribute unwanted weight to an ailing tree as well it crowds out the interior canopy causing the canopy to be misshapen. This can contribute other issues for the tree such as lessened foliage volume overall which can negatively impact a trees ability to create energy etc. As well with the aggressive nature of its growth it makes it difficult to thoroughly assess the tree trunks and potentially hide or cover up significant defects.
 20. Japanese Knotweed is one (1) of the top 12 plant species on BC's list of most Invasive Plants and further information can be found on <http://www.bcinvasives.ca>. A referral for a reputable tree service company that provides plant health care and integrated pest management services will be provided. You are encouraged to contact them and the DNV to engage discussions about how they can assist you in managing the Japanese Knotweed on your property.
 21. Pruning may be required to raise the crowns slightly or reduce end weight to accommodate clearance or reduce overhang issues; and or improve overall form. Safety pruning is also recommended to address any dead, damaged or poorly attached branches. That is to say that the focus should be to address anything that could get knocked out in a wind event. This work would be deemed reasonable to conduct. Proper pruning practices must be adhered to and be in conformity with the American National Standard Institute Standards ANSI A300 and the ISA Best Management Practices for pruning. These are generally expected and accepted practices for qualified Certified Arborists and reputable tree service companies. This pruning work is to be conducted by or under the direct supervision/instruction of a qualified Certified Arborist.
 22. Conducting an aerial inspection of the previous topping points is also recommended and can be completed at the same time as any pruning work. This allows for the visual assessment and inspection of the crowns, and also to ascertain the viability of the previous topping point. The climbing arborist(s) will note any defects or concerns and further recommendations can be made accordingly based on the findings of the aerial inspection. This work is to be conducted by or under the direct supervision/instruction of a qualified Certified Arborist.
 23. Monitoring the trees during and post construction is to be executed by a qualified Certified Arborist to ensure that all aspects of their preservation are being adhered to and properly addressed. Site visits to document the progress and observe the trees may be required through the duration of the project and beyond completion.
 24. No vehicles, equipment or construction materials or like items are to be stored within the CRZ of these trees.
 25. **Turf is not recommended** to be installed as part of the landscape within the root zone of any tree.

CONCLUSION:

In conclusion, care must be taken if construction activities occur within the root zone of any tree. Tree protection to enforce this is strongly recommended to prevent



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potential damage to the CRZ of these trees. Constructing a tree protection zone made of wooden frame and orange poly fencing will be an effective way to achieve the protection of the lower trunk and root zones from the heavy construction activities. It should remain in place for the duration of the construction until there is no further possibility of damage. In order to preserve trees on a construction site, it is important to understand that mature trees are much less adaptable to site changes that occur during or are associated with construction. Please refer to Appendices A and B accompanying this report for further information on the impact that construction can have on trees as well as additional parameters for tree protection barriers.

At this time 20 trees would be recommended for removal and replacement as it is concluded that they would be directly impacted by the proposed subdivision and reassignment of property lines. As well they fall within the proposed building envelopes and or are within close proximity to the zones of heavy excavation and construction activities. Also they have not been well maintained through their entire growth period and a few of them are deemed to be in either marginal or poor condition overall. They would not be deemed worthy of imposing a material constraint on the proposed subdivision and or any construction related to the re-development of this site. Replacement planting in restitution for the removed trees is reasonable and can be incorporated as part of the overall landscape plan for each site.

The recommendations noted above are acceptable to achieve the balance of reducing the overall impact of the construction on the trees, acknowledging their preservation over the long term, and achieving the proper specifications required for any construction. Site visits by a qualified Certified Arborist at different stages of construction may be required to ensure that the temporary measures to preserve the retained trees and their CRZs is sufficient.

The recommendations outlined within this report may be subject to change based on any further information provided or findings that are uncovered after this report is submitted. It is important to note that there are many different factors causing stress to trees. For example, imposed stress could be things such as environmental factors like climate change to cultural conditions such as soil compaction or mechanical damage to the roots, but is likely to be a combination of factors. Trees play an important role in the urban ecology, and all of us must be stewards to ensure a tree's survival and our own safety.

Testing and Analysis:

The assessment completed on the trees defined within this report, consisted of a visual and physical inspection from the ground and was based upon the principals of Visual Tree Assessments. No invasive tests, such as using a resistograph or increment borer, were used during the testing for this report.

Assumptions and Limiting Conditions:

1. The information contained in this report covers only those items that were examined and reflect the condition of these items at the time of inspection. The inspection is limited to visual examination of accessible components without dissection, excavation or probing.



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- There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the trees or property in question may not arise in the future.
2. The opinions in this Report are given based upon observations made using generally accepted professional judgment, however, because trees and plants are living organisms and subject to change, damage and disease, the results, observations, recommendations, and analysis as set out in this Report are valid only as at the date any such testing, observations and analysis took place. No guarantee, warranty, representation or opinion is offered or made by Radix Tree and Landscape Consulting Inc as to the length of the validity of the results, observations, recommendations and analysis contained within this Report.
 3. Care has been taken to obtain all information from reliable sources. All data has been verified insofar as possible; however, the appraiser/company can neither guarantee nor be responsible for the accuracy of information provided by others.
 4. All tree work is to be completed under the supervision of an ISA Certified Arborist and in compliance with ISA, BC Hydro and WCB standards.
 5. Alteration of any part of this report invalidates the entire report.

If you have any questions or concerns please feel free to contact me.

Sincerely yours,

Michelle McEwen
ISA Certified Arborist (PN-6707A)
ISA Certified Tree Risk Assessor (544)
Wildlife/Danger Tree Assessor BC (P-1453)
CofQ #00317-LH-08
Certified Horticulturist
Radix Tree and Landscape Consulting Inc



RADIX TREE & LANDSCAPE CONSULTING INC

TREE INVENTORY & RECOMMENDATIONS

114 W Windsor Road, NV

Havaal Real Estate Group
Attn: Ryan Deakin
808 E 3rd Street
North Vancouver, BC
V7L 1H1

May 24, 2016



Tree Inventory & Recommendations

114 W Windsor Road, NV

24-May-16

Tree Tag #	Species	DBH (cm)	Ht (m)	Canopy Radius (m)	Observations	Tree Protection Zone (msmt from base of tree)
765	Norway Maple - <i>Acer platanoides</i>	30, 24.5 & 19.5	13.7	7.0	Good - located on neighbouring property to east side (3201 Lonsdale Ave); growing on raised grade at 60 cm higher than subject site; falls within zone of heavy construction & excavation activity - retain & monitor	TPZ should be placed no less than 3.3 m (11 ft) from base of tree; encompass entire tree on all sides affected; Certified Arborist on site for any works around this tree & within specified TPZ
766	Red Maple - <i>Acer rubrum</i> cvs	47	9.1	4.0	Fair - located at west side existing driveway; previously topped at 3.6 m; falls within proposed bldg footprint & within zone of heavy construction & excavation activity at main access to site - removal is recommended	n/a
767	Japanese Maple - <i>Acer palmatum</i> cvs	16.5 & 11.5	7.6	3.0	Fair - located at west side existing driveway; buried root flare; being out competed by other canopies; falls within proposed bldg footprint & within zone of heavy construction & excavation activity at main access to site - removal is recommended	n/a
768	Cypress - <i>Chamaecyparis</i> sp	52	9.1	3.5	Fair - located at south PL; previously topped at 6.1 m for Hydro clearance; moderate trunk taper; moderate live crown ratio; falls within zone of heavy construction & excavation activity at main access to site - removal is recommended	n/a
769	Cypress - <i>Chamaecyparis</i> sp	43.5	9.1	3.5	Fair - located at south PL; previously topped at 4.6 m for Hydro clearance; moderate trunk taper; moderate live crown ratio; falls within zone of heavy construction & excavation activity at main access to site - removal is recommended	n/a
770	Eastern Flowering Dogwood - <i>Cornus florida</i>	11.5, 10.5 & 11	6.1	3.0	Fair to Poor - located at south PL; in a stage of decline; canopy dieback; low live crown ratio; falls within proposed driveway access & within zone of heavy construction & excavation activity at main access to site - removal is recommended	n/a

771	Cypress - <i>Chamaecyparis</i> sp	46	9.1	3.0	Fair - located at south PL; previously topped at 6.1 m for Hydro clearance; Ivy growing up stem; moderate trunk taper; moderate live crown ratio; falls within zone of heavy construction & excavation activity at main access to site - removal is recommended	n/a
772	Cypress - <i>Chamaecyparis</i> sp	31	7.6	3.0	Fair - located at south PL; previously topped at 6.1 m for Hydro clearance; buried root flare; low trunk taper; low live crown ratio; falls within zone of heavy construction & excavation activity at main access to site - removal is recommended	n/a
773	Cypress - <i>Chamaecyparis</i> sp	45	9.1	4.0	Fair - located at south PL; previously topped at 6.1 m for Hydro clearance; moderate trunk taper; low live crown ratio; falls within zone of heavy construction & excavation activity at main access to site - removal is recommended	n/a
774	Western Red Cedar - <i>Thuja plicata</i>	95	21.3	5.0	Fair - located at southwest corner of site; previously topped at 6.1 m; phototropic lean to south; heavily pruned at south side to maintain Hydro clearance; girdling root at northwest side; good trunk taper; moderate live crown ratio; falls within zone of heavy construction & excavation activity at main access to site - removal is recommended	n/a
775	Western Red Cedar - <i>Thuja plicata</i>	65	21.3	4.5	Fair to Good - located at southwest corner of site; not previously topped; moderate trunk taper; moderate live crown ratio; falls within zone of heavy construction & excavation activity at main access to site - removal is recommended	n/a
776	Western Red Cedar - <i>Thuja plicata</i>	62	21.3	4.5	Fair to Good - located at southwest corner of site; previously topped at 6.1 m; moderate trunk taper; moderate live crown ratio; falls within zone of heavy construction & excavation activity at main access to site - removal is recommended	n/a
777	Western Red Cedar - <i>Thuja plicata</i>	50	9.1	5.0	Fair - located at southwest corner of site; approx 1.6 m east of neighbour foundation; previously topped at 7.6 m; phototropic lean to southwest; moderate trunk taper; moderate live crown ratio; Ivy laden; falls within zone of heavy construction & excavation activity at main access to site - removal is recommended	n/a

778	Western Red Cedar - <i>Thuja plicata</i>	41	15.2	3.0	Good - located at southwest corner of site; subdominant within stand; not previously topped; moderate trunk taper; moderate live crown ratio; Ivy growing up stem; falls within zone of heavy construction & excavation activity - removal is recommended	n/a
779	Western Red Cedar - <i>Thuja plicata</i>	88	24.4	5.0	Fair - located at southwest corner of site; previously topped at 7.6 m; good trunk taper; moderate live crown ratio; Ivy laden; falls within zone of heavy construction & excavation activity - removal is recommended	n/a
780	Western Red Cedar - <i>Thuja plicata</i>	50	24.4	6.0	Fair to Good - located at southwest corner of site; previously topped at 7.6 m; self-corrected; moderate trunk taper; moderate live crown ratio; Ivy laden; falls within proposed bldg footprint & within zone of heavy construction & excavation activity at main access to site - removal is recommended	n/a
781	Western Red Cedar - <i>Thuja plicata</i>	70 & 86	24.4	6.0	Fair - located at southwest PL; co-dominant stems from base; previously topped at 6.1 m; decay at main stem; growing on isolated mound of nurse material; good trunk taper; moderate live crown ratio; Ivy laden; falls within proposed bldg footprint & within zone of heavy construction & excavation activity - removal is recommended	n/a
782	Western Red Cedar - <i>Thuja plicata</i>	133	24.4	6.0	Fair to Good - located at southwest corner of site; previously topped at 6.1 m; good trunk taper; high live crown ratio; falls at edge of proposed bldg footprint & within zone of heavy construction & excavation activity - removal is recommended	n/a
783	Orchard Apple - <i>Malus</i> sp	19 & 23	6.1	4.0	Poor - located at northwest corner of site; previously topped at 3.1 m; decay within main stems; falls at edge of proposed bldg footprint & within zone of heavy construction & excavation activity - removal is recommended	n/a
784	Western Red Cedar - <i>Thuja plicata</i>	82 & 59	15.2	5.0	Fair - located at northwest corner of site; co-dominant stems from base; previously topped at 6.1 m; canopy weighted to south; good trunk taper; moderate to low live crown ratio; falls within proximity of zone of heavy construction & excavation activity - retain & monitor	TPZ should be placed no less than 6.1 m (20 ft) from base of tree; to encompass entire tree on all sides affected (can incl entire grp of trees #784 to #792); Certified Arborist on site for any works around this tree & within specified TPZ

785	Western Red Cedar - <i>Thuja plicata</i>	58.5	15.2	5.0	Poor - located at northwest PL; vertical crack (banana crack) in stem; lean to west; canopy weight to west; decay within main stem; moderate trunk taper; low live crown ratio; falls outside zone of heavy construction & excavation activity - removal is recommended	n/a
786	Western Red Cedar - <i>Thuja plicata</i>	62.5	15.2	4.0	Fair - located at northwest corner of site; within stand of trees; previously topped at 6.1 m; decay at previous topping point; oblong shaped trunk; canopy weighted to east/west; good trunk taper; moderate to low live crown ratio; falls outside zone of heavy construction & excavation activity - retain & monitor	TPZ should be placed no less than 3.6 m (12 ft) from base of tree; to encompass entire tree on all sides affected (can incl entire grp of trees #784 to #792); Certified Arborist on site for any works around this tree & within specified TPZ
787	Western Red Cedar - <i>Thuja plicata</i>	88	15.2	5.0	Fair - located at northwest corner of site; adjacent to northwest PL; previously topped at 6.1 m; canopy weighted to northwest; moderate trunk taper; moderate live crown ratio; falls outside zone of heavy construction & excavation activity - retain & monitor	TPZ should be placed no less than 5.0 m (16.5 ft) from base of tree; to encompass entire tree on all sides affected (can incl entire grp of trees #784 to #792); Certified Arborist on site for any works around this tree & within specified TPZ
788	Western Red Cedar - <i>Thuja plicata</i>	74.5	15.2	5.0	Fair - located at northwest corner of site; adjacent to northwest PL; previously topped at 6.1 m; canopy weighted to northeast; good trunk taper; moderate live crown ratio; falls outside zone of heavy construction & excavation activity - retain & monitor	TPZ should be placed no less than 4.5 m (15 ft) from base of tree; to encompass entire tree on all sides affected (can incl entire grp of trees #784 to #792); Certified Arborist on site for any works around this tree & within specified TPZ
789	Western Red Cedar - <i>Thuja plicata</i>	55	15.2	4.0	Fair - located at northwest corner of site; growing on isolated mound within stand of trees; previously topped at 6.1 m; previous canopy failures; moderate trunk taper; moderate live crown ratio; falls outside zone of heavy construction & excavation activity - retain & monitor	TPZ should be placed no less than 3.3 m (11 ft) from base of tree; to encompass entire tree on all sides affected (can incl entire grp of trees #784 to #792); Certified Arborist on site for any works around this tree & within specified TPZ

790	Western Red Cedar - <i>Thuja plicata</i>	35.5	15.2	5.0	Fair - located at northwest corner of site; growing on isolated mound within stand of trees; previously topped at 6.1 m; low trunk taper; low live crown ratio; falls outside zone of heavy construction & excavation activity - retain & monitor	TPZ should be placed no less than 2.1 m (7 ft) from base of tree; to encompass entire tree on all sides affected (can incl entire grp of trees #784 to #792); Certified Arborist on site for any works around this tree & within specified TPZ
791	Western Red Cedar - <i>Thuja plicata</i>	101.5	15.2	5.0	Fair - located at northwest corner of site; growing on isolated mound within stand of trees; previously topped at 6.1 m; good trunk taper; moderate live crown ratio; falls outside zone of heavy construction & excavation activity - retain & monitor	TPZ should be placed no less than 6.1 m (20 ft) from base of tree; to encompass entire tree on all sides affected (can incl entire grp of trees #784 to #792); Certified Arborist on site for any works around this tree & within specified TPZ
792	Western Red Cedar - <i>Thuja plicata</i>	92	15.2	5.0	Fair - located within laneway allowance at north side of site; previously topped at 6.1 m; good trunk taper; moderate live crown ratio; falls outside zone of heavy construction & excavation activity - retain & monitor	TPZ should be placed no less than 5.0 m (16.5 ft) from base of tree; to encompass entire tree on all sides affected (can incl entire grp of trees #784 to #792); Certified Arborist on site for any works around this tree & within specified TPZ
793	Douglas Fir - <i>Pseudotsuga menziesii</i>	73	24.4	5.0	Fair - located within laneway allowance at northeast PL; previously topped; possibly self-corrected; moderate trunk taper; moderate live crown ratio; Ivy laden; falls outside zone of heavy construction & excavation activity - retain & monitor	TPZ should be placed no less than 4.5 m (15 ft) from base of tree; to encompass entire tree on all sides affected; Certified Arborist on site for any works around this tree & within specified TPZ
794	Western Red Cedar - <i>Thuja plicata</i>	115	25.9	6.0	Fair - located at northeast corner of site; previously topped at 6.1 m; moderate trunk taper; high live crown ratio; Ivy laden; phototropic lean to southwest; falls within proximity to zone of heavy construction & excavation activity - retain & monitor	TPZ should be placed no less than 6.1 m (20 ft) from base of tree; to encompass entire tree on all sides affected; Certified Arborist on site for any works around this tree & within specified TPZ
795	Cypress - <i>Chamaecyparis</i> sp	51	10.7	3.5	Fair - located at northeast PL; on raised grade above rock wall; phototropic lean south; moderate trunk taper; moderate live crown ratio; falls outside zone of heavy construction & excavation activity - removal is recommended	n/a

796	English Oak - <i>Quercus robur</i>	41	10.7	6.0	Fair - located at northeast PL; on raised grade above rock wall; phototropic lean south; Ivy growing up stem; falls within proximity to zone of heavy construction & excavation activity - retain & monitor	TPZ should be placed no less than 2.4 m (8 ft) from base of tree; to encompass entire tree on all sides affected; Certified Arborist on site for any works around this tree & within specified TPZ
S1	Cherry - <i>Prunus</i> sp	49	7.6	5.0	Fair - located at neighbouring property to east (3201 Lonsdale Ave); approx 1.3 m east of PL; previously topped for clearance to Hydro; falls outside zone of heavy construction & excavation activity - retain & monitor	TPZ should be placed no less than 3.0 m (10 ft) from base of tree; to encompass entire tree on all sides affected; Certified Arborist on site for any works around this tree & within specified TPZ
S2	Japanese Snowbell - <i>Styrax japonica</i>	10.5	4.6	2.0	Fair - located at DNV blvd; buried root flare; falls outside zone of heavy construction & excavation activity - retain & monitor	TPZ should be placed no less than 1.2 m (4 ft) from base of tree; to encompass entire tree on all sides affected; Certified Arborist on site for any works around this tree & within specified TPZ
726	English Laurel - <i>Prunus laurocerasus</i>	18, 12, 12, 8 & 10	6.1	5.0	Fair - located at DNV laneway; adjacent to north side of laneway; canopy over grown; falls outside zone of heavy construction & excavation activity - retain & monitor	TPZ should be placed no less than 2.4 m (8 ft) from base of tree or at PL; to encompass entire tree on all sides affected; canopy is overgrown & extended & will likely require pruning to get it back from over extending PL

*DBH defn: Diameter at Breast Height = Diameter measurements were made at 1.4 m from grade. See attached Report for further info

*Previously topped could be as a result of mechanical or natural means

LEGEND

S# = neighbour tree or tree located on property but was inaccessible; or tree located on City blvd

tag # = site tree that has been tagged with a yellow plastic tag within the lower 2.0 m of the trunk or at the base

Condition Ratings: **Good, Fair & Poor** - **Good** = optimal or ideal specimen with little to no issues; **Fair** = very broad category (Fairly Poor to Fairly Good); trees with varying degrees of issues that may or may not require removal or have good possibilities of improvement through improved care & maintenance practices (most trees will fall within this category); **Poor** = generally weakened, highly diseased or have a high probability of failure and or in a state of decline.



ING ELEVATIONS ON
PLAN 5611
PLAN 2954
BOTH OF THE NORTH 1/2 OF LOT F
BLOCKS 4 TO 13
DISTRICT LOT 2026
GROUP ONE NEW WESTMINSTER DISTRICT
P.I.D. 011-115-858 (LOT A)
P.I.D. 013-298-453 (LOT G)

SCALE: 8 FEET TO 1 INCH
ALL DISTANCES ARE IN FEET AND DECIMALS THEREOF

REMOVAL, RETENTION & PROTECTION PLAN

114 W Windsor Road, NV

Please refer to Inventory Table & Recommendations section of report for further info on site trees

REM.1
PLAN 1002

TPZ should be placed no less than 3.3 m (11 ft) from base of tree #789 & 2.1 m (7 ft) from tree #790; to encompass entire tree on all sides affected (can incl entire grp of trees #784 to #792)

TPZ should be placed no less than 2.4 m (8 ft) from base of tree or at PL; to encompass entire tree on all sides affected

TPZ should be placed no less than 4.5 m (15 ft) from base of tree; to encompass entire tree on all sides affected

TPZ should be placed no less than 5.0 m (16.5 ft) from base of tree #787 or 4.5 m (15 ft) from tree #788; to encompass entire tree on all sides affected (can incl entire grp of trees #784 to #792)

TPZ should be placed no less than 5.0 m (16.5 ft) from base of tree; to encompass entire tree on all sides affected (can incl entire grp of trees #784 to #792)

TPZ should be placed no less than 6.1 m (20 ft) from base of tree; to encompass entire tree on all sides affected (can incl entire grp of trees #784 to #792)

TPZ should be placed no less than 6.1 m (20 ft) from base of tree; to encompass entire tree on all sides affected

TPZ should be placed no less than 3.6 m (12 ft) from base of tree; to encompass entire tree on all sides affected (can incl entire grp of trees #784 to #792)

TPZ should be placed no less than 2.4 m (8 ft) from base of tree; to encompass entire tree on all sides affected

TPZ should be placed no less than 3.3 m (11 ft) from base of tree; to encompass entire tree on all sides affected

TPZ should be placed no less than 3.0 m (10 ft) from base of tree; to encompass entire tree on all sides affected

TPZ should be placed no less than 1.2 m (4 ft) from base of tree; to encompass entire tree on all sides affected

A qualified Certified Arborist must be on-site when excavation or construction activities are occurring within the protection zones prescribed for the site trees.

LEGEND

= retain & monitor; tree protection req'd

= removal is recommended

□ = tree protection barriers

NOTE:
ELEVATIONS ARE TO GEODETIC DATUM
AND ARE DERIVED FROM GCM 7201377
LOCATED ON WEST WINDSOR ROAD AT
QUINTERFIELD AVENUE
ELEVATION = 541.19 FEET
DATUM: NAD83 (CGRS), 2005.

NOTE:
PROPOSED SUBDIVISION ADDED 6 MAY 2016.
ROOF RIDGE MAIN FLOOR ELEVATIONS ADDED 10 MAY 2016.
OPPOSITE FEATURES LOCATED 18 MAY 2016



APPENDIX 'A'

IMPACT OF CONSTRUCTION ON TREES

BACKGROUND OF APPROACH

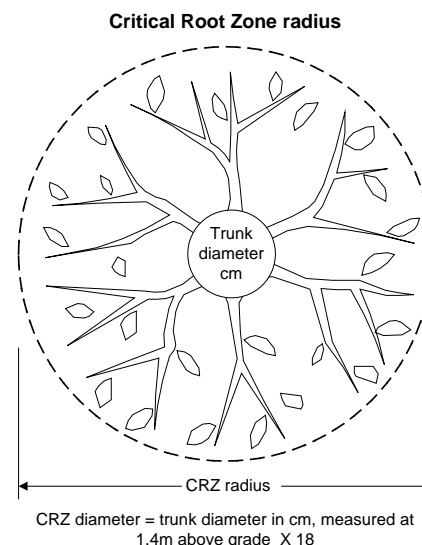
A tree's decline and mortality on construction sites results primarily from damage to the root system. During construction, roots are frequently cut when installing foundations, water, sewer lines or other utilities, driveways, curbs, sidewalks etc. Many roots are also lost when soil is removed during grading. Fine absorbing roots occur primarily within the top 6 to 8 inches of soil. Removing just a few inches of soil during grading can result in the elimination of many of these roots. Loss of fine roots will reduce water and nutrient absorption which will eventually lead to decline. Cutting larger roots could compromise stability and increase the probability of failure.

Compaction of the soil or placing fill over a tree root system during grading is equally as destructive. All plant cells, including those in the roots, require oxygen to survive. Root cells obtain oxygen from the pores space in the soil. When the soil over the root systems is compacted, or fill soil is added during construction, the amount of soil air is greatly reduced. At the same time, gases toxic to plant roots tend to accumulate in the soil. These adverse factors result in root mortality and tree decline.

Mechanical injuries to the stems and limbs also contribute to tree decline. Bark injuries inhibit transport of water and nutrients to the crown and allow entrance of decay and other disease organisms. Storing of supplies and materials within the root zone and soil contamination due to spills of materials such as fuel etc will also damage the root system

The Critical Root Zone (CRZ) is the area of soil around the tree where the majority of the roots are located. The roots within this area provide stability and are responsible for the uptake of water and nutrients to maintain tree health. Any level of compaction limits root growth due to lack of available oxygen.

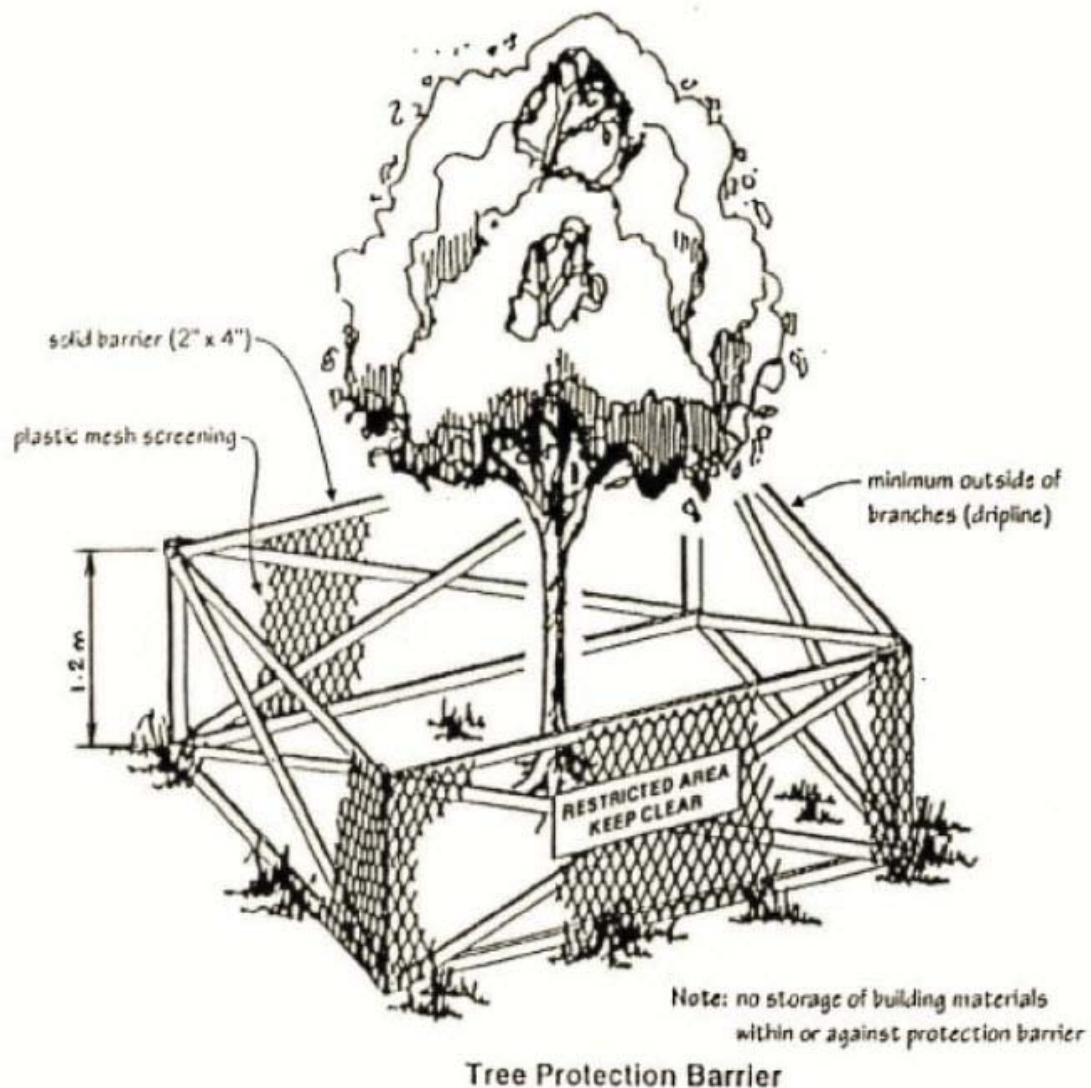
The stress of compaction and low soil fertility, coupled with other physical, environmental and human forces acting against these trees, it is reasonable to expect that the Critical Root Zones of these trees will be impacted, to some degree, due to the proposed construction activity that will occur near the trees. Providing protection for the trees is recommended to reduce any impact to the trees and their root systems.





APPENDIX 'B'

TREE PROTECTION BARRIERS FOR TREES





APPENDIX 'C'

(Assessment Photo Document)
114 W Windsor Road, NV

Havaal Real Estate Group
Attn: Ryan Deakin
808 E 3rd Street
North Vancouver, BC
V7L 1H1

May 24, 2016



May 24, 2016

Havaal Real Estate Group

Attn: Ryan Deakin

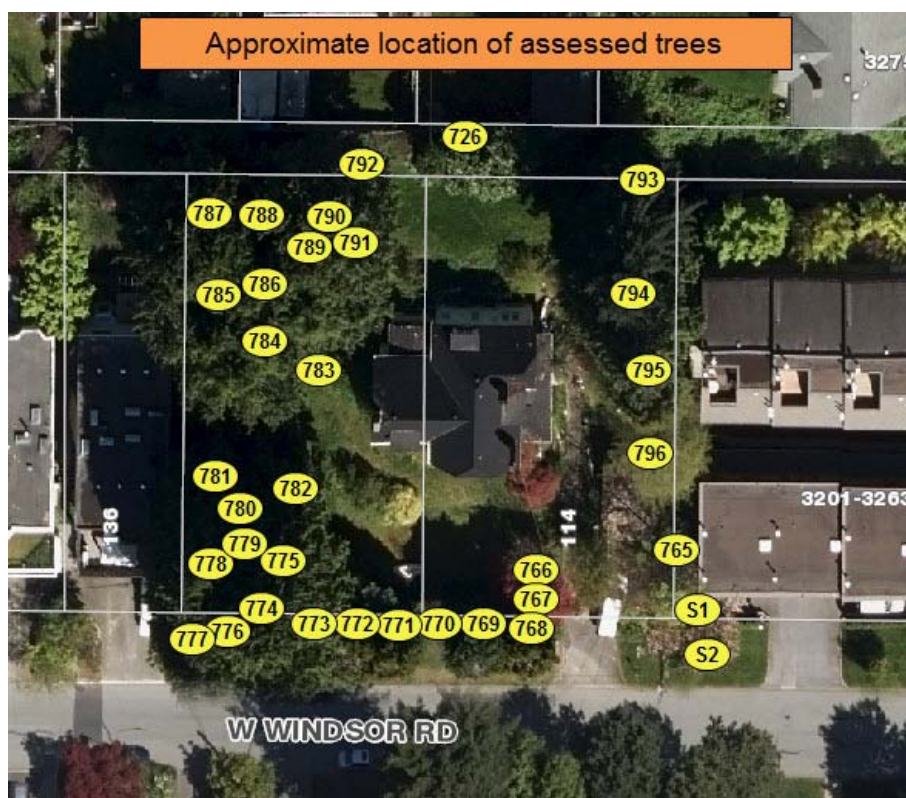
803 E 3rd Street

North Vancouver, BC

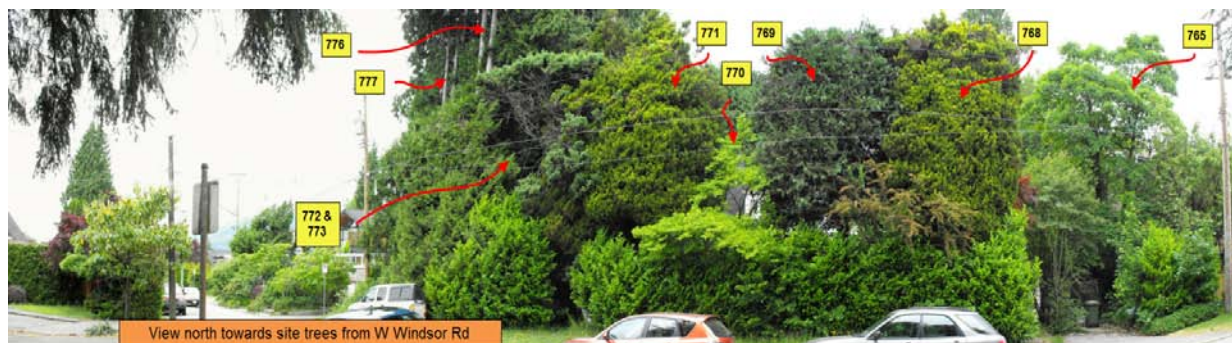
V7L 1H1

APPENDIX "C"

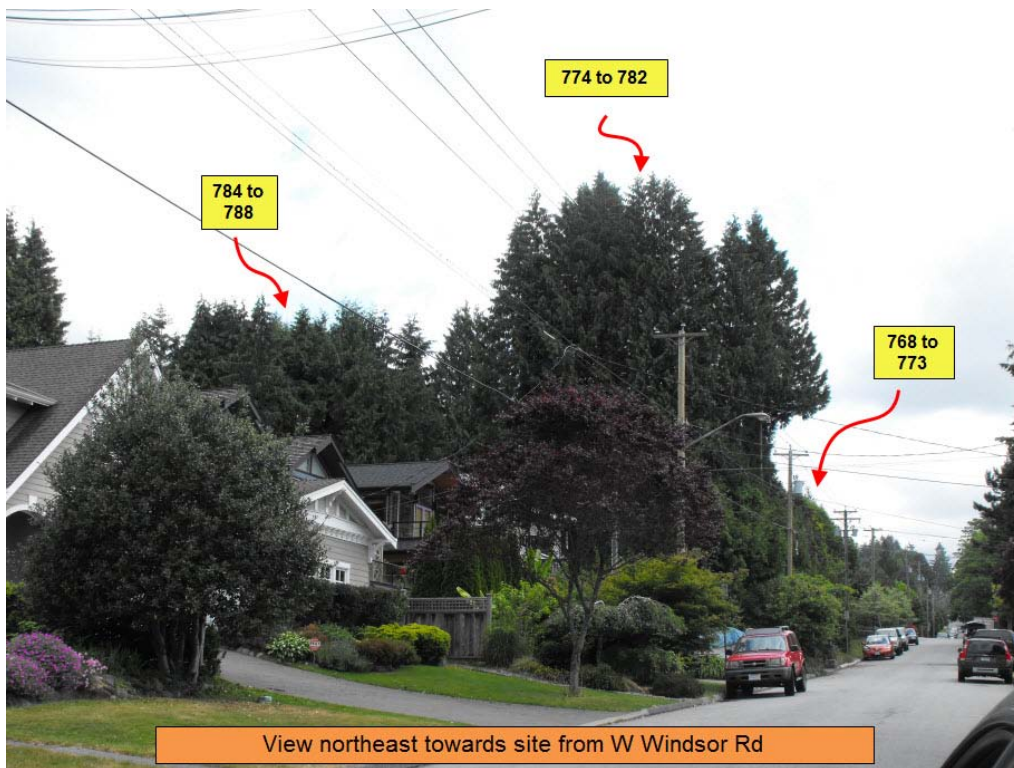
RE: Photo Documentation for trees at 114 W Windsor Road, NV



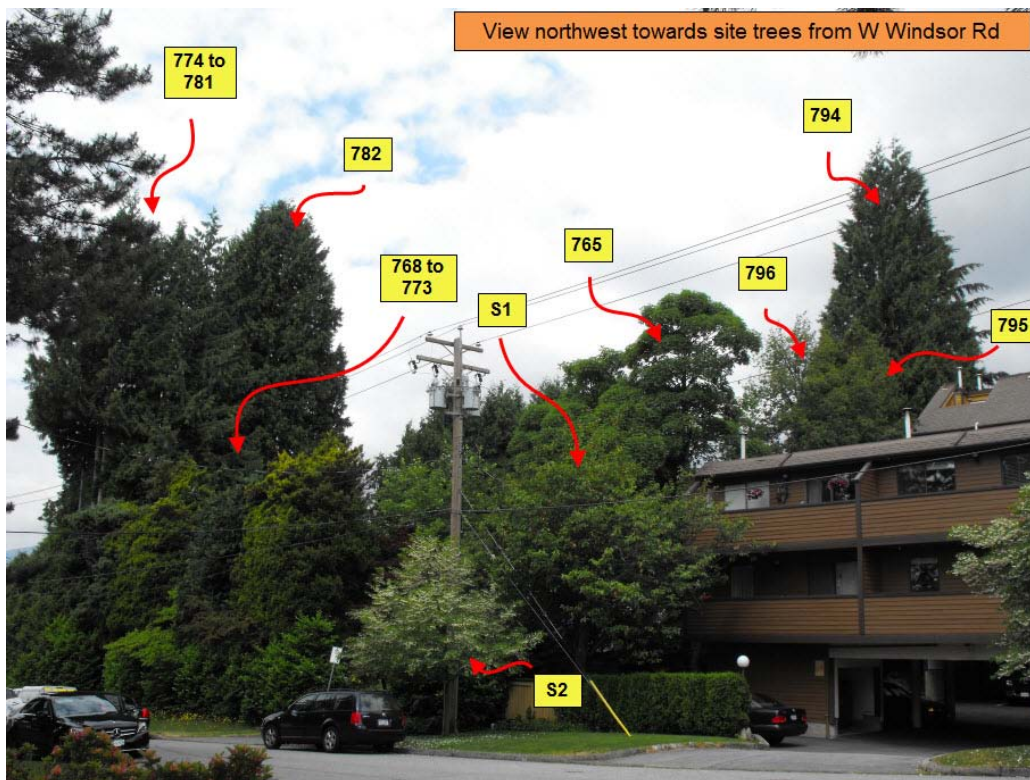
Picture 1. Aerial View of property



Picture 2. View north towards site trees from roadway along W Windsor Rd



Picture 3. View northeast towards site trees from roadway at W Windsor Rd



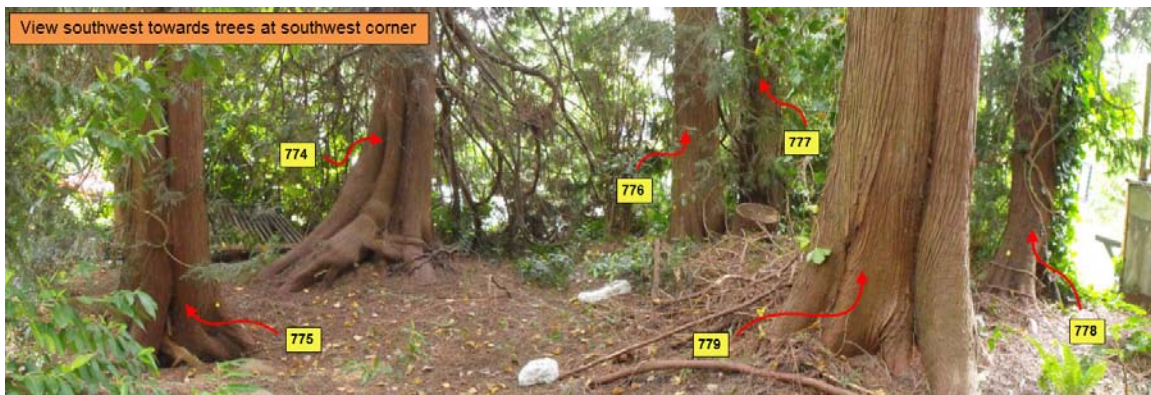
Picture 4. View northwest towards site from roadway at W Windsor Rd



Picture 5. Tree #765 – neighbour tree



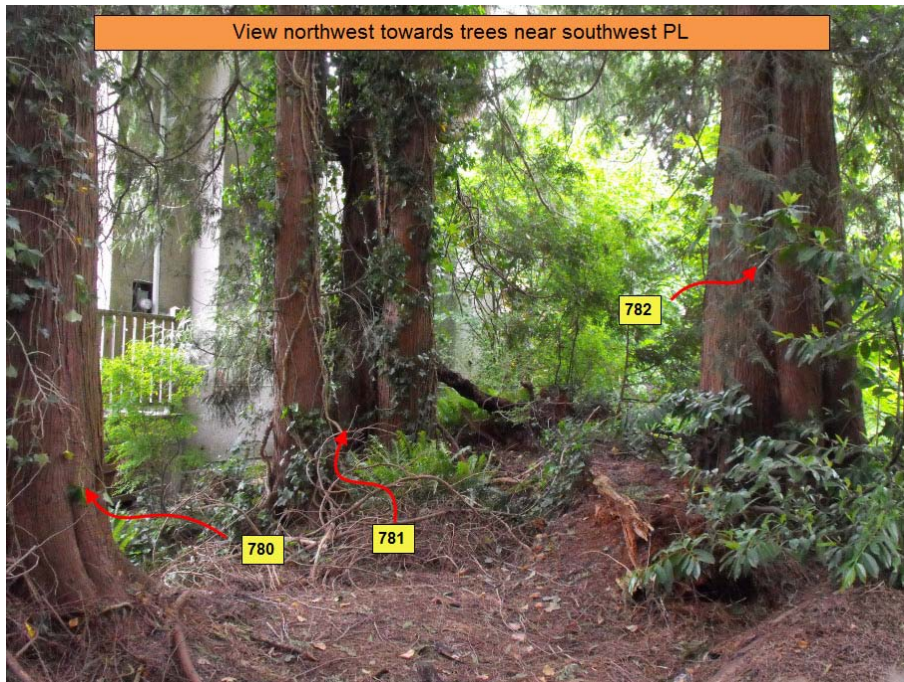
Picture 6. Trees #766 thru #773



Picture 7. Trees #774 thru #779



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Picture 8. Trees #780 thru #782



Picture 9. Tree #781 – decayed stems



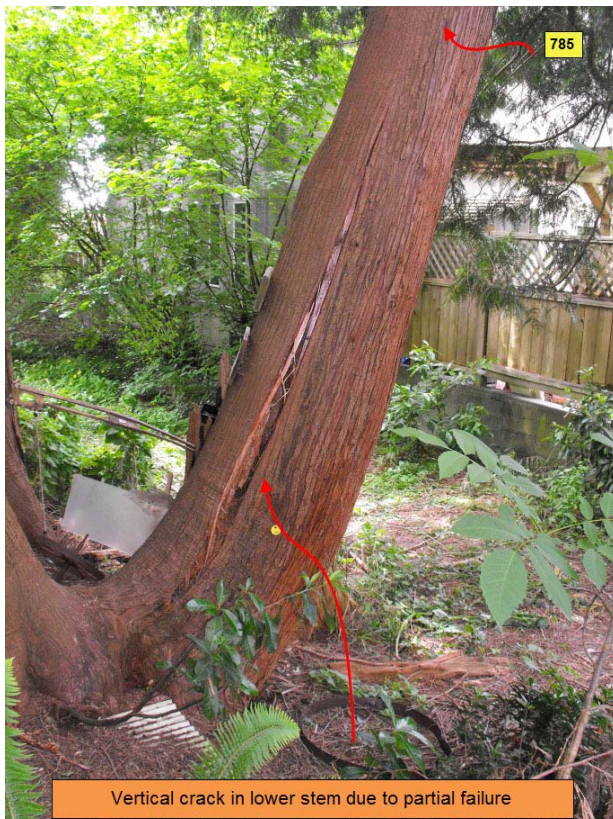
Picture 10. Tree #783



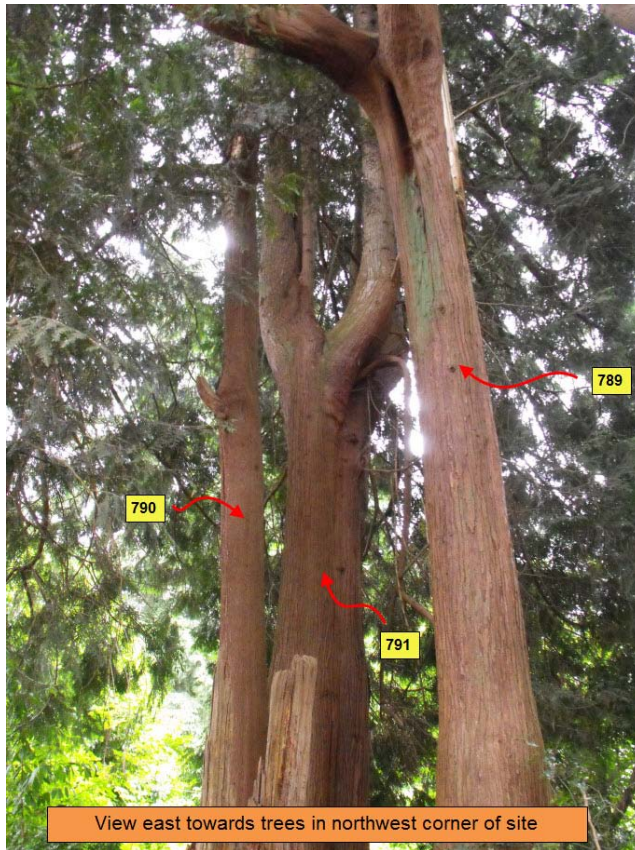
Picture 11. Trees #784 thru #788



Picture 12. Tree #785 – decay in upper stem



Picture 13. Tree #785 – crack in lower stem



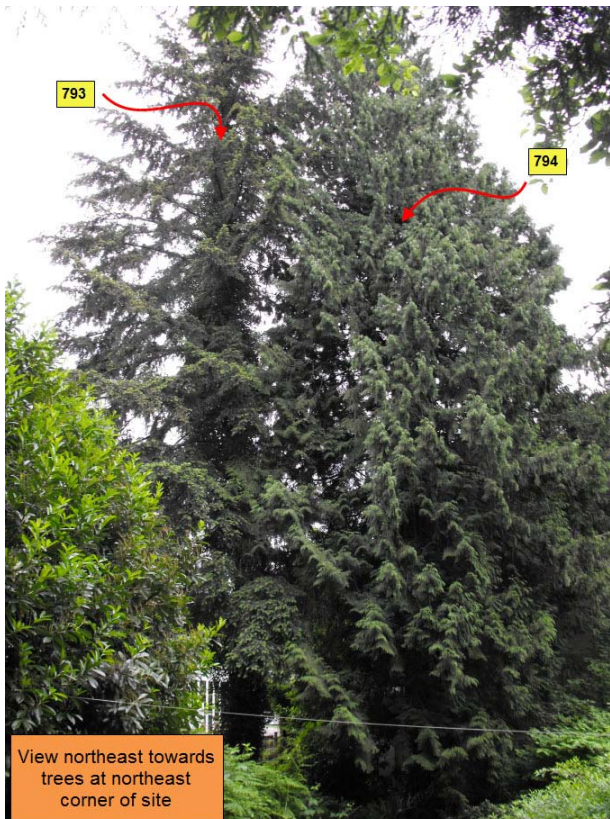
Picture 14. Trees #789 thru #791



Picture 15.
Site trees
have been
previously
topped & co-
dominant
stems have
grown



Picture 16. Tree #792 – tree in laneway allowance



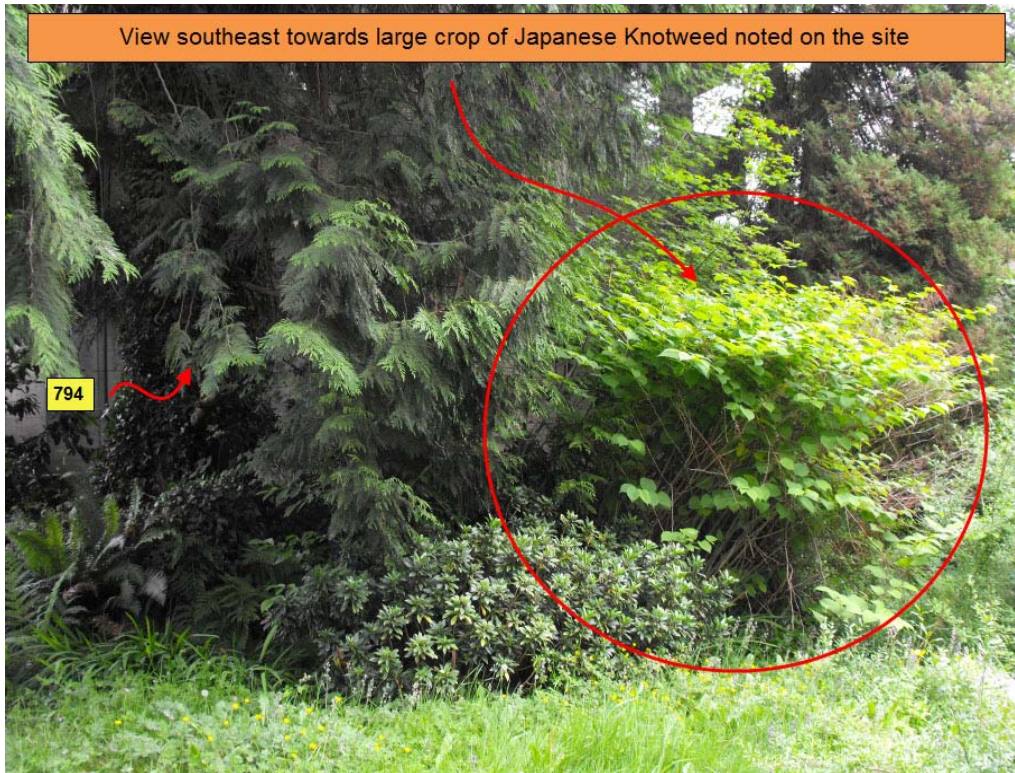
Picture 17. Trees #793 & #794



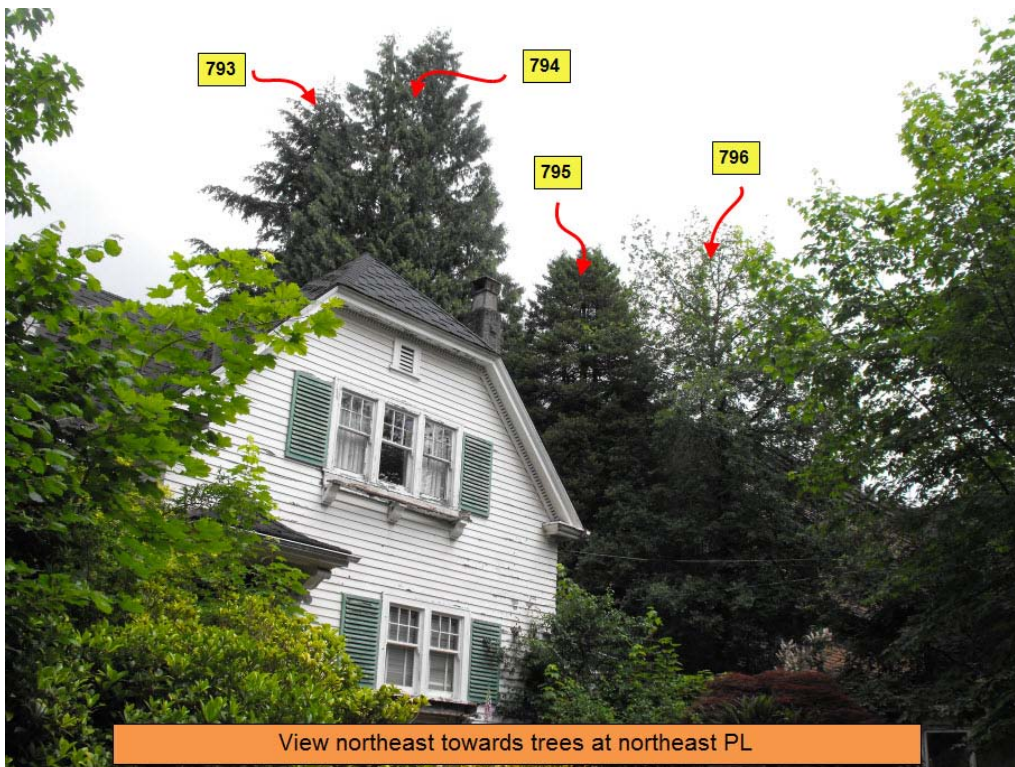
Picture 18. Ivy is established on trees



Picture 19. Ivy is established on trees



Picture 20. Japanese Knotweed identified on site



Picture 21. Trees #793 to #796



Picture 22. Trees #795 & #796



Picture 23. Tree #S1 – neighbour tree



Picture 24. Tree #S2 – blvd tree



Picture 25.
Tree #726 –
laneway tree



RADIX TREE & LANDSCAPE CONSULTING INC

Testing and Analysis:

The assessment completed on the trees defined within this report, consisted of a visual and physical inspection from the ground and was based upon the principals of Visual Tree Assessments. No invasive tests, such as using a resist-o-graph or increment borer, were used during the testing for this report.

Assumptions and Limiting Conditions:

1. The information contained in this report covers only those items that were examined and reflect the condition of these items at the time of inspection. The inspection is limited to visual examination of accessible components without dissection, excavation or probing. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the trees or property in question may not arise in the future.
2. The opinions in this Report are given based upon observations made using generally accepted professional judgment, however, because trees and plants are living organisms and subject to change, damage and disease, the results, observations, recommendations, and analysis as set out in this Report are valid only as at the date any such testing, observations and analysis took place. No guarantee, warranty, representation or opinion is offered or made by Radix Tree and Landscape Consulting Inc as to the length of the validity of the results, observations, recommendations and analysis contained within this Report.
3. Care has been taken to obtain all information from reliable sources. All data has been verified insofar as possible; however, the appraiser/company can neither guarantee nor be responsible for the accuracy of information provided by others.
4. All tree work is to be completed under the supervision of an ISA Certified Arborist and in compliance with ISA, BC Hydro and WCB standards.
5. Alteration of any part of this report invalidates the entire report.

If you have any questions or concerns please feel free to contact us.

Sincerely yours,

Michelle McEwen
ISA Certified Arborist (PN-6707A)
Certified Tree Risk Assessor (544)
Wildlife/Danger Tree Assessor BC (P-1453)
CofQ #00317-LH-08
Certified Horticulturist
Radix Tree and Landscape Consulting Inc