Arboricultural Assessment Report

Date of Report:	December 20, 2012 REVISED MAY 14TH 2013	Project File No.:	12-048
Date of Review:	December 18, 2012	Project Name:	Townhouse Dev. 2135 to 2167 Mount Seymour Parkway District of North Vancouver, BC
Weather:	Cold, overcast, 4" snow on ground	Arborist:	Jim Cadwaladr & Thomas Kyle

We completed review of site conditions on date of review and note the following:

ARBORIST REPORT for PROPOSED TOWNHOUSE DEVELOPMENT

Re: Arboricultural Assessment
Proposed Townhouse Development at
2135 to 2167 Mount Seymour Parkway, District of North Vancouver, BC

1.0 Introduction:

A site visit was requested by the Owner to review the quantity and quality of existing significant trees within the boundaries of the proposed development property located near Mount Seymour Parkway and Riverside Drive, District of North Vancouver, BC. We were provided with a copies of the land survey of the site by Ken K. Wong & Associates Land Surveyors and the proposed Architectural Plan by Hywel Jones Architects Ltd. The proposal involves the development of a multifamily building on the property.

2.0 Scope of Work:

Our scope of work is defined by the owner as follows:

a) Assess the project development site and neighbouring properties for quality and location of significant trees as per the District of North Vancouver's Existing Tree Bylaw and
b) Provide review of existing trees and indicate methods for protecting existing trees on the neighbouring properties and City property.

3.0 Observation:

The subject property is located in the Maplewood neighbourhood near the intersection of Mt. Seymour Parkway and Riverside Drive in the District of North Vancouver. The site is comprised of seven single residential lots located between, and including, 2135 and 2167 Mt. Seymour Parkway. The property is 40,228 square feet in area and rectangular in form. The property currently consists of seven single residential buildings with associated driveway, sidewalks, fencing and landscape of trees, shrubs and lawns. The site is generally treed around the perimeter with introduced and native species.

The subject property abuts a District LANE right-of-way to the West and to the South. There is an existing ditch running through the right-of-way emerging from a culvert near the southeast corner of the subject property and terminating into a bulk-headed culvert near the southwest corner of the subject property; flow is to the west then north. There are three (3) surveyed trees in the lane right-of-way to the south and seven (7) trees on the lane right-of-way to the west.

There are four (4) single family residential lots to the west of the subject property. These are located west of the lane right-of-way. There are six (6) trees on these properties included on the survey.
There is parkland to the south of the subject property that is presently treed primarily by Alders and Cottonwoods.

To the east of the subject property is a District LANE right-of-way. There is a single shared tree on the property line between the subject property and the right-of-way.

There are four (4) single family residential lots to the east of the subject property. These are located east of the lane right-of-way. There is a cedar hedge running the length of the lane on these properties.

To the North of the subject property is an axillary road parallel to Mt. Seymour Parkway providing access to the properties. Mt. Seymour Parkway is located directly to the north of the access road. The two are separated by a concrete barrier. There are no street trees along either road.

Surface drainage and slope:
The site is sloped generally from the northeast to the southwest with an elevation change of approximately 6 ft. across the run.
There were no signs of sitting surface water on the site. Although there 4” of snow on the ground at the time.
The ditch referred to earlier in this report had running water in it at the time.

Environmental notes (animals, etc...):
No significant landscape features were noted. No obvious wildlife values were observed.

Trees:
There are **29 trees** included in this survey, (see the tree table attached for descriptions of the existing trees) plus an additional 14 off site trees identified by the surveyor with surveyor numbers at the end of the tree table for a **total of 43 trees**
There are **13 trees** on the subject site. None of these trees are of by-law size of 750 millimetres (29”) DBH.

There are **10 trees** on the District LANE right-of-way. None of these trees are of by-law size of bylaw size.
There are **6 trees** on residential properties to the west. None of these trees are of by-law size.

Please see the below photos of individual trees.

	
Photo #1: Trees #374 O.S to #379 O.S. on Lane R.O.W. to the west and on private property beyond. Crowns have been raised to 13' ht. on east side.	Photo #2: Ditch along western edge of property in LANE R.O.W. looking south along lane R.O.W.
	
Photo #3: East LANE R.O.W. showing shared tree # 167 on the right, as viewed from the north looking south.	Photo #4: Tree # 397 co-dominant Cypress showing included bark. Recommended for removal.

4. Recommendation:

The mandate from the client to the Arborist was to review this site for the overall health and quality of the significant trees and to inventory any trees that are of a quality to retain and utilize in the proposed new project.

There are no trees to be retained on this site as they are all impacted by the proposed development. We recommend the removal of all 13 on site trees. There are no trees of by-law size of 75cm (29") DBH and therefore no replacement trees are required. The proposed Landscape Plan for the site does, however, indicate the installation of 52 trees for the project.

There are 10 trees on District Lane right-of-way. These are to be retained and protective barrier installed, as indicated on the Tree Management Plan, until the District Arborist reviews the trees to determine their suitability for retention or removal.

The 6 trees the neighbouring properties to the west of the lane R.O.W. (trees # 378 O.S., 379 O.S., 380 O.S., 385 O.S., 390 O.S. & 391 O.S.) are to be retained and protected by the installation of protective barrier.

The owner should then develop the site and install suitable proposed trees on-site as necessary to re establish a reasonable level of tree cover in the area without interfering with the long term growth of the neighbouring trees. This approach will allow for suitable tree species to be installed in the optimal locations for the best long term solution to the specific urban forestry requirements of this site.

5 Limitations

We attach the following clauses to this document to ensure you are fully aware of what is technically and professionally realistic in the assessment and preservation of trees.

This Arboricultural field review report is based only on site observations on the date noted. Effort has been made to ensure that the opinions expressed are a reasonable and accurate representation of the condition of all trees reviewed. The assessment was completed based on visual review only. None of the trees were dissected, cored, probed or climbed. All trees or groups of trees have the potential to fail. No guarantees are offered or implied by M2 Landscape Architecture or their employees that the trees are safe given all conditions. Trees can be managed, but they cannot be controlled. To live, work or play near trees is to accept some degree of risk.

The assessment provided was based on preliminary information only.
The opinions expressed in this report are valid for a period of one year only. Any trees retained should be reviewed on a regular basis to ensure reasonable safety.

Please contact the undersigned if you have any questions or concerns regarding this matter.

Yours Truly,

Jim Cadwaladr
ISA Certified Arborist PN #PN-7310A
M2 Landscape Architecture

REVISED MAY 14TH 2013

Tree Number	Species	DBH mm	Drip line radius M	Protected tree size	Quality	ON SITE	Location	Description	Comments	Evaluation
374 O.S (31)	**Western Red Cedar:** Thuja plicata	320	2 M	N	M	NO	North west corner on Lane Right of Way	Hedge Planting: Not topped, base branching at ground level, single stem, 90% live crown ratio, East side limbed up to 3.75 M from ground,	On city property, tree protection barrier required.	**RETAIN**
375 O.S (30)	**Western Red Cedar:** Thuja plicata	360	2 M	N	M	NO	North west corner on Lane Right of Way	Hedge Planting: Not topped, base branching at ground level, single stem, 90% live crown ratio, East side limbed up to 3.75 M from ground,	On city property, tree protection barrier required.	**RETAIN**
376 O.S (29)	**Western Red Cedar:** Thuja plicata	260	2 M	N	M	NO	North west corner on Lane Right of Way	Hedge Planting: Not topped, base branching at ground level, single stem, 90% live crown ratio, East side limbed up to 3.75 M from ground,	On city property, tree protection barrier required.	**RETAIN**
377 O.S (28)	**Western Red Cedar:** Thuja plicata	270	2 M	N	M	NO	North west corner on Lane Right of Way	Hedge Planting: Not topped, base branching at ground level, single stem, 90% live crown ratio, East side limbed up to 3.75 M from ground,	On city property, tree protection barrier required.	**RETAIN**
378 O.S (27)	**Western Red Cedar:** Thuja plicata	230 180	2 M	N	M	NO	On Adjacent property, to the west	Hedge Planting: Not topped, base branching at ground level, co-dominant 90% live crown ratio, East side limbed up to 3.75 M from ground.	On city property, tree protection barrier required.	**RETAIN**
379 O.S (26)	**Western Red Cedar:** Thuja plicata	410	2 M	N	M	NO	On Adjacent property, to the west	Hedge Planting: Not topped, base branching at ground level, single stem, 90% live crown ratio, East side limbed up to 3.75 M from ground,	On city property, tree protection barrier required.	**RETAIN**
380 O.S (25)	**Red Alder:** Alnus rubra	340	3.25 M	N	P	NO	On adjacent private site west side of subject site	Single Stem, topped at 6 M, rotting @ stem, branching to 6 stems at 6m point, stems are 100mm to 150 mm in diameter	Poor condition, internal rot starting at 6 M cut, stems prone to failure	RETAIN
381 (21)	**Red Alder:** Alnus rubra	220	2.75 M	N	P	YES	On stream bank of subject site	Single stem, topped at 6 M, rotting @ stem, branching to 6 stems at 6M point, stems are 50mm to 100 mm in diameter	Within stream setback, tree proection barrier required	RETAIN
382 (22)	**Red Alder:** Alnus rubra	240	3 M	N	P	YES	On stream bank of subject site	Single stem, topped at 6 M rotting @ stem, branching to 6 stems, at 6M point, stems are 50 mm to 100 mm in diameter.	Within stream setback, tree proection barrier required	RETAIN
383 O.S (23)	**Red Alder:** Alnus rubra	250	3 M	N	P	NO	On stream bank of subject site	Single stem, topped at 6 M rotting @ stem, branching to 6 stems, at 6M point, stems are 50 mm to 100 mm in diameter.	Within stream setback, tree proection barrier required	RETAIN

p=poor m=moderate g=good
OS = Off Site

Arborist Tree Table

Tree Number	Species	DBH mm	Drip line radius M	Protected tree size	Quality	ON SITE	Location	Description	Comments	Evaluation
384 O.S (17)	**Red Alder:** Alnus rubra	240	3 M	N	M	NO	On city lane ROW	Not topped, single stem, 10 degree cantor to the west, within an Alder thicket,	6.25 M from center of stream	RETAIN
385 0.S (16)	**Red Alder:** Alnus rubra	320	3.25 M	N	M	NO	On adjacent private site west side of subject site	Not topped, single stem, within an Alder thicket,	6.5 M from center of stream	RETAIN
386 O.S (14)	**Red Alder:** Alnus rubra	290 60	3 M	N	M	NO	On city lane ROW	co-dominant from base	On city property, requires tree barrier	RETAIN

Arborist Tree Table

Tree Number	Species	DBH mm	Drip line radius M	Protected tree size	Quality	ON SITE	Location	Description	Comments	Evaluation
387 O.S (8)	**Red Alder:** Alnus rubra	410	6 M	N	M	NO	On city lane ROW	Not topped, single stem, first branch @ 5 M twisted with a 5 % lean eastward.	On city property, requires tree barrier	RETAIN
388 O.S (07)	**Cottonwood:** Populus balsamifera	660	6 M	N	G	NO	On city lane ROW	Single Stem, first branch at 16.5 M	On city property, requires tree barrier	RETAIN
389 O.S	**Cottonwood:** Populus balsamifera	700	7 M	N	G	NO	On edge of stream	Single stem, First branch at 15 M	Within stream setback, tree protection barrier required	RETAIN
390 O.S	**Hemlock:** Tsuga heterophylla	300	3 M	N	G	NO	On adjacent neighbour's property,	Single stem, first branch 5 M from base, thin LCR at 60%	Within Alder thicket, separated by a wooden fence	RETAIN
391 O.S	**Spruce:** Picea spp	200	2.5 M	N	G	NO	On city lane ROW	Single stem, first branch, at 2M LCR 90%	Tag on fence,	RETAIN
392	**Cedar** spp	250	4 M	N	P	YES	North side, along front lane way	Hedge, topped at 4 M DEAD tree	DEAD	REMOVAL
393	**Cedar** spp	180 210	4 m	N	p	YES	North side, along front lane way	Hedge, topped at 4 M. Co-dominant, DEAD tree	DEAD	REMOVAL
394	**Cedar** spp	280 280	4.1 M	N	P	YES	North side, along front lane way	Hedge, topped at 4 M. Co-dominant, DEAD tree	DEAD	REMOVAL
395	**Douglas Fir** Pseudodsuga menziesii	430	4 M	N	M	YES	south side, behind existing housing	Co-dominant, at 3 M, visible included bark, First branch starts at 3 M, suppressed on south side, 70% LCR	Suggesting removal based on included bark and co dominant stems subject falling over	REMOVAL
396	**Cedar,** Thuja Plicata	630	4 M	N	M	YES	south side, behind existing housing	Topped at 8 M, splits into 10 stems, each stem = 300 mm: First branch is 2 M from base with 90% LCR	Suggesting removal because tree was topped with multiple new stems subject to breakage.	REMOVAL
397	**Cypress** Cupressus sempervirens	610	4 M	N	P	YES	North and middle of subject site	Topped at 12 M, with multiple stems of 100mm to 200 mm, co-dominant at 3 M advanced included bark, LCR at 70%	Suggesting removal because of advanced, included bark, topping and codiminant growth habit.	REMOVAL
398	**Cypress** Cupressus sempervirens	390	4.5 M	N	p	YES	North and middle of subject site	Topped at 12 M, three stems with dead crown.	suggesting removal as tree is dead	REMOVE

p=poor m=moderate g=good
OS = Off Site

Arborist Tree Table

Tree Number	Species	DBH mm	Drip line radius M	Protected tree size	Quality	ON SITE	Location	Description	Comments	Evaluation
399	**Douglas Fir** Pseudodsuga menziesii	500	5.5 M	N	G	YES	North East corner of subject site, adjacent to city ROW	Topped at 12 M, two stems, healthy no rot	suggesting retaining because tree is healthy	RETAIN

Arborist Tree Table

Tree Number	Species	DBH mm	Drip line radius M	Protected tree size	Quality	ON SITE	Location	Description	Comments	Evaluation
400	**Douglas Fir** Pseudodsuga menziesii	620	4.5 M	N	P	YES	North East corner of subject site, adjacent to city ROW	Topped at 12 M two stems, 1 M rotting stub with evidence of internal rot	Suggesting Removal	REMOVE
167	**Hemlock**: Tsuga heterophylla	460	6 M	N	P	shared	shared between North East corner of subject site and city ROW	Topped at 12 M.first branches at 3 M, evidence of woodpecker holes and rot, supressed on south east side due to lack of sunlight.	Suggesting removal because of rot concerns	REMOVE
168	**Douglas Fir** Pseudodsuga menziesii	460	6M		P	Yes	North East corner of subject site, adjacent to city ROW	Topped at 12 M.first branches at 3 M, evidence of woodpecker holes and rot, supressed on south east side due to lack of sunlight.	Suggesting removal because of rot concerns	REMOVE
1	**Red Alder:** Alnus rubra	365	3.25 M		G	NO	Directly south of the center of site behind existing swale ditch	Not topped single stem	On city property, requires tree barrier	RETAIN
2	**Red Alder:** Alnus rubra	335	3.15		G	NO	Directly south of the center of site behind existing swale ditch	Not topped single stem	On city property, requires tree barrier	RETAIN
3	**Red Alder:** Alnus rubra	365	3.25 M		G	NO	Directly south of the center of site behind existing swale ditch	Not topped single stem	On city property, requires tree barrier	RETAIN

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M2 Landscape Architecture
Project #12-048

Arborist Tree Table

2135 2167
Mt Seymour Parkway
North Vancouver BC

Tree Number	Species	DBH mm	Drip line radius M	Protected tree size	Quality	ON SITE	Location	Description	Comments	Evaluation
4	**Red Alder:** Alnus rubra	335	3.15		G	NO	Directly south of the center of site behind existing swale ditch	Not topped single stem	On city property, requires tree barrier	RETAIN

Arborist Tree Table

Tree Number	Species	DBH mm	Drip line radius M	Protected tree size	Quality	ON SITE	Location	Description	Comments	Evaluation
5	**Red Alder:** Alnus rubra	285	2.70M		G	NO	Directly south of the center of site behind existing swale ditch	Not topped single stem	On city property, requires tree barrier	RETAIN
6	**Maple Acer**	200	1.95 M		G	NO	Directly south west of the center of site behind existing swale ditch	Not topped single stem	On city property, requires tree barrier	RETAIN
9	**Red Alder:** Alnus rubra	457	4.6M		G	NO	Directly south west of the center of site behind existing swale ditch	Not topped single stem	On city property, requires tree barrier	RETAIN
10	**Red Alder: Alnus rubra**	335	3M		G	NO	Directly south west of the center of site behind existing swale ditch	Not topped single stem	On city property, requires tree barrier	RETAIN
11	**Cottonwood: Populus balsamifera**	610	6M		G	NO	Directly south west of the center of site behind existing swale ditch	Not topped single stem	On city property, requires tree barrier	RETAIN
12	**Red Alder:** Alnus rubra	213	2M		G	NO	Directly south west of the center of site behind existing swale ditch	Not topped single stem	On city property, requires tree barrier	RETAIN

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M2 Landscape Architecture
Project #12-048

Arborist Tree Table

2135 2167
Mt Seymour Parkway
North Vancouver BC

Tree Number	Species	DBH mm	Drip line radius M	Protected tree size	Quality	ON SITE	Location	Description	Comments	Evaluation
13	**Red Alder:** Alnus rubra	333	3M		G	NO	Directly south west of the center of site behind existing swale ditch	Not topped single stem	On city property, requires tree barrier	RETAIN
18	**Red Alder:** Alnus rubra	300	3M		G	NO	Directly south west of the center of site behind existing swale ditch	Not topped single stem	On city property requires tree barrier	RETAIN
19	**Red Alder:** Alnus rubra	325	3.15M		G	NO	Directly south west of the center of site behind existing swale ditch	Not topped single stem	On city property requires tree barrier	RETAIN
20	**Red Alder:** Alnus rubra	250	2.35M		G	NO	Directly south west of the center of site behind existing swale ditch	Not topped, single stem	On city property, requires tree barrier	RETAIN

The Corporation of the District of North Vancouver

ADMINISTRATIVE POLICY MANUAL

Section:	Land Administration	8
Sub-Section:	Development	3060
Title:	Community Amenity Policy	2

1. OBJECTIVE:

To create policy guidance for the provision of community benefits and community amenities achieved through new development.

2. INTERPRETATION:

"Community Benefit" means the overall contribution or improvement that a new development could make to the community.

"Community Amenity" means any public amenity or benefit that improves the quality of life of a community, over and above the new development itself and over and above the Community Benefits listed in Section 3.1 (a) to (e) of this Policy, and may include any of the amenities listed in 3.8 of this Policy.

"Community Amenity Contribution" or **"CAC"** means a community amenity contribution as set out in Sections 3.4 through 3.7 of this policy.

"OCP" means the District Official Community Plan.

3. POLICY:

PROVISION OF COMMUNITY BENEFITS:

3.1 New development must meet the goals set out in the District of North Vancouver's Official Community Plan and provide the following community benefits:

a) Works and services required to accommodate the development and works and services to the centreline of abutting streets;
b) Development Cost Charges as specified in the District of North Vancouver Development Cost Charge Bylaw;
c) Mitigation actions, works and measures to address negative impacts on the community;
d) Subdivision requirements as applicable;
e) Any required road dedications;
f) In certain circumstances, as outlined in Section 3.3 below, new development should provide community amenities or a financial contribution to cover the cost of a specified Community Amenity or a portion thereof sufficient that the District can make provision toward the specified Community Amenity.

3.2 The requirements for basic works and services, development cost charges and mitigation measures will be determined through the development review process and in accordance with any applicable statutory requirements and District bylaws and policies. The requirement for Community Amenity Contributions should be determined as specified in the balance of this policy.

PROVISION OF COMMUNITY AMENITY CONTRIBUTIONS:

3.3 Community Amenity Contributions should be required for rezonings that involve an increase in density in accordance with:

(a) Section 3.4 for sites within the Lower Lynn, Lynn Valley, Lower Capilano or Maplewood OCP designated town centres or village centres;

(b) Section 3.5 for residential development sites outside a designated town centre or village centre for which the OCP contemplates an increase in density;

(c) Section 3.6 for sites where the increase in density is not contemplated in the OCP.

3.4 The OCP or other adopted town or village centre policy will guide decisions related to Community Amenity Contributions for sites within an OCP designated town centre or village centre. Where a developer is seeking an increase in density for a site within an existing or a proposed town centre or village centre prior to adoption of an amenity strategy for the town centre or village centre, the CACs should be negotiated on a case specific basis.

3.5 For sites within an area contemplated for increased density in the OCP but outside of a town centre or village centre, CACs should be required and should be calculated as follows: $5 per square foot of increased residential gross floor area for townhouse, duplex, triplex or similar development; and $15 per square foot of increased residential gross floor area for apartment development. For the purpose of this section 3.5, the increase in gross floor area should be calculated on the basis of the proposed gross floor area for the subject site requested by the developer minus the total gross floor area permitted on the site under the "base density", where "base density" means the floor area ratio for the site calculated in accordance with "Schedule 1".

While the above formula is intended to be applicable in the majority of circumstances, there may be rezoning applications where the District or the Developer identifies the formula to be inappropriate and in those cases, the CACs should be negotiated outside the above formula. Where the CACs are negotiated outside the above formula, the total value of the CAC should be equivalent to 50% of the estimated increase in the market value of the land attributable to the density increase.

3.6 For sites that are being rezoned to permit an increase in gross floor area over and above that which is contemplated in the OCP, CACs should be negotiated on a case by case basis and the value of the CACs should be equivalent to 50% to 75% of the estimated increase in the market value of the land attributable to the density increase.

3.7 For the purpose of estimating the increase in the market value of land attributable to a proposed density increase, the base market value of the subject land (not necessarily equal to acquisition cost) should be calculated on the basis of the applicable zoning as at the date of the formal application for the increased density.

3.8 When considering the inclusion of a specific amenity rather than cash-in-lieu, the District's OCP or other Council direction or policy may provide guidance as to the type of Community Amenity Contributions that may be provided and if there are no such policies applicable to a proposed new development, then the following list should be used as a guide for determining the type of Community Amenity Contribution(s) (in no particular order of priority):

- Land for, or provision of, affordable, rental or special needs housing;
- Community, cultural, school, library or recreation facility or facility improvements;
- Seniors care, seniors day care or seniors wellness facility or facility improvements;
- Child care facility or facility improvements;
- Youth, children or family facility or facility improvements;
- Heritage conservation;
- Public Art in accordance with established policy;
- Provision of park land or park improvements;
- Extraordinary pedestrian, cycling, streetscape, public plaza or other public-realm linkages and improvements beyond those required by District bylaws and design guidelines;

- Environmental, or sustainability measures beyond the normal environmental development permit requirements;
- Contribution toward amenity maintenance, for example contribution into a long term maintenance fund to offset future maintenance costs of community amenities;
- Other Community Amenities as identified by the District of North Vancouver to meet established community goals, policies or needs.

3.9 Negotiation of CAC's, as above, will be directed by senior staff and reported to Council.

3.10 CAC's should be a cash payment in-lieu of specific Community Amenities unless the District requires the inclusion of a specific Community Amenity. If specific Community Amenities are required, they should be valued in accordance with Section 3.4, 3.5 or 3.6 as applicable.

3.11 Where CAC's are being negotiated, the developer should be required to pay the District's costs of the negotiation including the District's cost to engage a qualified consultant for the purposes of such negotiation.

3.12 In the case where policy objectives in the OCP or other established policies are inconsistent with this policy, the CAC should be negotiated with the aim of achieving Council's priority objectives in relation to the particular rezoning proposal being applied for.

4.0 SECURING COMMUNITY AMENITY CONTRIBUTIONS:

4.1 The provision of Community Amenities Contributions may be secured through one or more of the following methods:

- A phased development agreement, under Section 905.1 of the *Local Government Act*, as may be amended from time to time;
- Zoning for amenities and affordable housing, under Section 904 of the *Local Government Act* as may be amended from time to time;
- A housing agreement for affordable and special needs housing, under Section 904 and/or 905 of the *Local Government Act* as may be amended from time to time;
- As articulated in the terms of a sale agreement for projects involving the disposition of an interest in land owned by the District; or
- Other methods as recommended by the Municipal Solicitor.

5.0 REASON FOR POLICY

To ensure that the community obtains benefits from new development through a fair and equitable approach and to provide opportunities to achieve community improvements and innovation through development.

6.0 PROCEDURE

Planning staff are directed to implement the community amenity policy as part of development application processing and to include a summary of the community benefits when new development requires a report to Council.

This policy should be reviewed at the staff level every two years.

7.0 AUTHORITY TO ACT
Senior staff will negotiate appropriate amenities which will then be referred to Council for final approval.

Approval Date:	December 13, 2010	Approved by:	Chief Administrative Officer
1. Amendment Date:		Approved by:	
2. Amendment Date:		Approved by:	
3. Amendment Date:		Approved by:	

SCHEDULE 1: DEEMED DENSITIES IN DNV ZONING DISTRICTS

ZONING CATEGORY			
RESIDENTIAL	**ZONE**	**Building Form**	**Deemed Density**
Single Family Residential (RS)			
	RS1	Single Family	**0.45**
	RS2	Single Family	**0.45**
	RS3	Single Family	**0.45**
	RS4	Single Family	**0.45**
	RS5	Single Family	**0.45**
	Neighbourhood Zones		**0.45 – 0.55 As specified in zone**
Multi-Family Residential (RM)			
	RM1	Single Family	**0.45**
	RM1	Townhouse	**0.45**
	RM2	Single Family	**0.45**
	RM2	Townhouse	**0.6**
	RM2	Low-rise Apartment	**0.6**
	RM3	Townhouse	**0.75**
	RM3	Low-rise Apartment	**0.75**
	RM5	Townhouse	**0.45**
	RM6	Townhouse or Low-rise Apt.	**0.80**
	RM7	Townhouse or Low-rise Apartment	**0.80**
Low-rise Residential (RL)			
	RL1	Townhouse	**1.0**
	RL1	Low-rise Apartment	**1.0**
	RL2	Low-rise Apartment	**1.2**
	RL3	Low-rise Apartment	**1.25**
	RL4	Low-rise Apartment	**1.3 FSR**
High-rise Residential (RH)			
	RH2	High-rise Apartment	**1.75**
COMMERCIAL	**ZONE**	**Building Form**	**Deemed Density**
General Commercial Zone 1	C 1		**1.75**
Local Commercial Zone 1A	C 1A		**0.55**
Corner Store Commercial Zone 1B	C 1B		**0.55**
General Commercial Zone 1L	C 1L		**1.75**
General Commercial Zone 2	C 2		**1.75 except 1.0 in Edgemont Village**
General Commercial Zone 3	C 3		**1.75 except 1.0 in Edgemont Village**
General Commercial Zone 3A	C 3A		**1.75 except 1.0 in Edgemont Village**
Tourist Commercial Zone	C 4	Tourist Accommodation	**1.2 for commercial use (Change in use would trigger negotiated process)**
Entertainment Commercial Zone	C 5		**2.4 for commercial use (Change in use would trigger negotiated process)**
Entertainment/Outdoor Tourist Attraction	C 5A	Suspension Bridge	**0.35 for commercial use (Change in use would trigger negotiated process)**
Public House Commercial Zone 6	C 6	Neighbourhood Pub	**1.75 for commercial use (Change in use would trigger negotiated process)**
General Commercial Zone 7	C 7	Garden Centre	**0.5 (Change in use would trigger negotiated process)**
Commercial Business Zone 8	C 8		**1.0 (Change in use would**

			trigger negotiated process)
Marine Drive Commercial Zone	C 9		**1.0 for lots less than 1,100 m^2 1.75 for lots = to or greater than 1,100 m^2**
Commercial Business Zone 10	C 10		**1.75 (Change in use would trigger negotiated process)**
COMPREHENSIVE DEVELOPMENT ZONES (CD)	**ZONE**	**Building Form**	**Deemed Density**
	CD-1 through CD-61+	Varies by zone	**Refer to Zone**

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E3 Eco Group Inc.
"The Building Blocks of Sustainability"

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5 November 2012

Att'n: Doug Allan, MCIP, Community Planner, District of North Vancouver
Re: Green Building Strategy for Townhouse Project at 2135-2167 Mount Seymour Parkway

Mr. Allan;

Please accept this letter as confirmation that E3 Eco Group Inc. has been retained by Guildford Brook Estates Inc. to act as the sustainability consultant on the proposed townhouse development at 2135-2167 Mount Seymour Parkway in the District of North Vancouver. Among other services, E3 provides the services of BuiltGreen Certified Energy Advisor, though it is our understanding that this project will not be Certified through the Built Green program.

E3 has reviewed the plans for the townhouse development and the intended construction specifications as compared to the 2011 Built Green Checklist. Please note the 2012 Checklist implementation date has been delayed by Built Green Canada until December 31st 2012, hence we have used the 2011 Checklist. We find that the Guildford Brook Estates expects to achieve 110 points on the 2011 Checklist (please see attached Checklist).

We have conducted a preliminary EnerGuide for New Homes energy model on plan types A, C and C1; these were all "end" units and as such are less energy efficient than "middle" units. By employing certain construction specifications we have determined the predicted EnerGuide rating of all three end unit plan types can be as high as 84. We understand that all units in this development will be required to get an official Energuide rating, and that the average rating of all units will need to be 84 in order to allow a floor space bonus of 6%.

The combination of 110 Checklist points and an Energuide Rating of 84 would equate to the Gold level of Built Green if this project were to be Certified through the Built Green program.

For background on our company, please see our website at www.e3ecogroup.com, or contact us with any questions.

Sincerely,

Einar Halbig, CEO
E3 ECO GROUP INC.

cc. Yashpal Parmar

BUILT GREEN™ CHECKLIST 2011

Effective January 1, 2011

To select points, click on boxes and select point value from drop-down list

Builder: House Address:

Section 1: 15 Section 2: 15 Section 3: 10 Section 4: 19 Section 5: 9 Section 6: 13 Section 7: 19 Section 8: 10 = TOTAL POINTS: 110

I. OPERATIONAL SYSTEMS

This section awards points for construction methods and types of products that contribute toward lower energy consumption, as well as alternative heating and electrical systems.

Minimum 10 Points Required

1-1 Install a zoned heating system. Either, from a single HVAC source utilizing two or more, programable, thermostatically controlled zones or zoning separate systems through separate programable thermostats. (2 Zones = 2 points, 3 = points, 4 = points) [2] 2, 3 or 4

Efficiency can be significantly improved by only heating or cooling when occupants are present and by only heating/cooling to the exact desired temperature. Different desired temperatures can be set in each room or space and an individual zone can be turned off when not occupied. This type of system results in a dramatic reduction of energy consumption and operating costs.

1-2 Install high efficiency, sealed combustion heating appliance, with a minimum 94% AFUE (2 points) or 95% AFUE and above (3 points). [ ] 2 or 3

(Not for electric heat.) High efficiency furnaces or boilers, such as condensing systems, reduce energy consumption and consequently fossil fuel reliance. Because AFUE takes into account efficiency losses during start-up and cool down it's rating is slightly lower.

1-3 Install ground or water source heat pumps (10 points) or air source heat pumps (6 points) for heating and cooling. [ ] 6 to 10

Heat pumps can significantly reduce primary energy use for building heating and cooling. The renewable component displaces the need for primary fuels, which, when burned, produce greenhouse gases and contribute to global warming. Please Note: Cool climate heat pump systems are often more efficient due to the costs of electricity. However, cold climate heat pump systems are often not as efficient as typical boiler/furnace natural gas systems.

1-4 Programmable thermostat with dual set back & continuous fan setting. [ ] 2

A set back thermostat regulates the heating/cooling system to provide optimum comfort when the house is occupied and to conserve energy when it is not.

1-5 Install HVAC appliance with variable speed fan (ECM). [ ] 3

A variable speed fan motor (ECM or DC powered) is designed to vary its speed based on the homes heating and air conditioning requirements. Working in conjunction with the thermostat, it keeps the appropriate air temperature circulating through the home, reducing temperature variances in the home. It also provides greater air circulation and filtration, better temperature distribution, humidity control, higher efficiency and quiet performance.

1-6 Install sealed combustion 2 pipe tank system (2 points), or condensing DHW tank system (3 points) [ ] 2 or 3

Hot water heater is direct vented with a closed combustion system. All air for combustion is taken directly from the outside. A direct system utilizes a co-axial vent pipe (pipe inside a pipe) draws combustion air in through the outer pipe, and exhausts the products of combustion through the inner pipe. A power vented heater exhausts air out of the building via a positive exhaust during main burner operation. Both systems eliminate the need for conventional chimneys or flue systems.

1-7 Install instantaneous "tankless" hot water heater. [ ] 4

A tankless water heater does not have a storage tank to keep heated all day, or a pilot light; it burns gas only when you need hot water. This eliminates standby heat loss and its higher efficiency will save on utility costs.

1-8 Install high efficiency (AFUE 90 or better) boiler domestic hot water system. [ ] 4

1-9 Install Ground Source Heat Pump DHW heating system to supply a minimum of 25% of the peak DHW heating load and 70% of the total DHW energy load. [ ] 4

A Ground Source Heat Pump system uses the earths constant temperature to heat water for the home.

1-10	Install drain water heat recovery units on the main drainage stack. 3 foot stack (1 point), 6 foot stack (2 points) Drain water heat recovery units transfer the heat from waste water to incoming water. This reduces the amount of energy needed for the DHW system.		1 or 2
1-11	Sealed combustion fireplace with electronic ignition if gas fueled. Sealed combustion fireplaces involve a double-walled special vent supplied by the manufacturer that normally vents through a sidewall in a horizontal position. The unit must be Sealed Combustion, meaning that combustion gasses can not enter the home even if the home becomes depressurized.		2
1-12	Install an EPA or CSA certified high-efficiency wood stove or pellet stove with a minimum efficiency of 72% (1 point) or 85% (2 points). State-of-the-art wood and pellet stoves are among the cleanest burning heating appliances and deliver a high overall efficiency. EPA and CSA certified stoves ensure reduced emissions.		1 or 2
1-13	Install fireplace fan kit to circulate warm air into room (1 point per fan, maximum 2 points). A fan kit allows the heat generated by a fireplace to be transferred into the home more effectively.		1 or 2
1-14	All windows in home are ENERGY STAR labeled or equivalent for the climatic zone of home. ENERGY STAR labeled windows save energy by insulating better than standard windows, making the home more comfortable all year round, reducing outside noise and can result in less condensation forming on the window in cold weather.	2	2
1-15	Electric range is self cleaning and/or Convection based Ranges that self clean or have convection are better insulated and sealed, performing at or less than 500 kwh (520 kwh for convection) when rated by EnerGuide.	1	1
1-16	Refrigerator is an ENERGY STAR labeled product. An ENERGY STAR label for refrigerator indicates the product has met strict requirements to reduce energy consumption.	2	2
1-17	Dishwasher is an ENERGY STAR labeled product. An ENERGY STAR label for a dishwasher indicates the product has met strict requirements to reduce energy consumption.	1	1
1-18	Clothes washer or combo washer dryer is an ENERGY STAR labeled product. An ENERGY STAR label for a clothes washer indicates the product has met strict requirements to reduce energy consumption.	1	1
1-19	Clothes dryer has an energy performance "auto sense" dry setting which utilizes a humidity sensor for energy efficiency.	1	1
1-20	Home is built "Solar Ready" following Canadian Solar Industries Association (CANSIA) guidelines. Designing a home to be solar ready will make the addition of panels in the future much easier. Contact the Canadian Solar Industries Association for more info: www.cansia.ca.		2
1-21	Install active solar hot water heating system. Sized for 30% of DHW load (4 points), 50% (6 points), 80% (8 Points) System capacity must be verified by professional installer or engineer using modeling software such as RETScreen or better, data provided to Built Green Energy Advisor at time of modeling		4, 6,8

1-22	Install photovoltaic electrical generation system. Sized for 30% of electric load (4 points), 50% (6 points), 80% (8 points). A photovoltaic system will greatly reduce the reliance on fossil fuel energy and reduce greenhouse gas emissions. System capacity must be verified by professional installer or engineer.		4, 6, 8
1-23	50% (2 points) or 100% (4 points) of electricity used during construction of home is generated by wind power or equivalent green power certificate.		2 or 4
1-24	50% (2 points) or 100% (4 points) of electricity used by homeowner during first year of occupancy is generated by wind power or equivalent green power certificate. (prepaid by builder)		2 or 4
1-25	A properly supported and wired ceiling fan and a wall mounted switch roughed in for future installation. Intended to allow for future temperature equalization.	1	1
1-26	Install interior motion sensor light switches. 1 point per switch to a maximum of 3 points. Motion sensor switches prevent lights from remaining on in rooms that are unoccupied. This helps reduce electricity consumption. Switches on closet doors and pantries are also acceptable.	1	1 to 3
1-27	Install central, computerized control systems capable of unified automation control of lighting loads. Lighting and automation control systems prevent lights from remaining on in rooms without occupants, thereby reducing electricity consumption.		4
1-28	Minimum 25% (1 point), 50% (2 points), 75% (3 points) or 100% (4 points) of interior and exterior light fixtures are fluorescent, compact fluorescent light bulbs or LEDs. Fluorescent, compact fluorescent and LED lamps use 50% less energy than standard lamps and last up to ten times longer.	1	1 to 4
1-29	Minimum 50% of recessed lights use halogen bulbs. Halogen bulbs are slightly more energy efficient, last longer and provide a more effective task light than conventional bulbs.	1	1
1-30	Air tight, insulation contact-rated recessed lights are used in all insulated ceilings, or insulated ceilings have no recessed lights. Prevents heated air from exhausting through ceiling. Air tight light fixtures lead to a more airtight, energy efficient home.	1	1
	TOTAL SECTION POINTS	**15**	

II. BUILDING MATERIALS

This section deals with building components that make up the structure of the home. Items involve alternatives to using large dimensional lumber, products with a recycled component, utilizing wood products that come from sustainably managed forests and reducing the overall amount of lumber used. Many Building Material items also improve thermal performance and EnerGuide scores

Minimum 15 Points Required

2-1	Insulated Concrete Form (ICF) system used for foundation walls. Insulating Concrete Forms (ICF) are hollow building elements made of plastic foam that are assembled, often like building blocks, into the shape of a buildings exterior walls. The ICFs are filled with reinforced concrete to create structural walls. Unlike traditional forms, the ICFs are left in place to provide insulation and a surface for finishes.		2
2-2	Insulated Concrete Form (ICF) system used for 75% of above grade house walls. See description in 2.1. Use of modest a amount of stick framing is allowable, i.e. at bay windows, pony walls and walk out walls.		3
2-3	Non-solvent based damp proofing (seasonal application). Water based damp proofing products use water as a thinner. Oil based damp proofing gives off a number of volatile organic compounds (VOCs) as the solvent evaporates after application. These VOCs can be a strong irritant and can add to air pollution.	1	1
2-4	Exterior and interior wall stud spacing at 19.2" on-center (1 point) or 24" on-center (2 points) . Increasing stud spacing reduced the thermal performance of homes while saving materials.		1 or 2
2-5	Use of insulated headers / lintels (either manufactured or site built insulated headers) with minimum insulation value of R10. Headers can either be insulated on site or can be a pre-manufactured product (often insulated with a foamed plastic).	1	1
2-6	Install manufactured insulated rim/band joist, or build on-site built header wrap detail for continuous air barrier. Rim and band joists can either be insulated on site or can be pre-manufactured (often insulated with a foamed insulation).	1	1
2-7	Elimination of headers at non-bearing interior and exterior walls. It is not necessary to use the additional wood involved in header construction if the opening is less than 4' wide and is non-load bearing. For more details on Optimum Value Engineering framing principles see www.buildingscience.com.	1	1
2-8	Use of header hangers instead of jack studs. Using metal header hangers instead of jack studs allows for savings in wood use. For more details on Optimum Value Engineering framing principles see www.buildingscience.com.		1
2-9	Elimination of cripples on hung windows. For hung window openings, cripples are only necessary for siding or gypsum board attachment. For more details on Optimum Value Engineering framing principles see www.buildingscience.com.		1
2-10	Elimination of double plates, using single plates with connectors by lining up roof framing with wall and floor framing. Stack framing principles will allow for reduced wood usage. For more details on Optimum Value Engineering framing principles see www.buildingscience.com.		1
2-11	Use of two stud corner framing with drywall clips or scrap lumber for drywall backing instead of studs. Drywall clips can be used instead of a third corner stud allowing for reduced wood usage. For more details on Optimum Value Engineering framing principles see www.buildingscience.com.		1

2-12	Deck or veranda surfaces (1 point) and/or structure (1 point) made from a third-party certified sustainably harvested wood source. Wood must come from a sustainably harvested source with certification from Forest Stewardship Council (FSC), Sustainable Forestry Initiative (SFI), or Canadian Standards Association's Sustainable Forest Management Standard (CAN/CSA-Z809-02).		1 or 2
2-13	Deck or veranda surfaces (1 point) and/or structure (1 point) made from a third-party certified sustainable concrete. Concrete produced from aggregates derived from a pit or quarry with a valid reclamation plan approved by Materials and Resources Canada or the governing provincial body.		1 or 2
2-14	Structural insulated panel system used for at least 75% of roof/ceiling (4 points), 75% of walls (6 points), exposed floors (2 points) and/or Foundation (2 points). Factory built Stressed-skin Insulating Panels (SIPS) can reduce thermal migration and control air leakage – keeps heating and cooling costs to a minimum and can use less framing material compared to a conventionally framed wall.		2 to 14
2-15	Dimensional lumber from a third-party certified sustainably harvested source used for floor framing. See 2-12		1
2-16	Dimensional lumber from a third-party certified sustainably harvested source used for wall framing. See 2-12		2
2-17	Dimensional lumber from a third-party certified sustainably harvested source used for roof framing. See 2-12		1
2-18	Use manufactured wood products for floor systems instead of dimensional lumber (1 point), from third party certified sustainably harvested sources (2 points). Engineered wood floor systems saves old growth forests by using components from second generation forests and the use of recycled materials. See 2-12	1	1 or 2
2-19	Reduce dimensional lumber use by using engineered product for all load bearing beams & columns (1 point), from third party certified sustainable sources (2 points). Engineered products include wood products, concrete and recycled steel.		1 or 2
2-20	Reduce dimensional lumber use by using engineered products for all exterior window and door headers. Engineered products include wood products, concrete and recycled steel.		1
2-21	Finger-jointed plate material and/or engineered plate material used for all framing plates. Use of recycled materials saves old growth forests.		1
2-22	Reduce dimensional lumber use by using engineered stud material for 10% of structural stud wall framing. Use of engineered lumber products saves old growth forests by using components from second generation forests and the use of recycled materials.		1
2-23	Finger-jointed studs for 90% of non-structural (1 point) and/or 90% of structural (1 point) wall framing. Use of recycled materials saves old growth forests.	1	1 or 2
2-24	Recycled and/or recovered content gypsum wallboard, minimum of 15% recycled content.	1	1
2-25	Recycled content exterior wall sheathing (minimum 50% pre- or post-consumer).		2
2-26	Use rain screen system separating cladding from the wall sheathing with a drainage plane (2 point), 60% or more recycled content (additional 1 point). Use of recycled content polypropylene, steel or aluminum rain screen strapping may replace the traditional use of wood strapping on rain screen systems.	2	1 or 3
2-27	Advanced sealing package, non HCFC expanding foam around window and door openings and all exterior wall penetrations. Controls air leakage and keeps heating and cooling costs to a minimum.	2	2
2-28	All sill plates sealed with foam sill gaskets or a continuous sandwiched bead of acoustical sealant. Controls air leakage and keeps heating and cooling costs to a minimum.	1	1
2-29	All insulation used in home is certified by a third-party to contain a minimum recycled content: 40% (1 point) or 50% (2 points).		1 or 2
2-30	Install site applied spray foam to insulate entire rim joist area (1 point), Exposed floors (2 points) and/or house walls (4 points) and/or entire roof (3 points). Spray insulations provide excellent air sealing and insulation value. Spray foam must be fire protected and some types cannot come in contact with heating ducts or lines. Some foams meet requirements for vapour barriers. Consult supplier or installer for further information.	1	1 to 10
2-31	Replace exterior wood sheathing with insulating sheathing and structurally required metal bracing. Using less materials when possible saves the forest reserves, reduces thermal migration and controls air leakage and keeps heating and cooling costs to a minimum compared to a conventional wall.		2
2-32	Install R5 (1 point), R8 (2 points) or R12 (3 points) above building code required under entire basement slab. Insulation installed under the basement slab will reduce the downward heat transfer into the ground below the slab, especially when hydronic in-slab heating is installed. Insulation under the slab can reduce temperature swings in the heated space and respond quicker to new changes in thermostat settings.		1,2 or 3

2-33	Install additional rigid insulation on exterior of above grade walls, above code required framing cavity insulation. 1.5" (1 point) or 2" (3 points). Exterior insulation can greatly reduce thermal bridging, improving thermal performance. Care must be taken to ensure the wall cavity remains permeable to the outside and foam must be fully protected from UV damage during and after construction. Refer to CHBA Builder Manual or Local Code Officals for additional information.		1 or 3
2-34	Install additional exterior insulations system on exterior of foundation, R Value of 7.5 (1 point), R10 (2 points), or R15 (3 points), above code required interior insulation level Insulation on the outside of a foundation system reduced energy loss		1, 2 or 3
2-35	Overhead garage door is made of 75% or greater recycled material.		1
2-36	Attached garage overhead door is insulated with R8 to R12 (1 point) or greater than R12 (2 points).		1 or 2
2-37	Attached garage is fully insulated. A fully insulated garage serves an additional insulating capacity for any walls encapsulated by it, further slowing heat loss through those walls.		1
2-38	Builder uses passive solar design shading devices for home. Permanent horizontal and/or vertical exterior shading devices for glazing (2 points), computer controlled devices (additional 1 point). Excludes interior blinds.		2 or 3
2-39	Install 100% recycled content carpet underlayment.	1	1
2-40	Install finished concrete interior floors instead of other types of finished floors (tile, carpet, hardwood, etc). For 300-500 ft² (1 point), 501-1000 ft² (2 points), 1001-1500 ft² (3 points), 1501+ ft² (4 points). Not applicable in unfinished basement areas. Using the concrete itself as a finished floor where concrete is being used regardless (for in floor heat or basement slabs) provides a durable floor with less material usage.		1 to 4
2-41	Install weather-stripped and insulated (R15 minimum) manufactured interior attic hatch (1 point), or no interior attic access (1 point)	1	1
	TOTAL SECTION POINTS	**15**	

III. EXTERIOR and INTERIOR FINISHES

This section focuses on the finish materials used both inside and outside of the home. The items listed include using longer lasting products, products with recycled content and products that are harvested from third-party certified sustainably managed forests.

Minimum 10 Points Required

3-1	Exterior doors with a minimum of 15% recycled and/or recovered content. Recycled or recovered content ensures we keep our landfill use to a minimum. Not including overhead garage doors (see 2-33).		1
3-2	Interior doors with a minimum of 15% recycled and/or recovered content.	1	1
3-3	Interior doors made from third-party certified sustainably harvested wood. Uses trees from forests managed sustainably, that prevent clear cutting and replant trees in areas from which they've been harvested.		2
3-4	All exterior doors manufactured from fiberglass. Fiberglass doors insulate better than steel skinned or wood doors, have a longer lifespan, do not warp, twist or crack, and therefore reduce landfill use.		1
3-5	Exterior window frames contain a minimum of 10% recycled content. Reusing materials such as plastics that may not be biodegradable reduces landfill usage.		1
3-6	Exterior window frames made from third-party certified sustainably harvested wood. Uses trees from responsible sources and forests certified to an independent third party forest certification program.		2
3-7	Natural cementitious stone/stucco/brick or fiber cement siding – complete or combination thereof for 100% of exterior cladding. Strong, long lasting, fireproof material.		4
3-8	Recycled or reclaimed exterior cladding material. 1/3 of exterior (1 point), 2/3 or more of home (2 points). Use of reclamined bricks, recycled content siding, etc. Intent is to replace siding materials, primarily exterior finish materials.		1 or 2
3-9	Fiber cement fascia and soffit. Fiber cement fascia and soffit, made with recycled content from sawmill waste and Portland cement, is a strong, long lasting and fireproof material.		2
3-10	Recycled and/or recovered-content fascia and soffit (minimum 50% pre- or post-consumer). Recycled and/or recovered-content fascia and soffit reduces the amount of new material used in production by gluing up mill scraps into large pieces, which conserves natural resources and reduces landfill usage.		1
3-11	Recycled and/or recovered-content siding (minimum 50% pre- or post-consumer). Recycled and/or recovered-content siding reduces the amount of new material used in production by gluing up mill scraps into large pieces, which conserves natural resources and reduces landfill usage.		4
3-12	Exterior trim materials are made from alternatives to solid lumber. Trim materials manufactured from OSB uses a laminating process to make larger pieces from smaller pieces or strands of wood. The process saves old growth forests by using trees from forests managed sustainably, that prevent clear cutting and replant trees in areas from which they've been harvested.		1
3-13	Exterior trim materials have recycled and/or recovered-content (minimum 50%). Recycled and/or recovered-content trim materials reduce the amount of new material used in production by gluing up mill scraps into large pieces, which conserves natural resources and reduces landfill usage.		3
3-14	All exterior trim is clad with pre-finished metal (1 point over wood backings, 2 points without wood backings). Trim clad with pre-finished metal is a durable long lasting product that requires no maintenance and reduces waste in landfills due to long life of product.		1 or 2
3-15	Deck or veranda surfaces made from low maintenance materials - deck surfaces do not need maintenance of any kind, including painting, for a minimum of 5 years. Materials that last longer reduce landfill usage and tend to require little to no maintenance, saving replacement costs and reducing energy use.		2
3-16	Minimum 25-year manufacturer warranty roofing material (2 points plus 1 point for each additional 5 years). A 25-year roof system saves homeowners money in replacement costs, and reduces the use of landfills due to the longevity of the product.	3	2 or more
3-17	Minimum 25% recycled-content roofing system (1 point underlay and 2 points roofing finish). Recycled content roofing material reduces the use of new resources and waste in landfills.		1 to 3
3-18	Domestic wood from reused/recovered or re-milled sources, 500 ft² minimum for flooring or all cabinets or all millwork. Reused, recovered or re-milled sources eliminate the need for new resources, saving energy, transportation costs, and forestry from depletion.		6
3-19	Natural or recycled-content carpet pad made from textile, carpet cushion or tire waste (rebond still qualifies). Natural or recycled-content carpet pad is a good use of reusable resources.	2	2

3-20	**Install carpet that has a minimum of 50% recycled content.** Recycled-content carpet is a good use of renewable resources, lessens off-gassing and improves air quality.		2
3-21	**Install a minimum of 300 ft² of laminate flooring.**	2	2
3-22	**Bamboo, cork or hardwood flooring used in home, minimum of 300 ft² installed. Products must be third-party certified from sustainably managed forests or certified sustainable sources.** Cork flooring comes from stripping the bark off cork oak, which regenerates itself. The cork tiles are moisture, rot and mould resistant, providing a floor that can last over 30 years. Bamboo flooring is a good use of natural resources because it is fast growing, durable and flexible. All hard floorings promote better indoor air quality by not trapping contaminates.		3
3-23	**All ceramic tile installed in home has a minimum of 25% recycled-content.** Reduces landfill usage.		2
3-24	**MDF and/or finger jointed casing and baseboard used throughout home (1 point), and all jambs (1 point)** Medium Density Fiberboard (MDF) casing is created from sawdust and glues, utilizing all wood waste to create usable product.	2	1 to 2
3-25	**Solid hardwood trim from third-party certified sustainably harvested sources approved for millwork and/or cabinets (2 points per application – maximum of 4 points).** Uses trees from responsible sources and forests certified to an independent third party forest certification program.		2 or 4
3-26	**Paints or finishes with minimum of 20% recycled content.** Paints or finishes made from recycled content are environmentally friendly because recycling paint reduces the hazardous waste in landfills.		1
3-27	**Local natural stone or recycled content (30% of content) solid countertops for all kitchen counters (2 points), all other counter tops (1 point).** Solid counter top product is more durable, easy to clean and maintain, resistant to heat and scoring. By quarrying and sourcing in Canada, the environmental cost of shipping is greatly reduced. Foreign stone cut or polished in Canada is not acceptable, quarry must be located within 800km of project, see item 8-1 for additinal point.		1 or 2
3-28	**100% agricultural waste or 100% recycled wood particle board used for shelving.** Products such as wheat board are made from agricultural waste.		2
3-29	**PVD finish on all door hardware.** Physical Vapour Disposition provides a more durable product. No toxic wastes are produced making it.		1
3-30	**PVD finish on all faucets.** Physical Vapour Disposition provides a more durable product. No toxic wastes are produced making it.		1
3-31	**Install only Type 1 or 2 grade door hardware with lifetime mechanical and coating warranty.** High quality, durable Type 1 and 2 hardware will not require replacing for life of home.		2
	TOTAL SECTION POINTS	10	

IV. INDOOR AIR QUALITY

This section focuses on the quality of the air within the finished home. Products listed here include materials that are low in VOC's, products made from all natural materials as well as various air cleaning and ventilation systems. Minimum 15 Points Required

4-1	Install pleated media filter on HVAC system with minimum MERV 7 rating. MERV rating system specifies allowable amounts and practical sizes that a filter must catch. The higher the MERV rating, the smaller and greater number of particulates are caught, providing better indoor air quality.		1
4-2	Install electrostatic air cleaner on HVAC system. Permanent washable air filter that traps and removes airborne particles from the air before being circulated through the furnace and into the home.		2
4-3	Install air filter on all fresh air inlets. A filter installed on the fresh air inlet will reduce the particulate that can be transferred from outside into the home. All air intakes must be easily accessible for maintenance. Bug screens are not considered a "filter". Check with funace or HRV manufacture prior to		1
4-4	Install electronic air cleaner on HVAC system. An electronic air cleaner offers a superior level of filtration by using advanced, 3-stage filtration technology to trap and filter airborne particles like dust, cat dander and smoke. It works by placing an electric charge on airborne particles, and then collecting the charged pollutants like a magnet. The air cleaner cells can be washed in your dishwasher or sink.		3
4-5	Install HEPA filtration system in conjunction with an HVAC system. HEPA stands for High-Efficiency Particle Arresting. HEPA filtration offers the highest particulate removal available - 99.97% of particles that pass through the system including dust, cat dander, certain bacteria, pollens and more. The system is connected to the cold air return of the forced air heating/cooling system which provides a whole house filtration system.		6
4-6	Install thermostat that indicates the need for the air filter to be changed or cleaned. This feature displays filter maintenance reminders on the thermostat. Regular furnace maintenance is required to keep your mechanical equipment running efficiently and problem free as well as ensuring a healthy indoor air environment.		1
4-7	Power vacuum all HVAC ducting prior to occupancy by homeowner. This process helps eliminate pollutants that drop into the HVAC ducting during the construction process from being circulated into the home.		2
4-8	Central vacuum system vented to exterior as recommended by the Carpet and Rug Institute. A central vacuum system collects dust centrally, while exhausting to the exterior so that dust mites and bacteria do not have the opportunity to re-circulate. The result is cleaner, healthier air. Note: install far enough from air intake areas. See manufacturer's installation guidelines.		1
4-9	All insulation in the home is third-party certified or certified with low or zero formaldehyde. Formaldehyde is colorless gaseous organic compound, water soluble, with a characteristic pungent and stifling smell. Products with low formaldehyde emission levels will improve indoor air quality of homes and long term owner health.	2	2
4-10	Low formaldehyde sub floor sheathing (less than 0.18 ppm). Formaldehyde is colorless gaseous organic compound, water soluble, with a characteristic pungent and stifling smell. Products with low formaldehyde emission levels will improve indoor air quality of homes and long term owner health. Industry Standard ANSI A208.1-1999 sets a 0.20 ppm limit. Built Green™ requires a 10% better level of performance at 0.18 ppm. Products using Phenol Formaldehyde, or PMDI or MDI will meet this standard without testing.	3	3
4-11	Low formaldehyde underlayment is used in home (less than 0.18 ppm). Low formaldehyde (phenol) and formaldehyde-free binders (PMDI) are available and becoming more common. FSC certified OSB is becoming more common, reducing environmental impacts on air, water, social quality.		1
4-12	Low formaldehyde particle board/MDF (less than 0.18 ppm) = 1 point, or zero formaldehyde particle board/MDF (2 points) used for cabinets. Urea formaldehyde-free fiberboard can be used in the same way as conventional fiberboard, but with the added caution of greater potential for water damage.	1	1 or 2
4-13	Low formaldehyde particle board/MDF (less than 0.18 ppm) = 1 point, or zero formaldehyde particle board/MDF (2 points) for shelving. Urea formaldehyde-free fiberboard can be used in the same way as conventional fiberboard, but with the added caution of greater potential for water damage.	1	1 or 2
4-14	All interior wire shelving is factory coated with low VOC / no off gassing coatings Vinyl coating on conventional shelving units and site built MDF shelving off gas VOCs.	2	2
4-15	Water-based urethane finishes used on all site-finished wood floors. Water-based epoxy finish (generally referred to as epoxy-modified finish) differs from its solvent-based counterpart in that the epoxy resin is itself the catalyst for an acrylic or urethane resin.		2

4-16	**All wood or laminate flooring in home is factory finished.** Installing a pre-finished floor eliminates the time, the dust and the odours associated with the on-site sanding and finishing of an unfinished product.	2	2
4-17	**Water-based lacquer or paints are used on all site built and installed millwork, including doors, casing and baseboards. (less then 200 grams/litre of VOC's)** Using water based interior finish products reduces VOC off-gassing which improves indoor air quality.	3	3
4-18	**Interior paints used have low VOC content (less than 200 grams/litre of VOCs).** Volatile Organic Compounds (VOCs) are a class of chemical compounds that can cause short or long-term health problems. A high level of VOCs in paints/finishes off-gas and can have detrimental effects to a buildings indoor air quality and occupant health.	2	2
4-19	**Interior paints used have no VOC's in base paint prior to tint.** Volatile Organic Compounds (VOCs) are a class of chemical compounds that can cause short or long-term health problems. A high level of VOCs in paints/finishes off-gas and can have detrimental effects to a buildings indoor air quality and occupant health.		3
4-20	**All ceramic tiles are installed with low VOC adhesives and plasticizer-free grout (low VOC standard is less than 150 grams per litre).** Most adhesives are still based on SB latex which releases large quantities of VOCs. The volatile solvents are used to emulsify (or liquefy) the resin that acts as the bonding agent. However, water-based adhesives emit far less VOCs than their conventional solvent based counterparts. There are three types of low-VOC formulas: water-based (latex and acrylics); reactive (silicone and polyurethane); and exempt solvent-based (VOC-compliant solvents). While all three technologies yield low- or zero-VOC caulks, sealants, and adhesives, their performance is slightly different.		1
4-21	**All Vinyl flooring is replaced with natural linoleum installed with low VOC adhesives or other hard surface flooring** (low VOC standard is less than 150 grams per litre). Hard surface flooring is generally more durable and improves the Indoor Air Quality within a building. Vinyl flooring typically releases VOC's as it ages and uses toxic glues in its application.		2
4-22	**Carpet and Rug Institute (CRI) IAQ label on all carpet used in home.** To identify carpet products that are truly low-VOC, CRI has established a labeling program. The CRI Indoor Air Quality Carpet Testing Program green and white logo displayed on carpet samples in showrooms informs the consumer that the product type has been tested by an independent laboratory and has met the criteria for very low emissions.	2	2
4-23	**Carpet and Rug Institute (CRI) IAQ label on all underlay used in home.** The adhesives used to install carpets and the latex rubber by some manufacturers to adhere face fibers to backing materials generate volatile organic compounds (VOCs). Carpets also cover large surfaces within an interior environment and can provide "sinks" for the absorption of VOCs from other sources.	1	1
4-24	**Natural material based carpet in all living areas.** Natural wool carpets are durable and use less secondary backing materials and chemicals. Off-gassing is typically caused by the secondary backings and chemical additives in synthetic carpets, for controlling mildew, fungus, fire and rot.		2
4-25	**All carpet in home is replaced by hard surface flooring.** Hard surface flooring is generally more durable and improves the Indoor Air Quality within a building. Carpets collect dust, dust mites and other allergens which when disturbed become airborne particulates- directly affecting the health of the occupants.		4
	TOTAL SECTION POINTS	19	

V. VENTILATION

This section covers the mechanical ventilation systems in the home, including filtrations and heat recovery.

Minimum 6 Points Required

*** Platinum Level Note* Platinum level homes must use item 5-7 " Ventilation system is installed according to CSA Standard F326, as recommended by the Heating, Refrigeration and Air Conditioning Institute of Canada (HRAI)." as well as 6 additional points from this section.**

5-1	All ductwork joints and penetrations sealed with low toxic mastic or aerosolized sealant system. Duct mastic is a preferred flexible sealant that can move with the expansion, contraction, and vibration of the duct system components. A high quality duct system greatly minimizes energy loss from ductwork. The system should be airtight, sized and designed to deliver the correct airflow to each room.	3	3
5-2	Install motorized damper on fresh air inlet (must be interlocked with furnace system). A constantly open fresh air supply (passive air) wastes energy. Positive control of this air will assure building comfort, safety and energy efficiency.		1
5-3	Install all ventilation fans (bath or in-line type) to meet or exceed the Energy Star requirements Energy Star fans have to meet standards for efficiency, and sound transmission, providing quiet and effective ventilation fans. www.oee.nrcan.gc.ca/energystar/english	2	2
5-4	Install a programmable timer or humidistat controlled ventilation fan meeting the Energy Star requirements for efficiency and sound level A programmable timer ensures necessary, regular, automatic mechanical ventilation of the home.	2	2
5-5	Install passive Heat Recovery Ventilator (HRV) and verify balanced installation. A Heat Recovery Ventilator (HRV) is an air exchanger that exhausts humid, stale, polluted air out of the home and draws in fresh, clean outdoor air into the home. Invisible pollutants produced by common household substances, plus dust and excess humidity that get trapped in today's houses, can increase your risk of chronic respiratory illness and your homes risk of serious structural damage. A passive HRV unit does not have its own internal fan and is 100% furnace assisted. It works by tying the exhaust side of the unit to the supply air plenum which forces air to exhaust from the home and at the same time fresh air enters from outside through the unit and into the cold air return duct work.		2
5-6	Install an active Heat Recovery Ventilator or Energy Recovery Ventilator (HRV or ERV) and verify balanced installation. A Heat Recovery Ventilator (HRV) is an air exchanger that exhausts humid, stale, polluted air out of the home and draws in fresh, clean outdoor air into the home. Invisible pollutants produced by common household substances, plus dust and excess humidity that get trapped in today's houses, can increase your risk of chronic respiratory illness and your homes risk of serious structural damage. Much like the HRV, the ERV recovers heat; however, it also recuperates the energy trapped in moisture, which greatly improves the overall recovery efficiency. In dry climates and humidified homes the ERV limits the amount of moisture expelled from the home. In humid climates and air conditioned homes, when it is more humid outside than inside, the ERV limits the amount of moisture coming into the home.		4
5-7	Ventilation system is installed according to CSA Standard F326, as recommended by the Heating, Refrigeration and Air Conditioning Institute of Canada (HRAI). www.hrai.ca		5
5-8	All bath fans used throughout home have a noise level of 1 sone or less Installing quiet fans will encourage use for home ventilation.	2	2

TOTAL SECTION POINTS 9

VI. WASTE MANAGEMENT

This section deals with the handling of waste materials on the construction site and encourages recycling.
Minimum 7 Points Required

6-1	Comprehensive recycling program for building site including education, site signage and bins. A comprehensive recycling program that is strictly followed significantly reduces the amount of waste ending up in landfills. Currently it is estimated that up to 50% of landfill waste is construction related.	2	2
6-2	Collection of waste materials from site by a waste management company that is a current member of a provincial recycling council or equivalent association and verifies that a minimum of 10% of the materials collected from the construction site have been recycled. Not only does this reduce overall waste of product, it ensures that as much product as possible is being utilized for the production of future resources.		4
6-3	Suppliers and trades recycle their own waste, including leftover material and packaging (1 point per trade - maximum 4 points). Trades being responsible for recycling and removal of waste not only reduces landfill waste, but also promotes a cleaner and safer working environment.	4	1 to 4
6-4	Minimum 15% (1 point) 25% (2 points) or 50% (6 points) by weight of waste materials collected from construction site is diverted from waste stream. Trades being responsible for recycling and removal of waste not only reduces landfill waste, but also promotes a cleaner and safer working environment.	2	1, 2 or 6
6-5	Use of recycled materials derived from local construction sites (1 point for each different product used, to max. of 3). Products recycled from the construction site, such as mulched clean dimentioal lumber free of metals, or mulched paperless gypsum are often useable as either clay/soil water retention additives.		1 to 3
6-6	Trees and natural features on site protected during construction. The protection of existing trees and other natural features such as streams, ponds and other vegetation reduces environmental and ecosystem impact. Many of these features can be protected simply by following good waste management procedures.	1	1
6-7	Metal or engineered durable form systems used for concrete foundation walls. The use of metal forming systems reduces the requirement of lumber, a limited resource.	1	1
6-8	Concrete used in home has a minimum supplementary cementing material of 25% (1 point) or 40% (2 points) within the scope of proper engineering practices. For every one ton of Portland cement generated, eighth tenths of a ton of carbon dioxide is produced. Supplementary cementations products include fly ash, blast furnace slag as well as metakaolin.		1 or 2
6-9	Install recycling center with two or more bins. By installing built in recycling centers, which can be as simple as labeled containers (paper, cardboard, cans, plastics, etc), homeowners are more likely to utilize the pre-existing facilities and thus contribute to the reduction in landfill waste.	3	3
6-10	Provide composter to homeowner. Providing a composter promotes a reduction in wastes heading to the landfill by giving homeowners an option for organic waste such as food leftovers.		2
6-11	Existing dwellings onsite are recycled or moved instead of demolished (recycled 2 points, moved 4 points).		2 or 4
	TOTAL SECTION POINTS	13	

VII. WATER CONSERVATION

This section encourages a reduction in the amount of water used in the home or in individual units within multi-story buildings.
Minimum 7 Points Required

7-1	Install a dual flush or pressure assisted toilet in one or more bathrooms (3 points for first, 1 additional point for each after) Dual flush toilets offer a choice between two water levels for every flush; at minimum should use, 1.6 GPF (6 LPF) or 0.8 GPF (3 LPF).	5	3 or more
7-2	Install a 1.28 GPF toilet in one or more bathrooms (2 points for first, 1 additional point for each after) 1.28 GPF (Gallon per Flush) is general considered the new standard in water efficiency		2 or more
7-3	Install manufactured non-electric composting toilet (3 points each, max of 6 points). A composting toilet uses no water and is odourless. It uses a biological processes to break down the waste into organic compost material.		3 or 6
7-4	Insulate the hot water lines with flexible pipe insulation, first three feet from hot water tank (1 point) or all hot water lines (2 points). Minimizing the heat loss in the water line will decrease the initial water wasted by delivering hot water faster.	1	1 or 2
7-5	Install hot water recirculation system with all hot water lines insulated (4 points), or point-of-use instant DHW system (1 point each, max. 4) Having the hot water re-circulated from the hot water source to the fixture points will decrease the initial water wasted by delivery the hot water faster. Pump must be on program or timer to reduce stand-by losses. Kitchen counter top "boiling water taps" are not credited.		1 to 4
7-6	Install low flow faucets for all kitchen faucets and lavatories (2 points), all showers & tub/showers (additional 1 point). Reduces water consumption by lowering the flow rate. Showers must use 9.8 L/min (2.2 imp. Gal/min) or less. Faucets, both kitchen and bath, must use 8.3 L/min (1.8 imp. Gal./min) or less.	3	2 or 3
7-7	Install hands free lavatory faucets. 1 point per faucet/unit. Battery powered electronic sensor minimizes the spread of germs and saves water.		1 per unit
7-8	Provide front loading clothes washer (3 points), or Condensing Combination wash/dry unit (4 points) Front loading clothes washers conserve water by design, as they are only required to fill up the washing compartment 1/3 full to effectively wash clothing. Additionally they use up to 75% less environmentally damaging laundry detergent. AND they also conserve electrical or gas energy by significantly reducing drying time for clothes with a more thorough spin cycle.	3	3 or 4
7-9	Install water saving dishwasher that uses less than 20.0 L/water per load. Water saving dishwasher use technology to reduce both the amount of water required as well as electrical energy requirements. The EnerGuide appliance directory put out by Natural Resources Canada has a comprehensive listing of all manufacturers and models of dishwashers and other appliances with water usage and energy efficiency ratings.	1	1
7-10	Install efficient irrigation technology that utilizes automatic soil moisture-based sensor technology at minimum Show storm water management plan & design; water efficient irrigation systems, sensors, regulators, micro drip feed systems etc.		3
7-11	Install permeable paving materials for all driveways and walkways. Permeable paving allows for storm water to flow back into the ground rather than into the storm sewers.		3
7-12	Provide a list of drought tolerant plants and a copy of the local municipality water usage guide to homebuyers with closing package. Most municipalities provide a guide that gives the water requirements of various plants and grasses. When properly designed, landscaping choices can significantly contribute to water conservation.	1	1
7-13	Builder supplies a minimum of 8" of topsoil or composted yard waste, as finish grading throughout site. Compared to subsoil materials, topsoil usually has higher aggregate stability, lower bulk density, and more favorable pore size distributions which leads to higher hydraulic conductivity, water holding capacity, and aeration porosity.	2	2
7-14	Builder incorporates water wise landscaping or xeriscaping in show home or customer home (customers 50% of lawn 2 points, 100% 4 points). Xeriscaping (or drought resistant landscaping) plans and options can be obtained from professional landscaping contractors, and once a xeriscaping landscape is in place, it requires no manual watering. (Rain barrel usage, astro turf ineligible.)		2 or 4
7-15	Builder attaches water barrel with insect screen to downspout. Water barrel should also have a drain spout and overflow spout (1 point per barrel - maximum of 3 barrels). Supplying a water barrel encourages homeowners to use rainwater for landscaping needs and therefore save on potable water.	3	1, 2 or 3
7-16	Install grey water system collecting waste from sinks, shower and/or kitchen to capture and treat for use in toilets or irrigation (6 pts), rough-in for future grey water system (3 points) By reusing waste water, consumption can be drastically reduced. Rough-in must include clearly identified grey water drain stack, separated from sewer line.		3 or 6
	TOTAL SECTION POINTS	19	

VIII. BUSINESS PRACTICE

This section deals more with manufacturers and builders office and business practices.
Minimum 6 Points Required

8-1	Products used for home are manufactured within 800 km (1 point for each product - maximum of 5). Transportation of building materials is a substantial energy use, local manufacture reduces this embodied energy. Distances are calculated by road, not as the crow flies. Manufacturing or assembly must take place in a plant or factory, not on-site. Distance to raw material source is not included.	5	1 to 5
8-2	Builder provides Built Green™ homeowner manual, completed Built Green™ checklist and educational walkthrough with sale or possession.	3	3
8-3	Builders office and show homes purchase a minimum of 50% (1 point) or 100% (2 points) solar, wind or renewable energy. Wind energy is a cleaner way to provide energy. Lower CO2 emissions will benefit the environment.		1 or 2
8-4	Manufacturers and/or suppliers purchase 50% or more solar, wind or renewable electricity. Wind energy is a cleaner way to provide energy. Lower CO2 emissions will benefit the environment.		1
8-5	Builder has written an environmental policy which defines their commitment (must include an office recycling program and energy efficient lighting). A statement of commitment helps to emphasize priority and ultimately define a corporate culture.	1	1
8-6	Manufacturer and/or supplier has written an environmental policy which defines their commitment (must include an office recycling program and energy efficient lighting). (1 point per supplier/manufacturer - maximum of 2 points).		1 or 2
8-7	Builder has written an environmental policy which prioritizes milestones for future net zero housing developments.		1
8-8	Builders' company vehicles are hybrid or bio-diesel vehicles (1 point per vehicle - maximum of 3 points). A commitment to the environment shouldn't stop at construction. Using a hybrid vehicle produces lower harmful emissions. Diesel construction vehicles converted to bio-diesel reduce fuel consumption by up to 75%.		1 to 3
8-9	Environmental certification for builders place of business (building, office, etc). Many commercial buildings have been rated with various energy efficiency standards. Does your company work within an ENERGY STAR, EnerGuide for Houses (ERS), EnerGuide for New Houses (EGNH), REAP or LEED (or other certification standard) certified office building?		3
8-10	Builder agrees to construct and label a minimum of 50% of all homes to the Built Green™ standard per calendar year. (3 points for 50%, 5 points for 100%).		3 or 5
8-11	Contracted trades and/or suppliers have successfully taken and maintained Built Green™ Builder Training status (1 point per trade organization, Max 5).	1	1 to 5

TOTAL SECTION POINTS 10

TOTAL CHECKLIST POINTS 110

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nhc
northwest hydraulic consultants

Job No.300205

23 May 2013

cornerstone architecture
#408 – 611 Alexander Street
Vancouver, BC
V6A 1E1

Attention: **Scott Kennedy**

Dear Mr. Kennedy:

Subject: **Guildford Brook Estates**
Flood Hazard Assessment

1 Introduction

Available mapping from the District of North Vancouver shows that the properties owned by Guildford Brook Estates on Mt. Seymour Parkway are located within the Creek Hazard Development Permit Area near Seymour River. This is based on the plans submitted to The District by Cornerstone Architecture. Construction of a new dwelling within the permit area requires that a *Flood Hazard Report* be completed as described in the DNV Master Requirement SPE 106 Section 219 covenant.

The SPE 106 document lists the items that must be addressed in the flood report which identifies the hazards associated with surface and subsurface water and established the Flood Construction Level (FCL) for the property. The FCL is defined as water levels predicted to occur during a 200-year flood and included appropriate freeboard to address uncertainties in the predicted water levels. The Guildford Brook Estate properties are subject to potential flooding from Seymour River but not from any other creeks or rivers.

This report outlines the flood assessment for the properties located between 2135 and 2167 Mt. Seymour Parkway and is formatted to meet the requirements of the DNC Master Requirement SPE 106 and to obtain a creek hazard development permit. In addition, this report identifies potential mitigation works that could be undertaken by the developer. Final building plans and constructed conditions will need to be assessed and approved by a qualified registered professional for compliance with the specified conditions.

2 Credentials

This report has been completed by Darren Ham, Ph.D. and reviewed by Bruce Walsh, P.Eng. of Northwest Hydraulic Consultants Ltd (NHC). NHC is a specialist engineering consultant firm that provides professional services for the development, management and protection of water resources. NHC has completed hundreds of flood hazard assessments over its 40 year history, including a number of similar studies along Seymour River.

3 Statutes

The subject properties lie outside the provincially designated Seymour River floodplain. However, part of the property lies within the Creek Hazard Development Permit Area established by the District of North Vancouver, which requires completion of a flood hazard report.

4 Background Information

4.1 Data Review

In addition to the architectural and engineering drawings provided by Cornerstone Architecture, the following information has been collected and reviewed as part of our investigation:

1. Topographic Survey by Ken K. Wong & Associates of all lots, adjacent roadways and part of Seymour River near the bridge crossing of Mt. Seymour Parkway on April 26, 2013.
2. Floodplain Map 93-5: Floodplain Mapping, Seymour River, North Vancouver (BC MoE, 1995).
3. Design Brief on the Floodplain Mapping Study: Seymour River, North Vancouver (BC MoE, 1995b).
4. Flood Assessment Study, North Vancouver (NHC, 2010).
5. Natural Hazard Development Permit Areas (DNV, 2011).
6. Creek Hazard Development Permit Area Map (DNV, 2011b).
7. Flood Hazard Report – Section 219 Covenant, Master Requirement SPE 106 (DNV, 2011c).
8. Creek Hydrology, Floodplain Mapping and Bridge Hydraulic Assessment (KWL, 2012).
9. Overview-level site inspection conducted by NHC May 8 2013.
10. GIS data from the DNV GIS Website (orthophoto, contours, creeks centerlines, DPAs).

4.2 Property Description

Guildford Brook Estates is proposing a redevelopment of existing single family properties between 2135 and 2167 Mount Seymour Parkway into a 30 unit green townhouse complex in Maplewood Village Centre. The project would consist of 4 buildings each containing from 7 to 8 non-stacking homes with some parking up to 5 feet below grade. The address and legal descriptions of the subject properties are stated in **Table 1** and shown on **Figure 1**.

Table 1: Property Addresses and Legal Descriptions

Civic Address	Legal Description
2135 Mount Seymour Parkway	Lot 1 Block 4 District Lot 791 Plan 15921
2141 Mount Seymour Parkway	Lot 2 Block 4 District Lot 791 Plan 15921
2145 Mount Seymour Parkway	Lot 32 Block 4 District Lot 791 Plan 4255
2147 Mount Seymour Parkway	Lot 31 Block 4 District Lot 791 Plan 4255

2159 Mount Seymour Parkway	Lot A Block 4 District Lot 791 Plan 4255
2163 Mount Seymour Parkway	Lot 28 Block 4 District Lot 791 Plan 4255
2167 Mount Seymour Parkway	Lot 27 Block 4 District Lot 791 Plan 4255

The properties are bounded on the north by a frontage road parallel to Mount Seymour Parkway but separated by a barrier. The property is further bounded by parkland immediately south, Riverside Drive to the east and residential properties along Seymour River Place to the west (**Figure 1**). The site is generally flat from south to north and slopes gently upwards towards the east slopes gently upwards from the western to eastern limits rising from elevation 9.8 to 11.1 m (geodetic) along the frontage road based on the topographic survey.

A site visit was conducted on May 8, 2013 to assess the potential for drainage or erosion hazards on the properties. The site is currently occupied by single family residences so only the perimeter of the properties could be accessed. At the back of the properties is a small open ditch that drains the immediate upslope area and the adjacent forest and the ditch was conveying flow at the time of the visit. Given the extent of vegetation growth, the ditch does not appear to convey much flow at any time and does not appear to pose any local flooding issue. There were no other drainage issues observed and the site is too far from Seymour River to be at any risk from erosion.

Figure 1: Location map of proposed townhouse development. Red box outlines the 7 individual lots listed in Table 1 and dashed lines link to inset map showing civic address of each lot.

5 Existing Flood Hazard

5.1 Seymour River Flood Hazard

The designated floodplain of the Seymour River is defined by BC MoE Floodplain Map 93-5, 1995 (Figure 2). The MoE floodplain boundary shows that all of the properties identified for development area lie outside the designated 200-year flood. The 10-m contour intersects the property at the boundary between 2135 and 2141 Mt. Seymour Parkway and extends to the back boundary between 2147 and 2159 Mt. Seymour Parkway.

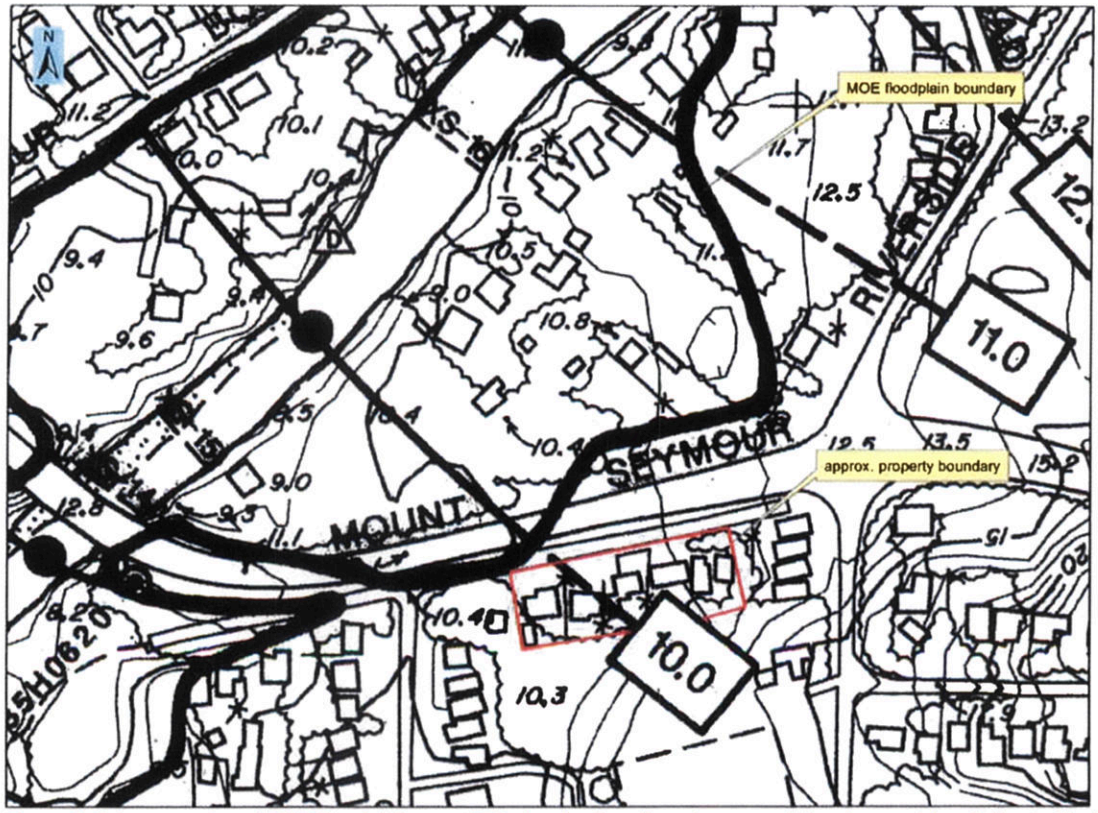

Figure 2: Enlarge section of MOE floodplain map 93-5 showing location of proposed development in relation to the floodplain boundary and the 10-m FCL.

NHC (2010) updated the 1-dimensional 1995 MOE flood model based on more recent floodplain topography[1] and provided a revised floodplain boundary that DNV adopted in the draft DPA bylaw (DNV, 2011). There are local differences in the two boundaries due to inconsistency in the ground elevations used in the two models. The DNV boundary also includes a conservative buffer to require more detailed assessment of properties that lie close to the boundary of the NHC model to account for limitations in that model. The revised NHC floodplain does not extend on to the properties but the northwest corner falls within the Creek Hazard Development Permit Area boundary (**Figure 3**).

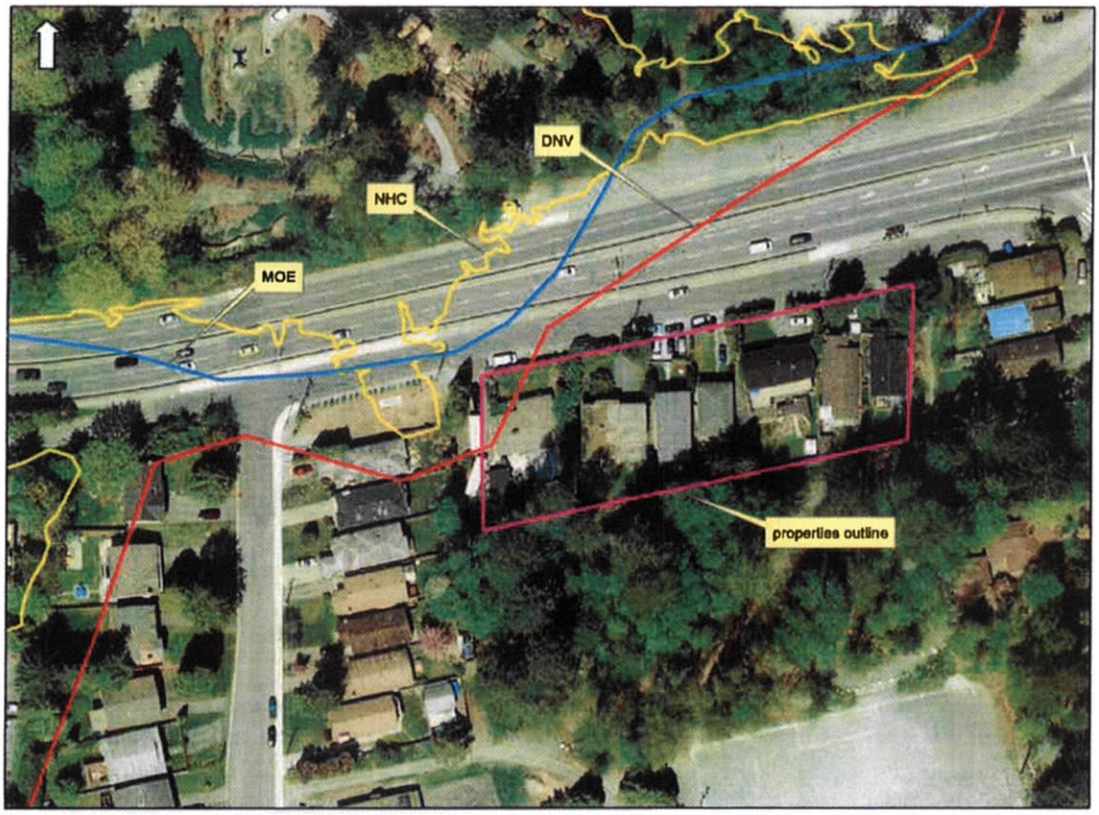

Figure 3: Flood (MOE and NHC) and Creek Hazard Development Permit Area (DNV) boundaries that have been developed for Seymour River.

[1] The updated topography is based on Lidar data collected on behalf of the district which can typically vary from true ground elevations by 30 cm. NHC also cautioned that water levels on the floodplain may be artificially high due to the inability of the model to account for flood attenuation with the greatest effect in the lower river. NHC further recommended that 2-D hydraulic modelling be completed to improve the accuracy of flood depths and extents.

5.2 Flood Construction Level

The flood construction level (FCL) is based on the 200-year instantaneous return period flood with an allowance of 0.6 m freeboard (BC MoE, 1995b) to account for uncertainty. No additional allowance is required to account for sedimentation in the main river channel. By definition, the 200-year flood has a 0.2% chance of occurring in any one year and a 10% chance of occurring in any 20-year period. The 200-year water level was interpolated from BC MoE Floodplain Map 93-5 between XS-15 and XS-16 (**Figure 2**). The FCL is 9. 8 m (GSC) on the west edge of the properties and 10.3 m (GSC) at the eastern edge. The recommended FCL for the entire property is El. 9.9 m (GSC).

For the current study, the flood boundary is updated by comparing the FCL to the recently surveyed elevations. The individual survey points were used to model a TIN surface and interpolated contours were extracted to show whether the surveyed elevations were below the 9.9 m FCL. The results of this analysis reveal that water would flow south down the laneway on the western boundary of the property then turn eastwards up the existing open ditch and spilling onto the southern extent of the properties and northern extent of the adjacent parklands. There is a low point (el. 8.13 m) near the southwest corner of the property that would be inundated to a depth of 1.78 m. Velocities in the inundated are would be very low given the distance from the river and the concrete barriers along Mt. Seymour Parkway that would partly buffer (but not stop) the flow. The 200-year flood without the freeboard would not encroach on the property. Provided all living space is at an elevation above the FCL, there would be no hazard to residents and the main vehicle access from the laneway would not be impacted. Below grade structures (parking, electrical) would potentially be affected by groundwater flows which requires a separate geotechnical assessment by a qualified professional.

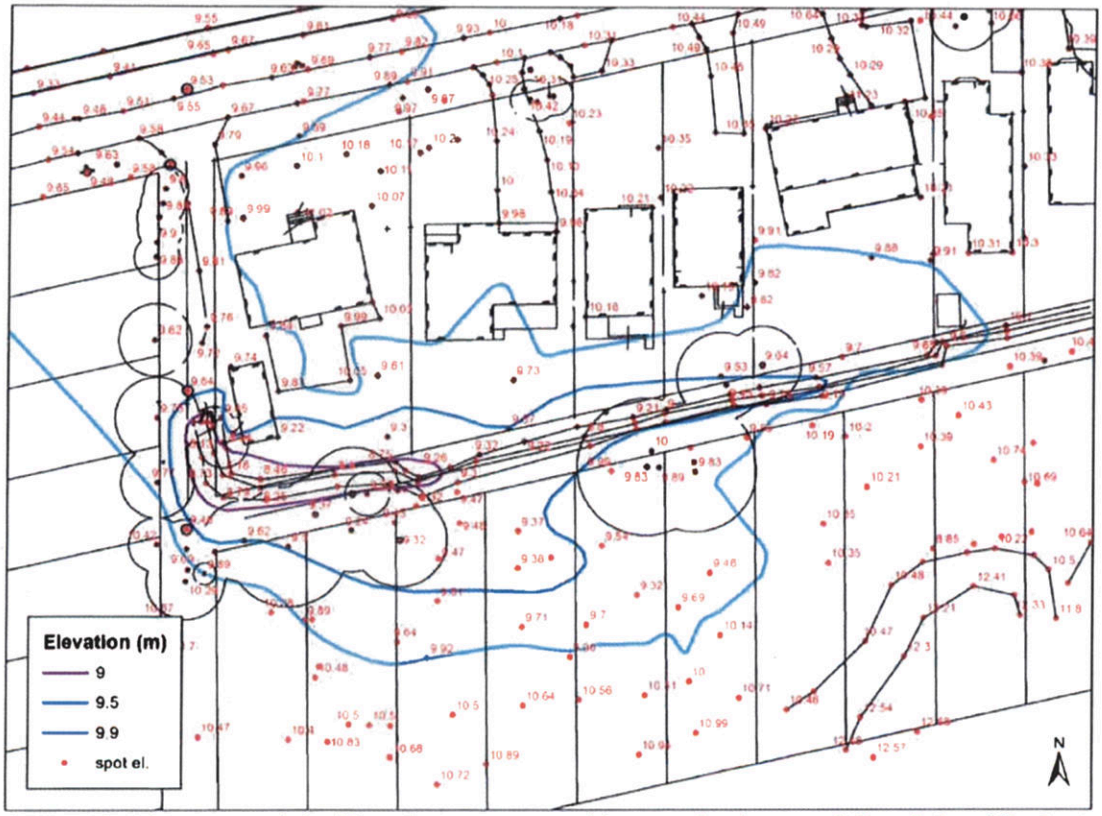

Figure 4: Elevation contours derived from the recent topographic survey showing potential inundation of floodwaters.

5.3 Other Hazards

According to DNV mapping, the property does not appear subject to any other natural hazards related to flooding, such as debris flows, and debris floods, and there is no risk of erosion by Seymour River. However, NHC has not assessed the property for hazards related to fire and landslide, or any other hazards besides those resulting directly from flood and/or erosion.

6 Proposed Mitigative Works

All habitable spaces shall be designed and constructed above the FCL. Additionally, any infrastructure, utilities and parking areas that are located below the FCL shall be constructed such that the invert of any access points are above the FCL and the structure is designed to withstand the appropriate hydrostatic pressures and potential inundation. If it is not practical to flood proof the parking areas, it may be necessary to install a sump pump to remove any water that collects. No erosion mitigation works are proposed for the site.

In order to limit potential minor flooding, it may be possible to protect the site by building a small (i.e. 0.6 m high) retaining wall along the western and southern extents of the property extending to where minimum ground elevations are above the FCL . Any required flood protection works are to be designed by a registered professional and all short and long term maintenance requirements must be outlined.

All development in the subject properties would be subject to safe certification described below.

7 Safe Certification

NHC has not assessed the property for hazards related to fire and landslide, or any other hazards besides those resulting directly from flood and/or erosion. The certification is limited to flood and erosion hazard for flood events less than or equal to the 200-year peak instantaneous flow in the Seymour River, and for site and river conditions present at the time of the inspection. Given these limitations, NHC certifies that the subject property is considered safe for the use intended if:

1. All habitable space is above the FCL;

2. All infrastructure, utilities, and parking areas that are located below the FCL shall be constructed such that the invert of any access points are above the FCL and the structure is designed to withstand the appropriate hydrostatic pressures;

3. All flood protection works are designed by a registered professional. Short and long term maintenance requirements for the flood protection works are outlined by a registered professional and these works are followed by the owner/operator of the property; and

4. Final building plans and constructed conditions have been assessed and approved for compliance with the conditions specified herein by a qualified registered professional.

8 Building Setbacks

The proposed development does not infringe upon the existing 200-year floodplain boundary and does not extend beyond the existing footprint of the site so no setbacks are required.

9 Environmental Approvals

If the mitigation works are included in the final design, it may be necessary to contact the District to see if environmental approvals are required.

10 Maintenance Requirements

No maintenance requirements are necessary with respect to flood and erosion hazards at the proposed development.

11 Closure

If you have any questions regarding the report analyses, assessments or reporting of results, please do not hesitate to contact us at the North Vancouver Office.

Sincerely,

northwest hydraulic consultants ltd.

Prepared by:

Darren Ham, Ph.D.

Reviewed by:

Bruce Walsh, P.Eng.
Principal

LIMITATION

This document has been prepared by Northwest Hydraulic Consultants Ltd. in accordance with generally accepted engineering and geoscience practices and is intended for the exclusive use and benefit of the client for whom it was prepared and for the particular purpose for which it was prepared. No other warranty, expressed or implied, is made.

Northwest Hydraulic Consultants Ltd. and its officers, directors, employees, and agents assume no responsibility for the reliance upon this document or any of its contents by any party other than the client for whom the document was prepared. The contents of this document are not to be relied upon or used, in whole or in part, by or for the benefit of others without specific written authorization from Northwest Hydraulic Consultants Ltd. and our client.

nhc
northwest hydraulic consultants

REFERENCES

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Ken K. Wong & Associates (2013). Topographic survey (digital files provided).

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GeoPacific
Consultants Ltd.

#215 -1200 West 73rd Avenue, Vancouver, BC, V6P 6G5
Phone (604) 439-0922 / Fax (604) 439-9189

Mr Yashpal Parmar
C/o – Cornerstone Architecture
#408 – 611 Alexander Street
Vancouver, B.C.
V6A 1E1

22 July 2013
Job # 10775

Attention: Scott Kennedy

Re: Geotechnical Review of Flood Hazard Assessment - Guildford Brook Estates; 2135 - 2167 Mt Seymour Parkway, North Vancouver, B.C.

Based upon your request, (17th July 2013), this letter provides a summary of our geotechnical recommendations considering the information presented in the Flood Hazard Assessment Report from Northwest hydraulic consultants, dated May 2013.

We understand that the recommended Flood Construction Level (FCL) for the entire property is elevation 9.9 m geodetic. Plans provided by Cornerstone Architecture indicate that all habitable space is above FCL however, the parkade elevation is 8.4 m, 1.5 m below the recommended FCL.

For all structures constructed below the FCL we recommend the following:

- The invert of the entrance to the parkade is at or above the FCL level;
- All sensitive mechanical equipment/systems are located above the FCL level;
- A perimeter drainage system is installed to accommodate potential flows as recommended in this letter, or;
- That foundation walls are designed to withstand the hydrostatic pressures included in this letter.

We recommend a perimeter drainage system is installed behind foundation walls to relieve potential hydrostatic pressures acting on basement walls and floor slabs during flood events. The perimeter drain should be located at the base of the foundation wall and comprise 150 mm perforated PVC pipe surrounded by a minimum of 300mm of free-draining gravel. Backfill material placed against the basement walls should be approved by the Geotechnical Engineer.

The perimeter drain tile should be continuous, connected to a pumped sump and capable of pumping up to 250 liters per minute. Drainage shall be installed with a minimum fall of 1%. This flow rate should be confirmed during construction by the Geotechnical Engineer.

Alternatively, basement walls can be designed to accommodate additional hydrostatic pressures as follows:

Hydrostatic: Triangular pressure distribution of 10H kPa, where H is the distance from the base of the wall to the FCL level.

These pressures should be added to the static soil pressures shown in Section 6.7 of our geotechnical report.

This letter has been prepared exclusively for Mr Yashpal Parmar, for the purpose of providing a geotechnical comments and recommendations in relation to the flood hazard at the proposed residential development. The letter remains the property of GeoPacific Consultants Ltd. and unauthorized use of, or duplication of this report is prohibited.

We are pleased to assist you with this project and we trust this information is helpful and sufficient for your purposes at this time. However, please do not hesitate to call if you should require any clarification.

For:
GeoPacific Consultants Ltd.

Daniel Sims, B.E.(Hons), E.I.T.
Project Manager

Reviewed by:

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
M. J. KOKAN
21364

Matt Kokan, M.A.Sc., P.Eng.
Principal

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Daniel Sims, B.E.(Hons), E.I.T.
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Reviewed by:

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
M. J. KOKAN
21364

Matt Kokan, M.A.Sc., P.Eng.
Principal

EXCERPT FROM THE MINUTES OF THE JUNE 13, 2013 MEETING OF THE ADVISORY DESIGN PANEL

a. 2135 - 2167 Mount Seymour Parkway – Detailed Application for 30 unit townhouse project with at-grade parking

Mr. Doug Allan of the District Planning Department provided a review of the project context, and noted that the Panel last considered the proposal at its meeting of May 9, 2013. Mr. Allan gave a brief review of the development application including the site details, and context. Mr. Allan also reviewed in general terms the changes made to the project as a result of the Panel's previous review.

The Chair thanked Mr. Allan for his presentation and welcomed the applicant team to the meeting. The Chair outlined the procedure to be followed in presenting the proposal and for the review by the Panel.

Mr. Simon Richards of Cornerstone Architects made some opening comments and introduced his colleague, Mr. Andes Vargas.

Mr. Vargas reviewed the Panel's recommendations from the previous meeting and described the revised project with reference to display boards. Mr. Vargas stated that as a response to the Panel's previous motion, the number of visitor parking stalls has been reduced from 7 to a total of 5. Related to the adjustments to visitor parking, the solid waste collection area has been relocated to an enclosed area on the east side of the entry drive and the transformer moved to the west side of the entrance.

To address the Panel's concerns of linearity, more variation in the height of the elevations has been included and the roof line has been extended. Brick has been added to the exterior end walls of the buildings and the colour selected for the brick has been changed to a lighter, more reddish hue.

Ms. Meredith Mitchell of M2 Landscape Architecture reviewed the revised landscape proposal for the project and noted that plantings have been added throughout the project, including at the entrance drive, the communal amenity area, the ends of the drive court area, and at the driveway entrance of each dwelling unit. It was further noted that the three visitor parking stalls located directly beside the common amenity area will have grass-crete pavers to help add more greenery to the area.

The entrance driveway has been enlarged to ensure that all commercial and emergency vehicles can access to the site, and to help address the linear nature of the drive court, the drive court has been adjusted to feature a wave design in colored pavers.

Along the pathway that circles the development, all stairs have been eliminated and a ramp access to the north east corner has been provided to make it more accessible.

The Chair thanked the project team for the presentation and asked if there were any questions of clarification from the Panel members.

Questions of clarification were asked on the following topics:

Type of shrubs selected? A mix of shrub plantings, including laurels which will be pruned so they will not grow too tall.

Details of transformer installation? Unit will be placed on a concrete pad with a picket fence to provide screening.

The Chair thanked the applicant team and staff for their clarifications and asked for comments from the District Urban Design Planner, Mr. Alfonso Tejada.

Mr. Tejada complimented the project team for the improvements made to the development proposal. Mr. Tejada made three observations: 1.) it would be beneficial to highlight the "crossroads feature" at the intersection of the entrance drive and the east/west drive court; 2.) gates or some other design element at the east and west ends of the drive court would help create interest in these areas; and 3.) that the same articulation of the roof on the north side of the project, be repeated on the south side.

The Chair thanked Mr. Tejada for his input and invited comments from the Panel.

Panel members thanked the applicant for their presentation and remarked on the applicant's effort to implement the Panel's comments, with the general impression that the project was much improved.

It was noted that the paving details and landscape elements in the drive court resulted in a much improved space. It was suggested that the area could be further improved by drawing attention to the location where the entrance drive and the east/west driveway intersect.

Some discussion took place regarding the addition of a retaining wall between the common amenity space and the visitor parking. It was suggested that this wall be made more visually permeable to indicate a connection from the parking area, through the amenity area, to the public park beyond, or be treated with terracing as a way to reduce its impact.

Some Panel members expressed some concern with the proposed gabled roof vent elements, suggesting that a simpler roof line might be preferred. It was agreed however that these elements were not a major concern with the project.

The Chair thanked the Panel for their comments and invited the project architect to respond to the comments made by the Panel.

Mr. Simon Richards of Cornerstone Architects thanked the Panel for the comments and input and noted that the design team will take into consideration the comments made.

The Chair thanked the project architect and invited the Panel to compose a motion.

> **MOVED** by Liane McKenna and **SECONDED** by Cedric Burgers:
>
> THAT the ADP has reviewed the proposal, commends the applicant for the quality of the proposal, and recommends **APPROVAL** of the project as presented.

MOTION CARRIED

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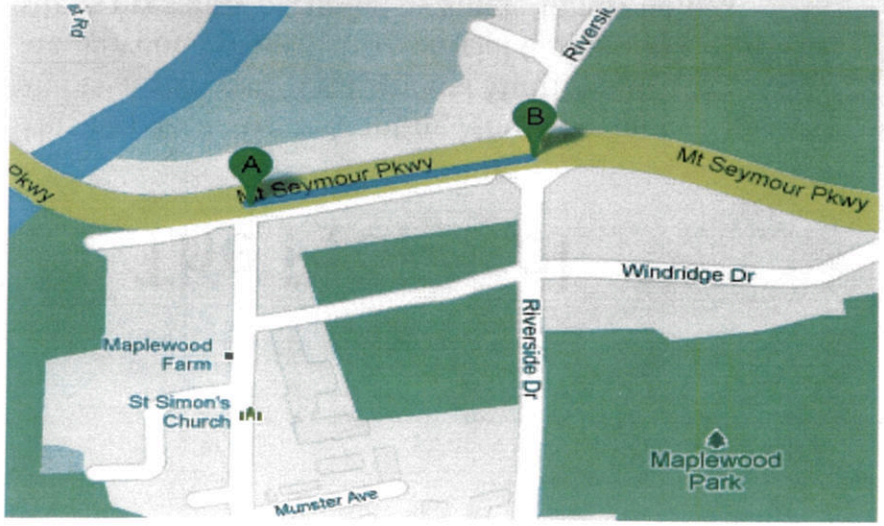
The Meeting Agenda:

6:30 – 7:00 P.M.	**Open House**
7:00 – 7:15 P.M.	**Presentation**
7:15 – 8:00 P.M.	**Open Discussion**

NOTE: THIS IS NOT A PUBLIC HEARING
District Council will formerly consider the proposal at a future

Further Information:
If you wish further information or clarification regarding this proposal, please contact:

Doug Allen **(604) 990 2357**	**North Vancouver Planning Department**
Hywel Jones **(604) 733 1599**	**Hywel Jones Architect**
Meredith Mitchell **(604) 553 0044**	**M2 Landscape Architecture & Arboriculture Ltd.**



A Public Information Meeting

Guildford Brook Estates Development Corporation will be hosting a Public Information Meeting to present a redevelopment proposal for 2135-2167 Mount Seymour Parkway, which is comprised of 7 single-family houses (0.9 acre).

This information package is being distributed to all residents, businesses and property owners within a specified distance of the subject site, in accordance with the DNV Public Notification Policy (#8-3060-3).

Meeting Location:
Kenneth Gordon Maplewood School
420 Seymour River Place
North Vancouver, BC

Time: 6:30 PM
Tuesday February 5, 2013

The Proposal

This is a 0.9 acre site fronting Mount Seymour Parkway, and is designated "Transitional Multifamily" in the Maplewood Village Centre official Community Plan. The site is presently occupied by single-family homes accessed by a frontage road, although a 20-foot lane does border the property to the south, east and west. It is, however, unused and forms part of the open wooded area immediately north of the Maplewood School. It is designated to remain as a green belt in the O.C.P.

Our site slopes about three to four feet from north to south. At present, the flanking single-family homes to the west and east will remain, separated by the lane.

We propose a total of 40 units to an F.S.R. of approximately 1.26 grouped into six buildings, the rear fronting a courtyard. Parking is below grade, with access provided from the frontage road only. Units range from about 1,000 square feet (2-bed) to 1,450 square feet (3-bed), each with individual front access and rear private garden. We see these as primarily family-oriented housing as contemplated in the Community Plan.

The architectural design is traditional arts and crafts, with front porches being a characteristic of the front units, and gables and sweeping roofs used to project a residential character to fit in with the existing single-family housing area. The front units will be affected by noise levels on the Parkway, but are provided with rear courtyard open areas. Their porches will form a transition to the front yard and walkway.

As the parkade access is to the west of the site, we would be interested in providing partially a passive landscaped area in the present frontage road r.o.w.

ROCKANDEL&ASSOCIATES
Building Success Through Process Facilitation,
Community Engagement & Partnership Planning

PUBLIC INFORMATION MEETING SUMMARY REPORT

To: Doug Allan, Planner, District of North Vancouver
Yashpal Parmar, President, Guildford Brook Estates Development

From: Catherine Rockandel, IAF Certified Professional Facilitator, Rockandel & Associates
Tel: 1-604-898-4614 E: cat@growpartnerships.com

Re: 2135-2167 Mount Seymour Parkway Public Information Flip Chart Notes & Summary

Date: February 12, 2013

Event Date:	Tuesday, February 5, 2013
Time:	6:30 PM – 8:30 PM
Location:	Kenneth Gordon Maplewood School, 420 Seymour River Place
Attendees:	Twenty-eight (28) citizens
Comment Forms:	Provided to Doug Allen, District of North Vancouver Planning

Notification

Flyer Invitation

An invitation letter was hand delivered to homes within 75 metres of the site.

Site Signs

There was one (1) yellow site sign erected on the site during the week of, notifying the community of the meeting.

Newspaper Advertisement

Advertisements were placed in the North Shore News, on Friday, February 1, 2013 and Sunday, February 3, 2013.

Attendees: A total of twenty-eight (28) citizens were in attendance. In addition the following project team members, District of North Vancouver staff and a member of Council were in attendance.

District of North Vancouver
Doug Allan, Senior Development Planner
Mike Little, Councillor

Project Team
Property Owner: Guildford Brook Estates Development Corporation
Architect: Hywel Jones Architect
Landscape Architect: Meredith Mitchell, M2 Landscape Architecture & Arboriculture Ltd.

Facilitator
Catherine Rockandel, Rockandel & Associates

PUBLIC COMMENT: Q & A (Index: Q: Questions C: Comment A: Answers)

Q1: Is it going to be strata? Are there going to be rentals?
A1: Yes, it will be strata. It has not been determined what the rental policy will be

Q2: What is the construction timeline?
A2: It is 15 months

Q3: Will there be parking allowed on Frontage Road?
A3: The road has not been designed specifically to provide on-street parking but there may be an opportunity to create small bays for some on-street parking.

Q4: Where do visitors park?
A4: There are visitor parking spaces in the underground

Q5: What is the percentage of visitors parking?
A5: The parking plan has 8 spaces. The number of spaces is regulated by the Zoning Bylaw

Q6: In terms of the proposed bike lanes, does this narrow the road?
A6: No

Q7: During construction where will workers park?
A6: The workers will park on Frontage Road during construction this will not inhibit the neighbour's access to his/her property

Q8: **What trees are being removed?**
A8: All trees within the property boundaries will be removed

Q9: How far is the ramp for the parking lot from the corner?
A9: The entry to the parkade ramp is approximately 150 feet from the corner of the frontage road and Seymour River Place

Q10: Is the lane intended for traffic?
A10: No

Q11: What traffic mitigation measures are planned for the Mt Seymour & Frontage corner and what about for the Old Dollarton and Seymour River Place. The latter intersection is very difficult to get out of and is an accident waiting to happen
A11: The District Engineering Department is looking at a traffic circle type turnaround to more safely control turning movements at Seymour River Place and the Frontage Road intersection. No improvements to the Old Dollarton Road and Seymour River Place are presently contemplated.

Q12: When will the project start?
A12: There is a process it must go through. First it requires rezoning and issuance of a development permit by Council' and Mr. Allan indicated that the rezoning bylaw may go to Council in about 2 months. Once approved by Council it then goes through a building permit process…

Q13: What is the current number of homes on the site and how many are you planning?
A13: There are currently 7 single-family homes and we are planning a 40-unit townhouse

development with construction to start fall of 2013.

Q14: **What is the cost of each unit for sale?**
A14: This has yet to be determined

C15: I just want to say I like the look of the development. Several people agreed that it was a nice looking development.

C16: I think it is good that you are trying to make it affordable for young families.

C17: I like that the development fits with the OCP plans for this area

Q18: Can this school handle more families?
A18: The school site is owned by the North Vancouver School District and is leased out to a private school, Kenneth Gordon Maplewood School

Q19: Are there plans in the works to develop the other single-family homes surrounding this development?
A19: A developer would have to come forward to propose a development and the surrounding homeowners would have to agree to sell so that a developer could put together a large enough parcel to make a development feasible.

Q20: How far out on to Frontage Road does development come?
A20: The development does not come out into Frontage Road. It is contained within the property black line shown on the presentation board.

Q21: **Is the lane at the back owned by the development?**
A21: The District of North Vancouver owns the lane

Q22: Is the District of North Vancouver green space at the back going to be developed?
A22: It is designated as Parks, Open Space and Natural Area in the Official Community Plan and is zoned Natural Parkland. As part of the Implementation Plan for Maplewood, there will be discussions on how the District lots could be developed but that will be outside the scope of this application.

Q23: Does the DNV require the developer to maintain the lane, and will mature trees stay?
A23: No the District does not require the developer to maintain the lane and the trees will stay

Q24: How is the height of the development going to affect the sunlight for existing homes?
A24: The shadow analysis outlined on this presentation board indicates that there will be little impact because of the position of the buildings the shadows will be directed to Frontage Rd

Q25: Will CAC's be used on this project?
A25: Yes, CAC's will apply to this project. If there are specific requests for CAC's please indicate them on the comment form

Q26: Will the park stay the same or become a useful park?
A26: The District would appreciate hearing the community preference

C27: Several people commented that they preferred a natural space with forests for children to explore, build forts, to use imagination, to see animals in their natural setting,

C28: I would like to see 7 new single-family homes rather than 40 townhouse units

Q29: A question to district staff; what are the required density and set backs from the chlorine plant
A29: The site is outside of the risk contours that would limit residential density.

Q30: Where are you putting the development's wiring, is it going to be underground?
A30: Have not determined if it will go underground

Q31: On the second set of houses where are the front doors?
A31: They are off the mews

Q32: How does each unit access parking?
A32: There are common stairs and each unit has a locked door from the underground

Q33: Is the DNV restricting parking on Seymour River Place?
A33: This has not been confirmed

Q34: Is there bicycle storage?
A34: Yes, each unit has secured bike storage in underground

Q35: Will each parking spot have power to plug in cars?
A35: Yes

Q36: What other projects have you (architect) done that are similar to this one?
A36: There is Bloom, in Coquitlam at 606 Langside Ave in the Evergreen corridor and with Guildford Brook Estates there is the Cassia project in Burnaby at Hastings and Cliff Avenue

C37: I think the DNV should address the parking on east side of gravel field on Riverside. It is not safe, need to clean up shrubs, improve lighting and cross walk. A number of people agreed and added that a sign that says slow down to 30 km should be added

C38: If the District is thinking of CAC amenities they should improve the bus stop on Mount Seymour Parkway, ensure that there is a place for the bus to pull off the road to improve safety and it should be covered

C39: Another idea for an amenity contribution is to put a silencing fence along Mount Seymour Parkway

The District of North Vancouver
Community Planning

355 West Queens Road
North Vancouver
British Columbia, V7N 2K6

FACT SHEET

APPLICANT: Guildford Brook Estates Development Corporation.

THE SITE: 2135 – 2167 Mount Seymour Parkway (located south of Mount Seymour Parkway and between Seymour River Place and Riverside Drive)

THE PROPOSAL: The proposal involves the redevelopment of 7 single family lots for townhouse purposes. As submitted, the project involves 40, two and three storey units arranged in 6 buildings on either side of an interior courtyard. The unit mix consists of 35 three bedroom units and 5 two bedroom units which range in size from approximately 948sq.ft. to 1554sq.ft.) in size. The two storey units are approximately 34ft. in height and the 3 storey units are about 37ft. high. A total of 80 resident parking spaces are provided plus 8 designated visitor spaces all of which are located underground with access off the northwest corner of the property.

The central courtyard has been designed to provide private outdoor amenity space for each unit and to allow for internal pedestrian access along the length of the site.

The property is designated in the District Official Community Plan (Maplewood Village Centre Plan) as '*Residential Level 4: Transition Multi-Family'* which permits various forms of ground-oriented housing units up to a Floor Space Ratio of approximately 1.2. As such, the townhouse form is consistent with the OCP. As submitted, the FSR is about 1.26 and the applicant is seeking the additional floor area taking advantage of the floor space incentive possible under the District's Green Building Strategy.

If the project proceeds, rezoning to a new Comprehensive Development Zone, with land use and development regulations tailored specifically to this project, will be required in addition to the issuance of a development permit.

MUNICIPAL REVIEW: Municipal departments are reviewing the application to ensure compliance with regulations. The project was reviewed by the Advisory Design Panel on January 17, 2013.

PROCESS: The process for applications is designed to ensure that local individuals who may be affected by a development are informed early in the process so that their comments are considered and may be incorporated into the proposal. After the public information meeting, the project may be revised in response to issues raised during the discussion. There will be additional opportunities for public comment when the project is forwarded to Council for consideration. Watch for the weekly feature "District Dialogue" in the Thursday edition of the North Shore Outlook for information on when the rezoning and development permit application is on the Council agenda.

If you have any concerns please be sure to let District planning staff know by completing the attached "Comments Sheet" at the Public Information Meeting or forwarding it directly to the Community Planning Department. If you would like more information on this specific proposal, you are invited to call Doug Allan of the District Planning Department at 990-2357 or by email at dallan@dnv.org.

COMMENT SHEET
The District of North Vancouver

PROPOSAL: Guildford Brook Estates Development Corporation
2135-2167 Mount Seymour Parkway
Application for rezoning and a development permit for a multi-family townhouse project

To help us determine neighbourhood opinions, please consider the following questions:

In your view, will this proposal benefit your neighbourhood or affect it adversely? Please explain.

Do you have any other comments or specific comments about the design details of this application?

Your Name _____

Street Address_____

Please return within 2 weeks of the Information Meeting to:

Attention: Doug Allan, Community Planning Department
District of North Vancouver
355 West Queens Road
North Vancouver, BC
V7N 2K6
FAX: (604) 984-8664
dallan@dnv.org

96”

48”

Public Information Meeting

MEETING: **Tuesday, February 5, 2013, 6:30p.m.**
Kenneth Gordon Maplewood School Library
420 Seymour River Place

24”

APPLICANT: Mr. Y. Parmar, Guildford Brook Development Corporation

PROPERTY: 2135-2167 Mt Seymour Parkway

24”

PROPOSAL: Rezoning & Development Permit application for a 40 unit townhouse development

For more information call Doug Allan, Community Planner, District of North Vancouver Planning Department: 604-990-2357

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Corporate Policy Manual

Section: Land Administration		8
Sub-Section:	**Development**	**3300-2**
Title:	Strata Rental Protection Policy	
Created on: March 21, 2013. Reviewed on: April 15, 2013. Revised on: [Date last revised]		

Policy

All rezoning applications providing any strata-titled multi-family residential dwelling units should provide unrestricted opportunity for any owner to offer their unit(s) for rent at any time in the future.

Reason for Policy

To preserve rental opportunities in strata-titled multi-family development constructed after January 1, 2010.

Authority to Act

Section 905, Local Government Act and *Strata Property Act.* Delegated to staff.

Procedures

1. As a condition of rezoning approval of any development that includes more than two strata-titled multi-family residential units, staff are to require the developer/owner to:

    - File with the Superintendent before the first unit is offered for sale to a purchaser, or conveyed to a purchaser without being offered for sale, a Rental Disclosure Statement in the prescribed form designating all of the units constructed on the lands as rental strata lots and imposing a 99 year rental period in relation to all of the units pursuant to the provisions of the *Strata Property Act* ;

    - Give a copy of the *Rental Disclosure Statement Form J* to each prospective purchaser before the prospective purchaser enters into an agreement to purchase; and

    - Provide a covenant, registerable under Section 219 of the *Land Titles Act,* creating a Housing Agreement which includes provision for the rental use of the residential units and for the prevention of rental restrictions on this housing located on the subject lands.

1. Amendment Date:		Approved by:	

M2
LANDSCAPE ARCHITECTURE
#220 - 26 Lorne Mews
New Westminster, British Columbia
V3M 3L7
Tel: 604.553.0044
Fax: 604.553.0045
Email: office@m2la.com

MOUNT SEYMOUR PARKWAY

EXISTING 18' TALL CEDAR/LAUREL HEDGE
REMOVE EXISTING HEDGE

EXIST. 15' TALL CEDAR/LAUREL HEDGE; TYPICAL
REMOVE EXISTING HEDGE

320 CEDAR NO.374(31)O.S.
360 CEDAR NO.375(30)O.S.
260 CEDAR NO.376(29)O.S.
270 CEDAR NO.377(28)O.S.
230+180 CEDAR NO.378(27)O.S.
410 CEDAR NO.379(26)O.S.

340 ALDER NO.380(25) O.S.

200 SPRUCE NO.391 O.S.

250ALDER NO.383(23)O.S.
250 ALDER NO(24)O.S.
220 ALDER NO.381(21)
240 ALDER NO.382(22)

240 ALDER NO.384(17)O.S.

320 ALDER NO.385(16)O.S.

300 HEMLOCK NO.390(15)O.S.
290+60 ALDER NO.386(14)O.S.
300 ALDER NO(18)O.S.
250 ALDER NO(20)O.S.
325 ALDER NO(19)O.S.

280+260 CEDAR NO.394
180+210 CEDAR NO.393
250 CEDAR NO.392

LINE OF UNDERGROUND PARKING STRUCTURE

290 CYPRESS NO.397
290 CYPRESS NO.398

460 HEMLOCK NO.167
500 D-FIR NO.399
460 D-FIR NO.168
620 D-FIR NO.400

630 CEDAR NO.396(43)
430 D-FIR NO.395(42)

200 MAPLE NO.(06)OS
700 COTTONWOOD NO.389.OS
660 COTTONWOOD NO.388(07)OS.
410 ALDER NO.387.(08)OS.

335 ALDER NO(04)O.S.
285 ALDER NO(05)O.S.
365 ALDER NO(03)O.S.
335 ALDER NO(02)O.S.
365 ALDER NO(01)O.S.

610 COTTONWOOD NO(11)O.S.
213 ALDER NO(12)O.S.
457 ALDER NO(9)O.S.
335 ALDER NO(10)O.S.
335 ALDER NO(13)O.S.

SPECIAL NOTE:

NO + TREE NUMBER= ARBORIST TAG NUMBER
(NUMBER) = SURVEYOR TAG NUMBER

EXISTING TREES TO BE REMOVED

EXISTING TREE TO BE RETAINED

NO.	DATE	REVISION DESCRIPTION	DR.
1	MAY 14 2018	PER NEW SURVEY	TK

SEAL:

PROJECT:

RESIDENTIAL DEVELOPMENT
2135-2167
MOUNT SEYMOUR PARKWAY
DISTRICT OF NORTH VANCOUVER
B.C.

DRAWING TITLE:

TREE MANAGEMENT PLAN

DATE:	12.DEC.19	DRAWING NUMBER:	
SCALE:	1/16"=1'-0"		L2ARB
DRAWN:	J.C.		
DESIGN:			OF 2
CHK'D:			

M2LA PROJECT NUMBER: 12-048

12048-L2IB

MOUNT SEYMOUR PARKWAY

EXIST. 15' TALL CEDAR/LAUREL HEDGE; TYPICAL

EXISTING 18' TALL CEDAR/LAUREL HEDGE

460 HEMLOCK NO.167
500 D-FIR NO.399
460 D-FIR NO.168
620 D-FIR NO.400

610 CYPRESS NO.397
290 CYPRESS NO.398

280+280 CEDAR NO.394
180+210 CEDAR NO.393
250 CEDAR NO.392

320 CEDAR NO.374(31)O.S.
360 CEDAR NO.375(30)O.S.
260 CEDAR NO.376(29)O.S.
270 CEDAR NO.377(28)O.S.
230+180 CEDAR NO.378(27)O.S.
410 CEDAR NO.379(26)O.S.

340 ALDER NO.380(25) O.S.
200 SPRUCENO.391 O.S.

250ALDER NO.383(23)O.S.
250 ALDER NO(24)O.S.
220 ALDER NO.381(21)
240 ALDER NO.382(22)
240 ALDER NO.384(17)O.S.
320 ALDER NO.385(16)O.S.

300 HEMLOCK NO.390(15)O.S.
290+60 ALDER NO.386(14)O.S.
300 ALDER NO(18)O.S.
250 ALDER NO(20)O.S.
325 ALDER NO(19)O.S.

630 CEDAR NO.396(43)
430 D-FIR NO.395(42)

TREE BARRIER

200 MAPLE NO.(06)OS
700 COTTONWOOD NO.389.OS
660 COTTONWOOD NO.388(07)OS.
410 ALDER NO.387.(08)OS.

610 COTTONWOOD NO(11)O.S.
213 ALDER NO(12)O.S.
457 ALDER NO(9)O.S.
335 ALDER NO(10)O.S.
335 ALDER NO(13)O.S.

335 ALDER NO(04)O.S.
285 ALDER NO(05)O.S.
365 ALDER NO(03)O.S.
335 ALDER NO(02)O.S.
365 ALDER NO(01)O.S.

'A'
Total Lot Area:
40,228 sqft

LANE (UNCONSTRUCTED)

SPECIAL NOTE:

NO + TREE NUMBER= ARBORIST TAG NUMBER
(NUMBER) = SURVEYOR TAG NUMBER

TREE TABLE REFERENCE
#150 — SURVEYOR TAG #
5 X 250 ALDER #150 (10) — ARBORIST TREE TAG #
SPECIES
MAIN STEM DIAMETER(mm)
NO. OF MAIN STEMS

EXISTING TREES TO BE REMOVED
EXISTING TREE TO BE RETAINED

SURVEY PLAN OF LOTS 1 AND 2 PLAN 15421
AND LOTS 27, 28, 31 32 AND A PLAN 4255,
ALL OF BLOCK 4 DISTRICT LOT 741 GROUP 1
NEW WESTMINSTER DISTRICT

Current Civic Address:
#2135, 2141, 2145, 2147, 2154, 2165, 2167
MT. SEYMOUR PARKWAY
DISTRICT OF NORTH VANCOUVER, BC

NOTE: SURVEY INFORMATION PROVIDED
BY KEN K. WONG AND ASSOCIATES
CANADA AND B.C. LAND SURVEYOURS
5624 E. HASTINGS STREET
BURNABY, BC V5R 1R4
TEL: 604.294.8881

TREE TAG NUMBERS, SPECIES & TREE SIZE HAVE BEEN MODIFIED
BY M2LA TO REFLECT ARBORIST OBSERVATIONS.

12048-1.ZIP

M2 LANDSCAPE ARCHITECTURE
#220 - 26 Lorne Mews
New Westminster, British Columbia
V3M 3L7
Tel: 604.553.0044
Fax: 604.553.0045
Email: office@m2la.com

NO.	DATE	REVISION DESCRIPTION	DR.
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B.C.

DRAWING TITLE:
ARBORIST SURVEY

DATE:	12.DEC.19
SCALE:	1/16"=1'-0"
DRAWN:	J.C.
DESIGN:	
CHK'D:	

DRAWING NUMBER: L1ARB
OF 2

M2LA PROJECT NUMBER: 12-048