

<u>Talbot Mackenzie & Associates</u> Consulting Arborists

Arborist Review Harris Green Village, 1045 Yates Street Victoria, BC

PREPARED FOR: Andrew Browne

C/o Starlight Investments

2015 Main Street

Vancouver, BC V5T 3C2

PREPARED BY: Talbot, Mackenzie & Associates

Tom Talbot – Consulting Arborist

ISA Certified # PN-0211A

TRAQ - Qualified

Date submitted: Amended for November 13, 2020

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Consulting Arborists

Jobsite Property: Harris Green Village Development 1045 Yates Street

Date of Site Visit: December 09 & 10, 2019 and May 05, November 09, 2020.

Site Conditions: Existing developed property Automotive Dealership and car storage lot.

Summary: The proposal as reviewed related to the Harris Green mixed residential and commercial development is to retain the Horse chestnut trees located along the Cook Street municipal frontage. Due to the extensive renovation proposed for the Yates Street and View Street streetscape, the proposal is to remove and replace all of the trees along these frontages, therefore the trees along the Yates Street and View Street frontages have not been considered further in this report.

From the information compiled during this review in our opinion it should be possible to mitigate the impacts on the Horse chestnut trees located on the Cook Street municipal frontage. This is subject to all excavation and soil disturbance required, other than for the streetscape renovation and water line installation and capping being confined within the property boundaries.

We recommend and support pruning the portions of the tree canopies that extend over the property boundary, back to this boundary to prevent accidental limb breakage and increase clearance from the building structure. Pruning can be accomplished without removing limbs greater than 10 cm in diameter and would result in the removal of less than 5% of the overall tree canopy and in our opinion will not have a detrimental impact on tree health. All pruning must be completed by an ISA Certified Arborist or to ANSI A300 standards.

A single, bylaw-protected Flowering plum tree (Nt10) is located on the adjacent 1020 View Street property where it will be detrimentally impacted by excavation and construction within this property and where its removal will be required. Permission from the adjacent property owner will be required.

There are no bylaw-protected or other trees located on the subject or on adjacent properties that will be impacted.

Assignment: Provide arborist services to visually exam the above-ground portions of and document the trees:

- Located within the boundaries of the proposed 1045 Yates Street phase of the Harris Village Green Development.
- Located along the Cook, and View Street municipal frontages of the land parcel that comprises this development proposal and located on the adjacent 1020 properties, where they could be impacted.

Review the drawings related to this development proposal and prepare a Tree Impact and Protection report indicating the existing health and structural characteristics of the existing trees and outline mitigation strategies to mitigate the impacts of the construction on the trees that have been identified for retention.

Method: During our December 09 &10, 2019 site visits, at your request, we examined and documented the resource of trees in the locations defined in the preceding assignment details. The examination conducted was a level 1, limited, ground level visual examination of the above ground portions of each tree by viewing the canopy, trunk, and root collar from all sides. The information compiled regarding these specific trees was entered on a Tree Resource spreadsheet and includes the tree; tag or identity number, trunk diameter (d.b.h.), a defined critical root zone (CRZ) or root protection area, the health and structural condition of the tree based on our visual assessment, the species tolerance to construction impacts, any noted remarks or recommendations and their bylaw or municipal designated status.

The trees on the municipal frontages and neighbouring properties have been assigned an identity number Nt1 -Nt10 and Nt53 - Nt57 by us when locating each tree in the field. A separate column in the spreadsheet lists the City of Victoria's site ID number indicated for each municipal tree in their GIS mapping system and corresponds to our identity number.

The tree identity number for each tree has been entered on a survey drawing that was supplied to us by the client and is attached to this report.

Tree Resource:

Private Property trees - There are no bylaw-protected or other trees located within the subject 1045 Yates Street property.

A single, bylaw-protected Flowering plum tree (Nt10) is located on the adjacent 1020 View Street property. This tree appears reasonably healthy but has numerous secondary stems with weak attachment to the main trunk at the stem unions. The tree is located close to the property boundary where over 50% of its canopy and most likely critical root structures extend into and over the subject property. The plans that were reviewed show the underground portion of the building extending up to the property boundary. In our opinion pruning the canopy and roots at this boundary will have a detrimental impact on the health and structure of this tree and therefore it has been identified for removal

Municipal trees - The trees located on the municipal frontages of the property parcels associated with this proposal are comprised of a variety of exotic (non-native) tree species. The mature tree species along the frontages include Horse chestnut-Aesculus hippocastanum, Canoe or Paper birch-Betula papyrifera, Lindsay plum-Prunus cerasifera Lindsayiae. Also planted along the frontages as replacements for trees that have been removed previously, are Persian Ironwood-Parrotia persica, and Japanese Tree lilac-Syringa reticulata 'Ivory Silk'.

• Cook Street – The four (4) Horse chestnut trees fronting the subject property are reasonably healthy and are about 52 - 59 years old (trees along this frontage were planted in 1960 and 1967). Pruning to create clearance for the overhead hydro primary conductor has resulted in a wide canopy spread over the street and with a slight canopy trespass over the boundary of the subject property. Previous clearance pruning of the stems that extend toward the subject property has maintained the canopy height below the hydro primary conductor and limited the canopy spread over the subject property to 2-metres or less. The existing building on the property that extends up to the property boundary will most likely have restricted any root growth over this boundary and into the property.

- View Street The Lindsay plum trees growing along View Street have been planted over a number of years. The oldest are about 47 years old (planted in 1972). These older trees are in their last one-third to one-quarter of their anticipated functional lifespan. Later plantings occurred in 1976, 1987 and 1991. Four Lindsay plum trees remain along the portion of View Street fronting the subject property. It appears that in recent years, one of the plum trees was removed and has been replaced with an alternate Persian Ironwood species. This may be to provide species diversity within the tree population or to replace trees that are problematic and therefore the replacements are considered to be more suitable for the site There is evidence of dieback and decline within the canopies of all four trees and fruiting bodies of the Ganoderma wood decay pathogen, a common disease pathogen effecting this species, were observed attached to the lower trunks or root collars of plum, Nt6(26232), and Nt8(26230). The stress symptoms observed may be related to the age of the trees or to their growing environment where virtually the entire root zone area of each tree is covered with hardscape surfacing.
 - The spread of the tree root growth will have been restricted in the locations where the building footprint extends up to the property boundary, however in the open areas where there are no adjacent buildings the root growth may extend into the subject property. The tree canopies along the adjacent buildings have been pruned at the property boundary. In the more open areas, the canopies extend well into and trespass over the boundary of the subject property. The canopy growth on the street side of the trees has been altered by major limb removal or where large limbs have failed or been broken historically, leaving little canopy growth on the street side of the trees.
- Yates Street Four (4) Canoe or Paper birch trees are located along the 1000 block of Yates Street, where it fronts the subject property. These birch trees are between 32 and 43 years old (plantings were completed in 1976, 1985 and 1987). We did not observe and significant health structural concerns related to these trees.

 Birch Nt53(26217) and Nt55(26215) are located along an open area of the car lot and where their canopies extend, and the root growth may extend over the property boundary in this location. Birch Nt56(26217) and Nt57(26215) are located where their root growth should be restricted by the existing building footprint along this property boundary. A recently planted Japanese Tree lilac on this frontage, may have been planted, to provide species diversity within the tree population, was considered to be more suitable for the site or to replace a tree that was problematic within the tree population.

The proposal as reviewed is to retain the Horse chestnut trees located along the Cook Street municipal frontage. Due to the extensive renovation proposed for the Yates Street and View Street frontage streetscape, the proposal is to remove and replace all of the trees along these frontages, therefore the trees along the Yates Street and View Street frontages have not been considered further in this report.

Mitigation: We recommend the following procedures be implemented to reduce the impacts on the Four (4) municipal trees that are proposed to be retained on the Cook Street municipal frontage.

- Demolition: Prior to any demolition of the existing buildings, barrier fencing must be erected on the municipal frontage to protect the exposed areas of the root zones that are not already covered with concrete and asphalt surfacing. We also recommend pruning the canopy portions back to the property boundary where the limbs trespass over the boundary to prevent accidental limb breakage during the building demolition. The project arborist must supervise the removal of the building footing and floor where they extend along the Cook Street property boundary. All equipment required for this purpose must work from within the subject property and there shall be no excavation outside the property boundary to facilitate the demolition activity.
- Barrier Fencing: Protective barrier fencing must be erected to protect the root zones of the municipal trees prior to any construction, excavation of demolition work commencing on the site. The fencing must surround the entire exposed areas of the root zones that are not covered with concrete and asphalt surfacing. It may also be necessary to erect barrier fencing to protect the View and Yates Street municipal trees if the demolition occurs prior to the approval of the building permit or the approval to remove these trees. Barrier fencing must be extended to surround the Cook Street sidewalk and driveway crossing once this hardscape surfacing is removed and remain in place until the sidewalk replacement construction occurs.
 - The barrier fencing to be erected 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 (see attached diagram). Signs must be posted around the protection zone to declare it off limits to all construction related activity. The fencing must be erected prior to the start of any construction activity on site (i.e. site clearing, demolition, pavement removal, excavation, and construction), and remain in place through completion of the project. The project arborist must be consulted and the municipality notified before this fencing is removed or moved for any purpose. Solid hording material may also be required to protect the trunks of trees from mechanical injury where vehicles or machinery are permitted close to tree trunks.
- Building envelope: Excavation for the underground portion of the building envelope, as proposed extends up to the property boundary. The existing building on the property extends up to this boundary and where it will have restricted any root growth over this boundary and into the property. Excavation in this location is unlikely to have a detrimental impact on the health of these trees and will not impact their stability. The project arborist must supervise the excavation for the underground portion of the building, where it extends along the Cook Street municipal frontage. There must be no excavation that extends outside the property boundary and into the municipal property. Shoring or some other method of bank cut stabilization may be required if the cut slope within the property boundary is not sufficient to attain safe working conditions and bank support

- Servicing: The civil drawings that were reviewed show:
 - o the storm and sanitary connections along the View Street municipal frontage and where they will not impact any of the trees that have been identified for retention. The existing storm and sanitary services located along the View Street municipal frontage are to be capped and abandoned but are located where the excavation required will not impact any trees that have been identified for retention.
 - The hydro and communications connections were not outlined in the drawings, but it is our understanding that they will also be located on the View Street frontage, most likely close to the underground parking entrance.
 - The fire and domestic water and metre vault shown on the drawings that were reviewed are located on the Cook Street frontage and where the excavation required for the installation could be within 3 metres of Horse chestnut Nt4 (#26238) and where root structures are likely to be encountered. The Civil contractor suggested an alternate location for these connections that would be between Horse chestnut NT3 (#26316) and Nt4 (#26238). If the connections are located mid way between these two trees the required excavation required should be more than 7 metres away from both trees. This alternate location is the option that we prefer. Excavation to install the water connection and metre vault must be supervised by the project arborist. The existing water and irrigation services located along the Cook street frontage are to be capped and abandoned. If possible, these services should be capped inside the property boundary or at the service main. If the services are capped outside the property boundary the connections must be exposed by way of hydro excavation.
- Hardscape and landscape replacement: The landscape drawings that were reviewed indicate the replacement of the existing sidewalk area between the tree location and the property boundary and the existing driveway crossing. We recommend retaining the existing sidewalk until the building construction has been completed. Once the panels are removed the area must be isolated from all foot and machine activity by enlarging/extending the barrier fencing to surround this area until the sidewalk construction commences. The removal of the existing sidewalk panels along the Cook Street frontage between the Yates and View Street intersections and the driveway crossing must be supervised by the project arborist. Due to the presence of root structures beneath the sidewalk, it may not be possible to excavated deeper than the existing sidewalk base or base layers without having a detrimental impact on the trees. This can be determined once the panels have been removed and adjustments to the specifications made to assure that the sidewalk replacement will not have a detrimental impact on or effect the ability to retain these trees. The replacement hardscape must not be any wider than the existing paved area and the design must account for the existing turf area so that any construction requirements must not extend into this existing undisturbed turfed area of the frontage. If the replacement of the street curbing is proposed it may also not be possible to excavate, to a depth to attain the typical requirements for their replacement, or further into the turfed area to allow for form work. Modifications to these specifications will be required or the existing curbing should be retained.

Also due to the presence of root structures the renovation of the turf area will likely be restricted to the upper 08 - 10 cm of the existing grade. It is unlikely that excavation to attain typical specifications for soil depths will be possible without having a detrimental impact on the trees. Modifications to these specifications will be required or the existing turf area should be retained, and the quality of the turf improved by way or soil aeration, top dressing, over-seeding, and other standard turf maintenance/renovation procedures. Site dewatering can often impact the soil moisture content surrounding mature trees adjacent to a construction site. Supplemental irrigation should be provided for these trees particularly during the dry summer months, throughout the construction timeframe. Frequency of irrigation will be determined by soil moisture sampling beginning in May. Irrigation will most likely be required more frequently during, July and August where irrigation may be required on a 2-week frequency cycle. The Project arborist or landscape professional should monitor the soil moisture levels every 2 weeks throughout the months of May, June, July, August and September.

Pruning: There is a slight overhang of the canopies of chestnut Nt3 (#26316) and Nt4 (#26238) of up to 2 metres or less on the project side of the trees where several of the lowest limbs trespass over the property boundary. The canopies of chestnut Nt1 (#26314) and Nt2 (#26317) extend up to or have a minor trespass over the property boundary. Pruning has been completed previously to restrict the upward growth of the limbs to below the height of the adjacent overhead hydro primary conductor. In our opinion pruning the canopies at the property boundary to reduce, the risk of accidental limb breakage during construction and future conflicts with the building structure will not have a detrimental impact on the health of these trees. Pruning can be accomplished without removing limbs greater than 10 cm in diameter and will result in the removal of less than 5% of the overall tree canopy. All pruning must be completed by an ISA Certified Arborist or to ANSI A300 standards.

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

Yours truly,

Talbot Mackenzie & Associates

Tom Talbot & Graham Mackenzie

ISA Certified, & Consulting Arborists

Enclosures: Tree Resource spreadsheet (2), Key to definitions (2), Survey drawing with tag/identity numbers (1) and barrier fencing, Barrier Fencing specifications (1), Civil drawing reviewed (1)

Assumptions and Limiting Conditions:

The assessment was based on two site visits to the trees and from a visual ground-level assessment made of the subject trees on December 09 & 10, 2019 and follow up May and November, 2020 site visits to review the proposed concept

Resistograph Readings and other methods of detecting internal flaws or decay were not requested and were not part of our assignment.

The opinions provided will be based on the circumstances and observations as they existed at the time of the site inspection of the client's or agent's property and the trees situated thereon and upon information provided by the client or their agent. The opinions are given based on observations made and using generally accepted professional judgment. However, because trees and plants are living organisms whose health and structure are subject to change, damage and disease, the results, observations, recommendations and analysis as set out are valid only as at the date any such testing, observations and analysis took place and no guarantee, warranty, representation or opinion is offered as to the length of the validity of the results, observations, recommendations and analysis. As a result, the Client shall not rely upon this Assessment, save and except for representing the circumstances and observations, analysis and recommendations that were made at the date of such inspections. 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. It is recommended that the trees discussed in this project should be re-assessed periodically if they are retained.

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Key to Headings in Tree Resource Spreadsheet – Page 1

<u>Tag:</u> Tree identification number on a metal tag attached to tree with nail or wire at eye level. Trees on municipal or neighboring properties are not tagged and are identified on the site plans usually starting from the number one.

NT: No Tag due to inaccessibility or separate ownership.

<u>**DBH**</u>: 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 because of inaccessibility or on neighbouring property.

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

Relative Tolerance Rating: Relative tolerance of the species of tree 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: Poor, Moderate or Good.

Optimal Root Protection 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 Construction Tolerance Rating. This methodology is based on the methodology described 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
- 10 or 12 x DBH = Moderate
- 08 or 10 x DBH = Good

For this purpose, the DBH of multiple stems is considered the sum of 100% of the diameter of the largest trunk and 60% of the diameter of each additional trunk. It should be noted that these measures are solely mathematical calculations that do not take into account crown spread, soil depth, age, health, or structure (such as lean).

Key to Headings in Tree Resource Spreadsheet – Page 2

Health Condition

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

Structure Condition

- Very Poor Potentially imminent hazard that requires immediate action such as large dead hanging limbs or an unstable root plate
- Poor 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 such as codominant stems that are still possible to mitigate through pruning
- Good No visible or only minor structural flaws that require no to very little pruning

Tree Status:

- Bylaw-protected Tree that is of a size or species that is protected under the current municipal Tree Protection Bylaw.
- Not Protected Tree that is of a size or species that is not protected under the current municipal Tree Protection Bylaw.
- Municipal Tree that is located on the municipal frontage.

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Tree Resource Spreadsheet for Harris Green Development

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Tree ID	Municipal tree ID#	Common Name	Latin Name	DBH (cm) * over ivy ~ approximate	Crown Spread (m)	CRZ (m)	Health	Structure	Relative Tolerance	Remarks and Recommendations	Tree bylaw Status	Retention Status
Nt1	26314	Horse chestnut	Aesculus hippocastanum	75.0	11	6.0	Good	Fair	Good	Pruned around hydro 3-phase primary conductor. 4.43 metres from property line and building wall. Canopy does not extend over property line.	Municipal	Retain
Nt2	26317	Horse chestnut	Aesculus hippocastanum	74	15	6.0	Good	Fair	Good	Pruned around hydro 3-phase primary conductor. 4.43 metres from property line and building wall. Minor canopy tresspass over property boundary. Pipe imbedded in trunk.	Municipal	Retain
Nt3	26316	Horse chestnut	Aesculus hippocastanum	84	15	6.5	Good	Fair	Good	Pruned around hydro 3-phase primary conductor. 4.46 metres from property line and building wall. Canopy extends less than 2 metres over property line.	Municipal	Retain
Nt4	26238	Horse chestnut	Aesculus hippocastanum	74	17	6.0	Good	Fair	Good	Pruned around hydro 3-phase primary conductor. 4.42 metres from property line and building wall. Canopy extends up to 2 metres over property line. Large basal wound, no decay visible	Municipal	Retain
Nt5	26233	Lindsay Plum	Prunus cerasifera Lindsayiae	43	7	4.5	Fair	Fair	Moderate	Located within sidewalk panels, 2 metres from property line and building wall. Recent small mechanical injury on trunk. Canopy extends over property line	Municipal	Remove
Nt6	26232	Lindsay Plum	Prunus cerasifera Lindsaviae	54	11	5.5	Fair	Poor	Moderate	Located within sidewalk panels, 2.0 metres from property line Canopy extends 3 metres over property line. Large scaffold limb removed street side. Fruiting bodies of Ganoderma wood decay pathogen on lower trunk	Municipal	Remove
Nt7	26231	Lindsay Plum	Prunus cerasifera Lindsayiae	56	13	5.5	Fair	Fair	Moderate	Located within sidewalk panels, 2.0 metres from property line Canopy extends 5.0 metres over property line, and over 2 access driveways Large scaffold limb removed street side.	•	Remove
Nt8	26230	Lindsay Plum	Prunus cerasifera Lindsaviae	53	12	5.5	Fair	Poor	Moderate	Located within sidewalk panels, 2.2 metres from property line Canopy extends 4 metres over property canopy asymmetry, uncorrected trunk lean. Fruiting bodies of Ganoderma wood decay pathogen on lower trunk	Municipal	Remove
Nt9	26299	Persian Ironwood	Parrotia persica	12	3	1.5	Good	Good	Moderate	Young tree located in sidewalk grate, 1.7 metres from property line	Municipal	Retain
Nt10	Private tree	Flowering plum	Prunus cerasifera	36	11	3.5	Good			Located on adjacent 1020 View Street property. Canopy extends 6 metres over property boundary. Weakness at main stem union where it overhangs the subject property boundary. Risk of stem failure.	Bylaw-	Remove
NUU	IN/A	Flowering plum	wigra	30	11	3.3	Good	Fair/poor	wioderate	boundary. KISK of Stem fatture.	protected	Kemove

Prepared by:

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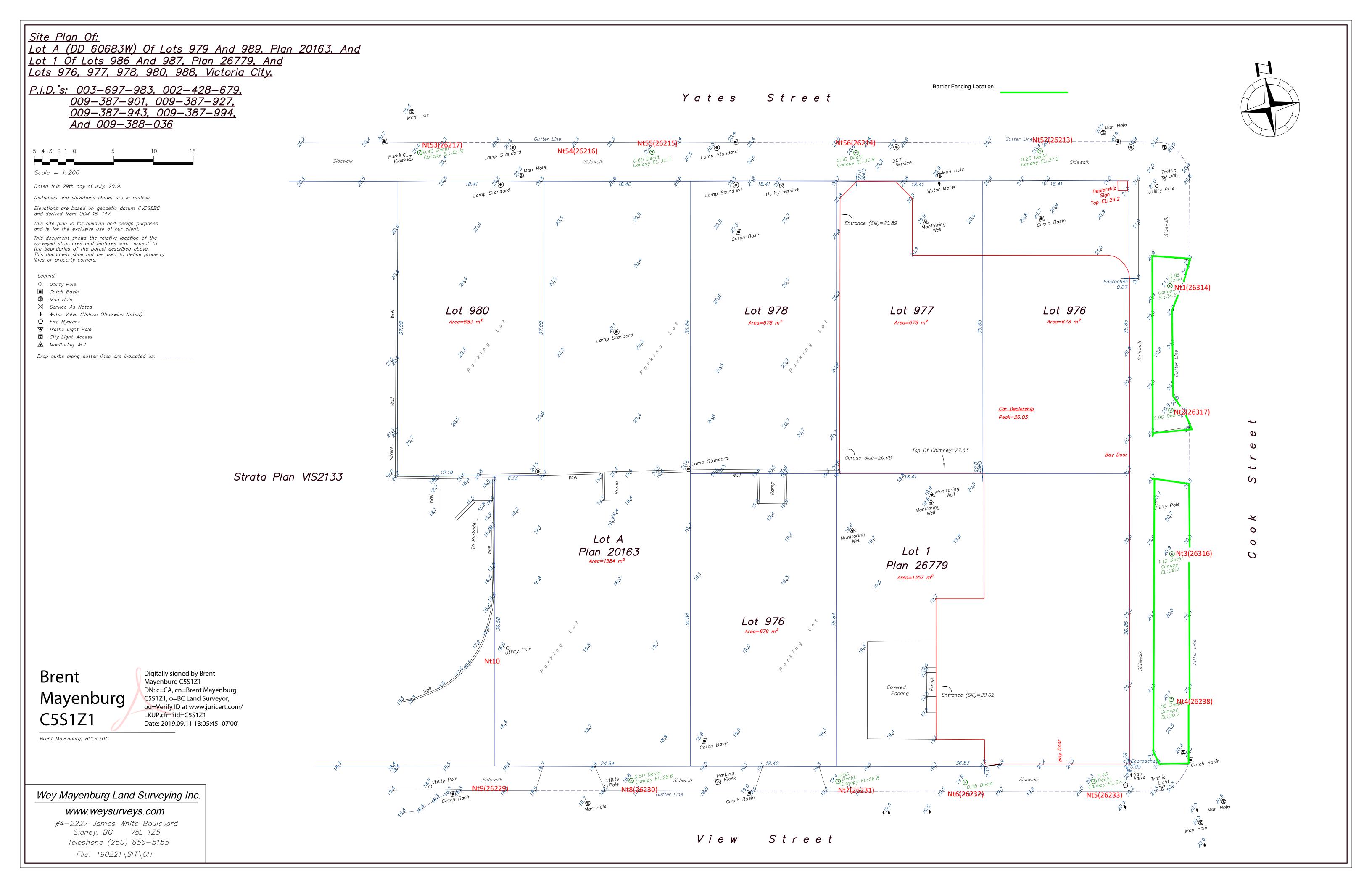
email: tmtreehelp@gmail.com

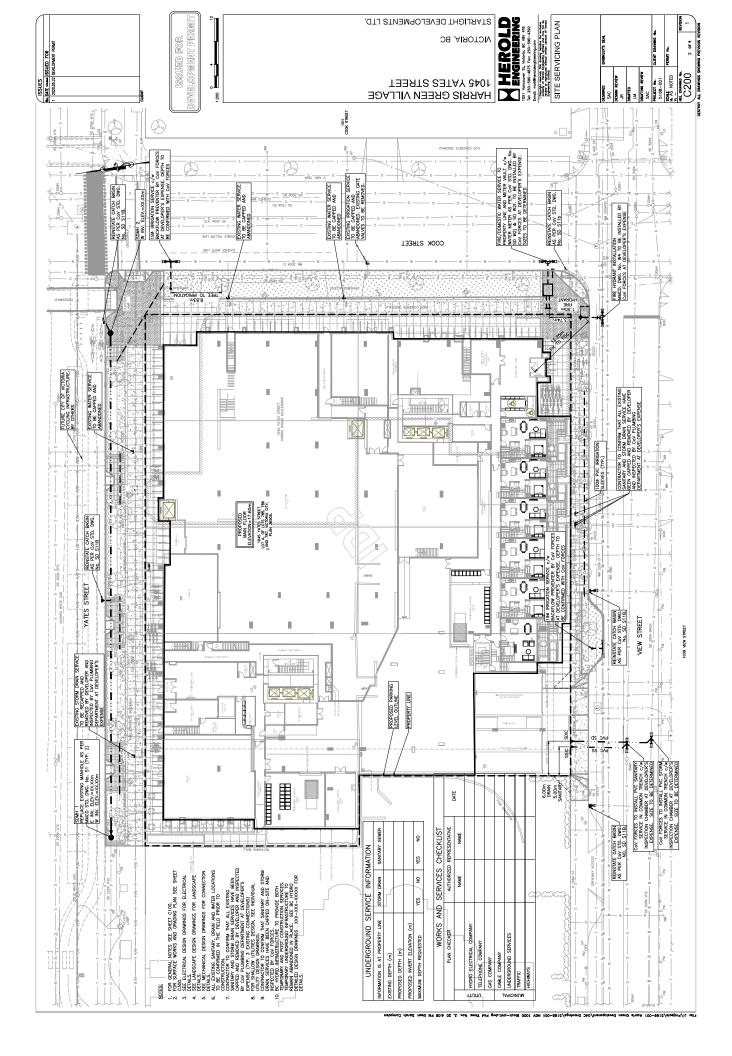
Tree Resource Spreadsheet for Harris Green Development

Tree ID	Municipal tree ID#	Common Name	Latin Name	DBH (cm) * over ivy ~ approximate	Crown Spread	CRZ (m)	Health	Structure	Relative Tolerance	Remarks and Recommendations	Tree bylaw Status	Retention Status
Nt53	26217	Richmond Canoe birch	Betula papyrifera	39.0	10	4.0	Good	Good	Moderate	Located 3.2 metres from property boundary.	Municipal	Remove
Nt54	26216	Japanese Tree Lilac	Syringa reticulata 'Ivory Silk'	6.0	1	1.0	Good	Good	Good	Recently planted in sidewalk grate 3.5 metres from property line	Municipal	Remove
Nt55	26215	Richmond Canoe birch	Betula papyrifera	48.0	14	5.0	Good	Good	Moderate	Located 3.2 metres from property boundary	Municipal	Remove
Nt56	26214	Richmond Canoe birch	Betula papyrifera	42.0	13	4.0	Good	Good	Moderate	Located 3.3 metres from property boundary and building. canopy overhangs property boundary	Municipal	Remove
Nt57	26213	Richmond Canoe birch	Betula papyrifera	19.0	6	2.0	Good	Good	Moderate	Located 3.5 metres from property boundary	Municipal	Remove

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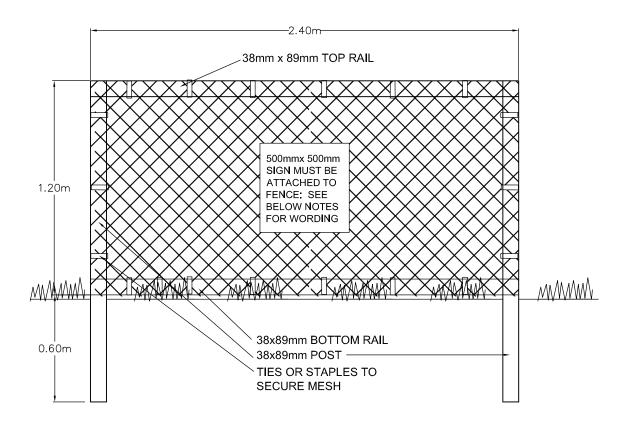
email: tmtreehelp@gmail.com







SUPPLEMENTARY STANDARD **DETAIL DRAWINGS**



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**