



# Acknowledgments

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Special circumstances which need to be considered in the Swan Valley and Perth Hills include small block sizes, memorials to titles, effects of increased public access and traffic, urban pressures and the increased tourist activity which may take precedence over these guidelines.

#### **4. How to seek approval and legislative requirements**

A proponent seeking approval for a new vineyard or expansion of an existing vineyard should contact the relevant local government office at the earliest possible stage to discuss the proposed location of the vineyard or

The Commissioner then determines if approval to clear

**Table 1: Approvals which may be required when establishing a vineyard**

Approval required	Comments	
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## 5.1 Minimising adverse impacts on water resources

Separation distances to water resources are created to provide barriers to limit the passage of contaminants during normal land use activities or as a result of chemical spills or similar emergencies (see Tables 2 and 3).

Water bodies are likely to be contaminated by materials including sediment (soil particles), nutrients, salts, litter, agricultural chemicals and microbes. These could be carried via surface runoff into waterways and wetlands and some can also move through the soil and contaminate groundwater.

Well vegetated strips such as native grasses and reeds, trees and woody debris, between vineyards and wetlands and waterways, can filter out sediment and reduce contamination from nutrients. The selection of appropriate plants for vegetated strips will determine how much sediment and nutrients are filtered. The Land and Water Resource Research Development Corporation have prepared a number of issue sheets on the management and restoration of rivers and riparian lands. These issue sheets cover topics such as managing riparian land, water quality, streambank stability, river ecosystems and land-based ecosystems and can be accessed at the following web address:

[http://www.lwrrdc.gov.au/html/commissioned\\_programs/commissioned\\_programs.htm](http://www.lwrrdc.gov.au/html/commissioned_programs/commissioned_programs.htm).

Recent studies in Australia have shown that both natural vegetation and grassy filter strips can trap around 90% of the sediment moving from upslope land (Land and Water Resource Research Development Corporation). These strips can be equally effective in trapping or absorbing nutrients. It is recommended that prior to forming or restoring a vegetated filter strip, Water and Rivers Commission are consulted.

Separation distances are established for a number of purposes including:

- Maintenance of ecological processes and major food chains.
- Protection from nutrient inputs that could lead to eutrophication.
- Protection from increased salinity from the ingress of saline water.

The separation distance required depends on the purpose of the buffer and should take account of:

- Soil type and infiltration rate of the soil.

- Type and density of vegetation and how effective it is at stabilising ground.
- Slope of the land.
- Nutrient retention ability, e.g. Phosphorus Retention Index of the soil.
- Functions of the buffer, e.g. habitat protection, nutrient attenuation.
- Contaminant travel time (for groundwater systems).
- Intensity of land use development.
- Environmental values of the downstream water resources (water quality range required to maintain current use, dependent ecosystems and ambient water quality attributes).

Adequate separation distances should be established to

**Table 2: Required separation distances for new and/or expanding vineyards to sensitive water resources**

<b>Water Resource</b>	<b>Separation Distance</b>	<b>Comments</b>
Bores, wells, soaks and dams used for private drinking water supply	100 metres	This separation distance has been set to protect water resources used for public water supply. Under the <i>Metropolitan Water Supply, Sewerage and Drainage Act 1909</i> by-laws, a minimum separation distance of 100 m is allocated.
Well used for public water supply	300 metres	This separation distance has been set to protect water resources used for public water supply. Under the <i>Metropolitan Water Supply, Sewerage and Drainage Act 1909</i> by-laws, for Wellhead Protection Zones in Priority 2 and 3 public drinking water source areas a separation distance of 300m is allocated.

**Table 3: Recommended minimum separation distances for new and/or expanding vineyards to sensitive water resources**

<b>Water Resource</b>	<b>Separation Distance</b>	<b>Comments</b>
Wetlands and estuaries (including Conservation Category, EPP and Resource Enhancement wetlands)	200 metres	Recommended separation distance to reduce nutrient inputs and sediment transfer and to preserve the conservation value of these wetlands.
Banks of permanent streams and rivers	100 metres	Recommended separation distance to reduce nutrient inputs and control turbidity from potential sources.

to householders and tourists if residing too close to the vineyards.

Background noise levels vary considerably from area to area. For example, background noise levels in parts of the Swan Valley will be relatively high, due to road traffic and aircraft, while in the Margaret River area background noise levels may be extremely low. In the Swan Valley, because of the higher background noise levels, people may be accustomed to or accept the intermittent noise from night time activities in vineyards. Similarly, most people accept the activities of their neighbours and will move into areas provided they are made aware of the nature of such activities. This should be formalised by an appropriate memorial on the land title.

Noise levels fall as the distance from the source increases. As an example, noise emissions from a typical tractor will be 85 -90 dB(A) (about the same sound level as average street traffic) when measured at 7.5 metres from the tractor (this is the specified measurement distance in ADR 28), and 50 - 55 dB(A) (about the same sound level as close conversational speech) when measured at 500 metres.

At 500 metres, a noise emission of 50 - 55 dB(A) from a tractor operating in a normally quiet rural area will be clearly audible during the day and most likely be intrusive at night time.

Where a problem with noise may be evident, the vigneron may need to seek technical advice on noise or sound level measurement from a suitably qualified person.

The Environmental Protection (Noise) Regulations





Land holders and spray contractors in districts where there are commercial vineyards, need to consult the Regulations for more specific information in these restricted spraying areas.

Any person wishing to spray herbicides within exclusion distances specified within the Regulations must seek prior approval from their local Department of Agriculture before they spray.

Any person considering establishing a vineyard near or in broadacre farming areas should contemplate the effect on their vines of amine, sodium and potassium salt and low volatile ester formulations used in weed control by broadacre farmers.

## 6. Establishing the vineyard

### 6.1 Soil, climate and topography

- Soil type and local topography can influence management practices, vine performance and fruit quality. Although generally less significant than regional climate, the influence of site characteristics and local weather patterns needs to be understood and taken into account in the planning stage.
- Grapevines can adapt to a wide variety of soils from infertile coastal sands to loamy clays, however poor soils are likely to require more attention to water and fertiliser use to ensure the protection of the environment. Grapevines perform well on well drained loams and loamy gravels.
- Poor soil preparation and management can lead to future problems of poor drainage, restricted root penetration due to the formation of hard pans, and ploughing up of chemically or physically undesirable soil layers.
- It is recommended that the suitability of the soil for grapevines should be confirmed by soil profile studies. Some duplex soils are particularly prone to degradation and may need specific management practices.
- Heavy soils or sites liable to temporary water logging require drainage (e.g. slotted pipes) to encourage aeration of the soil.
- Use of tractors and other implements traversing the prepared vineyard soil should be kept to a minimum as the action can cause soil degradation. If soil compaction occurs, measures should be taken to maintain aeration and infiltration of soils.

- Inadequate control of vineyard drainage can cause excessive nutrient losses and soil movement in heavy rain, leading to eutrophication and turbidity in water resources.
- Vines should be established in areas with suitable topography and soil, so as to minimise soil erosion.
- On steep terrain, vineyard rows should, where practical, be aligned just off the contour to prevent rapid erosive drainage from the vineyard.
- It is recommended that vegetated drainage paths be included in the vineyard design for steep terrain (slope greater than 1 in 10). Vegetated drainage paths should have the capacity to carry a flow generated from 25 mm of rain falling in one hour without causing erosion damage to the site.
- In cooler areas, vine exposure (north or south facing) may influence fruit ripening.
- Exposed sites can lead to increased management costs and reduced productivity. For example, varieties with early bud burst can be damaged by spring winds when grown on exposed sites.
- Vineyards should be laid out so that the row direction, planting width, training system and canopy management optimise air movement and sunlight exposure to facilitate disease control and improve fruit quality.

significantly improve the quality of vine planting material used to establish vineyards.

The contact details for the Western Australian Vine Improvement Association are listed in Appendix 3.

WAVIA has appointed representatives in each of the major viticulture regions in WA to assist the wine, table and dried vine fruit industries.

Cultivars vary in their growth habit, growth cycle, disease susceptibility and need for chemical application (e.g. setting and sizing sprays, growth promoters etc.), all of which may impact on product yield and quality.

Rootstocks can provide major benefits in overcoming the effects of soil pests (e.g. nematodes, phylloxera) and can reduce the impact of negative environmental conditions (salty soil/water, drought etc.).

In selecting rootstock factors like scion-stock compatibility and vigour effects should be considered.

### **6.3 Irrigation**

Where it is planned to draw water from a well, lake or stream prior approval should be sought from the Water and Rivers Commission. The applicant should refer to "Taking Water from Streams and Lakes" Water Facts No.5, published by Water and Rivers Commission.

Where dams are planned, the location should be very carefully considered to minimise breaks in vegetation continuity. Meanders and riffles in watercourses are just as important as vegetation and proponents should be encouraged not to convert watercourses into drains.

Poor irrigation practices can cause environmental problems including water logging, salt build up and excessive loss of nutrients. In most vineyard areas, water is limited. It is important to prevent nutrients, sediment and organic matter from reaching surface water irrigation supplies and blocking low flow bypass pipes, which will impact on downstream riparian rights and other irrigation users.

The most efficient irrigation practices should be adopted wherever possible. Advice on the most suitable equipment and design for vineyards can be obtained from the Department of Agriculture, irrigation suppliers or private consultants.

Practices which address these issues include:

- Design of the irrigation system should be appropriate for the region and soil conditions and be installed and maintained to ensure water is distributed effectively and efficiently to all the vines.



To avoid excessive runoff during an unusual storm event, effort should be made to prevent pollutant export and land erosion by using vegetated drainage paths and vegetated buffers. Vegetated drainage paths and vegetated buffers remove a majority of nutrients exported off-site and should be used where runoff from the vineyards is an issue.

Sandy soils with the potential to leach nutrients should be amended with clay, loam or organic matter to minimise leaching.

In addition, pump failures or reverse flows from



- 35 to 38 dB(A) overnight;
-

## 9. Glossary

<b>ADR</b>	Australian Design Rule.
<b>Cultivar</b>	A variety of a cultivated plant distinguishable from other cultivars of the same species. For example cultivars of <i>Vitis Vinifera</i> (the European grape vine) include Chardonnay and Shiraz.
<b>Public Drinking Water Supply Areas (PDWSAs)</b>	Refers to all Water Reserves, Catchment Areas and Underground Water Pollution Control Areas that have been established under the Metropolitan Water Supply, Sewerage and Drainage Act 1909 (MWSSD Act) and the Country Areas Water Supplies Act 1947 (CAWS Act).
<b>Rootstock</b>	A vine that does not bear fruit onto which fruitful scion material is grafted. The rootstock provides tolerance to pests like nematodes and phylloxera, and conditions including drought, salinity and other soil imbalances.

## 10. References

## **Appendices**

### **Appendix 1 – Relevant legislation**

The following is provided as a guide only and it is the





The following entities are signatories to this Memorandum:

- Commissioner for Soil and Land Conservation.
- Environmental Protection Authority.
- Department of Environmental Protection.
- Department of Agriculture.
- Department of Conservation and Land Management.

This memorandum applies to proposals to clear more than one hectare of native vegetation on rural zoned land in southern Western Australia, south or west of the eastern boundaries of the main agricultural areas. In areas where more than 20% of the original vegetation remains, the process will follow the four-level evaluation procedures implemented through the memorandum.

In local government districts where less than 20% of the original vegetation remains within the main agricultural area, the Commissioner for Soil and Land Conservation already considers further clearing carries an unacceptable risk of increased land degradation, as defined in the *Soil and Land Conservation Act*. In these areas the Commissioner will object to any clearing unless the proposal has been assessed by the Environmental Protection Authority and approved by the Minister for Environment. Landholders will be expected to provide all information needed for that evaluation.

The over-riding philosophy is that as the development of a vineyard proceeds, there should be no net loss of native vegetation, or of the condition or extent of that vegetation.

The booklet "Land Clearing Proposals for Rural Zoned Land in Western Australia" in accordance with the Memorandum of Understanding deals principally with clearing proposals on rural zoned land.

1. If the land to be cleared is zoned "**rural**", it is assessed under a single evaluation process according to the 1997 Memorandum of Understanding and subsequent policy statements.
2. If the land to be cleared is zoned **other than "rural"**, it is assessed by the Commissioner under the 1994 procedures for the assessment of clearing proposals. Other relevant agencies may be notified of the proposal.

Soil and land conservation depends on appropriate land management practices to maintain the stability of

that land in perpetuity. Soil and land conservation is the opposite of exploitive land use.

Where a land holder causes land degradation and this is brought to the attention of the Commissioner, the Commissioner, after consultation with the land holder, may issue a Notice directing the land holder to rectify the situation.

#### 8. *Agricultural Practices (Disputes) Act 1995*

The *Agricultural Practices (Disputes) Act 1995* provides for the resolution of disputes related to the carrying on, or management, of agriculture. It is administered by the Agriculture Protection Board of Western Australia established under section 7 of the Act.

The objectives of the Act are to ensure that normal farm practices are not impeded by unnecessary litigation. It also enables the establishment of the Agriculture Protection Board and terms of reference, and provides a referral process for inquiries and mediation of disputes. The Board assumes the power to determine whether an agricultural practice is "normal farm practice".

The Act applies to disputes in which the issue is a complaint relating to odour, dust, noise, smoke, fumes, fugitive light, or spray drift, emanating from an agricultural operation.

#### 9. *Agriculture and Related Resources Protection (Spraying Restrictions) Act 1981*

The use of hormone herbicides is controlled within close proximity to commercial vineyards.

Within a 5 kilometre radius of commercial vineyards only amine, sodium and potassium salt formulations are approved for spraying under permit.

Between a 5 and 10 kilometres radius of these crops both amine, sodium and potassium salt and low volatile ester formulations can be used without a permit.

Outside a 10 kilometre radius all formulations, such as amine, sodium and potassium salts, low volatile and volatile ester formulations can be used without a permit.

**10. *Quarantine Act 1908 (Commonwealth)***

In summary, grape plant material, machinery and equipment are prohibited entry into Australia except by permit. A permit for planting material allows its entry subject to screening for pests and diseases in post-entry quarantine for at least 2 years. A machinery and equipment permit allows importation subject to inspection on arrival for freedom from soil and plant material, however state legislation prohibits its entry into Western Australia.

**11. *Plant Diseases Act of Western Australia 1914 as amended by the Plant Diseases Amendment Act 1993***

Under the above legislation, the import of grapevines (including those tissue cultured) from overseas and other States is controlled into Western Australia.

The Act has the powers to:

- Ensure only disease free plants are introduced into Western Australia.
- Destroy infected plants.
- Destroy plants in neglected orchards or vineyards.

**12. *Health Act 1911***

This Act provides for regulation of waste, nuisances, poisons, pesticides, food and infectious diseases and is administered by local government. Under this Act, operators who apply pesticides for gain or reward require a license from the Health Department of Western Australia. In addition, pesticide residues in food produce from the vineyards must comply with the maximum residue levels under the Food Standards Code.

**Appendix 2 - List of government agencies**

***Department of Agriculture***

<p><b>Perth</b> 3 Baron-Hay Court SOUTH PERTH WA 6151 Phone (08) 9368 3333 Fax (08) 9368 1205</p> <p>Postal address: Locked Bag 4 Bentley Delivery Centre WA 6983</p>	<p><b>Carnarvon</b> South River Road (PO Box 522) CARNARVON WA 6701 Phone (08) 9956 3333 Fax (08) 9941 8334</p>
<p><b>Albany</b> 444 Albany Highway ALBANY WA 6330 Phone (08) 9892 8444 Fax (08) 9841 2707</p>	<p><b>Esperance</b> Private Mail Bag 50 ESPERANCE WA 6450 Phone (08) 9083 1111 Fax (08) 9083 1100</p>
<p><b>Bunbury</b> North Boyanup Road (PO Box 1231) BUNBURY WA 6231 Phone (08) 9780 6100 Fax (08) 9780 6136</p>	<p><b>Geraldton</b> 283 Marine Terrace (PO Box 110) GERALDTON WA 6530 Phone (08) 9956 8555 Fax (08) 9921 8016</p>
<p><b>Karratha</b> Suite 3, 18 Hedland Place (PO Box 1618) KARRATHA WA 6714 Phone (08) 9144 2065 Fax (08) 9185 3380</p>	<p><b>Katanning</b> 149 Clive Street KATANNING WA 6317 Phone (08) 9821 3333 Fax (08) 9821 1028</p>
<p><b>Kununurra</b> Durack Drive (PO Box 19) KUNUNURRA WA 6743 Phone (08) 9166 4000 Fax (08) 9166 4066</p>	<p><b>Manjimup</b> Rose St MANJIMU Suite</p>

MANJIMUP 9156 4000 0.6386 6.759 TD0 Tc0 Tw( )Tj/TT14 1 TJ/4.1(e)2

***Department of Conservation and Land Management***

**Head Office**

***Water and Rivers Commission***

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3 Plain St  
EAST PERTH, WA 6004  
Phone (08) 9278 0300  
Fax (08) 9278 0585

**South Coast**

5 Bevan Street  
ALBANY WA 6330  
Phone (08) 9842 5760  
Fax (08) 9842 1204

**Swan-Goldfields-Agricultural**

7 Ellam Street  
VICTORIA PARK WA 6100  
Phone (08) 6250 8000  
Fax (08) 6250 8050

254 Fitzgerald St  
NORTHAM WA 6401  
Phone (08) 9690 2821  
Fax (08) 962 (-G626)Tj/TT6 1 Tf0 0 TD-0.0 T St8 0585

**Appendix 3 - List of Western Australian grape grower and winemakers' associations**

<p><b>Wine Industry Association of WA (Inc)</b></p> <p>PO Box 83 CLAREMONT WA 6910 Phone (08) 9385 1699 Fax (08) 9385 1538</p>	<p><b>Grape Growers' Association of WA (Inc)</b></p> <p>PO Box 15 MIDLAND WA 6056 Phone (08) 9296 4993</p>
<p><b>Western Australian Vine Improvement Association</b></p> <p>PO Box 941 MARGARET RIVER WA 6285 Phone (08) 9757 9330 Fax (08) 9757 9331</p>	<p><b>Western Australian Dried Vine Fruit Improvement Group</b></p> <p>Secretary/Treasurer Old Gingin Road MUCHEA WA 6501 Phone (08) 9571 4150</p>

For information regarding the local regional associations, please contact the Wine Industry Association of Western Australia (Inc) or the Grape Growers' Association of WA (Inc).

## Appendix 4 - Handling of harmful chemicals

Generally, viticulture cannot be carried out without the use of chemicals. However, every effort must be made to use chemicals safely and for the purpose and in a manner for which they were intended.

- Only registered pesticides or crop regulators should be used and the action of the chemical should be well understood before application. All chemicals must be used in the manner and for the purpose prescribed on the label and in accordance with the Health (Pesticide) Regulations. To do otherwise is an offence and may harm operators, neighbours and the environment.
- All chemicals should be stored securely and safely (i.e. in a properly ventilated lockable shed) to minimise contamination of other goods or the surrounding environment and limit access to authorised persons only. The storage area should be constructed of non-flammable materials on hard stand flooring, isolated from nearby fire hazards and located away from low lying areas subject to flooding. It should be sited and constructed so that any spillage will be contained by bunding and will not contaminate any nearby drainage or watercourse.
- Protective clothing, including face guards, should be worn when decanting and mixing chemicals. Refer to the specific chemical Material Safety Data Sheets for details. Suppliers of chemicals have the

- Protective clothing, including face guards, should be worn when handling and applying chemicals. Refer to the specific chemical Material Safety Data Sheets for details.
- Vignerons who regularly using agricultural chemicals should undergo annual medical examinations for pesticide residues, to guard against over-exposure.
- Due care should be taken by the persons applying chemicals in the vineyard.
- It is often difficult to accurately apply sprays to a diverse and changing canopy. Equipment should be calibrated regularly to reduce the amount of over spray leading to possible off-site contamination. Retailers and/or manufacturers can also be contacted to ensure the spray equipment is calibrated properly.
- High volume mist sprayers should not be used in wind velocities likely to cause spray drift that could affect the applicator or other staff working in the vicinity or off-site situations.
- All chemicals in the spray tank should be used up or recycled and the spray tanks washed out and the diluted residue sprayed out into the vineyard. Concentrated residues should not be allowed to run to waste on the ground or into water systems.
- Grapes should not come into contact with unregistered chemicals at any time during the season.
- Vignerons should be aware before spraying any chemical of the recommended withholding periods prior to harvesting. Vignerons should liaise with the winery and AWRI to ensure the appropriate withholding periods are met prior to the fruit sent to market.
- When preparing sprays, operators should empty the container into the sprayer mixing tank and drain for at least 30 seconds until empty. Recommended practice is to fill emptied containers at least 1/10th full with water and rinse out. Repeat at least three times. Add the rinse water to the chemical tank in the place of an equivalent quantity of make-up water.
- The brochure "Preparing Farm Chemical Containers for Safe Disposal" by AVCARE (National Association for Crop Protection and Animal Health), should be followed.
- Operators should contact their local council for details of the DrumMuster program. DrumMuster is the collection scheme for non-returnable rigid metal and plastic containers used in the packaging of crop

#### **Safe disposal of empty pesticide containers**

- Empty pesticide containers must be disposed of correctly in accordance with the Health (Pesticide) Regulations. If they are left lying around with chemical residues, contamination or even poisoning of people, stock or crops may occur.



## Contacts for ChemCert

ChemCert WA  
88 Westview St  
Scarborough WA 6019  
Phone/Fax (08) 9341 5325

## List of Shires with DrumMuster programs in place.

<b>Position</b>	<b>Shire</b>	<b>Mailing Address</b>	<b>Phone Number</b>
Chief Executive Officer	Shire of Augusta-Margaret River	PO Box 61	MARGARET RIVER WA 6285 9780 5255
Chief Executive Officer	Shire of Beverley	PO Box 20	BEVERLEY WA 6304 9646 1200
Chief Executive Officer	Shire of Boyup Brook	PO Box 2	BOYUP BROOK WA 6244 9765 1200



## **Appendix 5 - HortGuard™**

Under the banner of HortGuard™ all sectors of Western Australia's horticultural industry are working together to maintain maximum freedom from major pests, diseases and weeds and to minimise risk of chemical residues in produce. The overall goal of HortGuard™

## Appendix 6 - Biosecurity protocol

All persons should follow the following protocol when entering agricultural/horticultural properties, to minimise the risk of spreading plant pathogens or weeds.

- Always notify the grower that you will be on site.
- Limit driving of vehicles to the main tracks on farm, never enter paddocks with a vehicle. If a paddock is out of the way it may be preferable to ask the grower to transport you to the site.
- When leaving the vehicle designate a clean zone into which all your clean gear can be placed. Do not enter this area with dirty footwear.
- Wear a separate set of disposable overalls for each paddock you enter. Wear rubber boots to allow easier cleaning (essential when operating in an emergency incident).
- When you have finished in a paddock return to the vehicle and begin clean down, remembering not to enter your clean zone.
- Spray down your overalls with a solution of Farmcleanse (10%). Spray and scrub down boots with a stiff brush to ensure all loose dirt is

removed. If boots have a lot of soil on them it may be necessary to first wash with water before spraying Farmcleanse. It is essential that you ensure that your footwear is thoroughly drenched in the Farmcleanse solution.

- Remove disposable overalls and place in garbage bag for disposal on return to the office. Spray down the garbage bag and place in the clean zone.
- Spray any other equipment taken into the paddock before placing in the clean zone.
- Avoid wearing the same clothes for more than one day unless they have been washed.

Your biosecurity kit should include:

- Scrubbing brush.
- Farmcleanse (5% ethanol can be used as a substitute) in a spray bottle (a 5 L pump up spray tank is preferable).
- Foot bath.
- Water.
- Disposable overalls.