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September 1, 2020

Legacy Oaks at Evesham Board of Directors  
2 Lowell Drive  
Marlton, NJ 08053

Dear Board,

Thank you for your time and cooperation on this project! Enclosed is my report, inventory, and recommendations concerning the prominent woody plants contained within the common grounds of Legacy Oaks at Evesham. Per your request, this report is fairly broad in scope and focuses on the common areas you originally delineated for me. I have broken down the inventory portion of the report based on these sections. The summaries of observations, findings, and recommendations are broader and broken down typically on the species level. There are also some specific specimen recommendations as circumstances required.

As we discussed, this report is quite a bit broader in scope than my original proposal was and therefore takes the approach of an overview. It should serve primarily as a guide to help direct your future management plans.

If you have any questions or concerns, please don't hesitate to give me a call.

Sincerely,



James Houck  
ISA Certified Arborist NJ-1136A  
(609) 280-2841

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# **COMMON GROUND TREE AND SHRUB INVENTORY AND MANAGEMENT RECOMMENDATIONS**

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**Prepared for:**

**Legacy Oaks at Evesham Board of Directors  
2 Lowell Drive  
Marlton, NJ 08053**

**Prepared By:**

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# TABLE OF CONTENTS

<b>SUMMARY .....</b>	<b>1</b>
<b>PURPOSE AND USE OF THE REPORT .....</b>	<b>1</b>
<b>COMMON GROUND DELINEATIONS.....</b>	<b>2</b>
<b>TESTING AND ANALYSIS.....</b>	<b>2</b>
<b>TREE AND SHRUB INVENTORY .....</b>	<b>2</b>
<b>SOUTH PARKING LOT AND EVESBORO-MEDFORD ROAD BUFFER.....</b>	<b>4</b>
<b>LOWELL DRIVE MEDIAN ISLANDS AND CLANCY COURT INTERSECTION .....</b>	<b>5</b>
<b>CLUB HOUSE PARKING LOT AND EVESBORO-MEDFORD ROAD BUFFER.....</b>	<b>6</b>
<b>CLUB HOUSE FOUNDATION BEDS AND RECREATION AREAS .....</b>	<b>8</b>
<b>CLANCY COURT POND AND DRAINAGE AREA .....</b>	<b>10</b>
<b>HUXLEY POND AND LOWELL DRIVE .....</b>	<b>11</b>
<b>LOWELL DRIVE DRAINAGE AREAS .....</b>	<b>12</b>
<b>LOWELL PONDS.....</b>	<b>13</b>
<b>MITCHEL COURT .....</b>	<b>14</b>
<b>MITCHEL POND .....</b>	<b>15</b>
<b>OBSERVATIONS AND DISCUSSION.....</b>	<b>16</b>
<b>CULTURAL PROBLEMS .....</b>	<b>16</b>
MULCH VOLCANOES .....	16
STONE-MULCHING.....	16
IMPROPER COMPANION PLANTING .....	17
<b>COMMUNICABLE DISEASES .....</b>	<b>17</b>
<b>ASH TREES AND EMERALD ASH BORER (EAB) .....</b>	<b>17</b>
<b>COMMON PESTS .....</b>	<b>18</b>
<b>RECOMMENDATIONS.....</b>	<b>18</b>
<b>ROOT ZONE EXCAVATIONS .....</b>	<b>18</b>
<b>GENERAL HAZARD REDUCTION AND STRUCTURAL PRUNING.....</b>	<b>19</b>
PROPER SANITATION AND SHEARS .....	19
<b>SPECIFIC PLANT HEALTH RECOMENDATIONS.....</b>	<b>19</b>
ASH TREES .....	19
GREEN ASH BY CLUBHOUSE.....	19
BLACK KNOT IN PURPLE PLUMS AND NEEDLE CAST IN DOUGLAS FIRS .....	20
CYTOSPORA CANCKER IN SPRUCES .....	20
OAKS AND MAPLES .....	20
PINES AND SPRUCES.....	21
CHOKECHERRIES, INKBERRIES, AND LEATHERLEAF .....	21
POOL CLEARANCE .....	21
PEARS AT CLUBHOUSE AND LOWELL PONDS.....	21
<b>SPOTTED LANTERNFLY AND SUSCEPTIBLE SPECIES .....</b>	<b>22</b>
<b>GLOSSARY OF TERMS.....</b>	<b>23</b>
<b>APPENDIX A – ORIGINAL SITE MAP .....</b>	<b>24</b>
<b>APPENDIX B – SITE MAP w/ COMMON GROUND DELINEATIONS.....</b>	<b>25</b>
<b>APPENDIX C – PHOTOS .....</b>	<b>26</b>

## **SUMMARY**

I was connected to Mr. Kramer in mid-June by Chris Norris of Outdoor Solutions Landscaping. My first meeting with Mr. Kramer and tour of the grounds was on July 7th. Per our discussion and based on the HOA's requests, I performed an overview assessment on August 8th of the common ground woody plants and have prepared a summary report with overview species inventory and general recommendations.

In general, there is a good selection of plants specimens and a great diversity of plant species throughout the common grounds of Legacy Oaks at Evesham. I inventoried more than 1,534 individual specimens (not counting dead, colonies, forbs, or other growth habits) representing at least 71 different varieties of mostly native or naturalized species. At the very least, I was able to identify all plants down to their genus level, most down to the species level, and some down to their horticultural varieties. (NOTE: Some genera have hundreds, if not thousands of species, sub-species, and varieties within their classifications and can be extremely difficult to identify all the way down to variety level.)

The vast majority of the plants were in reasonably good health with some critical exceptions that I will detail later in this report. That being said, the most critical threat to the health and long term viability of *all* your common ground (not to mention private property) plants is over-mulching. This unfortunately common landscape malpractice is called root-crown overburden in the industry (or more commonly "mulch volcanoes") and is the cause of excessive stress, girdling-roots, crown-rot, and many premature plant deaths. I understand that your current landscape provider Outdoor Solutions has broached this issue in the past. I highly recommend considering remedies to this problem as one of the top priorities.

There were a handful of other minor cultural errors that can be corrected through simple changes such as stone-mulching and associated sunscald, improper companion plants, and the spread of communicable diseases through pruning. There are also several general and specific pruning recommendations, as well as tree removals, and recommendations concerning treatable / preventable insect and disease presences. I also discuss several steps that can reduce the impact of the impending Spotted Lanternfly invasion on your community. I will address all of these in more detail in future sections of this report.

## **PURPOSE AND USE OF THE REPORT**

This report does not go into extensive detail on a specimen by specimen basis, rather it takes a broad view of the urban ecosystem of Legacy Oaks at Evesham. This report puts forth some specific recommendations where necessary, but should serve as guide for the community decision makers when deciding how to approach their landscape projects over the next several years.

## COMMON GROUND DELINEATIONS

The Common Grounds were delineated into ten zones as follows:

- 1) South Parking Lot and Evesboro-Medford Road Buffer
- 2) Lowell Drive Median Islands and Clancy Court Intersection
- 3) Club House Parking Lot and Evesboro-Medford Road Buffer
- 4) Club House Foundation Beds and Recreation Areas
- 5) Clancy Court Pond and Drainage Area
- 6) Huxley Pond and Lowell Drive
- 7) Lowell Drive Drainage Areas
- 8) Lowell Ponds
- 9) Mitchel Court
- 10) Mitchel Pond

A map of the common ground delineations is made available in Appendix B of this report. There is no specific hierarchy or order of importance to their listing other than the direction I traveled on the day of assessment. I frequently refer back to these sections by their numbers throughout the report.

## TESTING AND ANALYSIS

I used several common, basic analytical techniques and tools to inventory and assess the trees with the common grounds. These tools and techniques are briefly described below.

**DBH Tape** – a specialized measuring tape specifically calibrated to measure the average Diameter at Breast Height (DBH) of a tree.

**Sounding Hammer** – a specialized, heavy-weight, rubber mallet used to send vibrations through the stem of a tree in order to listen to the sound produced. A practiced ear can recognize the sound of a hollow stem versus a solid stem.

**Soil Profile Core Probe** – a hollow, steel, T-handled tube designed to pull out deep soil core samples to examine the physical soil profile or use for future molecular testing in a lab. (Molecular soil testing was not requested for this inventory and report.)

**Soil Condition Probe** – a combined pH, moisture, and light meter designed to give more general soil information.

## TREE AND SHRUB INVENTORY

Inventory was taken in a systematic, counter-clockwise movement (where possible) through the common grounds. Each specimen encountered was identified down to at least the genus level, measured (if not a multi-stem), and sounded (if not a multi-stem) for stem integrity. Soil conditions were sampled randomly throughout the designated common area to give a general overview sense of the conditions.

The tree and shrub inventory is designed to give an overview primarily of the woody species contained within the common ground areas. The total inventory has been broken out into separate tables for each common ground area described in the previous section. There are some exceptions to the 'woody species' such as some grasses, flowers, ground covers, etc. that are culturally or environmentally valuable. These are denoted in the table as a label other than a number in the DBH column (e.g. vine, grass, forb, etc. A specimen denoted as 'multistem' is still considered a woody species but unable to be measured easily by standard techniques.).

Each table is organized according to the orientation defined at the top of the respective table. Each species is then listed according to the first specimen encountered, first by Common Name, then by Species Name. DBH ranges are given where applicable, and then quantity of the specimens. The pathologies codes section lists what species specific health anomalies were observed. Most of the recommendations I put forward in future sections of this report will reference back to these specific pathologies and health anomalies. The notes section outlines some site-specific comments / recommendations that may or may not be addressed in the forthcoming recommendations section of this report.

## SOUTH PARKING LOT AND EVESBORO-MEDFORD ROAD BUFFER

Orientation: Starting from farthest pear along Evesboro-Medford Road working towards back side of parking lot along Lowell Drive.

Common Name	Specific Name	DBH (ins.)	Quantity	Pathology Codes
Ornamental Flowering Pear	<i>Pyrus calleryana</i>	2, 3, 4, 10, 12	11	RD, IC (Juniper)
Large-leaved Linden	<i>Tilia platyphyllos</i>	10 to 11	2	GR
Little-leaved Linden	<i>Tilia cordata</i>	6	1	
Ornamental Cherry	<i>Prunus spp.</i>	3 to 4	7	
Leather leaf Viburnum	<i>Viburnum rhytidophyllum</i>	Multistem	7	GR
Japanese Zelkova	<i>Zolkova serrata</i>	12, 13, 13	3	
Crabapple	<i>Malus spp.</i>	3, 9, 11	3	RD, SD, IC (Juniper)
Southern Arrowwood	<i>Viburnum dentatum</i>	Multistem	4	
Roundleaf Greenbriar	<i>Smilax rotundifolia</i>	Vine	2	IS (Arrowwood)
Norway Spruce	<i>Picea abies</i>	8 to 10	2	CC
Spirea	<i>Spirea japonica</i>	Multistem	8	
Winged Euonymus "Burning Bush"	<i>Euonymus alatus</i>	Multistem	7	
Juniper shrubs	<i>Juniperus spp.</i>	Multistem	11	IC (Apple/Pear)
Oriental Grasses	<i>Cenchrus spp.</i>	Grass	7	
Lantana	<i>Lantana spp.</i>	Forb	Colony	
Japanese Holly	<i>Ilex spp.</i>	Multistem	24	
Formosa Juniper	<i>Juniperus formosana</i>	Multistem	2	
Oriental Holly	<i>Ilex spp.</i>	Multistem	3	
Laceleaf Maple	<i>Acer palmatum var.</i>	Multistem	1	
Culver's Root	<i>Viburnum farreri</i>	Multistem	7	
Eastern White Pine	<i>Pinus strobus</i>	9 to 14	6	
Green Ash	<i>Fraxinus pennsylvanica</i>	6, 7, 12	4	EAB>50

### NOTES

- ~ All specimens in this area are over mulched. This must be corrected in order to ensure long term survival.
- ~ Incompatible companion plants: Crabapple x Juniper, Pear x Juniper.
- ~ Roundleaf Greenbriar is a highly invasive species. Hand weed before it completes colonization.

### Pathology Key

CC	Cytospora Canker Disease
EAB>50	Emerald Ash Borer w/ more than 50% decline
GR	Girdled Roots
IS	Invasive Species
ICP	Incompatible Companion
RD	Rust Disease
SD	Scab Disease

## LOWELL DRIVE MEDIAN ISLANDS AND CLANCY COURT INTERSECTION

Orientation: Starting from entrance on Evesboro-Medford Road working towards intersection of Lowell Drive and Clancy Court.

Common Name	Specific Name	DBH (ins.)	Quantity	Pathology Codes
Oriental Grasses	<i>Cenchrus spp.</i>	Grass	46	
Juniper shrubs	<i>Juniperus spp.</i>	Multistem	30 + hedges	
Blue Creeping Juniper	<i>Juniperus horizontalis var.</i>	Multistem	42	
Green Creeping Juniper	<i>Juniperus horizontalis var.</i>	Multistem	Colony	
Boxwood variety (Little gem?)	<i>Buxus spp.</i>	Multistem	97	VB, PI, SM
Southern Magnolia	<i>Magnolia grandiflora</i>	6, 7	2	
Impatiens	<i>Impatiens spp.</i>	Multistem	214	DD
Multiflora Rose	<i>Rosa multiflora</i>	Multistem	13	JB, SW
Spirea	<i>Spirea japonica</i>	Multistem	24	
Iris	<i>Iris spp.</i>	Colony	36	
Crape Myrtle	<i>Lagerstroemia spp.</i>	Multistem	6	
Purpleleaf Plum	<i>Prunus cerasifer var.</i>	Multistem	1	BK
Salvia	<i>Salvia spp.</i>	Multistem	18	SB
Little-leaved Linden	<i>Tilia cordata</i>	12, 13	3	JB
Willow Oak	<i>Quercus phellos</i>	6, 8	2	GR
Red Maple	<i>Acer rubrum</i>	4	3	TD
Little-leaved Linden	<i>Tilia cordata</i>	5, 6	3	GR
Large-leaved Linden	<i>Tilia platyphyllos</i>	5, 7	2	GR
Ornamental Flowering Pear	<i>Pyrus calleryana</i>	2	1	RD
Green Ash	<i>Fraxinus pennsylvanica</i>	10, 11, 12, 13	7	EAB<20

### NOTES

~ All tree and shrub specimens in this area are over mulched. This must be corrected in order to ensure long term survival.

~ Clear evidence of shearing damage on Boxwoods. Unclean shears can readily spread *Volutella*. Sanitation pruning in the winter and clean shears recommended.

### Pathology Key

BK	Black Knot Disease
DD	Deer Damage
EAB<20	Emerald Ash Borer w/ less than 20% decline
GR	Girdled Roots
JB	Japanese Beetle
PI	Psyllid Insect
SB	Spittlebug Damage
SM	Spider Mites
SW	Slugworm Damage
TD	Trunk Defect
VB	Volutella Blight

## CLUB HOUSE PARKING LOT AND EVESBORO-MEDFORD ROAD BUFFER

Orientation: Starting from parking lot entrance closest to Evesboro-Medford Road down through White Pines

Common Name	Specific Name	DBH (ins.)	Quantity	Pathology Codes
Ornamental Flowering Pear	<i>Pyrus calleryana</i>	6, 12, 13	14	BB, RD, IC (Juniper)
Green Creeping Juniper	<i>Juniperus horizontalis var.</i>	Multistem	Colony	
Impatiens	<i>Impatiens spp.</i>	Multistem	12	DD
	<i>Cedric Atlantica var. Glauca</i>			
Weeping Blue Atlas Cedar	<i>Pendula</i>	3	2	SS
False Goat's Beard	<i>Astilbe spp.</i>	Multistem	7	
Spirea	<i>Spirea japonica</i>	Multistem	12	
		4, 8, 9, 14,		
Pin Oak	<i>Quercus palustris</i>	17	11	GR
Crabapple	<i>Malus spp.</i>	3, 5, 7	4	RD, SD, IC (Juniper)
Culver's Root	<i>Viburnum farreri</i>	Multistem	6	
Dwarf Alberta Spruce	<i>Picea glauca var.</i>	Multistem	2	
Lantana	<i>Lantana spp.</i>	Forbe	Colony	
Japanese Holly	<i>Ilex spp.</i>	Multistem	22	
Formosa Juniper	<i>Juniperus formosana</i>	Multistem	2	
Oriental Holly	<i>Ilex spp.</i>	Multistem	3	
Laceleaf Maple	<i>Acer palmatum var.</i>	Multistem	1	SS
		4, 10, 12,		
Eastern White Pine	<i>Pinus strobus</i>	14	12	
Oriental Grasses	<i>Cenchrus spp.</i>	Grass	20	
Winged Euonymus "Burning Bush"	<i>Euonymus alatus</i>	Multistem	14	
Japanese Zelkova	<i>Zolkova serrata</i>	5, 12	2	GR
Juniper shrubs	<i>Juniperus spp.</i>	Multistem	18	IC (Apple/Pear)
Blue Creeping Juniper	<i>Juniperus horizontalis var.</i>	Multistem	Colony	
Large-leaved Linden	<i>Tilia platyphyllos</i>	8, 9	2	JB
Ornamental Cherry	<i>Prunus spp.</i>	Multistem	1	
Purpleleaf Plum	<i>Prunus cerasifer var.</i>	Multistem	1	BK
White Ash	<i>Fraxinus americana</i>	11	2	
Southern Arrowwood	<i>Viburnum dentatum</i>	Multistem	25	
Ornamental Red Maple	<i>Acer rubrum var.</i>	6	1	
Douglas Fir	<i>Pseudotsuga menziesii</i>	7, 8, 10	3	NC
Leather leaf Viburnum	<i>Viburnum rhytidophyllum</i>	Multistem	4	
Norway Spruce	<i>Picea abies</i>	8 to 10	2	CC
Green Ash	<i>Fraxinus pennsylvanica</i>	5	1	EAB>50
Crape Myrtle	<i>Lagerstroemia spp.</i>	Multistem	1	
Multiflora Rose	<i>Rosa multiflora</i>	Multistem	6	JB, SW
Boxwood variety	<i>Buxus spp.</i>	Multistem	7	VB, PI, SM

**NOTES**

- ~ All specimens in this area are over mulched. This must be corrected in order to ensure long term survival.
- ~ One pear located close to the gazebo has "Bottle-Butt" as a result of overmulching. Removal recommended.
- ~ Incompatible companion plants: Crabapple x Juniper, Pear x Juniper.
- ~ Excessively saturated area between Evesboro-Medford Road screen and parking area.

**Pathology Key**

BB	Bottle Butt
BK	Black Knot Disease
CC	Cytospora Canker Disease
DD	Deer Damage
EAB>50	Emerald Ash Borer w/ more than 50% decline
GR	Girdled Roots
IC	Incompatible Companion Plant
JB	Japanese Beetle
NC	Needle Cast
PI	Psyllid Insect
RD	Rust Disease
SD	Scab Disease
SM	Spider Mites
SS	Sunscald
SW	Slugworm Damage
VB	Volutella Blight

## CLUB HOUSE FOUNDATION BEDS AND RECREATION AREAS

Orientation: Starting from main entrance to Club House and working counter-clockwise

Common Name	Specific Name	DBH (ins.)	Quantity	Pathology Codes
Oriental Holly	<i>Ilex spp.</i>	Multistem	2	
Wax Begonia	<i>Begonia cucullata var.</i>	Multistem	112	
Green Creeping Juniper	<i>Juniperus horizontalis var.</i>	Multistem	Colonies	
Laceleaf Maple	<i>Acer palmatum var.</i>	Multistem	2	
Juniper shrubs	<i>Juniperus spp.</i>	Multistem	18	Shear damage
Oriental Grasses	<i>Cenchrus spp.</i>	Grass	24	
False Cypress	<i>Chamaecyparis spp.</i>	Multistem	1	
Prostrate Japanese Holly	<i>Ilex spp.</i>	Multistem	5	
Blue Creeping Juniper	<i>Juniperus horizontalis var.</i>	Multistem	Colonies	
		4, 6, 8, 12,		
Ornamental Flowering Pear	<i>Pyrus calleryana</i>	13	13	RD
River Birch	<i>Betula nigra</i>	Multistem	1	JB
Green Ash	<i>Fraxinus pennsylvanica</i>	5	1	EAB>50
Green Ash	<i>Fraxinus pennsylvanica</i>	5, 6	3	EAB<50, YD
Green Ash	<i>Fraxinus pennsylvanica</i>	5, 6, 11	5	GR
Pin Oak	<i>Quercus palustris</i>	6, 8,10, 19	4	GR
Red Maple	<i>Acer rubrum</i>	11	1	GR
Winged Euonymus "Burning Bush"	<i>Euonymus alatus</i>	Multistem	25	SS
		6, 7, 8, 10,		
Eastern White Pine	<i>Pinus strobus</i>	12	9	
Willow Oak	<i>Quercus phellos</i>	6, 12	2	
Rose of Sharon	<i>Hibiscus syriacus</i>	Multistem	8	
Sweetgum	<i>Liquidambar styraciflua</i>	~24	1	
Multiflora Rose	<i>Rosa multiflora</i>	Multistem	8	JB, SW, CR (pool only)
Hosta	<i>Hosta spp.</i>		4	SS
Crabapple	<i>Malus spp.</i>	3, 4, 5	5	RD, SD, IC (Juniper)
Culver's Root	<i>Viburnum farreri</i>	Multistem	6	
Arborvitae	<i>Thuja spp.</i>	M	17	
Japanese Holly	<i>Ilex spp.</i>	Multistem	4	
Butterfly Bush	<i>Buddleja spp.</i>	Multistem	1	
Rhododendron variety	<i>Rhododendron spp.</i>	Multistem	1	
Sacred Bamboo	<i>Nandina domestica</i>	Multistem	3	
Lily of the Valley	<i>Convallaria majalis var.</i>	Colony	Colony	
Boxwood variety	<i>Buxus spp.</i>	Multistem	10	PI
Spirea	<i>Spirea japonica</i>	Multistem	3	
	<i>Picea pungens var.</i>			
Dwarf Blue Spruce	<i>Globosa</i>	Multistem	1	
Cherry Laurel	<i>Prunus laurocerasus</i>	Multistem	6	SH
Evergreen Azalea	<i>Rhododendron spp.</i>	Multistem	7	

**NOTES**

~ All specimens in this area are over mulched. This must be corrected in order to ensure long term survival.

~ All plants that are "stone mulched" should have the stone pulled away from the stems by at least 2 feet. Stone is a good accent, but wood mulch should be used under plants.

**Pathology Key**

CR	Cane Rot
EAB<50	Emerald Ash Borer w/ less than 50% decline, usually treatable
EAB>50	Emerald Ash Borer w/ more than 50% decline, removal recommended
GR	Girdled Roots
IC	Incompatible Companion Plant
JB	Japanese Beetle
PI	Psyllid Insect
RD	Rust Disease
SD	Scab Disease
SH	Shothole Disease (bacterial or fungal)
SS	Sunscald
SW	Slugworm Damage

## CLANCY COURT POND AND DRAINAGE AREA

Orientation: Starting from back right of unit #2 working counter-clockwise

Common Name	Specific Name	DBH (ins.)	Quantity	Pathology Codes
Roundleaf Greenbriar	<i>Smilax rotundifolia</i>	Vine	Dispersed	IS (Arrowwood)
Willow Oak	<i>Quercus phellos</i>	13	1	
Red Maple	<i>Acer rubrum</i>	4	1	TD
		6, 7, 8, 10,		
Eastern White Pine	<i>Pinus strobus</i>	12	9	
Leather leaf Viburnum	<i>Viburnum rhytidophyllum</i>	Multistem	8	
Silvergrass	<i>Miscanthus sinensis</i>	Grass	1	
Chokecherry	<i>Prunus spp.</i>	Multistem	5	RD
Crabapple	<i>Malus spp.</i>	6	1	RD, SD
Black Willow	<i>Salix nigra</i>	17	1	WB
Inkberry	<i>Ilex glabra</i>	Multistem	Colony	
Rotundiloba				
Sweetgum	<i>Liquidambar styraciflua var. Rotundiloba</i>	9	1	
Hornbeam variety	<i>Carpinus spp. Var.</i>	5, 7	4	

### NOTES

- ~ All specimens in this area are over mulched. This must be corrected in order to ensure long term survival.
- ~ The Hornbeams (*Carpinus spp.*) are only located at the drainage.
- ~ Roundleaf Greenbriar is a highly invasive species. Hand weed before it completes colonization.

### Pathology Key

IS	Invasive Species
RD	Rust Disease
SD	Scab Disease
TD	Trunk Defect
WB	Willow Beetle

## HUXLEY POND AND LOWELL DRIVE

Orientation: Starting on Lowell then from little pump house right of unit #118 working counter-clockwise

Common Name	Specific Name	DBH (ins.)	Quantity	Pathology Codes
Ornamental Flowering Pear	<i>Pyrus calleryana</i>	5, 6, 8	4	RD
Green Ash	<i>Fraxinus pennsylvanica</i>	4, 6, 9	8	GR, EAB<20
Green Ash	<i>Fraxinus pennsylvanica</i>	8, 9	2	GR, EAB>50
Arborvitae	<i>Thuja spp.</i>	Multistem	8	DD
River Birch	<i>Betula nigra</i>	Multistem	2	JB
Chokecherry	<i>Prunus spp.</i>	Multistem	20	RD
Japanese Ash	<i>Fraxinus platypoda</i>	Multistem	2	
Red Maple	<i>Acer rubrum</i>	5, 6, 10, 11, 12	7	TD
Sweetgum	<i>Liquidambar styraciflua</i>	Multistem, 8	2	
Ornamental Cherry	<i>Prunus spp.</i>	5	1	
Inkberry	<i>Ilex glabra</i>	Multistem	Colonies	
Norway Maple "Crimson King"	<i>Acer platinoides</i>	3	1	
Multiflora Rose	<i>Rosa multiflora</i>	Multistem	6	JB, SW
Juniper shrubs	<i>Juniperus spp.</i>	Multistem	3	
Leather leaf Viburnum	<i>Viburnum rhytidophyllum</i>	Multistem	7	
Southern Arrowwood	<i>Viburnum dentatum</i>	Multistem	6	
Japanese Zelkova	<i>Zelkova serrata</i>	6, 13	2	GR

### NOTES

- ~ All specimens in this area are over mulched. This must be corrected in order to ensure long term survival.
- ~ The Arborvitae could be feather pruned to conatin size but this is purely aesthetic.
- ~ One colony of Arrowwood is being shaded out by a Willow on the far side of the pond. Recommend clearance pruning.

### Pathology Key

DD	Deer Damage
EAB<20	Emerald Ash Borer w/ less than 20% decline, treatable
GR	Girdled Roots
JB	Japanese Beetle
RD	Rust Disease
TD	Trunk Defect

## LOWELL DRIVE DRAINAGE AREAS

Orientation: Starting from front left of unit 109 and working counter-clockwise along the street ending at unit 110.

Common Name	Specific Name	DBH (ins.)	Quantity	Pathology Codes
Green Ash	<i>Fraxinus pennsylvanica</i>	6, 7, 9, 10	4	EAB<20
Green Ash	<i>Fraxinus pennsylvanica</i>	8	1	EAB>50
Japanese Zelkova	<i>Zelkova serrata</i>	10, 12, 13	3	GR
Red Maple	<i>Acer rubrum</i>	11	1	GR

### NOTES

~ All specimens in this area are over mulched. This must be corrected in order to ensure long term survival.

### Pathology Key

EAB<20	Emerald Ash Borer w/ less than 20% decline, treatable
EAB>50	Emerald Ash Borer w/ more than 50% decline, removal recommended
GR	Girdled Roots

## LOWELL PONDS

Orientation: Starting back of unit 71 on big pond, working counter-clockwise to small pond and back to unit 71 on big pond.

Common Name	Specific Name	DBH (ins.)	Quantity	Pathology Codes
Iris	<i>Iris spp.</i>	Colony	Colony	
Chokecherry	<i>Prunus spp.</i>	Multistem	14	RD
Silvergrass	<i>Miscanthus sinensis</i>	Colonies	5	
Rotundiloba Sweetgum	<i>Liquidambar styraciflua var. Rotundiloba</i>	8, 9, 10, 11	11	TD
Juniper shrubs	<i>Juniperus spp.</i>	Multistem	3	
Cherry Laurel	<i>Prunus laurocerasus</i>	Multistem	2	SH
Eastern White Pine	<i>Pinus strobus</i>	2, 5, 6, 9, 12, 15	24	
Sweetgum	<i>Liquidambar styraciflua</i>	6, 8, 9	3	
Leather leaf Viburnum	<i>Viburnum rhytidophyllum</i>	Multistem	10	
Inkberry	<i>Ilex glabra</i>	Multistem	2	
Japanese Maple	<i>Acer palmatum var.</i>	Multistem	2	
Ornamental Flowering Pear	<i>Pyrus calleryana</i>	12, 13, 14	4	RD, SD, TD, GR
Spirea	<i>Spirea japonica</i>	Multistem	4	
Crape Myrtle	<i>Lagerstroemia spp.</i>	Multistem	1	
Southern Arrowwood	<i>Viburnum dentatum</i>	Multistem	4	RD
Red Maple	<i>Acer rubrum</i>	7, 8, 10	3	GR
Norway Maple "Crimson King"	<i>Acer platanoides</i>	5	1	TD
Weeping Willow	<i>Salix babylonica</i>	17	1	TD
Culver's Root	<i>Viburnum farreri</i>	Multistem	3	
Winged Euonymus "Burning Bush"	<i>Euonymus alatus</i>	Multistem	1	

### NOTES

- ~ All specimens in this area are over mulched. This must be corrected in order to ensure long term survival.
- ~ All four Ornamental Pears listed above should be removed. Damage and disease remedies exceeds tree value.
- ~ The 17" Willow listed above should be removed due to severe decay at the root crown level.

### Pathology Key

GR	Girdled Roots
RD	Rust Disease
SD	Scab Disease
SH	Shothole Disease (bacterial or fungal)
TD	Trunk Defect

## MITCHEL COURT

Orientation: Starting from back left of 72 Lowell and working counter-clockwise along road ending back right of 74 Lowell.

Common Name	Specific Name	DBH (ins.)	Quantity	Pathology Codes
Large-leaved Linden	<i>Tilia platyphyllos</i>	7, 8, 9, 12	7	JB, TD, GR
Pin Oak	<i>Quercus palustris</i>	8	1	
Green Ash	<i>Fraxinus pennsylvanica</i>	9, 10, 12	7	EAB<20
Red Maple	<i>Acer rubrum</i>	8, 9, 10, 11	7	GR
Sweetgum	<i>Liquidambar styraciflua</i>	5	1	

### NOTES

~ All specimens in this area are over mulched. This must be corrected in order to ensure long term survival.

### Pathology Key

EAB<20	Emerald Ash Borer w/ less than 20% decline, treatable
GR	Girdled Roots
JB	Japanese Beetle
TD	Trunk Defect

## MITCHEL POND

Orientation: Starting behind unit 15 working counter-clockwise

Common Name	Specific Name	DBH (ins.)	Quantity	Notes
Leather leaf Viburnum	<i>Viburnum rhytidophyllum</i>	Multistem	32	
Crape Myrtle	<i>Lagerstroemia spp.</i>	Multistem	1	
Red Maple	<i>Acer rubrum</i>	4 6, 7, 10,	1	GR
Sweetgum	<i>Liquidambar styraciflua</i>	11	10	
Chokecherry	<i>Prunus spp.</i>	Multistem	8	RD
Inkberry	<i>Ilex glabra</i>	Multistem 8, 9, 10,	5	
Eastern White Pine	<i>Pinus strobus</i>	12	22	
Eastern Red Cedar	<i>Juniperus virginiana</i>	3	1	
Koufax Dogwood	<i>Cornus kousa</i>	3	1	
Weeping Willow	<i>Salix babylonica</i>	12	1	WB
Pin Oak	<i>Quercus palustris</i>	11	1	
Silvergrass	<i>Miscanthus sinensis</i>	Colony	1	
Southern Arrowwood	<i>Viburnum dentatum</i>	Multistem	13	DD

### NOTES

- ~ All specimens in this area are over mulched. This must be corrected in order to ensure long term survival.
- ~ Remove and replant any dead Leatherleaf Viburnum.
- ~ Red Maple and Sweetgum listed above could use crown thinning and structural pruning
- ~ Willow listed above could use structural pruning.

### Pathology Key

DD	Deer Damage
GR	Girdled Roots
RD	Rust Disease
WB	Willow Beetle

## **OBSERVATIONS AND DISCUSSION**

In these next several sections I will cover the most critical observations I made during my assessment. These are organized into sections of descending importance. In both the observations and recommendations sections, the preceding points are essential to the success of each following point. For example, the practice of over-mulching must be corrected before girdling roots can be addressed, and the girdling roots must be addressed before any real success can be seen from other recommendations.

### **CULTURAL PROBLEMS**

In horticulture, a cultural problem is essentially a malpractice on the part of the homeowner or landscape service provider that leads to a dysfunction in the plant. This can take the form of improper planting, aggressive pruning, or improper plant selection.

In the common grounds of Legacy Oaks at Evesham I observed three common albeit critical cultural problems that will eventually cause or are already causing serious health problems for your trees and shrubs. Specifically, these are over-mulching (aka “mulch volcanoes”), stone mulching, and improper companion planting. I will discuss each of these in more detail in the following sub-sections.

#### **MULCH VOLCANOES**

In general, the common ground trees and shrubs of Legacy Oaks at Evesham are in fairly good health at the moment, however there is a common problem with all of them, namely root-crown overburden. [See Appendix C, [Image 4](#)] Root-crown overburden by over-mulching (aka “mulch-volcanoes”) is one of the leading causes of stress and premature death in landscapes. Mulch volcanoes lead to a cascade of problems that almost always end in death of the plant. Excessive stress reduces the immune system opening the plant to potentially fatal insect and disease attack; root suffocation and dieback begin while potentially fatal root crown rot sets in; as the main roots die back fatal girdling roots develop strangling the parent tree. [See Appendix C, [Image 1](#)] Nearly every tree within the common grounds is showing mild to advanced symptoms of root-crown overburden. [See Appendix C, [Image 2](#) and [Image 5](#)]

#### **STONE-MULCHING**

Stone mulching is a beautiful (and frankly a personal favorite) way to accent a garden bed. However, stones should almost never be used to mulch directly under plant. There are some exceptions to this with grasses, sedges, sedums, and the aptly named stonecrops and similar succulents. These plants tolerate excessive heat better than most, and stone-mulch will heat up in the sun and continue to release that heat well into the night. Trees and shrubs do not tolerate this excessive heat very well under normal conditions and can even develop conditions like sunscald (sunburn for plants). They can be trained to tolerate it with careful irrigation techniques and a watchful eye, however this can be labor intensive, so I generally recommend avoid using stones around plant crowns all together. I noticed a few instances of stone-mulching being used especially around the pool and by the Club House.

## **IMPROPER COMPANION PLANTING**

Companion planting is essentially defined as the close planting of different plant species that enhance each other's growth or protect each other from pests. This is a critical concept in any landscape design, but especially in food producing gardens, permaculture, and ornamentals (such as Legacy Oaks at Evesham has). Improper companion planting is essentially the opposite of this principle. Some plants when planted in close proximity will share and propagate diseases between them, others will serve as host plants to pest insects that attack other species, still other will colonize or even parasitize others. I found a few critical instances of this in the common ground plantings, specifically 1) cedar / juniper species planted next to apple / pear / rose species will share and propagate the disease families of rust and scab leading to premature defoliation and ultimately death if not addressed, 2) Cherries, Purple Plum, and Chokecherry will share the Black Knot family of diseases which has no therapy and is always fatal to its host, 3) Roses are a favorite food source for adult Japanese Beetle, and, especially when planted near other “fruiting” trees such as Linden, Apple, and Cherry, will attract them and encourage them to feed on these other species.

## **COMMUNICABLE DISEASES**

Communicable diseases are the bane of any garden. They spread easily and can cause significant damage before they are identified. One problem I observed is a mix of cultural malpractice and natural disposition of the plant. Volutella stem and leaf blight is a common fungal disease that particularly targets Boxwoods. [See Appendix C, [Image 6](#)] It can quickly spread through a landscape by one simple vector, garden shears. I observed dozens of infected stems throughout all of the Boxwood plantings, but especially in common ground sections #2 and #4. Volutella has no cure; however, the plant does respond very well to very specific sanitation pruning techniques and thorough cleaning of the interior of the shrub in order to remove any dead and potentially infected tissue. If left unaddressed it will continue to spread through the Boxwoods (especially the hedges) and cause significant damage and possibly death.

Another problem is that of Cytospora Canker observed in the Norway Spruces in common ground section #1 and #3. [See Appendix C, [Image 3](#)] Cytospora Canker is highly communicable among needled evergreen trees and shrubs and spreads via unclean tools, root damage, and splashing rain. It usually gets its foothold through other stresses at or near the base of the stem (such as mulch volcanoes). It is a fatal disease if left unmanaged, fortunately the tree usually responds readily to sanitation pruning and bio-stimulants if caught in time.

The last highly communicable disease I observed is Rhadocline Needle Cast in the Douglas Firs in common ground section #3. While this disease is particularly devastating to Fir trees, it can spread to other needled evergreens like Pines and Spruces. If caught early it can be managed therapeutically, unfortunately yours are not a candidate for this option.

## **ASH TREES AND EMERALD ASH BORER (EAB)**

The Emerald Ash Borer was accidentally introduced from Asia about 18 years ago. Since then it has spread to more than half of the continental US and Canada, has effectively destroyed our native Ash populations and has begun adapting to parasitize a handful of unrelated species.

There is however a particularly effective preventative and curative treatment available assuming you catch it in time. Unfortunately, there are a handful of trees designated in the inventory lists above that are no longer candidates for treatment and should be removed, but fortunately the vast majority of your Ash trees are candidates for this treatment. Treatment is always more cost effective in the long and short term than removal.

## **COMMON PESTS**

I observed either damage or actual specimens of several different common pest throughout your common grounds. These include the following:

- |                    |               |                |                  |
|--------------------|---------------|----------------|------------------|
| 1) Deer            | 3) Psyllid    | 5) Spider Mite | 7) Willow Beetle |
| 2) Japanese Beetle | 4) Spittlebug | 6) Slugworm    |                  |

All of these pests should be manageable through common IPM programs and practices. In fact the vast majority of these pests, as well as many others common pests that were not observe, can be controlled by introduction of native predatory insects.

## **RECOMMENDATIONS**

The following recommendations are ordered by what I consider to be the highest priority through the lowest priority. As I do not know what the HOA allocates for the annual landscape budget, I can only recommend that over the next several years you begin by firstly maintaining and preserving what you have in place, and secondly working through this list of recommendations. I will also be available to consult and further refine any of these recommendations over the next few years as the seasons present new changes and challenges.

## **ROOT ZONE EXCAVATIONS**

Absolutely, without question, the most important next steps for Legacy Oaks at Evesham is to seriously consider performing root zone excavations on their common ground trees. Trees represent the vast majority of not only initial investment, but return on investment overtime. Generally speaking, the more canopy cover a tree provides the more value surrounding properties see. Since trees mature slowly (on the scale of decades), investment in their preservation is critical. Performing a proper root zone excavations on a tree with a specialized piece of equipment called an air-spade will, at the very least, remove the root-crown overburden (mulch volcanoes) and alleviate any stress it is causing. Once excavated, further evaluation, correcting of girdling roots, excising of cankers, and remediation of any other structural dysfunctions that have resulted can take place.

Putting it simply, it does not make sense to prune, or treat, or fertilize the trees until the mulch volcanoes are corrected. Leaving the mulch volcanoes, the tree will still die from girdling roots and crown rots no matter what you spray on it or inject it with. However, correction of the stress caused by the mulch volcanoes will alleviate many of the problems the trees are suffering from. There are some critical exceptions to this statement such as the Ash trees and the communicable diseases listed above. These will need to be treated simultaneously while excavations are being

completed in order to preserve them. There are also several trees described in forthcoming sections that should be removed and therefore would not need excavations.

## **GENERAL HAZARD REDUCTION AND STRUCTURAL PRUNING**

I was pleasantly surprised to find that the vast majority of your trees have very good stem and branch structures. However, even the finest trees need the occasional pruning to maintain this architecture, and their general safety. With the exception of some specific recommendations made below, the street and pond tree canopies were in very good shape. There were a handful of snapped branches or small deadwood but nothing critical that I observed. A general maintenance pruning or “crown cleaning” by a certified tree expert to prune out deadwood 1” in diameter or greater every 5 to 7 years should maintain the trees canopy health above satisfactory levels.

## **PROPER SANITATION AND SHEARS**

One of the most critical aspects for maintaining plant health is maintaining not just clean sterile tools. As I discussed in previous sections, you have several highly-contagious communicable diseases present in various locations throughout the common ground areas. In order to prevent these disease from spreading even further, it is critical to have any landscape service providers sterilize their tools between each specimen. This can be done simply, without adding more than a few moments to a pruning job. After pruning of a specimen has been completed, the technician should sterilize any tools used with a simple solution of either 50% bleach or 80% (or higher) Isopropyl Alcohol.

Shears are one of the biggest culprits in the spread of diseases. This is especially true with hedges like your Boxwoods that have *Volutella*. Wherever possible, hand pruners or hand sheers should be used as these are much easier to sanitize. Of course, using these tools takes more time that powered shears so you must be willing to pay for that higher level of service.

## **SPECIFIC PLANT HEALTH RECOMENDATIONS**

### **ASH TREES**

As I mentioned above, there is a treatment available using a specialized trunk injection needle and a product called TreeAge that has been proven to be above 99% effective at not only preventing EAB but curing EAB if caught early enough. In the above inventories, I broke down the Ash trees into three categories of decline. Those at 20% decline or less, those at 50% decline or less, and then those at 50% decline or more. When it comes to treating for EAB, the less decline the better the chance of success. Those labeled at 50% or more decline should be removed. Those that are categorized in the <20% or <50% groups should seriously be considered for preservation with TreeAge, and of course root zone excavation.

### **GREEN ASH BY CLUBHOUSE**

Just to the left of the front door of the Club House resides a Green Ash that is in great condition with respects to EAB, but it’s branching architecture could use a lot of work. There are two

schools of thought for situations like this and it really depends on budget. The two scenarios are as follows.

- 1) **Maintain and Preserve:** This Ash will require some serious correction as well as likely some cables between its larger limbs and codominant stems. It will also need root zone excavation and continuing EAB treatments to protect it from the beetle. That being said, with the proper care and the increasing scarcity of Ash, let alone those that could be of specimen quality, this tree could become an extremely high value tree.  
~ or ~
- 2) **Remove and Replace:** Due to the threat of EAB, the amount of work needed to make the tree safe to stand so closely to the Club House, and the ongoing care, this tree could also be a reasonable candidate for removal and replacement with a species that is less maintenance.

I am of the opinion to maintain and preserve, if the budget allows. In the short run, it will definitely be more expensive than remove and replace, but the location of this tree at the southern perspective offers significant cooling factors in the summer, as well as social value of becoming an increasingly rare species.

### **BLACK KNOT IN PURPLE PLUMS AND NEEDLE CAST IN DOUGLAS FIRS**

Black Knot is a particularly aggressive and fatal fungal disease that afflicts most species within the genus *Prunus*, which is the genus of Plums, Cherries, Peaches, and other stone fruits. Always fatal, it attacks the cambium shutting down transportation of vital water and nutrients to the upper canopy and gradually spreads down the stem while releasing spores to infect other hosts. All of the Purple Leaf Plums I listed in the inventory above have moderate to severe symptoms of Black Knot disease and should be removed immediately before they infect any of your Cherries.

Similarly, all of the Douglas Firs I listed in the inventory above have advanced symptoms of Rhadocline Needle Cast. A treatable disease if caught early enough, however yours are considerably advanced and should be removed before they infect any of your other needle bearing evergreen trees.

### **CYTOSPORA CANKER IN SPRUCES**

The Spruces listed in the inventories above all need to be managed for Cytospora Canker by performing sanitation pruning in the winter while the trees are partially dormant and dry. Any infected branches should be pruned and destroyed, and tools sterilized between each cut. If the trees are healthy they can push past the disease with proper care. Root zone excavations would be a critical step in this process.

### **OAKS AND MAPLES**

All of the Oaks and Maples listed in the above inventories would benefit from some structural pruning and crown thinning by a certified tree expert capable of selecting appropriate pruning cuts. The Oaks in particular are very dense with small branches and suckers. These types of

branches rarely develop in natural forested settings because of restrictions on access to light, however in the urban environment light is readily available and these trees in particular take full advantage of it, to their own detriment. Having overcrowded branches can lead to increased risk of disease due to the propensity of the branch clusters to hold onto moisture. It can also lead branch structure dysfunctions like codominant stems, crossing limbs, and witches' brooms. In addition, these trees will need periodic elevation pruning to ensure their lowest branches do not develop beyond 3" – 4" in diameter or they will eventually interfere with parking spaces of pedestrian walkways.

## **PINES AND SPRUCES**

All of the Pines and Spruces listed in the inventories above are doing well in regards to their architectures. The only recommendation I have for those is to prune out any heavy or overcrowded deadwood in their lower canopies and to subordinate any codominant stems in order to select and promote a single stem architecture.

## **CHOKECHERRIES, INKBERRIES, AND LEATHERLEAF**

These three shrubs are among some of my favorite native shrubs to use in sustainable planting designs. They are native, they tolerate many soil conditions, and they provide important bird habitats. However, if they get leggy or overgrown they can be difficult to manage. In such a case, a hard-reset pruning can be done during the winter months when the plants are dormant to rejuvenate the shrub and promote new denser growth. While this technique is usually effective, it runs the risk that the shrub could die in the process. The major advantage to this technique is it is much less expensive than ripping out the shrubs and replacing them. The chances of success can also be increased by fertilizing the shrubs slated for reset pruning in the fall and then again in the spring to promote vigorous new growth. All of the Chokecherry listed in the inventory above could really use a hard-reset pruning. Several of the sparser examples of the Inkberry and the Leatherleaf could also benefit. Alternatively, deadwood pruning and a fairly aggressive reduction in the fall or winter could also give the Inkberry and Leatherleaf a good flush of new growth in the spring, especially if accompanied with fertilization as was just described.

## **POOL CLEARANCE**

All of the trees surrounding the pool and overhanging the fence should be pruned back beyond the fence line before they develop into thicker branches that could become hazardous to the nearby infrastructure.

## **PEARS AT CLUBHOUSE AND LOWELL PONDS**

The Ornamental Pear can be quite a bear when it comes to maintenance. Even in the best-case scenarios they will outgrow their own ability to support their branches and literally start falling apart; and that's without the wind or ice of storms. To have Ornamental Pears so close to a structure, especially the Club House, is an insurance claim waiting to happen. I highly recommend the large Pears situated right on the Club House foundation be removed and replaced with something more valuable and easier to maintain. This would also go for the Pear across from the little gazebo suffering from bottle butt syndrome, and the four Pears across from the

drainage area by Lowell Ponds. These four Pears in particular are a perfect example of how they outgrow their own structural abilities.

## **SPOTTED LANTERNFLY AND SUSCEPTIBLE SPECIES**

The Spotted Lanternfly is the latest in a string of highly invasive, aggressively destructive, accidental introductions from Asia, and it's on its way towards you if it hasn't already arrived. This species of leafhopper is a swarmer, quickly reproducing and quickly overwhelming a community's readiness to respond. The common grounds at Legacy Oaks has a number of potential host species including the native Red Maple, and various ornamental fruit trees. Not to mention the Lanternfly's preferred host, the Tree-Of-Heaven, growing wild in woods surrounding your community. The best course of action to head off this pest is to begin systemically treating any potential host species, and introducing Praying Mantis, as they are one of the few native insects fast enough to catch and eat them.

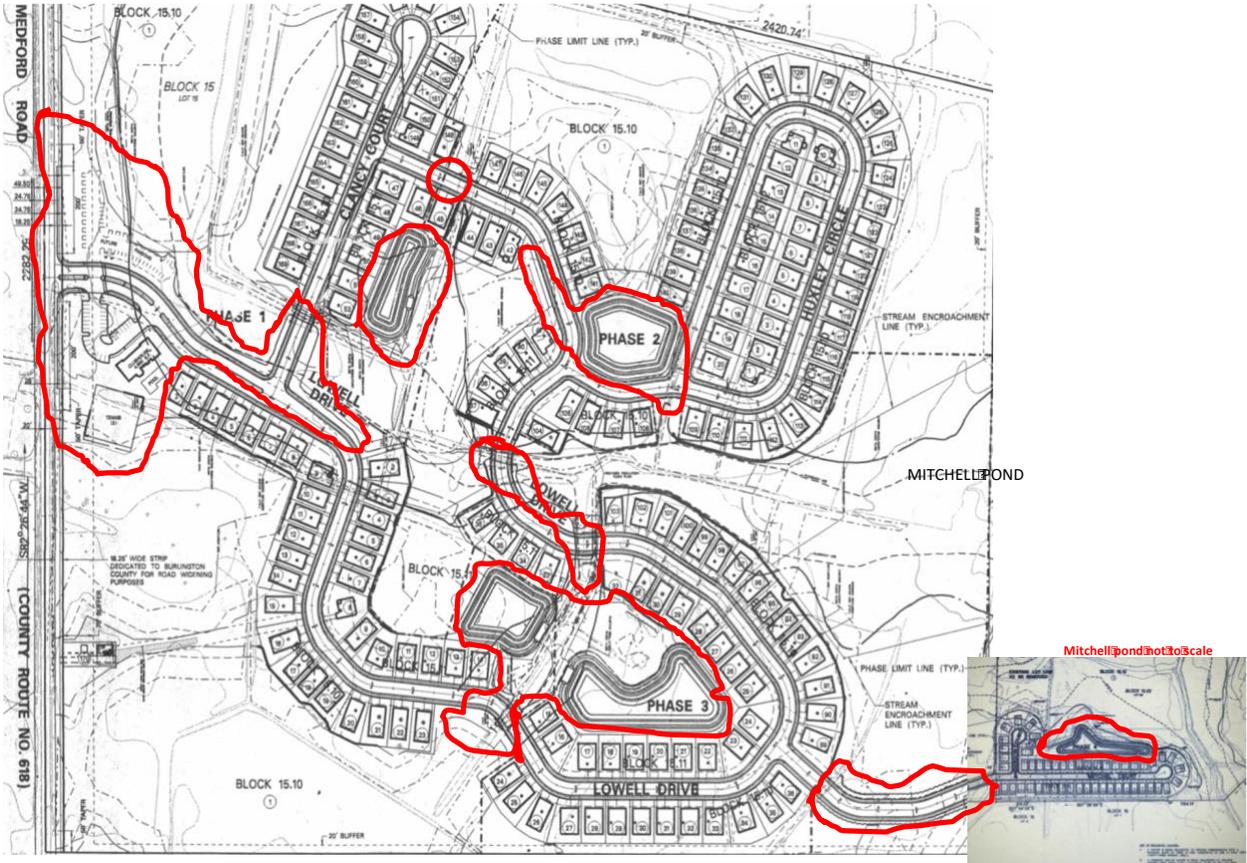
## **GLOSSARY OF TERMS**

**Diameter at Breast Height (DBH)** - Standard method of expressing the diameter of the trunk or bole of a standing tree at 4.5 feet above grade. DBH is one of the most common dendrometric measurements and one by which many other measurements and expectations can be derived.

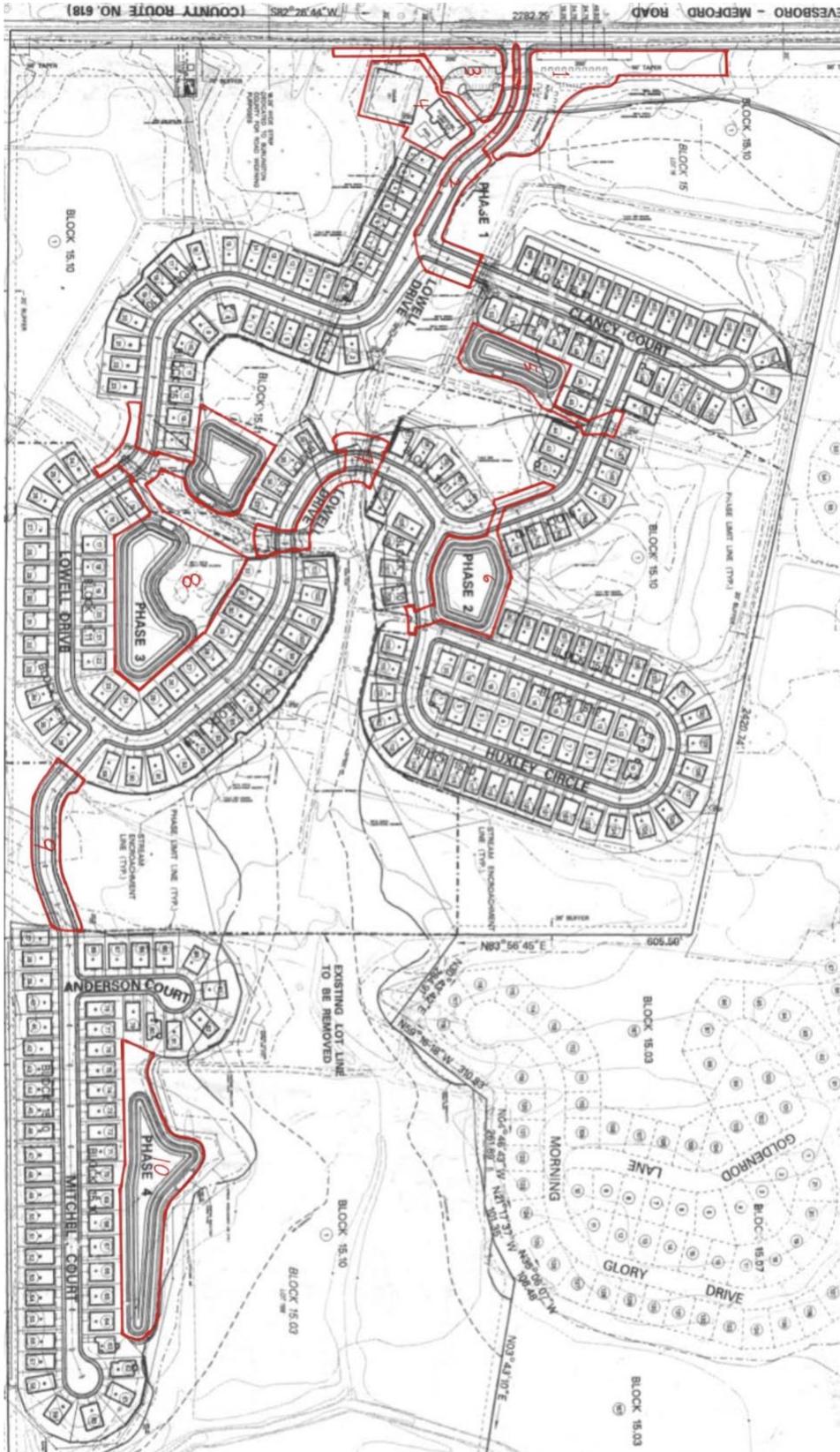
# APPENDIX A – ORIGINAL SITE MAP (as provided by Mr. Kramer)

Common Areas\* within Red borders

\*Wetlands NOT Included



# APPENDIX B – SITE MAP w/ COMMON GROUND DELINEATIONS



## APPENDIX C – PHOTOS



**Image 1:** Example of girdling root on Japanese Zelkova in common ground #1. The red arrow points out a surface girdling root that started below the surface on the other side of the stem. The yellow arrow points out a ridge that is indicative of a nearly complete girdle of the stem caused by this root. [See [Mulch Volcanoes](#)]



**Image 2:** Example of epicormic sprouts (or “suckers”) on a Crabapple in common ground section #2. These sprouts are a tell-tale sign of severe stress and usually associated with sub-surface girdling roots. [See [Mulch Volcanoes](#)]



**Image 3:** Example of bleeding canker on Norway Spruce in common ground section #1. This milky resinous exudate from is indicative of Cytospora Canker disease and, if left untreated, can be fatal. [See [Communicable Diseases](#)]



**Image 4:** Example of root-crown overburden by over-mulching (aka mulch volcano) on an Ornamental Pear in common ground section #1. This was one of the worst-case examples. The soil-knife in the picture is 12” long from tip to hilt suggesting that the root crown is buried by at least 9” – 10” of mulch and soil. [See [Mulch Volcanoes](#)]



**Image 5:** Example of a fatal “bottle-butt” syndrome as a result of root loss due to root-crown overburden on an Ornamental Pear in common ground section #3. [See [Mulch Volcanoes](#)]



**Image 6:** Example of Volutella Blight spores and associated dieback in a Boxwood in Common ground section #2. [See [Communicable Diseases](#)]