# COUNTY OF SONOMA
# AGENDA ITEM
# SUMMARY REPORT

**Clerk of the Board Use Only**
**Meeting Date** **Held Until**
**Agenda Item No:** **Agenda Item No:**

| | | | |
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| **Department:** Sonoma County Water Agency | | | ( ) 4/5 Vote Required |
| **Contact:** Brad Sherwood | **Phone:** (707)547-1927 | **Board Date:** 04-28-09 | **Deadline for Board Action:** |

**AGENDA SHORT TITLE:**
Vineyard Irrigation Water Conservation Demonstration Project

**REQUESTED BOARD ACTION(S):**
Authorize Chair to execute the First Amended Agreement for Consultant Services to Plan, Develop, and Implement Vineyard Irrigation Water Conservation Demonstration Project, Phase 1 and 2, between the Sonoma County Water Agency and Advanced Viticulture LLC ($67,455).

**CURRENT FISCAL YEAR FINANCIAL IMPACT**

| **EXPENDITURES** | | | **ADD'L FUNDS REQUIRING BOARD APPROVAL** | | |
|---|---|---|---|---|---|
| **Estimated Cost** | **$** | 67,455 | **Contingencies (Fund Name: )** | **$** | |
| **Amount Budgeted** | **$** | 67,455 | **Unanticipated Revenue (Source: )** | **$** | |
| **Other Avail Approp (Explain below)** | **$** | | **Other Transfer(s) (Source: )** | **$** | |
| **Additional Requested:** | **$** | -0- | **Add'l Funds Requested:** | **$** | -0- |

**Explanation (if required):** Funding is available from the $67,455 appropriation in the FY 2008/2009 budget for the Fund entitled SCWA General Fund – Consulting Services (Account No. 672105-6570).

**Prior Board Action(s):**

**Alternatives - Results of Non-Approval:**
Non-approval of Phase 2 of the Vineyard Irrigation Water Conservation Demonstration Project would result in no agreement with the consultant to further implement and gather data for a comprehensive summary. Phase 2 is critical to the overall demonstration project as it collects the data necessary to inform the agricultural industry and the public about the effectiveness of new irrigation and cooling technologies and best management practices.

**Background:** Amended Agreement and "Working Copy" of Amended Agreement on file with the Clerk.

The Vineyard Irrigation Water Conservation Demonstration (Demonstration) is a water conservation and public education effort to demonstrate how water can be conserved in vineyards by the use of new irrigation and cooling technologies, and the implementation of best management practices developed by Advance Viticulture, LLC (Consultant) on behalf of the Sonoma County Water Agency (Agency). The Demonstration will also measure energy savings by using water-saving technology and management practices.

For the third consecutive year, the Agency has issued a call for conservation from its contractors, municipalities along the Russian River, businesses, and the agricultural community. As of April 6, 2009, the Agency was ordered by the State Water Resources Control Board (SWRCB) to reduce water use from its water supply system by 25 percent and 50 percent from users along the upper Russian River. Those users along the upper Russian River include vineyards. The SWRCB also ordered the Agency to work with stakeholders, including the agricultural community, to assist with conservation plans and efforts. There are approximately 60,000 acres of vineyards in Sonoma County. In the Russian River basin, agriculture, including vineyards, consumes approximately one-third of the water in the Russian River. The Russian River is the primary source of water for the Agency. The Agency delivers water to nine cities and water districts that in turn deliver water to approximately 600,000 residents in portions of Sonoma and Marin counties.

In 2006, the Agency entered into agreement with the Consultant to provide outreach to the agricultural community, in particular to the grape growing industry, based on a SWRCB Order to the Agency requiring a 15 percent reduction in diversions and cooperation/planning with the agricultural community. Since 2006, the Consultant has developed best management practices for irrigating and cooling methods in vineyards. The Consultant has also developed and conducted vineyard irrigation and conservation surveys to evaluate water use technologies and management practices in vineyards in the Russian River watershed. The Demonstration will build upon the data collected by the Consultant and demonstrate real-world projects at a time of state-mandated water conservation. A similar demonstration project was conducted in Napa, which the Agency supported.

The Demonstration will include two projects: Irrigation Methods Project and Low-Volume Vineyard Cooling Project. The Consultant will coordinate both demonstration projects.

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**Attachments:**

**On File With Clerk:** Amended Agreement (4 Copies); "Working Copy" of Amended Agreement (1 Copy)

**CLERK OF THE BOARD USE ONLY**

| **Board Action (If other than "Requested")** | **Vote:** |
| --- | --- |
| | |

**Background (continued):**

The Irrigation Methods Project will showcase some alternative strategies side-by-side with some commonly-used practices that are less water-use efficient. Soil moisture measurements will be made on a continuous basis using the latest technology for measurement and data telemetry. The following soil moisture data will be made available to the public in real-time via the internet:

- Side-by-side comparisons of two ½ gph emitters per vine and one 1 gph emitter per vine. Soil moisture devices to monitor wetting depths. Most vineyards would benefit from additional emitters at a lower flow rate, which creates a larger root zone.
- Comparison between a longer, less frequent versus a shorter, more frequent irrigation cycle. Soil moisture devices to monitor wetting depths and drying cycles between irrigation events. Remote switching of valves will be installed. It is likely to be shown that the shorter, more frequent irrigation practice is more water-use efficient than the alternative.
- Two levels of deficit irrigation will be applied to two side-by-side plots. Fruit will be sampled during ripening and its composition evaluated for Brix, pH, total acidity, malic acid, tartaric acid, total phenolics, and color absorbance.
- Optimal irrigation duration will be determined by backhoe pit observation of rooting depth and soil moisture monitoring of wetted zone. Cooperator will supply backhoe and operator. Photos of rooting depth will be taken and made into posters for display.
- Vine water status will be monitored weekly throughout the season (beginning in June) using pressure chamber and porometer instruments.
- Vine observations will be made throughout the project, including symptoms of vine stress and fruit characteristics.

The Low-Volume Vineyard Cooling Project will measure and identify techniques and technologies that use less water for cooling grapes during hot summer days. Over-vine misters will be used, along with an untreated control and a conventional high-volume overhead sprinkler system. The project will also include:

- The irrigation mechanism will be automated for turn-on at specified temperature thresholds, based on an algorithm. Manual control may also be used, but remote actuation will be provided using radio telemetry and SMS commands.
- Fruit and air temperatures will be monitored in the low-volume cooling, standard volume cooling, and for the untreated control treatment.
- Fruit chemistry will be measured at several times during the ripening process.

On April 6, 2009, the Agency entered into agreement with the Consultant for $24,800 to perform Phase 1 activities related to the Demonstration. This phase of the project involved site selection (Hoot Owl Creek / Alexander Valley Vineyards), coordination of equipment ordering, delivery and installation, and assembly of key technical components. Installation involved soil moisture devices, irrigation system retrofits, automatic valves and controllers, radio telemetry, and weather stations. To date, the Demonstration project has received support from the United Winegrowers for Sonoma County, Sonoma County Farm Bureau, and the Sonoma County Winegrape Commission.


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**Background (continued):**

Phase 2 of the demonstration will involve ongoing project oversight, maintenance, data collection, and public outreach. Frequent (weekly or bi-weekly) on-site and remote checks of system integrity will be conducted. Adjustments to irrigation methods will be made, as needed, so that the maximum impact of best irrigation practices can be demonstrated. Field measurements of vineyard water status will be conducted at weekly intervals from late spring through mid-fall. Industry and public outreach and education demonstrations will be conducted, supported through announcements through industry channels and the media. Formal demonstration events will be held on-site, for growers, the public, and the media to attend. A summary report will be prepared documenting the measurements made, water consumed by the various treatments, and outreach efforts of the project. A presentation to the Agency and various public organizations and groups will be conducted. The Demonstration is expected to conclude in October 2009.

The Demonstration will be recorded for public outreach and education activities. Copies of the video tapes will be made available to trade organizations, schools, and any entities seeking information from the Demonstration. The video will also be made available online through the Agency's website. All Demonstration activities will be made accessible and transparent to the public. The Agency and the Consultant will work with the Sonoma County Wine Growers Association, Sonoma Viticulture Technical Group, United Winegrowers of Sonoma County, Sonoma Winegrape Commission, and others to disseminate information and provide access/tours to the Demonstration site. Demonstration scope, work plan, and results will be published in trade publications and made available to the public.

Advance Viticulture, LLC was the only firm contacted and was selected to perform the work because this firm completed phase I of the project and has advanced knowledge of vineyard irrigation practices in Sonoma County and has established positive working relationships with grape growers participating in the study. Also, this consultant is the person who developed the best management practices for the new irrigation and cooling technologies that the project will demonstrate.

The Agreement includes provisions for the Agency's General Manager/Chief Engineer to terminate the Agreement.

**REQUESTED BOARD ACTIONS:**

Authorize Chair to execute the First Amended Agreement for Consultant Services to Plan, Develop, and Implement Vineyard Irrigation Water Conservation Demonstration Project, Phase 1 and 2, between the Sonoma County Water Agency and Advanced Viticulture LLC ($67,455).