



**Professional  
Environmental  
Services, LLC**

# **922 Lynnfield Street, Lynnfield, MA Tree Protection Zone Assessment Report**

**For  
Richard A. Salvo, P.E.  
Engineering Alliance, Inc.**

**Prepared By:  
James M. MacArthur  
Owner and Business Manager**

**ISA Certification # NE7574A**

**12/21/2022**

*James M. MacArthur, Owner & Business Manager*

71 Holly Ave., Lynn, MA 01904

Website: [pesllcne.com](http://pesllcne.com)

*ISA Certification # NE7574A*

Cell: (781) 731-3708

E-mail: [pesllcne@gmail.com](mailto:pesllcne@gmail.com)

# SITE DESCRIPTION

The property at 922 Lynnfield Street, Lynnfield, Massachusetts is being developed as a Limited Business Use Zoning District. This report addresses those tree removals that are within the Lynnfield Tree Preservation Bylaw Tree Border Protection Area as part of the site development plan. See Exhibit A, On Exhibit A, which is a proposed site plan developed by Noto Partners, LLC for Engineering Alliance, Inc., Professional Environmental Services, llc identified each tree addressed and provided a corresponding number 1-18 on this plan. The individual numbered locations of the 18 trees, in the Tree Protection Zone Tree Yard, were plotted on Exhibit A by James K. Emmanuel, James K. Emmanuel Associates, Landscape Architects, Marblehead, MA. This report is focused on those Tree Protection Zone Tree Yard trees that are located within the Limited Business Use Tree Yard area pursuant to Section 225-9 Rules and Regulations, Town of Lynnfield Bylaws under the jurisdiction of the Lynnfield . Department of Planning & Conservation.

## NARRATIVE

On December, 20, 2022, James M. MacArthur conducted an assessment of 18 trees 6” DBH or greater that fell within the Tree Yard area at 922 Lynnfield Street, Lynnfield, MA. Professional Environmental Services at the request of James K. Emmanuel, James K. Emmanuel Associates, Landscape Architects, Marblehead, MA., delineated the Tree Yard area on site, identified the trees to be assessed and conducted an inspection of the 18 trees to ascertain their health conditions and determine whether they should be retained or removed based on their impact on the development plan. The following is a synopsis of the trees that are of concern and impact on the site Tree Protection Zone Tree Yard Plan, Exhibit A. On the site Tree Protection Zone Tree Yard Plan, each tree is individually numbered 1 through 18 and each trees individual Species name, Diameter at Breast Height (DBH), Health Condition, Target Potential, Photo and Recommendation are listed separately in the Findings section.

The identified Tree Yard has a total of 18 trees 6” DBH or greater of which 4 are Red Oak trees and 14 are Norway Maple trees. The Norway Maple tree is an invasive tree species in the State of Massachusetts as determined by the Mass Wildlife’s Natural Heritage and Endangered Species Program within the Massachusetts Executive Office of Environmental Affairs and Energy. This species cannot be legally purchased or planted in Massachusetts and where possible should be recommended for removal.

The Massachusetts Invasive Plant Advisory Group (MIPAG), recommends that early detection, planning, public education, public/private partnerships and control/eradication where possible are all components of an effective Invasive species management program. To that end, by removing the Norway Maple trees that are present at 922 Lynnfield Street, Lynnfield, MA is a step in a collaborative public private partnership in the reduction of the footprint that the invasive Norway Maple tree has in the Town of Lynnfield, MA and in itself is a mitigation tool in the reduction and control of Norway Maple trees in Lynnfield, MA.

# FINDINGS

In the following report findings, Professional Environmental Services, LLC will provide some general overall observations and then apply those observations to each individual tree and a tree number assigned along with individual tree observations and recommendations.

The trees were risk assessed in conformance with the Tree Risk Assessment protocol established by the International Society of Arboriculture based on the ANSI A-300 Part 9 Tree Risk Assessment Standards. The key goal is to minimize target potential such as structures, roadways, walkways, play areas and any place where human interface may occur. In this case the trees were assessed to see if they were healthy trees, trees in decline, invasive species or dead trees, in addition to whether they currently pose a risk target potential to the residents and property at 900, 922, and 932 Lynnfield Street and the traveling public on Lynnfield Street.

Each tree was assessed and the individual findings, tree photo and recommended remediation action are listed separately in the following findings.

**TREE # 1**

**SPECIES:** Red Oak, *Quercus rubra*

**DBH:** 40"

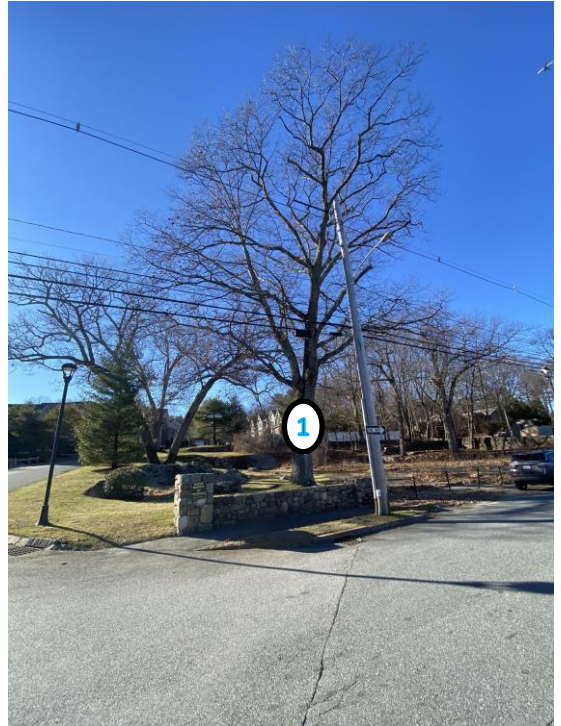
**TREE YARD:** Yes

**LOCATION:** Front tree yard to the left of the lot.

**CONDITION:** There are several dead branches in the crown. The tree is crown overhangs the utility lines, sidewalk area and Lynnfield Street. There is staining on the bark at a major crown branch union which is an indication of a cavity at this point. The root flare has a girdling root and a conk is present on the root flare indicating internal degradation due to root rot.

**TARGET:** Lynnfield Street 922 Lynnfield Street property and the Lynnfield Street Sidewalk.

**RECOMMENDATION:** Removal



**TREE # 2**

**SPECIES:** Red Oak, *Quercus rubra*

**DBH:** 35.5"

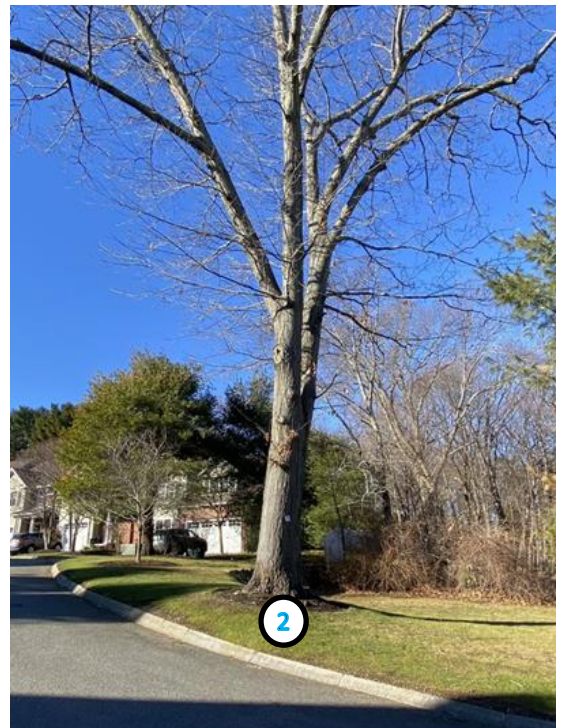
**TREE YARD:** Yes

**LOCATION:** Directly behind tree # 3

**CONDITION:** There are several dead branches in the crown. There is staining on the bark at a major crown branch union which is an indication of a cavity at this point. The root flare has a girdling root.

**TARGET:** 900 Lynnfield Street Entrance way, 900 Lynnfield Street Condominium structure, and 922 Lynnfield street lot.

**RECOMMENDATION:** Retain





**TREE # 3** Invasive Tree species

**SPECIES:** Norway Maple, *Acer platanoides*

**DBH:** 13.5"

**TREE YARD:** Yes

**LOCATION:** Along the back property line

**CONDITION:** Several dead and broken branches, decaying bark, sounding indicates internal decay and heart rot. The tree is in serious decline.

**TARGET:** High risk potential. 900 Lynnfield Street property fence and condominium structure.

**RECOMMENDATION:** Removal



**TREE # 4**

**SPECIES:** Norway Maple, *Acer platanoides*

**DBH:** 7.0"

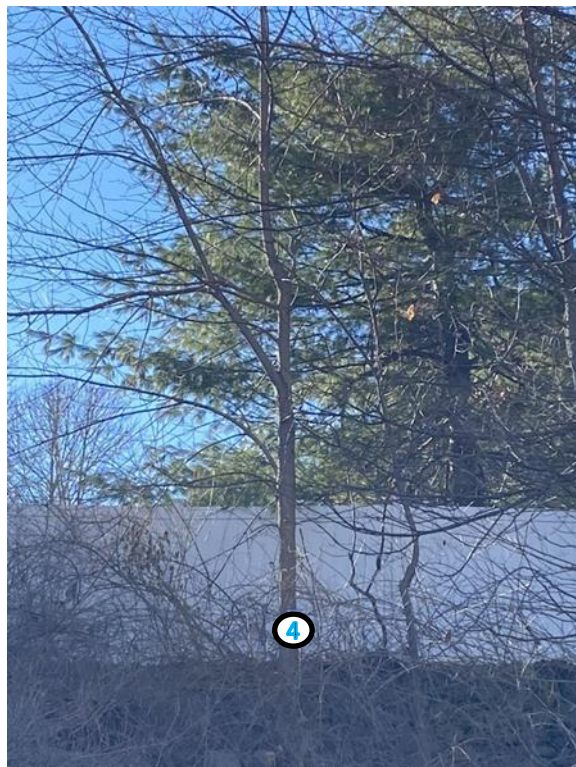
**TREE YARD:** Yes

**LOCATION:** Along the back property line

**CONDITION:** Several dead and broken branches. The tree is in decline.

**TARGET:** High risk potential. 900 Lynnfield Street property fence and condominium structure.

**RECOMMENDATION:** Removal



**TREE # 5** Invasive Tree species

**SPECIES:** Norway Maple, *Acer platanoides*

**DBH:** 22.0"

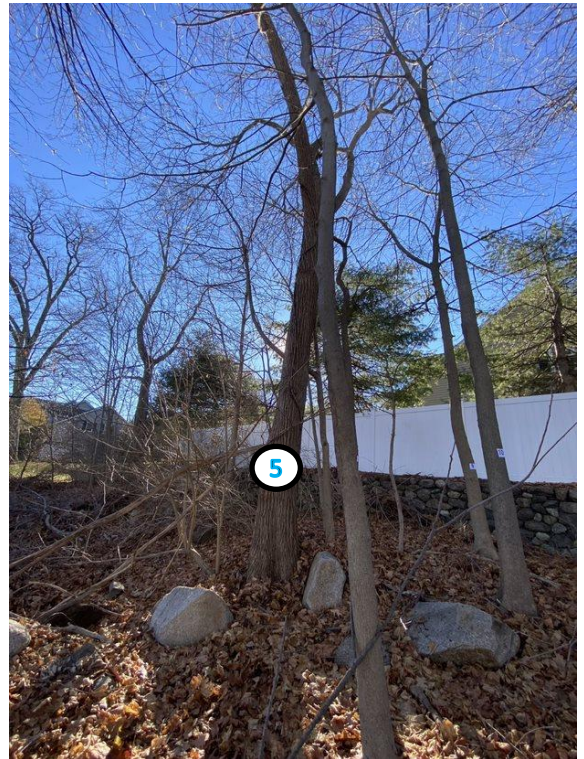
**TREE YARD:** Yes

**LOCATION:** Along the back property line

**CONDITION:** Several dead and sounding indicates that the tree has internal decay and rot. The tree is in serious decline.

**TARGET:** High risk potential. 900 Lynnfield Street property fence and condominium structure.

**RECOMMENDATION:** Removal



**TREE # 6** Invasive Tree species

**SPECIES:** Norway Maple, *Acer platanoides*

**DBH:** 6.0"

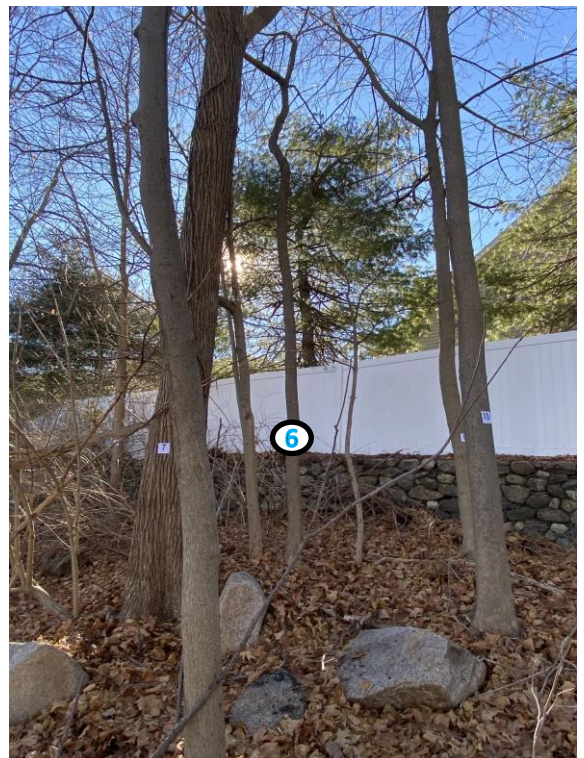
**TREE YARD:** Yes

**LOCATION:** Along the back property line

**CONDITION:** Several dead branches.

**TARGET:** Medium risk potential. 900 Lynnfield Street property fence and condominium structure.

**RECOMMENDATION:** Removal





**TREE # 7 Invasive Tree species**

**SPECIES:** Norway Maple, *Acer platanoides*

**DBH:** 9.0"

**TREE YARD:** Yes

**LOCATION:** Along the back property line

**CONDITION:** Several dead branches. Root flare swelling indicates root decay. The tree is in decline.

**TARGET:** Medium risk potential. 900 Lynnfield Street property fence and condominium structure.

**RECOMMENDATION:** Removal



**TREE # 8 Invasive Tree species**

**SPECIES:** Norway Maple, *Acer platanoides*

**DBH:** 9.0"

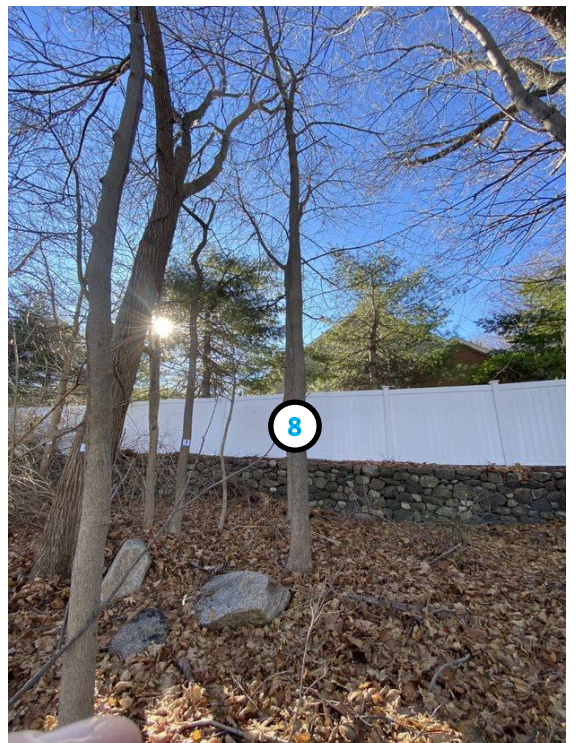
**TREE YARD:** Yes

**LOCATION:** Along the back property line

**CONDITION:** Several dead branches. The tree is in decline.

**TARGET:** Medium risk potential. 900 Lynnfield Street property fence and condominium structure.

**RECOMMENDATION:** Removal



TREE # 9 **Invasive Tree species**

SPECIES: Norway Maple, *Acer platanoides*

DBH: 8.0"

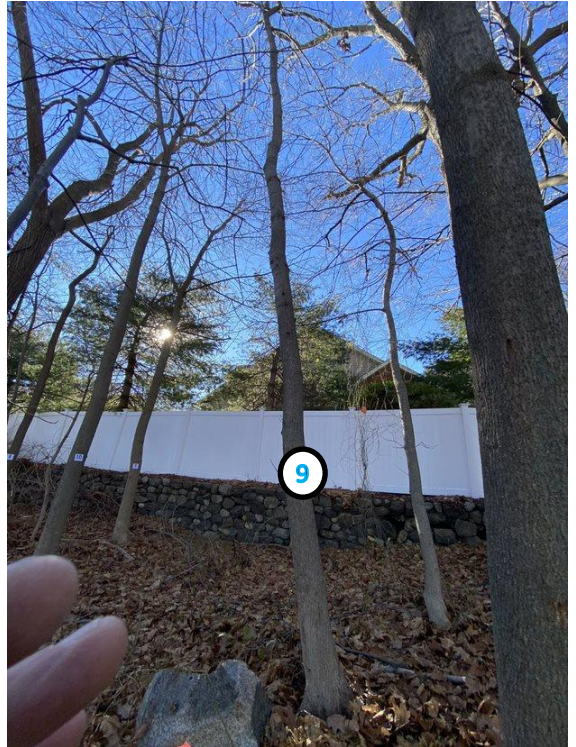
TREE YARD: Yes

LOCATION: Along the back property line

CONDITION: Several dead branches. Root flare indicates root rot. The tree is in decline.

TARGET: Medium risk potential. 900 Lynnfield Street property fence and condominium structure.

RECOMMENDATION: Removal



TREE # 10

SPECIES: Red Oak, *Quercus rubra*

DBH: 36.0

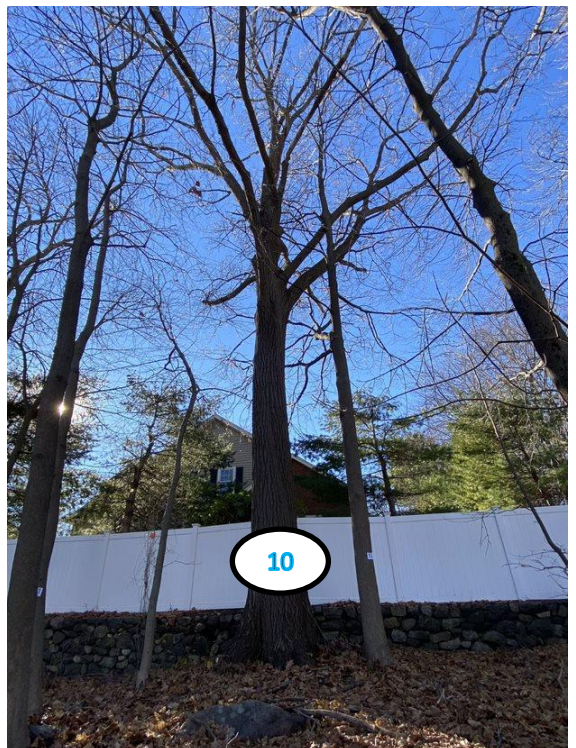
TREE YARD: Yes

LOCATION: Along the back property line

CONDITION: Several dead branches. Sounding indicates internal decay and rot. Root flare indicates root rot. The tree is in serious decline.

TARGET: High risk potential. 900 Lynnfield Street property fence and condominium structure.

RECOMMENDATION: Removal





**TREE # 11 Invasive Tree species**

**SPECIES:** Norway Maple, *Acer platanoides*

**DBH:** 12.0"

**TREE YARD:** Yes

**LOCATION:** Along the back property line

**CONDITION:** Several dead branches. Root flare indicates root rot. The tree is in decline.

**TARGET:** High risk potential. 900 Lynnfield Street property fence structure.

**RECOMMENDATION:** Removal



**TREE # 12 Invasive Tree species**

**SPECIES:** Norway Maple, *Acer platanoides*

**DBH:** 14.0"

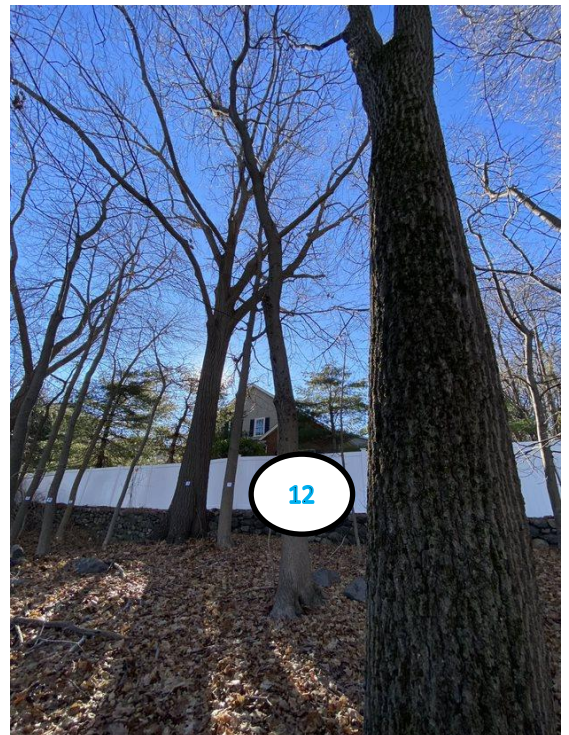
**TREE YARD:** Yes

**LOCATION:** Along the back property line

**CONDITION:** Several dead branches. Root flare indicates root rot and sounding indicates internal decay and heart rot. The tree is in decline.

**TARGET:** High risk potential. 900 Lynnfield Street property fence structure.

**RECOMMENDATION:** Removal





TREE # 13 **Invasive Tree species**

SPECIES: Norway Maple, *Acer platanoides*

DBH: 13.5"

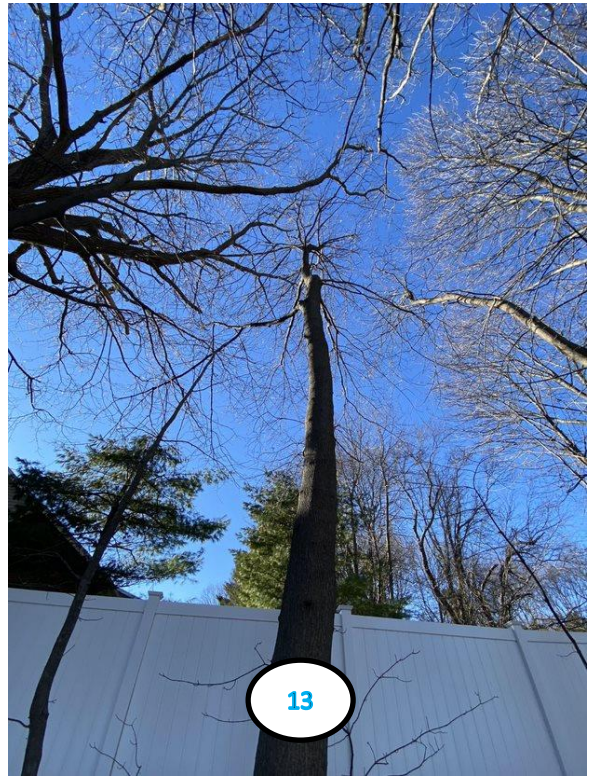
TREE YARD: Yes

LOCATION: Along the back property line

CONDITION: Several dead branches. Root flare indicates root rot and sounding indicates extensive internal decay and heart rot. The tree is in decline.

TARGET: High risk potential. 900 Lynnfield Street property fence structure.

RECOMMENDATION: Removal



TREE # 14 **Invasive Tree species**

SPECIES: Norway Maple, *Acer platanoides*

DBH: 10.5"

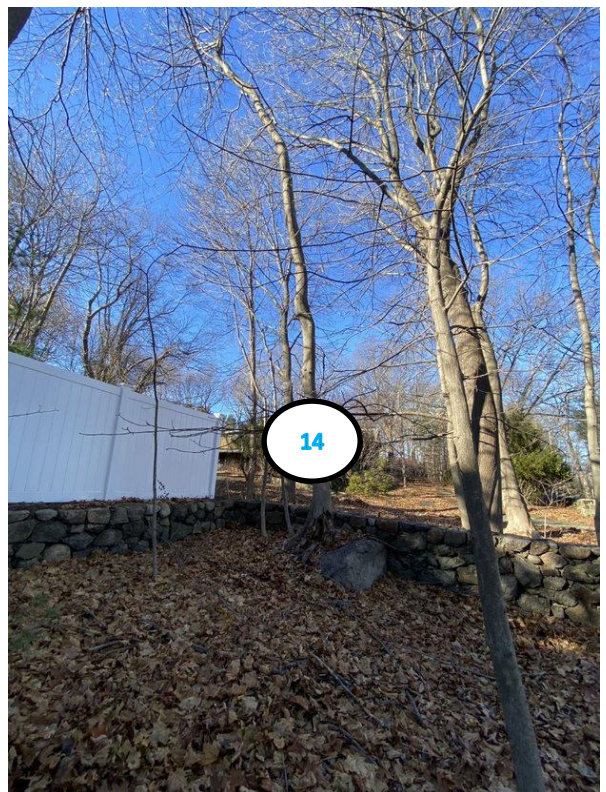
TREE YARD: Yes

LOCATION: Along the back property line

CONDITION: Several dead branches. Root flare shows a cavity and root rot Sounding indicates extensive internal decay and heart rot. The tree is in serious decline.

TARGET: High risk potential. 900 Lynnfield Street property fence structure.

RECOMMENDATION: Removal





**TREE # 15 Invasive Tree species**

**SPECIES:** Norway Maple, *Acer platanoides*

**DBH:** 7.5"

**TREE YARD:** Yes

**LOCATION:** Along the back Northwest side of the property line.

**CONDITION:** Several dead branches. Root flare indicates root rot and sounding indicates extensive internal decay and heart rot. Trunk at about 3 feet has a sunken area that is from internal degradation. The tree is in serious decline.

**TARGET:** High risk potential. 930 Lynnfield Street property fence structure.

**RECOMMENDATION:** Removal



**TREE # 16 Invasive Tree species**

**SPECIES:** Norway Maple, *Acer platanoides*

**DBH:** 12.5"

**TREE YARD:** Yes

**LOCATION:** Along the back Northwest side of the property line.

**CONDITION:** Several dead branches. Root flare indicates root rot and sounding indicates extensive internal decay and heart rot. Trunk at about 3 feet has a sunken area that is from internal degradation. The tree is in serious decline.

**TARGET:** High risk potential. 932 Lynnfield Street property fence structure.

**RECOMMENDATION:** Removal





TREE # 17

SPECIES: Red Oak, *Quercus rubra*

DBH: 28.0

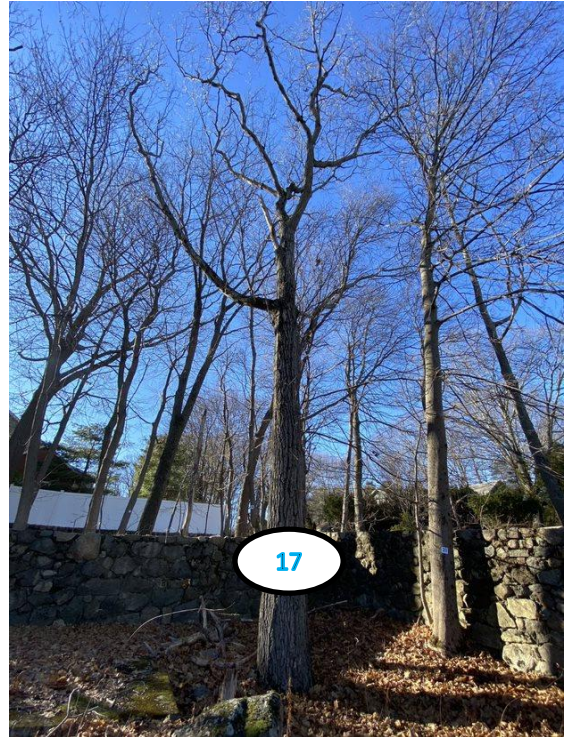
TREE YARD: Yes

LOCATION: Along the Northwest of the property line.

CONDITION: Numerous dead branches. Sounding indicates internal decay and rot. The tree is in decline.

TARGET: High risk potential. 932 Lynnfield Street property fence and condominium structure.

RECOMMENDATION: Removal



TREE # 18 **Invasive Tree species**

SPECIES: Norway Maple, *Acer platanoides*

DBH: 15.5"

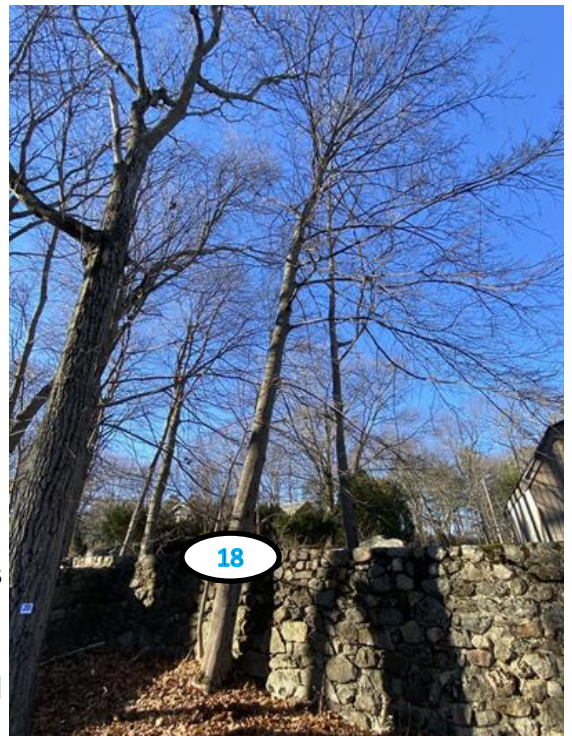
TREE YARD: Yes

LOCATION: Along the back Northwest side of the property line.

CONDITION: Some dead branches. Root flare indicates root rot and sounding indicates internal decay and heart rot. There are girdling roots at the root flare. The tree is in serious decline.

TARGET: High risk potential to 932 Lynnfield Street property fence structure.

RECOMMENDATION: Removal



# REMEDIATION PLAN

The Remediation Plan for the 18 Tree Protection Zone Tree Yard tree removals is the vegetation planting plan for the property developed by James Emmanuel, Landscape Architect, James K. Emmanuel Associates, Exhibit B. The proposed 57 new tree plantings laid out in James K. Emmanuel's Landscape Plan provides a vegetated arborvitae row along the back property boundary area and other trees planted in the front parking lot area. There are 3 Red Oak trees accounting for 104 DBH inches being removed in the Tree Protection Zone Tree Yard area and 57 2 inch DBH trees accounting for 114 DBH inches being planted. The plan includes the eradication of all invasive Norway Maple trees onsite. This will eliminate the potential future spread of Norway Maple trees to abutting properties from 922 Lynnfield Street.

The 15 Norway Maple trees identified in the Tree Protection Zone Tree Yard were at varying levels of decline, had dead branches and signs of root decay and/or heart rot decay. See Exhibit C.

Tree number 2, Red Oak, is 35.5 inches DBH and is recommended to be retained due to its proximity to construction. See Exhibit D for the recommended tree protection measures.







# EXHIBIT C

922 Lynnfield Street, Lynnfield, MA 2022 TREE PROTECTION ZONE TREE YARD SURVEY											
	LATITUDE	LONGITUDE	SPECIES	DBH	TREE DEFECT	Tree Protection Zone (YES/NO)	TREE STRESS LEVEL	RECOMMENDED MITIGATION	POTENTIAL TARGETS	Number 2 inch DBH Replacement Trees	NOTES
1	42.511367	-70.991829	Red Oak	40	Multiple	Yes	Medium	Removal	Multiple	20	Conk on root buttress, dead branches Branch cavities, girdling roots.
2	42.511079	-70.992096	Red Oak	35.5	Multiple	Yes	Low	Retain	Multiple		Girdling roots and Fork cavity
3	42.511218	-70.992114	Norway Maple	13.5	Multiple	Yes	High	Removal	Multiple		Invasive Species
4	42.511228	-70.992297	Norway Maple	7	Dead branches	Yes	Medium	Removal	Multiple		Invasive Species
5	42.511299	-70.992363	Norway Maple	22	Dead branches	Yes	Medium	Removal	Multiple		Invasive Species. Sounding indicates heart rot
6	42.511296	-70.992365	Norway Maple	6	Dead branches	Yes	Medium	Removal	Multiple		Invasive species
7	42.511286	-70.992362	Norway Maple	9	Dead branches	Yes	Medium	Removal	Multiple		Invasive species
8	42.511322	-70.992475	Norway Maple	9	Dead branches	Yes	Medium	Removal	Multiple		Invasive species
9	42.511285	-70.992405	Norway Maple	8	Dead branches	Yes	Medium	Removal	Multiple		Invasive species
10	66642.51114	-70.992444	Red Oak	36	Multiple	Yes	Medium	Removal	Multiple	18	Dead branches and Sounding indicates heart rot.
11	42.511366	-70.992407	Norway Maple	12	Dead branches	Yes	Medium	Removal	Multiple		Invasive species
12	42.511351	-70.992428	Norway Maple	14	Multiple	Yes	Medium	Removal	Multiple		Invasive Species. Sounding indicates heart rot
13	42.511408	-70.992503	Norway Maple	13.5	Multiple	Yes	Medium	Removal	Multiple		Invasive Species. Sounding indicates heart rot
14	42.511425	-70.992476	Norway Maple	10.5	Multiple	Yes	High	Removal	Multiple		Invasive Species. Sounding indicates heart rot
15	42.511443	-70.992393	Norway Maple	7.5	Multiple	Yes	High	Removal	Multiple		Invasive Species. Sounding indicates heart rot
16	42.511418	-70.992409	Norway Maple	12.5	Multiple	Yes	High	Removal	Multiple		Invasive Species. Sounding indicates heart rot
17	42.511496	-70.992185	Red Oak	28	Multiple	Yes	Medium	Removal	Multiple	14	Dead branches and Sounding indicates heart rot.
18	42.511487	-70.992368	Norway Maple	15.5	Multiple	Yes	High	Removal	Multiple		Invasive Species. Sounding indicates heart rot and girdling roots

# EXHIBIT D

## TREE PROTECTION ZONE

The Tree Protection Zone includes the Critical Root Zone. The Critical Root Zone, CRZ, is defined as an area equal to 1-foot radius from the base of the tree's trunk for each 1 inch of the tree's diameter at 4.5 feet above grade (referred to as diameter at breast height). Another common rule of thumb is to use a tree's dripline to estimate the CRZ (see figure). We recommend you evaluate both of these and choose whichever provides the best CRZ for the site conditions. Under certain circumstances, disturbing or cutting roots in a CRZ maybe unavoidable. In such cases, the work should be done only under the onsite supervision of a certified arborist. In this situation, the arborist should be an independent third party contractor and paid for by the company authorizing the contractual construction activities. The tree service contractor hired to do the actual root pruning should also be selected by the company authorizing the contractual construction activities. This provides a check and balance in assuring that the trees being pruned are being cared for and done appropriately in accordance with ANSI A-300 standards. When construction is occurring, the trees Critical Root Zone, CRZ, should be protected. The CRZ can be easily identified by the outer most edge of the trees canopy which is the trees drip line. Since construction is proposed to be conducted within the CRZ, to protect as much of the CRZ root system as possible, a six foot high temporary chain link or plastic snow fence must be erected along the established buffer strip between the CRZ and the actual construction. No construction equipment or supplies are allowed in this protected CRZ area.

## TREE PROTECTION ZONE BEST MANAGEMENT PRACTICES

The BMP's utilized in this Tree Protection Zone Plan are those established by The International Society of Arboriculture (ISA) publication entitled "Managing Trees During Construction 2<sup>nd</sup> Edition" in accordance with the "ANSI A 300 Part 5: Tree, Shrub, and Other Woody Plant Maintenance-Standard Practices (Management of Trees and Shrubs During Site Planning, Site Development, and Construction)".

Tree Protection Zone (TPZ) as defined by the ISA is "A defined area within which certain activities are prohibited or restricted to prevent or minimize potential injury to designated trees, especially during construction or development".

The following TPZ Plan will identify the criteria utilized from the ISA BMP publication "Managing Trees During Construction 2<sup>nd</sup> Edition" to establish the guidelines for the TPZ Plan.



## **EXHIBIT D, (continued)**

### **Defining the Tree Protection Zone**

A tree's Critical Root Zone (CRZ) is the area immediately adjacent to the trunk where roots essential for tree health and stability are located. The CRZ is subjective : there is no accepted formula to biologically define it. However, there may be regulations that define it. The International Society of Arboriculture (ISA), (ISA BMP publication "Managing Trees During Construction 2<sup>nd</sup> Edition", Page 10 states;

"A Tree Protection Zone(TPZ) is an arborist-defined area surrounding the trunk intended to protect roots and soil within the critical root zone and beyond, to ensure future tree health and stability."

There are methods for determining the TPZ, Tree Protection Zone, based on a tree species and tree species tolerance to construction. When construction activities cannot be avoided within the TPZ then there are protective measures that can be implemented to provide soil and root protection. Soil and root protection in a construction zone is covered on the next page by the International Society of Arboriculture Standards.

# EXHIBIT D, (continued)

## Soil and Root Protection within the TPZ

### Soil and Root Protection within the TPZ

If foot or vehicular traffic or construction activities cannot be kept outside of the TPZ for the entire duration of construction, actions can be taken to disperse the load, minimizing soil compaction and mechanical root damage (Figure 3). These include:

- Applying 6 to 12 inches (15 to 30 cm) of wood chip mulch to the area
- Laying  $\frac{3}{4}$ -inch (2 cm) minimum thickness plywood, beams, commercial logging, or road mats over a 4+ inch (10+ cm) thick layer of wood chip mulch
- Applying 4 to 6 inches (10 to 15 cm) of gravel over a taut, staked, geotextile fabric

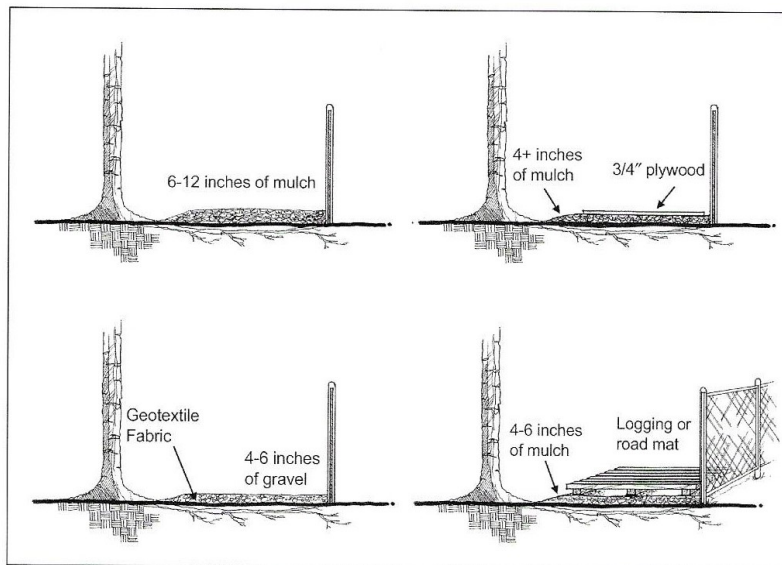


Figure 3. Soil and root protection options within the TPZ.

## **EXHIBIT D, (continued)**

Stone, geotextile, and mulch exceeding 4 inches (10 cm) thick must be removed from the TPZ once the threat of soil or root damage passed. Any removal of vegetation or spreading of mulch materials within the TPZ should be performed manually, and all efforts should be made to protect the soil.

### **Root Pruning**

Root pruning is the process of cleanly cutting roots prior to mechanical excavation to minimize damage to the tree's root system. Any roots over 1 inch in diameter should be pruned rather than left torn or crushed. Mechanical root pruning tools, such as the Dosko or Vemeer Root Pruner, are faster than hand digging and provide moderately clean root cuts. Pruning after a trencher, excavator, or backhoe has torn or crushed roots is the least preferred method. If this type of excavation is done, it is better to prune the damaged ends than to leave them untreated. The final root cuts should result in a flat surface with the adjacent bark firmly attached.

Exposed roots can be pruned with loopers, hand saws, or small chainsaws. The farther from the trunk that the root cutting occurs, the better. Root cuts outside the drip line of the tree rarely cause permanent tree damage.

# REFERENCES

- American Nursery and Landscape Association
- American Society of Landscape Architects
- International Society of Arboriculture
- DIRR'S HARDY TREES AND SHRUBS, AN ILLUSTRATED ENCYCLOPEDIA", Author Michael A. Dirr
- Mass Wildlife's Natural Heritage & Endangered Species Program, [www.mass.gov/service-details/invasive-plants](http://www.mass.gov/service-details/invasive-plants)
- Strategic Recommendations for Managing Invasive Plants in Massachusetts, Massachusetts Invasive Plant Advisory Group (MIPAG) Final Report, February 28, 2005
- The Lynnfield Department of Planning & Conservation
- Managing Trees During Construction, Best Management Practices, 2<sup>nd</sup> Edition, International Society of Arboriculture, Copyright 2016



## Assumptions and Limiting Conditions

1. Any legal description provided to the consultant/appraiser is assumed to be correct. Any titles and ownership to any property are assumed to be good and marketable. No responsibility is assumed for matters legal in character. Any and all property is appraised or evaluated as though free and clear, under responsible ownership and competent management.
2. Care has been taken to obtain all information from reliable sources. All data has been verified insofar as possible; however, the consultant/appraiser can neither guarantee nor be responsible for the accuracy of information provided by others.
3. The consultant/appraiser shall not be required to give testimony or attend court by reason of this report unless subsequent contractual arrangements are made, including payment of an additional fee for such services as described in the fee schedule and contract of engagement.
4. Loss or alteration of any part of this report invalidates the entire report.
5. Possession of this report or a copy thereof does not imply right of publication or use for any purpose by any other than the person to whom it is addressed, without the prior expressed written or verbal consent of the consultant/appraiser.
6. Neither all nor any part of the contents of this report, nor copy thereof, shall be conveyed by anyone, including the client, to the public through advertising, public relations, news, sales or other media, without the prior expressed written or verbal consent of the consultant/appraiser particularly as to value conclusions, identity of the consultant/appraiser, or any reference to any professional society or institute or to any initiated designation conferred upon the consultant/appraiser as stated in his qualification.
7. This report and values expressed herein represent the opinion of the consultant/appraiser, and the consultant's/appraiser's fee in no way contingent upon the reporting of specified value, a stipulated results, the occurrence of a subsequent event, nor upon any finding to be reported.
8. Sketches, diagrams, graphs and photographs in this report, being intended as visual aids, are not necessarily to scale and should not be construed as engineering or architectural reports or surveys.
9. Unless expressed otherwise: (1) information contained in this report covers only those items that were examined and reflects the condition of those items at the time of inspection; and (2) the inspection is limited to visual examination of accessible items without dissection, excavation, probing or coring. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the plans or property in question may not arise in the future.