SIERRA NEVADA ARBORISTS

KLEINFELDER, INC.

DEL PASO PARK PROJECT SITE
City of Sacramento, California

INITIAL ARBORIST REPORT AND INVENTORY SUMMARY

Prepared by:

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SIERRA NEVADA ARBORISTS

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May 23, 2006

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This consultant's report, dated May 23, 2006, is for the exclusive and confidential use of Kleinfelder, Inc. concerning development of the Del Paso Park project site located in the City of Sacramento, California exclusively. Any use of this report, the accompanying Inventory Summary, or portions thereof other than for project review and approval by appropriate governmental authorities shall be subject to and require the written permission of Sierra Nevada Arborists. Unauthorized modification, distribution and/or use of this report, including the accompanying Inventory Summary or portions thereof, is strictly prohibited.

QUALIFICATION STATEMENT

Sierra Nevada Arborists is a fully insured, Loomis-based arboricultural consulting firm founded in January of 1998 by its Principal, Edwin E. Stirtz. Mr. Stirtz is an ISA Certified Arborist, and a member of the American Society of Consulting Arborists and International Society of Arboriculture. Mr. Stirtz possess in excess of 25 years experience in horticulture and arboriculture, both maintenance and construction, and has spent the last 14 years as a consulting and preservation specialist in the Sacramento region.

Wayne R. McKee is a consulting arborist with 15 years experience in forestry, surveying and arboriculture. Mr. McKee received a B.S. degree in Forestry from Humbolt State University and worked as a Forestry and Surveying Technician for Hunt Surveying and Forestry prior to becoming an ISA Certified Arborist in 1992. Since that time Mr. McKee has been providing consulting arboricultural services in the Sacramento region.

SIERRA NEVADA ARBORISTS

May 23, 2006

Ms. Jennifer Moore
KLEINFELDER, INC.
3077 Fite Circle
Sacramento, California 95827

Re: ***Initial Arborist Report and Inventory Summary:***
Del Paso Park Project Site – City of Sacramento, California

Dear Ms. Moore:

On May 19, 2006, Sierra Nevada Arborists visited the Del Paso Park project site located at the northeast corner of Business 80 (Capital City freeway) and the extension of Fulton Avenue in the City of Sacramento, California. The purpose of this site visit was to conduct a field review to identify, inventory and evaluate all trees which measured six inches in diameter and larger measured at breast height ("DBH") within and/or overhanging the 20-acre proposed project site, as well as the supplemental remediation area north of Fulton Avenue. This task specifically included the identification of any "Heritage Trees" which may be protected by the City of Sacramento Tree Protection Ordinance. As you may know, the City of Sacramento Tree Protection Ordinance defines a "Heritage Tree" as:

1. Any tree of any species with a trunk circumference of one hundred inches or more (i.e. 31.82" DBH)[1], which is of good quality in terms of health, vigor of growth and conformity to generally accepted horticultural standards of shape and location for its species;

2. Any native *Quercus* species, *Aesculus california* (California Buckeye) or *Platanus racemosa* (California Sycamore) having a circumference of thirty-six inches or greater (i.e. 11.45" DBH) when a single trunk, or a cumulative circumference of thirty-six inches or greater when a multi-trunk;

3. Any tree thirty-six inches in circumference or greater in a riparian zone. The riparian zone is measured from the center line of the water course to thirty feet beyond the high water line; or

4. Any tree, grove of trees or woodland trees designated by resolution of the City Council to be of special historical or environmental value or of significant community benefit.

Sacramento Municipal Code, Title 12, Chapter 12.64: Heritage Trees.

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[1] "Diameter at breast height" has been calculated by use of the following formula: circumference measured four and one-half feet above ground level divided by 3.142.

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In conjunction with this task, Sierra Nevada Arborists was asked to prepare an Initial Arborist Report and Inventory Summary suitable for submission to the City of Sacramento as a part of the development application for the proposed project site.

METHODOLOGY

Visual Inspection Method

On May 19, 2006, Sierra Nevada Arborists conducted a visual review of the trees within and/or overhanging the depicted project area as referenced on the enclosed copy of the aerial site exhibit dated April, 2006, which was provided by Kleinfelder, Inc. for field reference. The trees which met the defined criteria were identified in the field with a round, pre-stamped metal numbering tag bearing numbers 1-100 backed with blue flagging which was affixed to the trees' trunk. The numbers utilized in this report and accompanying Inventory Summary correspond to the tree tag which has been affixed to the tree in the field, and those numbers have been rough-plotted on the enclosed copy of the aerial site exhibit so that the precise location of the trees may be surveyed in the field by a licensed land surveyor for proper depiction on future development plans.

During our field identification and inventory effort specific data was gathered for each tagged tree including the tree's species, *diameter* measured at breast height ("DBH"), dripline radius ("DLR"), and a visual assessment was made of the tree's root crown, trunk, limbs and foliage. Utilizing this data, the tree's overall structural condition and vigor were separately assessed ranging from "poor" to "good".[2] In addition, notable characteristics were also documented and pre-construction recommendations on a tree-by-tree basis were made which logically followed the observed characteristics noted within the trees at the time of our field inventory effort.

INVENTORY SUMMARY

As you will see from the accompanying Inventory Summary, 100 trees totaling 1,665 aggregate diameter inches have been documented within this Initial Report and accompanying Inventory Summary. Composition of the 100 inventoried trees include the following species and accompanying aggregate diameter inches:

SPECIES DIVERSIFICATION			
Valley Oak	=	2 trees	(19 aggregate diameter inches)
Blue Oak	=	17 trees	(302 aggregate diameter inches)
Interior Live Oak	=	13 trees	(279 aggregate diameter inches)

[2] It should be noted that there were no trees observed within the project boundaries which fell within the criteria of a "good" rating. A complete description of the terms and ratings utilized in this Report and accompanying Inventory Summary are found on pages 14-15.

SPECIES DIVERSIFICATION			
Coast Live Oak	=	7 trees	(65 aggregate diameter inches)
Almond	=	1 tree	(6 aggregate diameter inches)
American Elm	=	9 trees	(158 aggregate diameter inches)
Arizona Ash	=	16 trees	(311 aggregate diameter inches)
Beefwood	=	8 trees	(109 aggregate diameter inches)
Chinese Elm	=	11 trees	(148 aggregate diameter inches)
Giant Sequoia	=	2 trees	(38 aggregate diameter inches)
Modesto Ash	=	2 trees	(49 aggregate diameter inches)
Monterey Pine	=	1 tree	(32 aggregate diameter inches)
Raywood Ash	=	3 trees	(50 aggregate diameter inches)
Silver Maple	=	1 tree	(24 aggregate diameter inches)
Hackberry	=	4 trees	(46 aggregate diameter inches)
Zelcova	=	3 trees	(29 aggregate diameter inches)

It should be noted that the vast majority of the inventoried trees within the proposed project area are trees which did not meet the criteria of a "Heritage Tree" as defined by the City of Sacramento Preservation and Protection Ordinance; however, these trees have been memorialized within this report due to their size (i.e., all trees which measure 6"+ DBH) to accurately document the trees' species, diameter and dripline measurements for mapping purposes.

Heritage Trees

Our site visit found 26 trees totaling 610 aggregate diameter inches which *may* be protected by Ordinance due to their size and/or species. For ease of reference, the 26 trees found within the project area which *may* be protected by Ordinance are briefly summarized in the following table. Complete data for these trees may be found within the accompanying Inventory Summary.

TREE#	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH (inches)	DLR (feet)	CONDITIONAL ASSESSMENT		ARBORIST-RECOMMENDED REMOVALS (inches)
						STRUCTURE	VIGOR	
11	Blue Oak	*(Quercus douglasii)*	6, 6	12	16	Fair	Fair	
13	Blue Oak	*(Quercus douglasii)*	5, 7	12	16	Poor to fair	Fair	
15	Coast Live Oak	*(Quercus agrifolia)*		13	22	Fair	Fair	
16	Interior Live Oak	*(Quercus wislizenii)*	7, 8, 9, 9, 13, 15	61	32	Poor to fair	Fair	
17	Interior Live Oak	*(Quercus wislizenii)*	10, 13	23	35	Fair	Fair	
20	Blue Oak	*(Quercus douglasii)*	4, 7	11	13	Fair	Fair	
21	Blue Oak	*(Quercus douglasii)*		15	20	Fair	Fair	
22	Valley Oak	*(Quercus lobata)*		13	18	Fair	Fair	
24	Blue Oak	*(Quercus douglasii)*		19	20	Fair	Fair	
27	Interior Live Oak	*(Quercus wislizenii)*	5, 8	13	16	Fair	Fair	

TREE#	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH (inches)	DLR (feet)	CONDITIONAL ASSESSMENT		ARBORIST-RECOMMENDED REMOVALS (inches)
						STRUCTURE	VIGOR	
29	Interior Live Oak	*(Quercus wislizenii)*		16	25	Poor to fair	Fair	
32	Blue Oak	*(Quercus douglasii)*		37	40	Poor	Poor to fair	37
34	Interior Live Oak	*(Quercus wislizenii)*	5, 6, 13	24	25	Fair	Fair	
35	Interior Live Oak	*(Quercus wislizenii)*	14, 17	31	30	Fair	Fair	
39	Interior Live Oak	*(Quercus wislizenii)*	6, 6, 9	21	15	Fair	Fair	
40	Blue Oak	*(Quercus douglasii)*		45	38	Poor to fair (?)	Fair	
45	Interior Live Oak	*(Quercus wislizenii)*	5, 6, 6, 8	25	17	Poor to fair	Fair	
46	Blue Oak	*(Quercus douglasii)*	5, 6	11	12	Fair	Fair	
47	Blue Oak	*(Quercus douglasii)*		12	13	Poor to fair	Fair	
51	Blue Oak	*(Quercus douglasii)*		13	22	Fair	Fair	
52	Interior Live Oak	*(Quercus wislizenii)*		32	30	Poor to fair	Fair	
57	Blue Oak	*(Quercus douglasii)*		32	28	Poor to fair	Poor to fair	
60	Arizona Ash	*(Fraxinus velutina)*		33	31	Fair	Poor	33
64	Blue Oak	*(Quercus douglasii)*		27	27	Poor	Poor to fair	27
65	Blue Oak	*(Quercus douglasii)*		27	28	Poor to fair	Fair	
94	Monterey Pine	*(Pinus radiata)*		32	28	Fair	Fair	

Recommended Removals

At this time 10 trees totaling 220 aggregate diameter inches have been recommended for removal from the project area due to defects, compromised health and/or structural instability noted at the time of field inventory effort. For reference, the trees which have been recommended for removal due to noted defects, compromised health and/or structural instability are highlighted in green within the accompanying Inventory Summary and are identified in the field as follows:

TREE#	COMMON NAME	SPECIES	TOTAL DBH (inches)	DLR (feet)	CONDITIONAL ASSESSMENT	
					STRUCTURE	VIGOR
32	Blue Oak	*(Quercus douglasii)*	37	40	Poor	Poor to fair
33	Arizona Ash	*(Fraxinus velutina)*	14	18	Poor	Poor
43	Arizona Ash	*(Fraxinus velutina)*	20	18	Poor	Fair
54	American Elm	*(Ulmus americana)*	8	13	Poor	Fair
55	Arizona Ash	*(Fraxinus velutina)*	16	17	Poor	Fair
58	Arizona Ash	*(Fraxinus velutina)*	18	21	Poor	Poor to fair
60	Arizona Ash	*(Fraxinus velutina)*	33	31	Fair	Poor
64	Blue Oak	*(Quercus douglasii)*	27	27	Poor	Poor to fair
74	Arizona Ash	*(Fraxinus velutina)*	22	27	Poor	Fair
86	Modesto Ash	*(Fraxinus velutina 'modesto')*	25	40	Poor to fair	Fair

In addition, several trees within the proposed project area currently exhibit characteristics which require further evaluation (i.e. root collar excavation and inspection and aerial inspection) and/or a recommendation for periodic monitoring to assess the trees' ongoing structural integrity as further identified within the accompanying Inventory Summary. For ease of reference, these trees have been separately highlighted in yellow within the accompanying Inventory Summary. At this time we have not recommended the removal of these trees since development plans have not yet been finalized. It is strongly recommended, however, that further analysis and/or evaluation of these trees be performed by an ISA Certified Arborist prior to making final development decisions, especially if these trees are planned for retention and development, structures and/or pedestrian activities will occur within their fall zone. At this time we recommend that these trees be periodically monitored and thoroughly inspected by an ISA Certified Arborist to keep abreast of the trees' changing conditions and to assess the trees' ongoing structural integrity and potential for hazard in a developed environment.

Construction Impact Assessment

Please note that while this is a detailed, pre-construction review of the trees within the proposed project area specific canopy and root system impacts from contemplated construction activities cannot be definitively determined until development plans have been finalized. As you know, trees are living organisms whose condition may change at any time; therefore, a complete assessment of construction impacts and specific recommendations to help mitigate for the adverse impacts which may be sustained by contemplated construction activities cannot be made until development plans have been refined and finalized. At that time an ISA Certified Arborist should review the improvement plans to provide an analysis of construction impacts, including identification of trees which may require removal for construction and other contemplated site development activities. This will be particularly important if structures, vehicular and/or pedestrian activities will fall within or near the fall zone of a tree which has been noted as having structural defects, questionable long-term longevity and/or a conditional rating which is less than "Fair". The review should also include an assessment of impacts which will be sustained by those trees which will be retained within the project area, along with recommendations to help reduce adverse impacts of construction on the retained trees, where possible, to a less than significant level. In the meantime, this report provides pre-construction recommendations which logically follow the observed characteristics noted in the trees at the time of our field inventory effort, as well as General Preservation Recommendations which should be utilized as a guideline for the protection of trees which may be retained within the project area.

GENERAL COMMENTS AND ARBORIST'S DISCLAIMER

As you know, a tree permit and/or authorization to develop should be obtained from the City of Sacramento approving contemplated development activities, including the removal of protected trees, within the project area. All terms and conditions of the tree permit are the sole and exclusive responsibility of the project applicant. It should also be noted that prior to final inspection the City *may* require written verification from an ISA Certified Arborist certifying the

approved removal activities and/or implementation of the mitigation measures outlined for the retained trees on the site. Sierra Nevada Arborists cannot provide written Certification of Compliance unless we have been provided with a copy of the ***approved*** site development plans and applicable permits, and are on site to monitor and observe regulated activities during the course of construction. Therefore, it will be necessary for the developer to notify Sierra Nevada Arborists well in advance (at least 72-hours prior notice) of any regulated activities which are scheduled to occur on site so that those activities can be properly monitored and documented for compliance certification.

Lastly, we believe implementation of the general preservation recommendations provided within this report will attempt to reduce adverse impacts of construction on the retained trees, where possible, to a less than significant level. However, implementation of recommendations should not be viewed as a guarantee or warranty against the trees' ultimate demise and/or failure in the future. Arborists are tree specialists who use their education, knowledge, training and experience to examine trees, recommend measures to enhance the beauty and health of the trees and ***attempt to reduce the risk of living near trees***. Arborists cannot detect every condition that could possibly lead to the structural failure of a tree. Since trees are living organisms conditions are often hidden within the tree and below ground and their condition may change at any time. Arborists cannot guarantee that a tree will be healthy and/or safe under all circumstances or for a specific period of time. Likewise remedial treatments cannot be guaranteed. Trees can be managed but they cannot be controlled. To develop land and live near trees is to accept some degree of risk and the only way to eliminate all risk associated with trees is to eliminate all of the trees. ***An entity who develops land with a tree in the vicinity should be aware of this Arborists' Disclaimer and be further advised that the project applicant assumes the risk that a tree could at any time suffer a branch and/or limb failure, blow over in a storm and/or fail for no apparent reason which may cause bodily injury or property damage.*** Sierra Nevada Arborists cannot predict acts of nature including, without limitation, storms of sufficient strength which can take down even a seemingly healthy tree. The information contained within this report is believed to be true to the best of the author's knowledge and experience as of the date it was prepared; however, certain conditions may exist which only a comprehensive, scientific, investigation might reveal which should be performed by other consulting professionals. Neither this author nor Sierra Nevada Arborists has assumed any responsibility for liability associated with the trees on or adjacent to this project site, their future demise and/or any damage which may result therefrom.

Thank you for allowing Sierra Nevada Arborists to assist you with this review and analysis. Please feel free to give me a call if you have any questions or require additional information.

Sincerely,

Edwin E. Stirtz
ISA Certified Arborist WE-0510A
Member, American Society of Consulting Arborists

KLEINFELDER, INC.
DEL PASO PARK PROJECT SITE
City of Sacramento, California
INVENTORY SUMMARY

TREE#	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH (inches)	DLR (feet)	CONDITIONAL ASSESSMENT						ARBORIST-RECOMMENDED REMOVALS (inches)	NOTABLE CHARACTERISTICS	RECOMMENDATIONS
						ROOT CROWN	TRUNK	LIMBS	FOLIAGE	STRUCTURE	VIGOR			
1	Chinese Elm	*(Ulmus parvifolia)*		15	28	Fair	Fair	Fair	Fair	Fair	Fair			Clean out crown
2	Chinese Elm	*(Ulmus parvifolia)*		12	17	Fair	Fair	Fair	Fair	Fair	Fair			Clean out crown
3	Chinese Elm	*(Ulmus parvifolia)*		16	23	Fair	Fair	Fair	Fair	Fair	Fair		Measured at 3' above grade; forks at 4' and 5' above grade	Clean out crown
4	Chinese Elm	*(Ulmus parvifolia)*		15	31	Fair	Fair	Fair	Fair	Fair	Fair			Clean out crown
5	American Elm	*(Ulmus americana)*		10	19	Fair	Fair	Fair	Fair	Fair	Fair		Measured at 3' above grade; forks at 4' above grade; trunk bends east	Clean out crown
6	American Elm	*(Ulmus americana)*		9	14	Fair	Poor to fair	Poor to fair	Fair	Poor to fair	Fair		Callusing trunk wounds, various locations; minor interior decay; above average amount of deadwood	Clean out crown
7	American Elm	*(Ulmus americana)*	9, 9	18	21	Fair	Fair	Poor to fair	Fair	Fair	Fair		Above average amount of deadwood	Clean out crown
8	American Elm	*(Ulmus americana)*		10	18	Fair	Fair	Fair	Fair	Fair	Fair		One-sided east	Clean out crown
9	American Elm	*(Ulmus americana)*		14	22	Fair	Fair	Poor to fair	Fair	Fair	Fair		Above average amount of deadwood	Clean out crown
10	American Elm	*(Ulmus americana)*	8, 11, 12	31	24	Fair	Poor to fair	Fair	Fair	Poor to fair	Fair		Weak primary crotches	Clean out crown; ***recommend annual inspection by an ISA Certified Arborist***
11	Blue Oak	*(Quercus douglasii)*	6, 6	12	16	Fair	Fair	Fair	Fair	Fair	Fair		Branching one-sided east	Clean out crown
12	Blue Oak	*(Quercus douglasii)*	2, 5	7	10	Fair	Fair	Fair	Fair	Fair	Fair		Slightly above average amount of deadwood	Clean out crown
13	Blue Oak	*(Quercus douglasii)*	5, 7	12	16	Fair	Poor to fair	Fair	Fair	Poor to fair	Fair		Trunks bend east; somewhat suppressed	Clean out crown
14	Blue Oak	*(Quercus douglasii)*	2, 4	6	15	Fair	Poor to fair	Fair	Fair	Poor to fair	Fair		Larger trunk bends southeast; suppressed	Clean out crown
15	Coast Live Oak	*(Quercus agrifolia)*		13	22	Fair	Fair	Fair	Fair	Fair	Fair			Clean out crown
16	Interior Live Oak	*(Quercus wislizenii)*	7, 8, 9, 9, 13, 15	61	32	Poor to fair	Poor to fair	Fair	Fair	Poor to fair	Fair		Root crown partially buried, primarily on the west side, to approximately 1' above grade; callusing trunk wounds, various locations, with minor interior decay; severe pruning on southeasterly stems	Unbury root crown; clean out crown; weight reduction pruning on easterly stems; ***recommend annual inspection by an ISA Certified Arborist***
17	Interior Live Oak	*(Quercus wislizenii)*	10, 13	23	35	Fair	Fair	Poor to fair	Fair	Fair	Fair		Moderate to severe pruning on south side	Clean out crown; perform weight reduction pruning on southerly stem
18	American Elm	*(Ulmus americana)*	10, 21	31	24	Fair	Poor to fair	Poor to fair	Fair	Poor to fair	Fair		Callusing trunk wounds, west side, 4' and 8' above grade; minor to moderate interior decay; above average amount of deadwood	Clean out crown; ***recommend annual inspection by an ISA Certified Arborist***
19	Interior Live Oak	*(Quercus wislizenii)*		8	28	Fair	Fair	Fair	Fair	Fair	Fair		Trunk bends southwest	Clean out crown
20	Blue Oak	*(Quercus douglasii)*	4, 7	11	13	Fair	Fair	Fair	Fair	Fair	Fair		Measured at 3' above grade; forks again at 4' and 5' above grade	Clean out crown
21	Blue Oak	*(Quercus douglasii)*		15	20	Fair	Fair	Fair	Fair	Fair	Fair		***TAG ATTACHED TO ADJACENT TELEPHONE POLE; DIAMETER ESTIMATED AT APPROXIMATELY 2' ABOVE GRADE; TREE IS LOCATED BEHIND CHAIN LINK FENCE***; trunk forks again at 4' to 5' above grade; slightly above average amount of deadwood	Clean out crown
22	Valley Oak	*(Quercus lobata)*		13	18	Fair	Fair	Fair	Fair	Fair	Fair			Clean out crown
23	Interior Live Oak	*(Quercus wislizenii)*		8	9	Fair	Poor to fair	Fair	Fair	Poor to fair	Fair		Embedded chain link in lower trunk from grade to approximately 5' above grade	Cut chain link at trunk; clean out crown; ***recommend annual inspection by an ISA Certified Arborist***
24	Blue Oak	*(Quercus douglasii)*		19	20	Fair	Fair	Fair	Fair	Fair	Fair			Clean out crown
25	Arizona Ash	*(Fraxinus velutina)*		7	15	Fair	Fair	Fair	Fair	Fair	Fair			Clean out crown
26	Interior Live Oak	*(Quercus wislizenii)*	2, 2, 3	7	8	Fair	Fair	Fair	Fair	Fair	Fair			Clean out crown
27	Interior Live Oak	*(Quercus wislizenii)*	5, 8	13	16	Fair	Fair	Fair	Fair	Fair	Fair		***TAG ATTACHED TO LIMB; DIAMETERS ESTIMATED AT 3' ABOVE GRADE; TREE LOCATED BEHIND CHAIN LINK FENCE***; tree forks again at 4' above grade; leans southeast; branching one-sided southeast	Clean out crown
28	Interior Live Oak	*(Quercus wislizenii)*		10	20	Fair	Fair	Fair	Fair	Fair	Fair		***DIAMETER ESTIMATED; TREE LOCATED BEHIND CHAIN LINK FENCE***; trunk leans southeast; branching one-sided southeast	Clean out crown
29	Interior Live Oak	*(Quercus wislizenii)*		16	25	Fair	Poor to fair	Fair	Fair	Poor to fair	Fair		Attached northerly stem is dead; trunk leans south; slightly above average amount of deadwood	Clean out crown
30	Blue Oak	*(Quercus douglasii)*	4, 5	9	11	Fair	Poor to fair	Poor to fair	Fair	Poor to fair	Fair		Embedded chain link in lower trunk at approximately 4' above grade; callusing wounds on primary limbs with minor to moderate internal decay	Cut chain link at trunk; clean out crown
31	Silver Maple	*(Acer saccharinum)*		24	28	Fair	Fair	Fair	Fair	Fair	Fair			Clean out crown

KLEINFELDER, INC.
DEL PASO PARK PROJECT SITE
City of Sacramento, California
INVENTORY SUMMARY

TREE#	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH (inches)	DLR (feet)	CONDITIONAL ASSESSMENT						ARBORIST-RECOMMENDED REMOVALS (inches)	NOTABLE CHARACTERISTICS	RECOMMENDATIONS
						ROOT CROWN	TRUNK	LIMBS	FOLIAGE	STRUCTURE	VIGOR			
32	Blue Oak	*(Quercus douglasii)*		37	40	Poor	Poor	Poor to fair	Poor to fair	Poor	Poor to fair	37	Basal cavity, east side, to 1' above grade exposing moderate to significant interior decay and hollowing; trunk cavity on north side approximately 8' above grade with moderate interior decay and hollowing; additional trunk wounds 10' to 15' above grade, primarily on east side; trunk leans east; wounds and cavities on primary scaffold limbs; above average amount of deadwood; somewhat sparse foliage	***Recommend removal due to noted defects***
33	Arizona Ash	*(Fraxinus velutina)*		14	18	Fair	Poor	Poor	Poor	Poor	Poor	14	Trunk cavity, north side, 2' to 4' above grade; significant interior decay and hollowing; excessive amount of deadwood; sparse foliage	***Recommend removal due to noted defects***
34	Interior Live Oak	*(Quercus wislizenii)*	5, 6, 13	24	25	Fair	Fair	Fair	Fair	Fair	Fair		Trunk leans south	Clean out crown
35	Interior Live Oak	*(Quercus wislizenii)*	14, 17	31	30	Fair	Fair	Poor to fair	Fair	Fair	Fair		Trunks lean east and west; branching primarily one-sided south; above average amount of deadwood	Clean out crown
36	Arizona Ash	*(Fraxinus velutina)*	4, 5	9	14	Fair	Fair	Fair	Fair	Fair	Fair			Clean out crown
37	Valley Oak	*(Quercus lobata)*		6	11	Fair	Fair	Fair	Fair	Fair	Fair			Clean out crown
38	Almond	*(Prunus sp.)*		6	16	Fair	Poor to fair	Poor to fair	Fair	Poor to fair	Fair		Trunk leans south; suppressed; ivy growing on lower trunk; above average amount of deadwood	Remove ivy from trunk; clean out crown
39	Interior Live Oak	*(Quercus wislizenii)*	6, 6, 9	21	15	Fair	Fair	Fair	Fair	Fair	Fair		Ivy growing on lower trunk	Remove ivy from trunk; clean out crown
40	Blue Oak	*(Quercus douglasii)*		45	38	Unknown	Poor to fair	Fair	Fair	Poor to fair (?)	Fair		Root crown covered by dense growth of weeds/ivy; trunk cavity, southwest side, approximately 6' to 8' above grade; active bee hive within cavity; moderate internal decay and hollowing suspected; additional trunk wounds, various locations, throughout crown	***Remove weeds/ivy from root crown; perform root collar excavation and inspection; perform aerial inspection; provide further recommendations regarding viability for retention following root collar and aerial inspections***
41	Coast Live Oak	*(Quercus agrifolia)*		10	14	Fair	Fair	Fair	Fair	Fair	Fair			Clean out crown
42	Coast Live Oak	*(Quercus agrifolia)*		9	13	Fair	Fair	Fair	Fair	Fair	Fair			Clean out crown
43	Arizona Ash	*(Fraxinus velutina)*		20	18	Poor to fair	Poor	Poor to fair	Fair	Poor	Fair	20	Callusing basal/trunk cavity, southeast side, to 7' above grade; significant interior decay and hollowing; above average amount of deadwood	***Recommend removal due to noted defects***
44	Blue Oak	*(Quercus douglasii)*		7	9	Fair	Poor to fair	Fair	Fair	Poor to fair	Fair		Embedded chain link in lower trunk from grade to 1' above grade; slightly above average amount of deadwood	Cut chain link at trunk; clean out crown
45	Interior Live Oak	*(Quercus wislizenii)*	5, 6, 6, 8	25	17	Fair	Poor to fair	Fair	Fair	Poor to fair	Fair		Embedded chain link in lower trunk 0.5' to 2' above grade	Cut chain link at trunk; clean out crown
46	Blue Oak	*(Quercus douglasii)*	5, 6	11	12	Fair	Fair	Fair	Fair	Fair	Fair		Growing adjacent to Tree No. 45	Clean out crown
47	Blue Oak	*(Quercus douglasii)*		12	13	Fair	Poor to fair	Fair	Fair	Poor to fair	Fair		Embedded chain link in lower trunk from grade to 4' above grade	Cut chain link at trunk; clean out crown
48	Coast Live Oak	*(Quercus agrifolia)*		10	14	Fair	Fair	Fair	Fair	Fair	Fair			Clean out crown
49	Coast Live Oak	*(Quercus agrifolia)*		7	11	Fair	Fair	Fair	Fair	Fair	Fair			Clean out crown
50	Coast Live Oak	*(Quercus agrifolia)*		10	16	Fair	Fair	Fair	Fair	Fair	Fair			Clean out crown
51	Blue Oak	*(Quercus douglasii)*		13	22	Fair	Fair	Fair	Fair	Fair	Fair		Trunk leans east	Clean out crown
52	Interior Live Oak	*(Quercus wislizenii)*		32	30	Fair	Poor to fair	Fair	Fair	Poor to fair	Fair		Embedded chain link in lower trunk from grade to 3' above grade; callusing trunk wounds, north side, 1' to 2' above grade; minor interior decay	Cut chain link at trunk; clean out crown
53	Coast Live Oak	*(Quercus agrifolia)*		6	11	Fair	Fair	Fair	Fair	Fair	Fair			Clean out crown
54	American Elm	*(Ulmus americana)*		8	13	Fair	Poor	Poor to fair	Fair	Poor	Fair	8	Tree has been topped at 5' above grade; only two branches remain	***Recommend removal due to noted defects***
55	Arizona Ash	*(Fraxinus velutina)*		16	17	Poor	Poor	Poor to fair	Fair	Poor	Fair	16	Basal/trunk cavity to 7' above grade, northeast side; significant interior decay and hollowing	***Recommend removal due to noted defects***
56	Arizona Ash	*(Fraxinus velutina)*		18	20	Poor to fair	Poor to fair	Poor	Poor to fair	Poor to fair	Poor to fair		Callusing basal/trunk wounds, various locations, with minor to moderate internal decay; excessive amount of deadwood; sparse foliage	***None at this time; longevity of this tree is questionable***
57	Blue Oak	*(Quercus douglasii)*		32	28	Fair	Poor to fair	Poor to fair	Poor to fair	Poor to fair	Poor to fair		Callusing trunk wound, northwest side, 7' to 9' above grade; minor to moderate interior decay; above average amount of deadwood; sparse foliage	***None at this time; longevity of this tree is questionable due to inhospitable growing environment; if tree is to be preserved extensive remedial treatments will be required; long-term viability is questionable***

KLEINFELDER, INC.
DEL PASO PARK PROJECT SITE
City of Sacramento, California
INVENTORY SUMMARY

TREE#	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH (inches)	DLR (feet)	CONDITIONAL ASSESSMENT						ARBORIST-RECOMMENDED REMOVALS (inches)	NOTABLE CHARACTERISTICS	RECOMMENDATIONS
						ROOT CROWN	TRUNK	LIMBS	FOLIAGE	STRUCTURE	VIGOR			
58	Arizona Ash	*(Fraxinus velutina)*		18	21	Poor to fair	Poor	Poor to fair	Fair	Poor	Poor to fair	18	Basal/lower trunk cavity, southwest side, to 3' above grade; significant interior decay and hollowing; above average amount of deadwood	***Recommend removal due to noted defects***
59	Arizona Ash	*(Fraxinus velutina)*		21	24	Fair	Fair	Poor to fair	Fair	Fair	Fair		Above average amount of deadwood	Clean out crown
60	Arizona Ash	*(Fraxinus velutina)*		33	31	Fair	Fair	Poor	Poor	Fair	Poor	33	Excessive amount of deadwood; sparse foliage	***Recommend removal due to noted defects***
61	Western Hackberry	*(Celtis occidentalis)*		9	16	Fair	Fair	Fair	Fair	Fair	Fair			Clean out crown
62	Western Hackberry	*(Celtis occidentalis)*		9	11	Fair	Poor to fair	Poor to fair	Fair	Poor to fair	Fair		Tree has been severely pruned at approximately 7' to 8' above grade	Clean out crown
63	Western Hackberry	*(Celtis occidentalis)*		8	14	Fair	Fair	Fair	Fair	Fair	Fair			Clean out crown
64	Blue Oak	*(Quercus douglasii)*		27	27	Poor	Poor	Poor	Poor to fair	Poor	Poor to fair	27	Basal cavities, all sides; sounding indicates lower trunk is hollow; trunk cavity approximately 10' above grade, east side, with significant interior decay and hollowing; additional trunk wounds, various locations, with moderate interior decay; excessive amount of deadwood; sparse foliage	***Recommend removal due to noted defects***
65	Blue Oak	*(Quercus douglasii)*		27	28	Poor to fair	Poor to fair	Poor to fair	Fair	Poor to fair	Fair		Exposed and wounded buttress and lateral roots; callused and callusing trunk wounds, various locations; minor to moderate interior decay; wounds on primary scaffold limbs	***Perform root collar excavation and aerial inspection; provide further recommendations regarding viability for retention following root collar and aerial inspections***
66	Arizona Ash	*(Fraxinus velutina)*		26	27	Fair	Poor to fair	Poor to fair	Poor to fair	Poor to fair	Poor to fair		Callusing trunk wounds, various locations; minor interior decay; above average amount of deadwood; sparse foliage	Fertilize via subsurface liquid soil injection; clean out crown; ***recommend annual inspection by an ISA Certified Arborist***
67	Western Hackberry	*(Celtis occidentalis)*		20	36	Fair	Fair	Fair	Fair	Fair	Fair			Clean out crown
68	Arizona Ash	*(Fraxinus velutina)*		21	30	Fair	Poor to fair	Poor to fair	Poor to fair	Poor to fair	Poor to fair		Callusing trunk wound, west side, 2' to 5' above grade; minor interior decay; above average amount of deadwood; somewhat sparse foliage	Fertilize via subsurface liquid soil injection; clean out crown
69	Arizona Ash	*(Fraxinus velutina)*		17	22	Fair	Fair	Poor to fair	Fair	Fair	Fair		Above average amount of deadwood	Clean out crown
70	Arizona Ash	*(Fraxinus velutina)*		18	28	Fair	Fair	Poor to fair	Poor to fair	Fair	Poor to fair		Above average amount of deadwood; somewhat sparse foliage	Fertilize via subsurface liquid soil injection; clean out crown
71	Beefwood	*(Casuarina sp.)*		12	17	Fair	Fair	Fair	Fair	Fair	Fair			Clean out crown
72	Beefwood	*(Casuarina sp.)*		7	16	Fair	Fair	Fair	Fair	Fair	Fair			Clean out crown
73	Beefwood	*(Casuarina sp.)*		10	14	Fair	Fair	Fair	Fair	Fair	Fair			Clean out crown
74	Arizona Ash	*(Fraxinus velutina)*		22	27	Poor	Poor	Poor to fair	Fair	Poor	Fair	22	Callusing basal/lower trunk cavity, southwest side, to 5' above grade; significant interior decay; above average amount of deadwood	***Recommend removal due to noted defects***
75	Arizona Ash	*(Fraxinus velutina)*		22	20	Fair	Fair	Poor to fair	Poor to fair	Fair	Poor to fair		Above average amount of deadwood; sparse foliage	Fertilize via subsurface liquid soil injection; clean out crown
76	Arizona Ash	*(Fraxinus velutina)*		29	32	Fair	Fair	Poor to fair	Poor to fair	Fair	Poor to fair		Above average amount of deadwood; somewhat sparse foliage	Fertilize via subsurface liquid soil injection; clean out crown
77	Raywood Ash	*(Fraxinus oxycarpa)*		21	25	Fair	Poor to fair	Poor to fair	Fair	Poor to fair	Fair		Weak primary crotches; above average amount of deadwood	Clean out crown; ***recommend annual inspection by an ISA Certified Arborist***
78	Beefwood	*(Casuarina sp.)*	14, 15	29	24	Fair	Fair	Fair	Fair	Fair	Fair			Clean out crown
79	Beefwood	*(Casuarina sp.)*		9	12	Fair	Fair	Fair	Fair	Fair	Fair			Clean out crown
80	Beefwood	*(Casuarina sp.)*		11	15	Fair	Fair	Fair	Fair	Fair	Fair			Clean out crown
81	Zelcova	*(Zelcova serrata)*		14	26	Fair	Poor to fair	Fair	Fair	Poor to fair	Fair		Measured at 1' above grade; forks again at 2', 3' and 4' above grade; trunks suppressed	Clean out crown
82	Modesto Ash	*(Fraxinus velutina 'modesto')*		24	40	Fair	Poor to fair	Poor to fair	Fair	Poor to fair	Fair		Weak primary crotches; above average amount of deadwood	Clean out crown; perform weight reduction pruning; evaluate for installation of cross supports or cable system to help support primary crotches
83	Raywood Ash	*(Fraxinus oxycarpa)*		15	17	Fair	Fair	Poor to fair	Fair	Fair	Fair		Above average amount of deadwood	Clean out crown
84	Beefwood	*(Casuarina sp.)*		14	10	Fair	Fair	Fair	Fair	Fair	Fair			Clean out crown
85	American Elm	*(Ulmus americana)*		27	33	Poor to fair	Fair	Poor to fair	Fair	Poor to fair	Fair		Exposed and wounded buttress and lateral roots, all sides; above average amount of deadwood	***Perform root collar excavation and inspection; provide further recommendations regarding viability for retention following root collar inspection***

KLEINFELDER, INC.
DEL PASO PARK PROJECT SITE
City of Sacramento, California
INVENTORY SUMMARY

TREE#	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH (inches)	DLR (feet)	CONDITIONAL ASSESSMENT						ARBORIST-RECOMMENDED REMOVALS (inches)	NOTABLE CHARACTERISTICS	RECOMMENDATIONS
						ROOT CROWN	TRUNK	LIMBS	FOLIAGE	STRUCTURE	VIGOR			
86	Modesto Ash	*(Fraxinus velutina 'modesto')*		25	40	Poor to fair	Poor to fair	Fair	Fair	Poor to fair	Fair	25	Exposed and wounded buttress and lateral roots, primarily on the north and west sides; trunk wound 1' to approximately 10' above grade, northwest side, with exposed and splintered wood	***Recommend removal due to noted defects***
TREES FOUND WITHIN LEAD SHOT SURFACE DEPOSITS AREA														
87	Chinese Elm	*(Ulmus parvifolia)*		13	21	Fair	Fair	Fair	Fair	Fair	Fair		Measured at 2' above grade; forks at 3' above grade	Clean out crown
88	Chinese Elm	*(Ulmus parvifolia)*		15	26	Poor to fair	Poor to fair	Fair	Fair	Poor to fair	Fair		Past partial root system failure; trunk leans northwest	Clean out crown; ***recommend annual inspection by an ISA Certified Arborist***
89	Chinese Elm	*(Ulmus parvifolia)*		13	22	Fair	Fair	Fair	Fair	Fair	Fair			Clean out crown
90	Giant Sequoia	*(Sequoia dendron gigantum)*		25	11	Fair	Fair	Fair	Fair	Fair	Fair		Slightly above average amount of deadwood	Clean out crown
91	Chinese Elm	*(Ulmus parvifolia)*		14	25	Fair	Fair	Fair	Fair	Fair	Fair			Clean out crown
92	Chinese Elm	*(Ulmus parvifolia)*		10	15	Fair	Fair	Fair	Fair	Fair	Fair			Clean out crown
93	Chinese Elm	*(Ulmus parvifolia)*		15	23	Fair	Fair	Poor to fair	Poor to fair	Fair	Poor to fair		Above average amount of deadwood; slightly sparse foliage	Fertilize via subsurface liquid soil injection; clean out crown
94	Monterey Pine	*(Pinus radiata)*		32	28	Fair	Fair	Poor to fair	Fair	Fair	Fair		Above average amount of deadwood	Clean out crown
95	Giant Sequoia	*(Sequoia dendron gigantum)*		13	8	Fair	Fair	Fair	Fair	Fair	Fair			Clean out crown
96	Chinese Elm	*(Ulmus parvifolia)*		10	16	Fair	Fair	Fair	Fair	Fair	Fair			Clean out crown
97	Zelcova	*(Zelcova serrata)*		8	12	Fair	Fair	Fair	Fair	Fair	Fair			Clean out crown
98	Zelcova	*(Zelcova serrata)*		7	13	Fair	Fair	Fair	Fair	Fair	Fair			Clean out crown
99	Beefwood	*(Casuarina sp.)*		17	25	Fair	Fair	Fair	Fair	Fair	Fair			Clean out crown
100	Raywood Ash	*(Fraxinus oxycarpa)*		14	23	Fair	Fair	Poor to fair	Poor to fair	Fair	Poor to fair		Above average amount of deadwood; somewhat sparse foliage	Fertilize via subsurface liquid soil injection; clean out crown

TOTAL INVENTORIED TREES = 100 Trees (1,665 aggregate diameter inches)
TOTAL ARBORIST-RECOMMENDED REMOVALS = 10 Trees (220 aggregate diameter inches)
PRECAUTIONARY TREES HIGHLIGHTED FOR REFERENCE

GENERAL PRESERVATION RECOMMENDATIONS

The following information is provided in an effort to protect those trees which may be impacted by construction within the project site. It should be noted that these recommendations are generic in nature. As plans are developed and refined, a more detailed evaluation of tree impacts and/or removals should be made by an ISA Certified Arborist. At that time specific preservation recommendations may be made for individual trees within the project site.

MITIGATIVE OVERVIEW

In order to afford the greatest potential for tree preservation during construction, there are general guidelines to provide this protection. The critical root zone area for a tree should include the dripline radius measurement taken from the tree trunk to the tip of the farthest reaching branch plus one foot. In some circumstances, such as with a one-sided tree, this measurement could be somewhat skewed. In these situations, the Project Arborist should determine the critical root zone area. Generally, encroachments should be held to no more than 20% of the critical root zone area where potential root damage could be moderate or significant. In limited situations, encroachment exceeding 20% of the critical root zone area may be possible provided that potential root damage is not severe. The critical root zone area should be fenced prior to any activities on the site and should remain in place throughout construction.

Canopy impacts can also pose a detriment to preserved trees. Frequently overlooked are conflicts between low-hanging tree branches and necessary clearance beneath a tree for construction equipment or building purposes. Canopy impacts should also be maintained at 20% or less.

PAD GRADING MITIGATIVE MEASURES

Grade Cuts.

Cuts within a dripline of a tree should be maintained at less than 20% of the critical root zone area. Grade cuts should be supervised by the Project Arborist and any damaged roots encountered should be root pruned and properly treated as soon as possible after excavation. Cut faces which will be exposed for more than 2-3 days during cool temperatures or 1 day during warm weather should be covered with dense burlap fabric and watered to maintain soil moisture at least on a daily basis (or possibly more frequently during summer months) or as directed by the Project Arborist.

Grade Fills.

Fill materials less than 1 foot in depth and encroaching less than 20% into the critical root zone area should not require special mitigative measures. Should fills exceed 1 foot in depth up to 20% of the critical root zone area, aeration systems installed as directed by the Project Arborist may serve to mitigate the presence of the fill materials.

Should it be necessary to build fill materials on two or three sides of a tree the use of retaining walls may reduce encroachment and the degree of fill beneath the tree. It is critical to provide for drainage away from the critical root zone area of the tree -- particularly when considering heavy winter rainfalls. Overland releases and subterranean drains dug outside the critical root zone area and tied directly to the main storm drain system are two possible options.

Structure Encroachment.

In some cases it may be necessary for a proposed structure to encroach into the critical root zone area. Again, this encroachment should be maintained at less than 20%. In this situation, a slab foundation with an aeration system installed beneath the slab and footings excavated by hand may provide adequate root protection. Where tree roots tend to be shallow, even a hand-excavated footing can be detrimental. In this situation, a "post-tension" type slab may minimize root damage. If it is necessary for encroachment to exceed 20%, raised floor construction with a grade-beam type foundation footing may be a viable option.

When evaluating encroachment from a proposed structure the structure height and tree branch conflicts are critical to evaluate in order to ensure that no more than 20% of the tree's canopy requires removal.

STREET AND UTILITY MITIGATIVE MEASURES

Generally, impacts from street construction alone are less of an impact than those occurring with dry and wet utility construction. Often it is very difficult or impossible to effectively preserve a tree with more than 30% of its critical root zone area falling within the PUE/street.

Dry Utilities.

Since dry utilities are typically located behind the curb and gutter and/or sidewalks, where applicable, they fall within the closest proximity to trees preserved outside of the roadway. The dry utilities tend to be shallow, within the top 5 feet of the soil profile. Unfortunately, in this region that is also typically where tree roots are found. Where possible, dry utilities should be routed on the opposite side of the street from tree locations. This would require more street crossings than normally planned; however, impacts to trees would be greatly lessened. In some circumstances, hand digging the utilities through critical root zone areas may be an option. Since the dry utility profile is usually 3-4 in depth and includes multiple conduits or plumbing due to the various utilities, boring beneath the critical root zone area is not usually effective.

Wet Utilities.

The greatest conflicts with wet utilities typically arise from deep sanitary sewers or storm drains. Soil conditions and safety concerns often require than trench openings at ground level be quite large. Therefore, the storm and sewer locations must be carefully considered. In some circumstances where a particularly valuable tree may be impacted by wet utilities boring may be an option. Since water main construction tends to be more shallow than storm drains or sewers, and flow lines are not as critical, boring can often be most effective in preserving tree roots.

Streets/Hardscape.

Should the street construction sections be 18" or less, the percentage of encroachment into the critical root zone area may be able to exceed 20%. If this is possible, determinations cannot be made until an accurate evaluation of the root system profiles on the site has been completed. It is impossible to preserve roots within the street section profile. Further, the construction of the street alters the gaseous exchange and oxygen to the tree's root system. In some circumstances aeration systems may mitigate a small portion of these impacts.

Hardscape (concrete slabs, walkways, etc.) should be minimized within the critical root zone area. Grade cuts in excess of 12" should be avoided. In some circumstances aeration systems may be required to reduce root system stress.

CONCLUSION

In an effort to minimize tree removals in the early phases of a project a category for potential tree removals should be established. This category would include those trees which are located in areas that would expose them to moderate or significant encroachments and/or construction impacts. As construction occurs and construction staking is installed assessment of impacts are much more accurate than those based simply on plan review. At that time, determinations by the Project Arborist and Agency Representatives prior to construction and following staking may result in preservation of trees which may have previously appeared to require removal on the plans.

DEFINITIONS AND RATINGS

Within this report you will find the following information defined as follows:

Tree Number:	Corresponds to aluminum tag attached to the tree.
Species Identification:	Scientific and common species name.
Diameter ("DBH"):	This is the trunk diameter as measured at breast height (industry standard 4.5 feet above ground level).
Dripline radius ("DLR")	Measurement of the tree's dripline from the trunk to the farthest most branch tip.
Protected Zone ("PZR")	An irregular circle around a protected tree equal to the protected tree's dripline plus 1 foot.
Root Crown:	Assessment of the root crown area located at the base of the trunk of the tree at soil level.
Trunk:	Assessment of the tree's main trunk from ground level generally to the point of the primary crotch structure.
Limbs:	Assessment of both smaller and larger branching, generally from primary crotch structure to branch tips.
Foliage:	Tree's leaves.
Overall Condition:	Describes overall condition of the tree in terms of structure and vigor.
Recommendation:	Specific maintenance requirements.
(?):	Occasionally some portion of the tree may be obscured from visual inspection due to the presence of dense climbing vines such as ivy, etc. which, during the course of inspection for the preliminary arborist report, prevented an evaluation with certainty. In these cases, should a tree with an (?) be significant and in a location where it may be preserved on site, it would be prudent to remove any obstructions and perform further evaluation.

GOOD - A tree in this category has no trunk or root crown cavities or injuries; there is no indication of hollowness; no foreign objects are embedded in its structure; the root crown is above grade; there is no decay present except for small stubs; the structure is strong; the trunk is tapers; the bark thickness is normal; there is no fluxing; no fungus is evident; there is a below average amount of dead limbs and twigs present which is normal for the size and age of the species; there is no co-dominant branching present; there are no large callused areas and any small callusing present is vigorous and intact; there are no abnormally heavy insect infestations; the growth rate is and has been average or above; limb weight is not excessive; buds are normal size and viable; the leaf size, color, and density is normal or better; and barring any unforeseen negative effects, the life expectancy should exceed thirty years.

FAIR - There is no decay or indications of large hollow areas in the large limbs, root crown, or trunk; a few small callused-over foreign objects, e.g., nails, may be present, the structure is strong; no fungus is evident other than small saprophytes on exposed wood; some small, callusing injuries may be present, some small limbs may be dead and decaying but callus is forming at their base; some excessive limb weight may exist; there may be some minor fluxing; the amount of dead limbs and twigs present is within the normal range; some large callused areas may be present; some small cavities and areas of decay may be present; the growth rate is average or slightly below average; and some leaf size, color, and density may vary.

POOR - Significant cavities, dead areas, and decay may be present; the tree is actually defective; fungus fruiting bodies may be present; the amount of dead limbs and twigs is far above normal; major co-dominant branching with embedded bark may be present; buds are small and some may not be viable; leaves may be below average size and may be abnormal in color; significant pest damage may be present; and the predicted structural life and/or viability is less than ten years.

The ratings "good to fair" and "fair to poor" are used to describe trees that fall between the described major categories and have elements of both.

CROWN CLEAN OUT: This shall consist of the removal of all dead, dying, diseased, interfering, objectionable, obstructing, and weak branches, as well as selective thinning to lessen wind resistance.

SUBSURFACE LIQUID SOIL INJECTION/DEEP ROOT FERTILIZATION (D.R.F.): A method employed to induce vigor and stimulate new root growth. This is used as a means of feeding a large tree, as well as deep watering at the same time. Water soluble fertilizers are mixed in water and hydraulically pumped with a probe into the ground, delivering water and nutrients directly to the root zone, allowing for uptake from the tree. In this way, vigor can be improved and new root growth stimulated.