Arborist Report

Oyster Cove Mixed Use Development Project

Petaluma, Sonoma County, California

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WRA #30049
June 2022

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ENVIRONMENTAL CONSULTANTS

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LIST OF ACRONYMS

ANSI	American National Standards Institute
DBH	Diameter at breast height
GIS	Geographic Information Systems
GPS	Global Positioning System
ISA	International Society of Arboriculture
ROW	Right-of-way
WRA	WRA, Inc.

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1.0 INTRODUCTION

The purpose of this report is to inform you of the results of a comprehensive tree survey performed on May 31, 2022 at the site of the Oyster Cove Urban Mixed Use development project (Project) located at 100 and 310 East D Street, (APN 007-700-003-000, 007-700-006-000 and 007-700-005-000) in the City of Petaluma, Sonoma County, California (Figure 1, Appendix B) (Study Area). The survey was conducted by a WRA, Inc. (WRA) ISA-Certified Arborist, Scott Yarger (Lic. No. WE-9300A), for the purpose of identifying all trees greater than or equal to 4 inches in trunk diameter at 4.5 feet above grade (i.e. diameter at breast height [DBH]) including protected and non-protected trees as defined by the City of Petaluma (City) Municipal Code, Chapter 17, "Tree Preservation" (Tree Ordinance) within and directly adjacent to the limit of grade of the proposed project. This report was prepared to meet requirements of the City of Petaluma's Tree Ordinance for a comprehensive arborist report on all existing trees within the limit of grade of the Project.

This survey was conducted in direct response to the City of Petaluma's technical study review memorandum (dated April 21, 2022) for the Project requiring a "comprehensive tree survey performed by an ISA-certified arborist to identify the presence and condition of protected an non-protected trees within the Project Area consistent with Petaluma's tree ordinance."

1.1 Study Area Description

The approximately 11.2-acre Study Area is located in downtown Petaluma, Sonoma County, California (Figure 1, Appendix B). The Study Area parcels are situated between the Petaluma River to the south, the Sonoma-Marin Area Rapid Transit (SMART) tracks to the north, McNear Channel and McNear Peninsula to the east, and East D Street to the west. Public access parcels extend further southeast from the Study Area along McNear peninsula, designated as Steamer Landing Park. The Study Area is accessed from East D Street onto Copeland Street, which intersects the parcels and ends in a public parking lot along the shore of McNear Channel. All trees within limit of grade of the Project are planned to be removed, due to the necessity of the site to be entirely graded/raised due to future sea level rise. The Study Area for this assessment is identical to the Study Area assessed in the Biological Resources Technical Report (BRTR) which includes several areas where no direct project related impacts will occur. For example most of the areas within the City ROW. Trees located outside of the limit of grade surveyed in this assessment will be preserved and protected from damage to the greatest extent feasible. The project is planting well over 100 new trees with the new plan. The Study Area included in this assessment included the proposed development parcels, adjacent City-owned parcel, and public right-of-way (ROW) along East D Street.

1.2 Regulatory Background

City of Petaluma Tree Ordinance: The City of Petaluma recognizes the aesthetic, environmental, and economic benefits that mature trees provide to the citizens of the City. Chapter 17, "Tree Preservation," of the Petaluma City Code (Tree Ordinance) regulates the protection of certain trees on public and private properties within the City limits. The Tree Ordinance defines a "protected tree" as California native oaks (*Quercus* spp.) 4 inches diameter or greater measured at 4.5 above grade ("diameter at breast height" or DBH), California buckeye (*Aesculus californica*) 6 inches DBH or greater, California bay (*Umbellularia californica*) 12 inches DBH or greater, coast redwood (*Sequoia sempervirens*) 18 inches DBH or greater, heritage trees as approved by Council resolution per Title 8 of the Petaluma Municipal Code, significant groves or stands of trees, trees located in riparian corridors, any tree required to be planted or preserved as mitigation or condition of approval for a discretionary development project, or trees in the public ROW

(inclusive of City-owned parcels and other public spaces). A permit is required for the removal of any protected tree as defined above. Tree removal permit conditions of approval typically include tree replacement plantings for protected tree removals at a replacement ratio determined by the health of the removed tree, or the appraised value of the removed protected tree, depending on the type of development.

2.0 METHODS

On May 31, 2022 the Study Area was traversed on foot to inventory all trees greater than or equal to 4 inches DBH, including protected and non-protected trees as defined per the City's Tree Ordinance. WRA's ISA-Certified Arborist, Scott Yarger (Lic. No. WE-9300A) surveyed the area and recorded relevant tree information for each surveyed tree including species, DBH, estimated crown radius, estimated height, and health, condition and structure ratings.

2.1 Tree Inventory

Locations of trees within the Study Area were recorded using a handheld mapping-grade Global Positioning Systems (GPS) unit with sub-meter accuracy where access to the tree was feasible. In some cases, surveyed trees were located behind a fence and inaccessible, or situated within active homeless encampments, in which case, those tree GPS locations were collected as close to the tree as possible, and adjusted in post-processing in Geographic Information Systems (GIS) mapping software. Each tree was given unique identification number, accompanied by an aluminum tree tag where access to the tree was possible. Where access to the tree was not possible due to the aforementioned reasons, the tree was given a unique identification number but was not tagged. DBH was calculated for surveyed trees by measuring the trunk diameter at 4.5 ft. above grade. DBH for multi-trunked trees was calculated by measuring each individual trunk and calculating the sum total of trunk diameters. In cases where multi-trunked trees had more than five main trunks, only the five largest trunks were measured. As per guidelines in the Tree Ordinance, only trees with at least one stem measuring greater than or equal to 4 inches DBH were surveyed. In cases where access to the tree was not possible due to fences or homeless encampments, DBH measurements were estimated.

2.2 Tree Assessment

General notes on the condition of trees were taken, including health, structure, and overall condition. Assessment of the health, structure, and overall condition of each tree was conducted according to the narratives listed in Table 2.

TABLE 1. RATING NARRATIVES FOR TREE ASSESSMENT

Health	
Good	Tree is relatively free from symptoms of disease and stress.
Fair	Tree shows some symptoms of disease or stress including twig and small branch dieback, evidence of fungal / parasitic infection, thinning of crown, or poor leaf color.
Poor	Tree shows symptoms of severe decline.
Structure	
Good	Tree is relatively free from major structural defects.

Fair	Tree shows some structural defects in branches but overall structure is stable.
Poor	Tree shows structural failure of a major branch or co-dominant trunk.
General Condition	
Good	Tree shows condition of foliage, bark, and overall structure characteristic of the species and lacking obvious defect, or disease.
Fair	Tree shows condition of foliage, bark, and overall structure characteristic of the species with some evidence of stress, defect, or disease.
Poor	Tree shows condition of foliage, bark, and overall structure uncharacteristic of the species with obvious evidence of stress, defect, or disease.

2.3 Tree Impact Assessment

Potential impacts to all surveyed trees were analyzed by overlaying tree survey data with the Project's preliminary site plan (CBG 2022). Tree impacts were assessed by comparing tree locations collected using a mapping grade handheld Global Positioning System (GPS) unit with sub-meter accuracy (with some locations adjusted in post-processing due to access issues as described above) to the planned extent of development features. Precise tree removal impacts will need to be confirmed in the field once final plans are completed, and the limit of grade is finalized and staked out. Potential tree impacts that may require a permit from the City include trimming, removal or encroachment into the dripline of any protected tree. As described above, tree replacement is required by the City for tree removals associated with development projects. The replacement requirements for tree removals will be determined during the tree removal permit process.

3.0 RESULTS

3.1 Tree Inventory

A total of 61 trees were identified within the Study Area, including 17 non-protected trees, and 44 protected trees. Protected trees surveyed in this assessment are all in the City ROW, either along the roadway of East D Street, in the case of trees #4-10, and 12, or within the City parcel that includes Steamer Landing Park. Some of the protected City trees also qualify for protected status based on their species and size, including coast live oak trees #20, 21, 30, and 31. Two trees surveyed in this assessment, arroyo willow trees #22 and 23 are also considered riparian trees due to their location at the top of bank of the Petaluma River. Tree locations on private versus City-owned parcels were based on publicly available GIS parcel data and may need to be confirmed by a surveyor.

A complete list of all surveyed trees surveyed is presented in Appendix A. The GPS locations of surveyed trees are shown in Appendix B. Surveyed trees present within the Study Area included six native species, and seven non-native species. Native tree species present included box elder (*Acer negundo*), California black walnut (*Juglans hindsii*), Fremont cottonwood (*Populus fremontii*), coast live oak (*Quercus agrifolia*), red willow (*Salix laevigata*), and arroyo willow (*Salix lasiolepis*). Non-native tree species present included evergreen ash (*Fraxinus uhdei*), olive (*Olea europaea*), Pittosporum (*Pittosporum* sp.), London plane (*Platanus* x *acerifolia*), cherry (*Prunus* sp.), red oak (*Quercus rubra*), and weeping willow (*Salix babylonica*).

Trees range in size from 4 inches to 41 inches in DBH. The largest DBH multi-trunked tree is a cherry (*Prunus* sp.), tree #11, at 41 inches DBH. The largest single-trunk tree is a 36-inch DBH (estimated; tree behind fence) weeping willow, tree #13.

3.2 Tree Assessment

The condition, health, and structure of trees inventoried during this assessment ranged from poor to good, with most trees ranking fair in health, condition, and structure. The trees surveyed within the Study Area that ranked fair in health, condition, and structure displayed minor signs of decay or dieback and poor growth or a lean in the trunk. Trees ranking poor in condition, health, and/or structure exhibited one or more of the following maladies: minor, significant, or major crown dieback; suppressed, poor growth forms; leaf anthracnose; cankers, or internal decay; and fire damage from homeless encampment activity. The observed maladies, as well as tree location contributed to the assessment rankings. Table 2 below summarizes the assessment results for all trees surveyed.

Table 2. Assessment Results Summary Table

CRITERIA ASSESSED/RATING	CONDITION	HEALTH	STRUCTURE
Good	4 (7%)	5 (8%)	5 (8%)
Fair	37 (60%)	40 (66%)	33 (54%)
Poor	20 (33%)	16 (26%)	23 (38%)

3.3 Tree Impact Assessment

The Project's preliminary site plan (CBG 2022) was used to analyze potential impacts on trees within the Study Area. Trees within the interior of the limit of grade are more likely to be impacted and require removal than trees on the edge of the limit of grade as shown on the tree survey figure (Appendix B – Figure 2). Impacts to existing trees will include removal, and potential root disturbance and/or limb pruning. Based on the tree impact assessment, a total 15 trees are likely to require removal. Of those 15 trees, 7 are considered non-protected trees based on their species, size and location presumed to be on private property based on the overlay described in Section 2.3 above. Of the 15 trees likely to be removed, eight (8) trees are considered protected due to their location on City property, and in the case of tree #30, because the tree is a coast live oak of sufficient size to classify as protected per the Tree Ordinance. Of the 46 trees that are not identified as removals, several of those trees which are just outside of the limit of grade may be impacted by root disturbance or limb pruning. Recommended tree protection measures provided below shall be employed to preserve trees outside of the limit of grade to the maximum extent feasible. Representative photographs of trees to be removed can be found in Appendix C.

4.0 SUMMARY AND RECOMMENDATIONS

A total of 61 trees were identified within the Study Area, including 17 non-protected trees, and 44 protected trees. The condition, health, and structure of trees inventoried during this assessment ranged from poor to good, with most trees ranking fair in health, condition, and structure. Based on the tree impact assessment, a total 15 trees are likely to require removal. Of those 15 trees, 7 are considered non-protected trees based on their species, size and location presumed to be on private property based on the overlay described in Section 2.3 above. Of the 15 trees likely to be removed, eight (8) trees are

considered protected due to their location on City property, and in the case of tree #30, because the tree is a coast live oak of sufficient size to classify as protected per the Tree Ordinance.

The removal of protected trees shall require a permit from the City of Petaluma. The City typically requires replacement plantings as a condition of approval to mitigate for the loss of functions provided by trees that are removed. Tree replacement plantings for protected tree removals are determined at a replacement ratio determined by the health of the removed tree, or the appraised value of the removed protected tree, depending on the type of development.

Petaluma Implementing Zoning Ordinance (IZO) Chapter 17.065(A)(1) provides that for New Commercial and/or Residential (2 or more parcels) Development Projects, "all protected trees determined by the project arborist to be in good (4) or excellent (5) health, and/or with moderate (3) to good (4) structure, shall be replaced on a one-to-one trunk diameter basis. (Example: A 24-inch protected tree in good or excellent condition must be replaced with new trees totaling 24 inches in trunk diameters.)" Presuming this replacement ratio applies to this project, the Project is planning to remove six (6) protected City trees in fair condition (trees #18, 19, 24, 30, 43, 46, and 61) and one (1) (tree #46) in very poor condition. The total sum trunk diameter of protected trees in fair condition proposed for removal is 326.6. Therefore, tree replacement requirement may require planting new trees totaling at least 326.6 inches in trunk diameter. The Project's preliminary landscape site plan (Ripley Design Group 2022) proposes to plant approximately 116 24-inch box trees. Based on an estimated tree diameter of up to 2.5 inches diameter for 24-inch box trees (ANSI Standard for Nursery Stock), the total replacement diameter would be 290, falling narrowly short of the potential replacement requirement. Additional trees or larger size box trees, i.e. 36-inch box, in some locations may be necessary. WRA recommends that the final tree impacts shall be confirmed in the field once final plans are completed, and the limit of grade is finalized and staked out in the field.

Tree protection measures shall be employed to protect preserved tress during construction. All tree protection measures shall be consistent with the City of Petaluma Tree Technical Manual. In order to avoid and minimize damage to existing trees which are designated for preservation and not proposed for direct impact by project activities, the following measures are recommended:

- Any trimming or pruning must be done by an ISA Certified arborist or equally qualified arborist, following American National Standards Institute (ANSI) A300 standards.

- All construction activity (grading, filling, paving, landscaping etc.) should respect the tree protection zone (TPZ) around all trees within the vicinity of the project area that are selected for preservation.

- The TPZ should be a distance of 1.0 times the dripline radius measured from the trunk of the tree. Exception to this standard could be considered on a case-by-case basis, provided that it is demonstrated that an encroachment into the TPZ will not critically damage the root system or the health of the tree, and is authorized by an ISA Certified Arborist or comparable specialist.

- Temporary protective fencing shall be installed around the dripline of existing trees designated for preservation prior to commencement of any construction activity conducted within 25' of the tree canopy, of a tree designated for preservation. The fence shall be clearly marked to prevent inadvertent encroachment by heavy machinery.

- If grading takes place within the RPZ of a preserved tree, roots should be exposed using the least injurious method possible, and selective root pruning is the preferred method of removal.

- Roots exposed, as a result of construction activities shall be covered with wet burlap to avoid desiccation, and should be buried as soon as practicable.

- Only an ISA Certified Arborist or tree specialist will make specific recommendations as to where any existing trees can safely tolerate some level of fill within the drip line.

- Trenches which are required within the root protection zone of existing native trees shall be bored (tunneled) under the root(s) using an auger or drill, rather than trenched, to avoid root disturbance.

- Construction materials or heavy equipment shall not be stored within the root protection zone of preserved trees.

- Construction materials shall be properly stored away from existing trees to avoid spillage or damage to trees.

5.0 REFERENCES

ANSI. 2017. Tree, Shrub, and Other Woody Plant Maintenance—Standard Practices (Pruning), Part 1. Revision of 2008.

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[Petaluma] City of San Petaluma. 2022. Petaluma Implementing Zoning Ordinance (IZO) Chapter 17, "Tree Preservation " (Tree Ordinance). Available online at: https://petaluma.municipal.codes/ZoningOrds/17

Ripley Design Group. 2022. Preliminary Landscape Site Plan, Oyster Cove Petaluma, CA. Date: March 29.

APPENDIX A – TREE SURVEY TABLE

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Appendix A. Tree Survey Table - Oyster Cove Mixed Use Development Project, Petaluma, California

Tree ID	Common Name	Species Name	Multi-trunk	DBH_1	DBH_2	DBH_3	DBH_4	DBH_5	Total DBH (in)	Estimated Dripline Radius (ft)	Estimated Height (ft)	Condition	Health	Structure	Ordinance Status	Removal	Permit	Notes
1	California black walnut	*Juglans hindsii*	no	22.0	0.0	0.0	0.0	0.0	22.0	15	20	Fair	Fair	Fair	Non-protected	Yes	No	minor decay/dieback
2	Weeping willow	*Salix babylonica*	no	19.5	0.0	0.0	0.0	0.0	19.5	15	22	Fair	Poor	Fair	Non-protected	Yes	No	significant crown dieback
3	Weeping willow	*Salix babylonica*	no	4.0	0.0	0.0	0.0	0.0	4.0	2	12	Fair	Poor	Fair	Non-protected	Yes	No	significant crown dieback
4	Red oak	*Quercus rubra*	no	9.2	0.0	0.0	0.0	0.0	9.2	10	18	Good	Good	Good	Protected - City Tree	No	No	young tree; good vigor
5	Red oak	*Quercus rubra*	no	4.0	0.0	0.0	0.0	0.0	4.0	4	10	Good	Fair	Good	Protected - City Tree	No	No	young tree; fair vigor
6	Red oak	*Quercus rubra*	no	8.2	0.0	0.0	0.0	0.0	8.2	6	15	Good	Good	Good	Protected - City Tree	No	No	young tree; good vigor
7	Weeping willow	*Salix babylonica*	yes	5.5	6.0	6.0	0.0	0.0	17.5	6	12	Poor	Fair	Poor	Protected - City Tree	No	No	significant crown dieback
8	Red oak	*Quercus rubra*	no	9.0	0.0	0.0	0.0	0.0	9.0	10	15	Good	Good	Good	Protected - City Tree	No	No	young tree; good vigor
9	Evergreen ash	*Fraxinus uhdei*	yes	12.0	4.0	1.0	1.0	0.0	18.0	12	15	Poor	Fair	Poor	Protected - City Tree	No	No	suppressed, poor growth form; significant dieback
10	Evergreen ash	*Fraxinus uhdei*	yes	4.0	3.0	3.0	2.0	1.0	13.0	10	18	Poor	Fair	Poor	Protected - City Tree	No	No	suppressed, poor growth form; significant dieback
11	Cherry	*Prunus sp.*	yes	10.0	9.0	8.0	7.0	7.0	41.0	15	20	Fair	Good	Fair	Non-protected	No	No	good leaf color and vigor
12	Olive	*Olea europaea*	no	6.5	0.0	0.0	0.0	0.0	6.5	9	15	Fair	Fair	Fair	Protected - City Tree	No	No	poor location; suppressed
13	Weeping willow	*Salix babylonica*	no	36.0	0.0	0.0	0.0	0.0	36.0	25	30	Poor	Poor	Fair	Non-protected	No	No	major decay/dieback, poor location
14	Pittosporum	*Pittosporum sp.*	yes	5.0	5.0	0.0	0.0	0.0	10.0	10	20	Poor	Fair	Poor	Non-protected	No	No	volunteer tree; poor location
15	Pittosporum	*Pittosporum sp.*	yes	5.0	5.0	0.0	0.0	0.0	10.0	10	20	Poor	Fair	Poor	Non-protected	No	No	volunteer tree; poor location
16	Pittosporum	*Pittosporum sp.*	no	5.0	0.0	0.0	0.0	0.0	5.0	10	20	Poor	Fair	Poor	Non-protected	No	No	volunteer tree; poor location
17	Pittosporum	*Pittosporum sp.*	no	5.0	0.0	0.0	0.0	0.0	5.0	10	20	Poor	Fair	Poor	Non-protected	No	No	volunteer tree; poor location
18	Red oak	*Quercus rubra*	no	6.1	0.0	0.0	0.0	0.0	6.1	10	15	Fair	Fair	Fair	Protected - City Tree	Yes	Yes	young tree; fair vigor
19	London plane	*Platanus x acerifolia*	no	9.2	0.0	0.0	0.0	0.0	9.2	12	20	Fair	Fair	Fair	Protected - City Tree	Yes	Yes	fair vigor and growth form
20	Coast live oak	*Quercus agrifolia*	no	6.0	0.0	0.0	0.0	0.0	6.0	7	18	Fair	Fair	Fair	Protected - Species/size and City Tree	No	No	young tree; shrubby form
21	Coast live oak	*Quercus agrifolia*	no	4.0	0.0	0.0	0.0	0.0	4.0	6	10	Fair	Good	Fair	Protected - Species/size and City Tree	No	No	young tree; shrubby form
22	Arroyo willow	*Salix lasiolepis*	yes	4.0	2.0	2.0	2.0	2.0	12.0	14	10	Poor	Poor	Poor	Protected - City Tree and riparian	No	No	major decay/dieback, poor growth form

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Tree ID	Common Name	Species Name	Multi-trunk	DBH_1	DBH_2	DBH_3	DBH_4	DBH_5	Total DBH (in)	Estimated Dripline Radius (ft)	Estimated Height (ft)	Condition	Health	Structure	Ordinance Status	Removal	Permit	Notes
23	Arroyo willow	*Salix lasiolepis*	yes	3.0	3.0	2.0	1.0	1.0	10.0	10	15	Fair	Fair	Poor	Protected - City Tree and riparian	No	No	poor growth form
24	London plane	*Platanus x acerifolia*	no	8.1	0.0	0.0	0.0	0.0	8.1	15	25	Fair	Fair	Fair	Protected - City Tree	Yes	Yes	fair vigor and growth form
25	California black walnut	*Juglans hindsii*	no	8.2	0.0	0.0	0.0	0.0	8.2	15	25	Fair	Fair	Poor	Protected - City Tree	No	No	poor growth form
26	California black walnut	*Juglans hindsii*	yes	6.0	2.0	0.0	0.0	0.0	8.0	15	20	Fair	Fair	Poor	Protected - City Tree	No	No	poor growth form
27	California black walnut	*Juglans hindsii*	no	5.2	0.0	0.0	0.0	0.0	5.2	10	15	Fair	Fair	Poor	Protected - City Tree	No	No	poor growth form
28	California black walnut	*Juglans hindsii*	yes	7.0	10.0	4.0	0.0	8.0	29.0	10	15	Fair	Fair	Poor	Protected - City Tree	No	No	poor growth form
29	London plane	*Platanus x acerifolia*	no	9.1	0.0	0.0	0.0	0.0	9.1	14	25	Fair	Fair	Fair	Protected - City Tree	No	No	fair vigor and growth form
30	Coast live oak	*Quercus agrifolia*	no	12.7	0.0	0.0	0.0	0.0	12.7	12	20	Fair	Poor	Fair	Protected - Species/size and City Tree	Yes	Yes	fire damaged from homeless encampment
31	Coast live oak	*Quercus agrifolia*	no	14.2	0.0	0.0	0.0	0.0	14.2	12	20	Fair	Poor	Fair	Protected - Species/size and City Tree	No	No	leaf discoloration, trunk vandalism
32	London plane	*Platanus x acerifolia*	no	9.7	0.0	0.0	0.0	0.0	9.7	15	25	Fair	Fair	Fair	Protected - City Tree	No	No	leaf discoloration, anthracnose
33	London plane	*Platanus x acerifolia*	no	10.1	0.0	0.0	0.0	0.0	10.1	14	25	Fair	Fair	Good	Protected - City Tree	No	No	fair vigor and growth form
34	Fremont cottonwood	*Populus fremontii*	no	24.0	0.0	0.0	0.0	0.0	24.0	20	40	Poor	Poor	Fair	Protected - City Tree	No	No	cankers
35	California black walnut	*Juglans hindsii*	yes	9.0	6.0	0.0	0.0	0.0	15.0	10	15	Fair	Fair	Fair	Protected - City Tree	No	No	fair vigor and growth form
36	Box elder	*Acer negundo*	no	6.0	0.0	0.0	0.0	0.0	6.0	6	10	Fair	Fair	Fair	Protected - City Tree	No	No	fair vigor and growth form
37	Box elder	*Acer negundo*	no	4.0	0.0	0.0	0.0	0.0	4.0	3	10	Fair	Fair	Fair	Protected - City Tree	No	No	fair vigor and growth form
38	Box elder	*Acer negundo*	no	4.0	0.0	0.0	0.0	0.0	4.0	4	10	Fair	Fair	Fair	Protected - City Tree	No	No	fair vigor and growth form
39	Fremont cottonwood	*Populus fremontii*	no	21.0	0.0	0.0	0.0	0.0	21.0	12	35	Poor	Poor	Fair	Protected - City Tree	No	No	major decay/dieback; declining
40	Red willow	*Salix laevigata*	yes	15.0	9.0	0.0	0.0	0.0	24.0	15	18	Poor	Poor	Poor	Protected - City Tree	No	No	major fire damage from homeless encampment
41	Red willow	*Salix laevigata*	yes	14.0	5.0	0.0	0.0	0.0	19.0	15	25	Fair	Fair	Fair	Non-protected	Yes	No	fair vigor and growth form
42	Red willow	*Salix laevigata*	no	14.0	0.0	0.0	0.0	0.0	14.0	15	30	Fair	Fair	Fair	Non-protected	Yes	No	fair vigor and growth form
43	Red willow	*Salix laevigata*	no	12.5	0.0	0.0	0.0	0.0	12.5	15	25	Fair	Fair	Fair	Protected - City Tree	Yes	Yes	fair vigor and growth form
44	Red willow	*Salix laevigata*	no	10.0	0.0	0.0	0.0	0.0	10.0	12	28	Fair	Fair	Fair	Protected - City Tree	No	No	fair vigor and growth form

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45	Red willow	*Salix laevigata*	yes	12.0	9.5	0.0	0.0	0.0	21.5	15	20	Fair	Fair	Poor	Protected - City Tree	No	No	poor growth form/lean
46	Red willow	*Salix laevigata*	yes	10.0	10.0	0.0	0.0	0.0	20.0	15	20	Poor	Poor	Poor	Protected - City Tree	Yes	Yes	major decay/dieback; poor growth form/lean
47	Fremont cottonwood	*Populus fremontii*	no	24.0	0.0	0.0	0.0	0.0	24.0	15	30	Poor	Fair	Poor	Non-protected	No	No	major decay/dieback
48	Fremont cottonwood	*Populus fremontii*	no	15.0	0.0	0.0	0.0	0.0	15.0	18	30	Fair	Fair	Fair	Non-protected	Yes	No	fair vigor and growth form
49	Fremont cottonwood	*Populus fremontii*	no	16.0	0.0	0.0	0.0	0.0	16.0	15	20	Fair	Fair	Fair	Protected - City Tree	Yes	Yes	fair vigor and growth form
50	Fremont cottonwood	*Populus fremontii*	no	13.0	0.0	0.0	0.0	0.0	13.0	15	20	Fair	Fair	Fair	Protected - City Tree	No	No	fair vigor and growth form
51	Fremont cottonwood	*Populus fremontii*	no	12.0	0.0	0.0	0.0	0.0	12.0	10	30	Poor	Poor	Poor	Protected - City Tree	No	No	major decay/dieback
52	Evergreen ash	*Fraxinus uhdei*	no	4.0	0.0	0.0	0.0	0.0	4.0	6	10	Fair	Fair	Fair	Protected - City Tree	No	No	fair vigor and growth form
53	Fremont cottonwood	*Populus fremontii*	no	15.0	0.0	0.0	0.0	0.0	15.0	18	25	Poor	Poor	Fair	Non-protected	Yes	No	major decay/dieback, poorly pruned/topped
54	Fremont cottonwood	*Populus fremontii*	no	10.0	0.0	0.0	0.0	0.0	10.0	12	25	Poor	Poor	Poor	Protected - City Tree	No	No	major decay/dieback; declining
55	Fremont cottonwood	*Populus fremontii*	no	8.0	0.0	0.0	0.0	0.0	8.0	5	15	Poor	Poor	Poor	Protected - City Tree	No	No	major decay/dieback; declining
56	Fremont cottonwood	*Populus fremontii*	no	12.0	0.0	0.0	0.0	0.0	12.0	12	30	Poor	Poor	Poor	Protected - City Tree	No	No	major decay/dieback; declining
57	Fremont cottonwood	*Populus fremontii*	no	9.0	0.0	0.0	0.0	0.0	9.0	10	15	Poor	Poor	Poor	Non-protected	No	No	major decay/dieback; declining
58	Fremont cottonwood	*Populus fremontii*	no	15.0	0.0	0.0	0.0	0.0	15.0	14	25	Fair	Fair	Fair	Non-protected	No	No	fair vigor and growth form
59	Fremont cottonwood	*Populus fremontii*	no	15.0	0.0	0.0	0.0	0.0	15.0	14	25	Fair	Fair	Fair	Non-protected	No	No	fair vigor and growth form
60	Evergreen ash	*Fraxinus uhdei*	no	4.0	0.0	0.0	0.0	0.0	4.0	8	25	Fair	Fair	Fair	Protected - City Tree	No	No	fair vigor and growth form
61	Evergreen ash	*Fraxinus uhdei*	no	5.5	0.0	0.0	0.0	0.0	5.5	4	12	Fair	Fair	Poor	Protected - City Tree	Yes	Yes	fair vigor; poor growth form

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APPENDIX B – FIGURES

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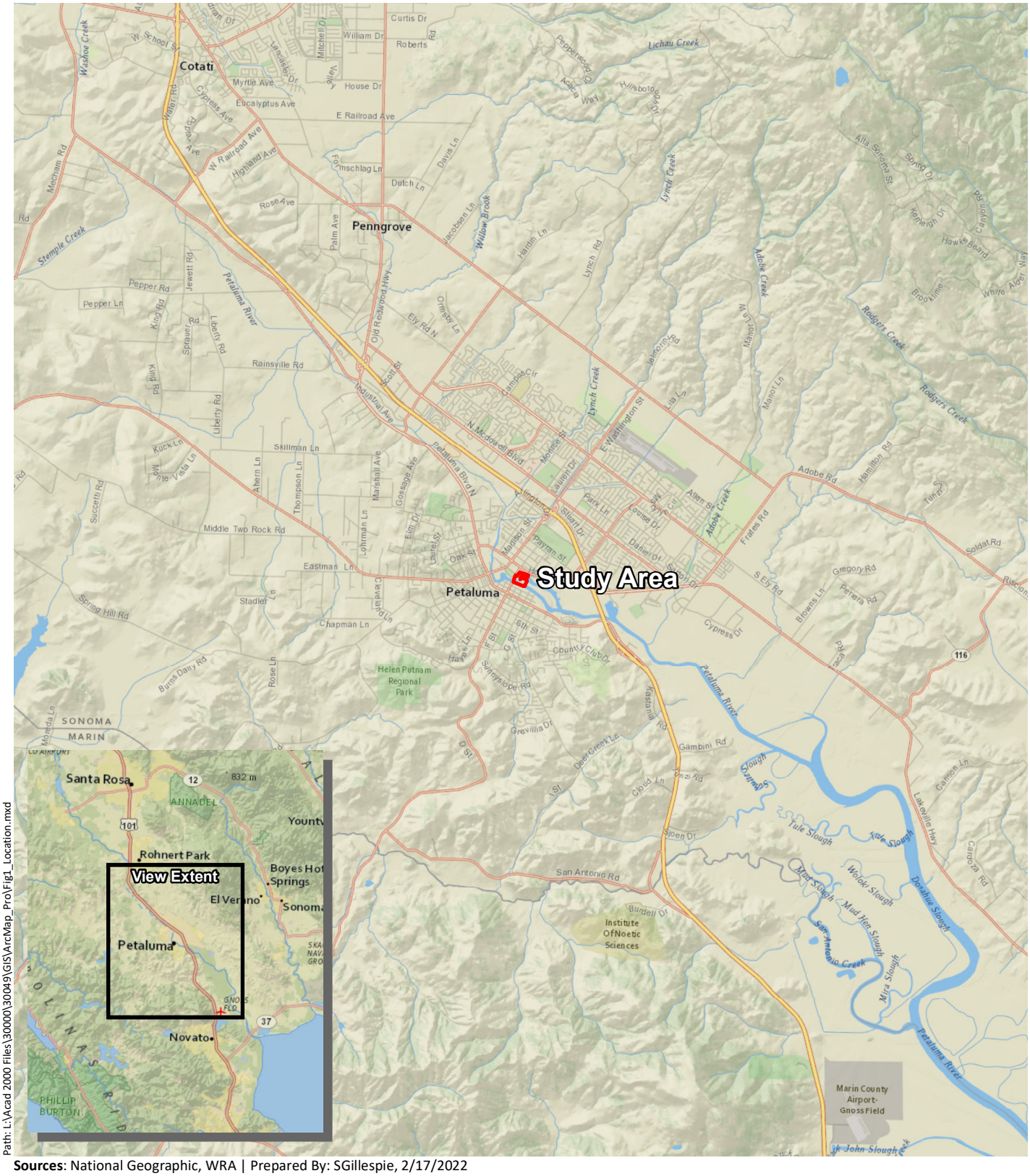

Sources: National Geographic, WRA | Prepared By: SGillespie, 2/17/2022

Figure 1. Study Area Regional Location Map

Oyster Cove
Petaluma, California

0 1 2 Miles

N

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Figure 2.
Tree Survey

Oyster Cove
Petaluma, California

Study Area - 11.28 ac.

Pacel Lines

Proposed Development

Non-Protected Trees

Avoided

Potential Removal

Protected Trees

Avoided

Potential Removal

City Trees

Avoided

Potential Removal

N

0 100 200

Feet

wra
ENVIRONMENTAL CONSULTANTS

Path: E:\Acad 2000 Files\30000\30049\GIS\ArcMap_Pro\Tree Survey.mxd

Sources: Sonoma County 2018 Aerial, WRA | Prepared By: mrochelle, 6/20/2022

APPENDIX C – REPRESENTATIVE PHOTOGRAPHS

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Photograph 1. Tree #1, a non-protected California black walnut exhibiting minor crown dieback. The tree is located on private property and requires removal.

Photograph 2. Tree #4, a red oak City tree (protected) located in the City ROW along East D Street. This tree is to be preserved.

Photograph 3. Tree #30, a protected City tree which is proposed for removal. The tree was assessed to be in fair condition despite sustaining some crown damage in a homeless encampment fire.

Photograph 4. Photograph depicting a canker caused by a fungal pathogen on tree #34 a protected City tree which was assessed in poor condition.

Photograph 5. Photograph depicting trees #54 and 55, two Fremont cottonwoods in poor condition. These trees are representative of trees that were surveyed from a distance due to the homeless encampment.

Photograph 6. Photograph depicting tree #40 at left, a red willow protected City tree which sustained heavy fire damage from a homeless encampment fire. Trees #41 through #43 are seen at right, in healthier condition, surrounded by homeless encamp