



MacKay & Sposito, Inc.

MEMORANDUM

TO: Scott Revell, KID Interim District Manager

FROM: Paul Harmsen, P.E.

RE: Red Mountain Local Improvement District Feasibility Summary

DATE: August 28, 2009

KID contracted with MacKay & Sposito (M&S) to make an investigation of the feasibility, conceptual cost, and need of the proposed Red Mountain LID pressurized irrigation system together with the ability of the lands to pay the cost. M&S has been working with KID and land owners within the proposed LID to answer these questions for the past year. The conclusion has been made that in fact the system is feasible and at the estimated cost, the lands will be able to pay the cost of the system. The need for the system has been expressed by the land owners within the proposed LID service area that have little or no hope of acquiring irrigation water sufficient to irrigate their land without this proposed irrigation delivery system.

The primary crop that will be grown with the irrigation water provided through the proposed LID pressurized irrigation delivery system are wine grapes. M&S completed a review of climate data, wine growing reports and studies, and consultation with wine growers in the Red Mountain region and determined that an irrigation delivery system that delivered 18-inches of water per acre per year would be sufficient for wine grape production. The system would need to be designed to deliver 32% of the annual demand in the peak month, this equates to a peak delivery of 3.5 gallons per minute per acre.

M&S has prepared conceptual designs for the pressurized irrigation delivery system and prepared conceptual cost estimates for the proposed delivery system. The conceptual design assumed that the distribution system piping only extends to elevation 1010 feet, with owners above this elevation being able to extend service with private pumps and piping to their individual parcels. As of August 28, 2009 the proposed LID contains 1960 acres. The conceptual irrigation delivery system has assumed the installation of high quality pipes and redundant pumps within the pumping stations.

The conceptual construction cost estimate for a pressurized irrigation delivery system serving 1960 acres with pressurized irrigation water (40 psi minimum) at a rate of 3.5 gallons per minute per acre is \$8,440,000. Due to the conceptual level of the design, 30% contingency should be added to this total (this 30% also includes Washington State Sales tax), and an additional 24% is added to this cost for Engineering, surveying, and permitting. Finally, \$500,000 is added to the cost to cover Washington State Department of Ecology shrub steppe habitat mitigation fees. Based on these figures, the total estimated cost is \$13,493,630. A bond rate of 6% has been assumed and a 25-year repayment schedule for an annual capital cost repayment of approximately \$539 /year/acre. In addition to this, the LID would have an annual operations and maintenance cost of approximately \$84/acre/year and \$92/acre/year power expense. This equates to a total estimated LID cost of approximately \$715/year/acre.



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Red Mountain grapes are valued at approximately \$2000 to \$8000 per ton, with yields of about 3 to 4 tons per acre. Based on these ranges, wine grape growers within the Red Mountain LID could expect a gross revenue of about \$6000 to \$30,000 per acre per year for property within the Red Mountain LID service area. These figures show that the land is able to repay the cost of the LID.



PWH/pwh

cc: File