Assignment
Josh Corzine asked me to visit the site to inspect a row of coast redwood (Sequoia sempervirens) trees and to assess the potential impact to the trees from the construction of a new building. He also asked me for recommendations regarding tree protection during construction and future management.

Observations
I was given sheet A101 New Site Plan dated 7/5/2022 to review. I also met with Josh on site to discuss the proposed design. The subject row of trees runs north/south along the edge of the plateau for the existing sports field. A steep, unimproved slope runs down to the west of the trees. The site survey shows 29 trees in the line. All new developments are proposed beyond the west edge of the existing long jump track. A solar PV system is proposed on the roof of the new building.

We observed irrigation heads at the base of each tree, but I was told these were likely no longer in use, and the trees get their water from the irrigated turf. The canopies display good density and color, with some trees displaying slight dieback at the very top.

I reviewed Google Earth Pro historic aerials, and the trees first appear in 2009. According to a staff member, this was in memory of a student that died, and one tree was planted for each of their classmates. The trees are relatively small for redwoods planted 13 years ago. The form of their trunks suggests that they may have been cut back once in the past.

Discussion & Recommendations
According to the Marin County Municipal Code, coast redwoods need a trunk diameter of 10-inches or greater to be considered "protected" (Chapter 22.130.030 – Definitions). I did not measure the trunks of each tree, but none appeared to be 10-inches or greater.

A tree’s drip line is often referenced as a good location for tree protection fencing and this is applicable in this case as the trees are young, with mostly symmetrical canopies. The further out the fencing is placed, the better for the trees. The most significant impact will be that the trees will no longer have access to the turf irrigation, and so will require irrigation specific to them. This should be installed prior to the start of the project. Water should be applied to as much of the root zone as possible, with the goal of wetting the soil to a depth of approximately 18 inches every 2-4 weeks during the dry season. Two or three concentric rings of XFS Sub-Surface Drip line by RainBird is excellent for this application (part number XFS0612500). The irrigation should be covered with a 3-6-inch-deep layer of wood chip mulch. Composted mulch is preferred by the Fire Department as is available from West Marin Compost ("Topper Mulch").

The closest trunk is approximately 10 feet from the proposed building. This places the canopy inside the Immediate Zone of the defensible space (0-5 feet from the building), where there are to be no combustibles. The branches can easily be pruned to create the required clearance. The entire line is within the Intermediate Zone of the defensible space (5-30 feet from the building), where there is to be 10 feet of separation between tree canopies. Tree canopies are typically lifted in this zone, removing lower branches to mitigate the likelihood of a crown fire. As these trees act more as a large hedge and are far from other mature trees or homes, these treatments do not seem to be necessary. Removing the lower 1/3 of the foliage would reduce much of the wind and visual screening the hedge provides.
The trees will need to be controlled for height on a regular basis (every 2-4 years) so that they do not interfere with the proposed solar panels. This height control, along with the require lateral control for defensible space, will greatly restrict the future size and water needs of the trees. This pruning will need to continue in perpetuity.

ARBORIST’S CHECKLIST

- At least four-foot-high metal wire deer fencing, or six-foot-high chain link will be erected by the contractor and inspected by the arborist to limit access to the area under the canopy (Tree Protection Zone, TPZ). This will protect the trunk and root zone throughout construction.

- The Arborist shall have a pre-demolition meeting with contractor or responsible party and all other foremen or crew managers on site prior to any work to review all work procedures, access and haul routes, and tree protection. The contractor must notify the Arborist if roots are exposed or if trunk or branches are wounded.

- Storage of equipment shall be as far away from protected trees as possible and optimally on asphalt or ground protected by mulch / plywood.

- Any damage to trees due to demolition or construction activities shall be reported to the arborist within 6 hours, so that remedial action can be taken. Any damage done to the trees in violation of the contract agreement shall be appraised as a casualty loss by the arborist and provided to the tree owner.

- All trenching within the TPZ shall be done pneumatically or by hand, being careful not to damage any of the bark of any root encountered.

- An arborist shall inspect all grading, trenching, tunneling or other excavation within the root zones of trees prior to backfill.

- No chemicals or other waste materials shall be dumped within 20’ of the base of any tree. There shall be no material storage in the TPZ.

- Any tree pruning will be done in accordance with ISA standards. All pruning will be inspected by the arborist.

- The arborist must perform a final inspection to ensure that no unmitigated damage has occurred and to specify any pest, disease or other health care. The arborist shall specify and oversee any necessary restorative actions.

- Any suspected omissions or conflict between various elements of the plan shall be brought to the attention of the arborist and resolved before proceeding with the work.

SCOPE OF WORK AND LIMITATIONS

Urban Forestry Associates has no personal or monetary interest in the outcome of this investigation. All observations regarding trees in this report were made by UFA, independently, based on our education and experience. All determinations of health condition, structural condition, or hazard potential of a tree or trees at issue are based on our best professional judgment. The health and hazard assessments in this report are limited by the visual nature of the assessment. 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. Arborists cannot guarantee that a tree will be healthy 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 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 trees.
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