Talbot Mackenzie & Associates

Consulting Arborists

Eagles Nest Residences, View Royal

Helmcken Road & Burnside Road West

Arborist Report:

Demolition Impact Assessment &

Tree Preservation Plan

PREPARED FOR:	Invictus Commercial Investments Corp. 605 Douglas Street, Suite 204 Victoria, BC, Canada V8V 2P9
PREPARED BY:	Talbot, Mackenzie & Associates
	Graham Mackenzie – Consulting Arborist ISA Certified # PN-0428A TRAQ - Qualified
DATE OF ISSUANCE:	September 14, 2018

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Talbot Mackenzie & Associates

Consulting Arborists

Attention:	Doug Foord
Jobsite Property:	Northwest corner of Helmcken Road and Burnside Road West, View Royal, BC
Date of Site Visit:	August 30&31, 2018
Site Conditions:	3 lots with existing single residences and one lot with a multi unit building. Existing buildings and landscapes still on property, no construction activity present at the time of our site visit.

Summary: We anticipate that the proposed new development of the property will require the removal of the majority of the trees located on the subject properties. We believe there will be a good opportunity for retaining trees on the municipal frontages and on neighboring properties providing their critical root zones can be protected during the development and construction process. Depending on the amount of necessary rock blasting, required cut slopes and existing soil conditions, there may be an opportunity for retaining some of the trees around the perimeter of the subject property. The proposed building scheme offers an opportunity for replanting with healthy young trees that can adapt to the new growing conditions being introduced.

Scope of Assignment:

- To inventory the existing bylaw protected trees and any trees on neighbouring properties that could potentially be impacted by construction or that are within three metres of the property line
- Review the proposal to demolish the existing buildings and construct a new multi unit, multi building proposal with underground parking.
- Comment on how construction activity may impact existing trees
- Prepare a tree retention and construction damage mitigation plan for those trees deemed suitable to retain given the proposed impacts

Methodology: We visually examined the trees on the property and prepared an inventory in the attached Tree Resource Spreadsheet. Each by-law protected tree was identified using a numeric metal tag attached to its lower trunk. Municipal trees and neighbours' trees were not tagged. Information such as tree species, DBH (1.4m), crown spread, critical root zone (CRZ), health, structure, and relative tolerance to construction impacts were included in the inventory. The by-law protected trees with their identification numbers were labelled on the attached Site Plan. The conclusions reached were based on the information provided within the attached survey plans (dated February 13, 2018) and site plans and underground parkade plans from De Hoog & Kierulf Architects.

Limitations:
No exploratory excavations have been requested and thus the conclusions reached are based solely on critical root zone calculations and our best judgement using our experience and expertise. The location, size and density of roots are often difficult to predict without exploratory excavations and therefore the impacts to the trees may be more or less severe than we anticipate.

Summary of Tree Resource: 105 trees were inventoried on the subject properties, municipal frontages and neighbours' properties that have the potential to be impacted by the proposed development. The trees inventoried are comprised of mixture of native and ornamental species and vary in health from Poor to Good (see attached Tree resource spreadsheet). The best opportunity for tree retention given the proposed building scheme will be around the perimeter of the subject property along with trees on neighbouring properties and trees on municipal frontages.

Potential Impacts on Trees to be Retained and Mitigation Measures

- **Barrier fencing:** The areas surrounding the trees to be retained should be isolated from the construction activity by erecting protective barrier fencing. Where possible, the fencing should be erected at the perimeter of the critical root zones. The barrier fencing must be a minimum of 4 feet in height, of solid frame construction that is attached to wooden or metal posts. A solid board or rail must run between the posts at the top and the bottom of the fencing. This solid frame can then be covered with plywood, or flexible snow fencing. 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.

- **Demolition of the Existing Houses:** We anticipate that the demolition of the existing buildings on the properties will using the existing driveway as access. Trees to be retained near the existing driveways on the municipal frontages will have to be protected during the demolition process to mitigate any potential impacts.

- **Underground Parking excavation:** The excavation for the portions of the underground parking that encroach into the critical root zones of trees to be retained must be supervised by the project arborist. To minimize the extent of the excavation, it will likely be necessary to use shoring techniques or similar methods to reduce the requirements for cut slope. Any roots critical to the trees survival must be retained and any non-critical roots in direct conflict with the excavation must be pruned to sound tissue to encourage new root growth. It may be necessary to excavate using a combination of hand digging, small machine excavation and hydro excavation to expose roots in conflict with the proposed excavation and determine whether they can be pruned without having a significant impact on the trees. If it is found that large structural roots must be pruned to accommodate the proposed construction, it may be necessary to remove additional trees to eliminate any risk associated with them.

- **Blasting:** We anticipate that there will be significant blasting required to excavate for the proposed underground parking area. Care must be taken to ensure that the area of blasting does

not extend beyond the necessary footprints and into the critical root zones of surrounding trees. The use of small low-concussion charges and multiple small charges designed to pre-shear the rock face will reduce fracturing, ground vibration, and overall impact on the surrounding environment. Only explosives of low phytotoxicity and techniques that minimize tree damage should be used. Provisions must be made to ensure that blasted rock and debris are stored away from the critical root zones of trees.

- **Arborist Supervision**: All excavation occurring within the critical root zones of protected trees should be completed under supervision by the project arborist. Any roots that are in direct conflict with proposed services must be pruned back to sound tissue to reduce wound surface area and encourage rapid compartmentalization of the wound. Where roots can be retained the excavation may consist of a combination of hydro excavation, small excavation equipment and hand digging.

- **Minimizing Soil Compaction:** In areas where construction traffic must encroach into the critical root zones of trees to be retained, efforts must be made to reduce soil compaction where possible by displacing the weight of machinery and foot traffic. This can be achieved by one of the following methods:

    - Installing a layer of hog fuel or coarse wood chips at least 20 cm in depth and maintaining it in good condition until construction is complete.
    - Placing medium weight geotextile cloth over the area to be used and installing a layer of crushed rock to a depth of 15 cm over top.
    - Placing two layers of 19mm plywood.
    - Placing steel plates.

- **Mulching**: Mulching is an important proactive step to maintaining the health of the trees to be retained and mitigating construction related impacts and overall stress. Mulch should be made from a natural material such as wood chips or bark pieces and be 5-8cm deep. As much of the area within two times the dripline of the tree should be mulched, both inside and outside of the critical root zone. No mulch should be touching the trunk of the tree. See “methods to avoid soil compaction” if the area is to have heavy traffic.

- **Servicing:** There are no servicing details shown on the plans provided, but it is our understanding that they are to be located outside of the critical root zone of trees to be retained. If services must be located within the critical root zones of trees to be retained it must be reviewed with the project arborist. Installing services within critical root zones will likely require a combination of hand digging, small machine or hydro excavation. If significant roots are encountered that are critical to the health and stability of the trees and they cannot be retained, it may be necessary to remove additional trees.

- **Landscaping and Irrigation Systems:** The planting of new trees and shrubs should not damage the roots of retained trees. The installation of any in-ground irrigation system must take into account the critical root zones of the trees to be retained. Prior to installation, we recommend the irrigation technician consult with the project arborist about the most suitable

locations for the irrigation lines and how best to mitigate the impacts on the trees to be retained. This may require the project arborist supervise the excavations associated with installing the irrigation system. Excessive frequent irrigation and irrigation which wets the trunks of trees can have a detrimental impact on tree health and can lead to root and trunk decay.

- **Arborist Role:** It is the responsibility of the client or his/her representative to contact the project arborist for the purpose of:
    - Locating the barrier fencing
    - Reviewing the report with the project foreman or site supervisor
    - Locating work zones, where required
    - Supervising any excavation within the critical root zones of trees to be retained
    - Reviewing and advising of any pruning requirements for machine clearances

- **Review and site meeting**: Once the project receives approval, it is important that the project arborist meet with the principals involved in the project to review the information contained herein. It is also important that the arborist meet with the site foreman or supervisor before any site clearing, tree removal, demolition, or other construction activity occurs and to confirm the locations of the tree protection barrier fencing.

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

Yours truly,

Talbot Mackenzie & Associates
ISA Certified Consulting Arborists

Encl. 10-pages tree resource spreadsheet, 2-page tree resource spreadsheet methodology and definitions, 1-page site plan with tree locations, 3-pages design concept and underground parking, 1-page barrier fencing specifications.

Disclosure Statement

Arborists are professionals who examine trees and use their training, knowledge and experience to recommend techniques and procedures that will improve their health and structure 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 or 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.

Tree ID	Common Name	*Latin Name*	DBH (cm) ~ approximate	Crown Spread (m)	CRZ (m)	Relative Tolerance	Health	Structure	Remarks and Recommendations
NT 01	Cherry	*Prunus species*	29 bu	4	3	Moderate	Fair/poor	Fair	Some canker, tortrix, insect damage
2	Cherry	*Prunus species*	32 bu	5	3	Moderate	Fair	Fair	Some canker, tortrix, insect damage
3	Cherry	*Prunus species*	29 bu	6	3	Moderate	Fair/poor	Fair/poor	Canker, tortrix, suppressed by adjacent tree.
4	Norway spruce	*Picea abides*	51	9	6	Moderate	Good	Good	Surface rooted, some minor root damage
5	Cherry	*prunus species*	33 bu	6	3	Moderate	Fair	Fair	Included bark, insect damage.
6	Shore pine	*Pinus contorta*	62	13	7	Moderate	Good	Fair	Some sequoia pitch moth, possible girdling root.
7	Shore pine	*Pinus contorta*	38, 27, 29	9	6	Moderate	Fair	Fair	Sequoia pitch moth, poor stem attachment at base
8	Norway spruce	*Picea abies*	65	8	8	Moderate	Good	Good	Interior deadwood
9	Norway spruce	*Picea abies*	48, 48	7	8	Moderate	Good	Fair	Co-dominant at dbh , deadwood
10	Norway spruce	*Picea abies*	50	7	6	Moderate	Good	Good	Deadwood,

11	Norway spruce	*Picea abies*	48	7	6	Moderate	Good	Good	Deadwood, sapsucker damage
12	Lombardy poplar	*Populus nigra*	100, 40	8	10	Good	Good	Fair	Deadwood, Previously topped, leaf gall
13	Lombardy poplar	*Populus nigra*	80	7	8	Good	Good	Fair	Deadwood, preciously topped, leaf gall
14	Lombardy poplar	*Populus nigra*	80	7	8	Good	Good	Fair	Deadwood, previously topped, leaf gall
15	Lombardy poplar	*Populus nigra*	80	7	8	Good	Good	Fair	Deadwood, previously topped, leaf gall
16	Lombardy poplar	*Populus nigra*	120	8	12	Good	Good	Fair	Deadwood, previously topped, leaf gall
17	Big leaf maple	*Acer macrophyllum*	30	7	4	Moderate	Fair	Fair	Some dieback, possibly growth from old stump
18	Douglas fir	*pseudotsuga menziesii*	34	6	5	Poor	Good	Fair	Assymetric growth due to blm
19	Douglas fir	*pseudotsuga menziesii*	85	14	12	Poor	Fair	Fair	Large deadwood, hangers in crown, rooted against rock on southwest side
176	Garry oak	*Quercus garryana*	64	15	6.5	Good	Good	Fair	Rooted in rock, some endweighted limbs
20	Western red cedar	*Thuja plicata*	45,55	10	9	Moderate	Fair	Fair/poor	Thinning foliage, multiple tops, co-don at doh

21	Garry oak	*Quercus garryana*	68	16	7	Good	Fair	Fair	Sparse foliage,large deadwood, rooted against rock east side
22	Douglas fir	*pseudotsuga menziesii*	76	13	11	Poor	Fair	Fair	Large deadwood, rooted against rock
23	Douglas fir	*pseudotsuga menziesii*	37	5	5.5	Poor	Poor	Fair	Epicormic growth
24	Douglas fir	*pseudotsuga menziesii*	37,28	7	7	Poor	Fair	Fair/poor	Co-dominant at dbh , deflected top
25	Douglas fir	*pseudotsuga menziesii*	35	6	5.5	Poor	Fair/poor	Fair	Stunted growth, deflected top
26	Douglas fir	*pseudotsuga menziesii*	56	10	8	Poor	Fair	Fair	Some deadwood, surface rooted
27	Douglas fir	*pseudotsuga menziesii*	53	9	8	Poor	Fair/poor	Fair	Running foliage, large deadwood
28	Garry oak	*Quercus garryana*	54	14	5.5	Good	Good	Fair	Assymetric crown
29	Douglas fir	*pseudotsuga menziesii*	34	6	5	Poor	Poor	Fair	Sparse pale foliage
30	Douglas fir	*pseudotsuga menziesii*	76	11	11	Poor	Fair	Fair	Some deadwood
31	Garry oak	*Quercus garryana*	64	11	6	Good	Fair	Fair	Deflected top

32	Big leaf maple	*Acer macrophyllum*	23,9,12	10	6	Moderate	Good	Fair	Multi stem, near property line
33	Garry oak	*Quercus garryana*	39	12	4	Good	Fair	Fair	Some epicormic growth, deadwood, assymetric crown
34	Garry oak	*Quercus garryana*	45	11	4.5	Good	Fair	Fair	Ivy on trunk, near property line
NT 01	Western red cedar	*Thuja plicata*	30-40	12	5	Moderate	Fair	Fair	Cedar hedgerow on neighbours property, not recently maintained as a hedge
35	Garry oak	*Quercus garryana*	32,22	10	4	Good	Good	Fair	May have partially uprooted in the past. Assymetric crown leans into subject property
36	Douglas fir	*pseudotsuga menziesii*	42	9	6	Poor	Fair/poor	Fair	Thinning foliage, deadwood, epicormic growth
37	Douglas fir	*pseudotsuga menziesii*	48	9	7	Poor	Fair	Fair	Thinning foliage, deadwood, epicormic growth
38	Big leaf maple	*Acer macrophyllum*	22	7	3	Moderate	Good	Fair	Young tree, may have been topped historically
39	Douglas fir	*pseudotsuga menziesii*	35	6	5	Poor	Fair	Fair	Epicormic growth, deadwood
Nt2	Big leaf maple	*Acer macrophyllum*	35	9	4	Moderate	Good	Good	Located on neighbours property
40	Garry oak	*Quercus garryana*	12	5	2	Good	Good	Fair	Deflected trunk, young tree.

41	Douglas fir	*pseudotsuga menziesii*	47	10	7	Poor	Fair	Fair	Large deadwood, deflected trunk
42	Douglas fir	*pseudotsuga menziesii*	39	9	6	Poor	Fair	Fair	Large deadwood, some epicormic growth
N3	Douglas fir	*pseudotsuga menziesii*	40	6		Poor	Fair	Fair	Located on neighbours property
Nt4	Douglas fir	*pseudotsuga menziesii*	45	10		Poor	Fair	Fair	Located on neighbours property
Nt5	Big leaf maple	*Acer macrophyllum*	30	8	3.5	Moderate	Good	Good	Located on neighbours property
43	Douglas fir	*pseudotsuga menziesii*	43	6	6.5	Poor	Fair	Fair	Deflected trunk, assymetric crown
44	Douglas fir	*pseudotsuga menziesii*	46	7	6.5	Poor	Fair/good	Fair	Slight deflection in top
45	Douglas fir	*pseudotsuga menziesii*	41	6	6	Poor	Fair	Fair	Epicormic growth,assymetric crown
46	Douglas fir	*pseudotsuga menziesii*	34	5	5	Poor	Fair	Fair	Epicormic growth
47	Douglas fir	*pseudotsuga menziesii*	36	5	5	Poor	Fair	Fair	Epicormic growth, ivy on trunk
48	Big leaf maple	*Acer macrophyllum*	32	8	4	Moderate	Good	Good	Hanger from d fir in crown

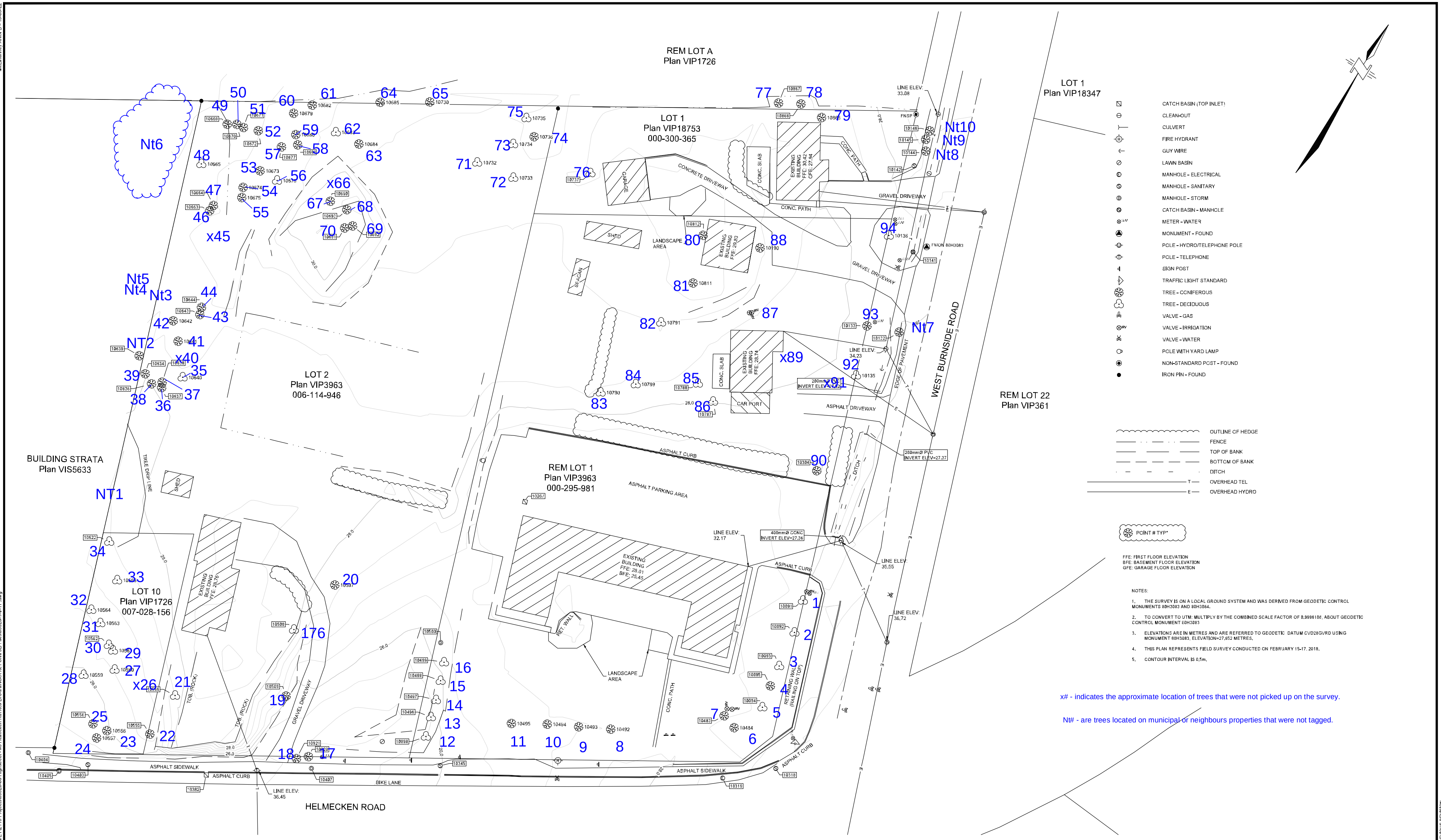
Nt6	Neighbours trees	*Various species*	25-100	25	15	Various	Fair	Fair	G. Oak, D. fir, BLM, Arb- approx 12 trees
30	Grand fir	*Abies grandis*	30	4	4.5	Poor	Fair/poor	Fair	Ivy on trunk, suppressed
50	Douglas fir	*pseudotsuga menziesii*	50	9	7.5	Poor	Fair	Fair	Ivy on trunk
51	Douglas fir	*pseudotsuga menziesii*	27	4	4	Poor	Fair	Fair	Epicormic growth
52	Douglas fir	*pseudotsuga menziesii*	31	4	4.5	Poor	Fair	Fair	Epicormic growth
53	Douglas fir	*pseudotsuga menziesii*	40	5	6	Poor	Fair	Fair	Some epicormic growth
54	Douglas fir	*pseudotsuga menziesii*	48	7	7	Poor	Fair	Fair	Deflected top
55	Douglas fir	*pseudotsuga menziesii*	52	8	7.5	Poor	Fair	Fair	Some epicormic growth
56	Pacific willow	*Salix species*	30	6	3.5	Moderate	Fair	Fair	Broken limbs, old tear out injury in trunk
57	Douglas fir	*pseudotsuga menziesii*	61	10	9	Poor	Fair	Fair	Large deadwood, ivy on trunk
58	Grand fir	*Abies grandis*	30	5	4.5	Poor	Fair	Fair	Suppressed, ivy on trunk

59	Grand fir	*Abies grandis*	36	5	5.5	Poor	Fair/poor	Fair/poor	Sparse foliage, frass at base
60	Douglas fir	*pseudotsuga menziesii*	73	12	10	Poor	Fair	Fair	Surface rooted, large deadwood, broken limbs
61	Grand fir	*Abies grandis*	33	6	5	Poor	Good	Fair	Small deflection in trink
62	Garry oak	*Quercus garryana*	33	10	3.5	Good	Good	Fair	Ivy on trunk
63	Douglas fir	*pseudotsuga menziesii*	54	8	8	Poor	Fair	Fair	Some deadwood
64	Grand fir	*Abies grandis*	33	5	5	Poor	Poor	Fair/poor	Dead top, declining
65	Douglas fir	*pseudotsuga menziesii*	86	10	12	Poor	Fair	Fair	Large deadwood
66	Grand fir	*Abies grandis*	50	6	7.5	Poor	Poor	Poor	Previous top failure, 1/2 tree, fill soils
67	Douglas fir	*pseudotsuga menziesii*	52	8	7.5	Poor	Fair	Fair/poor	Ivy on trunk, fill soil
68	Douglas fir	*pseudotsuga menziesii*	75	8	11	Poor	Fair/poor	Fair/poor	Epicormic growth, deadwood, fill soil
69	Douglas fir	*pseudotsuga menziesii*	52	0	7.5	Poor	Dead	Dead	Dead, fill soil

70	Douglas fir	*pseudotsuga menziesii*	49	6	7	Poor	Poor	Poor	Dead top, declining, fill soil
71	Garry oak	*Quercus garryana*	36	9	3.5	Good	Good	Fair	Assymetric crown
72	Garry oak	*Quercus garryana*	43	9	4.5	Good	Good	Fair	Assymetric crown
73	Garry oak	*Quercus garryana*	37,28	9	4.5	Good	Good	Fair	Ivy on trunk,
74	Douglas fir	*pseudotsuga menziesii*	59	9	7.5	Poor	Poor	Fair/poor	Dead top, epicormic growth, large deadwood, surface rooted
75	Big leaf maple	*Acer macrophyllum*	50	9	6	Moderate	Poor	Fair/poor	Large deadwood, dieback
76	Weeping willow	*Salix babylonica*	56	10	6.5	Moderate	Good	Fair/poor	Possibly uprooted previously deflected trunk, previously topped
77	Douglas fir	*pseudotsuga menziesii*	100	10	15	Poor	Fair	Poor	Co-dominant at dbh , previously topped
78	Douglas fir	*pseudotsuga menziesii*	79	10	11	Poor	Fair	Poor	Previously topped, ivy on trunk
79	Western red ceda	*Thuja plicata*	36	6	4.5	Moderate	Fair	Poor	Previously topped, ivy on trunk
80	Sitka spruce	*Picea sitchensis*	49	8	6	Moderate	Fair	Fair	Some deadwood

81	Sitka spruce	*Picea sitchensis*	63	10	7.5	Moderate	Fair	Fair	Some deadwood
82	Weeping willow	*Salix babylonica*	24	9	3	Moderate	Good	Fair	Young tree
83	Weeping willow	*Salix babylonica*	43	9	5	Moderate	Good	Fair	Surface roots
84	Apple	*Malus sp.*	14	4	2	Moderate	Good	Fair	Basal wound
85	Red maple	*Acer rubrum*	20,20	8	3.5	Moderate	Poor	Poor	Co-dominant dieback, decay, previous top failure
86	Sumac	*Rhus typhina*	17	4	2	Good	Good	Good	Trunk wound
87	Sitka spruce	*Picea sitchensis*	36	5	4.5	Moderate	Fair	Fair/poor	Co-dominant stem previously removed, assymetric form
88	Incense cedar	*Calocedrus decurrens*	109	11	10	Good	Good	Fair	Co-dominant at 4meters, large stem removed on house side
89	Chamaecyparis	*Chamaecyparis species*	36	7	5	Poor	Good	Fair	Ivy on lowere trunk, likely topped in past
90	Norway spruce	*Picea abies*	44	8	5	Moderate	Fair	Fair	Co-dominant at 5 meters
91	Norway spruce	*Picea abies*	39	8	5	Moderate	Fair	Fair	Co-dominant at 4 meters, assymetric crown

92	Weeping willow	*Salix babylonica*	74	15	9	Moderate	Fair	Fair	Large deadwood
93	Shore pine	*Pinus contorta*	59	9	7	Moderate	Good	Fair	Sequoia pitch moth, co-dominant at 6 meters, end weighted lim
Nt7	Douglas fir	*pseudotsuga menziesii*	80	11	12	Poor	Fair	Fair	Municipal tree, small dead top, surface rooted
94	Weeping willow	*Salix babylonica*	54	12	6.5	Moderate	Good	Fair	Large deadwood
Nt8	Douglas fir	*pseudotsuga menziesii*	52	8	7.5	Poor	Good	Fair/poor	Municipal tree, previously topped
Nt9	Douglas fir	*pseudotsuga menziesii*	80	11	12	Poor	Fair	Fair/poor	Municipal tree, previously topped
Nt10	Douglas fir	*pseudotsuga menziesii*	49	8	7.5	Poor	Good	Fair/poor	Municipal tree, previously topped



Rev	Date	Description	Surv	Drawn	App'd
0	2018-02-23	ORIGINAL ISSUE	SA	LM	GQ

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ORIGINAL DWG SIZE: ANSI D (22" x 34")
ALL DIMENSIONS ARE IN METRES

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Approved Sealed

HIGHSTREET VENTURES
702-1708 DOLPHIN AVE, KELOWNA, BC

HIGHSTREET DEVELOPMENT
TOPOGRAPHIC SURVEY PLAN OF
3 HELMECKEN ROAD
3 HELMECKEN ROAD
VIEW ROYAL, BC

Drawing No. 03520-V-1-TP
Project Number 2113-03520-00
Rev. 0

DESTROY ALL PRINTS BEARING PREVIOUS REVISION

DATE: 2018-02-27 15:56 FILE: P:\SURVEY\2113 Projects\03520-00 Highstreet - #3 Helmecken Rd\10.0 DRAWINGS\10.1 Civil 3D Files\03520-1-A-TP.dwg

McElhanney ANSI D - 15-05-22

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1	22 JAN 2020	RE-ISSUED FOR REZONING
1	28 JUN 2019	RE-ISSUED FOR REZONING
Rev	Date	Description ISSUED FOR REZONING
pro date	22 JAN 20	drawing file A101
drawn by	EDS	checked by RAW
scale	1:250	project number 1827

NOTE: All dimensions are shown in millimeters.

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project name

Eagles Nest Residences
Helmcken Rd
View Royal BC

drawing title

Site Plan

drawing no. A101

revision no. -

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Tree Resource Spreadsheet Methodology and Definitions

Tag: Tree identification number on a metal tag attached to tree with nail or wire, generally at eye level. Trees on municipal or neighboring properties are not tagged.

NT: No tag due to inaccessibility or ownership by municipality or neighbour.

DBH: Diameter at breast height – diameter of trunk, measured in centimetres at 1.4m above ground level. For trees on a slope, it is taken at the average point between the high and low side of the slope.
* Measured over ivy
~ Approximate due to inaccessibility or on neighbouring property

Crown Spread: Indicates the diameter of the crown spread measured in metres to the dripline of the longest limbs.

Relative Tolerance Rating: Relative tolerance of the tree species to construction related impacts such as root pruning, crown pruning, soil compaction, hydrology changes, grade changes, and other soil disturbance. This rating does not take into account individual tree characteristics, such as health and vigour. Three ratings are assigned based on our knowledge and experience with the tree species: Poor, Moderate or Good.

Critical Root Zone: A calculated radial measurement in metres from the trunk of the tree. It is the optimal size of tree protection zone and is calculated by multiplying the DBH of the tree by 10, 12 or 15 depending on the tree's Relative Tolerance Rating. This methodology is based on the methodology used by Nelda Matheny and James R. Clark in their book "Trees and Development: A Technical Guide to Preservation of Trees During Land Development."

- 15 x DBH = Poor Tolerance of Construction
- 12 x DBH = Moderate
- 10 x DBH = Good

To calculate the critical root zone, the DBH of multiple stems is considered the sum of 100% of the diameter of the largest stem and 60% of the diameter of the next two largest stems. It should be noted that these measures are solely mathematical calculations that do not consider factors such as soil volume restrictions, age, crown spread, health, or structure (such as a lean).

Health Condition:

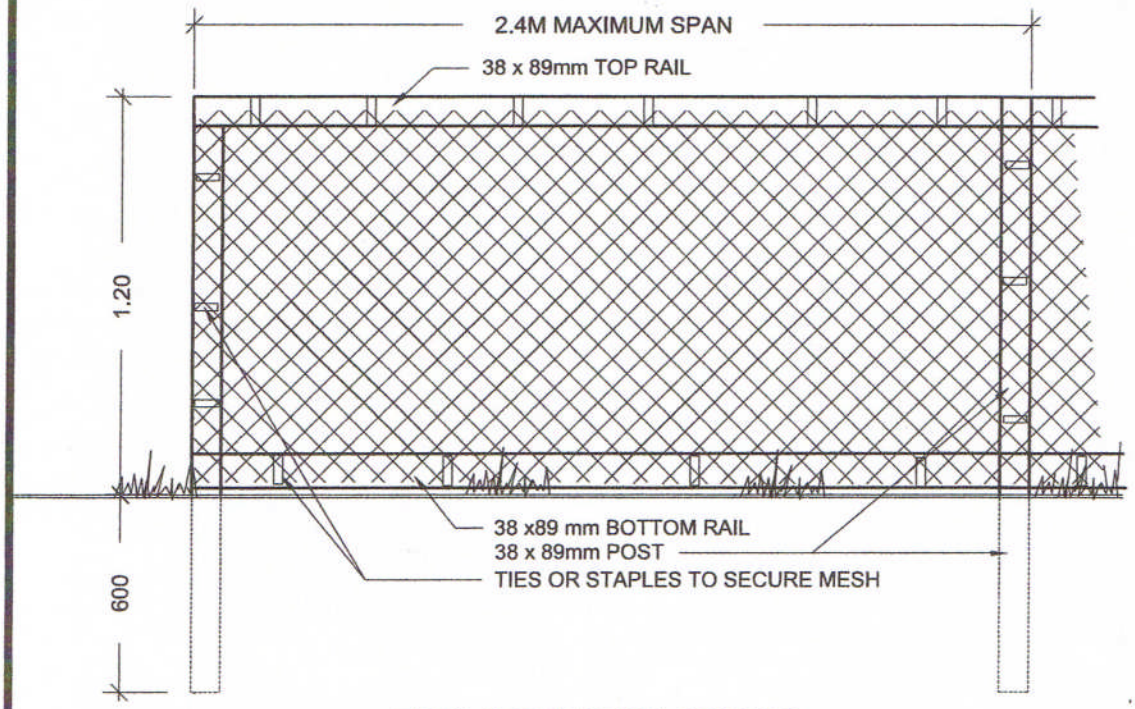
- Poor - significant signs of visible stress and/or decline that threaten the long-term survival of the specimen
- Fair - signs of stress
- Good - no visible signs of significant stress and/or only minor aesthetic issues

Structural Condition:

- Poor - Structural defects that have been in place for a long period of time to the point that mitigation measures are limited
- Fair - Structural concerns that are possible to mitigate through pruning
- Good - No visible or only minor structural flaws that require no to very little pruning

Retention Status:

- X - Not possible to retain given proposed construction plans
- Retain - It is possible to retain this tree in the long-term given the proposed plans and information available. This is assuming our **recommended mitigation measures are followed**
- Retain * - See report for more information regarding potential impacts
- TBD (To Be Determined) - The impacts on the tree could be significant. However, in the absence of exploratory excavations and in an effort to retain as many trees as possible, we recommend that the final determination be made by the supervising project arborist at the time of excavation. The tree might be possible to retain depending on the location of roots and the resulting impacts, but concerned parties should be aware that the tree may require removal.
- NS - Not suitable to retain due to health or structural concerns



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