



Talbot Mackenzie & Associates

Consulting Arborists

# **202 Raynor Ave, Victoria**

## **Construction Impact Assessment & Tree Preservation Plan**

Prepared For: Waymark Architecture  
1826 Government St  
Victoria, BC  
V8T 4N5

Prepared By: Talbot, Mackenzie & Associates  
  
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Date of Issuance: February 28, 2020

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## Talbot Mackenzie & Associates

Consulting Arborists

Jobsite Property: 202 Raynor Ave, Victoria, BC

Date of Site Visits: February 14, 2020

Site Conditions: Residential lot. No ongoing construction activity.

### **Summary:**

- Three trees will have to be removed, one of which, #Plum #644, is bylaw protected. #644 is likely to be significantly impacted by construction of the new house.
- Caution must be exercised when demolishing the existing shed to not damage roots from the neighbour's cedar hedge NT3. We recommend this be completed under arborist direction and that barrier fencing be erected 1m from the property line to ensure the soil within the critical root zones of the trees is not compacted.
- No construction materials or equipment should be stored within the CRZs of municipal or bylaw protected trees on the subject property. Barrier fencing will be required around bylaw protected trees #638 and 639, and municipal trees NT1 and NT2 if any construction activity occurs north of tree #641 (not protected).

### **Scope of Assignment:**

- Inventory the existing bylaw protected trees and any trees on municipal or neighbouring properties that could potentially be impacted by construction or that are within three metres of the property line
- Review the proposal to subdivide the property into two lots and construct a new house and two new parking spaces
- 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 conclusions reached were based on the information provided within the attached plans from Waymark (dated April 24, 2019).

**Limitations:**

- No exploratory excavations have been conducted 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.
- No servicing plans were provided for this assessment. The installation of underground services (water, storm, sewer, gas, electrical) could result in additional tree impacts.
- Where trees were not surveyed on the plans provided, we have added their approximate locations. The accuracy of our estimated locations has not been verified by a professional surveyor.

**Summary of Tree Resource:** Ten trees were inventoried, including three bylaw protected trees on the subject property, two municipal trees, and one hedge on the west neighbour's property (206 Raynor Ave).

**Trees to be Removed:**

- **Honey Locust #642 (16, 10cm DBH):** This tree is within the sight line area north of the new parking spaces. A significant grade reduction will also be required for vehicle access, which will likely require excavation within 2m of the base of the tree. This tree is not bylaw protected.
- **Strawberry tree #643 (18, 12cm DBH):** This tree is within the footprint of one of the new proposed parking spaces. This tree is not bylaw protected.
- **Plum #644 (35cm diameter below unions):** This tree is approximately 2.5m from the proposed new house. Assuming excavation will occur 1m outside the house footprint, we anticipate the health of this tree will be significantly impacted by excavation and recommend it be removed. This tree is bylaw protected.

**Potential Impacts on Trees to be Retained and Mitigation Measures**

- **Shed Removal:** We recommend the shed be removed under the direction of the project arborist to ensure roots from the neighbour's cedar hedge are not damaged. Care must be taken to not over-excavate as roots may be growing up against or underneath the building foundation or underneath the adjacent slab. Barrier fencing should be erected 1m from the property line to protect roots from the neighbour's cedar hedge (NT3) following building removal.
- **Site Access and Materials Storage:** We anticipate the existing driveway access off Alston St will be used for site access. No materials may be stored on the municipal boulevard within the

CRZs of trees NT1 and NT2, or in the front or side yards of the existing house north of tree #641 (not protected). If the entrance to the property on Raynor Drive is to be used for access, or any construction activity is to occur north of #641, additional barrier fencing will need to be erected around the municipal and bylaw protected trees.

- **Service Connections:** There are existing water, SS, and SD mains underneath Alston St. We do not anticipate installing service laterals from these mains to the new house will impact any trees to be retained. We do not anticipate any bylaw protected trees will be impacted if gas or hydro service connections are to be installed either.
- **Arborist Supervision:** All excavation occurring within the critical root zones of protected trees should be completed under supervision by the project arborist. This includes (but is not limited to) the following activities:
  - Demolition of the existing shed and removal of the adjacent slab within 2m of the property line adjacent to the neighbour's cedar hedge NT3.
- **Pruning Roots:** Any severed roots must be pruned back to sound tissue to reduce wound surface area and encourage rapid compartmentalization of the wound. Backfilling the excavated area around the roots should be done as soon as possible to keep the roots moist and aid in root regeneration. Exposed roots should be kept moist until the area is backfilled, especially if excavation occurs during a period of drought. This can be accomplished in a number of ways, including wrapping the roots in burlap or installing a root curtain of wire mesh lined with burlap, and keeping the area moist throughout the construction process.
- **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.

- **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.
- **Demolition of the Existing Building:** The demolition of the existing house and any services that must be removed or abandoned, must take the critical root zone of the trees to be retained into account. If any excavation or machine access is required within the critical root zones of trees to be retained, it must be completed under the supervision and direction of the project arborist. If temporarily removed for demolition, barrier fencing must be erected immediately after the supervised demolition.
- **Mulching:** Mulching can be an important proactive step in maintaining the health of trees 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. No mulch should be touching the trunk of the tree. See “methods to avoid soil compaction” if the area is to have heavy traffic.
- **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,



Noah Borges  
ISA Certified #PN- 8409A  
TRAQ – Qualified

Talbot Mackenzie & Associates  
ISA Certified Consulting Arborists

Encl. 1-page tree resource spreadsheet, 1-page site survey, 1-page site plan, 1-page barrier fencing specifications, 2-page tree resource spreadsheet methodology and definitions

**Disclosure Statement**

The tree inventory attached to the Tree Preservation Plan can be characterized as a limited visual assessment from the ground and should not be interpreted as a “risk assessment” of the trees included.

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)	Crown Spread (m)	CRZ (m)	Relative Tolerance	Health	Structure	Remarks and Recommendations	Bylaw Protected	Retention Status
NT1	Japanese Flowering Cherry	<i>Prunus serrulata</i>	43	5	5.0	Moderate	Good	Fair	Municipal tree (ID: 29882) on frontage of 206 Raynor Ave, topped under utility lines	Y (municipal)	Retain
NT2	Purple Leaf Plum	<i>Prunus cerasifera</i>	33	6	4.0	Moderate	Fair	Fair	Municipal tree (ID: 29881), pruned for clearance from utility lines	Y (municipal)	Retain
NT3	Pyramidal Cedar hedge	<i>Thuja spp.</i>	Multistem	1	1.5	Poor	Good	Good	Neighbour's (206 Raynor Ave), next to fence, >10 stems	N (neighbour's)	Retain
638	Laburnum	<i>Laburnum spp.</i>	13, 13, 11, 10, 9, 6	3	3.5	Moderate	Fair	Fair		Y	Retain
639	Holly	<i>Ilex spp.</i>	25, 24	3	4.0	Good	Good	Fair		Y	Retain
640	Weeping Deodar Cedar	<i>Cedrus deodara 'Pendula'</i>	16	3	2.0	Moderate	Good	Good		N	Retain
641	Holly	<i>Ilex spp.</i>	18, 16	4	3.0	Good	Fair	Fair	Thinning crown on one stem	N	Retain
642	Honey Locust	<i>Gleditsia triacanthos</i>	16, 10	4	2.0	Good	Good	Fair		N	X
643	Strawberry Tree	<i>Arbutus unedo</i>	18, 12	3	4.0	Poor	Good	Fair	Lean	N	X
644	Purple Leaf Plum	<i>Prunus cerasifera</i>	35 below unions	5	4.0	Moderate	Good	Fair		Y	X

**Site Plan Of:**  
**Lot 157A, Block U, Section 31,**  
**Esquimalt District, Plan 549.**  
**P.I.D. 008-921-709**



Scale = 1:200

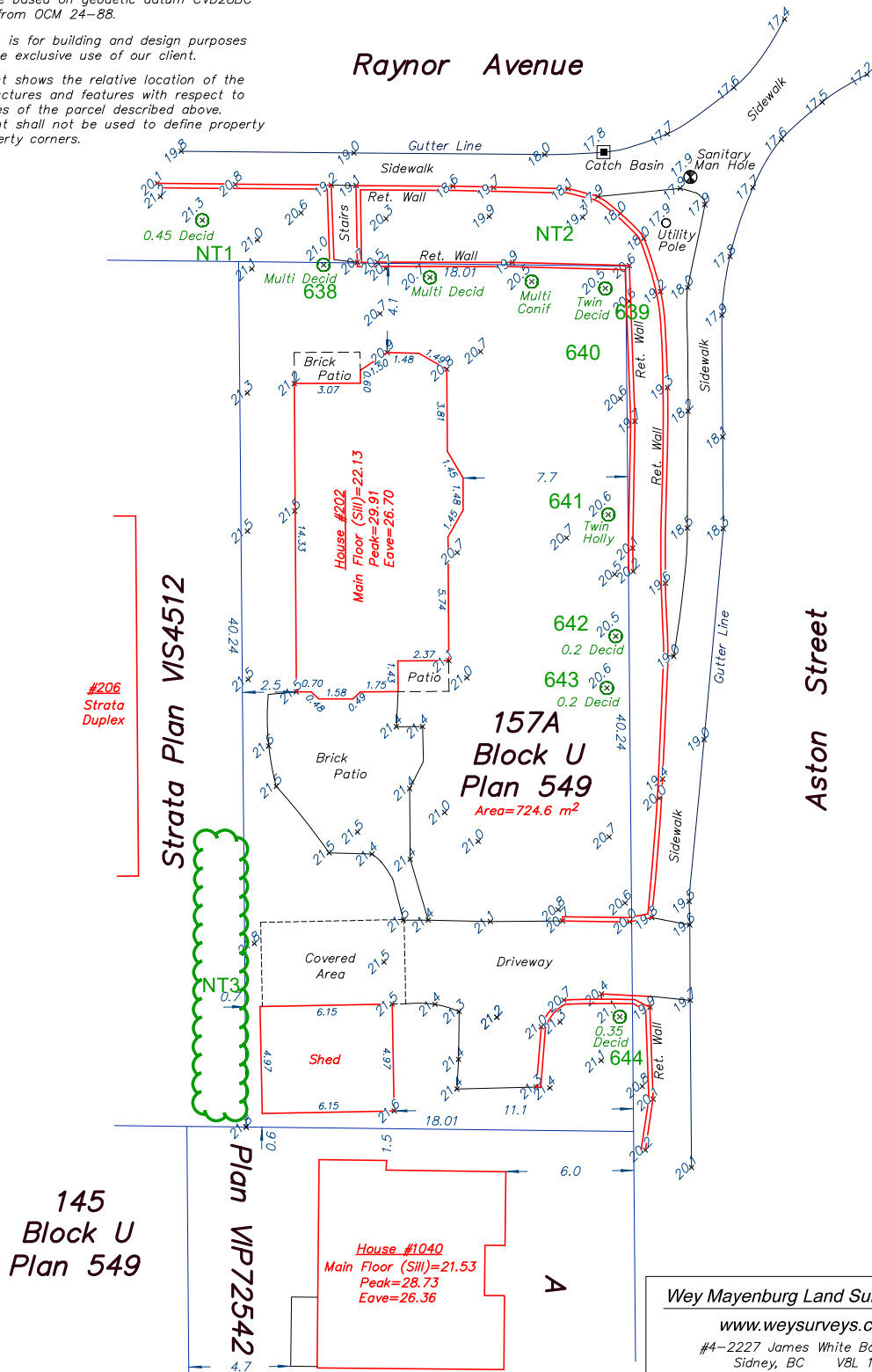
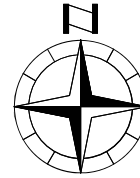
Dated this 27th day of August, 2018.

Distances and elevations shown are in metres.

Elevations are based on geodetic datum CVD28BC and derived from OCM 24-88.

This site plan is for building and design purposes and is for the exclusive use of our client.

This document shows the relative location of the surveyed structures and features with respect to the boundaries of the parcel described above. This document shall not be used to define property lines or property corners.



Wey Mayenburg Land Surveying Inc.

www.weysurveys.com

#4-2227 James White Boulevard

Sidney, BC V8L 1Z5

Telephone (250) 656-5155

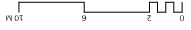
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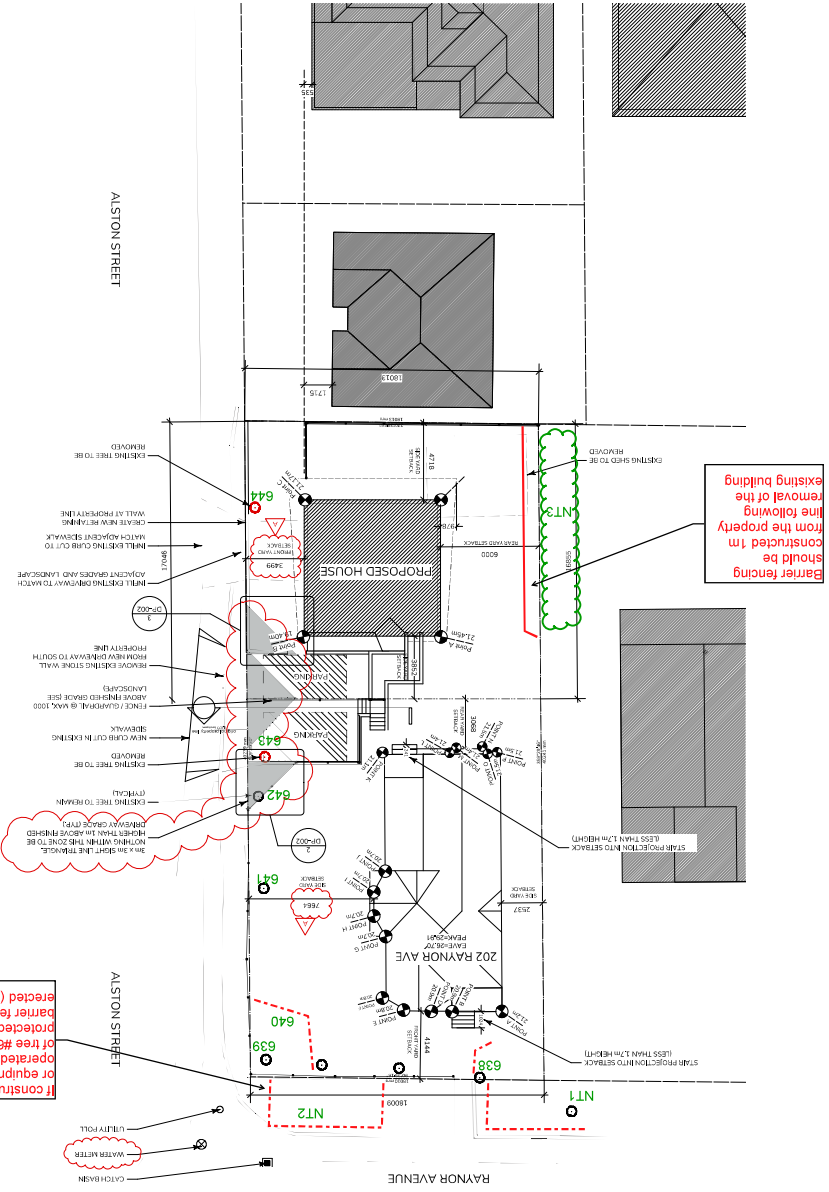


WAY MARK

1 Site Plan  
Scale: 1:150



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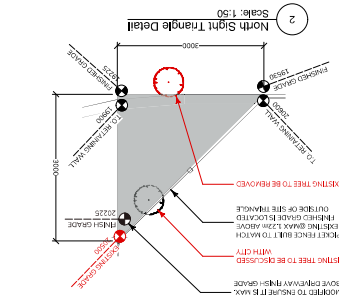
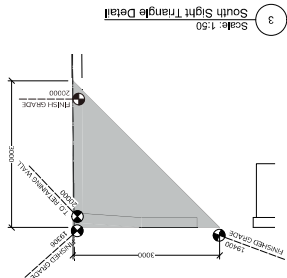


If construction materials protected, additional barrier fencing must be erected (dashed lines)

AVERAGE GRADE: 20.72

TOTAL PERIMETER: 33.43

POINT	A	21.45	POINT A-B	20.425	8.36	170.73
	B	21.17	POINT B-C	20.265	8.36	169.83
	C	21.17	POINT C-D	21.21	8.36	170.52
	D	21.45	POINT D-A	21.45	8.36	179.22
			AVE. LENGTH TOTALS			



AVERAGE GRADE: 21.11

TOTAL PERIMETER: 46.9

POINT	A	21.12	POINT A-B	21.05	8.07	64.53
	B	20.9	POINT B-C	20.85	8.07	64.53
	C	21	POINT C-D	20.95	8.07	64.53
	D	20.9	POINT D-E	20.85	8.07	64.53
	E	20.8	POINT E-F	20.75	8.07	64.53
	F	20.6	POINT F-G	20.75	8.07	64.53
	G	20.7	POINT G-H	21.1	8.07	64.53
	H	20.7	POINT H-I	20.7	8.07	64.53
	I	20.7	POINT I-J	20.7	8.07	64.53
	J	20.7	POINT J-K	20.9	8.07	64.53
	K	21.1	POINT K-L	21.25	8.07	64.53
	L	21.4	POINT L-M	21.4	8.07	64.53
	M	21.4	POINT M-N	21.45	8.07	64.53
	N	21.5	POINT N-O	21.5	8.07	64.53
	O	21.5	POINT O-P	21.5	8.07	64.53
	P	21.5	POINT P-A	21.35	8.07	64.53
			AVE. LENGTH TOTALS			

DATA SHEET/ZONING ANALYSIS (LOT WITH EXISTING HOUSE)

LEGAL DESCRIPTION: Lot 157/A, Block U, Section 31 Equumale, Plan 549

STREET ADDRESS: 202 RAYNOR AVENUE

ZONING REGULATIONS: CITY OF VICTORIA, RL-S2 RESTRICTED SMALL LOT

BUILDING FOOTPRINT: 106m2

Section	1	2	3	4	5	6	7	8	9	10	11
Permitted Uses	Single family	Single family	Single family	Single family	Single family	Single family	Single family	Single family	Single family	Single family	Single family
Min. Parcel Size	250m2	250m2	250m2	250m2	250m2	250m2	250m2	250m2	250m2	250m2	250m2
Max. Floor area	10m	10m	10m	10m	10m	10m	10m	10m	10m	10m	10m
Max. Floor area ratio	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Building Height	7.2m	7.2m	7.2m	7.2m	7.2m	7.2m	7.2m	7.2m	7.2m	7.2m	7.2m
Max. Floor area ratio	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Lot Coverage	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%
String Requirements	String Requirements	String Requirements	String Requirements	String Requirements	String Requirements	String Requirements	String Requirements	String Requirements	String Requirements	String Requirements	String Requirements
Front Setback	6m	6m	6m	6m	6m	6m	6m	6m	6m	6m	6m
West Side Setback	2.4m	2.4m	2.4m	2.4m	2.4m	2.4m	2.4m	2.4m	2.4m	2.4m	2.4m
East Side Setback	2.4m	2.4m	2.4m	2.4m	2.4m	2.4m	2.4m	2.4m	2.4m	2.4m	2.4m
Rear Setback	6m	6m	6m	6m	6m	6m	6m	6m	6m	6m	6m
Star projection into Required Setback	2.5m	2.5m	2.5m	2.5m	2.5m	2.5m	2.5m	2.5m	2.5m	2.5m	2.5m
Porch roof projection into Required Setback	1.5m	1.5m	1.5m	1.5m	1.5m	1.5m	1.5m	1.5m	1.5m	1.5m	1.5m
Setback	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Existing building is non-conforming	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Existing building is non-conforming	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Comments											

DATA SHEET/ZONING ANALYSIS (LOT WITH NEW HOUSE)

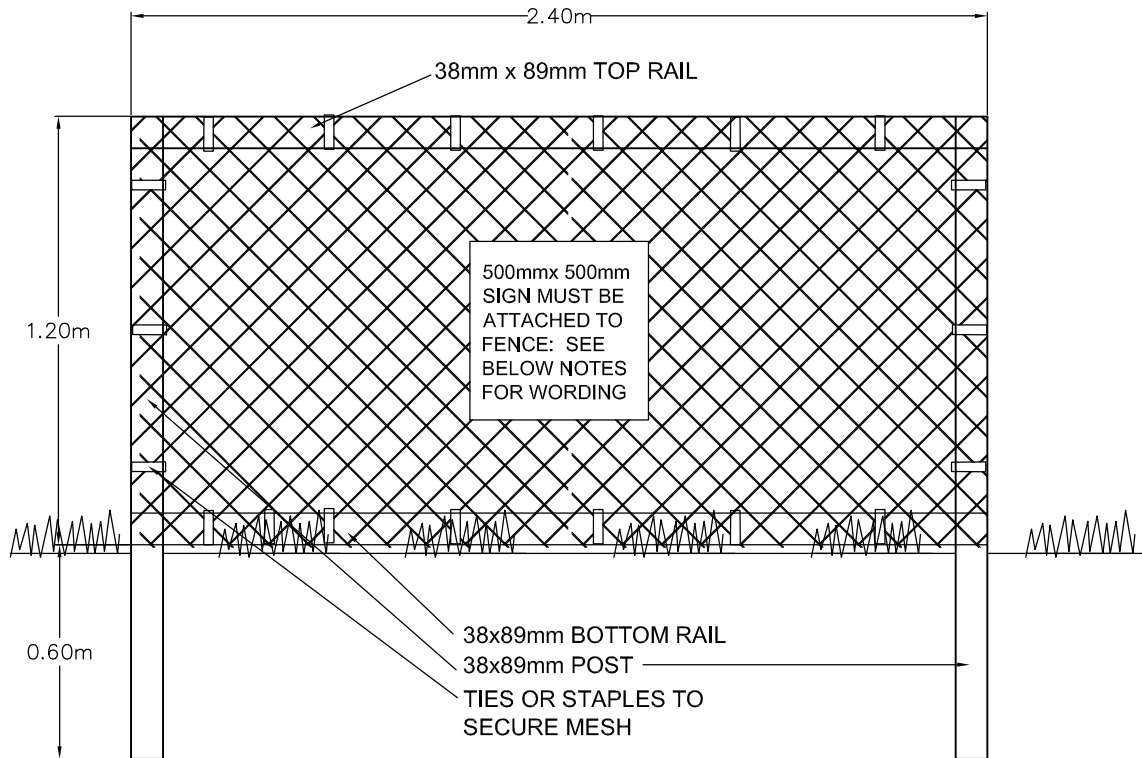
LEGAL DESCRIPTION: Lot 157/A, Block U, Section 31 Equumale, Plan 549

STREET ADDRESS: 202 RAYNOR AVENUE

ZONING REGULATIONS: CITY OF VICTORIA, RL-S2 RESTRICTED SMALL LOT

BUILDING FOOTPRINT: 70m2

Section	1	2	3	4	5	6	7	8	9	10	11
Permitted Uses	Single family	Single family	Single family	Single family	Single family	Single family	Single family	Single family	Single family	Single family	Single family
Min. Parcel Size	250m2	250m2	250m2	250m2	250m2	250m2	250m2	250m2	250m2	250m2	250m2
Max. Floor area	10m	10m	10m	10m	10m	10m	10m	10m	10m	10m	10m
Max. Floor area ratio	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Building Height	7.2m	7.2m	7.2m	7.2m	7.2m	7.2m	7.2m	7.2m	7.2m	7.2m	7.2m
Max. Floor area ratio	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Lot Coverage	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%
String Requirements	String Requirements	String Requirements	String Requirements	String Requirements	String Requirements	String Requirements	String Requirements	String Requirements	String Requirements	String Requirements	String Requirements
Front Setback	6m	6m	6m	6m	6m	6m	6m	6m	6m	6m	6m
West Side Setback	2.4m	2.4m	2.4m	2.4m	2.4m	2.4m	2.4m	2.4m	2.4m	2.4m	2.4m
East Side Setback	2.4m	2.4m	2.4m	2.4m	2.4m	2.4m	2.4m	2.4m	2.4m	2.4m	2.4m
Rear Setback	6m	6m	6m	6m	6m	6m	6m	6m	6m	6m	6m
Star projection into Required Setback	2.5m	2.5m	2.5m	2.5m	2.5m	2.5m	2.5m	2.5m	2.5m	2.5m	2.5m
Porch roof projection into Required Setback	1.5m	1.5m	1.5m	1.5m	1.5m	1.5m	1.5m	1.5m	1.5m	1.5m	1.5m
Setback	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Existing building is non-conforming	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Existing building is non-conforming	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Comments											



**TREE PROTECTION FENCING**

1. FENCE WILL BE CONSTRUCTED USING 38 mm X 89mm WOOD FRAME: TOP, BOTTOM AND POSTS \* USE ORANGE SNOW-FENCING MESH AND SECURE THE WOOD FRAME WITH "ZIP" TIES OR GALVANIZED STAPLES.
  2. ATTACH A 500mm X 500mm SIGN WITH THE FOLLOWING WORDING: WARNING- TREE PROTECTION AREA. THIS SIGN MUST BE AFFIXED ON EVERY FENCE OR AT LEAST EVERY 10 LINEAR METERS.
- \* IN ROCKY AREAS, METAL POSTS (T-BAR OR REBAR) DRILLED INTO ROCK WILL BE ACCEPTED



## Talbot Mackenzie & Associates

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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 (P), Moderate (M) or Good (G).

**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 restricted root growth, limited soil volumes, 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