Bill Spiewak
CONSULTING ARBORIST
Registered Consulting Arborist #381 • American Society of Consulting Arborists

September 21. 2006

Brent Daniels
L & P Consultants
3 West Carrillo St., Suite 205
Santa Barbara, Ca. 93101

962-4611
729-3233 cell

RE: Oak Tree Assessment and Protection for 226 - 234 Eucalyptus Hill Dr. Santa Barbara

SUMMARY

The development at this site includes construction of several structures and infrastructure that is adjacent to, and within the root zones of several oaks. Of the seventeen oak trees covered by this report, four oaks will need to be removed for the project and three trees will be impacted to the extent that warrants tree replacement. Along with tree protection guidelines including fencing, I recommend planting seventy (70), one-gallon saplings as a mitigation measure and effort toward conservation of the oak resource. The text below presents the details of my findings and recommendations.

BACKGROUND

I was contacted by Brent Daniels, Land Use Planner from L & P Consultants, regarding development at the Howard residence on 226-234 Eucalyptus Hill Drive, a multiple parcel property. Ms. Cyndee Howard is proposing to build a residence with a guesthouse and garage and two additional homes on this five and one half-acre parcel. Portions of the project are adjacent to and/or conflict with several oak trees, and required an assessment by an arborist prior to approval of the City of Santa Barbara Planning Department. I met on the site with Brent Daniels and Cyndee Howard on 9/18/06 to review the site plan and look at the trees.

ASSIGNMENT

I have been assigned to assess potential impacts to 17 oak trees (identified on the plan as #1-13, 21, 22, 23 and 24) and provide an opinion with mitigation measures, and tree protection relative to this project.

LIMITS OF THE ASSIGNMENT

- This report is based on review of the Landscape Plans, sheets L1.1 & Ll.2 of plan set dated 8/8/06 in conjunction with a site visit.
- My assignment was limited to assessment of oak trees #1-13 and #22-24.
- I have not performed any exploratory excavation of the root zone due to lack of need.

EXHIBIT D

USE OF REPORT

I intend for this report:

- To fulfill the city requirement of providing an oak tree assessment and projection plan.
- To assist the homeowner and developer in protection and replacement of selected oak trees.

PROJECT ELEMENTS

The following project elements were incorporated into this report:

- A visual on -site tree assessment with site plan.
- A tree inventory presented in table form including the 17 oaks, identified by numbers that corresponds with sheet L1.1 and L1.2 of the 8/8/06 plan set. The table includes the tree number, DBH (diameter at breast height measured at 54" above ground), their condition, potential impacts from the project and mitigation measures. T
- A discussion on tree impacts from the proposed project and opportunities for planting.
- Recommendations for tree protection and mitigation.
- A site map with the numbered trees, areas of potential impacts, fencing locations, and suggested areas for tree planting.

GENERAL OBSERVATIONS

The oaks relative to this assignment are predominantly on the upper portion (northwestern edge) of the property. These include oaks #4-6 and 9-13. They are grouped in one location and appear to be in good condition. The project calls for an improved driveway that runs along side several of these trees and leads downward to the southern portion of the property. This driveway is the improvement of an existing unimproved access road, which extends to the south of the property.

There is also a proposed terrace on the south side of the main house that conflicts with a portion of oak #13.

On the west side of this group above, are several oaks that have not had equal care and conflict with understory shrubs and pittosporum. These include oaks #1-3 and 7-8. Although not as high quality as the former, they contribute to a vegetative screen between neighboring properties and contribute to the oak tree resource.
Impacts from driveway construction will be from initial grading, root ripping and compaction, during preparation for the new asphalt/concrete surface. Manual excavation along the edges of the proposed driveway and clean cutting of roots, prior to commencement of grading, can reduce impacts by controlling the extent of damage. Protecting remaining roots is critical and often a positive step in preserving a tree.

Four oaks, #21-24, located at mid-section of the property have not received the same care as the other oaks at the top and are not as structurally sound. It is proposed to remove these oaks for the project, to allow construction of a guesthouse and hammerhead in the driveway.

A large grove of eucalyptus trees at the south section of the 5.5 acres, extend to the east and west onto adjacent properties. Although these trees have been thinned for fire suppression, the large grove to the east and west of the Howard property remains very dense, and potentially hazardous. It would also appear that eucalyptus domination has suppressed the growth of native oak trees.

OAK INVENTORY

DBH = Diameter at Breast Height; CRZ = Critical Root Zone

TREE #	DBH	CRZ	CONDITION	COMMENT
1	12"	12"	Fair condition-tree receives little maintenance. Understory shrubbery conflicts with tree.	Proposed driveway is on east side of trunk. Less than 20% encroachment into CRZ. Fence at edge of driveway and follow tree protection measures.
2	14"	14'	Fair condition-tree receives little maintenance. Understory shrubbery conflicts with tree.	Proposed driveway is on east side of trunk. Approximately 20% encroachment into CRZ. Fence at edge of driveway and follow tree protection measures.
3	7"/8"	15'	Fair condition-tree receives little maintenance. Understory shrubbery conflicts with tree.	Proposed driveway is on east side of multiple trunks. Approximately 30% encroachment into CRZ. Fence at edge of driveway and follow tree protection measures. **Mitigate impact by planting 10 saplings.**
4	13"	13'	Good condition, well pruned but soil could be improved with more leaf liter.	At edge of proposed project, but no impact if protected with fencing.
5	13"	13'	Good condition, well pruned but soil could be improved with more leaf liter.	At edge of proposed project, but no impact if protected with fencing.
6	12"	12'	Good condition, well pruned but soil could be improved with more leaf liter.	At edge of proposed project, but no impact if protected with fencing.
7	9"	9'	Fair condition-tree receives little maintenance. Understory shrubbery conflicts with tree.	At edge of proposed project, but no impact if protected with fencing.
8	12"	12'	Fair condition-tree receives little maintenance. Understory shrubbery conflicts with tree.	Proposed driveway is on east side of trunk. Approximately 20% encroachment into CRZ. Fence at edge of driveway and follow tree protection measures.
9	20"	20'	Good-well pruned but soil conditions could be improved with more leaf liter	Proposed driveway is on west side of tree. Approximately 40% encroachment into CRZ. Manually excavate soil along edge of driveway, within CRZ and cleanly cut roots. Install fence between tree and edge of work zone. **Significant encroachment that warrants planting 10 one-gallon saplings.**
10	14"	14'	Good condition, well pruned but soil could be improved with more leaf liter.	At edge of proposed project, but no impact if protected with fencing.
11	19"	19'	Good condition, well pruned but soil could be improved with more leaf liter.	At edge of proposed project, but no impact if protected with fencing.
12	14"	14'	Good condition, well pruned but soil could be improved with more leaf liter.	At edge of proposed project, but no impact if protected with fencing.
13	23"	23'	Good condition, well pruned but	Approximately 25% encroachment into

			soil could be improved with more leaf liter.	CRZ from construction of proposed south terrace of house. Manually excavate soil along edge of proposed construction, within CRZ, and cleanly cut roots. Install fence between tree and edge of work zone. **Significant encroachment that warrants planting 10 one-gallon saplings.**
21	5"/4"	9'	Poor- tree is a sprout that has not been maintained, co-dominant trunks will most-likely split	Remove for project, **mitigate by planting 10 one-gallon saplings.**
22	18"	18'	Poor-tree had split on south side and has a large column of decay from ground up to 6'.	Remove for project, **mitigate by planting 10 one-gallon saplings.**
23	3"/3"	6'	Poor- tree is a sprout that has not been maintained, co-dominant trunks will most-likely split	Remove for project, **mitigate by planting 10 one-gallon saplings.**
24	17"	17'	Fair-tree is very dense and has some broken limbs, not maintained	Proposed hammerhead for fire department access will encroach into about 755 of CRZ. Remove for project, **mitigate by planting 10 one-gallon saplings.**

DISCUSSION

Generally speaking, preparation a dirt driveway for a new surface requires removal of several inches of topsoil, re-compaction of the excavated grade (depending on soil composition), replacement and compaction of additional soil, and the final surface covering. This process usually includes damaging roots of adjacent trees. Damage is exacerbated when heavy equipment rips roots beyond the designated driveway parameters.

Young oak trees, such as these, can often survive impacts, especially when the extent of root damage can be anticipated and somewhat controlled. This is accomplished by manual excavation of trenches along the sides of the driveway within the critical root zones and hand cutting roots, thus limiting the extent of damage. Supplemental irrigation to those roots that remain can provide adequate water, assisting the tree to survive and aiding in the growth of new roots. Applying a protective pesticide (of permethrin – trade name *Astro*) to the lower trunks of oaks in spring and again in late summer or early fall, can reduce risks of attack by fatal oak bark beetles.

Although survival and renewal of vigor cannot be guaranteed, the process is often successful. To compensate for possible loss of trees, planting new saplings can mitigate losses. Planting ten saplings (one-gallon in size) per each tree impacted or removed, offers a reasonable assurance that there will be a meaningful amount of oak trees on site for the long term, thus significantly contributing to conservation of the oak resource.

The aggressiveness of the eucalyptus genus can easily be recognized when observing the southern portion of the Howard property and the adjacent neighbors' property. As this non-native tree vigorously reproduces, oaks become subordinate, until phased out. Although I am unaware of the history of this parcel, it is evident that eucalyptus trees grow wherever allowed and contribute to the high fire potential created by their oily crowns. Oaks hardly stand a chance unless the area is managed.

Concerned about their aggressiveness and fire potential, Cyndee Howard has participated in thinning and removal of eucalyptus trees on her property. Her management of the southern section of the parcel subsequently provides an opportunity to plant a grove of oaks as a mitigation measure, prompted by a combination of removal and impacts to the seven oaks identified above.

It should also be noted, that while the current Landscape Plan identifies numerous 24-inch box oaks to be planted in and among the existing oak cluster; I am concerned that this size may contribute additional impacts to the existing oaks. A 24 inch box would required a rather large hole for planting purposes (typically a 4'x 4'x 4') and in effect could increase the amount of impact to the oaks not currently impacted by the proposed driveway. The recommendation to plant more one-gallon saplings would avoid this potential impact and benefit both the existing trees as well as the newly planted oaks. Utilizing saplings benefit the oak resource and mitigate more effectively in the long run.

CONCLUSIONS

- Four oaks will be removed for the project and three will be impacted. These conflicts warrant planting of seventy (70) young saplings.
- Tree protection guidelines will minimize impacts to oaks close to construction, as best as reasonable.
- Planting a grove of saplings at the south section off the property could begin to establish a significant grove of oaks, that with proper management, could reduce the domination of the non-native and fire prone eucalyptus trees.

RECOMMENDATIONS

1. Tree protection recommendations should be discussed at a pre-conference meeting with all contractors prior to any construction activities.
2. CRZs and TPZs should be defined.
   a) The CRZ is an area around the tree sensitive to disturbance, where the concentration of roots lies below the ground. This is an area that has a 1' radius per inch of DBH as identified in the tree inventory.
   b) The TPZ is discussed in item #3 below and includes the fenced area around the tree but may not include the entire CRZ.
3. Fences should be installed as indicated on the fencing plan. These fenced areas are called TPZs (Tree Protection Zones). Fencing should remain upright and intact throughout the duration of the project.
4. TPZs should be void of any activities (unless specified in this plan), which may include but is not limited to heavy equipment use, storage or dumping of materials, accumulation of soil for later use. Violation of TPZs could cause additional impacts and result in the need to plant additional trees.
5. Any roots encountered within the CRZ of trees, even if outside of TPZs, should be cleanly cut to an undisturbed portion of the root. In areas where roots are cut, the soil profile should be irrigated to reduce drying of newly exposed soil and subsequently, damage to remaining roots in that profile. The amount, area and frequency of irrigation dependent on damage and weather, and should be determined by the project arborist. Repeated irrigations will likely be necessary.
6. A permethrin-based pesticide *(Astro)* should be applied to the lower six feet of trunk of all oaks (particularly those stressed from root cutting) in the spring and in late summer or early fall to reduce the risk of attack by fatal oak bark beetles. This may need to be repeated for several years.
7. The project arborist should monitor activities within CRZs during the initial demolition and grading and periodically throughout the project to insure that tree protection zones are maintained as recommended.
8. a) Trees to be planted should be one-gallon in size. These may be grown from acorn or purchased from a local nursery that grows trees from seed.
   b) Several oaks should be planted among the grove by the driveway (east and west sides). The remaining saplings should be planted between the new structures and the eucalyptus grove at the south side of the property. Consideration should be given to fire zones and suggested clearances referred to in the landscape plan.
   c) Planting should be done after completion of the construction. In order to prevent oak trees from continual "hedge-type" pruning, trees should be planted where they will least likely restrict vistas over the long term, but should also form a continuous line between the east and west sides of the property.
   d) Newly planted saplings should be irrigated with drip for the first year until they appear to be established. Cages around the saplings may need to be installed during planting, to prevent wildlife from damaging the trees.
   e) Some eucalyptus may need to be removed over time to avoid conflicts among trees and encourage the oak population.

ARBORISTS DISCLOSURE STATEMENT AND CERTIFICATION OF PERFORMANCE

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. Clients may choose to accept or disregard the recommendations of the arborist, or to seek additional advice.

Arborists cannot detect every condition that could possibly lead to structural failure of a tree. Trees are living organisms that fail in ways we do not fully understand. Conditions are often hidden within trees and below ground. Arborists cannot guarantee that a tree will be healthy or safe under all circumstances, or for a specified period of time. Likewise, remedial treatments, like any medicine, cannot be guaranteed.

Treatment, pruning and removal of trees may involve considerations beyond the scope of the arborist's services such as property boundaries, property ownership, site lines, disputes between neighbors, and other issues. Arborists cannot take such considerations into account unless complete and accurate information is disclosed to the arborist. An arborist should then be expected to reasonably rely upon the completeness and accuracy of the information provided.

Trees can be managed, but they cannot be controlled. To live near a tree is to accept some degree of risk. The only way to eliminate all risk associated with trees is to eliminate all trees.

I Bill Spiewak, certify:

- That I have personally inspected the trees on the property referred to in this report and have stated my findings accurately.
- The analysis, opinions and conclusions stated herein are my own and are based on current scientific procedures and commonly accepted arboricultural practices.

Signed: _____

Bill Spiewak
Registered Consulting Arborist #381
American Society of Consulting Arborists

Board Certified Master Arborist #310-B
International Society of Arboriculture