GYE + ASSOCIATES
Consultants in Urban Forestry and Arboriculture

Arborist Report

1249 Finlayson Street, Victoria

Date of Report: July 2, 2017
Date of Field Work: June 9, 2017

Prepared by Lucian Serban
ISA Certified Arborist & Municipal Specialist # PN-7558AM
On behalf of Gye and Associates, Urban Forestry Consultants Ltd.
Tel: (250) 544-1700
Email: lserban@gyeandassociates.ca

EXECUTIVE SUMMARY

The subject property at 1249 Finlayson Street in Victoria is a large urban lot with a single family residence. This report has been prepared in support of an application for a two-lot subdivision and a Building Permit Application (BPA) to relocate and renovate the existing house.

There are fifteen trees directly impacted by the proposed construction project, three of which are protected by the City of Victoria's Tree Preservation Bylaw (one Garry oak and two Douglas firs). Four of the fifteen trees are located on the subject property, ten are boundary trees and one is an off-site tree. The protected Garry Oak is will be impacted by the new house site and is proposed for removal. A small cherry and ash tree are also proposed for removal. The remaining 12 trees are proposed for retention.

A combination of measures will be deployed to protect the trees proposed for retention through the site servicing, house relocation and renovation phases of the project. Measures include the use of tree protection fencing, soil armoring, on-site supervision by the project arborist, root pruning, and temporary irrigation measures.

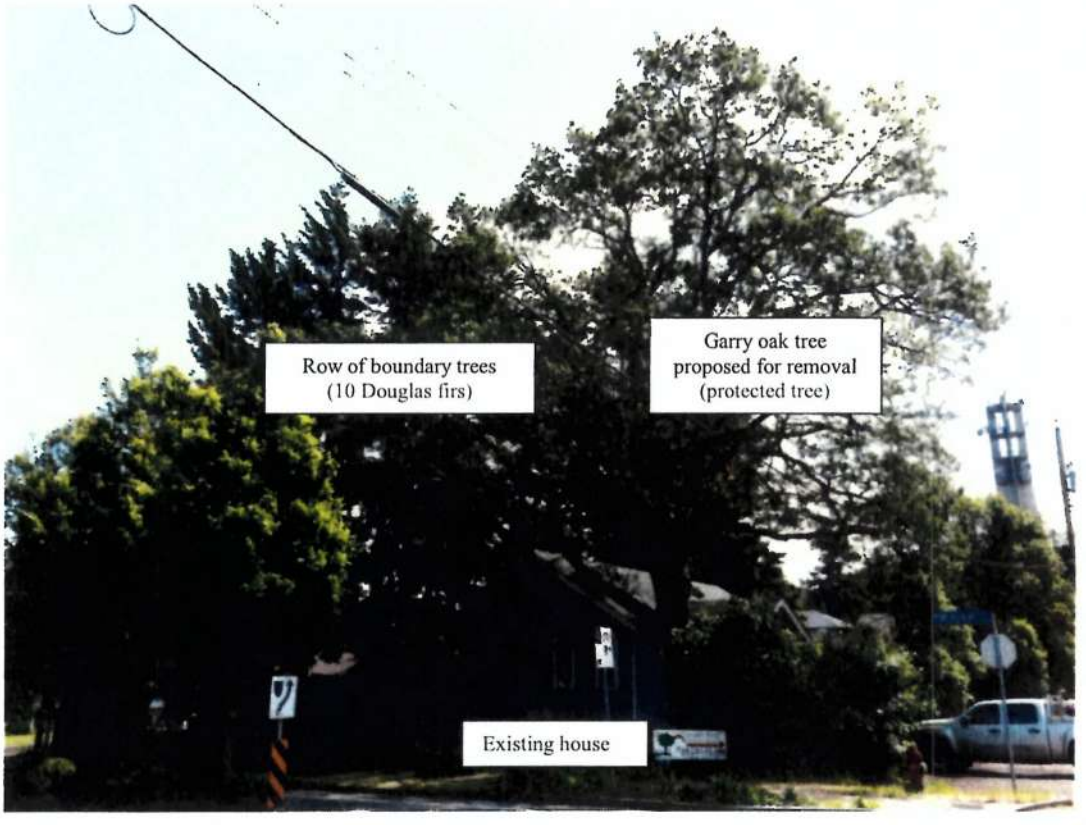


Fig-1 South-east facing perspective from Finlyson Street of front of lot

Gye and Associates (G&A) have been retained to prepare a tree protection plan in support of the owner's subdivision and building permit applications. This report has been prepared in accordance with the City's published Terms of Reference for Tree Preservation Plans.

METHODOLOGY

- Site visits were made to identify measure and assess the condition of relevant trees. Biometric and assessment data was recorded and is presented in table format below (Table-1) on the referenced tree plan.
- Protected Root Zone (PRZ) radius were calculated for the subject trees. The PRZ was calculated using the method recommended by Nelda Methany and James Clark, which considers the relative tolerance of the tree species to disturbance, the biological age of the tree and its stem diameter at chest height.[1] Soil depth and texture and the health and condition of the tree were also considered. A multiplier of 0.12, 0.15 and 0.18 x the stem diameter (cm) has been derived using this method.
- The proposed subdivision and architectural site plan for potential tree impacts anticipated from construction.
- The homeowner and contractor were interviewed to obtain a history of the site and a better understanding of the proposed redevelopment.
- A digital copy of the architectural site plan drawing was provided to the arborist to use as the base for the attached Tree Preservation Plan drawing. The site plan includes the location of proposed services.
- The canopy and protected root zone (PRZ) of each tree was plotted to scale on the tree plan.
- The architectural site plan was reviewed to identify elements that encroach within the PRZ or crown of each tree. Underground services were also delineated on the plan and reviewed for potential impacts.

OBSERVATIONS

SITE DESCRIPTION

The subject property at 1249 Finlayson Street in Victoria is a large, flat urban lot with a single family residence.. The majority of the lot surface is either constructed or landscaped. No pre-existing soil disturbances were observed during the site visit.

TREE RESOURCE

Fifteen trees are implicated by the proposed site plan. Three trees are protected by the City's tree bylaw--one Garry oak and two Douglas fir trees. All trees are considered to be in a good or fair health and structural condition except the green ash which is in poor structural condition and health. Biometrics for each tree are presented Table-1 below.

Table -1. Tree inventory table

[1] Nelda Matheny and James R. Clark, Tree and Development, A Technical Guide to Preservation of Trees During Land Development (International Society of Arboriculture, Champaign Il. USA. 1998 P. 74)

G&A Tree ID	Common Name	Scientific Name	DBH (cm)	Protected Root Zone Radius (m)	Crown Radius (m)	Health (Good, Fair, Poor)	Structural Condition (Good, Fair, Poor)	Bylaw Protected Tree?	Relative tolerance to construction impacts	Comments	Recommendations
86	Garry oak	Quercus garryana	106	13	13	Fair	Fair	Yes	Good	Cavity mid trunk, old pruning cuts, overextended branches	REMOVE
87	Deodar cedar	Cedrus deodara	30	4	3	Good	Good	No	Good		Retain and protect
88	Douglas fir	Pseudotsuga menziesii	44	7	4	Good	Good	No	Moderate	Boundary tree	Retain and protect
89	Lawson cypress	Chamaecyparis lawsoniana	26	5	3	Fair	Fair	No	Good	Off-site tree	Retain and protect
90	Douglas fir	Pseudotsuga menziesii	38	6	4	Good	Fair	No	Moderate	Boundary tree	Retain and protect
91	Douglas fir	Pseudotsuga menziesii	46	7	5	Good	Good	No	Moderate	Boundary tree	Retain and protect
92	Douglas fir	Pseudotsuga menziesii	40	6	5	Good	Good	No	Moderate	Boundary tree	Retain and protect
93	Douglas fir	Pseudotsuga menziesii	44	7	5	Good	Good	No	Moderate	Boundary tree	Retain and protect
94	Douglas fir	Pseudotsuga menziesii	30	5	4	Good	Good	No	Moderate	Boundary tree	Retain and protect
95	Douglas fir	Pseudotsuga menziesii	28	4	3	Good	Good	No	Moderate	Boundary tree	Retain and protect
96	Douglas fir	Pseudotsuga menziesii	36	5	4	Good	Good	No	Moderate	Boundary tree	Retain and protect
97	Douglas fir	Pseudotsuga menziesii	64	8	6	Good	Good	Yes	Moderate	Boundary tree	Retain and protect
98	Douglas fir	Pseudotsuga menziesii	70	8	6	Good	Good	Yes	Moderate	Boundary tree	Retain and protect
99	Cherry X2	Prunus sp.	28;28	6	5	Poor	Poor	No	Good	Old flush cuts	REMOVE
100	Green ash X2	Fraxinus pennsylvanica	30;32	6	3	Fair	Fair	No	Moderate	Old flush cuts	REMOVE

Note: Green, round plastic tags were placed at the eyes level on the trees facing West.

SITE PLAN

The site plan includes the following elements that are located within or immediately adjacent to tree protection areas identified in the attached tree plan:

- Relocation of the existing house;
- Removal of the existing house foundation
- Construction of a new house foundation adjacent to the row of Douglas fir trees;
- Construction of the driveway;
- Installation of the new service lines, including the ones for the new created lot "B".

The existing lot is proposed to be subdivided into two lots. Lot "A" on Finlayson Street, at the present address and Lot "B" on the Highview Street with a new street address. The existing house will be lifted and rotated 90 degrees clockwise to the setback line on lot "A" (Fig-2).

DISCUSSION

Two trees located in the front yard--Garry Oak #86 and Deodar Cedar #87—will be significantly impacted by the new house site, driveway and underground services and are therefore proposed for removal. Due to a combination of poor condition and a siting conflict with the new underground service lines for proposed Lot "B", the green ash and the cherry trees are also proposed for removal.

A substantial effort will be made to retain the row of Douglas fir trees located on the East side of the subject property.

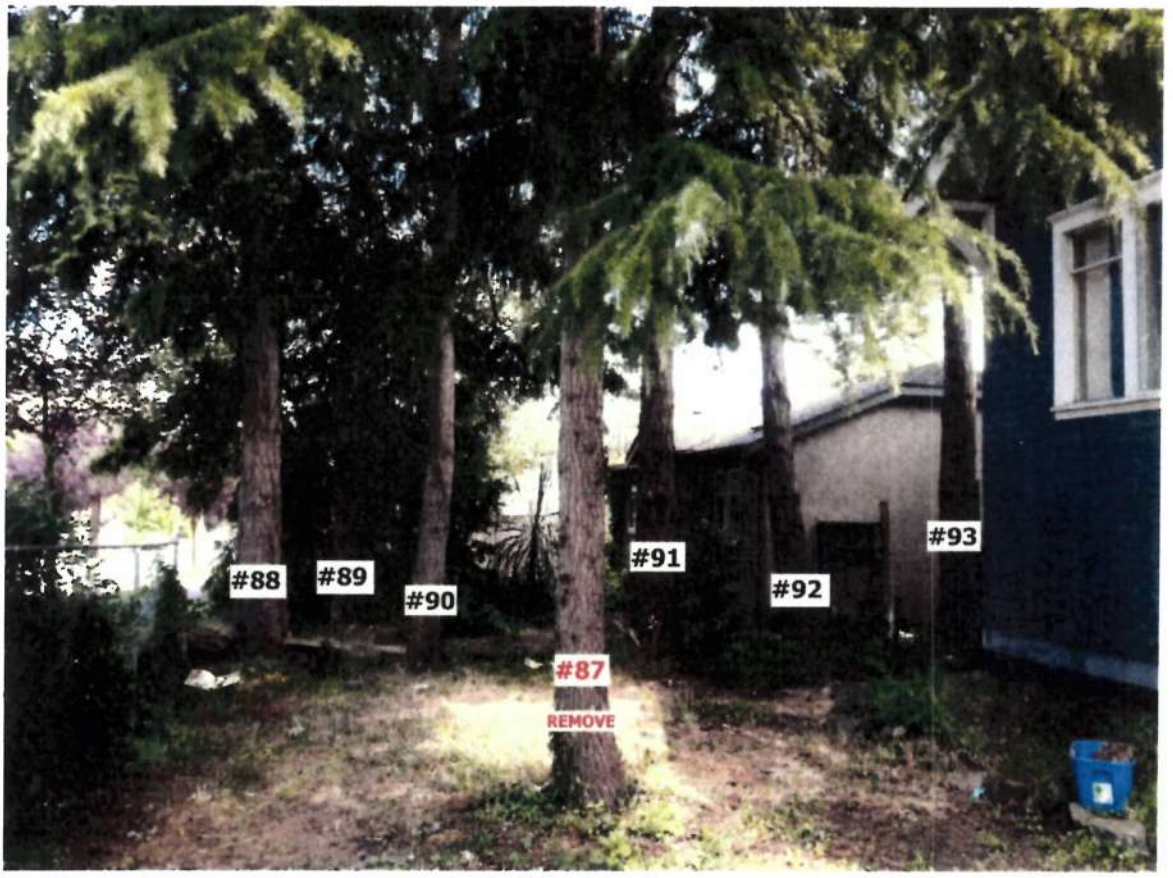


Fig-2 Front yard. Tree #87 proposed for removal

TREE PROTECTION MEASURES

Tree protection measures to limit impacts from the construction of the stairs, pathway and waterline include the following:

- Fencing and/or "armoring" of the tree protection areas to prevent soil compaction and rutting within the PRZ;
- on-site arborist supervision of the excavations and blasting (if necessary);
- pruning of any tree roots damaged during the excavation in the PRZ for retained trees;
- covering the exposed face of the excavation with a geotextile fabric to prevent soil erosion and dessication within the PRZ for both trees;
- mulching and periodic deep irrigation of the retained trees during the dry season to optimize ecological function within the residual PRZ.

Additional tree protection measures details are provided on the attached tree plan. If diligently implemented, the tree protection measures specified in the Tree Management Plan and this report will effectively preserve the long-term benefit that the retained trees will offer to both the homeowner and the community.

Two replacement Garry oak trees shall be planted at the landscape stage as per City of Victoria Tree Preservation Bylaw in compensation for removal of the Garry oak.

ROLE OF THE PROJECT ARBORIST

In addition to assisting with tree preservation planning during the design and permit application phases of the project, the arborist shall be present during the construction and landscape phases of the project to supervise work within or immediately adjacent to the tree protection areas identified on the attached tree plan.

The following is a summary of the key interventions required by the arborist (G&A). The owner's building contractor is responsible for coordinating with the arborist for the required on site work.

- A mandatory site meeting is required with the owner and General Contractor to review the tree preservation plan prior to work commencing on site. The purpose of the meeting is to systematically review the objectives of the plan and the specific measures required to protect the relevant trees during the site preparation, construction and landscape phases of the redevelopment. The meeting provides an opportunity to address any residual building constraints or conflicts and answer questions.
- The arborist shall inspect the prescribed tree protection fencing and armouring prior to work commencing on site.
- If not managed carefully, rock blasting can kill or injure trees. If blasting is required, the building and blasting contractor shall meet on site with the arborist to develop the rock removal work plan together, prior to an estimate of costs being provided by the blasting contractor.
- The arborist shall be present to oversee the following site work within or immediately adjacent to the Tree Protection Areas identified on the attached plan:
    - relocation of the existing building,
    - site grading
    - excavation for house foundation and perimeter drains;
    - rock removal or blasting;
    - trenching for both municipal service connections and extension of these underground services to the house;
    - periodic site inspections to ensure effective compliance with required tree preservation measures;
    - meetings as required to resolve any emergent conflicts between building requirements and tree protection.
- Landscaping activities--such as trenching for irrigation or lighting, grubbing of vegetation, distribution of soils and other landscape materials—are another potential source of damage to the sensitive soils and root system of protected trees.
    - If a landscape plan is considered for the project, the arborist shall meet with the owner and landscape designer prior to a landscape plan being developed to

ensure that relevant aspects of the tree protection plan are considered in the development of the landscape plan.

- The arborist shall review a draft of the proposed landscape plan prior to the plan being finalized.
- The building contractor and landscape contractor shall meet on site with the arborist to review the landscape planting and work plan together, prior to an estimate of costs being provided by the landscape contractor.
- The arborist shall supervise landscape activity within the tree protection areas.

- At completion of the redevelopment, the arborist shall ensure that any tree protection or restoration deficiencies are addressed by the owner and building contractor. Once all deficiencies have been repaired, the arborist shall prepare a letter to the City of Victoria confirming successful completion of project, including resolution of any deficiencies.

End report.

CERTIFICATION:

This report and the opinions expressed within it have been prepared in good faith and to accepted arboricultural standards within the scope afforded by its terms of reference and the resources made available to the consultant.

Submitted on behalf of Gye and Associates, Urban Forestry Consultants Ltd,

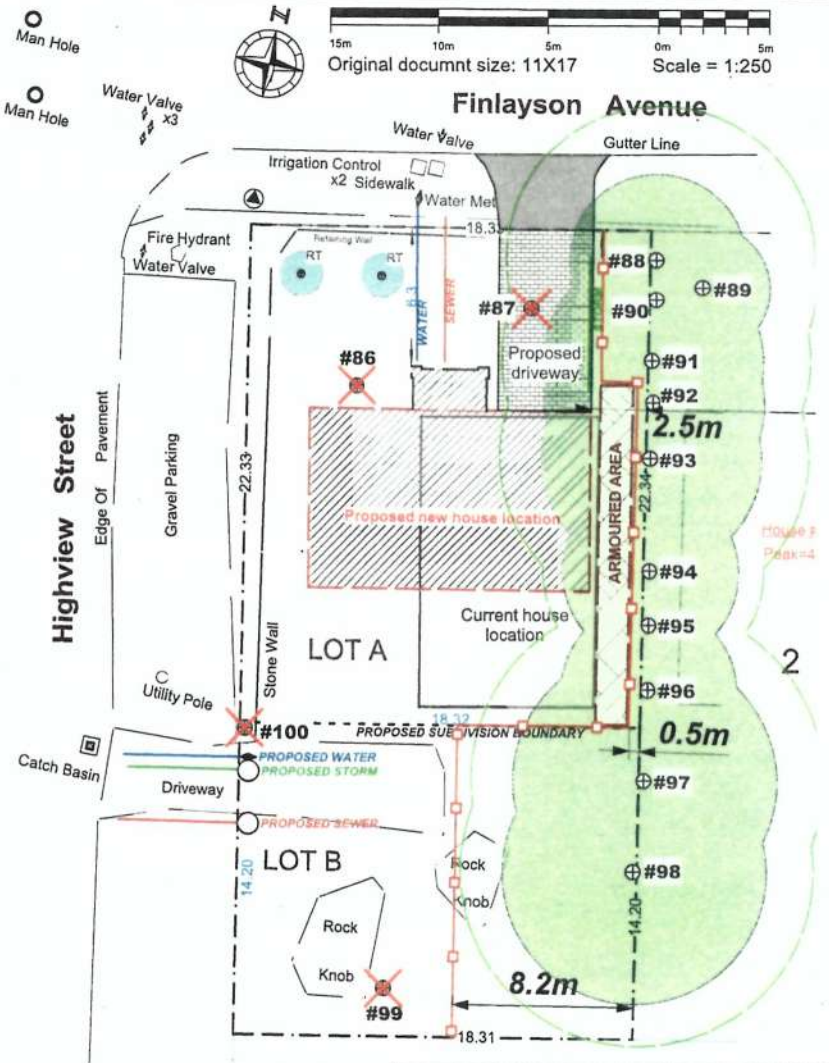
Lucian Serban – Consulting Arborist
B.Sc. Forestry
ISA Certified Arborist & Municipal Specialist
ISA Tree Risk Assessment Qualified

Reviewed by:

Jeremy Gye – Senior Consultant
Gye and Associates, Urban Forestry Consultants Ltd.
Consulting Arborist (Diploma, American Society of Consulting Arborists, 1997)
ISA Certified Arborist (Certification No. PN-0144A)
ISA Certified Municipal Specialist (Certification No. PN-0144AM)
ISA Tree Risk Assessment Qualified

APPENDIX

Tree Preservation Plan drawing (see attached).



TREE PRESERVATION MEASURES

PRIOR TO EXCAVATION FOR SITE SERVICING OR HOUSE RELOCATION:

1. The owner and contractor shall meet with the project arborist to review the Tree Protection Plan report and drawing and associated measures.
2. Complete tree removals prior to erecting fencing around protected trees. Chip up tree branches and leave chip mulch on site for distribution within sensitive tree areas (see Note 6 below).
3. Erect tree protection fencing immediately after felling and debris removal is complete. Contact the arborist to inspect tree fencing.

These conditions must be completed before a tree or building or demolition permit can be issued by the City of Victoria.

AT THE START OF EXCAVATION FOR SITE SERVICING AND HOUSE RELOCATION:

4. Under supervision of the arborist, remove tree stumps and place aggregate to 'armor' soils and root habitat outside of fenced areas as indicated on the Tree Plan drawing.
5. The arborist shall be present to oversee any excavation associated with the house relocation, site grading, service trenching or blasting within, or adjacent to, the tree protection areas (TPAs). The arborist shall monitor the house relocation.
6. Any damaged tree roots or branches shall be pruned back to undamaged tissue by the arborist.
7. Temporary construction access within a TPA must be approved and supervised by the project arborist.
8. If it is not possible to fence off the entire protected root zone, the unfenced area must be protected ("armored") with a cover of 3/4" plywood. (See drawing note.) In areas subject to machine use, use a temporary cover of geo-textile and 200mm of road-base, moderately compacted with a plate compactor.
9. No equipment, materials or excavated soil shall be placed or stored within the TPA. THIS PARTICULARLY INCLUDES HOARDING OF EXCAVATED SOILS NEEDED FOR BACKFILLING OF THE BUILDING FOUNDATION.
10. Two replacement Garry oak trees shall be planted at the landscape stage as per City of Victoria Tree Preservation Bylaw in compesation for removal of tree #86.

TREE INVENTORY TABLE

G&A Tree ID	Common Name	Scientific Name	DBH (cm)	Protected Root Zone Radius (m)	Crown Radius (m)	Health (Good, Fair, Poor)	Structural Condition (Good, Fair, Poor)	Bylaw Protected Tree?	Relative tolerance to construction impacts	Comments	Recommendations
86	Garry oak	Quercus garryana	106	13	13	Fair	Fair	Yes	Good	Cavity mid trunk, old pruning cuts, overextended branches	REMOVE
87	Deodar cedar	Cedrus deodara	30	4	3	Good	Good	No	Good	Conflict with constr.	REMOVE
88	Douglas fir	Pseudotsuga menziesii	44	7	4	Good	Good	No	Moderate	Boundary tree	Retain and protect
89	Lawson cypress	Chamaecyparis lawsoniana	26	5	3	Fair	Fair	No	Good	Off-site tree	Retain and protect
90	Douglas fir	Pseudotsuga menziesii	38	6	4	Good	Fair	No	Moderate	Boundary tree	Retain and protect
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97	Douglas fir	Pseudotsuga menziesii	64	8	6	Good	Good	Yes	Moderate	Boundary tree	Retain and protect
98	Douglas fir	Pseudotsuga menziesii	70	8	6	Good	Good	Yes	Moderate	Boundary tree	Retain and protect
99	Cherry X2	Prunus sp.	26,28	6	5	Poor	Poor	No	Good	Old flush cuts	REMOVE
100	Green ash X2	Fraxinus pennsylvanica	30;32	6	3	Fair	Fair	No	Moderate	Old flush cuts	REMOVE

Note: Green, round plastic tags were placed at the eyes level on the trees facing West.

LEGEND

- SOIL ARMOR
- TREE TAG # / TREE CENTRE — DECIDUOUS
- TREE FENCING / TREE CANOPY / ROOT ZONE — CONIFER
- REPLACEMENT TREE
- REMOVE TREE

GyeandAssociates.ca

PROJECT
1249 Finlayson Street, Victoria, BC

SHEET TITLE
Tree Management Plan for House Relocation & Subdivision

REV NO	DESCRIPTION	DATE
	FOR REVIEW	
	FOR REVIEW	

PROJECT NO.	17-069
DATE	June 16, 2017
SCALE	1:250
DRAWN BY	LS
SHEET NO.	T - 1

GYE + ASSOCIATES
Consultants in Urban Forestry and Arboriculture

Arborist Report

1249 Finlayson Street, Victoria

Date of Report: August 2, 2018
Dates of Field Work: June 9, 2017 and July 10, 2018

Prepared by Lucian Serban
ISA Certified Arborist & Municipal Specialist # PN-7558AM

On behalf of Gye and Associates, Urban Forestry Consultants Ltd.

Tel: (250) 544-1700
Email: lserban@gyeandassociates.ca

EXECUTIVE SUMMARY

The subject property at 1249 Finlayson Street in Victoria is a relatively large urban lot with a single-family residence. This report has been prepared in support of an application for rezoning, a two-lot subdivision and a Building Permit Application (BPA) to relocate and renovate the existing house.

Fifteen tree have been inventoried, assessed and plotted on the attached Tree Plan drawing. Four of the fifteen trees are located on the subject property, ten are boundary trees and one is an off-site tree. The Garry Oak and two of the boundary trees (both Douglas Firs) are protected by the City of Victoria's Tree Preservation Bylaw.

A large Garry Oak (Tag # 86) and an established Deodar Cedar (Tag #87) are proposed for removal to make way for the new location of the existing house, along with a small cherry and an ash tree. The remaining 12 trees are proposed for retention.

A combination of measures will be deployed to protect the 12 trees proposed for retention through the site servicing, house relocation and renovation phases of the project. Measures include the use of tree protection fencing, soil armouring, on-site supervision by the project arborist, root pruning, and temporary irrigation measures.

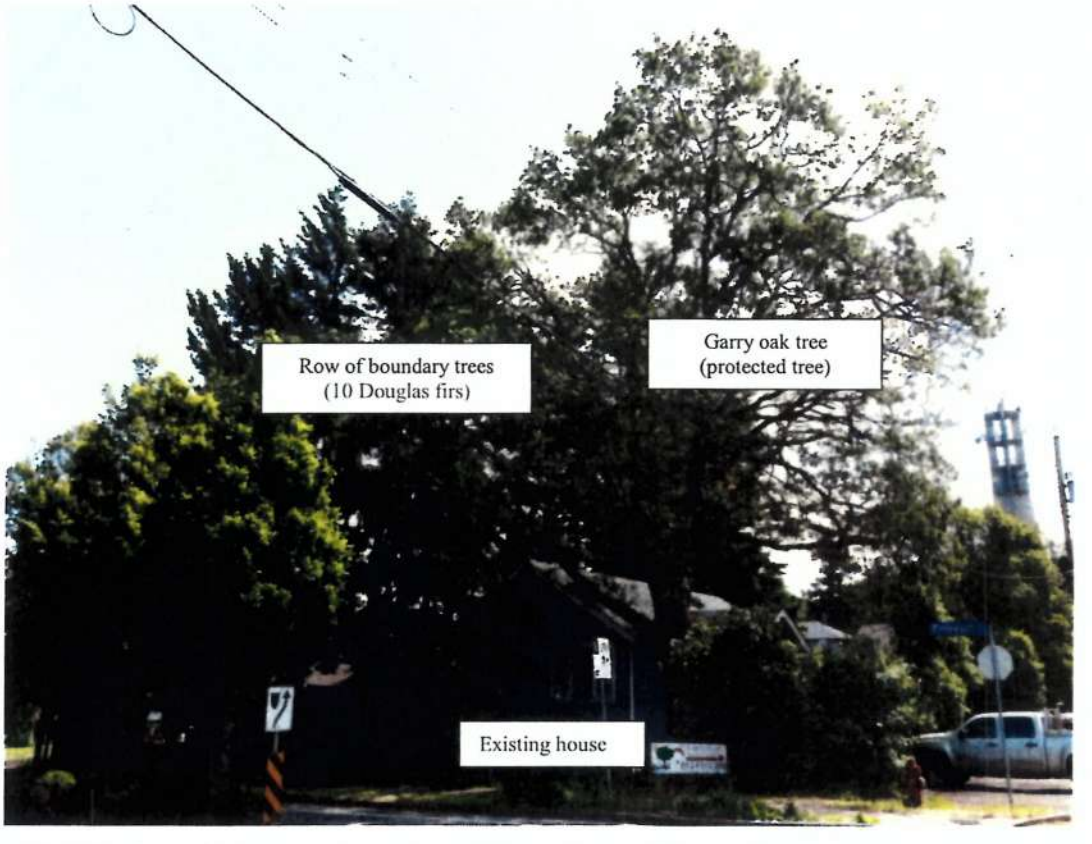

Fig-1 South-east facing perspective from Finlyson Street of front of lot

ASSIGNMENT

Gye and Associates (G&A) have been retained to prepare a tree protection plan as part of a rezoning, subdivision and building permit application. This report has been prepared in accordance with the City's published Terms of Reference for Tree Preservation Plans.

METHODOLOGY

- Site visits were made to identify measure and assess the condition of relevant trees. Biometric and assessment data was recorded and is presented in table format below (Table-1) on the referenced tree plan.
- An advanced tree condition assessment and a tree risk assessment (TRAQ) were completed as requested by the City of Victoria Parks Department (see attached "Tree Health and Condition Assessment" and "Basic Tree Risk Assessment Form" for tree #86).
- Protected Root Zone (PRZ) radius was calculated for the subject trees. The PRZ was calculated using the method recommended by Nelda Methany and James Clark, which considers the relative tolerance of the tree species to disturbance, the biological age of the tree and its stem diameter at chest height.[1] Soil depth and texture and the health and condition of the tree were also considered. A multiplier of 0.12, 0.15 and 0.18 x the stem diameter (cm) has been derived using this method.
- The proposed subdivision and architectural site plan for potential tree impacts anticipated from construction.
- The homeowner and contractor were interviewed to obtain a history of the site and a better understanding of the proposed redevelopment.
- A digital copy of the architectural site plan drawing was provided to the arborist to use as the base for the attached Tree Preservation Plan drawing. The site plan includes the location of proposed services.
- The canopy and protected root zone (PRZ) of each tree were plotted to scale on the tree plan.
- The architectural site plan was reviewed to identify elements that encroach within the PRZ or crown of each tree. Underground services were also delineated on the plan and reviewed for potential impacts.

OBSERVATIONS

SITE DESCRIPTION

The subject property at 1249 Finlayson Street in Victoria is a large, flat urban lot with a single-family residence.. The majority of the lot surface is either constructed or landscaped. No pre-existing soil disturbances were observed during the site visit.

SITE PLAN

The site plan includes the following elements that are located within or immediately adjacent to tree protection areas identified in the attached tree plan:

- Relocation of the existing house;
- Removal of the existing house foundation

[1] Nelda Matheny and James R. Clark, Tree and Development, A Technical Guide to Preservation of Trees During Land Development (International Society of Arboriculture, Champaign Il. USA. 1998 P. 74)

- Construction of a new house foundation adjacent to the row of Douglas fir trees;
- Construction of the driveway;
- Installation of the new service lines, including the ones for the new created lot "B".

The existing lot is proposed to be subdivided into two lots. Lot "A" on Finlayson Street, at the present address and Lot "B" on the Highview Street with a new street address. The existing house will be lifted and rotated 90 degrees clockwise to the setback line on lot "A" (Fig-2).

TREE RESOURCE

Fifteen tree have been inventoried, assessed and plotted on the attached Tree Plan drawing. Four of the fifteen trees are located on the subject property, ten are boundary trees and one is an off-site tree. The Garry Oak and two of the boundary trees (both Douglas Firs) are protected by the City of Victoria's Tree Preservation Bylaw. All trees are considered to be in a good or fair health and structural condition except the green ash which is in poor structural condition and health. Biometrics for each tree are presented Table-1 below.

Table -1. Tree inventory table

Date: October 09, 13, 2015

G&A Tree ID	Common Name	Scientific Name	DBH (cm)	Protected Root Zone Radius (m)	Crown Radius (m)	Health (Good, Fair, Poor)	Structural Condition (Good, Fair, Poor)	Bylaw Protected Tree?	Relative tolerance to construction impacts	Comments	Recommendations
86	Garry oak	Quercus garryana	106	13	N13;E11; S13; W12	Fair	Fair	Yes	Good	Cavity mid trunk, old pruning cuts, overextended branches	REMOVE
87	Deodar cedar	Cedrus deodara	30	4	3	Good	Good	No	Good		REMOVE
88	Douglas fir	Pseudotsuga menziesii	44	7	4	Good	Good	No	Moderate	Boundary tree	Retain and protect
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Assessment Summary of Garry Oak # 86

The highest value tree on the site is Tree # 86, a large, well-formed Garry Oak (*Quercus garryana*), located 2.8 m from the north-west corner of the house. The stem diameter of the tree 106cm and it stands approximately 22m in height. The crown extends out 11 – 13m evenly in all directions from the tree centre. The tree meets the criterion of a protected tree under the City's tree protection bylaw.

The main structural roots of the tree appear well-distributed around the base of the tree. There is no visual evidence of decay or injury around the root crown. The Protected Root Zone radius is calculated to be 13m,

extending into approximately 50% of the site. Approximately 50% of the PRZ is covered by impervious surfaces (the house, parking area and portions of Highview and Finlayson streets that encroach into the PRZ). Given the well-draining soils in which the tree is growing, however, it is likely that both the non-woody absorbtion roots and the woody conductive roots are vertically distributed deep within the soil column and therefore less affected by the parking area and streets. The near corner of the house has a foundation wall that is approximately 60cm deep, making it possible, given the site's soil texture, that some roots from the oak may have migrated under the house and are accessing soil moisture from the deeper soils beneath.

The root crown and stem of the tree appear structurally robust, despite the presence of a limited internal column of decay. The condition of the crown of the tree is typical of a tree of this age and species and is readily managed with periodic pruning and tree care. The health of the tree is a concern due to the impact of successive years of defoliation by caterpillars.

Our analysis of growth increment between the subject oak and the two "benchmark" trees indicates that the subject tree has a diminished vigour relative to two nearby benchmark oaks.
Potential factors accounting for this reduction in relative vigour include less productive growing conditions, observed biological stressors (defoliating caterpillars) and the age of the tree.

The risk potential of the subject oak to adjacent targets is rated as low.

The species, age, size, conformation, structure and health potential of the subject tree make it worthy of consideration for preservation, if possible. **The size and location of the subject tree, however, present a significant constraint to increasing the development footprint on this site, as the attached site plan makes clear. Further constraints are presented by the row of mature Douglas Fir trees along the east property boundary.**

Fig-1 Image of the subject Garry ok trunk (view from the South)

CONCLUSION

Two trees located in the front yard--Garry Oak #86 and Deodar Cedar #87—will be significantly impacted by the new house site, driveway and underground services. Given the proposed site plan, both trees are recommended for removal. Due to a combination of poor condition and a siting conflict with the new underground service lines for proposed Lot "B", the green ash and the cherry trees are also proposed for removal.

A substantial effort will be made to retain the row of Douglas fir trees located on the East side of the subject property.

Fig-2 Front yard. Tree #87 proposed for removal

TREE PROTECTION MEASURES

Tree protection measures to limit impacts from the construction of the stairs, pathway and waterline include the following:

- Fencing and/or "armouring" of the tree protection areas to prevent soil compaction and rutting within the PRZ;
- on-site arborist supervision of the excavations and blasting (if necessary);
- pruning of any tree roots damaged during the excavation in the PRZ for retained trees;

- covering the exposed face of the excavation with a geotextile fabric to prevent soil erosion and desiccation within the PRZ for both trees;
- mulching and periodic deep irrigation of the retained trees during the dry season to optimize ecological function within the residual PRZ.

Additional tree protection measures details are provided on the attached tree plan. If diligently implemented, the tree protection measures specified in the Tree Management Plan and this report will effectively preserve the long-term benefit that the retained trees will offer to both the homeowner and the community.

Two replacement Garry oak trees shall be planted at the landscape stage as per City of Victoria Tree Preservation Bylaw in compensation for removal of the Garry oak.

If Oak #86 is retained, we recommend that the following measures to improve the health and sustainability of the tree:

- apply a non-chemical insecticide, such as *Bacillus thurengiensis 'kurstaki'* (BTK), to the canopy of the tree during years of heavy caterpillar infestation;
- mulch the root zone beneath the canopy of the tree with oak leaf or tree chip mulch;
- irrigate the tree during the dry summer months;
- innoculating the root system of the tree with spores of several of the beneficial mycorrhizal fungi species found in native Garry Oak woodlands of the Pacific Northwest will aid in restoring and supporting the future health of the tree.[2]

ROLE OF THE PROJECT ARBORIST

In addition to assisting with tree preservation planning during the design and permit application phases of the project, the arborist shall be present during the construction and landscape phases of the project to supervise work within or immediately adjacent to the tree protection areas identified on the attached tree plan.

The following is a summary of the key interventions required by the arborist (G&A). The owner's building contractor is responsible for coordinating with the arborist for the required on-site work.

- A mandatory site meeting is required with the owner and General Contractor to review the tree preservation plan prior to work commencing on site. The purpose of the meeting is to systematically review the objectives of the plan and the specific measures required to protect the relevant trees during the site preparation, construction and landscape phases of the redevelopment. The meeting provides an opportunity to address any residual building constraints or conflicts and answer questions.
- The arborist shall inspect the prescribed tree protection fencing and armouring prior to work commencing on site.
- If not managed carefully, rock blasting can kill or injure trees. If blasting is required, the building and blasting contractor shall meet on site with the arborist to develop the rock removal work plan together, prior to an estimate of costs being provided by the blasting contractor.

[2] Beneficial mycorrhizal "blends" are available for purchase from Fungi Perfecti in Washington State by mail order (http://www.fungi.com/).

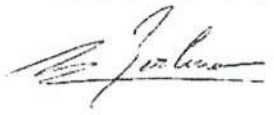
- The arborist shall be present to oversee the following site work within or immediately adjacent to the Tree Protection Areas identified on the attached plan:
    - relocation of the existing building,
    - site grading
    - excavation for house foundation and perimeter drains;
    - rock removal or blasting;
    - trenching for both municipal service connections and extension of these underground services to the house;
    - periodic site inspections to ensure effective compliance with required tree preservation measures;
    - meetings as required to resolve any emergent conflicts between building requirements and tree protection.
- Landscaping activities--such as trenching for irrigation or lighting, grubbing of vegetation, distribution of soils and other landscape materials—are another potential source of damage to the sensitive soils and root system of protected trees.
    - If a landscape plan is considered for the project, the arborist shall meet with the owner and landscape designer prior to a landscape plan being developed to ensure that relevant aspects of the tree protection plan are considered in the development of the landscape plan.
    - The arborist shall review a draft of the proposed landscape plan prior to the plan being finalized.
    - The building contractor and landscape contractor shall meet on site with the arborist to review the landscape planting and work plan together, prior to an estimate of costs being provided by the landscape contractor.
    - The arborist shall supervise landscape activity within the tree protection areas.
- At the completion of the redevelopment, the arborist shall ensure that any tree protection or restoration deficiencies are addressed by the owner and building contractor. Once all deficiencies have been repaired, the arborist shall prepare a letter to the City of Victoria confirming successful completion of the project, including resolution of any deficiencies.

End report.

CERTIFICATION:

This report and the opinions expressed within it have been prepared in good faith and to accepted arboricultural standards within the scope afforded by its terms of reference and the resources made available to the consultant.

Submitted on behalf of Gye and Associates, Urban Forestry Consultants Ltd,



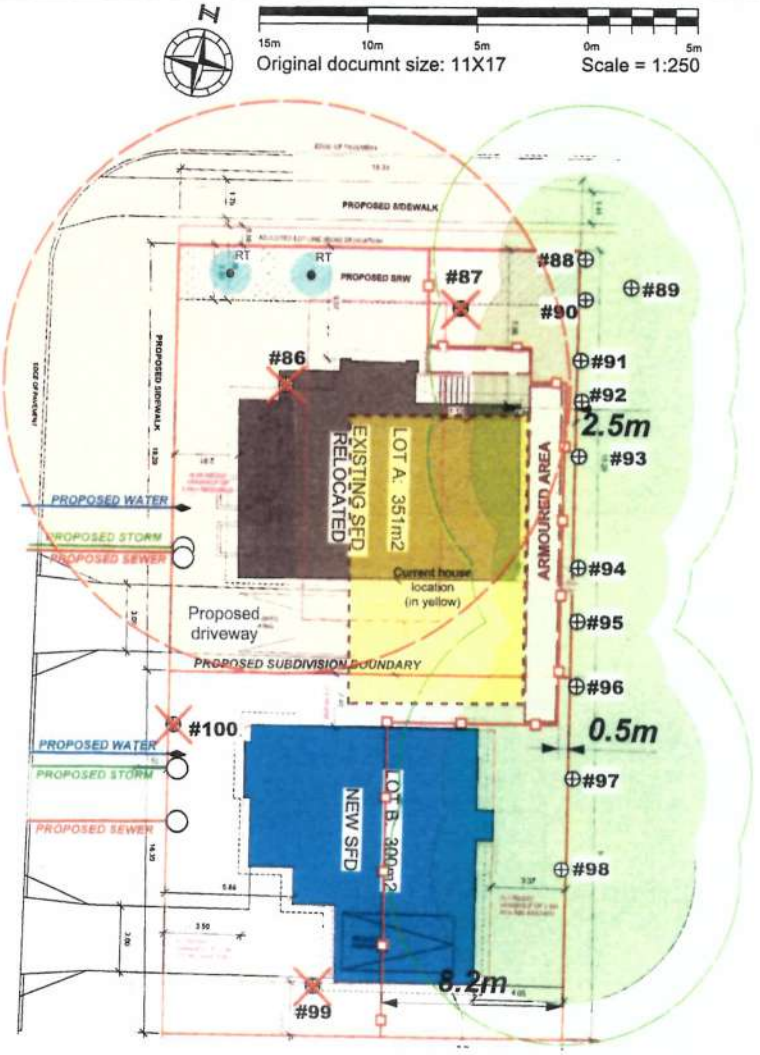
Lucian Serban – Consulting Arborist
B.Sc. Forestry
ISA Certified Arborist & Municipal Specialist
ISA Tree Risk Assessment Qualified

Reviewed by:

Jeremy Gye – Senior Consultant
Gye and Associates, Urban Forestry Consultants Ltd.
Consulting Arborist (Diploma, American Society of Consulting Arborists, 1997)
ISA Certified Arborist (Certification No. PN-0144A)
ISA Certified Municipal Specialist (Certification No. PN-0144AM)
ISA Tree Risk Assessment Qualified

APPENDICES

- Tree Preservation Plan drawing
- Basic Tree Risk Assessment Form (TRAQ)



TREE PRESERVATION MEASURES

PRIOR TO EXCAVATION FOR SITE SERVICING OR HOUSE RELOCATION:

1. The owner and contractor shall meet with the project arborist to review the Tree Protection Plan report and drawing and associated measures.
2. Complete tree removals prior to erecting fencing around protected trees. Chip up tree branches and leave chip mulch on site for distribution within sensitive tree areas (see Note 6 below).
3. Erect tree protection fencing immediately after felling and debris removal is complete. Contact the arborist to inspect tree fencing.

These conditions must be completed before a tree or building or demolition permit can be issued by the City of Victoria.

AT THE START OF EXCAVATION FOR SITE SERVICING AND HOUSE RELOCATION:

4. Under supervision of the arborist, remove tree stumps and place aggregate to 'armor' soils and root habitat outside of fenced areas as indicated on the Tree Plan drawing.
5. The arborist shall be present to oversee any excavation associated with the house relocation, site grading, service trenching or blasting within, or adjacent to, the tree protection areas (TPAs). The arborist shall monitor the house relocation.
6. Any damaged tree roots or branches shall be pruned back to undamaged tissue by the arborist.
7. Temporary construction access within a TPA must be approved and supervised by the project arborist.
8. If it is not possible to fence off the entire protected root zone, the unfenced area must be protected ("armored") with a cover of 3/4" plywood. (See drawing note.) In areas subject to machine use, use a temporary cover of geo-textile and 200mm of road-base, moderately compacted with a plate compactor.
9. No equipment, materials or excavated soil shall be placed or stored within the TPA. THIS PARTICULARLY INCLUDES HOARDING OF EXCAVATED SOILS NEEDED FOR BACKFILLING OF THE BUILDING FOUNDATION.
10. Two replacement Garry oak trees shall be planted at the landscape stage as per City of Victoria Tree Preservation Bylaw in compesation for removal of tree #86.

TREE INVENTORY TABLE

G&A Tree ID	Common Name	Scientific Name	DBH (cm)	Protected Root Zone Radius (m)	Crown Radius (m)	Health (Good, Fair, Poor)	Structural Condition (Good, Fair, Poor)	Bylaw Protected Tree?	Relative tolerance to construction impacts	Comments	Recommendations
86	Garry oak	Quercus garryana	106	13	13	Fair	Fair	Yes	Good	Cavity mid trunk, old pruning cuts, overextended branches	REMOVE
87	Deodar cedar	Cedrus deodara	30	4	3	Good	Good	No	Good	Tree loaction restricts the proposed house relocation	REMOVE
88	Douglas fir	Pseudotsuga menziesii	44	7	4	Good	Good	No	Moderate	Boundary tree	Retain and protect
89	Lawson cypress	Chamaecyparis lawsoniana	26	5	3	Fair	Fair	No	Good	Off-site tree	Retain and protect
90	Douglas fir	Pseudotsuga menziesii	38	6	4	Good	Fair	No	Moderate	Boundary tree	Retain and protect
91	Douglas fir	Pseudotsuga menziesii	46	7	5	Good	Good	No	Moderate	Boundary tree	Retain and protect
92	Douglas fir	Pseudotsuga menziesii	40	6	5	Good	Good	No	Moderate	Boundary tree	Retain and protect
93	Douglas fir	Pseudotsuga menziesii	44	7	5	Good	Good	No	Moderate	Boundary tree	Retain and protect
94	Douglas fir	Pseudotsuga menziesii	30	5	4	Good	Good	No	Moderate	Boundary tree	Retain and protect
95	Douglas fir	Pseudotsuga menziesii	28	4	3	Good	Good	No	Moderate	Boundary tree	Retain and protect
96	Douglas fir	Pseudotsuga menziesii	36	5	4	Good	Good	No	Moderate	Boundary tree	Retain and protect
97	Douglas fir	Pseudotsuga menziesii	64	8	6	Good	Good	Yes	Moderate	Boundary tree	Retain and protect
98	Douglas fir	Pseudotsuga menziesii	70	8	6	Good	Good	Yes	Moderate	Boundary tree	Retain and protect
99	Cherry X2	Prunus sp.	28:28	6	5	Poor	Poor	No	Good	Old flush cuts	REMOVE
100	Green ash X2	Fraxinus pennsylvanica	30:32	6	3	Fair	Fair	No	Moderate	Old flush cuts	REMOVE

Note: Green, round plastic tags were placed at the eyes level on the trees facing West.

LEGEND

- SOIL ARMOR
- TREE TAG # / TREE CENTRE — DECIDUOUS
- TREE FENCING / TREE CANOPY / ROOT ZONE — CONIFER
- REPLACEMENT TREE
- REMOVE TREE

GyeandAssociates.ca

PROJECT
1249 Finlayson Street, Victoria, BC

SHEET TITLE
Tree Management Plan for House Relocation & Subdivision

REV NO	DESCRIPTION	DATE
	FOR REVIEW	
	FOR REVIEW	

PROJECT NO.	**17-069**
DATE	July 3, 2018
SCALE	1:250
DRAWN BY	LS
SHEET NO.	T - 1

ISA Basic Tree Risk Assessment Form

Client Adrian Langereis Date July 10, 2018 Time 2pm

Address/Tree location 1249 Finlayson, Victoria Tree no. 86 Sheet 1 of 1

Tree species Garry oak (Quercus garryana) dbh 106cm Height 22m Crown spread dia. N13E11S13W12

Assessor(s) Jeremy Gye & Lucian Serban Time frame 2 years Tools used D. tape, clinometer, m. tape, IML-Resi, mallet i. bore, clinometer, compas

Target Assessment

Target number	Target description	Target zone: Target within drip line	Target zone: Target within 1 x Ht.	Target zone: Target within 1.5 x Ht.	Occupancy rate (1–rare 2–occasional 3–frequent 4–constant)	Practical to move target?	Restriction practical?
1	House on the subject property and neighboring / occupants; aerial utility lines	✓	✓		4		
2	Two lane road, parking and sidewalk / users	✓	✓		3		
3							
4							

Site Factors

History of failures Some large branches (15-20cm diam.)-noticed old scars in the crown **Topography** Flat ☒ Slope ☒ 0.5 % **Aspect** N

Site changes None ☐ Grade change ■ Site clearing ☐ Changed soil hydrology ☐ Root cuts ☐ Describe Sidewalk & road graded over the CRZ

Soil conditions Limited volume ■ Saturated ☐ Shallow ■ Compacted ■ Pavement over roots ■ 25 % Describe Rock outcrop, pavement %25

Prevailing wind direction SE **Common weather** Strong winds ■ Ice ☐ Snow ☐ Heavy rain ■ Describe expect higher than normal winds

Tree Health and Species Profile

Vigor Low ■ Normal ■ High ☐ **Foliage** None (seasonal) ☐ None (dead) ☐ Normal 30 % Chlorotic 20 % Necrotic ____ %

Pests Tree partialy defoliated in the late spring / 30% new leaves **Abiotic** None noticed

Species failure profile Branches ■ Trunk ☐ Roots ☐ Describe

Load Factors

Wind exposure Protected ☐ Partial ■ Full ☐ Wind funneling ☐ **Relative crown size** Small ☐ Medium ☐ Large ☒

Crown density Sparse ■ Normal ☐ Dense ☐ **Interior branches** Few ☐ Normal ■ Dense ☐ **Vines/Mistletoe/Moss** ☐

Recent or planned change in load factors None

Tree Defects and Conditions Affecting the Likelihood of Failure

— Crown and Branches —

Unbalanced crown ☐ LCR 70 %

Dead twigs/branches ■ 5 % overall Max. dia. 20cm

Broken/Hangers Number none Max. dia. N/A

Over-extended branches ■

Pruning history

Crown cleaned ☐ Thinned ☐ Raised ☐

Reduced ■ Topped ☐ Lion-tailed ☐

Flush cuts ☐ Other old cuts (5 - 10 years)

Cracks ☐ Lightning damage ☐

Codominant ☐ Included bark ☐

Weak attachments ☐ Cavity/Nest hole ____ % circ.

Previous branch failures ■ Similar branches present ■

Dead/Missing bark ☐ Cankers/Galls/Burls ☐ Sapwood damage/decay ☐

Conks ☐ Heartwood decay ■

Response growth

Main concern(s) branch failures; over-extended branches; repeated defoliations create additional health stress.

Load on defect N/A ☐ Minor ☐ Moderate ■ Significant ☐

Likelihood of failure Improbable ☐ Possible ■ Probable ☐ Imminent ☐

— Trunk —

Dead/Missing bark ☐ Abnormal bark texture/color ☐

Codominant stems ☐ Included bark ☐ Cracks ☐

Sapwood damage/decay ☐ Cankers/Galls/Burls ☐ Sap ooze ☐

Lightning damage ☐ Heartwood decay ■ Conks/Mushrooms ☐

Cavity/Nest hole <1 % circ. Depth ? Poor taper ☐

Lean none° Corrected?

Response growth

Main concern(s) old pruning scar and decay extended in th trunk heartwood X2

Load on defect N/A ☐ Minor ☐ Moderate ☐ Significant ■

Likelihood of failure

Improbable ■ Possible ☐ Probable ☐ Imminent ☐

— Roots and Root Collar —

Collar buried/Not visible ☐ Depth Stem girdling ☐

Dead ☐ Decay ☐ Conks/Mushrooms ☐

Ooze ☐ Cavity ☐ ____ % circ.

Cracks ☐ Cut/Damaged roots ☐ Distance from trunk

Root plate lifting ☐ Soil weakness ☐

Response growth none

Main concern(s) aprox 25% of the CRZ is paved or compacted

Load on defect N/A ☐ Minor ☐ Moderate ☐ Significant ■

Likelihood of failure

Improbable ■ Possible ☐ Probable ☐ Imminent ☐

Risk Categorization

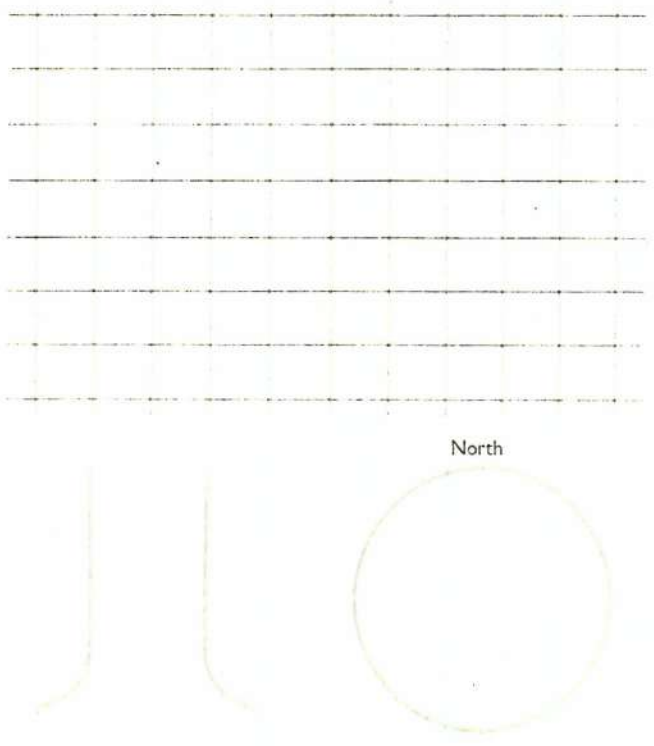
Condition number	Tree part	Conditions of concern	Part size	Fall distance	Target number	Target protection	Likelihood: Failure: Improbable	Likelihood: Failure: Possible	Likelihood: Failure: Probable	Likelihood: Failure: Imminent	Likelihood: Impact: Very low	Likelihood: Impact: Low	Likelihood: Impact: Medium	Likelihood: Impact: High	Likelihood: Failure & Impact (from Matrix 1): Unlikely	Likelihood: Failure & Impact (from Matrix 1): Somewhat	Likelihood: Failure & Impact (from Matrix 1): Likely	Likelihood: Failure & Impact (from Matrix 1): Very likely	Consequences: Negligible	Consequences: Minor	Consequences: Significant	Consequences: Severe	Risk rating of part (from Matrix 2)
1	Roots	25% of the CRZ is paved or compacted	106	22	1, 2	None	●	○	○	○	○	○	○	●	●	○	○	○	○	○	○	○	Low
							○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
						Remove	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	None
2	Trunk	Internal decay	106	22	1, 2	None	●	○	○	○	○	○	○	●	○	○	○	○	○	○	○	○	Low
							○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
						Remove	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	None
3	Crown	branch failures, over-extended branches	40	14	1, 2	None	○	●	○	○	○	○	●	○	○	○	○	○	○	○	●	○	Low
							○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
						Remove	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	None
4							○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
							○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
							○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	

Matrix 1. Likelihood matrix.

Likelihood of Failure	Likelihood of Impacting Target			
	Very low	Low	Medium	High
Imminent	Unlikely	Somewhat likely	Likely	Very likely
Probable	Unlikely	Unlikely	Somewhat likely	Likely
Possible	Unlikely	Unlikely	Unlikely	Somewhat likely
Improbable	Unlikely	Unlikely	Unlikely	Unlikely

Matrix 2. Risk rating matrix.

Likelihood of Failure & Impact	Consequences of Failure			
	Negligible	Minor	Significant	Severe
Very likely	Low	Moderate	High	Extreme
Likely	Low	Moderate	High	High
Somewhat likely	Low	Low	Moderate	Moderate
Unlikely	Low	Low	Low	Low



Notes, explanations, descriptions Internal heartwood decay colomn is estimated to be 20 to 25cm diameter at the breast hight. This tree presents a solid more than 30cm circular walls.

Mitigation options

Retain tree. Remove / prune dead branches; mulch, irrigate and fertilize the tree to increase vitality — **Residual risk** Low

Remove tree — **Residual risk** None

Residual risk

Overall tree risk rating Low ■ Moderate ☐ High ☐ Extreme ☐

Work priority 1 ☐ 2 ■ 3 ☐ 4 ☐

Overall residual risk Low ■ Moderate ☐ High ☐ Extreme ☐

Recommended inspection interval two (2) years

Data ■ Final ☐ Preliminary **Advanced assessment needed** ■ No ☐ Yes-Type/Reason

Inspection limitations ■ None ☐ Visibility ☐ Access ☐ Vines ☐ Root collar buried Describe