

PART III - SEPPELT'S GREAT WESTERN VINEYARDS

(A) Area and Location

The area surveyed is an aggregate of about 390 hectares encompassing some thirty vineyards situated near Great Western, approximately 217 kilometres west north-west of Melbourne. These vineyards comprise parts of the parishes of Concongella, Concongella South and Ararat in the County of Borung.

(B) Climate

On site records of rainfall and temperature were available for the vineyards over a number of years. The rainfall data have been collected for about 55 years while temperature records go back only eight years. These data have been analysed and their summaries are listed below.

(i) Rainfall

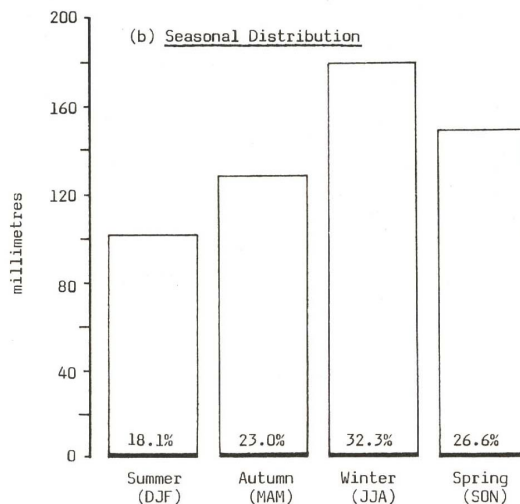
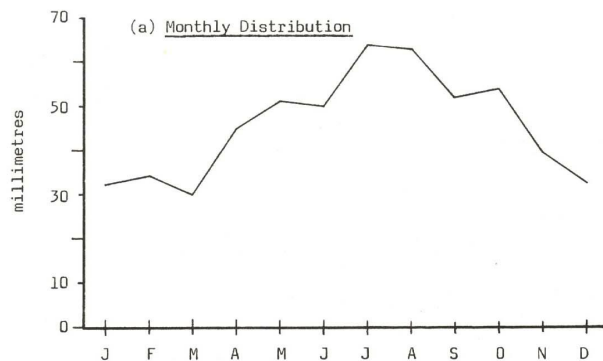
The long-term average rainfall for the vineyards is 548 mm. About a third of this amount usually falls during winter and the balance spreads over the remaining months (Table S-1). The graphs in Figures S-1(a) and S-1(b) illustrate the monthly and seasonal distributions of the vineyards' average annual rainfall.

Table S-1 - Average* Rainfall at Seppelt's Great Western Vineyards

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
mm	32	34	30	45	51	50	64	63	52	54	40	33	548

* 55 years

Figure S-1: Distribution of the annual rainfall at Seppelt's Great Western Vineyards



(ii) **Temperature**

A summary of the temperature data, as recorded on the property is shown in Table S-2. On average, July is the coolest month with a mean air temperature ($\frac{1}{2}$ (max. + min.)) of 7.9°C and January is the hottest, 21.8°C “Figure S-2”.

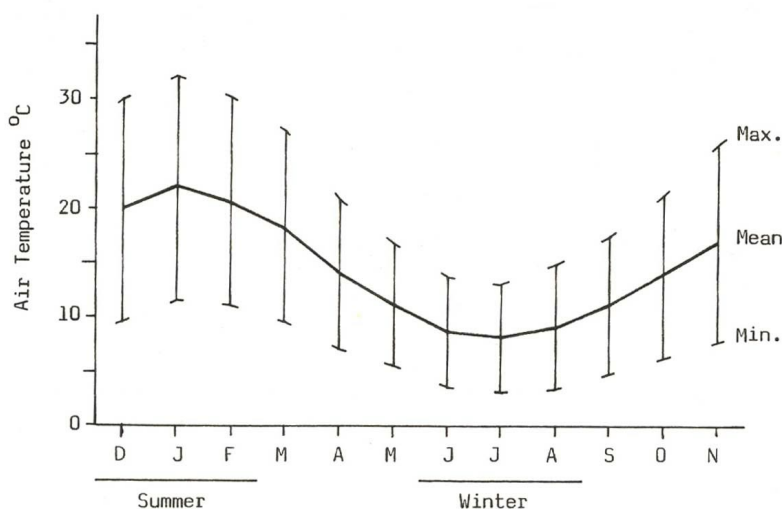
Table S-2 - Average* Monthly Temperatures at Seppelt’s Great Western Vineyards

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Maximum °C	32.1	30.1	27.1	20.7	16.7	13.5	12.8	14.8	17.3	21.1	25.7	30.1
Minimum °C	11.4	11.1	9.3	6.9	5.4	3.6	2.9	3.3	4.8	6.3	7.7	9.7
Mean	21.8	20.6	18.2	13.8	11.1	8.6	7.9	9.1	11.1	13.7	16.7	19.9

* 8 years

Although the period of record is too brief for the data to be analysed for reliable long-term averages, this summary gives an idea of the temperature pattern throughout the year.

Figure S-2: Average Temperatures at Seppelt’s Great Western Vineyards



(C) **Soils**

(i) **Soil Types and Miscellaneous Units**

The main soils of the Seppelt’s Great Western Vineyards include all the soil types, and most of their phases, recognised in the survey. Table S-3, below, lists the various soils mapped in these vineyards.

Table S-3 - The Main Soils of Seppelt’s Great Western Vineyards

Soils	Mapping Symbols
<u>Concongella Series</u>	
Concongella loam	Cl
“ “ (deep surface)	Cl (d)
“ “ (stony profile)	Cl (s)
“ “ (deep surface & stony profile)	Cl (d & s)
Concongella sandy clay loam	Cscl
“ “ “ “ (deep surface & stony profile)	Cscl (d & s)
<u>Great Western Series</u>	
Great Western loam	GWl
Great Western sandy clay loam	GWscl

Soils	Mapping Symbols
“ “ “ “ “ (deep surface)	GWscl (d)
“ “ “ “ “ (deep surface & stony profile)	GWscl (d & s)
<u>Stawell Series</u>	
Stawell sandy loam	S sl
“ “ “ (deep surface)	S sl (d)
“ “ “ (deep surface & stony profile)	S sl (d & s)
Stawell loam	Sl
Stawell sandy clay loam	S scl
“ “ “ “ (deep surface)	S scl (d)
“ “ “ “ (stony profile)	S scl (s)
Stawell clay loam	S cl
<u>Minor Soil Types</u>	
Minor soil type 2	M.T.2
“ “ “ 3	M.T.3

Although most of these soils have been mapped as single units, two complex units were used where more than one soil recurred over short distances. Two units and their dominant soils are as follows:

- Complex I : The main soils of this unit contain high amounts of stones and usually occur on the crests, upper and intermediate slopes in the hilly landscape that is common to the southern portion of the survey. The dominant soils are Cl (d & s) and C scl (d & s) and the subdominant soils include Cl (s), GW scl (d & s) and M.T.3.
- Complex II : The unit encompasses the varied soils that are usually found in gullies and depressions. Included in this unit are S sl (d), S scl (d), Sl, S cl and M.T.2.

Table S-4, below, lists the eight mapping units recognised in the survey and indicates their approximate areas (% of the total area surveyed). The areal distribution of the units is shown on the soil maps (Figure S-5).

Table S-4 - Distribution of the Mapping Units on Seppelt's Great Western Vineyards

Mapping Units	Area % (approx.)	
<u>Concongella Series</u>	23	
- Cl, Cl (d) and small areas of C scl		23
<u>Great Western Series</u>	11	
- GW l		7
- GW scl and GW scl (d)		4
<u>Stawell Series</u>	32	
- S sl and S sl (d)		13
- S sl (d & s)		4
- S scl and S scl (d)		15
<u>Soil Complexes</u>	34	
- Complex I		17
- Complex II		17
	100	100

(ii) **Representative Soil Profiles**

Average soil profiles were selected to represent the mapping units. These profiles have been numbered and located on the accompanying soil maps (Figures S-5). The morphological features of the profiles are given below and their analytical data are listed in Appendix S. It should be appreciated, however, that within each mapping unit soil profiles at individual situations usually will differ in some features from the prescribed and analysed profiles

CONGELLA LOAM
(three representative profiles)

(A) Profile S-1

Profile Reference: WM 17/42
Topography: Upper-moderate slope in a hilly area.
Soil Classification: Dr 2.12/SCL (15 cm).

Soil Description:

Surface Soil

0 – 15 cm; brown (7.5YR4/4m) sandy clay loam; apedal, hard setting; hard (dry), friable (moist), non-plastic and slightly sticky (wet); slight amounts of quartz and ferruginous concretions; sharp boundary to:

Subsoil

15 – 60 cm; red (2.5YR4/6m) heavy clay; strong fine and medium angular blocky structure; smooth-ped fabric; hard (dry), friable (moist), plastic and sticky (wet); clear boundary to:

60 – 90 cm; as above but; mottled brown (10YR5/3m), red (2.5YR4/6m) and some yellowish brown; clear boundary to:

90 – 100 cm; as above but; mottled greyish brown (2.5YR5/2m), strong brown (7.5YR5/6m) and brownish yellow (10YR6/8m) sandy clay; slight amounts of weathered sandstone fragments.

(B) Profile S-2

Profile Reference: WM 17/51
Topography: Upper-moderate slope in a hilly area.
Soil Classification: Dr 2.11/SCL (10 cm)

Soil Description:

Surface Soil

0 – 10 cm; dark reddish brown (5YR3/4m) sandy clay loam; apedal, hard setting; hard (dry), friable (moist), non-plastic and slightly sticky (wet); slight amounts of quartz and ferruginous concretions; sharp boundary to:

Subsoil

10 – 40 cm; red (2.5YR4/6m) with some black flecks heavy clay; strong fine and medium angular blocky structure; smooth-ped fabric; hard (dry), friable (moist), plastic and sticky (wet); slight amounts of quartz and ferruginous concretions; gradual boundary to:

- 40 – 60 cm; as above but; without the black flecks, clear boundary to
- 60 – 80 cm; as above but; mottled red (2.5YR4/6m) and strong brown (7.5YR5/6m) heavy clay (gritty); the amounts of stones increase to light; clear boundary to:
- 80 – 95 cm; as above but; light olive-brown (2.5YR5/4m) and greyish brown (2.5Y5/2m) medium clay (gritty); moderate amounts of weathered sandstone fragments.

(C) **Profile S-3**

Profile Reference: WM 17/28
Topography: Upper-moderate slope in a hilly area.
Soil Classification: Dr 2.12/SCL (10 cm)

Soil Description:

Surface Soil

- 0 – 10 cm; dark brown (7.5YR3/4m) sandy clay loam; apedal, hard setting; hard (dry), friable (moist), non-plastic and slightly sticky (wet); slight amounts of quartz and ferruginous concretions; sharp boundary to:

Subsoil

- 10 – 40 cm; yellowish red (5YR4/6m) heavy clay (gritty); strong fine and medium angular blocky structure; smooth-ped fabric; hard (dry), friable (moist), plastic and sticky (wet); clear boundary to:
- 40 – 70 cm; as above but; mottled yellowish brown (10YR5/6m) and light brownish grey (2.5Y6/2m); light amounts of quartz and ferruginous concretions; clear boundary to:
- 70 – 100 cm; mottled greyish brown (2.5Y5/2m), yellowish brown (10YR5/6m) and red (2.5YR4/6m) medium clay (gritty); weakly pedal; light amounts of weathered sandstone and shale fragments.

CONGELLA LOAM (Deep Surface)
(two representative profiles)

(A) **Profile S-4**

Profile Reference: WM 18/15
Topography: Upper-moderate slope in a hilly area.
Soil Classification: Dr 2.22/SCL (35 cm).

Soil Description:

Surface Soil

- 0 – 15 cm; dark reddish brown (5YR3/4m) sandy clay loam; apedal; hard setting; hard (dry), friable (moist), non-plastic and slightly sticky (wet); trace amounts of quartz and ferruginous concretions; sharp boundary to:
- 15 – 35 cm; as above but; strong brown (7.5YR5/6m, 7/6d); the amounts of stones increase to light; sharp boundary to:

Subsoil

- 35 – 65 cm; yellowish red (5YR4/6m) heavy clay; strong fine and medium angular blocky structure; smooth-ped fabric; hard (dry), friable (moist), plastic and sticky (wet); gradual boundary to:
- 65 – 85 cm; as above but; mottled brownish yellow (10YR6/8m) and red (2.5YR4/6m); clear boundary to:
- 85 – 100 cm; as above but; mottled red (2.5YR4/6m), light grey (2.5Y7/2m) and yellowish brown (10YR5/8m) medium clay (gritty); slight amounts of weathered sandstone fragments; bedrock at 100 cm.

(B) Profile S-5

- Profile Reference:** WM 17/35
Topography: Upper-moderate slope in a hilly area.
Soil Classification: Dr 2.12/SCL (35 cm)

Soil Description:

Surface Soil

- 0 – 35 cm; dark brown (7.5YR3/4m) sandy clay loam; apedal, hard setting; hard (dry), friable (moist), non-plastic and slightly sticky (wet); light amounts of quartz and ferruginous concretions; clear boundary to:

Subsoil

- 35 – 65 cm; red (2.5YR4/6m) with some strong brown heavy clay; strong medium angular blocky structure; smooth-ped fabric; hard (dry), friable (moist), plastic and sticky (wet); clear boundary to:
- 65 – 85 cm; as above but; mottled red (2.5YR4/6m) and strong brown (7.5YR5/6m) heavy clay (gritty); slight amounts of quartz and ferruginous concretions; gradual boundary to:
- 85 – 100 cm; as above but; mottled red (2.5YR4/6m), brown (10YR5/3m) and yellowish brown (10YR5/6m); the amounts of stones increase to light.

CONGELLA LOAM (Stony Profile)
(one representative profile)

Profile S-6

- Profile Reference:** WM 17/36
Topography: Top of a moderate ridge in a hilly area.
Soil Classification: Dr 2.12/SCL (10 cm).

Soil Description:

Surface Soil

0 – 10 cm; dark reddish brown (5YR3/3m) sandy clay loam (gritty); apedal, hard setting; hard (dry), friable (moist) non-plastic and slightly sticky (wet); moderate amounts of quartz and ferruginous concretions; clear boundary to:

Subsoil

10 – 40 cm; dark reddish brown (5YR3/4m) medium clay (gritty); moderate medium sub-angular blocky structure; rough-ped fabric; hard (dry), friable (moist), plastic and sticky (wet); slight amounts of quartz and ferruginous concretions; clear boundary to:

40 – 70 cm; mottled yellowish brown (10YR5/8m) and greyish brown (2.5Y5/2m) sandy clay loam (gritty); weakly pedal; hard (dry), friable (moist), non-plastic and slightly sticky (wet); moderate amounts of quartz and weathered sandstone fragments; gradual boundary to:

70 – 100 cm; as above but; the amounts of stones increase, gradually, too heavy.

CONCONGELLA LOAM (Deep Surface & Stony Profile)
(two representative profiles)

(A) Profile S-7

Profile Reference: WM 17/29
Topography: Upper-moderate slope in a hilly area.
Soil Classification: Dr 2.11/SCL “gr” (20 cm)

Soil Description:

Surface Soil

0 – 20 cm; dark reddish brown (5YR3/4m) sandy clay loam (gritty); apedal, hard setting; hard (dry), friable (moist), non-plastic and slightly sticky (wet); light amounts of quartz and ferruginous concretions; sharp boundary to:

Subsoil

20 – 50 cm; dark red (2.5YR3/6m) heavy clay (gritty); moderate medium angular blocky structure; smooth-ped fabric; hard (dry), friable (moist), plastic and sticky (wet); moderate amounts of quartz and ferruginous concretions; clear boundary to:

50 – 75 cm; as above but; mottled dark greyish brown (2.5YR4/2m) and dark red (2.5YR3/6m) medium clay (sandy); bedrock at 75 cm.

(B) **Profile S-8**

Profile Reference: WM 17/43
Topography: Upper-moderate slope in a hilly area.
Soil Classification: Dr 2.12/SCL “gr” (30 cm)

Soil Description:

Surface Soil

0 – 10 cm; dark reddish brown (5YR3/3m) sandy clay loam (gritty); apedal, hard setting; hard (dry), friable (moist), non-plastic and slightly sticky (wet); light amounts of quartz and ferruginous concretions; clear boundary to:

10 – 30 cm; as above but; weakly pedal; the amounts of stones increase to moderate; sharp boundary to:

Subsoil

30 – 70 cm; red (2.5YR4/6m) heavy clay (gritty); strong fine and moderate angular blocky structure; smooth-ped fabric; hard (dry), friable (moist), plastic and sticky (wet); slight amounts of quartz and ferruginous concretions; clear boundary to:

70 – 100 cm; as above but; mottled light brownish grey (2.5Y6/2m), red (2.5YR4/6m) and yellowish brown (10YR5/8m); weathered sandstone fragments at about 95 cm.

CONGELLA SANDY CLAY LOAM
(one representative profile)

Profile S-9

Profile Reference: WM 17/47
Topography: Mid-moderate slope in a hilly area.
Soil Classification: Dr 2.42/SCL “gr” (25 cm)

Soil Description:

Surface Soil

0 – 15 cm; reddish brown (5YR4/4m) sandy clay loam (gritty); apedal, hard setting; hard (dry), friable (moist) non-plastic and slightly sticky (wet); slight amounts of quartz and ferruginous concretions; sharp boundary to:

15 – 25 cm; as above but; yellowish red (5YR5/6m) conspicuously bleached light reddish brown (5YR6/4d); the amounts of stones increase to light; sharp boundary to:

Subsoil

25 – 70 cm; red (2.5YR4/6m) heavy clay; strong fine and medium angular blocky structure; smooth-ped fabric; hard (dry), friable (moist), plastic and sticky (wet); clear boundary to:

70 – 100 cm; as above but; mottled yellowish red (5YR4/6m) and dark yellowish brown (10YR4/4m); slight amounts of weathered sandstone fragments.

CONCONGELLA SANDY CLAY LOAM (Deep Surface & Stony Profile)
(three representative profiles)

(A) Profile S-10

Profile Reference: WM 17/22
Topography: Upper-moderate slope in a hilly area.
Soil Classification: Dr 2.41/lt SCL “gr” (35 cm)

Soil Description:

Surface Soil

0 – 10 cm; dark reddish brown (5YR3/4m) light sandy clay loam (gritty); apedal, hard setting; hard (dry), friable (moist), non-plastic and non-sticky (wet); light amounts of quartz and ferruginous concretions; sharp boundary to:

10 – 35 cm; as above but; yellowish red (5YR4/6m) conspicuously bleached light reddish brown (5YR6/4d); the amounts of stones increase to moderate; sharp boundary to:

Subsoil

35 – 65 cm; red (2.5YR4/6m) heavy clay; strong fine and medium angular blocky structure; smooth-ped fabric; hard (dry), friable (moist), plastic and sticky (wet); light amounts of quartz and ferruginous concretions; sharp boundary to:

55 – 65 cm; mottled brown (7.5YR4/4m), red (2.5YR4/6m) and grey (2.5YR5/0m) sandy clay; weakly pedal; hard (dry), friable (moist), moderately plastic and moderately sticky (wet); moderate amounts of weathered sandstone fragments; bedrock at 65 cm.

(B) Profile S-11

Profile Reference: WM 18/8
Topography: Mid-moderate slope in a hilly area.
Soil Classification: Dr 2.42/SCL (35 cm)

Soil Description:

Surface Soil

0 – 15 cm; dark reddish brown (5YR3/4m) sandy clay loam apedal, hard setting; hard (dry), friable (moist), non-plastic and non-sticky (wet); light amounts of quartz and ferruginous concretions; sharp boundary to:

15 – 35 cm; as above but; light brown (7.5YR6/4m) light sandy clay loam conspicuously bleached pink (7.5YR7/4d); sharp boundary to:

Subsoil

35 – 80 cm; red (10R4/6) heavy clay; strong fine and medium angular blocky structure; smooth-ped fabric; hard (dry), moderately friable (moist), plastic and sticky (wet); slight amounts of quartz and ferruginous concretions; clear boundary to:

80 – 100 cm; as above but; mottled red (2.5YR4/6m) and yellowish brown (10YR5/6m).

(C) Profile S-12

Profile Reference: WM 18/18
Topography: Top of a moderate ridge in a hilly area.
Soil Classification: Dr 2.41/lt SCL “gr” (40 cm)

Soil Description:

Surface Soil

0 – 15 cm; dark reddish brown (5YR3/4m) sandy clay loam (gritty); apedal, hard setting; hard (dry), friable (moist), non-plastic and non-sticky (wet); light amounts of quartz and ferruginous concretions; clear boundary to:

15 – 40 cm; as above but; yellowish red (5YR5/6m) conspicuously bleached light reddish brown (5YR6/4d); sharp boundary to:

Subsoil

40 – 65 cm; red (2.5YR4/8m) heavy clay (gritty); strong fine and medium angular blocky structure; smooth-ped fabric; hard (dry), friable (moist), plastic and sticky (wet); light amounts “increasing to moderate amounts with depth” of ferruginous concretions; bedrock at 65 cm.

GREAT WESTERN LOAM
(two representative profiles)

(A) Profile S-13

Profile Reference: WM 17/2
Topography: Lower-gentle slope in undulating plain.
Soil Classification: Dr 3.43/L (35 cm)

Soil Description:

Surface Soil

0 – 15 cm; brown (7.5YR5/4m) loam; apedal, hard setting; hard (dry), friable (moist), non-plastic and non-sticky (wet); trace amount of quartz; sharp boundary to:

15 – 35 cm; as above but; light brown (7.5YR6/4m) conspicuously bleached pinkish white (7.5YR8/2d); the stones are absent; sharp boundary to:

Subsoil

- 35 – 65 cm; mottled red (2.5YR4/6m) and light yellowish brown (10YR6/4m) heavy clay; strong fine and medium angular blocky structure; very hard (dry), friable (moist), plastic and sticky (wet); clear boundary to:
- 65 – 85 cm; as above but; strong brown (7.5YR5/6m) and brownish yellow (10YR6/6m) heavy clay (fine sandy); clear boundary to:
- 85 – 100 cm; mottled strong brown (7.5YR5/6m) and light grey (2.5Y7/2m) fine sandy clay loam; weakly pedal; hard (dry), friable (moist), non-plastic and slightly sticky (wet); light amounts of weathered sandstone fragments.

(B) Profile S-14

Profile Reference: WM 18/26
Topography: Mid-very gentle slope in undulating plain.
Soil Classification: Dr 3.43/FSCL (25 cm)

Soil Description:

Surface Soil

- 0 – 10 cm; brown (10YR5/3m) fine sandy clay loam; apedal, hard setting; hard (dry), friable (moist), non-plastic and non-sticky (wet); trace amounts of quartz and ferruginous concretions; sharp boundary to:
- 10 – 25 cm; as above but; light brown (7.5YR6/4m) conspicuously bleached pink (7.5YR7/4d); sharp boundary to:

Subsoil

- 25 – 55 cm; mottled red (2.5YR4/6m) and yellowish brown (10YR5/6m) heavy clay; strong fine and medium angular blocky structure; smooth-ped fabric; hard (dry, friable (moist), plastic and sticky (wet); clear boundary to:
- 55 – 80 cm; as above but; mottled yellowish brown (10YR5/4m) and yellowish red (5YR4/6m); clear boundary to:
- 80 – 100 cm; as above but; mottled yellowish brown (10YR5/4m), brown (7.5YR5/4m) and very dark grey (10YR3/1m).

GREAT WESTERN SANDY CLAY LOAM
(two representative profiles)

(A) Profile S-15

Profile Reference: WM 17/31
Topography: Lower-moderate slope in a hilly area.
Soil Classification: Dr 3.32/lr SCL “gr” (15 cm)

Soil Description:

Surface Soil

- 0 – 10 cm; brown (10YR4/3m) light sandy clay loam (gritty); apedal, hard setting; hard (dry), friable (moist), non-plastic and non-sticky (wet); slight amounts of quartz and ferruginous concretions; sharp boundary to:
- 10 – 15 cm; as above but; light grey (10YR7/2m) sporadically bleached white (10YR8/1d) sandy clay loam; sharp boundary to:

Subsoil

- 15 – 45 cm; mottled red (2.5YR4/6m) and greyish brown (10YR5/2m) heavy clay; strong fine and medium angular structure; smooth-ped fabric; very hard (dry), moderately friable (moist), plastic and sticky (wet); clear boundary to:
- 45 – 90 cm; as above but; mottled brownish yellow (10YR6/6m) and red (2.5YR4/6m); clear boundary to:
- 90 – 100 cm; as above but; mottled light grey (2.5YR7/2m) and red (2.5YR4/6m) medium clay; light amounts of weathered sandstone and shale fragments.

(B) Profile S-16

Profile Reference:

WM 18/19

Topography:

Mid-moderate slope in a hilly area.

Soil Classification:

Dr 3.31/SCL “gr” (15 cm)

Soil Description:

Surface Soil

- 0 – 15 cm; dark brown (7.5YR3/4m) sandy clay loam (gritty); apedal, hard setting; hard (dry), non-plastic and non-sticky (wet); slight amounts of quartz and ferruginous concretions; nests of bleached soil materials are sporadically present at the sharp boundary between this horizon and the clayey subsoil below:

Subsoil

- 15 – 45 cm; mottled red (2.5YR4/8m) and dark brown (7.5YR3/4m) heavy clay; strong fine and medium angular blocky structure; smooth-ped fabric; hard (dry), friable (moist), plastic and sticky (wet); gradual boundary to:
- 45 – 90 cm; as above but; mottled red (2.5YR4/6m) and strong brown (7.5YR5/8m); clear boundary to:
- 90 – 100 cm; as above but; mottled red (2.5YR4/6m) and yellowish brown (10YR5/6m).

GREAT WESTERN SANDY CLAY LOAM (Deep Surface)
(two representative profiles)

(A) Profile S-17

<u>Profile Reference:</u>	WM 18/1
<u>Topography:</u>	Upper-moderate slope in a hilly area.
<u>Soil Classification:</u>	Dr 3.31/SCL (30 cm)

Soil Description:

Surface Soil

0 – 10 cm; dark brown (7.5YR3/4m) sandy clay loam; apedal, hard setting; hard (dry), friable (moist), non-plastic and slightly sticky (wet); slight amounts of quartz and ferruginous concretions; clear boundary to:

10 – 30 cm; as above but; brown (7.5YR5/4m) sporadically bleached pink (7.5YR7/4d); sharp boundary to:

Subsoil

30 – 60 cm; mottled red (2.5YR4/6m) and strong brown (7.5YR5/6m) heavy clay; strong fine and medium angular blocky structure; smooth-ped fabric; trace amounts of quartz and ferruginous concretions; gradual boundary to:

60 – 75 cm; as above but; mottled red (2.5YR4/6m) and yellowish brown (10YR5/8m); clear boundary to:

75 – 90 cm; as above but; mottled light yellowish brown (2.5YR6/4m) and yellowish red (5YR4/6m) sandy heavy clay (gritty); light amounts of quartz, ferruginous concretions and weathered sandstone fragments; bedrock at 90 cm.

(B) Profile S-18

<u>Profile Reference:</u>	WM 17/46
<u>Topography:</u>	Lower-moderate slope in a hilly area.
<u>Soil Classification:</u>	Dr 3.32/SCL (30 cm)

Soil Description:

Surface Soil

0 – 30 cm; dark brown (7.5YR3/4m) sandy clay loam; apedal, hard setting; hard (dry), friable (moist), non-plastic and non-sticky (wet); slight amounts of quartz and ferruginous concretions; nests of bleached soil materials are sporadically present at the sharp boundary between this horizon and the clayey subsoil below:

Subsoil

30 – 60 cm; mottled red (2.5YR4/6m) and strong brown (7.5YR5/6m) heavy clay; strong fine and medium angular blocky structure; smooth-ped fabric; hard (dry), friable (moist), plastic and sticky (wet); gradual boundary to:

60 – 80 cm; as above but; mottled yellowish brown (10YR5/8m) and red (2.5YR4/6m); light amounts of quartz and ferruginous concretions; clear boundary to:

80 – 90 cm; as above but; mottled strong brown (7.5YR5/8m) and yellowish red (5YR4/6m); the amounts of stones increase to moderate; bedrock at 90 cm.

GREAT WESTERN SANDY CLAY LOAM (Deep Surface & Stony Profile)
(one representative profile)

Profile S-19

Profile Reference: WM 18/4
Topography: Upper-moderate slope in a hilly area
Soil Classification: Dr 3.42/SCL “gr” (45 cm)

Soil Description:

Surface Soil

0 – 30 cm; brown (7.5YR4/4m) sandy clay loam (gritty); apedal, hard setting; hard (dry), friable (moist) non-plastic and non-sticky (wet); moderate amounts of quartz and ferruginous concretions; clear boundary to:

30 – 45 cm; as above but; yellowish brown (10YR5/4m) conspicuously bleached white (10YR8/2d); sharp boundary to:

Subsoil

45 – 75 cm; mottled red (2.5YR4/6m) and yellowish brown (10YR5/4m) heavy clay; strong fine and medium angular blocky structure; smooth-ped fabric; hard (dry), friable (moist), plastic and sticky (wet); trace amounts of quartz and ferruginous concretions; clear boundary to:

75 – 90 cm; as above but; mottled brown (10YR5/3m), strong brown (7.5YR5/6m) and red (2.5YR4/6m); the amounts of stones increase to slight; weathered sandstone fragments; bedrock at 90 cm.

STAWELL SANDY LOAM
(two representative profiles)

(A) **Profile S-20**

Profile Reference: WM 18/12
Topography: Mid-gentle slope in undulating plain.
Soil Classification: Dy 3.41/SL (30 cm)

Soil Description:

Surface Soil

0 – 10 cm; brown (10YR5/3m) sandy loam; apedal, hard setting; hard (dry), moderately friable (moist), non-plastic and non-sticky (wet); trace amounts of ferruginous concretions; sharp boundary to:

10 – 30 cm; as above but; pale brown (10YR6/3m) conspicuously bleached white (10YR8/1d); the amounts of stones increase to slight; sharp boundary to:

Subsoil

- 30 – 60 cm; mottled light yellowish brown (10YR6/4m), red (2.5YR4/6m) and light grey (2.5Y7/2m) heavy clay; strong fine and medium angular blocky structure; smooth-ped fabric; hard (dry), slightly friable (moist), plastic and sticky (wet); diffuse boundary to:
- 60 – 90 cm; as above but; mottled brownish yellow (10YR6/6m) and red (2.5YR4/6m); gradual boundary to:
- 90 – 100 cm; as above but; mottled pale yellow (2.5YR7/4m) and red (2.5YR4/6m).

(B) Profile S-21

Profile Reference: WM 17/12
Topography: Mid-gentle slope in undulating plain.
Soil Classification: Dy 3.42/SL “gr” (25 cm)

Soil Description:

Surface Soil

- 0 – 15 cm; brown (10YR4/3m) sandy loam (gritty); apedal, hard setting; hard (dry), friable (moist), non-plastic and non-sticky (wet); slight amounts of quartz and ferruginous concretions; sharp boundary to:
- 15 – 25 cm; as above but; very pale brown (10YR7/4m) conspicuously bleached white (10YR8/2m); sharp boundary to:

Subsoil

- 25 – 55 cm; mottled strong brown (7.5YR5/8m) and light brownish grey (10YR6/2m) sandy clay (gritty); moderate fine and medium angular blocky structure; smooth-ped fabric; hard (dry), friable (moist), slightly plastic and slightly sticky (wet); trace amounts of fine quartz fragments; gradual boundary to:
- 55 – 85 cm; as above but; with the addition of red (2.5YR4/6m) to the mottled soil colour; clear boundary to:
- 85 – 100 cm; mottled light brown (7.5YR6/4m) and strong brown (7.5YR5/8m) sandy clay (gritty); weakly pedal; weathered sandstone material.

STAWELL SANDY LOAM (Deep Surface)
(three representative profiles)

(A) Profile S-22

Profile Reference: WM 17/16
Topography: Lower-gentle slope in undulating plain.
Soil Classification: Dy 3.43/SL “gr” (35 cm)

Soil Description:

Surface Soil

- 0 – 10 cm; brown (10YR4/3m) sandy loam (gritty); apedal, hard setting; hard (dry), friable (moist), non-plastic and non-sticky (wet); trace amounts of quartz and ferruginous concretions; sharp boundary to:
- 10 – 35 cm; as above but; pale brown (10YR6/3m) conspicuously bleached white (10YR8/2d); the amounts of stones increase to light; sharp boundary to:

Subsoil

- 35 – 65 cm; mottled yellowish brown (10YR5/6m), pale brown (10YR6/3m) and red (2.5YR4/6m) heavy clay with some sand; strong fine and medium angular blocky structure; smooth-ped fabric; hard (dry), moderately friable (moist), plastic and sticky (wet); clear boundary to:
- 65 – 100 cm; as above but; light yellowish brown (2.5Y6/4m) heavy clay.

(B) Profile S-23

- Profile Reference:** WM 18/10
Topography: Mid-gentle slope in undulating plain.
Soil Classification: Dy 3.42/SL (40 cm)

Soil Description:

Surface Soil

- 0 – 20 cm; yellowish brown (10YR5/4m) sandy loam; apedal, hard setting; hard (dry), friable (moist), non-plastic and non-sticky (wet); trace amounts of ferruginous concretions; sharp boundary to:
- 20 – 40 cm; as above but; pale brown (10YR6/3m) conspicuously bleached white (10YR8/2d); sharp boundary to:

Subsoil

- 40 – 70 cm; mottled yellowish brown (10YR5/8m), red (2.5YR4/6m) and light grey (2.5Y7/2m) heavy clay; strong fine and medium angular blocky structure; smooth-ped fabric; hard (dry), slightly friable (moist), plastic and sticky (wet); gradual boundary to:
- 70 – 100 cm; as above but; mottled brownish yellow (10YR6/8m) and red (2.5YR4/8m).

(C) Profile S-24

- Profile Reference:** WM 18/21
Topography: Shallow gully floor in undulating plain
Soil Classification: Dy 3.42/SL (40 cm)

Soil Description:

Surface Soil

- 0 – 10 cm; brown (10YR4/3m) sandy loam; apedal, hard setting; hard (dry), friable (moist), non-plastic and non-sticky (wet); trace amounts of fine quartz fragments and ferruginous concretions; sharp boundary to:
- 10 – 40 cm; as above but; light yellowish brown (10YR6/4m) conspicuously bleached white (10YR8/2d), the amounts of stones increase to slight; sharp boundary to:

Subsoil

- 40 – 60 cm; mottled yellowish brown (10YR5/8m), red (2.5YR4/8m) and light grey (2.5Y7/2m) sandy clay; moderate medium subangular blocky structure; rough-ped fabric; hard (dry), friable (moist), moderately plastic and moderately sticky (wet); gradual boundary to:
- 60 – 90 cm; as above but; mottled yellowish red (5YR4/6m), red (2.5YR4/8m) and yellowish brown (10YR5/4m); clear boundary to:
- 90 – 100 cm; mottled yellowish red (5YR5/6m) and light yellowish brown (10YR6/4m) heavy clay; moderate fine and medium angular blocky structure; smooth-ped fabric; hard (dry), moderately friable (moist), plastic and sticky (wet).

STAWELL SANDY LOAM (Deep Surface & Stony Profile)
(one representative profile)

Profile S-25

- Profile Reference:** WM 17/14
Topography: Upper-gentle slope in undulating plain
Soil Classification: Dy 3.41/SL “gr” (50 cm)

Soil Description:

Surface Soil

- 0 – 15 cm; dark brown (7.5YR3/4m) sandy loam (gritty); apedal, hard setting; hard (dry), friable (moist) non-plastic and non-sticky (wet); moderate amounts of quartz and ferruginous concretions; sharp boundary to:
- 15 – 50 cm; as above but; strong brown (7.5YR5/6m) conspicuously bleached pink (7.5YR7/4d) light sandy clay loam (gritty); the amounts of stones increase to heavy; clear boundary to:

Subsoil

- 50 – 90 cm; mottled strong brown (7.5YR5/6m) and red (2.5YR4/8m) sandy clay (gritty); moderate fine and medium angular blocky structure; smooth-ped fabric; hard (dry), moderately friable (moist), plastic and sticky (wet); moderate amounts of quartz and ferruginous concretions; bedrock at 90 cm.

STAWELL LOAM
(two representative profiles)

(A) Profile S-26

Profile Reference: WM 17/33
Topography: Gully floor in a hilly area.
Soil Classification: Dy 3.32/L (15 cm)

Soil Description:

Surface Soil

0 – 15 cm; brown (10YR4/3m) loam; apedal, hard setting; very hard (dry), moderately friable (moist), non-plastic and non-sticky (wet); slight amounts of quartz and ferruginous concretions; nests of bleached light grey (10YR7/2d) soil materials are sporadically present at the base of this horizon; sharp boundary to:

Subsoil

15 – 45 cm; mottled dark greyish brown (10YR4/2m) and yellowish brown (10YR5/6m) heavy clay; strong medium angular blocky structure; smooth-ped fabric; very hard (dry), moderately friable (moist), plastic and sticky (wet); gradual boundary to:

45 – 70 cm; as above but; olive brown (2.5Y4/4m) “whole coloured”; gradual boundary to:

70 – 100 cm; as above but; light olive brown (2.5Y5/4m).

(B) Profile S-27

Profile Reference: WM 18/24
Topography: Lower gentle slope (gully floor) in a gently undulating small plain located in a hilly area.
Soil Classification: Dy 3.33/L (15 cm)

Soil Description:

Surface Soil

0 – 15 cm; brown (10YR4/3m) loam; apedal, hard setting; hard (dry), moderately friable (moist), non-plastic and non-sticky (wet); nests of bleached white (10YR8/1d) soil materials are sporadically present at the sharp boundary between this horizon and the clayey subsoil below:

Subsoil

15 – 45 cm; mottled dark greyish brown (10YR4/2m) and light olive brown (2.5Y5/4m) heavy clay; strong medium angular blocky structure; smooth-ped fabric; very hard (dry), moderately friable (moist), plastic and sticky (wet); gradual boundary to:

45 – 75 cm; as above but; mottled greyish brown (2.5Y5/2m) and yellowish brown (10YR5/6m); bedrock at 75cm.

STAWELL SANDY CLAY LOAM
(two representative profiles)

(A) Profile S-28

<u>Profile Reference:</u>	WM 18/20
<u>Topography:</u>	Mid-gentle slope in undulating plain
<u>Soil Classification:</u>	Dy 3.43/SCL (15 cm)

Soil Description:

Surface Soil

0 – 13 cm; dark brown (10YR3/3m) sandy clay loam; apedal, hard setting; hard (dry), friable (moist), non-plastic and non-sticky (wet); trace amounts of fine quartz fragments sharp boundary to:

13 – 15 cm; as above but; light yellowish brown (10YR6/4m) conspicuously bleached white (10YR8/2d); sharp boundary to:

Subsoil

15 – 45 cm; mottled yellowish brown (10YR5/8m) and red (2.5YR4/8m) heavy clay; strong fine and medium angular blocky structure; smooth-ped fabric; hard (dry), slightly friable (moist), plastic and sticky (wet); gradual boundary to:

45 – 90 cm; as above but; mottled yellowish brown (10YR5/8m), red (2.5YR4/8m) and light yellowish brown (2.5Y6/4m); diffuse boundary to:

90 – 100 cm; as above but; the amount of the light yellowish brown colour in the mottle decreases to below 10%.

(B) Profile S-29

<u>Profile Reference:</u>	WM 17/5
<u>Topography:</u>	Mid-very gentle slope in undulating plain.
<u>Soil Classification:</u>	Dy 3.43/FSCL (25 cm)

Soil Description:

Surface Soil

0 – 10 cm; brown (10YR5/3m) fine sandy clay loam; apedal, hard setting; hard (dry), friable (moist), non-plastic and non-sticky (wet); trace amounts of quartz fragments; sharp boundary to:

10 – 25 cm; as above but; very pale brown (10YR7/3m) conspicuously bleached white (10YR8/2d) fine sandy loam; sharp boundary to:

Subsoil

25 – 55 cm; mottled yellowish brown (10YR5/6m) red (2.5YR4/6m) and pale brown (10YR6/3m) heavy clay; strong fine and medium angular blocky structure; smooth-ped fabric; very hard (dry), slightly friable (moist), plastic and sticky (wet); gradual boundary to:

55 – 80 cm; as above but; mottled yellowish brown (10YR5/8m) and pale brown (10YR6/3m); sharp boundary to:

80 – 100 cm; brownish yellow (10YR6/6m) sandy clay, apedal, massive; hard (dry) slightly friable (moist), slightly plastic and slightly sticky (wet); trace amounts of fine quartz fragments; weathered sandstone.

STAWELL SANDY CLAY LOAM (Deep Surface)
(two representative profiles)

(A) Profile S-30

Profile Reference: WM 17/3
Topography: Shallow gully floor in undulating plain
Soil Classification: Dy 3.43/FSCL (35 cm)

Soil Description:

Surface Soil

0 – 15 cm; brown (10YR4/3m) fine sandy clay loam; apedal, hard setting; hard (dry), friable (moist), non-plastic and non-sticky (wet); trace amounts of quartz fragments; sharp boundary to:

15 – 35 cm; as above but; pale brown (10YR6/3m) and brownish yellow (10YR6/6m), conspicuously bleached white (10YR8/2m), no stones; sharp boundary to:

Subsoil

35 – 65 cm; mottled pale brown (10YR6/3m) and yellowish red (5YR5/8m) heavy clay; strong medium columnar breaking to angular blocky structure; smooth-ped fabric; very hard (dry), non-friable (moist), plastic and sticky (wet); gradual boundary to:

65 – 80 cm; as above but; brown (10YR5/3m) “whole-coloured”. At 80 cm, the soil material becomes too dry, very compacted and hard to sample using a hand auger.

(B) Profile S-31

Profile Reference: WM 18/17
Topography: Lower-gentle slope in a hilly area.
Soil Classification: Dy 3.42/SCL (40 cm)

Soil Description:

Surface Soil

0 – 15 cm; dark brown (10YR3/3m) sandy clay loam; apedal, hard setting; hard (dry), friable (moist), non-plastic and non-sticky (wet); trace amounts of quartz and ferruginous concretions; sharp boundary to:

15 – 40 cm; as above but; light yellowish brown (10YR6/4m) conspicuously bleached light grey (10YR7/2d) sandy loam (gritty); the amounts of stones increase to light; sharp boundary to:

Subsoil

- 40 – 70 cm; mottled brownish yellow (10YR6/6m), pale brown (10YR6/3m) and red (2.5YR4/6m) heavy clay; strong fine and medium angular blocky structure; smooth-ped fabric; hard (dry), friable (moist), plastic and sticky (wet); gradual boundary to:
- 70 – 100 cm; as above but; mottled brownish yellow (10YR6/6m), red (2.5YR4/6m) and light grey (2.5YR7/2m); trace amounts of hardened clay fragments.

STAWELL SANDY CLAY LOAM (Stony Profile)
(one representative profile)

Profile S-32

- Profile Reference:** WM 17/26
Topography: Upper-moderate slope in a hilly area
Soil Classification: Dy 3.41/SCL (30 cm)

Soil Description:

Surface Soil

- 0 – 10 cm; dark brown (7.5YR3/4m) sandy clay loam; apedal, hard setting; hard (dry), friable (moist) non-plastic and non-sticky (wet); light amounts of quartz and ferruginous concretions; clear boundary to:
- 10 – 30 cm; as above but; dark reddish brown (5YR3/3m) conspicuously bleached pink (7.5YR7/4d); the amounts of stones increase to moderate; sharp boundary to:

Subsoil

- 30 – 60 cm; mottled strong brown (7.5YR5/6m) and brown (7.5YR4/4m) medium clay; moderate fine and medium angular blocky structure; smooth-ped fabric; hard (dry), friable (moist), plastic and sticky (wet); slight amounts of quartz and ferruginous concretions; gradual boundary to:
- 60 – 90 cm; as above but; brown (7.5YR4/4m) “whole-coloured”; slight amounts of weathered sandstone and shale fragments; clear boundary to:
- 90 – 100 cm; mottled greyish brown (2.5Y5/2m), very dark grey (2.5Y3/0m) and reddish yellow (7.5YR7/6m); medium clay; weakly pedal; light amounts of weathered sandstone and shale fragments.

STAWELL CLAY LOAM
(two representative profiles)

(A) Profile S-33

- Profile Reference:** WM 18/7
Topography: Gully floor in a hilly area
Soil Classification: Dy 3.22/CL “gr” (60 cm)

Soil Description:

Surface Soil

- 0 – 30 cm; dark reddish brown (5YR3/4m) clay loam (gritty); apedal, hard setting; hard (dry), friable (moist), non-plastic and non-sticky (wet); slight amounts of ferruginous concretions; clear boundary to:
- 30 – 40 cm; as above but; brown (10YR4/3m, 6/3d); gradual boundary to:

Subsoil

- 60 – 110 cm; mottled brown (7.5YR5/2m) and strong brown (7.5YR5/8m) medium clay (sandy); moderate fine and medium angular blocky structure; smooth-ped fabric; hard (dry), moderately friable (moist), plastic and sticky (wet); slight amounts of quartz and ferruginous concretions. Weathered sandstone at 100 cm.

(B) Profile S-34

- Profile Reference:** WM 17/41
Topography: Gully floor in a hilly area.
Soil Classification: Dy 3.22/CL (55 cm)

Soil Description:

Surface Soil

- 0 – 10 cm; dark brown (7.5YR3/4m) clay loam; apedal, hard setting; hard (dry), friable (moist), non-plastic and slightly sticky (wet); trace amounts of quartz and ferruginous concretions; gradual boundary to:
- 10 – 35 cm; as above but; clay loam with fine sand; gradual boundary to:
- 35 – 55 cm; as above but; brown (10YR5/3m) sandy clay loam (gritty); slight amounts of quartz and ferruginous concretions; clear boundary to:

Subsoil

- 55 – 75 cm; mottled yellowish brown (10YR5/6m) and brown (10YR5/3m) medium clay (gritty); moderate fine and medium angular blocky; smooth-ped fabric; hard (dry), friable (moist), plastic and sticky (wet); slight amounts of quartz and ferruginous concretions; gradual boundary to:
- 75 – 100 cm; as above but; mottled brown (10YR4/3m), very dark greyish brown (10YR3/2m) and reddish brown (5YR4/4m) heavy clay (gritty).

MINOR SOIL TYPE 2
(one representative profile)

Profile S-35

Profile Reference: WM 17/34
Topography: Gully floor in a hilly area
Soil Classification: Gn 3.12/CL

Soil Description:

Surface Soil

0 – 20 cm; dark reddish brown (5YR3/3m) clay loam, clay contents gradually increase with depth; moderate medium subangular blocky structure; rough-ped fabric; slightly hard (dry), friable (moist) slightly plastic and slightly sticky (wet); trace amounts of quartz and ferruginous concretions; gradual boundary to:

Subsoil

20 – 50 cm; reddish brown (5YR4/4m) sandy light clay (gritty), clay contents gradually increase with depth; strong fine and medium angular blocky structure; smooth-ped fabric; hard (dry), friable (moist), plastic and sticky (wet); slight amounts of quartz and ferruginous concretions; gradual boundary to:

50 – 70 cm; as above but; dark reddish brown (5YR3/4m) sandy medium clay (gritty), clay contents gradually increase with depth; gradual boundary to:

70 – 100 cm; as above but; mottled reddish brown (5YR4/4m) and very dark grey (5YR3/1m) sandy heavy clay (gritty).

MINOR SOIL TYPE 3
(one representative profile)

Profile S-36

Profile Reference: WM 17/44
Topography: Top of ridge in a hilly area
Soil Classification: Um 5.51/SCL “gr”

Soil Description:

Surface Soil

0 – 10 cm; dark reddish brown (5YR3/4m) sandy clay loam (gritty); apedal, massive; earthy fabric (porous); hard (dry), friable (moist), slightly plastic and slightly sticky (wet); slight amounts of quartz and ferruginous concretions; gradual boundary to:

Subsoil

10 – 40 cm; as above but; brown (7.5YR4/4m); moderate amounts of quartz, ferruginous concretions and weathered sandstone fragments; clear boundary to:

40 – 60 cm; as above but; brown (10YR4/3m); bedrock at 60 cm.

(D) **Irrigation Water**

Quality aspects were determined on water samples from sixteen dams located within or adjacent to, the surveyed vineyards. Twelve of these dams currently irrigate about nine vineyards, two dams (# 6 and 13) have been considered “by the Vineyard’s Management” unsuitable for irrigation, and the remaining two (# 11 and 12) are not used at present. The locations of the sixteen dams are shown on Figure S-3, with a reference indicating the areas they currently irrigate. Analytical data obtained for water samples from these dams are listed in Table S-5, below.

Table S-5 - Analytical Data for Dam Water Samples from Seppelt’s Great Western Vineyards

Dam No.	EC *	TSS **	Cl ***	Soluble Cations				SAR $\phi\phi$
				Ca ⁺⁺	Mg ⁺⁺	Na ⁺		
	$\mu\text{S/cm}$	ppm	ppm	m.e/l	m.e/l	m.e/l	% ϕ	
1	280	212	56	0.39	0.31	1.69	70.7	2.86
2	123	109	10	0.24	0.28	0.59	53.2	1.16
3	160	133	16	0.31	0.33	0.82	56.2	1.45
4	245	189	41	0.44	0.48	1.41	61.7	2.18
5	314	234	47	0.17	0.35	2.51	82.8	4.92
6	5560	3667	1914	3.89	13.42	41.39	70.5	14.07
7	218	172	14	0.46	0.46	1.03	52.8	1.52
8	135	117	11	0.21	0.26	0.78	62.4	1.61
9	157	127	24	0.21	0.25	0.96	67.6	2.00
10	117	105	10	0.06	0.18	0.90	78.9	2.60
11	320	238	26	0.65	0.51	1.34	53.6	1.76
12	182	148	13	0.21	0.39	0.95	61.3	1.73
13	2370	1531	739	1.25	3.75	21.52	81.1	13.51
14	131	114	14	0.21	0.26	0.91	65.9	1.88
15	116	104	7	0.36	0.26	0.53	46.1	0.95
16	62	66	5	0.14	0.18	0.31	49.2	0.78

* Electrical Conductivity at 20°C.

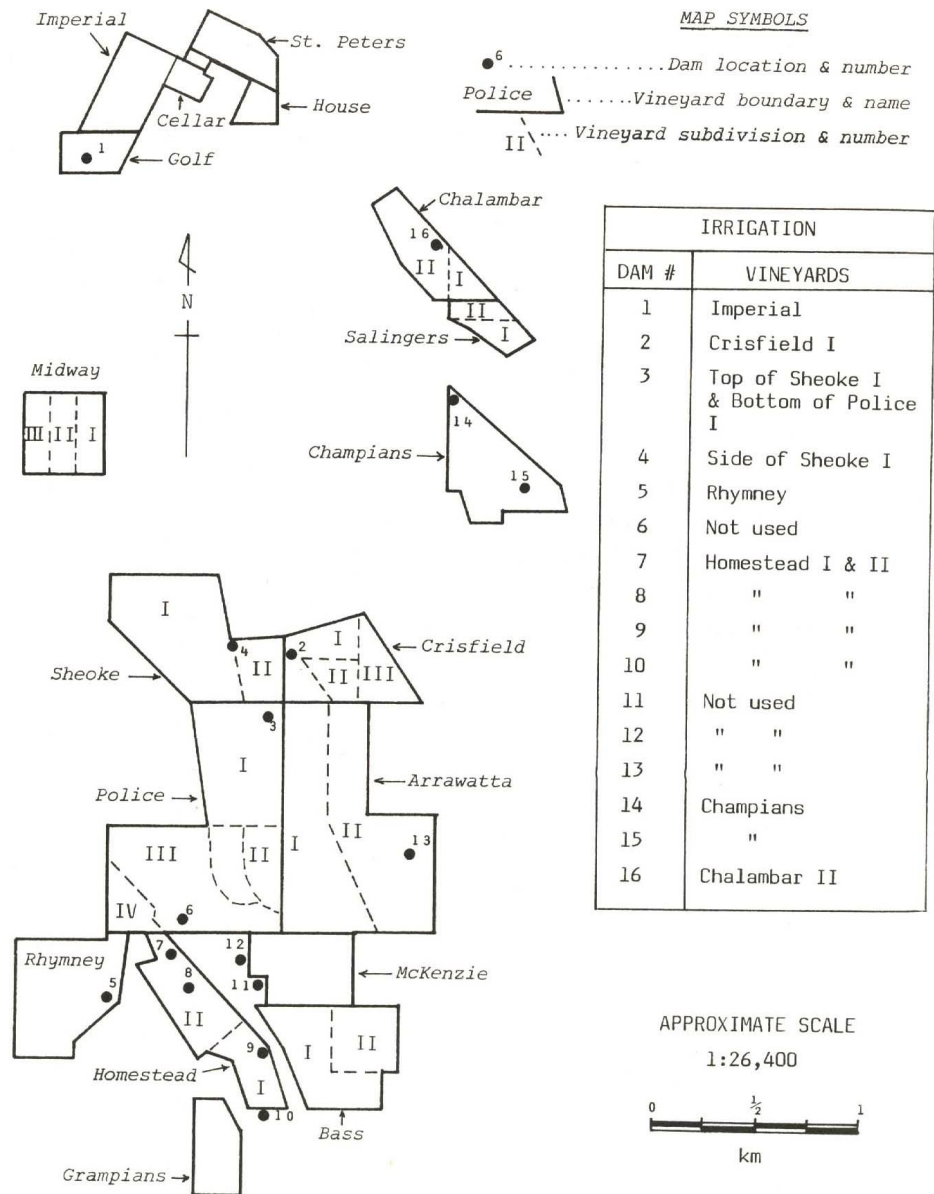
** Total Soluble Salts

*** Chlorides as sodium chloride (common salt)

ϕ Sodium Percentage = $100 \text{ (Na}^+ \text{) / (Ca}^{++} \text{ + Mg}^{++} \text{ + Na}^+ \text{)}$

$\phi\phi$ Sodium – Adsorption – Ratio = $\text{Na}^+ / \sqrt{(\text{Ca} + \text{Mg}^{++})/2}$

Figure S-3: Locations of dams and the areas they currently irrigate on Seppelt's Great Western Vineyards



**KEY TO THE SOIL MAPS
OF SEPPELT'S GREAT WESTERN VINEYARDS**

* Figure S-4: Index to Soil Maps "Scale (approx.) 1:26,400"

* Figure S-5: Soil Maps "Scale (approx.) 1:8,800" as follows:

Map Number	Vineyards Included
# 1	ST. PETERS-IMERIAL-HOUSE-GOLF
# 2	MIDWAY 1, 2 and 3
# 3	CHALAMBAR 1 and 2 – SALINGERS 1 and 2
# 4	CHAMPIONS
# 5	CRISFIELD 1, 2 and 3 – ARRAWATTA 1 and 2
# 6	SHEOKE 1, 2 and 3 – POLICE 1, 2, 3 and 4
# 7	McKENZIE – BASS 1 and 2
# 8	HOMESTEAD 1 and 2 – GRAMPIANS RHYMNEY

* Organisation: DEPARTMENT OF AGRICULTURE, VICTORIA
DIVISION OF AGRICULTURAL CHEMISTRY
SOILS SECTION

* Field Operations: 1980

* Soil Surveyors: N.S. Badawy and N.B. Lewis

* Maps compiled and drawn by: Nabil S. Badawy, Soils Officer

Figure S-4: Index to Soil Maps of Seppelt's Great Western Vineyards

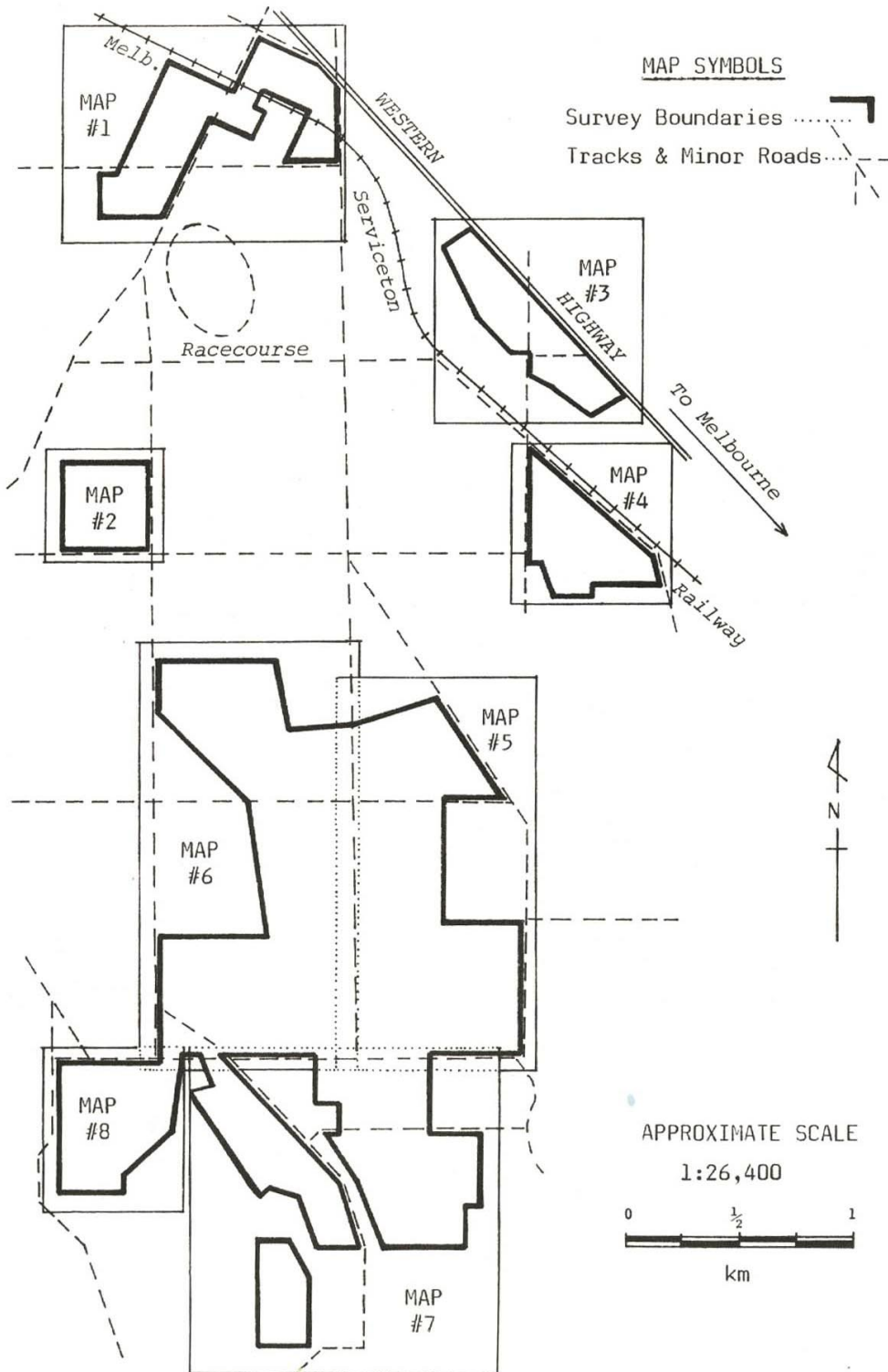
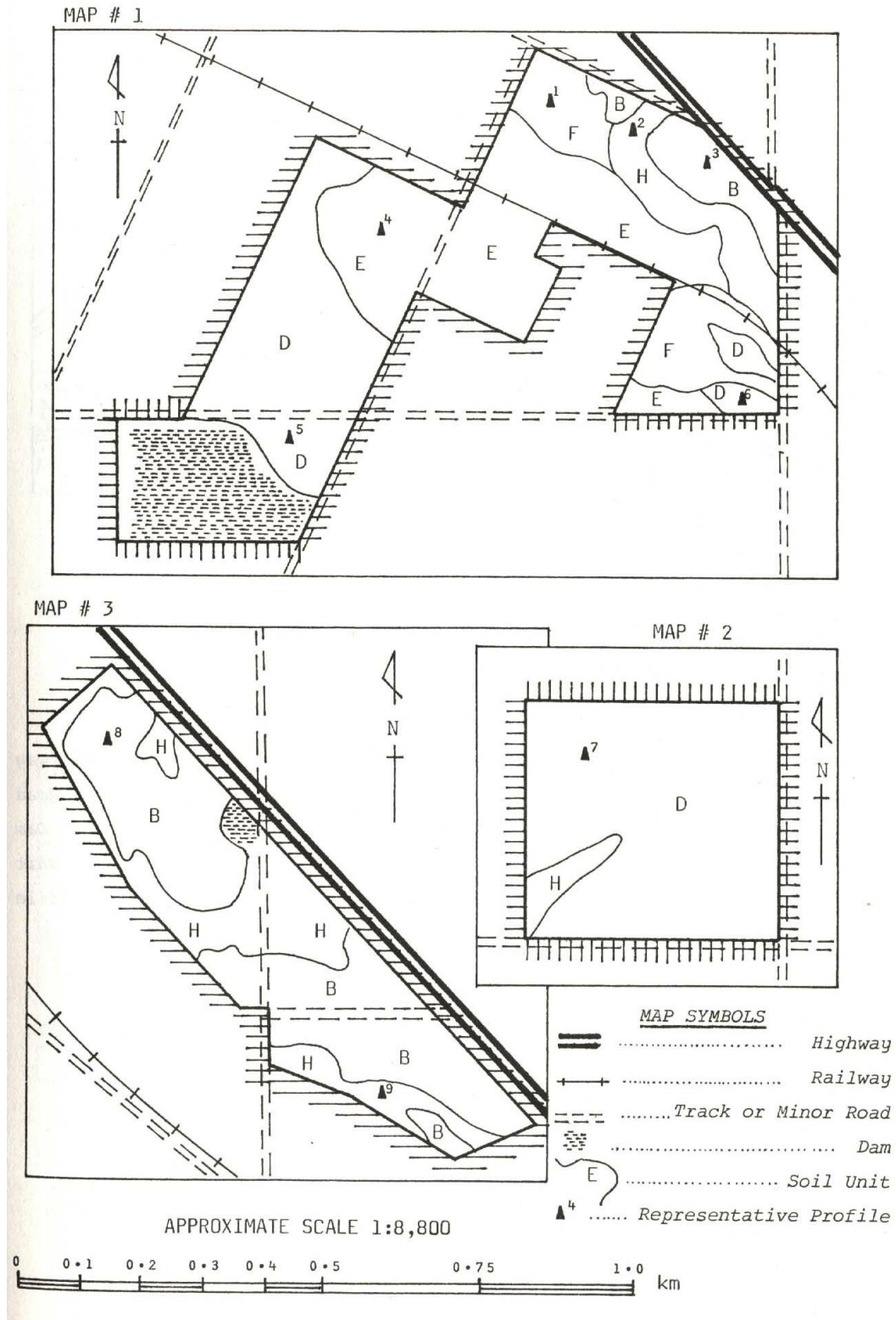
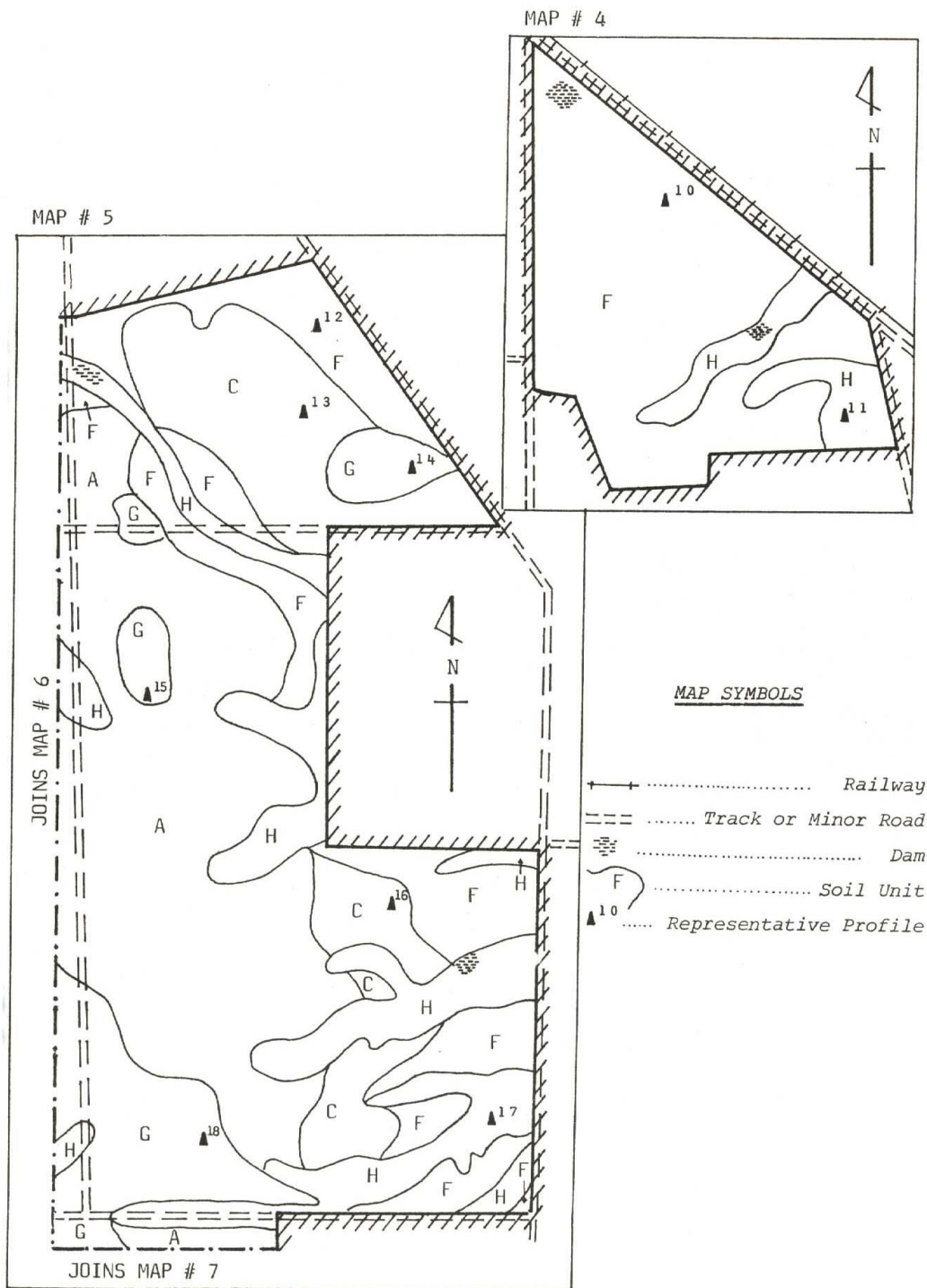
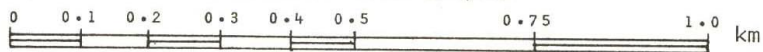


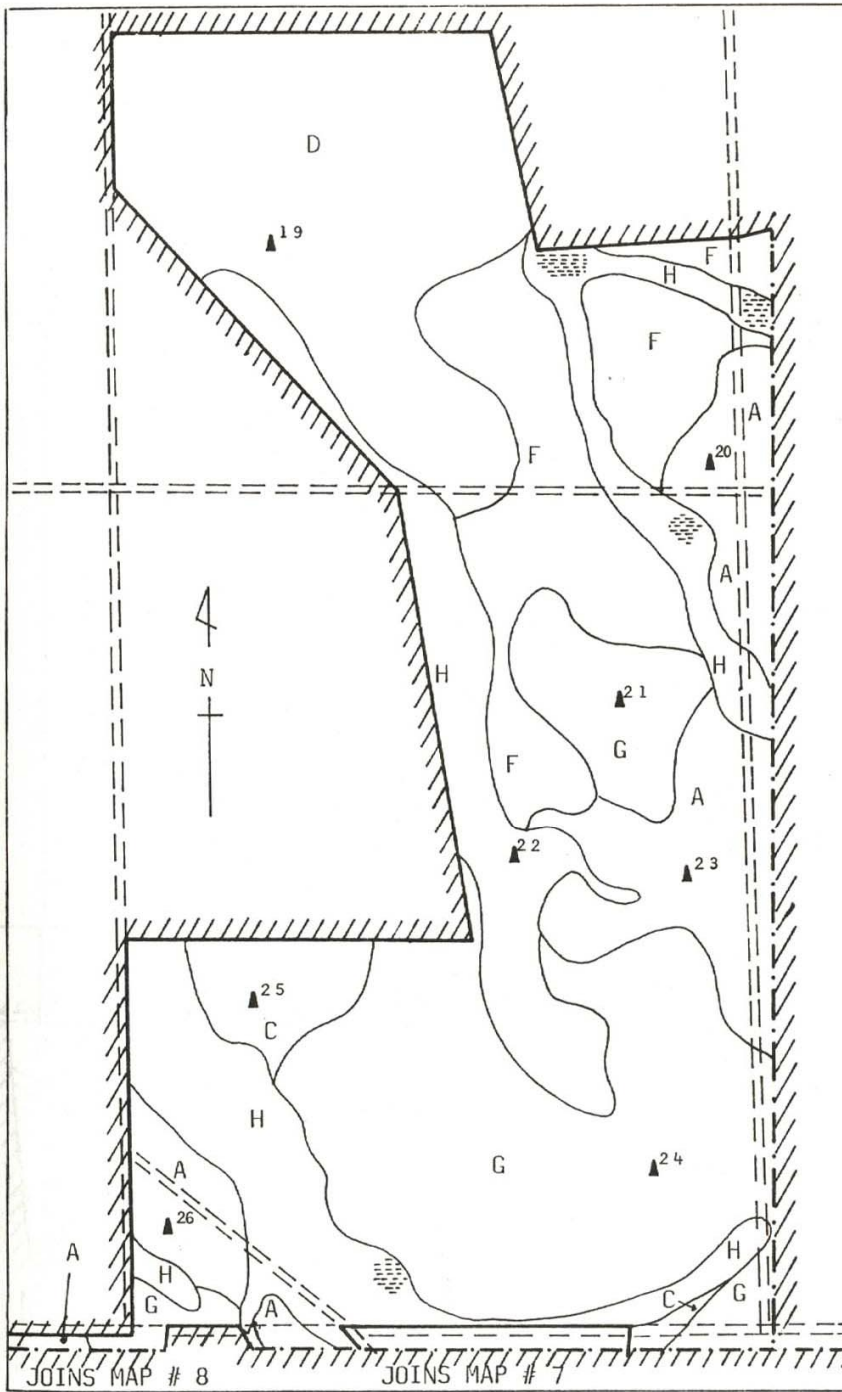
Figure S-5: Soil Maps of Seppelt's Great Western Vineyards





APPROXIMATE SCALE 1:8,800

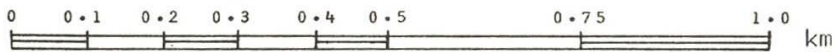


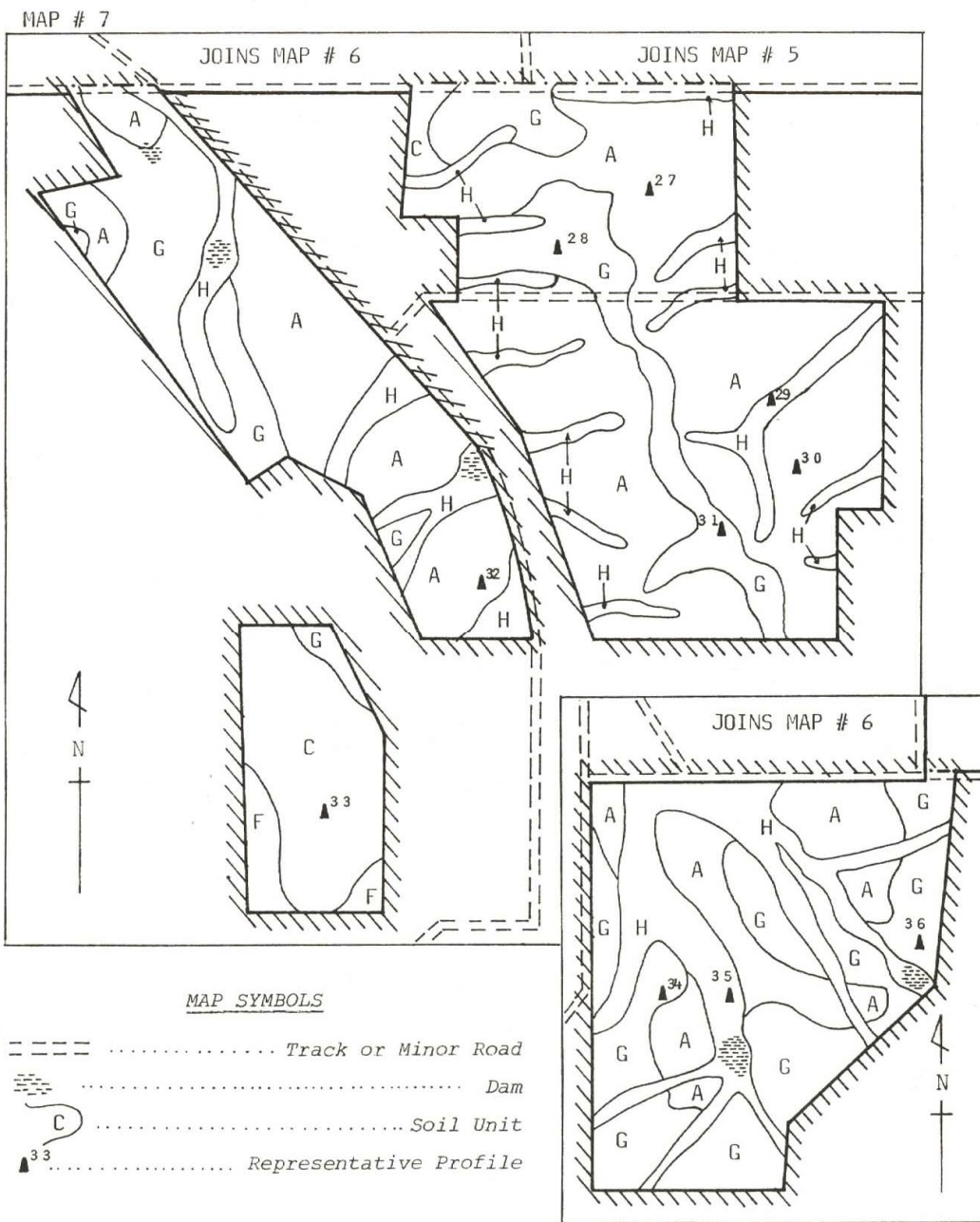


MAP SYMBOLS

- Track or Minor Road
- Dam
- G Soil Unit
- ▲²¹ Representative Profile

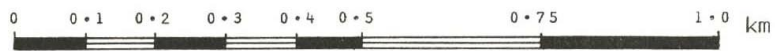
APPROXIMATE SCALE 1:8,800





APPROXIMATE SCALE 1:8,800

MAP # 8



LEGEND

(i) MAPPING UNITS

Unit	Soils
A	<u>Dominant occurrence:</u> - Cl [<i>Concongella loam</i>] - Cl (d) [<i>Concongella loam (deep surface)</i>] <u>Subdominant occurrence:</u> - Csc1 [<i>Concongella sandy clay loam</i>]
B	- GWl [Great Western loam]
C	- GWscl [Great Western sandy clay loam] - GWscl (d) [Great Western sandy clay loam (deep surface)]
D	- Ssl [Stawell sandy loam] - Ssl (d) [Stawell sandy loam (deep surface)]
E	- Ssl (d & s) [Stawell sandy loam (deep surface & stony profile)]
F	- Sscl [Stawell sandy clay loam] - Sscl (d) [Stawell sandy clay loam (deep surface)]
G	- Soil Complex I <u>Dominant occurrence:</u> • Cl (d & s) [Concongella loam (deep surface & stony profile)] • Csc1 (d & s) [Concongella sandy clay loam (deep surface & stony profile)] <u>Subdominant occurrence:</u> • Cl (s) [Concongella loam (stony profile)] • GWscl (d & s) [Great Western sandy clay loam (deep surface & stony profile)] • M.T.3 [Minor soil type 3]
H	- Soil Complex II Varied soils in gullies and depressions including: • Ssl (d) [Stawell sandy loam (deep surface)] • Sscl (d) [Stawell sandy clay loam (deep surface)] • Sl [Stawell loam] • Scl [Stawell clay loam] • M.T.2 [Minor soil type 2]

(ii) **REPRESENTATIVE PROFILES**

Map Reference	Report Reference	Soil Classification	
		PPF (Northcote '79)	Soil Type
MAP # 1			
Δ 1	S-29	Dy 3.43/FSCL (25 cm)	Sscl
Δ 2	S-30	Dy 3.43/FSCL (35 cm)	Sscl (d)
Δ 3	S-13	Dr 3.43/L (35 cm)	GWl
Δ 4	S-25	Dy 3.41/SL "gr" (50 cm)	Ssl (d & s)
Δ 5	S-22	Dy 3.43/SL "gr" (35 cm)	Ssl (d)
Δ 6	S-21	Dy 3.42/SL "gr" (25 cm)	Ssl
MAP # 2			
Δ 7	S-23	Dy 3.42/SL (40 cm)	Ssl (d)
MAP # 3			
Δ 8	S-14	Dr 3.43/FSCL (25 cm)	GWl
Δ 9	S-27	Dy 3.33/L (15 cm)	Sl
MAP # 4			
Δ 10	S-28	Dy 3.43/SCL (15 cm)	Sscl
Δ 11	S-24	Dy 3.42/SL (40 cm)	Ssl (d)
MAP # 5			
Δ 12	S-31	Dy 3.42/SCL (40 cm)	Sscl (d)
Δ 13	S-16	Dr 3.31/SCL "gr" (15 cm)	GWscl
Δ 14	S-12	Dr 2.41/ltscl "gr" (40 cm)	Cscl (d & s)
Δ 15	S-10	Dr 2.41/ltscl "gr" (35 cm)	Cscl (d & s)
Δ 16	S-15	Dr 3.32/ltscl "gr" (15 cm)	GWscl
Δ 17	S-26	Dy 3.32/L (15 cm)	Sl
Δ 18	S-32	Dy 3.41/SCL (30 cm)	Sscl (s)
MAP # 6			
Δ 19	S-20	Dy 3.41/SL (30 cm)	Ssl
Δ 20	S- 4	Dr 2.22/SCL (35 cm)	Cl (d)
Δ 21	S- 8	Dr 2.12/SCL "gr" (30 cm)	Cl (d & s)
Δ 22	S-34	Dy 3.22/CL (55 cm)	Scl
Δ 23	S- 1	Dr 2.12/SCL (15 cm)	Cl
Δ 24	S-36	Um 5.51/SCL	M.T.3
Δ 24	S-18	Dr 3.32/SCL (30 cm)	GWscl (d)
Δ 25	S- 9	Dr 2.42/SCL "gr" (25 cm)	Cscl
Δ 26			
MAP # 7			
Δ 27	S- 3	Dr 2.12/SCL (10 cm)	Cl
Δ 28	S- 7	Dr 2.11/SCL "gr" (20 cm)	Cl (d & s)
Δ 29	S-35	Gn 3.12/CL	M.T.2
Δ 30	S- 5	Dr 2.12/SCL (35 cm)	Cl (d)
Δ 31	S- 6	Dr 2.12/SCL "gr" (10 cm)	Cl (s)
Δ 32	S- 2	Dr 2.11/SCL (10 cm)	Cl
Δ 32	S-17	Dr 3.31/SCL (30 cm)	GWscl (d)
Δ 33			
MAP # 8			
Δ 34	S-11	Dr 2.42/SCL (35 cm)	Cscl (d & s)
Δ 35	S-33	Dy 3.22/CL "gr" (60 cm)	Scl
Δ 36	S-19	Dr 3.42/SCL "gr" (45 cm)	GWscl (d & s)

Appendix S - Analytical Data for representative profiles from Seppelt's Great Western Vineyards

Depth (cm)	Field Texture	pH	T.S.S. (%)	Chloride "as NaCl" (%)	Total N (%)	Org. C (%)	Exchangeable Cations "milliequivalents per 100 g soils"					Aggregate Stability		Moisture (%)	
							Ca	Mg	K	Na	H	Class	Index	@ -15 Bar	@ -1/3 Bar
(1)			(2)	(3)							(4)	(5)	(6)	(7)	
<u>PROFILE S-1; CONCONGELLA LOAM; Dr 2.12/SCL (15 cm)</u>															
0 – 15	SCL	5.9	0.019	-	0.146	1.65	1.9	0.6	1.0	0.2	6.2	3	3	7.0	19.5
15 – 60	HC	6.8	0.010	-			3.3	2.6	0.8	0.2	5.5	3	4	16.1	29.7
60 – 90	HC	7.1	0.018	-			2.2	3.4	0.6	0.4	3.4	2	12	16.1	30.5
90 – 100	SC	7.5	0.018	-			1.4	3.2	0.4	0.6	1.4	2	12	12.0	28.4
<u>PROFILE S-2; CONCONGELLA LOAM; Dr 2.11/SCL (10 cm)</u>															
0 – 10	SCL	5.4	0.030	-								2	10	9.3	26.4
10 – 40	HC	5.8	0.011	-								3	2	17.7	34.6
40 – 60	HC	5.9	0.008	-								5	0	16.4	35.3
60 – 80	HC (gr)	5.8	0.008	-								3	4	13.0	35.0
80 – 95	MC (gr)	5.9	0.009	-								3	2	10.7	31.6
<u>PROFILE S-3; CONCONGELLA LOAM; Dr 2.12/SCL (10 cm)</u>															
0 – 10	SCL	6.0	0.035	-								3	6	9.8	17.9
10 – 40	HC (gr)	6.6	0.013	-								2	3	11.5	20.0
40 – 70	HC (gr)	6.6	0.011	-								2	3	12.8	22.5
70 – 100	MC (gr)	6.3	0.012	-								0	5	11.0	23.3
<u>PROFILE S-4; CONCONGELLA LOAM (Deep Surface); Dr 2.22/SCL (35 cm)</u>															
0 – 15	SCL	6.0	0.083	0.014								2	10	8.9	16.7
15 – 35	SCL	6.5	0.015	-								2	10	5.0	10.5
35 – 65	HC	6.8	0.035	-								2	10	15.9	24.6
65 – 85	HC	5.7	0.075	0.014								3	8	20.7	31.8
85 – 100	MC (gr)	5.3	0.091	0.020								2	10	19.1	32.1

Depth (cm)	Field Texture	pH	T.S.S. (%)	Chloride "as NaCl" (%)	Total N (%)	Org. C (%)	Exchangeable Cations "milliequivalents per 100 g soils"					Aggregate Stability		Moisture (%)	
							Ca	Mg	K	Na	H	Class	Index	@ -15 Bar	@ - ¹ / ₃ Bar
(1)			(2)	(3)							(4)	(5)	(6)	(7)	
PROFILE S-5; CONCONGELLA LOAM (Deep Surface); Dr 2.12/SCL (35 cm)															
0 – 35	SCL	6.4	0.013	-							3	6	9.4	20.6	
35 – 65	HC	7.0	0.025	-							3	6	16.3	26.4	
65 – 85	HC (gr)	7.2	0.014	-							2	10	21.3	31.1	
85 – 100	HC (gr)	6.9	0.040	-							3	8	20.0	31.5	
PROFILE S-6; CONCONGELLA LOAM (Stony Profile); Dr 2.12/SCL "gr" (10 cm)															
0 – 10	SCL (gr)	5.9	0.046	-							3	2	9.5	17.4	
10 – 40	MC (gr)	6.5	0.027	-							3	5	10.5	25.2	
40 – 70	SCL (gr)	7.3	0.010	-							5	0	7.4	19.7	
70 – 100	SCL (gr)	7.6	0.015	-							5	0	6.7	23.2	
PROFILE S-7; CONCONGELLA LOAM (Deep Surface & Stony Profile); Dr 2.11/SCL "gr" (20 cm)															
0 – 20	SCL (gr)	5.2	0.014	-	0.093	0.71	0.9	0.8	0.7	0.1	6.8	3	8	8.6	18.1
20 – 50	HC (gr)	5.5	0.015	-			1.8	3.6	1.0	0.1	6.5	3	8	15.0	25.3
50 – 75	MC (s)	5.8	0.016	-			0.6	5.5	0.9	0.2	5.1	2	10	12.4	23.0
PROFILE S-8; CONCONGELLA LOAM (Deep Surface & Stony Profile); Dr 2.12/SCL "gr" (30 cm)															
0 – 10	SCL (gr)	6.0	0.032	-	0.091	0.78	2.1	0.9	0.8	0.2	5.3	5	0	8.1	21.6
10 – 30	SCL (gr)	6.2	0.008	-			3.2	1.5	0.8	0.2	4.2	5	0	6.0	20.9
30 – 70	HC (gr)	6.5	0.010	-			1.6	3.8	0.4	0.3	5.4	3	2	12.7	24.9
70 – 100	HC (gr)	6.5	0.013	-			0.7	5.2	0.3	0.6	5.9	5	0	15.1	26.1
PROFILE S-9; CONCONGELLA SANDY CLAY LOAM; Dr 2.42/SCL "gr" (25 cm)															
0 – 15	SCL (gr)	6.0	0.049	-								2	10	6.5	21.7
15 – 25	SCL (gr)	5.9	0.017	-								2	10	6.2	21.1
25 – 70	HC	6.6	0.011	-								2	10	20.2	27.9
70 – 100	HC	6.7	0.026	-								1	14	19.9	33.9

Depth (cm)	Field Texture	pH	T.S.S. (%)	Chloride "as NaCl" (%)	Total N (%)	Org. C (%)	Exchangeable Cations "milliequivalents per 100 g soils"					Aggregate Stability		Moisture (%)	
							Ca	Mg	K	Na	H	Class	Index	@ -15 Bar	@ -1/3 Bar
(1)	(1)	(2)	(2)	(3)	(1)	(%)	(4)	(5)	(6)	(7)	(4)	(5)	(6)	(7)	
PROFILE S-10; CONGELLA SANDY CLAY LOAM (Deep Surface & Stony Profile); Dr 2.41/lt SCL "gr" (35 cm)															
0 – 10	LtSCL(gr)	6.2	0.016	-	0.160	2.09	2.6	0.7	0.5	0.1	5.8	2	10	7.5	16.3
10 – 35	LtSCL(gr)	6.4	0.005	-			1.5	0.4	0.2	0.1	2.3	2	10	5.6	12.2
35 – 55	HC	6.4	0.007	-			1.5	2.7	0.5	0.1	5.7	2	10	15.8	22.0
55 – 65	SC	6.2	0.008	-			0.9	1.8	0.3	0.1	4.4	2	10	11.9	20.4
PROFILE S-11; CONGELLA SANDY CLAY LOAM (Deep Surface & Stony Profile); Dr 2.42/SCL (35 cm)															
0 – 15	SCL	5.8	0.028	-	0.113	0.62	1.6	0.3	0.4	0.1	5.7	3	3	8.5	19.1
15 – 35	LtSCL	6.3	0.009	-			1.5	0.3	0.2	0.1	2.2	2	10	6.3	13.4
35 – 80	HC	7.5	0.017	-			3.7	4.5	0.9	0.9	5.9	2	12	25.9	35.6
80 – 100	HC	7.5	0.035	-			2.1	5.9	0.9	1.8	5.6	1	14	29.3	41.4
PROFILE S-12; CONGELLA SANDY CLAY LOAM (Deep Surface & Stony Profile); Dr 2.41/lt SCL "gr" (40 cm)															
0 – 15	SCL(gr)	6.3	0.035	-	0.305	4.89	4.1	1.2	0.1	0.1	11.0	3	8	14.8	22.2
15 – 40	SCL(gr)	6.6	0.012	-			1.3	1.0	0.8	0.1	5.7	2	10	9.2	16.7
40 – 65	HC (gr)	6.2	0.018	-			1.7	3.2	1.4	0.1	7.6	5	0	21.5	29.2
PROFILE S-13; GREAT WESTERN LOAM; Dr 3.43/L (35 cm)															
0 – 15	L	7.5	0.011	-	0.080	0.96	1.9	0.5	0.4	0.1	2.4	2	11	5.1	21.3
15 – 35	L	7.7	0.006	-			1.8	0.7	0.4	0.1	0.8	2	10	5.0	17.9
35 – 65	HC	7.9	0.012	-			4.0	5.0	0.9	0.3	5.1	2	10	19.1	30.6
65 – 85	HC (fs)	8.2	0.013	-			2.2	5.0	0.5	0.4	3.1	2	12	12.2	25.9
85 – 100	FSCL	8.4	0.030	-			1.1	3.5	0.3	0.7	1.2	1	14	7.5	20.1
PROFILE S-14; GREAT WESTERN LOAM; Dr 3.43/FSCL (25 cm)															
0 – 10	FSCL	7.0	0.036	-								2	10	6.6	28.9
10 – 25	FSCL	7.4	0.013	-								2	12	5.5	25.3
25 – 55	HC	7.3	0.047	-								1	14	17.8	32.5
55 – 80	HC	8.4	0.073	0.036								1	16	22.8	32.1
80 – 100	HC	8.9	0.134	0.070								1	16	27.4	37.6

Depth (cm)	Field Texture	pH	T.S.S. (%)	Chloride "as NaCl" (%)	Total N (%)	Org. C (%)	Exchangeable Cations "milliequivalents per 100 g soils"					Aggregate Stability		Moisture (%)	
							Ca	Mg	K	Na	H	Class	Index	@ -15 Bar	@ -1/3 Bar
(1)			(2)	(3)							(4)	(5)	(6)	(7)	
PROFILE S-15; GREAT WESTERN SANDY CLAY LOAM; Dr 3.32/lt SCL "gr" (15 cm)															
0 – 10	LtSCL(gr)	6.6	0.019	-	0.054	0.73	1.9	0.8	0.1	0.3	2.0	2	12	5.4	12.5
10 – 15	SCL (gr)	6.6	0.024	-			2.1	1.1	0.1	0.1	2.4	1	16	7.8	15.2
15 – 45	HC	6.2	0.094	0.084			1.7	4.8	0.2	2.1	6.0	1	16	22.4	34.3
45 – 90	HC	6.7	0.149	0.158			1.2	5.1	0.2	3.2	4.4	1	14	22.1	37.1
90 – 100	HC	6.9	0.137	0.098			0.6	3.8	0.1	1.9	1.6	1	14	14.3	30.3
PROFILE S-16; GREAT WESTERN SANDY CLAY LOAM; Dr 3.31/SCL "gr" (15 cm)															
0 – 15	SCL (gr)	6.2	0.043	-	0.215	3.36	1.4	1.1	0.9	0.1	10.1	2	10	6.3	16.9
15 – 45	HC	6.0	0.016	-			0.6	3.2	0.7	0.2	8.1	3	5	19.9	28.4
45 – 90	HC	6.1	0.018	-			0.3	3.9	0.4	0.4	8.2	3	6	24.5	33.5
90 - 100	HC	5.9	0.022	-			0.2	3.3	0.2	0.6	9.1	3	3	25.5	33.2
PROFILE S-17; GREAT WESTERN SANDY CLAY LOAM (Deep Surface); Dr 3.31/SCL (30 cm)															
0 – 10	SCL	6.3	0.086	0.044	0.272	3.63	1.7	0.7	1.0	0.5	9.1	2	10	12.0	20.4
10 – 30	SCL	5.4	0.009	-			0.4	0.2	0.1	0.1	7.8	2	10	7.0	19.0
30 – 60	HC	5.3	0.008	-			0.5	0.4	0.1	0.2	12.3	5	0	17.6	30.0
60 – 75	HC	5.7	0.010	-			0.2	1.7	0.2	0.7	11.1	3	4	21.6	35.5
75 – 90	SC (h)	5.7	0.010	-			0.2	3.9	0.2	1.5	11.7	3	7	17.7	29.6
PROFILE S-18; GREAT WESTERN SANDY CLAY LOAM (Deep Surface); Dr 3.32/SCL (30 cm)															
0 – 30	SCL	6.1	0.014	-								2	10	5.7	14.9
30 – 60	HC	6.9	0.011	-								2	10	22.7	33.8
60 – 80	HC	6.8	0.018	-								2	10	22.0	36.4
80 – 90	HC	6.6	0.025	-								2	10	20.2	41.8
PROFILE S-19; GREAT WESTERN SANDY CLAY LOAM (Deep Surface & Stony Profile); Dr 3.42/SCL "gr" (45 cm)															
0 – 30	SCL (gr)	5.5	0.152	0.009								3	2	6.8	17.4
30 – 45	SCL(gr)	5.9	0.031	-								1	15	4.0	13.7
45 – 75	HC	7.4	0.029	-								1	16	20.5	32.7
75 – 90	HC	7.7	0.051	0.016								1	16	16.6	30.4

Depth (cm)	Field Texture	pH	T.S.S. (%)	Chloride "as NaCl" (%)	Total N (%)	Org. C (%)	Exchangeable Cations "milliequivalents per 100 g soils"					Aggregate Stability		Moisture (%)	
							Ca	Mg	K	Na	H	Class	Index	@ -15 Bar	@ -1/3 Bar
(1)	(1)	(2)	(2)	(3)	(1)	(%)	(4)	(5)	(6)	(7)	(4)	(5)	(6)	(7)	
PROFILE S-20; STAWELL SANDY LOAM; Dy 3.41/SL (30 cm)															
0 – 10	SL	6.1	0.008	-	0.057	0.78	1.2	0.4	0.2	0.1	1.8	2	10	3.1	11.9
10 – 30	SL	6.0	0.002	-			0.3	0.2	0.1	0.1	1.3	2	12	2.8	8.4
30 – 60	HC	5.9	0.016	-			0.9	4.5	0.4	0.5	8.0	5	0	24.5	34.9
60 – 90	HC	5.7	0.017	-			0.3	4.5	0.4	0.6	9.8	5	0	24.5	34.3
90 – 100	HC	5.5	0.016	-			0.1	3.2	0.3	0.6	9.4	3	8	23.1	34.1
PROFILE S-21; STAWELL SANDY LOAM; Dy 3.42/SL "gr" (25 cm)															
0 – 15	SL (gr)	7.2	0.007	-										3.2	8.9
15 – 25	SL (gr)	7.2	0.006	-										3.7	9.1
25 – 55	SC (gr)	6.6	0.014	-										10.2	16.9
55 – 85	SC (gr)	6.7	0.016	-										9.5	17.4
85 – 100	SC (gr)	7.0	0.012	-										6.8	13.5
PROFILE S-22; STAWELL SANDY LOAM (Deep Surface); Dy 3.43/SL "gr" (35 cm)															
0 – 10	SL (gr)	6.9	0.008	-										3.4	16.1
10 – 35	SL (gr)	7.3	0.002	-										2.5	10.0
35 – 65	HC (s)	8.4	0.029	-										18.5	31.8
65 – 100	HC	8.5	0.115	0.028										24.4	45.5
PROFILE S-23; STAWELL SANDY LOAM (Deep Surface); Dy 3.42/SL (40 cm)															
0 – 20	SL	6.1	0.006	-								2	10	2.7	15.8
20 – 40	SL	6.6	0.003	-								2	12	1.7	11.9
40 – 70	HC	6.8	0.042	-								1	14	23.9	39.6
70 – 100	HC	5.8	0.060	0.023								2	12	24.7	40.6
PROFILE S-24; STAWELL SANDY LOAM (Deep Surface); Dy 3.42/SL (40 cm)															
0 – 10	SL	6.7	0.006	-								3	5	2.9	12.1
10 – 40	SL	7.4	0.002	-								1	14	2.2	8.5
40 – 60	SC	7.7	0.025	-								2	10	11.6	25.6
60 – 90	SC	7.5	0.023	-								2	10	5.9	15.0
90 – 100	HC	7.9	0.035	-								1	16	12.5	22.2

Depth (cm)	Field Texture	pH	T.S.S. (%)	Chloride "as NaCl" (%)	Total N (%)	Org. C (%)	Exchangeable Cations "milliequivalents per 100 g soils"					Aggregate Stability		Moisture (%)	
							Ca	Mg	K	Na	H	Class	Index	@ -15 Bar	@ -1/3 Bar
(1)	(1)	(2)	(2)	(3)	(1)	(%)	(4)	(5)	(6)	(7)	(4)	(5)	(6)	(7)	
PROFILE S-25; STAWELL SANDY LOAM (Deep Surface & Stony Profile); Dy 3.41/SL "gr" (50 cm)															
0 – 15	SL (gr)	7.2	0.035	-	0.299	4.73	2.2	1.2	2.7	0.1	8.5			3.8	8.4
15 – 50	LtSCL(gr)	6.8	0.007	-			1.1	0.2	0.5	0.1	2.5			10.0	14.6
50 – 90	SC (gr)	6.2	0.009	-			2.4	1.5	0.1	0.1	6.2			10.7	17.6
PROFILE S-26; STAWELL LOAM; Dy 3.32/L (15 cm)															
0 – 15	L	6.8	0.010	-	0.062	0.82	2.4	1.6	0.3	0.3	2.8	2	10	6.0	15.7
15 – 45	HC	6.4	0.058	0.033			5.1	7.7	0.4	2.5	8.2	2	12	23.7	33.2
45 – 70	HC	7.2	0.133	0.069			5.9	11.8	0.4	4.2	5.0	1	14	26.8	38.2
70 – 100	HC	8.0	0.255	0.136			7.1	15.6	0.5	6.6	3.9	1	16	28.8	44.4
PROFILE S-27; STAWELL LOAM; Dy 3.33/L (15 cm)															
0 – 15	L	6.8	0.027	-								3	4	6.4	16.5
15 – 45	HC	8.5	0.092	0.026								2	13	18.1	34.3
45 – 75	HC	9.3	0.192	0.094								2	13	22.9	37.0
PROFILE S-28; STAWELL SANDY CLAY LOAM; Dy 3.43/SCL (15 cm)															
0 – 15	SCL	6.3	0.009	-	0.071	1.06	1.4	0.4	0.2	0.1	3.2	2	10	4.0	10.4
15 – 45	HC	6.2	0.017	-			3.3	3.0	0.2	0.6	8.3	5	0	20.3	30.6
45 – 90	HC	7.4	0.027	-			4.9	5.3	0.3	1.2	6.4	3	4	23.2	35.5
90 – 100	HC	8.3	0.047	-			4.9	6.5	0.3	1.7	3.1	2	12	23.3	37.3
PROFILE S-29; STAWELL SANDY CLAY LOAM; Dy 3.43/FSCL (25 cm)															
0 – 10	FSCL	7.7	0.008	-								2	10	4.4	20.2
10 – 25	FSL	7.9	0.003	-								2	12	1.6	17.4
25 – 55	HC	7.9	0.016	-								2	10	19.5	31.3
55 – 80	HC	8.4	0.030	-								1	16	16.6	26.2
80 – 100	SC	9.0	0.031	-								2	13	12.5	25.6
PROFILE S-30; STAWELL SANDY CLAY LOAM (Deep Surface); Dy 3.43/FSCL (35 cm)															
0 – 15	FSCL	7.5	0.013	-	0.117	1.39	3.2	0.7	0.5	0.1	4.4	2	10	6.0	26.2
15 – 35	FSCL	7.9	0.010	-			1.5	0.9	0.1	0.2	1.6	2	12	3.8	18.3
35 – 65	HC	8.1	0.034	-			6.0	7.2	0.4	2.1	4.5	1	16	18.3	34.3
65 – 80	HC	8.8	0.060	0.032			4.5	7.6	0.3	2.6	2.3			16.3	30.7

Depth (cm)	Field Texture	pH	T.S.S. (%)	Chloride "as NaCl" (%)	Total N (%)	Org. C (%)	Exchangeable Cations "milliequivalents per 100 g soils"					Aggregate Stability		Moisture (%)	
							Ca	Mg	K	Na	H	Class	Index	@ -15 Bar	@ -1/3 Bar
(1)			(2)	(3)							(4)	(5)	(6)	(7)	
PROFILE S-31; STAWELL SANDY CLAY LOAM (Deep Surface); Dy 3.42/SCL (40 cm)															
0 – 15	SCL	6.7	0.020	-							2	10	5.9	18.5	
15 – 40	SCL (gr)	7.2	0.005	-							2	12	4.4	12.4	
40 – 70	HC	7.4	0.014	-							2	10	22.3	33.6	
70 – 100	HC	6.7	0.022	-							5	0	21.1	33.2	
PROFILE S-32; STAWELL SANDY CLAY LOAM (Stony Profile); Dy 3.41/SCL (30 cm)															
0 – 10	SCL	6.5	0.023	-							5	0	10.0	21.3	
10 – 30	SCL	6.2	0.012	-							3	2	11.3	20.6	
30 – 60	MC	5.8	0.014	-							3	3	12.6	25.9	
60 – 90	MC	6.1	0.010	-							3	4	11.1	27.9	
90 – 100	MC	6.4	0.009	-							2	12	11.1	26.1	
PROFILE S-33; STAWELL CLAY LOAM; Dy 3.22/CL "gr" (60 cm)															
0 – 30	CL (gr)	5.8	0.025	-	0.138	1.55	2.9	0.9	0.3	0.2	8.9	5	0	10.9	21.3
30 – 40	CL (gr)	6.5	0.008	-			2.1	1.6	0.1	0.2	4.7	2	10	8.2	17.0
40 – 60	SCL (gr)	6.8	0.009	-			1.4	2.0	0.1	0.3	4.2	2	10	8.3	18.7
60 – 110	MC (s)	7.3	0.010	-			0.9	2.9	0.1	0.6	4.2	2	10	11.1	27.6
PROFILE S-34; STAWELL CLAY LOAM; Dy 3.22/CL (55 cm)															
0 – 10	CL	5.6	0.038	-							3	4	8.1	22.4	
10 – 35	CL (s)	6.0	0.027	-							3	4	7.2	18.2	
35 – 55	SCL (gr)	6.2	0.023	-							3	4	6.1	16.5	
55 – 75	MC (gr)	6.7	0.025	-							5	0	9.3	19.3	
75 – 100	HC (gr)	7.1	0.032	-							3	2	11.3	22.8	
PROFILE S-35; MINOR SOIL TYPE 2; Gn 3.12/CL															
0 – 20	CL	6.2	0.014	-							3	4	12.5	30.3	
20 – 50	SC (gr)	6.5	0.007	-							3	8	11.0	23.8	
50 – 70	SC (gr)	6.9	0.007	-							3	5	10.5	23.6	
70 – 100	SC (gr)	6.9	0.009	-							3	2	10.0	23.6	

Depth (cm)	Field Texture (1)	pH	T.S.S. (%) (2)	Chloride "as NaCl" (%) (3)	Total N (%)	Org. C (%)	Exchangeable Cations "milliequivalents per 100 g soils"					Aggregate Stability		Moisture (%)	
							Ca	Mg	K	Na	H	Class (4)	Index (5)	@ -15 Bar (6)	@ - ¹ / ₃ Bar (7)
PROFILE S-36; MINOR SOIL TYPE 3; Um 5.51/SCL															
0 – 10	SCL (gr)	5.9	0.025	-	0.212	2.17	2.6	0.8	1.6	0.1	7.4	5	0	7.1	27.1
10 – 40	SCL (gr)	6.2	0.010	-			2.3	1.1	0.6	0.2	6.0	5	0	8.4	17.4
40 – 60	SCL (gr)	6.6	0.007	-			2.9	2.6	0.6	0.2	3.2	3	6	6.7	20.4

- (1) Field Texture; see Appendix G for definitions and symbols used.
- (2) Total Soluble Salts (%) = Electrical Conductivity ($\mu\text{S}/\text{cm}$) $\times 3.3 \times 10^{-4}$.
- (3) The dashes recorded in this column indicate negligible amounts of sodium chloride.
- (4) Aggregate stability Class (Emerson 1967).
- (5) Aggregate Dispersion Index (Loveday 1974).
- (6) Moisture (%) at -15 Bar; approximately "Wilting Point", see Appendix G.
- (7) Moisture (%) at -¹/₃ Bar; approximately "Field Capacity", see Appendix G.