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City of Santa Barbara Parks and Recreation Commission
City Hall
P.O. Box 1990
Santa Barbara, CA 93102**Subject: Tree Removal and Preservation/Protection - 3714-3744 State Street,
Santa Barbara, CA**

Dear: Santa Barbara Parks and Recreation Commission:

The following letter regards the proposed disposition of one (1) Jacaranda (*Jacaranda mimosifolia*) tree and the proposed preservation of one (1) Blue Atlas Cedar (*Cedrus atlantica 'Glauca'*) tree, located at 3714-3744 State Street (The Sandman Inn) in Santa Barbara, CA. Recently, the City of Santa Barbara's Street Tree Advisory Committee advised against the removal of the Jacaranda tree and requested that site plans surrounding the cedar tree be redesigned to minimize root impacts and damage. As such, Dudek was asked by the project applicant, Kellogg Associates, to evaluate both trees' dispositions in regards to the City of Santa Barbara's Street Tree Advisory Committee recommendations. Further, we were asked to provide recommendations regarding the health and structure of the Jacaranda and to develop supplemental tree protection measures for the cedar. To that end, the following sections provide additional information for consideration prior to finalizing decisions.

ASSESSMENT

The trees referenced in this letter were evaluated as part of the 2013 Sandman Inn Tree inventory that was conducted on June 20th, 2013. Dudek's arborists, certified by the International Society of Arboriculture (ISA), updated the 2006 tree inventory (conducted by Peter Winn 2006) by collecting basic tree attribute information that would aid in classification of the trees as preservation, relocation or removal trees. Tree attributes evaluated and recorded included species, trunk diameter, height, crown spread, and overall external condition. Tree diameters were measured using a diameter tape. Diameter measurements were collected using standard protocol described by the Council of Tree and Landscape Appraisers in the "Guide for Plant Appraisal," published by the International Society of Arboriculture (Council of Tree and Landscape Appraisers 2000).

Tree height measurements were based on ocular estimates of experienced field arborists. Tree canopy spread diameters were estimated by "pacing-off" the measurement based on the investigator's knowledge of his stride length or by visually estimating the maximum canopy width. The tree crown diameter measurements were made along an imaginary line intersecting the tree trunk that best approximated the canopy diameter at its widest point. Canopy measurements for this assessment were augmented with landscape plans which include canopy coverage based on aerial image tree crown extents.

Pursuant to the Guide for Plant Appraisal, tree health and structure were evaluated with respect to five distinct tree components: roots, trunk, scaffold branches, small branches, and foliage. Each tree component was assessed with regard to health factors such as insect, fungal or pathogen damage, mechanical damage, presence of decay, presence of wilted or dead leaves, and wound closure. Components were graded as *good*, *fair*, *poor*, and *dead* with 'good' representing no apparent problems, and 'dead' representing a dying and/or dead tree. This method of tree condition rating is comprehensive and results in ratings that are useful for determining the status of trees based on common urban forestry standards. Note that no subterranean or internal tree probing was conducted as part of this tree assessment. The assessment was a standard tree inventory assessment that did not include more extensive hazard assessment protocols.

TREE OBSERVATIONS

Tree #88 - Jacaranda

Tree #88 is a medium to large sized jacaranda tree, estimated to be 30+ years old. It is located near the main office at the Sandman Inn, set back from State Street roughly 20 feet. The tree is located in an irrigated, island planter, surrounded by turf and other landscaping vegetation within, and concrete/pavement outside, the planter (*Attachment 1 – Photograph Log*). The tree is multi-stemmed with 2 individual trunks that bifurcate at the base of the tree and include a narrow angle of attachment at the intersection/crotch. The individual trunk diameters are 18 inches and 22 inches at breast height (4.5 feet above ground level). The tree's canopy reaches approximately 45 feet in height and extends nearly 40 feet across at its widest point. Approximately 35% of the tree canopy and drip-line is over the adjacent concrete/pavement. The jacaranda's canopy is medium to large sized. Overall, the tree appears to be in fair or slightly below average health and structural condition.. The tree's location in an irrigated turf area indicates that the soils are likely maintained in a very wet condition. Further, it appears that the irrigation may be over spraying onto the tree trunk (whitish bark area that has been "bleached" by irrigation water deposition), resulting in concentration (water flows from trunk to soil) at the root crown area. Moist soil at the root crown, especially during summery months, may facilitate the establishment and proliferation of fungal pathogens, which over time, can destroy cambium and result in wood rot. Symptoms of root issues typically are revealed in the tree's crown by thinning foliage and die-back from the tips inward.

The "poor" structural condition rating exhibited by this tree results from poor branch architecture, including poor branch and stem attachments (multiple branches at the same connection), included bark (where two large branches are too close together and will cause failure of one or both over time), and evidence of potential rot at old pruning wounds within the upper canopy. The tree appears to have not received proper branch "training" for the first few years following its planting, nor as-needed during its development.

Tree #86 – Blue Atlas cedar

Tree #86 is a medium to large sized Blue Atlas Cedar located near the main office at the Sandman Inn. The tree is located in a small island planter, immediately adjacent to a concrete patio. The cedar is surrounded by irrigated, landscape vegetation (*Attachment 1 – Photograph Log*). The tree is multi-stemmed with 3 individual trunks that originate at the base of the tree. The individual trunk diameters are 14 in., 17 in. and 12 in. at 4.5 feet above ground. The tree's canopy reaches approximately 45 feet in height and extends nearly 50 feet across at its widest point. The scaffold branches that rise from the trunk intersection grow vertically (as necessitated and likely trained due to the existing covered patio) before widening at roughly 13 to 15 feet height.

Overall the tree is considered to be in good health and fair to good structural condition. As a “good” health tree, the canopy exhibits vigorous growth and lacks symptoms of stress. The “fair” to “good” structural rating results from minor branch architectural issues.

DISCUSSION AND RECOMMENDATIONS

Tree #88 – Jacaranda

As stated in the introduction, the City of Santa Barbara’s Street Tree Advisory Committee advised against the removal of tree #88, a medium to large sized jacaranda and recommended a re-design of the current driveway layout to preserve the tree. As such, Kellogg Associates evaluated driveway layout alternatives that took into consideration the preservation of tree #88, but maintained the original design of the proposed development footprint. Alternative driveway layouts specifically considered both lane width reduction and the removal of a proposed median. However, upon completion of the re-designed driveway entrance, it was found that approximately 50% of the tree’s root system would potentially be impacted in either scenario. Taking both the redesigned layout and the above evaluation, conducted in June of 2013, into consideration, Dudek recommends that tree #88 be removed and replaced at a ratio of 1:1 with a similar species following construction. This recommendation is based upon the tree’s apparent declining health, overall structural condition which includes poor overall structural condition with included bark at a major scaffold branch intersection low on the trunk, and potential root impacts from driveway construction. As mentioned above, the tree is exhibiting signs of potential structural issues. A more thorough evaluation would be needed to confirm the root conditions and overall tree health.

The tree is currently contributing to the landscape in which it is planted as it provides a larger stature landscape component and includes seasonal color and filtered shade. However, based on the tree’s mature/semi-mature age, it is arguable that replacing the tree with a healthy, vigorously growing tree that is hand selected from a local nursery would provide long term benefits that cannot be provided by the existing jacaranda. The replacement tree would be planted within the post-construction landscape where it will not be subject to construction related impacts. The tree could be guaranteed to establish and grow or it would be replaced at the project developer’s expense.

The existing tree provides many benefits to the City of Santa Barbara residents, including, seasonal shade, aesthetics, carbon sequestration, oxygen production, and air and water quality improvements, amongst other. It is acknowledged that the existing tree’s benefits currently outweigh those that would be provided by a replacement trees (which would be a 15 gallon or 24-inch box), but only in the short term. As the replacement tree grows, within roughly 10 years, it would begin to outpace the benefits provided by the existing tree. Thereafter, it would contribute substantially more benefits than the existing tree would as it would either be lost or require higher levels of maintenance during its decline. Therefore, we recommend that Tree #88 is removed and considered replaced by the landscape tree planting proposed for this site and to include one *Jacaranda mimosifolia*.

Tree #86 – Blue Atlas Cedar

As previously stated, tree #86 is considered to be in “good” health and “fair” to “good” structural condition. As such, Dudek and the project applicant agree that this Blue Atlas Cedar is a quality tree that is of value to both the City of Santa Barbara and the property. The Street Tree Advisory Committee requested that the applicant investigate a potential redesign of the adjacent building to reduce the potential impacts to the Cedar. The Applicant did redesign this building to provide an atrium entry and an inverted “U” shape which emphasizes and features the retention of the Cedar. To supplement the City of Santa Barbara’s Street Tree Advisory Committee’s recommendation for redesign, Dudek believes that this tree can be protected in place within the

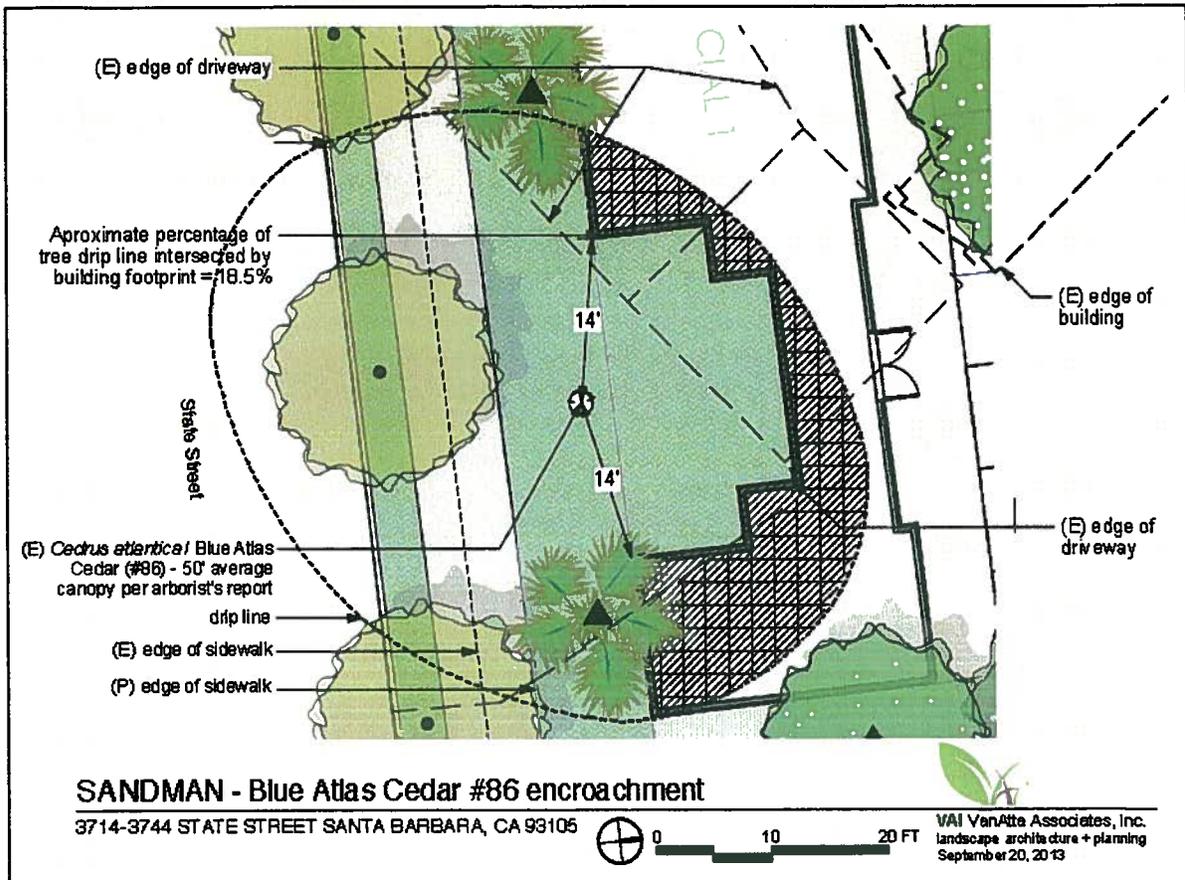
constraints of the currently proposed development footprint through a series of enhanced tree protection measures. The existing covered patio is located within a few feet of the tree and it will be deconstructed using sensitive methods and with tree protection measures to minimize impacts, as described below. The proposed building at this location will not be closer than roughly 14 feet to the tree and has been designed to largely avoid any soil disturbances adjacent the tree canopy (Figure 1). However, the foundation for the building will be built under roughly 18.5% of the tree's dripline. This does not mean that 18.5% of the tree's roots will be impacted, as foundations will require excavations of up to 24 inches deep and a few feet wide, but tree roots in this area may be more widespread and deeper, especially the structural supporting roots. Similarly, City-required sidewalk and planter areas will be constructed on the street side of the tree, under the tree's canopy. This work will require surface disturbances and irrigation related trenching, which will be minimized as much as possible.

In any case, all work near the tree and any required tree root monitoring and pruning will be supervised by a certified arborist and documentation of root impacts will be completed so that appropriate measures can be taken to minimize tree stress. The tree's scaffold branches (trunks) are vertical to about 12 to 15 feet above ground. At that point, secondary and tertiary branches occur and grow more horizontally, giving the trees its wide canopy. Some of the lower branches may require pruning or removal to avoid conflict with construction activities and/or the building roof, but the number or extent of pruning cannot be determined until construction commences in this area. A certified arborist will be on site to provide input on the need to prune and will supervise any pruning that does occur.

In order to protect this cedar to the maximum extent possible, within the constraints of the current development footprint, Dudek recommends that following tree protection strategies:

- 1) **Construction Phase Monitoring by an International Society of Arboriculture (ISA) Certified Arborist** – An ISA certified arborist shall be present during any construction activities that occur within 5 feet of the canopies drip-line. This shall include both the deconstruction/demo of the portion of the current building immediately adjacent to the tree and during all active, ground disturbing construction that is directly adjacent the tree. The onsite monitor will provide guidance and recommendations for the protection of the tree.
- 2) **Standard Tree Protection Measures** – The cedar will be provided the attached tree protection measures (Attachment 2 – Standard Tree Protection Measures) to the maximum extent possible within the constraints of the existing footprint and proposed construction.
- 3) **Deconstruction/Demo of the Adjacent Structure** – The adjacent structure will be manually deconstructed without the use of heavy machinery. Limiting heavy machinery within the critical root zone of the tree will minimize potential impacts to the trees root system and to the tree crown. Use of mini-skid steer equipment with rubber track may be acceptable and may result in a reduction in tree disturbance, but will be monitored by an arborist.
- 4) **Root Protection** – Prior to the start of construction, a 4 inch layer of mulch shall be placed on the exposed bare ground within the tree's dripline and extending just outside the drip line (as feasible). Following, mulch placement, $\frac{3}{4}$ inch plywood shall be placed over the mulch in any areas where construction activities will occur within the dripline. The mulch and plywood will aid in lessening soil compaction and help with load distribution should a mini skid-steer or similar equipment be proposed within or directly adjacent the tree's drip line.
- 5) **Pavement Removal** – All pavement that is located within the drip line of the tree will be

Figure I. Canopy Extents and Planned Construction



manually removed using root sensitive techniques, where the pavement is broken up and “peeled” back in small sections to minimize root damage. This may be accomplished with the use of a mini skid steer or similar equipment with rubber track.

- 6) **Deconstruction within the Dripline** – No new construction will occur within 13 feet of the trunk on the side(s) of the tree adjacent to the proposed building following the removal of the adjacent structure. Furthermore, new construction which will occur within 5 feet of the tree’s dripline on the remaining sides of the tree shall be minimized to the extent practical and shall be performed under the guidance of an ISA Certified Arborist at all times.. Prior to commencing deconstruction of the adjacent building, a 4-foot high, orange-webbing, polypropylene barricade fence with tree protection signs shall be erected around the preserved cedar tree prior to the start of deconstruction activities. The fence will be placed at the edge of the work activity zone. If the above conditions result in the fence being closer than 4 feet to the tree trunk, the trunk should be protected with strapped-on planking to a height of 8 feet (or to the limits of the lower branching) in addition to the reduced fencing. Once deconstruction is completed, the fencing will be re-positioned outward as far as possible to the edge of the construction zone.
- 7) **Excavation within the Tree’s Dripline** – Any excavation, aside from pavement removal, will be conducted by hand or by backhoe under the supervision of an ISA Certified Arborist.

Manual digging will minimize root damage and help to avoid the removal of supporting buttress roots. Backhoe use will include removal of soil in shallow layers so that the arborist can determine if tree roots are being encountered. If roots over 1/2" inch diameter are encountered, soil around them will be removed with the use of a shovel and the root will be clean-cut with a hand saw or similar.

- 8) **Permeable Ground Cover** – Any ground cover placed within the dripline of the tree shall consist of permeable material. Acceptable permeable materials include pavers, rock, pervious concrete, or other permeable materials. Permeable material that will be placed within the courtyard in these areas will enable water and oxygen exchange into the root zone, resulting in an improved growing situation for the tree and favorable conditions for roots to grow and the tree to compensate for any roots removed during construction.
- 9) **Root Pruning** – Conduct root pruning, when necessary, under the guidance of an ISA certified arborist. Root pruning shall be minimized to impact no more than 10 - 12% of the trees existing root system. Root pruning should be conducted where any roots larger than 1/2" are exposed during any grading activity near the tree. The proposed building to be constructed adjacent this tree would encompass an area under the tree of roughly 18.5% of the tree's canopy (Figure 1). Foundations for the building will require excavation up to 24 inches deep within this area. It is expected that roots will be encountered, but the extent cannot be determined until excavations begin.
- 10) **Supplemental Watering** - Supplemental watering will be provided as needed during and following construction.
- 11) **Canopy Pruning** – No canopy pruning will be conducted until all construction is completed, unless standard pruning would reduce conflict between canopy and equipment and would not remove more than 20% of the tree canopy. Pruning would be conducted according to ANSI A-300 pruning standards.
- 12) **Canopy Washing** – During construction the contractors will wash the foliage of the tree, with a strong water stream every two weeks (as necessary), during the duration of construction in early hours before 10:00 am to control mite and insect populations.
- 13) **Post Construction Monitoring** – The cedar should be evaluated on a quarterly basis for one year following construction and annually for an additional 4 years.

Construction near trees resulting in root or crown impacts can be managed and minimized, but the inherent risk of tree loss due to impacts cannot be eliminated. As such, Dudek further recommends that if tree #86 dies or its condition declines to the point where removal is required within the monitoring period, it will be replaced at a 3:1 ratio on-site, including at the location of the existing tree. A higher replacement ratio will ensure that the project applicant meets and exceeds the proposed enhanced tree protection and ensures that the City of Santa Barbara would be adequately compensated for the loss of what both parties feel is an exceptional tree.

CONCLUSION

This report provides conclusions and recommendations based on the basic examination of a jacaranda tree and a Blue Atlas Cedar tree and their surrounding growing environment on June 20th, 2013. Arborists are tree specialists who use their education, knowledge, training and experience to examine trees, recommend measures to enhance the beauty and health of trees, and attempt to reduce the risk

of living near trees. No internal probing was conducted for this project to determine presence/absence of and general extent of internal wood rot. Similarly, no subterranean evaluations were conducted as part of this assessment. Therefore, the condition of roots and soil conditions cannot be fully determined.

Arborists cannot detect every condition that could possibly lead to the failure of a tree. Trees are living organisms that fail in ways that cannot be accurately predicted or fully understood. Conditions are often hidden within trees and below ground. Arborists cannot guarantee that a tree would be healthy or safe under all circumstances, or for a specified period of time. There are no guarantees that a tree's condition would not change over a short or long period due to climatic, cultural or environmental conditions. Trees provide many benefits to those who live near them. They also include inherent risk that can be minimized, but not eliminated.

I would be pleased to answer any questions or respond to any comments regarding this tree evaluation.

Sincerely,



Michael Huff, Sr. Project Manager
Certified Arborist No. WE 4276A

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