MERITAGE VITICULTURE SERVICES LTD

... BECAUSE GREAT WINES START WITH GREAT VINES

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VINEYARD DEVELOPMENT ESTIMATE

Outlined below are the approximate costs per acre to develop a new vineyard site. This pricing is based on astandard row width of 8 feet and vine spacing of 4 feet, and may be subject to change. This pricing is based onaverage costs as of the date this document is received, and does not include variances that may be due but notlimited to soil composition and market fluctuation.

TASK	SUPPLIES COST	LABOUR AND EQUIPMENT COST	TOTAL COST PER ACRE
Ground preparation	$750	$1700	$2450
Trellis	$5800	$6200	$12000
Irrigation	$2800	$2900	$5700
Planting	$6750	$2200	$8950
			TOTAL: $29,100.00

GROUND PREPARATION

Proper site preparation is essential in laying the foundation for a cost effective and aesthetically pleasing development. Ground preparation may include tillage and soil amendments, soil redistribution or restructuring, terracing. Necessary action will be assessed on the proposed site, and costs will be updated as needed. This estimate includes minimal soil redistribution, soil analysis followed by proper fertilizer/compost application and tillage.

In reference to the above we did do a site visit and I was visually pleased with the topography and top soil profile of the proposed vineyard sites. There appears to be a great opportunity for an initial 50 acre in zone 2 and 20 acre in zone 1 of vineyard development without any significant ground restructuring (a passivity for more area, but we need to GPS map the parcels). Following the current natural topography we can also design several 5 acre to 15 acre blocks.

I do not have access to the site-specific historical weather data, however based on our experience managing other vineyards at a similar elevation I do agree with the assessment done by Fred Rempel that there is substantial additional acreage that, with proper site preparation, be very vineyard receptive. We would not expect that site prep to exceed $10,000/acre but a more detailed assessment would be required to establish a firm budget.

The next step would then also be to GPS the plots for irrigation and individual block trellis and row orientation design. For the design of the vineyard, I would be helpful to understand the Big Picture for the property. This will help with planning for road ways, farm facility/storage, power, access to water and environmental factors / wildlife fencing, which could then be firmly costed.

Bottom Line - My observation and experience tell me that this can be a very successful operation

TRELLIS

This estimate is based on a VSP trellis system. VSP is the standard cost efficient growing method for quality wine grapes in the Okanagan Valley. All details of the variety of growing methods, associated trellis, pros and cons of each can be communicated at the clients request. Both the intermediate posts and end posts can be made of steel or wood. Steel end posts typically require A frame anchors, whereas wooden end posts can be fastened in a variety of structural configurations. VSP wire systems include drip line wire, fruiting wire and two catch wires (option for 3, depending on post selection). This estimate is based on metal intermediate and end posts/anchors, drip line wire, fruiting wire, two catch wires and associated hardware.

IRRIGATION

Most properties located in the Okanagan Valley are fortunate to have a reliable community water supply for agricultural use. This provides the opportunity to utilize the latest and most effective irrigation supplies to build anew system. This estimate is for the automated irrigation system in the vineyard only, from the established source downstream to the vines. If a water source needs locating and establishment, there are additional costs associated. A proper assessment, utilizing GPS mapping with specialized design software, will be made on site to ensure an accurate design of the vineyard irrigation system. This estimate is for an automated drip line system only, and may be updated to include other systems such as overhead, lawn, or fire protection at the clients request. A professional automated drip line irrigation system includes a filter station (Main valve, winterizing connection, back flow prevention device, pressure regulating device, filter, air vent, isolation valve), Automation system (Controller, receivers, direct bury wires), injection system (pressure regulator, isolation valves, injector), underground mainline and submains, above ground zone control valves, drip line(factory installed emitters).

We notice that the wells on zone 1 and 2 were actively pushing water to the surface and we recommend to re-test the wells for water flow. As well to expand the vineyard area additional wells would have to be drilled and that cost has not been accounted for in this overview.

PLANTING

Costs associated with planting can vary based on the source of the vines. Once received, the vines go through quality control and root trimming(when required). Varieties are isolated to their respective planting blocks. The method of planting will be determined on the soil type and compaction. Planting crews will establish the vinesin the rows at the appropriate distance set, add bamboo training stakes and plant shelters(optional) to each vine site. Supplies for planting include bamboo, bamboo wire anchors(optional) and plant shelters(optional, unless utilizing herbicides for weed control). This estimate includes the costs of vines and planting, bamboo and plant shelters installed.

VINEYARD MANAGEMENT AND LABOUR COSTS

Management and labour costs can vary substantially, and are typically set by the level of client involvement, growing method, trellis preparation, vine vigor, climate, crop yield requirements, and management experience. Timing of work is crucial in keeping to the estimate provided, and is dictated by the seasonal weather. As of 2020, weather experienced season to season, year to year is extremely variable and has been a challenge togrowers throughout the valley. Growers with experience, an established timetable of jobs and a reliable crew are able to overcome tough challenges throughout the growing season with effectiveness and efficiency. Below is an estimate of maintenance and management costs for 5 years following planting. Costs after year 5 will only varyslightly. The estimated costs are based on recent historical seasonal averages and do not account for anomalous environmental factors.

YEAR	ESTIMATED COST($) PER ACRE (management+labour)	ESTIMATED CROP YIELD PER ACRE (TONS)
Year 1	$2000 - $3000	0
Year 2	$3000 - $4000	0
Year 3	$5000 - $6000	1-2
Year 4	$6500 - $7000	2-3
Year 5	$6500 - $7000	4-5

CROP YIELDS

The key to a strong and healthy crop is proper management and care during the first two years of growth. Luckily the vine vigor during this time is low, and therefore less green canopy management is needed. Utilizing pruning methods, timely water application, fertilizers and pest control amounts to great growing seasons and yields. Crop is typically established in growing year 3, with an average yield of 1 to 2 tons per acre. By year five a fullcrop yield of 4-5 tons per acre can be expected. Focusing on growing methods that result in a quality berry crop,yields higher than 5 tons per acre is not recommended.