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2/8/2012

Santana Row – Lot 11
Winchester Boulevard and Olsen Drive, San Jose
Pre-Construction Tree Survey

Arborwell was retained to prepare a Pre-construction Tree Survey for Lot 11 of Santana Row Shopping Center at Winchester Boulevard and Olsen Drive in San Jose, California. The proposed construction occupies the southeast corner of Lot 11 adjacent to the intersection of the aforementioned streets (see Figure 1). This plan includes an inventory of the trees that will potentially be impacted by construction, including identifying all trees onsite and Geographic Information Systems mapping. The site was visited on February 6th, 2012.

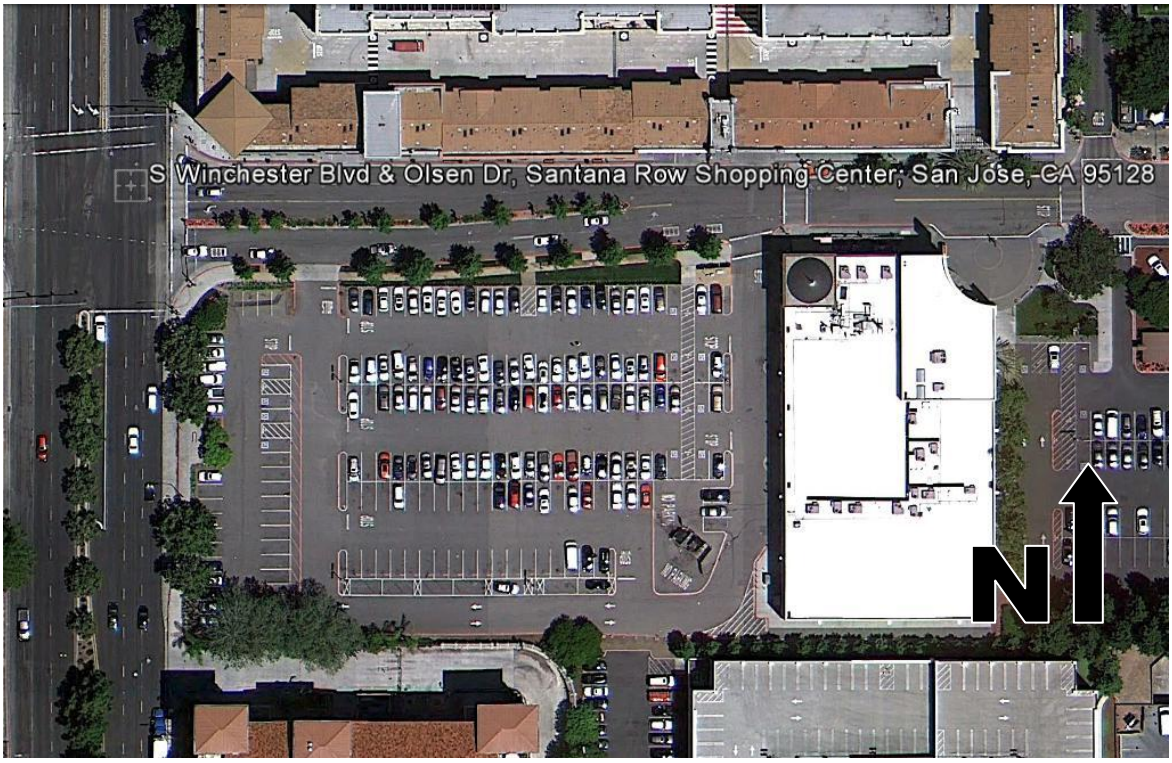

Figure 1: Relative location of proposed construction area at the southeast corner of Winchester Boulevard and Olsen Drive, San Jose, California. The construction will occupy the parking lot in the left side of the image.

Note that the recommendations in this report are based on visual inspection on the above-ground parts of the tree at the time of the site visit. No soil was removed for below-grade inspection and no aerial inspection was performed. Information in this

letter may warrant further investigation as site conditions change over time. This report contains the following: onsite conditions, general pre-construction recommendations, Appendix 1 (inventory data), Appendix 2 (additional Figures), and Appendix 3 (species map).

Onsite Conditions

Data collected per individual tree for the inventory are as follows: scientific name, common name, diameter at breast height (in inches), canopy height (in feet), canopy spread (in feet), and condition (1-5; 1 = poor and 5 = excellent), heritage status, action and informational notes about the specific individual. Action refers to whether the tree is to be retained, removed and replaced, or removed and not replaced due to construction.

The locations of the trees were also plotted on a map to show their proximity to pre-existing buildings (see Appendix 3). During the site visit, a total of forty-eight (48) individuals were identified and quantified on-site. Of the 48 individuals observed on the property, there are nine (9) species (see Table 1).

Most species are showing mild external symptoms of stress. This stress is exhibited in as yellowing of the foliage, called chlorosis. A possible cause for this type of symptom is under watering/heat stress. It is recommended that all trees to remain be fertilized yearly to reduce stress caused by malnutrition, fertilizing in fashion consistent to the needs of the species, in addition to supplemental watering of individual suffering from heat stress.

Of the species located onsite, no individuals are designated as Protected Trees due to the size and species of the trees. A tree, according to Chapter 13.32 of Title 13 of the City of San Jose's Municipal Code, is "any live or dead woody perennial characterized by having a main stem or trunk which measures fifty-six (56) inches or more in circumference at a height of twenty-four (24) inches above natural grade slope." There are no trees onsite that fall under this designation (see Appendix 1).

Species	Count	Species	Count
Cinnamomum camphora	2	*Populus ssp.*	7
Lagerstroemia indica	3	*Pyrus calleryana*	7
Liquidambar styraciflua	10	*Sequoia sempervirens*	9
Pistacia chinensis	1	*Syagrus romanzoffiana*	5
Platanus hispanica	4		

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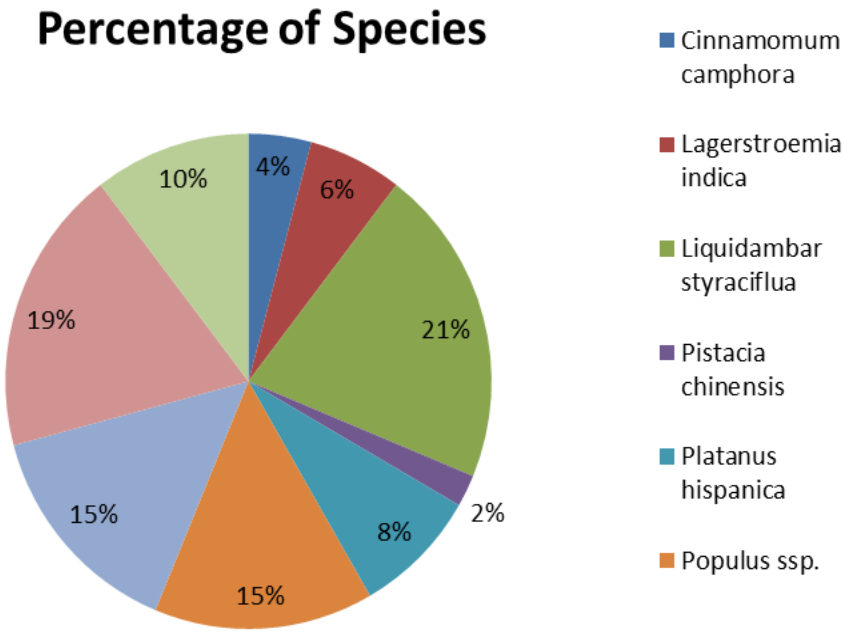

Table 1: Listed species on-site, including their percentage and frequency.

There are nine coast redwoods onsite. These specimens are experiencing overcrowding cause by their close proximity to each other. As a result a slight decline in the trees is observed. All redwood specimens are showing signs of botryosphaeria canker caused by artificial irrigation, apparent by a reddish hue in the foliage.

Most trees and shrubs are susceptible to dieback and cankers caused by several species of the fungal genus *Botryosphaeria*. Botryosphaeria fungi are typically opportunistic pathogens. Opportunistic pathogens only cause disease on plants that are stressed. Therefore, avoiding plant stress, which predisposes plant tissue to infection and colonization by this fungal group, is the best strategy to prevent Botryosphaeria disease problems.

Symptoms of Botryosphaeria cankers and dieback are most commonly seen as wilting or dieback of a branch or branches on a tree or shrub that, in other respects, appears healthy. Cankered twigs and branches may not be noticeable until wilt and dieback occur. However, if bark is removed, the wood beneath the bark will be discolored brown to reddish-brown instead of white. In some cases, cankers may appear sunken and/or darkened or be surrounded and contained by callused wound wood, particularly on larger branches or trunks. In other cases, bark may peel and drop from cankered areas.

There are no effective fungicide controls for Botryosphaeria dieback. The best defense against this commonly occurring disease is to ensure plants are in optimal health by providing the appropriate cultural requirements for the particular plant species, avoiding plant stress and injury, and employing appropriate sanitation measures. It is important to remember that under optimal growing conditions, trees and shrubs are typically able to resist infection and colonization by Botryosphaeria fungi.

General Pre-construction Recommendations

Preconstruction Contractor meeting

Prior to ground break a preconstruction meeting shall be held with the Site Arborist, Project Superintendent and other parties associated with the project that may encounter a subject tree during the course of the construction to discuss the guidelines included in this report.

Soil Cut or Fill within Root Zones

One of the most important guidelines to be followed when construction occurs near trees is: Do not disturb the ground surface within the dripline of any tree proposed to be retained. Disturbing the ground includes heavy equipment, over-watering, trenching, excavating, or any other activity, including foot traffic, within the specified area. When adding new fill to any root zone, care should be taken to assure that it is no deeper than six inches. This fill should not be compacted or placed within three feet of any trunk. If compaction is necessary, 60-70% should be the maximum allowed. In addition, any change in the natural grade should provide drainage *away from* rather than *toward* tree. It is important to remember that the removal of any soil within the drip line could do serious damage. If soil must be removed, no more than four inches should be allowed. This soil removal work must be done by hand or "air spade". If roots larger than tree inches in diameter are encountered, root severance guidelines must be followed.

Root Excavation Guidelines

90% of all roots are located in the top 18" of soil. Proper excavation of roots in this area is critical to a tree's successful recovery. The top 24" of soil should be removed with the assistance of an air spade and assisting hand tool, trenching at 400 to 600 PSI. An air spade will blow soil away from root systems with minimal damage.

Root Severance Guidelines

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Any tree under stress before root severance may not survive this procedure. Consult the onsite Certified Arborist before damaging roots. The purpose of this procedure is to minimize the health impact caused by root severance. By following this procedure, recovery time and the impact on tree health can be reduced. This procedure is to be followed whenever damage to any root over three inches in diameter occurs.

1. The root must be covered immediately with a board or burlap and kept moist.
2. Before backfilling, the damaged roots should be clean cut with a handsaw or chainsaw. When possible, the root should be cut back to a lateral (side) root. As soon as severance occurs, cover or wrap the root end with a moist plastic bag secured with tape or rubber band. Backfill as soon as possible.

Root Zone Irrigation Before and After Root Damage

Any tree which will have or has had damage to its roots should be irrigated. Three weeks prior to excavation or grading place a soaker hose at the drip line. Water once a week for one full day or as necessary to wet the soil to a depth of two feet. If damage has already occurred, place the soaker hose in an area where roots have not been disturbed and also place a soaker hose over the area that was damaged. Continue this irrigation practice once a month for eight months.

Tree Protection Fences

The number one reason existing trees are killed, injured or stressed is a direct result of the construction process. A tree protection zone (TPZ) is to be installed with the parameter of 0.5 feet of TPZ for every inch of diameter of the tree. For example, a tree with 51 inches trunk diameter at grade level will tree will require 25.5 feet radius TPZ around the tree. To protect trees, install a six foot high sturdy link fence with post driven into the ground every 10-12 feet. The fencing should be located at the drip line of the tree and not disturbed for any reason. Because many trees have roots well beyond the drip line, place the fence beyond the drip line if possible. Signs placed on the fence stating “All Workers Keep Out” will help prevent potential damage. All fencing should be in place before any construction begins and left until all landscape grading and trenching is complete. Avoid placing of underground utilities within the drip line of any tree. When utilities are run through the root zone of a tree, horizontal coring should be used instead of trenching. If it is not possible to use horizontal coring, the onsite certified arborist should be contacted before trenching begins.

Recommended Services (Pruning, Cabling, Fertilization, Micorrhizae, etc.)

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All services recommended in this report should be done by a Certified Arborist or Certified Tree Worker in accordance with the ANSI-A300 standards. All pruning necessary to provide clearance during construction should be performed by a Certified Arborist or Tree Worker and not undertaken by construction personnel. Accidental damage to trees should receive immediate corrective attention.

Where deep root fertilization has been recommended, a solution of four pounds of Doggett's 32-7-7 per 100 gallons of water should be used. This should be injected at the rate of ten gallons per inch of trunk diameter at 200-300 pounds of pressure. Unless otherwise stated, fertilization should take place between May and September. Mycorrhizal inoculum: Trees are to have roots inoculated with endo/ectomycorrhizal fungal inoculum.

Design Guidelines

1. Avoid placement of fence anchors in close proximity to tree trunks.
2. Don't install paving or build structures in close proximity to trees with invasive or surface oriented root systems. (unless existing conditions are already present)
3. Where structure height will require removal of large branches, do not plan construction within tree drip line.
4. Do not place chimney ventilation within the tree canopy area.
5. Assure that roof drainage is directed away from trees.
6. For trees to be installed, anticipate tree height and spread at maturity. Do not place structures so as to limit normal form of the tree as it matures.
7. Contact an Arborwell Certified Arborist to review the landscape design before it is implemented.
8. Do not install impervious materials such as roads and walkways where they will impact more than 25% of drip line area. (unless existing conditions are already present)
9. When designing walkways within the drip line, use pervious materials such as interlocking paving wherever possible.
10. Make sure that the tree requirements are fully recognized during design, construction installation and maintenance of landscape.

Construction Guidelines

- Do not use tree trunks as a winch support in demolition or for moving and lifting large loads
- Do not dump concrete residue, chemicals, solvents, etc., on site.

- Do not attempt demolition of trees with grading equipment when trees that are to be preserved are in the vicinity. Trees uprooted by pushing or pulling may take the branches or root systems from adjacent trees with them. Trees and stumps should be removed by a qualified company.
    1. Grade and trench lines radial to trees rather than tangential. If roots are encountered while trenching, follow root severance guidelines.
    2. In areas near or under trees where soil compaction has occurred from operation of heavy equipment or other operations, aerate (fracture) soil as quickly as practical.
    3. If demolition of existing roads, structures, etc. is near any tree to be preserved, a small soft rubber tire loader should be used. Any work within six feet of any trunk should be performed by hand.

Maintenance Guidelines

1. All recommended services should be performed before construction ends.
2. Continue to maintain trees, including irrigation as necessary, until the property is occupied by new owners.
3. Provide the new property owners with information they will require for proper maintenance of trees on the property.

Concluding Remarks

While trees vary in their tolerance to changed conditions, disruption in any form of the environment to which the trees have grown accustomed, may result in adverse reaction. No assurance can be offered that if all of the recommendations and precautionary measures are accepted and followed, the desired results will be achieved. Demolition and construction activity among and near trees is inherently contrary to tree welfare. The objective of these guidelines is to provide information useful in mitigating undesirable consequences resulting from uninformed or careless acts.

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Appendix 1

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Santana Row Shopping Center- Lot 11

Winchester Boulevard and Olsen Drive, San Jose, California

Identifier	Species	Common Name	Diameter (Inches)	Circumference (Inches)	Height (Feet)	Spread (Feet)	Condition	Notes	Heritage	Action RC; RT; RR;
1	*Lagerstroemia indica*	Crape Myrtle	3	9.42	20	10	3	Not Indicated on Site Plan	No	RC
2	*Lagerstroemia indica*	Crape Myrtle	3	9.42	20	10	3	Not Indicated on Site Plan	No	RC
3	*Lagerstroemia indica*	Crape Myrtle	1	3.14	15	5	3	Not Indicated on Site Plan	No	RC
4	*Liquidambar styraciflua*	American Sweetgum	5	15.7	30	10	3	Upright Form	No	RT
5	*Liquidambar styraciflua*	American Sweetgum	7	21.98	40	10	3	Upright Form	No	RT
6	*Liquidambar styraciflua*	American Sweetgum	8	25.12	35	10	3	Upright Form	No	RR
7	*Liquidambar styraciflua*	American Sweetgum	8	25.12	40	10	3	Upright Form	No	RR
8	*Liquidambar styraciflua*	American Sweetgum	7	21.98	40	10	3	Upright Form	No	RC
9	*Liquidambar styraciflua*	American Sweetgum	7	21.98	35	10	3	Upright Form	No	RC
10	*Liquidambar styraciflua*	American Sweetgum	7	21.98	40	10	3	Upright Form	No	RR
11	*Liquidambar styraciflua*	American Sweetgum	8	25.12	35	10	3	Upright Form	No	RT
12	*Liquidambar styraciflua*	American Sweetgum	8	25.12	40	10	3	Upright Form	No	RT
13	*Liquidambar styraciflua*	American Sweetgum	6	18.84	30	10	3	Upright Form	No	RT
14	*Sequoia sempervirens*	Coast Redwood	6	18.84	40	15	3	Botryosphaeria symptoms	No	RT
15	*Sequoia sempervirens*	Coast Redwood	7	21.98	40	15	3	Botryosphaeria symptoms	No	RT
16	*Sequoia sempervirens*	Coast Redwood	7	21.98	40	15	3	Botryosphaeria symptoms	No	RT
17	*Sequoia sempervirens*	Coast Redwood	6	18.84	40	15	3	Botryosphaeria symptoms	No	RT
18	*Sequoia sempervirens*	Coast Redwood	6	18.84	40	15	3	Botryosphaeria symptoms	No	RT
19	*Sequoia sempervirens*	Coast Redwood	8	25.12	40	15	3	Botryosphaeria symptoms	No	RT
20	*Sequoia sempervirens*	Coast Redwood	9	28.26	40	15	3	Botryosphaeria symptoms	No	RT
21	*Pistacia chinensis*	Chinese Pistache	9	28.26	25	25	3	End Weight	No	RT
22	*Sequoia sempervirens*	Coast Redwood	4	12.56	30	15	3	Botryosphaeria symptoms	No	RT
23	*Sequoia sempervirens*	Coast Redwood	5	15.7	30	15	3	Botryosphaeria symptoms	No	RT
24	*Syagrus romanzoffiana*	Queen Palm	12	37.68	30	15	2	Chlorotic	No	RC
25	*Syagrus romanzoffiana*	Queen Palm	12	37.68	25	15	2	Chlorotic	No	RC
26	*Pyrus calleryana*	Ornamental Pear	5	15.7	25	15	3		No	RC
27	*Pyrus calleryana*	Ornamental Pear	2	6.28	25	15	3		No	RC
28	*Pyrus calleryana*	Ornamental Pear	4	12.56	25	15	3		No	RC
29	*Pyrus calleryana*	Ornamental Pear	4	12.56	25	15	3		No	RC
30	*Populus ssp.*	Poplar	12	37.68	50	30	2		No	RC
31	*Populus ssp.*	Poplar	7	21.98	50	30	2		No	RC
32	*Syagrus romanzoffiana*	Queen Palm	8	25.12	25	15	2	Chlorotic	No	RC
33	*Populus ssp.*	Poplar	10	31.4	50	30	3		No	RC
34	*Syagrus romanzoffiana*	Queen Palm	10	31.4	30	15	2	Chlorotic	No	RC
35	*Populus ssp.*	Poplar	10	31.4	50	30	2		No	RC
36	*Populus ssp.*	Poplar	10	31.4	50	30	2		No	RC
37	*Pyrus calleryana*	Ornamental Pear	2	6.28	25	10	3		No	RT
38	*Populus ssp.*	Poplar	6	18.84	50	30	2		No	RC
39	*Pyrus calleryana*	Ornamental Pear	4	12.56	25	10	3		No	RT

Identifier	Species	Common Name	(Inches)	(Inches)	(Feet)	(Feet)	Condition	Notes	Heritage	RC; RT; RR;
40	*Populus ssp.*	Poplar	15.5	48.67	50	35	2		No	RC
41	*Pyrus calleryana*	Ornamental Pear	4	12.56	20	10	3		No	RT
42	*Syagrus romanzoffiana*	Queen Palm	12	37.68	25	20	3		No	RT
43	Platanus hispanica	London Plane	9	28.26	35	20	3		No	RR
44	Platanus hispanica	London Plane	11	34.54	35	30	3		No	RC
45	*Cinnamomum camphora*	Camphor	5	15.7	20	20	2	Not Indicated on Site Plan/Chlorotic	No	RC
46	*Cinnamomum camphora*	Camphor	5	15.7	20	20	22	Not Indicated on Site Plan/Chlorotic	No	RC
47	Platanus hispanica	London Plane	9	28.26	35	20	3		No	RC
48	Platanus hispanica	London Plane	11	34.54	35	20	3		No	RT
								RC = Construction Removal; RT = Retain; RR = Remove and Replace;		

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Appendix 2

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Figure 2: Three crape myrtles, Tree #1, #2, and #3 (from left to right), located in a planting area at the northwest portion of the proposed project. These trees were not indicated on the site plan

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Figure 3: Trees #5 and #6, American sweetgums, located along Olsen Drive. These individuals, along with Tress #8 through #13, are dormant.

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Figure 4: Trees #14 through #20, coast redwood, extend along the southeast corner of the property. Note that only the first seven (from the right-side of the image) of this row of redwoods are being observed for construction impacts.

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Figure 5: a mature Chinese pistache, Tree #21, which is dormant. Behind it are two coast redwoods that are included in the site plan.

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Figure 6: Trees #24 and #25, queen palms. This species is exhibiting chlorosis, indicated by the yellowing of the fronds.

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Figure 7: Trees #26through #42. This row of trees is a mixture of mature poplars, ornamental pear trees, and queen palms. Note that some of the trees to be removed are located on the adjacent property.

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Figure 8: Trees #43 and #45, London plane trees, which were dormant during the survey. Note that this species onsite was planted as street trees along Winchester Boulevard.

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Figure 9: Two camphor trees, Trees #45 and #46, that were not indicated on the site plan. These trees are chlorotic.

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Appendix 3

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