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May 31, 2024

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Work Safe BC # 968408

Insurance/ Seafirst (CFC Underwriting - 5 million Dollar Liability- Policy PSG03515712)

Incorporation # BC1069996 Ltd.

Intermunicipal Business Licence #00016808

BC SEBASE Safe Certified #5200066

**RE: Pre-Development Impact Assessment & Tree Protection Plan**

**Location - 967 Isabell Avenue - Langford B.C.**

In April 2023 Michael Butcher a Consulting Arborist with SouthShore Forest Consultants provided a Basic Visual Tree Risk Assessment Level "2" on several trees positioned within the proposed development area. Our assessment has determined that twenty-seven (27) trees are positioned in and around the proposed development area. Our assessment of the site has determined that approximately ten (10) trees will be removed under the existing proposal.

The client has proposed to develop a six (6) block (19 units) residential sub-division with road and landscape improvements. The client has proposed to retain approximately fourteen (14) trees in Greenspace "Area A".

Under the existing proposal several trees will be significantly impacted due to development requirements. Excavation, cut, slope and building/driveway footprints will significantly impact tree Protected Root Zones (PRZ) & Critical Root Zones (CRZ). The proposed building envelopes, combined with the road & driveway alignment will directly impact seven (7) trees. Three (3) trees were observed to be positioned where significant indirect impacts to tree root zones would be expected.

Tree NT1M cypress a border line property tree positioned along Isabell Avenue was previous assessed and recommend for removal – In this case we have reassessed the viability of the trees retention and have proposed that the tree be preserved through mitigation techniques. Our experience, when compared to the trees profile give this tree a 50% chance of survival when the CRZ is expanded reducing further root impacts – Please see the previous comments below.

*Upon assessing the tree and reviewing the site plan it is evident that the cypress tree should be removed under the existing proposal for the site. Lot "A" where the tree is located will require improvements along the frontage (sidewalk) and road dedication. Combined a new driveway alignment and dwelling setbacks will be positioned within 2m of the cypress tree. Our observations indicate that every side of the trees CRZ will be impacted under the existing proposal.*

*Our observations have indicated that the amount of root and soil disturbances proposed for the site will far exceed Tree Care Industry Standards. Assessed to have more than 40% of the PRZ removed and/or disturbed during development we believe that the tree would have an increased risk in the landscape. This species of cypress cannot withstand structural root loss. Due to its weighted, evergreen canopy Leyland cypress have higher than normal failure potential when isolated as individual specimens in the landscape.*  
 – June 2022 – Arborist report SSFC

Figure #1 – Proposed Civil Drawing & Tree NT1M Cypress

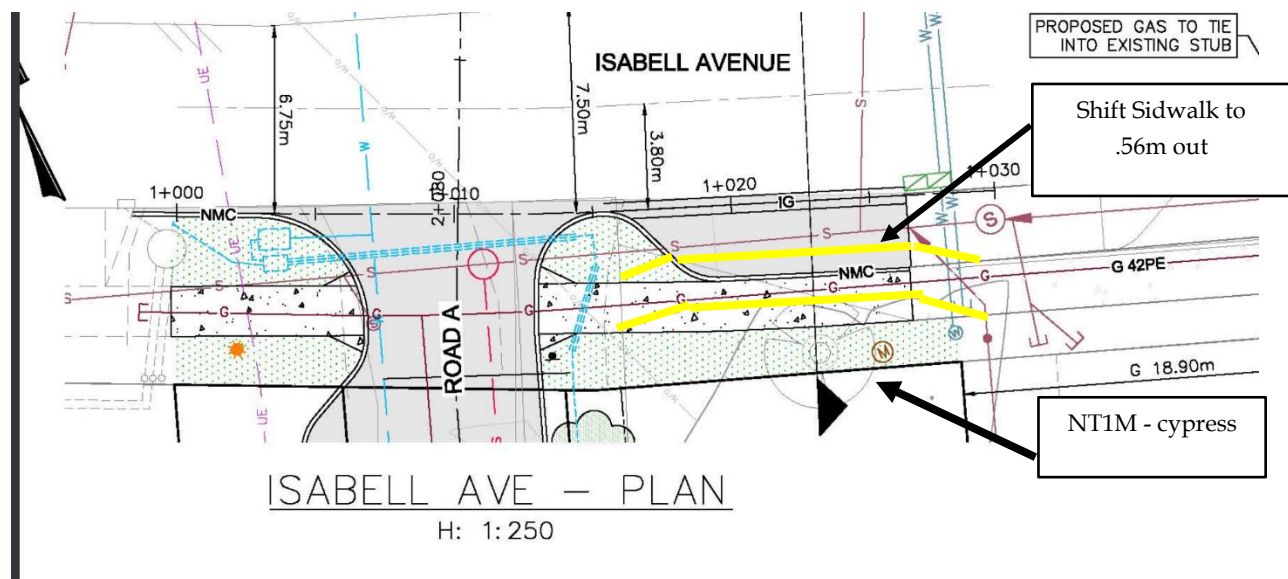
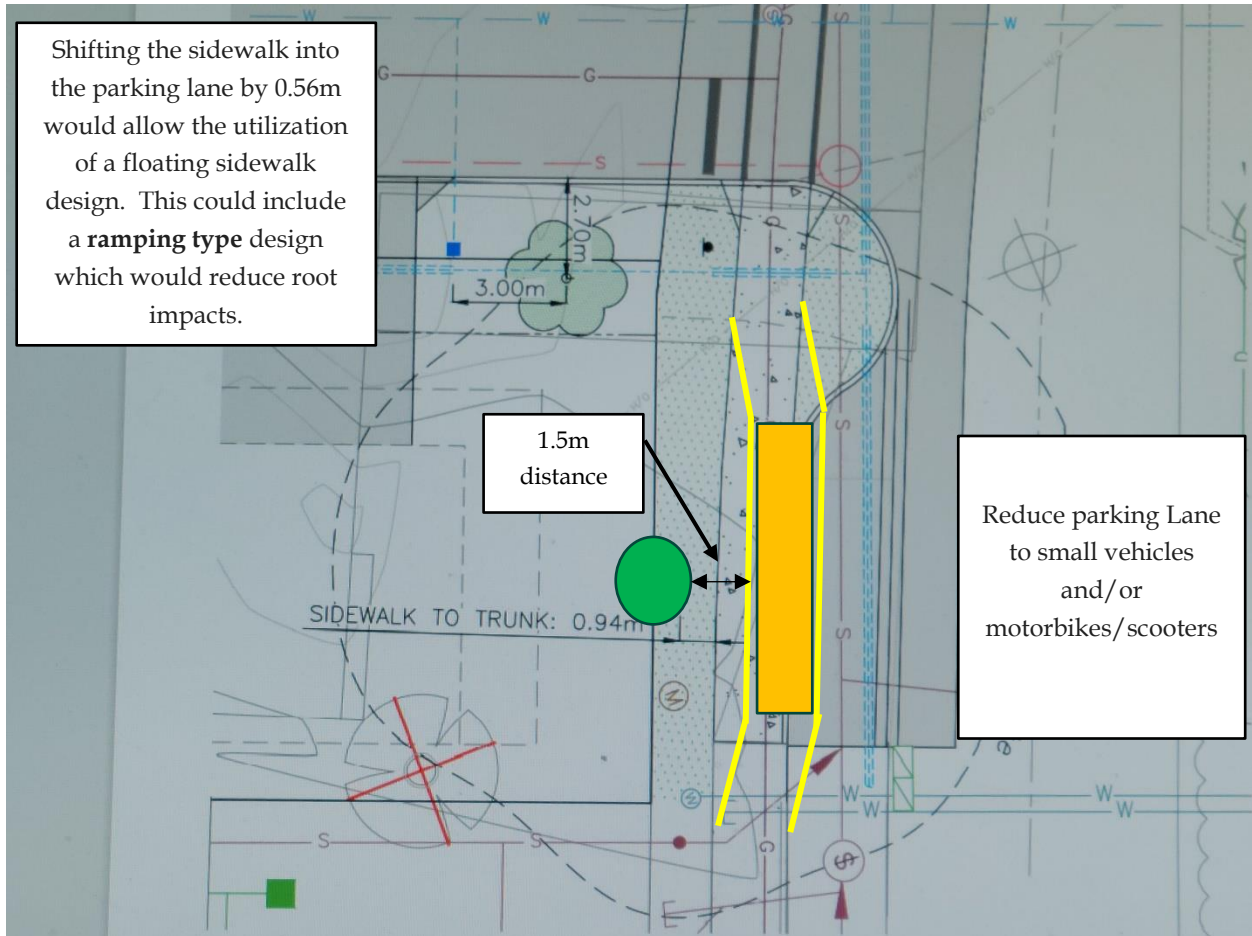


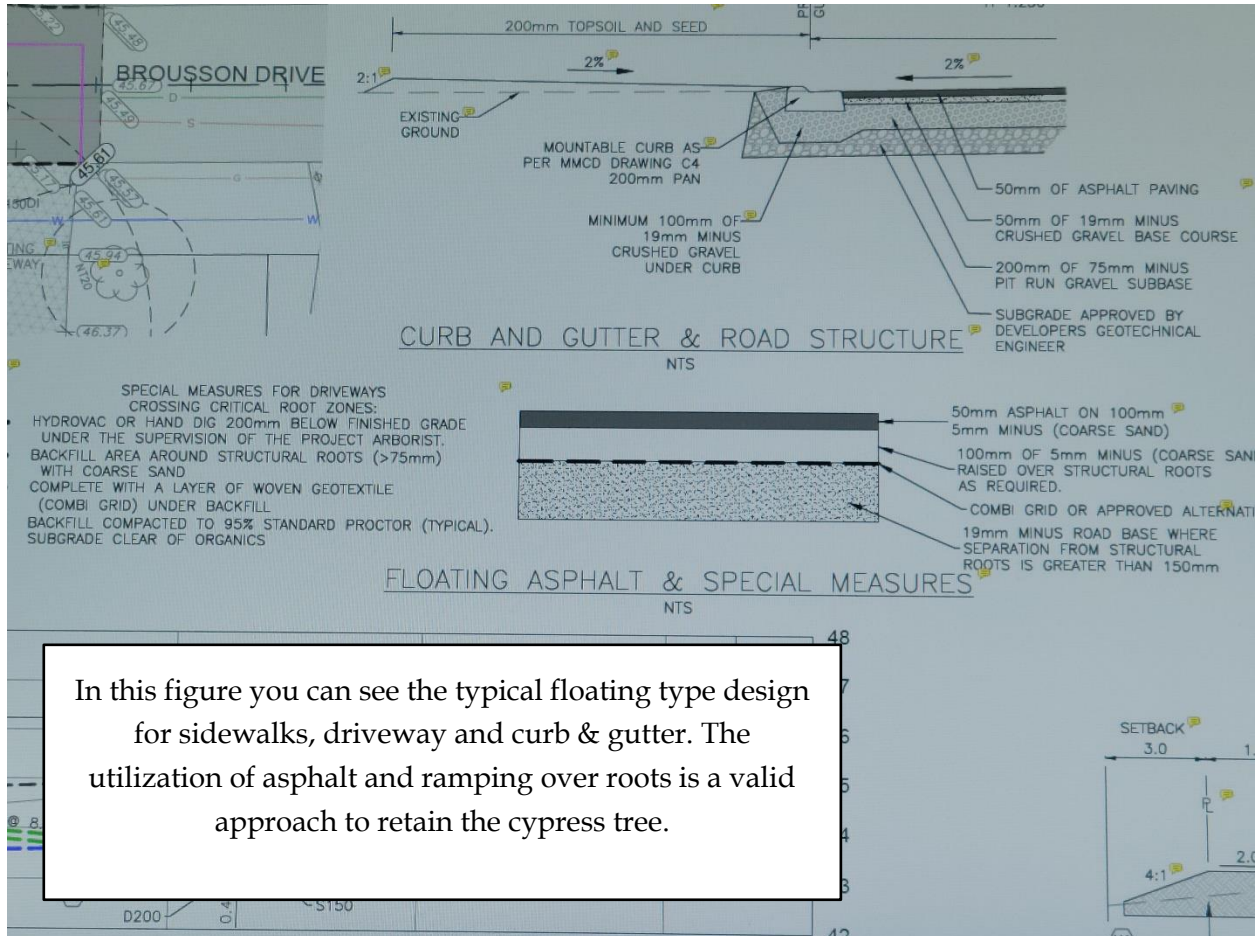
Figure #2 – Sidewalk Shift – Reduce Parking Lane



The proposed increase of 0.56m and the redesign of the sidewalk around the trees base would certainly reduce root impacts in the trees CRZ. The orange area indicates where the sidewalk can be floated over the tree's root profile reducing the excavation depth.



Figure #3 - Floating Asphalt & Special Measures



In this figure you can see the typical floating type design for sidewalks, driveway and curb & gutter. The utilization of asphalt and ramping over roots is a valid approach to retain the cypress tree.

## Tree Inventory – 967 Isabell Avenue – City of Langford B.C.

Tree #	Species	DBH (cm)	Height (m)	PRZ (m)	CRZ (m)	Impact Tolerance	Expected Impact	Retain	Remove	Comments
#1M	L Cypress	124	24	15	8	Low	High	X		Retain - Provide mitigation solutions
#2	D-fir	70	33	10	5	Moderate	High		X	Direct Impact - Building envelope
#3	D-fir	55	26	8	4	Moderate	High		X	Direct Impact - road allowance
#4	D-fir	45	23	7	4	Moderate	High		X	Direct Impact - road allowance
#5	D-fir	32	22	5	3	Moderate	Moderate	X		TBD - Pending Excavation impacts
#6	G fir	52	24	6	3	Moderate	Low/Mod	X		Retain & Protect - Project Arborist to assess root impacts
#7	D-fir	50	24	6	3	Moderate	Low/Mod	X		Retain & Protect - Project Arborist to assess root impacts
#8	D-fir	63	26	7	4	Moderate	Low/Mod	X		Retain & Protect - Project Arborist to assess root impacts
#9a	D-fir	55	25	7	4	Moderate	Low/Mod	X		Retain & Protect - Project Arborist to assess root impacts
#9b	D-fir	35	23	5	3	Moderate	Low/Mod	X		Retain & Protect - Project Arborist to assess root impacts
#9c	D-fir	35	23	5	3	Moderate	Low/Mod	X		Retain & Protect - Project Arborist to assess root impacts
#9d	D-fir	35	22	5	3	Moderate	Low/Mod	X		Retain & Protect - Project Arborist to assess root impacts
#10	D-fir	51	26	6	3	Moderate	High		X	Remove - Direct Impact
#11	D-fir	53	24	7	4	Moderate	High		X	Remove - Direct Impact
#12	D-fir	37	20	5	3	Moderate	Low/Mod	X		Retain & Protect - Project Arborist to assess root impacts
#13	D-fir	37	20	5	3	Moderate	Low/Mod	X		Retain & Protect - Project Arborist to assess root impacts
#14	D-fir	29	20	5	3	Moderate	Moderate	X		TBD - Pending Excavation impacts
NT1	D-fir	40	22	6	3	Moderate	Low/Mod	X		Retain & Protect - Project Arborist to assess root impacts
NT2	D-fir	55	23	7	4	Moderate	Low/Mod	X		Retain & Protect - Project Arborist to assess root impacts
NT3	D-fir	43	23	6	3	Moderate	Low/Mod	X		Retain & Protect - Project Arborist to assess root impacts
NT4	Arbutus	6	2	1	1	Low	Low	X		Retain & Protect - Project Arborist to assess root impacts
NT5	Magnolia	30	8	5	3	Moderate	High		X	Remove - Indirect root impact
NT6	B spruce	40	16	5	3	Moderate	Low/Mod	X		Retain & protect - April 25/24 - MMBU/SSFC revision #2
NT7	D-fir	30	15	5	3	Moderate	High		X	Indirect to direct development impact - remove
NT8	E walnut	26	9	4	2	Moderate	High		X	Indirect to direct development impact - remove
NT9	Plum	26	8	4	2	Moderate	High		X	Indirect to direct development impact - remove
NT10	Fruit sp.	28	8	4	2	Moderate	High		X	Indirect to direct development impact - remove

## Tree Bio Metrics

DBH - Diameter Breast Height - Calculated at 1.41 m above grade on tree stem

PRZ - Protected Root Zone, (calculated at a ratio of 1:12) 50cm DBH = 6m PRZ

CRZ - Critical Root Zone, (calculated at a ratio of 1:6) 60cm DBH = 3m CRZ

Tree Health - P= Poor, F=Fair, G=Good

Tree Structure - P= Poor, F=Fair, G=Good

Footprint = Excavation edge along the outside of building envelope on grade. Over excavation is expected and can be up to a 1.5m distance from the outside of the proposed footprint edge.

Impact Zone = Constructive area, estimated at 0-1.5m outside the proposed building footprint.

Impact Levels - L (Low), M (Moderate), H (High)

Impact Tolerance - L (Low), M (Moderate), H (High)

## Tree Assessment Condition Rating

- Good - A tree specimen which is exempt defects, branch dieback, moderate insect and fungal identification. This tree has evenly distributed branching, trunk development and flare. The root zone is undisturbed, leaf, bud and flower production and elongation are normal for its distribution.
- Fair - A tree specimen which has minor defects, branch dieback, previous limb failure, identification of cavities and insect, or fungal identification. This tree has multiple (2-3) primary stem attachments; previous utility pruning, callus growth and poor wound wood development. Minor root girdling, soil heave and identifiable mechanical damage to the root flare or root zone.
- Poor- A tree specimen where 30-40% of the canopy is identifiably dead, large dead primary branching, limited leaf production, bud development and stem elongation. Limb loss or failure, and heavy storm damage leading to uneven weight distribution. Large pockets of decay, multiple cavities, heavy insect and fungal infection. Root crown damage or mechanical severing of roots. Root plate shifting, heavy lean and movement of soil.
- Dead- Tree has been observed to be dead with no leaf, foliar and bud development. No stump sprouts and root suckers are present.

Figure #4 – Site Survey – 967 Isabell Avenue – Langford B.C.



Figure #5 - Proposed Development – 967 Isabell Avenue – Langford B.C.

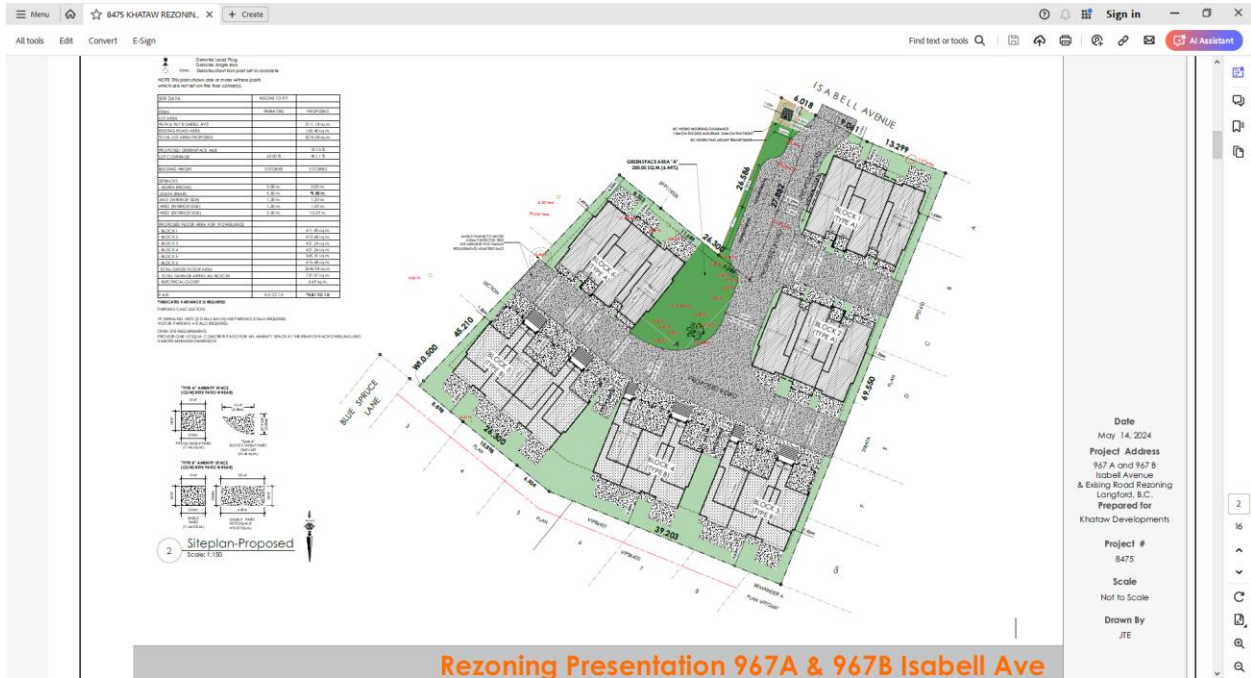


Photo #1NTM Cypress & #2 Douglas-Fir





Photo #2 – Proposed GreenSpace Area A & Fir Tree Grouping



In this photo you can see the primary treed area of the site. This are of the site is proposed to be a Greenspace – Area “A” and therefore we are proposing to protect and retain several of the trees in this photo.



Photo #3 - Proposed Greenspace Area A & Fir trees #10 & #11



Fir trees #10 & #11  
Direct & Indirect  
impacts - remove  
to grade

Fir tree cluster - most proposed for  
retention in Greenspace Area A.  
Trees #3 & #4 have been identified  
for removal due to road dedication  
requirements.



Photo #4 – Fir Tree Cluster & #14 Arbutus Tree – Greenspace Area A



This photo identifies several of the trees slated for retention in the Greenspace Area A. The road dedication and alignment will more than likely require two firs to be removed and impact surrounding tree root zones. The Project Arborist shall monitor and assess root impacts during excavation and constructive impacts for this area of the site. Further tree removal recommendation may occur and there for certain trees should be “To Be Determined” (TBD) for retention and/or removal outcomes.



Photo #5 - Greenspace Area A - Fir Trees #3-#5 & #14

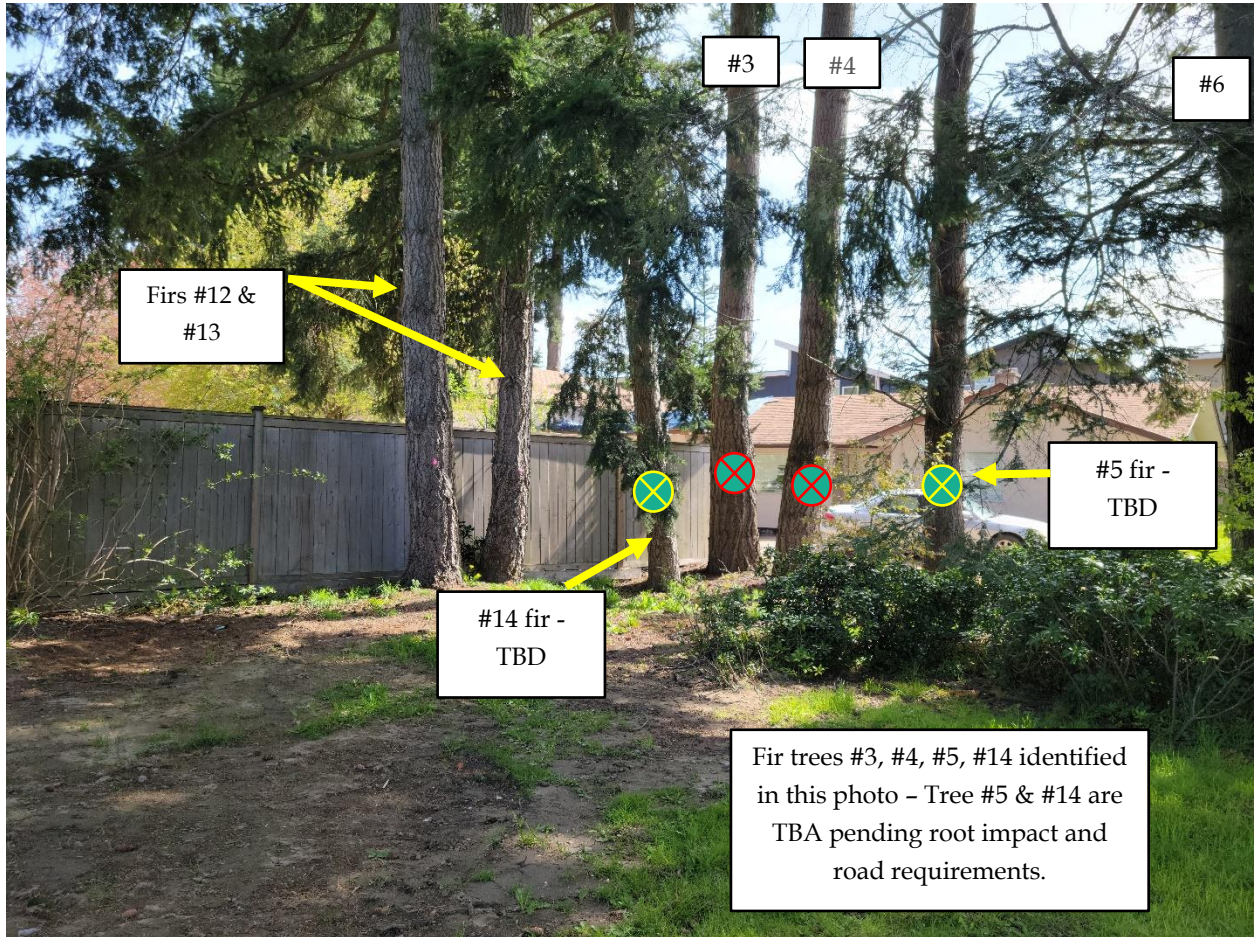


Photo #6 - NT5 Magnolia & NT6 Spruce



Figure #6 - Tree Site Map #1

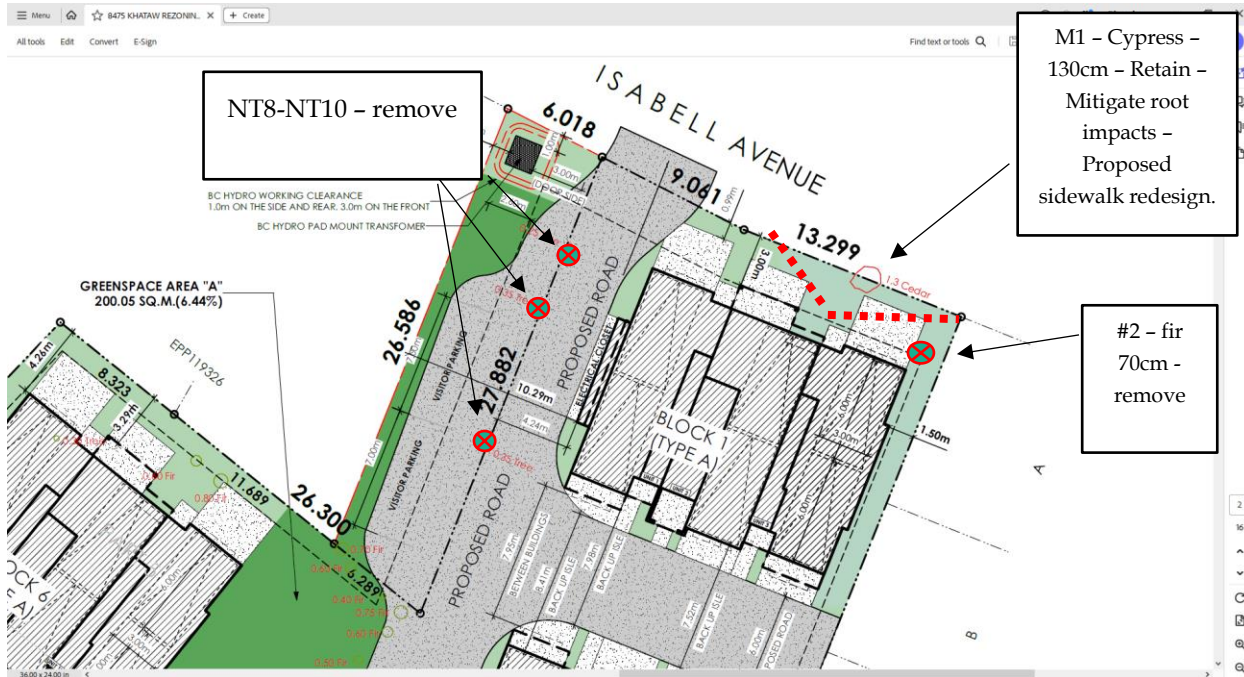


Figure #7 - Tree Site Map #2

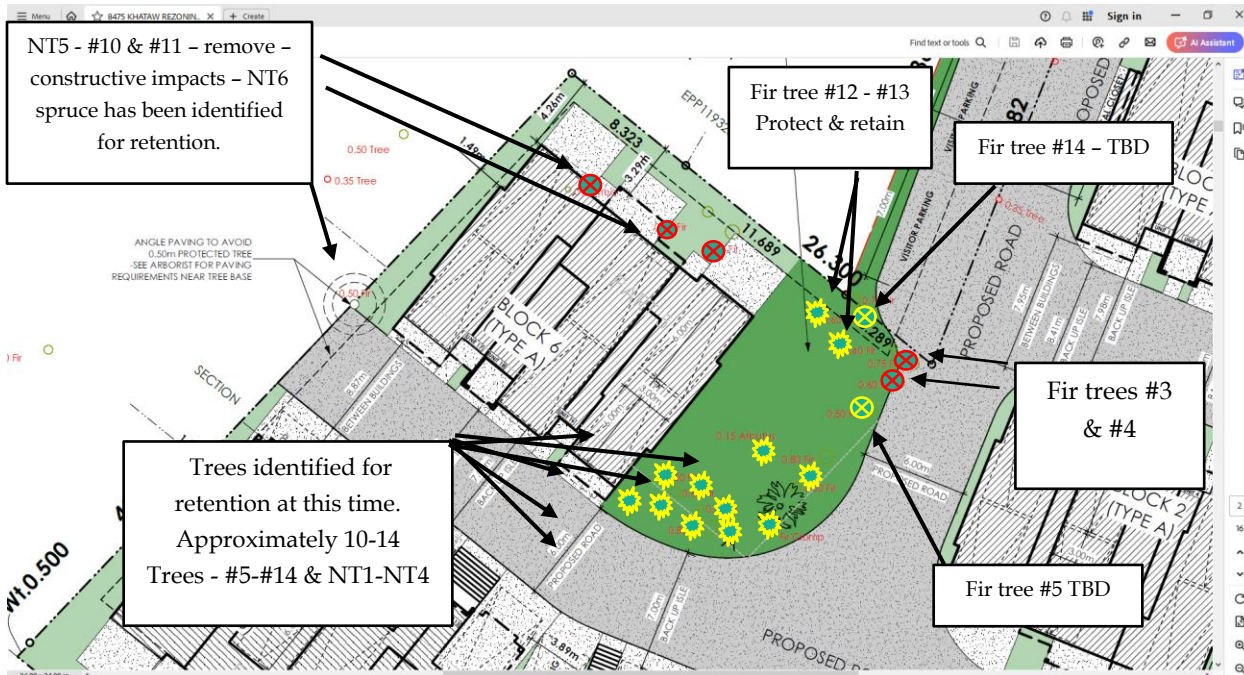
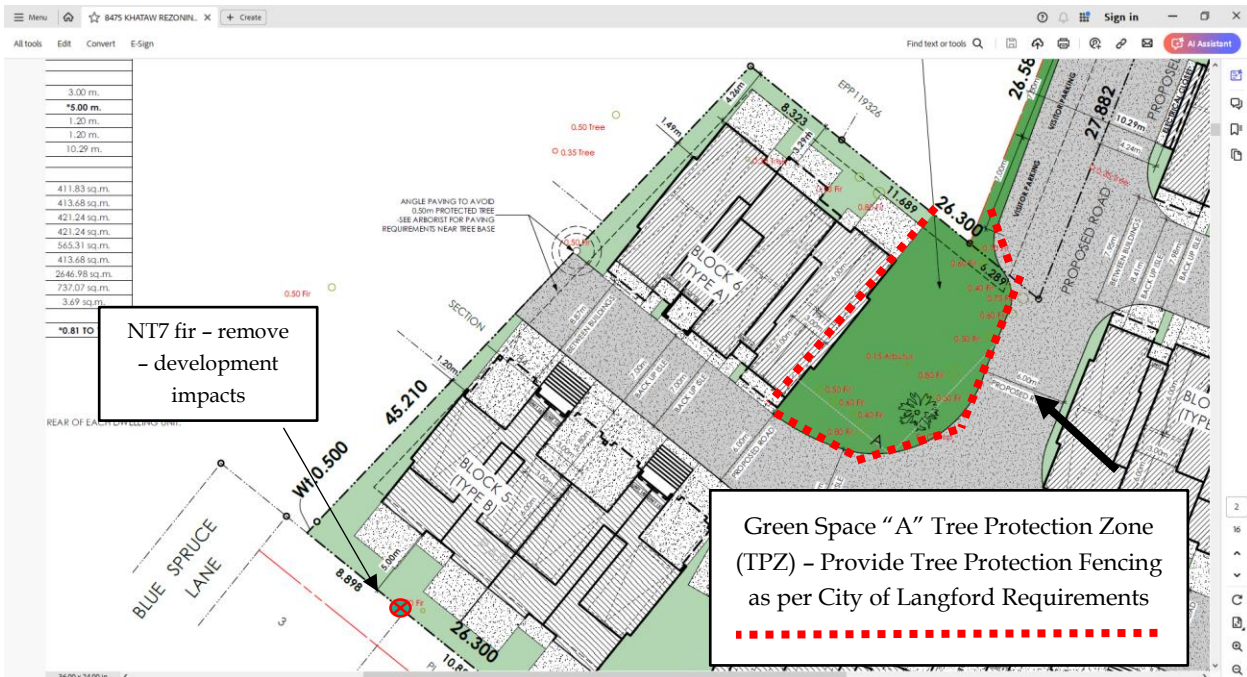


Figure #8 - Tree Site Map #3



## Tree Dynamics

### Observed Potential Tree Impacts

- Low to moderate root impacts could occur under the existing proposal for tree identified to be retained within the Greenspace Area "A". Our observations indicate that a portion of trees #5 & #14 could be impacted due to their positioning next to the proposed road.
- Soils compaction will be significant throughout most of the site. Under the existing proposal approximately 40% of the site will be covered by building footprints. Combined with road, utility and hardscape improvements our assessment has indicated that all existing trees outside the proposed Greenspace Area "A" be removed prior to development.
- Development tolerances will play a key factor in tree retention and therefore we firmly agree that several of the large firs within the Greenspace Area "A" can be retained due to numbers (cohort resilience) and positioning. Pending road excavation assessment, the Project Arborist shall make further recommendations - TBD.

## Tree Protection Plan (TPP) – Site Specific

- Provide Tree Protection Fencing as per Project Arborist Recommendations.
- Utilize the City of Langford Tree Protection Fencing guidelines and ensure that the fence is posted with visible signage indicating “Tree Protection Zone” – “Do not Enter”.
- **Provide Project Arborist to assess and supervise any excavation requirements which could impact trees identified for retention and/or protection. – Road construction – excavation along the Greenspace Area “A”.**
- Project arborist to assess the movement and positioning of TPF if temporary movement is required. City of Langford Staff to be notified when TPF is moved or repositioned.
- **Staging Area can be utilized throughout the remain area of the site – Greenspace Area “A” is off-limits and cannot have materials and/or equipment stored within it.**
- Root Armouring will not be required in the primary impact zone – ¾ inch plywood sheeting may be utilized. Project Arborist to determine upon completion of TPFing installation.
- **Project Arborist to provide Post Excavation and Impact Assessment Memo to City of Langford Staff within a reasonable timeline.**
- **Provide tree protection fencing and mitigation techniques for Tree NT1M cypress. The proposed improvements for this area of the site will be completed at the end of the project to ensure that the trees CRZ is fully protected. Coordination of development in this area of the site must be scheduled with the Project Arborist. Alternative paving, sidewalk design and excavation techniques will be required for tree NT1M cypress.**



## **Tree Protection Plan – General Notes**

- i. Provide a detailed sign specifying that tree protection measures are in place and will be followed during the project. Fines will be posted for malicious acts and can be placed on individuals who disregard the tree protection plan and its guidelines. Signs will be placed at each entrance of the project detailing what is expected when working in potentially high impact tree protection zones.**
- ii. Provide tree protection fencing for all trees identified with protection requirement in this report. This fencing shall be four (4ft) feet in height and made of orange plastic. If required, header and footer boards will be used to secure the protective fencing. Use the City of Langford tree protection specifications.**
- iii. Tree protection and root protection signs will be placed on the fencing. No entry will be allowed, unless specified by the project arborist and in their presents while on site.**
- iv. Restrict vehicle traffic to designated access routes and travel lanes to avoid soil compaction and vegetation disturbances.**
- v. Make all necessary precautions to prevent the storage of material, equipment, stockpiling of aggregate or excavated soils within tree protection areas. No dumping of fuels, oils or washing of concrete fluids will be allowed in tree protection zones.**
- vi. Provide an onsite arborist when a risk of root damage, root cutting or limb removal is required within the tree protection zone.**
- vii. Avoid alterations to existing hydrological patterns to minimize vegetation impacts to the site.**
- viii. The use of a project arborist is required to provide layout of tree protection zones. The project arborist(s) will provide pre-construction information to all parties involved with the project. The arborist must be notified 72hrs prior to construction activities in sensitive areas. The project arborist should be used to provide root and branch pruning when diameters are greater than 6cm.**
- ix. At no time will tree protection zones be removed from the project unless approved by the project arborist.**

**Each tree protection zone must be absent & clear of all construction materials and/or equipment. At no time can the fence be taken down unless the Project Arborist is contacted and approval is given. The Project Arborist must assess and assist fence removal and combined impacts which are require for construction completion. Michael Butcher 250.893.9056 – 72 hours’ notice required.**

### **Landing/Storage Area**

- Materials storage will be confined to the interior of the site

### **Compaction Reduction**

- Project Arborist to make recommendations once TPFing is erected. Root armour will not be required in this case. (Root curtain, mulching & irrigation TBD)

### **Root Assessment and Observation**

- Provide Project Arborist for all excavation operations/requirements within this site. Road construction along Greenspace Area "A".
- Project Arborist to monitor and make further recommendations if roots greater than 6cm in diameter are exposed.


### **Utility Corridor**

- Pending further information – all utilities have been proposed outside tree protected root zones. Insignificant impacts are expected during excavation.

### **Tree Pruning - Elevation**

- Ensure that any pruning required for working distances to provide a 4-6m clearance over the development zone. This will reduce the probability of branch tear or pulling from the egress of construction equipment. Provide pruning to ANSI A300 Tree Care Industry Standards. Provide a Certified Arborist to perform tree pruning activities. (Minor pruning may be required)

## Michael Butcher - Consulting Arborist



Michael Butcher- President  
SouthShore Forest Consultants  
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GST # 777095324 RC001  
Work Safe BC # 968408  
Incorporation # BC1069996  
BC SEBASE Safe Certified #5200066

### Arborist Disclosure Statement:

Arborist are tree specialists who use their education, training and experience to examine trees, recommend measures to enhance the beauty and health of trees, and attempt to reduce the risks.

Arborist cannot detect every condition that could possibly lead to structural failure of a tree.

Trees are living organisms that fail in ways we do not fully understand. Conditions are often hidden within trees and below the ground.

Arborist cannot guarantee that the tree will be healthy and safe under all circumstances, or for a specific period of time. Trees are dynamic specimens, not static. Changes in conditions including the environment are unknown.

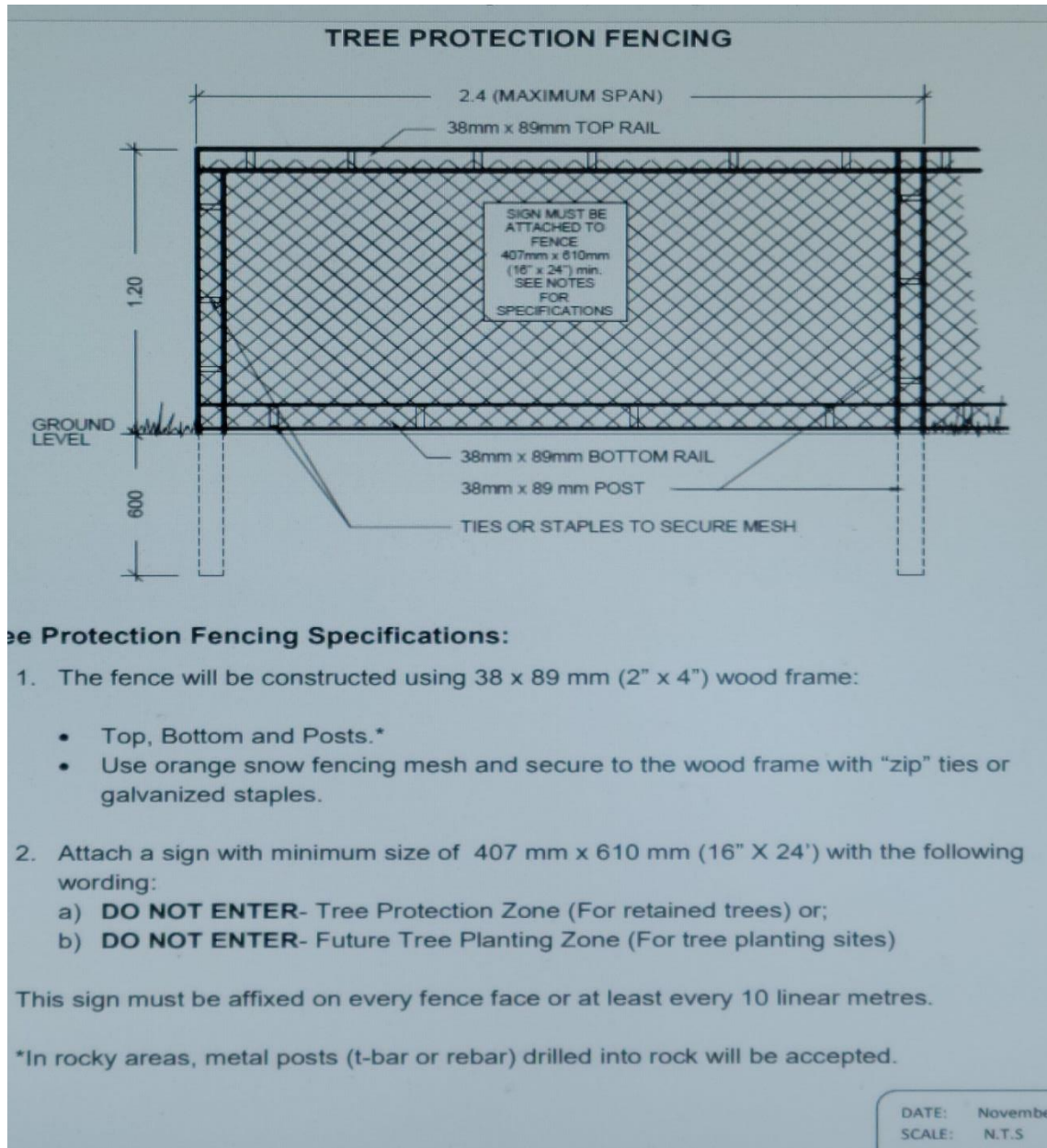
Remedial treatments cannot be guaranteed.

Trees can be managed, but they cannot be controlled. The only way to eliminate all risk is to eliminate all trees.


Figure #6 – Tree Protection Fencing Signage




Figure #7 – Tree Protection Fencing Specifications



Although the site has been assessed, trees in the landscape are dynamic and changes could occur. This report is a static representation of the site during our assessment – Performed April/June, 2023

MMBU January 14, 8:51am 

MMBU March 18, 9:25am 

Revision #2


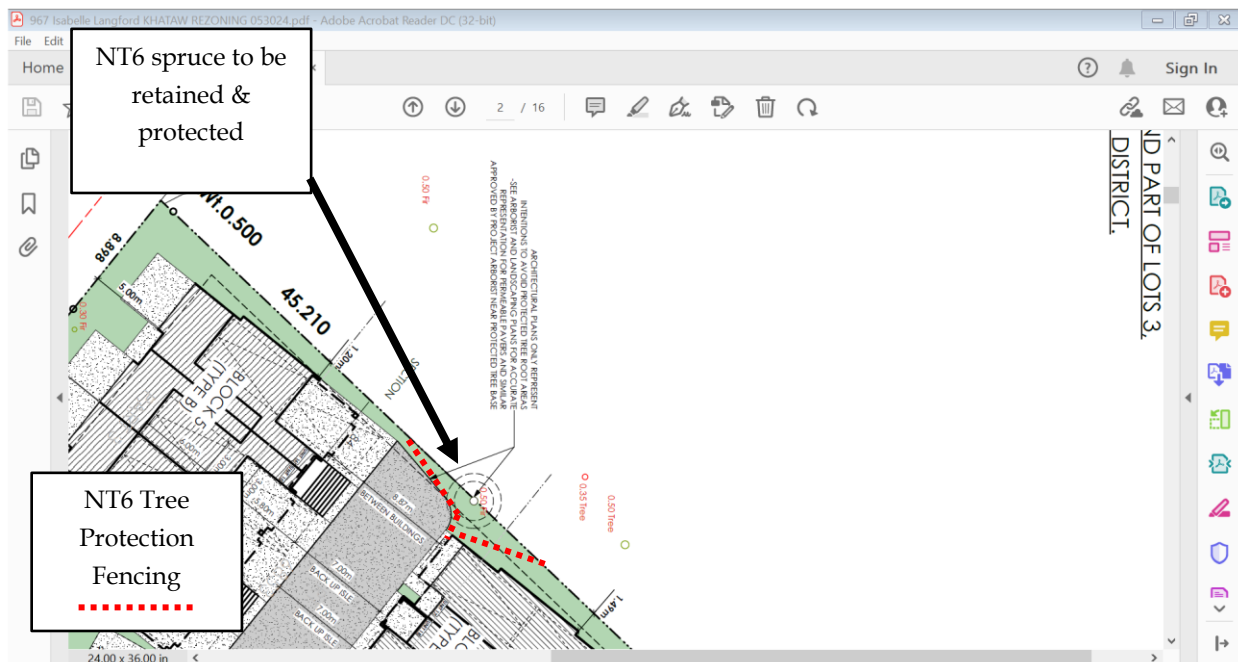
April 25, 2024 

Figure #8 – NT6 Blue Spruce

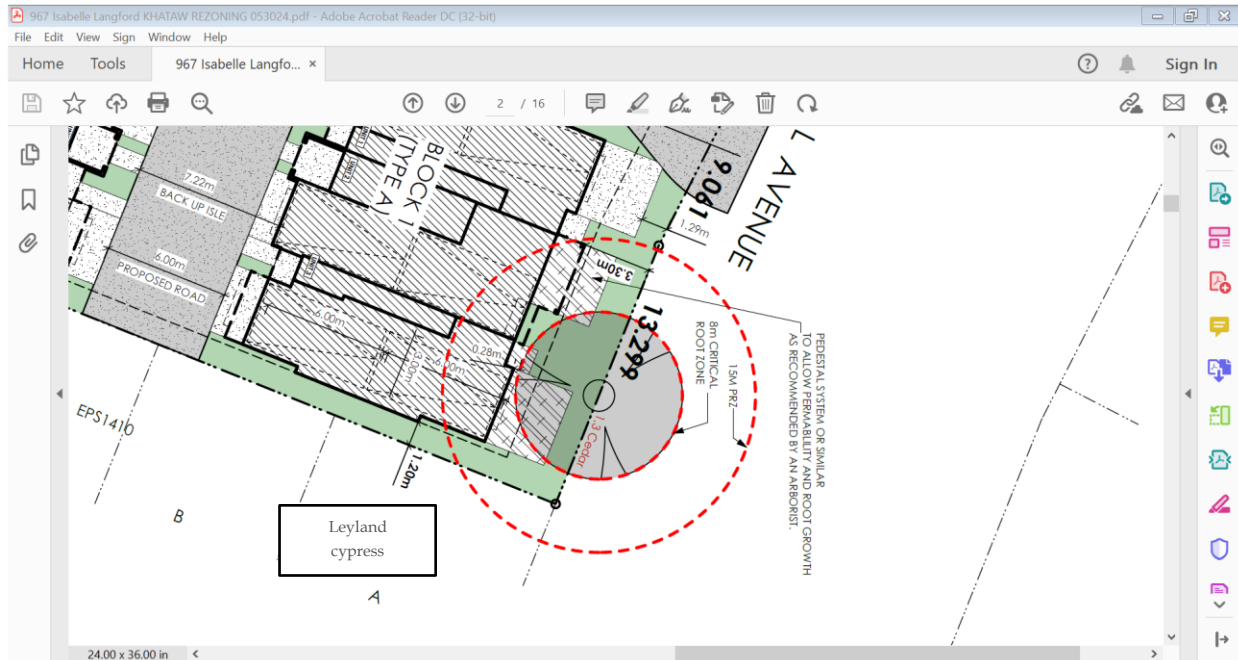


### Paving Requirements

- Project arborist to assist and monitor the removal of soil organics into Tree NT6 Critical Root Zone.
- Provide alternative excavation -hand excavation of the use of hydro-vac to provide exposure into paving area. Provide reduced water pressure to limit further root damage.
- Root pruning may be required – Project arborist to document and root map for post excavation memo.
- Expose to 100mm to 150mm below grade to allow for a suitable sub-base. Provide a combi-grid 30/30 over road base mixed over underlying roots.
- Provide a layer of coarse sand 50mm -100mm over the combi-grid.
- Provide 50mm of asphalt capping for road.

## Revision #3 - Leyland Cypress #1M - PRZ & CRZ

Figure #1 - Updated Site Plan - Received May 31, 2024



### Tree #1M Development Mitigation

- Provide an exploratory type of excavation through the use of Hydro-vac Excavation with the Project Arborist on site. The hydro-excavation will concentrate on root exposure in the patio area of Block #1.
- The use of hand digging may be required.
- Root pruning and/or retention will be determined by the Project Arborist. Root retention may require modification to block one patio design.
- **The use of a floating design and/or piers foundation for the patios should be considered. This will be determined upon completion of the excavation event.**
- **The use of pervious pavers and/or materials should be considered pending engineering requirements.**
- Provide ground cover & irrigate if rooting area is exposed. We recommend that the area within CRZ of the cypress be constructed in the final stages of the project. This would require Tree Fencing to be in place for most of the development process.
- Provide post development remediation fertilization and an irrigation plan dedicated to root development.
- The use of vertical aeration tubes should be considered.

Photo #1 – Example Tree – Giant Sequoia



In this photo you can see a sequoia tree which was preserved through excavation mitigation techniques in March 2021. SouthShore performed the excavation and remediation as the Project Arborist. This tree was given a 50% chance to survive. As of May 2024, the tree is performing “Fair” in the landscape.





Photo #2 - Example Tree - Giant Sequoia



See how the root edges are wrapped for further protection. Aeration tubes have been placed within the trees CRZ (yellow arrows).

