

MACNAIR
&
ASSOCIATES
CONSULTING ARBORISTS AND HORTICULTURISTS



August 3, 2015

San Francisco Urban Forestry Council
1455 Market Street
San Francisco, CA 94102

RE: Review of Landmark Tree Nomination- Norfolk Island Pine, 46 Cook Street, San Francisco

Dear Committee Members,

On behalf of Dale Rogers, the property owner, I have reviewed the Landmark Tree Nomination form nominating the Norfolk Island pine (*Araucaria heterophylla*) growing at 46 Cook Street and submitted to the San Francisco Urban Forestry Council. The purpose of this review is to verify the accuracy of the information provided in the nomination form and provide my opinion as to whether this tree would qualify for "Landmark" status pursuant to Ordinance 0017-06 and Public Works Code 810.

Following is a listing of the tree description and nomination criteria and my comments¹.

Height: Using a laser range finder I determined the height at 85 feet and not 100 feet as stated on the nomination form.

Average Canopy Width: Concur at approximately 30 feet.

Circumference at 4.5 feet: Using a diameter tape I measured the circumference at 110 inches (35 inch diameter).

Circumference at Ground Level: Concur at 138 inches.

Rarity: The nomination form lists this species as rare. I disagree. The species is common in coastal California and other Mediterranean climates, including San Francisco. The most limiting factor on distribution is this tree's susceptibility to cold damage, which limits the tree to coastal areas. Two references supporting this opinion are the Wikipedia discussion and a Pacific Horticultural article from 2010.

Wikipedia:

The distinctive appearance of this tree, with its widely spaced branches and symmetrical, triangular outline, has made it a popular cultivated species, either as a single tree or in avenues. When the tree reaches maturity, the shape may become less symmetrical. Despite the endemic implication of the species name Norfolk Island pine, it is distributed extensively across coastal areas of the world in

¹ My curriculum vitae setting forth my qualifications is attached hereto.

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Mediterranean and humid-subtropical climate regions due to its exotic, pleasing appearance and fairly broad climatic adaptability.

As well as their eponymously native Norfolk Island, these conifers are planted abundantly as ornamental trees throughout coastal areas of Australia, Brazil, Chile, New Zealand, Peru, Portugal, South Africa, Spain, and coastal areas of the United States, such as southern California and the east and west coasts of Florida, as well as the northwestern most coast of Mexico.

(https://en.wikipedia.org/wiki/Araucaria_heterophylla)

Pacific Horticulture:

*Australian members of the Araucariaceae commonly grown in California include the tall, prickly-leaved bunya-bunya (*A. bidwillii*) of Queensland, with huge pineapple-shaped cones, hoop pine (*A. cunninghamii*), an important Australian timber tree, and Norfolk Island pine (*A. heterophylla*), native to Norfolk Island. The latter species is commonly grown in parks and gardens in the San Francisco Bay Area, and in containers in Southern California; it is often sold as star pine, because of its horizontal tiers of radiating branches. - See more at:*

(<http://www.pacifichorticulture.org/articles/the-araucaria-family-past-present/#sthash.x26NCVko.dpuf>)

Physical:

Size: This is a mature tree, but at 85 feet in height, is not exceptional. The Sunset Western Garden Book describes this species as having a moderately fast growth rate to 100 feet. I would rate this size in the medium category for this species.

Age: The nomination form estimates the age of the tree at 120 years based upon another tree previously removed. My estimate of the tree's age is 70 to 80 years based upon a conservative growth rate of .5 inches in diameter per year. This is a low to moderate growth rate for a moderately fast growing coniferous species. Additionally, the tree's location is 8.5 feet from the house foundation and in, what I assume, is the original driveway access to the carriage house. This location indicates the tree was a volunteer seedling from another tree and was allowed to grow after access to the carriage house was no longer used for vehicular storage.

Distinguished Form: The tree has the typical crown and limb structure for this species, although not unique compared to other Norfolk Island pines. There does not appear to be anything particularly unique or "distinguished" about this form.

Tree Condition: The tree is in good health and moderate structural condition with no severe defects. The live crown to height ratio is lower than preferred at approximately 50%. This moderately low ratio could increase the risk of lower limb breakage. The cones are moderately large (5 to 7 inches) and heavy, which is a concern in high use areas as the cones can cause injury if dislodged and strike a person. Otherwise, the tree has a low to moderate risk of failure projected over a three-year period.

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Historical:

Historical Association: Given the tree's probable age and location in the carriage house driveway, the tree most likely dates to the 1940s. It could be a seedling from an older tree on the property, but has no apparent historical association of note, or at all.

Environmental:

Prominent Landscape Feature: This is a large tree, although it is set back from the front fence 81.5 feet. The property owner does not view this tree as an important (prominent) landscape feature.

Low Tree Density: I agree that the neighborhood has a moderate tree density.

Interdependent Group of Trees: I agree that the tree is not an integral member of a group of trees.

Visible or Accessible from Public Right-of-Way: The tree is visible from only a limited number of vantage points. From Cook Street, I could only see it unobstructed from one location. It may be visible from other streets at higher elevations. As stated, it is set back 81.5 feet from the sidewalk and therefore has low visibility.

High Traffic Area: In its location on a dead end street and significantly set back from the street, I do not believe the tree has any traffic calming effect and no high visibility as noted above.

Important Wildlife Habitat: As a non-native ornamental species, the primary wildlife benefit is likely limited to a perching site for birds of prey, but otherwise not a habitat. The cones are likely a potential food source for squirrels and rodents.

Erosion Control: I agree there are no erosion control benefits.

Wind or Sound Barrier: Because of the low live crown to height ratio and narrow crown form, there are no significant wind or sound barrier benefits.

Cultural:

The property owner does not believe the tree adds any "cultural" value to the neighborhood.

Summary:

Based upon my observations and information provided to me by the property owner and discussions with previous SFUFC members, this tree does not seem to meet the criteria for designation as a landmark tree. It is a large stature tree, but relatively common, not unique, not likely historically significant, and does not provide significant environmental benefits, other than marginal aesthetics.

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Please contact me with any questions, or if additional information is required.

Sincerely,

Digitally signed by James MacNair

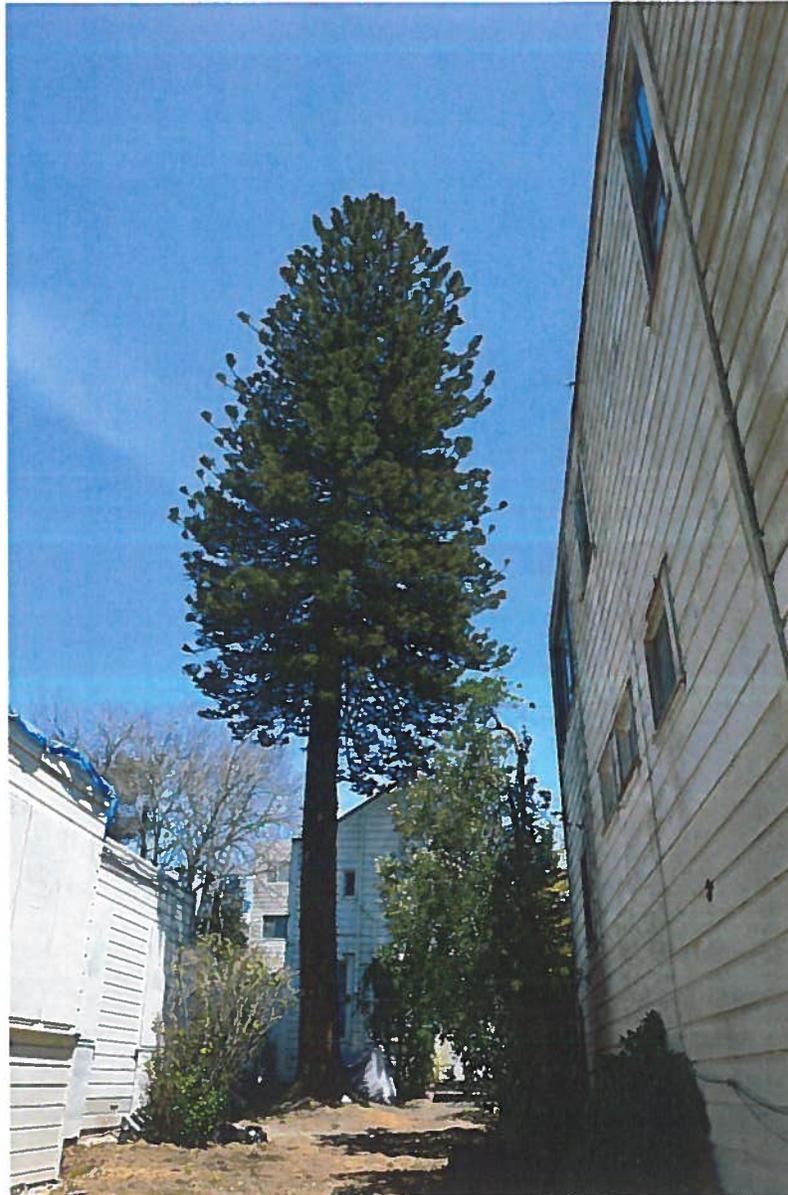
Date: 2015.08.03 19:32:23 -07'00'

James MacNair

International Society of Arboriculture Certified Arborist WC-0603A

International Society of Arboriculture Qualified Tree Risk Assessor

Tree Images:



View of tree from front portion of lot inside fence. Tree is 81.5 feet from fence at sidewalk.



View of tree from Cook Street. Cypresses along sidewalk frontage generally obscure views from the street.

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FIRM QUALIFICATIONS

MacNair and Associates is a professional arboricultural and horticultural consulting firm providing a complete range of landscape management and evaluative services. Clients include landscape architects, attorneys, corporations, government agencies, property managers, and professions within the construction industries.

MacNair and Associates and its predecessor, Horticultural Technical Services, have successfully completed over 3000 projects throughout the Western United States with services ranging from expert witness testimony to specialized landscape management manuals and vegetation studies. MacNair and Associates is known for providing accurate and practical recommendations supported by site-specific technical data and clearly written documentation.

James MacNair, Principal

James MacNair is a consulting arborist and horticulturist (International Society of Arboriculture Certified Arborist WE-0603A, ISA Qualified Tree Risk Assessor.)

Professional experience in the horticultural industry began in 1973 and includes work as a production manager of a viticulture nursery and as owner and vice-president of Skylark Wholesale Nursery. Skylark Nursery was known for the introduction and promotion of Mediterranean and California native plants. Mr. MacNair's extensive knowledge of landscape ornamentals has resulted in lectures and articles discussing their appropriate use and care in the landscape.

Mr. MacNair was a regular guest speaker at water conservation conferences throughout the state in the 1980s and has lectured at various colleges and universities. He received a recognition award for exemplary effort in the promotion and implementation of Xeriscape water conservation in the urban landscape.

From 1984 to 1990, James MacNair was a principal partner of Horticultural Technical Services and since 1990 is the principal of MacNair and Associates. Areas of specialization include arboricultural evaluations and risk assessments, expert witness services, tree loss appraisals, landscape planning for sites with special soil or water chemistry problems, irrigation strategies and plant selection for sites using reclaimed water, and irrigation management techniques including the development of computer scheduling software.

From 1991 through 1997, James MacNair was a principal of Irrigation Management Group (IMG), developers of the water conservation software ET Calc™. Mr. MacNair served as software designer, technical writer, and irrigation management consultant.

In 2010, Mr. MacNair developed the tree/plant appraisal software TreeValue™ for use in the 2007 San Diego County fire litigation cases. He is lead arborist expert for San Diego Fire Lawyers and has supervised the evaluation and documentation of tree and landscape losses for over 200 properties involving 80,000 trees. Advanced database designs, appraisal cost models, electronic field data collection, and GPS locations/mapping procedures were developed as part of this work.



ARBORICULTURAL and HORTICULTURAL SERVICES

Arboricultural Appraisals and Evaluations

- Use of advanced tree appraisal software (developed by Mr. MacNair) including electronic field data collection, and GPS locations/mapping procedures. Tree appraisals performed using CTLA (Council of Tree and Landscape Appraiser) methods as described in the Guide for Plant Appraisal (9th Edition). Specialized cost models developed and used for analyzing costs for site and landscape remediation.
- Tree evaluations for heritage tree ordinances, including tree preservation, construction protection, mitigation specifications, and long range tree management programs.
- Tree surveys for evaluation of health and structural conditions, including risk assessment.
- Management programs establishing guidelines for pruning, cultural care, and pest and disease control.

Expert Witness

- Forensic documentation and analysis of tree failures.
- Extensive forensic and claim damage experience in over 20 wildfire cases.
- Appraisals of properties damaged by fire, storm, trespass, or accident. Council of Tree and Landscape Appraisers plant appraisal methods used to determine opinions of value.
- View obstruction reports and recommendations.
- Landscape construction defects.

Site Analysis

- Soil sampling for determination of soil fertility, physical characteristics, and identification of chemistry problems. Site specific recommendations developed for effective use of fertilizers and amendments.
- Review of all environmental parameters likely to affect plant growth. Site analysis provides criteria for appropriate plant selection to ensure successful and functional landscapes.

Landscape Management Manuals

- Performance oriented management specifications for protection and care of the landscape. The Landscape Management Manual provides:
 - Equitable bid evaluations
 - Verification of contract performance
 - Establishment of long-term maintenance program
 - Quarterly task schedules and report formats
 - Documentation of all pesticide and herbicide use
 - Budget analysis and cost projection

- Periodic walk-through evaluations ensure that maintenance is appropriate and allows adjustments in procedures as a landscape matures.

Irrigation Management Programs

- Site specific programs designed to conserve water usage, while promoting plant health. Proper irrigation management reduces incidence of pests and diseases, lowers plant replacement costs, and decreases fertilizer and pruning requirements.
- Site specific procedures for modifying existing irrigation programs. Water requirements are evaluated for maximum conservation of water and reduction of water costs.

James MacNair was a participant in the Department of Water Resource's Landscape Water Management and Master Auditor Training Programs. He has designed computer software (ET Calc™) for calculating landscape water use and irrigation schedules. He was a member of the committee responsible for the publication Water Use Classification of Landscape Species for the Department of Water Resources and the University of California Cooperative Extension.

Plant Selection

- Plant selection for unusual, difficult, or adverse site conditions. Plant selection matrices designed to provide accurate and comprehensive data in an easy to read format. Recommendations are based on extensive field experience and latest horticultural research.
- Review of planting and irrigation plans for cultural compatibility and maintenance efficiency. Pest and disease control, irrigation, fertilization, and pruning requirements are evaluated for minimizing future maintenance costs and optimizing performance.

Plant Procurement Contracts

- The establishment and administration of growing contracts for future projects to ensure availability and quality of plant material. Contract growing protects project quality, without adding to project cost.

Landscape Installation Evaluations

- Plant quality inspections evaluating for proper size, branch structure, root health, and presence of pests or disease. This service assures the installation of quality plants for optimum performance and landscape success.
- Site evaluations to verify conformance to design specifications for plant quality, planting techniques, soil amending, staking, irrigation, and initial maintenance.

Landscape Problem Analysis

- Horticultural evaluation of existing landscape maintenance programs reviewing specific problems or management procedures. Site specific recommendations provided to improve plant health and vigor and protect the landscape improvement asset .

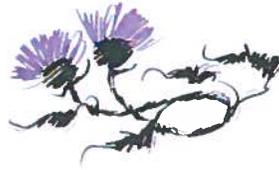
Environmental Restoration and Management

- Complete evaluative and management services for environmentally sensitive projects.
- Vegetation analysis of existing plant species for preservation, revegetation, or management planning.
- Riparian vegetation preservation plans and tree protection guidelines to protect and preserve existing riparian areas and specimen trees during construction and maintenance.
- Revegetation plans for restoring native plant communities. Specifications and procedures developed for specific site requirements. Administration and supervision of seed and cutting collection, propagation and growing contracts, installation, and maintenance.
- Seeding and planting recommendations for effective, long term slope protection and erosion control.

Seminars and Training Programs

- MacNair and Associates is available to provide lectures or training seminars on such topics as plant selection, designing for maintenance efficiency, water conservation, and landscape management.

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Professional Resume for James MacNair

Educational Background

1972- SONOMA STATE UNIVERSITY, Bachelor of Arts, Psychology, graduation with honors.

Subsequent areas of college level study include Arboriculture, Botany, Environmental Science, Irrigation Management, Irrigation With Municipal Wastewater, Plant Ecology, Plant Pests and Diseases, Plant Taxonomy, Soil and Water Analysis, and Viticulture.

Professional Background

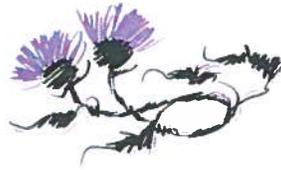
1973-1975 **Sonoma Grapevine**, Santa Rosa, California, and **VINEYARD TECHNICAL SERVICES**, St. Helena, California. Production Manager of greenhouse operations producing bench-grafted grapevines and potted foliage crops. Mr. MacNair was responsible for the production of over one million grapevines planted in Napa and Sonoma counties.

1975-1984 **SKYLARK WHOLESALE NURSERY**, Santa Rosa, California. Principal, Vice-president, and Sales Director with responsibilities including marketing, re-wholesale plant purchasing, production, inventory control, and corporate duties. Special emphasis was placed upon the introduction of Mediterranean and California native plants to the landscape trade. Because of his knowledge of the growth habits and cultural requirements of these plants, Mr. MacNair has lectured and written numerous articles on their use in the landscape.

1984-1989 **HORTICULTURAL TECHNICAL SERVICES**, Santa Rosa, California. Principal/Consulting Horticulturist and Arborist. Professional consulting firm providing horticultural expertise to landscape architects, federal, state and municipal agencies, developers, and homeowners associations.

1991-1997 **IRRIGATION MANAGEMENT GROUP**, Union City, California. Principal. IMG specializes in the production of irrigation and horticultural computer software. Mr. MacNair served as software designer, technical writer, and irrigation management consultant.

1990-Present **MACNAIR AND ASSOCIATES**, Glen Ellen, California. Principal/Consulting Arborist (Certified ISA WE-0603A and Member American Society of Consulting Arborists) and Horticulturist. Areas of specialization include arboricultural evaluations, software design, expert witness services, tree damage appraisals, irrigation management, plant selection, and landscape management.



SELECTED ARBORICULTURAL PROJECTS

CALIFORNIA DEPARTMENT OF TRANSPORTATION (CALTRANS)- Roadside Vegetation Management Study

- A comprehensive study of Caltrans roadside vegetation management policies and practices, including a detailed inventory of 271 roadside plantings. The study provided an evaluation of Caltrans directives, policies, and procedures as they are implemented through landscape design, construction, and roadside maintenance programs. A cost/benefit analysis was performed comparing four years of maintenance costs associated with the various landscape planting categories.
- The Roadside Vegetation Management Handbook was written for use by Caltrans personnel throughout California. This 350-page management manual covers such topics as irrigation management, plant selection, soil management and fertilization, pruning and tree maintenance, and pest and disease control. Special emphasis was placed on water conservation management practices.

CALIFORNIA DEPARTMENT OF TRANSPORTATION- Broadway Eucalyptus Evaluation and Resistograph Study

- Consulting arboricultural services provided to Caltrans. This project involved a detailed risk evaluation of mature blue gum eucalyptus growing along Hwy 12 (Broadway) in the City of Sonoma. A research project evaluating the effectiveness of the Resistograph™ for detection of internal decay was also performed as part of the evaluation.

CALIFORNIA DEPARTMENT OF TRANSPORTATION- El Camino Real Eucalyptus Evaluation and Resistograph™ Study

- Consulting arboricultural services provided to Caltrans. This project involved a detailed health and structural evaluation of mature blue gum eucalyptus growing along El Camino Real in the City of Burlingame and internal decay analysis utilizing the Resistograph™.

CALPINE- Audubon v. Calpine Wildfire Damage

- Expert witness services assessing the fire damage and claims associated with this 13,000 acre fire. The assignment required extensive damage documentation, repair and mitigation cost analysis, and direct participation in mediation and settlement conferences.

CITY OF EL CERRITO- Landscape Management Plan and Urban Forestry Plan

- This contract was performed in collaboration with Vallier Design Associates of Point Richmond, CA. The project required a review of Government Accounting Standard Board (GASB) requirements as applied to El Cerrito public sites.
- Forty-eight public sites were evaluated and inventoried. Each property was surveyed for the number and condition of trees, landscape characteristics including shrubs and groundcovers occurring, and current maintenance levels and deficiencies. All trees were

described using trunk diameter classifications, health and structure ratings, and any potential hazardous conditions observed. Data spreadsheets and site maps were prepared showing inventory results as well as renovation, replacement, and maintenance costs associated with the landscape plantings and hardscape areas.

- A public survey was conducted to obtain public perceptions, use patterns, and maintenance goals for landscape facilities. An Integrated Pest Management plan was prepared for future implementation.
- An Urban Forestry Plan was completed and included a street tree inventory and city street master plan components.

CITY OF HEALDSBURG- Contract City Arborist

- Contract Arborist providing tree evaluations and risk assessments of city parks and public properties. Review services for Heritage tree removal requests and projects located within Landscape Improvement Districts.

CITY OF RICHMOND- Hilltop Landscape Maintenance District

- This contract included arboricultural recommendations, ongoing landscape planting and maintenance evaluations, landscape irrigation evaluations, irrigation scheduling recommendations, review of existing landscape maintenance program, and program quality control implementation.

CITY OF SONOMA- Broadway Improvements, City Street and Heritage Tree Inventory, and Sonoma Plaza Tree and Landscape Management Plan

- Species selection and nursery procurement for the Broadway Improvement Project. Computerized inventory for identification and assessment of city street and historic trees. Preliminary report for establishment of a city street tree master plan.
- The Sonoma Plaza Tree and Landscape evaluation documents the health and condition of the historic plants growing at the plaza and provides recommendations for their long-term maintenance and care. The evaluation will include a review of current tree and landscape maintenance practices, drainage problems, and the functionality of the irrigation system.

LETTERMAN DIGITAL ARTS CENTER, PRESIDIO, SAN FRANCISCO- Arboricultural and Landscape Development

- This project provides comprehensive services ranging from development of a historic tree protection program, health and structural evaluations of mature trees, reclaimed water use in the landscape, plant selection review, landscape tree procurement, and preparation of a landscape management plan.
- Over 570 specimen trees were selected and purchased under the direction of Lawrence Halprin and Associates. A tree nursery was established in the Presidio for holding and transplanting of project trees.

SAN DIEGO FIRE LAWYERS- Old Guejito, Rice Canyon, and Witch Creek Fires: Tree/Woodland Damage Assessments and Appraisals

- The assessment of over 180 properties in San Diego County impacted by the October 2007 wildfires. Services include the inventory and documentation of trees killed or damaged by the fires. Currently over 40,000 trees have been evaluated.

- Specialized database software was created to document tree species, trunk diameters, pre-fire condition, and severity of fire damage. Advanced database, electronic field data collection, and GPS locations/mapping procedures were developed and utilized in the evaluations and damage appraisals. Cost models were developed for analyzing for site remediation requirements and cost of cure opinions of value.

SILVERADO HIGHLANDS, NAPA, CA- Arboricultural Evaluations and Native Tree Revegetation

- Evaluation of trees and oak woodland prior to construction of the Silverado Highlands residential development. Tree evaluations included hazard evaluations and assessment of construction impact. Extensive public hearings required and tree protection supervision during construction.

SILVERADO COUNTRY CLUB AND RESORT, NAPA, CA, Tree Inventory and Management Plans

- Tree inventory and management plans for resort areas and 36 hole golf courses. Computerized inventory software used to track requirements of 2,000 trees in this well-known resort and championship golf course.

STANLY RANCH, NAPA, CA- Eucalyptus Windrow Evaluation and Tree Management Plan

- This project has 4600 eucalyptus trees in historical windrow plantings. The City of Napa required an evaluation of the windrow plantings as part of the project Environmental Impact Report.
- Preparation of windrow management plan which consisted of (a) master schedule for phased replacement of individual trees, (b) protocols for: (i) removal of individual trees in a manner which minimizes impact on adjacent trees, (ii) planting of replacement trees, and (iii) protection of remaining trees during construction, (c) program for monitoring and maintaining trees until replacement, (d) monitoring and reporting program for any required mitigation measures, and (e) an initial five year budget for implementation of the Windrow Management Plan.

STERN GOVE FESTIVAL ASSOCIATION, SAN FRANCISCO, CA- Arboricultural Evaluations, Tree Preservation and Protection Plan, Construction Observation

- Evaluation of trees within the project limits of the Stern Grove Concert Meadow. A comprehensive tree protection plan was prepared for this historic site. Tree protection observation was provided throughout the project construction. Detailed resistograph and air spade diagnostic procedures were used for evaluation of a historic eucalyptus tree.

STONEBRAE COUNTRY CLUB, HAYWARD, CA- Arboricultural Evaluations, Tree Preservation and Protection Plan, Construction Observation, Tree Growing Contract

- Documentation and database management of over 3000 trees. A tree preservation and mitigation plan was prepared as part of the project's conditions of approval as well as ongoing tree protection observation. An oak protection brochure was prepared for use by the Homeowners Association.
- Management of a large tree growing contract designed to provide the project with availability of the specified trees, a high quality standard, and purchased at a competitive cost.

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James MacNair
 Articles, Books, Presentations, and Professional Papers

Date	Title	Publication/Conference Proceedings
1977-1980	Plant Profiles- California Native and Mediterranean Plant Introductions- Article Series	California Landscape Magazine (CLCA)
June 1985	Oak Forest- A Lester Hawkins Legacy	Pacific Horticulture
December 1985	Plant Selection- A Pragmatic Approach	Paper and Lecture- 1985 Xeriscape Conference
May 1986	Native Plants for Planting with Oaks	Landscape and Irrigation News
January 1987	Water Conservation in the Landscape- A Horticultural Perspective on the Interaction of Design, Installation, and Maintenance	Paper and Lecture- 1987 Marinscape Conference
July 1991	Roadside Vegetation Management Handbook	California Department of Transportation
February 1991	Water Conservation and Maintenance- The Technical Requirements	Paper and Lecture- 1991 Northern California Xeriscape Conference
February 1992	Estimating Water Use and Irrigation Schedules for Ornamental Landscapes	Paper and Lecture- 1992 Water Efficient Landscaping Conference
February 1992	Water Use Classification of Landscape Species	Project Participant. University of California Cooperative Extension
June 1993	ET Calc User's Handbook	ET Calc- Water Conservation Software for Landscape Design and Maintenance
February 1994	Estimating Water Use in Landscapes	Landscape and Irrigation News
January 1995	Water Conservation in Commercial Landscapes	CAI Magazine
August 1995	Calculating Irrigation Schedules for Overhead Sprinkler Systems	Landscape and Irrigation News
February 1996	Trees for Rhododendron Gardens	American Rhododendron Society
January 2003	Detection Study Using the Resistograph- Structural Evaluation of <i>Eucalyptus globulus</i>	Study conducted for Caltrans. Presentation to the City of Sonoma City Council.

Date	Title	Publication/Conference Proceedings
October 2005	Letterman Digital Arts Center- Landscape Construction and Historic Tree Protection.	Presentation to the Bay Area Landscape Supervisors Association.
January 2006	Root Failure- Douglas Fir	Presentation to the Annual Tree Failure Conference
April 2011	Tree Damage Assessment and Appraisal Mediator Orientation	Presentation to mediators assembled for the Witch Creek and Rice Fire Litigation Cases.
September 2013	WUCOLS Redux- Selecting the Right Plants for California's Future- Plant Water Use Ratings: Inside the Committee Process	Presentation to the WUCOLS 2013 Conference.
January 2015	Wildfire Tree Damage 2007 Witch Creek Fire	Presentation to the 14 th Annual Pest and Disease Symposium
June 2015	Irrigating Effectively with Drip Systems	Presentation to the Trees and Drought- Using Water Wisely Workshop.

