Plant Healthcare Consultants

American Society of Consulting Arborist ▪ International Society of Arboriculture
Massachusetts Arborist Association ▪ Massachusetts Tree Wardens and Foresters Association
TREE INVENTORIES ▪ APPRAISALS ▪ DIAGNOSIS ▪ TREE RISK ASSESSMENTS

Tree Risk Assessment of White Oak
Hunnewell Elementary School
28 Cameron St, Wellesley, MA 02482

Prepared for:

Brandon Schmitt, Director
Wellesley Natural Resources Commission
525 Washington Street
Wellesley, MA 02482

Prepared by:

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December 18, 2019

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Introduction

Ms. Danielle Marini, on behalf of Brandon Schmitt, Director of Wellesley Natural Resource Commission, contacted our office on December 6, 2019 with concerns for the large oak tree located in the courtyard of the Hunnewell Elementary School in Wellesley, MA. Ms. Marini informed us that they were interested in a Level III Tree Risk Assessment of the tree. We agreed to assist in the matter and our services as Consulting Arborists were retained.

Summary

A site visit was scheduled for December 18, 2019 at 12:30 pm. Mr. Schmitt met us at the Hunnewell Elementary School and showed us the tree: a 50" Diameter at Breast Height (DBH) Quercus alba (White oak).

We performed a Level III inspection of the Quercus rubra. We took measurements, collected data and took photographs. The inspection included a visual inspection of the entire tree as well as Resistograph readings of the trunk and root collar.

Background & History

Mr. Schmitt informed us that the Hunnewell Elementary School is going to be refurbished. Due to site constraints, including conservation land and property boundaries, this tree would not be able to be preserved in its current location. As the tree has historical significance, the local community has expressed an interest in the feasibility of transplanting the Quercus alba to a new location.

Prior to beginning any fundraising drives a determination as to the tree's health and structural integrity is sought. Additionally, an opinion was requested as to the likelihood of the tree surviving the stress of a transplant.

It was decided to have Consulting Arborists perform a Level III Tree Risk Assessment to establish answers to the questions about this tree.

Assignment

The purpose of this assignment was to ascertain the risk, if any, of either the whole tree or tree parts. A Level III Tree Risk Assessment was performed and an International Society of Arboriculture (ISA) Tree Risk Assessment Form was competed and accompanies this report (See ISA Tree Risk Assessment Form, pages #19 & #20) along with results of Resistograph measurements and locations (See Resistograph Measurements, pages #7 - #15).

Opinions regarding tree health and likelihood of surviving a transplant are also components of this assignment.

Limits of Assignment

The recommendations and conclusions provided in this report are based on visual observations as well as examinations of the plants interiors with the use of a Resistograph. No soil or plant tissue samples were taken for submission to a laboratory for testing.

NOTE Arborist are tree specialists who use their education, knowledge, training and experience to examine trees, recommend measures to enhance the beauty and health of trees, and attempt to reduce the risk of living near trees. Clients may choose to accept or disregard the recommendations of the arborist, or seek additional advice. Arborist cannot detect every condition that could possibly lead to the structural failure of a tree. Trees are living organisms that fail in ways we often do not fully understand. Conditions are often hidden within trees and below ground. Arborist cannot guarantee that a tree will be healthy or safe under all circumstances, or for a specified period of time. Likewise, remedial treatments, like medicine, cannot be guarantees. Treatment, root cutting, pruning and removal of trees may involve considerations beyond the scope of the arborist's services such as property boundaries, property ownership, site lines, disputes between neighbors, etc.

Purpose and Use of Report

The purpose of this report is to provide the Wellesley Natural Resource Commission with as much information as possible regarding the heath and structural integrity of the Quercus alba. With this information and our recommendations they can decide what action, if any, to take to regarding transplanting the tree or to manage potential risk and public safety.

This report is the property of the Wellesley Natural Resource Commission and is to be used and shared, as they deem necessary.

Observations

During the visual component of the inspection the following observations were made:

- A large, open crack is present on the west side of the tree, starting at the ground running up the trunk approximately 3 feet (See Photos 1-4, page #16).
- Several cracks are forming on the south and southwest side of the tree, evidenced by fissures in the bark (See Photo 5, page #17).
- Old pruning cuts are not forming healthy calluses thus not compartmentalizing well (See Photo 6, page #17).
- Cavities are present in the limbs of the tree (See Photos 7 & 8, page #17).
- Branch unions with included bark are present (See Photo 9, page #18).
- Several major limbs are developing stress crack due to overloading (See Photo 10, page #18).
- The tree has a lean to the east, towards the school entrance, and is lacking supporting buttress roots on that side if the tree (See Photos 11 & 12, page #18).

During the Level III Tree Risk Assessment nine Resistograph readings were taken on the Quercus alba; 5 on the trunk and 4 on the root collar (The Red Arrows represent the Trunk Measurement points, the Green Arrows represent the Root Measurement points (See Photos accompanying the Resistograph readings, pages #7 - #15). The results are reported and discussed in the Discussion section below. The 5 readings on the trunk reported solid wood throughout, as did four of the 4 root collar readings.

Discussion

The observations of the visual inspection are discussed below:

- A large, open crack is present on the west side of the tree, starting at the root and running up the trunk approximately 3 feet – **This is a major concern, cracks of this nature can severely comprise the structural integrity of the tree. Cracks like this typically continue to get larger with tree growth until the tree's threshold for supporting its own weight is surpassed and the entire tree fails.**
- Several cracks are forming on the south and southwest side of the tree, evidenced by fissures in the bark – **These stress crack are precursors to open cracks that can have the same effects as above. Also, additional cracks tend to work in tandem with existing cracks compounding the potential for tree failure.**
- Old pruning cuts are not forming healthy calluses – **As a result the wounds are not compartmentalizing well which allows decay to enter into the limbs and trunk of the tree. Decay in these tree parts can be failure points.**
- Cavities are present in the limbs of the tree – **As described above, these cavities are allowing decay into the tree parts providing potential failure points.**
- Branch unions with included bark are present – **Branches that growth along side each other but independently are natural weak points. These two branches grow and press against each other. The wood fibers do not interlace and form strong union. Eventually, failure occurs.**
- Several major limbs are developing stress crack due to overloading – **It is not uncommon for mature trees to grow and amass more weight on the branches than they can safely support. When this happens stress cracks form, as in the trunk. Eventually, the limb fails at these defect points.**
- The tree has a lean to the east, towards the school entrance, and is lacking supporting buttress roots on that side if the tree – **It is common for trees to develop a lean when they grow. This process is called tropism. When a tree develops a lean it tends to grow reaction wood to support the lean. Deciduous trees grow compaction wood under the lean, supporting from the bottom. This lean lack supporting buttress roots on the east side, limiting the support to the lean.**

A Resistograph is an electronic high-resolution needle drill resistance measurement device. A thin, long needle is driven into the wood. The electric power consumption of the drilling device is measured, recorded and printed. Resistographs provide a high linear correlation between the measured values and the density of the penetrated wood. The graphical output allows us to interpret the relative density of the wood, can show wood degradation as well as cavities in the interior of a tree part.

Interpreting the Graph

- The results are read from left to right and represent the resistance of the wood as the drilling needle enters the tree.

- The depth of the measurement is shown on the scale, in inches, at the bottom of the graph.
- Peaks in the amplitude represent more dense wood were as dips in the amplitude show relatively less dense wood.
- Initial drops in the curve are typical because the drill is entering through the bark and it measures less resistance in the softer bark.
- Fluctuations are normal as the needle passes through the wood. The green line is used to see an average of the curve.
- Short dips indicate are not a concern as it is common for minor defects to occur in a tree part. This can be a result of an old wound that has compartmentalized, a poor growing year, etc. These small dips are not a concern.
- If resistance drops off completely or represents more than 30% of the would profile a potential risk is identified.

Nine measurements were taken on the Quercus alba in the courtyard of the Hunnewell Elementary School, Wellesley, MA. Four measurements were taken on the trunk at approximately 4 feet from the ground, at each compass points; W-N-E-S. Four measurements were taken into the root collar at ground level, also at the compass points; W-N-E-S. An additional measurement was taken approximately 3 feet from the ground, across the open crack in the trunk on the north side of the tree.

All the measurements showed sound wood throughout, with the exception of the area of the crack in the trunk, as to be expected. The tests did not return areas of decay or cavities in the trunk of the tree.

Conclusion

Based on our training, education and many years of experience in the field of Arboriculture it is our opinion that the Quercus alba, in its current state, is a High Risk tree. Despite the fact that the Resistograph did not show interior decay the tree still presents a risk due to the other factors discovered in the visual inspection. This conclusion based on performing an ISA Level III Tree Risk Assessment and the results are compiled on the accompanying ISA Tree Risk Assessment Form.

Based on our findings we find it highly unlikely that the Quercus alba would survive a transplant.

Recommendations

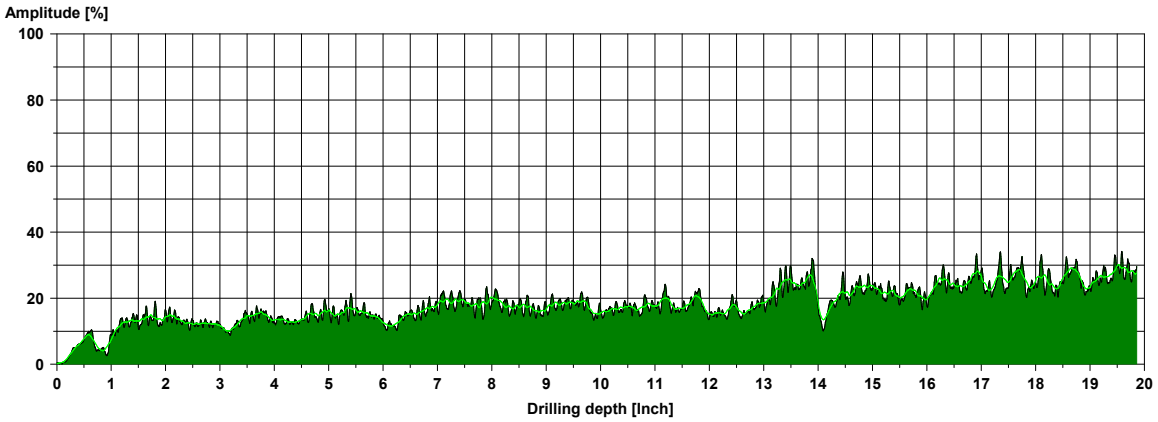
It is our recommendation that the 50" DBH Quercus alba in the courtyard of the Hunnewell Elementary School be removed immediately. Due to the foot traffic and proximity to the building it present a High Risk to public safety.

We advise limiting the pedestrian traffic under the Quercus alba as much as possible until the tree can be removed.

Resistograph Measurements

Measuring / object data

Measurement no.	: 1	**Needle speed**	: 3000 r/min	**Diameter**	: 50,0 "
ID number	: Trunk 1	**Needle state**	: ---	**Level**	: 48,0 "
Drilling depth	: 19,858 "	**Tilt**	: 0°	**Direction**	: W
Date	: 18.12.2019	**Offset**	: 68/331	**Species**	: Quercus alba
Time	: 12:40:32	**Avg. curve**	: 50 values	**Location**	: Trunk
Feed speed	: 20 "/min			**Name**	:



Assessment

From	0,00 "	**to**	0,00 "	:
From	0,00 "	**to**	0,00 "	:
From	0,00 "	**to**	0,00 "	:
From	0,00 "	**to**	0,00 "	:
From	0,00 "	**to**	0,00 "	:
From	0,00 "	**to**	0,00 "	:

Comment

Sound wood throughout.

Measurement01.rgp

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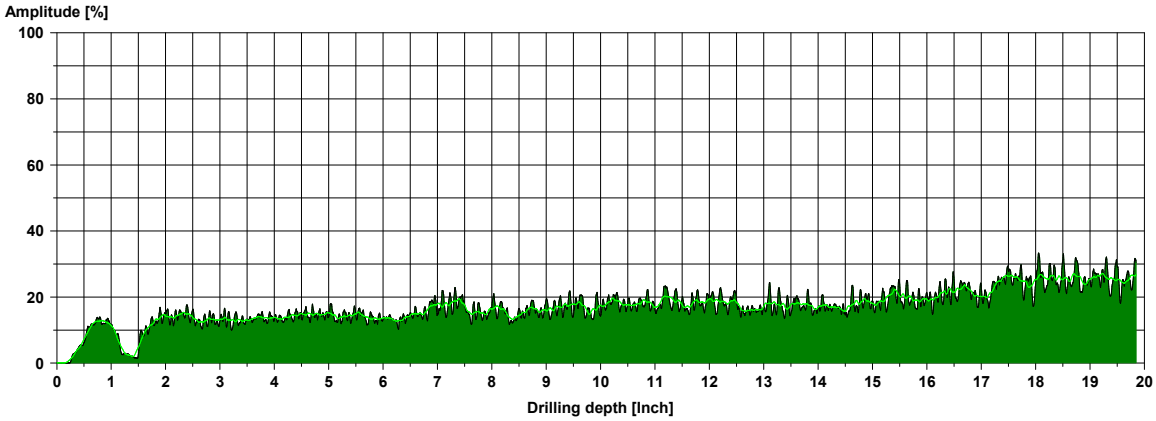
Measuring / object data

Measurement no.	: 2	**Needle speed**	: 3000 r/min	**Diameter**	: 50,0 "
ID number	: Trunk 2	**Needle state**	: ---	**Level**	: 48,0 "
Drilling depth	: 19,850 "	**Tilt**	: 0°	**Direction**	: N
Date	: 18.12.2019	**Offset**	: 64/314	**Species**	: Quercus alba
Time	: 12:42:31	**Avg. curve**	: 50 values	**Location**	: Trunk
Feed speed	: 20 "/min			**Name**	:



Assessment

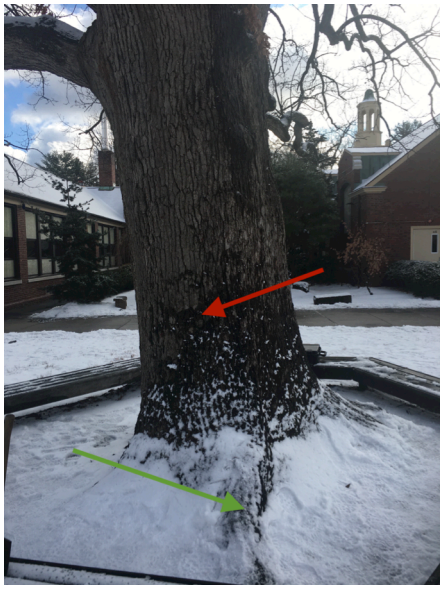
From	0,00 "	**to**	0,00 "	:
From	0,00 "	**to**	0,00 "	:
From	0,00 "	**to**	0,00 "	:
From	0,00 "	**to**	0,00 "	:
From	0,00 "	**to**	0,00 "	:
From	0,00 "	**to**	0,00 "	:

Comment

Sound wood throughout.

Inital dips represent passing through the bark.

Measurement02.rgp



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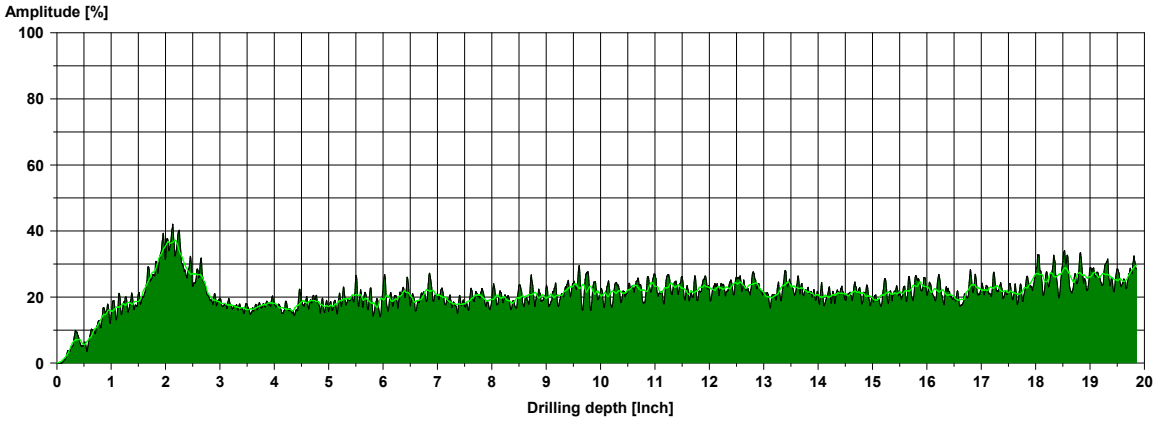
Measuring / object data

Measurement no.	: 3	**Needle speed**	: 3000 r/min	**Diameter**	: 50,0 "
ID number	: Trunk 3	**Needle state**	: ---	**Level**	: 48,0 "
Drilling depth	: 19,854 "	**Tilt**	: 0°	**Direction**	: E
Date	: 18.12.2019	**Offset**	: 64/311	**Species**	: Quercus alba
Time	: 12:44:29	**Avg. curve**	: 50 values	**Location**	: Trunk
Feed speed	: 20 "/min			**Name**	:



Assessment

From	0,00 "	**to**	0,00 "	:
From	0,00 "	**to**	0,00 "	:
From	0,00 "	**to**	0,00 "	:
From	0,00 "	**to**	0,00 "	:
From	0,00 "	**to**	0,00 "	:
From	0,00 "	**to**	0,00 "	:

Comment

Sound wood throughout.

Peak at 2 inches represents passing an old wound where callus is present. Calluses tend to be more dense.

Measurement03.rgp

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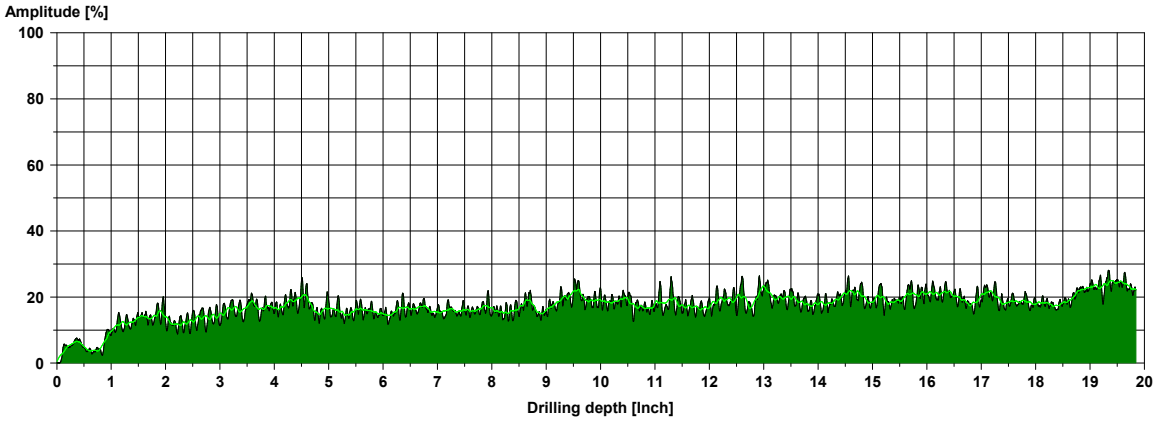
Measuring / object data

Measurement no.	: 4	**Needle speed**	: 3000 r/min	**Diameter**	: 50,0 "
ID number	: Trunk 4	**Needle state**	: ---	**Level**	: 48,0 "
Drilling depth	: 19,846 "	**Tilt**	: 0°	**Direction**	: S
Date	: 18.12.2019	**Offset**	: 66/311	**Species**	: Quercus alba
Time	: 12:46:09	**Avg. curve**	: 50 values	**Location**	: Trunk
Feed speed	: 20 "/min			**Name**	:



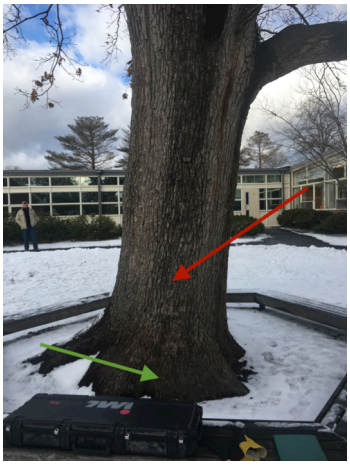
Assessment

From	0,00 "	**to**	0,00 "	:
From	0,00 "	**to**	0,00 "	:
From	0,00 "	**to**	0,00 "	:
From	0,00 "	**to**	0,00 "	:
From	0,00 "	**to**	0,00 "	:
From	0,00 "	**to**	0,00 "	:

Comment

Sound wood throughoput.

Measurement04.rgp



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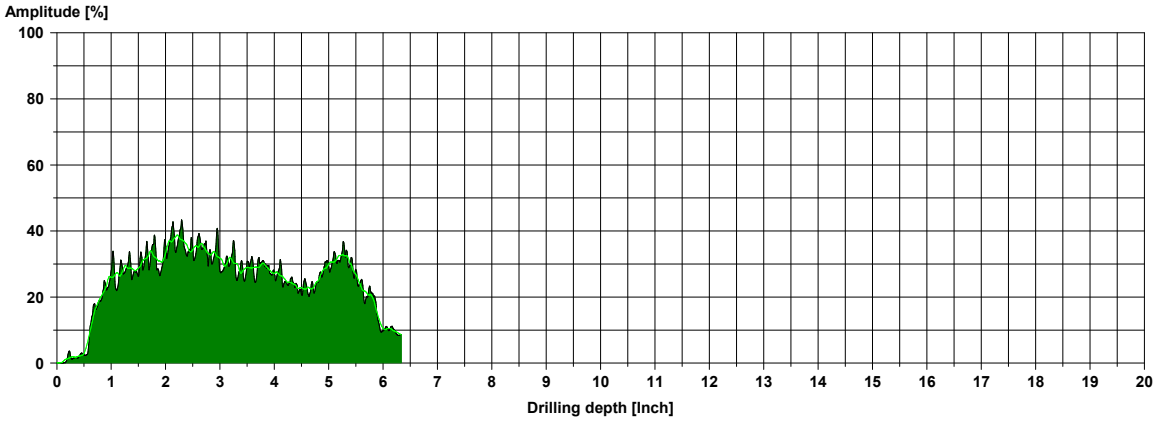
Measuring / object data

Measurement no.	: 5	Needle speed	: 3000 r/min	Diameter	: 6,5 "
ID number	: Root 1	Needle state	: ---	Level	: 4,0 "
Drilling depth	: 6,335 "	Tilt	: -65°	Direction	: W
Date	: 18.12.2019	Offset	: 40/307	Species	: Quercus alba
Time	: 12:48:06	Avg. curve	: 50 values	Location	: Roots
Feed speed	: 20 "/min			Name	:



Assessment

From	0,00 "	to	0,00 "	:
From	0,00 "	to	0,00 "	:
From	0,00 "	to	0,00 "	:
From	0,00 "	to	0,00 "	:
From	0,00 "	to	0,00 "	:
From	0,00 "	to	0,00 "	:

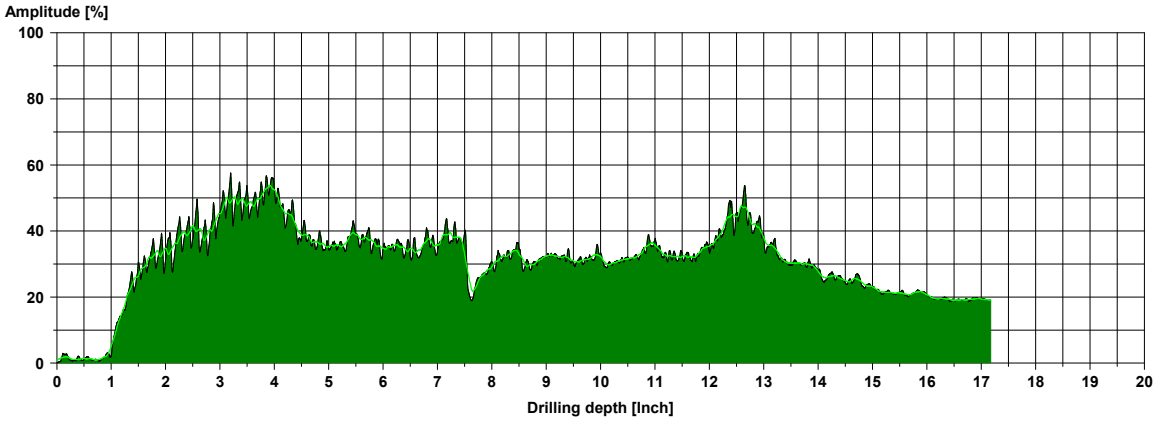
Comment

Sound wood throughout.

Measurement05.rgp

Measuring / object data

Measurement no.	: 6	**Needle speed**	: 3000 r/min	**Diameter**	: 17,5 "
ID number	: Root 2	**Needle state**	: ---	**Level**	: 4,0 "
Drilling depth	: 17,173 "	**Tilt**	: -59°	**Direction**	: N
Date	: 18.12.2019	**Offset**	: 43/307	**Species**	: Quercus albas
Time	: 12:49:08	**Avg. curve**	: 50 values	**Location**	: Roots
Feed speed	: 20 "/min			**Name**	:



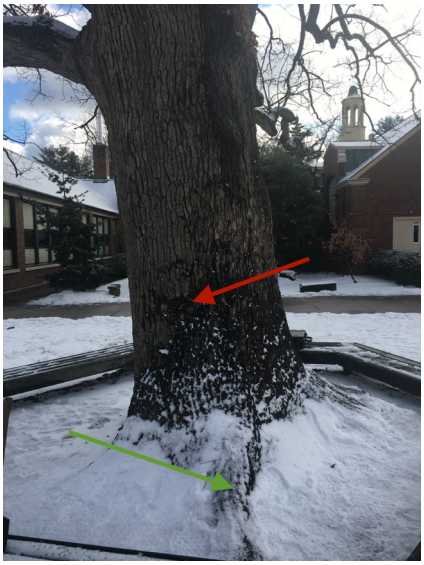
Assessment

From	0,00 "	**to**	0,00 "	:
From	0,00 "	**to**	0,00 "	:
From	0,00 "	**to**	0,00 "	:
From	0,00 "	**to**	0,00 "	:
From	0,00 "	**to**	0,00 "	:
From	0,00 "	**to**	0,00 "	:

Comment

Sound wood throughout with a slight dip at 7.5".

Measurement06.rgp



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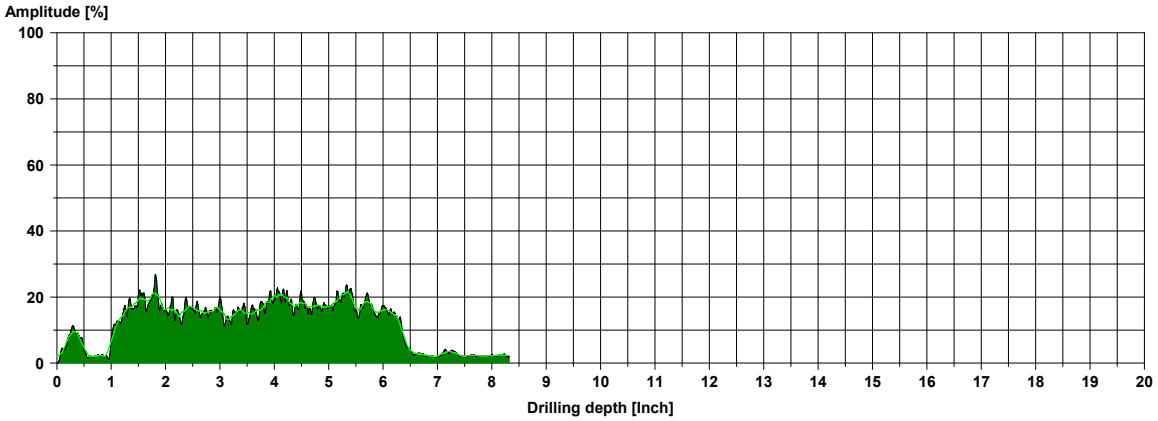
Measuring / object data

Measurement no.	: 7	**Needle speed**	: 3000 r/min	**Diameter**	: 6,5 "
ID number	: Root 3	**Needle state**	: ---	**Level**	: 4,0 "
Drilling depth	: 8,319 "	**Tilt**	: -56°	**Direction**	: E
Date	: 18.12.2019	**Offset**	: 42/302	**Species**	: Quercus albas
Time	: 12:50:40	**Avg. curve**	: 50 values	**Location**	: Roots
Feed speed	: 20 "/min			**Name**	:



Assessment

From	0,00 "	**to**	0,00 "	:
From	0,00 "	**to**	0,00 "	:
From	0,00 "	**to**	0,00 "	:
From	0,00 "	**to**	0,00 "	:
From	0,00 "	**to**	0,00 "	:
From	0,00 "	**to**	0,00 "	:

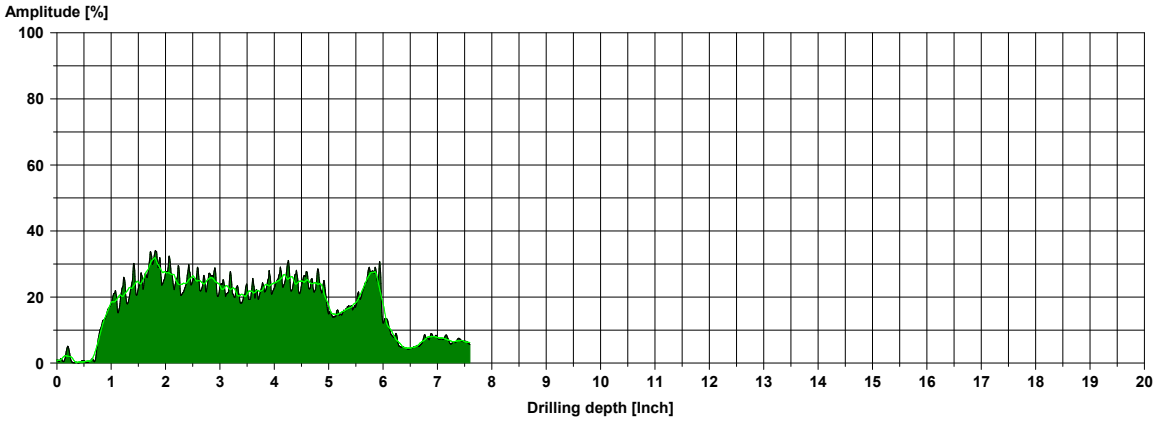
Comment

A slight bit of insiped decay from .5-1". Sound throughout the rest.

Measurement07.rgp

Measuring / object data

Measurement no.	: 8	**Needle speed**	: 3000 r/min	**Diameter**	: 7,5 "
ID number	: Root 4	**Needle state**	: ---	**Level**	: 4,0 "
Drilling depth	: 7,598 "	**Tilt**	: -65°	**Direction**	: S
Date	: 18.12.2019	**Offset**	: 45/472	**Species**	: Quercus alba
Time	: 12:51:27	**Avg. curve**	: 50 values	**Location**	: Roots
Feed speed	: 20 "/min			**Name**	:



Assessment

From	0,00 "	**to**	0,00 "	:
From	0,00 "	**to**	0,00 "	:
From	0,00 "	**to**	0,00 "	:
From	0,00 "	**to**	0,00 "	:
From	0,00 "	**to**	0,00 "	:
From	0,00 "	**to**	0,00 "	:

Comment

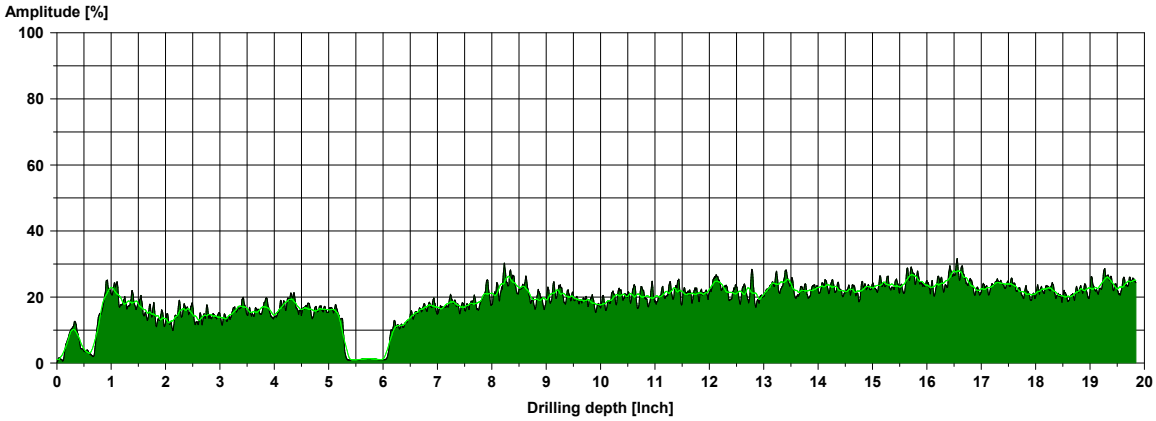
Some decay at the root surface then again at 6".

Only slight decay.

Measurement08.rgp

Measuring / object data

Measurement no.	: 9	**Needle speed**	: 3000 r/min	**Diameter**	: 50,0 "
ID number	: Across Crack	**Needle state**	: ---	**Level**	: 30,0 "
Drilling depth	: 19,846 "	**Tilt**	: -16°	**Direction**	: NW
Date	: 18.12.2019	**Offset**	: 61/305	**Species**	: Quercus alba
Time	: 12:52:31	**Avg. curve**	: 50 values	**Location**	: Trunk
Feed speed	: 20 "/min			**Name**	: Crack



Assessment

From	0,00 "	**to**	0,00 "	:
From	0,00 "	**to**	0,00 "	:
From	0,00 "	**to**	0,00 "	:
From	0,00 "	**to**	0,00 "	:
From	0,00 "	**to**	0,00 "	:
From	0,00 "	**to**	0,00 "	:

Comment

Sound wood is present throughout with the exception of the crack.

The drop at from 5.5 to 6 inches represents the crack, not decay or a cavity.

Measurement09.rgp

Photographs

Photo 1

Photo 2

Photo 3

Photo 4

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Photo 5

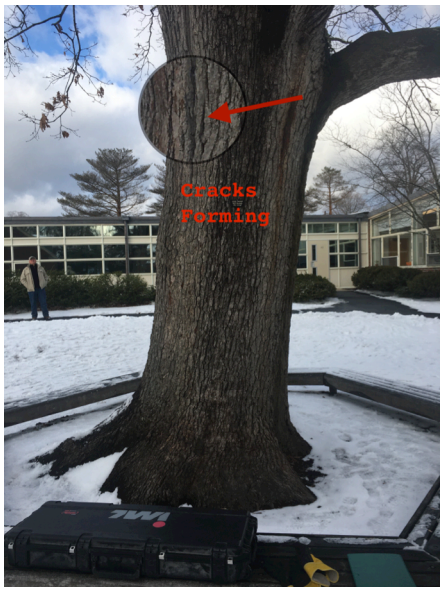

Photo 6

Photo 7

Photo 8

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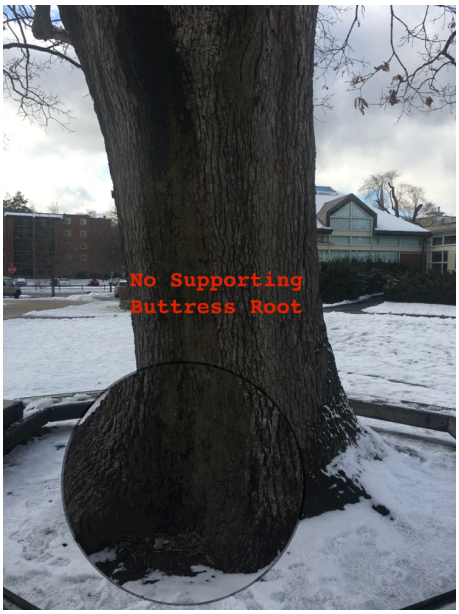

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ISA Tree Risk Assessment Form

Basic Tree Risk Assessment Form

Client Town of Wellesley - Natural Resource Commission - Brandon Schmitt Date December 18, 2019 Time 12:30 PM
Address/Tree location Hunnewell Elementary School Courtyard - 28 Cameron Street, Wellesley, MA Tree no. 1 Sheet 1 of 1
Tree species Quercus alba (White oak) dbh 50" Height 48' Crown spread dia. 50'
Assessor(s) Carl A. Cathcart & Daniel E. Cathcart Tools used Resistograph, Clinometer, DBH Tape **Time frame** 1 year

Target Assessment

Target number	Target description	Target protection	Target zone: Target within drip line	Target zone: Target within 1x 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	School Building	No	X			4	N	N
2	Pedestrian Traffic	No	X			2	N	Y
3								
4								

Site Factors

History of failures _____ **Topography** Flat ☒ Slope ☐ _____% **Aspect** _____
Site changes None ☐ Grade change ☐ Site clearing ☐ Changed soil hydrology ☐ Root cuts ☐ Describe _____
Soil conditions Limited volume ☐ Saturated ☐ Shallow ☐ Compacted ☐ Pavement over roots ☐ _____% Describe _____
Prevailing wind direction _____ **Common weather** Strong winds ☐ Ice ☐ Snow ☐ Heavy rain ☐ Describe _____

Tree Health and Species Profile

Vigor Low ☐ Normal ☒ High ☐ **Foliage** None (seasonal) ☒ None (dead) ☐ Normal _____% Chlorotic _____% Necrotic _____%
Pests/Biotic _____ **Abiotic** _____
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 expected change in load factors _____

Tree Defects and Conditions Affecting the Likelihood of Failure

— Crown and Branches —

Unbalanced crown ☐ LCR _____%
Dead twigs/branches ☐ _____% overall Max. dia. _____
Broken/Hangers Number _____ Max. dia. _____
Over-extended branches ☒
Pruning history
Crown cleaned ☒ Thinned ☒ Raised ☐
Reduced ☒ Topped ☐ Lion-tailed ☐
Flush cuts ☐ Other _____

Cracks ☒ _____ Lightning damage ☐
Codominant ☒ _____ Included bark ☒
Weak attachments ☒ _____ Cavity/Nest hole 4" % circ.
Previous branch failures ☐ _____ Similar branches present ☐
Dead/Missing bark ☐ Cankers/Galls/Burls ☐ Sapwood damage/decay ☐
Conks ☐ Heartwood decay ☐ _____
Response growth _____

Condition(s) of concern _____

Stress Cracks on Extended Branches - Weak Unions
Part Size 8-12" Fall Distance 30'
Load on defect N/A ☐ Minor ☐ Moderate ☐ Significant ☒
Likelihood of failure Improbable ☐ Possible ☐ Probable ☒ Imminent ☐

Cavities and Poor Healing of Old Wounds
Part Size 8-12" Fall Distance 30'
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 _____ % circ. Depth _____ Poor taper ☐
Lean 15 ° Corrected? Yes but lacking buttress root support
Response growth _____
Condition(s) of concern Large Crack & Lean
Part Size Whole Tree Fall Distance 50'
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 _____
Condition(s) of concern Crack from root to trunk
Part Size Whole Tree Fall Distance 50'
Load on defect N/A ☐ Minor ☐ Moderate ☐ Significant ☒
Likelihood of failure Improbable ☐ Possible ☒ Probable ☐ Imminent ☐

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Risk Categorization

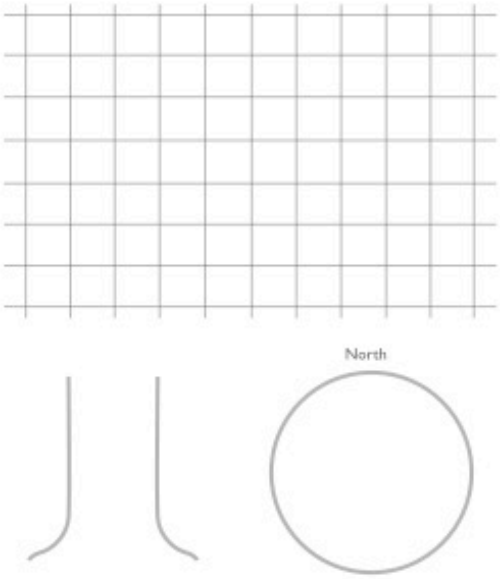
Target (Target number or description)	Tree part	Condition(s) of concern	Likelihood: Failure: Improbable	Failure: Possible	Failure: Probable	Failure: Imminent	Impact: Very low	Impact: Low	Impact: Medium	Impact: High	Failure & Impact (from Matrix 1): Unlikely	Somewhat	Likely	Very likely	Consequences: Negligible	Minor	Significant	Severe	Risk rating (from Matrix 2)
1 - School	Limbs	Decay Stress Cracks			X					X			X				X		High
2 - Pedestrian Traffic					X					X			X					X	High
1 - School	Whole Tree	Stress Crack Lean			X					X			X					X	High
2 - Pedestrian Traffic					X					X			X					X	High

Matrix 1. Likelihood matrix.

Likelihood of Failure	Likelihood of Impact: 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

The Quercus alba is a High Risk Tree and mitigation is not practicle

Removal should be done as soon as possible

Restricting traffic under the tree as much as possible should be done

Mitigation options

1. _____ **Residual risk** _____
2. _____ **Residual risk** _____
3. _____ **Residual risk** _____
4. _____ **Residual risk** _____

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

Overall residual risk None ☐ Low ☐ Moderate ☐ High ☐ Extreme ☐ **Recommended inspection interval** _____

Data ☒ Final ☐ Preliminary **Advanced assessment needed** ☐ No ☒ Yes-Type/Reason Resistograph used - no interior decay found

Inspection limitations ☒ None ☐ Visibility ☐ Access ☐ Vines ☐ Root collar buried Describe _____

This datasheet was produced by the International Society of Arboriculture (ISA) — 2017

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Glossary of Terms

Branch Union	The structural union of a lateral branch to the tree stem.
Canopy	The part of the crown composed of leaves and small twigs.
Certified Arborist	A professional arborist possessing current certification issued by the Massachusetts Arborists Association (MAA) and/or the International Society of Arboriculture (ISA)
Clinometer	A device used to measure the height of an object
Co-dominant	equal in size and relative importance usually associated with either the trunk/stems or scaffold limbs/ branches in the crown.
Crown	The upper part of a tree, measured from the lowest branch, including all the branches and foliage
DBH	Stands for Diameter Breast Height. The diameter of a tree measured at 4.5 feet above the ground.
Drip-line	Perimeter of the area under a tree including the branches and leaves
Establishment	The process of a tree becoming acclimated to a new environment, usually correlating the new root development that can sustain normal biological functions of the tree
Included Bark	An inherent weak point where two or more stems grow independently pressing on one another
ISA	International Society of Arborists, a global, professional association of arborist
Level II Tree Risk Assessment	A visual assessment only. The tree is inspected from the ground only and diagnostic tools used
Level III Tree Risk Assessment	I more intensive inspection of the tree using diagnostic tool, such as a Resistograph and may also include inspection in the tree canopy
Pruning	Systematic removal of branches of a plant usually a woody perennial
Resistograph	I diagnostic tool used to examine the interior of a tree to determine decay or cavities
Target	Person or property at risk of being struck is a tree, or tree part, fails
Tropism	the turning of all or part of an organism in a particular direction in response to an external stimulus, e.g. sunlight

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Certification of Performance

Plant Healthcare Consultants certify that:

1. We have personally inspected the tree and property referred to in this report and have stated our findings accurately.

2. We have no current or prospective interest in the trees or the property that is the subject of this report and have no personal interest or bias with respect to the parties involved.

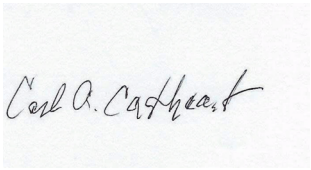
3. The analysis, opinions and conclusions stated herein are our own and are based on current scientific procedures and facts.

4. Our analysis, opinions and conclusions were developed and this report has been prepared according to commonly accepted arboricultural practices.

5. No one provided significant professional assistance to us, except as indicated within the report.

6. Our compensation is not contingent upon the reporting of a predetermined conclusion that favors the cause of the client or any other party or upon the results of the assessment, the attainment of stipulated results, or the occurrence of any subsequent events.

We further certify that Plant Healthcare Consultants is a member in good standing of the Massachusetts Arborist Association, American Society of Consulting Arborists, the International Society of Arboriculture and Massachusetts Tree Wardens and Foresters Association. We have been involved in the field of Arboriculture for over 60 years.



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