AGENDA

REGULAR MEETING OF COUNCIL

Monday, February 1, 2016
7:00 p.m.
Council Chamber, Municipal Hall
355 West Queens Road,
North Vancouver, BC

Council Members:
Mayor Richard Walton
Councillor Roger Bassam
Councillor Mathew Bond
Councillor Jim Hanson
Councillor Robin Hicks
Councillor Doug MacKay-Dunn
Councillor Lisa Muri

NORTH VANCOUVER
DISTRICT

www.dnv.org

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District of North Vancouver
355 West Queens Road,
North Vancouver, BC, Canada V7N 4N5
604-990-2311
www.dnv.org

REGULAR MEETING OF COUNCIL

7:00 p.m.
Monday, February 1, 2016
Council Chamber, Municipal Hall,
355 West Queens Road, North Vancouver

AGENDA

BROADCAST OF MEETING

- Live broadcast on Shaw channel 4
- Re-broadcast on Shaw channel 4 at 9:00 a.m. Saturday
- Online at www.dnv.org

CLOSED PUBLIC HEARING ITEMS NOT AVAILABLE FOR DISCUSSION

- Bylaw 7984 – Rezoning 3568-3572 Mt. Seymour Parkway
- Bylaw 8149 – Rezoning 115 and 123 West Queens Road

1. ADOPTION OF THE AGENDA

1.1. February 1, 2016 Regular Meeting Agenda

Recommendation:
THAT the agenda for the February 1, 2016 Regular Meeting of Council for the District of North Vancouver be adopted as circulated, including the addition of any items listed in the agenda addendum.

2. PUBLIC INPUT

(limit of three minutes per speaker to a maximum of thirty minutes total)

3. PROCLAMATIONS

3.1. Toastmasters Month **p. 11**

4. RECOGNITIONS

5. DELEGATIONS

5.1. Dr. Ken Ashley, BCIT Rivers Institute **p. 15-36**
Re: Ecological Restoration of North Vancouver estuaries

6. ADOPTION OF MINUTES

6.1. January 18, 2016 Regular Council Meeting **p. 39-46**

Recommendation:
THAT the minutes of the January 18, 2016 Regular Council meeting be adopted.

7. RELEASE OF CLOSED MEETING DECISIONS

8. COUNCIL WORKSHOP REPORT

9. REPORTS FROM COUNCIL OR STAFF

With the consent of Council, any member may request an item be added to the Consent Agenda to be approved without debate.

If a member of the public signs up to speak to an item, it shall be excluded from the Consent Agenda.

Recommendation:
THAT items _____ be included in the Consent Agenda and be approved without debate.

9.1. Update on Seymour River Rockslide **p. 49-74**
File No. 13.6700/Watersheds and Creeks/Seymour

Recommendation:
THAT the January 22, 2016 report of the Section Manager – Public Safety and Environmental Protection Officer entitled Update on Seymour River Rockslide be received for information.

9.2. Bylaw 8166: Amendment to Fees and Charges Bylaw 6481 **p. 75-80**
File No. 09.3900.20/000.000

Recommendation:
THAT "The District of North Vancouver Fees and Charges Bylaw 6481, 1992, Amendment Bylaw 8166, 2016 (Amendment 49)" is given FIRST, SECOND and THIRD Readings.

9.3. 2055 Purcell Way – Endorsement for Capilano University Liquor License Amendment **p. 81-87**
File No. 08.3060.20/39.15

Recommendation:
THAT:
1. The Council recommends the issuance of the endorsement for an amendment to a liquor license at Capilano University for the following reasons:

   The requested endorsement to a Capilano University liquor license in the "Birch Building" is supported by District Council as the proposed licensed area that includes both a new lobby/meeting space and existing theatre seating area is located in a public building on a University campus separated from adjacent "residential" uses and is permitted under existing zoning.

This support is provided with the proviso that the permitted closing hour be 12:00am Monday to Sunday.

2. The Council's comments on the prescribed considerations are as follows:

   (a) The location of the licensed area:
   The location is within a public building which has an existing liquor license. The expanded license area includes the performance theatre and new theatre lobby/meeting space. Public access to the building is primarily from a parking lot at the south east-side of the building.

   The proximity of the licensed area:
   The proposed location is in a public building on a university campus and is not anticipated to conflict with any nearby social, recreation, residential or public buildings under the conditions stipulated in this resolution.

   (b) The person capacity and hours of the licensed area:

   The maximum increase in capacity from 430 persons in the existing licensed area to 930 persons within the theatre, existing lobby and newly-developed lobby/meeting space is acceptable provided closing hours are restricted to the existing permitted closing hour of 12:00am to minimize any possible noise impacts on the surrounding community.

   (c) The number and market focus of liquor primary establishments within a reasonable distance of the proposed location:

   The closest liquor primary licensed establishment are "Toby's", "Seymours", and "The Narrows" and range from 0.6 km to 1.6 km away from the "Birch Building". All are public houses and provide food service and a variety of beverages. There are no other licensed venues on the Capilano University campus.

   (d) The impact of noise and other impacts on the community if the application is approved:

   The impact on the surrounding community is expected to be minimal as the venue is located completely within a public building on the Capilano University campus and is separated from residential development to the east and west by both parking lots and landscaped buffers. The existing licensed area with an occupancy of 430 persons has not had any negative impacts on the community.

3. The Council's comments on the views of residents are as follows:

   To address the Provincial requirements staff completed the following notification procedure in accordance with District Public Notification Policy:

   - A Public Notice sign was placed on the site; and
   - A notice requesting input on the proposal was delivered to 401 neighbouring adjacent property owners and tenants.

Four responses from neighbours within the notification area were received. Two neighbours were in support of the proposal and one noted no adverse issues with a recently-visited downtown Vancouver theatre that allowed alcohol in the theatre. Two neighbours voiced concerns with the proposal. One was specifically opposed to extending the liquor license boundary due to existing noise issues at the bus stop along Purcell Way. The other respondent noted only general concerns. No other concerns from the surrounding community were expressed.

Council recommends that the amendment to the liquor license for Capilano University be endorsed as they believe the majority of residents in the surrounding area are not opposed to the proposal. It is recommended that the existing permitted licensed hours of 10:00am to 12:00am be maintained in order to avoid any potential late night impact on adjacent neighbours.

9.4. 2016 Operational Fuel Treatment Program Application **p. 89-100**
File No. 12.6300.50/000.000

Recommendation:
THAT Council commits to supporting the grant application to UBCM Operational Fuel Treatment Program as attached to the January 22, 2016 joint report of the Section Manager – Public Safety and the Community Forester entitled 2016 Operational Fuel Treatment Program Application, and commits to providing overall grant management.

9.5. Proposed Grain Terminal (G3 Global Holdings) – Response to Permit Referral from Port Metro Vancouver **p. 101-122**
File No. 08.3188.01/001.000

Recommendation:
THAT:

1. Port Metro Vancouver require that G3 Global Holdings provide the following information for review and further comment, as requested by the District during the pre-application consultation phase:

   (a) due to the increase in truck traffic on Mountain Highway arising from the relocation of the Lynnterm West Gate break bulk operation to the East Gate and the proposed temporary construction access route from the terminal site to Mountain Highway:

   - a review of the potential traffic impacts on Mountain Highway and the intersection at Main Street;
   - an analysis of the capacity of the rail underpass on Mountain Highway; and,
   - a safety audit of the at-grade rail crossing on Mountain Highway at Barrow Street.

   (b) a report outlining potential environmental impacts upon the Lynn Creek estuary due to the construction and operation of the proposed G3 Global Holdings grain terminal, and recommended measures to offset those impacts,

including: the expansion of the riparian area between the internal access road to Vancouver Pile Driving and the west side of the Creek; and, measures to address marine spill potential;

(c) detailed plans of the proposed construction access route over Lynn Creek to Mountain Highway including an identification of potential impacts and recommended mitigation strategies;

(d) additional air dispersion modelling information to identify potential impacts upon the Lynn Creek Town Centre;

(e) additional viewscape analyses from the existing Seylynn Village high rise tower and the building currently under construction on Oxford Street; and

(f) an economic impact analysis of the project, including an assessment of direct and indirect spin-off impacts to existing businesses;

2. Port Metro Vancouver take the District's additional comments on the information requested above, into consideration in the review of the project permit application;

3. G3 Global Holdings be required to utilize a temporary on-site concrete batch plant and to barge construction materials to the site to reduce the impacts of construction traffic on Cotton Road/Main Street and Mountain Highway;

4. G3 Global Holdings consider alternatives to the temporary construction route and if unavoidable, include measures to ameliorate impacts to the Lynn Creek channel and Harbourview Park;

5. Port Metro Vancouver be required to establish a new air quality monitoring station at an appropriate location in the Lynn Creek Town Centre;

6. Port Metro Vancouver require that the G3 Global Holdings terminal project meet or exceed applicable Metro Vancouver air quality standards;

7. Port Metro Vancouver require that G3 Global Holdings incorporate the mitigation measures recommended in the Environmental Noise report to dampen the noise arising from pile driving activities;
8. Port Metro Vancouver ensure that site lighting and lighting on the structural components of the project be shielded to minimize glare upon existing and future land uses, including future residential development in the Lynn Creek Town Centre;

9. Port Metro Vancouver require that G3 Global Holdings utilize the 'best available technologies' to reduce potential impacts of the project to the greatest extent possible;

10. G3 Global Holdings be required to provide the District with information on the required utility connections and confirm that there will be no downstream impacts on the District's utility infrastructure;

11. G3 Global Holdings be required to work with District and City staff to identify possible community amenity projects to offset the impacts of this project;

12. G3 Global Holdings and Port Metro Vancouver work with the District and City Fire Departments and North Shore Emergency Management to ensure that the required Fire and Life Safety Plan and the accompanying studies relating to spill prevention, emergency response, fire and dust explosion hazards and the handling of hazardous materials address all applicable codes and regulations; and,

13. Staff be authorized to send a letter to Port Metro Vancouver forwarding Council's recommendations on the G3 Global Holdings project as conditions of approval for any Port permit.

9.6. Non-market Housing and District of North Vancouver Lands **p. 123-124**
File No. 10.4710.40/013.000

Recommendation:
THAT staff be directed to prepare a report for Council's consideration which identifies potential District-owned lands which may be suitable for non-market housing.

10. REPORTS

10.1. Mayor

10.2. Chief Administrative Officer

10.3. Councillors

10.4. Metro Vancouver Committee Appointees

11. ANY OTHER BUSINESS

12. ADJOURNMENT

Recommendation:
THAT the February 1, 2016 Regular Meeting of Council for the District of North Vancouver be adjourned.

PROCLAMATIONS

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PROCLAMATION

"Toastmasters Month"
(February 2016)

WHEREAS: Toastmasters International is a non-profit educational organization that teaches public speaking and leadership skills through a worldwide network of clubs; and

WHEREAS: The first Toastmasters Club outside the United States was chartered in 1935 in Victoria, British Columbia, and today, after more than seventy-five years, Toastmasters in British Columbia has grown to serve more than 5,000 members in 280 clubs; and

WHEREAS: By helping people develop essential communication skills, Toastmasters International and its member Toastmaster Clubs perform a valuable service to its members and the community.

NOW THEREFORE, I Richard Walton, Mayor of the District of North Vancouver, do hereby proclaim the month of February 2016 as "TOASTMASTERS MONTH" in the District of North Vancouver.

Richard Walton
MAYOR

Dated at North Vancouver, BC
This 1st day of February 2016

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DELEGATIONS

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NORTH VANCOUVER DISTRICT

Delegation to Council Request Form

District of North Vancouver
Clerk's Department
355 West Queens Rd, North Vancouver, BC V7N 4N5

Questions about this form: Phone: 604-990-2311
Form submission: Submit to address above or Fax: 604.984.9637

COMPLETION: To ensure legibility, please complete (type) online then print. Sign the printed copy and submit to the department and address indicated above.

Delegations have five minutes to make their presentation. Questions from Council may follow.

Name of group wishing to appear before Council: BCIT Rivers Institute

Title of Presentation: Ecological Restoration of North Vancouver estuaries

Name of person(s) to make presentation: Dr. Ken Ashley

Purpose of Presentation:
- ☒ Information only
- ☐ Requesting a letter of support
- ☐ Other (provide details below)

Please describe:

Attach separate sheet if additional space is required

Update the Mayor and District Council on BCIT led local community restoration work to date on MacKay Creek estuary and Seymour River estuary, and present plan for upcoming 2016 restoration of Lynn Creek estuary.

Contact person (if different than above): n/a

Daytime telephone number: 604-432-8270

Email address: Ken_Ashley@bcit.ca

Will you be providing supporting documentation? ☒ Yes ☐ No

If yes:
- ☐ Handout
- ☐ DVD
- ☑ PowerPoint presentation

Note: All supporting documentation must be provided 12 days prior to your appearance date. This form and any background material provided will be published in the public agenda.

Presentation requirements:
- ☑ Laptop
- ☐ Tripod for posterboard
- ☑ Multimedia projector
- ☐ Flipchart
- ☐ Overhead projector

Arrangements can be made, upon request, for you to familiarize yourself with the Council Chamber equipment on or before your presentation date.

Delegation to Council Request Form

Rules for Delegations:

1. Delegations must submit a Delegation to Council Request Form to the Municipal Clerk. Submission of a request does not constitute approval nor guarantee a date. The request must first be reviewed by the Clerk.
2. The Clerk will review the request and, if approved, arrange a mutually agreeable date with you. You will receive a signed and approved copy of your request form as confirmation.
3. A maximum of two delegations will be permitted at any Regular Meeting of Council.
4. Delegations must represent an organized group, society, institution, corporation, etc. Individuals may not appear as delegations.
5. Delegations are scheduled on a first-come, first-served basis, subject to direction from the Mayor, Council, or Chief Administrative Officer.
6. The Mayor or Chief Administrative Officer may reject a delegation request if it regards an offensive subject, has already been substantially presented to council in one form or another, deals with a pending matter following the close of a public hearing, or is, or has been, dealt with in a public participation process.
7. Supporting submissions for the delegation should be provided to the Clerk by noon 12 days preceding the scheduled appearance.
8. Delegations will be allowed a maximum of five minutes to make their presentation.
9. Any questions to delegations by members of Council will seek only to clarify a material aspect of a delegate's presentation.
10. Persons invited to speak at the Council meeting may not speak disrespectfully of any other person or use any rude or offensive language or make a statement or allegation which impugns the character of any person.

Helpful Suggestions:

- have a purpose
- get right to your point and make it
- be concise
- be prepared
- state your request, if any
- do not expect an immediate response to a request
- multiple-person presentations are still five minutes maximum
- be courteous, polite, and respectful
- it is a presentation, not a debate
- the Council Clerk may ask for any relevant notes (if not handed out or published in the agenda) to assist with the accuracy of our minutes

I understand and agree to these rules for delegations

Dr. Ken Ashley, Director of BCIT Rivers Institute
Name of Delegate or Representative of Group

January 4, 2106
Date

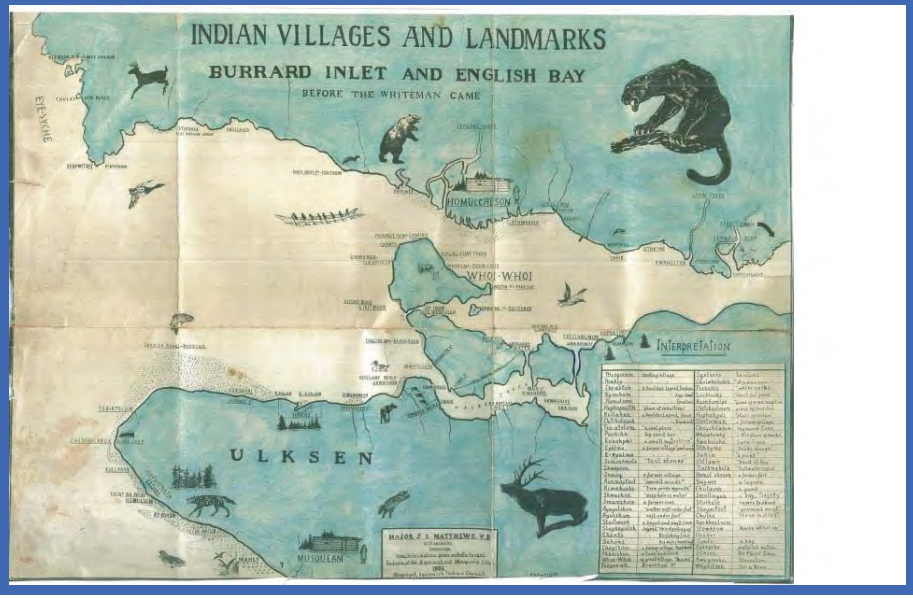
Signature

For Office Use Only

Approved by:			
Municipal Clerk	___	**Appearance date:**	Feb. 1. 2016
Deputy Municipal Clerk	✓	**Receipt emailed on:**	Jan. 4. 2016
Rejected by:			
Mayor	___	**Applicant informed on:**	___
CAO	___	**Applicant informed by:**	___

The personal information collected on this form is done so pursuant to the *Community Charter* and/or the Local Government Act and in accordance with the *Freedom of Information and Protection of Privacy Act*. The personal information collected herein will be used only for the purpose of processing this application or request and for no other purpose unless its release is authorized by its owner, the information is part of a record series commonly available to the public, or is compelled by a Court or an agent duly authorized under another Act. Further information may be obtained by speaking with The District of North Vancouver's Manager of Administrative Services at 604-990-2207 or at 355 W Queens Road, North Vancouver.

Why?



Restoration of North Vancouver Estuaries

North Vancouver District Hall
Feb 1, 2015

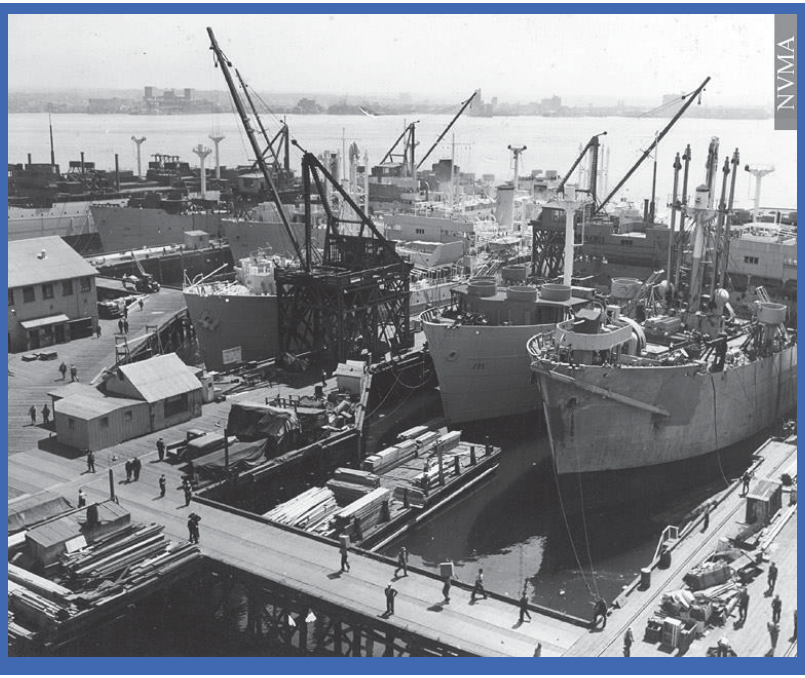
Ken Ashley, Ph.D., R.P. Bio.

BCIT
BRITISH COLUMBIA INSTITUTE OF TECHNOLOGY

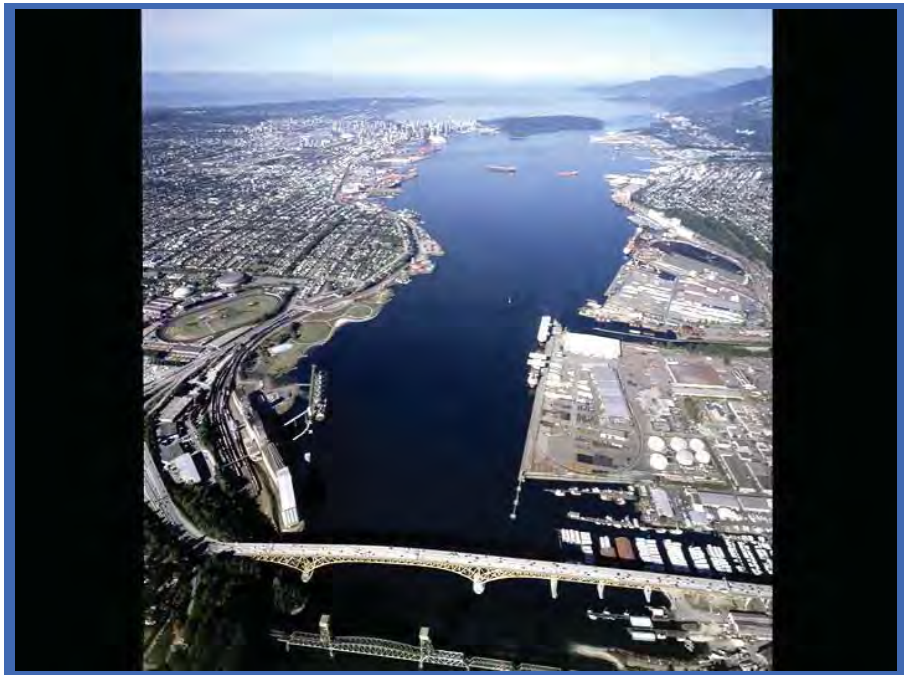
BCIT rivers institute

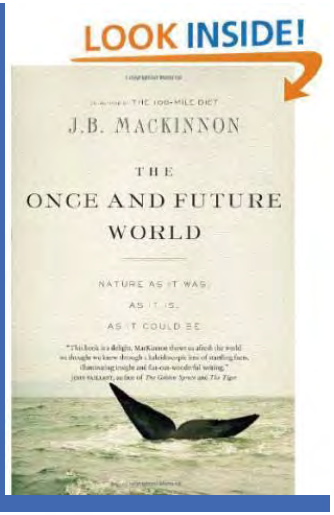
Outline

- Why?
- How?
- Where:
  - Mackay Creek estuary
  - Seymour River estuary
  - Lynn Creek estuary
- Conclusions


NVMA


The Way We hog-in
Lyon Valley B.C.



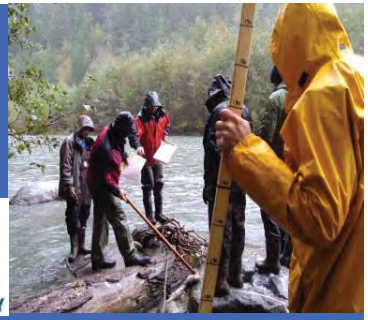


7:00 p.m.
Wednesday, January 20
The Shore at Capilano University
in the Birch Building

EarthWorks

CAPILANO UNIVERSITY

How?



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Ecological Restoration Program

TUESDAY, SEPTEMBER 22, 2009 | BREAKING NEWS: VANCOUVERSUN.COM

CANADA & WORLD || B7

POPULATION GROWTH

A world of famine, ecological overload looms

Unchecked birth rates will lead to unsustainable human population, report warns

BY MARLOWE HOOD

PARIS — Unchecked population growth is speeding climate change, damaging life-nurturing ecosystems and dooming many countries to poverty, experts concluded in a conference report released Monday.

Unless birth rates are lowered sharply through voluntary family-planning programs and easy access to contraceptives, the tally of humans on Earth could swell to an unsustainable 11 billion by 2050, they warned.

The UN projects that global population will rise from 6.8 billion today to between 8.0 and 10.5 billion by mid-century. The researchers said that with one and a half million more humans climbing aboard the planet every week, a recipe is looming for ecological overload, famine and broken states.

"Continued rapid population growth in many of the least developed countries could lead to hunger, a failure of education and conflict," said Malcolm Potts at the University of California in Berkeley, which played host to the conference in February.

The papers, authored by 42 specialists in environmental science, economics and demography, are published by the Royal Society, Britain's de-facto academy of sciences.

"There is no doubt that the current rate of human population growth is unsustainable," wrote Roger Short, a professor at the University of Melbourne.

GETTY IMAGES FILES

In Niger, the population stands at 11 million. By 2050 that is expected to double. Experts say 98 per cent of growth is expected to come from developing countries.

"The inexorable increase in human numbers is exhausting conventional energy supplies, accelerating environmental pollution and global warming and providing an increasing number of failed states where civil unrest prevails."

Ninety-eight percent of the expected population growth will occur in developing countries, especially in Africa, where numbers are set to double to almost two billion by 2050.

"How Niger is going to feed a population growing from 11 million today to 50 million in 2050 in a semi-arid country that may be facing adverse climate change is unclear," said Adair Turner, a member of Britain's House of Lords.

The population of Uganda was five million in 1950, is 25 million today and could reach 127 million by 2050, Turner said. Concern about population growth is not new.

It was most famously articulated by a British mathematician, Thomas Malthus, who in 1798 — when Earth was home to about one billion — calculated that exponential growth would inevitably lead to famine.

Malthus's dire warning was widely taken seriously until the advent of mechanized farming. The surge in food productivity, helped by the Green Revolution of the 1960s, gave the impression that Earth's bounty was limitless.

But relentlessly rising demand, diminishing farmland, depleted fish stocks, falling water tables and the threat of climate change have placed the Malthusian dilemma back on the table.

In their overview, the authors say that even though the burden of excess population is clear, controversy and taboo stalk the question of how to tackle it.

Some objections, such as the Roman Catholic Church's ban on birth control, are religious but the question has been ignored or sidelined in the secular arena too, the authors said.

Population control, for example, did not figure among the UN's eight millennium development goals in 2000, though it was added later "as an afterthought," said Short.

One reason has been the family planning programmes in China and India that critics say veered into forced sterilizations and coercive abortions, breaching human rights.

The researchers acknowledged these problems but also pointed out that without its "one-child" policy, China would have an extra 300 to 400 million mouths to feed today.

Agence France-Presse

DEVELOPING NATIONS

Cancer rates expected to double over two decades

PARIS — Breast and cervical cancers are likely to kill millions of women in developing countries in the coming years, thriving on ignorance of the disease and a lack of means to diagnose and treat it, experts said on Tuesday.

Worldwide, incidence of all types of cancer will double over the next two decades, with about 26.4 million new cases and 17 million deaths annually by 2020, a coalition of cancer specialists warned at a congress in Berlin.

"The global cancer epidemic is not only growing, however, it is also changing," they said in a paper presented at the meeting.

"Once considered a disease of wealthy, industrialized societies, cancer is now increasingly a health burden for less-developed regions of the world.

"More than half of the 12.4 million estimated new cases of cancer in 2008, and two-thirds of the estimated 7.6 million cancer deaths, occurred in low- and middle-income countries, where cancer kills more people each year than AIDS, TB and malaria."

Someone with cancer in a developing country runs triple the risk of dying prematurely compared with a counterpart in a wealthy economy, they said.

Agence France-Presse

Our partners

nhc northwest hydraulic consultants

Environment Canada

SFU SIMON FRASER UNIVERSITY THINKING OF THE WORLD

TSLEIL-WAUTUTH NATION PEOPLE OF THE INLET

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NORTH VANCOUVER DISTRICT

Skwxwú7mesh Úxwumixw SQUAMISH NATION NETWORK

HABITAT CONSERVATION TRUST FOUNDATION

SEYMOUR SALMONID SOCIETY

BODWELL HIGH SCHOOL

the city of north vancouver

Living rivers TRUST FUND

Fisheries and Oceans Canada / Pêches et Océans Canada

seaspan

BCIT BRITISH COLUMBIA INSTITUTE OF TECHNOLOGY

Keystone Environmental Knowledge-Driven Results

BCIT Rivers Institute

EDUCATION

The BCIT Rivers Institute is closely aligned with BCIT's Ecological Restoration; Fish, Wildlife and Recreation; and Sustainable Resource Management programs.

Current BCIT Rivers Institute courses (available through the BCIT Ecological Restoration program):

RENR 8102 Restoration of Freshwater Salmonid Ecosystems

RENR 8106 Wetland and Estuary Restoration

Future courses under consideration:
Applied Limnology and Lake Restoration, and Large River Floodplain Ecology and Restoration

We are currently exploring the feasibility of a single-term student exchange program to allow up to two students per term to travel to Hamilton, New Zealand and Brisbane, Australia to study restoration of freshwater ecosystems.

GET INVOLVED

Visit bcit.ca/ecorestoration for the most current program information.

Visit riversinstitute.ca to learn more about the BCIT Rivers Institute.

FOUNDING SUPPORTER

RUDY NORTH

Rudy North is President and Founder of North Growth Management Ltd. and was Co-Founder of Philips Hager North Investment Management Ltd. His gift to create the institute has funded research initiatives and outreach activities, established the Rudy North Chair in River Ecology, and provided important field research opportunities and financial support for students.

"Wetlands have a poor public image.... Yet they are among the earth's greatest natural assets... mankind's waterlogged wealth."

– Edward Maltby, Waterlogged Wealth

TEACHING SUSTAINABLE SOLUTIONS FOR WATERWAYS

Rivers and streams are water in motion. Lakes provide water for drinking, transportation and recreation. Estuaries are among the most productive ecosystems on earth. Wetlands act as the kidneys of the watershed. All freshwater ecosystems are essential for life on earth.

BRITISH COLUMBIA INSTITUTE OF TECHNOLOGY
Building SW01, Room 2035
3700 Willingdon Avenue, Burnaby
British Columbia, Canada V5G 3H2
T 604.432.8270
E Ken_Ashley@bcit.ca

riversinstitute.ca

BCIT rivers institute

3 companies plead guilty to the 2007 Burnaby oil spill

The courts awarded $461,000 to HCTF via Creative Sentencing in 2011

RESTORING WATERWAYS

The BCIT Rivers Institute provides INFORMATION, INTEGRATION, INNOVATION and INSPIRATION to guide future management and restoration of rivers, streams, estuaries, lakes, and wetlands in British Columbia, Canada, and beyond.

"I have never seen a river that I could not love. Moving water... has a fascinating vitality. It has power and grace and associations. It has a thousand colors and a thousand shapes, yet it follows laws so definite that the tiniest streamlet is an exact replica of a great river."

– Roderick Haig-Brown

INFORMATION

Our education and training programs provide knowledge and skills that will guide sound stewardship and sustainable management of our vital freshwater resources.

INNOVATION

Through our applied research and partnerships, we grow our communities and contribute to new advances in sustainable freshwater resource management practices.

INTEGRATION

By integrating with other stakeholders in freshwater stewardship and habitat restoration, our initiatives connect people and programs while striving to educate and nurture the restoration leaders of tomorrow.

INSPIRATION

We raise public awareness to inspire passion in people to act responsibly in the management and restoration of our valuable freshwater resources.

PASSION FLOWS THROUGH ALL WE DO

- Conducting applied research on freshwater ecosystem restoration;
- Partnering with other ecological restoration programs;
- Supporting stewardship of freshwater resources;
- Educating students and professionals;
- Developing sustainable freshwater resource management practices; and
- Encouraging environmental leaders.

"Estuaries are a happy land, rich in the continent itself, stirred by the forces of nature like the soup of a French chef; the home of myriad forms of life from bacteria and protozoan to grasses and mammals; the nursery, resting place, and refuge of countless."

– Stanley Cain (1966 speech)

McKay Creek Estuary

1926

Burrard Inlet Restoration Pilot Program

Burrard Inlet
Restoration Pilot Program

HABITAT CONSERVATION TRUST FOUNDATION

This innovative program will restore habitat on Burrard Inlet using court-awarded funds.

What is the Burrard Inlet Restoration Pilot Program (BIRPP)?

The Burrard Inlet Restoration Pilot Program provides funding for projects working to restore habitat on Burrard Inlet. The basis of this funding is a $447,000 creative sentencing award resulting from the 2007 Burnaby oil spill. HCTF has designed a granting program around this award to achieve the following objectives:

- Restoration of estuarine, intertidal and near-shore riparian habitats;
- Securement of additional project funding through innovative partnerships;
- Improved public awareness and understanding of creative sentencing as a tool for conservation.

The high-profile restoration sites on the Inlet offer an excellent opportunity to increase public awareness around the value of estuaries, creative sentencing and the work of the Foundation. Currently, six projects are in the planning stage and one (MacKay Creek) will begin restoration work in late summer of 2013.

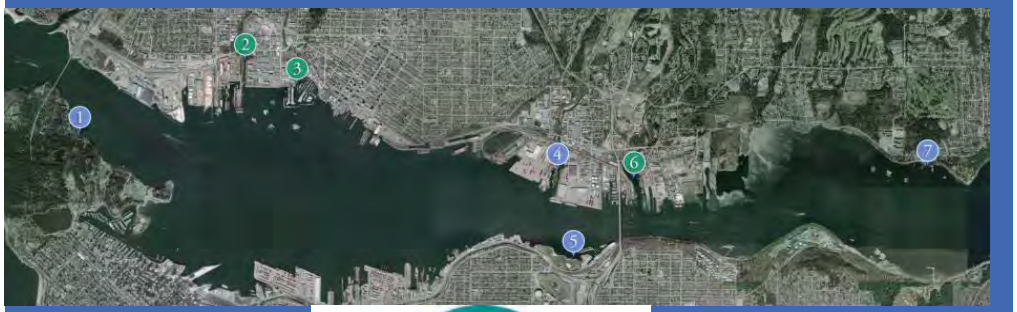
What is Creative Sentencing?

Creative sentencing provisions enable judges to order offenders to make payments to the Habitat Conservation Trust Foundation (HCTF) to be used for funding conservation projects. To date, HCTF has invested over $1.3 million of this money into fish & wildlife habitat restoration and enhancement projects throughout BC.

The **Habitat Conservation Trust Foundation** is a non-profit charitable foundation acting as Trustee of the Habitat Conservation Trust. Consistent with the trust purposes set out in the Wildlife Act, HCTF implements a wide range of projects and programs that benefit fish and wildlife populations and their habitats. The Foundation has invested over $140 million in more than 2000 projects across the province, leveraging close to half a billion dollars for conservation in BC.

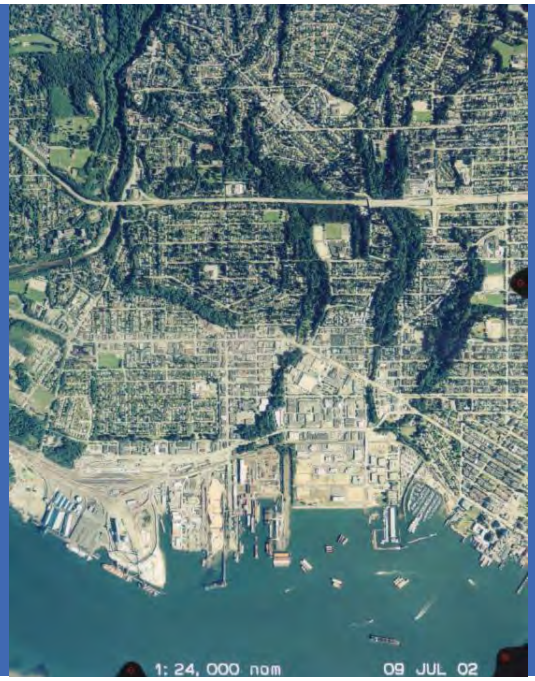
1949

Burrard Inlet Restoration Pilot Program



HABITAT CONSERVATION TRUST FOUNDATION

2002

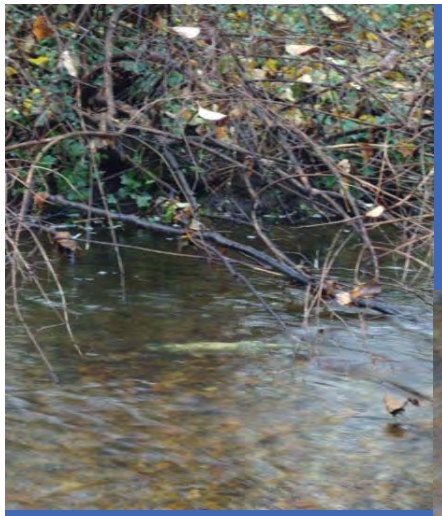


1969

MacKay Creek estuary - 2011

1971

Aug – Sept 2013



Chum salmon spawning in MacKay Creek in Nov 2013

Pair of eagles occupied their new MacKay Creek nest in December, 2016

1974

Seymour River estuary

1926

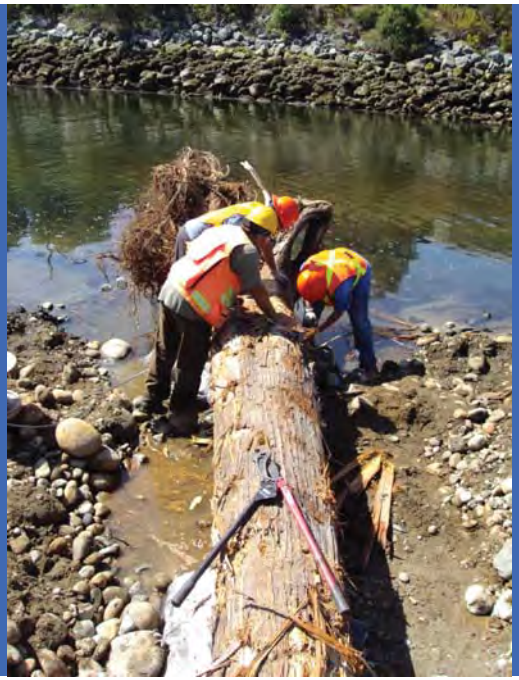
1993

1949

Seymour River Estuary, 2012. Illustrating the boundaries of the project area (red line) and ownership of adjacent areas (coloured polygons).


LIED


DEERE




DEERE


Chris Cambon


soilmec
SR-30


Seymour River estuary restoration - future vision
Legend
Wetland Potential
Watercourse Potential
6900 Sq.m
2300 Sq.m
308 Sq.m
180 Sq.m
100 Sq.m
3200 Sq.m
6400 Sq.m
5400 Sq.m
Stream Daylighting/Constructed Channel
Opportunity exists to daylight or create over 2 km of stream channel and habitat for fish and amphibians
Terrestrial restoration includes the removal of invasive plant species and planting of native shrubs and herbs
Constructed Wetlands
Opportunity exists to create 28,000 Sq.m. (2.8 ha) of tidally influenced and upland-wetland
Phibbs transit exchange, the Ministry of Transport storage site and area surrounding the Main Street and Dollarton Highway Offramps also have future wetland potential
Interpretive Kiosk
A kiosk with display pannels could highlight flora and fauna found in the area
The impacts of development, stormwater runoff and urbanization can also be shown
Concrete Picnic Tables
Visitors to the site can enjoy nature viewing, take in the sights or have lunch at one of two concrete picnic tables
Canoe/Kyak Launch
A canoe/kyak launch will allow enhanced water access to the existing kyak course and Burrard Inlet
Seymour River estuary
N
0
50
100
200
Meters

Lynn Creek estuary

I want to be a wetland!

Tamara Kazmiruk
Vasily Kazmiruk

Ecotoxicology Research Group (ERG)
Department of Biological Sciences
Faculty of Science
Simon Fraser University

Figure 5: Invasive plant species found in the northern section of Lynn Creek estuary (source: "Lynn Creek Estuary: Restoration in an Urban Environment" by S. Gale, L. Hennecker, A. Phillips).

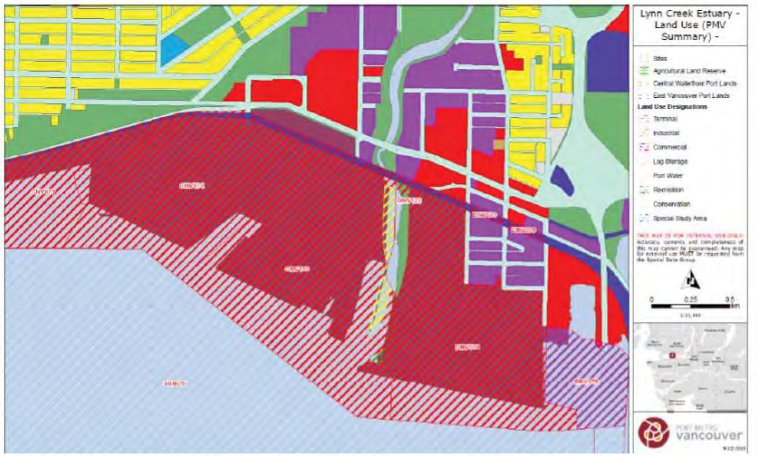


Figure 4: Port Metro Vancouver land use designation within and adjacent to the Lynn Creek estuary. The yellow hashed polygon present within the estuary is designated as conservation. (*Map provided by PMV, 22-Sept-2015.*)

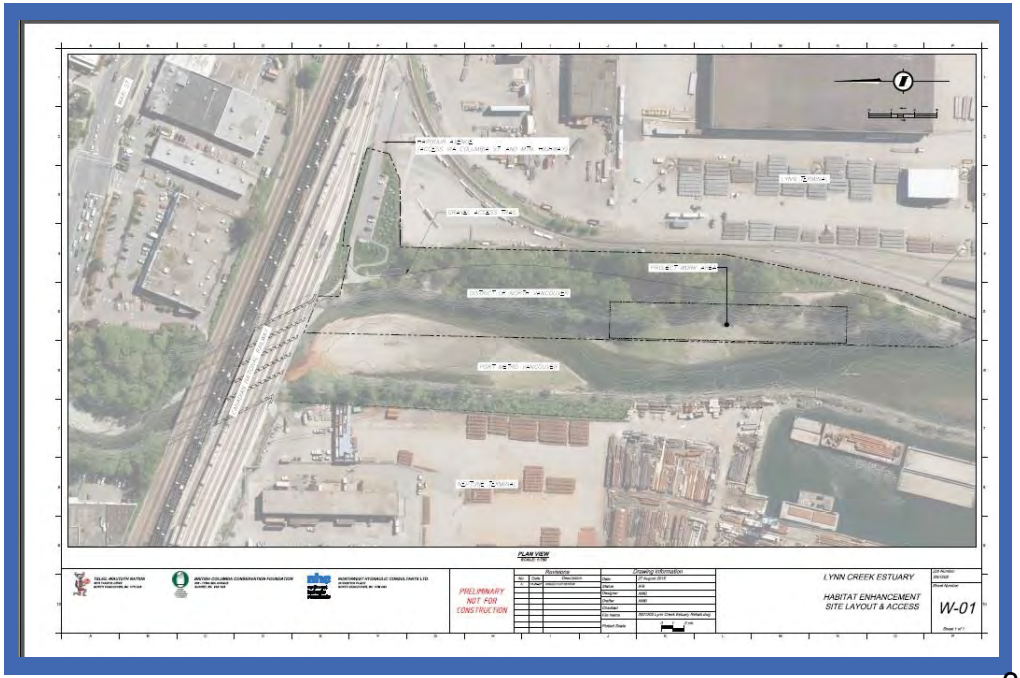
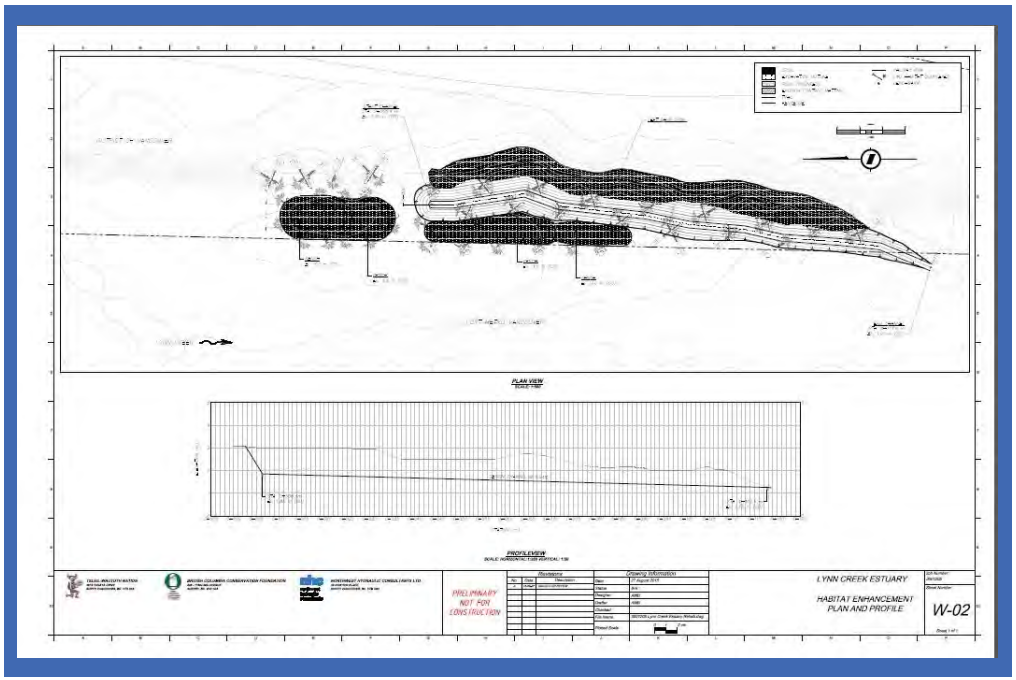


Figure 8: Aerial image outlining the estuary (red polygon) with the main 4 gravel bars labeled 1-3. The proposed aquatic habitat improvements will focus on gravel bar #2 and the riparian habitat improvements alongside and throughout Harbourview Park. *(Image adapted from: Google Earth. Image date: 14-July-2014.)*

The total budget for these activities is **$220,000** summarized below:

• LWD structure installation	$ 95,000
• Intertidal vegetation	$ 25,000
• Eelgrass/kelp transplanting	$ 50,000
• Invasive removal	$ 15,000
• Riparian vegetation	$ 25,000
• On-site signage	$ 7,000
• Off-site education	$ 3,000



Special thanks to :

Richard Boase, P.Geo. - Environmental Protection Officer

Julie Pavey, R.P. Bio.
Section Manager – Environmental Sustainability

Susan Rogers, Manager, Parks and Environment

Authorizations/approvals are required for this project and the permit applications are currently being prepared. These include:

1. District of North Vancouver
   - Approval from the Parks department (Works Permit)
   - Highway Use Permit (to locate a green waste bin and in the parking lot during invasive removal)
   - Certificate of Insurance
2. City of North Vancouver
   - Works Permit (Bylaw No. 6234)
   - Certificate of Insurance
3. Port Metro Vancouver
   - Project permit for a Category B project
   - Short term non-exclusive commercial license

BCIT 50 YEARS

Thanks for listening

SFU 1965 2015

MINUTES

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DISTRICT OF NORTH VANCOUVER
REGULAR MEETING OF COUNCIL

Minutes of the Regular Meeting of the Council for the District of North Vancouver held at 7:00 p.m. on Monday, January 18, 2016 in the Council Chambers of the District Hall, 355 West Queens Road, North Vancouver, British Columbia.

Present: Mayor R. Walton
Councillor R. Bassam
Councillor M. Bond
Councillor J. Hanson
Councillor R. Hicks
Councillor L. Muri

Absent: Councillor D. MacKay-Dunn

Staff: Mr. D. Stuart, Chief Administrative Officer
Ms. C. Grant, General Manager – Corporate Services
Mr. G. Joyce, General Manager – Engineering, Parks & Facilities
Mr. D. Milburn, Deputy General Manager – Planning & Permits
Mr. J. Gordon, Manager – Administrative Services
Ms. J. Paton, Manager – Development Planning
Ms. S. Dal Santo, Section Manager – Planning Policy
Ms. S. Dale, Confidential Council Clerk
Mr. J. Gresley-Jones, Planner
Mr. R. Taylor, Planner
Ms. I. Weisenbach, Transportation Planner

1. ADOPTION OF THE AGENDA

1.1. January 18, 2016 Regular Meeting Agenda

MOVED by Councillor MURI
SECONDED by Councillor BOND
THAT the agenda for the January 18, 2016 Regular Meeting of Council for the District of North Vancouver be adopted as circulated.

CARRIED

2. PUBLIC INPUT

2.1. Ms. Laura Fisher, 600 Block St. Ives Crescent:

- Spoke in opposition to the proposed Braemar development;
- Commented that the proposed development would significantly decrease the public assembly land stock; and,
- Urged Council to defeat the proposed development.

2.2. Mr. Rene Gourley, 600 Block St. Ives Crescent:

- Spoke in opposition to the sale of the Braemar public assembly land.

2.3. Ms. Christie Sacre, 400 Block East 6th Street:

- Spoke as the Chair of North Vancouver Board of Education regarding the Braemar proposal;
- Commented that traffic, parking and environment concerns have been addressed;
- Noted that funds would go towards amenities that would benefit the community; and,
- Urged Council to support the proposed application.

2.4. Ms. Jennifer Clay, 700 Block East 8th Street:

- Expressed concerns with regards to increased property taxes;
- Urged staff to meet with other municipalities and the Minister of Finance to discuss making property assessments and taxes fair;
- Suggested considering a system that charges higher taxes to those who build and buy newer, larger homes; and,
- Suggested a rebate for residents who live in homes listed on the Heritage Register.

2.5. Mr. Alfonso Pezzente, 3700 Block Norwood Avenue:

- Spoke in support of the proposed Braemar development; and,
- Opined that the proposed development is in keeping with the character of the neighbourhood and meets the goals of the Official Community Plan.

2.6. Mr. Trevor Dunn, 1600 Block Kilkeny Road:

- Spoke in support of the proposed Braemar development; and,
- Commented that the proposed development is in keeping with the character of the neighbourhood.

2.7. Ms. Jami-Martin, 500 Block Silverdale Place:

- Spoke in opposition to item 9.5 regarding Braemar Elementary School;
- Expressed concerns that the Braemar community was not adequately consulted;
- Opined that the concerns of the Braemar community were not addressed; and,
- Urged Council to defeat the proposal.

2.8. Mr. Chris Martin, 500 Block Silverdale Place:

- Expressed concern that a geotechnical assessment of the Braemar land has not been made available to the public;
- Opined that the proposed development may lead to slope instability; and,
- Urged Council to not consider this application until a geotechnical assessment is complete.

2.9. Mr. Hugh Lazenby, 3500 Block Norwood Avenue:

- Spoke in opposition to item 9.5 regarding Braemar Elementary School; and,
- Opined that the public assembly land should be retained.

2.10. Mr. Shane Hopkins-Utter, 4500 Block Underwood Avenue:

- Spoke in support of the proposed Braemar development;

- Commented that the proceeds from the sale of property would benefit the Argyle community; and,
- Urged Council to support the proposal.

2.11. Mr. Lamber Dhaliwhal, 3500 Block Calder Avenue:

- Expressed concerns regarding the sale of land and loss of school land required for any future Braemar School expansion.

2.12. Mr. John Harvey, 1900 Block Cedarvillage Crescent:

- Spoke regarding the Council videos on the new website and requested that the videos go back to 2003;
- Suggested that the November 16, 2015 Regular Council minutes be amended by revising his comments regarding the Hamersley House; and,
- Spoke regarding the TransLink Compass Card.

2.13. Mr. Lyle Craver, 4700 Block Hoskins Road:

- Spoke in opposition to item 9.5 regarding Braemar Elementary School; and,
- Expressed concern that Braemar residents were not adequately consulted.

3. PROCLAMATIONS

Nil

4. RECOGNITIONS

Nil

5. DELEGATIONS

5.1. Joy Hayden, Hollyburn Family Services Society

Re: Hollyburn Family Services Society – An Overview.

Ms. Joy Hayden, Hollyburn Family Services Society, provided an overview of programs and services Hollyburn Family Services Society provides and challenges they face. Ms. Hayden thanked the District for their continued support.

MOVED by Councillor BASSAM
SECONDED by Councillor MURI
THAT the delegation from the Hollyburn Family Services Society is received.

CARRIED

6. ADOPTION OF MINUTES

6.1. December 14, 2015 Regular Council Meeting

MOVED by Councillor MURI
SECONDED by Councillor BOND
THAT the minutes of the December 14, 2015 Regular Council meeting be adopted.

CARRIED

7. RELEASE OF CLOSED MEETING DECISIONS

Nil

8. COUNCIL WORKSHOP REPORT

Nil

9. REPORTS FROM COUNCIL OR STAFF

MOVED by Councillor BOND
SECONDED by Councillor BASSAM
THAT item 9.7 be included in the Consent Agenda and be approved without debate.

CARRIED

With the consent of Council, Mayor WALTON altered the agenda as follows:

9.5. Bylaws 8147 and 8148: OCP Amendment and Rezoning for a Four Lot Single-Family Residential Development: 3600 Mahon Avenue (Braemar Elementary School)

File No. 08.3060.20/026.15

Public Input:

Ms. Jane Chersak, 3000 Block Calder Avenue:
- Expressed concerns with regards to increased traffic and parking issues this proposal will create;
- Expressed concerns that the Argyle community will benefit from the sale of this property but the local community will not; and,
- Opined that the proposed bylaws should be defeated and not referred to a Public Hearing.

Mr. John Lewis, 4000 Block Shoune Road:
- Spoke on behalf of the North Vancouver Board of Education;
- Spoke in support of the proposed development;
- Noted that the North Vancouver Board of Education is committed to meeting the long-term needs of both the community and students; and,
- Commented that unsafe buildings will be replaced as a result of selling surplus lands.

MOVED by Councillor BASSAM
SECONDED by Councillor HICKS

THAT "The District of North Vancouver Official Community Plan Bylaw 7900, 2011, Amendment Bylaw 8147, 2015 (Amendment 15)", to amend the Official Community Plan for a portion of the subject site from Institutional to Residential Level 2: Detached Residential (RES2) to allow for a four lot detached residential development, is given FIRST Reading;

AND THAT "The District of North Vancouver Rezoning Bylaw 1336 (Bylaw 8148)" to rezone a portion of the subject site from Public Assembly (PA) to Comprehensive Development Zone 93 (CD93) to allow for a four lot detached residential development, is given FIRST Reading;

AND THAT pursuant to Section 475 of the *Local Government Act*, additional consultation is not required beyond that already undertaken with respect to Bylaw 8147;

AND THAT in accordance with Section 477 of the *Local Government Act*, Council has considered Bylaw 8147 in conjunction with its Financial Plan and applicable Waste Management Plans;

AND THAT Bylaws 8147 and 8148 are referred to a Public Hearing.

DEFEATED
Opposed: Councillors BOND, HANSON and MURI

Council recessed at 8:08 pm at reconvened at 8:12 pm.

9.1. Lynn Creek Public Realm Guidelines
File No. 13.6480.30/002.001

MOVED by Councillor BOND
SECONDED by Councillor BASSAM
THAT the "Lynn Creek Public Realm Guidelines", as attached to the December 14, 2015 joint report of the Community Planners entitled Lynn Creek Public Realm Guidelines, are approved.

CARRIED

9.2. Bylaws 8138 and 8139: 756-778 Forsman Avenue
File No. 08.3060.20/085.12

MOVED by Councillor HICKS
SECONDED by Councillor BOND
THAT "The District of North Vancouver Rezoning Bylaw 1334 (Bylaw 8138)" is given SECOND and THIRD Readings.

THAT "Housing Agreement Bylaw 8139, 2015 (756 & 778 Forsman Avenue)" is given SECOND and THIRD Readings.

DEFEATED
Opposed: Councillors BASSAM, HANSON and MURI

9.3. Bylaws 8149 and 8150: 14 Unit Townhouse Development at 115 and 123 West Queens Road
File No. 08.3060.20/033.15

Councillor MURI left the meeting at 9:10 pm.

MOVED by Councillor BOND
SECONDED by Councillor BASSAM
THAT "The District of North Vancouver Rezoning Bylaw 1337 (Bylaw 8149)" is given SECOND and THIRD Readings.

THAT "Housing Agreement Bylaw 8150, 2015 (115 and 123 West Queens Road)" is given SECOND and THIRD Readings.

CARRIED
Absent for Vote: Councillor MURI

9.4. Bylaws 8159, 8160 and 8162: OCP Amendment, Rezoning and Housing Agreement for a 24 Unit Apartment Project – 1103, 1109, 1123 Ridgewood Drive and 3293 Edgemont Boulevard
File No. 08.3060.20/030.15

Councillor MURI returned to the meeting at 9:14 p.m.

MOVED by Councillor HICKS
SECONDED by Councillor BASSAM
THAT the "District of North Vancouver Official Community Plan Bylaw 7900, 2011, Amendment Bylaw 8159, 2015 (Amendment 16)", to amend the Official Community Plan (OCP) land use designation for the affected parcels from Residential Level 2 (RES2) to Residential Level 4 (RES4), is given FIRST Reading;

AND THAT the "District of North Vancouver Rezoning Bylaw 3210 (Bylaw 8160)", to rezone the subject parcels from Single Family Residential Edgemont (RSE) to Comprehensive Development Zone 92 (CD92), is given FIRST Reading;

AND THAT "Housing Agreement Bylaw 8162, 2015 (1103, 1109, 1123 Ridgewood Drive and 3293 Edgemont Boulevard)", to authorize a Housing Agreement to prevent future rental restrictions on the subject property, is given FIRST Reading;

AND THAT pursuant to Section 475 of the *Local Government Act*, additional consultation is not required beyond that already undertaken with respect to Bylaw 8159;

AND THAT in accordance with Section 477 of the *Local Government Act*, Council has considered Bylaw 8159 in conjunction with its Financial Plan and applicable Waste Management Plans;

AND THAT Bylaw 8159 and Bylaw 8160 are referred to a Public Hearing.

CARRIED
Opposed: Councillor MURI

9.6. Community Amenity Contribution Policy Update

File No. 08.3060.20/000.000

MOVED by Councillor HICKS
SECONDED by Councillor BASSAM
THAT the Community Amenity Contribution Policy as attached to the January 7, 2016 report of the Deputy General Manager – Planning & Permits entitled Community Amenity Contribution Policy Update is endorsed for approval by the Chief Administrative Officer.

CARRIED

9.7. North Vancouver Recreation & Culture Commission Sport and Recreation Travel Grants Recommendations

File No.

MOVED by Councillor BOND
SECONDED by Councillor BASSAM
THAT the achievements of North Vancouver resident Brendan Artley be recognized with a $200 travel grant and the Capilano University Men's Soccer Team be granted a $1,000 travel grant.

CARRIED

10. REPORTS

10.1. Mayor

Mayor Walton advised that the Ministry of Transportation will host an open house regarding the Mountain Highway Interchange proposed design on Tuesday, January 19, 2016 from 4-8 pm at the Holiday Inn.

10.2. Chief Administrative Officer

Nil

10.3. Councillors

Nil

10.4. Metro Vancouver Committee Appointees

Nil

11. ANY OTHER BUSINESS

Nil

12. ADJOURNMENT

MOVED by Councillor MURI
SECONDED by Councillor HANSON
THAT the January 18, 2016 Regular Meeting of Council for the District of North Vancouver be adjourned.

CARRIED
(9:45 pm)

Mayor

Municipal Clerk

REPORTS

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AGENDA INFORMATION		Dept. Manager	GM/ Director	CAO
☐ Regular Meeting	Date:			
☐ Committee of the Whole	Date:			

The District of North Vancouver
REPORT TO COUNCIL

January 22, 2016
File: 13.6700/Watersheds and Creeks/Seymour

AUTHOR: Fiona Dercole, Section Manager Public Safety
Richard Boase, Environmental Protection Officer

SUBJECT: Update on Seymour River Rockslide

RECOMMENDATION:
THAT the January 18, 2016 report of the Section Manager Public Safety and Environmental Protection Officer entitled *Update on Seymour River Rockslide* be received for information.

REASON FOR REPORT:
TO provide an update to Council on the progress of the Seymour River Roundtable in addressing fish passage through the Seymour River Canyon.

SUMMARY:
On December 7, 2014 a significant rockslide occurred in the Seymour Canyon, approximately 1 km above the top of Riverside Drive in Metro Vancouver's jurisdiction. District staff were involved in the initial response to ensure public safety and have remained involved as members of the Seymour Roundtable. Members include representatives from Federal, First Nations, Provincial, Regional and Local government agencies as well as community groups that share common goals around watershed management. The rockslide caused the Seymour River to back up and flooded the riparian and forested areas upstream. Twin Bridge was removed as it was in jeopardy of being damaged and important trail connections have been impacted. The rockslide prevents fish from accessing the productive spawning habitat in the upper section of the river. A trap and truck program was implemented over the summer/fall of 2015 but is not sustainable in the long term. Engineering and hydraulic consultants were retained to develop options for fish passage in a safe and sustainable manner. Consensus was reached that the preferred option is to reshape the existing rock pile using non-explosive rock breaking techniques and high river flows to transport smaller debris; incrementally over a several year period. Once environmental approvals are in place and a funding source is secured, work will commence in the next available fisheries window. Coordination of this work will be led by the Seymour River Salmonoid Society. Whether the rock pile remains in place or is altered makes little or no difference from a downstream flood risk perspective. The District's primary roles are to continue as active members of the Seymour Roundtable and ensure that our residents are well informed of the activities and impacts.

BACKGROUND:
The Seymour Roundtable supports information sharing, consensus-based decision making and relationship building between the various levels of government agencies and community groups. The vision statement for the Seymour Fish Passage Committee, a sub-committee of the Seymour River Roundtable, is "to restore migration conditions for all species that existed before the 2014 rockslide, in a safe and sustainable manner".

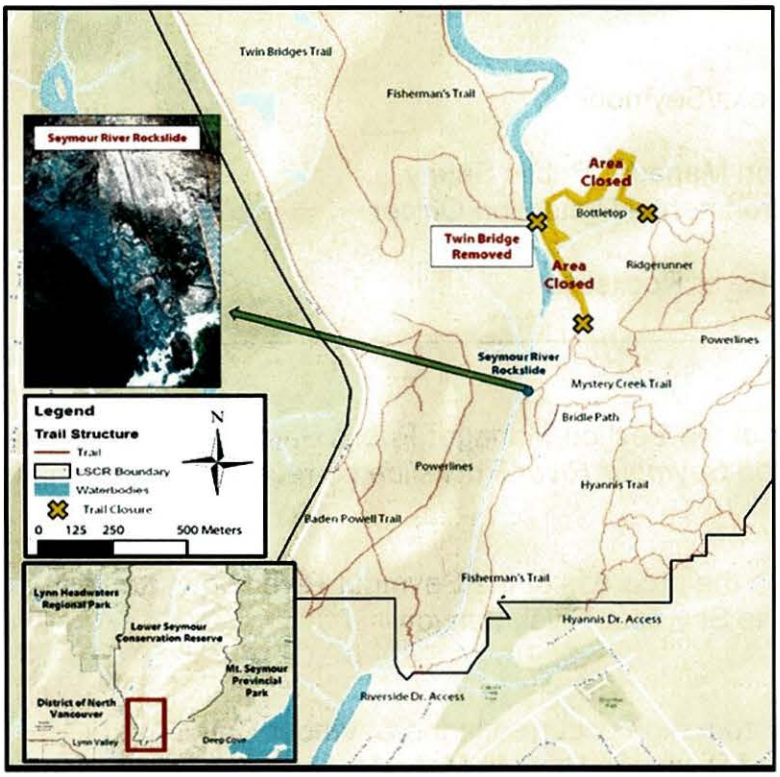

Figure 1: location map

The rockslide, with a volume of approximately 50,000 m^3, prevents salmon and steelhead from accessing productive spawning habitat in the upper section of the river. During the summer and fall of 2015, the Seymour River Salmonoid Society coordinated the trapping and transportation of fish around the rockslide. This enormous task was conducted by staff from the Seymour River Hatchery along with many volunteers, but is not sustainable in the long term. The Salmonoid Society initiated a feasibility study of conceptual ideas to make the rockslide passable for fish. The study was made possible by a $20,000 grant from the Habitat Conservation Trust Foundation and the Freshwater Fisheries Society of BC.

ANALYSIS:
BGC Engineering and Northwest Hydraulic Consultants (NHC) were retained to consider public safety, slide/rockfall stability, downstream hydraulic/flooding issues and fish passage when developing their recommendations.

In December 2015, the consultants presented the following options:

1. Do nothing
2. Install and operate a temporary fish pass
3. Install and operate a permanent open fishway
4. Install a tunnel and slot fishway
5. In-river fish capture and trap-and-haul program
6. Permanent fish weir and trap-and-haul program
7. Re-shape the slide debris pile with heavy construction equipment and explosives
8. Re-shape the slide debris pile with scaling crews, non-explosive rock breaking and river flows
9. Remove the slide debris with heavy construction equipment and explosives

Managing fish passage without mitigation (options 2 through 6) carries more negative environmental impacts and significant operational expenses over the long term. Mitigating the slide (options 7 through 9) is more costly up front, but the long term expenses are reduced and the environmental outcomes are more positive.

The Seymour Roundtable discussed the options and agreed with the consultants that the preferred approach is to mitigate the slide by re-shaping the rock pile (option 8) through the following actions:

- Reduce the diameter of the boulders so flood flows will roll and transport them to a lower elevation downstream
- Remove much of the slide mass (right bank) to open up the channel and reduce the effective slope of the slide
- Ensure the resulting boulder channel is shaped to provide opportunities for salmon and steelhead migration
- Accomplished over a 2-5 year period or 20-40 "work events"

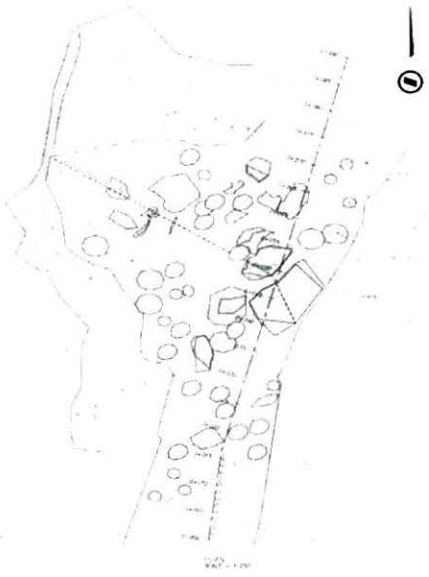

Figure 2: rock pile layout

Seymour Salmonoid Society's Brian Smith has been secured as the Project Coordinator. Department of Fisheries and Oceans Canada has agreed to apply to the Province for the necessary environmental permits, required to conduct in-stream work. The District's primary role will be to work with Metro Vancouver on a Communications Strategy to ensure that our residents are well-informed, and to continue to participate at the Seymour Roundtable.

The rockslide also affected recreational trail users in the Lower Seymour Conservation Reserve. Twin Bridge, which provided important trail connections, was removed as it was in jeopardy as a result of the Seymour River backing up behind the slide and flooding the bridge deck. According to NHC, upon completion of the proposed rock pile reshaping, the rock pile height will be reduced significantly and the narrow slide opening widened. The current upstream ponding depth and extent will be reduced and large fluctuations of upstream water levels associated with flood flows will be lessened. Metro Vancouver has retained an engineering consultant to prepare conceptual plans for access across the Seymour River and for the crossing at Riverside Drive, and has committed to share the conceptual plans in April/May 2016 for public input. Detailed design is to be completed in 2016 and construction is to commence in 2017.

Timing/Approval Process:
Before work commences, environmental approvals must be obtained from the Province. The process of breaking up the rock and allowing high flow volumes (typically November to April) to transport smaller pieces downstream will occur as a phased approach over 2 to 5 years.

Financial Impacts:
This project is not within the District's jurisdiction and Staff are not aware of direct financial obligations at this time. The cost of re-shaping the slide debris pile is between $500k - $1M spread over several years, depending on the success of each rock breaking session and the subsequent high flow events. A fundraising plan, including a search for relevant grant opportunities and potential funding partners, is currently underway. Tsleil-Waututh Nation has contributed $20,000. The District is currently contributing in-kind resources through participation on the Seymour Roundtable, in the trap and truck program and lending expertise in public communications.

Liability/Risk:
The District is not the decision-maker in this case; the subject area is outside of our jurisdiction. According to the qualified professional engineering and hydraulic consultants (BGC and NHC), whether the rock remains as is or is altered makes little or no difference from a downstream flood risk perspective. No additional liability or risk is associated with participating on the Seymour River Roundtable.

Social Policy Implications:
Providing healthy fish habitat while protecting public safety positively impacts the liveability of our community.

Environmental Impact:
The environmental impacts associated with the proposed method of clearing some debris and reshaping the channel to restore fish access will be limited to some additional tree clearing for worker safety and sediment along with minor pollution (oil & grease) generated by drilling, rock breaking and site access. However, these impacts are temporary in nature, can be mitigated by the application of appropriate Best Management Practices (BMPs) and are insignificant compared to the magnitude of impacts associated with the original slide. The inability of salmon and steelhead to access spawning and rearing habitat above the slide continues to be the most significant long term impact of the slide.

When the project has received the required resources for permitting, construction and monitoring, the project team will be led by engineering consultants BGC and NHC, who have significant and longstanding experience in the management and delivery of projects of this nature. The application of appropriate environmental control and BMPs will be conditional to the various required authorizations for work and will be reviewed by the DNV Environmental Services group.

Conclusion:
This option represents what is thought to be the best long term option to restore fish access to stream habitat above the slide area. Successful restoration of fish access to the upper river will result in a viable fish hatchery and allow already threatened fish populations to continue to access habitat in the upper river. This project is of vital importance to the ecology of the Seymour Watershed and will not increase downstream flood risk.

Respectfully submitted,

F. Dercole

Fiona Dercole, Section Manager Public Safety

Richard Boase, P.Geo. Environmental Protection Officer

REVIEWED WITH:

❑ Sustainable Community Dev.	____	❑ Clerk's Office	____	External Agencies:	
❑ Development Services	____	❑ Communications	____	❑ Library Board	____
❑ Utilities	____	❑ Finance	____	❑ NS Health	____
❑ Engineering Operations	____	❑ Fire Services	____	❑ RCMP	____
❑ Parks	____	❑ ITS	____	❑ NVRC	____
❑ Environment	____	❑ Solicitor	____	❑ Museum & Arch.	____
❑ Facilities	____	❑ GIS	____	❑ Other:	____
❑ Human Resources	____	❑ Real Estate	____		

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Seymour River Rockslide Mitigation

Seymour Salmonid Society
PO Box 52221
North Vancouver, BC
V7J 3V5

Final Report
January 4, 2015

nhc
northwest hydraulic consultants

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Notification

This document has been prepared by Northwest Hydraulic Consultants Ltd. and BGC Engineering Inc. in accordance with generally accepted engineering and geoscience practices and is intended for the exclusive use and benefit of Seymour Salmonid Society 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 BGC Engineering Inc. and their 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 Seymour Salmonid Society, for whom the document was prepared, and directly related to the rockslide mitigation concepts on the Seymour River, North Vancouver.

Citation

Northwest Hydraulic Consultants Ltd. and BGC Engineering Inc. 2016. Seymour River Rockslide Mitigation. Prepared for Seymour Salmonid Society. 04 January 2016.

Certification

Report prepared by:

Sam Fougère, M.Sc., P.Geo.

Barry Chilibeck, M.A.Sc., P. Eng.

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Background

At 5:30 AM on December 7th 2014, a rock slide occurred within a canyon 0.5 km downstream from the Twin Bridges crossing and temporarily blocked the Seymour River, North Vancouver (**Figure 1**). The blockage created a dammed pool that varies from 13 to 25 meters deep, backwatering the river with elevated water levels extending 600 to 1,100 m upstream of the slide depending on river flow rate.

Precipitation due to storm events in the upper Seymour River resulted in two flood pulses releasing over the slide material on December 9th and 10th, 2014. These increases in flow mobilized and re-deposited finer rock slide debris downstream, resulting in settling of larger rock slide boulders (re-arrangement of loose rock boulders falling into space created by the removal and re-deposition of the finer debris). Based on data collected after the rock slide event and assessment of the expected extent and frequency of inundation at the Twin Bridges upstream of the rock slide, Metro Vancouver proactively deactivated and removed the Twin Bridges crossing on January 12th 2015. Access to the slide site and Fisherman's Trail were limited and the site was secured to limit public access and provide site safety.

Northwest Hydraulic Consultants Ltd. (NHC) and BGC Engineering Inc. (BGC) staff cooperatively assessed and monitored the slide in the days and week following the event. Both NHC and BGC prepared technical reports on the hydraulics and fluvial morphology, and geotechnical aspects of the slide for Metro Vancouver respectively (NHC, 2015; BGC, 2015).

Tasks

NHC and BGC were retained to assess short and long-term options to restore fish passage past the rock slide. These options would address key issues:

1. Public safety
2. Slide and slope stability
3. Hydraulic issues and impacts, and
4. Fish movement and migration.

The options assessment will look at mitigation activities and works, and develop conceptual costing based on previous project work and professional experience. The process started with a workshop meeting and discussion of ideas, which formed the outline of the work.

Both NHC and BGC visited the site and reviewed the historic and current conditions. NHC undertook a small site survey using an RTK GPS and total station on November 5th 2015. The site plans used in this report were developed from these data. BGC also visited the site with scaling and blasting contractors to discuss potential options and costs.

Currently the site is assessed and reviewed monthly, and water levels are monitored continuously both above the slide, at Twin Bridges by Water Survey Canada, and below the slide at Grantham Bridge at a gauge operated by the District of North Vancouver.

Slide Assessment

Impacts to Seymour River Steelhead and Salmon

The pre-slide river gradient through the slide area was approximately 2% to 4% and provided for salmon and steelhead movement to the upper river over a broad range of flows. Historically, some reported rock and boulder removal was undertaken to improve the hydraulics for pink salmon passage at low flows, and it is likely that extreme flood flows either prevented or hindered fish passage upstream. During extreme flows, salmon would likely hold in downstream pools and reaches waiting for flows to subside before attempting movement upstream.

The Seymour Salmonid Society (SSS) raises steelhead at a hatchery just below Seymour Falls Dam, and relies on escapement for broodstock for the summer and winter-run steelhead programs. Broodstock collection was limited to tangle net captures within the canyon below the barrier in 2015. Additional tagging was conducted on emigrating steelhead smolts, with no tags recorded at the downstream station indicating no fish passing over the slide during the assessment period. Through both biological monitoring and observations undertaken in 2015, the conclusion is that the slide is a complete barrier for upstream fish migration and limits or greatly reduce downstream smolt out-migration from the upper river.

The slide creates a permanent barrier to upstream fish movement and migration, blocking access to upriver habitats to pacific salmon: coho, chinook and pink salmon, and winter and summer-run steelhead. Summer and winter-run steelhead stocks were the first runs impacted by the slide in early 2015, with fall-runs of pink, coho and chinook affected in the fall of 2015.

In 2015, Fisheries and Oceans Canada (DFO), SSS, Tsleil-Waututh Nation (TWN) and Squamish Nation (SN) operated a system of hoop nets to capture and transport fall-run salmon over the barrier into the upper river. Ongoing fish trapping and a subsequent radio-tagging program provides insight into the movement behaviour of fish in the lower river and may benefit a longer-term trapping program if this is pursued.

Figure 1 Seymour Rock Slide Location Map (base map from Google Maps).

Both the steelhead and salmon trap-and-haul programs initiated after the slide were successful in terms of broodstock and transporting limited numbers of fish to ensure some wild production in the upper river. However, these programs were intensive in terms of effort and resources. They also rely on access to the river, which is flow–dependent and hence can be limited. The programs are unlikely to be viable at higher flows in the late fall or early spring. Trapping and handling of fish also exposes animals to shock and stress, and incurs losses. Further, these programs are unable to handle and transport the run sizes of fall-run salmon, or be efficient in the capture of low-run size winter and summer-run steelhead.

At the slide, the primary physical barrier is a 7 m high "chimney" under a primary approximately 1,000 m^3 boulder (Sta. 0+55 Profile Section, **Figure 2**). At lower flows (less than 4 m^3/s) there is a hydraulic disconnection as the flows seep through the porous dam crest. At flows exceeding 4 m^3/s, the river spills over the crest and downstream underneath this boulder chimney. At these intermediate flows, fish cannot access nor ascend the chimney and may be sustaining damage attempting passage. As flows further increase, the hydraulic capacity of the chimney is exceeded and flows spill over the top of the large boulder and overtop the entire slide. At these high flows the hydraulics are extreme and highly aerated with excessive velocities preventing fish passage.

Impacts to Lower Seymour Conservation Reserve (LSCR)

The slide caused a hydraulic barrier and backwatering of the river that increases static and flood water levels along the Seymour River upstream past Twin Bridges. Riparian areas and vegetation are flooded with large trees dying, Twin Bridges access bridge has been removed, trail systems have been changed and access to the LSCR is affected. Metro Vancouver is in the process of assessing and designing new access at Twin Bridges, and proposes to proceed with implementation of the new bridge and trail system in 2016. The bridge removal in early 2015 and subsequent Twin Bridges re-construction in 2016/17 has significant costs.

Impacts to River Flows and Water Levels

Following the initial rock slide and debris re-distribution on December 9th and 10th 2014, no other significant debris accumulation has been observed on the upstream face or crest of the slide deposit. On the downstream face of the slide deposit, materials have been washed out and distributed in the downstream channel. Debris and trees carried by the Seymour River have washed over or broken up on the slide.

Some limited monitoring is ongoing. Water Survey Canada (WSC) has re-installed a temporary hydrometric station on the upstream pool at Twin Bridges, and NHC continues to monitor Seymour River flows via a gauge at Grantham Bridge downstream of the slide. Metro Vancouver monitors flows and water levels upstream of the rock slide at Spur 4 and the Seymour Falls Dam. WSC data from the Twin Bridges site indicates that flows in the Seymour River have resulted in several "high water" events at the slide. This is largely due to the restricted slide crest width and hydraulic effect. In the past 11 months, 10 discrete river flow events in excess of 100 m^3/s have occurred (**Figure 3**).

Note that the slide has no effects on run-off, and does not modify the hydrology of the river. The small amount of flow storage provided in the pool behind the slide does not modify downstream flood flows to any measureable extent.

Figure 2 NHC Rockslide Survey.

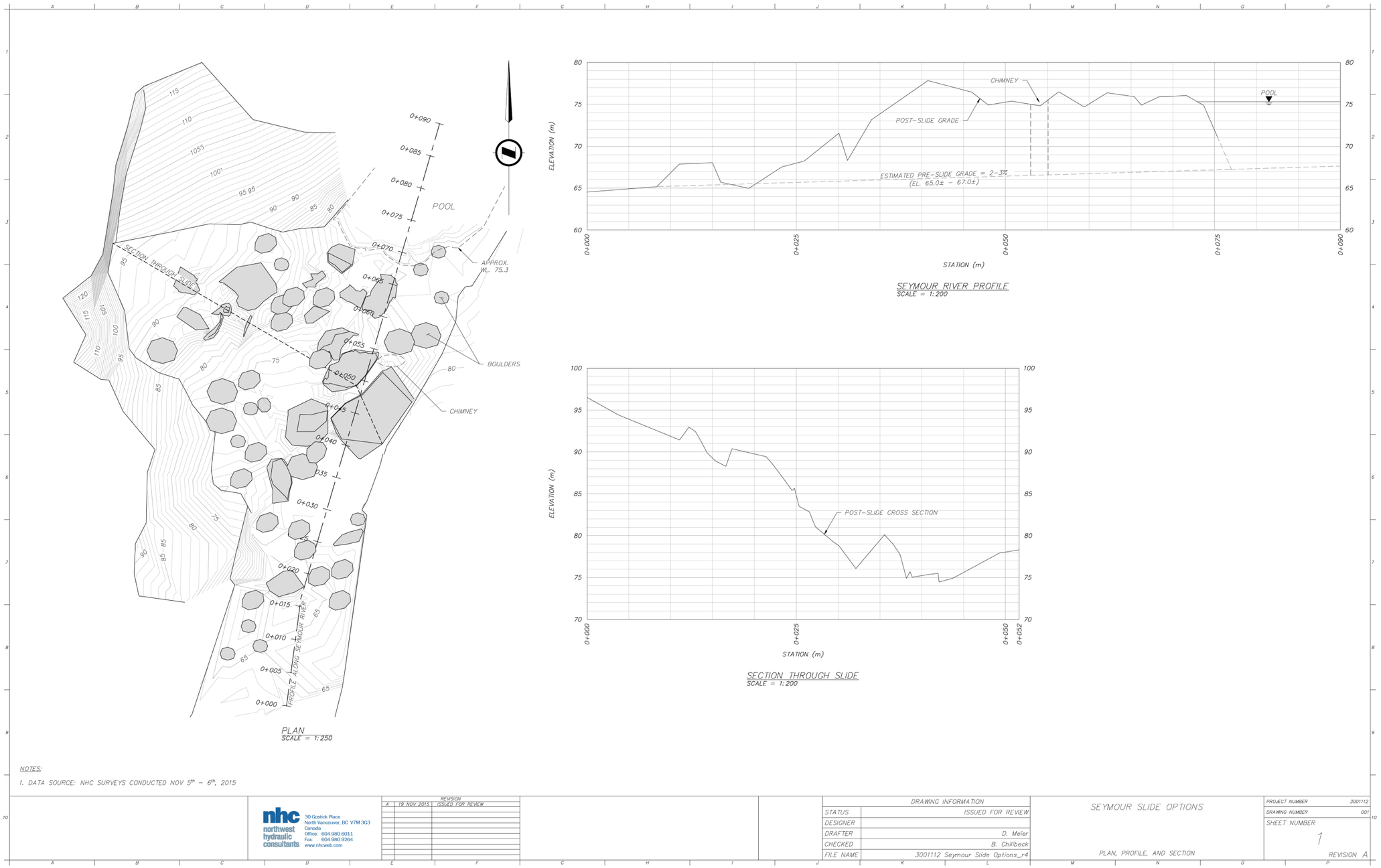
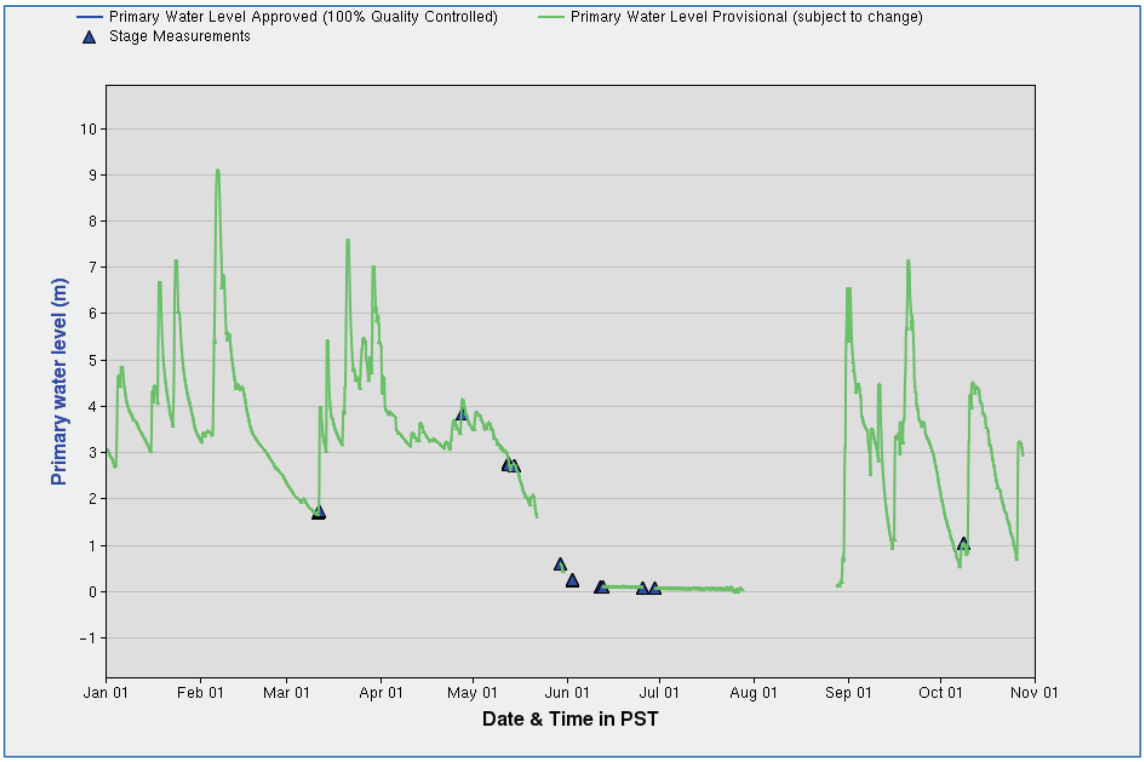


Figure 3 WSC 08GA030 Seymour River water level at Twin Bridges January 1st to October 25th 2015.



Corrected geodetic survey data from the slide was compared to upstream water levels to estimate geodetic water surface elevations and flows at the slide in 2015 (**Figure 4**). With this data the crest elevation was compared to discharge to identify at what discharge the slide would overtop – recognizing that flows through the slide occurred and at low flows water elevations upstream dropped below the crest of the slide. Based on a crest elevation of 74.8 m, a flow of 3.5 m^3/s appears to be the cresting flow of the slide.

Frequency distribution of daily flows at the slide location indicates that the median flow was approximately 3.8 m^3/s and the mean was 13.8 m^3/s for 2015 (**Figure 5**). Flows exceeding 100 m^3/s occur approximately 4% of the time, which concurs roughly with the 10 exceedance flood events on the hydrograph.

Figure 4 Seymour River Flows and Upstream Water Levels January 1st to November 25th 2015.

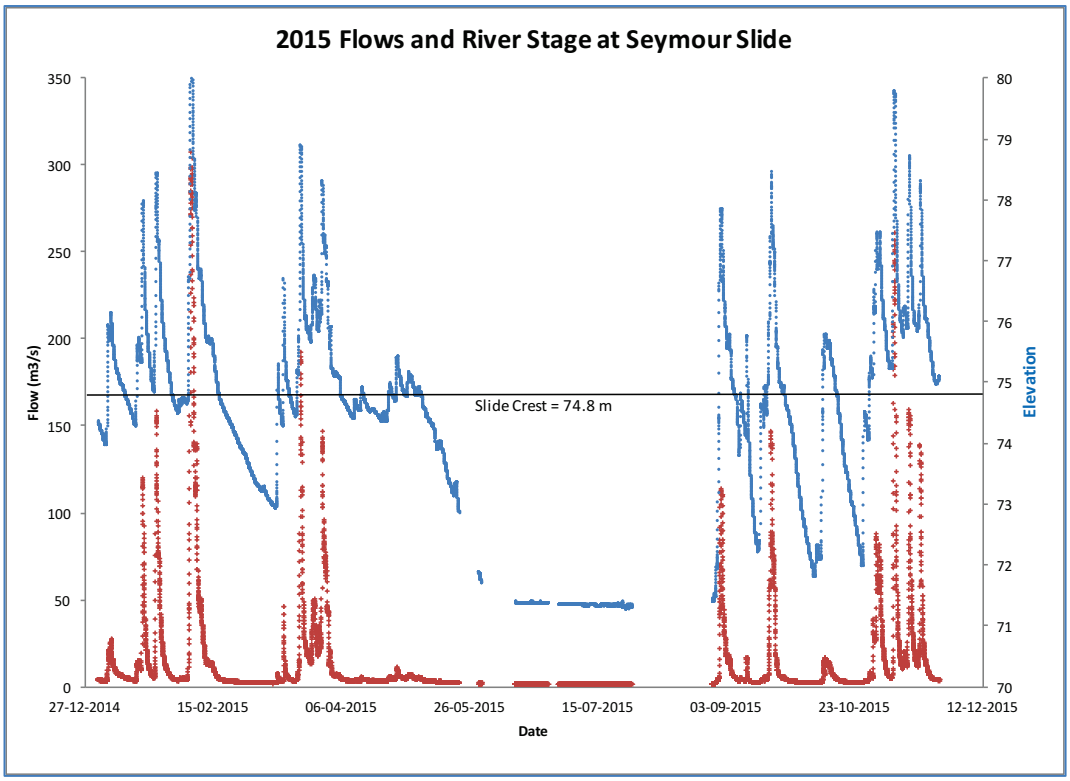
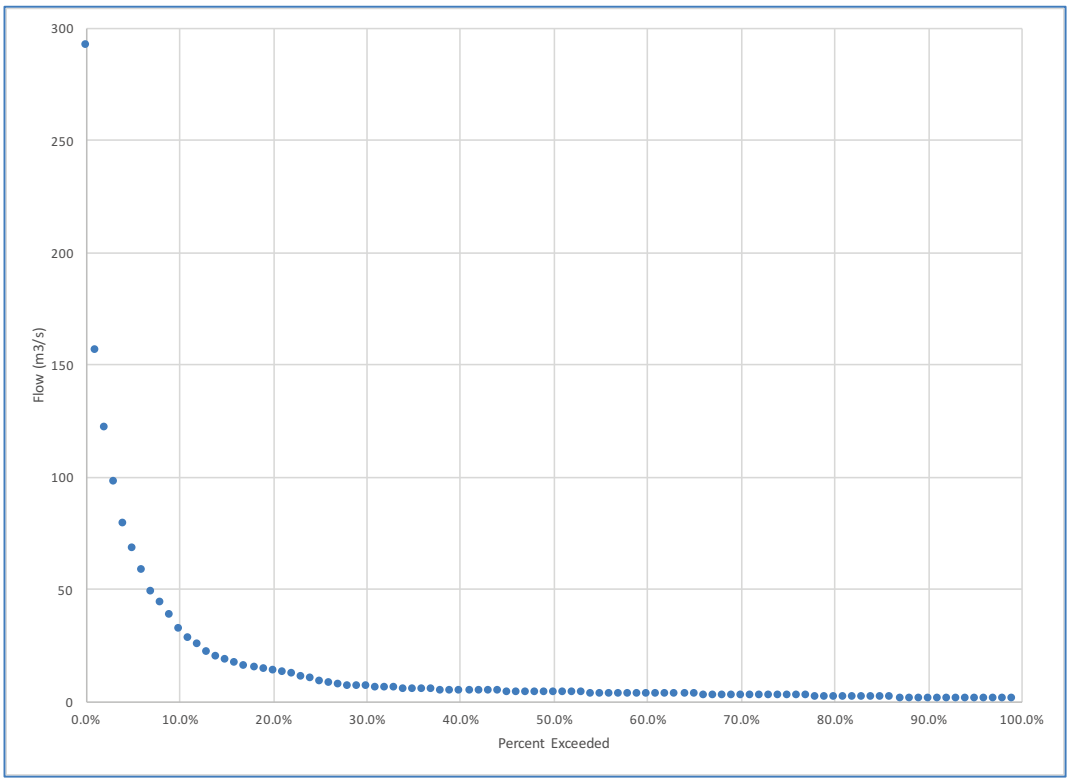


Figure 5 Frequency Distribution of 2015 Seymour River Flows January 1st to November 25th 2015.



Rock Slide Stability and Geotechnical Aspects

The rock slide released from a natural rock cliff along the western bank of the Seymour River canyon (BGC, 2015). In this reach of the river, the Seymour River flows through a 1.2 km long, 30 m to 45 m deep, linear canyon formed in bedrock along a regional rock fault structure. The rock slide ran out approximately 75 m from the crest of the slope, depositing 30,000 m^3 to 50,000 m^3 of debris into the Seymour River canyon below. This debris buttressed against the eastern bank of the canyon and partially blocked the Seymour River (flow over and through the rock slide debris was observed).

The shape and dimensions of the rock slide source area are controlled by three planar joint sets in very strong granodiorite bedrock. A planar sub-vertical release joint with a persistence of about 30 m trends parallel to the river, and forms the back scarp of the rock slide. From the crest of the slope to the base of the back scarp, there is evidence of a progressive joint weathering profile; from dark brown organic soil along the crest, through an iron-stained section, to fresh light grey surfaces towards the middle, representing locations of intact rock prior to failure. Another large joint dips into the canyon and downstream at about 40° to 50° and formed the basal failure surface for the rock slide. Lateral release of the rock slide was along a joint sub-orthogonal to the basal failure surface.

Since the rock slide in 2014, small (less than 1 m^3) rock fall and debris slide events have occurred with loose material releasing from the back scarp or slope crest. The frequency of these rock and soil releases has decreased since the spring of 2015 and no larger-scale slope deformation of the back scarp has been observed. If mitigation work were to proceed, a danger-tree assessment, rock slope deformation monitoring, rock slope scaling, and potentially installation of rock fall catchment structures, may be required within the rock slide area depending on the option chosen.

On the upstream western slope of the canyon the rock bluffs reduce in height towards Twin Bridges and no slope deformation was observed. Access to view the eastern canyon wall is limited to the rock slide area. Downstream of the rock slide area, sections of the western canyon slopes can be viewed from Fisherman's Trail. The slopes are sub-vertical and consistently about 35 m high.

On December 22, 2015, a rockfall event of between about 50 to 400 m^3 volume fell into the Seymour Canyon approximately 500 m downstream of December 2014 rock slide. The volume of this recent rockfall event is at least 100 times smaller than the December 2014 rockslide. Debris from the rockfall has formed a ponded area of approximately 50 to 100 m upstream. At other locations along the western canyon wall or on the slopes immediately upslope, the absence of large trees, mosses or lichens, indicates slope deformation on the scale of December 2015 has occurred previously. The December 2015 rockfall event and none of the other features indicating earlier slope instability along the canyon appear to be as large as the 2014 rock slide.

There are large boulders at various intervals along the canyon between the 2014 rock slide debris and the canyon mouth (observed in Google Earth imagery). This suggests larger rockfall or rock slide events have occurred within the canyon but without further assessment of both canyon slopes an event frequency is difficult to determine. None of these large boulders block the Seymour River flow sufficiently to form large ponded areas similar to upstream of the 2014 rock slide.

The December 2014 rock slide debris formed a deposit that extends approximately 15 m above the existing canyon floor, and is comprised of boulders up to about 12 m maximum length, and an estimated average boulder diameter of 3 m to 5 m. Within the canyon, the rock slide deposit in the direction of the river flow is trapezoidal. The upstream face of the deposit is approximately 10 m high (above the existing stream channel elevation), about 30 m wide, and visible debris extends at least 70 m in length in the direction of river flow.

Larger boulders were surveyed and are shown on a plan (**Figure 2**). The previous level of the river invert and slope were estimated from the new survey data and existing pre-rock slide LiDAR data.

Assessment of Mitigation Options

To date, impacts of the rock slide on the Seymour River have been mitigated by removing infrastructure, installing fencing and safety notices and conducting trap-and-haul programs to move salmon and steelhead above the barrier. The current fish management practices are likely not sustainable, and long-term solutions are required.

A range of potential long-term options to mitigate the impacts of the rock slide on the river and fish passage have been reviewed below. These options are:

1. Do nothing.
2. Install and operate a temporary fish pass.
3. Install and operate a permanent open fishway.
4. Install a tunnel and slot fishway.
5. In-river fish capture and trap-and-haul program.
6. Permanent fish weir and trap-and-haul program.
7. Re-shape the slide debris pile with heavy construction equipment and conventional explosives.
8. Re-shape the slide debris pile with scaling crews, non-explosive or low-velocity explosive rock breaking to reduce block size, and harnessing river flows to transport the material.
9. Remove the slide debris with heavy construction equipment and conventional explosives.

Proposed Options

The options are further described below.

1. Option 1: Do nothing

No mitigation is applied to the slide and anadromous fish are limited to the lower Seymour River.

2. Option 2: Semi-permanent Denil or Steep-pass Fishway

A small section aluminum Denil or steep-pass fishway is installed along the western bank of the Seymour River on a semi-permanent basis, requiring 10, 10 m long 600 mm x 300 mm prefabricated steep-pass or Denil sections (20% slope) with 2 m x 2 m x 1 m deep resting pools every 2 to 3 runs. An intake control structure and barrier weir at the fishway entrance may be required, and upstream sections would be removed near the slide crest during winter conditions and re-installed annually. The fishway would be subject to potential flood and rockfall hazard.

Local Examples: Hadden Creek, Hoskins Creek

Costs: $20k - $40k per vertical meter (10 m fishway sections); Total $0.75M - $1.5M (by 2020)

3. Option 3: Open Vertical Slot Fishway

A 3 m x 3 m x 3 m deep vertical slot fishway installed on the left bank along a pre-constructed sloping rock cut ramping down to the river at a 10 to 15% grade (e.g. 135 m to 200 m total length). A single run or wrapped lay-out would require extensive excavations in the bedrock canyon wall (10,000 cu. m). The fishway would require a regulating intake, overflow control and rockfall protection, and a small barrier weir to guide fish at the entrance.

Local Examples: Hells Gate, Bonaparte River, Stamp River

Costs: $100k - $250k per vertical meter; Total $1.9M - $6.6M (by 2020)

4. Option 4: Tunnel and Slot Fishway

A 135 m to 200 m long, 3 m x 3 m wide tunnel section would be drilled at 10 to 15% slope from headwater to tailwater with 300 mm wide slots, 3 m high vertical slots, or 300 mm thick 1.5 m high weir sections installed at 3 m intervals. Lay-out could be wrapped or single run. A regulating intake is required at the intake, and a small barrier weir at the fishway entrance.

Local Examples: Browns River, Hells Gate, Castile Falls

Costs: $75k - $200k per vertical meter; not considered feasible

5. Option 5: In-river Trap / Floating Fence and Haul

In an annual program similar to 2015, in-river hoop and box traps or floating fence would be used to capture and haul live salmon and steelhead to the upper river, or for broodstock collection and rearing at the Seymour River Hatchery. Angling, broomstick fences, and trapping methods may be utilized through time.

Local Examples: local Community and DFO hatcheries

Costs: $200k/year. Floating fence or traps costing $100k - $250k. Total $1.1M - $1.25 M (by 2020)

6. Option 6: Permanent Barrier Weir, Trap and Haul

Install a fish barrier or fence and collection facility at some location downstream of the slide on the lower Seymour River. Captured fish would be hauled to the upper river or collected for broodstock.

Local Examples: DFO's Capilano Hatchery or Puntledge River Hatchery

Costs: $2.5m – $4.0m capital construction and land; $75k/year operations

7. Option 7: Re-shape the slide with heavy construction equipment and explosives

Construct access to the site. Heavy machinery access would be required across the Seymour River at the Twin Bridges site or at the end of Riverside Drive (over a new or temporary bridge at either site, or through the river at Twin Bridges during low flows). Walking trails may need to be widened to accommodate the heavy machinery and a machine access trail, large rock cut and work staging area to the rock slide area would be required through the forest. Extensive tree falling would be required. At the rock slide site conventional explosives and heavy equipment would be used to break up and re-distribute approximately 20,000 cu m. of slide material into a longer, milder gradient rock ramp.

Costs: $1.0M - $1.3M (by 2020)

8. Option 8: Re-shape the slide with scaling crews, non-explosive or low-velocity explosive rock breaking and river flows

Access to the site can be achieved with available infrastructure with only danger tree falling required. Utilize non-conventional rock breaking, limited equipment, and river hydraulics to re-distribute 10,000 to 20,000 cu m. of slide material into a longer, milder gradient rock ramp.

Costs: $0.45M - $1.0M (by 2020)

9. Option 9: Remove the slide with heavy construction equipment and explosives.

As per Option 7 but including trucking the material out of the river canyon. Construct an access road to the site. Utilize conventional rock breaking, heavy equipment and off road trucks to remove 40,000 cu m. of slide material.

Costs: $1.2M - $2.0M (by 2020)

NHC and BGC assessed options through an options table (Table 1) that looked at the technical and ongoing operational issues, and expected construction and operational costs.

Table 1 Slide Mitigation Options Assessment

Seymour Rockslide Mitigation Options Assessment	Description	Investigation	Design	Construction			Investigation, Design and Construction Cost Estimate	Tree Falling	Fish Passage (assuming construction effort commences in 2015)			Annual Maintenance		Constructed Cost (excluding maintenance)	Total Cost Estimate by 2020 (5 Years from November 1, 2015)	Summary
		Site Investigation Effort	Design Effort	Construction Access & Footprint	Construction Safety Issues	Construction Feasibility			Fish Passage When Operational	Fish Passage Timeframe From November 1, 2015	Fish Life Cycle Affected	Annual Maintenance Short-Term (0 - 2 years)	Annual Maintenance Long-Term (>3 years)			
Option 1 - Do Nothing	Leave Seymour River rock slide debris undisturbed and let river flows erode and transport debris naturally.	Negligible (<$5,000)	Negligible (<$5,000)	Simple Access &/or Negligible Footprint	Negligible	Feasible	Low (<$50,000)	Danger Trees	No	> 4 years	Yes	Negligible (<$5,000)	Negligible (<$5,000)	Low (<$50,000)	Low (<$50,000)	Unknown length of time before fish passage could occur naturally.
Option 2 - Aluminium Fish Ladder	Denil type fish ladder system attached to the western side of the Seymour River canyon wall: - construction access along Fisherman's Trail or from Twin Bridges, construction road from the trail to the rock slide area would include tree falling an access corridor and work area - review of bridge capacity at the end of Riverside Drive required if accessing site from that direction - site preparation, danger tree removal, rock-scaling, debris pile re-shaping or removal, rock anchor preparation, rockfall protection fence installation - aluminium or steel structures anchored into the rock face - on-going maintenance.	Moderate ($25,000 to $50,000)	Considerable (>$50,000)	Considerable Access Challenges &/or Large Footprint	Considerable (Rock fall exposure during installation)	Moderate or Considerable Technical or Safety Challenges	Very High (>$250,000)	Large Area Tree Falling	Yes	0 - 2 years	Yes (0 - 2 years)	Considerable (>$50,000)	Considerable (>$50,000)	Very High (>$250,000)	Very High (>$500,000) ($775,000 to $1,475,000)	Temporary fish passage access in between high flow events. High flow events would likely cause significant maintenance challenges, and/or destroy the structures. Not considered a long-term viable mitigation option.
Option 3 - Concrete Fish Ladder	Fish ladder system constructed into rock of the eastern bank of the Seymour River: - construction access for heavy machinery, tree falling for access and construction corridor, grubbing, blasting, blasted rock removal, concrete structure placement and re-vegetation of the construction corridor.	Considerable (>$50,000)	Considerable (>$50,000)	Considerable Access Challenges &/or Large Footprint	Minor to Moderate (Rock fall exposure for installation)	Moderate or Considerable Technical or Safety Challenges	Very High (>$250,000)	Large Area Tree Falling	Yes	0 - 2 years	Yes (0 - 2 years)	Minor (<$5,000 to $25,000)	Minor ($5,000 to $25,000)	Very High (>$250,000)	Very High (>$500,000) ($1.9M to $6.65M)	This option would result in significant rock cuts, tree removal, and site disturbance. A viable long-term mitigation option but expensive and resulting in extensive ground disturbance for site and construction access.
Option 4 - Tunnel and Slot Fishway	Tunnel through eastern side of Seymour River canyon wall: - if feasible to undertake a tunnel the following would be required. - construction access for site investigation, construction for construction areas, tree falling for access and construction corridor and laydown area, grubbing, stream flow diversion or coffer dam construction, tunnel portal preparation, blasting, blasted rock removal, tunnel support installation, slot fishway installation, on-going maintenance.	Considerable (>$50,000)	Considerable (>$50,000)	Extremely Difficult Access &/or Very Large Footprint	Considerable to Hazardous (Geotechnical Challenges)	Not Feasible	Very High (>$250,000)	Large Area Tree Falling	No	Not Feasible	Yes	Moderate ($25,000 to $50,000)	Moderate ($25,000 to $50,000)	Very High (>$250,000)	Very High (>$500,000)	The tunnel component of this option is not considered a feasible option given the proximity of the regional fault along the canyon. Poor quality rock sections, challenges with portal preparations and site logistics suggest this option is not feasible, or cost prohibitive.
Option 5 - In-River Trap and Haul Program (Physical Fish Transportation)	As per 2015: - fish capture, fish extraction, fish relocation.	Negligible (<$5,000)	Negligible (<$5,000)	Minor or Moderate Access Effort &/or Moderate Footprint	Minor to Moderate	Feasible (Minor Safety or Technical Challenges)	High ($100,000 to $250,000)	Danger Trees	Yes (Moderate or Considerable Effort)	Immediate	No	Considerable (>$50,000)	Considerable (>$50,000)	Very High (>$250,000)	Very High (>$500,000) ($1.1M to $1.25M)	Fish passage only with human intervention. 2015 season demonstrated labour intensive process and low success rates and/or high levels of fish stress. Estimated costs approximately $200,000 per annum. Not considered a long-term viable mitigation option.
Option 6 - Permanent Fish Weir and Trap and Haul Program (Physical Fish Transportation)	As per 2015 but with a permanent fish weir capture location: - fish capture, fish extraction, fish relocation.	Considerable (>$50,000)	Considerable (>$50,000)	Considerable Access Challenges &/or Large Footprint	Minor to Moderate	Feasible (Minor Safety or Technical Challenges)	High ($100,000 to $250,000)	Danger Trees	Yes (Moderate or Considerable Effort)	2 - 4 years	Yes (2 - 4 years)	Considerable (>$50,000)	Considerable (>$50,000)	Very High (>$250,000)	Very High (>$500,000) ($2.5M to $4M)	Fish passage only with human intervention. 2015 season demonstrated labour intensive process and low success rates and/or high levels of fish stress. Estimated costs approximately $200,000 per annum. Not considered a long-term viable mitigation option.
Option 7 - Rockslide Debris Pile Reshaping - Excavators and Explosives	Excavators and Explosives - similar to Option 9 without the rock transport component.	Minor (<$5,000 to $25,000)	Moderate ($25,000 to $50,000)	Considerable Access Challenges &/or Large Footprint	Minor to Moderate	Moderate or Considerable Technical or Safety Challenges	Very High (>$250,000)	Large Area Tree Falling	Yes	2 - 4 years	Yes (2 - 4 years)	Minor ($5,000 to $25,000)	Negligible (<$5,000)	Very High (>$250,000)	Very High (>$500,000) ($0.96M to $1.28M)	A viable long-term mitigation option but resulting in extensive ground disturbance for site and construction access.
Option 8 - Rockslide Debris Reshaping - Rock Scalers and Non-Explosive Rock Breaking Techniques	Rock Scalers and Non-Explosive Rock Breaking Techniques in the Seymour River Canyon. Rock breaking to sizes small enough to allow transportation of the material with the river flows. Repeat process until design grade achieved.	Minor (<$5,000 to $25,000)	Moderate ($25,000 to $50,000)	Simple Access &/or Negligible Footprint	Minor to Moderate	Feasible (Minor Safety or Technical Challenges)	Very High (>$250,000)	Danger Trees	Yes	2 - 4 years	Yes (2 - 4 years)	Moderate ($25,000 to $50,000)	Minor ($5,000 to $25,000)	Very High (>$250,000)	Very High (>$500,000) ($435,000 to $935,000)	A viable long-term mitigation option with minimal ground disturbance for site and construction access.
Option 9 - Rockslide Debris Removal with Heavy Construction Equipment	Prepare construction access from Twin Bridges area through the Seymour River. Road construction from the Twin Bridges area to the rock slide area along Fisherman's Trail with capacity for semi-articulated 6 wheeled haul trucks. Construction of a road from the existing trail to the rock slide area and preparation of work area. Tree falling and grubbing required. Drill and blast work with conventional explosives to provide access to the canyon, drill and blasting of the large boulders. Loading blasted rock slide debris, hauling off-site and passing through the Seymour River at Twin Bridges each haul truck trip, or the addition of a temporary bridge. Repeating process until fish passage grades achieved.	Moderate ($25,000 to $50,000)	Moderate ($25,000 to $50,000)	Extremely Difficult Access &/or Very Large Footprint	Minor to Moderate	Moderate or Considerable Technical or Safety Challenges	Very High (>$250,000)	Large Area Tree Falling	Yes	0 - 2 years	Yes (0 - 2 years)	Moderate ($25,000 to $50,000)	Minor ($5,000 to $25,000)	Very High (>$250,000)	Very High (>$500,000) ($1.23M to $2.03M)	A viable long-term mitigation option but resulting in extensive ground disturbance for site and construction access.

Preferred Option

Selection of the preferred option was based on the collective assessment of the report authors and their professional experience. NHC and BGC considered the technical issues, and potential costs, effectiveness, and schedule of the various options. Key considerations included:

- Long-term costs of operation and public safety.
- Complete mitigation of other slide-related impacts.
- Effective movement of fish over a range of river flows.

The conclusion of the authors is that **Option 8: Re-shape the slide with scaling crews, non-explosive or low-velocity explosive rock breaking and river flows** is the preferred option.

Based on feedback from stakeholders we understand minimizing the construction footprint is also a key concern. Option 8 addresses this concern by requiring limited tree falling for danger trees, no site preparation for a lay-down or work area, and no additional physical access requirements (such as bridges, access roads, and access through the Seymour River). Equipment necessary, such as a compressor and associated tools and manual equipment, can be staged on Fisherman's Trail above the rock slide area. From this point compressor hoses will be extended to the rock slide area for the pneumatic drills and the site accessed would be by foot from Fisherman's Trail.

The following describes in further detail the approach and potential issues with this preferred option.

Proposed Mitigation Implementation

Approach

The proposed approach is that re-shaping of the debris pile through non-conventional rock breaking techniques would reduce block size sufficiently to allow the river hydraulics to re-distribute the rock slide debris into a longer, milder gradient profile at this section of river. The proposed rock-breaking and construction process would use pneumatic drills (mechanical drills powered by compressed air) to create drill-holes for either non-explosive rock breaking agents such as expandable grout, or boulder buster charges, or for low-velocity explosives. Access to the site for a compressor and the pneumatic drills and supplies would be with small vehicles (ATV's or Gators etc.) with equipment hand carried from existing trails down to the site.

The expected final slope of the modified slide deposit would have to be less than 10% and ideally between 5% to 7%, and the effective channel width would be around 15 m, to effect reasonable fish passage. The proposed slope shaping and treatment would require detailed and selected rock-breaking and shifting to managing the roughness and channel hydraulics to ensure smaller and weaker-swimming salmonids (e.g. pink salmon) could pass upstream.

Safety and Constructability

Prior to commencing work in the Seymour Canyon several safety areas require attention. Firstly, a danger tree assessment of the rock slide slope crest area, canyon slopes adjacent to the proposed work area, and the access route is recommended. This will result in some tree cutting along the crest of the failure for up to about 5 m back from the crest. Once this is complete, a check-scale of the rock slide scarp and adjacent escarpment slopes would be done for site safety. This will result in some additional soil and rock debris accumulation on the slide.

Several survey prisms or tell-tale crack meters would be placed on the upslope face of the rock slide escarpment and on larger boulders of the debris pile and be measured prior to entering the site each morning. Site access criteria would be reviewed each morning, based on rainfall, weather conditions, river flows, slope deformation rates, erosion of soil at the slope crest and review of the tree conditions.

Also, prior to any construction activity at the site, an evacuation plan would be prepared. A 'spotter' capable of warning all staff of slope instability or changes in site conditions would be used while construction activities are in progress. Only when exposure to potential upslope hazards has been minimized would the debris pile re-shaping begin.

Consultation each day between the hydraulic/geotechnical engineering team and the rock-scalers regarding the safest and most effective approach to achieve the objectives will be undertaken. In general, large boulders and/or areas of the channel will be prioritized and sequenced in a phased approach to get the river channel and profile to grade for fish passage. Once the profile is reached select boulders will be removed to allow fish passage at different flow regimes.

All boulders will be drilled in a pattern to allow effective control of the rock-breaking. This approach will require some trial and error for maximum effectiveness. Deflagration cartridges (low-velocity explosives) and boulder-busting techniques can be employed for the bulk of the debris re-shaping. Both techniques crack the rocks along pre-existing planes of weakness, or through intact rock. The use of deflagration cartridges allows for immediate review of results and the ability to re-drill and reset charges without delay. Boulder-busting of single boulders will shape the final channel profile and step and pool configuration.

Issues and Uncertainties

As with any innovative approach, there are issues and uncertainties that can only be addressed through further information and investigation. The proposed mitigation will require an adaptive approach with some professionally directed "trial and error" to confirm the treatment is effective but does not compromise worker or downstream safety.

The effectiveness of the proposed rock-breaking techniques, phasing of the rock-breaking in the canyon, and effectiveness of debris re-mobilization by the river will be managed by an observational approach using both survey and photometric techniques to quantify changes in the slide shape and volume. It is important to recognize that the process may be multi-stage as the final shape of the channel after rock breaking will be determined by the creek flood flow effects on the debris.

It is likely that an initial stage of rock breakage, followed by one or more higher river flow periods, may lead to a channel shape that requires further rock breakage and further river flow modification to achieve the objectives. In essence, the proposed method accelerates the natural erosion process on the debris, but the results will be somewhat dictated by the natural process of the river re-arranging the debris after the debris particle size is reduced.

Construction assumptions for re-shaping the rock slide debris pile assume:

- Bedrock canyon slopes extend to, or close to, the channel base.
- Rock slide debris is slightly weathered and adjacent to a regional fault zone, therefore likely fractured with pre-existing rock discontinuities.
- Rock slide debris below the surface is comprised of large boulders (>5 m max. length) because of the short run-out distance from the escarpment and limited chance of fragmentation (from fewer rock on rock run-out impacts).
- Hydraulic re-distribution and debris pile re-shaping will be effective (as noted, this may include several rock breaking episodes to reduce boulder sizes followed by river flow rearrangement, if required).
- Rock slope debris on the west side of the site may settle/deform into the channel as the debris pile is lowered.
- Some ongoing monitoring and manipulation of the channel surface may be required beyond the initial season of fish passage, or in response to extreme flood that may re-distribute the modified slide materials.

Implementation and Schedule

Construction of the modified channel section from the slide debris will be an iterative process. Several rock breaking-river flushing episodes may be required to re-shape the slide debris to allow fish passage. This would involve:

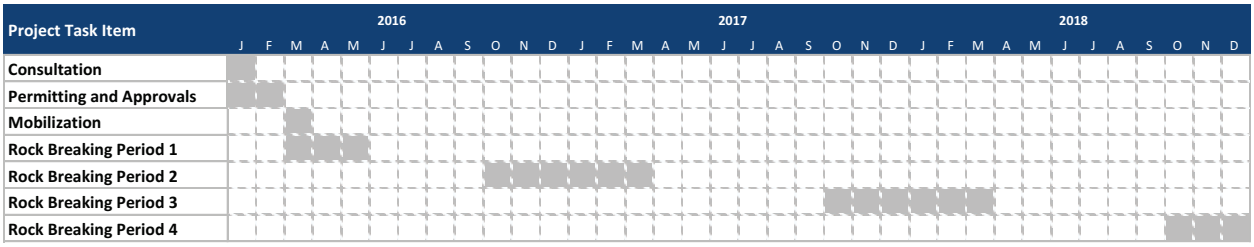
1. Assessing the existing boulder and slide materials, and expected movement and water flow paths.
2. Estimating the boulder diameters and masses that will mobilize at a range of Seymour River flood flows.
3. Determining the likely position and sequences of boulder movement and slide debris re-distribution that would occur for a sequence of drilling and rock-breaking undertaken during low flows between flood events.
4. Conducting a cycle of rock-breaking and scaling over a 3 to 7-day period.
5. Waiting for a high river flow period, then monitoring and assessing the rock and debris movement post-flood to determine the next sequence of rock breaking and slope adjustments required.
6. Assessing whether this method is providing effective results. If it is, repeat the process. If it is not, consult with the stakeholders for an alternative path forward.

7. Repeating the sequence until achieving the final channel slope, width and rock distribution.

Assuming that sizable flows will be required to move large boulders created during the scaling operations, approximately 6 to 10 suitable instream low flow work opportunities are likely available in a 12-month period. These low flow periods occur between large floods during the fall to spring period when rainfall and rain-on-snow generate large flows.

Based on assessment of the volume of slide debris and productivity of the rock-breaking and scaling, the reshaping process could take 2 to 5 years to complete – or a total of 20 to 40 "work events". These work events would consist of 3 to 7 day periods when the scaling crew would drill and break rock in preparation for a large flood event. Mobilization for the work is expected to take a week, and could be initiated in early 2016, pending approvals and permitting as required. Remobilization for subsequent cycles of rock breakage, as needed, would have a lower mobilization time.

Figure 6 Project Schedule



At this time, permitting would be required from MFLNRO under the *Water Act* Section 9 "Works in and about a stream" (*Water Sustainability Act*; Section 11). Approvals from Fisheries and Oceans Canada would not likely be required. Community consultations, public and local government meetings may also be required.

Project Costs

The cost for the three-person scaling crew is estimated at $5,000 to $7,000 per day including materials. Assuming a 5-day work period per event and 8 instream work events per year, the estimated annual rockslide debris re-configuration costs are approximately $240,000. Assuming as much as a 4-year program, the costs could approach $1M. Additional costs for engineering and assessment would be required.

It is important to note that the cost is subject to the number of rock re-configuration cycles needed, which is subject to the effectiveness of each cycle. The effectiveness of the planned method is difficult to predict as it relies on the hydraulic power of the river. A few cycles of rock-breaking/river re-arrangement could be sufficient, or it could take many cycles. It is proposed to assess the effectiveness of the process after two to four cycles of work to confirm the planned approach is likely to achieve the results for an acceptable cost, including consideration of duration of the work and costs to maintain current fish management approaches during the work (e.g. costs of trapping and re-locating fish).

References

NHC. 2015. Seymour River Rockslide Geomorphic and Hydrotechnical Assessment. Prepared for Metro Vancouver. 10 March 2015.

BGC Engineering Inc. 2015. Seymour River Watershed December 7 2105 Rockslide – DRAFT. Prepared for Metro Vancouver Watershed Operations. 12 January 2015.

AGENDA INFORMATION		Dept. Manager	GM/ Director	CAO
☑ Regular Meeting	Date: February 1, 2016			
☐ Committee of the Whole	Date:			

The District of North Vancouver
REPORT TO COUNCIL

January 21, 2016
File: 09.3900.20/000.000

AUTHOR: Linda Brick, Deputy Municipal Clerk

SUBJECT: **Bylaw 8166: Amendment to Fees and Charges Bylaw 6481**

RECOMMENDATION:
THAT "The District of North Vancouver Fees and Charges Bylaw 6481, 1992, Amendment Bylaw 8166, 2016 (Amendment 49)" is given FIRST, SECOND and THIRD Readings.

REASON FOR REPORT:
Following adoption of Bylaw 8143, on December 14, 2015, it was noticed that there was an omission and typographical error in Schedule F. Bylaw 8166 will address these by reinstating the previously approved wording of July 6, 2015.

A redlined copy of the bylaw is attached which highlights the amendments to Schedule F.

SUMMARY:
Bylaw 8166 is now ready to be considered for First, Second and Third Readings by Council.

OPTIONS:
1. Give the bylaw First, Second and Third Readings; or,
2. Give no further Readings to the bylaw.

Respectfully submitted,

Linda Brick,
Deputy Municipal Clerk

Attachment:
- The District of North Vancouver Fees and Charges Bylaw 6481, 1992, Amendment Bylaw 8166, 2016 (Amendment 49)
- Redlined version - The District of North Vancouver Fees and Charges Bylaw 6481, 1992, Amendment Bylaw 8166, 2016 (Amendment 49)

REVIEWED WITH:

☐ Sustainable Community Dev.	____	☐ Clerk's Office	____	External Agencies:	
☐ Development Services	____	☐ Communications	____	☐ Library Board	____
☐ Utilities	____	☑ Finance	[signature]	☐ NS Health	____
☐ Engineering Operations	____	☐ Fire Services	____	☐ RCMP	____
☐ Parks	____	☐ ITS	____	☐ NVRC	____
☐ Environment	____	☐ Solicitor	____	☐ Museum & Arch.	____
☐ Facilities	____	☐ GIS	____	☐ Other:	____
☐ Human Resources	____	☐ Real Estate	____		

The Corporation of the District of North Vancouver

Bylaw 8166

A bylaw to amend the District of North Vancouver Fees and Charges Bylaw 6481, 1992

The Council for The Corporation of the District of North Vancouver enacts as follows:

1. Citation

This bylaw may be cited as "The District of North Vancouver Fees and Charges Bylaw 6481, 1992, Amendment Bylaw 8166, 2016 (Amendment 49)".

2. Amendments

2.1 The Fees and Charges Bylaw 6481, 1992 is amended by:

(a) Deleting Schedule F *Transportation Fees* in its entirety and replacing it with a new Schedule F *Transportation Fees* as attached to this Bylaw as Attachment 1.

READ a first time

READ a second time

READ a third time

ADOPTED

_____ _____

Mayor Municipal Clerk

Certified a true copy

_____

Municipal Clerk

Attachment 1 to Bylaw 8166

Schedule F

TRANSPORTATION FEES

Permit		
Activities on Road Allowance due to adjacent Development and construction work relating to public or private utilities.	$115.00	+$0.25/$m^2$/day
Storage of Waste Disposal Bins on Road Allowance	$49.00	+$15/week
Special Highway Use Permit fee:		
(i) First occurrence	$1,523.00	per each 12 hours
(ii) Second occurrence	$3,045.00	per each 12 hours
(iii) Third and any subsequent occurrences	$5,075.00	per each 12 hours
Any other Construction on Road Allowance	$64.00	per occurrence
Special Events, Filming and Community Signs	$42.00	per occurrence
Highway Use Permit (block watch party)	$0.00	
Highway Construction and Planting Permit	$125.00	
Newspaper Box Permit	$45.00	
Resident Parking Only Decal	$27.14	

Signage		
Way-finding signage (design, manufacture and installation)	$316.00	

Removal and Detention of Chattels and Obstructions		
The following fees, costs and expenses shall be paid by the owner of any chattel or obstruction removed, detained or impounded under this Bylaw:		
Removal of construction materials, furnishings, newspaper boxes, portable toilets, shopping carts, and other small items:		
Per person per hour	$79.00	per hour
Per hour if excavating or lifting equipment required	$137.00	
To Detain Per Day	$11.00	per m^3
Removal of Industrial Waste Container, Construction Trailer, Portable Building and other large items:		
To Remove	$1,159.00	
To Detain Per Day	$79.00	

Amended by: 7794 7814 7856 7871 7917 7960 8020 8088 8099 8134 8143 8166

The Corporation of the District of North Vancouver

Bylaw 8166

A bylaw to amend the District of North Vancouver Fees and Charges Bylaw 6481, 1992

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ADOPTED

_____ _____

Mayor Municipal Clerk

Certified a true copy

_____

Municipal Clerk

Attachment 1 to Bylaw 8166

Schedule F

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Permit		
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To Remove	$1,159.00	
To Detain Per Day	$79.00	

Amended by: 7794 7814 7856 7871 7917 7960 8020 8088 8099 8134 8143 8166

AGENDA INFORMATION		Dept. Manager	GM/ Director	CAO
☑ Regular Meeting	Date: Feb 1, 2016			
☐ Committee of the Whole	Date:			

The District of North Vancouver
REPORT TO COUNCIL

January 21, 2016
File: 3060/20/39.15

AUTHOR: Kathleen Larsen, Community Planner

SUBJECT: **2055 Purcell Way - Endorsement for Capilano University Liquor License Amendment**

RECOMMENDATION:

It is recommended that Council pass the following resolution in relation to the requested endorsement to an existing liquor license:

"Be it resolved that:

1. The Council recommends the issuance of the endorsement for an amendment to a liquor license at Capilano University for the following reasons:

The requested endorsement to a Capilano University liquor license in the "Birch Building" is supported by District Council as the proposed licensed area that includes both a new lobby/meeting space and existing theatre seating area is located in a public building on a University campus separated from adjacent "residential" uses and is permitted under existing zoning.

This support is provided with the proviso that the permitted closing hour be 12:00am Monday to Sunday.

2. The Council's comments on the prescribed considerations are as follows:

(a) The location of the licensed area:

The location is within a public building which has an existing liquor license. The expanded license area includes the performance theatre and new theatre lobby/meeting space. Public access to the building is primarily from a parking lot at the south east-side of the building.

The proximity of the licensed area:

The proposed location is in a public building on a university campus and is not anticipated to conflict with any nearby social, recreation, residential or public buildings under the conditions stipulated in this resolution.

(b) The person capacity and hours of the licensed area:

The maximum increase in capacity from 430 persons in the existing licensed area to 930 persons within the theatre, existing lobby and newly- developed lobby/ meeting space is acceptable provided closing hours are restricted to the existing permitted closing hour of 12:00am to minimize any possible noise impacts on the surrounding community.

(c) The number and market focus of liquor primary establishments within a reasonable distance of the proposed location:

The closest liquor primary licensed establishment are "Toby's", "Seymours", and "The Narrows" and range from 0.6 km to 1.6km away from the "Birch Building". All are public houses and provide food service and a variety of beverages. There are no other licensed venues on the Capilano University campus.

(d) The impact of noise and other impacts on the community if the application is approved:

The impact on the surrounding community is expected to be minimal as the venue is located completely within a public building on the Capilano University campus and is separated from residential development to the east and west by both parking lots and landscaped buffers. The existing licensed area with an occupancy of 430 persons has not had any negative impacts on the community.

3. The Council's comments on the views of residents are as follows:

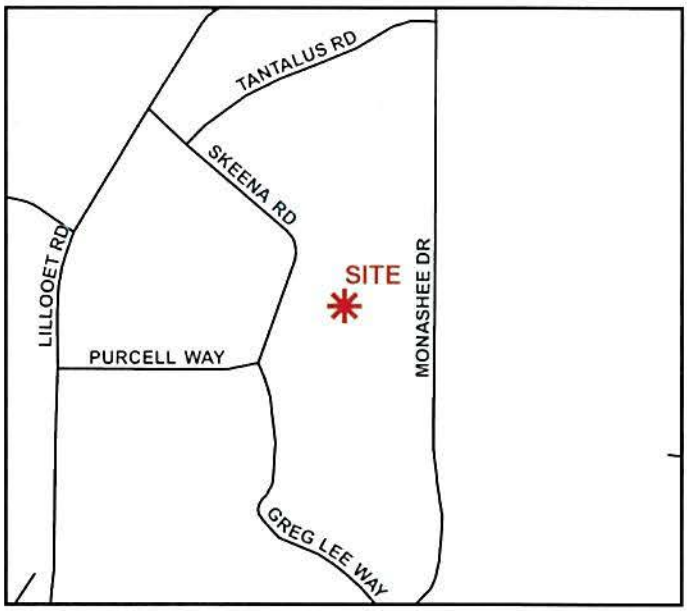
To address the Provincial requirements staff completed the following notification procedure in accordance with District Public Notification Policy:

- *A Public Notice sign was placed on the site; and*
- *A notice requesting input on the proposal was delivered to 401 neighbouring adjacent property owners and tenants.*

Four responses from neighbours within the notification area were received. Two neighbours were in support of the proposal and one noted no adverse issues with a recently-visited downtown Vancouver theatre that allowed alcohol in the theatre. Two neighbours voiced concerns with the proposal. One was specifically opposed to extending the liquor license boundary due to existing noise issues at the bus stop along Purcell Way. The other respondent noted only general concerns. No other concerns from the surrounding community were expressed.

Council recommends that the amendment to the liquor license for Capilano University be endorsed as they believe the majority of residents in the surrounding area are not opposed to the proposal. It is recommended that the existing permitted licensed hours of 10:00am to 12:00am be maintained in order to avoid any potential late night impact on adjacent neighbours."

REASON FOR REPORT:



Capilano University has applied to the Liquor Control and Licensing Branch to extend the boundaries of an existing liquor license in the "Birch Building" on the campus. The Provincial licensing process is designed to allow local governments to consider the impact of the license application and provide comments in the form of a resolution.

SUMMARY:

Capilano University has made application to the Liquor Control and Licensing Branch to extend the boundary of an existing liquor license area in the "Birch Building" in order to include both the theatre seating area and a new lobby area. A Council resolution for the Liquor Control and Licensing Branch is required as part of this process.

Staff are recommending support for the extension of the existing licensed area as the building is separated from residential development by parking lots and landscaped buffers. The venue is the only licensed area on the campus and will be operating primarily in the evening hours.

EXISTING POLICY:

The Liquor Control and Licensing Branch requires that municipalities consider the potential impacts on a community prior to passing a motion on liquor licensing applications.

To address the Provincial requirements staff completed the following notification procedure in accordance with District Public Notification Policy:

- A Public Notice sign was placed on the site; and
- A notice requesting input on the proposal was delivered to 401 neighbouring adjacent property owners and tenants.

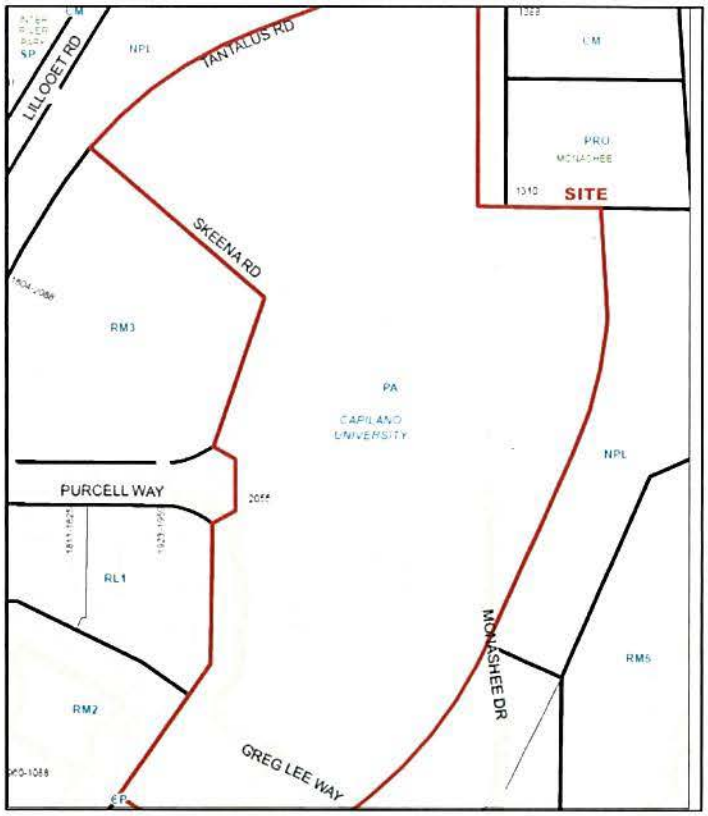
Should additional public comments be received, they will be provided to Council via agenda addenda prior to Council consideration.

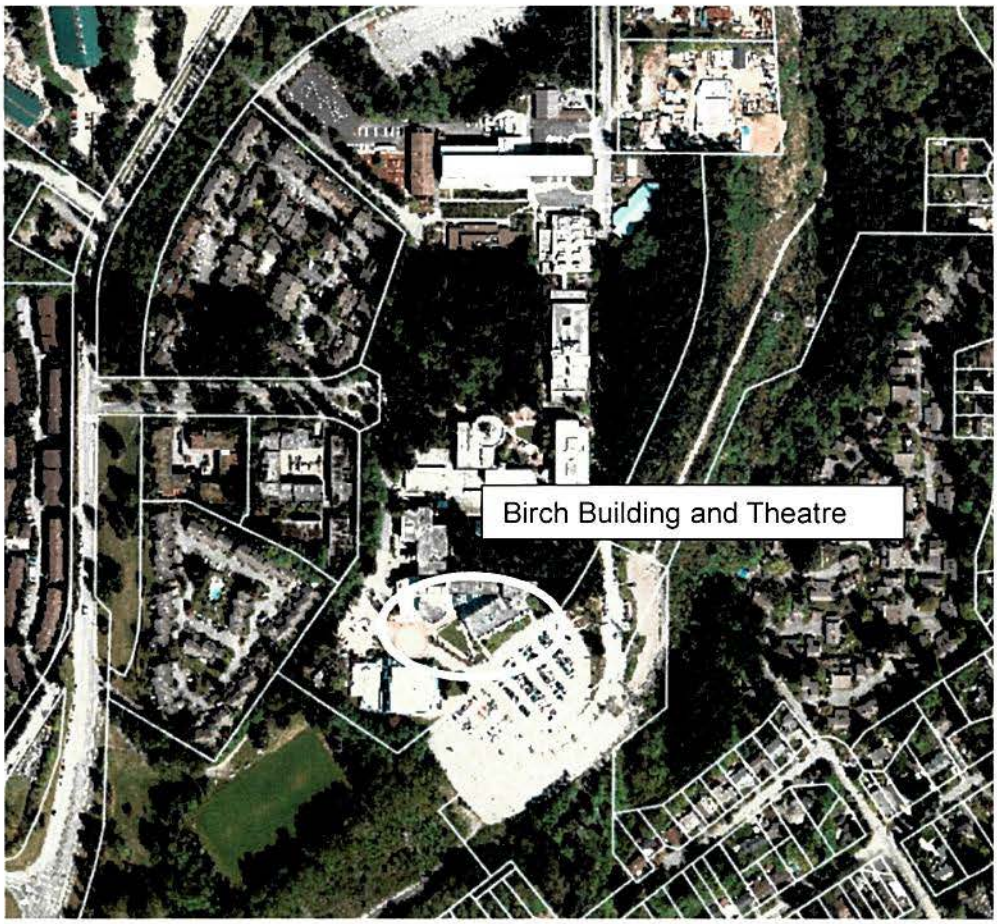
ANALYSIS:

Site and Surrounding Area:

The Capilano University site is zoned Public Assembly (PA) and designated as Institutional in the Official Community Plan. To the west is the main entrance to the campus and existing multi-family residential properties zoned RM2, RM1, and RL1. To the east separated from the campus by a parking lot and a bluff is property zoned Multiple Family Residential RM5.

The "Birch Building" is located in the southern portion of the campus as shown on the air photo below.

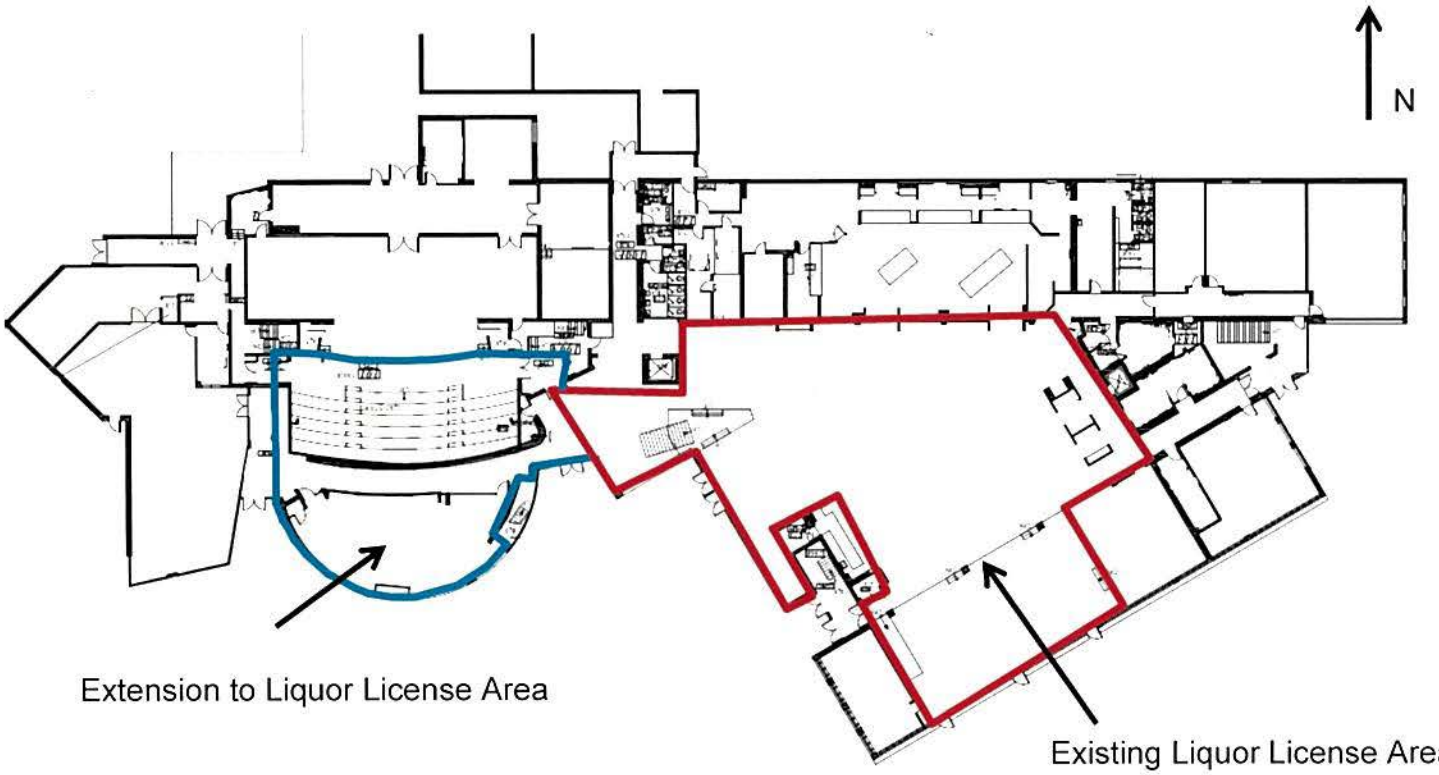




Proposal:

Capilano University has recently created a new gathering space in the" Birch Building". The new license area is intended to allow liquor consumption in the expanded lobby and meeting area as well as the performance theatre. The new area may also be used on occasion as a community meeting space for special events and receptions.

The application proposes to extend the boundary of the existing liquor license for the existing lobby area of the theatre to include both the new 166.3m^2 (1,790 sq ft). lobby/community meeting space and the existing 372 seat theatre. The amendment would allow for patrons to purchase and consume alcohol (primarily beer and wine) in the existing lobby of the theatre and take their drinks into both the new lobby/meeting area and to their theatre seats.



Birch Building – Main Floor Plan

The application is in keeping with a new Provincial Liquor Control and Licensing Policy Directive allowing performance theatres to license theatre auditoriums. Other live event theatres in the region have already obtained licenses to allow alcohol including:

- The Cultch's Vancity Cultural Lab (East Vancouver)
- The Chan Centre at the University of British Columbia (Vancouver)
- Presentation House (North Vancouver)

The proposal will increase the occupancy/capacity from 430 (existing lobby area) to 930 persons (including the new lobby area and theatre). There is no change proposed to the existing permitted hours of liquor service which are 10:00am to 12:00am.

The impact on the surrounding community is expected to be minimal as the venue is located within a public building on the University campus and is separated from residential development to the east and west by parking lots and landscaped buffers. Other uses in the "Birch Building" include a campus bookstore, cafeteria, offices and classrooms. Most of the other portions of the "Birch Building" are closed during evening performance and event times typically between the hours of 6pm to 11:00pm.

Public access to the building is primarily through the parking lot at the southeast side of the building. The building can also be accessed from a bus stop on Purcell Way.

District Bylaw Enforcement have no concerns with the proposal.

The RCMP have no concerns with the proposal

The North Shore Liquor Inspector has no concerns with the proposal.

CONCLUSION:

Staff are recommending support for the extension of the existing liquor license area in the Capilano University "Birch Building. The expanded licensed area will allow patrons to take liquor purchased in the existing licensed area into both a newly expanded lobby/meeting space and into the theatre in line with other similar venues in Vancouver and North Vancouver. The impact of the amendment to the license is anticipated to be minimal as the building is separated from surrounding residential neighbours, the venue is the only licensed area on the campus, and the theatre will be operating primarily in the evening hours.

OPTIONS:

1. That Council pass a resolution which supports the requested liquor license endorsement with closing hours restricted to the existing hour of 12:00am Monday to Sunday (staff recommendation); or

2. That Council pass a resolution not supporting the liquor license application submitted by Capilano University.

KLarsen

Kathleen Larsen
Community Planner

REVIEWED WITH:

☐ Sustainable Community Dev.	____	☐ Clerk's Office	____	External Agencies:	
☐ Development Services	____	☐ Communications	____	☐ Library Board	____
☐ Utilities	____	☐ Finance	____	☐ NS Health	____
☐ Engineering Operations	____	☐ Fire Services	____	☐ RCMP	____
☐ Parks	____	☐ ITS	____	☐ NVRC	____
☐ Environment	____	☐ Solicitor	____	☐ Museum & Arch.	____
☐ Facilities	____	☐ GIS	____	☐ Other:	____
☐ Human Resources	____	☐ Real Estate	____		

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AGENDA INFORMATION		Dept. Manager	GM/ Director	CAO
☑ Regular Meeting	Date: FEB 1, 2016			
☐ Committee of the Whole	Date:			

The District of North Vancouver
REPORT TO COUNCIL

January 21, 2016
File: 12.6300

AUTHOR: Fiona Dercole, Section Manager Public Safety
Guy Exley, Community Forester

SUBJECT: 2016 Operational Fuel Treatment Program application

RECOMMENDATION:
THAT the attached grant application to UBCM Operational Fuel Treatment Program for $460,000 (cost-shared with UBCM) and the proposed activities therein are supported.

REASON FOR REPORT:
The District meets the prerequisites to apply for funding under the Strategic Wildfire Prevention Initiative. UBCM requires a Council resolution for each funding application.

SUMMARY:
Fuel treatments to reduce wildfire risk also promote healthy forest ecosystems. A cost sharing opportunity is currently available through the UBCM Strategic Wildfire Prevention Initiative. The total cost of the project is $460,000 to treat 17 Hectares of high risk forested area. The District's portion totals $120,000, with UBCM potentially funding the remaining $340,000. The project is consistent with the recommendations within the Community Wildfire Protection Plan. The District's Climate Change Adaptation Strategy (under development) has identified wildfire as one of the highest risk hazards to the District due to projected warmer and drier summers.

BACKGROUND:
In 2007, the District retained BA Blackwell and Associates to develop a Community Wildfire Protection Plan (CWPP). The Plan identified areas at risk for wildfire and made recommendations for strategic and systematic mitigation. A total of 70Ha of high-risk forested areas were recommended for fuel treatment. In 2008, a pilot project was completed in Grousewoods Park, reducing wildfire risk to the surrounding homes. Since 2009, operational fuel mitigation has been completed in forested areas surrounding critical infrastructure such as water towers, pump stations and Firehall #3, as well as several areas along the wildland-urban interface to create a contiguous fuel break. All of these projects were completed through the UBCM Strategic Wildfire Prevention Initiative. Of the 70Ha recommended for treatment in the CWPP, 37Ha have been treated.

ANALYSIS:
The proposed work is aligned with the goals outlined in the Framework for Ecosystem-based Management and the Natural Hazards Management Program.

There are three prerequisites to be eligible to apply for funding for fuel management operational fuel mitigation under the Strategic Wildfire Prevention Initiative; The District has met all prerequisites:

1. Completion of Community Wildfire Protection Plan
2. Successful completion of a fuel management pilot project
3. Completion of fuel management prescriptions for the proposed areas

The District's current application builds on previous fuel treatment work completed. The new areas proposed for Braemar Park and the natural parkland area between Hoskins and Mountain Highway would further contribute to a shaded fuel break along the Wildland-Urban Interface of the District, and are anticipated to provide the best return on investment for the operational fuel treatment program through protection of the largest and most vulnerable areas of the community. Fuel treatment prescriptions have already been developed for the prosed project areas.

Timing/Approval Process: The deadline for funding applications is January 29, 2016. Assuming the projects are approved by UBCM, operational fuel mitigation work will commence in Fall 2016 and be completed by Spring 2017.

Concurrence: Community Forester, Fire and Rescue Services, and the North Shore Emergency Management Office concur with the submission of the two applications for funding to UBCM.

Financial Impacts:
UBCM provides funding for 90% of eligible costs, up to $20,000 per Ha. The District's experience with previous fuel treatment projects is that the cost per Ha for our area (due to access/egress challenges and the inability to burn debris onsite) is closer to $27,000 per Ha. Therefore the District must provide the additional $7000 per Ha.

Total (17Ha x $27,000)	$460,000
UBCM (17Ha x $20,000)	- $340,000

District portion	$120,000

The District's share of the cost of the project is being requested in the 2016 budget.

Liability/Risk: Liability is not increased by systematically implementing recommendations contained within the Community Wildfire Protection Plan.

Environmental Impact: The site plans for the proposed project areas aim to improve biodiversity of wildlife habitat through improved understory vegetation development, minimize negative impacts on aesthetic values, soil, vegetation, water and air quality and wildlife.

Disturbed areas will be rehabilitated upon completion of the fuel treatment work. All proposed work will follow the District's requirements for environmental protection.

Public Input: Once the applications for funding have been approved, the public in neighbouring areas will be contacted and if required, a public meeting will be held. Appropriate signage will be erected in the area and the Community Forester will be available to answer questions.

Conclusion:
The proposed funding application provides an opportunity for significant return on investment to the District. The project contributes to a number of objectives in the Corporate Plan: reduce wildfire risk, reduce windstorm risk, reduce post-fire landslide and debris flow risk and promote a healthy forest ecosystem. The work is aligned with several existing District initiatives within the natural hazards management program and the framework for ecosystem-based management.

Respectfully submitted,

F. Dercole

Fiona Dercole
Section Manager, Public Safety

Guy Exley
Community Forester

Attachments:
1. Operational Fuel Treatment Program Application

REVIEWED WITH:

☐ Sustainable Community Dev.	____	☐ Clerk's Office	____	External Agencies:	
☐ Development Services	____	☐ Communications	____	☐ Library Board	____
☐ Utilities	____	☑ Finance	____	☐ NS Health	____
☐ Engineering Operations	____	☐ Fire Services	____	☐ RCMP	____
☐ Parks	____	☐ ITS	____	☐ NVRC	____
☐ Environment	____	☐ Solicitor	____	☐ Museum & Arch.	____
☐ Facilities	____	☐ GIS	____	☐ Other:	____
☐ Human Resources	____	☐ Real Estate	____		

SWPI -
For administrative use only

Strategic Wildfire Prevention Initiative

Operational Fuel Treatment & Maintenance Program

2016 APPLICATION FORM

Please type directly in this form or print and complete. Additional space or pages may be used as required. For detailed instructions regarding application requirements please refer to the 2016 Operational Fuel Treatment & Maintenance Program & Application Guide.

Please note: Applications to perform maintenance must be submitted on separate application forms from applications to treat new areas

SECTION 1: APPLICANT INFORMATION

Local Government or First Nation: District of North Vancouver

Date of Application: January 22, 2016

Contact Person*: Fiona Dercole

Title: Section Manager, Public Safety

Phone: 604-990-3819

E-mail: Dercolef@dnv.org

* Contact person must be an authorized representative of the applying local government or First Nation.

SECTION 2: PROJECT INFORMATION

1. NAME OF PROJECT.

Two Fuel Break Prescription Areas covering 3 treatment sites as follows:

1) Braemar Park, St Mary's;

2) Mountain Highway & Hoskins

2. PROJECT DESCRIPTION. Please provide a geographic description, description of fuel load and objective(s) of the proposed fuel treatment for the area being considered for treatment.

The proposed treatment areas are in the District of North Vancouver. These areas extend and tie into the already completed critical infrastructure fuel treatment sites and the Grousewoods, Hyannis, Owl, Malaspina & Skyline; Badger, North & South sides of Indian River Road fuel breaks. The current fuel type is C2, C3 with some C4 due to regeneration under the main canopy. Ladder fuels are high due to the regeneration and crown fuels are contiguous. Surface fuels are moderate to high due to windfall and dumping of woody debris.

Is this a maintenance treatment? ☐ Yes ☒ No

If yes, please refer to Section 3 of the Program & Application Guide (Eligible Projects) and provide a detailed rationale for undertaking a maintenance treatment:

Is this a retreatment? ☐ Yes ☒ No.

If yes, please provide a rationale:

3. PROPOSED NUMBER OF HECTARES. Please provide the gross and net hectares to be treated. If applicable, please separate hectares on Crown land from hectares on local government land.

New area: 17.7 gross 16.5 net

Maintenance:

Retreatment:

4. MOUNTAIN PINE BEETLE AFFECTED TIMBER. Please indicate if this project includes Mountain Pine Beetle fuel type.

☐ Yes ☒ No

5. THREAT RATING OF PROPOSED TREATMENT AREA. Please indicate the current (pre-treatment) threat rating and the expected threat rating after the treatment is completed. Please note: the current *WUI Wildfire Threat Assessments* guide and worksheet must be used and submitted.

Braemar Park, St Mary's	Plot:	SM6	Pre WTR:	140	Post WTR:	121
Braemar Park, St Mary's	Plot:	BP1	Pre WTR:	141	Post WTR:	119
Mountain Hwy, Hoskins Rd	Plot:	MH4	Pre WTR:	125	Post WTR:	118
Mountain Hwy, Hoskins Rd	Plot:	HR2	Pre WTR:	147	Post WTR:	113

6. OTHER ACTIVITIES. Please describe the extent to which your community is undertaking wildfire risk mitigation activities as outlined in Section 6 of the Program & Application Guide (Review of Applications).

The District developed a Wildfire Development Permit Area (DPA) and Guidelines as part of the Official Community Plan. The Wildfire DPA is indicated on a GIS map which is available to the public via the District's online GeoWeb application, and includes a link to download the District's CWPP. The purpose of the Wildfire DPA is to encourage and regulate the use of fire resistant building materials, defensible space and vegetation management/choices for properties located in the Wildfire DPA. The guidelines are based on Firesmart principles.

Wildfire danger rating information is prominently displayed on the District's website, Firehalls and City Hall. During high to extreme risk levels, the Parks department posts public notices in parks at at trail heads and where appropriate implement fire and smoking restrictions. During extreme risk conditions the District closes parks and forested areas to public access.

Firehall No.3 has the District Firesmart Showroom open to the public to visit to see examples of Firesmart principles and talk to staff about reducing fire risk.

District wide evacuation guidelines have been developed. In addition, an area-specific evacuation plan has been developed in conjunction with the community for isolated areas of woodlands, Cascades and Sunshine Falls.

District of North Vancouver Fire & Rescue Services, along with the Community Forester, Public Safety Manger, Parks Managers and the North Shore Emergency Management Office regularly participate in multi-agency activities and meetings (including neighbouring jurisdictions, Metro

Vancouver and Coastal Fire Centre personnel) to share ideas, resources and test communications systems and protocols. Several wildfire response exercises have been held in the District, with another functional multiagency exercise currently being planned for May 2016.

7. REVIEW OF APPLICATION. Were any other agencies consulted in the development of the project and/or application prior to submission? Please check all that apply, add contact names and provide any supporting documentation:

- ☐ Fuel Management Specialist/Liaison. Contact person:
- ☐ Resource District/Land manager. Contact person:
- ☐ BC Wildfire Service Fire Zone staff. Contact person:
- ☐ First Nations' Emergency Services Society. Contact person:
- ☐ Local fire officials
- ☐ Other:

9. CONTRACTOR INFORMATION. If a contractor is being utilized to do some or all of the work, please describe how you will select a qualified individual:

Open to B.C. Bids and the District Prime Tree Contractor List (2015) conducted through an RFP process for the 2 prescription areas.

If possible, please include the name(s) of the contractor(s).

Operational Treatment Contractor:

GIS Contractor: B.A. Blackwell & Associates Ltd.

Eligible activities and costs are outlined in Section 4 of the Program & Application Guide (Eligible & Ineligible Costs & Activities).

In Section 3 below, include all proposed eligible costs and clearly describe the proposed treatments, including information on the estimated days of work, hourly/daily rates and types of equipment and estimated hours of use. If hand and mechanical treatments are proposed, provide separate descriptions and costs.

SECTION 3: PROPOSED FUEL TREATMENT ACTIVITIES & COSTS	
Activity	**Proposed Cost**
Eligible fuel treatment activities: **Stand treatments**	
• Prescribed fire, including broadcast burning. Please describe:	$
• Pruning. Please describe: Crown raising to minimum 3m above grade to reduce conectivity from structures and ground fuels.	$19,400.00
• Tree felling, including hand and mechanical tree felling. Please describe: All felling works are by hand due to ground conditions and local topography	$33,200.00
• Thinning, including hand and mechanical thinning. Please describe: Thinning (smallest trees first) from below to reduce ladder fuels. Maximum DBH of 17.5cm until target	$50,000.00

density rates has been achieved as specified in each of the Fuel Management Prescriptions approved for each plot.	
• Tree planting for species conversion. Please describe: The interface to the residential areas require a vegetation transition and buffer to reduce Hemlock regeneration and to establish less inflammable broad-leaf species where appropriate.This will account for a portion of the in-kind costs associated with the project.	$20,400.00
Eligible fuel treatment activities: **Debris Management**	
• Prescribed fire, including broadcast burning and pile burning. Please describe:	$
• Piling, including hand and mechanical piling. Please describe:	$
• Debris management, including lop and scatter, chipping, mastication and grinding. Please describe: Chipping and masitication, chips to be scattered to a maximum depth of 3cm.	$110,400.00
• Debris removal, including chip removal, hog fuel removal and slash removal. Please describe: Removal of excess debris, chips and slash to District green waste yard.	$110,000.00
• Tree removal, including sawlog, firewood and other forest products. Please describe:	$
Custom Venting Forecast. Please describe:	$
Danger tree assessments. Please describe: Contractor to employ a qualified Wildlife/Danger Tree Assessor. Field cards to be submitted for review to qualified District staff before undertaking risk mitigation works.	$6,850.00
Updates to existing threat plots and related spatial data to conform to the current WUI Wildfire Threat Assessment standards. Please describe:	$
Preparation of maps, spatial data, and metadata. Please describe:	$
Notifications of operational fuel treatment commencement to First Nations and other tenure holders. Please describe:	$
Staff and contractor costs directly related to fuel treatment activities. Please describe: Site viewing for RFP, boundary layout, private property line flagging, start up meetings, treatment supervision and monitoring, UBCM reporting, planting specifications and supervision, public and stakeholder consultations/meetings i.e. access/egress over prvate lands, complaints/concerns etc. This will account for a portion of the in-kind costs associated with the project.	$62,000.00

Applicant administration costs directly related to fuel treatment activities. Please describe: Accounting, RFP process, public meeting information materials (posters, signs, Power Point presentation), residential letter mailouts, webpage updates, public and stakeholder consultation/meetings. This will account for a portion of the in-kind costs associated with the project.	$20,000.00
Post-treatment signage and public information costs directly related to completed fuel treatment activities. Please describe: Web page updates, on site public notices and post treatment educational signage. This will account for a portion of the in-kind costs associated with the project.	$6,000.00
Other proposed activities. Please describe: Site restoration - interface hazard tree assessment and removal and invasive species management. This will account for a portion of the in-kind costs associated with the project.	$20,000.00
Total Proposed Costs:	**$458,250.00**

The Operational Fuel Treatment program can contribute a maximum of 90% of the cost of eligible activities up to $400,000 in funding per municipality and First Nation per calendar year and up to $600,000 in funding per regional district per calendar year. The remainder (10%) is required to be funded through community contributions.

Total Grant Requested (90% of total cost to maximums listed above):	**$400,000.00**

Please note that you will be required to provide detailed information on the community contribution in the final report, including contributions from other grant programs and all project revenues. In cases where other grants are used as a community contribution, documentation must be available to demonstrate how actual costs from other grant contributions are accounted for. For example, labour costs must include information on the number of hours worked, the hourly rate, and the eligible activity that was undertaken (e.g. 50 hours at $18/hr for chipping). If information is available now, please complete Sections 4 and 5 below:

SECTION 4: OTHER GRANTS	
Grant(s) Description:	**Estimated Grant Value**
	$

SECTION 5: REVENUE (all sawlog and forest product sales)	
Revenue(s) Description:	**Estimated Revenue**
	$

SECTION 6: SIGNATURE (To be signed by Local Government or First Nation Applicant)

I certify that the area covered by the proposed operational fuel treatment: (1) is not scheduled for development; (2) is not scheduled for sale; and (3) is within the jurisdiction of the local government or First Nation (or appropriate approvals are in place)	
Name: Fiona Dercole	Title: Public Safety Section Manager
Signature: F. Dercole	Date: Jan. 22, 2016

See Section 6 of the Program & Application Guide (Application Requirements & Process) for complete application requirements. In addition to the Application Form, the following separate attachments are required to be submitted:

- ☐ Local government Council or Board resolution, or First Nation Band Council Resolution, indicating support for the current proposed activities and willingness to provide overall grant management
- ☒ Threat Assessment Worksheets and threat plot photos completed as per the current WUI Wildfire Threat Assessments guide
- ☒ Maps that clearly identify the area(s) that are the subject of the application
- ☒ Copy of the completed CWPP for the proposed treatment area
- ☒ Copy of the completed prescription for the proposed treatment area

Applications should be submitted as Word or PDF files. If you choose to submit your application by e-mail, hard copies do not need to follow.

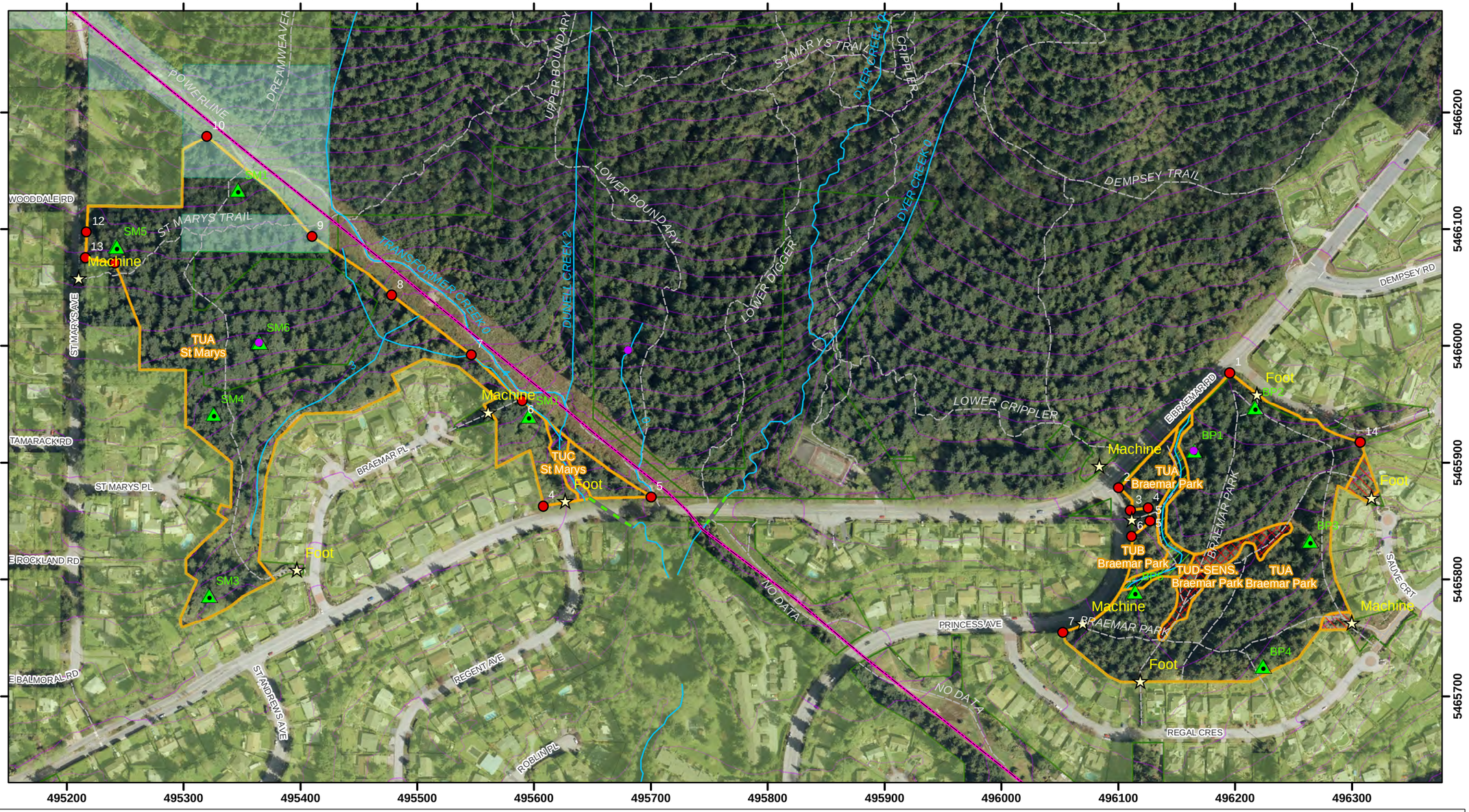
Local Governments: Local Government Program Services, Union of BC Municipalities

E-mail: lgps@ubcm.ca Mail: 525 Government Street, Victoria, BC, V8V 0A8

First Nations: Forest Fuel Management Department, First Nations' Emergency Service Society.

E-mail: ffminfo@fness.bc.ca Mail: 712 Mount Paul Way, Kamloops, BC, V2H 1B5

Fuel Management Prescription Map: District of North Vancouver: Braemar Park & St. Mary's



Fuel Management Prescription - Area Breakdown							
Block	TU	Stand Desc.	Treatment	Stream Mgmt (ha)	NP (ha)	Gross Area (ha)	Net (ha)
Braemar Park/ St Mary's	A	FdHwCw	HTR,TFB, SFR,PB			9.3	9.3
Braemar Park	B	FdHwCw	HTR, PB	0.2		0.2	0.2
St Mary's	C	FdHwCw (EpDr)	HTR,TFB, SFR,PB	0.1		0.1	0.1
Braemar Park	D - Sens.	CwFdHw	No Treatment			0.2	0.0
Braemar Park	D	No Fuel	No Treatment		0.1	0.1	0.0
Total				0.3	0.1	9.9	9.6

HTR - hazard tree removal, TFB - thin from below, SFR - surface fuel reduction, PB - prune branches

Stream Summary (See Prescription for management strategies)			
Stream ID	Class	DPA (m)	Land Ownership
1 - Unknown	S-6	15	DNV
2 - Hastings Creek	S-6	15	DNV
3 - Unknown	S-6	15	DNV
4 - Unknown	S-6	15	DNV

Streamside DPA approval is required for all works within 15 m of top of bank or 5 m from the edge of ravines. No machine work in these areas is permitted without DNV approval.

NORTH VANCOUVER DISTRICT

UBCM

B. A. Blackwell & Associates Ltd.

Forest Region	Coastal
Forest District	Vancouver
Mapsheet	92G035
Location	E. Braemar Rd
UTM Zone	10N
UTM Easting	496192
UTM Northing	5465823

Legend

- Treatment Corners
- Threat Plots
- DNV plots
- Access Points
- Trails
- Creeks
- Contours - 5 m
- Storm Culverts
- Transmission Lines
- Parks

Ownership

- PRIVATE
- UTILITY COMPANY

Prescription Unit

- TUA
- TUB
- TUC
- TUD
- TUD-SENS.

1:3,500

N

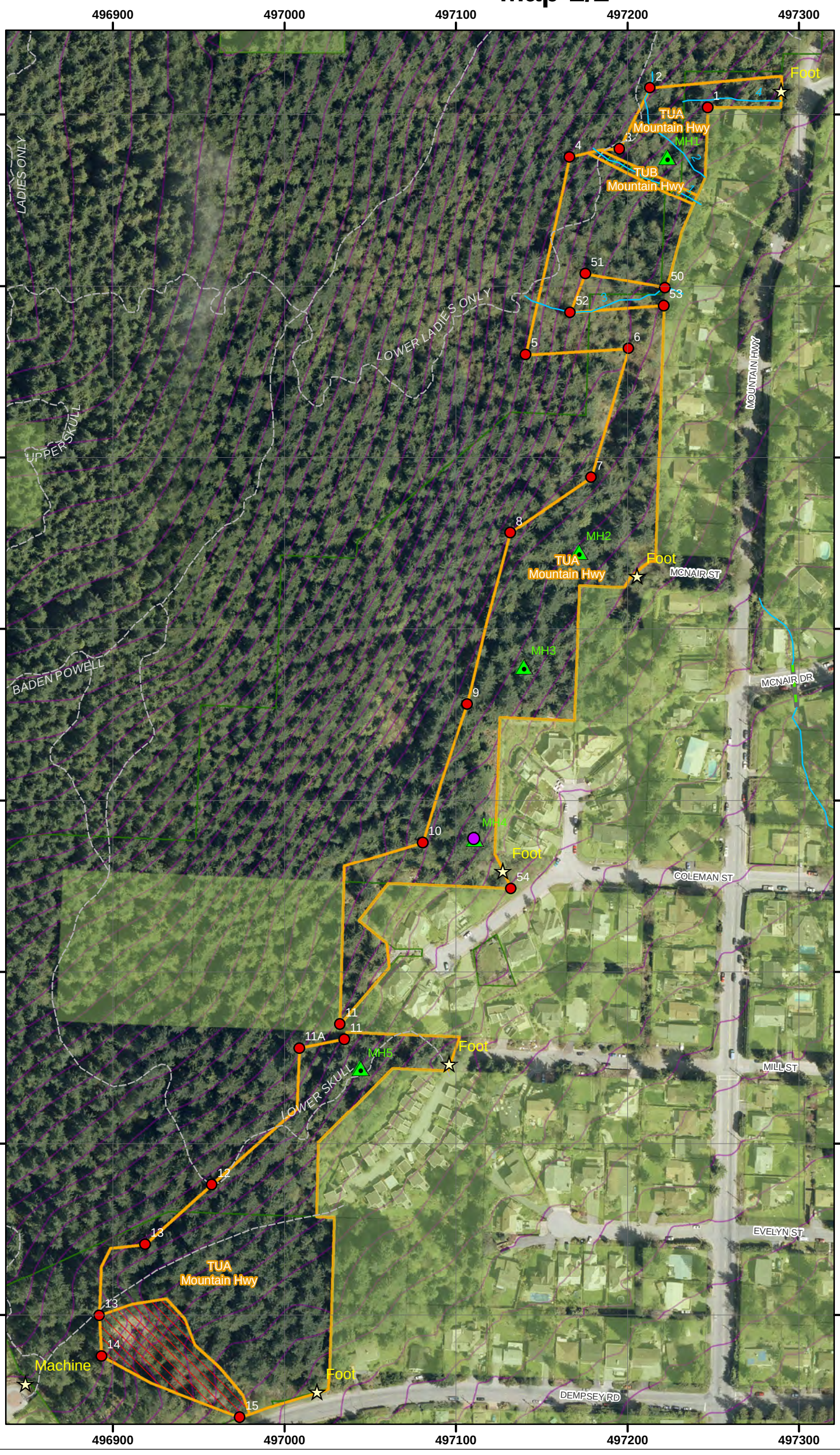
0 50 100

Meters

Coordinate System: NAD 83 UTM Zone 10

Mapped by: T. Pashkowski
Date: March 2013

Fuel Management Prescription Map: District of North Vancouver: Mtn Hwy
Map 1/2



NORTH VANCOUVER DISTRICT

B. A. Blackwell & Associates Ltd.

UBCM

Forest Region	Coastal
Forest District	Vancouver
Mapsheet	92G035
Location	Mtn Hwy
UTM Zone	10N
UTM Easting	497125
UTM Northing	5466569

Legend

- Treatment Corners
- Threat Plots
- DNV plots
- Access Points
- Trails
- Creeks
- Contours - 5 m
- Storm Culverts
- Transmission Lines
- Wetland
- Parks
- PRIVATE

Prescription Unit

- TUA
- TUB
- TUC
- TUD

1:2,500

N

0 50 100

Meters

Coordinate System:
NAD 83 UTM Zone 10

Mapped by: T. Pashkowski
Date: March 2013

Fuel Management Prescription - Area Breakdown

Block	TU	Stand Desc.	Treatment	Stream Mgmt (ha)	NP (ha)	Gross Area (ha)	Net (ha)
Mtn Hwy/ Hoskins	A	FdHwCw	HTR,TFB, SFR,PB			6.6	6.6
Mtn Hwy/ Hoskins	B	HwFdCw	HTR, PB	0.2		0.2	0.2
Hoskins	C	HwCw	HTR,TFB, SFR,PB			0.1	0.1
Mtn Hwy/ Hoskins	D	N/A	No Treatment		0.5	0.9	0.0
Total				0.2		7.8	6.9

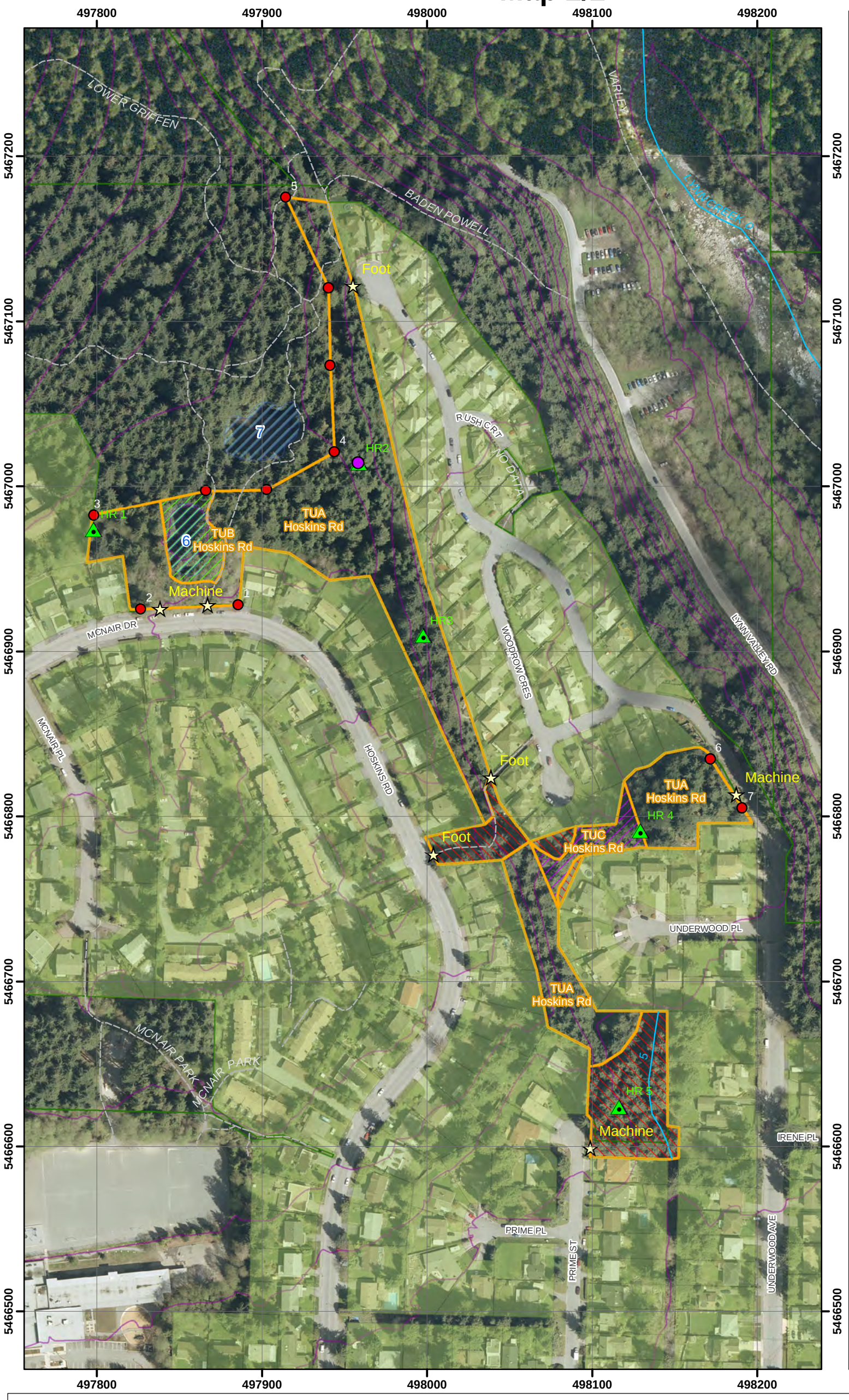
HTR - hazard tree removal, TFB - thin from below, SFR - surface fuel reduction, PB - prune branches

Streamside DPA approval is required for all works within 15 m of top of bank or 5 m from the edge of ravines. No machine work in these areas is permitted without DNV approval.

Stream Summary (See Prescription for management strategies)

Stream ID	Class	DPA (m)	Land Ownership
1 - Unknown	S-6	15	DNV
2 - Unknown	S-6	15	DNV
3 - Unknown	S-6	15	DNV
4 - Unknown	S-6	15	DNV
5 - Unknown	S-4	15	DNV
6 - Unknown	NCW	15	DNV
7 - Unknown	NCW	15	DNV

Fuel Management Prescription Map: District of North Vancouver: Mtn Hwy Map 2/2



NORTH VANCOUVER DISTRICT

B. A. Blackwell & Associates Ltd.

UBCM

Forest Region	Coastal
Forest District	Vancouver
Mapsheet	92G035
Location	Hoskins
UTM Zone	10N
UTM Easting	498017
UTM Northing	5466857

Legend

- Treatment Corners
- Threat Plots
- DNV plots
- Access Points
- Trails
- Creeks
- Contours - 5 m
- Storm Culverts
- Transmission Lines
- Wetland
- Parks
- PRIVATE

Prescription Unit

- TUA
- TUB
- TUC
- TUD

1:2,500

N

0 50 100

Meters

Coordinate System:
NAD 83 UTM Zone 10

Mapped by: T. Pashkowski
Date: March 2013

Fuel Management Prescription - Area Breakdown

Block	TU	Stand Desc.	Treatment	Stream Mgmt (ha)	NP (ha)	Gross Area (ha)	Net (ha)
Mtn Hwy/ Hoskins	A	FdHwCw	HTR,TFB, SFR,PB			6.6	6.6
Mtn Hwy/ Hoskins	B	HwFdCw	HTR, PB	0.2		0.2	0.2
Hoskins	C	HwCw	HTR,TFB, SFR,PB			0.1	0.1
Mtn Hwy/ Hoskins	D	N/A	No Treatment		0.5	0.9	0.0
Total				0.2		7.8	6.9

HTR - hazard tree removal, TFB - thin from below, SFR - surface fuel reduction, PB - prune branches

Streamside DPA approval is required for all works within 15 m of top of bank or 5 m from the edge of ravines. No machine work in these areas is permitted without DNV approval.

Stream Summary (See Prescription for management strategies)

Stream ID	Class	DPA (m)	Land Ownership
1 - Unknown	S-6	15	DNV
2 - Unknown	S-6	15	DNV
3 - Unknown	S-6	15	DNV
4 - Unknown	S-6	15	DNV
5 - Unknown	S-4	15	DNV
6 - Unknown	NCW	15	DNV
7 - Unknown	NCW	15	DNV

AGENDA INFORMATION		Dept. Manager	GM/ Director	CAO
☑ Regular Meeting	Date: Feb 1, 2016			
☐ Committee of the Whole	Date:			

The District of North Vancouver
REPORT TO COUNCIL

January 17, 2016
File: 3188-01/01.00

AUTHOR: Doug Allan, Community Planner

SUBJECT: **PROPOSED GRAIN TERMINAL (G3 GLOBAL HOLDINGS) - RESPONSE TO PERMIT REFERRAL FROM PORT METRO VANCOUVER**

RECOMMENDATION:

It is recommended that:

1. **Port Metro Vancouver require that G3 Global Holdings provide the following information for review and further comment, as requested by the District during the pre-application consultation phase:**

   (a) due to the increase in truck traffic on Mountain Highway arising from the relocation of the Lynnterm West Gate break bulk operation to the East Gate and the proposed temporary construction access route from the terminal site to Mountain Highway:

   - **a review of the potential traffic impacts on Mountain Highway and the intersection at Main Street;**
   - **an analysis of the capacity of the rail underpass on Mountain Highway; and**
   - **a safety audit of the at-grade rail crossing on Mountain Highway at Barrow Street;**

   (b) a report outlining potential environmental impacts upon the Lynn Creek estuary due to the construction and operation of the proposed G3 Global Holdings grain terminal, and recommended measures to offset those impacts, including: the expansion of the riparian area between the internal access road to Vancouver Pile Driving and the west side of the Creek; and, measures to address marine spill potential;

(c) detailed plans of the proposed construction access route over Lynn Creek to Mountain Highway including an identification of potential impacts and recommended mitigation strategies;

(d) additional air dispersion modelling information to identify potential impacts upon the Lynn Creek Town Centre;

(e) additional viewscape analyses from the existing Seylynn Village high rise tower and the building currently under construction on Oxford Street; and

(f) an economic impact analysis of the project, including an assessment of direct and indirect spin-off impacts to existing businesses;

2. Port Metro Vancouver take the District's additional comments on the information requested above, into consideration in the review of the project permit application;

3. G3 Global Holdings be required to utilize a temporary on-site concrete batch plant and to barge construction materials to the site to reduce the impacts of construction traffic on Cotton Road/Main Street and Mountain Highway;

4. G3 Global Holdings consider alternatives to the temporary construction route and if unavoidable, include measures to ameliorate impacts to the Lynn Creek channel and Harbourview Park;

5. Port Metro Vancouver be required to establish a new air quality monitoring station at an appropriate location in the Lynn Creek Town Centre;

6. Port Metro Vancouver require that the G3 Global Holdings terminal project meet or exceed applicable Metro Vancouver air quality standards;

7. Port Metro Vancouver require that G3 Global Holdings incorporate the mitigation measures recommended in the Environmental Noise report to dampen the noise arising from pile driving activities;

8. Port Metro Vancouver ensure that site lighting and lighting on the structural components of the project be shielded to minimize glare upon existing and future land uses, including future residential development in the Lynn Creek Town Centre;

9. Port Metro Vancouver require that G3 Global Holdings utilize the 'best available technologies' to reduce potential impacts of the project to the greatest extent possible;

10. G3 Global Holdings be required to provide the District with information on the required utility connections and confirm that there will be no downstream impacts on the District's utility infrastructure;

11. G3 Global Holdings be required to work with District and City staff to identify possible community amenity projects to offset the impacts of this project;

12. G3 Global Holdings and Port Metro Vancouver work with the District and City Fire Departments and North Shore Emergency Management to ensure that the required Fire and Life Safety Plan and the accompanying studies relating to spill prevention, emergency response, fire and dust explosion hazards and the handling of hazardous materials address all applicable codes and regulations; and

13. Staff be authorized to send a letter to Port Metro Vancouver forwarding Council's recommendations on the G3 Global Holdings project as conditions of approval for any Port permit.

REASON FOR REPORT:

Port Metro Vancouver has received a development application involving the construction of a new grain terminal on the Lynnterm West Gate lands from G3 Global Holdings and has referred the proposal to the District for comment as part of the permit review process. This report provides a summary of the project, staff comments on the key issues affecting the District, and includes recommendations for Council's consideration as stakeholder feedback on the project.

SUMMARY:

The proposal from G3 Global Holdings for the construction of a new export grain terminal located on the Lynnterm West Gate land is situated in the City of North Vancouver on lands owned by Port Metro Vancouver and as such, Port Metro Vancouver has decision-making authority whether to issue a permit for the project.

The key areas of concern relate to:

- potential traffic impacts on Mountain Highway and Main Street associated with the construction and operation of the proposed terminal;
- the capacity of the Mountain Highway rail underpass to accommodate future additional traffic;
- the safety of the existing at-grade rail crossing at Barrow Street;
- potential environmental impacts on Lynn Creek and Harbourview Park, including impacts associated with the proposed temporary construction access route from the site to the Lynnterm East Gate and Mountain Highway;
- the impacts of the proposal upon the air quality in the Lynn Creek Town Centre;
- the visual impact of the proposal as viewed from the Lynn Creek Town Centre;

- mitigation strategies to dampen the noise from pile driving activities;
- the need to incorporate appropriate light shielding to minimize glare impacts upon surrounding uses, including the future residential development in the Lynn Creek Town Centre;
- the need to utilize 'best available technologies' to the greatest extent possible;
- fire and life safety issues, including fire risk and dust explosion, spill prevention, hazardous materials handling and emergency response;
- the provision of community amenities to offset potential impacts of the project; and
- the absence of an in-depth economic impact analysis of the project.

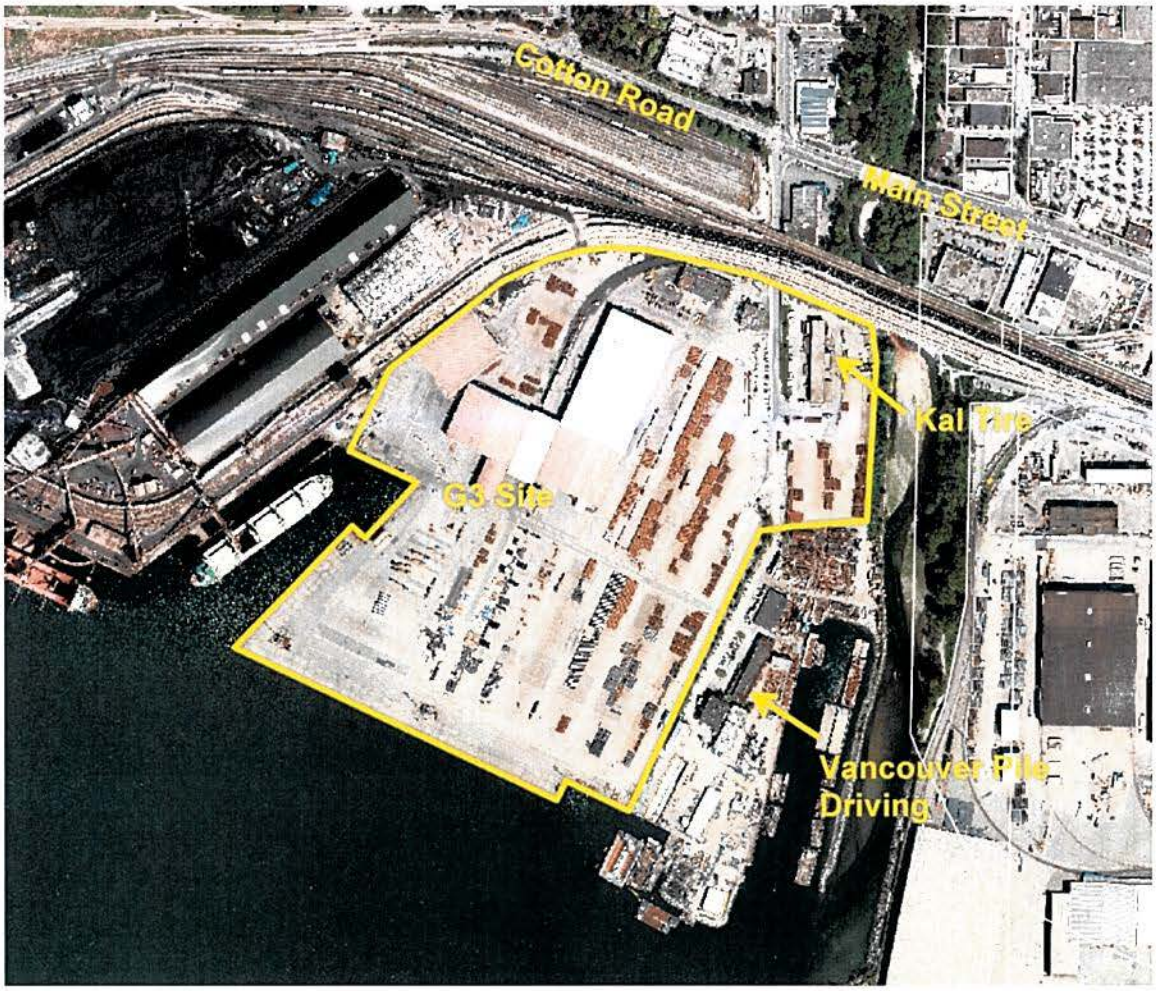
BACKGROUND:

In accordance with Port Metro Vancouver's requirements, G3 undertook a pre-application consultation process and on October 5, 2015, Council endorsed a number of recommendations relating to the proposal, including the need for additional information. Those recommendations were forwarded to G3 and Port Metro Vancouver for consideration and a copy of the letter is included as Attachment A. Some of the information requested by the District has not been provided in the applicant's submission package and therefore, staff reiterate that this information be provided for review and further comment prior to the Port making a decision on the project permit application. The studies provided with the Port's referral have raised additional questions which are noted in this report.

ANALYSIS:

1. The Site:

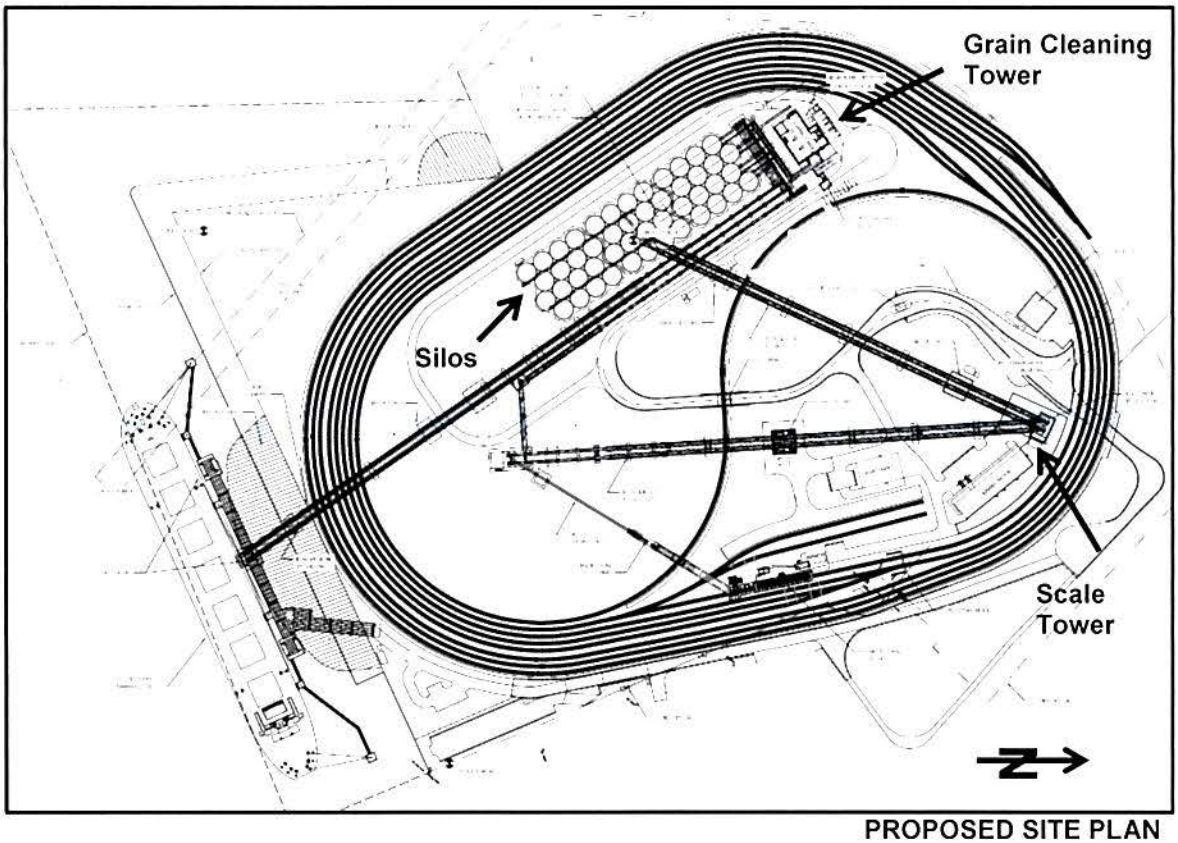
   As illustrated on the following aerial photograph, the proposed project is situated in the City of North Vancouver on the Lynnterm West Gate lands, west of Lynn Creek and south of Cotton Road/Main Street. The site is approximately 23 hectares (58 acres) in size.



The site is presently operated as a break bulk terminal by Western Stevedoring employing approximately 156 longshoremen, maintenance and office staff during the day with about 65 employees at night. There is an existing Kal Tire business in the northeast corner of the site under a sub-lease from Western Stevedoring that will be removed and may be relocated to another property. The current Vancouver Pile Driving business will remain.

2. The Proposal:

The proposed site plan is illustrated in the following image.



PROPOSED SITE PLAN

The terminal project consists of the following key components:

- construction of a new loop track system around the perimeter of the site, designed to accommodate up to three, 150 car unit trains at one time;
- up to 48 concrete grain product storage silos. These silos are approximately 42m (140ft.) in height. The silo conveyor equipment increases overall height by 21.3m (70ft.) to 64m (210ft.). For comparison, the silos recently constructed at the Richardson Terminal site to the west are about 78m (255ft.) in height and the older Cargill Terminal silos west of the coal terminal are about 40m (130ft.) high;
- a grain cleaning building approximately 80m (264ft.) in height;
- a scale tower approximately 58m (191ft.) in height;
- an enclosed rail car receiving facility approximately 11.3m (37ft.) in height;
- extension of the existing rail underpass on Brooksbank Avenue and a new underpass and driveway for access to the Vancouver Pile Driving business;
- a product conveyor belt system linking the delivery, loading and storage components which are either enclosed or contained and incorporate dust controls;
- a new ship berth designed to accommodate large ships up to approximately 125,000 metric tonnes);
- a new ship loading system consisting of 3 loading booms;

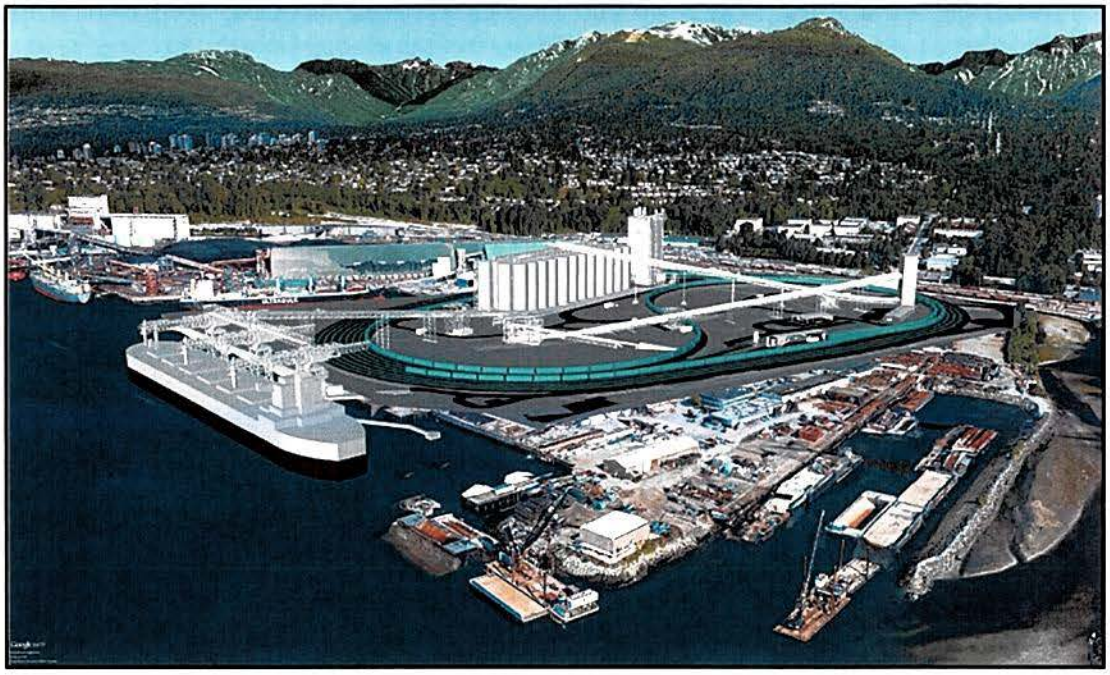
- a new administrative building (4.6m/15ft. high) and maintenance building (6.4m/21ft/ high); and
- an electrical substation building.

Access to the site will is currently provided from Cotton Road/Main Street at Brooksbank Avenue and this point of access will be retained.

The terminal is designed to accommodate an annual throughput of approximately 8 million metric tonnes of grain products and will be capable of operating 24 hours/day, 7 days/week. At full capacity, it is estimated that, annually, grain would be delivered by 600 trains and 168 ships of varying sizes would be loaded.

In addition, by-products from the cleaning process will be pelletized and transferred to customers by truck and it is projected that this could involve about 2,250 truck movements annually or about 5 per day. The company estimates that the project will create approximately 175 construction jobs and 50-60 permanent jobs once it is operational. If approved, the facility is expected to begin operation in 2019 and reach full capacity in 2023.

The following images provide an aerial view of the project as viewed from the north and a rendering viewed from the harbour.



3. Supporting Documentation:

In addition to the project description and civil engineering reports for the on-site components and marine-based structures, G3 has provided the following studies prepared in compliance with Port Metro Vancouver terms of reference:

- Biophysical Report;
- Environmental Noise and Air Assessments;
- Stormwater Pollution Prevention Plan;
- Fire and Life Safety Plan;
- Hazardous Materials Handling Report;
- Spill Prevention and Emergency Response Plan;
- Fire Risk and Dust Explosion Assessments
- Land Traffic Study;
- Lighting Plan;
- Energy Efficiency Study; and
- Viewscape and Shadow Study.

The following staff comments are based on a review of these studies.

STAFF COMMENTS:

1. Transportation Planning

A Land Traffic Study was undertaken to establish traffic volumes associated with current operations on the site and projected volumes. The following table illustrates

the current weekday afternoon peak hour volume at the site and the projected volumes once G3 is operational:

CURRENT		PROJECTED	
Break Bulk	10	G3	20
Vancouver Pile Driving	65	Vancouver Pile Driving	65
Kal Tire	55		0
Total	130	Total	85

Therefore, on the subject site, the weekday p.m. peak hour volume will decrease by 45 vehicles due largely to the elimination of the Kal Tire generated traffic. This represents an overall traffic reduction of 42%.

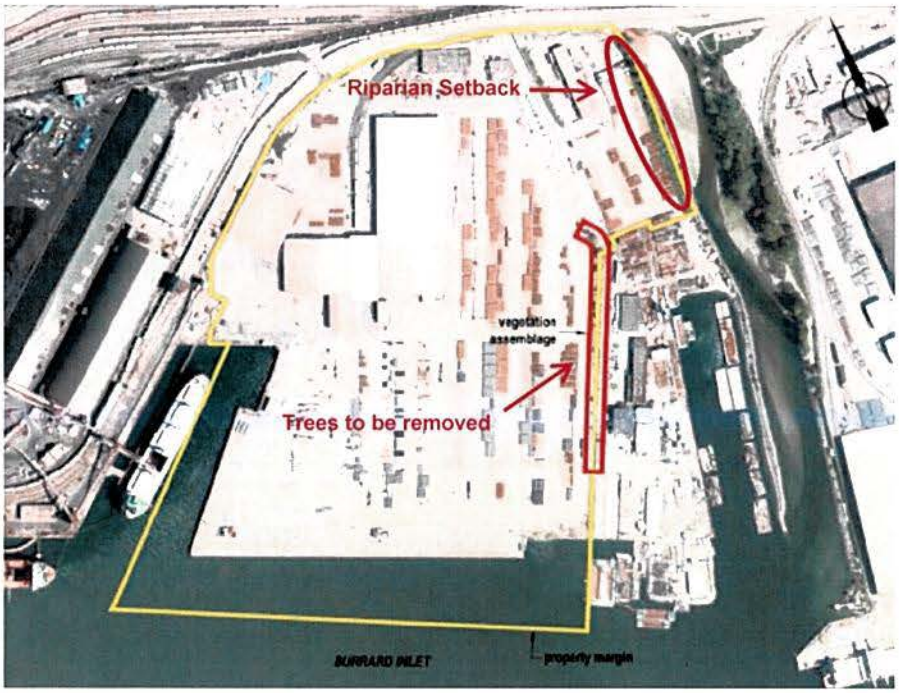
Regardless of the decrease in traffic from the site, the existing break bulk traffic volumes will be reassigned to the East Gate lands when that activity relocates which may have traffic impacts on Mountain Highway and Main Street intersection.

While the traffic study identifies the impacts on Cotton Road/Main Street and Brooksbank Avenue, implementation of the terminal project will result in the relocation of the existing break-bulk operation to the East Gate but the change in traffic volumes as a result, has not been quantified. In addition, G3 proposes to develop a temporary construction route south of the existing rail corridor to enable construction vehicles and equipment to access Mountain Highway which has not been quantified. Therefore, it is recommended that G3 be required to provide a new traffic study which establishes the current and future volumes of traffic to and from the East Gate lands including the proposed expansion of the East Gate. This study must also evaluate the capacity of the existing rail underpass on Mountain Highway and include a safety audit of the existing at-grade rail crossing of Mountain Highway at Barrow Street.

2. Environmental Analyses

- Biophysical Report

  The report evaluates only the potential impacts associated with the removal of a strip of non-native trees separating the terminal site from the Vancouver Pile Driving site as shown on the following image. The report concludes that these trees do not represent significant habitat for wildlife or nesting birds but recommends that, if the trees are to be removed during the bird nesting season, an active bird nest survey be undertaken.



With the removal of the Kal Tire business, the terminal site will expand towards the Lynn Creek channel and a new rail underpass and driveway will be constructed for access to Vancouver Pile Driving. Based on the information provided, there is no indication as to how the land between the driveway and the west edge of the creek channel will be used. Staff recommend that a riparian area (approaching 30m in width from the top of bank) as illustrated on the plan above, be established to expand the existing riparian area on the west side of the Creek and this additional setback area be restituted and enhanced to expand the existing habitat values of the creek.

- Stormwater Pollution Prevention Plan

The site is to be graded to direct stormwater to the harbour via the existing storm sewer outfall on the west side of the site. Grain and grain dust recovery systems and oil and grit separators will be installed to reduce the migration of particulates and pollutants into the stormwater. There will be no bulk fuel storage on site and the area for the storage of small amounts of fuels, coolants, oils will be centralized with secondary containment. In addition to the requirement for the installation of oil and grit separators prior to discharge to the harbour, the report proposes a series of best management practices for maintenance and containment around hazardous material storage areas and recommends an annual monitoring program. Staff recommend that any requirement to pump groundwater from foundation drain tiles into surface water systems be eliminated or if unavoidable, that receiving waters be tested and monitored.

While the proposal is to direct stormwater to the west away from Lynn Creek, following a previous upgrade to the Brooksbank Avenue underpass, noticeable red iron-oxide staining of the Lynn Creek gravel bars occurred. This may have been due to the pumping of groundwater from behind the foundation walls to the existing storm outfall to the Creek. As this project includes a further expansion of the existing underpass and the construction of a new underpass for access to Vancouver Pile Driving, it is recommended that G3 be required to provide more detail on this work including identification of the potential impacts upon Lynn Creek and mitigation strategies to prevent further impacts, for the District's review.

- Air Assessment

The assessment report identified a baseline emissions case and projected an emissions scenario taking into account surface vehicle and marine vessel pollutants as well as particulate emissions arising from the transfer of grain products. The report concluded that grain handling will result in an increase in some particulate matter emissions, but emissions associated with hydrocarbon fuel consumption are projected to decrease within the terminal facility due to the reduced level of trucking associated with the operation and the use of cleaner diesel fuel.

While the Air Dispersion Modelling indicates that, with the terminal operating at capacity, local air quality is considered to be 'good' and well below applicable Metro Vancouver air quality objectives, the station used for baseline data was the 2nd Narrows station. It is unclear if this station can be considered representative of conditions at the site.

In addition, the grain silos are over 40m high and particulate matter pollution will be created when product is transferred via conveyor to the tops of the silos even with dust control systems in place. Rather than relying on the at-grade modelling provided, wind data collected at the same elevation where the particulate matter may be generated should be provided to inform specific air dispersion trends and identify potential concerns.

As the increase in both truck and rail-related traffic within the supply chain, outside the facility boundary, were not included in the study, G3 should also provide more detailed modelling of the off-terminal emissions to assess potential impacts upon the air quality in the Lynn Creek Town Centre. It is also recommended that Port Metro Vancouver require that G3 provide a new air quality station in an appropriate location to enable the on-going monitoring of emissions and future air quality in the Lynn Creek Town Centre.

There is no information in the report on specific technologies proposed to manage particulate emissions. The reports only reference that the best available technology "not entailing excessive cost" will be used. Given the potential impact which these emissions could have on surrounding land uses in both municipalities,

it is recommended that Port Metro Vancouver require the use of the 'best available technology'. Although Port Metro Vancouver does not require that applicant's obtain an air emissions permit from Metro Vancouver, staff recommend that G3 be required to prove that they can meet or exceed the applicable Metro Vancouver air quality standards.

- Marine Spill Potential

  A further analysis of the spill potential is needed to understand what the risks are compared to the existing operation, what impacts fuel and/or product spillage could have on the marine receiving environment in particular, upon the Lynn Creek estuary and, what mitigation measures are required to be implemented.

- Energy Efficiency Study

  The G3 submission indicates that further assessment is required to establish the energy requirements of the terminal equipment which will be developed as the project design proceeds. Although the report does not address the issue, staff recommend that G3 be required to incorporate shore electrical power for ships and for on-shore vehicles to replace the use of combustible fuels and reduce greenhouse gas emissions.

3. Engineering

   The G3 proposal only indicates that the site will be connected to existing services in the City of North Vancouver, but no details are provided. Staff understand that there are no shared services with the District but wish to be informed of the site utility plans to ensure that there are no downstream impacts on the District's infrastructure.

4. Planning

   - Noise Impact Assessment

     The noise assessment identifies a baseline noise level at several receiving stations in the City of North Vancouver and one in the Lynn Creek Town Centre at Bond Street and Mountain Highway, approximately 575m northeast of the nearest site boundary. It also incorporates data from an existing Port noise monitoring station in the City north of the site. The assessment also established projected noise levels at the baseline receptors and at a second site in the Lynn Creek Town Centre at Oxford Street and Mountain Highway. The projected noise assessment took into account the construction and operation of the terminal and the expected consequential (off-site) noise arising from the increase in the number of truck and rail movements.

     Within the terminal, the operational noise assessment focussed on 5 sources and concluded that the use of appropriate mitigation measures at these sources could

be expected to reduce noise by 10dBA. In addition, as the on-site rail loop trackage will accommodate up to three, 150 car unit trains within the site, the need for uncoupling and recoupling of rail cars will not be required except to remove damaged rail cars from a train. As a result, noise from the shunting of rail cars will be limited.

Off-site, the increase in truck trips from the site is estimated to increase overall traffic noise levels by less than 1dBA which the assessment concludes, is not detectable. The increase in train traffic along the rail corridor is estimated to be not more than 6 trains in a 24 hour period. Given the current ambient noise levels in the Town Centre area, it is unlikely the increase in rail traffic would result noise levels considered acoustically significant to warrant mitigation.

In accordance with the Environmental Noise Assessment Guidelines established by Port Metro Vancouver, the purpose of the assessment is to establish the percent increase in the number of residents that would be expected to be "highly annoyed' (%HA) once a project is operational, compared with baseline conditions. The Port's Noise assessment guidance does not provide a specific numeric %HA value against which to determine if noise mitigation is warranted. Instead, it indicates that the need for mitigation will be assessed during the permit application review process. On the basis of this metric, the report concludes that there would be less than a 2%HA increase in at the two receptors in the Lynn Creek Town Centre and does not recommend specific off-site mitigation measures.

From a construction perspective, the report indicates that the anticipated construction noise would be unlikely to generate sound levels in excess of the construction noise limits under the District and City Noise Bylaws and no mitigation measures are planned with the exception of measures to dampen noise levels due to pile driving.

While the report concludes that the construction and operation of the terminal and the off-site truck and rail traffic will not result in increases in noise levels in the Lynn Creek Town Centre, staff recommend that the pile driving recommendations be a requirement of any permit issued by Port Metro Vancouver and that the operation of the terminal be required to incorporate the best available technology to reduce noise from the main noise sources.

- Viewscape and Shadow Study

The Viewscape and Shadow Study outlined the various options considered for the layout of the terminal in particular, the location of the grain silos. While the proposed location of the silos appears to represent the least visual impact from surrounding residential areas, the submission has not addressed Council's previous recommendation for a viewscape analysis from the Lynn Creek Town Centre. Therefore, staff recommend that G3 be required to provide additional

viewscape analysis from two locations: the existing Seylynn village tower and the building currently under construction on Oxford Street.

The shadow analysis indicates that the December 21 Winter Solstice will result in the greatest extent of shadowing but, even in the afternoon, shadows will not extend east beyond Lynn Avenue and there will not be any shading upon future residential uses in the Town Centre.

- Lighting Plan

The lighting plan indicates that on-site lighting will consist of street lighting, staircase lighting on the taller scale and grain cleaning towers (up to 247ft.), at several locations on the conveyor systems (up to 77ft.) and on the tops of the silos. The report indicates that illumination levels will have to meet current standards and safety regulations but will be directed downward, into the facility through the use of shields to minimize impacts on adjacent uses. In addition, the report indicates that a majority of the outdoor lights will be controlled and will remain off unless needed. Construction lighting will also be shielded and directed into the facility. Staff are satisfied that this issue can be addressed but recommend that Port Metro Vancouver ensure that the shielding be designed to reduce glare from surrounding residential areas including the Lynn Creek Town Centre.

- Economic Analysis

At the Pre-Application consultation stage, Council recommended that G3 provide an economic impact analysis of the project including an assessment of direct and indirect spin-off impacts to existing businesses. G3 has identified the number of employees expected to be involved in the construction and operation of the terminal but that study does not identify any of the spin-off benefits as requested by Council. Therefore, this requirement is reiterated in the recommendations to Port Metro Vancouver.

- Community Amenities

At the pre-application consultation stage, staff recommended that G3 and Port Metro staff work with the District and City staff to identify possible community amenity projects to off-set potential impacts. G3 has indicated that consideration may be given to community amenities but has made no commitment to implement any amenity recommendations. Therefore, it is recommended that Port Metro Vancouver require that G3 work with the District and City to identify and implement appropriate amenities to off-set potential project impacts as a condition of a Port project permit.

5. Fire Department/North Shore Emergency Management

   The Fire Department and North Shore Emergency Management have reviewed the Fire and Life Safety Plan, the Fire and Dust Explosion Hazard report, the Spill Prevention and Emergency Response Plan and the Hazardous Materials report.

   North Shore Emergency Management comments are included as Attachment B and reference issues relating to earthquake, extreme weather events, active threats, the trucking of pelleted materials and marine oil spills.

   It is recommended that G3 Global Holdings and Port Metro Vancouver work with both the District and City Fire Departments and North Shore Emergency Management to ensure the project complies with all applicable regulations and bylaws and incorporates measures to address the issues raised by North Shore Emergency Management.

Timing/Approval Process:

Port Metro Vancouver has requested that stakeholder comments be provided by February 1, 2016.

Public Input:

Aside from comments from the District and City, the Port's Environmental Permit Review includes an opportunity for additional input from First Nations, the public and other businesses to comment on the project which is currently on-going.

The proponent also held an Open House on January 9, 2016 which was attended by about 86 people. The main points of discussion included: construction impacts related to noise and traffic; viewscape and property value concerns; lighting; dust and air emissions; wildlife/bird impacts; general port development; and general discussions around the growth in grain exports.

Conclusion:

While the project is consistent with the Port Land Use Plan, G3 has not provided some of the information previously requested at the pre-application consultation stage. In order to determine if there are any impacts upon the Lynn Creek Town Centre, staff request that additional information be provided for review and further comment prior to the Port making a decision on the project. In addition, staff have suggested additional recommendations for the Port's consideration, relating to:

- the need for G3 to utilize a temporary on-site concrete batch plant and barge construction materials to the site;
- the proposed temporary construction route across Lynn Creek;
- the need for a new air quality monitoring station in the Lynn Creek Town Centre;

- the need for the project to meet or exceed Metro Vancouver air quality standards;
- potential downstream impacts on the District's utility infrastructure;
- the use of mitigation measures to dampen the noise arising from pile driving activities;
- shielding of site lighting and lighting on the structural components of the project;
- the use of 'best available technologies' to reduce impacts of the project;
- possible community amenity projects to offset impacts of this project; and
- approval of the required Fire and Life Safety Plan and the requirements for spill prevention and emergency response plans and the management of fire and dust explosion hazards and the handling of hazardous materials.

Options:

The following options are available for Council's consideration:

1. Support the recommendations as proposed and direct staff to forward those recommendations to Port Metro Vancouver (staff recommendation), or

2. Advise Port Metro Vancouver that the District has no further comment on the issuance of a Port project permit; or

3. Provide alternate direction to staff to address potential impacts arising from the G3 Global Holdings terminal project.

Respectfully submitted,

Doug Allan,
Community Planner
da/

REVIEWED WITH:

☐ Sustainable Community Dev.	____	☐ Clerk's Office	____	External Agencies:	
☐ Development Services	____	☐ Communications	____	☐ Library Board	____
☐ Utilities	____	☐ Finance	____	☐ NS Health	____
☑ Engineering Operations	____	☑ Fire Services	____	☐ RCMP	____
☐ Parks	____	☐ ITS	____	☐ NVRC	____
☑ Environment	____	☐ Solicitor	____	☐ Museum & Arch.	____
☐ Facilities	____	☐ GIS	____	☐ Other:	____
☐ Human Resources	____	☐ Real Estate	____		

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NORTH VANCOUVER
DISTRICT

ATTACHMENT A

David Stuart
Chief Administrative Officer
Phone: 604 990 2206
Fax: 604 984 9637
stuartd@dnv.org

October 6, 2015
File: 08.3188.01/001.000

Karl Gerrand, CEO
G3 Canada Limited
800 - 423 Main Street
Winnipeg, Manitoba, Canada R3B 1B3

Dear Mr. Gerrand:

Re: Proposed Grain Terminal - Lynnterm West Gate - Preliminary Comment from the District of North Vancouver

This correspondence is further to your letter dated September 4, 2015, with respect to the above-noted project. We have now reviewed the material provided in your letter and prepared the following response to your request for preliminary comment.

We appreciate your openness and willingness to speak with our Council, District Staff and the broader community regarding your proposed project. We also look forward to your continued engagement of the community as you move forward through the Port Metro Vancouver application review process.

On October 5, 2015, the Council of the District of North Vancouver passed the following motion that:

"1. In addition to the Port Metro Vancouver application submission requirements and the additional studies which G3 Global Holdings has committed to conducting, the following information also be included in the permit application to Port Metro Vancouver and the corresponding Port Metro Vancouver referral to the District of North Vancouver:

- **an economic impact analysis of the project, including an assessment of direct and indirect spin-off impacts to existing businesses;**
- **a review of the potential traffic impacts on all affected routes and intersections in the Lynn Creek neighbourhood, including the Main Street and Mountain Highway intersection;**
- **due to the potential increase in truck traffic on Mountain Highway arising from the relocation of the Lynnterm West Gate break bulk operation to the East Gate lands, an analysis of the capacity of the rail underpass on Mountain Highway and a safety audit of the at-grade rail crossing on Mountain Highway at Barrow Street;**

- **an identification of utility infrastructure requirements which have the potential to impact District utilities;**
- **an identification of measures to reduce the visual impact of the large grain silos, the grain cleaning tower and the scale tower, as viewed from both the harbour and the lands to the north;**
- **the feasibility of an on-site concrete batch plant and the barging of construction materials to reduce impacts on Cotton Road/Main Street;**
- **the dredging requirements to accommodate the new ship berth and ship movements and the resulting impacts on the marine environment;**
- **an identification of any potential impacts on the Lynn Creek estuary and recommended measures to offset those impacts;**
- **the identification of any contaminated site issues; and**
- **air quality modelling of potential impacts upon the local air shed arising from marine vessel traffic.**

2. All required studies, including, without limitation, noise, traffic and fire assessments to take into account the existing development in the Lynn Creek Town Centre and other adjacent neighbourhoods and recognize the future redevelopment to higher residential densities in the Lynn Creek Town Centre.

3. G3 Global Holdings work with District and City Fire Departments to ensure that the scope of the require fire impact assessments address all pertinent issues.

4. G3 Global Holdings be encouraged to work with District and City staff to identify possible community amenity projects to offset the potential impacts of this project; and

5. Staff be authorized to forward this Council report to G3 Global Holdings for inclusion in the consultation summary report, and forwarded to Port Metro Vancouver."

In addition to this resolution the Mayor and Councillors contributed some additional comments and questions. In particular, concerns were expressed regarding the amount and type of ship and rail traffic that would be generated by this proposal, and whether or not there was sufficient capacity to accommodate this additional traffic. In addition, some concerns were expressed regarding potential impacts related to this additional traffic including the potential for increased air emissions and discharges of pollutants.

We hope you consider Council's resolution, and the additional comments provided as you prepare your final application to Port Metro Vancouver. Thank you again for this opportunity. We look forward to reviewing the complete application once it is ready and available for comment.

Sincerest Regards,

Mr. David Stuart, CAO

Cc Brett Malkoske, Vice President, Business Development G3
Brett_Malkoske@g3.ca

Tim Blair, Senior Planner, Port Metro Vancouver
Tim.blair@portmetrovancouver.com

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ATTACHMENT B

NORTH SHORE EMERGENCY MANAGEMENT

Doug Allan, Community Planner, District of North Vancouver
Larry Orr, Manager Business Services, City of North Vancouver
(via email)

8 January 2016

G3 Grain Terminal Project – City of North Vancouver

Doug, Larry,

I've reviewed the proposal materials for the G3 Grain Terminal Project and have the following comments:

- Liquefaction caused by earthquake is a concern and the proponent has conducted seismic and geological hazards assessments and designed facilities are being built for a 2475-year return interval for occupied buildings and 475-year return interval for unoccupied structures.
- Climate change impacts such as rise of sea level has been taken into account and in most areas meet the forecasted sea level rise (underpass does not, but measures have been taken to protect as best as possible).
- Dust hazard analysis has been conducted and appears to follow current codes and best practices.
- Transportation impacts include increased rail, road, and marine traffic.
- Marine vessel traffic will almost double (from 89 to 168 calls) and with the increase of all other marine traffic this can result in a greater exposure for vessel collisions and marine oil spills. G3 has met with the Pacific Pilotage Authority and G3 will conduct simulation modeling.

The following are comments for consideration:

- In building the facilities, underground utilities should consider the seismic risk and include flexible connections as permitted so that they are more resilient to an earthquake.
- Extreme weather including King tides and storm surges should be included in emergency response procedures.
- The Fire & Life Safety Plan should specifically state "Drop – Cover – and Hold on" in the earthquake procedure.
- In addition to the bomb threat section in the Fire & Life Safety Plan, they may want to add a section on active threat.
- If not already in place, G3 should consider developing a business continuity plan.
- Increase in vehicle traffic for the transportation of pelleted materials increases the potential for motor vehicle accidents and is a community risk and should be considered.
- The increased vessel traffic increases the risk of a marine oil spill which could impact

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NORTH SHORE EMERGENCY MANAGEMENT

the whole North Shore and it will be important that vessels are following all requirements to minimize the risk and to be able to respond effectively if a hydrocarbon spill does occur.

I defer to City of North Vancouver Fire Department and District of North Vancouver Fire and Rescue to provide specific comments on fire protection systems and details on the risk and dust explosion assessments.

Please let me know if you require any other information. You can contact me at 778.3386305 or dmason@cnv.org.

Sincerely,

Dorit Mason
Director

cc (via email) Assistant Chief Burgess, DNVFRS
Assistant Chief Owens, CNVFD

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AGENDA INFORMATION		Dept. Manager	GM/ Director	CAO
☐ Regular Meeting	Date: February 1, 2016			
☐ Committee of the Whole	Date:			

The District of North Vancouver
REPORT TO COUNCIL

January 25, 2016
File: 10.4710.40/013.000

AUTHOR: Councillor Jim Hanson

SUBJECT: **Non-market Housing and District of North Vancouver Lands**

RECOMMENDATION:

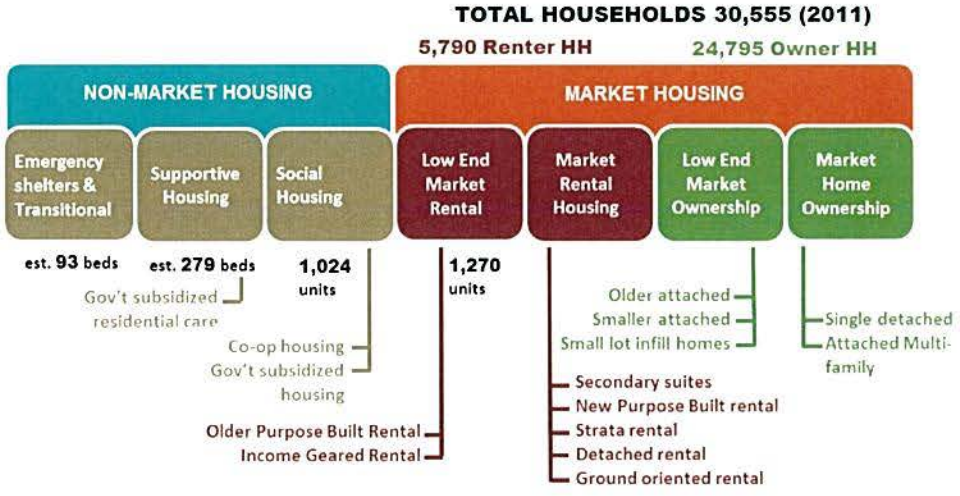
THAT staff be directed to prepare a report for Council's consideration which identifies potential District-owned lands which may be suitable for non-market housing.

REASON FOR REPORT:

The District's Official Community Plan indicates that the District will "Consider the use of District land, where appropriate, to contribute towards and leverage other funding for the development of social and affordable housing." (Policy 7.4.4)

BACKGROUND:

Non-market housing means any housing that is not provided by the market. It includes social housing, transitional and supportive housing, or any other form of housing where a government subsidy is provided. This housing is typically managed directly by a government agency, a non-profit or co-op housing organization. Non-market housing can include temporary accommodation such as shelters and safe houses and low-income rental housing, with or without supports for residents, as well as low income ownership housing. Non-market housing is identified in the following graphic of the Housing Continuum.



Housing has become increasingly unaffordable within the District of North Vancouver and across the Metro region. Vulnerable populations including seniors, youth and the current homeless population require our support to achieve their housing needs. The increasing lack of affordable housing means that these vulnerable populations have an increasing demand for non-market housing.

Once Council has considered the lands identified by staff, it is further recommended that staff be directed to pursue partnership opportunities with private, non-profit and governmental housing providers, to develop the identified District-owned lands for non-market housing

CONCLUSION:
Non-market housing is critical to meeting the needs of a growing number of our residents. It is timely to advance this discussion, given Council's ongoing Affordable and Rental Housing deliberations.

Respectfully submitted,

Jim Hanson
Councillor