

# **William Hill Winery Vintage 2004**

## **Report and Recommendations**

**Richard Prosser**  
**7<sup>th</sup> July 2004**

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## **Appendix A. Overview**

The scope of this report is to cover the timeline and practicalities of Vintage 2004, and to make recommendations on planning and preparations for Vintage 2005, based on the assumption that the existing winery buildings and infrastructure will be largely unchanged from 2004 to 2005.

This report will not examine winemaking decisions or other issues beyond the legitimate scope of interest of the writer.

## **Appendix B. Circulation**

Dave Grant, Gerry Rowland.

Other interested parties at the discretion of the Winemaker.

### **1.0 General**

Despite some initial hiccups due to the frosts and subsequent early harvest, vintage has progressed with a minimum of difficulty. Such problems as have been encountered, have centred on technical issues, logistics, and the lack of preparedness of some systems. This lack of preparedness is due in part to the unexpectedly early commencement of harvesting.

Workload on winery staff, though heavy, has not been beyond seasonal expectations, nor has it been greatly exacerbated by such technical and logistic problems as have been encountered.

Technical and logistical problems have, however, lead to certain significant inefficiencies in the utilisation of available manpower, which has been frustrating for staff, and from the company's point of view, less than desirably optimally cost-effective.

Relative to Vintage 2003, workload has been effectively no heavier, after taking into account both comparative available manpower, and the overall increase in total tonnes crushed.

Overall, workload has been eased in real terms relative to last season, due to the earlier commencement of preparatory work prior to bottling, and to the partial completion of some labour-saving infrastructure systems ahead of the main pick.

The existing facility, and the equipment and methods employed, have coped with the demands of processing the increased overall crush. With minimal upgrading of some systems and parts of the infrastructure, an increase in available fermentation and storage capacity, the resolution of existing technical and logistical issues, and the completion of bottling of the 2004 vintage prior to the commencement of harvest 2005, it is quite feasible that the existing facility will be capable of processing a maximum harvest up to the approximately 200 tonnes projected for the 2005 season.

Construction of a new winery facility could then be deferred a further year, being completed in preparation for the 2006 vintage.

## 2.0 Technical and logistical issues

### 2.1 Pumpovers

Much of the difficulty encountered has centred on pumpovers. If we are to continue with this method of extraction through vintage 2005, and remaining with the existing building dictates that we must, certain modifications to the equipment currently used will greatly assist in improving the speed and efficiency of this labour-intensive operation.

The new pumpover devices do not fit the tanks in which they must be used. Shortening the arms on these irrigators to facilitate their placement in, and removal from, the eight-tonne closed fermenters, without the disassembly and reassembly currently required, will greatly reduce the time taken to perform this operation.

It will also reduce the incidence of gaskets and clamps being dropped into the tank during disassembly and reassembly.

Further, when cap heights are either very high, such as during peak fermentation, or very low, such as when a fermenter is not completely full, assembly and disassembly of irrigators is very much more difficult and time consuming. It is my view that 20 minutes to remove an irrigator from one tank and install it in the next is greatly excessive, and does not utilise manpower cost effectively.

Shortening the arms in this way will be a considerably easier, faster, and cheaper option than modifying the existing tank lid manholes to fit the irrigators.

The new irrigators perform better than the old in terms of not blocking with skins and stems during the early stages of fermentation. However the gauge of the tubing used means that outflow pressure is insufficient to cause the irrigators to rotate when using the Kiesel mono pump. Fitting reducers to the outlet ends of the irrigator arms would overcome this problem, whilst still ensuring that solid matter does not block the irrigator during early fermentation pumpovers.

We will need to obtain two more tank lid clamps for the irrigators to enable both new devices to be used at one time.

In addition, consideration could be given to a modified tank lid clamp design. Such a design would be intended to hold the irrigators securely against both sides of the manhole, and positioned in the centre of the tank. The experience of vintage '04 was that this could only be achieved by tying the irrigator and hose off to the tank lid with string, which was a time-consuming and imprecise activity.

Fixed stainless steel lines from ground level to the top of the catwalks, possibly one for each tank, would greatly speed the pumpover operation. It would also free up at least two long hoses for other work, reducing the need to procure more hoses.

Hauling pumpover hoses up onto catwalks, letting them down again, and moving between tanks, are all time-consuming operations.

There is probably little advantage in having more irrigators available than there are pumps to run them, though if every tank had its own irrigator, further time would be saved when changing between tanks.

Consideration could be given to equipping the new sixteen-tonne tanks, which will be pumped over by the new must pump anyway, with their own irrigators, possibly partly or fully built-in to the lids.

Provision of a remote control for the Kiesel mono pump would be of advantage both for pumping over, and in terms of flexibility and manpower requirements in all other wine movements.

Aeration pumpovers have certainly been beneficial in terms of providing oxygen to growing yeast colonies and blowing off sulphides generated during peak fermentation. However it has been our experience that aeration pumpovers, beyond the point of maximum yeast colony size, lead to elevated levels of volatile acidity in the finished wine.

This includes manual pumpovers in open-top tanks at all stages of fermentation. It may be possible to reduce the effects of excess atmospheric oxygen during such pumpovers, by feeding gaseous carbon dioxide into the tank simultaneously.

Neither of the existing in-tank screen designs has proved effective in keeping solid material separate during either aeration or enclosed pumpovers. It would appear that the screen material is of insufficiently robust gauge to withstand deformation from compression forces when tanks are full to capacity.

Consideration, therefore, should probably be given to obtaining an improved tub-and-screen arrangement to facilitate aeration pumpovers during the early stage of fermentation before liquid and solids have properly separated.

This could possibly include a sloping screen, allowing skins and stalks to slide off into a second bin, enabling one person to carry out the operation unaided.

Alternatively, consideration could be given to equipping either irrigators or fixed lines with a venturi and a vent valve, allowing air to enter the pumpover and sulphides to escape, without the need for tubs and screens.

A flowmeter fitted to the venturi in such a system would allow the quantity of air entering the pumpover to be measured and controlled, thus enabling the degree of oxygenation to which the wine is exposed, to become quantitative, and eliminating one more variable.

A further alternative would be to abandon aeration pumpovers altogether. Growing yeast colonies could be supplied with oxygen via micro-oxygenation from a bottled external oxygen supply, and sulphide production restricted by both this micro-oxygenation, and by close monitoring of yeast colony growth, control of peak fermentation temperature, and ensuring that adequate nutrients are available to growing yeast colonies.

Abandoning the practice of aeration pumpovers would present an opportunity for a significant saving in manpower requirements, both in terms of the pumpovers themselves, and the time taken to clean up afterwards.

It may also lead to an overall improvement in finished wine quality, by reducing volatile acidity levels, and restricting aldehyde production.

## **2.2 Other Logistic Issues**

### **2.21 Catwalks**

The new catwalk ladders are an improvement over the old arrangement of freestanding ladders. However their design is still not adequate in terms of safety. Step spacing is insufficient to allow movement between steps without catching. The steps can be modified easily by the removal of 25mm of overhanging steel from the front edge of each step, without compromising either the structural integrity of the staircase, or the load-bearing ability of the steps, within any load limits they are ever likely to have to carry.

If necessary, the section removed could be moved upwards and re-welded behind the remaining overhang, meaning that there would be no effective reduction in load-bearing capacity.

Provision of triangular infills between tanks on the older of the two high catwalks will greatly enhance the safety of this catwalk, as well as facilitating greater ease of access to the tanks. This, in turn, will improve the speed and effectiveness of pumpovers and addition making, as well as enabling faster and easier fitting and removal of tank lids.

### **2.22 Tank Lids**

Fitting and removal of tank lids will be made a very much faster, safer, and straightforward operation by the fitting, to each lid, of either a pair of forklift grabs, or a single centre-weighted hook, enabling lids to be placed and removed in one simple balanced operation.

This will be of additional importance once the new tank seals are in place, as lids will not be able to be easily rotated with tank seals fitted.

### **2.23 Lighting**

Completion of the installation of additional lighting in the tank room should be undertaken prior to the commencement of harvest 2005. There are still some dark corners requiring elimination, particularly considering the tripping and entanglement hazard posed by numerous hoses, power cords and so forth on the floor. Additional lighting will be of even greater importance if the tonnage harvested through vintage 2005 requires the implementation of a full night shift, as we suspect it will.

Further additional floodlighting will need to be installed on the crush pad, out towards the wastewater system, and at the back of the barrel room to illuminate the back pad.

## 2.24 Water

Water supply to the winery is more than adequate. However there are some issues concerning reticulation of water which could benefit from a minor degree of fine-tuning. Modifications this vintage, and last, amounted to running a single half-inch hose over the doorway to the Red Tank Room off a double adaptor from the main two-inch line in. The intention of this was to provide a water supply, inside and outside the tank room, on both sides of the door, without impeding forklift and pallet jack access through the main door. However, at times of peak demand, the half-inch hose is unable to supply sufficient flow to meet the requirements of steam cleaning and wash-down at the same time. This situation is further aggravated during bottling, when the Charnwood truck is connected to the main line, and water for the red room must be drawn from the barrel room. One solution could be to extend the main two-inch line with polypropylene pipe over the door, and fit a four-way water outlet on either side. This would provide for ample outlets to meet the requirements of heating, cooling, steam cleaning and washing down, both inside and outside, and on both sides of the door, and without flow and supply being compromised when there is additional demand from the bottling truck.

A four-way outlet in the white room will overcome such outlet and supply shortages as do present themselves from time to time.

Water to the new back pad behind the barrel room, for washing down and barrel cleaning operations, is currently sourced from the barrel room itself. There are ample outlets in the barrel room to provide for this demand, and to provide for the barrel irrigation misting system which is yet to be installed. However providing water to the back pad requires running a hose across the barrel room floor, which impedes pallet jack access and creates a tripping and nuisance hazard.

The simplest solution to this issue will be to run an overhead line from one of the barrel room outlets, through the rear wall, and down to a dedicated outlet next to the barrel room rear doors. Wash down and barrel cleaning can then be facilitated on the back pad without cluttering the barrel room floor with hoses.

## 2.25 Power

Single phase power supply has been better than adequate in terms of number and proximity of available outlets.

However utilisation of three-phase power could still benefit from the installation of some additional outlets.

At least one more outlet in the white room, and one either near the back of the barrel room or at the back of the red tank room, would overcome the difficulties presently encountered in running multiple applications simultaneously.

In addition, a further outlet on either side of the red tank room door may prove necessary once we have two glycol chiller units operating, depending on where the crusher and press are to be situated.

## 2.3 Heating and Cooling

### 2.31 Cooling

Heating and cooling have posed their own challenges. Cooling of white fermentation tanks by way of external cascading with cold water at ambient temperature has generally proven satisfactory, other than one period during 2003 when ambient water temperature was 18 degrees centigrade.

Assuming that the 2005 season will be as benevolent in terms of prevailing conditions as 2004, it will probably not be necessary to change from this established methodology. However some minor engineering changes will assist greatly in the smooth and efficient execution of this operation.

Once again overhead lines may prove to be the most desirable option for supplying cooling water to tanks located in the middle of the white room. The vertical tanks along the side wall can be supplied from a fixed line mounted on the wall behind the catwalk, running right to the end wall and turning back along the tops of the tanks. This will allow access to all tanks and access along the catwalk unimpeded by hoses.

Both catwalk and overhead lines can be fed from the four-way outlet to be installed, allowing sufficient outlets remaining to provide for both steam cleaning and washing down.

As with the red tank room, an insufficient number of water outlets available has been a cause of time loss and inefficiency. Often, in order to complete a cleaning task or set up a cooling programme, hoses must be reallocated and moved, reducing the number of applications which may be run at any one time, and creating a safety and nuisance hazard.

With a very modest investment in time and materials, and a little judicious planning and preparation, a very great deal of time and trouble may be saved over the course of vintage 2005. This may prove to be of inestimable value if, as we forecast, we are to attempt to process almost twice the total tonnage through harvest next year as was the case this year, with very little more in the way of infrastructure or staff.

Cooling of red fermenters, and cooling for cold stabilisation, poses a greater challenge, particularly considering the far larger volumes of must and wine which will require treatment during and after vintage 2005.

The existing glycol cooling unit purchased prior to vintage 2004 will not be capable of meeting these requirements on its own, though it may still prove able to cold stabilise all of 2004's vintage, if batch lots are carefully staggered, and if the smaller batches are stabilised separately utilising the refrigerated container.

To meet the forecast shortfall in cooling capacity, consideration could be given to investigating the commissioning of the large chiller unit currently in storage under the trees. Fitted into a movable frame with appropriate pumps and a reservoir, this unit, together with the existing glycol cooler, may well provide us with sufficient cooling capacity to meet demand through until the beginning of vintage 2006. With pumps, reservoirs, and glycol, being relatively cheap, if this arrangement were to prove

satisfactory, it would provide us with adequate cooling capacity at a far lower cost and with far greater versatility than by investing in an all-new large capacity glycol cooling plant.

### **2.32 Heating**

Heating of red fermentation tanks by way of circulating hot water through the dimple jackets has proven to be a quick and effective process. If we are able to avoid the expense of procuring a large reverse cycle glycol heat exchanger, there will be added advantage in remaining with hot water as a heating method, particularly considering that the separate heating and cooling manifolds are now in place.

As it is unlikely that heating and cooling will be required at the same time, it is difficult to envisage how changing between water and glycol in the jackets and manifolds will present an insurmountable problem.

However, the source for hot water will require some attention.

The steam cleaner has proven invaluable over the past two seasons, for cleaning and sanitising, as well as for producing large quantities of hot water. But it is unlikely that this machine will remain capable of meeting the demands of hot water production for an estimated near doubling of harvest tonnage in the 2005 season over that processed through vintage 2004.

Further, if the steam cleaner is required to produce large volumes of hot water for heating over an extended period, it cannot be available for cleaning purposes, or for barrel washing; both these requirements will increase exponentially as harvest tonnage increases. And in addition to these considerations, the stresses placed on the steam cleaner by continuous running, will inevitably reduce the remaining term of its serviceable life by a significant margin.

An effective and low-cost option could be the installation of a dedicated hot water generator, based around the reconditioned multi-pipe boiler, fitted with a simple diesel burner and a suitable pump.

The boiler could be located outside the tank room, near to the existing site of the incinerator.

Such an arrangement would produce far greater volumes of hot water than the steam cleaner, leave the steam cleaner free for other purposes, and extend its remaining service life significantly.

A larger capacity pump will be required to supply heating water to the fermentation tank jackets regardless, as the present pump is unable to adequately circulate heating water to all tanks simultaneously. Adding even one more tank onto the existing manifold will only exacerbate this problem.

In addition, the process of heating tanks would benefit from the fitting of air bleed valves at the high point on each tank jacket. This will enable faster and more uniform circulation of heating water, and faster and more effective changeovers between water and glycol.

## 2.4 Tanks

In addition to the proposed sixteen-tonne fermenters for 2005, we will require a further increase in available fermentation and storage capacity in several directions.

Having sixteen tonnes of fruit in a single batch means that we will have to have sufficient excess tank capacity available in order to press such a volume; either two eight-tonne tanks or the blend tank must be available, which in turn requires that we do not have them filled with anything else.

Pinot Gris and Gewurztraminer harvests will both increase, and there will be a significant rise in the volume of bleed juice taken from Pinot Noir.

At present, white wine tank utilisation is at capacity.

Even if a dedicated Pinot Gris tank is obtained, there will be a shortfall in white wine tank capacity relative to projected demand.

Both Judge Rock, and the William Hill labels, will have an increase in Pinot Noir bleed juice.

It is possible that other clients may wish to produce Rose wines as well; this should be established before tank volume requirements are finalised.

Gewurztraminer volume this year is only two thirds of that processed in 2003, due to frost affecting Chapman Road. We cannot guarantee that this situation will recur in 2005.

On current forecasts, demand for white wine tank capacity through vintage 2005 will exceed present tank inventory capabilities by perhaps as much as 50%. We will need to address this projected shortfall well before the commencement of vintage 2005.

Several of our existing 1500 and 750 litre tanks will require modifications before next year. It is desirable that all tanks be fitted with racking valves. Also, some tanks will need modifications to their top openings to allow additions to be made.

These measures will help significantly in saving time and trouble during next year's vintage.

Three of the 1500-litre lay-down tanks still have detached legs. While this has not caused problems to date, it is probably unsafe, and certainly precludes anyone entering the tanks for cleaning purposes.

Insulation of tanks has proven to be of great benefit in getting ferments up to desired temperature and keeping them there. The savings in time and energy/cost input are very probably such that it would be of great advantage to have all red tanks similarly insulated prior to the commencement of vintage 2005. This will also increase the capacity and range of options with regard to cold stabilisation.

## **2.41 Bins**

With an increase in overall tank numbers and no real increase in space available for them, it is likely that, as in the past two seasons, red fermentation tanks will be filled to capacity.

This will mean that, during peak fermentation, we will have overflow volumes to deal with. We will therefore need to ensure that we have sufficient grey, white, or even green bins available to cope with this overflow volume.

## **2.5 Workbenches**

The present mobile work table is ideal for use in the red tank room, and could be improved by securing the top to the base.

However the table currently used for siting the scales, and mixing additions, in the white room, is inadequate. It is too small and unstable. Replacing this table with a larger, more solid workbench would be of great advantage.

## **3.0 Staff**

Staff performed creditably throughout Vintage. The combination of skills and commitment from all staff, in undertaking both assigned and impromptu tasks, and the retention of good humour and communication despite the demands of long hours and a heavy workload, have enabled vintage to proceed with a minimum of difficulty.

Staff enjoyed a good team spirit and rapport, and all displayed aptitude and competence in their assigned responsibilities.

Manpower requirements will increase overall for vintage 2005. Although the forecast increase in total crush is for almost double the tonnage crushed in 2004, manpower requirements can probably be met by an increase of 1.5 person equivalents. This would amount to converting Suzanne's role from part-time in the winery to full time for the duration of vintage, and securing the services of one additional person with equivalent skills and experience to Jillian, for the same period.

If we can ensure that all client bottling, and all pre-bottling processes for William Hill brands, are completed prior to harvest, rendering Gerry free to concentrate on vintage 2005, an additional 1.5 staff will enable us to properly man two full shifts.

Such an arrangement will allow us to avoid the situation of people working alone either very early in the morning or very late at night, in circumstances which contain many potential and actual hazards.

Availability of suitable staff should be confirmed prior to the commencement of vintage 2005.

## **4.0 Storage, Goods, and Transportation**

### **4.1 Barrels**

Storage and cellaring of barrels will be an issue between vintage 2005 and vintage 2006. The existing barrel room is nearing capacity, and we will have to address the issue of additional controlled environment storage space after vintage 2005.

I do not favour the option of hiring any such facility off site. Whilst the cost of leasing a suitable building may be deductible, it is an unrecoverable expense with no net fiscal return.

Also, however secure such a facility may be, by outsourcing responsibility for the safety of our barrels (and client barrels), we incur an added degree of risk over which we have no control.

Further, the costs, logistics, and risk involved in transporting full barrels by road may well be untenable.

Bringing barrels back to the winery several days before racking up, to allow for settling after transport, presupposes that we will have somewhere to put them; and if we have such space available, there would appear to be little point in transporting them off site in the first place.

Cellaring barrels off site will also deny us the option of close and constant monitoring, and of conducting impromptu barrel tastings for both our own and client purposes.

With the lab, wine handling equipment, and additive materials all being located at the winery, having the barrels cellared somewhere else will create costly, time-consuming, and unnecessary, logistical and quality control problems.

Insulated, lockable shipping containers located on site, would be a very feasible alternative. Barrels may be double stacked on a barrel-pallet base inside such standard containers at an average of 26 barrels per container, depending on internal configuration, with sufficient head and aisle space remaining to allow for access and for facilitating wine movements.

Containers may be purchased for around \$2000 apiece. As an example, six containers could provide us with a fully secure, easily controllable storage environment for in excess of 150 barrels, at what is probably a comparable cost to leasing a controlled environment building for the period required. Containers also become an asset rather than simply an expense, and may be used as ongoing storage, chemical sheds, powder magazines or smoko rooms, propagating rooms, pump sheds, and a multitude of other uses, when no longer required for barrel storage. At the very least they will retain a resale value.

Containers can be cheaply and easily wired for both lighting, and power for heating. Consideration could be given to plumbing those containers which are to be used for barrel cellaring, with a hose connection for a moisture control misting system, and for washing down.

Shipping containers may provide an ideal solution to a number of other issues which will require attention both before and after vintage 2005.

Secure storage of new barrels delivered prior to vintage 2005 is one such issue. The workshop, which has been used for such storage for the past two seasons, reached capacity in 2004. New barrel inventory intake in 2005, both William Hill brands and client-owned barrels, will exceed this capacity.

Further, when the workshop is being used as a barrel store, it is unavailable for use as a workshop. This situation has created some logistical difficulties both for the winery and for other elements of the Grant family's group of Companies. Such difficulties are likely to increase in magnitude and frequency, as the Grant family's business interests expand in all directions.

Having the option of storing barrels in lockable containers, before such containers are required for cellaring full barrels, and thus freeing up the workshop, would be advantageous in all regards.

## **4.2 Dry Goods**

Containers could also be utilised for the storage of dry goods prior to bottling. Packaging materials currently stored at Jack Holdom's property will be far more easily and conveniently accessible if they are available on site.

In addition, Jack Holdom's shed is nearing capacity, and there are ongoing and increasing difficulties with regard to access and movement of materials into, out of, and within the shed.

Further, there is a real risk of introducing *brettanomyces* to the winery by bringing in goods which have been stored, essentially, on a layer of chicken manure.

Winery consumables such as chemicals and filter pads, as well as gas bottles, cellar door packaging, and point of sale material, could all utilise excess container space, particularly when considering that space currently available for these items is rapidly running out.

Containers will also provide an ideal secure, weatherproof, temporary storage solution for pallets of finished wine, in between bottling and their transportation to an off-site warehouse.

## **4.3 Vehicles**

Availability of vehicles at William Hill has never been assured. This may be seen as a positive aspect of the overall operation, in that all fleet vehicles are probably working at most times, and the company does not have money tied up in unproductive vehicles. However it does mean that, at times, vehicles are unavailable for winery purposes. Many consumables can be delivered directly to the site by suppliers, but items such as gas bottles and short-notice engineering requirements must be brought in by ourselves. I do not believe that the scale of winery operations is sufficiently large as yet to warrant the winery investing in a dedicated vehicle, but if one of a suitable configuration – a ute or van – were included in the fleet inventory, and were available primarily to the winery

during vintage, much of the difficulty connected with obtaining supplies would be avoided.

This will be of greater importance through vintage 2005, as tonnage increases and as infrastructure and manpower resources are stretched.

## **5.0 Winery Site, Buildings, and Access**

### **5.1 Winery Site**

Very little modification to existing buildings will be required, other than that addressed already.

However, some site work, which could be quantified as preparatory work for the 2006 expansion, will need to be undertaken before the commencement of vintage 2005, if the remainder of the existing infrastructure is to be capable of handling the projected crush for the 2005 harvest.

Essentially, this will involve the removal of the pine trees and such treasures as are stored underneath them, and their partial replacement with an area of concrete or asphalt.

Part of this additional area of hard surface will be required for the siting of the new 16-tonne fermentation tanks.

Additional hard surface area will also be required for the unloading and pre-crush holding of harvested grapes.

Further availability of a forklift-friendly hard surface is also required for the receipt and loading of inwards and outwards goods.

Palletised finished wine, for example, is far too valuable to be placed at unnecessary risk of damage, by being fork trucked across soft and uneven ground.

In all reality, under present practices, it is probably only a matter of time before someone drops a pallet of wine off a truck or forklift, because of uneven or unstable ground in any of our currently utilised ad-hoc goods loading areas. The value of a single pallet of wine, will, in all probability, be close to, or perhaps even greater than, the cost of paving the area of asphalt required.

Unloading and storage of empty bottles poses a similar concern. This, as with finished wine, will be of increasing importance as the quantity and value of goods handled rises, and it may also become a matter of concern for some of our clients.

The periodic destruction of the tasting house lawn, through being pressed into service as a pallet yard, is another situation which would benefit from being avoided.

If, as has been suggested, the 2006 winery building expansion follows the line of the existing red tank room, resulting in the loss of the first two bays of vineyard in the Riesling block, then asphalt could be laid almost up to the edge of what will be the north wall or doorways of such a building, in line with the existing red tank room doorway.

The asphalt could extend widthways as far as half way across the existing driveway / headland between the winery and the front / office block, and lengthways from just past the wastewater system to the end of the present tree line. Assuming a further small

section of concrete pad surrounding the wastewater system, this would then entail laying asphalt over a total area of approximately 12 metres by 45 metres.

Such an area would directly border, but not impinge on, the area to be concreted as the floor of the winery building expansion in 2006.

Shipping containers could then be placed in line with the existing two, at the edge of the asphalt, in the area which will become the new winery building in 2006.

This option would give us in excess of 500 square metres of asphalt surface on which to load and unload goods, directly bordering the containers in which they would be stored. Such an area, in conjunction with an additional small concrete pad surrounding the wastewater system, should also provide us with sufficient space to site the new 16-tonne tanks, and to unload and hold harvested grapes.

In addition, this asphalted area will provide an ideal “out front” working space for the expanded building in 2006 and beyond.

## **5.2 Buildings**

The red tank room will require a door. This could be either a roller door or a sliding door, and would be of greater value if it were insulated.

Completion of the insulated curtain behind the roller door into the barrel room should be undertaken prior to the beginning of summer 2004/2005.

The existing doorway between the barrel room and the red tank room could be widened to facilitate barrel and pallet jack access. A ramp will need to be installed on the barrel room side of this widened doorway.

Further, the installation of a concrete ramp from the rear of the barrel room onto the back pad, enabling forklift and pallet jack access, would be of great benefit.

The subsidence underneath the concrete near the front door of the white room should be addressed and remedied prior to the commencement of vintage 2005.

## **5.3 Access**

The extension of the new asphalted area, along the front of the existing winery building as far as the tasting house, and down the aisle to the back pad, enabling forklift access between front and back, will prove to be of further value in terms of facilitating bin, barrel, and tank movements in all weathers. It will also help to suppress dust, and provide greater ease of access for the bottling truck, and more space for handling increased volumes of palletised finished wine.

## **6.0 Vineyard Issues**

### **6.1 General and Staff**

Communication and liaison between winery and vineyard has been excellent throughout vintage. The viticulturalist has outlined several positive aspects of the vineyard's experience of harvest time, as well as some issues requiring attention.

The harvest timeline enabled ease of organisation of bins, casual staff, and other practical considerations.

The pre-harvest appointment of a vineyard supervisor was of great value to the viticulturalist, assisting with the smooth and painless process of organising pickers and picking. This process was itself helped by the availability of a ready pool of casual picking staff.

The viticulturalist was impressed with the availability and helpfulness of winemaking and lab staff, in the assessment of harvest and pre-harvest berries and fruit.

Ready and able assistance from the development crew was also greatly appreciated in the vineyard.

### **6.2 Machinery**

However problems with the four-wheeler have highlighted the need to have machinery well maintained, and serviced prior to harvest. The bike struggled to keep up with all that was required of it, and a mechanical failure in this area would have presented major problems for the whole harvest and vintage process.

The existing single bin trailer is not ideally suited to the job assigned to it, in terms of sizing relative to picking bins, and the angle of the deck when towed behind the bike. Further, this trailer cannot economically be made road legal.

In addition, it is unlikely that the present arrangement of bike and trailer will be adequate for the demands of harvesting the projected increased tonnage for the 2005 season.

If we are to procure a purpose-designed three-bin tipping trailer for 2005, we will also have to give consideration to what will be towing it. This will need to be a reliable and road-legal tractor capable of operating without producing excessive exhaust emissions when working in close proximity to picking staff.

The towing tractor will need to be low enough to work under nets, and be fitted with a net deflector frame.

Alternatively, nets could be lifted immediately prior to picking, though this would seriously limit the range of options available in terms of picking windows with regard to weather conditions and daylight hours, and lessen our ability to react quickly to changing parameters.

But if the primary purpose of a tipping trailer is to enable vineyard staff to offload full bins without the assistance of winery staff or the forklift, such a trailer could instead be towed behind a dedicated vehicle while working off site, and loaded from a single bin carrying trailer as used at present. However this would require a forklift tractor to

accompany picking crews, and we will still need to address the existing issue of the suitability of the present bike and trailer.

In addition, a forklift will still be required to unload the single bin trailer when harvesting at the William Hill home block, and when unloading client fruit.

On balance, it may prove most cost-effective to adopt the partial solution of training a number of vineyard staff in the use of the forklift, and accept such occasional bottlenecks as may occur due to demands on its use. Short of procuring two forklifts for the vintage period, there may not be a full solution.

### **6.3 Cleaning**

Sterilising of picking bins and machinery in between blocks in order to comply with phylloxera protocols has proven problematic for vineyard staff. Difficulties have centred on both the availability of the steam cleaner, and sufficient hard surface area on which to use it. Both these issues should be able to be adequately addressed by alternatives already proposed.

Visible adherence to phylloxera protocols may become increasingly important as tonnage processed, client visits, and numbers of casual staff, continue to rise.

## **7.0 Other Issues**

### **7.1 Protocols and Methodology**

Differences in operational procedure of wine movements, and lab methodology, between different staff, have not been evident or the cause of any problems at William Hill to date. However, as tonnages and thereby staff numbers increase, it is possible that such differences may emerge.

While recognising that we may have much to learn from the wider experience of others, it may prove expedient in the future to establish a set of guidelines and minimum operating parameters, in order to ensure that as many variables as possible are eliminated. This will help the Winemaker and the Consultant to maintain a full and detailed overview of the winemaking process, and ensure that the winemaking design is followed as desired. This will be increasingly important as tonnages and wine volumes continue to rise.

### **7.2 Winemaking Design**

Differences of opinion between the Winemaker and the Consultant continue to be a cause of minor vexation during and beyond vintage. There would be great advantage and benefit to the operation as a whole if these differences were able to be reconciled prior to the commencement of vintage, and that staff could have full confidence that the Consultant's instructions were fully in line with the desired intentions of the Winemaker.

## **8.0 Equipment**

Some winery equipment will require modification prior to vintage 2005, in order to cope with the projected increase in tonnage.

### **Crusher**

This will need a stainless steel hopper designed, built, and fitted, prior to the commencement of harvesting in 2005. Consideration will need to be given to the function and design of this hopper, which should ideally be able to hold and feed an entire picking bin into the crusher without requiring an operator.

Alternatively a feed elevator could be considered, though this may be premature, as any elevator will need to be compatible with any new crusher-destemmer to be purchased in the future.

### **Scales**

The scales used for measuring wine additive materials are no longer adequate. With an increase in the number and size of additions to be made, we will require scales capable of accurately measuring more than the present machine's maximum capacity of 4 kg. Scales should ideally be able to measure up to and including 25kg, the weight of a standard bag of most of our wine additives.

Measuring more than 4kg at present is a messy and time-consuming business, requiring several separate containers.

### **Hoses**

Most of our older wine hoses are nearing the ends of their serviceable lives. Many have multiple holes and patches. These hoses are not secure, cannot be used as suction hoses, and cannot withstand filtration pressures. These hoses will need to be replaced. We will also require some additional lengths of new wine hose. The amount required will be partly dictated by the extent to which we are able to fit fixed pumpover lines to existing and new tanks.

Ferrule clamps on some of our newer hoses are insecure and will need modification or replacement.

Some new half-inch water hose will also need to be procured.

### **Pallet Jack**

This will require modification prior to the commencement of next harvest, to make it capable of moving standard wine barrel pallets.

The modification will entail trimming approximately 10mm off the outside edge of each fork, and re-welding a strip of steel into the resultant gap.

This can be done relatively quickly and easily, and will be far cheaper than purchasing a replacement for the pallet jack, which is adequate in other regards.

## **Heaters**

Forethought should be given to heating requirements beyond vintage 2005. Both the barrel room and the insulated containers may require heating. A large LPG or diesel heater such as that employed in 2004 is probably ideal for the barrel room. Containers are probably best heated by way of low-cost thermostatically controlled electric heaters.

## **Gas Fittings**

At least one more inert gas flow regulator and one more gas line with 38mm female fitting will be required for vintage 2005. The present shortage of these fittings limits the number of applications which may be run at any one time, resulting in operational bottlenecks and time loss.

## **Bins**

The forecast increase in harvest tonnage will require us to procure several more grey half-ton bins. The number required will depend on the estimated tonnage of fruit to be harvested; perhaps as many as an additional four or six bins will be needed.

We will also require approximately twice as many yellow picking bins as are currently on inventory.

## **Buckets and Tubs**

The increase in volume and the number and size of additions to be made will require several further food grade wine buckets. In addition, two or three more food grade plastic tubs in the 75 – 100 litre range would be of inestimable usefulness.

## **Wine Fittings**

We will need more 38mm and 50mm valves, sufficient to ensure that all tank bottom and racking vents, on all tanks, red and white, may be fitted with valves simultaneously, whilst leaving enough valves free to meet the requirements of pumps, hoses, and racking wands.

We will also need at least one more 38mm elbow, and at least one more 38mm male/male straight joiner.

A full inventory check will ascertain the numbers of these fittings required, and also how many more 50mm/38mm reducers will be needed.

## **Power Cords**

One further 20m 3-phase extension cord, in conjunction with additional outlets as previously examined, should meet the requirements of vintage 2005, as determined by

current and planned equipment, and assuming that the new must pump and the new glycol unit are fitted with sufficiently long cords.

We will have enough single phase cords available as long as they are not “borrowed” between now and next vintage.

### **Lab Equipment**

Little more in the way of lab equipment will be required. This will be assessed and addressed as necessary between now and pre-harvest 2005.

## **9.0 Summary, Conclusions, and Recommendations**

### **9.1 Summary**

Vintage 2004 began unexpectedly early due to unforeseeable weather events. This caught us somewhat unprepared, and with some systems and processes not yet fully operational. However, with hard work and commitment from all staff, targeted input and the completion of some systems, and a measure of good fortune, vintage progressed to a successful conclusion.

Certain operational areas with scope for improvement have been highlighted by the experience of vintage 2004.

Vintage 2005 will entail processing a very much greater volume of fruit than the harvest gone. Assuming that our facility is not going to be enlarged in time for this increase, certain measures must be undertaken in preparation for next year, to ensure that we are able to cope with this increased tonnage.

### **9.2 Conclusions**

Much of what is proposed here involves maximising the efficiency of operations, and minimising the amount of time lost through unnecessarily difficult and excessively labour-intensive tasks.

If we are to almost double our output, and do so successfully with a disproportionately lesser investment in available staff and infrastructure, we must ensure that all tasks are able to be completed with optimum efficiency as regards time and motion.

This will involve eliminating all unnecessary double-handling, over-manning, and the inefficient and time-consuming need for continual moving and reallocation of equipment. There must be sufficient equipment available to ensure simultaneous multiple tasking applications. All safety and nuisance hazards must be removed.

### 9.3 Recommendations

In order to facilitate the above, I would recommend the following be undertaken and completed prior to the commencement of harvesting in 2005.

1. Completion of all client bottling, all William Hill brands bottling, and all preparatory work for Rowland Cellars bottling.
2. Completion of site work as described, installation of asphalt, and procurement, siting, and preparation of shipping containers.
3. Completion of modifications and additions to water, power, and lighting, and building maintenance and modifications as described.
4. Resolution of outstanding existing logistical and technical issues as described.
  - a. Tank lids / tank insulation / white tank modifications
  - b. Catwalks and catwalk ladders
  - c. Hot water system
  - d. Second glycol cooler unit
  - e. All matters pertaining to pumpovers
5. Assessment of white wine tank requirements and procurement of same.
6. Design finalisation, construction, delivery, and installation of additional red tanks as required.
7. Maintenance and preparation of all vineyard and winery machinery, and winery equipment.
8. Procurement of all necessary additional vineyard and winery machinery, and winery equipment as described.
9. Design and implementation of standard operational protocols, and resolution of existing Winemaking Design issues as described.
10. Secured engagement of adequate numbers of suitably qualified staff for the required period.

**Appendix C. End Title**

The assumptive basis of this report is that there will be no investment in a major expansion of buildings or infrastructure by William Hill Ltd for vintage 2005, over and above that available through vintage 2004.

The summation of this report is that the forecast harvest of 2005 will be able to be processed through the existing facility, provided that certain preparatory measures are undertaken.

Should circumstances change and a new building be considered, a further report will be necessary.

Faithfully submitted Wednesday July 7<sup>th</sup> 2004.

Richard Prosser  
Assistant Winemaker

William Hill Winery.

