INTEGRAL GROUP

Sustainability Narrative

1515 Douglas Street

Prepared for:

Jawl Enterprises Ltd.
Suite 100 – 3350 Douglas Street
Victoria, BC, V8Z 3L1

c/o D'AMBROSIO architecture + urbanism
2960 Jutland Road
Victoria, BC V8T 5K2

Developed by:

Integral Group
Suite 180 - 200 Granville Street
Vancouver, BC V6C 1S4

Project No: 13-1862-_01

November 21, 2013

Table of Contents

1. Overview 1
2. Site Selection and Design 1
3. Energy 2
4. Water Resource Management 2
5. Materials and Waste 3
6. Interior Comfort & Health 3
7. Innovation and Design 4

1. OVERVIEW

1.1 Specific Policies

The City of Victoria requires that new developments design in accordance with Green Building Indicators, laid out in their August 2012 document for Development Permits.

1515 Douglas Street is a two phase development undergoing review with the City of Victoria and as such must meet the requirements set out therein. This document addresses those elements relating to green building and sustainable development in the context of Victoria's development requirements and process.

Phase I is a six-story, 110,000 sq. ft. office building located at the Douglas Street end of the site. This phase also includes two stories of underground parking which will serve the entire site. Phase II is a 175,000 sq. ft., thirteen-story office tower located at the east end of the site.

Phase I completion is approximately scheduled for June 2017, with a 30-month construction period. Phase II has a 24-month construction schedule and may be separate from Phase I. Both buildings will pursue LEED Gold Core and Shell certification separately. As design progresses, review is being carried out regarding the possibility of achieving LEED Platinum through shared resources and a LEED Campus approach.

2. SITE SELECTION AND DESIGN

2.1 Community, Access and Existing Infrastructure

1515 Douglas Street is a well served and well connected site in the downtown of Victoria, BC. Utilising existing infrastructure and building in an area with prior community connections and density is an important element of sustainable design and integration.

The site is well connected to nearby bus routes, cycle routes and will incorporate strategies such as electric vehicle charging and on-site changing facilities for cyclists.

2.2 Nature

Access to and integration with natural elements is an important part of any holistic design process. The development at 1515 Douglas aims to provide additional green space not currently present in the downtown area. On-street planting will be incorporated along with rooftop planting to maximize natural elements whilst reducing heat gains from solar radiation. Planting and increased pervious surfaces will also aid in stormwater retention strategies.

Native and adaptive planting will be sourced since these provide multiple benefits including the best habitats for local flora and fauna, reducing maintenance & irrigation as well as integration with the existing landscape. Additional benefits include improved views from surrounding high rise buildings, an improved street level experience as part of urban design and superior air quality.

3. ENERGY

3.1 Building Envelope and Form

A window to wall ratio of approximately 60% will be examined as a component of a highly efficient façade allowing sufficient day-lighting to reduce internal lighting loads, whilst offering high thermal performance. Building orientation has been examined to determine the optimal exposure in order that solar gains are reduced.

Internally, a suspended ceiling with high emissivity will serve to better reflect light internally, thus reducing lighting energy required. We are also exploring having this suspended ceiling provide radiant heating and cooling to building occupants, providing a high degree of thermal comfort, while using low-intensity energy sources.

The design of this building aims to target energy cost savings in the region of 26% above current building practices.

Triple-glazing will be explored as a façade element, given the strong energy savings and thermal comfort offered by such a system.

3.2 Energy Sources and Mechanical Systems

The project's mechanical systems will focus on recovery of waste heat as a primary energy source for heating. Central exhaust air heat recovery and heat recovery from the municipally-mandated sewage detention tank will provide a base level of heating capacity. An air-to-water heat pump and/or geo-exchange heat pump plant will provide cooling and a secondary source of heating. A high-efficiency gas-fired condensing boiler will serve as back-up.

A central plant will allow energy use between the buildings to be efficiently managed by diversifying heating and cooling loads. On-site renewable energy production is undergoing investigation with the possibility of solar PV or solar thermal water heating to supplement energy from the regional grid.

3.3 Operational Reductions

Measurement and Verification is a valuable tool for the ongoing operations and flexibility of the building and detailed metering will be provided to tenants and owners. Metering allows occupants take ownership of their energy use and promotes an engaged owner-tenant interaction.

4. WATER RESOURCE MANAGEMENT

4.1 Water Fixtures

Low volume flush and flow fixtures will be used as part of this project to reduce demand on municipal system for potable water. This also serves to reduce heating demand for domestic hot water.

Specifically in the area of flush fixtures, water reduction and re-use will be targeted. A cistern will be included on site to handle the large volumes of water retained during the design storms. Retention of this water will allow for its use later in low quality applications such as on-site irrigation and sewage conveyance (flushing).

Grey water harvesting will be explored should supplementary demand for potable water be required.

4.2 Stormwater Infiltration

Dealing with stormwater on site and through methods such as permeable surfaces, infiltration and planting is the first preferred approach to stormwater management. Rainwater capture as part of a larger integrated site stormwater management strategy will be examined also. This will further reduce the impact of site development and expansion on the municipal sewage conveyance systems, which we understand is a specific concern of the City of Victoria.

5. MATERIALS AND WASTE

5.1 Construction Waste Management

The existing site buildings are proposed to be demolished in order to allow for development of a larger, more adaptable and energy efficient office building – improving the commercial rental market in the area.

Construction and demolition waste will be sorted and recycled where facilities exists with a target of total waste diversion to be approximately 95% (by weight).

Select materials from existing buildings will also be evaluated for re-use potential.

5.2 Materials

Materials with high recycled content shall be sourced along with local procurement (regional materials) where possible in accordance with LEED credit strategies as part of MRc4 and MRc5.

Another sustainable use of resources may include the purchasing of FSC certified wood, a program promoting and regulating sustainable forestry management.

6. INTERIOR COMFORT & HEALTH

6.1 Construction & Finishes

A comprehensive Indoor Air Quality (IAQ) management plan will be implemented during construction protecting both trades people and future occupants from harmful chemicals and particles. In addition materials containing low levels of Volatile Organic Compounds (VOCs) and products with no added urea-formaldehyde will be used for finishings. As a final measure in this regard a building flush-out or IAQ testing will be carried out to ensure levels of any known toxic chemicals are below the thresholds determined by the CaGBC.

6.2 Ventilation

Ventilation air will be provided via overhead distribution to displacement style ceiling mounted diffusers. This gives displacement style air quality but without the need for a raised floor. CO2 sensors will be used to measure the quality of indoor air and ensure sufficient ventilation for optimal occupant comfort and health.

6.3 Controls, Comfort & Daylight

Providing sufficient occupant controls such as those for lighting, ventilation and heating allows for an enhanced occupant experience, increased productivity and greater adaptability of buildings as well as tenant longevity. It also helps reduce energy use by focusing energy where needed, e.g. when one occupant on a floor works late.

Natural daylight is also one of the key design decisions that most benefits occupants of an office building, not just reducing electrical lighting loads but enhancing the users experience of a space.

7. INNOVATION AND DESIGN

7.1 Education

Through an integrated resource package, on-site educational components such signage, real time data on energy consumption and development information booklets will be made available highlighting the sustainable building elements incorporated into the buildings at 1515 Douglas Street.

7.2 Cleaning & Chemicals

As part of ongoing operations a green house-keeping procedure will be implemented. This will serve to reduce occupants' exposure to chemicals as well as related environmental impacts through disposal and release of toxins into water systems.

Another measure in this regard is the implementation of low-mercury lighting which reduces environmental toxins and exposure of operations staff to such hazardous material.

7.3 Exemplary Performance

As per LEED credit strategies outlined in the CaGBC LEED 2009 rating system, exemplary performance shall be targeted under specific credits – most notably SSc7.1 – 100% Underground Parking and WEc3 – Increased Water Savings.

We trust this addresses the concerns of the City of Victoria with regard the green building parameters, in order that this development meet requirements as determined by the City.

INTEGRAL GROUP

Shane O' Hanlon, B. Eng., LEED AP BD+C
Sustainability Advisor

SOH/soh
Document4

1515 Douglas Street

LEED Canada - CS 2009 Scorecard

CaGBC Registration #/date:

INTEGRAL GROUP

Yes	?	No	
71	21	18	**Project Totals (pre-certification estimates)** 110 Possible Points

Certified 40-49 points Silver 50-59 points Gold 60-79 points Platinum 80 points and above

Yes	?	No	
23	1	2	

			Prereq 1	Construction Activity Pollution Prevention	Required
1			Credit 1	Site Selection	1
5			Credit 2	Development Density and Community Connectivity	3, 5
		1	Credit 3	Brownfield Redevelopment	1
6			Credit 4.1	Alternative Transportation: Public Transportation Access	3, 6
2			Credit 4.2	Alternative Transportation: Bicycle Storage & Changing Rooms	2
3			Credit 4.3	Alternative Transportation: Low-Emitting & Fuel-Efficient Vehicles	3
	2		Credit 4.4	Alternative Transportation: Parking Capacity	2
1			Credit 5.1	Site Development: Protect and Restore habitat	1
	1		Credit 5.2	Site Development: Maximize Open Space	1
1			Credit 6.1	Stormwater Design: Quantity Control	1
1			Credit 6.2	Stormwater Design: Quality Control	1
1			Credit 7.1	Heat Island Effect: Non-Roof	1
1			Credit 7.2	Heat Island Effect: Roof	1
		1	Credit 8	Light Pollution Reduction	1
1			Credit 9	Tenant Design and Construction Guidelines	1

Yes	?	No
8	2	

			Prereq 1	Water Use Reduction - managed by mechanical	Required
2	2		Credit 1	Water Efficient Landscaping	2, 4
2			Credit 2	Innovative Wastewater Technologies - managed by mechanical	2
4			Credit 3	Water Use Reduction - managed by mechanical	2 - 4

Yes	?	No
14	2	11

			Prereq 1	Fundamental Commissioning of Building Energy Systems	Required
			Prereq 2	Minimum Energy Performance	Required
			Prereq 3	Fundamental Refrigerant Management	Required
10	2	9	Credit 1	Optimize Energy Performance	3 - 21
	1		Credit 2	On-Site Renewable Energy	2, 4
2			Credit 3	Enhanced Commissioning	2
2			Credit 4	Enhanced Refrigerant Management	2
*	1		Credit 5.1	Measurement and Verification: Base Building	3
*	2		Credit 5.2	Measurement and Verification: Tenant Submetering	3
		2	Credit 6	Green Power	2

Yes	?	No
5	1	5

			Prereq 1	Storage and Collection of Recyclables	Required
		5	Credit 1	Building Reuse: Maintain Existing Walls, Floors, and Roof	1 - 5
2			Credit 2	Construction Waste Management	1 - 2
	1		Credit 3	Materials Reuse	1
2			Credit 4	Recycled Content	1 - 2
1	1		Credit 5	Regional Materials	1 - 2
	1		Credit 6	Certified Wood	1

Yes	?	No
11	1	

			Prereq 1	Minimum Indoor Air Quality Performance	Required
			Prereq 2	Environmental Tobacco Smoke (ETS) Control	Required
1			Credit 1	Outdoor Air Delivery Monitoring	1
1			Credit 2	Increased Ventilation	1
1			Credit 3	Construction IAQ Management Plan: During Construction	1
1			Credit 4.1	Low-Emitting Materials: Adhesives and Sealants	1
1			Credit 4.2	Low-Emitting Materials: Paints and Coatings	1
1			Credit 4.3	Low-Emitting Materials: Flooring Systems	1
1			Credit 4.4	Low-Emitting Materials: Composite Wood and Agrifibre Products	1
1			Credit 5	Indoor Chemical and Pollutant Source Control	1
	1		Credit 6	Controllability of System: Thermal Comfort	1
1			Credit 7	Thermal Comfort: Design	1
1			Credit 8.1	Daylight and Views: Daylight	1
1			Credit 8.2	Daylight and Views: Views	1

Yes	?	No
6		

1			Credit 1.1	Innovation in Design	1
1			Credit 1.2	Innovation in Design	1
1			Credit 1.3	Innovation in Design	1
1			Credit 1.4	Innovation in Design	1
1			Credit 1.5	Innovation in Design	1
1			Credit 2	LEED® Accredited Professional	1

Yes	?	No
4		

1			Credit 1	Durable Building	1
1			Credit 2.1	Regional Priority Credit	1
1			Credit 2.2	Regional Priority Credit	1
1			Credit 2.3	Regional Priority Credit	1

Talbot Mackenzie & Associates
Consulting Arborists

December 6, 2013

Jawl Enterprises Inc.
3350 Douglas-Street – Suite 100
Victoria, BC, V8Z 3L1
Attn: Robert Jawl

Re: 1515 Douglas Street

Assignment: Inventory the municipal trees that border the proposed re-development of the property 1515 Douglas Street property. Provide recommendations to mitigate impacts to the tree to be retained.

Methodology: 15 municipal trees bordering the 1501-1517 Douglas Street properties were inventoried, and information such as tree species, size(dbh), protected root zone(prz), critical root zone(crz), approximate height (meters), health and structural condition, relative tolerance to construction impacts and general remarks and recommendations was included in the attached tree resource spreadsheet.

Observations: It is our understanding that all trees onsite and on municipal property are to be removed, with the exception of municipal English oak #15, which is to be retained and it may also be possible to retain municipal Ash #1.

Mitigation of impacts:

The barrier fencing specifications are as follows:
Where possible, the fencing should be erected at the perimeter of the critical root zone. As the majority of the critical root zone of English oak #15 is covered by asphalt/concrete, barrier fencing may only be necessary to protect the trunk of the tree. The barrier fencing to be erected must be a minimum of 4 feet in height and constructed of solid material or flexible safety fencing that is attached to wooden or metal posts. If a flexible fencing material is used, the top of the fencing must be secured to the posts by a board that runs between the top and bottom of these posts with cross bracing across the panels. The fencing must be erected prior to the start of any construction activity on site (i.e. demolition, excavation, construction), and remain in place through completion of the project. Signs should be posted around the protection zone to declare it off limits to all construction related activity. The project arborist must be consulted before this fencing is removed or moved for any purpose. Portable construction fencing may be used for the outer portion of the protection zone (ie. where it runs along the property boundaries). This fencing must be secured in place so it cannot be moved during the construction period and posted with signs indicating a tree protection area. The portion of fencing that is located on the municipal boulevard or runs along the municipal frontage must conform to the municipal specifications that require:

.../2

Box 48153 RPO Uptown
Victoria, BC V8Z 7H6
Ph: (250) 479-8733 ~ Fax: (250) 479-7050
Email: treehelp@telus.net

- 0.6 metres between the fencing and the curb to provide for opening of car doors
- 0.3 metres of clearance between the fence and the edge of a sidewalk within a grass boulevard.

Excavation: Some excavation may be required within the critical root zone of English oak #15 for the proposed building footprint. Excavation within the critical root zone of English oak # 15 must be performed under the supervision of the project arborist. If significant structural roots are encountered during excavation, we may recommend that this tree be removed. Any proposed excavation must take into account any necessary cut slope or working room that may be required. Ideally all excavation should be located outside of the critical root zone that has been defined.

Blasting and rock removal –If areas of bedrock are encountered, the blasting to level these rock areas should be sensitive to the root zones located at the edge of the rock. Care must be taken to assure that the area of blasting does not extend into the critical root zones beyond the building and road footprints. The use of small low-concussion charges, and multiple small charges designed to pre-shear the rock face, will reduce fracturing, ground vibration, and reduce the impact on the surrounding environment. Only explosives of low phytotoxicity, and techniques that minimize tree damage, are to be used. Provisions must be made to store blast rock, and other construction materials and debris, away from critical tree root zones.

Servicing: At this time there are no proposed services shown on the plans provided, We recommend that any new services, be located outside of the critical root zone defined for Englidh oak #15.

Pruning: Although we have not seen the proposed building design at this time, English oak #15 is located where we do not anticipate it requiring any pruning that could not be resolved using standard pruning practices.

Please do not hesitate to call us at 250-479-8733 should you have any further questions. Thank you.

Yours truly,

Tom Talbot & Graham Mackenzie
ISA Certified, & Consulting Arborists
Encl. – Tree Resource Spreadsheet, key to headings in resource table, barrier fencing specifications, site sketch.

.../3

Box 48153 RPO Uptown
Victoria, BC V8Z 7H6
Ph: (250) 479-8733 ~ Fax: (250) 479-7050
Email: treehelp@telus.net

Disclosure Statement

Arborists are professionals who examine trees and use their training, knowledge and experience to recommend techniques and procedures that will improve the health and structure of individual trees or group of trees, or to mitigate associated risks.

Trees are living organisms, whose health and structure change, and are influenced by age, continued growth, climate, weather conditions, and insect and disease pathogens. Indicators of structural weakness and disease are often hidden within the tree structure or beneath the ground. It is not possible for an arborist to identify every flaw or condition that could result in failure nor can he/she guarantee that the tree will remain healthy and free of risk.

Remedial care and mitigation measures recommended are based on the visible and detectable indicators present at the time of the examination and cannot be guaranteed to alleviate all symptoms or to mitigate all risk posed.

Box 48153 RPO Uptown
Victoria, BC V8Z 7H6
Ph: (250) 479-8733 ~ Fax: (250) 479-7050
Email: treehelp@telus.net

TREE RESOURCE
for
1515 Douglas Street

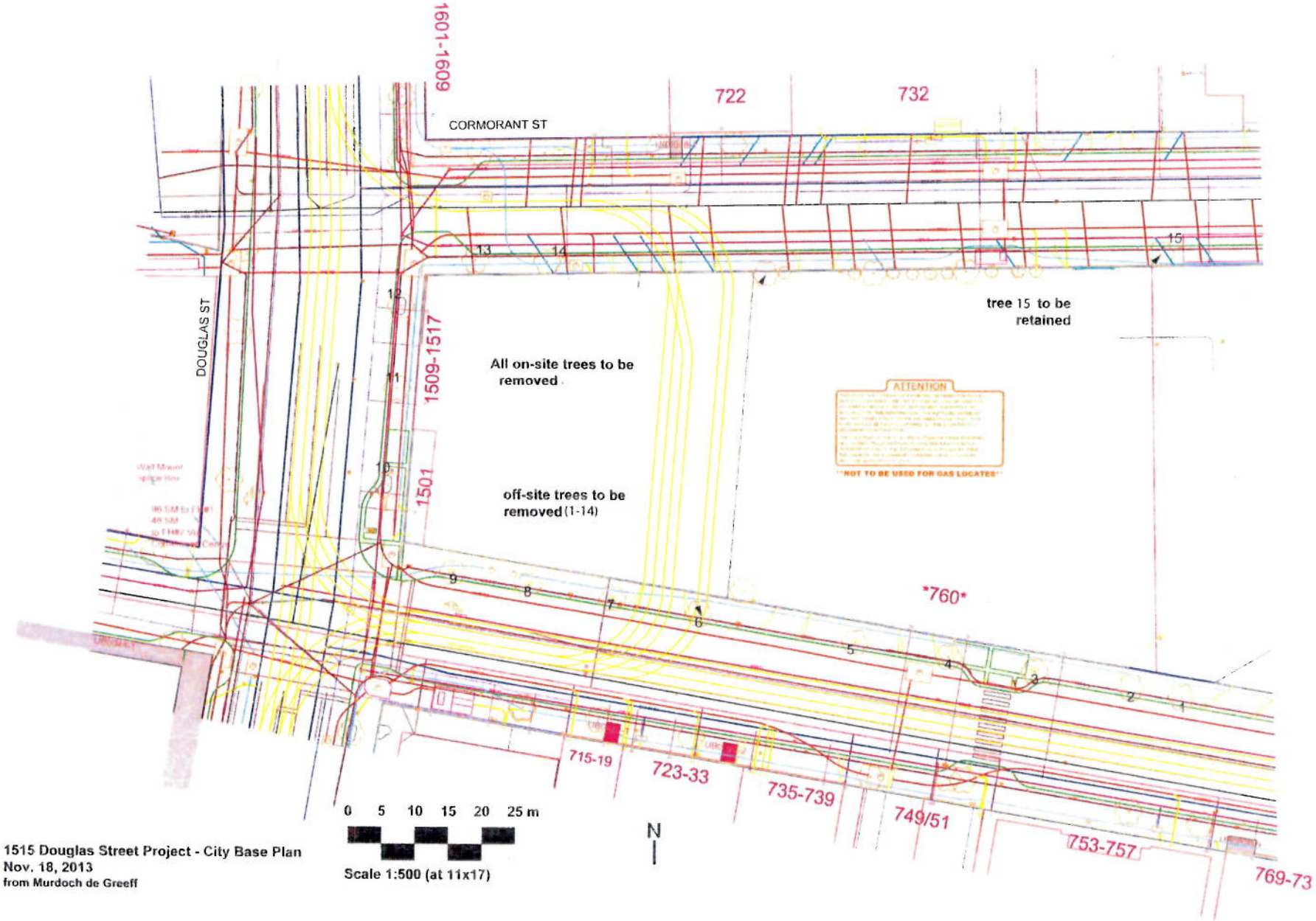
Tree #	d.b.h. (cm)	PRZ	CRZ	Species	Crown Spread(m)	Approximate Height(m)	Condition Health	Condition Structure	Relative Tolerance	Remarks / Recommendations
1	23	4.1	2	ash	7.0	10.0	Fair	Fair	Good	Trunk wounds, grafted.
2	28	5.0	3	ash	4.0	8.0	Fair	Fair	Good	Bark damage, possible canker.
3	19	3.4	2	ash	4.0	7.0	Fair	Fair	Good	Canker, large pruning wounds.
4	25	4.5	3	ash	8.0	11.5	Fair	Good	Good	Small tearouts.
5	23	4.1	2	ash	7.0	10.0	Fair	Fair	Good	Basal wound, canker, dieback.
6	13	2.3	1	ash	3.0	9.0	Fair	Fair	Good	Basal wound, trunk canker.
7	70	12.6	7	ash	8.0	15.0	Fair	Fair	Good	Graft, branch canker, dieback.
8	38	6.8	4	ash	6.0	10.0	Fair	Fair	Good	Graft, branch canker, dieback, pruning wounds.
9	83	14.9	8	ash	12.5	12.0	Fair	Fair	Good	Graft, branch canker, dieback, pruning wounds.
10	22	4.0	2	Callery pear	5.0	9.0	Fair	Fair	Good	Growing in planter, co-dominant tops.
11	19	3.4	2	ash	9.0	10.5	Fair	Fair	Good	Small tearout, included bark.
12	21	3.8	2	Callery pear	6.0	9.0	Fair	Fair	Good	Growing in planter.

Prepared by:
Talbot Mackenzie & Associates
ISA Certified, and Consulting Arborists
Phone: (250) 479-8733
Fax: (250) 479-7050
email: Treehelp@telus.net

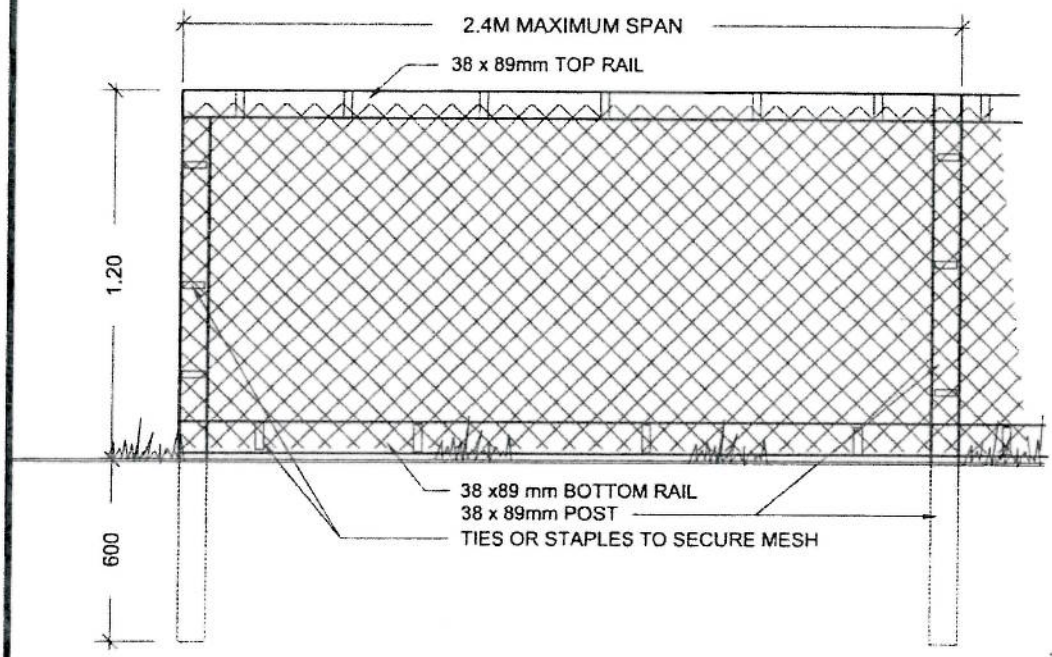
TREE RESOURCE
for
1515 Douglas Street

Tree #	d.b.h. (cm)	PRZ	CRZ	Species	Crown Spread(m)	Approximate Height(m)	Condition Health	Condition Structure	Relative Tolerance	Remarks / Recommendations
13	31	5.6	3	English oak	10.0	13.0	Fair	Fair	Good	Epicormic growth, possible pit scale.
14	37	6.7	4	English oak	9.5	13.0	Fair	Fair	Good	Epicormic growth, possible pit scale, pruning wounds, trunk scars.
15	39	7.0	4	English oak	12.5	10.0	Fair	Fair	Good	Included bark, pruning wounds, possible pit scale, small tearout, scars on lower branches. Site plan provided show this tree scheduled for retention. Possible to retain providing that the crz can be adequately protected.

Prepared by:
Talbot Mackenzie & Associates
ISA Certified, and Consulting Arborists
Phone: (250) 479-8733
Fax: (250) 479-7050
email: Treehelp@telus.net



1515 Douglas Street Project - City Base Plan
Nov. 18, 2013
from Murdoch de Greeff



TREE PROTECTION FENCING

FENCE WILL BE CONTRUCTED USING
38 X 89 mm (2"X4") WOOD FRAME:
TOP, BOTTOM AND POSTS. *
USE ORANGE SNOW-FENCING MESH AND
SECURE TO THE WOOD FRAME WITH
"ZIP" TIES OR GALVANZIED STAPLES

* IN ROCKY AREAS, METAL POSTS (T-BAR
OR REBAR) DRILLED INTO ROCK WILL BE
ACCEPTED

DETAIL NAME:

TREE PROTECTION FENCING

DATE	Oct 30/07
DRAWN	DM
APP'D	RR
SCALE	N.T.S.

E105
DRAWING

Key to Headings in Resource Table

d.b.h. – ***diameter at breast height*** - diameter of trunk, measured in centimetres at 1.4 metres above ground level

PRZ – ***protected root zone*** - the area of land surrounding a bylaw-protected tree that contains the bulk of the critical roots of the tree. Indicates the radius of a circle of protected land, measured in metres, calculated by multiplying the diameter of the tree by 18.

CRZ – ***critical root zone*** - estimated optimal size of tree protection zone based on tree species, condition and age of specimen and the species tolerance to root disturbance. Indicates the radial distance from the trunk, measured in metres.

Condition health/structure –

- Good – no visible or minor health or structural flaw
- Fair – health or structural flaw present that can be corrected through normal arboricultural or horticultural care.
- Poor – significant health or structural defects that compromise the long-term survival or retention of the specimen.

Relative Tolerance – relative tolerance of the selected species to development impacts.