

Decision Tree and Guidelines for Mapping the Agriculture and Rural Zones

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INTRODUCTION

This document has been prepared by AK Consultants for the Southern Tasmanian Council Authority (STCA) to assist member Councils delineate the new Agriculture and Rural Zones which will be established from the existing Rural Resource and Significant Agriculture Zones under the new Tasmanian Planning Scheme. To assist with defining the boundaries of these two new zones the State Government Commissioned the *Agricultural Land Mapping Project, 2016 (ALMP)* as a guide. However, as the mapping process in the ALMP utilises generic decision rules and desktop GIS analysis of datasets, some anomalies appeared in the end product. There are also areas within the proposed Agricultural Zone (Ag Zone) which have a degree of constraint for agricultural use.

This document is designed to assist Councils when assessing areas of interest that Councils have identified through utilising the AK Consultants, January 2018, *Guidelines for Identifying Areas of Interest* which was developed as a precursor to this document.

Within both the Agriculture and Rural Zones agricultural activities are a “no permit required” use. Assigning land to either zone will not affect existing or future agricultural activity occurring. However, in the Ag Zone some uses (such as plantation forestry or controlled environment agriculture) are discretionary if located on Prime Agricultural Land. The main difference between the zones is how non-agricultural activity is controlled (ALMP). The Agriculture Zone is designed to primarily protect the land for agricultural use, while the Rural Zone allows for a greater range of uses that are not necessarily related to agriculture.

ZONE PURPOSE STATEMENTS

Agriculture Zone:

- To provide for the use or development of land for agricultural use.
- To protect land for the use or development of agricultural use by minimising:
 - a) Conflict with or interference from non-agricultural uses;
 - b) Non-agricultural use or development that precludes the return of the land to agricultural use; and
 - c) Use of land for non-agricultural use in irrigation districts.
- To provide for use or development that supports the use of the land for agricultural use.

Rural Zone:

- To provide for a range of use or development in a rural location:
 - a) Where agricultural use is limited or marginal due to topographical, environmental or site or regional characteristics;
 - b) That requires a rural location for operational reasons;
 - c) Is compatible with agricultural use if occurring on agricultural land;
 - d) Minimises adverse impacts on surrounding uses.
- To minimise conversion of agricultural land for non-agricultural uses.
- To ensure that use or development is of a scale and intensity that is appropriate for a rural location and does not compromise the function of surrounding settlements.

The *Agricultural Land Mapping Project* was completed by the Department of Justice to provide Councils with spatial data to assist with segregating the Rural Resource Zone (and Significant Agriculture Zone where relevant) into the Rural and Agriculture Zones, as required under the new State-wide Planning Scheme. The constraints analysis that was utilised in the *Agricultural Land Mapping Project* was not designed to provide a comprehensive analysis of all the factors that may contribute to the constraint of agricultural land, as it was perceived to not be feasible to develop a model at the state-wide scale that could incorporate all factors of each individual title that need to be considered. Instead it was based on a generic set of rules which provide Councils with a spatial layer to utilise, to identify areas for further investigation that could be potentially constrained.

The core output of the ALMP is the *Land Potentially Suitable for Agriculture* GIS Layer. This tool provides a constraints class for all titles that were deemed suitable to be included in the Agriculture Zone based on the assessment parameters developed in the ALMP. The constraints classes are listed in table 1.

Table 1. Constraints Classes of Land Potentially Suitable for Agriculture Layer (from ALMP 2016)

Constraints Class	Description of Titles
Unconstrained	<ul style="list-style-type: none">• An area greater than an identified ag enterprise size threshold.• An area less than an identified ag enterprise threshold but adjoins another title with a greater than size and has a capital value of <\$50,000/ha.
Potentially Constrained 2A	<ul style="list-style-type: none">• An area less than the identified ag enterprise thresholds• A capital value of >\$50,00/ha.• Not adjoining a residential zone.
Potentially Constrained 2B	<ul style="list-style-type: none">• An area less than the identified ag enterprise thresholds.• A capital value of <\$50,000/ha.• Does not adjoin a title with an area greater than identified ag enterprise thresholds.
Potentially Constrained 3	<ul style="list-style-type: none">• An area less than the identified ag enterprise thresholds.• Adjoining a residential zone.

In the ALMP, five agricultural enterprise clusters were identified (Table 2). The clusters are based on Enterprise Suitability Mapping that has been developed by the State Government. For each enterprise cluster a minimum operating area was defined. See the ALMP for further descriptions of Clusters.

Table 2. Enterprise clusters and minimum title sizes (from ALMP 2016).

Cluster	Title Size	Access to Irrigation
ES1 – Irrigated Perennial Horticulture	10ha	Yes
ES2 – Vegetable Production	25ha	Yes
ES3 – Irrigated Grazing (Dairy)	40ha	Yes
ES4 – Broadacre – Cropping and Livestock	133ha	No
ES5 - Broadacre – Dryland Pastoral	333ha	No

For titles to be considered potentially suitable for ES1, ES2 or ES3 they also needed to have access to an irrigation supply. The ALMP developed a conservative method to determine if there was potential access to irrigation resources. A 3km buffer was provided for around existing water allocations, functional bores (flow rate >10l/sec) and major watercourses. The methodology also considered topography to determine if pumping would likely be economically viable. This conservative method has contributed to many titles being mapped as potentially suitable for ES1, ES2 or ES3, however, local scale assessment might determine that there is actually little to no potential for water resources, which could then impact on their potential for consideration for the Agricultural Zone.

LOCAL PROVISIONS SCHEDULE

Each Council is required to delineate spatially all zones under the new Planning Scheme. While the ALMP provides a spatial tool for Council to utilise, the Tasmanian Planning Commission has also published *Guideline No 1, Local Provisions Schedule (LPS): zone and code application* (Guideline No 1). This document provides context for each zone's intended purpose and guidelines for application of each zone. Guideline No 1 has been utilised as a core reference point when developing the guidelines for decisions in this document.

METHODOLOGY

INTRODUCTION

When delineating zone boundaries Councils need to have a clear objective of the desired outcome for each area of land, whilst bearing in mind the State's zone objectives. For example, the State prefers poorer quality land in the Rural Zone, however, many dairying operations and vineyards are also on poorer quality land. Where titles are part of a current or potentially 'medium to large-scale' holding the Agriculture Zone provides better protection for the continued agricultural activities on these titles. However, where the current or potential scale of the agricultural use is unlikely to achieve 'medium to large-scale' the Rural Zone may be more appropriate as it provides for a greater range of uses. However, there is also a much higher risk of non-agricultural developments constraining any future potential expansion of adjacent agricultural activities given the 5m minimum setback for buildings.

Likewise, when considering poorer quality land which currently is retained under native vegetation. Minimum lot sizes for subdivision in the Rural Zone is 40ha. Subdivision and potential sale to prospective lifestyle purchasers could be an attractive outcome for the owners of larger titles which currently have little productive use. Under these circumstances the application of the Natural Assets Code, the Scenic Protection Code and the Attenuation Code needs to be considered; both the Natural Assets Code and the Scenic Protection Code provide for residential use if certain criteria are met. If plantation forestry and quarrying is then also in the Rural Zone there is potential for future constraint on these Primary Industry activities due to the residential development on Rural zoned land which has little perceived current productive use. Although not part of the agricultural considerations, natural values could also be compromised due to fragmentation from access roads and Bushfire Hazard Management Zone clearance requirements.

The Decision Tree has been developed to assist Councils to determine the appropriate zone for titles within defined area of interest. It incorporates a number of characteristics which need to be assessed and considered and these are clarified in the remainder of this section.

CONSTRAINTS

Principle 1 of the State *Policy on the Protection of Agricultural Land 2009* (PAL Policy) states that “the sustainable development of agriculture should not be confined or restrained by non-agricultural use or development”. In the context of Principle 1, the terms “confined or restrained” are taken to refer to a reduction or limitation in the type, scale, or intensity of an existing or potential agricultural activity. In the author’s opinion this includes incident specific land use conflict issues (eg. dust from adjacent activity), critical mass land use conflict issues (eg. community petitions against odour/noise from an agricultural activity) as well as indirect impacts such as changing property values due to competition from non-agricultural development.

The Southern Tasmanian Regional Land Use Strategy – Background Report No. 7: Productive Resources 2011, identified the main agricultural activities conducted across the Region as a whole. These are livestock grazing (meat, dairy, wool), broadacre crops (crops for hay), horticultural crops (vegetables), orchard fruit berries and vines, nurseries & cut flowers and plantation forestry. For each of these activities the attributes to be able to conduct these enterprises have been broadly defined (see Table 6 in Appendix 1).

Table 6 can be used to analyse existing and potential land use based on the characteristics described. There are many other factors (site specific and broader regional factors) which determine the potential land use of any given parcel, however, Table 6 can be used as guide to establish the potential for the most intensive land use in any given area based on easily assessable and relatively permanent characteristics. Once the potential land use has been established based on the characteristics in Table 6, the minimum separation distance between the most likely potential agricultural activity and residential land use can be considered. The ALMP *Land Potentially Suitable for Agriculture* GIS Layer (discussed above) identifies titles that are potentially constrained based on title size, capital value and connectivity/fettering. This provides a first pass of constrained titles. Current agricultural activities and potential future activities on these identified titles should consider the resource requirements as identified in Table 6. There are also six subsequent tables that list potential conflict issues for each identified enterprise with adjacent residential amenity (Tables 7-12). Table 13, in Appendix 1 provides a comprehensive list of potential conflict issues described by Learmonth et al 2006. This more detailed information provides the basis for considering the agricultural potential for titles at the local scale.

LAND CAPABILITY

When considering the physical limitations for agricultural use of a title or area the Tasmanian Land Capability classification system is a useful tool to utilise. The Land Capability system incorporates the following site characteristics.

- Climatic limitations (temperature, altitude, rainfall)
- Soil limitations (soil depth, salinity, coarse fragments and rock outcrops)
- Wetness limitations (soil drainage, flood risk)
- Erosion (water erosion, wind erosion, mass movement)
- Complex topography.

Whilst there are threshold limits, it is generally a combination of characteristics which determine the final classification. For example, land which is limited for agriculture due to the risk of water erosion, is determined by a combination of slope and soil texture. A strongly structured Clay – Loam can be cultivated on a much steeper gradient with minimal erosion risks than a weakly structured Sandy – Loam.

Land Capability is mapped for most privately-owned titles within the current agricultural estate for Southern Tasmania and is mainly mapped at a scale of 1:100 000, with localised mapping within the Coal River Valley at 1:25 000. There are 7 Classes under this system at the 1:100 000 scale, see Appendix 4 for Class descriptions. Classes 1,2 & 3 are classed as 'Prime Agricultural Land' under the PAL Policy. Class 6 land has severe limitation for agricultural uses, while Class 7 has no agricultural potential. Physical constraints from Land Capability for a title or area of interest should not be considered in isolation. Ownership, current and potential future land use and adjacent land uses should be considered. For example, a large title in the Southern Midlands that is Class 6 and is under the same ownership as adjacent titles, will likely be part of a large-scale broadacre pastoral company and likely utilised as a stock bush run block. So even though it has a poor Land Capability Class it is productive in nature because it is farmed in conjunction with adjacent land and would likely be retained in the Agriculture Zone.

At the 1:25 000 scale the actual limiting factors are identified. For example (e) refers to water erosion hazard. At the 1:25 000 scale if an area is mapped as Class 5e, then the erosion risk is considered "High" and that could be derived from Clay-Loams on slopes of 18-56%. However, this same Land Capability classification at the 1:25 000 scale could be derived from Sandy-Loams on slopes of 12-18%. Availability of Land Capability mapping at the 1:25 000 scale is very limited, hence the 1:100 000 scale mapping is utilised and whilst the mapping at 1:100 000 scale provides a good indication of agricultural limitations it does not allow differentiation of the limiting factors.

A rule set based on physical limitations (eg slope) could be developed, however, Land Capability is considered a more comprehensive and appropriate tool to apply.

EXISTING USES

Existing use can be an indicator of agricultural potential in combination with other characteristics. Constraints for agricultural use based on whether the land is already converted to a non-agricultural use, due to development on the title and surrounding the title, is only one aspect of land use that affects the ability to conduct agriculture; that is it does not provide any analysis of suitability of the

land. Table 3 describes eight attributes which need to be considered in determining the suitability of an area for agriculture of which constraints is one.

Table 3. Characteristics of an agricultural title

Characteristics of the title	High value	Low value
Title size ¹	Larger size	Smaller size
Development on the title	Agricultural infrastructure; dams, grain silos and feed stores, barns, sheds and workshops, underground irrigation mains, irrigation pumps, gravel laneways, wallaby proof fencing, stock facilities.	Houses and non-agricultural developments surplus to farming requirements
Connectivity. Other than non-agricultural developments topographical constraints, reserves, threatened vegetation, major water courses and roads, steep slopes, swampy ground etc can limit connectivity.	Well connected to other 'medium to large-scale' farming titles	No connectivity with other 'medium to large-scale' farming titles
Current and potential use	Intensive horticulture	Grazing
Land Capability	Prime Ag land + LC 4	LC 4-6 (LC 7 – no value)
Water available for irrigation	Current access or within a defined irrigation district	No irrigation resource
Regional context	Close to contract labour, processing facilities and markets; lower transaction costs	Isolated from contract labour, processing facilities and markets; higher transaction costs
Constraints Class	Little constraint	Highly constrained

¹ The title size categories are relatively consistent with the thresholds used in the ALMP enterprise cluster sizes and are based on expert opinion in relation to the normal conduct of agriculture in the region. The thresholds are generalised and somewhat conservative however are considered to reasonably reflect a pattern of distribution of agricultural activities in the region. Anomalies will always occur when a methodology divides information into generalised categories.

There are very few enterprises that require a permanent dwelling as an integral part of the farming enterprise. Intensive animal husbandry, aquaculture and horticulture may be exceptions, although advances in technology are reducing the need for 24hr vigilance in these enterprises. Security, particularly for high value products, does need to be considered. However, there are numerous examples of farmers leasing land for farming away from where they live.

The location of non-agricultural development on a title can influence the degree of constraint on the agricultural potential of a title. If a title is greater than 40ha then siting is considered to have little significance. On smaller titles the siting of a non-agricultural development can impact on the agricultural use of the title. For example, a house in the middle of a small title will have a greater impact than a house along a boundary. However, the location of a non-agricultural development is generally of so little significance compared to the presence or otherwise of a house, that siting need not be considered a significant factor in assessing the overall level of constraint on a title greater than 40ha. The presence of a house on a title reduces the likelihood that the land may be purchased by another agricultural business for the purposes of increasing the scale of their operation.

Non-agricultural developments also directly remove land from agricultural use. This impact is exacerbated by the curtilage and other associated land requirements, for example the land required for an access road.

Based on an analysis of PIDs², generally 'medium to large-scale' holdings are comprised of more than one title. Where titles are under the same ownership it is likely that they are farmed in conjunction. Hence even small titles (without dwellings) have the capacity to contribute to a 'medium to large-scale' holding. Where there is a cluster of titles, the majority with a dwelling and less than 40ha and under different ownership, it is likely this area is already compromised for 'medium to large-scale' agriculture unless there is evidence of irrigation water and high value agricultural activities.

CONNECTIVITY

Connectivity describes the ability to utilise multiple titles in conjunction. Strong connectivity occurs where a title can be effectively utilised in association with an adjacent title or titles. Weak connectivity occurs where the subject title has been effectively surrounded by non-resource development or public land (with some exceptions) and thereby is isolated from agricultural land that has minimal constraints. Connectivity is more important for small rather than large titles.

Other than the size of the title, ownership and whether that title has a house are other barriers to connectivity which need to be considered. In some circumstances rivers do represent a barrier to connectivity. However, rivers can also serve as a conduit for conveying water from one title to another, in which case the river is not a barrier. Also farms often have internal crossings for stock and machinery on streams where land is farmed on either side. It is generally feasible to apply for an easement to convey water across a riparian reserve hence these also are not considered as barriers. Most highways have underpasses for conveying stock, vehicles and sometimes smaller machinery under them. Where an underpass is in place the highway is not a significant barrier. However, the locations of underpasses are not easily assessable using the currently available spatial data. Generally minor roads do not constitute a significant barrier as it is possible to convey stock and

² Based on research undertaken by AK Consultants in 2010 to develop the Agricultural Profiles for each of the eight Northern Tasmanian Councils and the Northern Tasmanian region as whole.

machinery across or along them. Railway lines also generally do not form major barriers as there is commonly a means of conveying stock and machinery across (or under) them.

Barriers to connectivity include:

- Areas of land unsuitable for agricultural use as a result of Land Capability classification, the presence of threatened vegetation or formal reserve status precluding clearance and conversion.
- Land converted to non-agricultural use.
- A cluster of small titles.
- Public land (except where there is existing or potential for agricultural activity).
- Nature reserves or threatened vegetation communities which are protected from clearance and conversion under legislation.
- Major roads with no stock underpasses.
- Larger water courses remote from irrigation activities.

IDENTIFICATION OF EXISTING IRRIGATION RESOURCES

Tools that can be utilised to determine if there are existing irrigation resources associated with a title or holding include:

- The Water Information System of Tasmania (WIST). This database can be utilised to search for existing water allocations and dams. Searches can be conducted using a map. Existing allocations can then be compared with water requirements for the different agricultural enterprises as outlined in Table 6.
- Groundwater Information Access Portal (Mineral Resources Tasmania). This portal can be used to locate existing mapped water bores. A minimum flow rate of 2-5l/second would be needed for irrigation use.
- If within 1km of a named stream.

If unsure of existing or potential water resources for a title, expert advice should be sought.

LAND USE STRATEGY

The *Southern Tasmanian Regional Land Use Strategy 2010-2035* lists five main regional policies regarding Productive Resources:

- Support agricultural production on land identified as regionally significant by affording it the highest level of protection from fettering or conversion to non-agricultural uses.
- Manage and protect the value of non-significant agricultural land in a manner that recognises sub-regional diversity in land and production characteristics.
- Support and protect regionally significant extractive industries.
- Support the aquaculture industry.
- Support the forest industry.

Consideration of these regional policies (other than the aquaculture industry) has been taken into account when developing the Decision Tree and supporting Guidelines. The Enterprise Scale Analysis Tool was also developed to assist in identifying land that should be protected under these policies.

ZONING GUIDELINES

The Zoning Guidelines are designed to assist Councils with their decisions for assessment areas by providing some basic rules to follow when determining zones to ensure a consistent zoning pattern is developed. Even with these Zoning Guidelines, there will likely be anomalies and in these instances, it is recommended that Councils seek external expert advice to provide assistance.

Table 4. Zoning Guidelines.

Characteristic	Description
Consistency of land use patterns.	Titles that have characteristics that are suitable for either the Rural or Ag Zone (based on State – Zone Application Framework Criteria) should be zoned based on surrounding titles with the chief aim of providing a consistent land use pattern.
Minimum of three titles (where feasible) to make a zone.	To avoid spot zoning of individual titles a minimum of 3 titles should be investigated (depending on size and scale of titles) for a zone. For planning purposes, a consistent zoning pattern is preferable to fragmented zoning patterns.
Adjacent titles owned by same entity to be included in the same zone when possible.	Adjacent titles under same ownership are most likely farmed in conjunction. By zoning these titles under the same zone land holders will have consistency of Planning Scheme permitted uses. However, current land use practices should also be considered as there may be instances where titles under same ownership are utilised for differing land uses which are more appropriately zoned differently. This will also potentially be the case for larger titles where split zoning might be appropriate. Plantations on land farmed in conjunction with mixed farming operations are more likely to be converted to an alternative agricultural use. Hence if the majority of the holding is in the Ag Zone then the preference would be for the title supporting plantation to also be in the Ag Zone.
Split zoning of titles to only occur in exceptional circumstances.	Split zoning is only to occur on titles that have significantly divergent agricultural potential. This will generally only occur on larger titles.

DECISION TREE

The Decision Tree (Table 5) is to be used to assist Councils to determine the appropriate zone for titles assessed within defined areas of interest. The Decision Tree provides context for each listed use for both the Rural and Ag Zone. It also provides guidance on:

- Enterprise Scale
- Land Capability

- Native Vegetation
- Constraints Mapping from *Land Potentially Suitable for Agriculture* GIS Layer
- Irrigation Resources
- Reserves

Justification for zoning rationale is based on the ALMP's *Land Potentially Suitable for Agriculture* GIS Layer and the Guidelines for both the Agricultural and Rural Zone in the *Guideline No. 1 Local Provisions Schedule (LPS): zone and code application*. Both resources have been developed through consideration of the Purpose Statement of both zones, so by conforming with these it is assumed that the zone Purpose Statements are also conformed with.

Even with the Decision Tree, it is likely that Councils will come across areas of interest where there are anomalies or where after applying the Decision Tree Rules a preferred zone is not apparent. In these situations, outside expert advice should be sought.

Table 5. Decision Tree.

Use	Rationale	Agriculture Zone	Justification	Rural Zone	Justification	Further Consideration	Alternate Zone
Forestry Activities on majority of title – Including: <ul style="list-style-type: none"> Native Forest Harvesting Plantations State Forest Future Production Forest 	<ul style="list-style-type: none"> Forestry is “no permit required” in both the Rural & Ag Zone under certain conditions. However, the Ag Zone has stricter provisions on resource development activities which in some cases require discretionary approval, or prohibit the use all together. Land with limited potential for future development of an agricultural enterprise will preferably be zoned Rural. Zoning will aim to reflect a consistent land use pattern. 	<p>Yes (if meeting one or more criteria).</p> <ul style="list-style-type: none"> If on Prime Ag Land. If surrounded by Ag land. If farmed in conjunction with an agricultural enterprise. If plantation over pasture that is likely to be converted back to pasture after harvest. If there is a potential dam site on a named stream and upstream from existing or potential agricultural activity. 	<p>Mapped as Unconstrained in the ALMP.</p>	<p>Yes (if meeting one or more criteria).</p> <ul style="list-style-type: none"> If on Class 6 or 7 Land, or land that is limited due to site characteristics. If owned by a forestry company. If owned by a private land holder and is adjacent to other forestry or Rural Zone titles. If under private timber reserves and unlikely to be converted to pasture. Adjacent land is also primarily used for forestry activities. State forest and/or Future Production Forest. 	<p>Per Guidelines RZ 1 & RZ 3.</p>	<p>Forestry activities on Class 4 or 5 land should be assessed case by case. Consideration of surrounding land, ownership and likely future uses should be considered before determining appropriate zone.</p> <p>Consideration of future subdivision and development should be considered. There are less strict subdivision provisions in Rural Zone than Ag Zone.</p> <p>If unsure of dam site potential specialist advice should be sought.</p>	
Irrigation Resources or use	<p>Irrigation water resources are important to agricultural productivity, diversifying and risk management.</p>	<p>Yes.</p> <ul style="list-style-type: none"> If existing irrigation resources. If there is potential to develop irrigation resources that could be utilised for agricultural activities. 	<p>Agriculture Zone Purpose & as per guideline AZ 1.</p>			<p>If unsure of irrigation potential specialist advice should be sought.</p>	
Residual Native Vegetation/ Minimal Use on majority of title.	<p>Extensive areas of native vegetation generally indicate some limitations to productive use and also may indicate natural values.</p>	<p>Yes.</p> <ul style="list-style-type: none"> If farmed in conjunction with a ‘medium to large-scale’ agricultural enterprise (eg. broadacre dryland grazing enterprise). If a Conservation Covenant is covering area of concern and surrounding land is utilised for agriculture. 	<p>Mapped as Unconstrained.</p>	<p>Yes.</p> <ul style="list-style-type: none"> Fragmented ownership of titles. Land Use 2015 Layer (LIST) maps as minimal use. No evidence of land being utilised for agricultural activities anywhere on the title. Poor site characteristics and Land Capability (Class 5, 6 or 7) on majority of title. If under a Conservation Covenant and not managed in conjunction with an agricultural enterprise. If the natural assets are deemed to be of higher value than the agricultural value of the land and it is determined that the Forest Practices Code will not provide sufficient protection of natural assets. 	<p>Per Guidelines RZ 1, RZ 3, AZ 4 & AZ 6.</p>	<p>Local knowledge of areas is an important consideration. It is also important to note that by zoning these areas as Rural, they are not precluded from future agricultural development unless protected by a Code (Natural Assets Code) where as the Ag Zone is exempt from this code. In these instances, if natural values are considered of greater value than agricultural values, Council may decide to zone titles Rural. The Scenic Protection Code applies in both zones.</p> <p>Potential of future subdivision and development should also be considered. There are less strict subdivision provisions in Rural Zone and Natural Assets Code still allows for some clearing.</p>	<p>Environmental Management Zone or Landscape Conservation Zone.</p>

Use	Rationale	Agriculture Zone	Justification	Rural Zone	Justification	Further Consideration	Alternate Zone
Extractive Industries	Extractive industries (mining, quarries) are a Permitted Use in the Rural Zone, but are Discretionary in the Ag Zone.	Yes. <ul style="list-style-type: none"> If on Prime Agricultural Land If surrounded by agricultural land and there is no connectivity with other land suitable for the Rural Zone. 	Mapped as Unconstrained.	Yes. <ul style="list-style-type: none"> If not on Prime Agricultural Land and has connectivity with other land that will be zoned Rural. If on an isolated title from rest of Rural estate, but is an operation of regional significance. 	Per Guidelines RZ 3.		
Resource Processing	Resource Processing is a Permitted Use in the Rural Zone, but is Discretionary in the Ag Zone.	Yes. <ul style="list-style-type: none"> If on Prime Agricultural Land. If surrounded by agricultural land and there is no connectivity with other land suitable for the Rural Zone. 	Mapped as Unconstrained.	Yes. <ul style="list-style-type: none"> If not on Prime Agricultural Land and has connectivity with other land that will be zoned Rural. If on an isolated title from rest of Rural estate, but is an operation of local and/or regional significance. 	Per Guidelines RZ 3.		
Unmapped Titles	Individual titles or small clusters of titles that were excluded from the <i>Land Potentially Suitable for Agriculture</i> layer that are surrounded by titles that are included in Ag Zone.	Yes. <ul style="list-style-type: none"> If surrounded by land that will be zoned as Agriculture and subject title has characteristics that could be included within Agriculture Zone. If farmed in conjunction with adjacent agricultural land. If it provides a more consistent zoning pattern. 	Per Guidelines AZ 1, AZ 4 & AZ 7.	Yes. <ul style="list-style-type: none"> If Sustainable Timber Tasmania (STTAS) land (formerly Forestry Tasmania) or Crown owned land. If has no agricultural potential and is adjacent to land with similar characteristics that could also be zoned Rural. 	Per Guideline RZ 3.	All STTAS land is to go into the Rural Zone. It may be appropriate to zone adjacent land as Rural also. However, potential for future development that is allowable within the Rural Zone should be considered and the potential impacts this could have on STTAS land before zoning Rural.	Other zones may apply depending on the characteristics of the subject land and surrounding land.
Potentially Constrained Titles	Titles that were mapped as potentially constrained (2A, 2B or 3) in the <i>Land Potentially Suitable for Agriculture</i> layer are intended to be flagged for further investigation by Councils to determine which zone (ag or Rural) is more appropriate.	Yes. <ul style="list-style-type: none"> Single titles or small clusters of titles surrounded by unconstrained agricultural land. If on Prime Agricultural Land. If there is an existing irrigation water supply. Titles that are farmed in conjunction with agricultural land. If it provides a more consistent zoning pattern. 	Per Guidelines AZ1, AZ 3 & AZ 4.	Yes. <ul style="list-style-type: none"> Cluster of three or more titles and not utilised for agricultural activities nor directly adjacent to 'medium to large-scale' agricultural activities. If adjoining a Residential Zone and in a cluster of 3 or more and not utilised as part of an 'medium to large-scale' agricultural activity. If provides for a more consistent zoning pattern. 	Per Guidelines AZ 3, RZ 1 & RZ 3.	Titles with 'medium to Large-scale' or medium scale agricultural characteristics should be zoned Agriculture where possible. Titles adjacent to Residential Zones that display very constrained characteristics may be more suited to a Residential Zone. A separate assessment of these titles may be required to confirm this.	Rural Living or Low Density Residential.

Use	Rationale	Agriculture Zone	Justification	Rural Zone	Justification	Further Consideration	Alternate Zone
Significant Agriculture Zone and Prime Agricultural Land	The purpose of the Significant Ag Zone was to protect highly productive agricultural land. This land should naturally be included in the Agriculture Zone. Prime Ag Land (Land Capability Classes 1, 2 & 3) should be protected where possible and retained in the Agriculture Zone because of its productive potential.	Yes.	Per Guideline AZ 2.	Yes. <ul style="list-style-type: none"> If significantly constrained or other limitations can be demonstrated. 	Per Guideline AZ 6.	Specialist advice should be sought before zoning Rural.	
Public Reserves: <ul style="list-style-type: none"> Conservation Area Game Reserve Historic Site Indigenous Protected Area National Park Nature Reserve Nature Recreation Area Regional Reserve State Reserve Wellington Park RAMSAR Wetland Informal Reserve on Public Land 	The public reserve estate is designed to conserve and protect public land. This land does not have any agricultural value.	No <ul style="list-style-type: none"> Unless not appropriate to zone differently. 	Per Guidelines AZ 1 & AZ 6	Yes.	Per Guidelines RZ 1 & RZ 3.	Where deemed appropriate and as per Guideline EMZ 1.	Environmental Management Zone.
Private Reserves: <ul style="list-style-type: none"> Conservation Covenant Private Nature Reserve Private Sanctuary Stewardship Agreement Part 5 Agreements 	Private reserves existing on privately owned land. Some of these reserves will form part of a Whole Farm Plan so should be considered in context with surrounding land.	No Unless: <ul style="list-style-type: none"> managed in conjunction with productive agricultural land. It is to provide a consistent zoning pattern. 	Per Guidelines AZ 1 & AZ 6	Yes.	Per Guidelines RZ 1 & RZ 3.	Where deemed appropriate and as per Guideline EMZ 1 or LCZ 1 & LCZ 2.	Environmental Management Zone or Landscape Conservation Zone.

Use	Rationale	Agriculture Zone	Justification	Rural Zone	Justification	Further Consideration	Alternate Zone
Land Capability Class 6 and 7	Class 6 Land is described as; Land marginally suitable for grazing because of severe limitations. This land has low productivity, high risk of erosion, low natural fertility or other limitations that severely restrict agricultural use. This land should be retained under its natural vegetation cover. Class 7 Land is described as; Land with very severe to extreme limitations which make it unsuitable for agricultural use. (Grose 1999)	Yes. <ul style="list-style-type: none">If farmed in conjunction with a 'medium to large-scale' agricultural enterprise (eg. broadacre dryland grazing enterprise).	Mapped as Unconstrained.	Yes. <ul style="list-style-type: none">If there are a minimum of three titles appropriate to be zoned Rural.	Per Guidelines RZ 1 & AZ 6		
Utilities	Minor Utilities are listed as a no permit required in either zone, whereas all other utilities are permitted.	Yes. <ul style="list-style-type: none">If surrounded by land which will be zoned as Agriculture.	Mapped in Land Potentially Suitable for Agriculture Layer.	Yes. <ul style="list-style-type: none">If surrounded by land which will be zoned as Rural.		Zoning of utilities should reflect a consistent zoning pattern with surrounding zoning. It may be considered appropriate to zone significant utilities to an alternate zone.	Utilities Zone.
Business & Professional Services	This Use is prohibited in the Ag Zone, so titles with this use should only be zoned Agriculture under exceptional circumstances.	No. Unless: <ul style="list-style-type: none">Is connected to an agricultural enterprise.Is surrounded by land which will be zoned Agriculture and a cluster of three titles cannot be developed to create an alternate zone.	Mapped in Land Potentially Suitable for Agriculture Layer.	Yes.	AZ 6 & RZ 3.	If connected to an alternate more appropriate zone, then alternate zoning should be considered.	Various.
Domestic Animal Breeding, Boarding or Training	This use is permitted in the Rural Zone and is Discretionary in the Ag Zone.	No. Unless: <ul style="list-style-type: none">Is associated with an existing enterprise that will be zoned Agriculture.Is surrounded by land that will be zoned Agriculture.	Mapped in Land Potentially Suitable for Agriculture Layer.	Yes.	AZ 6 & RZ 3.		
Educational & Occasional Care	This use is permitted in Rural Zone if associated with Resource Development or Resource Processing, otherwise it is discretionary. It is also discretionary in the Ag Zone.	No. Unless: <ul style="list-style-type: none">Is associated with an existing enterprise that will be zoned Agriculture.Is surrounded by land that will be zoned Agriculture.	Mapped in Land Potentially Suitable for Agriculture Layer.	Yes. <ul style="list-style-type: none">If surrounded by land which will be zoned as Rural.	AZ 6 & RZ 3.	If connected to an alternate more appropriate zone, then alternate zoning should be considered.	Various.

Use	Rationale	Agriculture Zone	Justification	Rural Zone	Justification	Further Consideration	Alternate Zone
Emergency Services	This use is permitted in the Rural Zone but is prohibited in the Ag Zone.	No. <ul style="list-style-type: none"> Unless not appropriate to zone differently. 	Per Guidelines AZ 1 & AZ 6	Yes.	AZ 6 & RZ 3.	An alternate zone may be considered more appropriate. If surrounded by land which will be zoned Agriculture, spot zoning of a more appropriate zone maybe worth considering.	Various.
Food Services	This use is permitted in both zones if it is associated with resource development or resource processing, otherwise it is discretionary in both zones.	Yes. <ul style="list-style-type: none"> If associated with an existing enterprise that will be zoned Agriculture. If surrounded by land that will be zoned Agriculture. 	Mapped in Land Potentially Suitable for Agriculture Layer.	Yes. <ul style="list-style-type: none"> If associated with an existing enterprise that will be zoned Rural. If surrounded by land that will be zoned Rural. 	Per Guidelines RZ 2 & RZ 3.	If connected to an alternate more appropriate zone, then alternate zoning should be considered.	Various.
General Retail & Hire	This use is permitted in both zones if it is associated with resource development or resource processing, otherwise it is discretionary in both zones.	No. Unless: <ul style="list-style-type: none"> Is associated with an existing enterprise that will be zoned Agriculture. Is surrounded by land that will be zoned Agriculture. 	Mapped in Land Potentially Suitable for Agriculture Layer.	Yes. <ul style="list-style-type: none"> If associated with an existing enterprise that will be zoned Rural If surrounded by land that will be zoned Rural. 	Per Guidelines RZ 2 & RZ 3.	If connected to an alternate more appropriate zone, then alternate zoning should be considered.	Various.
Manufacturing and Processing	This use is permitted in the Rural Zone if for the processing of materials from extractive industries, otherwise it is discretionary. The use is discretionary in the Ag Zone if it is for the manufacturing of agricultural equipment or the processing of materials from extractive industries otherwise it is prohibited.	No. Unless: <ul style="list-style-type: none"> Is for manufacturing of agricultural equipment and surrounded by land that will be zoned Agriculture. Is for processing of materials from extractive industries and surrounded by land that will be zoned Agriculture. 	Mapped in Land Potentially Suitable for Agriculture Layer.	Yes.	Per Guidelines RZ 2 & RZ 3.	If connected to an alternate more appropriate zone, then alternate zoning should be considered.	Various.
Pleasure Boat Facility	This use is permitted in the Rural Zone if it is for a boat ramp otherwise it is discretionary. The use is prohibited in the Ag Zone.	No. <ul style="list-style-type: none"> Unless not appropriate to zone differently. 	Per Guidelines AZ 1 & AZ 6	Yes.	Per Guidelines RZ 2 & RZ 3.	If connected to an alternate more appropriate zone, then alternate zoning should be considered.	Various.
Research & Development	This use is permitted in the Rural Zone if associated with resource development or resource processing, otherwise it is discretionary. It is discretionary in the Ag Zone	No. Unless: <ul style="list-style-type: none"> Is associated with an existing enterprise that will be zoned Agriculture. Is surrounded by land that will be zoned Agriculture. 	Mapped in Land Potentially Suitable for Agriculture Layer.	Yes.	Per Guidelines RZ 2 & RZ 3.	If connected to an alternate more appropriate zone, then alternate zoning should be considered.	Various.

Use	Rationale	Agriculture Zone	Justification	Rural Zone	Justification	Further Consideration	Alternate Zone
Storage	This use is permitted in the Rural Zone and discretionary in the Ag Zone if for; a contractor's yard, freezing and cooling storage, grain storage, a liquid, solid or gas fuel depot, or a woodyard. Otherwise it is discretionary in the Rural Zone and prohibited in the Ag Zone.	No. Unless: <ul style="list-style-type: none"> Is associated with an existing enterprise that will be zoned Agriculture. Is surrounded by land that will be zoned Agriculture. 	Mapped in Land Potentially Suitable for Agriculture Layer.	Yes.	Per Guidelines RZ 2 & RZ 3.	If connected to an alternate more appropriate zone, then alternate zoning should be considered.	Various.
Visitor Accommodation	This use is permitted in the Rural Zone if for accommodation within an existing building, otherwise it is discretionary. The use is discretionary in the Ag Zone.	No. Unless: <ul style="list-style-type: none"> Is associated with an existing enterprise that will be zoned Agriculture. Is surrounded by land that will be zoned Agriculture. 	Mapped in Land Potentially Suitable for Agriculture Layer.	Yes.	Per Guidelines RZ 2 & RZ 3.	If connected to an alternate more appropriate zone, then alternate zoning should be considered.	Various.
Bulky Goods Sales	This use is discretionary in the Ag and Rural Zones if for; a supplier for extractive industry, resource development or resource processing, a garden & landscape supplier, or a timber yard. If for Rural supplies is also discretionary in the Rural Zone.	No. Unless: <ul style="list-style-type: none"> Is associated with an existing enterprise that will be zoned Agriculture. Is surrounded by land that will be zoned Agriculture. 	Mapped in Land Potentially Suitable for Agriculture Layer.	Yes.	Per Guidelines RZ 2 & RZ 3.	If connected to an alternate more appropriate zone, then alternate zoning should be considered.	Various.
Community Meeting & Entertainment	This use is discretionary in the Rural Zone and prohibited in the Ag Zone.	No. <ul style="list-style-type: none"> Unless not appropriate to zone differently. 	Per Guidelines AZ 1 & AZ 6	Yes. <ul style="list-style-type: none"> If surrounded by land that will be zoned Rural. 	Per Guidelines RZ 2 & RZ 3.	If connected to an alternate more appropriate zone, then alternate zoning should be considered.	Various.
Crematoria & Cemeteries	This use is discretionary in the Rural Zone and prohibited in the Ag Zone.	No. <ul style="list-style-type: none"> Unless not appropriate to zone differently. 	Per Guidelines AZ 1 & AZ 6	Yes. If surrounded by land that will be zoned Rural.	Per Guidelines RZ 2 & RZ 3.	If connected to an alternate more appropriate zone, then alternate zoning should be considered.	Various.
Custodial Facility	This use is discretionary in the Rural Zone and prohibited in the Ag Zone.	No. <ul style="list-style-type: none"> Unless not appropriate to zone differently. 	Per Guidelines AZ 1 & AZ 6	Yes. <ul style="list-style-type: none"> If surrounded by land that will be zoned Rural. 	Per Guidelines RZ 2 & RZ 3.	If connected to an alternate more appropriate zone, then alternate zoning should be considered.	Various.
Motor Racing Facility	This use is discretionary in the Rural Zone and prohibited in the Ag Zone.	No. <ul style="list-style-type: none"> Unless not appropriate to zone differently. 	Per Guidelines AZ 1 & AZ 6	Yes. <ul style="list-style-type: none"> If surrounded by land that will be zoned Rural. 	Per Guidelines RZ 2 & RZ 3.	If connected to an alternate more appropriate zone, then alternate zoning should be considered.	Various.
Recycling & Waste Disposal	This use is discretionary in the Rural Zone and prohibited in the Ag Zone.	No. <ul style="list-style-type: none"> Unless not appropriate to zone differently. 	Per Guidelines AZ 1 & AZ 6	Yes. <ul style="list-style-type: none"> If surrounded by land that will be zoned Rural. 	Per Guidelines RZ 2 & RZ 3.	If connected to an alternate more appropriate zone, then alternate zoning should be considered.	Various.

Use	Rationale	Agriculture Zone	Justification	Rural Zone	Justification	Further Consideration	Alternate Zone
Service Industry	This use is discretionary in the Rural Zone is associated with extractive industry, resource development or resource processing, otherwise it is prohibited. It is prohibited in the Ag Zone.	No. <ul style="list-style-type: none"> Unless not appropriate to zone differently. 	Per Guidelines AZ 1 & AZ 6	Yes. <ul style="list-style-type: none"> If associated with an existing primary industry enterprise. If surrounded by land that will be zoned Rural. 	Per Guidelines RZ 2 & RZ 3.	If connected to an alternate more appropriate zone, then alternate zoning should be considered.	Various.
Sports & Recreation	This use is discretionary in the Rural Zone and prohibited in the Ag Zone.	No. <ul style="list-style-type: none"> Unless not appropriate to zone differently. 	Per Guidelines AZ 1 & AZ 6	Yes. <ul style="list-style-type: none"> If surrounded by land that will be zoned Rural. 	Per Guidelines RZ 2 & RZ 3.	If connected to an alternate more appropriate zone, then alternate zoning should be considered.	Various.
Tourist Operation	This use is discretionary in both the Rural and Ag Zones.	Yes. <ul style="list-style-type: none"> If surrounded by land that will be zoned Agriculture. 	Mapped in Land Potentially Suitable for Agriculture Layer	Yes. <ul style="list-style-type: none"> If surrounded by land that will be zoned Rural. 	Per Guidelines RZ 2 & RZ 3.	If connected to an alternate more appropriate zone, then alternate zoning should be considered.	Various.
Transport Depot & Distribution	This use is discretionary in the Rural and is discretionary in the Ag Zone if for the transportation and distribution of agricultural produce and equipment, otherwise it is prohibited.	No. Unless: <ul style="list-style-type: none"> Is associated with an existing enterprise that will be zoned Agricultural. Is surrounded by land that will be zoned Agriculture. 	Mapped in Land Potentially Suitable for Agriculture Layer.	Yes. <ul style="list-style-type: none"> If surrounded by land that will be zoned Rural. 	Per Guidelines RZ 2 & RZ 3.	If connected to an alternate more appropriate zone, then alternate zoning should be considered.	Various.
Minor Roads & Road Reserves (not on the Road hierarchy 1-5)		Yes. <ul style="list-style-type: none"> If is the prevailing surrounding zone. 		Yes. <ul style="list-style-type: none"> If is the prevailing surrounding zone. 			

Table 6 describes the general resource requirements for various agricultural land uses.

Table 6. Resource Requirements for Various Land Uses

Resource	Livestock			Broad acre crops		Vegetables		Berries	Orchard fruits & vines	Nurseries & cut flowers	Forestry plantations
	Sheep	Cattle	Dairy	Cereals	Others	Processed	Un-processed				
Land Capability	LC3-6	LC 3-5/6	LC 3-5	LC 1-4	LC 1-4	LC 1-4	LC 1-4	LC 1-4/5	LC 1-4/5	LC 1-4 or N/A	LC 4-6
Minimum paddock sizes	No minimum	No minimum	To suit grazing	10-15 ha min.	5-10 ha min.	10 ha min.	10 ha min.	2-4 ha	2-5 ha	2-4 ha min.	10-20 ha min.
Farm size for a "viable" business	5,000-10,000 dse (area depends on rainfall)	5,000-10,000 dse (area depends on rainfall)	Capacity for at least 350 milkers	Broadacre cropping will be a mix of crops in rotation with pasture and livestock. The area required for viability is highly variable.				4-10 ha	10-30 ha	5-10 ha	10-20 ha min.
Irrigation water	Not required	Not required	Preferable 4-6ML/ha.	Not necessary	Mostly necessary, 2-3 ML/ha	Necessary, 2-6ML/ha	Necessary, 2-6ML/ha	Necessary, 1-3ML/ha	Necessary, 2-3ML/ha	Necessary, small quantity	Not required
Climate specifications	Lower rainfall preferred for wool	No preferences	High rainfall (or irrigation)	Susceptible to spring frosts. Difficult to harvest in humid coastal conditions	Susceptible to spring frosts	Susceptible to spring frosts	Susceptible to spring frosts	High rainfall (or irrigation)	Susceptible to spring frosts for vines. Susceptible to summer rains for cherries. Susceptible to disease in high humidity in March for vines	Preferably low frost risk area	Rainfall above 700-800 mm
Infrastructure	Yards & shed	Yards, crush, loading ramp	Dairy shed	Minimal	Irrig facilities	Irrig facilities	Irrig facilities	Irrig facilities	Irrig facilities	Plastic/glass houses	None
Plant & equipment	Minimal	Minimal; hay feeding plant	General purpose tractor, hay/silage feeding	Tractors & implements	Tractors & implements	Tractors & implements	Tractors & implements	Tractors & implements	Tractors & implements	Small plant	None
Market contracts	Not required	Not required	Necessary	Not required	Generally required	Necessary	Highly preferred	Desired	Desired	Contracts preferable	Varies
Labour	Medium	Low	High	Low	Low	Low	Variable/medium	High at times	High at times	High at times	Low
Local services	Shearers	Vet	Vet, dairy shed technician	Agronomist, contractors	Agronomist, contractors	Agronomist, contractors	Agronomist, contractors	Pickers	Pickers	Pickers	Contractors
Regional suitability	Dryer areas good for wool. All areas suitable; larger farm sizes needed for viability.	All areas suitable. Suits small farms.	Economics dictate large area necessary. Needs high rainfall or large water resource for irrigation.	Generally large areas, so need larger paddocks and larger farms.	Generally large areas, so need larger paddocks and larger farms.	Medium sized paddocks & farms; area for crop rotations and irrigation.	Medium sized paddocks & farms; area for crop rotations and irrigation;	Specific site requirements; proximity to markets and transport/carriers.	Specific site requirements; potentially available in most municipalities.	Proximity to markets is important.	Low rainfall areas less preferred.
Recommended min. buffer for individual dwellings (1)	50m to grazing area	50m to grazing area	50m to grazing area, 250m to dairy shed and 300m to effluent storage or continuous application areas (2)	200m to crop	200m to crop	200m to crop	200m to crop	200m to crop	200m to crop	200m to crop	Site specific (1) 20m for inner zone and additional 15m for outer zone on flat ground (3)
Recommended min. buffer for residential areas (1)	50m to grazing area	50m to grazing area	50m to grazing area, 500m to dairy shed	300m to crop	300m to crop	300m to crop	300m to crop	300m to crop	300m to crop	300m to crop	Site specific (1)

(1) From (Learmonth, Whitehead, Boyd & Fletcher, 2007). These are industry specific recommended setbacks which do not necessarily align with Planning Scheme Setback requirements. Council should ensure they are aware of attenuation setback requirements for specific activities.

APPENDIX 2 – POTENTIALLY CONSTRAINING MANAGEMENT ACTIVITIES

Tables 7 to 12 describe the frequency and intensity of the management activities and the associated issues likely to constrain this use for each of the agricultural land use categories in Table 6. Tables 7 to 12 are a broad guide only and site specific, cultivar specific and seasonal variations occur. Aside from these specific issues associated with these activities Learmonth et. al. (2007) also provides a comprehensive list of potential land use conflict issues (see Table 13). Tables 7 to 12 provide the rationale behind the recommended minimum buffers contained in Table 6.

Table 7. Farming activity - Grazing

Management Activity	Issues likely to constrain the activity	Comment
Pasture sowing Herbicide spraying Cultivation Drilling	Spray drift, noise Noise, dust Noise, dust	Ground based or aerial – often very early in the morning
Graze	Noise at certain time eg weaning calves Livestock trespass	Tractor
Forage conservation Mow, Rake, Bale, Cart bales	Noise, dust	Tractor
Fertiliser spreading	Noise	Tractor
Insecticide spraying	Spray drift Noise	Ground based or aerial – often very early in the morning
Irrigation	Spray drift Noise	Potentially turbid and not potable Pump

Table 8. Farming Activity – Poppy crop

Management Activity	Issues likely to constrain the activity	Comment
Pre-cultivation spray	Spray drift Noise	Ground based or aerial – often very early in the morning
Cultivation – several passes (2-4)	Noise Dust	Tractor Dust is unlikely as soils are likely to be moist
Lime spreading	Noise	Tractor
Drilling	Noise	Tractor
Herbicide sprays (2)	Spray drift Noise	Ground based or aerial often very early in the morning
Insecticide & fungicide sprays (2-3)	Spray drift Noise	Ground based or aerial – likely to be very early in the morning
Irrigation	Spray drift Noise	Potentially turbid and not potable Pump
Harvesting	Noise	Tractor
Potential forage crops after harvesting, cultivation Broadcast seed & harrow, Irrigate	Noise Noise Noise, spray drift	Tractor Tractor Pump

Table 9. Farming Activity - Potato crop

Management Activity	Issues likely to constrain the activity	Comment
Pre-cultivation spray	Spray drift Noise	Ground based or aerial – often very early in the morning
Cultivation – several passes (2-4)	Noise Dust	Tractor Dust is unlikely as soils are likely to be moist
Planting	Noise	
Herbicide spray	Spray drift Noise	Ground based or aerial – often very early in the morning
Insecticide & fungicide sprays (5+)	Spray drift Noise	Ground based or aerial – likely to be very early in the morning
Fertiliser Spreading	Noise Odour	Tractor From manure/organic fertilisers
Irrigation	Spray drift Noise	Potentially turbid and not potable Pump
Harvesting	Noise	Tractor

Table 10. Farming activity – Strawberries (3 yr rotation)

Management Activity	Issues likely to constrain the activity	Comment
Fungicide	Spray drift Noise	Ground based likely to be very early in the morning
Herbicide spraying	Spray drift Noise	Ground based likely to be very early in the morning
Cultivation	Noise	
Fertiliser	Spray drift Noise	Ground based likely to be very early in the morning
Planting	By hand Noise	Tractor & traffic
Inter-row maintenance herbicide and/or mowing	Spray drift Noise	Ground based likely to be very early in the morning
Irrigation	Spray drift Noise	
Harvesting Dec -March	By hand Noise	Tractor & traffic

Table 11. Farming activity – Cherries (after establishment)

Management Activity	Issues likely to constrain the activity	Comment
Fungicide spraying	Spray drift Noise	Ground based likely to be very early in the morning
Herbicide spraying	Spray drift Noise	Ground based likely to be very early in the morning
Insecticide spraying	Spray drift Noise	Ground based likely to be very early in the morning
Irrigation	Spray drift Noise	
Frost fans	Noise	
Harvesting Dec - March	By hand or machine Noise	Tractor & traffic
Pruning June – Sept	By hand	Tractor & traffic

Table 12. Farming activity – Vines (after establishment)

Management Activity	Issues likely to constrain the activity	Comment
Fungicide spraying Sept – March (max 10)	Spray drift Noise	Ground based likely to be very early in the morning
Herbicide spraying Autumn and summer 2-3	Spray drift Noise	Ground based likely to be very early in the morning
Irrigation	Spray drift Noise	
Frost fans	Noise	
Pruning, training June – Sept	By hand	
Harvesting March -May	By hand or machine Noise	Tractor & traffic

Table 13. Typical rural land use conflict

Living and Working in Rural Areas. A handbook for managing land use conflict issues on the NSW North Coast. Learmonth, R., Whitehead, R., Boyd, B., and Fletcher, S. n.d.

Table 1. Typical rural land use conflict issues in the north coast region

Issue	Explanation
Absentee landholders	Neighbours may be relied upon to manage issues such as bush fires, straying stock, trespassers etc. while the absentee landholder is at work or away.
Access	Traditional or informal 'agreements' for access between farms and to parts of farms may break down with the arrival of new people.
Catchment management	Design, funding and implementation of land, water and vegetatin management plans are complicated with larger numbers of rural land-holders with differing perspectives and values.
Clearing	Neighbours may object to the clearing of trees, especially when it is done apparently without approvals or impacts on habitat areas or local amenity.
Cooperation	Lack of mutual co-operation through the inability or unwillingness on behalf individuals to contribute may curtail or limit traditional work sharing practices on-farm or in the rural community.
Dogs	Stray domestic dogs and wild dogs attacking livestock and wildlife and causing a nuisance.
Drainage	Blocking or changing drainage systems through a lack of maintenance or failure to cooperate and not respect the rights of others.
Dust	Generated by farm and extractive industry operations including cultivating, fallow (bare) ground, farm vehicles, livestock yards, feed milling, fertiliser spreading etc.
Dwellings	Urban or residential dwellings located too close to or affecting an existing rural pursuit or routine land use practice.
Electric fences	Electric shocks to children, horses and dogs. Public safety issues.
Fencing	Disagreement about maintenance, replacement, design and cost.
Fire	Risk of fire escaping and entering neighbouring property. Lack of knowledge of fire issues and the role of the Rural Fire Service.
Firearms	Disturbance, maiming and killing of livestock and pest animals, illegal use and risk to personal safety.
Flies	Spread from animal enclosures or manure and breeding areas.
Heritage management	Destruction and poor management of indigenous and non indigenous cultural artefacts, structures and sites.
Lights	Bright lights associated with night loading, security etc.
Litter	Injury and poisoning of livestock via wind blown and dumped waste. Damage to equipment and machinery. Amenity impacts.
Noise	From farm machinery, scare guns, low flying agricultural aircraft, livestock weaning and feeding, and irrigation pumps.
Odours	Odours arising from piggeries, feedlots, dairies, poultry, sprays, fertiliser, manure spreading, silage, burning carcasses/crop residues.
Pesticides	Perceived and real health and environmental concerns over the use, storage and disposal of pesticides as well as spray drift.
Poisoning	Deliberate poisoning and destruction of trees/plants. Spray drift onto non-target plants. Pesticide or poison uptake by livestock and human health risks.
Pollution	Water resources contaminated by effluent, chemicals, pesticides, nutrients and air borne particulates.
Roads	Cost and standards of maintenance, slow/wide farm machinery, livestock droving and manure.
Smoke	From the burning of crop residues, scrub, pasture and windrows.
Soil erosion	Loss of soil and pollution of water ways from unsustainable practices or exposed soils. Lack of adequate groundcover or soil protection.
Straying livestock	Fence damage, spread of disease, damage to crops, gardens and bush/rainforest regeneration.
Theft/vandalism	Interference with crops, livestock, fodder, machinery and equipment.
Tree removal	Removal of native vegetation without appropriate approvals. Removal of icon trees and vegetation.
Trespass	Entering properties unlawfully and without agreement.
Visual/amenity	Loss of amenity as a result of reflective structures (igloos, hail netting), windbreaks plantings (loss of
Water	Competition for limited water supplies, compliance with water regulations, building of dams, changes to flows. Stock access to waterways. Riparian zone management.
Weeds	Lack of weed control particularly noxious weeds, by landholders.
<i>Based on: Smith, RJ (2003) Rural Land Use Conflict: Review of Management Techniques – Final Report to Lismore Living Centres (PlanningNSW).</i>	

Appendix 3 provides the background rationale for the development of the Enterprise Scale Analysis Tool. Discussion around enterprise ‘viability’ is for context but does not specifically relate to the Decision Tree/Guidelines process for determining suitable zoning of areas of interest.

Rural land – land use and characteristics

Definitions, planning objectives & responses.

Potential Land use	Definition	Resources (general characteristics)	Connectivity	Objectives for planning	Planning responses
'Medium to Large-scale' Characteristics	Likely to be viable.	Land area comprising a number of titles farmed together. Total land area for mixed farming is likely to be 200ha-500ha or more, depending on Land Capability, water resources and enterprise mix. Land area for vineyards, orchards or berries is likely to be 10ha-20ha.	Few constraints.	Retain current and future agricultural productive potential.	If all indicators are present, Agriculture zoning is preferred.
	Capacity to produce sufficient profit for a family and full-time employment of one person.	Water available for irrigation for smaller holdings.	Well connected to other unconstrained titles,		
			Expansion and/or intensification likely in the future.		
'Small-scale' Characteristics	Land used for some agriculture.	Generally 8-40 ha in area and a single title.	Some Constraints.	Provide for ‘small-scale’ where the land cannot be used for ‘medium to large-scale’ farming enterprises.	If agricultural use potential is good; ie if it has all or some of the following characteristics; Few Constraints, LC 1-3, water available, well connected, currently no house, currently supporting high value agriculture then treat as for ‘medium to large-scale’.
	Agricultural activity may be profitable, however generally unable to produce sufficient profit to demonstrate viability.	Water for irrigation less likely, but possible, depending on location and cost of supply.	Residence on the title.		
	Occupant/family needs to be supported by off-farm income.	Land Capability class generally 4-5.	Residences in close proximity.	Can contribute to buffers at the rural/residential interface to provide for gradational impacts.	If the title has value as a buffer between residential use and ‘medium to large-scale’ agriculture then could be considered for Rural or Ag Zone, depending on what is more appropriate for a consistent zoning pattern.
'Domestic-scale' Characteristics			Low connectivity to unconstrained titles.	Provide opportunities for ‘small-scale’ enterprises without risking loss of the agricultural resource.	If the title is part of a cluster of lots with ‘small-scale’ characteristics where potential is lower, the land area is in effect already converted from ‘medium to large-scale’ agriculture and would be considered an established Rural area.
'Domestic-scale' Characteristics	Little or no use for Agriculture.	Generally 1-8 ha in area.	Moderate to significant Constraints.	Provide opportunities for rural residential lifestyle choice without risking loss of the agricultural resource. May contribute to buffering at the rural/residential interface.	If the title is part of a cluster of lots with ‘domestic-scale’ characteristics where potential is negligible, the land area is in effect already converted and would be considered an established Rural Living area. Agricultural use potential is always low, however, subdivision and intensification of residential use needs to consider the context of nearby ‘medium to large-scale’ and ‘small-scale’ activities and the potential to achieve appropriate buffering.
		Land Capability variable.	Residence on the title.		
		Water for irrigation unlikely.	Residences in close proximity.		
'Domestic-scale' Characteristics			Little or no connectivity to unconstrained titles.		

ENTERPRISE SCALE ANALYSIS

Enterprise Scale Analysis and the associated definitions were first developed in 2012 for Northern Tasmania Development in response to a request for clarification of the methodologies and tools and their application in understanding agricultural potential for planning purposes. In this project a range of characteristics including current enterprise activities, Land Capability and irrigation water resources and connectivity were analysed at the holding level enabling titles to be classified into three broad scale characteristic categories; 'commercial', 'hobby' and 'lifestyle'³. For the purposes of this Decision Tree the terminology has been changed to 'medium to large-scale', 'small-scale' and 'domestic-scale'.

Agricultural land use is defined under the State Policy on the *Protection of Agricultural Land 2009* as; “*use of land for propagating, cultivating or harvesting plants or for keeping and breeding of animal, excluding domestic animals and pets. It includes the handling, packing or storing of produce for dispatch to processors. It includes controlled environment agriculture and plantation forestry*”.

Hence clearly the Policy does not include domestic activities such as backyard fruit and vegetable gardening “agriculture”. In 2015 the Australian Bureau of Statistics (ABS) increased the minimum value of Estimated Value of Agricultural Output (EVAO) an enterprise needs to be included in their survey data. Previously the EVAO was \$5,000, this has now been increased to \$40,000. Given that the statistics no longer capture enterprise activity contributing less than \$40 000, our methodology is very conservative in terms of retaining land and water resources which have potential to contribute to the EVAO. We would still consider an EVAO of \$5 000 - \$40 000 as fitting the small scale and provided other characteristics indicate there is some potential for agricultural use these enterprises will be retained in the Agricultural zone.

This is a useful tool for Councils to utilise to assist them with categorising the type of settlements and enterprises that are occurring within an area of interest after identifying the type of agricultural activity (if any) occurring on the land and available resources. Being able to categorise the scale of the individual enterprises currently existing will assist in making decisions around what is the appropriate zoning of an area.

Viable Holding

ABARE statistics show that a very high proportion of farms in the South East Region are relatively small and a lot of the small farms are reliant on off-farm income. In fact, 51% of farms have an EVAO⁴ of less than \$50 000 and produce approximately 5% of the South East region's agricultural output.⁵ In contrast, the largest 14% of farms had an EVAO greater than \$350 000 and they produce 74% of region's agricultural output. The remaining 35% of farms would experience a highly variable degree of existing and potential output and overall contribution to the agricultural sector. National data shows similar trends with 10% of farms producing more than 50% of the agricultural output⁶.

³ Adapted from Ketelaar, A and Armstrong, D. 2012, *Discussions paper – Clarification of the Tools and Methodologies and Their Limitations for Understanding the Use of Agricultural Land in the Northern Region* - written for Northern Tasmania Development.

⁴ Estimated Value of Agricultural Output (EVAO) is a measure of the value of production from farms and a measure of the size of their business and is somewhat similar to turn-over.

⁵ Australian Bureau of Agricultural and Resource Economics and Science (ABARES), *About my Region - "Agriculture, Fisheries and Forestry in the South East region of Tasmania, 2013"* based on ABS census data from 2010-11.

⁶ Australian Government - Australian Institute of Health and Welfare, *Australia's Food and Nutrition 2012 in brief*, available online at <http://www.aihw.gov.au/WorkArea/>

Agricultural output will be improved by the smaller farms being combined to create fewer but larger scale farming businesses, and this has occurred to some extent in some areas. For example, at a national level the average size of farms has increased by 23% whilst at the same time farm numbers are decreasing³. Farming practices are changing with the use of more intensive production systems and techniques. Where there is scope for farms to increase in land area there is also scope for improving economies of scale and thus becoming more profitable. Medium sized to larger titles which are not encumbered by dwellings are more attractive for increasing land area for farms as the purchaser is paying only for agricultural assets.

Bigger is not always better, but it is clear that most Tasmanian farms are too small to be efficient, profitable and 'viable'. As a consequence, the Enterprise Scale analysis tool reflect the economic realities of agricultural land use by recognising the influencing characteristics that determine whether the land is likely to be utilised for agriculture through agglomeration with other surrounding titles or individually. Land and water resources suitable for agriculture are a limited resource. The Enterprise scale analysis tool provides the rationale behind ensuring that land and water that has the potential to contribute to the Agricultural Output of the region is protected in the long term for agricultural use and that those titles with resources that are already compromised for this use are identified and zoned appropriately.

In our opinion a viable farm is one producing sufficient income to provide for a family and provide full time employment for one person. On this basis the long-term viability of farms producing less than \$150,000 Gross Income is questionable. Viable holdings are generally larger than 40 hectares and they usually comprise of more than one title. The difficulty lies in applying terms such as "viable" to single titles. There is nothing which binds these titles together other than ownership or leasing, hence applying planning responses at a title level becomes difficult because ownership is ephemeral. Re-allocating the Rural Resource zone should seek to address safeguarding any remaining capacity for a title to contribute to a 'viable' holding and this requires consideration of the title context in the areas of interest. If a title has 'medium to large-scale' characteristics in our opinion it has the potential to contribute to a 'viable' holding.

Applying spatial definitions and land area thresholds is difficult and can lead to misrepresentation. For example, if a typical 'small-scale' farm is a single title of 8-40ha, it does not mean that titles greater than 40ha automatically are 'viable' farms. It means that single titles less than 40ha and not farmed in conjunction with other titles have reduced potential to contribute to a 'viable' holding, especially if they currently have a house on them.

Where non-agricultural development is competing with agricultural development for the same land resources determining where the line is drawn for the Agricultural Zone should be based on current land use and surrounding land use and determining the consolidated areas that are already converted. This becomes more difficult when viticulture, orchards and other high-value enterprises are included in the mix of potential enterprise options as the land and water resources for 'viable' enterprise in conventional viticulture can be as small as 20ha of Class 4/5 land and 40ML of water and in some instances even smaller. Hence even relatively small titles have the capacity to contribute to a 'viable' holding under these circumstances. The cluster enterprises described in the ALMP identify that irrigated perennial horticultural operation can occur on small areas and 10ha is an appropriate conservative threshold to apply to title size. Key determinant as to the long-term viability of an enterprise on a smaller title will likely be access to water resources, whether it is farmed in conjunction, surrounding constraints and whether there are other non-agricultural activities associated with the operation (for example café). Where the agricultural activity has potential for long-term viability the appropriate zone is the Agricultural zone. Where it is constrained in a significant way and supports mixed use the more appropriate zone is generally the Rural Zone.

If, through zoning, the number of non-agricultural developments in the 'wedges' or at the interface are increased then the constraints on the capacity to conduct agriculture on the adjacent land may also increase if densities and buffers are not appropriately considered. However, where there is consolidated non-agricultural activity there is opportunity for alternate 'Rural uses' without risk of compromising the agricultural productivity of the region. Historically incremental conversion to non-agricultural use has complicated the issues.

APPENDIX 4. LAND CAPABILITY DEFINITIONS FROM GROSE (1999)

CLASS 1. Land well suited to a wide range of intensive cropping and grazing activities. It occurs on flat land with deep, well drained soils, and in a climate that favours a wide variety of crops. While there are virtually no limitations to agricultural usage, reasonable management inputs need to be maintained to prevent degradation of the resource. Such inputs might include very minor soil conservation treatments, fertiliser inputs or occasional pasture phases. Class 1 land is highly productive and capable of being cropped eight to nine years out of ten in a rotation with pasture or equivalent without risk of damage to the soil resource or loss of production, during periods of average climatic conditions.

CLASS 2. Land suitable for a wide range of intensive cropping and grazing activities. Limitations to use are slight, and these can be readily overcome by management and minor conservation practices. However, the level of inputs is greater, and the variety and/or number of crops that can be grown is marginally more restricted, than for Class 1 land.

This land is highly productive but there is an increased risk of damage to the soil resource or of yield loss. The land can be cropped five to eight years out of ten in a rotation with pasture or equivalent during 'normal' years, if reasonable management inputs are maintained.

CLASS 3. Land suitable for cropping and intensive grazing. Moderate levels of limitation restrict the choice of crops or reduce productivity in relation to Class 1 or Class 2 land. Soil conservation practices and sound management are needed to overcome the moderate limitations to cropping use. Land is moderately productive, requiring a higher level of inputs than Classes 1 and 2. Limitations either restrict the range of crops that can be grown or the risk of damage to the soil resource is such that cropping should be confined to three to five years out of ten in a rotation with pasture or equivalent during normal years.

CLASS 4. Land primarily suitable for grazing but which may be used for occasional cropping. Severe limitations restrict the length of cropping phase and/or severely restrict the range of crops that could be grown. Major conservation treatments and/or careful management is required to minimise degradation. Cropping rotations should be restricted to one to two years out of ten in a rotation with pasture or equivalent, during 'normal' years to avoid damage to the soil resource. In some areas longer cropping phases may be possible but the versatility of the land is very limited. (NB some parts of Tasmania are currently able to crop more frequently on Class 4 land than suggested above. This is due to the climate being drier than 'normal'. However, there is a high risk of crop or soil damage if 'normal' conditions return.)

CLASS 5. This land is unsuitable for cropping, although some areas on easier slopes may be cultivated for pasture establishment or renewal and occasional fodder crops may be possible. The land may have slight to moderate limitations for pastoral use. The effects of limitations on the grazing potential may be reduced by applying appropriate soil conservation measures and land management practices.

CLASS 6. Land marginally suitable for grazing because of severe limitations. This land has low productivity, high risk of erosion, low natural fertility or other limitations that severely restrict agricultural use. This land should be retained under its natural vegetation cover.

CLASS 7. Land with very severe to extreme limitations which make it unsuitable for agricultural use.