



Todd Prager & Associates_{LLC}

MEMORANDUM

DATE: September 15, 2023

TO: Karl Regi (Koble Creative)

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

RE: Preliminary Tree Protection Plan for Proposed Residential Development
9815 & 9833 SE 17th Avenue, Milwaukie, OR 97222 / Tax lot ID 11E26DB01000,
11E26DB0200, and 11E26DB01201

Summary

A 42-unit cottage cluster housing development is proposed at 9815 and 9833 SE 17th Avenue in Milwaukie, Oregon. Sixty (60) trees over 6-inch in diameter (DBH) on or adjacent to the development site were inventoried. Thirty-five (35) onsite trees and 12 offsite trees are proposed for removal. One of the onsite trees proposed for removal is considered to be a Rare, Threatened, or Notable tree, tree 28, a 28-inch DBH Oregon white oak (*Quercus garryana*).

This report discusses how the proposed development meets the four standards: preservation, planting, protection, and soil volume. A payment of \$12,000.00 to the Tree Fund will meet preservation requirements. Fifty-six (56) mitigation trees are proposed to meet tree planting and canopy coverage requirements. Tree protection fencing and project arborist oversight during grading activities along the west and south property lines will protect offsite trees and trees in the ROW. Finally, soil will be either protected with tree protection fencing or amended to meet soil volume standards.

Background

The property is zoned moderate density residential (R-MD). The site area is approximately 2.6 acres or 107,740 square feet. The development will span three tax lots: 11E26DB01000, 11E26DB0200, and 11E26DB01201. There are no overlays on the property. The property is in Clackamas County. There are no applicable insect pest quarantines or control area orders related to this project.

Assignment

The assignment asked of our firm was:

1. Make one site visit to inventory existing onsite, right-of-way, and offsite trees.
2. Prepare a tree plan to meet City of Milwaukie tree code Chapter 16.32.042, Tree Preservation and Planting in Residential Zones.

Tree Inventory

The tree inventory was completed in February 2023. Sixty (60) trees were inventoried (Attachment 1). The following information was collected for each tree: tree number, common name, scientific name, diameter (DBH), canopy radius, canopy area, canopy multiplier, eligible canopy, tree health condition, tree structural condition, whether the tree is on the Milwaukie Rare, Threatened or Notable Tree List¹, whether the tree is on the Oregon Noxious Weed List or Milwaukie Invasive Tree List², whether the tree is on the Milwaukie Nuisance Tree List³, location (onsite, right-of-way, or offsite), pertinent comments, and treatment (remove or retain). A total of 37 trees are onsite and 23 trees are offsite. There is one onsite Rare, Threatened, or Notable tree, a 28-inch DBH Oregon white oak.

The tree numbers listed in Attachment 1 correspond to tree numbers on the tree protection plan in Attachment 2. Onsite trees and trees in the abutting right-of-way are tagged with aluminum tags. Offsite trees are not tagged.

Tree Preservation Standards (16.32.042.B)

At least 30 percent site canopy coverage or all existing site canopy coverage when the site has less than 30 percent existing canopy coverage, must be retained unless mitigation is provided. Table 1 is a summary of the mitigation requirements for tree preservation.

Table 1 Summary of mitigation requirements for tree preservation.

Onsite canopy after proposed removals	Mitigation fee:	Cumulative mitigation fee	Mitigation fee: Qualified Affordable Housing	Cumulative mitigation fee: Qualified Affordable Housing
<7.5% - 0%	\$4,000.00	\$4,000.00	\$2,000.00	\$2,000.00
<15% - 7.5%	\$4,000.00	\$8,000.00	\$2,000.00	\$4,000.00
<22.5% - 15%	\$4,000.00	\$12,000.00	\$2,000.00	\$6,000.00
<30% - 22.5%	\$4,000.00	\$16,000.00	\$2,000.00	\$8,000.00

There are 37 existing onsite trees. These trees provide a total of 24,020 square feet or 22 percent site canopy coverage. Thirty-five (35) onsite trees are proposed for removal to facilitate development. One of the trees proposed for removal is dead (tree 15) and six are nuisance species (trees 2, 37, 38, 38.1, 39, and 40). An additional 12 offsite trees are also proposed for removal, nine of which are nuisance species. Written consent from the neighboring property(s) will be required prior to issuance of the development permit.

Table 2 is a summary of the tree preservation standards and applicable mitigation requirements.

Table 2 Tree preservation and mitigation requirements for this project.

Site Area	40% Site Area	30% Site Area	Existing Canopy	Retained Canopy	Mitigation Fee
107,740 sq. ft.	43,096 sq. ft.	32,322 sq. ft.	24,020 sq. ft. (22%)	3,142 sq. ft. (3%)	\$12,000.00

¹ The Milwaukie Rare, Threatened, or Notable Species Tree List is provided in the City of Milwaukie Tree Crown Area Reference List. Applicants need to contact the City to discuss removal.

² The Milwaukie Invasive Tree List is provided in the City of Milwaukie Tree Crown Area Reference List.

³ Milwaukie Nuisance Tree List is provided in the City of Milwaukie Tree Crown Area Reference List.

Tree Planting Standards (16.32.042.C)

To achieve 40 percent canopy coverage or 43,096 square feet, an additional 39,954 square feet of tree canopy is needed (Table 2).

A variety of trees and shrubs were selected for planting. The proposed planting plan is provided in Attachment 4 and the proposed species, quantities, and coverage calculations are listed in Attachment 4. The minimum size of planted trees is 1.5-inch caliper for broadleaf trees and 5-foot tall for conifers. All proposed plants have access to more than 1,000 cubic feet of soil. Root barriers that extend a minimum of 18 inches deep are required near sidewalks and curbs.

Mitigation Standards (16.32.042.D)

Preservation standard

The existing trees provide a 22 percent site canopy coverage. Onsite canopy after proposed removals will be 3 percent. Therefore, a tree preservation mitigation fee of \$12,000 is required as summarized in Table 2 above.

Planting standard

The additional tree canopy needed to reach 40 percent coverage is 39,954. Fifty-one (51) proposed onsite trees will add 39,741 square feet of canopy coverage. An additional five (5) proposed ROW trees will add 4,907.5 square feet of canopy coverage. The total proposed canopy coverage is 44,648.5 square feet. Therefore, the proposed planting plan meets the planting standard. Please note that adjustments to the tree planting plan may need to be made if planned trees and shrubs are unavailable. Equivalent trees or shrubs listed on the City of Milwaukie Tree Crown Area Reference List will be selected if selected trees and shrubs are unavailable.

Tree Protection Standards (16.32.042.F)

A typical minimum tree protection zone allows encroachments no closer than a radius from a tree of .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.

The proximity of development to retained trees requires a performance path for tree protection. Offsite trees to the northwest, west, and south, will be protected with tree protection fencing. Proposed grading is preliminary and will need to be adjusted to preserve existing offsite trees. In the northwest corner, an access path consisting of a 6-inch-thick layer of coarse wood chips is recommended to protect soil and roots from compaction.

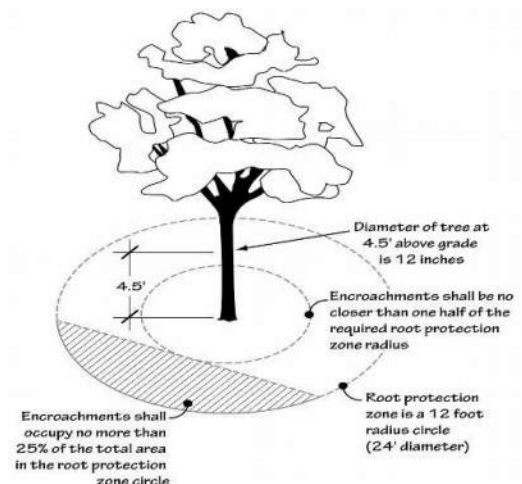


Figure 1: Typical minimum protection zone

The following performance path tree protection measures are recommended to retain the two onsite trees and 11 offsite trees:

- 1. Tree protection fencing – Approximately 580 linear feet:**
 - a. *Height:* Provide a minimum 4-foot-high metal fence.
 - b. *Posts & Spacing:* Place metal stakes no more than 10-feet apart.
 - c. *Existing Grade:* Install fencing flush with the initial undisturbed grade of the protection zone.
 - d. *Locations:* Install fencing as shown in Attachment 2.
 - e. *Staking:* Stake the footers into the ground so the fence cannot be easily moved.
- 2. Tree protection signage:**
 - a. Weatherproof tree protection signage shall be placed on tree protection fencing.
 - b. Signage should be placed every 10 feet.
 - c. See Attachment 7 for an example tree protection sign.
- 3. Tree protection fencing maintenance and removal:**
 - a. *Maintenance:* Maintain protection fencing in good effective condition at the approved and inspected location. Fencing that is damaged during site work shall be repaired and placed in the approved location prior to resuming work in the area. Failure to maintain tree protection fencing in the approved locations may result in a code violation.
 - b. *Removal:* Fencing must remain in place for the duration of the project until the final inspection.
- 4. Grading:** The proposed grading plan will need to be adjusted to protect roots from offsite trees. Grading limits are recommended on the grading plan in Attachment 4. The project arborist may also be onsite to monitor grading activities.
- 5. Erosion control:** Straw wattles should be used as erosion control in the southwest corner and northwest corner where protection zones exist. Do not trench or use sediment fencing where soil and root protection is proposed.
- 6. Soil and root protection:** An access path made of 6-inches of wood chips is recommended in the northwest corner as shown in Attachment 2. This will help to disperse compaction from repeated foot traffic where roots may be growing. No materials are to be stored on the access path nor shall heavy equipment be permitted to operate on the access path.
- 7. Directional felling:** Trees marked for removal shall be carefully removed using directional felling techniques. Efforts should be made to protect trees marked for preservation from damage during tree removal.
- 8. Project arborist oversight:**
 - a. The project arborist will oversee the following work:
 - i. The removal of trees 6, 7, 8, 10, and 12 which are inside tree protection fencing.
 - ii. Stump removal or stump grinding of trees 5, 6, 7, 8, 10, and 12 which are inside tree protection fencing.
 - iii. The arborist will provide written documentation of the work completed for the client.
- 9. Report sharing:** Share this report in its entirety with the project team and construction staff.

- 10. Additional tree protection recommendations:** Additional tree protection recommendations that generally apply to construction projects are provided in Attachment 8.

Soil Volume Standards (16.32.042.G)

Soil volume standards will be met with a combination of prescriptive and performance measures. Soil on the site is classified as 53A – Latourell loam or 93E – Xerochrepts and rock outcrop (Attachment 6). The 53A classification is a well-draining, loam soil suitable for planting. The 93E classification is a gravelly loam with unweathered bedrock below. This soil type is not considered suitable for planting. Since the majority of the site will be impacted by construction and associated grading, a performance soil plan is recommended for the majority of the site. The soil behind tree protection fencing should be protected from grading activities unless directed by the project arborist.

The following soil management practices are recommended to meet the required 1,000 cubic feet of soil volume with the capacity to support healthy growth to maturity per tree to be planted:

- 1. Soil testing and soil amendments.** After grading is completed, the compacted soil shall be tilled and amended with either an amended soil blend or compost to a depth of at least 24-inches deep. A soil test is recommended to determine the best soil treatment. *Note that soil amendment recommendations may differ across the site based on existing soil conditions.*
- 2. Area of soil amendments.** Soil within a 50-foot radius of proposed trees or shrubs must be amended or otherwise suitable for plant growth.

Submittal Requirements (16.32.042.H)

Requirements outlined in Subsection 16.32.042.H.4 are discussed below.

- a. *Provide a written narrative that summarizes the information from the tree inventory, tree preservation plan, and tree canopy plan.***

This report shall serve as the written narrative report that summarizes the information from the tree inventory (Attachment 1), tree preservation plan (Attachment 2), and tree canopy plan (Attachments 4 and 5). Therefore, this requirement is met.

- b. *Provide findings and calculations that demonstrate whether the tree preservation standards in Subsection 16.32.042.B have been met.***

Two onsite trees will be preserved. The existing tree canopy will be reduced from 22 to 3 percent. Therefore, a tree preservation mitigation fee of \$16,000.00 is required.

- c. *Provide findings and calculations that demonstrate whether the tree planting standards in Subsection 16.32.042.C have been met.***

Tree planting standards have been met through tree planting. Fifty-one (51) onsite trees, and five (5) ROW trees are proposed for planting (Attachments 4 and 5). Calculations are provided in Attachment 5. Therefore, this requirement is met.

- d. *If the tree preservation and/or tree planting standards have not been met, provide calculations for the applicable tree mitigation fees as required by Subsection 16.32.042.D.***

The tree preservation plan and tree planting plan standards have been met through a combination of tree preservation mitigation fees and tree planting. The preservation

standard will be met through payment of applicable fees of \$12,000, and 56 trees will be planted to meet the tree planting standard.

- e. If the applicant is seeking a variance to the tree preservation and/or tree planting standards in place of providing mitigation fees, provide findings that demonstrate the proposal provides equivalent or greater environmental benefits as preserving or planting the required tree canopy consistent as required by Subsection 16.32.042.E.***

The applicant is not seeking a variance to the tree preservation and/or tree planting standards. Therefore, this standard is not applicable.

- f. Provide findings that demonstrate compliance with the tree protection standards in Subsection 16.32.042.F.***

The recommended tree protection measures are in compliance with tree protection standards as described in the above paragraphs, in Attachment 2, and in Attachment 8. Therefore, this standard has been met.

- g. Provide findings that demonstrate compliance with the soil volume standards in Subsection 16.32.042.G.***

At least 1,000 cubic feet of soil volume is provided for every plant that is being applied toward meeting the City's canopy coverage requirement. The soil plan shows the areas of the site where soil will be amended for proposed plantings (Attachment 5). Therefore, this standard has been met.

Conclusion

The proposed 42-unit cottage development on SE 17th Avenue can meet the requirements set forth in the City of Milwaukie's Tree Code Chapter 16.32.042. Sixty (60) trees on and adjacent to the development site were inventoried. Thirty-five (35) onsite trees are proposed for removal. Fifty-six (56) trees will be planted to meet the 40 percent tree canopy coverage requirement. A fee of \$12,000.00 will be paid to the Tree Fund to meet mitigation standards for tree preservation.

Please let me know if you have any questions about the information or recommendations made in this report.

Sincerely,



Christine Johnson

ISA Certified Arborist®, PN-8730A

ISA Qualified Tree Risk Assessor

Member, American Society of Consulting Arborists

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Enclosures: Attachment 1 – Tree Inventory
Attachment 2 – Tree Preservation Plan
Attachment 3 – Grading Plan
Attachment 4 – Tree Planting and Soil Plan
Attachment 5 – Canopy Calculations
Attachment 6 – Soil Map
Attachment 7 – Tree Protection Signage
Attachment 8 – Additional Tree Protection Recommendations
Attachment 9 – Assumptions and Limiting Conditions

Attachment 1 - Tree Inventory
9815 9833 SE 17th Avenue

Tree No.	Common Name	Scientific Name	DBH ¹ (in)	Single DBH ² (in)	C-Rad ³ (ft)	Canopy Area ⁴ (ft ²)	Canopy Multiplier ⁵	Eligible Canopy ⁶	Health Condition ⁷	Structural Condition ⁷	Rare, Threatened, or Notable ⁸	Noxious or Invasive ⁹	Nuisance ¹¹	Location ¹⁰	Comments	Treatment
1	Oregon myrtle	<i>Umbellularia californica</i>	34	34	25	1963	0	0	good	fair	no	no	no	onsite	multiple upright leaders	remove
1.1	saucer magnolia	<i>Magnolia × soulangeana</i>	12,7,5,5,5	16	17	908	0	0	good	fair	no	no	no	onsite	multiple leaders at lower trunk, added to site map in approximate location by arborist	remove
1.2	sweet cherry	<i>Prunus avium</i>	17,15	19	17	908	0	0	good	fair	no	no	yes	offsite	codominant at ground level, extensive ivy, added to site map in approximate location by arborist	remove with neighbor's written consent
1.3	black locust	<i>Robinia pseudoacacia</i>	12	12	12	452	0	0	fair	fair	no	no	yes	offsite	one sided, extensive ivy, added to site map in approximate location by arborist	remove with neighbor's written consent
1.4	black locust	<i>Robinia pseudoacacia</i>	12,10,7,6,5	18	15	707	0	0	poor	poor	no	no	yes	offsite	multiple leaders at ground level, previously failed leader, added to site map in approximate location by arborist	remove with neighbor's written consent
1.5	black locust	<i>Robinia pseudoacacia</i>	10	10	15	707	0	0	poor	poor	no	no	yes	offsite	extreme lean, overtopped by adjacent trees, added to site map in approximate location by arborist	remove with neighbor's written consent
1.6	black locust	<i>Robinia pseudoacacia</i>	10,10,8,6,6,3,3	18	15	707	0	0	poor	poor	no	no	yes	offsite	multiple leaders at ground level, extreme lean, added to site map in approximate location by arborist	remove with neighbor's written consent
2	European birch	<i>Betula pendula</i>	10,10	14	10	314	0	0	poor	poor	no	no	yes	onsite	codominant at ground level, dead tops	remove
3	Douglas-fir	<i>Pseudotsuga menziesii</i>	20	20	15	707	0	0	good	fair	no	no	no	onsite	one sided	remove
4	Douglas-fir	<i>Pseudotsuga menziesii</i>	21	21	12	452	0	0	good	fair	no	no	no	onsite	one sided	remove
4.1	bigleaf maple	<i>Acer macrophyllum</i>	7	7	12	452	0	0	fair	fair	no	no	no	onsite	dead top, extensive ivy, added to site map in approximate location by arborist	remove
4.2	Oregon ash	<i>Fraxinus latifolia</i>	11	11	14	616	0	0	fair	fair	no	no	no	onsite	moderate branch dieback, added to site map in approximate location by arborist	remove
4.3	Douglas-fir	<i>Pseudotsuga menziesii</i>	42	42	25	1963	0	0	good	good	no	no	no	offsite	added to site map in approximate location by arborist	remove with neighbor's written consent
4.4	grand fir	<i>Abies grandis</i>	21	21	12	452	0	0	good	good	no	no	no	onsite		remove
5	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	stump	n/a
6	bigleaf maple	<i>Acer macrophyllum</i>	24	24	13	531	0	0	fair	fair	no	no	no	onsite	east/west crown growth suppressed by adjacent trees, extensive ivy	remove
6.1	bigleaf maple	<i>Acer macrophyllum</i>	12	12	7	154	0	0	fair	fair	no	no	no	offsite/ROW	one sided, overtopped by adjacent trees, added to site map in approximate location by arborist	retain
6.2	bigleaf maple	<i>Acer macrophyllum</i>	26	26	15	707	0	0	fair	fair	no	no	no	offsite/ROW	one sided, extensive ivy, added to site map in approximate location by arborist	retain
6.3	bigleaf maple	<i>Acer macrophyllum</i>	30	30	18	1018	0	0	poor	poor	no	no	no	offsite/ROW	decay at root crown, extensive ivy, one sided, added to site map in approximate location by arborist	retain
6.4	bigleaf maple	<i>Acer macrophyllum</i>	32	32	20	1257	0	0	poor	poor	no	no	no	offsite/ROW	extensive ivy, branch dieback, added to site map in approximate location by arborist	retain
7	Oregon myrtle	<i>Umbellularia californica</i>	10,10	14	15	707	0	0	good	fair	no	no	no	onsite	codominant at ground level	remove
8	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	same as tree 7	n/a
9	orchard apple	<i>Malus domestica</i>	16	16	10	314	0	0	poor	poor	no	no	no	onsite	significant dieback and decay	remove
9.1	orchard apple	<i>Malus domestica</i>	14,7	15	9	254	0	0	fair	fair	no	no	no	onsite	not maintained for fruit production, added to site map in approximate location by arborist	remove
10	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	not located	n/a
11	Douglas-fir	<i>Pseudotsuga menziesii</i>	22,16	27	18	1018	0	0	good	fair	no	no	no	offsite/ROW	codominant at ground level, one sided, added to site map in approximate location by arborist	retain
12	Oregon myrtle	<i>Umbellularia californica</i>	7,6,5	10	10	314	0	0	good	fair	no	no	no	onsite	one sided, multiple leaders at ground level	remove
13	Oregon myrtle	<i>Umbellularia californica</i>	7,6	9	8	201	0	0	good	fair	no	no	no	onsite	one sided, codominant at ground level	remove
14	Oregon myrtle	<i>Umbellularia californica</i>	6	6	6	113	0	0	good	fair	no	no	no	onsite	east/west crown growth suppressed by adjacent trees	remove
15	grand fir	<i>Abies grandis</i>	12	12	0	0	0	0	dead	dead	no	no	no	onsite	dead	remove
16	Oregon myrtle	<i>Umbellularia californica</i>	9	9	5	79	0	0	good	fair	no	no	no	onsite	one sided, codominant at 7'	remove
17	bigleaf maple	<i>Acer macrophyllum</i>	12,9	15	9	254	0	0	good	fair	no	no	no	onsite	one sided, codominant at ground level	remove
18	Oregon myrtle	<i>Umbellularia californica</i>	9	9	11	380	0	0	good	good	no	no	no	onsite		remove
19	Oregon myrtle	<i>Umbellularia californica</i>	6	6	7	154	0	0	good	fair	no	no	no	onsite	one sided	remove
20	bigleaf maple	<i>Acer macrophyllum</i>	9	9	10	314	0	0	good	fair	no	no	no	onsite	one sided	remove



Attachment 1 - Tree Inventory
9815 9833 SE 17th Avenue

Tree No.	Common Name	Scientific Name	DBH ¹ (in)	Single DBH ² (in)	C-Rad ³ (ft)	Canopy Area ⁴ (ft ²)	Canopy Multiplier ⁵	Eligible Canopy ⁶	Health Condition ⁷	Structural Condition ⁷	Rare, Threatened, or Notable ⁸	Noxious or Invasive ⁹	Nuisance ¹¹	Location ¹⁰	Comments	Treatment
21	bigleaf maple	<i>Acer macrophyllum</i>	20,16,12,5, 7,6	33	25	1963	0	0	fair	fair	no	no	no	onsite	stump sprout	remove
21.1	Douglas-fir	<i>Pseudotsuga menziesii</i>	20	20	10	314	0	0	good	fair	no	no	no	onsite	moderately one sided, added to site map in approximate location by arborist	remove
21.2	bigleaf maple	<i>Acer macrophyllum</i>	16	16	14	616	0	0	fair	fair	no	no	no	onsite	one sided, branch dieback, added to site map in approximate location by arborist	remove
22	orchard apple	<i>Malus domestica</i>	23	23	12	452	0	0	poor	poor	no	no	no	onsite	history of branch failure, branch dieback	remove
22.1	orchard apple	<i>Malus domestica</i>	21	21	10	314	0	0	poor	poor	no	no	no	onsite	history of branch failure, branch dieback, added to site map in approximate location by arborist	remove
23	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	not located	n/a
24	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	not located	n/a
25	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	not located	n/a
26	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	not located	n/a
27	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	not located	n/a
28	Oregon white oak	<i>Quercus garryana</i>	28	28	18	1018	0	0	good	fair	yes	no	no	onsite	moderately one sided, multiple upright leaders	remove
28.1	bigleaf maple	<i>Acer macrophyllum</i>	20,18	26	20	1257	0	1257	fair	fair	no	no	no	onsite	codominant at ground level, covered with ivy, added to site map in approximate location by arborist	retain
28.2	bigleaf maple	<i>Acer macrophyllum</i>	16,14,12	24	24	1810	0	0	good	fair	no	no	no	offsite	multiple leaders at lower trunk, added to site map in approximate location by arborist	retain
29	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	not located	n/a
30	bigleaf maple	<i>Acer macrophyllum</i>	20,6,3,3,3,3	21	20	1257	1.5	1885	good	fair	no	no	no	onsite	multiple leaders at ground level, tree splits property line	retain
30.1	bigleaf maple	<i>Acer macrophyllum</i>	18	18	25	1963	0	0	good	fair	no	no	no	offsite	moderately one sided, multiple leaders at 20', overextended branch into site, added to site map in approximate location by arborist	retain
30.2	sweet cherry	<i>Prunus avium</i>	8	8	25	1963	0	0	fair	poor	no	no	yes	offsite	extreme lean with lower crown into site, added to site map in approximate location by arborist	remove
30.3	sweet cherry	<i>Prunus avium</i>	4	4	15	707	0	0	fair	poor	no	no	yes	offsite	extreme lean with lower crown into site, added to site map in approximate location by arborist	remove
30.4	English hawthorn	<i>Crataegus monogyna</i>	7,5	8	15	707	0	0	fair	poor	no	yes	no	offsite	lean with lower crown into site, added to site map in approximate location by arborist	retain
30.5	bigleaf maple	<i>Acer macrophyllum</i>	8	8	20	1257	0	0	fair	fair	no	no	no	offsite	lean into site, one sided, wound seam at lower trunk, added to site map in approximate location by arborist	retain
30.6	sweet cherry	<i>Prunus avium</i>	8,8	11	15	707	0	0	poor	poor	no	no	yes	offsite	overtopped by adjacent trees, significant lean into site, branch dieback and failures, added to site map in approximate location by arborist	remove
31	Douglas-fir	<i>Pseudotsuga menziesii</i>	28	28	16	804	0	0	good	good	no	no	no	offsite		retain
32	Douglas-fir	<i>Pseudotsuga menziesii</i>	36	36	22	1520	0	0	good	good	no	no	no	offsite		retain
33	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	not located	n/a
34	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	not located	n/a
35	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	not located	n/a
36	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	not located	n/a
37	black locust	<i>Robinia pseudoacacia</i>	5	5	8	201	0	0	good	good	no	no	yes	onsite		remove
38	black locust	<i>Robinia pseudoacacia</i>	11,5,4,3	13	13	531	0	0	good	fair	no	no	yes	onsite	multiple leaders at ground level	remove
38.1	black locust	<i>Robinia pseudoacacia</i>	6,5,5	9	12	452	0	0	good	fair	no	no	yes	onsite	multiple leaders at ground level, added to site map in approximate location by arborist	remove
38.2	Scots pine	<i>Pinus sylvestris</i>	6	6	6	113	0	0	good	good	no	no	no	offsite	added to site map in approximate location by arborist	remove with neighbor's written consent
38.3	Scots pine	<i>Pinus sylvestris</i>	4	4	6	113	0	0	good	fair	no	no	no	offsite	previously lost top with new top at 7', added to site map in approximate location by arborist	remove with neighbor's written consent
39	black locust	<i>Robinia pseudoacacia</i>	8,7	113	12	452	0	0	good	fair	no	no	yes	onsite	moderately one sided	remove

Attachment 1 - Tree Inventory
9815 9833 SE 17th Avenue

Tree No.	Common Name	Scientific Name	DBH ¹ (in)	Single DBH ² (in)	C-Rad ³ (ft)	Canopy Area ⁴ (ft ²)	Canopy Multiplier ⁵	Eligible Canopy ⁶	Health Condition ⁷	Structural Condition ⁷	Rare, Threatened, or Notable ⁸	Noxious or Invasive ⁹	Nuisance ¹¹	Location ¹⁰	Comments	Treatment
40	black locust	<i>Robinia pseudoacacia</i>	17	17	12	452	0	0	good	fair	no	no	yes	onsite	multiple leaders at lower trunk	remove
41	Douglas-fir	<i>Pseudotsuga menziesii</i>	37	37	28	2463	0	0	good	good	no	no	no	onsite		remove
42	European beech	<i>Fagus sylvatica</i>	25	25	29	2642	0	0	good	fair	no	no	no	onsite	codominant at 10' with included bark	remove
43	Douglas-fir	<i>Pseudotsuga menziesii</i>	7	7	7	154	0	0	good	good	no	no	no	onsite		remove
43.1	black locust	<i>Robinia pseudoacacia</i>	13	13	15	707	0	0	fair	fair	no	no	yes	offsite	extensive ivy, added to site map in approximate location by arborist	remove with neighbor's written consent

¹DBH is the trunk diameter in inches measured at 4.5 feet above ground level per International Society of Arboriculture (ISA) standards.

²Single DBH is the trunk diameter in inches of a multi-stem tree converted to a single number according to the following formula: square root of the sum of the squared diameter of each trunk at 4.5 feet above mean ground level.

³C-Rad is the approximate average crown radius in feet.

⁴Canopy Area is canopy or dripline area of the tree in square feet according to the following formula: (C-Rad)² times π.

⁵Canopy Multiplier is the multiplier for onsite trees retained that are over 12-inch DBH and in good condition as follows:

DBH	Multiplier
12" - <20"	125%
20" - >36"	150%
>36"	175%

⁶Eligible Canopy is canopy area times the multiplier for retained, onsite trees in good condition.

⁷Health Condition and Structural Condition ratings range from dead or very poor, poor, fair, to good.

⁸Rare, Threatened, or Notable are trees highlighted as Rare, Threatened, or Notable Species on the City of Milwaukie Tree Crown Area Reference List. The City should be contacted to discuss removal.

⁹Noxious or Invasive are trees on the Oregon Noxious Weed List. Species include: English hawthorn (*Crataegus monogyna*), Tree-of-heaven (*Ailanthus altissima*). These trees are not included in total canopy coverage calculations.

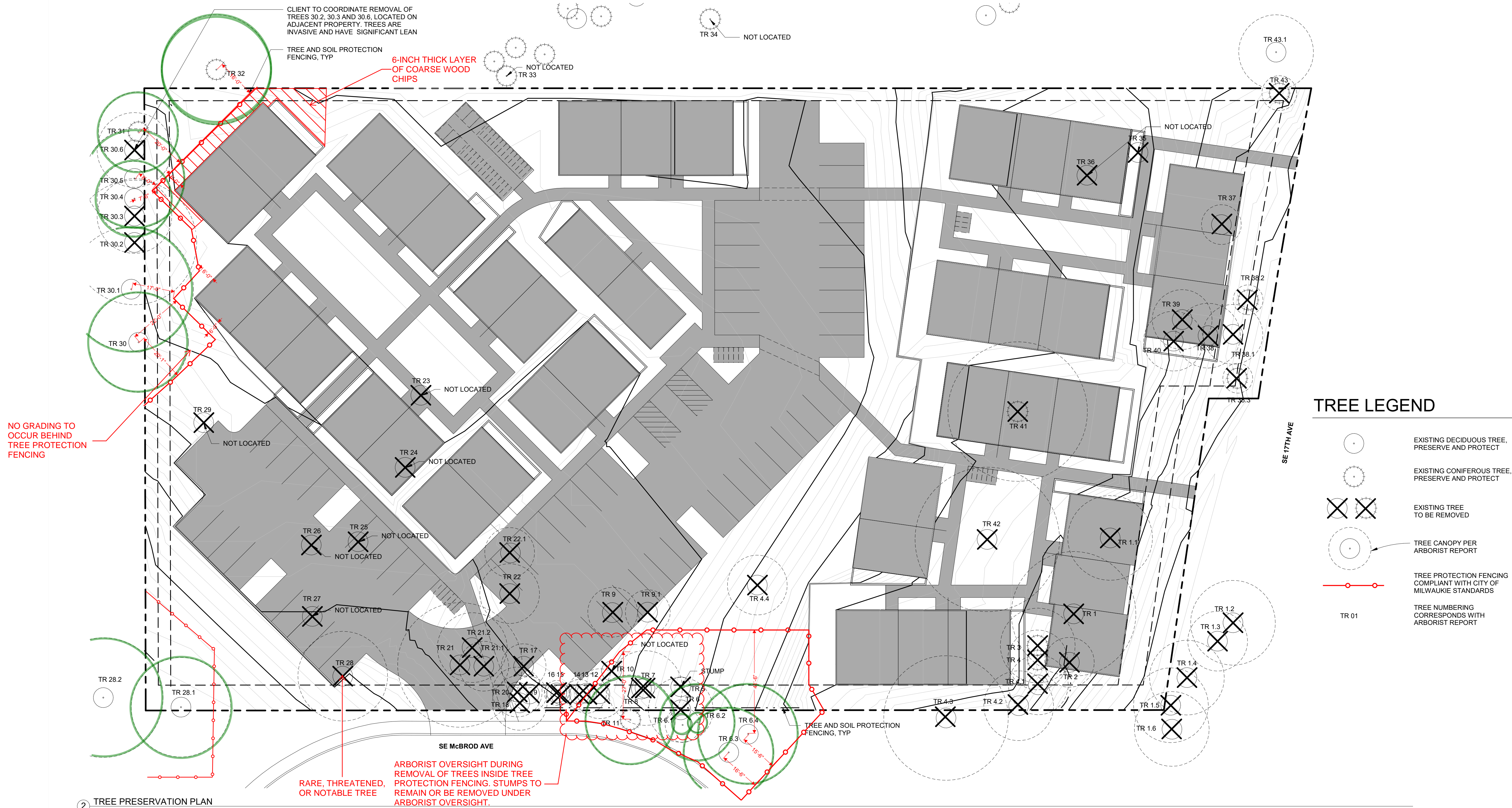
¹⁰Nuisance are trees highlighted as Potential Nuisance Species on the City of Milwaukie Tree Crown Area Reference List.

¹¹Location lists trees as either onsite or offsite, such as on the adjacent property(s) or in the public right of way. When the trunk of a tree crosses a property line at ground level it is considered an onsite tree for the purposes of tree preservation standards.

Attachment 2 - Tree Preservation Plan

Preliminary

09/15/2023



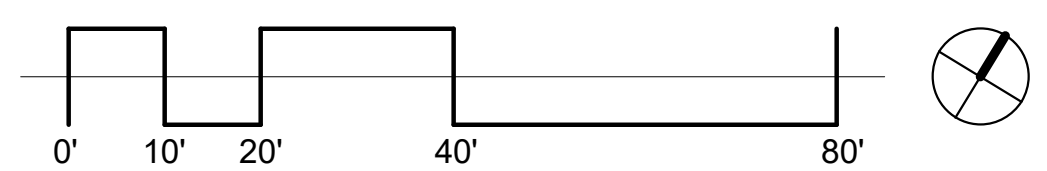
TREE LEGEND

- EXISTING DECIDUOUS TREE, PRESERVE AND PROTECT
- EXISTING CONIFEROUS TREE, PRESERVE AND PROTECT
- EXISTING TREE TO BE REMOVED
- TREE CANOPY PER ARBOURIST REPORT
- TREE PROTECTION FENCING COMPLIANT WITH CITY OF MILWAUKIE STANDARDS
- TREE NUMBERING CORRESPONDS WITH ARBOURIST REPORT

2 TREE PRESERVATION PLAN
1" = 20'-0"

SITE DISTURBANCE NOTES

- (1) Demolition - An existing house on the east side of the site will be demolished.
- (2) Tree removal - Forty-seven (47) trees are proposed for removal as shown above.
- (3) Staging, storage, and construction access - Construction access will be primarily from SE McBrod Avenue. Materials are to be staged and stored outside of root protection area.
- (4) Grading and filling - No grading or filling is to occur in the root protection area.
- (5) Paving - No paving is proposed near the protected off site tree.
- (6) Construction of structures, foundations, and walls - All proposed structures are show on this site plan.
- (7) Utility construction - No utilities are proposed near the root protection area.
- (8) Trenching and boring - No boring or trenching is proposed near the root protection area.
- (9) Excavation - The project arborist does not need to be on site for any excavation work.
- (10) Any other demolition or construction activities that could result in ground disturbances and/or tree damage - There are no other known demolition or construction activities in the root protection area.



/kōblə/CREATIVE
Koble Creative Architecture LLC
Portland, Oregon / koblecreative.com

preliminary
not for
construction

homegrown
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3605 SE 16TH AVE
PORTLAND, OR 97202
keelin@homegrownarch.com

Milwaukie Cottages
9815 & 9833 SE 17th Ave.
Milwaukie, OR 97222

DATE: 08/30/2023
DRAWN BY: KF
JOB NO: 22-042
REV NO:

TREE PRESERVATION PLAN

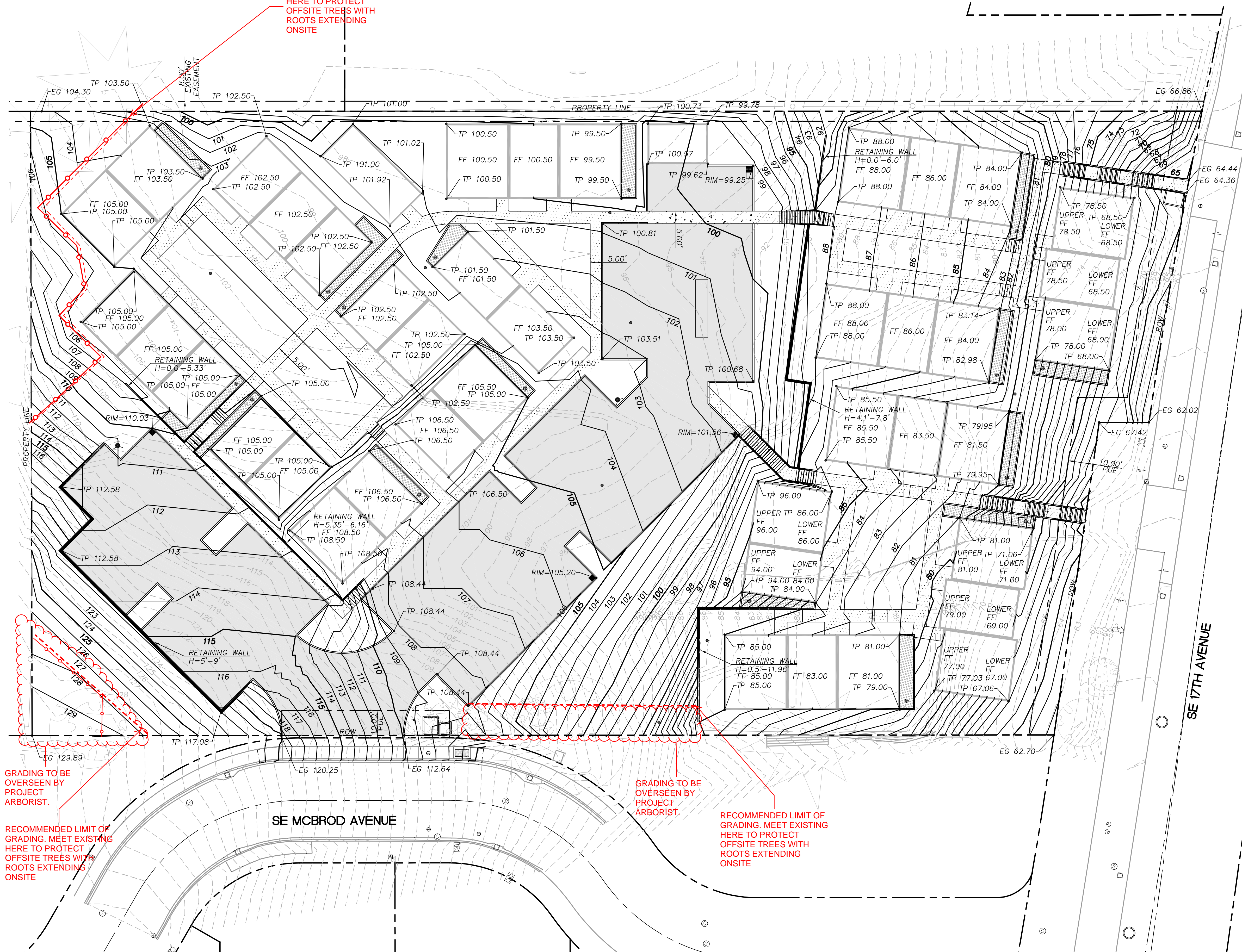
L1
Land-Use App
© 2023

Preliminary

09/15/2023

Attachment 3 - Grading Plan

RECOMMENDED LIMIT OF GRADING. MEET EXISTING HERE TO PROTECT OFFSITE TREES WITH ROOTS EXTENDING ONSITE



GRADING TO BE OVERSEEN BY PROJECT ARBORIST.

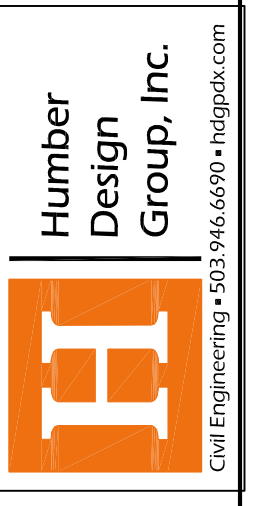
RECOMMENDED LIMIT OF GRADING. MEET EXISTING HERE TO PROTECT OFFSITE TREES WITH ROOTS EXTENDING ONSITE

GRADING TO BE OVERSEEN BY PROJECT ARBORIST.

RECOMMENDED LIMIT OF GRADING. MEET EXISTING HERE TO PROTECT OFFSITE TREES WITH ROOTS EXTENDING ONSITE

SHEET LEGEND		
ITEM	DESCRIPTION	DETAIL
---	EXISTING COUNTOUR	
---	PROPOSED COUNTOUR	
[Pattern]	CONCRETE SIDEWALK	
[Pattern]	ASPHALT PAVEMENT	
[Pattern]	CONCRETE PAVEMENT	
G XXX.XX	GRADE AT GUTTER	
TC XXX.XX	GRADE AT TOP OF CURB	
TP XXX.XX	GRADE AT TOP OF PAVEMENT	
TF XXX.XX	GRADE AT TOP OF FOOTING	
FF XX.XX	FINISH FLOOR ELEVATION	
FG XXX.XX	FINISHED GRADE	
TW XXX.XX	GRADE AT TOP OF WALL	
EG XXX.XX	EXISTING GRADE	
(E)	EXISTING	
X.XX%	SLOPE ARROW	
GB	GRADE BREAK	

/koble/CREATIVE
Koble Creative Architecture LLC
Portland, Oregon / koblecreative.com

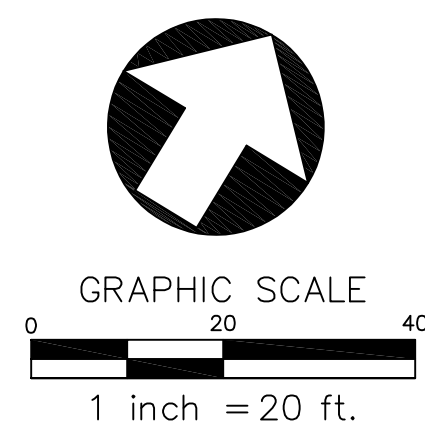


Milwaukie Cottages
9815 & 9833 SE 17th Ave.
Milwaukie, OR 97222

DATE: 09/08/2023
DRAWN BY: NEG
JOB NO: 22-042
REV NO:

LAYOUT AND GRADING PLAN

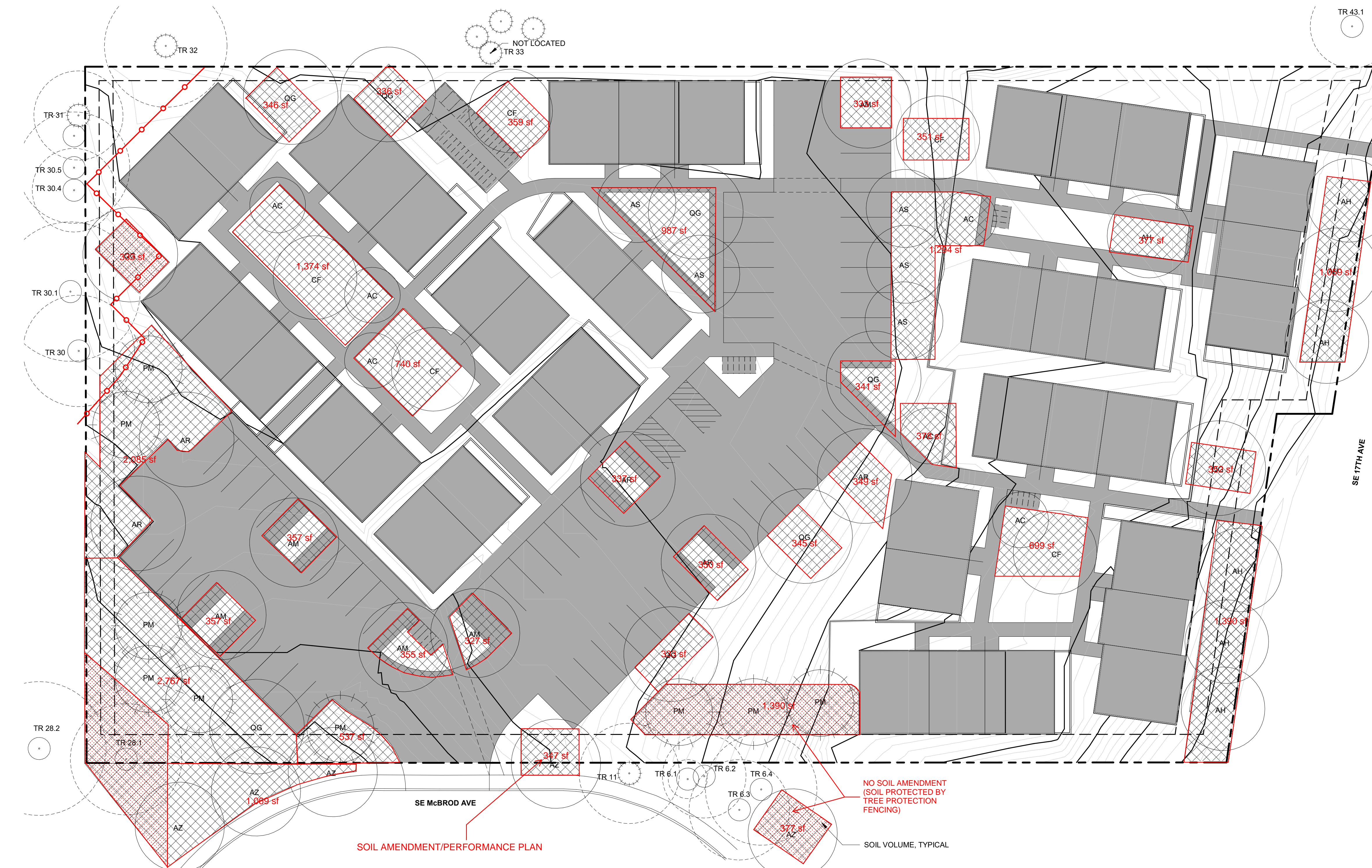
C100



LAYOUT AND GRADING PLAN
SCALE: 1"=20'

Land-Use App
© 2023

Attachment 4 - Tree Planting and Soil Plan



TREE SCHEDULE

AM	ACER MACROPHYLLUM BIGLEAF MAPLE 1.5" CALIPER, B&B QUANTITY: 5
AH	ALNUS RHOMBIFOLIA WHITE ALDER 1.5" CALIPER, B&B QUANTITY: 7
AR	ACER RUBRUM 'FRANKSRED' FRANKSRED MAPLE 1.5" CALIPER, B&B QUANTITY: 5
AS	ACER SACCHARUM 'GREEN MTN' GREEN MOUNTAIN MAPLE 1.5" CALIPER, B&B QUANTITY: 5
AZ	ARBUTUS MENZIESII PACIFIC MADDRONE 1.5" CALIPER, B&B QUANTITY: 5 LOCATED IN R.O.W. ALONG SE McBROD AVENUE
CF	CORNUS FLORIDA EASTERN FLOWERING DOGWOOD 1.5" CALIPER, B&B QUANTITY: 5
PM	PSEUDOTSUGA MENZIESII DOUGLAS-FIR 5 FOOT HEIGHT QUANTITY: 9
QG	QUERCUS GARRYANA OREGON WHITE OAK 1.5" CALIPER, B&B QUANTITY: 9

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not for
construction

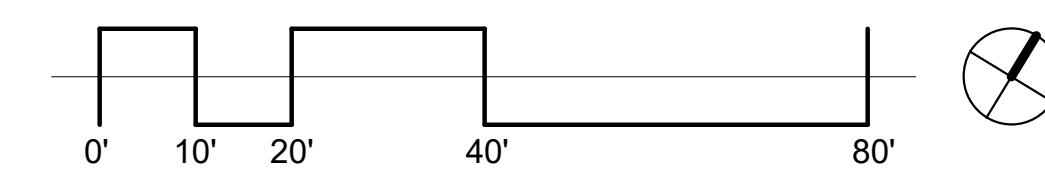
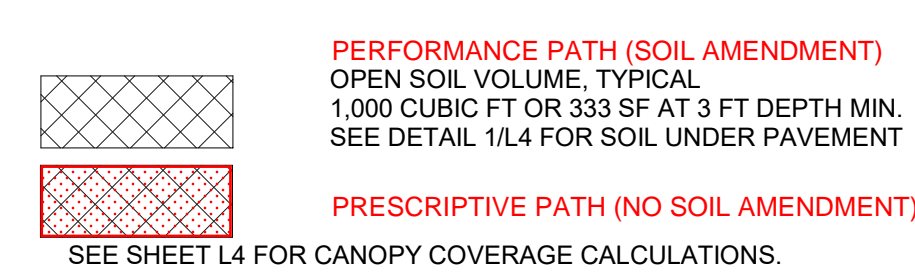
homegrown
ARCHITECTURE LLC
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Milwaukie Cottages
9815 & 9833 SE 17th Ave.
Milwaukie, OR 97222

DATE: 08/30/2023
DRAWN BY: KF
JOB NO: 22-042
REV NO:

1 TREE PLANTING PLAN
1" = 20'-0"

SOIL VOLUME LEGEND



TREE PLANTING PLAN

Attachment 5 - Canopy Calculations

CANOPY CALCULATIONS

Trees on Property - 100% of crown area applies									
Tree No.	Common Name	Scientific Name	DBH	Existing Crown Area	Future Mature Crown Area	Crown Area used in calculation	Canopy Multiplier	Eligible Canopy	Notes
28.1	Bigleaf maple	Acer macrophyllum	26	1257	1257	1257	0	1257	
30	Bigleaf maple	Acer macrophyllum	21	1257	1257	1257	1.5	1885	

--- DOES NOT APPLY --- NO ON-SITE TREES PRESERVED ---

Total Crown Area for on-site trees: -0 SF- 3142 SF

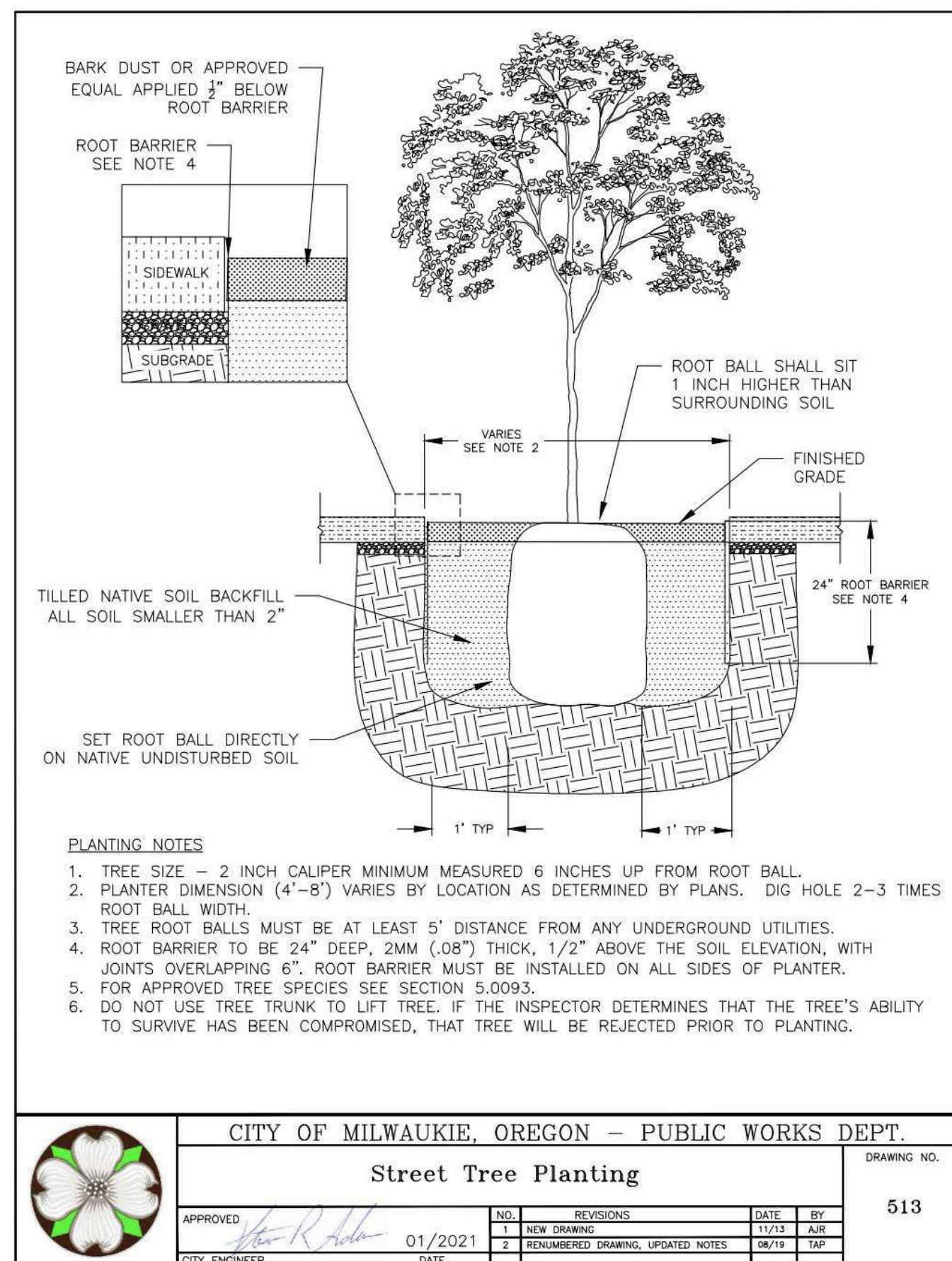
Trees in R.O.W. - 50% of crown area applies									
Tree No.	Common Name	Scientific Name	DBH	Existing Crown Area	Canopy Multiplier	Eligible Canopy	Notes		
DOES NOT APPLY - NO R.O.W. TREES PRESERVED									
Total Crown Area for R.O.W. trees:							0 SF		
Total Crown Area for on site and R.O.W.:							0 SF		

Required Canopy	
Property Size:	107,740 SF
40% Canopy Required:	43,096 SF
Existing Canopy:	3142 SF 0 SF
Additional Canopy to meet req.	43,096 SF

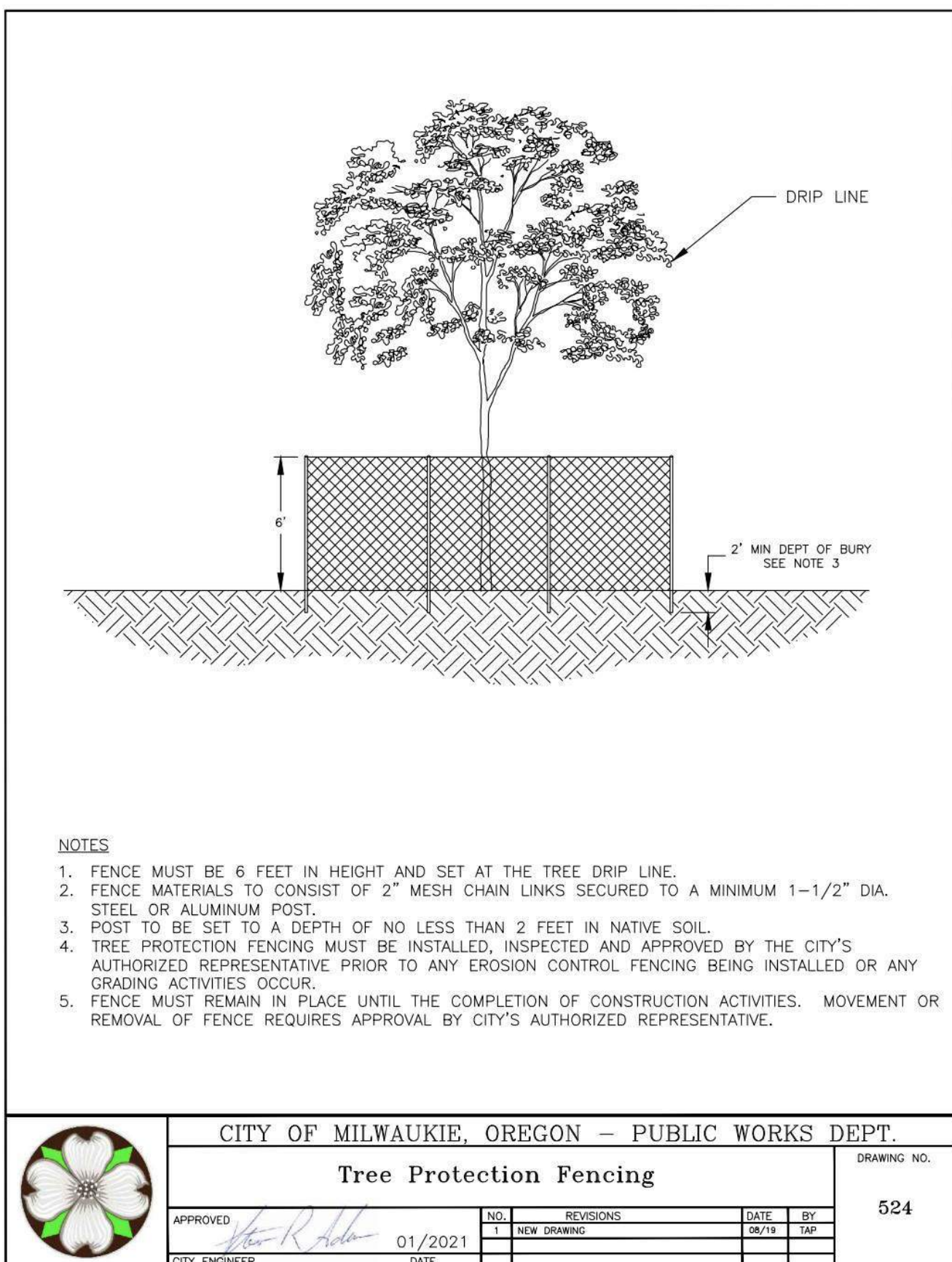
Canopy Multiplier	
R.O.W. Trees	0.5
DBH 12 - 20"	1
DBH 20 - 36"	1.25
DBH >36"	1.5

Trees Planted on Site				
Common Name	Scientific Name	75% Crown Area	Qty	Proposed Canopy
Bigleaf Maple	Acer macrophyllum	530.25	5	2651.25
Eastern Flowering Dogwood	Cornus florida	530.25	5	2651.25
Franksred Maple	Acer rubrum 'Franksred'	721.5	5	3607.5
Green Min Sugar Maple	Acer saccharum 'Green Mtn'	721.5	5	3607.5
Douglas-fir	Pseudotsuga menziesii	530.25	9	4772.25
Oregon White Oak	Quercus garryana	1192.5	9	10732.5
Vine Maple	Acer circinnatum	235.5	6	1413
White Alder	Alnus rhombifolia	1472.25	7	10305.75
Proposed On Site Canopy:				39741 SF

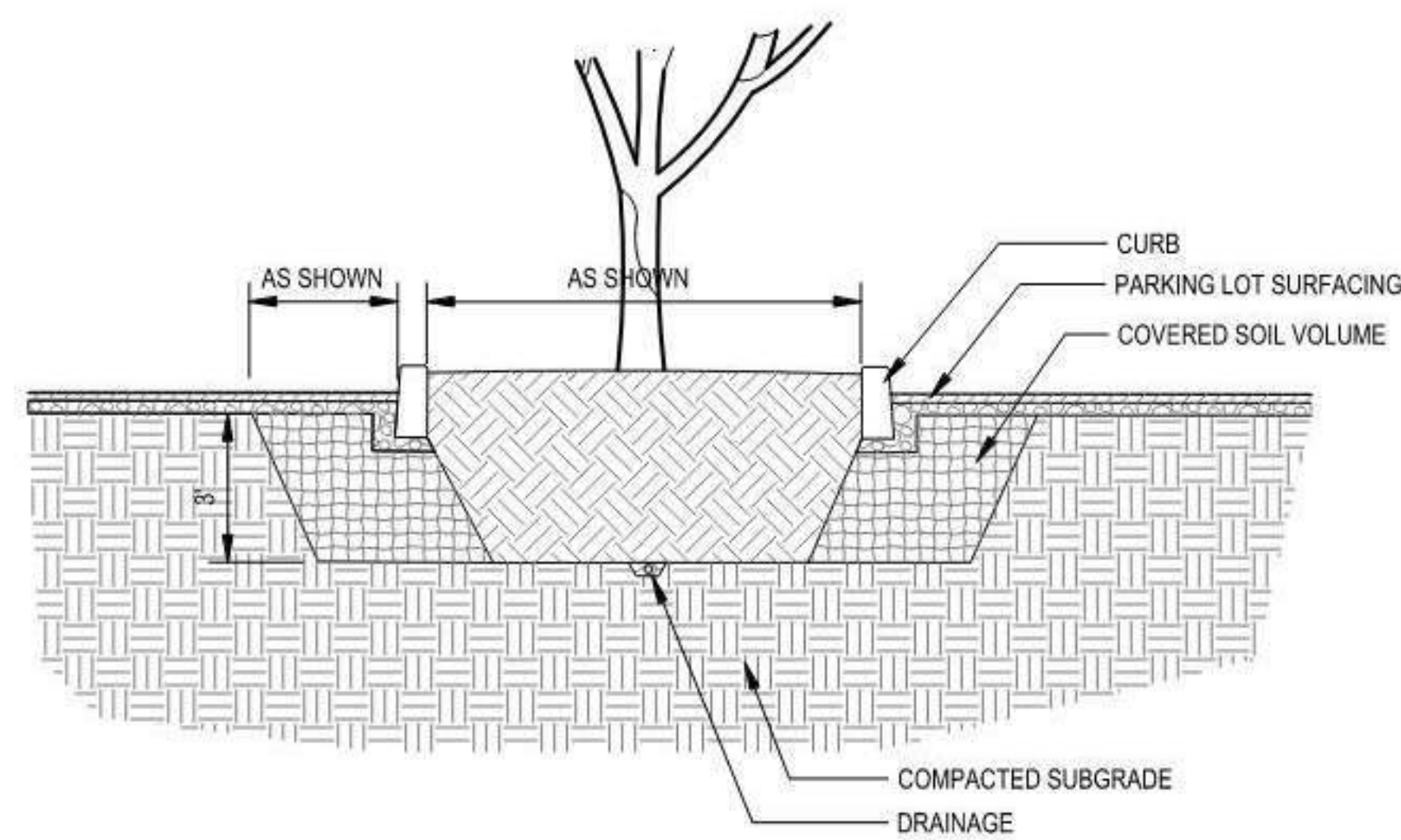
Trees Planted in R.O.W.							
Common Name	Scientific Name	50% Crown Area	Qty	Proposed Canopy	Street	Planting Strip Width	Notes
				0	0 SE 17th Ave		
Pacific Madrone	Arbutus menziesii	981.5	5	4907.5	Se McBrod Ave	4 - 5.9' planter width	198 LF/40=5 tree req.
Proposed R.O.W. Canopy:				4907.5 SF			
Proposed On Site + R.O.W. Canopy:				44648.5 SF + 3142 SF + 47,790 SF			



CITY OF MILWAUKIE, OREGON - PUBLIC WORKS DEPT.		DRAWING NO.	
Street Tree Planting		513	
APPROVED	NO.	REVISIONS	DATE
<i>[Signature]</i>	1	NEW DRAWING	11/13
CITY ENGINEER	DATE	REWORKED DRAWING, UPDATED NOTES	08/19



CITY OF MILWAUKIE, OREGON - PUBLIC WORKS DEPT.		DRAWING NO.	
Tree Protection Fencing		524	
APPROVED	NO.	REVISIONS	DATE
<i>[Signature]</i>	1	NEW DRAWING	08/19
CITY ENGINEER	DATE		



① SOIL VOLUME IN PARKING LOT
1 1/2" = 1'-0"

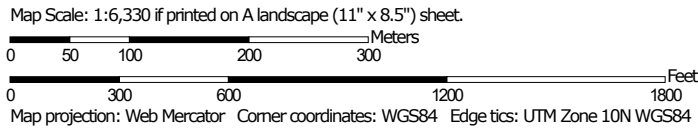
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construction

Attachment 6 - Soil Map

Soil Map—Clackamas County Area, Oregon
(Soil Map for 9815 & 9833 SE 17th Ave)



Soil Map may not be valid at this scale.






Soil Map—Clackamas County Area, Oregon
(Soil Map for 9815 & 9833 SE 17th Ave)

MAP LEGEND




















Area of Interest (AOI)







Area of Interest (AOI)

Soils


-  Soil Map Unit Polygons
-  Soil Map Unit Lines
-  Soil Map Unit Points

Special Point Features






-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot

-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features


Water Features

-  Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Background

-  Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Clackamas County Area, Oregon
Survey Area Data: Version 19, Sep 14, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Sep 26, 2022—Oct 11, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
53A	Latourell loam, 0 to 3 percent slopes	32.2	16.8%
71B	Quatama loam, 3 to 8 percent slopes	9.5	5.0%
82	Urban land	94.1	49.2%
84	Wapato silty clay loam	0.0	0.0%
91B	Woodburn silt loam, 3 to 8 percent slopes	2.4	1.2%
93E	Xerochrepts-Rock outcrop complex, moderately steep	53.3	27.8%
Totals for Area of Interest		191.5	100.0%

STOP!
DO NOT MOVE THIS FENCE.

TREE PROTECTION ZONE

Inside the fencing is a tree protection zone, not to be disturbed unless prior approval has been obtained per the approved tree protection plan. Penalties will apply for violations (City of Milwaukee tree code Chapter 16.32.042, Tree Preservation and Planting in Residential Zones).

For questions regarding tree protection please call the project arborist:
Todd Prager & Associates, LLC
todd@toddprager.com
971.295.4835

Attachment 8 – Additional 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 the 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 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* plus any resulting fines by government agencies.
 - c. The penalty should be paid to the owner of the property.

During Construction

1. **Protection Guidelines Within the Tree Protection Zones.**
 - a. 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.
 - b. 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.
 - c. Construction trailers should not to be parked/placed within the tree protection zones.
 - d. No vehicles should be allowed to park within the tree protection zones.
 - e. No activity 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. No grade changes should be allowed within the tree/root protection zones.
5. Trees that have woody roots cut should be provided supplemental water during the summer months.
6. 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.
7. 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. **Irrigation.** 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. **Drainage.** 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. **Inspect landscape for pests and disease.** Provide for the ongoing inspection and treatment of insect and disease populations that can damage the retained trees and plants.
6. **Fertilization.** 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 9 – 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 Koble Creative and their consultants 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:
 - a. Inventory and assess inventory existing onsite, right-of-way, and offsite trees at 9815 and 9833 SE 17th Avenue.
 - b. Prepare a tree plan to meet City of Milwaukie tree code Chapter 16.32.042, Tree Preservation and Planting in Residential Zones.