Tree Survey and Arborist Report

for an approximate 16.8-acre Site
On the NE C/O State St. and Campus Ave.
In the City of Ontario, County of San Bernardino, California

Prepared for: **T & B Planning**
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George J Wirtes, MS, *ISA Certified Arborist*

Report Date: June 13, 2022

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SECTION 1: EXECUTIVE SUMMARY

This arborist survey has been performed at the request of T&B Planning for a proposed commercial development in the City of Ontario, California. The field survey associated with this report was performed on June 3, 2022.

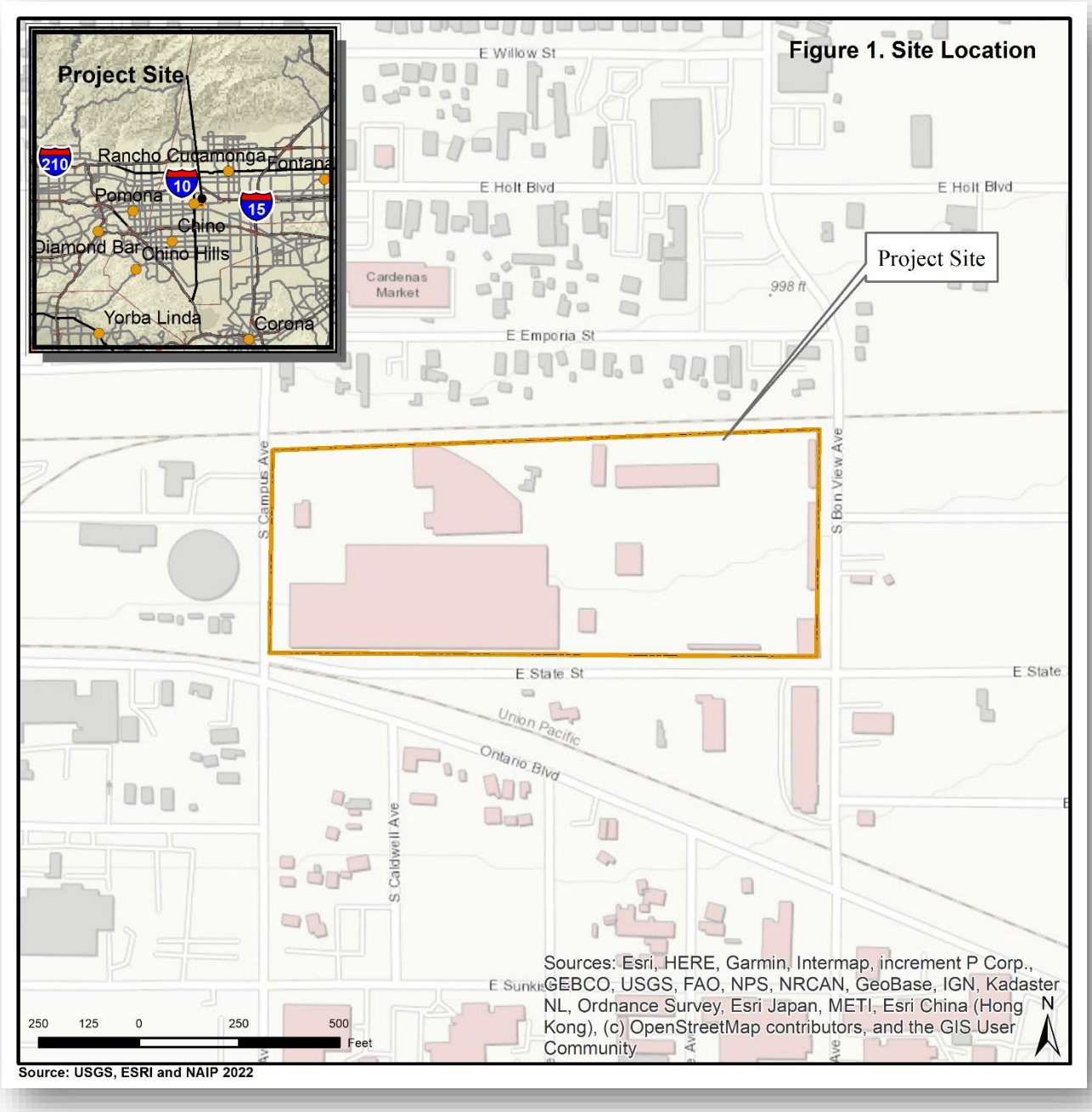
The subject trees were tagged with an aluminum tag containing a unique number. As part of this survey, details of each tree were recorded documenting their species, stature, health, local environment as well as conditions in which they occur. In all, 43 trees were assessed onsite involving nine distinct species. The most prominent species onsite were the tree of heaven (*Ailanthus altissima)*, queen palm (*Syagrus romanzoffiana)* and Swiss floss tree (*Ceiba speciosa*) comprising 79.1% of the trees within the project site. Due to the inadequate maintenance, volunteer sprouting (poor location), and senescence, only 15 trees (44.1%) are in good to fair health/condition and candidates to be preserved within the proposed project. The remaining 28 trees show advanced signs of disease, lack adequate vigor, or show poor growth form necessitating removal. No trees on site were native nor had any special designation or status.

The City of Ontario's Municipal Code (Section 2.6.5 below) outlines provisions and guidelines for tree removal, installation, preservation, and maintenance within the City as it pertains to new developments and City trees. All trees that are intended for removal as part of a project require approval and must be replaced in accordance with the City's municipal Code at a 2:1 ratio or as directed by the Planning Department. In addition, the Planning Department has an approved list of tree species that must be considered within the landscape plan.

SECTION 2: BACKGROUND

2.1 - Project Location and Description

The project site (site) is located on the NE corner of South Campus Ave. and East State St.; it is 5.25 miles west of Interstate 15, and 1.5 miles south of Interstate 10 in the City of Ontario in the County of San Bernardino (see Figure 1 below). The proposed project includes the improvement approximately 16.8-acres to a commercial facility with associated infrastructure and landscaping.



2.2 - Site and Vicinity Characteristics

The elevation of the site is approximately 980 feet above mean sea level and slopes gently to the southwest. For the vicinity, the Sunset Zone is 18, and the USDA Hardiness zone is 9b. As indicated in below, one distinct soil series occurs within the site boundary. This soil series is described by the Natural Resource Conservation Service as alluvium, derived from granite (see Table 1 below).

Table 1. Soils on Site

Map Unit Symbol	Map Unit Name	Acres	Percent
TuB	Tujunga loamy sand, 0 to 5 percent slopes **Setting** • Landform: Alluvial fans • Landform position (three-dimensional): Tread • Down-slope shape: Linear • Across-slope shape: Linear • Parent material: Alluvium derived from granite **Typical profile** • A - 0 to 6 inches: loamy sand • C1 - 6 to 18 inches: loamy sand • C2 - 18 to 60 inches: loamy sand	16.8	100.0%
Total		**16.8**	**100.0%**

The site is completely developed with aging commercial structures, landscaping and hardscaping. The vegetation community onsite includes non-native ornamental trees and vegetation (see Plate 1a below). The site also contains an historic railway spur area that has been overrun with invasive tree species (see Plate 1b below)

Plate 1a. This is a northwestern view from within the project site at a historic spur railway (to the left of the block wall). Invasive vegetation has sprouted and taken root.

Plate 1b. This is a southern view within the historic railway spur line with volunteer sprouting of invasive tree species.

2.3 - Assignment and Scope of Survey

Golden State Land & Tree Assessment (GSL&T) was assigned to conduct a tree survey and health assessment of all trees within the project area. The survey was performed to identify the various tree species found within the project boundary, assess their health, and provide insight as to which trees may be retained as part of the planned improvement. A health assessment was performed cataloging the health and stature parameters of each tree onsite. This included, but was not limited to; recording total diameter at breast height (DBH), canopy spread, tree height, apparent disease/decay, other signs of potential hazard, and pest damage. A potential risk assessment was also conducted keeping public safety in mind. All documentation in this report is in compliance with standards and requirements published by the International Society of Arboriculture (ISA). This report includes recommendations and mitigation measures meant to satisfy all applicable ordinances and permit guidelines.

2.4 - Survey Method and Health Assessment

Prior to the field survey, the City of Ontario's website was accessed to review specific tree protection guidelines. An aerial photograph was used as a visual guide during the assessment. A handheld Global Positioning System (GPS) device and GPS-enabled smartphone with digitized project boundaries were used to identify the location of each subject tree. Unless otherwise dictated by the local regulation, trees with a DBH of $\geq$5 inches were included in this assessment. The crown-width was estimated by pacing, and the height of each subject tree was visually estimated using a tangent height gauge. These data were recorded on field sheets, and associated aluminum numeric tags were affixed to trees on the north side at BH for later reference.

Tree status (relative condition, stature, and health) was conducted by ISA arborist/biologist, George Wirtes from ground level with the aid of binoculars. Canopy spread was assessed by pacing. To estimate wood integrity, a rubber mallet was occasionally used to assess possible decay within the tree stem and flare. As indicated earlier, no invasive procedures were performed. Visual characteristics were recorded on field sheets, and twig/leaf samples as well as digital photographs were taken as needed to assure accurate identification. Overall health and general appearance of each tree was numerically rated (Health/General Appearance Rating - 1-Good, 2-Fair, 3-Poor, 4-Decline/dead) based on the aforementioned conditions. The local environment was also assessed in relation to the tree species and conditions of its location (Local Environment Rating - 1-Good, 2-Fair, 3-Poor, 4-Inappropriate). For this rating, the species was considered in relation to the environment. Other conditions were also considered such as fence lines, utilities, competing canopies, grade cuts/slope, etc.

The position of the subject trees was recorded using a GPS whose data was exported into GIS for periodic illustration over aerial photographs.

2.5 - Hazard Risk Assessment

The International Society of Arboriculture (ISA) recommends a Hazard Assessment be included with arborist reports. Such an assessment is an important component of any report and is critical if trees are to be located near public areas such as parks, walkways, residences, and buildings. This tree assessment includes a *Level 2 Basic Risk Assessment* as defined by ISA Best Management Practices. This type of assessment is limited to evaluating trees and obvious signs of defects such as:

- Dead or broken structures
- Cracks
- Weakly attached branches and co-dominant stems
- Missing or decayed wood
- Unusual tree architecture or distribution
- Obvious loss of root support

A risk rating is assigned to each tree based on its defects, aesthetics, apparent health, location and the nearby targets (people or property). As defined by ISA The ratings are defined below:

1. *Low* - Low-risk category applies when consequences are negligible, and likelihood is unlikely, or consequences are minor, and likelihood is somewhat likely.

2. *Moderate* - Moderate risk situations are those for which consequences are minor and likelihood is very likely or likely or likelihood is somewhat likely, and the consequences are significant or severe.

3. *High* - High-risk situations are those for which consequences are significant and likelihood is very likely or likely or Consequences are severe, and likelihood is likely.

4. *Extreme* - The extreme risk category applies in situations in which failure is imminent and there is a high likelihood of impacting the target and the consequence of the failure is severe. The tree risk assessor should recommend that mitigation measures be taken as soon as possible.

It is impossible to maintain a tree free of risk. A tree is considered hazardous when it has a structural defect that predisposes it to failure, and it is located near a target.

- A target is person or property that may sustain potential injury or property damage if a tree or a portion of a tree fails.
- Target areas include sidewalks, walkways, roads, vehicles, structures, playgrounds, or any other area where people are likely to gather.
- Structurally sound and healthy trees may also be hazardous if they interfere with utilities, roadways, walkways, and sidewalks, or if they obstruct motorist vision.
- Common hazards include dead and diseased trees, dead branches including bark, stubs from topping cuts, broken branches (hangers), multiple leaders, tight-angled crotches, and an unbalanced crown. Evaluation of risk is as follows: 1-Good, 2-Fair, 3-Poses risk, and 4-Hazardous.

2.6 - Local Tree Regulation (Ontario Municipal Code Section 10-2)

Section 10-2 (Chapter 2) of the Ontario Municipal Code (Code) addresses tree protection, maintenance, and replacement policies for trees within the City's parkways and right-of-ways. The following provisions are found within the Code.

2.6.1 - Tree Removal Permits (OMC Sec. 10-2.06)

No person shall remove or relocate any parkway tree without prior authorization from the Public Works Agency of the City. A parkway tree may be removed by the City for any of the following reasons:

a) Visual hazard. Obstructing sight distance necessary for the safe operation of vehicles at street intersections, or obscuring in an otherwise incurable manner any traffic or railroad crossing signal or other safety device.
b) Safety hazard. Any condition deemed to be an immediate hazard to life or property which cannot otherwise be corrected.
c) Condition. Dead, decayed, or diseased beyond correction.
d) Unauthorized. Planted without a permit, improper location or variety, or prohibited type.
e) Where the removal is necessary to reasonably utilize solar collectors, and:
    a. Thirty (30) days prior to installation of the solar collectors, the City was notified in writing of the intent to install such collectors;
    b. The solar collectors, where possible, are located so that no street tree removal is required; and
    c. The removal of such tree or trees will not be detrimental to the general public.

2.6.2 - Planting Permits (OMC Sec. 10-2.07)

Whenever feasible, the planting of a replacement parkway tree shall be a condition included in any permit issued by the City for the removal of any parkway tree. Trees removed pursuant to the provisions of § 10-2.06(c) of this chapter shall be replaced by the City whenever feasible. Trees planted within parkway areas shall be in accordance with the following criteria:

a) Planting stock shall be of normal shape or conformation and not less than one (1) inch caliper at its base.
b) Container stock shall not be root bound or have serious root deformations due to confinement in the container.
c) When planted, trees shall be staked in the manner prescribed by the City.
d) Parkway trees shall be planted at approximately sixty (60) foot intervals or one (1) per lot frontage. On corner lots, two (2) or more trees may be required on the side frontage; provided, however, no tree shall be planted within twenty-five (25) feet of any curb return; and provided further, the owner may plant more of the same tree if the species permits and visual safety is not impaired.
e) In any commercial or industrial zone, consideration of tree planting proposals to be incorporated in landscaping of the site may be requested in writing accompanied by a site plan and/or planting diagram.
f) Trees shall be planted in line with existing trees, or midway between the back of the curb and the near edge of the standard sidewalk, or on a line equivalent thereto if a curb and/or sidewalk has not been constructed.

g) The construction of a sidewalk in addition to the standard sidewalk extending to the curb shall provide openings not less than four (4) feet square centered around existing trees or located as directed by the City. The provision of such tree wells shall include the planting of the parkway tree. Specifications shall be included in the Official Parkway Tree List provided for in § 10-2.08 of this chapter.

h) No parkway trees shall be planted in a parkway abutting property which is undeveloped and unoccupied. In any such case where the planting of a parkway tree is required, the cash-in-lieu deposit, as provided in § 10-2.09 of this chapter, shall be accepted and used by the City for the purchase and planting of such trees when the property has been occupied.

2.6.3 - Official Parkway Tree List (Sec. 10-2.08)

An Official Parkway Tree List is maintained by the City and designates variety, planting stock specifications, and other information regarding trees to be planting on each block of each public street or highway within the City. This list must be referenced when designing the landscape plan for trees along any roadway within the site.

2.6.4 - Landscape Guidelines

The City's has published landscaped guidelines that must be followed when developing new or existing sites. These guidelines were update 2015 and contain the following.

Tree Replacement

The Guidelines state that, "Existing trees with the City shall be protected in place wherever possible". They dictate that, two new trees must be planted for each removed (2:1 ratio). Replacement trees within the proposed development must be specimen sized (60 or 48" box (or as approved)). Additional size considerations (taken from the Guidelines) are found in Table 2 below. Final size, variety and type of tree must be approved by the Landscape Planning Division.

Note: For street trees, note existing and proposed trees (identify genus). The minimum size is a 24" box tree (space 25'-30' on-center).

Table 2. Tree Replacement Table

Replacement Tree Size*				
Minimum on-site Trees	*Size*	*Trunk Caliper*	*Height*	*Spread*
5%	48-inch box	3.50-inches	14 to 16 FT	7 to 8 FT
10%	36-inch box	2.50-inches	12 to 14 FT	6 to 7 FT
30%	24-inch box	1.50-inches	9 to 11 FT	4 to 5 FT
55%	15-gallon	1.0-inch	7 to 8 FT	

Minimum Tree Species Mix (Palms are not included) *	
Number of Trees	*Minimum Number of Tree Species Required*
20 or Fewer	3
21 to 30	4
31 to 40	5
More than 40	6

* Minimum Tree species, quantity and size specifications (Palms are not included).

2.7 - Limitations and Exceptions of Assessment

This survey was conducted in a manner that draws upon past education, acquired knowledge, training, experience, and research. It was conducted to the greatest extent feasible, and although the information gathered reduces risk of tree failure/decline, it does not fully remove it. It must be noted that the occupant of the eastern-most parcel denied entrance to the arborist. Therefore, a full assessment of the final five trees was not performed and a limited assessment was only attainable from a distance via binoculars.

No diagnostic testing was performed during this assessment. This survey associated with this Arborist Report included no soil sampling, root excavation, trunk coring/drilling or any other invasive procedure. The determinations of damage due to pest infestation and decay were made solely on outward appearance and inspection of the tree structures. Not all tree defects may be visible from the ground. Epiphytic growth can also obscure defects on the stem and in the canopy of a tree. Arborists cannot detect every condition that could possibly lead to the structural failure of a tree. Trees are living organisms subject to attack by disease, insects, fungi and other forces of nature. Many aspects of tree health and environmental conditions are often not detectable (internal decay, poor root anchoring, etc.). Arborists cannot guarantee that a tree will be healthy or safe under all circumstances, or for a specified period of time.

The statements made in this report do not take into account the effects of climate/wind extremes, vandalism, or accident (whether physical, chemical, or fire). In addition, this area is known to have periodic, high velocity Santa Ana winds from transient high-pressure ridges. Golden State Land & Tree Assessment cannot, therefore, accept any liability in connection with these factors, or where prescribed work is not carried out in a correct and professional manner in accordance with current ISA good practice. The authority of this report ceases at any stated time limit within it, after one year from the date of the survey (if none stated), when any site conditions change, or after pruning (or other activity) not specified in this report.

The goal of this survey is to recommend measures to limit risk exposure while enhancing the beauty and health of each tree onsite. Clients may choose to accept or disregard the recommendations contained within this report, or seek additional advice. ***To live near trees is to accept some degree of risk. The only way to eliminate all risk is to remove all trees onsite***.

SECTION 3: SUBJECT TREES AND OBSERVATIONS

During the site survey, specific measurements and parameters of all trees onsite were recorded on tree assessment worksheets; these data have been transferred into the table in Appendix A at the end of this document. In all, 43 trees consisting of nine distinct species were assessed (see Figure 2 below). The age of the trees onsite ranged from immature to senescent and the health from rigorous to dead.

Figure 2. Trees Surveyed

3.1 - Species Assessment

During the survey, tree assessments were conducted according to general ISA and City requirements; GPS waypoints were recorded, as were specific details of each tree. The tree species represented onsite are described in detail below (as well as a count), and a comprehensive table of each specimen's characteristics is provided in Appendix A of this report. In general, the species onsite were appropriate for the location.

Arizona Ash *Fraxinus velutina*	The Arizona ash tree (also known as velvet ash) species is a member of the Oleaceae (olive) family and native to southwestern North America. Its SelecTree water use rating is medium. It grows in sunset zones 3 – 24 and USDA zones 6, 7, 8. It tolerates sun exposure from partial shade to full sun and can grow in soil with the texture of loam, sand or clay with a soil pH of very acidic to very alkaline. This deciduous tree can attain a maximum tree height of 50 feet with a canopy width of 30-40 feet. Its growth rate is approximately 24 in/year. Its branch strength is rated as medium weak, and its root damage potential is rated as high. It is susceptible to anthracnose, mistletoe, root rot, rust and beetle borers, spider mites, white fly.	1
Black Locust ** *Robinia pseudoacacia*	This species tolerates smog. Its seeds, leaves and bark are poisonous. Has become established in natural areas (undisturbed, undeveloped environments) in California. Cal-IPC (California Invasive Plant Council) classifies the invasiveness of this plant as limited. Has thorns. This species is native to eastern and central united states. Its form is erect or spreading and requires ample growing space. It has an oval shape with deciduous foliage. Height: 40 - 70 feet. Width: 25 - 35 feet. Growth Rate: 36 Inches per Season. Longevity 50 to 150 years. Wet to dry soil composed of clay, loam or sand texture. Its branch strength is rated as medium weak to medium and its root damage potential is rated as high.	3
Within the vicinity of the former railway spur, black locusts are sprouting vigorously as they are very invasive (according to Cal-IPC). Many specimens had a DBH of <5 inches and were not counted.		
Chinaberry Tree *Melia azedarach*	The Chinaberry tree is deciduous and native to China and Northern India. It is fairly drought tolerant and thrives in Sunset Zones 6-24 (USDA Zones 8-12). This tree has an oval, rounded or umbrella growth form with a high canopy consisting of deciduous foliage. The Chinaberry tree can attain heights of 30 - 50 feet and widths of 15 - 25 feet. Its growth rate is about 36 Inches per year and can live as long as 150 years. It prefers full sun to partial shade as well as loam or sandy soils that are highly acidic or to alkaline. Its branch strength is rated as weak and its root damage potential is rated as moderate. This species poses a poisonous health hazard; it is toxic to dogs, toxic to cats, toxic to horses. These trees attract birds, and they produce fruit litter.	1
Magenta Lilli Pilli (Brush Cherry) *Syzygium paniculatu*	This species is drought tolerant and is known to attract pollinators and birds. The main pest of brush cherry is the lillypilly psyllid (*Trioza eugeniae*), which causes unsightly pitting of the foliage. This pest is native to Australia but has made its way into certain areas of the western and southern United States. It is commonly cultivated in eastern Australia and elsewhere. It grows to a height of 15-20 feet, 10 – 30 feet wide, and can tolerate full sun to partial shade. It has evergreen foliage and can tolerate mildly acidic to alkaline soils. Its growth habit is rounded and it prefers moist to dry clay, loam or sand textured soil.	2
Mexican fan palm ** *Washingtonia robusta*	This species tolerates drought conditions. Cal-IPC (California Invasive Plant Council) classifies the invasiveness of this plant as moderate. It is native to Northwestern Mexico, Sonora, and Baja California. Erect and requires ample growing space. It has a fan Palm Shape with evergreen foliage.	1

	Height: 80 - 100 feet. Width: 10 - 15 feet. Growth Rate: 36 or More Inches per Season. Longevity 50 to 150 years. It tolerates full sun to partial shade with wet to dry loam or sand textured soil. It is susceptible to beetle borers. Its branch strength is rated as medium strong and root damage potential is rated as moderate.	
Queen Palm *Syagrus romanzoffiana*	The queen palm or Cocos's palm is a palm native to South America. This species has evergreen foliage. Height: up to 50 feet. Width: 20 - 30 feet. Its growth Rate is 24 or More Inches per Year. The longevity of this species is 50 to 150 years. Leaves are referred to as fronds and remain green throughout the year. Sunset Zones 12, 13, 15 - 17 and 19 - 24; USDA Hardiness Zones 10 - 11. This tree prefers full sun and well-drained soil composed of clay, loam or sand texture. This species is resistant to Texas root rot. Susceptible to scales and spider mites, butt rot, armillaria and root rot.	11
Red River Gum ** *Eucalyptus camaldulensis*	This species is native to Australia. Its bark and twigs can be a litter problem. Cal-IPC (California invasive plant council) classifies the invasiveness of this plant as limited. Its growth habit is erect or spreading and requires ample growing space. This species has evergreen foliage. Height: 45 - 150 feet. Width: 45 - 105 feet. Growth Rate: 36 or More Inches per Season. Longevity 50 to 150 years. Exposure Full Sun to Partial Shade. This species prefers wet to dry soil and is drought tolerant. It prefers clay, loam or sand textured soil. It is susceptible to beetle borers, oak root rot and root rot. Its branch strength rated as medium and root damage potential rated as moderate.	1
Tree of Heaven ** *Ailanthus altissima*	Native to China and grows rapidly. This deciduous tree tolerates hot and dry conditions, wind, air pollution, and difficult soils. However, is weedy and less desirable in most landscape situations. Can grow taller under some conditions. Cal-IPC (California Invasive Plant Council) classifies the invasiveness of this plant as moderate. Has Deciduous foliage. Height: 40 - 60 feet. Width: 40 - 60 feet. Growth Rate: 36 or More Inches per Year. Longevity Less than 50 years. Sunset Zones 2 - 24. USDA Hardiness Zones 4 - 8. It tolerates full sun to full shade and wet to dry soil with clay, loam or sand texture. Its branch strength rated as weak and root damage potential rated as moderate.	13
Within the vicinity of the former railway spur, the trees of heaven are sprouting vigorously as they are very invasive (according to Cal-IPC). Many specimens had a DBH of <5 inches and were not counted.		
Floss Silk Tree *Ceiba speciosa*	The floss silk tree is a member of the *Malvaceae* (mallow) family and is deciduous. Its native range includes the tropical and subtropical forests of South America. It is resistant to drought and moderate cold. Its SelecTree water use rating is low. Its sunset zone range is 12 – 24, and its USDA zone range is 10 to 11. It tolerates sun exposure from partial shade to full sun. It grows in soil with a texture of loam or sand with a soil pH of neutral to slightly alkaline. Salt spray tolerance: moderate. Foliage type: partly deciduous. The Maximum tree height is approximately 60 feet, and its canopy width is 40-50 feet. Growth rate: ~12-24 in/year. Its Root damage potential is rated as moderate.	10
** Cal-IPC (California Invasive Plant Council) invasive tree species		

Source: UFEI 2022

3.2 - Observations

As previously indicated, 43 trees were assessed onsite involving nine distinct species. Due to the inadequate maintenance, volunteer sprouting (poor location), and senescence, only 15 trees (34.9%) are in good to fair health and condition and are candidates for preservation given the proposed project. The remaining 28 trees show signs of disease, lack adequate vigor, or poor growth form necessitating removal. No trees on site were native nor had any special designation or status. Below are observations noted during the survey.

Plate 2. This is a view of two trees within close proximity with competing canopies (#145 and #146).

Plate 3. This is a view of longitudinal decay within a stem of a tree (#148).

Plate 4. This is a view of an epicormic sprout, adjacent to an unclosed branch cut, that matured with poor attachment (tree #145).

Plate 5. This is a view of “waters-sprouting” from callus tissue where a central stem has decayed. (#148).

Plate 6. This is a view two sprouting limbs near adjacent decayed tissue (#153).

Plate 7. This is a view of an unclosed branch cut with decayed tissue (#155).

Plate 8. This is a view of a tree with an embeded chain link fence (#159).

Plate 9. This is a view of “water sprouting” from a topped limb (#162).

Plate 10. This is a view of canopy dieback (#164).

Plate 11. This is a view of medial longitudial decay along stems of a tree (#169).

Plate 12. This is a view of a large canker within stem (#167).

Plate 13. This is another view of a large area of decay within a stem (#168).

Plate 14. This is a view of a poor location with a tree between a fence and block wall (#177).

Plate 15. This is a view of canopy dieback within a palm (#178).

SECTION 4: DISCUSSION AND RECOMMENDATIONS

4.1 - Conclusion

Within the project site boundary, 43 trees were assessed composed of nine distinct species. Comprising 79.1% of the trees within the project site, the most prominent species were tree of heaven (*Ailanthus altissima),* queen palm (*Syagrus romanzoffiana)* and Swiss floss tree (*Ceiba speciosa*). Due to the inadequate maintenance and senescence, 28 trees (65.1%) show signs of disease, lack adequate vigor, or show poor growth form necessitating removal. If consistent with the site plan, 15 trees (34.9%) on site are in fair to good health and are candidates for preservation within the proposed project.

4.2 - Discussion

The site is mostly paved and landscaped with several commercial structures and an historic spur railway easement. The vegetation onsite includes non-native, ornamental tree species (many are invasive). In addition, many of the trees onsite are over-mature and present a hazard. As indicated earlier, the former spur railway easement contains numerous sprouts of tree of heaven and black locust, which have overrun the area, sprouting in inappropriate locations.

4.3 - Recommendations

4.3.1 - Tree Replacement

Recommended mitigation for non-status, living tree removal is replanting in accordance with the City's Municipal Code (see Section 2.6 above) and Landscape Guidelines. The Guidelines state:

1. Existing trees with the City shall be protected in place wherever possible".
2. Two new trees must be planted for each tree removed (2:1 ratio).
3. Replacement trees within the proposed development must be specimen sized (60 or 48" box (or as approved)). See Table 2 above for additional installed tree size information. Final size, variety and type of tree must be approved by the Landscape Planning Division.
4. For street trees, note existing and proposed trees (identify genus). The minimum size is a 24" box tree (space 25'-30' on-center).

4.3.2 - Trees Preserved

If it is decided to preserve any trees onsite, ongoing maintenance and monitoring are recommended; this is recommended according to ISA standards to ensure public safety and minimize liability due to potential tree failure. Strategic pruning compliant with ISA standards must be performed to subordinate non-primary, codominant stems, and canopy deadwood should be removed. In addition, the tree protection during construction measures published by the City must be followed (see Appendix B below).

Some Additional Consideration During Construction

Building/grading near trees requires that they are healthy at the start of the project for the stand to recover well. Some older trees have little tolerance for root damage or other stress factors. Younger, more vital trees are more tolerant of changes in their surroundings. However, each change in soil compaction, irrigation, under plantings, and other condition takes some of an older tree's strength and vigor and further diminishes its health. The main stresses and risks of construction are:

- Soil compaction
- Lack of water or changes in the site hydrology
- Change of grade in the root zone
- Physical damage to tree roots and structure
- Dumping of potentially toxic construction wastes
- Lack of pest control and other care
- Dust
- Human error

Mature trees take a long time to heal from, or respond to, injury. It could take 10 years for some trees to make a visible improvement in health after construction impacts occur. On the other hand, it could take 10 years for a tree to visibly start declining after cutting roots, compacting the soil, or raising the grade.

1. Raising or lowering the grade in the root zone of trees can be fatal or ruin the health of trees for years to come. Grade change and soil compaction force out the oxygen and literally press the life out of the soil. A retaining wall can be used to minimize the amount of the root zone that is affected, but it is essential that the footing is not continuous. Gravel and aeration pipes should be placed inside the retaining wall before the fill is placed. Consult with a qualified civil engineer for proper design calculations.
2. Trenching within the protection zone must be avoided wherever possible. Most of the roots are in the top 1 to 2 feet of soil, and trenching can sever a large percentage of roots.
3. Oil from construction equipment, cement, concrete washout, acid washes, paint, and solvents are toxic to tree roots. Signs should be posted on the fencing around trees notifying contractors of the fines for dumping. Portable latrines that are washed out with strong detergents can damage the fine roots of the trees. Portable latrines should not be placed near trees, nor where frequent and regular foot traffic to them will compact the soil below the trees.
4. Construction creates large amounts of dust, and the oaks and any other trees to be preserved will need to be kept clean. Dust reduces photosynthesis on all trees. Strict dust control measures must be implemented during construction to minimize this impact, and an occasional rinsing with a solution of water and insecticidal soap will help control pests.

4.3.3 - Migratory Bird Treaty Act

Pursuant to the Migratory Bird Treaty Act (MBTA) and CDFG Code, removal of any trees, shrubs, or any other potential nesting habitat should be conducted outside the avian nesting season. The nesting season generally extends from early February through August, but can vary slightly from year to year based upon seasonal weather conditions.

SECTION 5: QUALIFICATIONS OF ARBORIST

Mr. Wirtes is a Certified Arborist (CH-08084) with the International Society of Arboriculture (ISA) and a Registered Consulting Arborist (#738) with the American Society of Consulting Arborists. Mr. Wirtes was ISA certified in November of 2005 and has conducted numerous tree assessments for residential properties that involve oak and other tree species. Most notably, Mr. Wirtes has created an oak regeneration plan for a 2.3-acre project site in Ventura County as mitigation within a specific plan development as well as a Joshua tree preservation plan in the City of Palmdale, CA. He has performed numerous tree surveys is Riverside, San Bernardino, and Los Angeles Counties on sites with as many as 400 trees. Mr. Wirtes' education includes a Bachelor of Science in Biology and a Master of Science in Environmental Science from California State University at Fullerton.

I certify that the details stated herein this report are true and accurate:

_____

George Wirtes, MS, RCA #738
ISA Certified Arborist, CH-08084

SECTION 6: REFERENCES

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Appendix A - Tree Species Observed

Note - This tree survey and the details recorded below are meant to characterize the trees within the property. The assessment is not exhaustive, but is a balance between the competing forces of in-depth description and cost effectiveness. The goal was to accumulate enough data to make a judgment as to what role, if any, the existing trees may have in the proposed project.

Tree Tag #	Species	DBH (inches)							Height (feet)	Canopy Width (feet) (North on top)	Gen Ann	Env	Risk	Conclusion
		1st Trunk	2nd Trunk	3rd Trunk	4th Trunk	5th Trunk	6th Trunk	Total						
143	Queen Palm	8						8	16	6 6 5 6	1-2	1-2	1-2	Preserve
Good form and vigor, In planter														
144	Queen Palm	9						9	22	10 10 8 8	2	2	2	Preserve
Diseased Frond, Treat														
145	Swiss Floss	27						27	37	10 8 19 14	2	3	3	Remove
Exposed structural roots, lean to SE, Good vigor, Competing canopy														
146	Swiss Floss	17						17	35	12 8 16 4	2	2	3	Remove
Uplifted sidewalk, Internal decay														
147	Queen Palm	15						15	21	8 6 8 6	1-2	1-2	1-2	Preserve
Crowded canopy, good form and vigor														
148	Swiss Floss	5	5	3.5	3.5			17	12	8 6 16 8	2-3	3	2-3	Remove
Decayed primary meristem														
149	Swiss Floss	28						28	40	8 20 16 14	2	3	3	Remove
Codominant with poor crotch, Cut/damaged structural roots, good vigor														
150	Swiss Floss	14						14	32	14 6 16 8	2	2	2	Preserve
Good form and vigor, maybe able to preserve if 149 is removed														
151	Swiss Floss	10						10	24	4 6 8 8	2	2-3	3	Remove
Poor branch attachment, Increased liability														
152	Queen Palm	11						11	26	12 8 8 12	2	2	2	Preserve
Good form and vigor														
153	Swiss Floss	6.5	8					14.5	22	6 6 4 6	3	2-3	3	Remove
Dead, decayed primary meristem														
154	Swiss Floss	26						26	38	14 10 14 16	2-3	3	3	Remove
Girdled root, Internal decay, Increased liability, Critical root zone root has been cut														
155	Queen Palm	12						12	24	8 8 10 8	2	2	2	Preserve
Good form and vigor														
156	Swiss Floss	26						26	36	14 16 12 16	1-2	2	2	Preserve
Good form and vigor														
157	Queen Palm	12						12	30	10	2-3	2	2	Preserve

Fair form and vigor, Crowded canopy										10	8	10			
158	Swiss Floss	26						26	34	16	22	10	10	2-3	2-3	2-3	Preserve
Off-set canopy mass, Prune strategically to preserve															
159	Tree of Heaven	4	5	3	3			15	24	6	6	8	6	3	3-4	2-3	Remove
Embedded in fence, Poor crotch attachment															
160	Magenta Lilly Pilly	11						28	28	6	8	6	6	3	3	3	Remove
Decay on stem, Sidewalk in critical root zone															
161	Magenta Lilly Pilly	12						12	36	10	10	4	6	3	3	3	Remove
Decay mid-stem															
162	Chinaberry	26						26	40	10	20	12	12	3	3	3	Remove
Offset canopy mass, Poor aesthetics, Topped branch with water sprouts															
UT1	Tree of Heaven	3	4	5				12	16	13	8	4	4	2	3	3	Remove
In planter, Multi-stem, Poor placement															
163	Arizona Ash	10.5						10.5	35	8	6	10	2	3	3-4	3	Remove
Internal decay, Poor placement, Next to building															
164	Tree of Heaven	7						7	24	2	10	6	4	3	3	3	Remove
Dieback in canopy, Decline, Poor location															
165	Red River Gum	17						17	42	14	10	10	10	2-3	3	2-3	Preserve
Can save if building is demolished															
166	Tree of Heaven	8	6.5	3	7			24.5	25	10	10	12	8	3	3	2-3	Remove
Decay in stem, Next to building															
167	Tree of Heaven	5.5						5.5	22	8	8	6	6	3	3	3	Remove
Decay in stem, large canker															
168	Tree of Heaven	6.5						6.5	25	6	4	6	6	3	3	3	Remove
Decay in stem, large canker															
169	Tree of Heaven	5	6	6	7			24	32	6	10	16	12	3	3	3	Remove
Decay in stem, large canker															
170	Tree of Heaven	9						9	35	12	12	8	8	2-3	3	2	Preserve
Decay in stem, large canker															
171	Tree of Heaven	4.5						4.5	12	1	8	1	1	3-4	3	3	Remove
Poor aesthetics															
172	Tree of Heaven	2.5	2.5	2.5	2			9.5	18	4	6	4	4	3	3	2	Remove
Multi-stem, good vigor, Poor form															

173	Tree of Heaven	2.5	2	2	1.5			12	12	2	2-3	3	2-3	Remove
Decreased aesthetics, Poor location										2 3 2				
174	Black Locust	2.5	2.5	2	1.5			8.5	16	4	2	3	2	Remove
Multi-stem, Poor location/aesthetics										4 4 4				
175	Black Locust	2	3	1.5				6.5	24	8	2	3	2	Remove
Multi-stem, Poor location/aesthetics										6 8 10				
UT2	Black Locust	2	3	2	2			9	20	6	2	3	2	Remove
Multi-stem, Poor location/aesthetics										8 6 6				
176	Tree of Heaven	3.5	3	2.5	2.5			11.5	18	8	2	3	2	Remove
Multi-stem, Poor location/aesthetics										4 10 8				
177	Tree of Heaven	3	3.5	2.5	2			11	18	6	2	3	2	Remove
Multi-stem, Poor location/aesthetics										8 8 8				
178	Mexican Fan Palm	24						24	25	8	3-4	3	3	Remove
Over trimmed, Poor form and vigor										6 6 6				
179	Queen Palm	10						10	22	8	2	3	2	Preserve
Below utilities										6 8 8				
180	Queen Palm	11						11	25	8	2-3	3	2	Preserve
Burrows below utility, Fair vigor										4 8 6				
181	Queen Palm	10						10	18	8	2-3	3	2	Preserve
Below utilities										2 8 4				
182	Queen Palm	11.5						11.5	25	10	2-3	3	2	Preserve
Fair vigor, Below utility										2 8 8				
183	Queen Palm	8.5						8.5	20	6	3	2	3	Remove
Fossorial burrows, Decline										4 6 8				

Appendix B – Ontario Tree Protection during Construction

City of Ontario

Tree Protection During Construction

1. Existing trees shall be identified and preserved with protective fencing to form a Protected Root Zone (PRZ). This area encircles the tree at the outer most edge of the canopy and protects the roots growing typically within the top 18"-24" of the soil. The PRZ is defined by its "critical root radius." It is more accurate than the dripline for determining the PRZ of trees. To calculate critical root radius, measure the tree's diameter (dbh) 4.5 feet above the ground, measured in inches. For each inch, allow for 1 to 1.5 feet of critical root radius. If a tree's dbh is 10 inches, its critical root radius is 10 to 15 feet.

2. Protective fencing shall be installed prior to any earthwork and until work is complete. Fencing shall be three feet to four feet in height and installed at the outer most edge of the canopy or Protected Root Zone (PRZ). The temporary fencing shall be chain link fencing or other approved durable material. Post "Tree Protection Zone – Keep Out" signs on the PRZ fencing.

3. No construction or staging equipment is allowed within the Protected Root Zone including heavy equipment that will compact and damage the roots.

4. No disposal of construction materials or by products including paint, plaster or chemical solutions is allowed within the Protected Root Zone.

5. Natural or preconstruction grade shall be maintained within the Tree Protection Zone. At no time shall soil be in contact with the tree trunk above the root flare.

6. The Protection Zone should be irrigated sufficiently with clean potable water to keep the tree in good health and vigor before during and after construction. Deep watering may be necessary on a weekly basis. Verify depth of irrigation to roots.

7. Apply a 4"-6" layer of mulch in the PRZ, 1 foot away from the trunk, before construction begins.

8. Any work required to be conducted in the ground within the Protection Zone shall be accomplished with an air spade to make roots visible and use of hand tools.

9. Pruning for clearance, if needed, shall be done to prevent damaging branches with large equipment. All pruning shall be in accordance with industry standards, (International Society of Arboriculture or ANSI A300), under the direction of a Certified Arborist.

10. A Certified Arborist shall be present if more than 33% of the root zone is impacted or roots greater than 2" or within 5' of the trunk will be cut, to ensure tree stability and health. Cuts should be clean and made at right angles to the roots. Cut roots back to a branching lateral.

11. Pruning cuts or damaged bark shall be cut clean to heal. Do not use tree seal or paint.

12. Trenches for piping or utilities shall not be constructed with the tree protection zones but shall be re-routed or bored under trees at a minimum of 36" deep.

13. Protect soil and roots from compaction in landscape areas used for driveways, storage or parking with a layer of geotextile fabric and 6" of crushed gravel.

14. Trees damaged or destroyed during demolition or construction shall be replaced per the Development Code Tree Preservation Policy and Protection Measures.