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**2825-2831 KNOTTY PINE ROAD &  
2830 JACKLIN ROAD—LANGFORD, BC**

**CONSTRUCTION IMPACT ASSESSMENT &  
TREE MANAGEMENT PLAN**

PREPARED FOR: Eden Developments  
942 Park Royal South  
West Vancouver, BC  
V7T 2W4

PREPARED BY: Talmack Urban Forestry Consultants Ltd.  
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ISA Certified # PN-7125A  
Tree Risk Assessment Qualified  
Tree Appraisal Qualified

DATE OF ISSUANCE: May 30, 2024

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# REVISION RECORD

REVISION	DESCRIPTION	DATE (YYYY-MM-DD)	ISSUED BY
0	Original CIA/TMP report for the proposed construction.	2024-05-30	RM

# 1. INTRODUCTION

Talmack Urban Forestry Consultants Ltd. was engaged to complete a tree inventory, construction impact assessment and tree management plan for the trees at the following proposed project:

<b>Site:</b>	2825-2831 Knotty Pine Road & 2830 Jacklin Road
<b>Municipality:</b>	City of Langford
<b>Client Name:</b>	Eden Developments
<b>Dates of Site Visit(s):</b>	May 3, 2024 (initial inventory)
<b>Site Conditions:</b>	5 flat residential lots with no ongoing construction activity.
<b>Weather During Site Visit:</b>	Sunny

The purpose of this report is to address requirements of the City of Langford arborist report terms of reference and Tree Protection Bylaw No. 2117. The construction impact assessment section of this report (**Section 8**) is based on plans reviewed to date, including site survey by Summit Land Surveying (dated March 1/4, 2024) and preliminary building plans from WA Architects (dated May 27, 2024).

# 2. TREE INVENTORY METHODOLOGY

For the purposes of this report: the size, health, and structural condition of trees were documented. For ease of identification in the field, numerated metal tags are attached to the lower trunks of onsite trees. Trees located on neighbouring properties, the municipal frontage or in areas where access was restricted, were not tagged. Each tree was visually examined on a limited visual assessment basis (level 1), in accordance with Tree Risk Assessment Qualification (TRAQ) methods (Dunster *et al.* 2017) and ISA Best Management Practices.

# 3. EXECUTIVE SUMMARY

Based on our review of the building plans, eleven (11) on-site trees (20cm DBH or above, as defined by Bylaw No. 2117) are likely to require removal due to impacts from the proposed construction.

One (1) municipal tree is located where it is possible for retention, provided mitigation recommendations outlined in this report are adhered to.

## 4. TREE INVENTORY 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

**Dripline:** Indicates the radius 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 consider individual tree characteristics, such as health and vigor. 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 6, 8, 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 an extended 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

Suitability ratings are described as follows:

**Rating: Suitable.**

- A tree with no visible or minor health or structural defects, is tolerant to changes to the growing environment and is a possible candidate for retention provided that the critical root zone can be adequately protected.

**Rating: Conditional.**

- A tree with good health but is a species with a poor tolerance to changes to its growing environment or has a structural defect(s) that would require that certain measures be implemented, in order to consider it suitable for retention (i.e., retain with other codominant tree(s), structural pruning, mulching, supplementary watering, etc.)

**Rating: Unsuitable.**

- A tree with poor health, a major structural defect (that cannot be mitigated using ANSI A300 standards), or a species with a poor tolerance to construction impacts, and unlikely to survive long term (in the context of the proposed land use changes).

**Retention Status:**

- Remove (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 - Retention status “to be determined” at the time of construction

**TABLE 1. TREE INVENTORY**

Tag or ID #	Surveyed? (Yes/No)	Location (On, Off, Shared, City)	Bylaw-defined? (Yes/No)	Name		dbh (cm)	Dripline diameter (m)	Critical root zone radius (m)	Relative Tolerance	Condition		Retention Suitability (on-site trees)	General field observations/remarks	Tree retention / location comments	Retention status
				Common	Botanical					Health	Structural				
M1	Yes	Municipal	Yes, No. 1000	Flowering cherry	<i>Prunus serrulata</i> 'Kwanzan'	~35	8	4.2	Moderate	Good/Fair	Fair	N/A	Within tree barrier fencing, large surface root, included bark and tight unions,	Possible impacts from underground parking. Services?	Retain*
589	Yes	On-site	Yes	Purple leaf plum	<i>Prunus cerasifera</i>	36 below unions	3	4.3	Moderate	Good	Fair/Poor	Unsuitable	Multiple tops originating from ~1.4m, included bark and narrow branch attachments	Conflict with underground parking.	X
590	Yes	On-site	Yes	Arbutus	<i>Arbutus menziesii</i>	53, 50, 43, 37	7.5	16.3	Poor	Fair	Fair/Poor	Unsuitable	Four leaders, large pruning wounds, canker with decay at interior base of eastern stem, compacted soil on and off site, western leaders are over extended	Conflict with underground parking.	X
591	Yes	On-site	Yes	Arbutus	<i>Arbutus menziesii</i>	110 below unions	6.5	16.5	Poor	Fair	Fair/Poor	Unsuitable	Excavation cut within 2.5m of base, eastern limb removed, historical large limb failure on south side with surface decay, western limb over extended and end weighted, seam along union of western limb (potentially response growth), stressed (twig dieback likely from new exposure),	Conflict with underground parking.	X
592	Yes	On-site	Yes	Garry oak	<i>Quercus garryana</i>	34	4	3.4	Good	Fair/Poor	Fair/Poor	Unsuitable	Stressed, sparse canopy, epicormics, canopy weighted to the northwest, included union	Conflict with underground parking.	X
593	No	On-site	Yes	Apple (domestic)	<i>Malus spp.</i>	25 below unions	3	3	Moderate	Fair	Fair	Unsuitable	~3.5m east of corner of house, codominant, topped historically	Conflict with underground parking.	X
594	Yes	On-site	Yes	Garry oak	<i>Quercus garryana</i>	71 below unions	6	7.1	Good	Fair/Poor	Fair/Poor	Unsuitable	Vertical excavation ~2m east of tree, flush cuts, tearout wounds, mechanical damage on southern side, main stem codominant with large inclusion, multiple pruning wounds along eastern side, fruiting bodies in pruning wounds (likely turkey tails), irregular taper, asymmetrical canopy	Conflict with underground parking.	X
595	Yes	On-site	Yes	Norway maple	<i>Acer platanoides</i>	37 below unions	5.5	4.4	Moderate	Good	Fair	Unsuitable	Tridominant, brick between unions, large surface roots, girdling root,	Conflict with underground parking.	X

596	Yes	On-site	Yes	Cherry (domestic)	<i>Prunus spp.</i>	50	5.5	6	Moderate	Fair	Fair	Unsuitable	Large surface roots, tree fort structure built on lateral limb, end weighted limbs, historic limb removals, deadwood	Conflict with underground parking.	X
597	Yes	On-site	Yes	Leyland cypress	<i>Cuprocyparis leylandii</i>	89 below unions	5.5	8.9	Good	Good	Fair	Unsuitable	Historical limb removal from lower trunk, large eastern facing limb (large included limbs), shearing on southern side (neighbours side),	Conflict with underground parking.	X
598	Yes	On-site	Yes	Leyland cypress	<i>Cuprocyparis leylandii</i>	~90	5	9	Good	Good	Fair/Poor	Unsuitable	Multiple leaders with narrow attachments and included bark, over extended limbs to the west,	Conflict with underground parking.	X
993	No	On-site	Yes	Apple (domestic)	<i>Malus spp.</i>	21 over ivy	3	2.5	Moderate	Good/Fair	Fair	Unsuitable	Growing in corner of lot,	Conflict with underground parking.	X

## 5. SITE INFORMATION & PROJECT UNDERSTANDING

The development site consists of five (5) residential properties (2825-2831 Knotty Pine Road & 2830 Jacklin Road) in Langford, B.C., which have existing residences on each lot. It is our understanding that the proposal is to demolish the existing structures, followed by construction of a new multi-unit residential complex. **At this time, we have not reviewed a site servicing plan.**

Below is a general observation of the tree resource, as it appeared at the time of our site visit(s):

## 6. FIELD OBSERVATIONS

The on and off-site tree resource consists of a mixture of native and non-native species growing in open landscape conditions (see **Figure 1**):



**Figure 1:** Site context air photo: The approximate boundary of the subject site is outlined in blue.

## 7. TREE RISK ASSESSMENT

During our May 3 (2024) site visit and in conjunction with the tree inventory, on-site trees were assessed for risk on a limited visual basis (level 1), in the context of the existing land uses. The time frame used for the purpose of our



assessment is one year (from the date of this report). Unless otherwise noted herein, we did not conduct a detailed (level 2) or advanced (level 3) risk assessment, such as resistograph testing, increment core sampling, aerial examinations, or subsurface root/root collar examinations.

## Existing Land Uses

We did not observe any trees that were deemed to be moderate, high, or extreme risk (in the context of the existing land uses, which would require hazard abatement to eliminate present and/or future risks) within a 1-year timeframe. Targets considered during this TRAQ assessment include: occupants of the existing residences on-site and neighbour's (constant use), occupants of vehicles travelling or parked on Knotty Pine Road or Jacklin Road (frequent use), pedestrians travelling along the existing sidewalks (occasional use), occupants of front, rear, and side yards on-site and neighbour's (occasional use), hydro lines (constant use).

## 8. CONSTRUCTION IMPACT ASSESSMENT

### 8.1. RETENTION AND REMOVAL OF MUNICIPAL TREES

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The following municipal trees (indicated by ID#) are located where they may be possible for retention provided that the critical root zones are adequately protected during construction. The project arborist must be on site to supervise any excavation or fill placement required within the critical root zones—shown on the tree management plan in **Appendix A**:

#### Retain and protect one (1) municipal tree

- M1

#### 8.1.1. ADDITIONAL MITIGATION MEASURES FOR M1

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The new underground parking facility is proposed within the CRZ of **flowering cherry (*Prunus serrulata* 'Kwanzan')** M1 (~35cm DBH):

- If a cut-slope is prescribed by a geotechnical engineer, over-excavation within the CRZ could result in significant impacts to M1. However, we anticipate excavation will be restricted to the east property line. If this is the case, we anticipate this tree can be retained.
- The project arborist must supervise all excavations within the CRZ and perform any required root pruning.
- Protective barrier fencing is currently installed to the edges of the existing curb and sidewalk (due to development on the adjacent lot). We recommend this fencing is maintained until the completion of the proposed construction on the subject properties.

At this time, we have not reviewed plans that show how underground and/or overhead services will be connected to the proposed residential complex:

- We recommend all services are connected outside the CRZ and drip line of M1, if possible. Any excavations or clearance pruning required within these areas must be reviewed and/or directly supervised by the project arborist.

If **Norway Maple (*Acer platanoides*) #595** (37cm trunk diameter below unions) is approved for removal, care must be taken to minimize damage to the canopy of M1, as the crowns of the two trees are intertwined.

## 8.2. RETENTION AND REMOVAL OF ON-SITE TREES

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The following bylaw-defined on-site trees (indicated by tag #) are located where they are likely to be severely impacted by construction and are proposed for removal:

### Remove eleven (11) on-site trees

- #589-598, 993

## 9. IMPACT MITIGATION

**Tree Protection Barrier:** The areas surrounding the trees to be retained should be isolated from the construction activity by erecting protective barrier fencing (see **Appendix A** for municipal barrier specifications). Where possible, the fencing should be erected at the perimeter of the critical root zone. 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 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.

**Arborist Supervision:** All excavation occurring within the critical root zones of protected trees should be completed under supervision by the project arborist. Any severed or severely damaged roots must be pruned back to sound tissue to reduce wound surface area and encourage rapid compartmentalization of the wound. In particular, the following activities should be completed under the direction of the project arborist:

- Any excavations or additions of fill within the CRZs of protected trees to be retained.

**Methods to Avoid 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 15-20 cm over top.
- Placing two layers of 19mm plywood.
- Placing steel plates.

**Demolition of the Existing Buildings:** The demolition of the existing houses, driveways, 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.

### **Paved Surfaces Above Tree Roots:**

If the new paved surfaces within the CRZ of tree to be retained require excavation down to bearing soil and roots are encountered in this area, this could impact their health and structural stability. If tree retention is desired, a raised and permeable paved surface should be constructed in the areas within the critical root zone of the trees. The “paved surfaces above root systems” diagram and specifications is attached.

The objective is to avoid root loss and to instead raise the paved surface and its base layer above the roots. This may result in the grade of the paved surface being raised above the existing grade (the amount depending on how close roots are to the surface and the depth of the paving material and base layers). Final grading plans should take this potential change into account. This may also result in soils which are high in organic content being left intact below the paved area.

To allow water to drain into the root systems below, we also recommend that the surface be made of a permeable material (instead of conventional asphalt or concrete) such as permeable asphalt, paving stones, or other porous paving materials and designs such as those utilized by Grasspave, Gravelpave, Grasscrete and open-grid systems.

**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.

**Blasting:** 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.

**Scaffolding:** This assessment has not included impacts from potential scaffolding including canopy clearance pruning requirements. If scaffolding is necessary and this will require clearance pruning of retained trees, the project arborist should be consulted. Depending on the extent of pruning required, the project arborist may recommend that alternatives to full scaffolding be considered such as hydraulic lifts, ladders, or platforms. Methods to avoid soil compaction may also be recommended (see “Minimizing Soil Compaction” section).

**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 consider 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.

## 10. DISCLOSURE STATEMENT

This arboricultural field review report was prepared by Talmack Urban Forestry Consultants Ltd. for the exclusive use of the Client and may not be reproduced, used, or relied upon, in whole or in part, by a party other than the Client without the prior written consent of Talmack Urban Forestry Consultants Ltd. Any unauthorized use of this report, or any part hereof, by a third party, or any reliance on or decisions to be made based on it, are at the sole risk of such third parties. Talmack Urban Forestry Consultants Ltd. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report, in whole or in part.

Arborists are professionals who examine trees and use their training, knowledge, and experience to recommend techniques and procedures that will improve a tree's 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. The arborist's review is limited to a visual examination of tree health and structural condition, without excavation, probing, resistance drilling, increment coring, or aerial examination. There are inherent limitations to this type of investigation, including, without limitation, that some tree conditions will inadvertently go undetected. The arborist's review followed the standard of care expected of arborists undertaking similar work in British Columbia under similar conditions. No warranties, either express or implied, are made as to the services provided and included in this report.

The findings and opinions expressed in this report are based on the conditions that were observed on the noted date of the field review only. The Client recognizes that passage of time, natural occurrences, and direct or indirect human intervention at or near the trees may substantially alter discovered conditions and that Talmack Urban Forestry Consultants Ltd. cannot report on, or accurately predict, events that may change the condition of trees after the described investigation was completed.

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. The only way to eliminate tree risk entirely is to remove the entire tree. All trees retained should be monitored on a regular basis. 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.

Immediately following land clearing, grade changes or severe weather events, all trees retained should be reviewed for any evidence of soil heaving, cracking, lifting or other indicators of root plate instability. If added information is discovered in the future during such events or other activities, Talmack Urban Forestry Consultants Ltd. should be requested to re-evaluate the conclusions of this report and to provide amendments as required prior to any reliance upon the information presented herein.

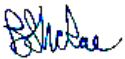
## 11. IN CLOSING

We trust that this report meets your needs. Should there be any questions regarding the information within this report, please do not hesitate to contact the undersigned.

Yours truly,

Talmack Urban Forestry Consultants Ltd.

Prepared by:



Robert McRae  
ISA Certified Arborist PN – 7125A  
Tree Risk Assessment Qualified  
Tree Appraisal Qualified  
Email: Robbie@Talmack.ca

## 12. REFERENCES

Dunster, J.A., E.T. Smiley, N. Matheny, and S. Lily. 2017. Tree Risk Assessment Manual, International Society of Arboriculture (ISA).

The City of Langford Tree Protection Bylaw No. 2117.

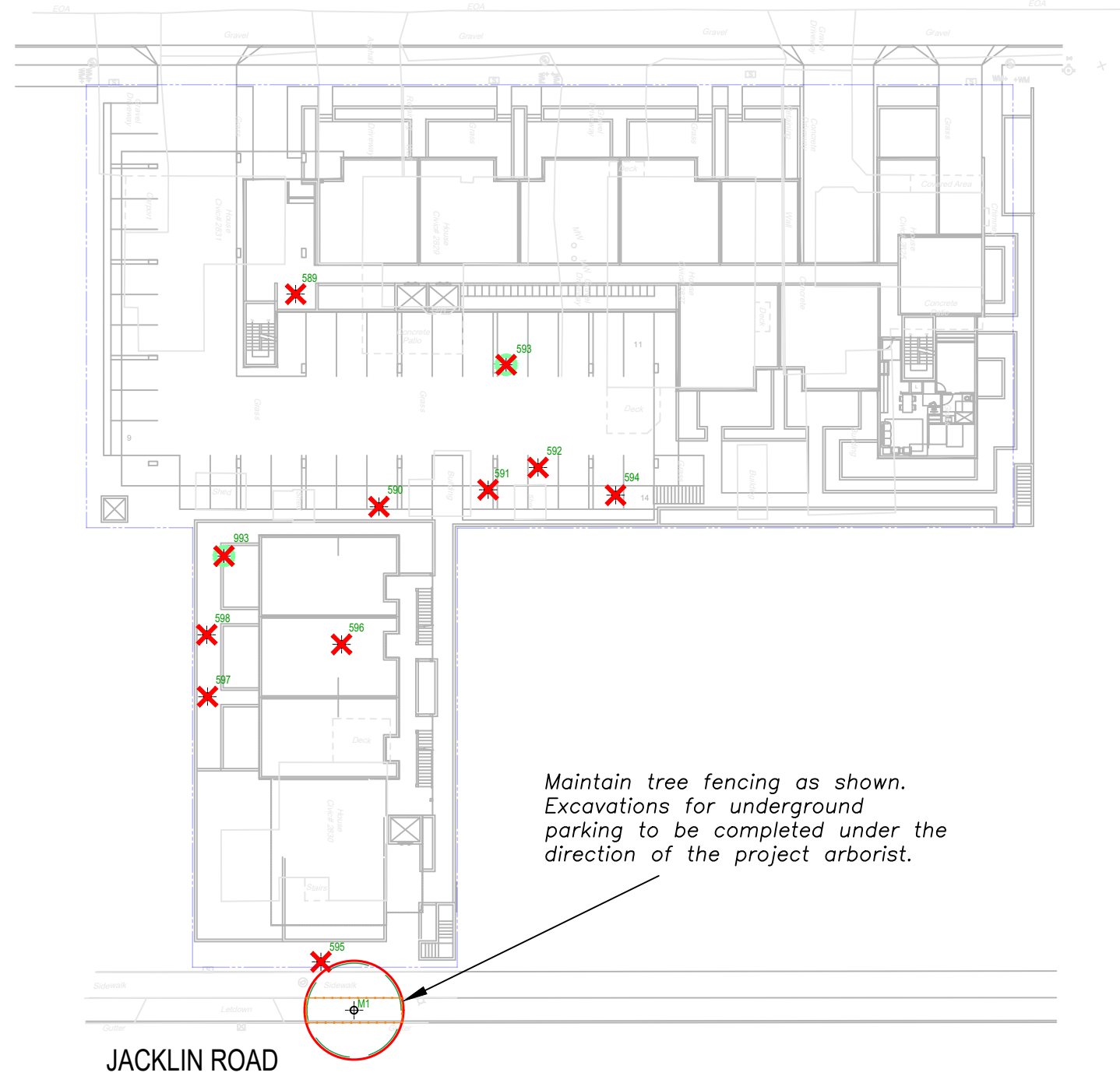
The City of Langford Subdivision and Site Servicing Bylaw No. 1000.

## 13. COMPANY INFORMATION

General Liability: Intact Insurance, Policy No. 5V2147122 : \$5,000,000

**APPENDIX A - TREE MANAGEMENT PLAN**

# KNOTTY PINE ROAD



JACKLIN ROAD

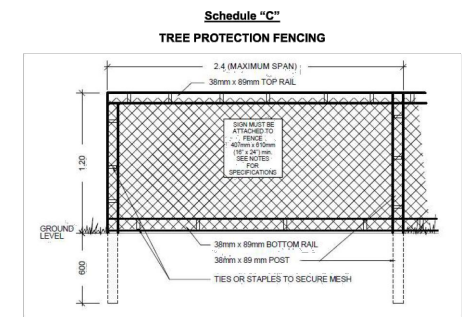
THIS PLAN IS PROVIDED FOR CONTEXT ONLY, AND IS NOT CERTIFIED AS TO THE ACCURACY OF THE LOCATION OF FEATURES OR DIMENSIONS THAT ARE SHOWN ON THIS PLAN. PLEASE REFER TO THE ORIGINAL SURVEY PLAN AND ARCHITECTURAL PLANS. THE LOCATION OF UNSURVEYED TREES ON THIS PLAN IS APPROXIMATE. THE LOCATION AND OWNERSHIP OF UN-SURVEYED TREES CANNOT BE CONFORMED WITHOUT BEING SURVEYED BY A REGISTERED BC LAND SURVEYOR.

## LEGEND

- Existing tree with tag or ID #
- Tree proposed for removal
- Unsurveyed tree
- Site boundary
- Tree protection fencing
- Dripline radius (m)
- Critical root zone radius (m)



## TREE PROTECTION FENCING



- Tree Protection Fencing Specifications:**
- The fence will be constructed using 38 x 89 mm (2" x 4") wood frame:
    - Top, Bottom and Posts.
    - Use orange snow fencing mesh and secure to the wood frame with "zip" ties or galvanized staples.
  - Attach a sign with minimum size of 407 mm x 610 mm (16" X 24") with the following wording:
    - DO NOT ENTER**- Tree Protection Zone (For retained trees);
    - DO NOT ENTER**- Future Tree Planting Zone (For tree planting sites)
- This sign must be affixed on every fence face or at least every 10 linear metres.
- \*In rocky areas, metal posts (I-bar or rebar) drilled into rock will be accepted.
- DATE: November 2023  
SCALE: N.T.S.

## TREE PROTECTION NOTES



**Tree protection barrier:** 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 zone. The barrier fencing to be erected must be a minimum of 1200mm 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 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.

**Arborist supervision:** All excavation occurring within the critical root zones of protected trees must be completed under the supervision of the project arborist. Any severed or severely damaged roots must be pruned back to sound tissue to reduce wound surface area and encourage rapid compartmentalization of the wound.

**Demolition:** The demolition of the existing houses, driveways, 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 of the project arborist. If temporarily removed for demolition, barrier fencing must be erected immediately after the supervised demolition.

**Methods to avoid 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 20cm 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 15cm over top.
- Placing two layers of 19mm plywood.
- Placing steel plates.

**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.

**Pruning:** We recommend that any pruning of by-law-protected trees be performed to ANSI A300 standards and Best Management Practices.

**Paved surfaces above tree roots:** Where paved areas cannot avoid encroachment within critical root zones of trees to be retained, construction techniques, such as floating permeable paving, may be required. The "paved surfaces above tree roots" detail above offers a compromise to full depth excavation (which could impact the health or structural stability of the tree). The objective is to avoid root loss and to instead raise the paved surface above the existing grade (the amount depending on how close roots are to the surface and the depth of the paving material and base layers). Final grading plans should take this potential change into account. This may also result in soils which are high in organic content being left intact below the paved area. To allow water to drain into the root systems below, we also recommend that the surface

be made of a permeable material (instead of conventional asphalt or concrete) such as permeable asphalt, paving stones, or other porous paving materials and designs such as those utilized by Grasspave, Gravelpave, Grasscrete and open-grid systems.

**Blasting and rock removal:** 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 vibrations and overall impact to 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.

**Scaffolding:** This assessment has not included impacts from potential scaffolding including canopy clearance pruning requirements. If scaffolding is necessary and this will require clearance pruning of retained trees, the project arborist should be consulted. Depending on the extent of pruning required, the project arborist may recommend that alternatives to full scaffolding be considered such as hydraulic lifts, ladders or

platforms. Methods to avoid soil compaction may also be recommended (see "Minimizing Soil Compaction" section).

**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 technical 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 the tree health and can lead to root and trunk decay.

**Arborists 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 and machine access corridors where required.
- Supervising excavation for any areas within the critical root zones of trees to be retained including any proposed retaining wall footings and review any proposed fill areas near trees to be retained.

**Tree Management Plan**  
2825-2831 Knotty Pine Rd. & 2830 Jacklin Rd.  
Langford, BC

DATE: May 30, 2024  
PREPARED FOR: Eden Developments  
SCALE: 1 : 500 @ 11" X 17"  
DRAWN BY: RM  
REVISION: 0  
REFERENCE DWG: 24017-Scheme 6 - 27May24 & W128-REGAN-SP2

