APPENDIX 1. NOTES TO ACCOMPANY LAND CAPABILITY RATING TABLES

1. Bearing capacity

This measurement was not taken. A simple, repeatable field measurement is being sought.

2. Coarse fragment sizes

Gravel:	2 - 60 mm
Cobbles:	60 - 200 mm
Stones:	200 - 600 mm
Boulders:	600 - 2000 mm

3. Depth of topsoil

This measurement has been excluded since major differences in the topsoil depth do not influence the performance or stability of an earthen dam. Topsoil depth only influences the quantity of overburden that needs to be scraped clear and kept for spreading back on the embankment to establish a grass cover, once the construction is completed.

4. Depth to hard rock or impermeable layer

This criterion provides a measure of the effectiveness of the soil profile in filtering the nutrient and bacterial content from the effluent. The EPA Septic Tank Code of Practice (1991) requires a depth of at least one metre.

5. Depth to seasonal watertable

The EPA Septic Tank Code of Practice (1991) requires a minimum of 1 m depth of unsaturated soil for the proper functioning of effluent disposal trenches. Ideally the groundwater table should be much lower than 1 m, thereby reducing the risk of a rising groundwater table influencing the effectiveness of the absorption trenches. The risk of surface salting problems also increases when a saline groundwater table rises to within 1-1.5 m of the soil surface.

6. Dispersibility

Sustainable land use requires that the soil be able to withstand the physical forces of cultivation and compaction without adverse structural change. Soil aggregate stability can be measured by the Emerson Aggregate Test (Emerson 1977). In the case of secondary roads, dispersion can significantly affect the condition of the road when slopes are greater than 4% only.

Code / Degree of dispersion

E1 : immediate and complete
E2 : immediate and partial
E3 : major, after reworking
E4 : minor, after reworking
E5a : major, after vigorous shaking
b : moderate, after vigorous shaking
c : minor, after vigorous shaking
d : very low, after vigorous shaking
e : ≡ E6 : no dispersion after vigorous shaking

Because of the close correlation between dispersible soils and high exchangeable sodium percentages in those soils, it is unnecessary to include both criteria in the capability rating table.

7. Electrical conductivity (µs cm^{-1})

The electrical conductivity of a 1:5 soil-water suspension is a good indicator of the total dissolved salts - soil salinity - in a soil (USDA 1954, Matters and Bozon 1989). A correlation between the electrical conductivity of soil samples taken from the 0 - 50 cm layer of the soil profile and soil salinity has been established (Table A1).

Table A1. The effects of electrical conductivity on plant growth

Class	Severity of salting	E.C. dS/m^{-1} *	Site characteristics
1	Nil/very low	< 0.3	Plant growth unaffected
2	Low	0.30 - 0.53	Growth of salt-sensitive plants, eg cereals and clover is restricted
3	Moderate	0.53 - 1.26	Patchy pasture growth; salt-sensitive plants are replaced with species that are more salt-tolerant
4	High	1.26 - 2.5	Small areas of bare ground; surviving plant species have high salt tolerance
5	Very high/severe	> 2.5	Large areas of bare ground; highly salt-tolerant plants; trees may be dead or dying

* NB: 1000 µs cm^{-1} = 1 ds m^{-1}

8. Distance zones

As the distance between an observer and an interesting land feature increases, the clarity and the visual impact of the scene diminishes. From a land management point-of-view, changes in land use and management practices become less obvious with distance from the passing observer. Three distance categories are used in the assessment of Scenic Value:

- foreground (fg): 0 - 0.5 km
- middleground (mg): 0.5 - 6.5 km
- background (bg): 6.5 - 16 + km

Note: It should be remembered that the landscape in any study area varies enormously and that a land capability rating for a given land use in a land unit is a generalisation. Specific sites within a land unit, on inspection, may vary markedly from the general rating for that area. For example, a site within an area deemed to have a High Scenic Quality and close to a busy highway should have a Class 1 rating for Scenic Value, but if that site is hidden from view behind a spur, the Scenic Value could be downgraded to say, Class 3, thereby allowing greater flexibility in land management practices.

9. Drainage

This parameter is the culmination of several criteria that influence the moisture status of the soil profile, viz slope, sub-surface and surface flow, water holding capacity, level of groundwater tables, perched or permanent, and permeability. Only because of its general usage, reasonable definition (McDonald *et al*. 1984) and direct relevance to effluent disposal fields, building foundations and secondary roads has this criterion been retained.

10. Flooding risk

Building regulations prohibit building on flood-prone land, therefore land with some risk of flooding must be identified. Flooding is unlikely to cause a septic tank to fail, however the risk of polluting the floodwaters with P, N and bacterial organisms increases with the number of effluent disposal fields involved. The dilution factor will be dependant on the quantity of floodwater.

Dams are built to intercept and store runoff water. It is not possible in these tables to distinguish between seasonal runoff and seasonal flooding; the latter poses a threat to the stability of the dam, and the risk of flooding will depend on the intensity and duration of rainfall, the run-off characteristics of the catchment and the land use within the catchment. The location of the dam and the design of the overflow structure can greatly reduce the adverse effect of floods.

11. Index for permeability - rainfall

This relationship has been included to take into account the situation where a strongly structured soil with very high permeability would be assessed as having a major limitation. In a dry climate, this would be correct because the soil would be drought-prone most of the year, however in a high rainfall area such a soil may be highly productive. Conversely a soil with low permeability may experience waterlogging for extended periods in a high rainfall area, but store sufficient moisture to extend the average growing season of a low rainfall area. A method of combining permeability and rainfall is shown in Table A2.

12. Linear shrinkage

The Linear Shrinkage and depth of solum can replace the value for reactivity of a soil. Reactivity is used in the Australian Standard AS 2870.2 (1990) p. 16, and is based on the depth of the clay layer and its shrink-swell capacity. Different areas of Victoria are identified, with 0.6 m depth being a common cut-off mark between two categories. A table comparing the two values with Classes 1 to 5 is required.

Table A2. Index for permeability/rainfall

Permeability		**Average annual rainfall (mm/year)**				
Estimated	**K_{sat} (mm/day)**	**< 400**	**400 - 600**	**600 - 800**	**800 - 1000**	**> 1000**
Very Slow	< 10	High	High	Moderate	Low	Very low
Slow	10 - 100	High	Very high	High	Moderate	Low
Moderate	100 - 500	Moderate	High	Very high	High	Moderate
Rapid	500 - 1500	Low	Moderate	High	Very high	High
Very Rapid	> 1500	Very low	Low	Moderate	High	Very high

13. Length of the growing season

Agricultural production is governed by moisture, temperature and photoperiod (photoperiod is taken to be consistent throughout Victoria).

Length of growing season = **12**

minus No. of months where P (monthly Et > Av. monthly R) > 50%

minus No. of months were av. mean monthly temp. < $6^{o}C$

where P = Probability
Et = Evapotranspiration
R = Rainfall

14. No. of months/year when average daily rainfall > K_{sat}

This parameter is included (although it is closely aligned to Drainage) to provide an indication from climatic, rather than soil and topographic data, of the period of time each year when effluent absorption trenches might cease to function.

Data required:

- Average monthly rainfall figures.
- Average number of wet days for each month.
- K_{sat} values.

Assumptions made:

- Evapotranspiration = 0 for winter months.
- The winter-early spring months are usually when problems arise.
- The soil profile is at field capacity.
- Where slope is significant, run-off = run-on.

15. Permeability of a soil profile (K_{sat})

Permeability is controlled by the least permeable layer of a soil profile and its ability to transmit water; permeability is independent of climate and surface drainage. The rate at which water moves down through the soil profile is also an indicator of the tendency of a soil to saturate - an important feature if plant growth is to be maintained in areas where rainfall is spasmodic or unreliable. High permeability in high rainfall areas and low permeability in low rainfall areas could be an advantage for plant growth.

Permeability provides a measure of the rate at which a saturated soil profile will conduct water to depth. K_{sat} measurements may give an over-estimated value for the disposal of effluent because the soil macropores are transmitting water, whereas the real situation must take into account the clogging effect of effluent on the bottom of effluent disposal trenches, thereby reducing the rate of water movement into the soil.

The measurement of K_{sat} often produces quite variable results even between replicates on the same site, so the setting of class limits is difficult and by necessity must be very broad. Estimates of permeability can be made using the features of the least permeable soil horizon if K_{sat} values are not available, however it should be clearly indicated where estimates have been made (Table A3).

For many years the standard method of measuring the permeability of a soil, particularly for effluent disposal, has been to auger a hole 30 cm into a soil profile and measure the rate at which water drains from that hole. By comparing different methods, the author found that by using infiltration rings and maintaining a constant head of water (see Appendix 3) meaningful permeability values could be obtained for any soil except those with very shallow or stony profiles. This method caused minimal disturbance to the soil profile compared to an auger forcing past stones, cutting through roots and smearing clay surfaces. K_{sat} values give a conservative estimate of permeability but they represent the soil conditions and the time of the year when an effluent disposal system is most likely to fail.

Table A3. Permeability characteristics of a soil profile

Estimated permeability	K_{sat} range (mm/day)	Time taken for saturated soil to drain to field capacity	Soil features
Very Slow	< 10	Months	Absense of visible pores
Slow	10 - 100	Weeks	Some pores visible
Moderate	100 - 500	Days	Clearly visible pores
Rapid	500 - 1500	Hours	Large, continuous clearly visible pores
Very Rapid	1500 - 3000	Rarely saturated	Abundant large pores
Excessive	> 3000	Never saturated	No restriction to water movement through the soil profile

16. Public sensitivity level (PSL)

This relates to the physical and visual access of the public to a specific area or landscape feature. For example, a rugged escarpment may be 4 - 5 kilometres from, but clearly visible to, travellers passing along a major highway. The escarpment has the same high Public Sensitivity Level as the area of flat land on which the highway is built, because both areas are easily accessed - the escarpment visually and the flat plain physically, by large numbers of the public. Traffic-volume estimates are made for weekends during the school-holiday periods. Three levels of Public Sensitivity are outlined in Table A4.

17. Rock outcrop

This estimate has not been included as a parameter which influences the performance of earthern dams because the parameter, depth to hard rock, is inversely correlated to the proportion of rock outcropping at the soil surface, and is a good surrogate.

18. Scenic quality

Landscape features have been grouped into High, Medium and Low classes of scenic quality by Williamson and Calder (1979). Scenic quality relates to landform (the uniqueness, diversity, prominence and naturalness), vegetation and waterform. The classes of scenic quality are summarised in Table A5.

19. Scenic value

In this report, the work done by Williamson and Calder (1979) and the Landscape Architecture Branch of the Department of Conservation and Natural Resources has been used extensively to produce a 5-Class rating system in keeping with the traditional land-capability-study format. The Scenic Value of an area is derived from the interaction of three criteria:

1. the scenic quality of the feature,
2. the public sensitivity level to the feature, and
3. the distance between the feature and public access routes.

Table A4. Public sensitivity levels

High Sensitivity (H)	
1.	Freeways and State highways with more than 500 vehilces/day
2.	Classified tourist roads
3.	Main sealead roads with more than 75 vehicles/day
4.	Recreation, cultural or scenic sites and viewpoints of national or interstate significance
5.	Walking tracks of national significance
6.	Residential areas with high degrees of scenic concern
7.	Interstate passenger rail lines with daily daylight service
8.	Rail lines of cultural, historic or scenic significance
9.	Navigable rivers, lakes, and reservoirs of national recreation significance
Moderate Sensitivity (M)	
1.	Main sealed roads with more than 50 vehicles/day
2.	Forest access and other roads with more than 35 vehicles/day
3.	Roads with less than 35 vehicles/day, but planned for recreation promotion within 5 years
4.	Recreation, cultural or scenic sites of State significance
5.	Walking tracks of State or high local significance
6.	Residential areas with moderate degrees of scenic concern
7.	State passenger rail lines with daily rural town service
8.	Navigable rivers, lakes and reservoirs of State recreation significance
Low Sensitivity (L)	
1.	Timber management roads with occasional recreation traffic up to 10 vehicles/day
2.	Walking tracks of low local significance
3.	State passenger rail lines with less than daily rural town service
4.	Areas not visible from nearby travel routes or vantage points

20. Slope

As the slope increases, so too does the chance of run-on water entering effluent disposal trenches and saturating the system. In addition, run-off of unfiltered effluent is more likely to enter minor drainage depressions and water courses. The increasing incidence of algal blooms in water storages emphasises the need to eliminate the entry of unfiltered effluent into watercourses.

The best ratio of earth moved to water stored occurs on land with slopes between 3-7%. Gentler slopes involve greater expense as the above ratio approaches unity, whereas steeper slopes require higher embankments for proportionally less water stored.

Slope categories have been extracted from the Australian Soil and Land Survey - Field Handbook (McDonald et al. 1984) with only the Steep and Moderate categories subdivided to make slope classes in the land capability rating tables more meaningful to specific land uses, viz:

Very steep	-	50 - 60%
Steep	-	32 - 50%
Upper moderate	-	20 - 32%
Lower moderate	-	10 - 20%
Gentle	-	3 - 10%
Very gentle	-	1 - 3%
Flat	-	< 1%

Table A5. Scenic quality classes

High Scenic Quality (H)	**Moderate Scenic Quality (M)**	**Low Scenic Quality (L)**
Landform 1. Peaks or plateaux (eg Mt Buffalo) with distinctive form and colour that become focal points. 2. Distinctive sharp crested ridges or razorbacks. 3. Sharply defined V-shaped valleys unusual in gorge depth, elevation, drop, or number and configuration of lateral tributary valleys. 4. Massive rocks outcrops, cliffs, boulders or groups of boulders.	1. Rounded broad peaks and/or long extended ridge systems which are visually evident but surrounded by more landforms of similar types. 2. Dissections varying from V-shaped valleys to broader U-shaped valleys lacking in unusual configuration, colour, elevation drop, or focus. Lateral tributary valleys lack distinction. 3. Rock outcrops. 4. Steep slopes, often in excess of 30^{o}, gradually rounding to valley floors.	1. Slightly undulating or rolling terrain, relatively lacking in visual interest in comparison to the normal landform in the character type.
Vegetation 1. Strongly defined patterns of such combinations as eucalypt forest, alpine meadows, waterbody associated vegetation, bare soil and/or rockforms. 2. Dramatic displays of seasonal colour. 3. Distinctive vegetation unusual in density, growth habit or texture, in comparison to the surrounding vegetation.	1. Forest canopy varying slightly in texture, age and spacing and with or without some natural openings, and offering some visual diversity. 2. Vegetative pattern evident but not dominant relative to the surrounding landscape character.	1. Extensive areas of similar vegetation with few evident patterns.
Waterform 1. Major streams, or portions of other streams with flow character such as waterfalls, rapids, etc. 2. Bogs and lakes.	1. Moderate to small sized streams, resulting in moderately down-cut drainages and landforms.	1. Minor streams resulting in subdued drainage patterns in landforms.

21. Suitability of subsoil

In the building of earthen dams, suitability of subsoil is dependent on the nature of the material, which is represented by the Universal Soil Group classification, and depth of the material (Table A6).

22. Susceptibility to gully erosion

No single factor can adequately represent the susceptibility of an area to the gully erosion process. A number of factors are involved and each should be scored independently and then the sum of the scores can be related back to a 5 - class rating (Table A7).

23. Susceptibility to sheet/rill erosion by water

Table A8 has been adapted from Elliott and Leys (1991). The erodibility index for a range of soil properties closely relates to the susceptibility of soils to erosion by water, and in the tables below, the same soil properties have been used (texture, structure grade, topsoil depth and dispersibility (Emerson Aggregate Test)) and then related to slope to determine a rating for susceptibility. The final rating for susceptibility to sheet/rill erosion is read from Table A9 once the erodibility of the topsoil and the slope of the area have been assessed.

24. Susceptibility to slope failure

The instability of slopes in a catchment area of a dam poses a threat to the storage capacity of that dam. Additional costs are also involved if the dam requires regular desludging. This assessment considers that land slips are the result of factors such as, soil depth, slope, soil texture, volume of water held in the soil, and the permeability of the solum and the underlying parent material. Since the quantity of water in a profile is itself a product of soil texture, depth and permeability. Table A10 is presented as a first attempt to assess the susceptibility of land to slope failure by relating the total amount of water in the soil profile to the slope.

25. Susceptibility to erosion by wind (Lorimer 1985)

The susceptibility of land to wind erosion is a function of soil erodibility, the probability of erosive winds when the soil is dry and the exposure of the land component to wind. Soil erodibility is the initial, most important factor to assess for the land capability rating tables (Table A11).

Table A6. Suitability of subsoil for farm dams

	Unified soil group of subsoil				
DEPTH OF SUBSOIL (m)	SP, SW, GP, GW, Pt, OH, OL	ML, MH	GM, CH, SM	CL	GC, SC
< 0.5	Very low	Very low	Very low	Very low	Very low
0.5 - 1.0	Very low	Very low	Low	Low	Moderate
1.0 - 1.5	Very low	Low	Moderate	Moderate	High
1.5 - 2.0	Very low	Low	Moderate	High	High
> 2.0	Very Low	Moderate	High	Very High	Very High

Table A7. Susceptibility to gully erosion

Criteria	Description	Score
Slope	< 1%	1
	1 - 3%	2
	4 - 10%	3
	11 - 32%	4
	> 32%	5
Sub-soil dispersibility	E1	5
	E2, E3(4), E3(3)	4
	E3(2), E3(1)	3
	E4, E5	2
	E6	1
Depth to rock/hardpan	0 - 0.5m	1
	0.6 - 1.0m	2
	1.1 - 1.5m	3
	1.6 - 2.0m	4
	> 2.0m	5
Subsoil structure	Apedal, massive	1
	Weak	
	fine < 2 mm	3
	mod. 2 - 10 mm	2
	coarse > 10 mm	1
	Moderate	
	fine < 2 mm	4
	mod. 2 - 10 mm	3
	coarse > 10 mm	2
	Strong	
	fine < 2 mm	5
	mod. 2 - 10 mm	3
	coarse > 10 mm	1
	Apedal, single grained	5
Lithology of substrate	Alluvium	3
	Basalt	1
	Colluvium	5
	Granite	4
	Rhyodacite	2
	Sediments	
	Ordovician sandstone/mudstone	5
	Silurian sandstone/mudstone	4
	Tillite	4
	Volcanic	2
Rating for susceptibility to gully erosion:	**Class**	**Total score**
	1. Very low	1 - 10
	2. Low	11 - 13
	3. Moderate	14 - 17
	4. High	18 - 20
	5. Very high	21 - 25

26. Topsoil condition

The texture, organic matter content and the size/strength of soil aggregates all influence the general behaviour of soils when subjected to different agricultural land uses and management practices. The lack of knowledge relating the performance of soils to specific attributes does not allow values for the above criteria to be divided into meaningful classes - certainly not the 5-class system used in these land capability rating tables. The concept of "Condition of topsoil" combines the score placed on each criteria to give a total score which is then compared to a 5-class rating, viz.

Criteria	Description	Score
Texture	Sands	1
	Sandy loams	2
	Loams	5
	Clay loams	4
	Clays	3
Structure (Grade)	Apedal, massive	1
	Apedal, loose	2
	Weak	3
	Moderate	4
	Strong	5
Structure (size)	Very large (> 200 mm)	1
	Large (50 - 200 mm)	2
	Moderate (10 - 50 mm)	4
	Small (2 - 10 mm)	5
	Very small (< 2 mm)	3
Organic matter content	Very low (< 1%)	1
(Org. C x 1.72)	Low (1 - 2%)	2
	Moderate (2 - 3%)	4
	High (> 3%)	5
Nutrient status of topsoil*	Very low (< 4 m.e.%)	1
(= sum of exch. Ca.Mg.K)	Low (4-8 m.e.%)	2
	Moderate (9-18 m.e.%)	3
	High (19-30 m.e.%)	4
	Very high (> 30 m.e.%)	5

Rating for topsoil condition:

Class	Total Score
1	21 - 25
2	16 - 20
3	11 - 15
4	6 - 10
5	1 - 5

* Nutrient status of topsoil: The topsoil is considered the major source of nutrients for plant growth whereas the subsoil is the more reliable source of moisture. Nutrient status of topsoil = sum of exchangeable base cations (Ca, Mg, K) (Lorimer and Schoknecht 1987) and should be calculated on the A_1 and A_2 horizons separately because of major differences in these horizons of some profiles.

27. Total amount of water available to plants

This parameter is a measure of the amount of usable water in the soil for plant growth. It is determined from the difference between the amount of water retained by the soil after drainage (field capacity) and the moisture content of a soil at wilting (permanent wilting point). There is a reasonable correlation between soil texture and AWC (Salter and Williams 1969) as shown in Table A12.

28. Transpiration beds

Transpiration beds are more suitable than absorption trenches when:

i) soil depths are shallow, eg. < 75 cm deep
ii) and/or when K_{sat} values are low, eg. < 10 mm/day
iii) and/or when rainfall is > 900 mm/yr.

Table A8. Erodibility of topsoils

Soil parameters			Soil Dispersibility		
Texture group (A1)	**Structure grade (A1)**	**Horizon depth (A1 + A2)**	**Very Low - Low E3 and higher**	**Medium - High E2**	**Very High E1**
Sand	apedal	< 0.2 m	M		
		0.2 - 0.4 m	L		
		> 0.4 m	L		
Sandy loam	a1pedal	< 0.2 m	M	H	
		0.2 - 0.4 m	L	M	
		> 0.4 m	L		
	weakly pedal	< 0.2 m	H	E	
		0.2 - 0.4 m	M	V	
		> 0.4 m	M		
Loam	apedal	< 0.2 m	M	H	
		0.2 - 0.4 m	L	M	
		> 0.4 m	L		
	weakly pedal	< 0.2 m	H	E	
		0.2 - 0.4 m	M	V	
		> 0.4 m	M		
	peds evident	< 0.2 m	H	E	
		0.2 - 0.4 m	H		
		> 0.4 m	H		
Clay loam	apedal	< 0.2 m	M	H	
		0.2 - 0.4 m	L	M	
		> 0.4 m	L		
	weakly pedal	< 0.2 m	H	E	
		0.2 - 0.4 m	M	V	
		> 0.4 m	M		
	peds evident	< 0.2 m	H	E	
		0.2 - 0.4 m	H	E	
		> 0.4 m	M		
Light clay	weakly pedal	< 0.2 m	H	E	E
		0.2 - 0.4 m	M	V	E
		> 0.4 m	M	V	E
	peds evident	< 0.2 m	M	V	E
		0.2 - 0.4 m	M	H	E
		> 0.4 m	M	H	E
	highly pedal	< 0.2 m	H	E	
		0.2 - 0.4 m	M	V	
		> 0.4 m	M	V	
Medium to heavy clay	weakly pedal	< 0.2 m	M	H	E
		0.2 - 0.4 m	M	H	V
		> 0.4 m	M	H	V
	peds evident	< 0.2 m	H	E	E
		0.2 - 0.4 m	M	V	E
		> 0.4 m	M	V	E
	highly pedal	< 0.2 m	H	E	E
		0.2 - 0.4 m	M	V	E
		> 0.4 m	M	V	E

L - Low   M - Moderate   H - High   V - Very high   E - Extreme

Table A9. Susceptibility to sheet/rill erosion*

Slope %	Topsoil erodibility (from Table A.8)				
	Low	**Moderate**	**High**	**Very high**	**Extreme**
< 1 %	Very low	Very low	Low	Low	Moderate
1 - 3 %	Very low	Low	Moderate	Moderate	High
4 - 10%	Low	Moderate	High	High	Very high
11 - 32%	Moderate	High	Very high	Very high	Very high
> 32%	High	Very High	Very high	Very high	Very high

* Topsoil erodibility is determined from the texture, structure, depth and dispersibility of the topsoil (Table A8). The susceptibility of the topsoil to sheet/rill erosion (Table A9) relates to the combined effect of slope and topsoil erodibility.

Table A10. Susceptibility to slope failure

Slope %	Total amount of water in the soil profile		
	Low (< 70 mm H_20)	Moderate (70-170 mm H_20)	High (> 170 mm H_20)
Gentle < 10	Very low	Very low	Low
Moderate 10-32	Low	Moderate	High
Steep > 32	Moderate	High	Very high

Table A11. Soil erodibility

	Soil type	Rating
1	Surface soil has a strong blocky structure (aggregates > 0.8 mm), or is apedal and cohesive or has a dense layer of stones, rock or gravel	Very low
	Surface soil has strong fine structure (aggregates < 0.8 mm)	Moderate
	Surface soil has a weak-moderate structure or is apedal and loose	Go to 2
2	Surface soils with organic matter > 20%	High
	Surface soils with organic matter 7 - 20%	Moderate
	Surface soils with organic matter < 7%	Go to 3
3	Surface soils with the following textures:	
	Fine-medium sands	Very high
	Loamy sands	High
	Sandy loams, silty loams	High
	Loams, coarse sands	Moderate
	Clay loams	Low
	Clays	Very low

Table A12. Available water capacity

Range (mm/m)	Average value for calculations (mm/m)	Sands	Sandy loams	Loams	Clay loams	Clays
76 - 100	90	KS				
101 - 125	110	LKS	KSL			
126 - 150	130	S				SC, C
151 - 175	160	CS, LS	SL	L	SCL	
176 - 200	190	FS	FSL	CL, ZL	ZCL	ZC
201 - 225	210	LFS				

The total amount of water available to plants can be calculated by adding the nett amount of available water in each horizon down to a maximum depth of 2 metres, eg.

Soil horizon	Texture	Depth of horizon (m) (a)	AWC of horizon (mm/m) (b)	Gravel/stone content (%) (c)	Avail. water in horizon [a x (b - 3/100 x b)]
A	SL	0.15	160	20	19.2
B2	SC	1.25	130	5	154.4

Total amount of water = 174 (Class 2)