

# ARCHERTON LAND SYSTEM (Figure 30)

Area: 23 square kilometres  
1 percent of catchment

<i>Tiger Hill Land System</i>				<i>Tolmie Land System</i>
Topography	Slopes below plateau	Rolling plateau at about 900 m – 1100 m elevation	Slopes below plateau	
Climate	Average rainfall from about 1 000 mm to 1 250 mm. Growing season: November-April; cold winters. Estimated average temperatures: Jan 17° C; July 3° : Year 10°C. Estimated evapotranspiration: Jan 94 mm; July 10 mm.			
Parent Materials	Basalt of lower Tertiary age, mostly weather in-situ but steeper slopes are mantled with colluvium.			
Soils	Friable reddish gradation soils (sometimes light clays) with well structured subsoil.			
Vegetation	Open forest tending to closed forest messmate, narrow-leaf peppermint and candlebark gum	Open forest of manna gum with tall shrub stratum of blackwood and dense cover of bracken fern	Open forest tending to closed forest of manna gum, blue gum and narrow-leaf peppermint	
Land Use	Partly cleared, but unused; has a high water yield	Mostly cleared but now unused; dense cover of bracken fern. Has a high water yield	Partly cleared, but unused. Has a high water yield.	
Erosion Hazard		Generally low		
Erosion Status	Sound	Sound except for rilling of tracks.	Sound	
Potential Land Use	Suitable for specialised agriculture, particularly integrated pasture and vegetable growing. Because of stable well structured soils and high soil-moisture availability may be used with endangering catchment values			

## ARCHERTON LAND SYSTEM

(See Fig. 30)

Gently rolling to mildly hilly, basalt residuals at 900 m to 1000 m, and adjacent to the Tiger Hill and Tolmie land systems have been mapped as the Archerton land system (Plate 22). This land system is simpler than many of the others in the catchment and may be regarded as consisting of only one or two land units. It is fairly typical of basalt under high rainfall conditions in Victoria generally, but is unusual in that it is all at a fairly high elevation and receives a consistently high rainfall.

The area of this land system within the catchment is only about 23 square kilometres (1 per cent of the catchment). Similar areas occur immediately to the east of the catchment in the headwaters of the Fifteen Mile Creek. The total area of the land system is built up from numerous small areas, most of which are less than one square kilometre. Practically the whole land system is on "Older" basalt, but because of colluviation of basaltic material on the slopes, the basaltic influence sometimes extends beyond the actual boundaries of the residual. The land system is separated because of its different soils and because of its high land use potential.



*Plate 22. The cleared areas are mainly the basalt residuals of the Archerton land system at elevation about 900 m.*

The topography generally consists of rolling to hilly areas rising from the surrounding plateau. Slopes are not generally very steep and aspect affects are not particularly marked.

The climate is cool and wet. Rainfall averages between 1000 mm and 1250 mm per annum, although some areas receive more. A large proportion of the rain falls in winter, with some snow, although it does not lie for long. The growing season is from November to April and is limited by winter cold rather than by lack of soil moisture in summer. Frost is a feature of this environment and the cold winters are a limiting factor in the development of the area.

The vegetation of the area is characteristic and consists of an open forest of manna gum with blackwood and bracken fern. This contrasts with the vegetation of the surrounding land systems which is a mixed peppermint and gum forest where most of the gums are candlebarks. The side slopes of the basalt patches support open forest of messmate, narrow-leaf peppermint and candlebark gum, with manna gum, blue gum and peppermint on the eastern sides. At the highest rainfall end of this climatic range there are a few specimens of alpine ash present in the forest.

Much of the area has been cleared and then abandoned, apparently for several reasons which are discussed below. The bracken has thrived under these conditions and much of the land system has a continuous cover of dense bracken fern.

The characteristic soils of the land system are deep friable reddish gradational soils with well structured subsoil, although many tend to have more uniform profiles. There are limited areas of gleyed loams along the stream lines. Under forest conditions most of the fertility of the friable reddish gradational soils is concentrated in the top few centimetres of soil and decomposing litter, the layer that is disturbed by cultivation. The soils are not inherently fertile. Furthermore, their acid reaction and relatively high content of iron and aluminium oxides may result in the substantial fixation of any applied phosphorous. However, the physical characteristics of the soil are excellent and these make it particularly suitable for agricultural development.

At present very little of the land system is in active use. Some areas have been purchased and taken out of production by the Benalla Waterworks Trust. Those few farms still operating grow potatoes and maintain limited areas of pasture, mainly for cattle grazing. The level of development is generally low and the area suffers from isolation and lack of adequate transport facilities. It has however a high potential for specialised agriculture combined with grazing.

The erosion hazard is low because of the stable and permeable nature of the soils. The main hazard to hydrologic properties which may result from development, is in the drainage of tracks and the concentration of water along roadsides. A continued mono-culture of potatoes right down to, and in some cases, through the drainage lines, has, in similar areas elsewhere, resulted in some erosion and transportation of relatively small but conspicuous quantities of red suspended material into the streams. This is an important consideration in this area because part of the land system drains to the Loombah Weir which is the storage of the Benalla urban water supply.

Another possible cause for concern is biological pollution. However, the total numbers of people in the catchment to the reservoir would be very small, even if all the suitable land was put to agricultural use, so this is not considered to be a significant factor. Such areas are all at least nine kilometres from the reservoir. At this stage there are many wild pigs and dogs in the area in addition to the normal population of native animals. The itinerant human population may always pose a pollution risk but it is not considered that the contamination resulting from occupation of these potentially valuable lands in the headwaters of the catchment need constitute a serious threat to the water supply.

This area lies in the highest rainfall region in the catchment, but because of its fairly small area and high agricultural potential the water production from the Archerton land system can be given a lower priority than agricultural development. In any case because of the excellent physical properties of the soil the area could be developed for agriculture without any significant deterioration in catchment properties.

The stability of the area would depend on the establishment of perennial pastures and a satisfactory rotation between these and whatever cultivation intensive crops were grown. Under an adequate system of rotation, and with stream lines and stream banks left uncleared, there is little danger of significant soil pollution of the streams.