

# Exhibit C

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## **EVALUATION OF 4 KEY MONTEREY CYPRESS** 3196 SEVENTEEN MILE DRIVE, PEBBLE BEACH, CA.

### **PRIMARY CONCERNS**

#### 1. DECLINE AND BRANCH DROP

This report is in response to the decline and large branch drop shown on 4 large (60", 26", 36", 44") Monterey Cypress at 3196 17 Mile Drive. In observing these trees, one immediately notices the raw, splintered areas where large, upper story branches have snapped and fallen off. In several cases there are several branches that have dropped within the year. Maintenance pruning notes many more upper story branches were cleaned up and removed over the past 5 years. Please refer to cover page A 0.0 for photos of cypress conditions and branch splintering.

#### 2. EXISTING ROOT ZONE IMPERMEABLE CONDITIONS

The root zone area of these cypress, as mapped by Whitson Engineers is shown in the accompanying drawings (pages A 2 – A 3.2). The drawings which are highlighted to show areas of impermeable surfaces (shown in red) note that in all 4 cypress the existing root zone is significantly covered by building footprint, asphalt drive and terraces on concrete. Percentages of existing impermeable coverage at root zones of the 4 cypress ranges from 45% to 76%. All trees are within 4' of a site or building wall, and in one case the trunk is only 14" from the building footprint.

### 3. BASIC CYPRESS ROOT DEMANDS / NEEDS, FMP 8/3/92

As stated in the Forest Management Plan (prepared by Hugh E. Smith dated 8-3-92 (FMP) for Monterey County specifies many observations and conditions for the care of trees in the Monterey and Pebble Beach area), on page 0233452 regarding care and enhancement of cypress – *“the cypresses root systems do not extend deeper than 30” below the surface of the ground”*....hence uncovered and open rooting areas are critical for the moisture and gas exchange for a healthy functioning root system. In addition, *“the roots usually extend radially to the drip line or 15 times the diameter of the trunk. The outward 2/3 of the root zone is where roots are finely divided into feeders which absorb the minerals and water”*.... Therefore, the ability of the cypress to thrive over time is highly dependent on the quality of the root zone area.

### 4. CONCLUSIONS REGARDING ROOT COVERAGE AND TREE DECLINE

The decline due to reduced root zone of a large cypress often takes years to outwardly manifest (the current house, site walls, drive and terraces were built in 1991). Once decline is observed, large limb drop will occur, resulting in the ultimate failure of the cypress in 15 to 25 years. As the available moisture and nutrients are reduced over time the heartwood of the upper canopy branches becomes increasingly dehydrated and brittle weakening the branch until it can no longer support its own weight. The weakened branch splits, and gives way, leaving behind the splintered end of the branch at the cypress trunk (note this splintered condition in cypress photos on page A 0.0). It is significant to note that reviewing all other large cypress on the site, this splintering

and loss of large branches is not evident, but rather typical to the cypress habit, the lower branches of the trees die but remain on the trunk indefinitely.

#### **5. PROPOSED MITIGATION FOR 4 KEY CYPRESS**

Given the significance of these 4 large cypress to the cypress habitat, the County, and the owner, we have carefully review the options to remove impermeable material from the root zone wherever possible. In the attached highlighted drawings based on existing conditions survey and root zone maps, Mr. Robert Joyce, Architect and Landscape Architect, has prepared a detailed plan for the trees and development at this site. The plans (A 2 - A 3.2) demonstrate the extent of the existing impervious root zone issue and propose very clear ways to remove this impervious material to greatly improve the quality of the rooting areas within the development. In the case of these 4 cypress that are in decline, the impermeable coverage within root zone is reduced by between 50% to 100%. See detailed mitigation measures described below. Please note - all impermeable surfaces are shown in red and permeable surfaces are shown in green. Below is a summary of these proposed changes by tree, all of which are very positive. Each tree is identified by the trunk diameter as shown on the plans.

#### **60" CYPRESS**

- Current hardscape in the rooting zone is 45%; following the proposed project hardscape is at zero; an excellent improvement
- Details are shown on Sheet A 3.0

### **26" CYPRESS**

- Current hardscape is 75%; following the proposed project, hardscape will be reduced to 16%; an excellent improvement
- Details are shown on Sheet A 3.1

### **36" and 42" CYPRESS**

- 36" tree the hardscape is reduced from 52% to proposed project is 14% - excellent improvement
- 44" tree hardscape is reduced from 36% to 19% with the project – significant improvement

## **6. PROPOSED MITIGATION AND ENHANCEMENT MEASURES**

Removal of any hardscape and especially on a large scale basis such as proposed in the plan is critical to the survival and recovery of the failing trees. In particular, the 60" cypress will, no doubt, reverse the failing mode it currently is in and begin to recover with the 100% removal of the impervious asphalt as will the other cypress.

The enhancement process begins with the careful removal of the hardscape.

Coordination of the site improvements and removal of the hardscape is critical to avoid any damage to uncovered roots. Often, rooting is immediately below the impervious surface where water vapor may condense on the underside and be available for root uptake; this is witnessed when roots grow under the surface and create lumps or failure in the impervious surface.

The hardscape should be removed carefully followed by an inspection by a Forester to determine rooting depth, density and conditions. Based on the inspection, careful scarification, nutrient addition and heavy mulch with chipped native wood materials (cypress trimmings preferred) are recommended. In addition, temporary irrigation should be applied on a regular schedule to restore the moisture levels in the soils, which in turn, will stimulate growth and rehydrate the trees. Maintaining the mulch cover with repeated applications may be required in the future.

## **7. ANTICIPATED RESULTS**

The 4 large cypress are in decline due to existing conditions. With the removal of the hardscape, and the mitigation and enhancement measures listed above, it is my professional opinion that the trees will revert from the current declining condition to recovery and healthy growth. Without these positive measures, it is my professional opinion that the cypress will die or become very hazardous in 15 to 25 years.

Respectfully,



Ralph Osterling, President, ACF, CLFA  
Registered Professional Forester #38  
State of California



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Attachment

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