



URBAN FORESTRY ASSOCIATES, INC.

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Date: January 27, 2017

Fountaingrove II Open Space Maintenance Association
c/o Focus Real Estate
3936 Mayette Avenue
Santa Rosa, CA 95405

Attn: Board Members

**Tree Failure and Fire Hazard Assessments and Mitigation Prescriptions for
Fountaingrove II Open Space located in Santa Rosa, California and Comprising
Work for Fuel Reduction and Crown-to Crown Tree Separation in Firebreaks,
Landscape Parcels and Rincon Ridge Wildland Parks**

PURPOSE AND PROCEDURES

Since 2010, Urban Forestry Associates, Inc. (UFA) has been engaged by the Fountaingrove II Open Space Maintenance Association (OSMA) to prepare Tree Health, Tree Failure and Fire Hazard Assessments and Mitigation Plans for its Open Space parcels located in Fountaingrove II in Santa Rosa, California, and UFA provided the required certifications for OSMA's Annual Reports to the Community Development Department of Santa Rosa for years 2010 - 2015.

OSMA requested UFA to do similar work during 2016 for both the Open Space parcels it owns, as well as the Fountaingrove II Wildland Parks which it now manages for the City of Santa Rosa under the terms of an Agreement executed with the City in December 2012. UFA was engaged on an hourly basis to work on similar assessments on trees and chaparral in several parcels within its approximate 220 acres of Open Space owned by the OSMA, and the 13.53 acres of City Wildland Parks it manages. As per the prior years, UFA summarized its assessments and recommendations on templates which could be incorporated into: (1) a single certified UFA report for work completed by OSMA during Year 2016, (2) OSMA's Requests for Proposals (RFPs) which were solicited to vendors, and (3) the Annual Report which OSMA is required to provide to the City of Santa Rosa Community Development Department and its Association Members by February 1, 2017.

This report, and the attached prescriptions, present our observations, and provide OSMA with recommendations to reduce tree-falling hazards and fire hazards for the areas outlined herein.

BACKGROUND, SCOPE OF WORK, AND LIMITATIONS

Information regarding property boundaries, land ownership, tree ownership, and history of the site was supplied to UFA by the Fountaingrove II Open Space Maintenance Association Board. The scope of work is described herein and on the Specification Sheets and Summary of tree work attached hereto as Exhibit 1. The scope includes recommendations on: (1) Fire-Hazard Assessment, (2) Treatment Specifications, (3) Tree Inventory, (4) Tree Health and (5) Tree-Hazard Assessment. UFA has no personal or monetary interest in the outcome of this work. Any determinations reflected in this report are objective and to the best of our ability. All judgments regarding the condition of the vegetation were made by UFA, independently, based on our education and professional experience.

SETTING

At the request of OSMA, UFA reviewed tree and chaparral for safety issues in the following areas during 2016, and the status of the reporting is indicated below:

Trees: Work completed and recommendations/assessments provided in this report and its exhibits include the following OSMA or City of Santa Rosa Open Space Parcels and their assessment dates:

Firebreak 8	for work prescribed in Year 2016
Landscape Parcel I-1 along Parkway	for work prescribed in Year 2016
Rincon Ridge and Parker Hill Parks	for work prescribed in Year 2016
Firebreaks 3 and 4	for work prescribed in Years 2014, 2015 and 2016
Fire Roads in FB3 and FB4	for work prescribed in Years 2012 and 2016

Trees: Additional Recommendations/assessments were provided in 2016 for tree removals in FB2 and Landscape Parcels along the Fountaingrove Parkway and Parker Hill Road for work targeted to be completed in 2017.

Chaparral: No formal report was requested by OSMA for chaparral prescriptions in Year 2016.

The topography, aspect (direction of slope), fuels, other fire hazard factors and emergency response access varied from location to location, and the prescription recommendations took these factors into account.

The recommendations/assessments for this Report and Exhibit 1 includes the work OMSA completed on trees in 2016, and which is required to be incorporated into OSMA's 2016 Annual Report to the Community Development Department of Santa Rosa which is due February 1, 2017.

Prescription work performed in 2016 by UFA, but not completed as of December 31, 2016, will be incorporated into future UFA reports to OSMA. This approach eliminates duplicate reporting and confusion if UFA makes supplemental recommendations which may be necessary before OSMA completes the work. Forest health and structural condition on Open Space within Fountaingrove II are constantly changing, and management specifications should be reviewed and updated just prior to providing input to vendors solicited to do work on trees. OSMA faces rapidly changing circumstances due to pests and diseases attacking its trees, particularly Douglas fir, California bay laurel, coast live oak and California black oak. Weather extremes (i.e. the recent extended drought) have also created hazard issues.

FIRE HAZARD ASSESSMENT

The City of Santa Rosa has designated Fountaingrove II as an Urban Wildland Interface Fire Area and a Very High Fire Hazard Severity Zone. The only effective approach to mitigate fire hazards in these fire-prone areas is to alter the vegetation fuels by changing its loading (reducing the amount of fuel), arrangement (disrupting the vertical and horizontal continuity), and composition (favoring less flammable species). OSMA and UFA require that special status species be preserved. Recommendations to reduce the fire hazard in the reviewed areas are presented below for the surface, ladder, and aerial fuels.

Surface Fuels: Within the subject area, surface vegetation consists primarily of seasonally dry grass and accumulated organic material (leaves and branches) cast from trees and shrubs. Fires in these fine, flashy, surface fuels tend to spread rapidly with relatively low intensity (low thermal output and short flame lengths). Light ground fuels are where ignitions typically occur. Surface fires predispose aerial fuels to ignition and make it difficult to control crown fires. We recommend OSMA continue its annual mowing of grasses and periodically chipping downed limbs (every 5 years) to reduce rates of spread and fire intensity of these surface fuels. Care has been taken to preserve special status species.

Ladder Fuels: Shrubs (broom and toyon) and small trees (acacia, eucalyptus and fir saplings) create an intermediate fuel stratum in the fire ladder between the ground fuels and the tree canopies. These ladder fuels burn with great upward intensity (moderate thermal output to severe and moderate to severe flame lengths depending on fuel load and flammability), preheating and moving fire to the tree canopy. Although madrone trees occupy this layer in the subject areas, they do not constitute problematic ladder fuels owing to a lack of accumulated dead leaves and fine branches. We recommend that ladder fuels including the broom, acacia, eucalyptus and fir saplings (less than 6 inches DBH) be cleared from this area to create greater separation between the surface and aerial fuels. All madrone trees should be retained unless they are a high risk of failure with a target of value. Annual treatment of re-sprouting broom, Himalayan blackberry, acacia, and eucalyptus will be needed for long-term control and to prevent these invasive fire-prone plants from moving further into the open space.

Aerial Fuels: Once a fire reaches the forest canopy (eucalyptus, oak, bay, and fir) individual trees begin burning rapidly from bottom to top (torching) and spread from tree to tree (crown fire), fueling an intense conflagration (high thermal output and high flame lengths). Burning trees may generate fire brands that are blown downwind and ignite spot fires in advance of the flame front up to a quarter mile. Most home ignitions are also due to ember blizzards and fire brands. Both eucalyptus and acacia are recognized as especially flammable; eucalyptus is notorious for producing fire brands and embers that move considerable distances downwind during a fire. Eucalyptus is also "self-laddering" allowing fire to ascend the trunk in the absence of other ladder fuels. We recommend that all eucalyptus and acacia trees be removed from the areas within Fountaingrove II Open Space, and their remaining stumps be treated to prevent re-sprouting. Also Douglas fir should be pruned to a minimum canopy height of 10 feet above grade, total size permitting.

FIRE HAZARD MITIGATION SUMMARY OF TREES FOR THIS REPORT

Trees removed in 2016 by OSMA for Fire Mitigation or failure hazard reasons are noted on the attached prescriptions attached hereto as Exhibit 1, and the statistics are summarized by species below.

Species	6" - 9"	9.1" – 11.9"	12' – 24"	24" >	Total Removed
Live Douglas-fir	39	27	33		99
Bay for SOD Control	20	13	6		39
Safety Removals	1	1	5	2	9
Dead Trees	14	11	23	4	52
Total All Trees	74	52	67	6	199

All of these recommended tree removals by OSMA were within the City of Santa Rosa Use Permit as amended July 7, 2011 and the guidelines of the existing Use Permit and Open Space Management Plan for Fountaingrove II Open Space. Recommendations of invasive or nonnative trees are not tracked by UFA or OSMA for reporting purposes.

Hazard Tree Reports Prepared by Urban Forestry Associates, Inc. in Year 2016: The OSMA periodically requests Urban Forestry to review trees and issue Hazard reports on the health and safety of these trees. If the OSMA Board authorizes the removal of any Hazard trees recommended by these reports, it seeks any required additional approvals before it removes the tree(s). We understand the OSMA will incorporate UFA's appropriate Hazard reports, as well as any necessary approvals by Santa Rosa Fire, as Exhibits to its Year 2016 Annual Report to the City of Santa Rosa Planning and Economic Department (formerly Community Development Department) due February 1, 2017.

Removal of California Bay Trees for control of SOD: During Year 2016, Urban Forestry recommended the removal of several California bay trees to prevent the spread of the SOD pathogen *Phytophthora ramorum* which causes Sudden Oak Death Syndrome (SOD). These Bays were nearby susceptible oak species, and they are authorized to be removed per guidelines under which OSMA manages its Open Space.

Removal of Oaks infected with the pathogen of SOD: No such trees were removed in Year 2016.

Fire Hazard Mitigation: Significant (yet manageable) fire hazards were identified within the subject areas. Continuing to maintain or create shaded fuel breaks should be a continuing objective for OSMA. This practice will help slow a wildfire originating within or progressing towards Open Space. Suggested ongoing mitigation measures should include:

1. Continue to mow cured grasses annually.
2. Limb up trees to 10' above the ground, size permitting (minimum cycle of 5 years)
3. Treat chaparral for regrowth (minimum cycle of 5 years).
4. Remove ladder fuels, including chaparral and Douglas fir reproduction under 6" DBH
5. Remove invasives and treat for re-spouting of acacia, eucalyptus, broom, pampas grass, euphorbia, blackberry and new invasive species that OSMA discovers in Open Space.
6. In certain areas, logs greater than 8" in diameter could be left onsite to decompose.

Certification: Urban Forestry Associates, Inc. (UFA) herein certifies we have read and to the best of our ability understand the applicable governing documents of Fountaingrove II Open Space Maintenance Association. UFA certifies under penalty of perjury that to the best of our knowledge our recommendations herein, and as noted on the Prescription Worksheets attached as Exhibits 1 are in compliance with the prescribed management practices for the Open Space of Fountaingrove II. Our recommendations comply with all the requirements of the approved Design Program for Open Space Management and Use Permits supplied to UFA by OSMA Board members, and these documents are attached hereto as reference Exhibits.

Sincerely,

URBAN FORESTRY ASSOCIATES, INC.



Ray Moritz, Urban Forester SAF Cert #241
ISA Certified Tree Risk Assessor