
TREES, BUGS, DIRT

LANDSCAPE CONSULTING & TRAINING

Updated
Arborist Report
2008 Grant Street, Calistoga CA
February 1, 2022



Prepared For: DeNova Homes
1500 Willow Pass Court
Concord CA 94520

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SUMMARY

AUDIT OF 2017 ARBORIST REPORT BY MCNAIR & ASSOCIATES

To assess the usefulness of an existing arborist report I evaluated fifty one trees; located and tagged six trees that had not been noted in the previous report, and retagged seventeen trees that were missing tags or had tags that were engulfed by trunks. I found that species identifications were accurate for all, health and structure assessments in the report were close to my observations, and no discrepancies were noted between tree numbers, location, and data. Diameters differed on average by four point seven inches, probably due to normal growth & measurement height differences. **I believe that tree data in the 2017 arborist report is accurate enough to use in the evaluation of new proposed construction.**

TREE NUMBERS & SPECIES

A total of one hundred and fifty one trees are currently inventoried on site. Species on site include coast live oak (*Quercus agrifolia*), valley oak (*Quercus lobata*), coast redwood (*Sequoia sempervirens*), Oregon ash (*Fraxinus latifolia*), English walnut (*Juglans regia*), black walnut (*Juglans hindsii*), and pecan (*Carya illinoensis*) species.

TREE REMOVALS

One hundred & five trees are proposed for removal based on condition & proposed development. Twelve trees are riparian, eleven of which are oaks (*Quercus spp.*) and their removal will be mitigated, one is not an oak and its removal will not be mitigated. Ninety three non-riparian trees will be removed, two are not protected, and ninety one are protected. Eighty one of the non-riparian trees to be removed are oaks, ten are of different genera.

TREE PRESERVATION

Forty six trees are proposed for preservation.

RECOMMENDATIONS

To preserve these trees basic health and stability will be ensured by root crown excavation and pruning for clearance, as well as safety. Minimizing construction damage will rely on air spading and root pruning, washing off foliage, irrigating, mulching, and fencing of tree protection zones. Treatment for sudden oak death prevention is also recommended. Special care is recommended for trees preserved with 15 foot tree protection zones, including conservative clearance pruning to minimize branch damages, and meticulous air spading and root pruning to minimize root damage, as well as supplemental irrigation as needed in drought & to compensate for root losses and stresses on tree crown from construction activity.

INTRODUCTION

BACKGROUND

An arborist letter (Macnair, 8/8/17) summarized tree data and construction impacts, and recommended tree preservation measures for trees to remain, based on site plans that were current at the time. I checked the data in that letter for accuracy by carrying out an audit of trees on site and data provided. That report referenced forty seven trees inventoried in 2009 with numbers proceeded by the letters "ET". Macnair's report tagged trees with numbers only. One hundred and forty five trees were identified in 2017. I added additional trees in 2020 that I noted on site while auditing a portion of the trees on site.

LOCATION

2008 Grant Street, which was also identified (Macnair) as 1708 Redwood Avenue, Calistoga CA.

SETTING

The site is a large vacant lot fenced off from other properties on three sides, bounded on one side by Redwood Avenue, and backyard fences on either side of Amber Way on another side. There is a dry drainage area on the property that is lined with trees, and trees are scattered and clumped on the property.

ASSIGNMENT

I was hired by DeNova Homes to assess the accuracy and usefulness of the arborist letter, and data and to ascertain whether or not an entirely new arborist assessment was needed. At the request of the City of Calistoga (City) I have developed maintenance guidelines for the trees to be preserved, and added tables and information provided by the developer, as requested by the City.

LIMIT OF ASSIGNMENT

I did not examine all of the trees on site.

OBSERVATIONS

METHODS

- Evaluated map & data provided in Arborist Letter, August 8, 2017, Macnair & Associates
- Visually examined fifty one trees and measured tree trunk circumferences 54 inches above grade on 10/9/2020
- *For the audit* evaluated health, structure, & form; 0=dead, 1=very poor, 2=poor, 3=fair, 4=good, 5=excellent
- Used sheet C-1 Existing Conditions (CBG, April 9, 2021) to identify trees to be preserved
- Used Tree Evaluation Data (MacNair, 2017) to develop tree specific maintenance for preservation
- Reported Tree Measurements & data collected previously (MacNair, 2017) including Health & Structural Condition Ratings (MacNair, 2017); 1=poor, 1.5=poor to marginal, 2.5=fair, 3.0=moderate or better
- Use tree numbering systems & mapped trees from 2017, and new blue tags numbered 0242-0264
- Reviewed the City of Calistoga's Tree Ordinance, Chapter 19.01.040
- Reviewed preliminary grading & drainage plans (CBG, 4.9.21) & arborist report (MacNair, 2017) to assess survivability & recommendations for preservation
- Reviewed draft reports with Kerri Watt (DeNova Homes, Director of Entitlements) for accuracy & clarity
- Modified numbers, added tables and categories provided by Kerri Watt

AUDIT

- 51 trees evaluated out of 145 reported by other arborist (McNair)
- species identification was 100% accurate
- seventeen protected trees were tagged with blue metal tags because some were engulfed by trunk, others may have grown up into the required size class for protection in the time since last inspected, and six trees had not been previously inventoried
- all of the missing tags & data were in the earliest evaluated area designated on McNair's map and spreadsheet as "ET" trees
- diameters differed on average 4.7" with a standard deviation of 7.7, which can be explained by growth and slight discrepancies in measuring heights that is normal in tree inventories
- health & structure assessments differed little between my observations & those reported by McNair

LIST NON-RIPARIAN TREES TO REMOVE- see Appendix A for data set that

- A total of one hundred and fifty one trees are currently inventoried on site.
- Species on site include coast live oak (*Quercus agrifolia*), valley oak (*Quercus lobata*), coast redwood (*Sequoia sempervirens*), Oregon ash (*Fraxinus latifolia*), English walnut (*Juglans regia*), black walnut (*Juglans hindsii*), and pecan (*Carrya illinoensis*) species.
- Forty six trees are proposed for preservation.
- One hundred & five trees are proposed for removal based on condition & proposed development
 - Twelve trees are riparian, eleven are oaks (*Quercus spp.*) and their removal will be mitigated
 - One riparian tree is not an oak and its removal will not be mitigated
 - Ninety three non-riparian trees will be removed
 - Two non-riparian trees are not protected, and ninety one are protected
 - Eighty one of the non-riparian trees to be removed are oaks, ten are of different genera

MITIGATION FOR NON-RIPARIAN TREES provided by Kerri Watt, DeNova Homes

non-riparian protected trees to be removed	City replacement ratio (3:1)	total replacement trees as mitigation or fee	On-site Mitigation	Remaining trees to mitigate off-site or pay fee
91	3	273	198	75
	\$250.00	\$68,250.00		\$18,750.00

MITIGATION FOR RIPARIAN AREA TREES (source Kerri Watt, DeNova Homes)

- indigenous oak replacement ratios are 4:1 for 5-10” diameter (diameter at 4.6 feet above grade), 5:1 for 10-12” diameter, and 10:1 for greater than 15” in diameter
- twelve riparian trees proposed for removal, eleven require mitigation, one (Oregon ash) may not be considered locally native or desirable for mitigation by CA Dept. of Fish & Wildlife
- 112 mitigation trees proposed

PRESERVATION RECOMMENDATIONS - See Appendix C for Detailed Recommendations

TREE PROTECTION ZONES - *areas surrounding trees that shall not be accessed until project complete*
Areas to be fenced prior to demolition through finished landscaping are represented in radial feet from trunks. These zones shall be fenced off after other preservation measures are completed. No storage, access, or activity is allowed within tree protection zones during all construction phases.

FENCING

- Six feet tall, chain link fencing anchored in the soil
- Precise location to be determined by consulting arborist on site for each individual tree on site, prior to demolition

AIR SPADING AND ROOT PRUNING

Trees located in close proximity to proposed construction

- Prior to demolition the rooting zones trees with construction within five feet of driplines shall be delineated with orange or white spray paint on the ground
- Air spade excavation shall be implemented along the outside painted line, down to the bottom of root depth
- Root pruning, using sharp tools, shall occur for all roots exposed, roots covered and kept wet till backfilled, *followed by installation of protective fencing along the line of root pruning.*

Root cutting or tearing may become a serious cause of tree decline. It can lead to loss of structural support, disruption of water and element uptake, and infection by disease causing organisms.

- Avoid cutting large (one-inch or greater in diameter) roots.
- Sharp tools should be used where cutting of large roots is deemed necessary.
- Backfill immediately with soil over recently cut roots.
- Torn roots should be properly re-cut, and backfilled.

WASHING OFF FOLIAGE & IRRIGATING

- coast redwood trees shall be washed off daily during grading, and weekly up until the landscaping phase
- supplemental irrigation shall be provided as needed due to drought, as determined after the rainy season

ROOT CROWN CLEARANCE

Ivy and soil shall be removed from trees to ensure that they are not decayed, and to create positive drainage away from trunks as is needed to prevent root crown rot disease.

PRUNING

Crown Cleaning for Safety

Trees shall be pruned to reduce likelihood of failure (safety) by removing dead, dying, weak and other likely to fail branches two inches in diameter and larger. Branches should be removed using thinning cuts or professional reduction cuts back to branches at least 33% of the size of the branch removed. Prior to implementing crown cleaning for safety, consulting arborist shall inspect & verify branches to be pruned.

Clearance - Directional Pruning

Trees that have branches extending into the site may interfere with construction. Thinning or heading cuts are recommended, with heading cuts made back to lateral branches that are not growing in the direction of the clearance zone. If more than 15% of foliage will be removed by directional pruning then pruning to provide structural balance to the tree may be required. Prior to implementing clearance pruning consulting arborist shall inspect & verify branches to be pruned.

Limitations

- No trees shall be climbed using climbing spurs
- All cuts shall be made in accordance with the ANSI A300 pruning standard section 7.
- No heading or shearing cuts shall be made without authorization or as recommended above.
- No more than one-third of the foliage shall be removed from an individual tree without authorization.
- Work practices shall be consistent with the current ANSI A300 Part 1 pruning standard section 8 and the ANSI Z133 Standard

MULCHING

All bare soil surfaces within tree protection zones shall have 3 inches of wood chip mulch installed prior to fencing.

Sudden Oak Death (SOD) Treatments

All coast live oak trees are vulnerable to SOD, and shall be treated in November-December with three to six pounds of granulated gypsum on the soil surface (raked in) surrounding each trunk, and Agri-Phos (or Reliant) + PentraBark sprayed onto trunks, consistent with legal use of these products.

SPECIAL TREATMENT FOR TREES WITH MINIMAL (15 FOOT) TREE PROTECTION ZONES

1. Minimize pruning of crown to reduce stress, prune only what is needed for clearance, health & safety
2. Meticulously air spade and root prune along edge of construction/grading impacts
3. Maintain protective fencing along edge of tree protection zones prior to demolition through landscape phases
4. Irrigate species as recommended; Oregon ash regardless of drought, valley oak in drought, coast live oak in severe drought, but avoid excessive irrigation of this species it does not tolerate saturated soil

APPENDIX A - NON-RIPARIAN TREES TO REMOVE (table provided by Kerri Watt)
(all trees below except for #18 are protected)

tag #	Common Name	Trunk Diameters measured at 54 inches above grade (inches)
7	fig	2,5,5,
8	fig	9,12
9	fig	4,5,6,6,8,9
10	pecan	6,13,14
11	valley oak	10.5
12	pecan	52
13	valley oak	10
14	pecan	6,7,5,10,5
15	valley oak	27
16	valley oak	16
17	pecan	41
18	pecan	3,7
19	black walnut	5,6,6,7,7,8,9
20	valley oak	13
21	valley oak	21
22	valley oak	14.5
23	valley oak	20.5
24	valley oak	25
25	valley oak	29.5
26	valley oak	2-6
39	valley oak	17
41	valley oak	35
42	valley oak	15
43	valley oak	9
44	valley oak	28.5
46	valley oak	25.5

tag #	Common Name	Trunk Diameters <i>measured at 54 inches above grade (inches)</i>
47	valley oak	27
48	valley oak	14
49	valley oak	9
50	valley oak	7
51	valley oak	11
52	valley oak	12
53	valley oak	22
54	valley oak	24
55	valley oak	12
56	valley oak	24
57	valley oak	15
58	valley oak	10
59	pecan	60
60	valley oak	7
61	valley oak	8.5
62	valley oak	10
63	valley oak	10
64	valley oak	6
69	valley oak	34
70	valley oak	8
71	valley oak	7.5
72	valley oak	13.5
73	valley oak	13.5
74	valley oak	7
75	valley oak	13
87	coast live oak	14
88	coast live oak	11
89	coast live oak	34

tag #	Common Name	Trunk Diameters <i>measured at 54 inches above grade (inches)</i>
90	coast live oak	8.5
91	coast live oak	17
93	coast live oak	8.5
94	coast live oak	8
95	coast live oak	32
96	valley oak	11.5
ET-1	pecan	19
ET-2	pecan	5,7
ET 3 (0244)	coast live oak	68
ET 4	valley oak	12
ET 5	valley oak	27
ET 22	valley oak	10
ET 23	valley oak	11
ET 24	valley oak	10
ET 25	valley oak	14
ET 26	valley oak	10
ET-56	valley oak	27
247	valley oak	17.8
248	coast live oak	10.7
249	valley oak	16
250	valley oak	16
251	valley oak	24
252	valley oak	10.1
253	valley oak	11.5
254	coast live oak	6.8
256	valley oak	14.5
0257 / ET-111	valley oak	2.5

tag #	Common Name	Trunk Diameters <i>measured at 54 inches above grade (inches)</i>
0258 / ET-110	valley oak	6
0259 / ET-109	valley oak	12,5
260	valley oak	18.5
261	valley oak	14.6
ET-62	valley oak	6
ET-63	valley oak	6
ET-67	coast live oak	12
ET-69	valley oak	10
ET-90	valley oak	17.9
ET-91	valley oak	12.5
ET-96	coast live oak	26.2
ET 112	pecan	17.1
ET 113	valley oak	3,8

APPENDIX B - PRESERVATION RECOMMENDATIONS

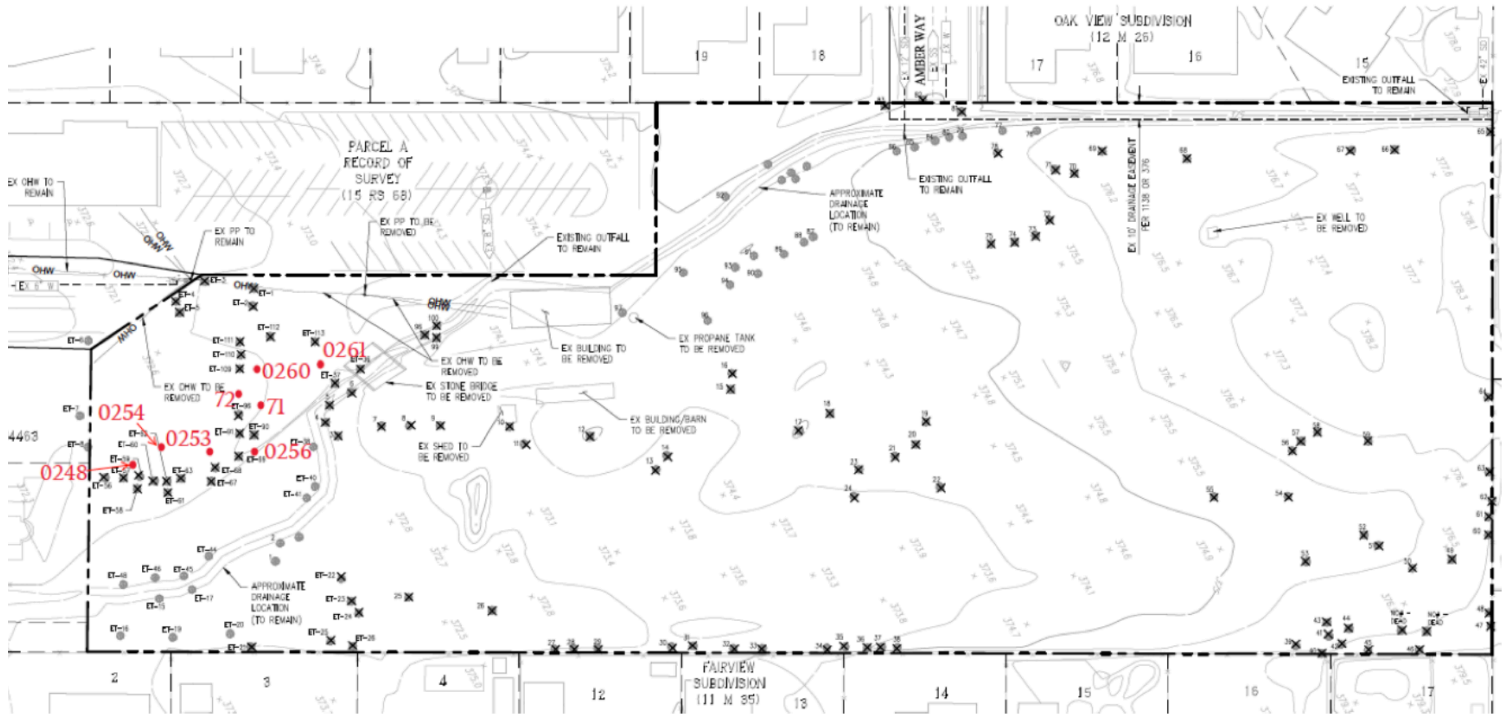
Tree #	Species	Trunk Diameter (s)	Locale	Tree Protection Zone-radial ft.	Air spade, root prune	Crown prune	Water	Root crown	Sudden Oak Death
ET 6	coast redwood (<i>Sequoia sempervirens</i>)	23	neighbor LOT 15	15	YES	clear	wash, irrigate		
0244 ET 7	valley oak (<i>Quercus lobata</i>)	47	neighbor LOT 15	20	YES	clear			
ET 8	coast redwood	36 ±	neighbor LOT 15	20	YES	clear	wash, irrigate		
ET 15	Oregon ash (<i>Fraxinus latifolia</i>)	4 to 9	parcel F	25	NO	clear, crown clean	irrigate	exam	
ET 16	English walnut (<i>Juglans regia</i>)	12; 23	parcel F	20	NO	clear, crown clean			
ET 17	coast live oak (<i>Quercus agrifolia</i>)	10	parcel F	15	YES	clear, crown clean	avoid excess water	exam	treat
ET 19	black walnut (<i>Juglans hindsii</i>)	7; 9; 9; 9; 10; 10	parcel F	25	NO	clear, crown clean			

Tree #	Species	Trunk Diameter (s)	Locale	Tree Protection Zone-radial ft.	Air spade, root prune	Crown prune	Water	Root crown	Sudden Oak Death
ET 20	black walnut	6; 7; 7; 7; 7; 9	parcel F	25	NO	clear, crown clean			
ET 38	Oregon ash	36 ±	parcel F	25	NO	clear, crown clean	irrigate		
ET 40	Oregon ash	14	parcel F	25	NO	clear, crown clean	irrigate		
ET 41	Oregon ash	16	parcel F	25	NO	clear, crown clean	irrigate		
ET 44	Oregon ash	26	parcel F	20	NO	clear, crown clean	irrigate		
ET 45	Oregon ash	18	parcel F	25	NO	clear, crown clean	irrigate		
ET 46	Oregon ash	32	parcel F	30	NO	clear, crown clean	irrigate		
ET 48	valley oak	5	parcel F	10	NO	clear, crown clean	irrigate in drought		
1	valley oak	19	parcel F	20	YES	clear, crown clean	irrigate in drought		
2	pecan (<i>Carya illinoensis</i>)	11.8	parcel F	15	YES	clear, crown clean	irrigate		
27	valley oak	9; 12	fenceline near lot 13	15	YES	crown clean	irrigate in drought		
28	valley oak	5; 7	fenceline near lot 13	15	YES	crown clean	irrigate in drought		
29	valley oak	10; 12	fenceline near lot 13	15	YES	crown clean	irrigate in drought		
30	valley oak	7; 7.5	fenceline near lot 12	15	YES	crown clean	irrigate in drought		
31	valley oak	9.5	fenceline near lot 12	15	YES	crown clean	irrigate in drought		
32	valley oak	8.5	fenceline near lot 12	15	YES	crown clean	irrigate in drought		

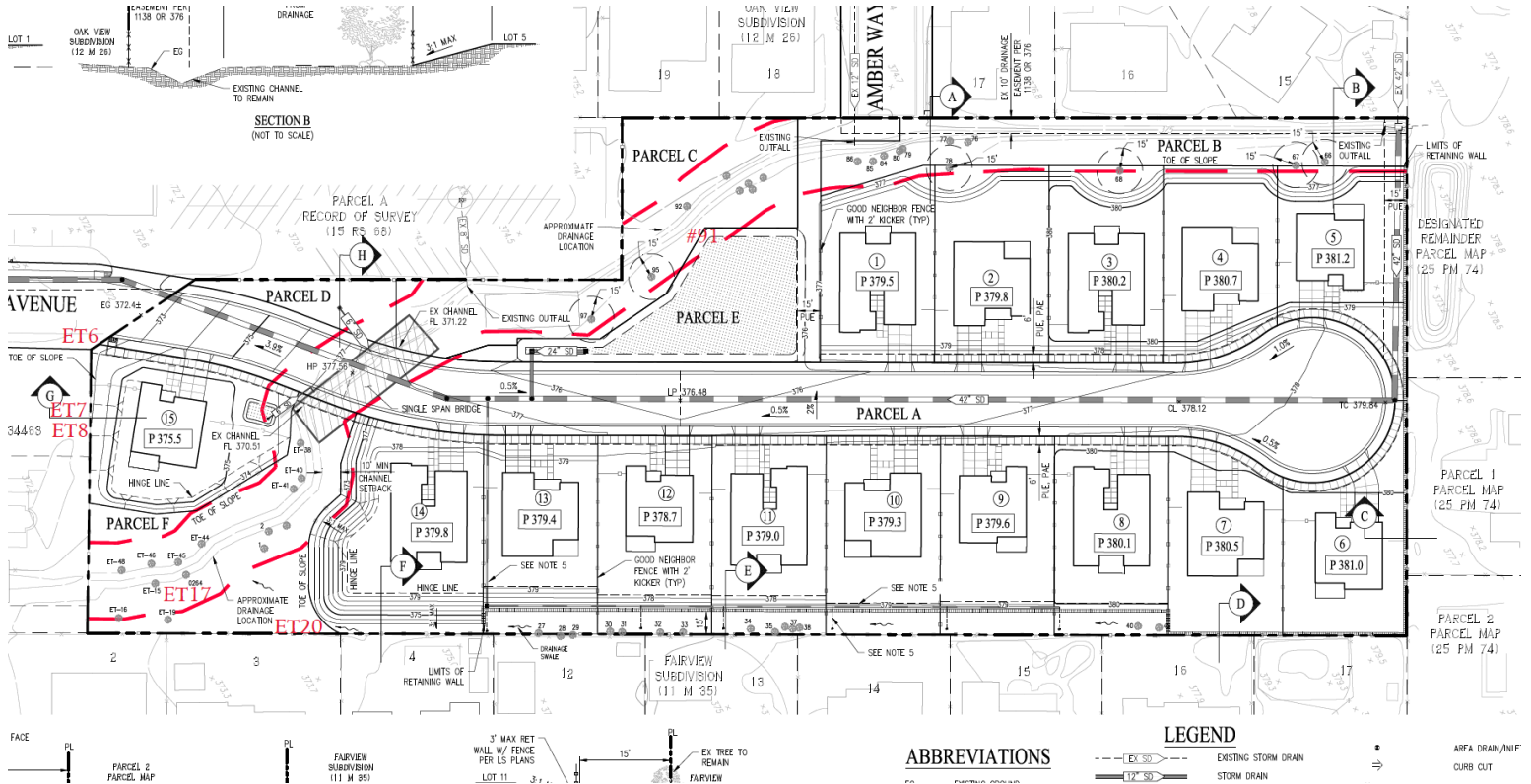
Tree #	Species	Trunk Diameter (s)	Locale	Tree Protection Zone-radial ft.	Air spade, root prune	Crown prune	Water	Root crown	Sudden Oak Death
33	valley oak	14	fenceline near lot 12	20	YES	crown clean	irrigate in drought		
34	valley oak	7	fenceline near lot 11	15	YES	crown clean	irrigate in drought		
35	valley oak	7; 7; 8	fenceline near lot 11	15	YES	crown clean	irrigate in drought	clear vines	
36	valley oak	5	fenceline near lot 11	15	YES	crown clean	irrigate in drought		
37	valley oak	7; 8; 9; 9;	fenceline near lot 11	25	YES	crown clean	irrigate in drought	clear vines	
38	coast live oak	7.5	fenceline near lot 11	15	YES	crown clean			
40	valley oak	13	fenceline near lot 8	15	YES	crown clean	irrigate in drought		
45	valley oak	7.5	fenceline near lot 8	20	YES	crown clean	irrigate in drought		
66	valley oak	12	lot 5	15	YES	crown clean	irrigate in drought		
67	valley oak	6; 7; 10; 11.5	lot 5	15	YES	crown clean	irrigate in drought		
68	valley oak	40	lot 3	15	YES	crown clean	irrigate in drought		
76	valley oak	13	lot 2	15	YES	crown clean	irrigate in drought		
77	valley oak	12.5	lot 2	15	YES	crown clean	irrigate in drought		
78	valley oak	12.5	lot 2	15	YES	crown clean	irrigate in drought		
79	valley oak	7	lot 1	15	YES		irrigate in drought		
80	valley oak	9	lot 1	15	YES		irrigate in drought		
84	valley oak	4; 5; 6	lot 1	15	YES		irrigate in drought		
85	valley oak	11.5	lot 1	15	YES		irrigate in drought		
86	valley oak	9.5	lot 1	15	YES		irrigate in drought		
91	coast live oak	3;14	parcel E-C	15	YES		avoid excess water		treat
92	valley oak	60 ±	parcel E-C	15	YES	crown clean	irrigate in drought		

<i>Tree #</i>	<i>Species</i>	<i>Trunk Diameter (s)</i>	<i>Locale</i>	<i>Tree Protection Zone-radial ft.</i>	<i>Air spade, root prune</i>	<i>Crown prune</i>	<i>Water</i>	<i>Root crown</i>	<i>Sudden Oak Death</i>
95	<i>coast live oak</i>	32	<i>parcel E-C</i>	15	YES	crown clean	avoid excess water		treat
97	<i>coast live oak</i>	20	<i>parcel C</i>	15	YES		avoid excess water		treat

APPENDIX C - TREE LOCATION MAPS
PRE-CONSTRUCTION



PROPOSED CONSTRUCTION



APPENDIX D - CERTIFICATE OF PERFORMANCE

I, Michael Baefsky certify:

- That I have reviewed the The City of Calistoga's Tree Ordinance, Chapter 19.01;
- That I have evaluated the subject trees, and stated my findings accurately. The extent of the evaluation is stated in the attached report;
- That I have no current or prospective interest in the vegetation or the property that is the subject of this report and have no personal interest or bias with respect to the parties involved;
- That the analysis, opinions, and conclusions stated herein are my own;
- That my analysis, opinions, and conclusions were developed and this report has been prepared according to commonly accepted professional practices;
- That no one provided significant professional assistance to the consultant, except as indicated within the report;
- That my compensation is not contingent upon the reporting of a predetermined conclusion that favors the cause of the client or any other party.

I certify that I am Registered Consulting Arborist #456, a member of the American Society of Consulting Arborists, and am Certified Arborist & Qualified Risk Assessor #WE0222A, Agricultural Pest Control Advisor #074617, Qualified Applicator #99864, Licensed Landscape Contractor (inactive) #931410, and have been involved in the practice of Arboriculture, Integrated Pest Management, Plant Health Care and Ecological Soils Management, and the study of soils and horticulture for over thirty years.

Michael Baefsky

TREES, BUGS, DIRT

LANDSCAPE CONSULTING & TRAINING

December 16, 2021

Denova Homes
1500 Willow Pass Court
Concord CA

Subject: Riparian Corridor Tree Removal & Mitigation Plan for 2008 Grant St., Calistoga

SUMMARY

Eleven indigenous oak (*Quercus spp.*) trees are proposed for removal within a riparian corridor on site. Species include coast live oak (*Quercus agrifolia*) and valley oak (*Quercus lobata*). To mitigate their removal planting one hundred and twelve replacement trees is proposed. New tree materials should be sourced from local watersheds, planted and maintained with protection from deer, weeds, and drought. I recommend monthly & annual monitoring.



existing trees in the riparian corridor at 2008 Grant Street, Calistoga (October, 2020)

INTRODUCTION

BACKGROUND

The City of Calistoga has requested a tree replacement/mitigation plan for trees proposed for removal from a riparian zone on site.

LOCATION

2008 Grant Street, also identified as 1708 Redwood Avenue, Calistoga CA.

SETTING

The site is a large vacant lot fenced off from other properties on three sides, bounded on one side by Redwood Avenue, and backyard fences on either side of Amber Way on another side. There is a dry drainage area on the property that is lined with trees that is referred to as the “riparian corridor”, and trees are scattered and clumped throughout the property.

ASSIGNMENT

I was hired by DeNova Homes to prepare a tree replacement and mitigation plan.

LIMIT OF ASSIGNMENT

I did not reinspect the tree proposed for removal beyond the fifty one trees out of a population of one hundred and forty five, that I sampled in 2020 to verify previously published (McNair 2017) data quality.

OBSERVATIONS

METHODS

- Kerri Watt (Denova Homes) reviewed memos, reports, analyses & city requests for accuracy & provided corrections and feedback as needed to produce an accurate, useful and responsive professional report
- Reviewed revised grading & drainage plans (CBG,11.24.21) & located new replacement trees approximately on this plan
- Used 2017 (McNair) & 2020 (Baefsky) field data to determine replacement tree diameters
- Calculated the number of replacement trees using a 4 to 1 replacement ratio for oak trees from 5-10 inches diameter, 5 to 1 ratio for oaks between 10 to 15 inches in diameter, and 10 to 1 ratio for oaks greater than 15 inches in diameter
- References
 - Planting Native Oaks, Napa County Resource Conservation District
 - Napa County Voluntary Oak Woodland Management Plan, 2010, Napa County Resource Conservation District
 - Guidelines to Minimize Phytophthora Contamination in Restoration Projects, 2016. Working Group for Phytophthoras in Native Habitats
 - How to Grow California Oaks, 1989. Doug McCreary. UC Cooperative Extension
 - Regenerating Rangeland Oaks in CA, 2009. Doug McCreary. Univ. of CA Publication 216011e
 - Guide to Growing CA Oaks, 1999, 2000. Photosphere Research
 - How to Grow an Oak Tree from An Acorn, undated. Audubon CA, https://ca.audubon.org/sites/default/files/workinglands_plantingoaks_021412.pdf

DATA

tag #	name	cumulative diameter	replacement ratio	replacement #
65	valley oak	18	10/1	10
81	valley oak	11 trees 6-9"	4/1	44
83	coast live oak	multiple trunks 6-15	5/1	5
98	valley oak	13	5/1	5
99	valley oak	21	10/1	10
100	valley oak	17	10/1	10
ET37 (0262)	valley oak	43	10/1	10
3	valley oak	6.5	4/1	4
4	valley oak	11	5/1	5
5	valley oak	7	4/1	4
6	valley oak	11	5/1	5
			TOTAL	112

RECOMMENDATIONS

PLANT SOURCES

NURSERIES

- Seedlings or saplings should be procured from nurseries that it is locally native, indigenous to the watershed or area of the watershed, or contract grown for this project from locally native acorns
- Nurseries should adhere to best management practices for minimizing spread of sudden oak death disease including very high standards for sourcing and sanitation as outlined in Guidelines to Minimize Phytophthora species pathogens in restoration nurseries including but not limited to Objective:
 - Make sure propagation collection site material is healthy and free from debris
 - Use clean tools, new bags, and have clean shoes on when collecting acorns & propagating
 - Use only clean containers
 - Use potting media that is pathogen free and is handled and stored, to prevent contamination
 - Use only uncontaminated, appropriately treated water for irrigation
 - Irrigate appropriately, not under or overwatering that encourages diseases
 - Water from outside nursery should not flow into the nursery
 - Outside plants should not overhang nursery building
 - Propagation and growing areas need to be away from cull pile and discard areas
 - Growing materials need to be separated from discard materials
 - Dirty containers should be away and separated from new materials
 - Keep benches, work areas, tools, surfaces, and the nursery environment clean and sanitized



symptom of sudden oak death caused by *Phytophthora ramorum* on coast live oak (*Quercus agrifolia*)

PLANTING

Whether to plant acorns or seedlings depends on availability of planting material and soil and moisture conditions at the planting site. While acorns are easier to plant, the survival of seedlings is usually greater if they are planted correctly at the right time of the year. Also, if there are high populations of acorn-eating rodents it may be easier to plant seedlings than trying to protect the acorns.

ACORNS

- Plant before end of December
- Clear 3 foot diameter radius of vegetation and mulch down to mineral soil
- Sow acorns in the fall/early winter, as soon as soil has been moistened several inches down.
- Pre germinate acorns before planting
- Plant in ground when radicles are 1/4 inch to 1/2inch (1/2 cm to 1 cm) long.
- Cover acorns with 1/2 to 1 inch (1 to 2 1/2 cm) of soil.
- If acorns begin to germinate during storage, out plant as soon as possible. Use a screwdriver/pencil to make a hole in the soil; plant with the radicle pointing down.
- If radicles become too long, tangled, and unwieldy to permit planting, clip them back to 1/2 inch (1 cm) and plant in ground.
- Plant two or three acorns per spot and thin to the best seedling after 1 year.

SEEDLINGS

- Clear 5 foot diameter radius of vegetation and mulch down to mineral soil
- Plant oak seedlings early in the growing season, soon after the first fall rains have saturated the soil
- Do not plant after early March unless irrigation is planned.
- Make sure seedlings are not frozen, dried out, or physically damaged before, during, or after planting.
- Plant seedlings at proper depth, make sure they are not J-rooted (roots circling up).
- In hard, compacted soils, break up soil manually through the compacted zone prior to planting to promote deeper rooting.
- If planting holes are augered, make sure that the sides of the holes are rough and not smooth.

DEER BROWSE PROTECTION - tree shelters & cages

- Install shelters or tubes so they are upright and secure them to stakes.
- Use stakes that are durable enough to last the length of time tree-shelters will be in place.
- Drive stakes at least 1 foot(31 cm) into the ground before planting seedlings.
- Make sure tops of stakes are lower than tops of shelters.
- To prevent seedling desiccation, install shelters with the base buried in the ground.
- To prevent bird access, install plastic shelters with mesh covers.
- Keep a 4-foot (1.2 m) diameter or larger circle around shelters free of weeds for at least 2 years after planting, and remove weeds that grow inside shelters.
- Replace flexible netting that has blown off shelter tops.
- Replace stakes that have rotted or broken.
- Leave shelters in place for at least 3 years after seedlings have grown out of the tops, longer if shelters are still intact and are effectively protecting seedlings.
- Remove shelters if they are restricting growth or abrading seedlings; to remove solid shelters, slice down the sides with a razor or knife, being careful not to damage the seedling inside.

Browse protection tube installation specification is as follows:

1. Drive stake into ground 1.5" from the base of the seedling
2. Drive stake into ground 8-10" deep
3. Drive stake into ground on north side of seedling for northern & eastern exposures.
4. Gently guide the non-flared end of tube over seedling.
5. Fasten ties loosely around stake
6. Place gloved hand over top of tube, push down until the base of tube sits .5-1" deep in soil.
7. Cinch ties tight.

WEED CONTROL

ACORNS

- install 6” of wood bark mulch within planting circle
- manually remove all weeds within three foot radius
- Maintain a weed-free circle for at least 3 years after planting
- Initiate annual weed control by early spring to ensure that weeds do not become established and deplete soil moisture before oak roots can penetrate downward.
- Visit planting sites at least twice annually to remove both early- and late-season weeds that may have grown through mulch.
- If using post-emergent herbicides, make sure that chemicals do not come in contact with foliage or the expanding buds of seedlings.
- After weed control is discontinued, visit plantings regularly to make sure vole populations and damage to seedlings have not increased. If increases are observed, remove thatch.

SEEDLINGSS

- install 3” of wood bark mulch within planting circle
- manually remove all weeds within five foot radius
- Keep planting spots free of weeds for at least 3 years after planting.

IRRIGATION/DROUGHT CONTROL

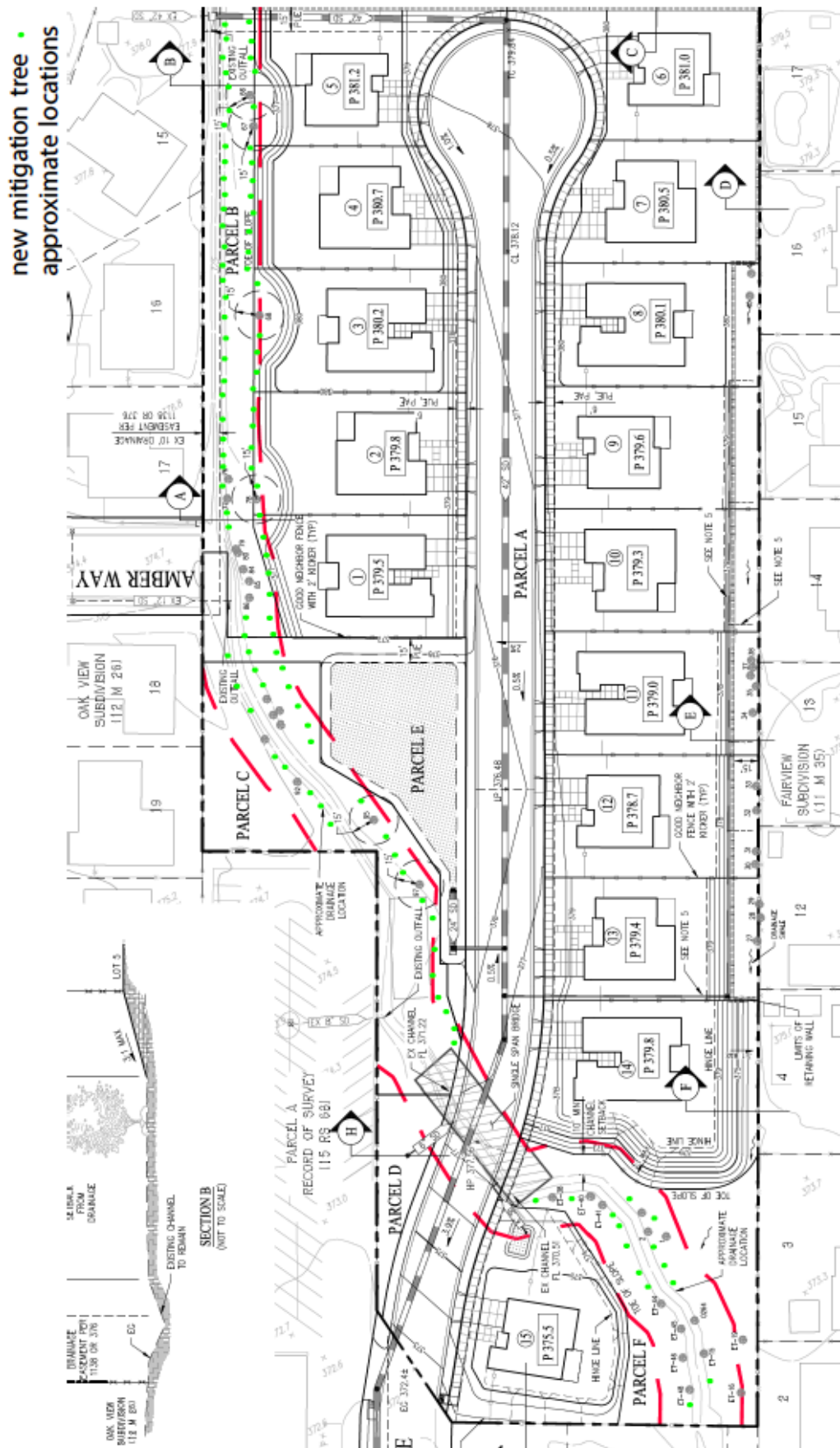
ACORNS - maintain soil moisture using drip, soaker, or bubbler irrigation during typical rainy season (October-April) at least 4” deep

SEEDLINGS - maintain soil moisture using drip, soaker, or bubbler irrigation during typical rainy season (October-April) at least 7” deep

MONITORING PROGRAM

- *MONTHLY for Three Years*
 - *soil moisture*
 - *weeds*
 - *animal damage*
- *QUARTERLY for Two Years*
- *ANNUALLY*
 - *survival*
 - *growth*
 - *tree shelter*

Tree Location Map - Approximate Tree Locations



CERTIFICATE OF PERFORMANCE

I, Michael Baefsky certify:

- That I have reviewed the The City of Calistoga's Tree Ordinance, Chapter 19.01;
- That I have evaluated the subject trees, and stated my findings accurately. The extent of the evaluation is stated in the attached report;
- That I have no current or prospective interest in the vegetation or the property that is the subject of this report and have no personal interest or bias with respect to the parties involved;
- That the analysis, opinions, and conclusions stated herein are my own;
- That my analysis, opinions, and conclusions were developed and this report has been prepared according to commonly accepted professional practices;
- That no one provided significant professional assistance to the consultant, except as indicated within the report;
- That my compensation is not contingent upon the reporting of a predetermined conclusion that favors the cause of the client or any other party.

I certify that I am Registered Consulting Arborist #456, a member of the American Society of Consulting Arborists, and am Certified Arborist & Qualified Risk Assessor #WE0222A, Agricultural Pest Control Advisor #074617, Qualified Applicator #99864, Licensed Landscape Contractor (inactive) #931410, and have been involved in the practice of Arboriculture, Integrated Pest Management, Plant Health Care and Ecological Soils Management, and the study of soils and horticulture for over thirty years.

Michael Baefsky