Todd Prager & Associates LLC

MEMORANDUM

DATE: September 16, 2022

TO: Mike Rueter (Mackenzie)

FROM: Christine Johnson, ISA Certified Arborist® PN-8730A

Todd Prager, RCA #597, ISA Board Certified Master Arborist®

RE: Tree Removal and Protection Plan for Lam Research Project

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Summary
This report includes tree removal and protection recommendations for construction of a new building, parking, and associated improvements at the Lam Research campus at 11361 SW Leveton Drive in Tualatin.

Background
Lam Research Corporation is proposing to construct a new building, parking, and associated improvements at their campus at 11361 SW Leveton Drive in Tualatin. The proposed site plan with existing trees and proposed grading is provided in Attachment 1.

The purpose of this report is to:

1. Provide tree removal findings and recommendations based on the proposed site and grading plan; and
2. Provide recommendations for adequately protecting the trees to be retained during construction.

Tree Assessment
On September 7 and 8, 2022, our firm completed an inventory of all trees in the vicinity of the proposed construction. The complete inventory data is provided in the tree inventory spreadsheet in Attachment 3. The data collected for each tree includes the tree number, species (common and scientific names), trunk diameter (DBH), crown radius, tree health condition, tree structural condition, pertinent comments, exempt status (less than 8-inches DBH or dead), and treatment (remove/retain). The tree numbers in the tree inventory in Attachment 3 correspond to the tree numbers on the proposed site plan/grading plan in Attachment 1 and the existing conditions survey in

Attachment 2. The trees were also tagged with their corresponding numbers in the field.

Proposed Tree Removal

A typical minimum root protection zone allows encroachments no closer than a radius from a tree of 0.5 feet per inch of DBH if no more than 25 percent of the root protection zone area (estimated at one foot radius per inch of DBH) is impacted. Figure 1 illustrates this concept. This standard may need to be adjusted on a case-by-case basis due to tree health, species, root distribution, whether the tree will be impacted on multiple sides, the specific development proposed, and other factors.

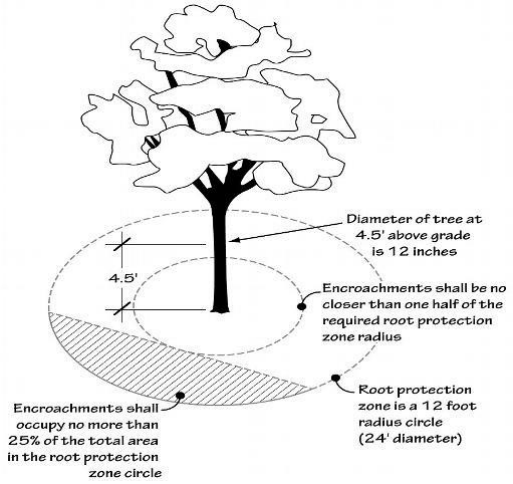


Figure 1: Typical minimum protection zone

Attachment 1 illustrates the proposed construction and grading impacts in relation to the existing trees. Based on the construction and grading impacts, 80 trees over 8-inch DBH are proposed for removal because they are either within the construction and grading footprint or their root zones would be severely impacted by construction and grading. Additional tree removal findings are provided in the next section of this report.

Protection recommendations for the 175[1] trees over 8-inch DBH to be retained at the edges of the construction and grading impacts are provided in the Tree Protection Recommendations section of this report.

Tree Removal Findings

This section of the report provides finding for the Tree Assessment Report criteria in Section 33.110(4)(b) of the Tualatin Development Code. The code criteria are listed followed by my findings in *italics*.

(b) Tree Assessment Report. A tree assessment prepared by a certified arborist must include:

This report has been prepared by Christine Johnson and Todd Prager, both ISA certified arborists. This criterion is met.

(i) An analysis as to whether trees proposed for preservation may be preserved in light of the development proposed, are healthy specimens, and do not pose an imminent hazard to persons or property if preserved;

The health and structural conditions of the trees to be preserved in the vicinity of the proposed development have been evaluated by our firm. A summary of the tree conditions is provided in the tree inventory in Attachment 3. The preserved trees are

[1] This number reflects trees in the immediate vicinity of construction and trees that were inventoried outside the limits of construction.

healthy specimens and are not imminent hazards to persons or property as of our assessment date. The preserved trees will need to be protected during construction as detailed in the Tree Protection Recommendations Section of this report so they remain healthy and viable for the foreseeable future. This criterion is met.

(ii) An analysis as to whether any trees proposed for removal could reasonably be preserved in light of the development proposed and health of the tree;

Our firm coordinated with the project design team at Mackenzie to consider design options for preserving healthy trees. Based on the project design along with site constraints, stormwater requirements, utility and site access connections, parking requirements, and client needs, tree preservation has been maximized to the extent practicable. This criterion is met.

(iii) a statement addressing the approval criteria set forth in TDC 33.110(5);

The reason for the proposed tree removals is to construct proposed improvements based on Architectural Review approval (TDC Subsection 33.110(5)(iii)). This criterion is met.

(iv) the name, contact information, and signature of the arborist preparing the report; and

The name, contact information, and signatures of the arborists that prepared this report are provided. This criterion is met.

(v) The tree assessment report must have been prepared and dated no more than one calendar year preceding the date the development or Tree Removal Permit application is deemed complete by the City.

This report has been prepared and provided less than one calendar year preceding the date the development application has been deemed complete. This criterion is met.

Tree Protection Recommendations

The following tree protection measures will be necessary to protect the trees during construction:

- *Tree Protection Fencing*: Erect six-foot metal tree protection fencing in the locations shown in Attachment 1 to protect the trees from construction.
- *Shift Grading Near Protected Trees*: Proposed grading near trees 20371 through 20375 and 20378, shall be adjusted to protect existing trees.
- *Curb demolition and repair*: Several existing curbs in existing parking lots are slated for demolition and/or repair. Curbs shall be demolished under arborist supervision.
- *Sidewalk improvements:* Sidewalk improvements near trees 3036 through 3038 are slated for demolition and/or repair. Demolition should occur under arborist supervision.

- *Stump Removal*: The stumps of trees 21525 and 21526 shall be carefully ground out rather than pulled with an excavator to minimize impacts to the adjacent trees to be retained.
- *Pruning of Trees*: Some of the trees may need to be clearance and/or reduction pruned to allow for construction access. Any reduction and/or clearance pruning shall occur prior to construction in accordance with ANSI A300 pruning standards the minimum necessary to allow for construction. Reduction cuts shall be made to lateral branches that are at least one-third to one-half the sizes of the parent branches. All cuts shall be made just outside the branch collars.

Existing parking lots that will be in use for non-construction parking do not have tree protection fencing at this time (parking lot south of building 'B'). Additional tree protection recommendations that are consistent with City of Tualatin standards are provided in Attachment 4.

Conclusion

Eight (80) trees over 8-inch DBH are recommended for removal with construction. The 175 trees to be retained will be protected during construction by adhering to the recommendations in this report. Any change to the tree protection plan shall be completed by the project arborist to ensure that the trees to be retained are properly protected.

Please contact me if you have questions, concerns, or need any additional information.

Sincerely,

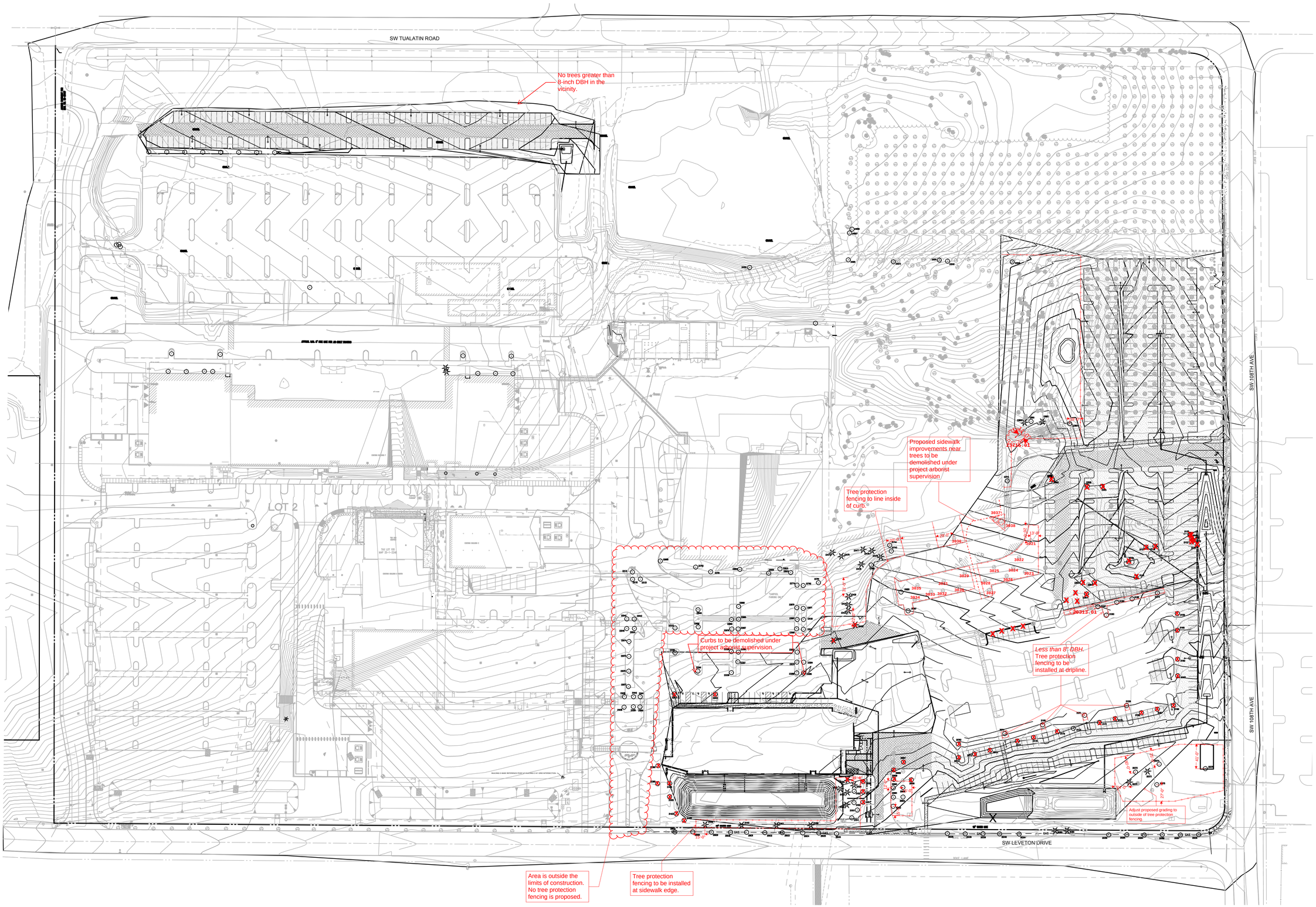
Christine Johnson

Christine Johnson
ISA Certified Arborist®, PN-8730A
ISA Qualified Tree Risk Assessor
Member, American Society of Consulting Arborists

Todd Prager

Todd Prager
ASCA Registered Consulting Arborist #597
ISA Board Certified Master Arborist®, WE-6723B
ISA Qualified Tree Risk Assessor
AICP, American Planning Association

Enclosures: Attachment 1 – Site/Grading Plan with Existing Tree Locations
Attachment 2 – Existing Conditions Survey with Tree Locations
Attachment 3 – Tree Inventory
Attachment 4 – Tree Protection Recommendations
Attachment 5 – Assumptions and Limiting Conditions



1 ARBORIST SITE EXHIBIT

60 0 30 60 120 240
(IN FEET)
1 inch = 60 ft.

Tree Legend

Tree No.
Tree Protection Fencing
Tree added by arborist, location approximate

Architecture ▪ Interiors
Planning ▪ Engineering

Portland, OR
503.224.9560
Vancouver, WA
360.695.7879
Seattle, WA
206.749.9993
www.mcknze.com

MACKENZIE.
DESIGN DRIVEN | CLIENT FOCUSED

Client
LAM RESEARCH

Lam RESEARCH

Project
LAM RESEARCH TUALATIN

NEW OFFICE BUILDING

SHEET TITLE:
ARBORIST SITE EXHIBIT

DRAWN BY: AB

CHECKED BY:

SHEET

XX

JOB NO. **2220087.00**

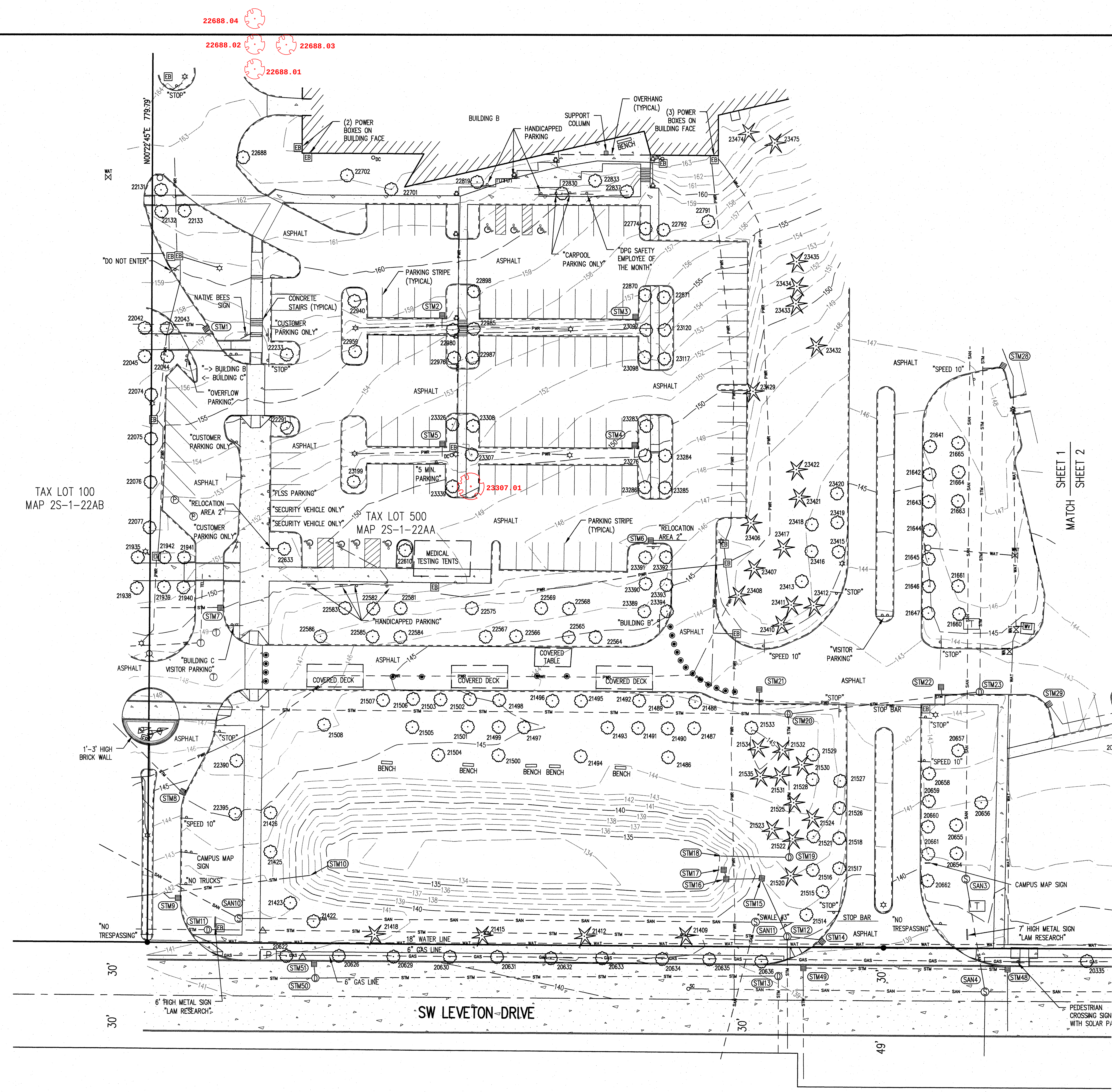
Attachment 1
Site/Grading Plan with Existing Tree Locations

J:\SITEX60 AB 09/15/22 11:32 1:20

LEGEND

DECIDUOUS TREE		GAS METER	GM
CONIFEROUS TREE		GAS VALVE	GV
FIRE HYDRANT		GUY WIRE ANCHOR	
FIRE DEPARTMENT CONNECTION	FDC	UTILITY POLE	
WATER METER		POWER VAULT	P
WATER VALVE	WAT	ELECTRICAL METER	EM
WATER VAULT	WV	POWER JUNCTION BOX	EB
SANITARY SEWER CLEAN OUT	SC	POWER TRANSFORMER	TFR
SANITARY SEWER MANHOLE	S	POWER MANHOLE	P
STORM SEWER CLEAN OUT	DC	3' HIGH LIGHT POST	
STORM SEWER CATCH BASIN		AREA LIGHT	
STORM SEWER MANHOLE	D	STREET LIGHT	
BICYCLE RACK		TELEPHONE/TELEVISION VAULT	T
SIGN		TELEPHONE/TELEVISION JUNCTION BOX	
BOLLARD		TELEPHONE/TELEVISION MANHOLE	T
FOUND SURVEY MONUMENT		FLAG POLE	
		MAILBOX	MB

- RIGHT-OF-WAY LINE
- BOUNDARY LINE
- PROPERTY LINE
- CENTERLINE
- DITCH
- CURB
- EXTRUDED CURB
- EDGE OF PAVEMENT
- EASEMENT
- FENCE LINE
- GRAVEL EDGE
- POWER LINE — PWR
- OVERHEAD WIRE — OHW
- TELEPHONE LINE — TEL
- GAS LINE — GAS
- STORM SEWER LINE — STM
- SANITARY SEWER LINE — SAN
- WATER LINE — WAT



GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

Location approximated by arborist

NOTE:
SEE SHEET 2 FOR TREE INFORMATION
SEE SHEET 3 FOR STORM SEWER AND SANITARY SEWER INFORMATION

NOTES

1) THE FIELD SURVEY FOR THIS MAP WAS COMPLETED DURING MAY AND JUNE 2022.

2) ELEVATIONS ARE BASED ON THE ONE-QUARTER SECTION CORNER COMMON TO SECTIONS 15 AND 22, T2S, R1W. THE ELEVATION WAS HELD PER WASHINGTON COUNTY GC_022-086 DATA SHEET ON FILE WITH THE WASHINGTON COUNTY SURVEYOR'S OFFICE. THE PUBLISHED ELEVATION IS 177.22 FEET ON THE NGVD 29 VERTICAL DATUM.

3) THE RIGHT-OF-WAY WIDTHS WERE ESTABLISHED USING INFORMATION FROM RECORD SURVEYS AND THE TAX ASSESSOR'S MAP.

4) THE SURVEYOR WAS NOT PROVIDED WITH A TITLE REPORT FOR THE PROPERTY. IT IS UNKNOWN IF ANY EASEMENTS ENCUMBER OR BENEFIT THE PROPERTY.

5) THE UNDERGROUND UTILITIES ARE BASED ON THE MARKINGS PER LOCATE TICKET NUMBERS 22104712, 22104717, 22155185, AND A PRIVATE UTILITY LOCATING COMPANY.

UTILITY STATEMENT

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

NORTHWEST SURVEYING, INC.
1815 NW 169th PLACE, SUITE 2090
BEAVERTON, OR 97006
PH: (503) 848-2127 FAX: (503) 848-2179
EMAIL: nwsurveying@nwsrvy.com

LOCATED IN THE NORTHEAST 1/4 OF SECTION 22,
TOWNSHIP 2 SOUTH, RANGE 1 WEST, W.M.,
CITY OF TUALATIN, WASHINGTON COUNTY, OREGON

TOPOGRAPHIC SURVEY
TUALATIN, OREGON

DRAWING NO.: 1344 TOPO-SW
SCALE: AS NOTED
DRAWING GENERATED BY LD2004
DRAWN BY: SFF
CHECKED BY: SFF/CDW

PREPARED FOR:
LAM RESEARCH CORPORATION
4650 CUSHING PARKWAY
FREMONT, CA 94538

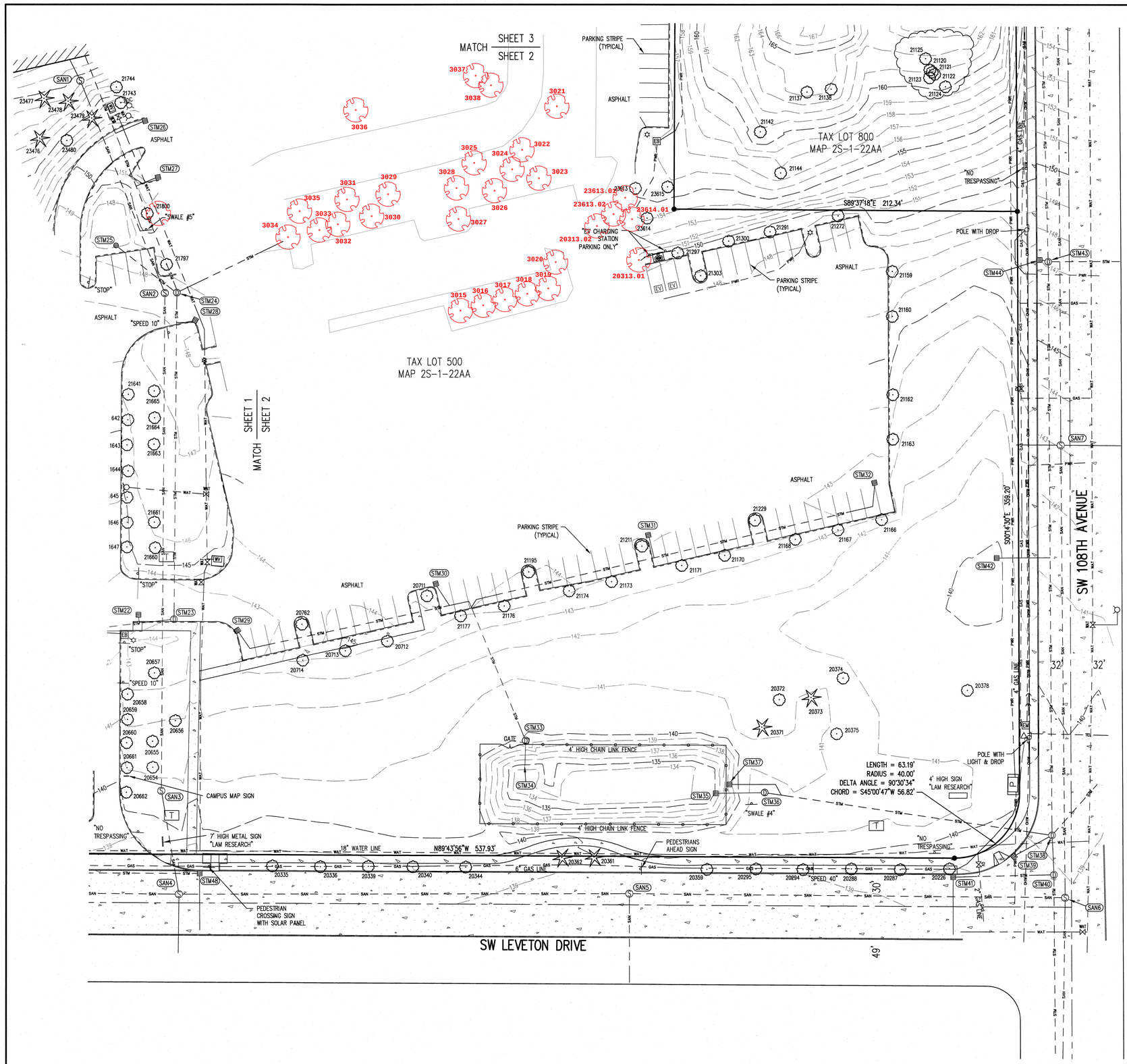
REVISIONS:
INITIAL RELEASE: JULY 11, 2022

REGISTERED PROFESSIONAL LAND SURVEYOR
OREGON
JUNE 30, 1997
SCOTT F. FIELD
2844
12-31-2023
RENEWAL DATE

JOB NUMBER
1344

SHEET
1 OF 3

Attachment 2
Existing Conditions Survey with Tree Locations



GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

TREE INFORMATION

20226 13" DECIDUOUS	21491 14" CHERRY	22586 15" CHERRY
20287 10" DECIDUOUS	21492 15" CHERRY	22810 14" DECIDUOUS
20288 10" DECIDUOUS	21493 14" CHERRY	22633 13" DECIDUOUS
20294 13" DECIDUOUS	21494 14" CHERRY	22688 14" MAPLE
20295 6" DECIDUOUS	21495 16" CHERRY	22701 23" OAK
20335 14" DECIDUOUS	21496 12" CHERRY	22702 25" OAK
20336 3" DECIDUOUS	21497 14" CHERRY	22774 10" DECIDUOUS
20339 8" DECIDUOUS	21498 16" CHERRY	22791 22" OAK
20340 11" DECIDUOUS	21499 17" CHERRY	22792 14" DECIDUOUS
20344 9" DECIDUOUS	21500 3" CHERRY	22819 23" OAK
20359 13" DECIDUOUS	21501 15" CHERRY	22830 14" OAK
20361 38" FIR	21502 10" CHERRY	22833 13" OAK
20362 56" FIR	21503 20" CHERRY	22837 26" OAK
20371 49" CONIFER	21504 20" CHERRY	22870 12" DECIDUOUS
20372 35" DECIDUOUS	21505 3" CHERRY	22871 13" DECIDUOUS
20373 26" PINE	21506 20" CHERRY	22898 14" DECIDUOUS
20374 25" MAPLE	21507 3" CHERRY	22940 10" DECIDUOUS
20375 27" DECIDUOUS	21508 26" CHERRY	22959 11" DECIDUOUS
20378 SPLIT 16", (2) 19", 21" MAPLE	21514 24" CHERRY	22976 14" DECIDUOUS
20622 8" DECIDUOUS	21515 20" CHERRY	22980 15" DECIDUOUS
20626 9" DECIDUOUS	21516 19" CHERRY	22985 13" DECIDUOUS
20629 1" DECIDUOUS	21517 14" CHERRY	22987 14" DECIDUOUS
20630 1" DECIDUOUS	21518 15" CHERRY	23097 14" DECIDUOUS
20631 7" DECIDUOUS	21520 23" FIR	23098 13" DECIDUOUS
20632 9" DECIDUOUS	21521 15" CHERRY	23117 13" DECIDUOUS
20633 4" DECIDUOUS	21522 21" FIR	23120 13" DECIDUOUS
20634 7" DECIDUOUS	21523 24" FIR	23199 10" DECIDUOUS
20635 27" DECIDUOUS	21524 20" FIR	23276 15" DECIDUOUS
20636 16" DECIDUOUS	21525 18" FIR	23283 13" DECIDUOUS
20654 30" CHERRY	21526 16" CHERRY	23284 14" DECIDUOUS
20655 13" CHERRY	21527 14" CHERRY	23285 14" DECIDUOUS
20656 14" CHERRY	21528 17" CHERRY	23286 13" DECIDUOUS
20657 24" CHERRY	21529 25" CHERRY	23307 14" DECIDUOUS
20658 23" CHERRY	21530 17" FIR	23308 12" DECIDUOUS
20659 22" CHERRY	21531 17" FIR	23326 14" DECIDUOUS
20660 20" CHERRY	21532 19" FIR	23339 10" DECIDUOUS
20661 24" CHERRY	21533 21" CHERRY	23386 15" DECIDUOUS
20662 30" CHERRY	21534 20" FIR	23390 13" DECIDUOUS
20712 2" DECIDUOUS	21535 23" FIR	23391 14" DECIDUOUS
20713 2" DECIDUOUS	21641 3" CHERRY	23392 15" DECIDUOUS
20714 3" DECIDUOUS	21642 15" CHERRY	23393 12" DECIDUOUS
20762 3" MAPLE	21643 12" CHERRY	23394 14" DECIDUOUS
21015 21" OAK	21644 13" CHERRY	23406 18" FIR
21120 11" DECIDUOUS	21645 13" CHERRY	23407 20" FIR
21121 14" DECIDUOUS	21646 13" CHERRY	23408 27" FIR
21122 14" DECIDUOUS	21647 9" CHERRY	23410 29" FIR
21123 12" DECIDUOUS	21660 1" CHERRY	23411 11" FIR
21124 SPLIT 10", 12" DECIDUOUS	21661 1" CHERRY	23412 27" FIR
21125 15" DECIDUOUS	21663 14" CHERRY	23413 27" OAK
21137 23" CHERRY	21664 12" CHERRY	23415 20" CHERRY
21138 18" BIRCH	21665 12" CHERRY	23416 22" CHERRY
21142 20" APPLE	21743 21" CHERRY	23417 20" FIR
21144 3" DECIDUOUS	21744 24" OAK	23418 CHERRY
21159 3" DECIDUOUS	21797 23" DECIDUOUS	23419 19" CHERRY
21160 3" DECIDUOUS	21800 20" DECIDUOUS	23420 CHERRY
21162 3" DECIDUOUS	21935 5" DECIDUOUS	23421 13" FIR
21163 4" DECIDUOUS	21938 4" DECIDUOUS	23422 19" FIR
21166 3" DECIDUOUS	21939 4" DECIDUOUS	23429 14" FIR
21167 3" DECIDUOUS	21940 5" DECIDUOUS	23432 25" FIR
21168 2" DECIDUOUS	21941 5" DECIDUOUS	23433 44" FIR
21170 2" DECIDUOUS	21942 5" DECIDUOUS	23434 45" FIR
21171 3" DECIDUOUS	22042 4" DECIDUOUS	23435 28" FIR
21173 3" DECIDUOUS	22043 5" DECIDUOUS	23474 18" FIR
21174 4" DECIDUOUS	22044 5" DECIDUOUS	23475 10" FIR
21176 3" DECIDUOUS	22045 3" DECIDUOUS	23476 20" FIR
21177 3" DECIDUOUS	22074 11" DECIDUOUS	23477 19" FIR
21179 3" DECIDUOUS	22075 11" DECIDUOUS	23478 25" FIR
21195 3" DECIDUOUS	22076 8" DECIDUOUS	23479 15" FIR
21211 3" DECIDUOUS	22077 12" DECIDUOUS	23480 24" CHERRY
21229 3" DECIDUOUS	22131 4" DECIDUOUS	23509 11" OAK
21272 2" DECIDUOUS	22132 4" DECIDUOUS	23613 10" OAK
21291 2" DECIDUOUS	22133 6" DECIDUOUS	23614 29" OAK
21297 1" DECIDUOUS	22233 14" DECIDUOUS	23615 23" OAK
21300 1" DECIDUOUS	22291 16" DECIDUOUS	23693 1" DECIDUOUS
21303 2" DECIDUOUS	22390 10" DECIDUOUS	23715 11" OAK
21409 SPLIT 6", 7", 14" CEDAR	22391 14" DECIDUOUS	23800 40" FIR
21412 9" CEDAR	22564 14" CHERRY	23801 7" MAPLE
21415 7" CEDAR	22565 22" CHERRY	23803 40" FIR
21418 14" CEDAR	22566 23" CHERRY	23807 CHERRY
21422 5" CHERRY	22567 16" CHERRY	24041 CHERRY
21423 5" CHERRY	22568 21" CHERRY	24042 10" MAPLE
21425 7" CHERRY	22569 21" CHERRY	24049 30" COTTONWOOD
21426 7" DECIDUOUS	22575 17" DECIDUOUS	24058 20" MAPLE
21486 15" CHERRY	22581 19" CHERRY	24057 SPLIT 7", 8", 9", 10", 22" MAPLE
21487 15" CHERRY	22582 23" CHERRY	24061 30" MAPLE
21488 10" CHERRY	22583 3" CHERRY	24073 18" DECIDUOUS
21489 12" CHERRY	22584 3" CHERRY	24104 SPLIT (2) 14" COTTONWOOD
21490 14" CHERRY	22585 3" CHERRY	

Location approximated by arborist

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REVISIONS:
INITIAL RELEASE: JULY 11, 2022

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OREGON
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SHEET
2 OF 3

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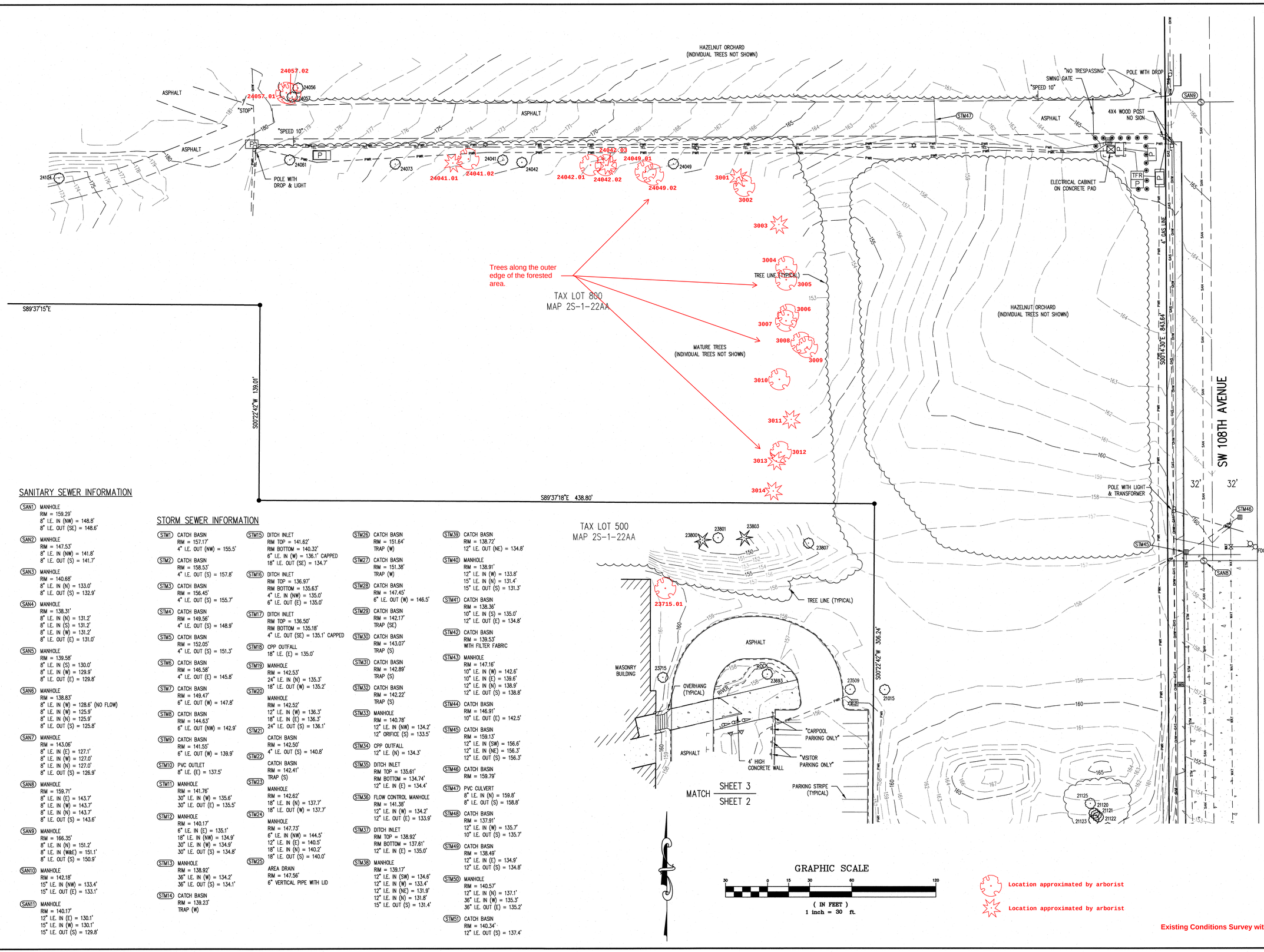

SANITARY SEWER INFORMATION

(SAN1) MANHOLE
RIM = 159.29'
8" I.E. IN (NW) = 148.8'
8" I.E. OUT (SE) = 148.6'

(SAN2) MANHOLE
RIM = 147.53'
8" I.E. IN (NW) = 141.8'
8" I.E. OUT (S) = 141.7'

(SAN3) MANHOLE
RIM = 140.68'
8" I.E. IN (N) = 133.0'
8" I.E. OUT (S) = 132.9'

(SAN4) MANHOLE
RIM = 138.31'
8" I.E. IN (N) = 131.2'
8" I.E. IN (S) = 131.2'
8" I.E. IN (W) = 131.2'
8" I.E. OUT (E) = 131.0'

(SAN5) MANHOLE
RIM = 139.58'
8" I.E. IN (S) = 130.0'
8" I.E. IN (W) = 129.9'
8" I.E. OUT (E) = 129.8'

(SAN6) MANHOLE
RIM = 138.83'
8" I.E. IN (W) = 128.6' (NO FLOW)
8" I.E. IN (W) = 125.9'
8" I.E. IN (N) = 125.9'
8" I.E. OUT (S) = 125.8'

(SAN7) MANHOLE
RIM = 143.06'
8" I.E. IN (E) = 127.1'
8" I.E. IN (W) = 127.0'
8" I.E. IN (N) = 127.0'
8" I.E. OUT (S) = 126.9'

(SAN8) MANHOLE
RIM = 159.71'
8" I.E. IN (E) = 143.7'
8" I.E. IN (W) = 143.7'
8" I.E. IN (N) = 143.7'
8" I.E. OUT (S) = 143.6'

(SAN9) MANHOLE
RIM = 166.35'
8" I.E. IN (N) = 151.2'
8" I.E. IN (W&S) = 151.1'
8" I.E. OUT (S) = 150.9'

(SAN10) MANHOLE
RIM = 142.18'
15" I.E. IN (NW) = 133.4'
15" I.E. OUT (E) = 133.1'

(SAN11) MANHOLE
RIM = 140.17'
12" I.E. IN (E) = 130.1'
15" I.E. IN (W) = 130.1'
15" I.E. OUT (S) = 129.8'

STORM SEWER INFORMATION

(STM1) CATCH BASIN
RIM = 157.17'
4" I.E. OUT (NW) = 155.5'

(STM2) CATCH BASIN
RIM = 158.53'
4" I.E. OUT (S) = 157.8'

(STM3) CATCH BASIN
RIM = 156.45'
4" I.E. OUT (S) = 155.7'

(STM4) CATCH BASIN
RIM = 149.56'
4" I.E. OUT (S) = 148.9'

(STM5) CATCH BASIN
RIM = 152.05'
4" I.E. OUT (S) = 151.3'

(STM6) CATCH BASIN
RIM = 146.58'
4" I.E. OUT (E) = 145.8'

(STM7) CATCH BASIN
RIM = 149.47'
6" I.E. OUT (W) = 147.8'

(STM8) CATCH BASIN
RIM = 144.63'
6" I.E. OUT (NW) = 142.9'

(STM9) CATCH BASIN
RIM = 141.55'
6" I.E. OUT (W) = 139.9'

(STM10) PVC OUTLET
8" I.E. (E) = 137.5'

(STM11) MANHOLE
RIM = 141.76'
30" I.E. IN (W) = 135.6'
30" I.E. OUT (E) = 135.5'

(STM12) MANHOLE
RIM = 140.17'
6" I.E. IN (E) = 135.1'
18" I.E. IN (NW) = 134.9'
30" I.E. IN (W) = 134.9'
30" I.E. OUT (S) = 134.8'

(STM13) MANHOLE
RIM = 138.92'
36" I.E. IN (W) = 134.2'
36" I.E. OUT (S) = 134.1'

(STM14) CATCH BASIN
RIM = 139.23'
TRAP (W)

(STM15) DITCH INLET
RIM TOP = 141.62'
RIM BOTTOM = 140.32'
6" I.E. IN (W) = 136.1' CAPPED
18" I.E. OUT (SE) = 134.7'

(STM16) DITCH INLET
RIM TOP = 136.97'
RIM BOTTOM = 135.63'
4" I.E. IN (NW) = 135.0'
6" I.E. OUT (E) = 135.0'

(STM17) DITCH INLET
RIM TOP = 136.50'
RIM BOTTOM = 135.18'
4" I.E. OUT (SE) = 135.1' CAPPED

(STM18) CPP OUTFALL
18" I.E. (E) = 135.0'

(STM19) MANHOLE
RIM = 142.53'
24" I.E. IN (N) = 135.3'
18" I.E. OUT (W) = 135.2'

(STM20) MANHOLE
RIM = 142.52'
12" I.E. IN (W) = 136.3'
18" I.E. IN (E) = 136.3'
24" I.E. OUT (S) = 136.1'

(STM21) CATCH BASIN
RIM = 142.50'
4" I.E. OUT (S) = 140.8'

(STM22) CATCH BASIN
RIM = 142.41'
TRAP (S)

(STM23) MANHOLE
RIM = 142.62'
18" I.E. IN (N) = 137.7'
18" I.E. OUT (W) = 137.7'

(STM24) MANHOLE
RIM = 147.73'
6" I.E. IN (NW) = 144.5'
12" I.E. IN (E) = 140.5'
18" I.E. IN (N) = 140.2'
18" I.E. OUT (S) = 140.0'

(STM25) AREA DRAIN
RIM = 147.56'
6" VERTICAL PIPE WITH LID

(STM26) CATCH BASIN
RIM = 151.64'
TRAP (W)

(STM27) CATCH BASIN
RIM = 151.38'
TRAP (W)

(STM28) CATCH BASIN
RIM = 147.45'
6" I.E. OUT (W) = 146.5'

(STM29) CATCH BASIN
RIM = 142.17'
TRAP (SE)

(STM30) CATCH BASIN
RIM = 143.07'
TRAP (S)

(STM31) CATCH BASIN
RIM = 142.89'
TRAP (S)

(STM32) CATCH BASIN
RIM = 142.22'
TRAP (S)

(STM33) MANHOLE
RIM = 140.78'
12" I.E. IN (NW) = 134.2'
12" ORIFICE (S) = 133.5'

(STM34) CPP OUTFALL
12" I.E. (N) = 134.3'

(STM35) DITCH INLET
RIM TOP = 135.61'
RIM BOTTOM = 134.74'
12" I.E. IN (E) = 134.4'

(STM36) FLOW CONTROL MANHOLE
RIM = 141.38'
12" I.E. IN (W) = 134.2'
12" I.E. OUT (E) = 133.9'

(STM37) DITCH INLET
RIM TOP = 138.92'
RIM BOTTOM = 137.61'
12" I.E. IN (E) = 135.0'

(STM38) MANHOLE
RIM = 139.17'
12" I.E. IN (SW) = 134.6'
12" I.E. IN (W) = 133.4'
12" I.E. IN (NE) = 131.9'
12" I.E. IN (N) = 131.8'
15" I.E. OUT (S) = 131.4'

(STM39) CATCH BASIN
RIM = 138.72'
12" I.E. OUT (NE) = 134.8'

(STM40) MANHOLE
RIM = 138.91'
12" I.E. IN (W) = 133.8'
15" I.E. IN (N) = 131.4'
15" I.E. OUT (S) = 131.3'

(STM41) CATCH BASIN
RIM = 138.36'
10" I.E. IN (S) = 135.0'
12" I.E. OUT (E) = 134.8'

(STM42) CATCH BASIN
RIM = 139.53'
WITH FILTER FABRIC

(STM43) MANHOLE
RIM = 147.16'
10" I.E. IN (W) = 142.6'
10" I.E. IN (E) = 139.6'
12" I.E. IN (N) = 138.9'
12" I.E. OUT (S) = 138.8'

(STM44) CATCH BASIN
RIM = 146.91'
10" I.E. OUT (E) = 142.5'

(STM45) CATCH BASIN
RIM = 159.13'
12" I.E. IN (SW) = 156.6'
12" I.E. IN (NE) = 156.3'
12" I.E. OUT (S) = 156.3'

(STM46) CATCH BASIN
RIM = 159.79'

(STM47) PVC CULVERT
8" I.E. IN (N) = 159.8'
8" I.E. OUT (S) = 158.8'

(STM48) CATCH BASIN
RIM = 137.91'
12" I.E. IN (W) = 135.7'
10" I.E. OUT (S) = 135.7'

(STM49) CATCH BASIN
RIM = 138.49'
12" I.E. IN (E) = 134.9'
12" I.E. OUT (S) = 134.8'

(STM50) MANHOLE
RIM = 140.57'
12" I.E. IN (N) = 137.1'
36" I.E. IN (W) = 135.3'
36" I.E. OUT (E) = 135.2'

(STM51) CATCH BASIN
RIM = 140.34'
12" I.E. OUT (S) = 137.4'

NORTHWEST SURVEYING, INC.
1815 NW 169th PLACE, SUITE 2090
BEAVERTON, OR 97006
PH:(503) 848-2127 FAX:(503) 848-2179
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LOCATED IN THE NORTHEAST 1/4 OF SECTION 22, TOWNSHIP 2 SOUTH, RANGE 1 WEST, W.M., CITY OF TUALATIN, WASHINGTON COUNTY, OREGON

TOPOGRAPHIC SURVEY
TUALATIN, OREGON

DRAWING NO.: 1344 TOPO-SW
SCALE: AS NOTED
DRAWING GENERATED BY LD2004
DRAWN BY: SFF
CHECKED BY: SFF/CDW

PREPARED FOR:
LAM RESEARCH CORPORATION
4650 CUSHING PARKWAY
FREMONT, CA 94538

REVISIONS:
INITIAL RELEASE: JULY 11, 2022

REGISTERED PROFESSIONAL LAND SURVEYOR
OREGON
JUNE 30, 1997
SCOTT F. FIELD
2844
12-31-2023
RENEWAL DATE

JOB NUMBER
1344

SHEET
3 OF 3

Attachment 2
Existing Conditions Survey with Tree Locations

Todd Prager & Associates LLC

Attachment 3 - Tree Inventory - All Trees
LAM Research
9/7/2022 9/8/2022

Tree No.	Common Name	Scientific Name	DBH[1]	Single DBH[2]	C-Rad[3]	Condition[4]	Structure[4]	Comments	Exempt (less than 8-inches DBH or dead)	Treatment
20226	Raywood ash	*Fraxinus oxycarpa* 'Raywood'	14	14	22	good	good			retain
20287	Raywood ash	*Fraxinus oxycarpa* 'Raywood'	11	11	18	fair	fair	deadwood, one-sided, thin, high crown		retain
20288	Raywood ash	*Fraxinus oxycarpa* 'Raywood'	11	11	15	good	fair	high crown		retain
20294	Raywood ash	*Fraxinus oxycarpa* 'Raywood'	14	14	20	fair	fair	lean, thin		retain
20295	Raywood ash	*Fraxinus oxycarpa* 'Raywood'	7	7	10	good	good		exempt (<8" DBH)	retain
20313.01	Street Keeper® honey locust	*Gleditsia tricanthos* 'Draves'	1	1	5	poor	fair	deadwood, thin, near EV charging station, at end of second stall, east line	exempt (<8" DBH)	retain
20313.02	Autumn Blaze red maple	*Acer × freemanii*	3	3	5	good	good	location approximated by arborist, likely Rocky Mountain or Bowhall	exempt (<8" DBH)	remove
20335	Raywood ash	*Fraxinus oxycarpa* 'Raywood'	14	14	22	good	fair	heavy end weight		retain
20336	Raywood ash	*Fraxinus oxycarpa* 'Raywood'	3	3	5	fair	fair	dead tops, trunk flare wound, good response growth	exempt (<8" DBH)	retain
20339	Raywood ash	*Fraxinus oxycarpa* 'Raywood'	8	8	14	good	fair	one-sided		retain
20340	Raywood ash	*Fraxinus oxycarpa* 'Raywood'	11	11	15	good	fair	lean, one-sided		retain
20344	Raywood ash	*Fraxinus oxycarpa* 'Raywood'	9	9	15	good	fair	heavy end weight		retain
20359	Raywood ash	*Fraxinus oxycarpa* 'Raywood'	13	13	15	good	fair	heavy end weight		retain
20361	Douglas-fir	*Pseudotsuga menziesii*	38	38	20	good	good			retain
20362	Douglas-fir	*Pseudotsuga menziesii*	56	56	30	good	good			retain
20371	Blue atlas cedar	*Cedrus atlantica*	48	48	35	good	fair	codominant leaders, two sets of codominant leaders at 40' and 60', history of failure		retain
20372	northern red oak	*Quercus rubra*	35	35	30	good	fair	one-sided, heavy epicormic branches on limbs		retain
20373	ponderosa pine	*Pinus ponderosa*	26	26	15	fair	fair	sweeping trunk, high crown		retain
20374	Raywood ash	*Fraxinus oxycarpa* 'Raywood'	10	10	12	fair	fair	deadwood, one-sided, thin		retain
20374	silver maple	*Acer saccharinum*	26	26	25	fair	fair	deadwood, lean		retain
20375	Horse chestnut	*Aesculus hippocastanum*	27	27	15	fair	fair	lean, trunk decay, 3' by 2' cavity at 5' on north side of trunk		retain
20378	Norway maple	*Acer platanoides*	41	41	30	good	fair	codominant leaders with inclusion, diameter measured at 1.5', possible Crimson King variety that has converted		retain
20622	Raywood ash	*Fraxinus oxycarpa* 'Raywood'	9	9	13	fair	fair	deadwood, lean, one-sided, thin		retain
20629	Paperbark maple	*Acer griseum*	1	1	0	dead	dead		exempt (<8" DBH)	retain
20630	Paperbark maple	*Acer griseum*	1	1	2	poor	fair	deadwood, thin, 50 percent live canopy	exempt (<8" DBH)	retain
20631	Raywood ash	*Fraxinus oxycarpa* 'Raywood'	7	7	10	fair	fair	deadwood, thin	exempt (<8" DBH)	retain
20632	Raywood ash	*Fraxinus oxycarpa* 'Raywood'	9	9	12	fair	fair	codominant leaders, thin		retain
20633	Raywood ash	*Fraxinus oxycarpa* 'Raywood'	5	5	7	poor	fair	deadwood, one-sided, thin, trunk decay, Central leader cut, two lateral leaders remain	exempt (<8" DBH)	retain
20634	Raywood ash	*Fraxinus oxycarpa* 'Raywood'	8	8	12	fair	poor	one-sided, thin, central leader cut, two lateral leaders remain		retain
20635	elm	*Ulmus sp.*	2	2	8	good	good		exempt (<8" DBH)	retain
20636	Raywood ash	*Fraxinus oxycarpa* 'Raywood'	16	16	25	fair	fair	lean, one-sided, heavy end weight, trunk wound south side		retain
20654	flowering cherry	*Prunus serrulata*	29	29	26	good	fair	crossing leaders		retain
20655	flowering cherry	*Prunus serrulata*	13	13	14	good	fair	one-sided		retain
20656	flowering cherry	*Prunus serrulata*	15	15	15	good	good			remove
20657	flowering cherry	*Prunus serrulata*	26	26	25	fair	poor	deadwood, one-sided, trunk decay, depressed soil in west side		remove
20658	flowering cherry	*Prunus serrulata*	23	23	18	good	fair	crossing leaders, epicormic branches		remove
20659	flowering cherry	*Prunus serrulata*	23	23	15	fair	fair	fewer leaders than neighboring cherry trees, epicormic branches		retain
20660	flowering cherry	*Prunus serrulata*	21	21	16	good	good			retain
20661	flowering cherry	*Prunus serrulata*	26	26	16	good	good			retain
20662	flowering cherry	*Prunus serrulata*	30	30	20	good	fair	lean, lacks buttress roots on northeast side		retain
20711	Raywood ash	*Fraxinus oxycarpa* 'Raywood'	4	4	8	good	good		exempt (<8" DBH)	remove
20712	Street Keeper® honey locust	*Gleditsia tricanthos* 'Draves'	3	3	7	fair	good	thin	exempt (<8" DBH)	remove
20713	Street Keeper® honey locust	*Gleditsia tricanthos* 'Draves'	4	4	8	fair	good	thin	exempt (<8" DBH)	remove
20714	Street Keeper® honey locust	*Gleditsia tricanthos* 'Draves'	4	4	8	fair	good	thin	exempt (<8" DBH)	remove
20762	Autumn Blaze red maple	*Acer × freemanii*	5	5	8	good	good		exempt (<8" DBH)	remove
21015	northern red oak	*Quercus rubra*	22	22	22	good	fair	codominant leaders		remove
21120	white poplar	*Populus alba*	8	8	8	fair	poor	lean, one-sided, inaccessible, diameter estimated		remove
21121	white poplar	*Populus alba*	12	12	12	fair	fair	lean, one-sided, inaccessible, diameter estimated		remove
21122	white poplar	*Populus alba*	12	12	12	fair	fair	lean, one-sided, inaccessible, diameter estimated		remove
21123	white poplar	*Populus alba*	12	12	12	fair	fair	lean, one-sided, inaccessible, diameter estimated		remove
21124	white poplar	*Populus alba*	10,8	13	14	fair	poor	codominant leaders, lean, one-sided, inaccessible, diameter estimated		remove

Todd Prager & Associates LLC

Attachment 3 - Tree Inventory - All Trees
LAM Research
9/7/2022 9/8/2022

Tree No.	Common Name	Scientific Name	DBH[1]	Single DBH[2]	C-Rad[3]	Condition[4]	Structure[4]	Comments	Exempt (less than 8-inches DBH or dead)	Treatment
21125	white poplar	*Populus alba*	12	12	10	fair	fair	lean, one-sided, inaccessible, diameter estimated		remove
21137	fruiting cherry	*Prunus sp.*	22	22	16	fair	poor	deadwood, thin, diameter measured at 2'		remove
21138	European white birch	*Betula pendula*	16	16	10	fair	fair	deadwood, lean, dead top		remove
21142	pear	*Pyrus sp.*	17,13	21	15	poor	poor	codominant leaders, deadwood, lean, thin, surrounded by small diameter English hawthorn and English ivy		remove
21144	sweet cherry	*Prunus avium*	9,8,8	14	8	very poor	very poor	codominant leaders, thin, not tagged, inaccessible, overgrown with English hawthorn and Himalayan blackberry	exempt (dead)	remove
21159	Street Keeper® honey locust	*Gleditsia tricanthos* 'Draves'	3	3	8	fair	good	thin	exempt (<8" DBH)	remove
21160	Street Keeper® honey locust	*Gleditsia tricanthos* 'Draves'	4	4	8	fair	good	thin	exempt (<8" DBH)	remove
21162	Street Keeper® honey locust	*Gleditsia tricanthos* 'Draves'	4	4	8	fair	good	thin	exempt (<8" DBH)	remove
21163	Street Keeper® honey locust	*Gleditsia tricanthos* 'Draves'	5	5	12	fair	good	thin	exempt (<8" DBH)	remove
21166	Street Keeper® honey locust	*Gleditsia tricanthos* 'Draves'	3	3	8	fair	good	thin	exempt (<8" DBH)	remove
21167	Street Keeper® honey locust	*Gleditsia tricanthos* 'Draves'	4	4	8	fair	good	thin	exempt (<8" DBH)	remove
21168	Street Keeper® honey locust	*Gleditsia tricanthos* 'Draves'	5	5	10	good	good		exempt (<8" DBH)	remove
21170	Street Keeper® honey locust	*Gleditsia tricanthos* 'Draves'	3	3	8	fair	good	thin	exempt (<8" DBH)	remove
21171	Street Keeper® honey locust	*Gleditsia tricanthos* 'Draves'	4	4	10	fair	good	thin	exempt (<8" DBH)	remove
21173	Street Keeper® honey locust	*Gleditsia tricanthos* 'Draves'	4	4	10	fair	good	thin	exempt (<8" DBH)	remove
21174	Street Keeper® honey locust	*Gleditsia tricanthos* 'Draves'	4	4	10	fair	good	thin	exempt (<8" DBH)	remove
21176	Street Keeper® honey locust	*Gleditsia tricanthos* 'Draves'	4	4	10	fair	good	thin	exempt (<8" DBH)	remove
21177	Street Keeper® honey locust	*Gleditsia tricanthos* 'Draves'	4	4	10	fair	good	thin	exempt (<8" DBH)	remove
21195	Raywood ash	*Fraxinus oxycarpa* 'Raywood'	4	4	8	good	good		exempt (<8" DBH)	remove
21211	Raywood ash	*Fraxinus oxycarpa* 'Raywood'	4	4	8	good	good		exempt (<8" DBH)	remove
21229	Raywood ash	*Fraxinus oxycarpa* 'Raywood'	4	4	8	good	good		exempt (<8" DBH)	remove
21272	Street Keeper® honey locust	*Gleditsia tricanthos* 'Draves'	3	3	8	poor	good	thin	exempt (<8" DBH)	retain
21291	Street Keeper® honey locust	*Gleditsia tricanthos* 'Draves'	2	2	8	poor	good	thin	exempt (<8" DBH)	retain
21297	Street Keeper® honey locust	*Gleditsia tricanthos* 'Draves'	1	1	5	very poor	poor	deadwood, thin	exempt (<8" DBH)	retain
21300	Street Keeper® honey locust	*Gleditsia tricanthos* 'Draves'	1	1	3	very poor	poor	deadwood, thin	exempt (<8" DBH)	retain
21303	Raywood ash	*Fraxinus oxycarpa* 'Raywood'	3	3	3	very poor	poor	deadwood, thin, dead top	exempt (<8" DBH, dead)	remove
21409	western redcedar	*Thuja plicata*	13,7,6	17	15	good	fair	codominant leaders		retain
21412	western redcedar	*Thuja plicata*	9	9	12	good	good			retain
21415	western redcedar	*Thuja plicata*	7	7	9	good	good		exempt (<8" DBH)	retain
21418	incense cedar	*Calocedrus decurrens*	15	15	12	good	good			retain
21422	flowering cherry	*Prunus serrulata*	8	8	6	poor	poor	deadwood, lean, trunk decay, diameter measured at 3.5'		remove
21423	flowering cherry	*Prunus serrulata*	6	6	12	fair	fair	deadwood, lean, one-sided, thin, diameter measures at 4.0'	exempt (<8" DBH)	remove
21425	flowering cherry	*Prunus serrulata*	8	8	6	fair	poor	deadwood, trunk decay, diameter measured at 3.0', diameter measured at 3.5'		remove
21426	Raywood ash	*Fraxinus oxycarpa* 'Raywood'	7	7	12	fair	good	deadwood	exempt (<8" DBH)	remove
21486	flowering cherry	*Prunus serrulata*	16	16	16	fair	fair	deadwood, lean, one-sided, thin		remove
21487	flowering cherry	*Prunus serrulata*	16	16	15	poor	poor	deadwood, one-sided, only two leaders		remove
21488	flowering cherry	*Prunus serrulata*	11	11	12	good	fair	one-sided		remove
21489	flowering cherry	*Prunus serrulata*	14	14	12	fair	fair	thin, only two leaders		remove
21490	flowering cherry	*Prunus serrulata*	15	15	12	poor	poor	one-sided, thin		remove
21491	flowering cherry	*Prunus serrulata*	15	15	12	fair	fair	deadwood, one-sided		remove
21492	flowering cherry	*Prunus serrulata*	15	15	15	fair	fair	deadwood, one-sided		remove
21493	flowering cherry	*Prunus serrulata*	14	14	15	good	fair	lean		remove
21494	flowering cherry	*Prunus serrulata*	15	15	15	good	good			remove
21495	flowering cherry	*Prunus serrulata*	18	18	15	good	fair	lean		remove
21496	flowering cherry	*Prunus serrulata*	12	12	10	good	good			remove
21497	flowering cherry	*Prunus serrulata*	15	15	12	good	fair	crossing leaders		remove
21498	flowering cherry	*Prunus serrulata*	18	18	16	good	good			remove
21499	flowering cherry	*Prunus serrulata*	19	19	15	good	good			remove
21500	flowering cherry	*Prunus serrulata*	3	3	4	good	good		exempt (<8" DBH)	remove

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Tree No.	Common Name	Scientific Name	DBH[1]	Single DBH[2]	C-Rad[3]	Condition[4]	Structure[4]	Comments	Exempt (less than 8-inches DBH or dead)	Treatment
21501	flowering cherry	*Prunus serrulata*	17	17	15	fair	fair	deadwood, lean, one-sided, thin		remove
21502	flowering cherry	*Prunus serrulata*	11	11	12	good	good			remove
21503	flowering cherry	*Prunus serrulata*	21	21	20	good	good			remove
21504	flowering cherry	*Prunus serrulata*	21	21	20	good	fair	trunk flare oddities		remove
21505	flowering cherry	*Prunus serrulata*	3	3	3	good	good		exempt (<8" DBH)	remove
21506	flowering cherry	*Prunus serrulata*	21	21	20	fair	fair	deadwood, trunk decay		remove
21507	flowering cherry	*Prunus serrulata*	3	3	4	good	good		exempt (<8" DBH)	remove
21508	flowering cherry	*Prunus serrulata*	26	26	22	good	good			remove
21514	flowering cherry	*Prunus serrulata*	25	25	22	poor	fair	deadwood, one-sided, thin		retain
21515	flowering cherry	*Prunus serrulata*	24	24	15	fair	fair	deadwood, one-sided, thin, epicormic branches		retain
21516	flowering cherry	*Prunus serrulata*	18	18	15	very poor	poor	deadwood, one-sided, thin	exempt (dead)	retain
21517	flowering cherry	*Prunus serrulata*	16	16	16	poor	fair	deadwood, one-sided, thin		remove
21518	flowering cherry	*Prunus serrulata*	17	17	16	fair	poor	one-sided, thin, only two leaders		remove
21520	Douglas-fir	*Pseudotsuga menziesii*	25	25	20	good	good			retain
21521	flowering cherry	*Prunus serrulata*	16	16	16	fair	fair	one-sided, thin, crossing leaders		retain
21522	Douglas-fir	*Pseudotsuga menziesii*	24	24	18	good	good			retain
21523	Douglas-fir	*Pseudotsuga menziesii*	23	23	20	good	fair	one-sided		retain
21524	Douglas-fir	*Pseudotsuga menziesii*	21	21	18	good	good			retain
21525	Douglas-fir	*Pseudotsuga menziesii*	20	20	15	poor	fair	deadwood, thin, high crown		remove
21526	flowering cherry	*Prunus serrulata*	16	16	12	poor	poor	deadwood, one-sided, thin, lower trunk oddity, only two leaders		remove
21527	flowering cherry	*Prunus serrulata*	15	15	18	fair	fair	one-sided, thin, only two leaders		remove
21528	flowering cherry	*Prunus serrulata*	17	17	20	good	fair	one-sided		remove
21529	flowering cherry	*Prunus serrulata*	25	25	18	good	fair	only two leaders		remove
21530	Douglas-fir	*Pseudotsuga menziesii*	21	21	20	good	fair	one-sided		remove
21531	Douglas-fir	*Pseudotsuga menziesii*	21	21	15	good	fair	high crown		remove
21532	Douglas-fir	*Pseudotsuga menziesii*	22	22	22	fair	fair	lean, one-sided, thin		remove
21533	flowering cherry	*Prunus serrulata*	18	18	14	poor	poor	deadwood, lean, one-sided, thin		remove
21534	Douglas-fir	*Pseudotsuga menziesii*	24	24	25	good	fair	lean, one-sided		remove
21535	Douglas-fir	*Pseudotsuga menziesii*	27	27	20	good	fair	one-sided		remove
21641	flowering cherry	*Prunus serrulata*	4	4	6	good	good		exempt (<8" DBH)	remove
21642	flowering cherry	*Prunus serrulata*	15	15	12	good	fair	trunk decay		remove
21643	flowering cherry	*Prunus serrulata*	15	15	15	fair	good	deadwood		remove
21645	flowering cherry	*Prunus serrulata*	14	14	8	fair	fair	deadwood, lacks buttress roots on west side		remove
21646	flowering cherry	*Prunus serrulata*	15	15	12	good	fair	one-sided, lacks buttress roots on east side		remove
21647	flowering cherry	*Prunus serrulata*	10	10	10	fair	fair	thin, two leaders		remove
21660	flowering cherry	*Prunus serrulata*	2	2	2	good	good		exempt (<8" DBH)	remove
21661	flowering cherry	*Prunus serrulata*	2	2	2	good	good		exempt (<8" DBH)	remove
21663	flowering cherry	*Prunus serrulata*	14	14	10	fair	poor	basal decay, deadwood, thin, trunk decay		remove
21664	flowering cherry	*Prunus serrulata*	14	14	10	good	fair	burls at trunk base		remove
21664	flowering cherry	*Prunus serrulata*	15	15	12	good	fair	deadwood, trunk decay, surface root damage and possibly lifting on east side		remove
21665	flowering cherry	*Prunus serrulata*	12	12	15	good	fair	lean, lacks buttress roots on east side		remove
21743	flowering cherry	*Prunus serrulata*	21	21	25	fair	fair	deadwood, one-sided, thin		retain
21744	northern red oak	*Quercus rubra*	23	23	25	fair	fair	deadwood, lean, one-sided, thin		retain
21797	zelkova	*Zelkova serrulata*	20	20	25	good	fair	codominant leaders, diameter measured at 2.5', epicormic branches		retain
21800	zelkova	*Zelkova serrulata*	19	19	25	good	fair	codominant leaders, one-sided, diameter measured at 3.5'		retain
21935	Honey locust	*Gleditsia tricanthos*	5	5	5	poor	fair	deadwood, lean, one-sided, thin	exempt (<8" DBH)	retain
21938	Honey locust	*Gleditsia tricanthos*	2	2	8	fair	good	deadwood, thin	exempt (<8" DBH)	retain
21939	Honey locust	*Gleditsia tricanthos*	4	4	10	good	fair	lean	exempt (<8" DBH)	retain
21940	Honey locust	*Gleditsia tricanthos*	5	5	10	fair	fair	deadwood, lean	exempt (<8" DBH)	retain
21941	Honey locust	*Gleditsia tricanthos*	4	4	8	fair	fair	deadwood, thin	exempt (<8" DBH)	retain
21942	Honey locust	*Gleditsia tricanthos*	5	5	10	fair	fair	deadwood, thin	exempt (<8" DBH)	retain

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Tree No.	Common Name	Scientific Name	DBH[1]	Single DBH[2]	C-Rad[3]	Condition[4]	Structure[4]	Comments	Exempt (less than 8-inches DBH or dead)	Treatment
22042	Honey locust	*Gleditsia tricanthos*	3	3	1	very poor	very poor	deadwood, lean, trunk decay, Irreversible state of decline	exempt (<8" DBH, dead)	retain
22043	Honey locust	*Gleditsia tricanthos*	6	6	8	good	good		exempt (<8" DBH)	retain
22044	Honey locust	*Gleditsia tricanthos*	6	6	8	fair	fair	deadwood, lean	exempt (<8" DBH)	retain
22045	Honey locust	*Gleditsia tricanthos*	3	3	4	poor	poor	deadwood, lean, thin	exempt (<8" DBH)	retain
22074	Raywood ash	*Fraxinus oxycarpa* 'Raywood'	12	12	15	fair	fair	deadwood, lean, thin, lacks trunk flare		retain
22075	Raywood ash	*Fraxinus oxycarpa* 'Raywood'	11	11	15	fair	good	deadwood, thin		retain
22076	Raywood ash	*Fraxinus oxycarpa* 'Raywood'	9	9	15	fair	good	basal decay, deadwood, thin, missing bark on west side		retain
22077	Raywood ash	*Fraxinus oxycarpa* 'Raywood'	13	13	16	good	good			retain
22131	Honey locust	*Gleditsia tricanthos*	5	5	7	fair	poor	deadwood, lean, thin	exempt (<8" DBH)	retain
22132	Honey locust	*Gleditsia tricanthos*	4	4	10	fair	fair	deadwood, lean, thin	exempt (<8" DBH)	retain
22133	Honey locust	*Gleditsia tricanthos*	6	6	10	fair	fair	deadwood, lean, thin	exempt (<8" DBH)	retain
22233	London planetree	*Platanus × acerifolia*	16	16	25	good	good			retain
22291	London planetree	*Platanus × acerifolia*	19	19	20	good	good			retain
22390	Raywood ash	*Fraxinus oxycarpa* 'Raywood'	11	11	14	fair	fair	deadwood, lean		remove
22390	littleleaf linden	*Tilia cordata*	15	15	28	good	fair	one-sided		remove
22395	Raywood ash	*Fraxinus oxycarpa* 'Raywood'	14	14	18	good	good			remove
22564	flowering cherry	*Prunus serrulata*	14	14	18	fair	fair	deadwood, one-sided, thin		remove
22565	flowering cherry	*Prunus serrulata*	23	23	12	fair	fair	deadwood, thin		remove
22566	flowering cherry	*Prunus serrulata*	21	21	15	fair	fair	deadwood, thin		remove
22567	flowering cherry	*Prunus serrulata*	17	17	16	good	good			remove
22568	flowering cherry	*Prunus serrulata*	22	22	18	fair	fair	deadwood, thin		remove
22569	flowering cherry	*Prunus serrulata*	22	22	18	fair	fair	deadwood, thin, trunk wound on south side		remove
22575	littleleaf linden	*Tilia cordata*	17	17	20	good	good			remove
22581	flowering cherry	*Prunus serrulata*	19	19	14	fair	good	deadwood		remove
22582	flowering cherry	*Prunus serrulata*	23	23	15	fair	fair	deadwood, crossing and fused leaders		remove
22583	flowering cherry	*Prunus serrulata*	3	3	5	good	good		exempt (<8" DBH)	remove
22584	flowering cherry	*Prunus serrulata*	3	3	4	good	good		exempt (<8" DBH)	remove
22585	flowering cherry	*Prunus serrulata*	3	3	4	good	good		exempt (<8" DBH)	remove
22586	flowering cherry	*Prunus serrulata*	16	16	16	good	fair	Crossing leaders, fused leaders, surface root damage		remove
22610	London planetree	*Platanus × acerifolia*	15	15	22	good	good			remove
22633	London planetree	*Platanus × acerifolia*	13	13	18	good	good			remove
22688	littleleaf linden	*Tilia cordata*	16	16	16	good	good			retain
22688.01	littleleaf linden	*Tilia cordata*	17	17	25	good	fair	codominant leaders, epicormic branches		retain
22688.02	littleleaf linden	*Tilia cordata*	13	13	15	good	fair	one-sided, epicormic branches off of trunk		retain
22688.03	littleleaf linden	*Tilia cordata*	15	15	18	good	fair	codominant leaders, lean, location approximated by arborist, closed trunk wound southeast side		retain
22688.04	littleleaf linden	*Tilia cordata*	12	12	18	fair	fair	one-sided, location approximated by arborist, epicormic branches off trunk		retain
22701	northern red oak	*Quercus rubra*	26	26	25	fair	good	thin, epicormic branches		retain
22702	northern red oak	*Quercus rubra*	27	27	30	good	fair	one-sided		retain
22774	littleleaf linden	*Tilia cordata*	11	11	20	good	good			retain
22791	northern red oak	*Quercus rubra*	25	25	18	good	good			retain
22792	littleleaf linden	*Tilia cordata*	16	16	26	good	fair	codominant leaders		retain
22819	northern red oak	*Quercus rubra*	26	26	20	good	good			retain
22830	northern red oak	*Quercus rubra*	13	13	20	good	fair	uneven bark on northwest side, three codominant leaders at 10'		retain
22833	northern red oak	*Quercus rubra*	14	14	20	good	fair	lean, one-sided		retain
22837	northern red oak	*Quercus rubra*	30	30	32	good	fair	girdling root northwest side, large diameter lateral leaders		retain
22870	littleleaf linden	*Tilia cordata*	13	13	20	good	fair	lean		retain
22871	littleleaf linden	*Tilia cordata*	14	14	20	good	good			retain
22898	littleleaf linden	*Tilia cordata*	15	15	18	good	fair	lean		retain
22940	London planetree	*Platanus × acerifolia*	10	10	15	fair	good	twig dieback		retain
22959	London planetree	*Platanus × acerifolia*	12	12	18	fair	good	thin, twig dieback		retain
22976	littleleaf linden	*Tilia cordata*	15	15	18	good	fair	one-sided		retain

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Tree No.	Common Name	Scientific Name	DBH[1]	Single DBH[2]	C-Rad[3]	Condition[4]	Structure[4]	Comments	Exempt (less than 8-inches DBH or dead)	Treatment
22980	littleleaf linden	*Tilia cordata*	16	16	20	good	fair	codominant leaders		retain
22985	littleleaf linden	*Tilia cordata*	14	14	16	good	good			retain
22987	littleleaf linden	*Tilia cordata*	15	15	18	good	fair	one-sided		retain
23097	littleleaf linden	*Tilia cordata*	14	14	20	good	fair	codominant leaders with inclusion, lean, one-sided		retain
23098	littleleaf linden	*Tilia cordata*	14	14	22	good	fair	codominant leaders with inclusion, one-sided		retain
23117	littleleaf linden	*Tilia cordata*	14	14	20	good	fair	one-sided, lacks trunk flare		retain
23120	littleleaf linden	*Tilia cordata*	13	13	18	good	good			retain
23276	littleleaf linden	*Tilia cordata*	16	16	22	good	fair	lean, one-sided, girdling roots		retain
23283	littleleaf linden	*Tilia cordata*	13	13	15	good	fair	codominant leaders, lean		retain
23284	littleleaf linden	*Tilia cordata*	13	13	20	good	fair	overextended limb		retain
23285	littleleaf linden	*Tilia cordata*	14	14	22	good	fair	codominant leaders, girdling roots		retain
23286	littleleaf linden	*Tilia cordata*	12	12	18	good	fair	codominant leaders		retain
23307	littleleaf linden	*Tilia cordata*	15	15	20	good	fair	fused and crossing leaders		retain
23307.01	littleleaf linden	*Tilia cordata*	14	14	18	good	fair	location approximated by arborist, fused and crossing leaders		retain
23308	littleleaf linden	*Tilia cordata*	13	13	18	good	fair	girdling roots		retain
23326	littleleaf linden	*Tilia cordata*	15	15	18	good	fair	one-sided		retain
23339	littleleaf linden	*Tilia cordata*	12	12	18	good	fair	codominant leaders, one-sided		retain
23389	littleleaf linden	*Tilia cordata*	17	17	25	good	good			retain
23391	littleleaf linden	*Tilia cordata*	16	16	23	good	fair	codominant leaders, girdling roots		retain
23392	littleleaf linden	*Tilia cordata*	16	16	20	good	fair	one-sided		retain
23393	littleleaf linden	*Tilia cordata*	12	12	18	good	fair	lean, one-sided		retain
23394	littleleaf linden	*Tilia cordata*	16	16	20	good	fair	codominant leaders, lean, one-sided		retain
23406	Douglas-fir	*Pseudotsuga menziesii*	21	21	25	good	good			retain
23407	Douglas-fir	*Pseudotsuga menziesii*	23	23	25	good	good			retain
23408	Douglas-fir	*Pseudotsuga menziesii*	29	29	26	good	good			retain
23410	Douglas-fir	*Pseudotsuga menziesii*	29	29	30	good	good			retain
23411	Douglas-fir	*Pseudotsuga menziesii*	11	11	10	fair	fair	deadwood, thin, suppressed		retain
23412	Douglas-fir	*Pseudotsuga menziesii*	27	27	25	good	good			retain
23413	Oregon white oak	*Quercus garryana*	32	32	25	fair	fair	trunk cavity, crowded leaders at 20, flush cuts		retain
23415	flowering cherry	*Prunus serrulata*	22	22	25	poor	fair	lean, trunk decay, overextended branches		retain
23416	flowering cherry	*Prunus serrulata*	23	23	30	poor	fair	lean, thin, overextended branches		retain
23417	Douglas-fir	*Pseudotsuga menziesii*	25	25	25	good	good			retain
23418	flowering cherry	*Prunus serrulata*	17	17	16	fair	fair	lean, one-sided		retain
23419	flowering cherry	*Prunus serrulata*	20	20	10	very poor	very poor	Fungal conk at base, two live leaders	exempt (dead)	retain
23420	flowering cherry	*Prunus serrulata*	17	17	20	fair	fair	basal decay, multiple burls		retain
23421	Douglas-fir	*Pseudotsuga menziesii*	14	14	16	good	good			retain
23422	Douglas-fir	*Pseudotsuga menziesii*	22	22	22	good	good			retain
23429	Douglas-fir	*Pseudotsuga menziesii*	14	14	15	good	good			remove
23432	Douglas-fir	*Pseudotsuga menziesii*	26	26	25	good	good			remove
23433	Douglas-fir	*Pseudotsuga menziesii*	44	44	28	good	good			retain
23434	Douglas-fir	*Pseudotsuga menziesii*	45	45	28	good	good			retain
23435	Douglas-fir	*Pseudotsuga menziesii*	31	31	30	good	good			retain
23474	Douglas-fir	*Pseudotsuga menziesii*	20	20	20	good	good			retain
23475	Douglas-fir	*Pseudotsuga menziesii*	12	12	15	good	fair	one-sided		retain
23476	Douglas-fir	*Pseudotsuga menziesii*	24	24	18	poor	good	thin		retain
23477	Douglas-fir	*Pseudotsuga menziesii*	20	20	18	good	good			retain
23478	Douglas-fir	*Pseudotsuga menziesii*	26	26	20	good	good			retain
23479	flowering cherry	*Prunus serrulata*	17	17	15	poor	poor	basal decay, deadwood, one-sided, thin, three leaders, change icon to deciduous		retain
23480	flowering cherry	*Prunus serrulata*	25	25	15	fair	fair	one-sided, thin		retain
23509	northern red oak	*Quercus rubra*	12	12	16	good	good			retain
23613	northern red oak	*Quercus rubra*	25	25	35	good	good			retain

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Tree No.	Common Name	Scientific Name	DBH[1]	Single DBH[2]	C-Rad[3]	Condition[4]	Structure[4]	Comments	Exempt (less than 8-inches DBH or dead)	Treatment
23613.01	northern red oak	*Quercus rubra*	20	20	25	fair	fair	lean, one-sided, thin, location approximated by arborist, location approximated by arborist		retain
23613.02	northern red oak	*Quercus rubra*	21	21	28	good	fair	one-sided, location approximated by arborist, location approximated by arborist		retain
23614	northern red oak	*Quercus rubra*	30	30	28	good	fair	one-sided		retain
23614.01	northern red oak	*Quercus rubra*	22	22	28	good	fair	one-sided, location approximated by arborist, location approximated by arborist		retain
23615	northern red oak	*Quercus rubra*	27	27	32	good	good			retain
23693	littleleaf linden	*Tilia cordata*	1	1	3	fair	good	thin, recommend removal of planting stakes and ties	exempt (<8" DBH)	retain
23715	northern red oak	*Quercus rubra*	11	11	12	poor	fair	codominant leaders, deadwood, thin, chlorotic		retain
23715.01	Japanese maple	*Acer palmatum*	11	11	12	good	good	location approximated by arborist, diameter measured at 1'		retain
23800	Douglas-fir	*Pseudotsuga menziesii*	49	49	25	good	good			retain
23801	bigleaf maple	*Acer macrophyllum*	6	6	15	fair	fair	lean, one-sided	exempt (<8" DBH)	retain
23803	Douglas-fir	*Pseudotsuga menziesii*	45	45	20	good	good			retain
23807	sweet cherry	*Prunus avium*	18	18	10	poor	fair	deadwood, lean, one-sided, thin		retain
24041	sweet cherry	*Prunus avium*	17	17	10	poor	fair	deadwood, lean, one-sided, thin		retain
24041.01	Douglas-fir	*Pseudotsuga menziesii*	10	10	12	good	good	location approximated by arborist		retain
24041.02	sweet cherry	*Prunus avium*	18	18	15	fair	fair	lean, one-sided, heavy ivy load		retain
24042	bigleaf maple	*Acer macrophyllum*	10	10	20	good	fair	lean, one-sided		retain
24042.01	bigleaf maple	*Acer macrophyllum*	10,7	12	10	fair	fair	codominant leaders with inclusion, lean, thin, location approximated by arborist		retain
24042.02	bigleaf maple	*Acer macrophyllum*	17	17	28	fair	fair	basal decay, lean, one-sided, location approximated by arborist		retain
24042.03	Douglas-fir	*Pseudotsuga menziesii*	14	14	14	fair	fair	lean, thin		retain
24049	cottonwood	*Populus trichocarpa*	30	30	20	good	good			retain
24049.01	cottonwood	*Populus trichocarpa*	18	18	15	good	fair	lean		retain
24049.02	cottonwood	*Populus trichocarpa*	26	26	20	good	fair	high crown		retain
24056	bigleaf maple	*Acer macrophyllum*	22	22	20	fair	fair	lean, one-sided, thin		retain
24057	bigleaf maple	*Acer macrophyllum*	10	10	15	fair	fair	one-sided, sweeping trunk		retain
24057.01	bigleaf maple	*Acer macrophyllum*	25	25	25	fair	poor	basal decay, codominant leaders, lean, trunk decay, location approximated by arborist, crossing leaders, standing leader, failed leader is a nurse log		retain
24057.02	Scoulers willow	*Salix scouleriana*	8,6,6	12	15	fair	poor	codominant leaders, lean, one-sided, location approximated by arborist		retain
24061	bigleaf maple	*Acer macrophyllum*	31	31	20	fair	fair	heavy ivy load distorts tree structure, diameter approximate		retain
24073	Scoulers willow	*Salix scouleriana*	18	18	10	good	fair	high crown		retain
3001	Douglas-fir	*Pseudotsuga menziesii*	26	26	32	good	fair	location approximated by arborist		retain
3002	bigleaf maple	*Acer macrophyllum*	16	16	30	poor	poor	location approximated by arborist		retain
3003	Douglas-fir	*Pseudotsuga menziesii*	26	26	20	good	good	location approximated by arborist		retain
3004	cottonwood	*Populus trichocarpa*	50	50	25	good	fair	location approximated by arborist		retain
3005	sweet cherry	*Prunus avium*	16	16	15	fair	fair	location approximated by arborist		retain
3006	bigleaf maple	*Acer macrophyllum*	8	8	12	fair	fair	location approximated by arborist		retain
3007	bigleaf maple	*Acer macrophyllum*	8	8	12	fair	fair	location approximated by arborist		retain
3008	Scoulers willow	*Salix scouleriana*	9	9	10	fair	fair	location approximated by arborist		retain
3009	Scoulers willow	*Salix scouleriana*	7	7	10	fair	poor	location approximated by arborist	exempt (<8" DBH)	retain
3010	bigleaf maple	*Acer macrophyllum*	17	17	20	poor	poor	location approximated by arborist		retain
3011	Douglas-fir	*Pseudotsuga menziesii*	17	17	20	poor	fair	location approximated by arborist		retain
3012	bigleaf maple	*Acer macrophyllum*	8	8	10	fair	poor	location approximated by arborist		retain
3013	Douglas-fir	*Pseudotsuga menziesii*	11	11	8	poor	poor	location approximated by arborist		retain
3014	Douglas-fir	*Pseudotsuga menziesii*	42	42	25	poor	poor	location approximated by arborist	exempt (dead)	retain
3015	flowering cherry	*Prunus serrulata*	13	13	10	fair	fair	location approximated by arborist		remove
3016	flowering cherry	*Prunus serrulata*	11	11	12	good	poor	location approximated by arborist		remove
3017	flowering cherry	*Prunus serrulata*	17	17	10	fair	fair	location approximated by arborist		remove
3018	flowering cherry	*Prunus serrulata*	14	14	120	good	fair	location approximated by arborist		remove
3019	flowering cherry	*Prunus serrulata*	12	12	10	good	good	location approximated by arborist		remove
3020	Autumn Blaze red maple	*Acer ×freemanii*	3	3	5	good	good	location approximated by arborist	exempt (<8" DBH)	remove
3021	northern red oak	*Quercus rubra*	26	26	35	good	good	location approximated by arborist		retain
3022	northern red oak	*Quercus rubra*	27	27	35	good	fair	codominant leaders with inclusion, location approximated by arborist		retain

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Tree No.	Common Name	Scientific Name	DBH[1]	Single DBH[2]	C-Rad[3]	Condition[4]	Structure[4]	Comments	Exempt (less than 8-inches DBH or dead)	Treatment
3023	zelkova	*Zelkova serrulata*	23	23	25	good	fair	diameter measured at 2', one-sided, crowded leaders at 6', location approximated by arborist		retain
3024	zelkova	*Zelkova serrulata*	14	14	16	good	fair	diameter measured at 4', codominant leaders, location approximated by arborist		retain
3025	northern red oak	*Quercus rubra*	22	22	28	good	fair	one-sided, location approximated by arborist		retain
3026	northern red oak	*Quercus rubra*	24	30	30	good	fair	one-sided, location approximated by arborist		retain
3027	northern red oak	*Quercus rubra*	19	19	20	fair	good	twig dieback, location approximated by arborist		retain
3028	northern red oak	*Quercus rubra*	25	25	30	good	fair	one-sided, crowded leader at 8', location approximated by arborist		retain
3029	northern red oak	*Quercus rubra*	19	19	28	fair	good	twig dieback, location approximated by arborist		retain
3030	northern red oak	*Quercus rubra*	20	20	35	good	fair	codominant leaders, location approximated by arborist		retain
3031	northern red oak	*Quercus rubra*	25	25	35	fair	good	twig dieback, location approximated by arborist		retain
3032	zelkova	*Zelkova serrulata*	18	18	30	fair	fair	diameter measured at 2', crowded leaders at 6', location approximated by arborist		retain
3033	zelkova	*Zelkova serrulata*	21	21	15	fair	fair	diameter measured at 2', crowded leaders at 6', location approximated by arborist		retain
3034	zelkova	*Zelkova serrulata*	22	22	30	good	fair	diameter measured at 3.5', crowded leaders at 6', location approximated by arborist		retain
3035	zelkova	*Zelkova serrulata*	18	18	30	good	fair	diameter measured at 4', crowded leaders at 6', location approximated by arborist		retain
3036	northern red oak	*Quercus rubra*	29	29	40	fair	fair	codominant leaders, twig dieback, location approximated by arborist		retain
3037	northern red oak	*Quercus rubra*	15	15	30	good	good	location approximated by arborist		retain
3038	northern red oak	*Quercus rubra*	18	18	25	fair	fair	twig dieback, one-sided, crowded leaders at 12', location approximated by arborist		retain

[1]**DBH** is the trunk diameter in inches.
[2]**Single DBH** is the trunk diameter of a multi-trunked tree converted to a single number according to the following formula: square root of the sum of all squared trunk diameters.
[3]**C-Rad** is the approximate crown radius in feet.
[4]**Condition** and **Structure** ratings range from very poor, poor, fair, to good.

Attachment 4
Tree Protection Recommendations

The following recommendations will help to ensure that the trees to be retained are adequately protected:

Before Construction Begins

1. Notify all contractors of tree protection procedures. For successful tree protection on a construction site, all contractors must know and understand the goals of tree protection.
    a. Hold a tree protection meeting with all contractors to explain the goals of tree protection.
    b. Have all contractors sign memoranda of understanding regarding the goals of tree protection. The memoranda should include a penalty for violating the tree protection plan. The penalty should equal the resulting fines issued by the local jurisdiction plus the appraised value of the tree(s) within the violated tree protection zone per the current Trunk Formula Method as outlined in the current edition of the ***Guide for Plant Appraisal*** by the Council of Tree & Landscape Appraisers. The penalty should be paid to the owner of the property.
2. Fencing
    a. Trees to remain on site will be protected by installation of tree protection fencing as shown in Attachment 1.
    b. The fencing should be put in place before the ground is cleared to protect the trees and the soil around the trees from disturbances.
    c. Fencing should be established by the project arborist based on the needs of the trees to be protected and to facilitate construction.
    d. Fencing should consist of 6-foot high steel fencing on concrete blocks or 6-foot metal fencing secured to the ground with 8-foot metal posts to prevent it from being moved by contractors, sagging, or falling down.
    e. Fencing should remain in the position that is established by the project arborist and not be moved without approval from the project arborist until final project approval.
3. Signage
    a. All tree protection fencing should have signage as follows so that all contractors understand the purpose of the fencing:

> **TREE PROTECTION ZONE**
>
> **DO NOT REMOVE OR ADJUST THE LOCATION OF THIS TREE PROTECTION FENCING**
> **UNAUTHORIZED ENCROACHMENT MAY RESULT IN FINES**
>
> Please contact the project arborist if alterations to the location of the tree protection fencing are necessary.
>
> Todd Prager, Project Arborist, 971-295-4835

    b. Signage should be placed every 75-feet or less.

During Construction

1. Protection Guidelines Within the Tree Protection Zones:
    a. No new buildings; grade change or cut and fill, during or after construction; new impervious surfaces; or utility or drainage field placement should be allowed within the tree protection zones.
    b. No traffic should be allowed within the tree protection zones. This includes but is not limited to vehicle, heavy equipment, or even repeated foot traffic.
    c. No storage of materials including but not limiting to soil, construction material, or waste from the site should be permitted within the tree protection zones. Waste includes but is not limited to concrete wash out, gasoline, diesel, paint, cleaner, thinners, etc.
    d. Construction trailers should not to be parked/placed within the tree protection zones.
    e. No vehicles should be allowed to park within the tree protection zones.
    f. No other activities should be allowed that will cause soil compaction within the tree protection zones.
2. The trees should be protected from any cutting, skinning or breaking of branches, trunks or woody roots.
3. The project arborist should be notified prior to the cutting of woody roots from trees that are to be retained to evaluate and oversee the proper cutting of roots with sharp cutting tools. Cut roots should be immediately covered with soil or mulch to prevent them from drying out.
4. Trees that have woody roots cut should be provided supplemental water during the summer months.
5. Any necessary passage of utilities through the tree protection zones should be by means of tunneling under woody roots by hand digging or boring with oversight by the project arborist.
6. Any deviation from the recommendations in this section should receive prior approval from the project arborist.

After Construction

1. Carefully landscape the areas within the tree protection zones. Do not allow trenching for irrigation or other utilities within the tree protection zones.
2. Carefully plant new plants within the tree protection zones. Avoid cutting the woody roots of trees that are retained.
3. Do not install permanent irrigation within the tree protection zones unless it is drip irrigation to support a specific planting or the irrigation is approved by the project arborist.
4. Provide adequate drainage within the tree protection zones and do not alter soil hydrology significantly from existing conditions for the trees to be retained.
5. Provide for the ongoing inspection and treatment of insect and disease populations that are capable of damaging the retained trees and plants.
6. The retained trees may need to be fertilized if recommended by the project arborist.
7. Any deviation from the recommendations in this section should receive prior approval from the project arborist.

Attachment 5
Assumptions and Limiting Conditions

1. Any legal description provided to the consultant is assumed to be correct. The site plans and construction information provided by Mackenzie was the basis of the information provided in this report.
2. It is assumed that this property is not in violation of any codes, statutes, ordinances, or other governmental regulations.
3. The consultant is not responsible for information gathered from others involved in various activities pertaining to this project. Care has been taken to obtain information from reliable sources.
4. Loss or alteration of any part of this delivered report invalidates the entire report.
5. Drawings and information contained in this report may not be to scale and are intended to be used as display points of reference only.
6. The consultant's role is only to make recommendations. Inaction on the part of those receiving the report is not the responsibility of the consultant.
7. The purpose of this report is to:
   - Provide tree removal findings and recommendations based on the proposed site and grading plans; and
   - Provide recommendations for adequately protecting the trees to be retained during construction.